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HOARD'S DAIRYMAN.

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Devoted to Dairying and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., FEBRUARY 13, 1903. NUMBER 1

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G. A. McEDWARDS."
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Has an AUTOMATIC PLUNGER DRAW.
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It is the cold blast kind. It can't blow out. Just the right size, and its generous oil pot runs it 19 hours with one filling. It's the all-service, all-season lantern to go with you and make the way plain about a hundred household duties. Side lever raises the globe for trimming, lighting and extinguishing, and then lowers and locks it to the burner for absolute safety. Look for **Dietz** stamped on the oil pot when you go to buy. If it's not there don't take it. The dealer will get you a **Dietz.** Write for our free catalogue to choose.

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The Water Paint Company of America,
Dept. A-6, 100 William St. New York.

RUPTURE CURED while you work. You pay $4 when cured. No cure, no pay. ALEX. SPEIRS, Box 846, Westbrook, Me.

Using Liquid Manure.

ED. HOARD'S DAIRYMAN:—Will you or some reader give me a little advice which I need in regard to liquid manure. I find that under the cow barns, on a farm purchased by myself last year, are two cisterns, 7 ft. wide, 50 ft. long and 5 or 6 ft. deep, filled to overflowing with full strength liquid manure. I know not how long it has been accumulating but concluded, after my discovery, that although a good deposit, it had better be put out where I can realize something from it.

1. How many gallons shall I put on an acre of land? My land is quite level and in very good condition.

2. Will it do to put it on the frozen ground this winter without loss?

3. Which will be the best thing to do, retain these vaults or fill them and save the liquid by absorbtion? A. B. C.

East Onondaga, N. Y.

The manure liquor can be applied to land at the rate of 500 gallons per acre. It should be applied in the spring or at times when there is sufficient rain to carry it into the soil, as in dry seasons there is danger of burning the plants. For the average farmer the use of liquid manure is too expensive a method of applying fertility to the land as it contains on an average about 4 per cent of fertilizing material and the large amount of water present makes it expensive to handle. It is cheaper to use absorbents.

Transfers of Guernsey Cattle.

BULLS.

Cyclone R. 5735, E. E. Lambertson to Frank T. Hendrickson, Freehold, N. J.
Duke of Warren 8352, Giles & Hartley to C. L. Sisson, Almond, N. Y.
Excel of Valley View 6359, J. H. Hunter to Edward Myers, Claverack, N. Y.
Hilma's Safe Anchor 8103, F. B. Buckley to Henry Smith, Hudson, N. Y.
Jumbo of Pine Hill 7231, Ralph Dwight to E. G. Moore, Oxford, N. Y.
King's Son Special 8303, E. F. Davenport to A. R. Nye, West Springfield, Pa.
Penwyn Munroe 8307, G. B. Tallman to Wm. F. Gable, Wyebrooke, Pa.
Sir Primrose 5528, Chas. J. Miller to E. T. Gill, Haddonfield, N. J.
Thelma's Jeweller 7738, A. S. Lambertson to H. Garrison, Farmingdale, N. J.
Walton's Duke 8369, Wm. B. Sisson to David Neish, Delancey, N. Y.
Dynamo 8206, Fred Rietbrock to J. H. Flanagan, Manawa, Wis.
Firenzie 7999, Wm. C. Lamont to Wm. Montanye, Sloansville, N. Y.
Gold Lining 6978, W. H. Russell to Frank Warner, Overton, Neb.
Glenwood's Mainstay 4th 8385, E. T. Gill to Chas. J. Miller, Newfane, N. Y.
John Lawton 8233, Clayton C. Taylor to M. E. Gifford, Sherman, N. Y.
Johnson 8207, Fred Rietbrock to H. O. Sattingsgard, Westby, Wis.
Philwood 2nd. 8028, F. W. Kimball to Charles Christopherson, Grantsburg, Wis.
Rowland of Ellerslie 7927, L. P. Morton to J. C. Newton, West Kill, N. Y.
Schoharie 7998, Wm. C. Lamont to William Winnie, Worcester, N. Y.
Sewar d 7997, Wm C. Lamont to Isaac P. Nichols, North Harpersfield, N. Y.
Superior 8373, Wm. Atkin to J. O. Bruneau, Houghton, Mich.
True Type's Gold Ore 6913, Henry W. Allen to E. W. Amsden Ormond, Fla.
Woody of Ellerslie 7926, L. P. Morton to E. A. Alberti, Prattsville, N. Y.

COWS.

Bonito of Paxtang 14613, Butterfly of Paxtang 15056, Soprano of Paxtang 15667, Isabel S. Wilhelm to Joseph L. Hope, Madison, N. J.
Burton Lady 15675, Est. John Stebbins to Ralph Dwight, De Ruyter, N. Y.
De Ruyter Lily 15676, & Jessie of De Ruyter 15677, Ralph Dwight to E. G. Moore, Oxford, N. Y.
Dorothy Vernon of the Elms 15631, Geo. C. Thomas, Jr., to William Norris, Philadelphia, Pa.
Flossie L. 14965, A. S. Lambertson to Jesse Carpenter, Freehold, N. J.
Hartha 2nd. 8799, Fred Vogel, Jr., to Otto Nehls, Milwaukee, Wis.
Loo L. 14966, A. S. Lambertson to Edward Hulsehart, Lakewood, N. J.
Lady Helen of Homestead 12254, Helen M. Sweet to J. G. Hickcox, Milwaukee, Wis.
Mabel C. 6927, A. F. Peairs to S. M. Shoemaker, Stevenson, Md.
Miss Vanity 8941, Wm. Conley to R. H. Warder, North Bend, O.
Mamilla 10741, Tillie Prude 12045, James Ramsay to Mark Hughes, West Grove, Pa.
Penwyn's Heiress 15279, G. B. Tallman to Wm. F. Gable, Wyebrooke, Pa.
Pride of Elgin 15695, Joseph Cooper & Son to M. J. Barker, Silver Springs, N. Y.
Sisson's Maid 10749, Wm. B. Sisson to F. B. Buckley, Schaghticoke, N. Y.
Veva of Highland 15665, John R. Valentine to W. F. Presgrave, Bryn Mawr, Pa.
Imp. Fairy of Sea Grove 13586, E. Rigg Brow to Walter McMonagle, Sussex N. B.
Lily of Linden 12711, W. H. Russell to Frank Warner, Overton, Neb.
Lou Rose 9801, J. Raymond Haines to George W. Ott, Doylestown, Pa.
Portsea 14007, Utsyanthia 15055, Wm. C. Lamont to Isaac P. Nichols, North Harpersfield, N. Y.
Sunbeam of Linden 9683, Wm. Conley to J. G. Hickcox, Milwaukee, Wis.
Sallie Derby 15680, Ezra Michener to Harry Vasey, Ely, Pa.
Violet of Kirkside 15718, J. P. Jackson to J. M. McCamant, New London, Pa.

WM. H. CALDWELL, Sec'y.

Peterboro, N. H., Jan. 19, '03.

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By W. A. HENRY, Dean, College of Agriculture, Madison, Wis.

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USE FOR MILCH COWS AND FATTENING STOCK.

Superior to corn, oats and hay Ton lots $24,00; half ton $12.50; 500 pounds $7.00; 100 pounds $1.50. Put up in 100-lb. sacks f. o. b. Minneapolis. Cash with order.

This Meal is Guaranteed Absolutely Pure. We also manufacture Strictly Pure Linseed Oil.

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Elmco Mixed Feed

Moisture 10.23. Crude Protein 17 90 Ether Extract 5.13.

Blended in uniform and exact proportions for stock and dairy use; consists of pure Bran, coarse Shorts and Red Dog Flour, blended so perfectly that the full benefit of each grade of feed in just the right proportion is obtained, and better than is possible if mixed by hand.

Elmco Mixed Feed produces rich milk.

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LISTMAN MILL CO.,
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Hoard's Dairyman

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

Entered at Fort Atkinson, Wisconsin, as second-class matter.

valid distinction, but one that is too frequently overlooked.

There are four distinct breeds of dairy cattle, and we give typical illustrations of them on this page. While dissimilar in many respects, so much so that one cannot be mistaken for another, there is a very marked similarity in outline and general conformation.

This outline and conformation constitute what dairymen denominate the dairy type. It may sometimes be found in cows not belonging to either of these four breeds, but wherever found, it indicates dairy capacity in the individual. The difference between the cow of this conformation, of no special breeding, and the dairy bred cow is, that the former has a mixed heredity and her offspring is liable to take back to ancestors that had no dairy ability, whereas the pure bred cow is practically certain to transmit the special qualities which distinguish the breed she represents.



A TEXAS AUTOMO—BULL.
Property of WHITE & SONS, Bonham, Texas.

A Texas Automo—bull.

ED. HOARD'S DAIRYMAN:—We send you picture of Pride's Exile of St. L. No. 53648 A. J. C. C. as he appeared as a 3-year-old in the Bonham Trades display of Aug. 1900. There was advertised to be an automobile in the procession, which failed to arrive, so the next best thing was thought to be an automo-bull. We had only two hours to get up a rig, which was an old buggy. Pride had never been driven; had been ridden, and worked on horse power. To our surprise he moved off like a trained circus horse. He is the sire of 104 calves, 68 of which are heifers. All his heifers that are in milk are far superior to their dams.

Bonham, Texas. WHITE & SONS.

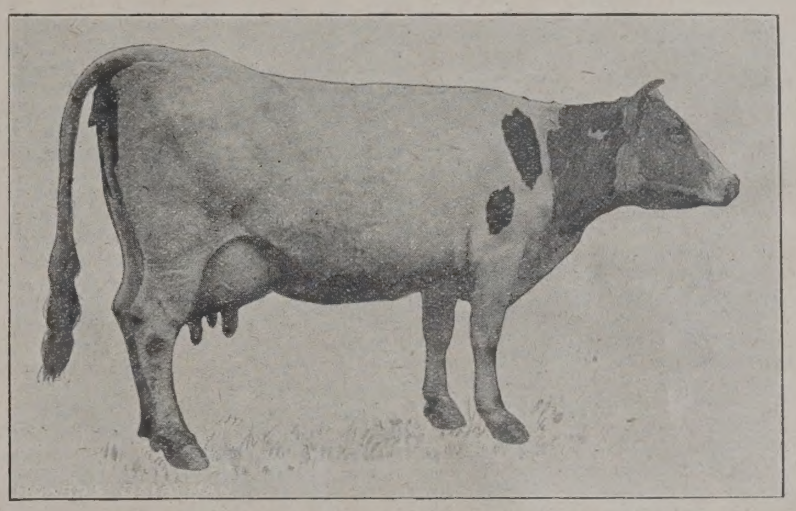
called to order by Mr. E. N. Bailey, who after a few well chosen remarks introduced L. P. Bailey, President of the Ohio State Dairymen's Association.

Mr. Bailey reviewed the history of Ohio as a cheese producing state from 1860 to the present time. Mr. Bailey said that in the sixties, Ohio had the reputation in our home and foreign markets of producing a first-class cheese and at that time the western factorymen shipped their cheese through Ohio and placed them on the market as Ohio cheese. At that time Ohio was making a full cream cheese, but later on the Ohio people took pattern after their western friends and commenced making a skim-milk cheese and in a short time lost their reputation for making a first-class cheese and our export trade fell off 40 per cent, while Canada's export trade increased 40 per cent. Mr. Rice of Triumph, Trumbull Co., Ohio, adopted making a full cream cheese and received a gold medal on his cheese at the Paris Exposition.

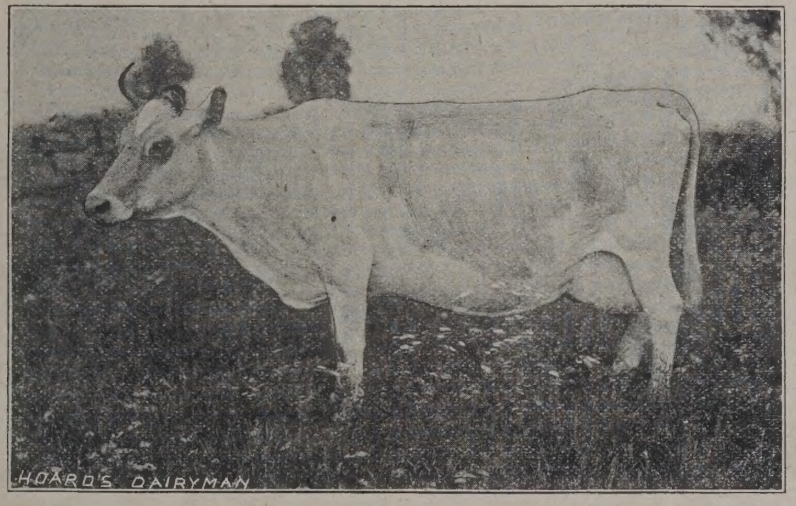
Mr. Bailey reviewed the work of the Ohio State Dairymen's Association, how that they had caused the passage of laws prohibiting the sale of filled and skim milk cheese for full cream cheese; compelling the manufacturer to brand their cheese according to the amount of butter fat that they contained. This killed the filled cheese industry and helped us to regain our lost reputation.

Prof. Noyes spoke in regard to the cheese industry in Wisconsin. He said there were 1600 cheese factories in the state which manufactured sixty million pounds of cheese annually; when they first started in the dairy business had no dairy school; said they first started to make a full cream cheese, but later on began skimming a little, and increased until finally they run the milk though the separator, and made a full skim cheese, which they were compelled to sell for one cent per pound.

The leading dairymen saw that something must be done and they established a State Dairymen's Association, and through their influence laws were passed prohibiting the branding of filled cheese, as full cream. The result is that Wiscon-



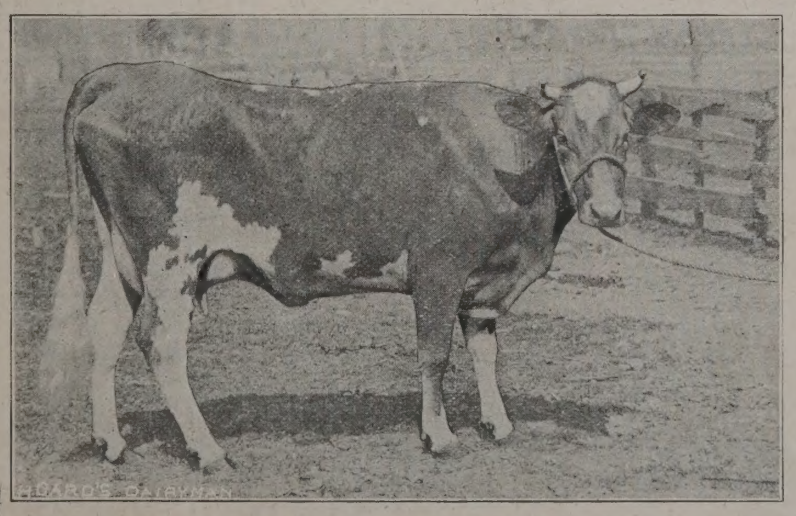
HOLSTEIN COW, KORNDYKE QUEEN DeKOL, 41934.
Record for six months, 9,858.3 lbs. milk, 437.1 lbs. butter.
Property of HENRY STEVENS & SONS, Lacona, N. Y.



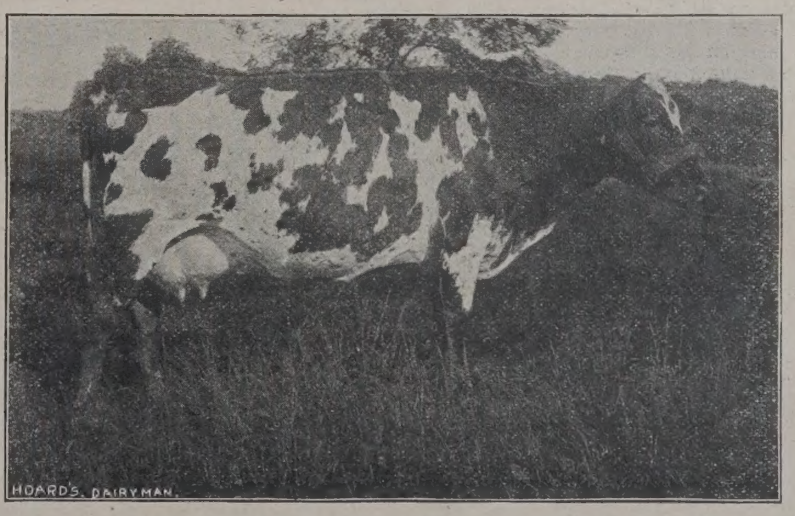
JERSEY COW, AGNES OF ST. FRANCES.
Butter Record, 27 lbs. in one week.
Property of F. E. DAWLEY, Supt. N. Y. Farm Institutes, Fayetteville, N. Y.

SOME DAIRY QUEENS.

HOARD'S DAIRYMAN, as is well known, is not a breed paper, but, as is equally well known, it is a firm believer in dairy breeds and in good breeding. This is a



GUERNSEY COW, MARY MARSHALL 5th, 11814.
Property of J. P. WELSH, Bloomsburg, Penn.



REGISTERED AYRSHIRE COW, ——— DOUGLASS.
Property of HOWARD COOK, Beloit, Ohio.

Ohio State Dairymen's Association.

ED. HOARD'S DAIRYMAN:—The local meeting of the Ohio State Dairymen's Association held at Rock Creek, Ohio, December 30, 1902, under the auspices of the McJunkin-Straight Dairy Co., was

85823

sin cheese commands the highest price in our markets at the present time.

Prof. Noyes said that all first-class creamery butter was as good as Elgin butter; that the Babcock test had done more for the dairymen than any one thing ever introduced. No cheese could be properly cured in a high, dry curing room; should be cured in a basement well ventilated and held at a temperature of 60 to 65°; all curing rooms in Wisconsin were basements. The per cent of butter fat in milk cannot be increased by feed. Silage was a good feed for the dairy cow, but should always be fed after milking.

Prof. Vivian, the next speaker, said that milk was a complete food for the young, but was not an ideal food for an adult. There were several cases on record where a cow gave milk without ever giving birth to a calf. Nervous excitement during milking, always decreased the per cent of butter fat as well as the quantity of milk; first milk never contained as much fat as the after milk or strippings; the cow's udder was responsible for the amount of butter fat in the milk. The average yield of milk per cow in America was 3,000 pounds; but ought to be 5,000 pounds, the color of milk is due partly to the butter fat and partly to lactro-chrome. Good milk should not contain less than 4 per cent butter fat. All fat in milk is in fine globules; one drop of milk contains from 150 to 300 million globules of fat. There is a difference in the breed about the size of the globules. The Jersey and Guernsey cows give larger globules than other breeds. If a cow was half fed or starved, the per cent of butter fat might be increased by feed; methods of milking as to regularity, kindness, etc., will increase the per cent of butter fat.

The afternoon session opened at 1 o'clock p. m. Prof. Decker spoke on the quality and care of milk, showing that milk that was rich in butter fat, contained more casein than milk that was low in butter fat, making 4 per cent milk more valuable for cheese purposes than 3 per cent milk; not wholly because 4 per cent milk made more cheese, but it made a better quality. The first milk drawn from the cow contained all the bacteria. Filth on the cow's udder carried a great deal of bacteria in the milk. Germs in milk multiplied very rapidly, unless the milk is cooled immediately after it is drawn from the cow. He recommended that as soon as the milk is drawn from the cow it be removed from the stable, aerated and cooled. Cooling the milk arrests the growth of germs. One hundred cases of typhoid fever had been traced to the use of milk that had not been properly cared for and cooled.

Prof. Noyes spoke on the testing of milk in Wisconsin by the Babcock test. Patrons of creameries were willing to sell milk by the test, while patrons of cheese factories were not. The Wisconsin Dairy School had demonstrated by actual tests that 4 per cent milk was worth more for cheese purposes than 3 per cent milk. Samples for testing should be taken from weighing can every day, put into the composite jar and tested once a week. Cows will vary in the per cent of butter fat every day. Cheese factories in Wisconsin that paid their patrons by the Babcock test paid more for milk than factories that paid by weight, showing a great advantage to those who sold by the test because they produced a better quality of milk.

President Bailey then spoke on the care of the dairy cow and milk. He said that he positively knew that if the farmers of Ohio would take better care of their milk and cows, that they would get enough better prices for their milk to more than pay them for the extra labor. A great deal of trouble was caused by not taking proper care of the milk can. Never turn the can bottom side up after washing, but always set it right side up to air. It was absolutely necessary to aerate milk as soon as it was drawn from the cow, and never mix warm milk with cold milk before delivering it to the creamery.

Mr. Simons spoke briefly. He said he always liked to meet with the farmers and was always interested in their work. He thought that every farmer should be a constant reader of agricultural papers and keep posted or he will find farming a poor investment.

At the evening session, Mr. Bailey said that it was necessary for the dairy cow to have a warm stable. He described a cheap, convenient stable. Make a tight floor three feet and one half back from the manger, then make a trench 3 feet wide and 18 inches deep. Cover this trench with wooden grating 1¼ in. apart to allow all the liquids and most of the solids to drop through into ditch. Hang gratings on hinges so they will raise up and turn back against side of stable at time of cleaning out trench.

With this device the cows will keep much cleaner than with the open drop. No dairyman could afford to be without a silo; always build the silo outside the barn. There was more difference in the care of the cow than in the breed; good, kind treatment was more necessary than the breed. Always milk regularly; stop everything else, and attend to the milking and feeding on time. Some cows require different feed than others. We must study the needs of our cows, and supply them, if we wish to be successful dairymen.

Mr. Bailey advised turning the cow out to water to give her exercise; exercise was necessary to health and improved the appetite; a cow being freah in the fall would give one-third more milk than if fresh in spring. He had proved by actual experience that he could produce milk cheaper in the winter than summer.

At the close of the session, the following resolutions were adopted:

Resolved First, That we heartily appreciate the work of the Ohio State Dairymen's Ass ciation in holding local meetings, and would earnestly ask our legislature to continue its appropriation for this purpose,

Second, That the present standard of 20 per cent fat is too low, and it is our opinion that the standard for full cream cheese be raised to 30 per cent fat.

Third, That we thank President Bailey, Profs. Noyes, Decker and Vivian for their interesting and instructive lectures.

J. S. MATSON
S. STOUGHTON, Committee.
E. R. WILLIAMS.

Footville, Ohio.

Where Ignorance is Bliss.

ED. HOARD'S DAIRYMAN:—"Where ignorance is bliss, 'tis folly to be wise." Can we believe that that is true since reading Farmer (?) Carlin's letter on page 1011? No, I can't see anything blissful about such stuff as that.

How can a man, after reading HOARD'S DAIRYMAN for six months make the assertion that balanced rations will not make more milk than the "any old way" feeding does?

Does he take it that all who, in their letters, tell of their increased profits are untruthful? Has he tried a balanced ration and failed to get better returns? If so, he misused, if not abused, his cows during the trial. Did he ever read your question: "Will it pay you to take HOARD'S DAIRYMAN?" Which he can find after the table of contents, for instance on page 1002?

Does he wish to be a 66 cent man? Or does he wish to become a farmer who has affectionate friends as well as money makers in his cows? Does he wish to support his ten cows, or does he wish them to support him?

I think he will find that HOARD'S DAIRYMAN is turning the dairy business right side up, at least that is what you are doing for me. I have not received one single issue since last July, that I would or could afford to part with for a dollar, the subscription price for a whole year, could I not replace it.

The "neighbor" whom Mr. Carlin speaks of must be a philanthropist to loan his paper for six months to a man, who from choice is as ignorant as he wishes to appear.

As for me, I see bread and butter (good butter mind you, not oleomargarine) in every issue.

May God speed the DAIRYMAN, and may we all awaken to see our best interests in dairying, as well as other lines of husbandry. And if we are humane in our treatment of our cows, my word for it, that they will respond with a full milk pail.

Hoping our friend will awaken, and thanking you for the vast amount of information that you are weekly preparing for us. I have the honor to remain a life-long subscriber. O. A. L.

Olympia, Wash.

An Ohio Dairy Herd.

ED. HOARD'S DAIRYMAN:—As we have been taking and are careful readers of your most valuable paper for over two years, have not as yet seen any account of what our part of the country is doing in dairying. We are located in the western part of Licking county, 14 miles east of the capital city of our state, Columbus, O.

It will be three years this coming May since the Summit Co-operative Creamery Co. opened its doors to its patrons. A year later they established in connection a skimming station at Jersey, a nearby village, having at present nearly a hundred patrons delivering milk at each place, being paid for the butter fat by the Babcock test. The patrons all seem to be well pleased with their results and everything working fine.

I will give you a record of our little herd for the year 1902, consisting of 4 full blood and 5 high grade Jerseys, two heifers with first calf, 3 with second calf, and 4 matured cows. Their rations for the five winter months consisted of clover hay and corn stover for roughage, and from 6 to 10 lbs. ground corn and cob meal, oats and bran, equal parts in bulk; stabled 5 months, turned out on nice days. We count our skim milk worth 20 cents per 100, but it has been worth considerable more, as we have raised 5 fine heifer calves on skim milk alone, and sold 14 head of pigs that averaged 227 lbs. at 7 months old, which received the milk the calves didn't get. In my opinion skim milk is very much undervalued as a stock food.

The cost of keep of cows, $34 per head; received milk, butter and cash as follows:

MONTH.	Milk.	Test.	Butter.	Price.	Cash.
Jan	260	5.8	15.08	.24	$ 3.62
Feb	1,194	4.9	58.50	.26	15.21
March	3,854	4.4	169.576	.25	42.39
April	4,883	4.5	219.735	.26	57.13
May	6,440	4.8	309.12	.22	68.01
June	6,2 8	5.1	318.648	.20	63 73
July	5,082	4.9	249.018	.20	49.80
Aug	5,169	4.9	253.281	20	50.66
Sept	4,035	5.4	217 89	.21	45.76
Oct	3,124	6.2	193.688	.23	44.55
Nov	1,903	6.3	119.889	.27	32.37
Dec	1,426	6.4	91.262	.25	22.81
Total	43.618		2215 693		$496 04

Skim milk	$ 69.78
Four veal calves	$ 25.05
Total cash for herd	$590.87
Average milk per cow	4846.4 lbs.
" butter " "	246.18 lbs.
" net cash "	$65.65
" cost keep "	$34 00
Average net profit per cow	$31.65

We own a fine, full blood sire at the head of our herd, from which we are raising our young cows.

Summit Station, O. J. T. & J. M. M.

N. C. B. A. Executive Committee.

ED. HOARD'S DAIRYMAN:—It gives me pleasure to inform your readers that President Nietert has appointed his Executive Committee. In selecting the below named Committee he has studied the best interests of the Association.

Mr. J. S. Moody, of St. Paul, represents the wholesale butter interests; Mr. W. F. Jensen of the Continental Creamery Co., Topeka, Kans., who is a practical buttermaker, represents the Proprietary Creamery interests, and C. D. Elder, of Manchester, Iowa, also a practical butter maker and one of the pioneers in Iowa, represents the Co-operative Creamery interests.

All the members of the Executive Committee are so well and favorably known throughout the country that it goes without saying, that they will give us the best meeting next October we have ever held.

The first meeting of the Committee will be held at the Grand Hotel, Cedar Rapids, Iowa, February 3rd, when offers from cities who wish the next Convention will be received and considered.

E. SUDENDORF, Sec.
National Creamery Buttermakers' Assn.





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may be, butter will be preserved through commission houses and markets as well as in the household, if it is wrapped in our

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Outside smells and odors never penetrate through it, and it shuts in all the delicious flavor. Preserves butter better and longer than by any other means. If you make good butter you may get the name of so doing by letting us print your name, dairy or brand on every sheet. It never rubs off or discolors butter, and you can have no more effective advertisement. Parchment paper samples will quickly convince you of their value. Send for them. Sent free. Ask also for copy of our free book, entitled "Better Butter."

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ATLAS Gluten Meal,	36.5 protein
Cream Gluten Meal,	33.3 protein
Buffalo Gluten Feed,	24.2 protein
Chicago Gluten Meal,	33.7 protein
Grano Gluten Feed,	26.4 prStein
Linseed Meal (old process)	28.8 protein
Linseed Meal new process)	27,9 protein

Experiment station reports, wherever this feed has been tested, pronounce it the greatest value in protein that the dairyman can buy.

Don't take something the dealer calls "just as good." If it cannot be purchased locally write us.

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Indiana State Dairy Association.

ED. HOARD'S DAIRYMAN:—In point of interest, the 13th annual convention of the Indiana State Dairy Association was one of the best ever held. The creamerymen were much more in evidence than ever before. The meeting was held at Purdue University, LaFayette, Jan. 21-23.

The entries were:

CREAMERY BUTTER.

Herbert Newby, Spiceland (silver cup)	97½
Anton Bueler, Barnes, Ill	97¼
John Enger, Osceolo	91¼
W. S. Hastings, Sullivan	90½
J. F. Penrod, Plymouth	90
C. E. Holderman, Bremen	90
E. L. Martin, New Carlisle	89½
Frank Leneck, Hanna	88

DAIRY BUTTER.

Mrs. Sam'l Martin, LaFayette (silver cup)	94
Mrs. E. S. Hobart, Williamsport	91½
Mrs. Jerome Dunlap, LaFayette	88½
Mrs. Chas. Lamont, Joppa	88
Laura Jessup, Carmel	88
Isaac Brown, Decatur	86¾

CHEESE.

Boyd & Drischel, Cambridge City (silver cup)	92
G. P. Swan, New Washington	91
A. E. Helmer, Evans Mills, N. Y.	89
P. G. Yoars & Sons, Amboy	88

Essays on cost of producing butter:

Mrs. Chas. Lamont, Joppa, 1st. J. M. Hack, Crown Point, 2d.

Resolutions were adopted commending the work of the Department of Agriculture, in its enforcement of the Oleo and Renovated Butter Laws, the National Dairy Union, E. Sudendort's candidacy for Supt. of Dairy Dept. at St. Louis Exposition. Approving the equipment of the Dairy Dept. at Purdue University and urging the establishment of a dairy herd. Calling on the legislature to provide for a chemical laboratory to make possible the carrying out of pure food laws.

The following officers were elected:

Sam'l Schlosser, Plymouth, Pres.; G. V. Woolen, Indianapolis, Vice-Pres.; H. E. VanNorman, LaFayette, Sec. and Treas.

H. E. VAN NORMAN.

LaFayette, Ind.

Grass Seed for Wet Land—Lime.

ED. HOARD'S DAIRYMAN:—I have a field which I wish to seed in the spring; it was an old pasture. I plowed it last spring and sowed it to millet, but it was so wet that I did not get much of a crop. I expect to sow it to oats and seed it down; it is quite wet land. What kind of seed had I better sow for a permanent meadow? I have heard foul meadow grass was good for wet land. I want something that will not freeze out in winter. Would slacked lime be good to put on this field? I expect to purchase a car load of lime for next spring's use. I have another field. Do you think the lime would be good for ensilage corn, if I spread it broad-cast, harrow it in, and sow corn in drills? This field had a good coat of manure last year. I also expect to plant part of it to potatoes.

Rockland, N. Y. J. W. J.

A mixture of alsike clover, red top, and one of the grasses peculiar to low lands, such as meadow Fescue or meadow foul grass.

It is a rather uncertain term to say that a piece of land is wet, as this ranges from land where the above grasses will grow, to that only fit for sedges. However, the above grasses are well adapted to wet meadow land. As to whether the above land needs lime, can only be determined by examination. If the soil is so acid as to turn blue litmus paper red, the use of lime is indicated.

Lime should be used sparingly where it is expected to grow potatoes, as the liability of scab is much increased in an alkaline soil.

As a rule, lime is likely to be most beneficial on sour, peaty soils, and those having large amounts of undecomposed vegetable matter, or on heavy, clayey lands, in conjunction with coarse, strawy manures, but the only way to decide such matters decisively is to try in small amounts and watch the results.

A California Feeding Problem.

Will it Pay to Feed Grain?

ED. HOARD'S DAIRYMAN:—Would it pay me to feed my cows grain, or a balanced ration. I will state the conditions of my herd, and there are hundreds of others in this valley situated much as I am. During 1902, kept a herd of 12 grade Holstein cows, of which 5 were young heifers. They have never had a feed of grain in their lives, or much of anything except alfalfa. They have alfalfa pasture with some alfalfa hay during the spring, summer and fall. For the winter months they have all the alfalfa hay they will eat, and sometimes a little green feed or pumpkins or pie mellons, but hay is the main feed. My cows have averaged 6,612 pounds of milk for 1902, testing 3.5½ butter fat, for which we receive at local cheese factory, 26 cents per pound on an average per year. This makes me $60+ per cow per year. Do you think it would pay me to sell choice alfalfa hay at $5 per ton, and buy middlings at $20 per ton, or corn or barley at the same price to make up a balanced ration. R. R. B.

Hanford, Cal.

Until quite recently, basing our opinions upon reports from different sources in California and other coast states, we have thought that it did pay to feed more or less grain with alfalfa, but at the recent meeting of the California Dairy Association, it was reported that there is quite a pronounced sentiment in favor of depending upon alfalfa alone. It was not contended that in this way, the largest amount of milk was secured, but that prices current for the extra milk obtained from feeding grain were not sufficient to pay the extra cost.

It would seem to us to be a very practical and practicable thing for this inquirer and others situated like him to make experiments along this line, not alone for their own satisfaction and guidance, but to be reported through our columns for the consideration of others. Select two or three cows of the herd, keep an accurate record of the milk yielded on alfalfa alone for some weeks, and then commence to feed moderate amounts of barley and bran or ground wheat and bran or oats or other grains that may be be available, and note what the results are. It has always been contended that a good dairy cow could not eat enough hay to enable her to do her best. Of course, alfalfa makes exceptional hay and it may prove to be an exception to the general rule.

"ADVERTISEMENT."

THE LUNCH QUESTION.

How a Big Chicago Firm Solved It.

So many employes "bolt the lunch" and eat what they should not, that they soon show the effect in nervousness and dyspepsia. This has attracted the attention of managers of the big stores and shops. In one Chicago firm an experiment on some of the girls resulted in a complete solution of the question.

The woman that made the experiment tells the tale as follows: "About a year ago I became alarmed at the state of my daughter's health. She was employed by a big firm here and for some reason steadily lost flesh, grew very nervous, had no appetite and could not sleep.

"Questioning her I found she ate but little lunch for at that busy hour she was seldom served promptly and the time being short she just "bolted" the food and rushed back. She ate very light breakfasts and I could see she suffered from lack of nourishment. I felt responsible for this and finally got her some Grape-Nuts for breakfast.

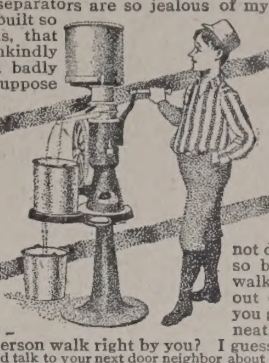
"I also got a neat leather case holding two pint flasks. One I filled with milk, the other with cold Postum Coffee which had been properly made. She also carried a package of Grape-Nuts. The Postum she drank iced with a dash of lemon. She followed the Grape-Nuts with some fruit and this made up her lunch.

"In spite of the warm weather she improved greatly in two weeks' time. She gained in flesh, her nerves were steady and she slept sweetly at night. She never felt the old weakness from hunger.

"In a short time a few other girls in the office tried it and the effect was so marked upon all that still others were persuaded. Finally a room was cleared out and the one hundred and odd girls were served daily with Grape-Nuts and hot Postum. It was a revolution but the manager saw the good result and adopted the plan, greatly to the benefit of the health of the employes and at a saving in expense." Name given by Postum Co., Battle Creek, Mich.

My Name is Empire No. 2

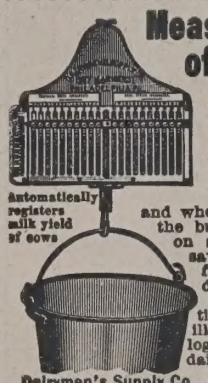
I am a twin brother of the **Cream Separator Queen, Empire No. 1 A,** but being a boy I can do more work. I am light. Only have a very few parts in my make up, and when it comes to turning and caring for me I am a "dead easy" proposition. All Cream Separator users who have tried me are my friends, but still I am not without enemies. Some big, heavy, complicated cream separators are so jealous of my appearance and of the fact that I am built so simple and have so few parts, that they can't keep from talking unkindly of me. But then I don't feel badly about it. I pity them. Just suppose you weighed two hundred pounds; had been taking



anti-fat all your life without getting any lighter; could not dress neat on account of being so big and clumsy and couldn't walk half a block without getting out of breath; wouldn't it make you green with envy to have some neat, well dressed, sprightly, nicely proportioned person walk right by you? I guess you would be too provoked to say "Good morning!" too, and would talk to your next door neighbor about "How awfully slim Mrs. So and So is." **Well I'm the Slim One.** I'm not loaded down with a ton of useless cast-iron, cog wheels, bushings, bearings, tin plates, corrugated tin pipes and complicated tubes. If I was I'd take a physic, and if it didn't do anything else it might better my disposition anyway. I'm only one of a large family. I have brothers and sisters smaller and larger. Our book gives history of the whole "Empire" family. Send for it.

(Formerly U. S. Butter Ex. Co.) **EMPIRE CREAM SEPARATOR CO., Bloomfield, N. J.**

Measure the Milk of each Cow



With the Automatic Milk Scale you can keep an accurate record of the yield of each cow, and remove the unprofitable ones from the dairy. Each button on scale arm corresponds to number of cow, and when pail of milk is weighed the button registers the weight on score card. Big money saver and money maker for farmers and dairymen. Send for testimonials and illustrated catalogue of Bestov dairy supplies.

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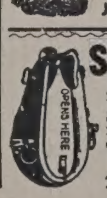


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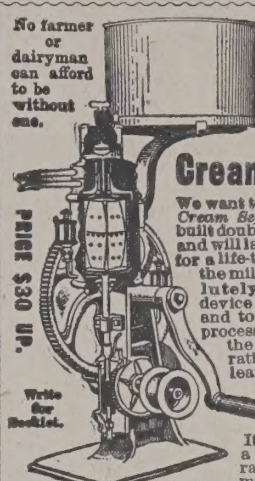


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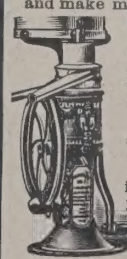
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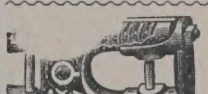
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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of them read dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

Coming Events.

Wisconsin Buttermaker's Association, Waukesha, Wis., Feb. 24-26, 1903.
Ohio Dairymen's Convention, Columbus, State, University, Feb. 12-13, 1903.
Wisconsin Dairymen's Convention, Fond du Lac, Feb. 11-13, 1903.
Texas Dairymen's Convention, College Station, July, 1903

A train load of twenty-four cars filled with the Sharpless Tubular Hand Separators, left the factory at West Chester, Pa., for the west, on Jan. 31. When it is considered that this shipment is the product alone af one firm, and that the other separator firms are all doing their best to keep up the same demand, we may secure some idea of how rapidly the change to the farm separator system is taking place all over the country. When HOARD'S DAIRYMAN made the prophecy, over ten years ago, that sooner or later this would be the leading creamery system of the country, it was received with a good deal of skepticism, but it seems to be coming along.

A REFLECTION.

HOARD'S DAIRYMAN has a very choice set of subscribers, a selected lot of men and women in the agricultural field, to work for. Some of them write us very cheery, hopeful letters. They take a sane, healthy view of their business. They love their work and they love good sunlight, good pure air, water, and good dairy reading anything that is good and will help them do their work better, and so win better profit from it.

Then there is another class who go to their work unwillingly. They really have no love for it; they see nothing in it but drudgery, mere slave labor. They have no relish of the mind for it, or for a study of its possibilities. They can see nothing in this dairy business but, as one man expresses it, "being tied to the tail of a cow."

Such men can never hope to make money or find happiness in dairying. They ought to get out of it at once. They are square pins in round holes. The cows don't like them; the grass, the corn, the grain, the sunshine, all refuse to give them cordial, good returns, for the forces of nature everywhere do their best work only for their friends. When a man shows by his spirit, and speech, and action, that he is unfriendly to God and the work of His hands, then "the light fadeth from his eyes."

Some of these men write us sour, discontented letters. Everything is wrong; no wonder. They are wrong themselves. They have no love for their work. They do what they do from a reluctant sense of duty. They are unwilling soldiers in the ranks; drafted men probably.

We wish they could look at this grand work of dairying differently. We wish they could see the splendid possibilities of brain and heart and ambition, and happiness there is in it. Such a view of it would make grand men and dairymen of them. They have our heartfelt sympathy. We wish we could do something for them.

BRAINS IN THE HERDSMAN.

Mr. A. H. Shepard of Columbus, Mo., in his address before the Missouri Dairymen's Association, uttered the following keen, incisive truth:

I would rather take a scrub herd in the hands of a thoroughbred herdsman than a thoroughbred herd in the hands of a scrub herdsman. I have found that out by experience. I have seen very fine herds in the hands of bad herdsmen and the result was simply a loss; while I have seen common herds give good results in the hands of a good herdsman.

What is it that makes such a wide disparity between the cash returns of different patrons in every Creamery Patron investigation HOARD'S DAIRYMAN has taken? Was it the creamery? No. Was it the land or the sky or the weather? No. Was it the tariff? No. What was it? The man behind the cow. For the right man will have the right kind of cows; put them in right conditions, feed them, care for them and treat them rightly. What makes the man right? A disposition to be intelligent; that's all. How shall he become intelligent? By arousing his mind to take interest in the problems of his business; by not despising useful knowledge; by not thinking it is a fools business to handle cows; by reading the best thoughts of others and getting into his mind a true idea of what he is about. It will be easy enough for him to grow in knowledge, if he will but stand up where he can see the truth. It is the man that makes the business, just the same with cows as every where else.

MAKE A START.

There was a sense of strong appeal and an earnest desire for better work, that came to us in the remark of a neighbor the other day as he was talking to us of what he would like to do. "I would like to be a good dairyman, said he. "I would to like have such cows as you talk about. I know they are just the kind of cows I ought to have but between me as I now am and such cows, and such stables, and the kind of a dairyman I would like to be, is a pretty wide gulf." And then he asked if we thought there was any use of his trying to make a change.

This neighbor is like thousands of other good men who are farming with cows in a half hearted way, taking what they can get. The trouble to start with is that they are not more than half in earnest. They would like better cows and better surroundings and all those conditions that mark the prosperous, progressive dairyman. But they lack the hard patient, grit to make a start in the right direction and then hang to it. All these things will come sooner than they are expected if we but take hold of the job with determination. Most farmers think it costs too much to be a first-class dairyman. They are all the time holding up the penny of cost so close to their eyes that they can never see the dollar of profit that lies behind it. The only way is to make a start, and keep pushing. Resolve that another year shall not go by without over-hauling that dark, foul stable. Don't think that the money laid out in such improvments is thrown away. It will pay twice as big an interest as the money lent on a note of hand. A large portion of the stables in the North are made of stone, with not one window where there should be five. It will not cost much to cut out a lot of holes in those walls and put in plenty of windows. That will be one good start. Then ceil the top of the stable with matched flooring and make it tight all around so you can control the air currents, and put in the King system of ventila ion. Surprise the cows for once in their lives with an abundance of good, pure air in their winter home. If you cannot do any more this year, keep it in mind and work steadily to the purpose that as soon as you can your cows shall have a fair chance to make good profit for you. We would guarantee the final success of a great many men if we could only prevail on them to make a start. But like our neighbor, they keep looking at the wide gulf and never make an effort to cross it. It is not half as big it looks.

A Fond du Lac Cow Census and Its Lessons.

[Paper read by Mr. C. P. Goodrich at the Wisconsin Dairymen's Convention, Feb. 11, 1903.]

At the request of the President and Secretary of the Wisconsin Dairymen's Association, I came to Fond du Lac county last November to gather statistics from creamery and cheese factory patrons in relation to the dairy business, as it had been carried on here for the twelve months preceding October 1, 1902, with a view to presenting the results of my investigations to this meeting. I was well aware that here, as elsewhere, some men were carrying on the business at a good profit, and others at a loss, or, at best, getting very small pay for the work connected with it. I hope to be able to present the facts and figures, which I have gathered, in such a way—contrasting the methods of the most successful with those who have been less successful—as to enable those who have been working for nearly nothing, feeding and caring for cows, to do better in the future, by following the methods of those who have been making good profit.

THE SCOPE OF THE INQUIRY.

I visited 48 creamery patrons and 12 cheese factory patrons. I ascertained the average number of cows each had kept during the year, including the whole number, as well when they were dry as when giving milk, because they were eating all the time in either case, and counting heifers, after having their first calves, as full cows; the kind of cows and the kinds and amounts of the different feeds given the cows, and estimated the value of the same.

HOW COST OF FEED WAS OBTAINED.

I charged the cows for the feed raised on the farm the market price for which it could have been sold at the time, and for that which was purchased, the market price at the time it was fed. The prices I fixed on feeds are as follows: Timothy hay $12 a ton; other kinds of hay $8; corn stover $3 and ensilage $2.50. Pasture I fixed at the uniform price of $5 a head for the season. Oats were $28 a ton; corn, $21; bran averaged $19.50; gluten feed, $24; malt sprouts. $18.50; and oil meal, $30.

I assumed that each cow consumed of roughage during the winter two tons of hay, or its equivalent. In the case of corn stover I figured that, as a rule, only about half its weight was eaten, as the thick, hard stalks and some of the rest was refused by the cows or trodden under foot and wasted. Therefore, when all the roughage a cow had during the winter was corn stover I calculated it took four tons, or $12 worth. If half of her roughage was corn stover I charged her six dollars for it.

I had some difficulty in finding out the amount of grain feed each man fed. Some men, it is true, could tell me the exact amount of feed they had bought or had ground; then it was easy. Some could only tell by measure; then my experience in measuring and weighing feeds would enable me to estimate the amount in pounds. Some, who fed shock corn, could only tell the number of acres fed. In such cases I had to make an estimate from that.

I do not claim that I have got the cost of feed of cows in every herd exactly right. From the nature of the case that would be impossible, but I believe that I have approximated pretty closely to it.

QUANTITY AND VALUE OF PRODUCT.

After getting all these facts from the patrons, I obtained from the creamery and the cheese factory the amount of milk delivered by each patron, the amount of product and the amount of money received for each of these 12 months. From these data I was able to figure out the average per cow, of milk, of product and of money per cow, together with the prices obtained and the profit or lack of profit per cow in each patron's herd.

WHY PRICES FOR BUTTER DIFFER.

It will be observed that some patrons received a higher price per pound for butter than some other patrons did. This is owing to the fact that those who received the higher prices produced a larger portion of their milk during the winter months when the price of butter was the highest. The price of milk also varied, not only for this reason, but also on account of the difference in the percentage of fat it contained.

These facts and figures I have arranged in as convenient a form as I could devise, in the following table. The names of these patrons are not given. They are represented by numbers. I made a promise to that effect, when seeking the information, to each patron and also to the proprietors of the factories.

(See Table on Page 13.)

AVERAGES FROM THE CREAMERIES.

The 48 creamery patrons had 637 cows. By averaging the whole, we find the average cost of feed per cow to have been $29.88; average returns for butter from creamery, per cow, $35.82; average pounds of milk, per cow, 4204; average pounds of butter, 185; average net price of butter per pound to patron, 19.27 cents; average price of milk per 100 pounds, 85.2 cents; average value of butter for one dollar's worth of feed, $1.20; average net profit from butter per cow, over cost of feed, $4.94. Now, if we add 20 cents a hundred to the value of the milk as the value of the skim milk (and with the high price of all kinds of feed, last year, it was surely worth that) that would make $8.20 more, making an average profit per cow of $14.34. This is not so bad, after all, and shows there was a fairly good profit for the Fond du Lac dairyman even last year, when the high price of feed had cut down the yield and the profits below what they had been in previous years.

And still I have not counted all that the patrons received from their cows. There were the calves; the whole milk used in the family; the whole milk fed to calves; and the manure to keep up the fertility of the farm. These last items varied considerably on the different farms, but as it would have been impossible to arrive at anything like a just estimate of their value, I have left them out entirely. It is true that some patrons used more whole milk in their families, and fed more to calves than others, still it is not likely there would be more than two dollars difference per cow in extreme cases. Yet these last mentioned items, when all put together, would help to a considerable extent, to pay for the labor in caring for the cows.

I have selected a few numbers, some of the best and some of the poorest, and will now go into the particulars of what I learned concerning them, and see if we can discover the cause of the great difference.

ONE MAKES A PROFIT AND ANOTHER A LOSS.

No. 1—Had 14 cows, grade Guernseys and grade Jerseys, fresh in spring and winter; cost of feed was $42 per cow for the year; returns from creamery for butter per cow, $57.89; pounds of milk per cow, 5,488; pounds of butter per cow, 300; average price of butter per pound, 19 cents; average price of milk per 100 pounds, $1.05; value of butter for one dollar's worth feed, $1.38; value of butter per cow over cost of feed, $15 89. Average ration: bran, ground oats and corn, 13 pounds to fresh milkers, shredded corn stover, and for two months in spring

timothy hay; run to straw stack; in summer pasture only. Adding 20 cents per 100 lbs, for skim milk would make profits per cow $26.87.

No 2—21 cows, quarter blood Guernseys, fresh at all times; cost of feed, $31; returns from creamery, $29.26; pounds of milk, 3,361; pounds of butter, 155; price of butter, 18.9 cents; price of milk, 87 cents; for one dollar in feed, 97 cents; value of butter per cow, less than cost of feed, $1.74. Ration: bran and middlings 4 tons, which would make less than two pounds per day during winter; 4 acres, heavy crop, well-eared sweet corn, and timothy hay; in summer, pasture only. If value of skim milk is added his profits would be $4.98 per cow.

Now, we can see what made the difference in results between these two men? It is no doubt partly owing to the difference in the kind of cows—quarter-blood Guernseys may have been the product of a half-blood sire, or a cross of something with half-blood Guernsey dams—but mainly to the feed.

No. 1 fed a fairly well balanced ration. He fed high; believed in feeding well let it cost what it would, so he told me. His feed was very expensive yet he made a good profit.

No. 2 fed a very carbonaceous ration, did not believe in buying feed but in feeding what he could raise on the farm, whether it made a well balanced ration or not.

THE BANNER HERD.

No. 4—25 cows, grade Guernseys and grade Jerseys, fresh at all times; cost of feed, $28.00; returns from creamery, $57.18; pounds of milk, 5,809; pounds of butter, 298; price of butter, 19.2 cents; price of milk, 98.4 cents; for one dollar in feed, $2.04; net profit of butter over cost of feed, $29.18 per cow. Ration:—bran and malt sprouts, 6 pounds; well eared ensilage, 30 lbs.; straw; fodder corn in fall; in summer pasture only. Adding value of skim milk makes profit $40.80 per cow.

SAME KIND OF COWS BUT LESS PROFIT.

No. 7—12 cows, grade Guernseys and grade Jerseys, most of them fresh in October and November;cost of feed, $30.00: returns from creamery, $44.05; pounds of milk,4,201; pounds of butter, 220.3; price of butter, 20 cents; price of milk, $1.05 per 100 pounds; for one dollar in feed, 1.47; net profit of butter over cost of feed, $14.05. Adding value of skim milk makes profit $22.81. Ration: bran and some corn and oats, 4 lbs; ensilage, 35 pounds, a little oat hay; corn stover cut, wet, mixed and heated with ensilage; in summer pasture only, except a little in mangers to induce them to come in to be milked.

A BEEFY TYPE HERD.

No. 12—7 cows, grade Durhams of beefy type, fresh in winter and spring; cost of keeping, $29.00; returns from creamery, $27.95; pounds of milk, 3,266; pounds of butter, 152.2; price of butter, 18.4 cents; price of milk, 85.6 cents; for one dollar in feed, 96 cents; value of butter per cow less than cost of feed, $1.05. Adding value of skim milk makes a profit of $5.48 per cow. Ration: malt sprouts and ground oats, 6 pounds; corn stover, marsh hay and straw.

It is plain to see why No. 12 did not get as good returns as No's 4 and 7. He fed fairly well, though not as well as 4 and 7 did, for they fed ensilage; but apparently the main reason is, he was giving his feed to cows of a beefy type, while theirs were cows of good dairy type.

THREE GOOD HERDS, WELL MANAGED.

No. 20—5 cows, grade Jerseys, good dairy type, 3 fresh in March, 2 fresh in September. Cost of feed, $27 00; returns from creamery, $48.79; pounds of milk, 4,375; pounds of butter, 245; price of butter, 19 9 cents; price of milk, $1.11; for one dollar in feed, $1.80; net profit of butter over cost of feed, $21.79. Adding value of skim milk makes profit $30.54 per cow. Ration: 2 tons bran to the five cows; shredded corn stover and timothy hay, (¼ of roughage, hay); in summer pasture only.

No. 21—22 cows, Holstein and Holstein grades, 4 or 5 fresh in fall, balance in winter and spring; cost of keeping, $25; returns from creamery, $45.17; pounds of milk, 6,016; pounds of butter, 231.6; price of butter, 19.4 cents; price of milk, 75.1 cents; for one dollar in feed, $1.81; net profit of butter over cost of feed, $20.17. Adding value of skim milk makes profit $32.20. Ration:—1½ pounds bran, 45 pounds ensilage, 8 pounds clover hay, and oat straw, all they will eat.

No. 25—16 cows, Holstein thoroughbreds and very fine dairy type, most of them fresh in fall; cost of keeping, $40; returns from creamery, $67.79; pounds of milk, 8,396; pounds of butter, 333; price of butter, 20.3 cents; price of milk, 80.7 cents; for one dollar in feed, $1.69; net profit of butter over cost of feed, $27.79; adding value of skim milk makes profit $44.58. Ration:—8 pounds bran, 40 pounds of well eared ensilage, hay and corn stover, all they would eat; in summer good pasture only. Cows kept in good barn and fastened in Drown stalls.

COLD BARNS NOT CONDUCIVE TO PROFIT.

No. 26—17 cows, Short-horns and Short-horn grades, a few with a little Jersey and Holstein blood, fresh one-half in fall, rest in spring. Stable cold, cows fastened with chains; cost of keeping, $34.50; returns from creamery, $24.33; pounds of milk, 3,182; pounds of butter, 133; price of butter, 18.3 cents; price of milk, 76.5 cents; for one dollar in feed, 70 cents; value of butter per cow less than cost of feed, $10.17; counting the skim milk at 20 cents a 100 lbs.there is still a deficiency of $3.81. Ration:—bran, oats and corn ground, 8 pounds, marsh hay, a little timothy hay and fodder corn, not well eared. In summer, pasture and a little bran.

What is the matter with No. 26? In the first place, his cows are not very good dairy cows; and secondly, and the main cause of his failure to get better returns, is his barn was so cold and his cows so uncomfortable that a though half of them were fresh in the fall, they produced very little milk during the winter, as shown by the records of the creamery. He fed very well and quite expensively, but the cows had to use most of the feed to keep warm, and left but little for milk production. They gave most of their milk in summer on pasture, but even then they did not do very well, owing no doubt to the care they had in winter.

BETTER THAN THE AVERAGE.

No. 35—10 cows, grade Jerseys and grade Short-horns, fresh at all times, but most in early winter; cost of keeping, $36 50; returns from creamery, $44 91; pounds of milk, 5531; pounds of butter, 230.8; price of butter, 18.8 cents; price of milk, 81 cents; for one dollar in feed, $1.23; net profit of butter over cost of feed, $8.41. Adding value of skim milk makes profit $19 47. Amount of feed: 2 tons gluten feed, 3½ tons bran, 6 acres shock corn, well eared, timothy hay and corn stover; in summer pasture and 5 pounds bran to those giving a good mess of milk.

NEITHER GOOD COWS NOR GOOD MANAGEMENT.

No. 36—10 Grade Short-horns, fresh at all times;cost of feed, $30,00; returns from creamery, $28.57; pounds of milk, 3,626; pounds of butter, 152; price of butter, 18.7 cents; price of milk, 78.8 cents; for one dollar in feed, 95 cents; value of butter per cow less than cost of feed, $1.43; adding value of skim milk makes net profit, $5.82. Ration:—fodder corn with ears on, half the winter; then corn, oats and bran, 7 pounds; clover and timothy hay once a day, and corn stover once a day; in summer, pasture only. This herd are not first-class dairy cows. They were fed corn half the winter till they had nearly dried up, then they were fed bran and some clover hay, but it was too late to bring back the flow of milk.

No. 44—13 cows, grade Short-horns, part fresh in fall and balance in spring; cost of feed, $35; returns from creamery, $35 40; pounds of milk, 4,304; pounds of butter, 182; price of butter, 19.5 cents; price of milk, 82.2 cents; for one dollar in feed, $1.01; net profit in butter over cost of feed, 40 cents. Adding value of skim milk makes profit $9.00 per cow. Ration: well eared shock corn, 1½ months; then timothy hay and clover hay and 8 pounds ground oats and corn. In summer pasture, and in fall, fodder corn.

Here is another herd fed expensively and almost without profit. The mistakes here made are almost identical with the mistakes No. 36 made.

THE RELATION OF FEED TO PROFIT.

The 12 months through which these records run up make an unusually trying year for the dairyman. The widely extended drouth of the summer of 1901 had made all kinds of feed very high and when winter came some dairymen were puzzled what to do. Some decided to feed grain as usual, no matter what the cost. Others said, "I will not buy high priced feed to make a balanced ration, the cows will never pay for it." Those of this second class whose cows were fresh in the fall made a sorry mistake, as the notes which I have presented show.

There was still another class who had cows that would not freshen till spring. Some of them said: "We will give our cows cheap feed during winter—corn stover and straw—and not try to produce much milk in winter. They will be fresh in spring and give milk on pasture which is cheap. We may not get as much money per cow but we will make more real profit than you fellows who pay out all you get for milk for feed."

These arguments are quite plausible and we will see what these facts I have gathered show.

Let us take the three highest feeders. No. 1 fed $42.00, got back $57.89, made a profit of $15,89. No. 25 fed 40.00, got back $67.79, made a profit of $27.79. No. 28 fed $40.00, got back $45.39, made a profit of $5.39.

Now take the three cheapest feeders, and their cows were all fresh in spring. No. 13, fed $22, got back $29.78, made a profit of $7.78. No. 19 fed $22, got back $52.95, made a profit of $10.95.

No. 43 fed $20.00, got back $28.66, made a profit of $8.66.

Now, fellow dairymen, these are the facts: The cheap feeders did very well when their cows came in in the spring, and they made a pretty fair profit; but the good feeders did better. There may never again come a time when the cheap feeder with summer cows will have such an advantage. The winter of high priced feeds was followed by a summer of luxuriant pasture, such as has never before been seen in this country.

ENSILAGE A FACTOR IN PROFITABLE DAIRYING.

There are five creamery patrons who fed ensilage: No. 4 who made on butter $29.18 profit per cow, No. 7 who made on butter $14.05 profit per cow, No. 17 who made on butter $12.69 profit per cow, No. 21 with $20.17 profit per cow, and No. 25 with $27.79 profit per cow. One cheese factory patron fed ensilage, No. 4, whose profit on milk delivered was $22 23. These six silo men averaged $21.02 profit per cow, while the average profit of creamery patrons was only $5 94 per cow. The gross returns for the silo men averaged $52.52 per cow, while those who did not feed ensilage received an average of but $34.00 per cow,a difference of $18.52 in favor of the ensilage men.

Can any one doubt, in face of these facts, that it will pay to build a silo? Is it possible that all this gain in gross receipts and profits is because these men feed ensilage? Or, is it, in part, because these men are more progressive, up-to-date farmers, have better dairy cows, study to feed a balanced ration, and, in short, have less of old fogyism than many of those who do not have silos? These are questions for you to ponder on and answer.

My own opinion is that, although I think any man is making a great mistake who keeps a herd of dairy cows without having a silo, the feeding of ensilage did not and could not, of itself, make this astonishing difference of over 54 per cent in gross receipts and more than 500 per cent in net profit.

Prof. Voorhees, Director of the New Jersey Experiment Station, found that ensilage increased the amount of milk 12 per cent over dry feed of the same kind, when everything else was equal. Taking that statement as being the real difference in favor of ensilage, then in our case $4 08 out of the $18.52 gain per cow should be credited to ensilage and $14 44 to "the man behind the cow."

So I hope that none of you here who have had small returns per cow will entertain the idea that all you have to do, to get as large returns as these men who fed ensilage, is to build a silo. A silo will no doubt help some but something else is needed.

RELATIVE PROFITS OF BUTTER AND CHEESE.

I took the statements of 12 patrons of a cheese factory. This factory made cheese the year round, and paid for milk by test and these 12 were nearly all that had patronized the factory the whole 12 months.

These patrons had 172 cows. The average cost of feed per cow was $29.60; average returns from factory for milk, $34.20; average pounds of milk per cow, 3,835; average price of milk, 88.2 cents per 100 pounds; average profit per cow, $4.40.

There are many persons who wish to know whether it is more profitable to patronize a creamery or a cheese factory. It will be seen that the average price of milk at the creamery was 85.2 cents per 100 pounds, while at the cheese factory it was 3 cents more. This statement is a little misleading, for the milk received at the cheese factory did not average so high in test as that received at the creamery. Four per cent milk at the creamery averaged 84 cents and at the cheese factory 92 cents. Possibly this 8 cents may make up for the difference in value between skim milk and whey. At all events you have the facts as I found them.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

A Nova Scotia Ration.

F. A. K., N. S. writes:

I have plenty of good hay and oats, no roots. Oats are worth 45 cents per bushel, costs 3 cents to grind them. Can buy good bran for $1.15 a hundred weight; middlings $1.40; corn, $1.60; cotton seed meal, $1.75; cows weigh about 1000 pounds, freshened November 1st. At present am feeding 5 quarts of bran and ground oats and one pint cotton seed meal daily.

Very much will depend upon the character of the good hay, whether it is timothy or clover, or from mixed grasses. Something also will depend upon whether a hundred weight in Nova Scotia is 112 pounds, as in England, or 100 lbs. as in the United States; but in either event we should consider bran much cheaper than oats and should be disposed to feed a combination of bran and corn and hay. Mix the bran and ground corn in equal parts by weight and feed from 6 to 10 lbs. per day, adding, if it appear to be necessary, as he is doing at the present time, about 1 lb. of cotton seed meal to the daily allowance.

A Pennsylvania Feeding Query.

My cows are mostly grade Holsteins, fresh, milk goes to creamery, which pays for the butter fat. Have corn ensilage, corn fodder and ear corn. Must buy all other feeds. Will you kindly give me a ration to suit the case.

Carversville, Pa. SUBSCRIBER.

It will be a veritable leap in the dark to attempt to construct a ration formula without knowing more definitely what feeds are available to our inquirer. Corn silage, corn fodder and ear corn are all low in protein, and of course they require some highly nitrogeneous feed to go with them in order to make up a suitably balanced ration. Bran, the different glutens, brewers grains and distillers grains, cotton seed meal, linseed oil meal, buckwheat middlings, malt sprouts are among the different feeds that could be brought into requisition. If this inquirer will write us again stating what feeds are available in his local market we shall be glad to give him more specific sugeestions.

Green Manure for Worn out Land.

I have a number of acres of very good land that is partly run out, have no manure that I wish to put out to it as it is quite a distance from buildings. Can I sow on a crop of crimson clover and plow under for fertilizer and keep it in as good shape as it is now?

How much do they usually sow to the acre, and is it a good time to sow in spring and plow under in the fall? L. H. C.

Vt.

It is probable all things considered, that a crop of rye will be a surer method of supplying fertility to the above land than crimson clover. Humus is what is wanted for such a soil and this turned under rye will supply quicker than the clover. Moreover clover although it gathers nitrogen from the air, requires a fair amount of nitrogen in the soil to give it a good start and this a worn out soil does not contain. It is also to be considered that rye will give a good growth for turning under in a few weeks, whereas clover requires several months to give the same amount of humus producing material. Although rye is more properly sown in the fall, yet an early spring sowing will give good results when the crop is to be plowed under.

Per Cent Fat in Cream.

1. What will cream test when 90 lbs. produce 38½ lbs. butter?

2. Will cream always test the same from same cows and separated with the same hand separator? S. H.

Markham, Ont.

1. At the above rate the cream should contain about 35.7 per cent of fat, estimating the over run at 1-5. Of course the above is only approximate, as the fat in the butter milk,and the actual over-run are not known.

2. Cream from the same cows and the same separator will vary several per cent according to the conditions of separation.

Malt Sprouts.

An Ohio reader asks us to give him the relative feeding value of malt sprouts and bran. As recently as October 31st last, on page 796, we gave a full table of the digestible nutrients in all the more common American feeding stuffs. If this paper had been preserved a reference to it would have shown that malt sprouts contain about 50 per cent more digestible protein than bran, a trifle less carbohydrates and only about half as much fat. It would seem to follow, therefore, that malt sprouts, if of prime quality, are somewhat more valuable than bran, but unfortunately, unless these sprouts are properly dried and cared for, they sometimes are not of prime quality. Probably a combination of sprouts and bran, or sprouts and ground corn, would be better than to depend exclusively upon the sprouts.

Hard Milking Cows.

Mr. D. L. H., Newaygo, Mich., writes that he has a nice young cow, a good butter maker and the only possible fault about her is that it is very difficult to draw her milk.

This difficulty can sometimes be overcome in a measure by the use of a dilating plug, but in extreme cases it is recommended to cut the sphincter muscle at the extremity of the teat with an implement especially made for that purpose, or with a very sharp, small-bladed knife. An old fashioned gun maker in New York used to make a special implement for this purpose out of a three cornered file, by hollowing out the sides and bringing the corners to a sharp razor edge and inserting the point as far as necessary to sever the muscle. Veterinarians use a bistoury for the same purpose. This is an instrument with a dilating blade working in a groove or slot that can be made to project more or less when the instrument is removed and thus do the cutting.

We do not think milk tubes are of any particular avail in cases of this character.

Abnormal Shrinkage in Milk.

A Missouri inquirer writes that he has some Holstein cows and heifers that shrank nearly 50 per cent in October and although generously fed and kept in a warm stable, with good spring water in front of them all the time, he has been unable to recover this loss. He is feeding 4 lbs. of brewers dried grains, 3 lbs. of bran, 1 lb. of cotton seed meal, 3 lbs. of corn meal, and corn stover, kaffir corn fodder and Kansas hay *ad libitum*, with salt every night and morning.

There does not seem to be anything the matter with the style of feeding nor anything with the care the animals receive. The indications are that there was something in the feed last fall that caused this shrinkage, but what it was, of course we are unable to state and we do not know whether there is any change in feed that will accomplish anything during the present period of lactation. These things happen once in a while. The causes of them are too hidden for discovery. We are not doctors and therefore we do not feel called upon to hazard guesses. If in addition to shrinkage in milk these cows are laying on body fat, we should reduce the feed quite materially, first by omitting the corn meal. Possibly a thorough cleaning out of the digestive tract, and good, thorough brushing and carding of the cows every day, to start proper secretions from the skin, would help matters.

Sorghum Hay.

An Indiana reader reports that he has thought of breaking up his meadow next summer, after cutting the hay, and sowing sorghum broadcast, to be cut late in the fall with his wheat binder and use the same as roughage for his cattle, and asks whether this would make good feed and whether we would advise such an undertaking.

Sorghum hay cut in this manner has proved a very acceptable roughage for milch cows and other cattle in some of the western states, but whether it would be advisable for our inquirer to plow up his meadow, etc., introduces an entirely new element into the problem and that is a question he must answer for himself.

Two Wisconsin Questions.

J. S., Kennan, Wis., submits the following questions for answer:

1. Why do not advertisers in the DAIRYMAN offering stock for sale give the prices they hold their stock at? It would save correspondence to a prospective buyer, as is the case with me.

Advertisers frequently do this when they have only one or two animals for sale, but most of them have a number of animals for sale and it would require too much space to specifty prices in detail. In fact, it would require a full catalogue to give descriptions and prices of all the animals in the herd. The object of advertising is to bring the advertiser and the purchaser into correspondence. The purchaser states in general terms what he wants and the advertiser answers accordingly.

2. What is the usual service fee in the southern part of the state for registered animals?

This will vary greatly in different localities and under differing circumstances. Frequently for grades, the fee, if the product is a heifer, is $5, otherwise, merely nominal. Sometimes it is $5 without regard to sex of the progeny, and sometimes when registered animals are brought for service, the fee is much larger.

Siloing Dry Corn.

Mr. C. E., of Greensburg, Ind., asks whether a person could fill a silo with dry corn and fodder, and by wetting it add any to its feeding value or would it spoil the feed.

Dry corn, meaning by this expression the stalk and ear as it comes from the field, has been very successfully siloed, but this adds nothing to its feeding value, except making the coarse stalks somewhat more palatable. However, we would in no case advise attempting to silo the entire dry plant, but would certainly break off the ears before putting the forage into the silo.

Holding up Milk.

Mr. H. H. W., Galesburg, Mich., reports the case of a large Durham cow which freshened recently. When two days old he took the calf away and up to date of writing the cow has seemed to refuse to give down milk, except in very limited amounts from one quarter. He

"ADVERTISEMENT."

I WILL CURE YOU OF RHEUMATISM

Else No Money Is Wanted.

Any honest person who suffers from Rheumatism is welcome to this offer.

I am a specialist in Rheumatism, and have treated more cases than any other physician, I think. For 16 years I made 2000 experiments with different drugs, testing all known remedies while searching the world for something better. Nine years ago I found a costly chemical in Germany which, with my previous discoveries, gives me a certain cure.

I don't mean that it can turn bony joints into flesh again; but it can cure the disease at any stage, completely and forever. I have done it fully 100,000 times.

I know this so well that I will furnish my remedy on trial. Simply write me a postal for my book on Rheumatism, and I will mail you an order on your druggist for six bottles Dr. Shoop's Rheumatic Cure. Take it for a month at my risk. If it succeeds, the cost is only $5.50. If it fails, I will pay the druggist myself—and your mere word shall decide it.

I mean that exactly. If you say the results are not what I claim, I don't expect a penny from you.

I have no samples. Any mere sample that can affect chronic Rheumatism must be drugged to the verge of danger. I use no such drugs, and it is folly to take them. You must get the disease out of the blood.

My remedy does that even in the most difficult, obstinate cases. It has cured the oldest cases that I ever met. And in all my experience—in all my 2000 tests—I never found another remedy that would cure one chronic case in ten.

Write me and I will send you the order. Try my remedy for a month, as it can't harm you any way. If it fails it is free.

Address Dr. Shoop, Box 934, Racine, Wis.

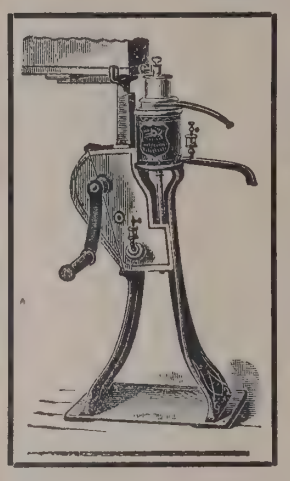
Mild cases, not chronic, are often cured by one or two bottles. At all druggists.

THE U. S. WINS

IN

THE GREATEST DAIRY STATE

IN THE EAST.



At the New York Dairymen's Annual Convention, Jamestown, December 9–12, 1902,

THE HIGHEST SCORE

98 POINTS

won by the Diamond Creamery Co., J. L. Hyde & Son, Props., Massena, N. Y., users of 13 No. 0 (largest size) U. S. Separators, each one replacing an Alpha-DeLaval or Sharples Separator.

THE U. S. HOLDS THE WORLD'S RECORD

FOR CLEAN SKIMMING.

Average test of 50 Consecutive Runs at the Pan-American Exposition, .0138 of 1 per cent.

For Western trade we transfer our Separators from Chicago, Minneapolis and Omaha. Address all letters to Bellows Falls, Vt.

VERMONT FARM MACHINERY CO., Bellows Falls, Vt.

WHEN YOU SEND IN YOUR RENEWAL, SPEAK TO A FEW OF YOUR NEIGHBORS AND HAVE THEM JOIN YOU. CLUB RATES: 2 Subscriptions, $1.50; 3 Subscriptions, $2.00; 4 Subscriptions, $2.50; 5 Subscriptions, $3.00.

Our Side Bar Filler for Small Dairies.

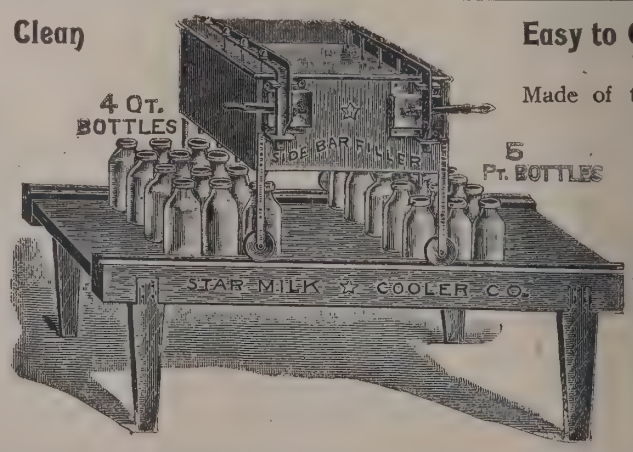
Easy to Clean

Not Expensive.

No Repairs.

No Trouble.

Tell us about your Dairy.



Easy to Operate

Made of the best Material.

First Class Workmanship.

All Sizes.

Write to us and ask for Quotations.

STAR MILK COOLER CO., Haddonfield, N. J.



EASY. It is easy to go on losing money by taking care of milk in the old way, that is, by not taking care of it: But it is easy, too, to take proper care of your milk with a

Champion Milk Cooler-Aerator

The Champion is pre-eminently the easy Cooler—easy to buy, easy to take care of, easy to use.

A Booklet for the asking.

Champion Milk Cooler Co.

67 Main Street, CORTLAND, N. Y.

is not certain whether this is a case of holding up milk or whether there is some obstruction.

Neither are we. It sometimes happens that a film forms, between the lower milk cistern in the udder and the channel in the teat, which prevents the milk from coming down. In such cases it has been advised to puncture this film. If nothing better offers, use a good sized knitting needle. Of course a bistoury, if long enough to reach the trouble, would be better.

We do not wish to be understood as saying that the trouble reported is due to the cause suggested, but if it is not, we do not know what it can be, and if any attempt is made to explore the teat or udder, it should be done very cautiously with thoroughly sterilized instruments well greased.

The question about lice has been fully answered in the veterinary columns.

To Sell Milk or Make Butter.

Mr. S. W., of Ind., asks which would be the better, to make butter at 20 cents per pound, or sell milk at 20 cents per gallon delivered to customers in a near-by city. It will require the services of two men and three horses to deliver the milk.

It would seem that Mr. W. himself, with all the facts before him, is better qualified to answer this question than we can possibly be. We know nothing as to the quality of the milk, how many pounds of butter a hundred pounds of it will make. We know nothing as to the wages he must pay or anything of that kind. It is a very simple matter for him to find out just how much butter he can make and just how much it costs him now to deliver his milk, and when he has these facts before him it is easy to tell which is the more profitable. There is one item in the problem that should not be overlooked, and that is the value of the skim milk. A hundred pounds of skim milk is easily worth half as much as a bushel of corn, and under certain conditions and for certain purposes a good deal more than this.

A New York Feeding Problem.

I wish to tell you how I am feeding my cows fresh in milk and see if you can better it in any way for profit. I feed them corn stover noons, all the buckwheat straw they will eat nights, clover hay mornings and the following grain rations at two feeds: 2½ pounds of bran, cost 2½c; 4 lbs. buckwheat middlings, 4 cents; 1½ pounds oil meal and cotton seed meal, equal amounts, 2½ cts; 4 pounds corn meal at noon, 3cts. Total, 14 cts. for grain. Cows are making from 7 to 9 pounds of butter each in 7 days. The corn meal is a late experiment, am well pleased with it. Would you feed more bran and less buckwheat middlings? Will commence feeding ensilage again April 1st; will have no pasture. W. F. S.
Silver Creek, N. Y.

Cows that make from 7 to 9 lbs. of butter in seven days, are doing very well indeed, and it is perhaps doubtful whether any considerable change in the manner of feeding would prove profitable. It seems to us that previous to the addition of corn to the grain allowance, the cows were not receiving the requisite amount of carbohydrates, but an over supply of protein. We see no reason why the cotton seed meal and the oil meal as now fed, may not be dropped from the ration and enough remain to enable these cows to do their very best. Drop out the cotton seed meal at first, little by little from day to day, and if this does not make a decided decrease in milk, do the same with the oil meal. We do not think that buckwheat straw is of any particular feeding value. At all events, we can not find it quoted anywhere in the analyses of feeding stuffs.

Feeding for Milk in New York.

Mr. T. G., Salem, N. Y., writes that he is furnishing milk to customers and wants both quantity and quality. He has two silos filled with good corn fodder, one with the ears broken off and the other with them on. Corn is 75 cents per bushel; bran, $22 per ton; middlings, $24; gluten feed, $23.

The price quoted for gluten feed is relatively very low and casts at least a shadow of suspicion upon its quality. Examine it pretty closely and if it is all right we would suggest feeding equal parts of bran and gluten, an average of 8 lbs. per day, with all the silage the cows will eat. It is very desirable at all times to have some dry fodder to go with the silage. Just why, cannot be satisfactorily explained, but the best dairymen have found that a little hay, even with the best of pasture in summer, is greatly relished by the cows, and whatever is relished by them it is desirable to furnish, at least in moderate amounts.

A Minnesota Feeding Inquiry.

E. H. B., Dundas, Minn., has plenty of good second crop clover and timothy hay and lots of corn stalks. At present he is feeding unground oats and corn, and asks if we think it would pay to buy bran at $14 a ton when oats are worth 30 cents and corn 39 cents.

We think it would very surely pay to exchange the oats for bran, and, unless too expensive, we certainly would have the corn ground. Mix the ground corn, or corn and cob meal, with bran, equal parts by weight, and feed from 6 to 10 lbs. according as the cows are able to respond in milk.

An Albama Feeding Inquiry

Mr. L. R., Citronelle, Ala., a recent settler there from Illinois, appears to be well pleased with his change of location. He has cow pea and Japan clover hay mixed; also some velvet bean hay and plenty of corn stover. Cotton seed meal is worth $25 a ton; bran, $21; shorts, $24. He says nothing about corn, but having mentioned corn stover the presumption is that he also should have more or less corn on hand, and if this is the case we should be disposed to recommend him to feed as an average allowance for his milch cows about 4 lbs. of bran, 4 lbs. corn and corn cob meal with, say, 10 lbs. of stover and 10 lbs. hay. His hay is of such quality and furnishes such an amount of protein that we would not consider it necessary to feed very much cotton seed meal, if any at all. Cotton seed meal is very high in protein but very low in carbohydrates. If corn is not available, then, of course, there must be some cotton seed meal fed.

His question what to do for calves that have been afflicted with ticks has been referred to the Veterinary Editor for consideration.

"ADVERTISEMENT."

KNOWS NO DISTINCTION.

Rich and Poor Alike Suffer From Catarrh in This Climate.

All observant physicians have noticed the enormous increase in catarrhal diseases in recent years, and the most liberal and enlightened have cheerfully given their approval to the new internal remedy, Stuart's Catarrh Tablets, as the most successful and by far the safest remedy for catarrh yet produced.

One well-known catarrh specialist, as soon as he had made a thorough test of this preparation, discarded inhalers, washes and sprays and now depends entirely upon Stuart's Catarrh Tablets in treating catarrh, whether in the head, throat or stomach.

Dr. Risdell says, "In patients who had lost the sense of smell entirely and even where the hearing has begun to be affected from catarrh, I have had fine results after only a few weeks' use of Stuart's Catarrh Tablets. I can only explain their action on the theory that the cleansing and antiseptic properties of the tablets destroy the catarrhal germs wherever found because I have found the tablets equally valuable in catarrh of the throat and stomach as in nasal catarrh."

Dr. Estabrook says, "Stuart's Catarrh Tablets are especially useful in nasal catarrh and catarrh of the throat, clearing the membranes of mucus and speedily overcoming the hawking, caughing and expectorating."

Any sufferer from catarrh will find Stuart's Catarrh Tablets will give immediate relief and being in tablet form and pleasant to the taste, are convenient and always ready for use as they can be carried in the pocket and used at any time as they contain no poisonous drugs, but only the cleansing, antiseptic properties of Eucalyptus bark, blood root and Hydrastin.

All druggists sell the tablets at 50 cents for complete treatment.

HALF ENOUGH WATER

Is quite enough for some people, but most people want water every day. If

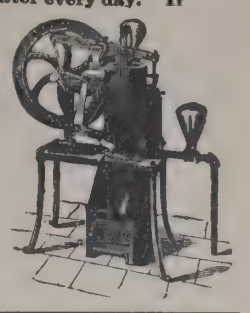


RIDER or ERICSSON HOT AIR PUMPS

Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.

Rider - Ericsson Engine Co.,

35 Warren St., NEW YORK.
239 Franklin St., BOSTON.
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40 Dearborn St., CHICAGO.
40 N. 7th St., PHILADELPHIA.
Teniente Rey, 71 HAVANA.
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MINNEAPOLIS, MINN.

Grain and Millstuffs, Shipping and Commission

SEND US YOUR ORDERS FOR

Bran Middlings, Flour Middlings, Red Dog Flour, Snow's Cream Flour Middlings, Chicken Feed Wheat, Dairy Feed, Mixed Feed, Corn, Oats, and Ground Feed. Old process Oil Meal. Ask for prices, and mention this paper when writing us. **CAN LOAD MIXED CARS.**

CORRESPONDENCE SOLICITED.

SNOW'S CREAM FLOUR MIDDLINGS IN 100-LB. SACKS. The best seller in the market. We make a specialty of Screenings for Sheep Feed

WHICH? SHORT ON CORN Or LONG ON WHEAT?



In either case you need a scale this fall and winter. Don't put it off. We can sell you an **Osgood Scale.** High grade. Guaranteed. Built on honor and at reasonable prices and terms. Free Catalogue.

OSGOOD SCALE CO., 91 Central St, Binghamton, N. Y.

BUY DIRECT FROM FACTORY, BEST

MIXED PAINTS

At **WHOLESALE PRICES,** Delivered **FREE** For Houses, Barns, Roofs, all colors, and **SAVE** Dealers profits. In use 61 years. Officially Endorsed by the Grange. Low prices will surprise you. Write for Samples.
O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.

BUHL CANS ARE NOT Like Other Milk Cans Because They Are Better

This is equally true of the Buhl Factory, "Improved Elgin" and Genuine Iowa Cans; superior material, design, workmanship, and smooth finish combine to produce those **long wear** qualities for which the **Buhl Cans** are so renowned. **Remember** the Buhl is the only can in the world that is made with the BUHL "VICTOR" CAN BREAST and the BUHL "VICTOR" ROUND HANDLE. They may cost a little more than common cans—we do not know, for we cannot tell how badly "the trust" and others are beating you. We know that the small added cost of the **Buhl Cans** will prove the best can investment you ever made. Every can that is stamped with our famous Milk Can Trade Mark, as shown here is a genuine **Buhl Can.** The mark is a guarantee of all around excellence. Ask your local dealer for **Buhl Cans.** If he does not have them he can get them for you. Write us about it. We will see that you are supplied.



Buhl Stamping Company, 212 W. Larned Street, Detroit, Mich.



The Distribution of Skim Milk.....

It is known that the just complaints of creamery patrons on account of unfair distribution of skim milk are the bane of the separator creamery business. Further disputes among patrons, annoyances to managers, hindrances to the best work of buttermakers, watering the skim milk, and many other ills in the same train are unnecessary, since the

Barber-Coleman Check Pump

has for more than five years been successfully solving the problem in many different creameries. When a patron has dropped in his check he can pump the amount of skim milk called for by his check, less the percentage taken out as cream, so in like proportion to all other checks. Its measuring apparatus is just an ordinary pump which everyone understands and knows how to operate.

Cornish, Curtis & Greene Mfg. Co.,

General Sales Agents De Laval Alpha Separators,
FORT ATKINSON, WIS.

A Cow Census Begets Improvement.

Report from a Wisconsin Dairyman.

ED. HOARD'S DAIRYMAN:—It may be remembered that one year ago I presented to the meeting of the Wisconsin Dairymen's Association, held at Menomonie, some facts and figures which I had obtained in taking a "cow census" of the patrons of the Rusk creamery. These were summarized in tabular form, and copies of the table were distributed through the audience. No names were given, but numbers instead.

After the session at which this matter had been presented, a young man came to me and said: "What is my number?"

I replied: "Don't you know your number?"

"No. I have studied this list over and can't make it out."

"Are you sure that you want to know your number? I am afraid you will not feel as well when you know as you do now."

"Well, I want to know."

"Yours is 'No. 4'."

The look of amazement that overspread his face at that was interesting to see. "No. 4" was the one who did not get enough for butter to pay for the feed his cows ate. He knew the figures as to number of cows and value of feed were correct, for he had helped me make them out, and the money returns I had got from the creamery. After looking at the table a short time he exclaimed with great vehemence: "For heavens sake, is that the kind of work I have been doing! If I cannot do better than that I shall have to quit."

Then after a pause he said: "*I will do better.* I hope you will come up here next year. and investigate and see if I don't."

I have not been there, but I am highly gratified to receive the following letter from him.

"——, Feb. 5, 1903.

MR. C. P. GOODRICH, FT. ATKINSON, WIS., DEAR SIR:—You remember No. 4, on your cow census of Rusk Creamery patrons of Dunn county.

Thinking you would be pleased to know of improvement I have made along that line, I herewith send statement of the year 1902:

Money received from creamery	$1,170.96
Used at home by two families	70.00
Skim milk (20 cents per cwt.)	250 00
21 calves	105.00
Total	$1,595 96
Cost of keeping 21 cows	630.00
	965.96
Net gain per cow	$46.00

This is much better than the preceding year, but I see where I can make it better still in future. Very truly yours,

—— —— ('No. 4')"

The cost of keeping was $30 per cow, each year, but the returns for butter from the creamery were for 1902, $55.76 per cow, instead of $29.53 the year before.

This shows what can be done when there is a determination to improve, and where one is willing and anxious to adopt better methods.

I predict a successful future for "No. 4," for it will be seen he now does some figuring and keeps accurate account of what he is doing. If this cow census work will have this effect on even a few men, the work will not have been done in vain. "No. 4" the past year kept but 21 cows, while the year before he had 25. Of course he has been testing his cows and rejecting some of the most unprofitable ones. C. P. GOODRICH.

Ft. Atkinson, Wis.

CONCERNING OUR ADVERTISERS.

The Oakenwald Stock Farm of Genesee, Wis., have for sale a 6-year-old bull of very fine breeding that has been at the head of their herd. The bull must be sold to avoid inbreeding. See advertisement among Jersey ads.

MARCH ON!

The artistic hanging calendar of the Champion Harvesters begins with the spring month and carries one clear through to the next spring. It shows a handsome farm team refreshing themselves at the watering trough, and is in brilliant colors and handsome enough to please everyone. This art calendar is offered free to all of our readers who will send their name on a postal to Champion Division, International Harvester Co., of America, Chicago, and make request for same. We know this is an opportunity of which many will take advantage.

IN 1845 AND NOW.

The inside front cover of the Deering "Golden Era" catalogue for 1903 contains a story without words. A section of the Chicago river as it was in 1845 is pictured. It shows an Indian wigwam, Indians in canoes and upon the banks of the river there are no signs of civilization.

On the same page is shown the river at the same



——GASOLINE ENGINES——

as power for the dairy have passed the experimental stage. Many dairymen now have them and all eventually must have them. The only questions to decide are the amount of power needed, and the most desirable make. With twenty-seven years of experience behind us, and a plant that has grown from 50 engines a year to 1500 a year capacity, we feel that we are equipped to build the best. There are other reasons why the **"OTTO"** is superior. We will tell them in this space from time to time. If in the meantime you need power, write us, mentioning this paper.

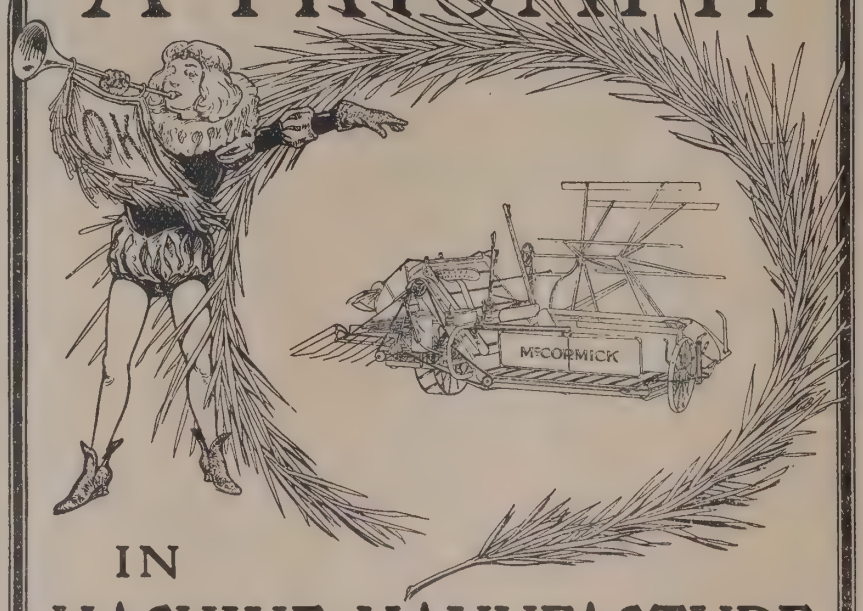
THE OTTO GAS ENGINE WORKS, Philadelphia, Pa



LAMBERT
Gas or Gasoline
Is the reliable engine. No long shut-down for repairs. Simple, economical. Easy to regulate speed. Strong guarantee.
Agents wanted. Write for catalog.
G. LAMBERT GAS & GASOLINE ENGINE CO., Anderson, Ind.

DON'T BUY GASOLINE ENGINES UNTIL YOU HAVE INVESTIGATED "The Master Workman," a two-cylinder gasoline engine, superior to all one-cylinder engines. Costs less to buy and less to run. Quicker and easier started; has a wider sphere of usefulness. Has no vibration, can be mounted on any light wagon as a portable. Weighs less than one-half of one-cylinder engines. Give size of engine required. Please mention this paper. Send for catalogue. **THE TEMPLE PUMP CO.,** ESTABLISHED 1853. **Meagher and 15th St., CHICAGO.**

A TRIUMPH



IN MACHINE MANUFACTURE

IS THE **McCORMICK BINDER . . .**

During 1902 more McCormick machines were sold than in any previous year, a fact which attests the wide-spread popularity of the world-renowned machine. The seventy-two years success of the McCormick has made this name a household word throughout the world.

The McCormick is the machine to buy for 1903.

Write for beautiful McCormick calendar and copy of 1903 book entitled "A MODEL MACHINE."

ADDRESS NEAREST McCORMICK BRANCH,

EAU CLAIRE, WIS. GREEN BAY, WIS. MADISON, WIS. MILWAUKEE, WIS.

MARLIN

THE MARLIN RIFLE, Model 1892, .32 calibre, is the best rifle made for the farmer, combining the good points of the old muzzle-loading squirrel rifle with the convenience and rapid fire of the most improved repeater. It is so constructed that the same rifle uses the following cartridges: .32 short and long rim fire, .32 short and long center fire, and is the only repeater made using rim fire cartridges larger than the .22 calibre. The short cartridges are just the thing for small game while the long ones kill hogs and beef handily. On the first 2000 cartridges used you have saved the cost of a Marlin.

The Marlin Hand Book for shooters explains why this is so and tells how to care for, and how to use, fire arms. This valuable book free if you will send stamps for postage to THE MARLIN FIREARMS CO., NEW HAVEN, CT.

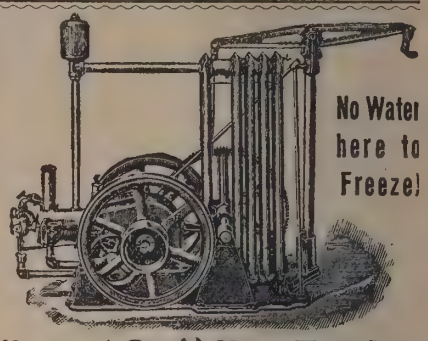
RIFLES MODEL 1892 .32 CALIBRE

WINCHESTER

"LEADER" FACTORY LOADED SHOTGUN SHELLS.

For uniformity of loading, evenness of pattern, strong shooting qualities and all-round superiority, Winchester Factory Loaded "Leader" Shells excel. The next time you buy, insist upon having these shells. : : : :

THEY ARE THE SHELLS THE CHAMPIONS SHOOT.

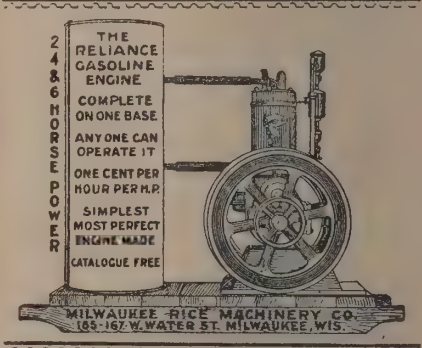


No Water here to Freeze!

If you want a..... **Gasoline Engine**

that will be always ready to start, safe, reliable convenient, economical and durable, buy a **FULLER & JOHNSON Frost Proof.** No bother with water nor expense of broken cylinder, no waiting for wind or weather. All sizes, stationary and portable. Send for descriptive catalogue to the manufacturers.

FULLER & JOHNSON MFG. CO., Madison, Wis.



Eagle Claw Hand Fodder Fork. Only tool invented that handles bound or loose fodder successfully. Write and secure exclusive agency. **Randleman & Sons,** Des Moines, Iowa.

STEEL ROOFING

FREIGHT CHARGES PAID BY US



Strictly new, perfect, Semi-Hardened Steel Sheets, 2 feet wide, 6 feet long. The best Roofing, Siding or Ceiling you can use. No experience necessary to lay it. An ordinary hammer or hatchet the only tools you need. We furnish nails free and paint roofing two sides. Comes either flat, corrugated or "V" crimped. Delivered free of all charges to all points in the U. S., east of the Mississippi River and North of the Ohio River

AT $2.25 PER SQUARE

Prices to other points on application. A square means 100 square feet. Write for free Catalogue No. 20.

CHICAGO HOUSE WRECKING CO., W. 35th and Iron Sts., Chicago

STEVENS



RIFLES ARE FAMOUS

For their accuracy and durability. Some of our popular models are:

"STEVENS MAYNARD, JR."	at	$3.00
"CRACK SHOT,"	at	4.00
"FAVORITE,"	at	6.00

Nearly every dealer in sporting goods and hardware can supply our firearms. If you cannot find them, we will ship direct (express prepaid) on receipt of price. *Send for 128-page illustrated catalog.*

J. STEVENS ARMS & TOOL CO.

No. 840, Main Street,

Chicopee Falls, Mass.

point, as it is to-day, full of ships and lined with docks. The banks contain the great Deering works, 85 acres of buildings and a veritable hive of industry. A marvelous change and one that has taken place in less than fifty years.

Cotton Seed Meal not Injurious.

ED. HOARD'S DAIRYMAN:—I notice in the last number an article from J. R. O'Gorman, Mobile, Ala., giving his experience with cotton seed meal. I think his must be very delicate cows to give him so much trouble, or perhaps the cause of their getting poor, was because he did not feed enough. I am feeding my cows one quart of cotton seed meal twice a day, (this is 3 lbs. per day, Ed.), and have fed the same amount to the same cows for the last three years and my cows are in fine condition and giving plenty of good, rich milk. I feed the same amount of wheat bran that I do meal, and for the rest, prairie grass and hay. In three years, I have only lost one calf and that was nearly a year old and running out to good pasture. G. T. L.

Brunner, Texas.

DAIRY MARKETS.

ELGIN, Ill., Feb. 9—Butter—Remains firm at 25c. There were no offerings and no sales, the quotation committee fixing the price. The sales of the week aggregated 506,000 lbs.

CHICAGO, Ill., Feb. 9—Butter—Quiet; steady; creameries, 16@25c; dairies, 15@23c.

Eggs—weak; firsts, cases included (60 per cent new laid), 19c.

Cheese—Steady; Twins, 13c; Daisies, 13¼@14c; Young Americas, 13½c.

Cattle—Good beeves, 1,300 to 1,500 lbs., 5.80@6.20; good to choice beeves, 5.20@5 75; fair to good export and shipping steers, 4.75@5.15; medium beef steers, 4.10@4.50; plain and roughish steers, 3.80@4.15; common and rough, 1,000 to 1,250 lbs., 3.00@3.65; good to fancy heifers, 4.20@4.75; good to choice feeders, 3.40@4.50; poor to plain stockers and feeders, 2 25@3.80; bulls, plain to fancy, 2.25@4.50; good to fair cows and heifers, 3.30@4.25; good cutting and fair beef steers, 2.65@3.60; common to good canning cows, 1.60@2.60; veal calves, good to fancy, 5.75@7.75; veals, coarse and common, 3.00@5.50; corn fed Western steers, 3.50@5 85; Texas bulls and grass steers, 2.75@3.20. Texas steers, fair to choice, 3.40@4.60.

Hogs—At the outset to-day arrivals were estimated at 48,000 head. Three hours later the run was cut down to 40.000 head. Good to prime heavy shipping, 6.90@7.10; good to choice heavy packing, 6.70@6.90; plain to choice heavy mixed, 6.75@6.90; selected butcher weights, 6.80@7.00; assorted light, 150 to 195 lbs., 6.50@6.80; common to light mixed, 6.35@6.70; thin to choice, 50 to 125 lbs., 5.50@6.35; stags and rough lots, 3.15@6.20.

MILWAUKEE, Wis., Feb. 9—Butter—Creamery—extras, 25c; extra June, (storage), 23c; firsts, 22c; seconds, 17c; process (renovated), 20½@21c. Dairy, fancy, 17c; lines, fresh, 14@15c; roll, 14@15c; packing, 13c; whey, 10c; grease, 5@6c.

Cheese—American full cream, Twins, 12½@13c; Ycung Americas, 13@13½c: Daisies, 12½@13c; Longhorns, 13½@14c; low grades, 10@12c. Brick, fancy, 12½@13c; low grades. 10@11c. Limburger, fancy, 11½@12c; low grades, 10@11c. Swiss, drum, choice, 12½@13c; drum, No. 2, 10@11c; Block, choice, 12@12½c; Block No. 2, 10@16½c.

Eggs—Strictly fresh-laid, loss-off, cases returned, 21c; seconds, 14c; storage city, No. 1 April stock, 18c. Country, 16@17c. Market easy on fresh and storage; demand fair and movement slack; storage stock is offered freely; demand is only fair and stock is not moving as well as might be desired. Receipts, 220 cases; Saturday, 210 cases.

BOSTON, Mass., Feb. 9—Butter—Creamery, Western extra, 25½@26c; firsts, 25c; dairy, 15@24c; imitation creamery, 18@21c; ladle, 18@19c: box and print, 20@26c.

Cheese—Choice, 14c; sage, 14@14½c; fair to good, 10@12c.

Eggs—Near by, 26c; Western selected, 21c; fair to good, 17@20c; Illinois, 21@22c; refrigerator, 14@17c.

Poultry—Chickens, 12@18c; western, 12@16c; western fowl, 12@13½c; western turkeys, 16@20c; old, 12@16c.

WASHINGTON, D. C., Feb. 9—Butter—Market firm at 26c.

PHILADELPHIA, Pa., Feb. 9—Butter—Firm at 27c.

NEWARK, N. J., Feb. 9—Butter—Steady at 26c; Eggs—Firm at 21¼c.

NEW YORK, Feb. 9—Butter—Fresh creamery is on a steady to firm basis, with the upper grades selling promptly on arrival. Creamery extras, 26c asked; state dairy tubs, finest, 24½@25c.

Cheese—The market is featureless. State full cream, small, fall made colored fancy, 14¼@14½c; do large fall made fancy, 14@14¼c.

Eggs—The market was active at unchanged prices. State, Pennsylvania and near-by fresh preferred, 23c asked; western fresh gathered choice, 21c asked.

KANSAS CITY, Feb. 9.—Butter—Creamery, 19@23c; dairy, 19c.

Eggs—Lower; fresh Missouri and Kansas stock, 15c loss off, cases returned; new No. 2 whitewood cases included, 15c.

ST. LOUIS, Feb. 9.—Butter—Steady, creamery, 19@26c; dairy, 17@20c.

Eggs—Lower, 15½c for fresh.

BALTIMORE, Feb. 9—Butter—Firm unchanged; fancy imitation, 20@21c; fancy creamery, 25@27c; fancy ladle, 18@19c; fancy roll, 1,@18c; good roll, 1t@17c; store packed, 15@17c.

Eggs—Steady, lower, fresh, 20@21c.

Cheese—Steady, unchanged; large, 14@14¼c; medium, 14@14⅝c; small, 14½@14¾c.

NEW ORLEANS, La., Feb. 9—Butter—Extras good demand at 26. Renovated, 19c; Ladles, 16c.

For the land's sake—use Bowker's Fertilizers They enrich the earth and the men who till it.

TOPEKA, Kan., Feb. 7—Butter—Creamery butter, 25½ to 26½c; dairy, 19 to 21c.

Cheese—Longhorns, 13¼c; singles 13¼c; Twins, 13c; sales 250 boxes.

LIVERPOOL, Feb. 9—Butter—Finest United States, nominal.

Cheese—Firm, American finest white, 62s 6d; do colored, 62s 6d.

NEW YORK FERTILIZER MARKET.

Potash, dbl. m're salt 48@53 per cent	1 09	@	1 11½
dbl. m'ure salt, 48@53 per cent less than 25 tons	24 00	@	30 00
sulph of basis, 90@98 per cent	2 08	@	2 14
90@98 per cent less than 25 tons	38 00	@	40 00
Kainit 25% S. of P. ℔ ton	8 80	@	9 30
less than 25 tons	9 05	@	9 55
Sylvinit, 35@37% P. ℔ unit	38	@	40
Potash muriate 100 lbs	1 80	@	1 86½
less than 25 tons	36 00	@	40 00
Amonia, sulphate	3 12½	@	3 15
Nitrate of soda	1 97½	@	2 00
Blood, Dried red ℔ unit	2 60	@	2 65
low grade	—	@	—
Concentrated tankage	15 00	@	16 00
Bones, rough ℔ ton	16 50	@	17 50
ground	20 00	@	21 00
Bone meal	18 50	@	24 00
Bone black, refuse	18 00	@	19 00
Fish guano, dried	27 00	@	28 00
acidulated	14 00	@	—
Phosphate rock, f. o. b. Char'n	9 00	@	9 25
Tenn	4 00	@	5 00
Acid phosphate	60	@	65

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—Holstein Bulls, age 8 to 16 months. ROBERT BEEMIS. Appleton, Wis.

Young Guernsey bull calf coming 1 year old for sale. MRS. A W. LEHMAN, Neosha, Wis. 52-3

Wanted—At Meramec Highlands Dairies, near St. Louis, experienced help. Milkers for which we pay $30.00 per month; dairy foremen and milkers $35 00 per month. Men with family preferred. House rent and milk free. Single men get board at $13.00 per month. Thoroughly experienced and reliable milkers can apply at once for work. MERAMEC HIGHLANDS CO., 208 N. 4th St., St. Louis, Mo. 52 2

For Sale—Creamery fixtures, consisting of a 12-horse power Erie Engine, one 2500 lb. De Laval separator, vats, scales, etc. All in first-class condition, having only been in operation a short time. Address JAMES KISNER, Lock Box No. 19, Manteno, Ill.

A Small Dairy Farm—40 to 60 acres wanted. Address B, 5234, care of Hoard's Dairyman.

Good second-hand engines $40.00 up; boilers $50.00 up. Write for stock lists. BICKNELL H'D'W. CO., Janesville, Wis.

Wanted—A man with small family to work by year on 80-acre farm. Must be temperate and steady, with some experience in caring for and milking cows. Milk goes to creamery. Good position for right man. Address LOCK BOX 24, Litchfield, Mich. 1-2

Wanted—A first-class cheese maker to make American cheese. Must be sober, steady man. Single preferred. J. M. WILDHABER, Plymouth, Neb. 1-2

Holsteins For Sale—4 cows due to calve, $500. 4 heifers, $.00. 1 yearling heifer, $75. 1 yearling bull, $125, or the 10 head if sold at once for $700, as we need the room They are of the Pietertje and Pauline Paul and DeKol families, the champion milch and butter cows of the world. Speak quick. WIS. LIVE STOCK ASSOCIATION, Appleton, Wis. 1-sp

Wanted—A married man with small or no family to work on dairy farm. Must be a good farm hand and good milker. Give age, experience and wages wanted. For particulars, address BELLEVUE FARM, Negaun e, Mich. 1-tf

Wanted—To lease or rent cheese factories. State terms, amount of milk received and location. Will pay patrons of factory for milk basis. highest market price of cheese. FOND DU LAC CHEESE AND BUTTER CO., Fond du Lac. Wis. 1-3

1000 Calves cured of scours. Four doses 50c; nine doses $1.00 by mail post paid. Send 10c. stamps for free sample. Address A. P. ATHERTON, Route 5, Maquoketa, Iowa.

For Sale—Up-to-date creamery. Bargain if taken before spring. Runs year round. Railroad center. City 7000 population. Best county southwest Missouri. Address "O," Hoard's Dairyman.

For Sale—Creamery, located 100 miles northwest of Chicago, with large local retail and wholesale trade. Has run ten years without a stop. Ill health cause for selling. Address 'W", Hoard's Dairyman. 1-2

Wanted—100 choice high grade Jersey or Guernsey cows, fresh or soon to be. H. I. PIERCE, Columbus, Ohio. 1-2

Practical dairyman wants to rent small dairy farm. P. GRAU, Algona, Ia.

For Sale—An Empire Cream Separator No. 5, for hand or power, and is in good running order. Address THOS. MARSH, Palmyra, Wis.

For Rent—Creamery, on shares to responsible butter-maker, or cash rental. Has an old established trade in Pittsburg and Cleveland. Man with small means required. Don't write; come and see it. Address Box 98, Hanoverton, Ohio.

Wanted—Second-hand cheese presses for flats and daisy cheese. Must be in good condition. Answer with full particulars. FOND DU LAC CHEESE AND BUTTER CO., Fond du Lac, Wis.

Buff Jersey's Son, 23 years of age, will accept a position of trust on horse breeding, cattle feeding or dairy farm. Fully competent to manage up-to-date farm or ranch along any of the above lines. No bad habits whatever. Address BUFF JERSEY, Monmouth, Ill. 1-4

Later Departure from Chicago for Sault Ste. Marie, Mich.—Via the North-Western Line The through sleeping cars for Manistique and Sault Ste. Marie, which have been leaving Chicago at 8 p. m. daily, except Sunday, now leave at 10:30 p. m. daily, except Saturday, thus affording connection with trains arriving in Chicago at a late hour. The only through sleeping car line between Chicago and "The Soo." For tickets and full information apply to agents Chicago & North-Western R'y. 1-3

TWO FARM SEPARATOR FACTS

FOR BOTH

Creameryman and Patrons.

In every instance where experienced creamerymen, having a knowledge of separators and appreciating the necessity of a common interest between creamery and patrons, are putting in "Farm" separators on a considerable scale. - - - - - - - -

THOSE SEPARATORS ARE THE DE LAVAL.

In every instance where the sale of ANY OTHER MAKE OF "FARM" SEPARATORS is being attempted on a considerable scale, the parties are new beginners in creamery work or else mere promoters or what the conservative creamerymen term "pirates" in the business, in either case without knowledge of separators or the character of relationship between creamerymen and patron essential to the enduring prosperity of both.

The comparison speaks for itself—it is in keeping with the difference between the De Laval and inferior makes of separators.

For Sale—Entire herd of grade Jersey cows and heifers. One bull registered in A. J. C. C. Call and see them. VAN DUYN BROS., Zenobia, Ill. 50-7

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence, Iowa. 50-tf

For Rent—160-acre farm, large bank barn, 30 cows, large silo, wind pump, horses, hogs, implements. Give one-third. Milk one dollar and up. None but an intelligent cow man wanted. Farm adjoins corporation. Address D. E. CHILD, Findlay, Ohio. 52 3

Ayrshire Cows For Sale—Being obliged to reduce my herd for lack of room I offer for sale five young registered Ayrshire Cows. These cows are of first-class lines of breeding, sound and healthy. Will also sell a fine young Bull Calf six months old, same breed. Address ED FINN, Fort Atkinson, Wis. 52-2

Guernsey Grade Heifer—For Sale 10 Guernsey grade young heifers. Seven of the lot 1 year old; 3 six months old, all in fine condition. Just right to serve as the foundation of a fine dairy. A finely bred young bull, 10 months old, registered Guernsey, to head the bunch. These heifers were bred from some of my finest grade Guernsey and Jersey cows. The lot will be sold at reasonable price. W. D. HOARD, Fort Atkinson, Wis. 52-tf

I want to develop the best and most modern sanitary milk producing plant to supply best city trade. A snappy young dairyman with good health and habits and some money and education is invited to co-operate. A gentleman of wealth who loves farm and dairy can also find pleasure and profit in assisting. Please investigate. BOX 1423, New York City. 52-4

$2,500 Cash will buy a modern dairy outfit, including dairy cows, horses, wagons, dairy and farm machinery, with milk routes for 400 quarts daily at fancy retail prices. Will lease farm five years or longer. Very near a growing southern city. A fine opportunity for a profitable business. Address at once C. O., care Hoard's Dairyman. 52-2

Wanted—Tenant for dairy and stock farm, to work on shares. Man with help preferred. Must be a good farmer, a worker, honest and dependable. Must be kind to stock, take pride in his home, and keep up the farm. Farm in fine location; joins beautiful summer resort; S. E. Wis.; good school and butter factory near, 240 acres, rich and productive, a money maker, stocked with Guernsey cattle and Poland-China hogs. A good lay to right man. The chance of a lifetime. No dead beats need apply. I mean honest business. Address JOSEPH REEK, Neenah, Wis. 52-2

Wanted, Position—By a young man with agricultural education and experiencs in dairy, creamery and general farm work. Address LEO HERSCH, Route 2, Pavilion, Genesee Co., N. Y.

Half Rates to the Mardi Gras and Winter Resorts—Via the North-Western Line. On account of the Mardi Gras at New Orleans and Mobile. excursion tickets will be sold February 17 to 22, inclusive (and for trains arriving at Mobile or New Orleans by noon of February 24),. at one fare for the round trip with favorable return limits. Excursion tickets are also on sale daily, at reduced rates, to the principal winter resorts in the United States and Mexico. For full information apply to ticket agents Chicago & North-Western R'y. 52-3

Buff Jersey's latest book on Farm Stock and Dairy Work is full of practical things for practical people. The Silo, how to build and fill; ensilage, its value; soil, crops, variety and how to grow. Swine, poultry and many other subjects ably treated. Send 25c for copy. Monmouth, Ill. 47-tf

Wanted—Experienced farm hand, able to milk well. Give age and wages wanted. ST. IVES PARK FARM, Mont Clare Station, Chicago, Ill. 41-tf

For Sale—The Prairie Farm, 840 acres. May be divided into five farms with buildings. In high state of cultivation, 16 miles from Toledo. One hundred cows, selected for 40 years. Terms to suit. 5%. Address E. L. LOCKWOOD, Petersburg, Mich. 46-tf

Wanted, Herdsman—Single, on up-to-date dairy farm. Good milker and experienced in feeding and stock raising of thoroughbred cattle. State age, nationality, qualifications, salary expected and references ROCK HILL FARMS, Box 17, Stamford, Conn.

Position Wanted—As butter maker or manager of creamery. Understand all details of creamery business and work. Fifteen years experience. Make cheese also. Best of references. Address B. care Hoard's Dairyman. 47-tf

For Sale—Two No. 25 Sharples Tub. Sep. in good order. J. W. RICE, Harmonsburg, Pa. 51-2

Wanted—Two good men, single, for Stock and Dairy Farm, to commence first of March or April. Apply, stating age, nationality, and wages expected to W. J. YOUNG, White Bear, Minn 51-tf

For Sale or Trade—Two registered Jersey St. Lambert and Pogis bull calves, 10 mos. old, $15.00 each, f. o. b. S. J. HOWARD, Henderson, R. R. 1, Ky. 51-3

First-Class Cheese Maker Wanted—Good wages. Fine factory. Small run of milk. Apply FOND DU LAC CHEESE AND BUTTER CO., Fond du Lac, Wis. 51-3

For Sale—Registered Ayrshires. Deep milkers. The result of 32 years breeding from the best. F. D. STOWELL, Black Creek, N. Y. 51-3

Are You Looking for Land?—Come up to Crandon and see what we have to offer. Fine hardwood timber country, good soil and good water. The saw-logs have been cut, but there is lots of timber still left on the land; wood, ties, bolts, pulp wood, hub timber, etc., enough to pay for it. Land lies within less than a mile of the C. & N. W. Ry., and near county seat. Low prices and easy terms of payment. Write me for maps and circulars. L. T. CRABTREE, General Land Agent, Crandon, Forest Co., Wis. 51-4

For Sale—A milk route with 40 cows and equipment. Address Box 351. Grand Rapids, Wis. 52-4

Wanted to Buy—Old Stone and Pottery Indian Pipes. Address G. A. WEST, Herman Building, Milwaukee, Wis. 52-4

Wanted—A man to handle trotting stallions. State wages. Address C. S., care Hoard's Dairyman. 52-2

For Sale or Rent—A first-class creamery in a very good location. Address BOXHOLM CRY. CO, Boxholm. Ia. 52-2

Wanted—Experienced cheese maker of good character and ability; small family. Must guarantee work. Address L. R. CHEESE CO., Camp Douglass, Wis. 52-2

Nothing Equal to the Cow to Redeem Worn Land.

ED HOARD'S DAIRYMAN:—As I do not know when my subscription to the HOARD'S DAIRYMAN expires, and as I do not want to miss getting every copy published, I take this opportunity to remit for it. So please find enclosed draft for $1.25 for which send me the paper for another year; for the 25c you may send me Woll's Book on Silage.

We have just completed a new creamery here in the last six months, and there is not a silo in this country for many miles around, and few people know what a silo is, or what it is used for. You may know the reason, when I tell you that this is the center of the broom-corn and Indian-corn district, which has had the reputation of growing the best crops of the same. Our people have been growing the above crops a long lifetime, and hauling the fertility of our farms to the railroads, and usually selling the crop at a very small profit, considering what they sold with them. The result is, our farms have decreased in those elements of fertility that usually make a good crop for an ordinary season.

To bring our farms up to a better standard of producing good crops, we of necessity must put some kind of stock on them that will help to restore the fertility that we have lost in the past, and we can think of no better way than to bring back to the farm, the mother of our last chance, (the good old milk cow), turn our corn acreage to grass acreage, sow more clover, more grasses of all kinds that is possible for us to raise. We will have to build silos; and as we have the corn crops to fill them with, and while I myself do not claim to know much about silage, I am as willing to learn as any one for the benefit of knowing, as well as making myself able to tell those people who do not care to take the pains to read for themselves. We have many people who are willing to learn by listening, and by taking notes from observation, or copy from these who venture out for success, but do not want to waste any time on an old newspaper. We all learn from one another, of course, but those that read, I find learn much faster than those who do not, and are the first usually to venture after new ideas.

Our fathers have worn out the soil, raising their boys up for presidents, store clerks, office boys and agents of all discriptions but a small number ever had the pleasure, of an agricultural education, that would make them able to recover the long lost fertility of the farm that has been exhausted in bringing them up to manhood. Thus they leave the farm to take care of itself in the end, while they go to the city. Our farms are in need of men who read when they rest, and think while they work, and dream while they sleep, to bring them back where they ought to be, for there is something more to do than to plow, plow, plow, and husk corn for market, if we would make the improvement of the farm compare to the appearance of the nearby city or town.

There is a popular chromo of a well improved town or city placed in front, with a ragged farm as a background, as a pleasing picture to look on. I remember seeing pictures of the old homestead, with the old fashioned fences and surroundings, that seemed pleasing to look at, and perhaps in their time was a happy abiding place, but in these times of improvements and better things at our command, to help us to better things and conditions, I believe that the picture of the old homestead, which is a mark or monument of the abiding place of the past, can not be used as the material and model for building the happy abiding place of the present. CHAS. H. FARIS

Lerna, Ill.

Farm Ideas About Dairy Foods. Soiling Crops.

Every farmer ought to have a true, intelligent idea about the value of the various foods he raises. He can have such ideas if he will read and make himself intelligent. Prof. Voorhees of the New Jersey Experiment Station, is one of the hardest students in the land on this feeding. He don't profess he knows it all, but he knows a lot that thousands of farmers could mighty well afford to swap their ignorance for and pay big boot. The farmer raises these foods at large expense, but because he does not know their feeding value oftimes, he wastes them, and beats himself. Here are some ideas Prof. Voorhees brought out in a recent address:

A ton of one kind of forage is worth much more than a ton of another kind.

Compare the dry matter of a ton of corn fodder with a ton of millet or teosinte. Twenty tons of the latter does not contain as much dry matter as two tons of corn fit for feeding. Again, there is a difference in the value of the dry matter. A ton of clover is worth much more than a ton of corn.

The first soiling crop at the New Jersey Station is rye. Almost invariably, it is not cut soon enough. Cut it just as soon as it begins to head out. The second soiling crop is wheat. Wheat and rye, if cut *early* are nearly as rich in protein as clover, but they rapidly decrease in value. Concerning alfalfa, he says:

One of the most valuable forage crops is alfalfa. It is difficult to get started, but remains well and the quality of the feed is high. When started it brings no expense except harvesting and one top dressing a year. On the college farm it has given twenty-six tons, equalling seven and a half tons of dry hay in a year, being harvested four or five times during the season. It is difficult to get a stand of alfalfa because the plants start spindling and weeds crowd. Some failures are due to lack of lime or fertility, and others to the presence of soil water near the surface. The first cutting is made in the last of May or first of June, and cuttings follow about once a month. It is important to cut regularly, regardless of the amount of growth. Otherwise some seed form and harm is done.

Concerning oats and peas, he says they often fail because not sown early enough; 2 bushels of peas and two of oats make a good mixture. Cows are fond of this feed and make milk of high quality. They should be cut always when the oats are in the milk.

Malted Corn Meal.

A South Carolina reader asks our opinion of malted corn meal to be fed in the place of cotton seed meal, and which is the best milk producer.

Malted corn meal is a new name to us for a feeding stuff. We apprehend it is a local name possibly for distillers dried grains, and if so we should estimate it to be nearly or quite as valuable as, and in some respects more valuable than, cotton seed meal for milch cows. If this material is not the same or similar to the distillers dried grains we must confess total ignorance on the subject.

"ADVERTISEMENT."

ONE WEEK.

Postum Coffee Re-made the Dominie in a Week.

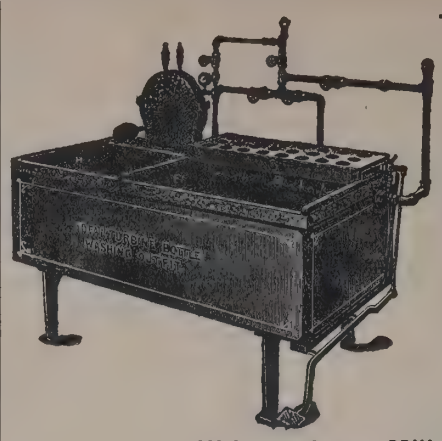
Where a person has no troubles excepting those caused by coffee Postum Food Coffee if faithfully used will usually act with remarkable quickness. Here is an example even where the coffee habit has been one of long standing.

"I had been a coffee drinker for 20 years and until recently regarded it as one of the 'stays of life'," writes a Tennessee clergyman.

"About a year ago an attack of malaria impaired my digestion and I began to use more coffee than usual thinking it would help my system throw off the malady. During that year I suffered indescribable agonies of nervous indigestion. Finally I noticed that every time I drank coffee for dinner or supper I was much worse. I told my wife I thought it was coffee and that I would quit it and use hot water. Then I thought I would try the Postum we had heard so much about.

"From the very day I left off coffee and introduced Postum I began to improve and at the end of one single week I did not have even the slightest symptom of nervousness and dyspepsia left. It is many weeks now since then and I have not only gained in flesh but am entirely free from indigestion and am strong and happy. My wife had been nervous and her stomach in bad condition and when she saw the change wrought in me followed my example and after using Postum a short time extremely beneficial results followed.

"I am a Methodist minister in charge of a church at Graysville, Tenn." Name furnished by Postum Co., Battle Creek, Mich.



THERE ARE PROBABLY MANY GOOD THINGS
THAT YOU NEED and ought to have, but don't know it.

Here is one of them:

OUR Ideal Turbine Bottle Washing Outfit

We have condensed a whole lot of good things into this outfit. Just packed them up from all around your milk depot and compressed them into one convenient piece of apparatus. Here you have washer, rinser, sprayer, and washing tanks all within easy reach. This is only one of several specialties we have in this line. Our information in this line is yours for the asking.

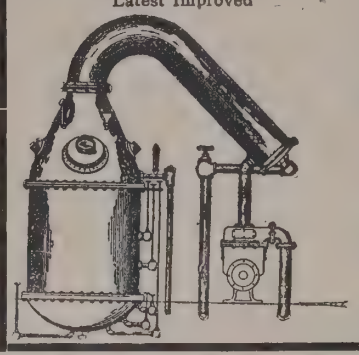
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BRANCHES: Kansas City, Mo.; Minneapolis, Minn.; Waterloo, Iowa; Omaha, Neb. and Cowansville, Quebec.

Latest Improved



Builder of more successful milk condensing factories than any other man in the world.

ROGERS' Milk Condensing Machinery.

Condensed Milk Factories built complete; put in operation Instructions Inall secret processes and results guaranteed By

R. R. ROGERS, 93 Chope Place, Detroit, Mich

The DeLOACH SAW MILLS ARE SURE WINNERS.

Eight Sizes, from Farmers' 4-h. p. Up to 200-h. p.

If Interested, write for large illustrated catalogue of *DeLoach* Patent Saw Mills to suit any power from 4 to 200-h. p.; Shingle Mills, Planers, Edgers, Trimmers, Staves and Lath Mills, Bolters Corn and Buhr Mills, Water Wheels, etc. To introduce our *New Farmers' Saw Mill,* fitted with *DeLoach* Patent variable Friction Feed, we make this special offer:



We will deliver on cars at factory our *No. 0 Pony Farmers' Saw Mill,* with Duplex Dogs, Improved Head Blocks and Ratchet Set works, complete as shown in cut, except it has Carriage made in two 4-foot sections, with Rope Drive instead of Rack and Pinion, without Saw or Belt, for *$115.00 Spot Cash.*

With 36-inch Solid Saw, $127.50; 40-inch, $132.50; 44-inch, $140 00; 48 inch, $150.00.

With 36-inch Inserted Saw, $147.50; 40-inch, $152.50; 44 inch, $160.00; 48 inch, $170.00.

Best Rubber Belting, 4-ply, 6-inch, 20 cents per foot; 8-inch, 30 cents per foot, *net.*

No discount from these prices.

Our Warranty: This mill is warranted to be made in workmanlike manner, of first-class material throughout, and to give perfect satisfaction if operated according to our printed instructions, which are so simple that a boy can understand them. *Any one with ordinary intelligence can set and operate* without the assistance of an experienced sawyer; will easily cut 2,000 to 2,500 feet of first-class board lumber per day with only 4-h. p.; 3,000 feet with 6-h. p.; 4,000 feet with 8-h. p.; is adapted to any kind or size power up to 15-h. p.

DeLOACH MILL MANUFACTURING COMPANY, Box 801 ATLANTA, GEORGIA, U. S. A.

☞The DeLoach is the only mill made that is shipped to all parts of the world. Over 10,000 in use.

Grit

Grit is a good thing in its place, but a bad thing in butter. Gritty salt—salt that's icy, insoluble, full of lime, chlorides and magnesium, is accountable for many exasperating difficulties of dairymen. It represents a loss of time, labor, money and patience, not always attributed to it. With DIAMOND CRYSTAL SALT—"*the Salt that's ALL Salt*"—your butter difficulties will disappear, and a gain in time, *money* and less labor result. Its dry, pure flakes dissolve quickly, imparting a rich flavor and keeping quality that find ready favor and highest market prices. "Just Salt" is a valuable booklet every dairyman should read. We send it free.

DIAMOND CRYSTAL SALT CO., ST. CLAIR, MICH.

SILOS FROM PUCET SOUND TO YOUR FARM. We shall ship to your town, Silo Stock of Staves One Piece the Depth of Silo. Oregon Pine which owing to length must be handled in car loads, giving to people contemplating the erection of a Silo in 1903 the benefit of through car load freight rates in a delivered price on Silo complete. Write us, giving size best adapted to your wants, and have booklet, "Silos and Silage," mailed you. It shows how to build, how to fill. WILLIAMS MFG. CO., Kalamazoo, Mich.

Cost of Feed and Income in 48 Herds Belonging to Patrons of Creameries in Fond du Lac County, for the 12 Months Ending September 30, , 1902.

Patron's Number.	No. of Cows.	KINDS OF COWS.	Cost of feed per cow.	Returns for butter from creamery per cow.	Pounds of milk per cow.	Pounds of butter per cow.	Average price of butter.	Average price of milk per 100 lbs.	Value of butter for one dollar's worth of feed.	Net profit or loss from butter per cow over cost of feed.
							Cents.	Cents.		
1	14	Grade Jerseys and grade Guernseys	$42.00	$57.89	5488	300	19	105	$1.38	$15.89
2	21	Guernseys, ¼ bloods	31.00	29.26	3361	155	18.9	87	.97	-1.74
3	13	Grades, Durhams and Holsteins	25.00	33.17	3968	185	18	84	1.34	8.17
4	25	Grade Guernseys and grade Jerseys	28.00	57.18	5809	298	19.2	98.4	2.04	29.18
5	8	High grade Short-horns	28.00	37.81	4531	204.4	18.5	83.4	1.34	9.81
6	11	Grade Jerseys	30.00	31.54	3175	167	19	99	1.05	1.54
7	12	Grade Guernseys and grade Jerseys	30.00	44.05	4201	220.3	20	105	1.47	14.05
8	10	Grade Guernseys and grade Jerseys	34.00	35.03	3866	177	19.8	90.6	1.03	1.03
9	8	Grade Short-horns	34.00	33.06	3969	183	18.1	83.2	.97	-0.94
10	20	Grade Jerseys	38.00	41.40	4576	213	19.4	90.5	1.09	3.40
11	9	Grade Jerseys	24.00	36.64	3812	192	19.1	96.1	1.53	12.64
12	7	Grade Durhams	29.00	27.95	3266	152.2	18.4	85.6	.96	-1.05
13	11	Grade Jerseys, 2 grade Durhams	22.00	29.78	3199	153.8	19.1	93.1	1.35	7.78
14	18	Grade Holsteins and grade Jerseys	30.00	22.67	2599	118	19.2	87.2	.76	-7.33
15	12	Grade Holsteins and grade Jerseys	27.00	28.61	3473	154	18.6	82.4	1.06	1.61
16	15	Grade Short-horns	24.50	34.46	4098	178	19.4	84.1	1.41	9.96
17	18	Holsteins and grade Jerseys	30.50	43.19	4806	218	19.8	89.9	1.44	12.69
18	17	Grade Guernseys	31.00	36.80	3820	191.6	19.3	96.3	1.19	5.80
19	10	Grade Holsteins and Durhams	22.00	32.95	3983	177	18.5	87.7	1.50	10.95
20	5	Grade Jerseys	27.00	48.79	4375	245	19.9	111.	1.80	21.79
21	22	Holsteins and Holstein grades	25.00	45.17	6016	231.6	19.4	75.1	1.81	20.17
22	10	Grades of different dairy breeds	38.00	42.23	4843	214.7	19.7	87.2	1.11	4.23
23	28	Grade Durhams, some grade Holsteins and Jerseys	28.00	31.16	3674	167	18.7	85	1.11	3.16
24	25	Grade Jerseys and grade Short-horns	32.00	34.31	3634	186.5	18.5	94.4	1.07	2.31
25	16	Holsteins	40.00	67.79	8396	333	20.3	80.7	1.69	27.79
26	17	Short-horns and some Jerseys and Holstein grades	34.50	24.33	3182	133	18.3	76.5	.70	-10.17
27	14	Grade Holsteins	31.50	31.28	3630	159.5	19.6	80.2	.99	-0.22
28	7	1 grade Holstein, 2 grade Jerseys, bal. common cows	40.00	45.39	4964	231.5	19.6	90.1	1.13	5.39
29	10	Grade Holsteins	33.00	37.11	4756	189	19.6	78	1.12	4.11
30	8	Common cows	30.00	33.06	3831	170.5	19.3	86.3	1.10	3.06
31	18	Common stock	24.00	34.22	4602	190	18	75	1.43	10.22
32	10	Common cows with a little Jersey blood	23.00	24.98	3023	123.9	20.1	82.6	1.09	1.98
33	15	Common cows	25.00	33.41	3938	171	19.5	84.8	1.34	8.41
34	7	2 grade Jerseys, balance grade Durhams	28.00	40.23	4623	197.6	20.4	87	1.44	12.23
35	10	Grade Jerseys and grade Short-horns	36.50	44.91	5531	230.8	18.8	81	1.23	8.41
36	10	Grade Short-horns	30.00	28.57	3626	152	18.7	78.8	.95	-1.43
37	10	Grade Durhams	31.00	26.49	3382	139	19	78.3	.85	-4.51
38	11	Jerseys and grade Jerseys	27.00	39.18	4259	203.5	19.3	94.3	1.45	12.18
39	12	Common cows	30.00	27.34	3285	139.1	19.7	83.2	.91	-2.66
40	15	Mostly grade Short-horns	27.00	41.06	4974	213.2	19.7	82.5	1.52	14.06
41	9	2 gr. Guernseys, 2 gr. Holsteins, rest grade Short-horns	32.00	35.34	4217	179.8	19.6	83.8	1.10	3.34
42	20	Grade Guernseys, grade Jerseys and grade Holsteins	30.00	31.25	3664	158.2	19.8	85.3	1.04	1.25
43	10	Grade Jerseys and grade Short-horns	20.00	28.66	3101	148.8	19.3	92.4	1.43	8.66
44	13	Grade Short-horns	35.00	35.40	4304	182	19.5	82.2	1.01	.40
45	14	Grade Red Polls and grade Short-horn, 2 grade Jerseys	32.00	32.80	3775	161.2	20.3	86.9	1.03	.80
46	13	Grade Durhams and common stock	26.00	30.53	3877	156.4	19.5	78.5	1.17	4.53
47	12	Grade Durhams	31.00	28.46	3618	143.2	19.9	78.5	.92	-2.54
48	7	Common cows	28.00	37.27	4503	189	19.7	82.8	1.33	9.27

Cost of Feed and Income in 12 Herds Belonging to Cheese Factory Patrons in Fond du Lac County, Wisconsin, for the 12 Months Ending September 30, 1902.

Patron's Number.	No. of Cows.	KIND OF COWS.	Cost of feed per cow.	Returns for milk from factory per cow.	Pounds of milk per cow.	Average price of milk per 100 pounds.	Value of milk for one dollar's worth of feed.	Net profit or loss per cow for milk over cost of feed.
						Cents.		
1	20	3 Jerseys, rest common stock	$23.50	$25.16	2817	89.3	$1.07	$ 1.66
2	14	4 grade Jerseys, rest grade Short-horns	32.50	21.51	2361	91.2	.66	-10.99
3	15	Grade Durhams	26.00	31.61	3602	87.8	1.22	5.61
4	18	Grade Holsteins and grade Jerseys	35.50	57.73	6338	91.1	1.63	22.23
5	14	Common cows with a little Jersey blood	27.50	29.58	3488	84.8	1.08	2.08
6	13	Holstein, Jersey and Durham grades	33.00	42.47	4760	89.8	1.29	9.47
7	20	Common stock	33.00	27.60	3205	86.1	.84	-5.40
8	9	Grade Durhams and grade Holsteins	30.50	29.88	3494	85.5	.98	-0.62
9	14	2 grade Jerseys, rest grade Durhams	25.00	35.59	4027	88.4	1.42	10.59
10	15	Jersey, Holstein and Durham grades	26.50	29.67	3116	89.5	1.12	3.17
11	12	Grade Durhams	30.00	44.38	5183	85.6	1.48	14.38
12	8	1 Jersey, 2 Guernseys, rest common stock	35.00	33.40	3748	89.1	.95	-1.60

Heavy Rains

soften the ground and prepare it for the seed. Williams' Shaving soap softens the beard and prepares it for the razor. Lathers freely and the big, creamy lather penetrates the beard, softens it wonderfully, so that it offers the least resistance to the razor. Makes shaving easy and pleasant.

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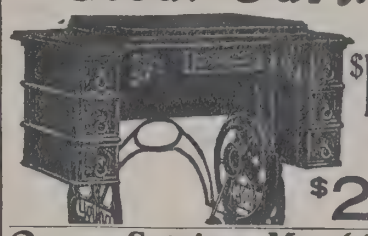
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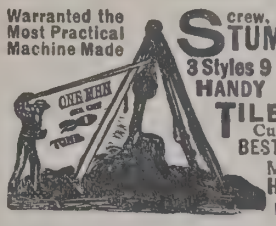
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$3 a Day Sure Send us your address and we will show you how to make $3 a day absolutely sure; we furnish the work and teach you free, you work in the locality where you live. Send us your address and we will explain the business fully, remember we guarantee a clear profit of $3 for every day's work, absolutely sure. Write at once. ROYAL MANUFACTURING CO., Box 855, Detroit, Mich.

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Fac-Simile Signature of John I. Brown & Son on every box.

Silage With too Much Water.

ED. HOARDS'S DAIRYMAN:—Last fall I put about 40 tons of green corn into an old cistern. I put it in whole without running through feed cutter. Some weeks afterward the cistern sprung a leak and a few days ago, I noticed the water had risen a few inches above the ensilage or corn. Do you think the ensilage is ruined, and what must I do about it? I was not quite ready to feed it yet, wanted to keep it until February. Do you think I had better feed it right away, or get that water out of it? N. F. A

New Providence, Tenn.

This is a new silo condition and we are not at all certain what the effect of the water would be in such a case, when in contact with the silage for a short time. But it is safe to say that the mass will ferment and spoil if the water is not removed. The water can be pumped out by driving a pipe with a drive well, point on it to the bottom of the silage and attaching a pump. It would be safer to feed the silage immediately as there is every probability of its soon spoiling.

Pea and Oat Silage.

A Question for Mr. Langdon.

ED. HOARD'S DAIRYMAN:—I have had great success with alfalfa. I sowed eight acres of heavy clay, and followed the directions of your paper, and I cut three heavy crops last season.

I saw a very interesting article in your paper of Dec. 19th, written by Mr. W. J. Langdon on pea and oat ensilage. Would Mr. Langdon please state whether he wet the peas and oats as he cut them in or not? C. H. W.

Smiths Falls, Canada.

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A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powdrpaint. It comes to the farmer a dry powder and all that is required is cold water to make a paint weather proof, fire proof and as durable as oil paint. It adheres to any surface, wood, stone or brick, spreads and looks like oil paint and costs about one-fourth as much.

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SURE CURE! Brooks Appliance. New discovery. No obnoxious springs or pads. Automatic Air Cushions. Binds and draws the broken parts together as you would a broken limb. No salves. No lymphol. No lies. Durable, cheap. Pat. Sept. 10, 01. Sent on trial Catalogue free.

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50 Head of Thoroughbred Registered A. J. C. C. Jersey Cattle

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SALEM, OHIO, MARCH 10, 1903,

including three great service bulls,

KLONDIKE GOLDDUST, NO. 52415,

double grandson of the Famous King of St. Lambert sire of 26. **Banshees St. Lambert Boy, 63763,** grandson of the great St. Lambert Boy, sire of 54, out of the great Dairy Cow Palestine Bess, test 19 lbs. **Pedro of Kensington, 50172** grandson of old Pedro, sire of 45, by Pedro Royal Mayoram sire of 8; grandson of Prospects Rioter, sire of 13; by Stoke Pogis 5th, dam Pedro's Pretty Duchess 16 lbs. 11 oz. The breeding of the above bulls is intense and pronounced by expert judges to be the leading trio and King of Bulls, cows equally as well bred. No postponement on account of weather. Write D. H. Jenkins, Indianapolis, Ind, or Brooks & Pidgeon, Salem, Ohio, for catalogues giving full particulars.

BROOKS & PIDGEON, Salem, Ohio.

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My Entire Guernsey Herd

Three daughters of Lilly's Bonny Boy and their decendants.

TWENTY FEMALES

Also two bulls and Roblanas Standard, the champion young Guernsey bull of Wisconsin State Fair, 1902. M. D. CUNNINGHAM,

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West Chester, Pa.

FOR SALE. A Good Dairy and Stock Farm of 120 acres, well watered, spring at door, a running brook through premises, well fenced, good house and out buildings, a small grove, barn nicely fixed for 22 cows, separator room attached. Am in dairying and have a nice herd of grade Jersey cows, a registered bull 2 years old, all located within one mile of town of 2500 inhabitants. A good cream trade with principal restaurant. Creamery in town. Would like to sell farm, dairy stock and all. A Bargain to the right man. IRA D. FOTMAN
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160 ACRE farm in Brown County, Minnesota, for sale. Best land, well improved. Special bargain, $45.00; easy terms. DeEvelyn Real Estate and Loan Co., Madelia, Minn.

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We own 40,000 acres in Red River Valley, in Marshall and Kittson Co's, Minn. and in Walsh and Grand Forks in N. D. 15,000 acres in LaMoure, N.D. Fine stock ranches in Logan and Mercer Co's, N.D. 50,000 acres of Timber land in Aitkin Co. Minn., and Washburn Co., Wis. Also 15000 acres in Southern Minn. in Lyon and Redwood Co's, near Marshall.

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Place has paid $4000.00 per year and a practical dairyman could make it $7000.00 per year. Will sell for about one-third cash down, balance on time. For full particulars address

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Guernsey Bull Le Grand Duke, 6193. First premium Ohio, Indiana, Illinois and Kentucky State Fairs; champion bull, any age, at Indiana, and senior champion at Ohio in 1902. Four years old, perfectly sound and without a superior as a show and stock bull in this country.

THE BELLE-VERNON DAIRY CO.,
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Old Homestead Guernseys.

Greatest Prize Winning Herd of the Breed, defeating all competitors at the state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.

Especially low prices, standing of herd considered. No catalogue. State what you want.

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The greatest opportunity to buy **High Class Registered Jersey Cows,** heifers, bull and heifer calves will be at **Salem, Ohio, March 3rd** next at A. M. Carr's farm. Write for descriptive list and come to sale.

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Wasteland Guernseys

Herd headed by Sir Choral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Young registered bulls always for sale. 5 high-grade heifers in calf, a bargain. M. M. & E. J. HOLLINGSWORTH, Landenberg, Chester Co., Pa.

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MATURE COWS YEARLY RECORDS range from 356 to 713.3 lbs. butter. This herd contains more officially tested cows than any other herd of the breed. All of the largest records are official ones. A particularly choice lot of tuburculin tested bulls for sale from high record dams.

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Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.

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Have been Bred for work in the Dairy. Are from the choicest foundation that could be bought. Include more Prize Winners than any other Herd. Are robust, true to type and of great capacity. Are noted for large milk yields, perfect udders and teats. All tuberculin tested for the last seven years.

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Hiron's St. Lambert Boy, 47681, sired by St. Lambert Boy, sire of 52 tested cows. Dam Eoline of St. Lambert 104819, a daughter of Lettie Coles 2nd, 21 lbs 8 oz. and dam of 4 tested cows.

This bull is 6 years old and his daughters just coming into milk are large promising heifers. Is offered for sale as we cannot use him in our herd any longer. OAKENWALD STOCK FARM.
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FOR SALE AT FARMER'S PRICES.

One St. Lambert bull ten months old; also bull calf three months old, or will exchange for as well bred heifers. Registered Poland China pigs for sale at all times. Correspondence solicited. FRANK SHADBOLT, Caledonia, Minn.

FOR SALE.

JERSEY BULL, one year old. Good individual of the best breeding, Also 7 months bull from tested dam. Herd headed by Fontaine's Owl, 60436. Prices on application. Address,
J. F. EGERTON, Footville, Rock Co., Wis.

FOR SALE Three A. J. C. C. bulls old enough for service. Two from tested dams. Also some younger ones. Cows and heifers bred to two of as well bred bulls as are owned in the state. Prices reasonable.

N. N. PALMER & SON, Brodhead, Wis.

HAZEL FERN HERD, A. J. C. C. Jerseys, blood of St. Lambert, Melia Ann, Combination. Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

PROSPECT HILL JERSEY HERD.

Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

FOR SALE GOLDEN LAD BLOOD. sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.
W. J. HUSSEY, Mt. Pleasant, O

VALLEY FARM Is offering some good bargains in bulls from 1 month to 3 years old. Must be sold to make room for winter. Write for prices to

FRED STUBLEY,
Black Earth, Wis.

ST. OMER HERD

Offers young bulls fit for service, out of tested dams with good yearly records. Strong in Exile of St. L., King of St. L. and Stoke Pogis of Prospect. Reasonabe prices. JOS. T. HOOPES, Bynum, Md

Exile of St. Lambert

—13657—

is the sire of more tested Jersey cows than any bull living or dead, and the number to his credit will probably never be equaled by any other bull. His dam was one of the largest milkers among Jerseys, and is the dam of the three year old cow with the highest year's milk record for that age. Exile's sire is the grand sire of the cow holding the highest milk record for a year.

The mid-winter sale lists include a few tested daughters of this great bull and several cows and heifers deep in the blood that produced this famous sire. If you wish to improve your herd, or to start one, you will probably never have a better opportunity than is here offered. If interested write for lists, and please specify whether bulls, cows in milk, or heifers, are wanted.

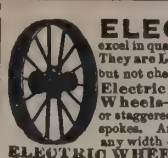
WINTERGREEN HILL FARM,
Scottsville, N. Y

Cost of Silage Again.

ED. HOARD'S DAIRYMAN:—It was not that "A Reader" thought a serious misstatement was made that he referred to the article on page 898. The cost of ensilage as given on page 847 from Massachusetts, seems rather high to "A Reader." It was rather the tendency to show farm operations in a too favorable light as regards cost, and not a personal criticism of the writer that was made as the article, page 965, shows. A re-reading will convince both gentlemen, Buff Jersey and Mr. Parsons of this, and also that neither have taken the view he would if he had not assumed a personal attack. The price of labor set for a man, $1; man and team, $2, for intelligent laboring men in these times is low, except as wages obtained in the south where Buff Jersey names $.50. We said the statement was extreme, which Buff Jersey proves by giving more than double the figures of page 898, and nearly harmonious with those offered the original inquirer by the Editor from Wisconsin experience.

As to "A Reader's" price for milk, or experience with silage, or dairying, that is no part of the discussion. Because he wrote from Chicago, it need not be assumed he is not familiar even at short range with handling silage, or farm dairying. He had seen for days flaring posters calling for workmen at $1.50 to $2 per day, and board to go out from Chicago to a number of states with transportation and board. He knows, too, that a little beyond Iowa he has handed over $1.75 per day, and 20 cents per hour, to intelligent farm laborers within the year. So farm wages at $1 per day may seem low yet, as it probably is for the South Framingham, Massachusetts inquirer. The tendency to make farm operations appear too cheap seems objectionable to at least one reader.

In looking back over the pages of HOARD'S DAIRYMAN, on page 844, are editorial comments on the failure of three creameries. May it not be possible that the wages paid the actual workmen had something to do with the failures? With wages higher in other states, the workmen not hampered in movement by families would be likely to move, and scarcity of labor, help reduce the milk supply. A READER.



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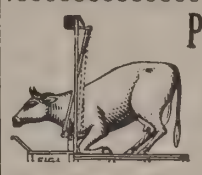
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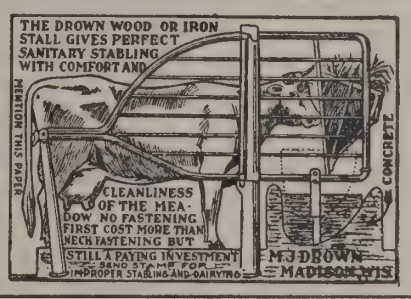
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Wilder's Stanchion —being an improvement over Smith's. Lightest, strongest, quickest, safest swing stanchion made. Has steel latch and automatic lock. Becomes stationary when open. Animal cannot turn it in backing out. Made of best seasoned hard wood. Pins for fastening with every stanchion. Send for testimonials. Box 81 J. K. WILDER & SONS, Monroe, Wis.



BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. Satisfaction guaranteed or pigs may be returned. JOHN WHITE & SON, Adamstown, Md.

RICHLAND FARMS, GREENSBORO, GA. We now have some very fine HOLSTEIN BULLS FOR SALE; also some pure bred registered Victoria Hogs, all ages, at bargain prices. Write us for what you want.

SHADY NOOK HERD Holstein Friesians offers three bulls from 11 to 16 months old. Two from A. R. O. dams. O. L. C. White Pigs, both sexes. White Cap Yellow Dent Seed Corn, $1.50 per bushel. W. R. GATES, Fort Atkinson, Wis.

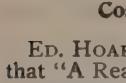
THREE HOLSTEIN BULLS sired by DE KOL 2D'S MUTUAL PAUL His four dams are the cows that made the Holsteins famous. Dam, De Kol 2d; G. dam Mutual Friend 3d; G. G. dam Pauline Paul; G. G. G. dam De Kol 2d. When looking for a bull to head your herd bear in mind that De Kol 2d being a world record cow herself, is also the dam of four generations of world record heifers. I offer three bulls ready for service, each carrying 28½ per cent or more of the blood of De Kol 2d from choicely bred dams. They are fine individuals, growthy and vigorous, and will be sold right, quality considered. GEO. F. CARTER, 126 North Salina St. Syracuse, N. Y.

GLENVIEW HERD. 2 H.-F. bull calves for sale. A. R. O. cows. Sired by Prince May Paul DeKol, No. 29331. IRWIN NOWLAN, Toulon, Ill.



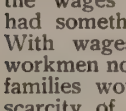
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Any one interested in the subject of mandolins, banjos and guitars can obtain a beautiful book about them free by writing to Lyon & Healy, Chicago. It contains portraits of over 100 leading artists, together with frank expressions of their opinion of the new model Washburn Instruments. Descriptions and prices of all grades of Washburns are given, together with "Facts about the Mandolin" and "How to Play the Mandolin." LYON & HEALY, 100 Adams St., Chicago, Ill. Washburns are sold by leading music dealers everywhere.

A. & G. Herd Holstein-Friesians —Choice-Bred BULL CALVES for sale, from 1 to 18 months old, from dams with official records, and sired by sons of De Kol 2d and Netherland Hengerveld. Herd contains 5 sisters of Lilith Pauline DeKol (who holds the world's official butter record of 28 lbs. 3 oz) 25 granddaughters of DeKol 2d, 5 daughters and 7 granddaughters of DeKol 2d's Paul DeKol (the sire of Lilith Pauline De Kol) and granddaughters of Pauline Paul, Netherland Hengerveld, Mutual Friend, Princess of Wayne, Johanna, Etc., Etc. AVERILL & GREGORY, The Yates, Syracuse, N. Y.

BROOKSIDE HERD offers SPECIAL inducements to quick buyers. We must sell at once to reduce herd to stabling capacity. All ages, both sex. Correspondence solicited. Visitors welcome. Address, STEVENS BROTHERS, Lacona, N. Y.

Holstein Freisian Bulls SOUTH SIDE FARM, WHITE BEAR, MINN., offers a number of thrifty well grown calves from Officially Tested Dams at bargains for quick sale, ages three to seven months. Also two fine yearlings, and one two year old. No Yorkshires for sale at present. Orders booked for spring pigs. Correspondence solicited.

HENRY STEVENS & SONS Have Dissolved Partnership, but if you are looking for first-class HOLSTEINS you can still find them here, and just now at prices that will interest you. WE MUST SELL. Be sure to address HENRY STEVENS & SON (NOT SONS) Box 208. Lacona, N. Y.

OAKLAND FARM HOLSTEIN-FRIESIANS OFFICIALLY TESTED. First Prize Herd at New York, Indiana, Kentucky, State Fairs and at St. Louis, Mo., in 1902. All ages, both sexes, for sale. Prices very reasonable, quality considered, T. A. MITCHELL, Weedsport, N. Y.

FOR SALE. H.-F. Bulls, ready for service from A. R. O. Cows and sired by Sir Johanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis

FOR SALE. 2 H. F. Bull Calves, 6 months old. Sired by Johanna Aaggie's Paul DeKol 23443, (160 A. R.) from good milkers and testers. M. S. CAMPBELL, Genoa, DeKalk Co., Ill.

CLOVERDALE HERD HOLSTEINS. Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited. A. J. DAUGHERITY Streator, Ill.

TYRANENA HERD 100 HOLSTEIN-FRIESIANS 100 A. R. O. Stock For Sale. Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz Frank B. Fargo, Lake Mills, Wis.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

Holstein-Friesian Bull Calves Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

HOLSTEIN FRIESIANS The right kind; bulls, cows, heifers. Write or come and see. McKAY BROS., Buckingham, Iowa.



Butter Bred Holstein-Friesian Cattle. Largest producing families of the breed. De Kols, Aaggies, Waynes, Netherlands, Pietertjes, Pauline Pauls. WM. O. JACKSON & SONS, South Bend, Ind.

FOR SALE. A fine farm in Sargent Co., North Dakota, consisting of seven quarter sections with lease continuing three years on two other quarters. Three Hundred acres in cultivation, six hundred enclosed in four pastures, remainder outlying prairie. Improvements consist of comfortable two story house with eight rooms, a fine barn 101x112 feet with capacity for stabling sixteen head of horses and eighty-four head of cattle in stanchions besides calf stable for twenty head and stable for young stock, besides box stalls for hospital purposes. Two fine silos inside with ninety ton capacity each, besides room for two hundred and fifty tons of coarse fodder, also root cellar 24x24 feet. A creamery 22x40 feet, two story with up to date machinery, a feed mill and elevator 18x32 feet with bins above to hold more than four thousand bushels of grain. Mill is equipped with a three roller mill besides corn sheller and grain cleaner and elevators and spouts and hopper, bottomed bins for the convenient handling of grain. Mill is connected to creamery by a building 20x28 wherein is a water wheel which drives the mill and creamery, also a boiler for steam heating and hot water for use in creamery. This room is also used for carpenter and blacksmith shop. Within this room is also located an artesian well yielding five hundred gallons of clear soft water per minute under a pressure sufficient to drive the mill and creamery. It also provides water on tap in the house and in all parts of the barn and flows off across the pastures making several small lakes and furnishes water on four quarter sections and finally flows off into a natural water way that leads to the Red River of the north. A water wheel at the barn furnishes power for cutting ensilage and other purposes. There is also a granary 18x32 with basement now used for ice house. The house is enclosed in a beautiful lawn of about eight acres wherein is the family garden. Several hundred fine forest trees have also been planted here besides some fruit trees all of which are doing finely. This is one of the finest and most complete plants for general farm purposes and for stock growing and dairying to be found in the northwest. Practical up to date farmers wanting a fine plant should investigate. For particulars address BYRON PARSONS Evansville, Ind.

FOR SALE. H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address W. H. JONES, Watertown, Wis. Rural Route No. 2.

HOME FARM HERD Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. One Hundred head to select from. W. B. Barney & Co., Hampton, Iowa.

Markham Manor Farms, Simonsville P. O. Andover, Vt. Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for description and price to J. A. THORNTON, Manager, Simmonsville, Vt.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland De Kol No. 41336 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No 29175. Sire: Count Colantha Alban No. 25148. Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited. WM. EVERSON & SONS, Lake Mills, Wis.

LOOK HERE. 34 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows and sired by Gem Pietertje Hengerveld Paul DeKol, or Sir Ormsby DeKol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days, average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd? McGEOCH HERD is located at Lake Mills, Wis., 56 miles west of Milwaukee. For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis Residence: National Ave. near 40th. Phone, South 1631.

Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29540. Nearly all of the leading families represented and for sale. O. H. STEVENS, Jefferson, Wis

HIGH-CLASS HOLSTEIN-FRIESIAN BULLS and Bull Calves from A. R. O. dams and the best Advanced Registry sires. Cows all officially tested; I breed from no others. Correspondence from breeders and progressive dairymen invited. Malcolm H. Gardner, Darien, Wis.

HOLSTEINS High Class Advanced Registry Stock only. Best butter families. Stock for sale. Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.

HOLSTEIN BULL CALVES. **Johanna Family.** (both sire and dams). ALSO BERKSHIRES. Wright's Farm. Berlin, Wis.

BROTHERTOWN STOCK FARMS. ABSOLUTELY BEST HERD OF HOLSTEIN FRIESIAN CATTLE. Home of the World's Champion Butter cow, Mercedes Julips Pietertje. Owing to shortage of feed, we have to sell several cows, A. R. O. and some well bred heifers; also finely bred calves of both sexes. Before buying write us; we can save you money. McADAM & VON HEYNE, Deansboro, N. Y. Proprietors.

WOODLAKE HERD. Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN, Station D., R. 1, Minneapolis, Minn.

Official Records of Holstein-Friesian Cows From Dec. 25, 1902, to Jan. 15, 1903.

Records of 62 cows have been approved during this period; of this number one has a record for six months, five have records for thirty days, two for forty days, one a record for fourteen days, and sixty have records for seven days. The averages of the seven-day records are as follows:

Nineteen full age cows, average age 6 years, 11 months, 19 days; days after calving, 21; milk, 450.6 lbs.; butter fat, 15.203 lbs.; equivalent butter 80 per cent fat, 19 lbs., 0.1 oz., or 17 lbs., 11 oz. 85.7 per cent fat. Nine four-year-olds average age, 4 years, 6 months, 28 days; days after calving, 16; milk, 402.1 lbs.; butter fat, 14.027 lbs.; equivalent butter 80 per cent fat, 17 lbs., 8.6 oz.,or 16 lbs., 5.8 oz. 85.7 per cent fat. Thirteen three-year-olds, average age 3 years, 6 months, 18 days; days after calving, 33; milk, 349.6 lbs.; butter fat, 11.999 lbs.. equivalent butter 80 per cent fat, 15 lbs., or 14 lbs, 85.7 per cent fat. Twenty two-year olds, average age 2 years, 4 months, 15 days; days after calving, 29; milk, 317.7 lbs.; butter fat, 10.211 lbs.; equivalent butter 80 per cent fat, 12 lbs., 12.2 oz., or 11 lbs., 14 6 oz. 85.7 per cent fat.

Korndyke Queen DeKol completed a six months' record as follows: Milk, 9,859.4 lbs.; butter fat, 349.636 lbs., equivalent to 437 lbs., 0.7 oz. butter 80 per cent fat, or 407 lbs., 14.5 oz. 85.7 per cent fat. The average quality of her milk during this whole period was 3.55. Owner, Henry Stevens & Sons, Lacona, N. Y. In studying this record and all other official records of the Holstein-Friesian Association it must be borne in mind that every milking is watched by the official inspector and each milking tested separately, so no possible errors either in quantity or quality can occur.

The thirty-day records were as follows:

Jarie Pauline DeKol 38928—7 years, 4 months, 16 days: days after calving, 9; milk, 2,172.4 lbs.; butter fat, 79.043 lbs.; equivalent butter 80 per cent fat, 98 lbs., 12.9 oz., or 92 lbs., 3.5 oz. 85.7 per cent fat. Best seven days commencing 28 days after calving; milk, 522.2 lbs; butter fat, 20.713 lbs., equivalent butter 80 per cent fat, 25 lbs.. 14,3 oz., or 24 lbs., 2.6 oz. 85.7 per cent fat.

Lillian Walker 38944—7 years, 6 months, 6 days; days after calving, 11; milk, 2,409.4 lbs.; butter fat, 71.615 lbs.; equivalent butter 80 per cent fat, 89 lbs., 8.3 oz., or 83 lbs., 8.8 oz. 85.7 per cent fat. Best seven days commencing 33 days after calving: milk, 624.5 lbs.; butter fat, 19.232 lbs.; equivalent butter 80 per cent fat, 24 lbs., 0.6 oz., or 22 lbs., 7 oz. 85.7 per cent fat.

Romeo Aaggie's Acme 42179—7 years, 13 days: days after calving, 2: milk, 1,865.5 lbs,; butter fat, 71.205 lbs.: equivalent butter 80 per cent fat, 89 lbs., 0.1 oz., or 83 lbs., 1.2 oz, 85.7 per cent fat. Best seven days was given in last report.

Paul De Kol 2d's Mutual Friend 37173—8 years, 4 days;days after calving,10;milk, 2,045.4 lbs.;butter fat, 62.693 lbs.: equivalent butter 80 per cent fat, 78 lbs., 5.9 oz., or 73 lbs., 2.3 oz. 85.7 per cent fat. Best seven days commencing 19 days after calving: milk, 522.2 lbs.; butter fat, 16.072 lbs.; equivalent butter 80 per cent fat, 20 lbs., 1.4 oz., or 18 lbs., 12 oz. 85.7 per cent fat.

Paul DeKol Aaggie Queen 2d 56708—2 years, 2 months, 17 days; days after calving, 13: milk, 1,539.6 lbs.; butter fat, 48.322 lbs.; equivalent butter, 80 per cent fat. 60 lbs., 6.4 oz., or 56 lbs., 6 oz. 85.7 per cent fat. Best seven days commencing 27 days after calving: milk, 373.2 lbs.; butter fat, 11.640 lbs.; equivalent butter 80 per cent fat, 14 lbs., 8.8 oz., or 13 lbs., 9.3 oz. 85.7 per cent fat.

The forty day records were as follows:

Roma Princess 49650—3 years, 4 months, 3 days; days after calving, 4: milk, 2,191.3 lbs. butter fat, 68.229 lbs. equivalent butter 80 per cent fat, 85 lbs., 4.6 oz., or 79 lbs., 9.6 oz. 85.7 per cent fat. Best seven days commencing 15 days after calving: milk, 400 lbs.; butter fat, 13.216 lbs., equivalent butter 80 per cent fat, 16 lbs., 8.3 oz , or 15 lbs., 6.7 oz. 85.7 per cent fat.

Aralia DeKol 55194—2 years, 4 months, 6 days: days after calving, 7: milk, 2,079 lbs.; butter fat, 56.155 lbs.; equivalent butter 80 per cent fat, 70 lbs., 3.1 oz., or 65 lbs., 8.2 oz. 85.7 per cent fat. Best seven days commencing 29 days after calving: milk, 387.6 lbs.; butter fat, 10.764 lbs. equivalent butter 80 per cent fat, 13 lbs., 7.3 oz., or 12 lbs., 8.9 oz, 85.7 per cent fat.

The fourteen-day record was as follows:

Helena Pietertje Burke DeKol 2d 56071—2 years, 1 month, 12 days; days after calving, 7; milk, 708 lbs.; butter fat, 21.588 lbs.: equivalent butter, 80 per cent fat, 26 lbs., 15.8 oz., or 25 lbs., 3 oz., 85.7 per cent fat. Best seven days commencing 14 days after calving; milk, 383.7 lbs.; butter fat, 11.103 lbs.; equivalent butter, 80 per cent fat, 13 lbs., 14.1 oz., or 12 lbs., 15.3 oz., 85.7 per cent fat.

The seven-day records not given above were as follows:

Mulvie's Pauline DeKol 43434—6 years, 26 days; days after calving, 18; milk, 496 lbs.; butter fat, 18.470 lbs.; equivalent butter, 80 per cent fat, 23 lbs., 1.4 oz., or 21 lbs., 8.8oz.; 85.7 per cent fat.

Maplecroft DeKol Perfection 39194—7 years, 5 months, 8 days; days after calving, 28; milk, 464.1 lbs.; butter fat, 17.098 lbs.; equivalent butter, 80 per cent fat, 21 lbs., 6 oz., or 19 lbs., 15.2 oz., 85.7 per cent fat.

Brookside Lilith DeKol 44928—5 years, 1 month, 17 days; days after calving, 17; milk, 479.9 lbs.; butter fat, 16.906; equivalent butter 86 per cent fat, 21 lbs., 2.2 oz., or 19 lbs., 11.6 oz., 85.7 per cent fat.

Jolie 4 th's Pauline DeKol 40399—5 years,3 months 5 days; days after calving, 27; milk, 526.4 lbs.; butter fat, 15.473 lbs.; equivalent butter, 80 per cent fat, 19 lbs., 5.5 oz., or 18 lbs., 0.8 oz., 85.7 per cent fat.

Queen Cantrilla 39097—8 years, 1 month, 26 days; days after calving, 17; milk, 427.6 lbs.; butter fat, 14.957 lbs.; equivalent butter, 80 per cent fat, 18 lbs., 11.1 oz., or 17 lbs., 7.2 oz., 85.7 per cent fat. Second record, days after calving, 25; milk, 407.5 lbs.; butter fat, 15.072 lbs.; equivalent butter, 80 per cent fat, 18 lbs., 13.4 oz., or 17 lbs., 9.3 oz., 85.7 per cent fat.

Belle Model 39852—7 years, 9 months, 9 days; days after calving, 9; milk, 437.5 lbs.; butter fat, 14.578 lbs.; equivalent butter, 80 per cent fat, 18 lbs., 3.6 oz., or 17 lbs., 0.1 oz.; 85.7 per cent fat.

Bessie Shadeland Boon 43044—5 years, 1 month, 22 days; days after calving, 19: milk, 485.7 lbs.; butter fat, 13.939 lbs.; equivalent butter, 80 per cent fat, 17 lbs., 6.8 oz., or 16 lbs., 4.2 oz., 85.7 per cent fat.

Mabel P. 39541—7 years, 2 months, 4 days; days after calving, 33; milk, 477 lbs.; butter fat, 13.937 lbs.; equivalent butter, 80 per cent fat, 17 lbs., 6.7 oz.; or 16 lbs., 4.2 oz., 85.7 per cent fat.

Gretta Thorne 3d 33315—9 years, 7 months, 24 days; days after calving, 15; milk, 342.5 lbs.; butter fat, 13.608 lbs.; equivalent butter 80 per cent fat, 17 lbs., 0.2 oz., or 15 lbs., 14 oz., 85.7 per cent fat.

Wynola 3d's DeKol 45051—5 years, 1 month, 13 days; days after calving, 13; milk. 455.8 lbs.; butter fat, 13.517 lbs.; equivalent butter, 80 per cent fat, 16 lbs., 14.3 oz., or 15 lbs., 12.3 oz., 85.7 per cent fat.

Margaret Hollander 33311—9 years, 10 months, 4 days; days after calving, 8; milk, 288 pounds; butter fat, 13.429 lbs.; equivalent butter, 80 per cent fat, 16 lbs., 12.6 oz., or 15 lbs., 10.7 oz., 85.7 per cent fat.

Dewdrop Clothilde Aaggie 48443—6 years, 5 months, 25 days; days atter calving, 18; milk, 402 lbs;; butter fat, 13.215 lbs.; equivalent butter 80 per cent fat, 16 lbs., 8.3 oz., or 15 lbs., 6.7 oz., 85.7 per cent fat.

Dijkstra America 45046—5 years, 1 month,6 days; days after calving, 11; milk, 410.8 lbs.; butter fat, 5.8 lbs.: equivalent butter, 80 per cent fat, 16 lbs., 13.092 oz., or 15 lbs., 4.4 oz., 85.7 per cent fat.

Corona Clifden 42317—6 years, 8 months, 19 days; days after calving, 6; milk, 410.8 lbs., butter fat, 12.953 lbs.; equivalent buttbr, 80 per cent; 16 lbs., 3.1 oz., or 15 lbs., 1.8 oz., 85.7 per cent fat.

Diotime 2d's Eunice 47219—5 years, 3 months, 8 days; days after calving, 50; milk, 380.7 lbs.; butter fet, 12.597 lbs.; equivalent butter, 80 per cent fat, 15 lbs., 11.9 oz., or 14 lbs., 11.2 oz., 85.7 per cent fat.

Roxie Wayne DeKol 45125—4 years, 11 months, 9 days; days after calving, 17; milk, 533.8 lbs.; but ter fat, 17.204 lbs.; equivalent butter, 80 per cent fat, 21 lbs., 8.1 oz., or 20 lbs.. 1.1 oz.. 85.7 per cent fat.

Paula Kola 44337—4 years, 9 months, 20 days; days after calving, 4: milk, 403.5 lbs.; butter fat 16.127 lbs.; equivalent butter 80 per cent fat; 20 lbs., 2.5 oz., or 18 lbs., 13 oz. 85.7 per cent fat.

Jessie DeKol Burke 44122—4 years, 10 months, 23 days; days after calving 13: milk, 531.9 lbs.; butter fat 16.007 lbs.; equivalent butter 80 per cent fat; 20 lbs., 0.1 oz , or 18 lbs., 10.8 oz. 85.7 per cent fat. Food consumed, ensilage 426 lbs., clover hay 67.8 lbs., oats, 43.61 lbs,, gluten feed 43.67 lbs., bran, 43.67 lbs.

Rhoda Colantha Beauty 44910—4 years, 9 months, 7 days; days after calving 9, milk 447.7 lbs.; butter fat, 14.619 lbs.; equivalent butter 80 per cent fat, 18 lbs., 4.4 oz., or 17 lbs., 0.9 oz. 85.7 per cent fat.

Roella Netherland Mechthilde 55705—4 years, 6 months, 21 days; days after calving, 19; milk, 283.6 lbs.; butter fat 12.682 lbs.: equivalent butter 80 per cent fat, 15 lbs.. 13.6 oz., or 14 lbs.. 12.7 oz. 85.7 per cent fat.

Lady Edith Alphia 53066—4 years, 26 days; days after calving, 23; milk 333.4 lbs.; butter fat 12.288 lbs ; equivalent butter 80 per cent fat, 15 lbs., 5.8 oz., or 14 lbs., 5.4 oz. 85.7 per cent fat.

Arlep Winkje Clothilde 49438—4 years, 5 months, 13 days; days after calving, 29: milk 347.4 lbs., butter fat 12.024 lbs.; equivalent butter 80 per cent fat, 15 lbs., 0.5 oz., or 14 lbs., 0.4 oz. 85.7 per cent fat.

Angostura 56732—4 years, 1 month, 19 days; days after calving 10, milk 335.7 lbs.; butter fat 11.268 lbs.; equivalent butter 80 per cent fat, 14 lbs., 1.4 oz., or 13 lbs., 2.3 oz. 85.7 per cent fat.

Duchess Aaggie DeKol 52408—3 years, 10 months, 28 days; days after calving, 17; milk, 382.8 lbs.; butter fat 15.739 lbs.; equivalent butter 80 per cent fat, 19 lbs., 10.8 oz., or 18 lbs., 5.8 oz. 85.7 per cent fat.

Ena DeKol 50126—3 years, 8 months, 23 days; days after calving 4; milk 358.9 lbs; butter fat, 13.177 lbs.; equivalent butter 80 per cent fat, 16 lbs., 7.5 oz., or 15 lbs., 6 oz. 85.7 per cent fat.

Tromp Clothilde 48262—3 years, 10 months, 18 days; days after calving 23; milk 394.7 lbs ; butter fat 13.158 lbs.; equivalent butter 80 per cent fat, 16 lbs., 7.2 oz., or 15 lbs., 5.6 oz. 85.7 per cent fat.

Miss Clay Lick 3d 56412—3 years, 9 months, 24 days; days after calving, 46: milk, 350.6 lbs.; butter fat, 13.014 lbs.; equivalent butter 80 per cent fat, 16 lbs., 4.3 oz , or 15 lbs., 2.9 oz, 85.7 per cent fat.

Paula DeKol 2d 50861—3 years, 9 months, 23 days; days after calving, 9: milk, 345.6 lbs.; butter fat, 11.965 lbs.; equivalent butter 80 per cent



The New 1903

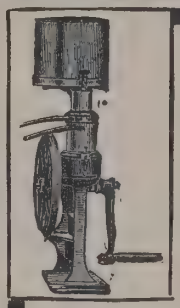
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The 1903 Reid Hand Separator is the most exact milk skimmer ever made—it is simplest, fastest, lightest running, and affords most butter-producing material under all conditions. It creates a new source of revenue and maintains the income—

WEARS LESS, LASTS LONGEST

Every Reid Hand Separator is sent out under a positive guarantee, and is sold on its own merits. If you want a separator we will send a Reid on approval—work it ten days and if it does not excel all others return at our expense. Send for new catalogue and revised price list, mailed free.

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AMERICAN CREAM SEPARATOR.

A friend to every man who owns a cow. A machine that is sold on its merits at a surprisingly low price. Get in touch with us. Write for our catalogue. It Is Free.

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NEW OXFORD, BALL-BEARING

Cream Separators.

Strictly a 20th Century Production.

We have moved the plant of the Oxford Mfg. Co., Oxford, Pa., to Council Bluffs, and the Oxford Separator is now manufactured exclusively by

WORLD CREAM SEPARATOR CO.,

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THE

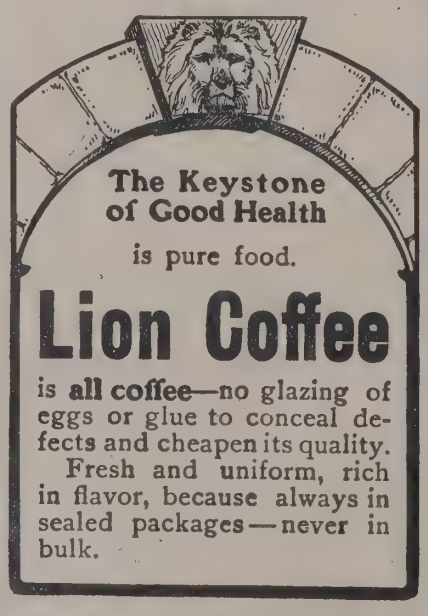
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Cream Flows From Top. Easy to Clean.

The machine is bushed at every bearing place with Phosphor Bronze. Write us for Catalog No. 40.

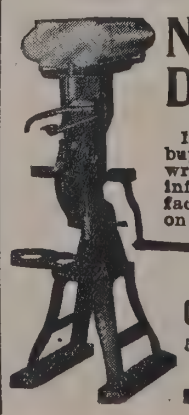
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We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity—1000 cans daily, which should enable us to fill all orders promptly.

Every can sold on a guarantee. Write for Circular H.



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Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right.

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fat, 14 lbs., 15.3 oz., or 13 lbs., 15.3 oz. 85.7 per cent fat.

Netherland Daisy Boon 48565—3 years, 8 months, 13 days; days after calving, 37: milk, 359.7 lbs.; butter fat, 11.883 lbs.; equivalent butter 80 per cent fat, 14 lbs., 13.7 oz., or 13 lbs., 13.8 oz. 85.7 per cent fat.

Nancy Aaggie DeKol 52416—3 years, 9 months, 2 days; days after calving, 31: milk, 339.3 lbs.; butter fat, 11.400 lbs.; equivalent butter 80 per cent fat, 14 lbs., 4 oz., or 13 lbs., 4.8 oz. 85.7 per cent fat.

DeKol Grindetia 2d. 53410—3 years, 2 months, 7 days; days after calving, 8: milk, 359.7 lbs.; butter fat, 11.204 lbs,; equivalent butter 80 per cent fat, 14 lbs., 0.1 oz., or 13 lbs., 1.1 oz. 85.7 per cent fat.

Norine 2d's Mechthilde 60901—3 years, 1 month, 20 days; days after calving, 55: milk, 298.8 lbs.; butter fat, 10.545 lbs.; equivalent butter 80 per cent fat, 13 lbs., 2.9 oz., or 12 lbs., 4.8 oz. 85.7 per cent fat.

Clothilde Pearl DeKol 52081—3 years, 1 day; days after calving, 36: milk, 357.6 lbs.; butter fat, 10.420 lbs.; equivalent butter 80 per cent fat, 13 lbs., 0.4 oz., or 12 lbs., 2.5 oz. 85 7 per cent fat.

Canary Beauty 51143—3 years, 6 months, 22 days; days after calving, 93; milk, 302.3 lbs.; butter fat, 10.131 lbs.; equivalent butter 80 per cent fat, 12 lbs., 10.6 oz., or 11 lbs., 13.1 oz. 85.7 per cent fat.

Mussed Up 56571—3 years, 3 months, 22 days; days after calving, 58: milk, 295.5 lbs.; butter fat, 10,130 lbs.; equivalent butter 80 per cent fat, 12 lbs., 10.6 oz., or 11 lbs., 13.1 oz. 85.7 per cent fat.

Johanna DeColantha 52253—2 years, 7 months, 20, days; days after calving, 33: milk, 380.8 lbs.; butter fat, 14.771 lbs.; equivalent butter 80 per cent fat, 18 lbs , 7.4 oz., or 17 lbs., 3 7 oz. 85.7 per cent fat. Food consumed: ensilage, 360 lbs.; clover hay, 58.3 lbs.; oats, 35 lbs.; bran, 35 lbs.; gluten feed, 35 lbs.

Minnie Pietertje DeKol 56701—2 years, 11 months, 27 days; days after calving, 27: milk, 306.4 lbs.; butter fat, 11.881 lbs.; equivalent butter 80 per cent fat, 14 lbs., 13.6 oz., or 13 lbs., 13.8 oz. 85.7 per cent fat.

Eva Blanco 56030—2 years, 2 months, 15 days; days after calving, 8: milk, 355.3 lbs.; butter fat, 11.214 lbs.; equivalent butter 80 per cent fat, 14 lbs., 0.3 oz., or 13 lbs., 1.3 oz. 85 7 per cent fat.

Korndyke Pietertje Queen 54509—2 years, 6 months, 11 days; days after calving, 5: milk, 300.4 lbs.; butter fat, 11.125 lbs.; equivalent butter 80 per cent fat, 13 lbs., 14.5 oz., or 12 lbs., 15.7 oz. 85.7 per cent fat.

Leila Pietertje Inka DeKol 54451—2 years,7 months, 4 days; days after calving, 72: milk, 327.7 lbs ; butter fat, 10.755 lbs.; equivalent butter 80 per cent fat, 13 lbs. 7.1 oz., or 12 lbs., 8.8 oz. 85.7 per cent fat.

Jetske Roe Countess 56517—2 years, 2 months, 19 days; days after calving, 16: milk, 369 lbs.; butter fat, 10.703 lbs.; equivalent butter 80 per cent fat, 13 lbs., 6.1 oz., or 12 lbs., 7.8 oz. 85.7 per cent fat.

Netherland Pietertje Lamb 56684—2 years, 2 months, 25 days; days after calving, 19: milk, 299.2 lbs.; butter fat, 10.204 lbs.; equivalent butter 80 per cent fat, 12 lbs., 12.1 oz., or 11 lbs., 14.5 oz. 85.7 per cent fat.

Dijkstra DeKol 2d. 51822—2 years, 7 months, 27 days; days after calving, 32: milk, 281 lbs.; butter fat, 10.181 lbs.; equivalent butter 80 per cent fat, 12 lbs., 11.6 oz., or 11 lbs., 14 oz. 85.7 per cent fat.

Princess Piebe DeKol 54728—1 year, 11 months, 16 days; days after calving, 16: milk, 298.4 lbs.; butter fat, 10.001 lbs.; equivalent butter 80 per cent fat, 12 lbs., 8 oz., or 11 lbs., 10.7 oz. 85.7 per cent fat.

Daisy Pauline Paul 2d. 52112—2 years, 6 months, 24 days; days after calving, 35: milk, 244.5 lbs.; butter fat, 9.581 lbs.; equivalent butter 80 per cent fat, 11 lbs., 15.6 oz., or 11 lbs., 2.8 oz. 85.7 per cent fat.

Melba Witkop 54402—2 years, 10 months, 19 days; days after calving, 10: milk, 294.3 lbs.; butter fat, 9.245 lbs.; equivalent butter 80 per cent fat, 11 lbs., 8.9 oz., or 10 lbs., 12.6 oz. 85.7 per cent fat.

Bess Clothilde Imperial 56712—2 years, 2 months, 29 days; days after calving, 25: milk, 281.5 lbs.; butter fat, 9.159 lbs.; equivalent butter 80 per cent fat, 11 lbs., 7.2 oz., or 10 lbs., 11 oz. 85.7 per cent fat.

Belle Aaggie Clothilde 54199—2 years, 14 days; days after calving, 15: milk, 348.7 lbs.; butter fat, 9.133 lbs.; equivalent butter 80 per cent fat, 11 lbs., 6.7 oz., or 10 lbs., 10.5 oz. 85.7 per cent fat.

Anzaletta Pauline Paul 2d 52296—2 years, 5 months, 22 days; days after calving, 46: milk, 310.8 lbs.; butter fat, 8.714 lbs.; equivalent butter 80 per cent fat, 10 lbs., 14.3 oz., or 10 lbs., 2.7 oz. 85.7 per cent fat.

DeKol Tritomia 56652—2 years, 2 months, 13 days; days after calving, 37: milk, 292.2 lbs.; butter fat, 8.534 lbs.; equivalent butter 80 per cent fat, 10 lbs., 10.7 oz., or 9 lbs., 15.3 oz. 85.7 per cent fat. Owner, T. S. Tompkins, White Bear Lake, Minn.

Narcissus DeKol 56649—2 years, 1 month, 23 days; days after calving, 64: milk, 243.6 lbs.; butter fat, 7.772 lbs.; equivalent butter 80 per cent fat, 9 lbs., 11.4 oz., or 9 lbs., 1.1 oz. 85.7 per cent fat. Owner, T. S. Tompkins, White Bear Lake, Minn.

Myrtle DeKol Mercedes 56653—2 years, 2 months, 13 days; days after calving, 45: milk, 213.7 lbs.; butter fat, 7.742 lbs.; equivalent butter 80 per cent fat, 9 lbs., 10.8 oz., or 9 lbs., 0.5 oz. 85.7 per cent fat. Owner, T. S. Tompkins, White Bear Lake, Minn. S. Hoxie, Supt. of Advanced Registry

Yorkville, N. Y., Jan. 15, 1903.

Items from a Maine Dairy.

Ed. Hoard's Dairyman:—Find inclosed clipping from *Turf, Farm and Home*, which was taken from our tally sheets:

I will give you from our tally sheet what a few of our cows have done.

June, gave 1898, 7,014 lbs. milk, test equals 397.8 plus 15 per cent, equals 457½ lbs. butter; 1899, 6,651 lbs. milk, test 6.6, equals 372.45 plus 15 per cent equals 428½ lbs. butter; 1900, 6,571 lbs. milk, test 5.6, equals 367.97 plus 14 per cent, equals 423 lbs. butter; 1901, 6,716 lbs. milk, test, 5.6, equals 376 plus 15 per cent, equals 432½ lbs. butter.

Carribel gave in 1899, 5,173 lbs. milk, test 6.6, equals 392¾ lbs. butter; 1900, 5,547 lbs. milk, test 6.6, equals 421 lbs. butter; 1901, 5,072 lbs. milk, test 6.6, equals 381 lbs. butter.

Beulah gave 1900, 6,743 lbs. milk, test 5.2, equals 405 lbs. butter; 1901, 6,397 lbs. milk, test 5.2, equals 378 lbs. butter.

Dell gave 1901, 5,754 lbs. milk, test 6.1, equals 399 lbs. butter.

Florris, with first calf from March 1, 1901, to March 1, 1092, gave 6.290 lbs. milk, test 5.2, equals 373 lbs. butter.

The best month's work of some of our cows are Daisy in June, 1899, 1,080 lbs. milk, test 5.7; Bess in March, 1901, 1,072 lbs. milk, test 5.2; Beulah in December, 1901, 1,106 lbs. milk, test 5.2; Beulah in November, 1902, 1,049 lbs. milk, test 5.2; Calla in 14 days, ending to-day, 472½ lbs. milk, test 5.6.

From our last churning from the milk from 16 cows and heifers in five days saving of cream, we made 74 lbs., 14 ounces of butter, besides feeding eight lbs. whole milk per day to a calf and using cream on oat meal every morning.

Talk about luck; a few years ago we bought a registered Guernsey bull; in the fall of 1900 out of nine calves, seven were heifers, and in the summer and fall of 1901 out of 12 of his calves 11 of them were heifers. We have now at the head of our herd an 18-months-old registered Guernsey bull from the herd of Edward R. Strawbridge, Morristown, New Jersey, and after his bull Main Stay.

We have eight ½ blood and two ¾ blood Guernseys, three of which are giving milk, and two more will come in in March.

Fernside Dairy,
C. H. Fuller, Prop.

Norridgewock, Me.

Young Grass *vs.* Old.

Would it not be better to cut grass early and get two crops, than wait till later till the grass gets more mature and the seed forms? Would not the last way take more fertility from the soil than the two crops?

I know that there is more milk in light, flushy second crop clover and mixed grasses than in the same bulk of hay. One year we had but little of it, and we fed it extra during the cold snaps and kept our cows up better than ever before.

The next year we had a lot of it and fed it as part of the ration every day, and our cows did better than before or since, as we have been unable to get any till this year, and as the spring and summer have been very hard, our cows are not doing as well as I could wish.

Now, if the first crop could be cut so as to be of as much value as the second, it would be of much more value than is usually the case. C. H. F.

Skowhegan, Me.

Young grass cut while in blossom is much superior to that which has gone to seed. In this latter state most of the nutriment is either enclosed by the cellulose of the stalk or else is packed in the seeds, from which the stomach is unable to extract it, and it goes into the manure unused. Well cured, young grass will always give better feeding results than a more mature variety, that has formed seeds.

Feeding City Swill to Swine.

Ed. Hoard's Dairyman:—I reply to T. B. N. of Frankfort, N. Y. in your issue of January 23, 1903, about feeding city swill to swine, I would say that the swill is too rich and contains too much grease for swine and is injurious if fed continually to either young or old swine.

If T. B. N. would feed oats in the morning, swill for noon and bran mixed with potatoes or turnips, and alternate ashes and sulphur, once a week, he would soon see an improvement for the better.

Swill should not be boiled, but I would advise warming. G. W.

Liberty, N. Y.

Farm Wagon Only $21.95.

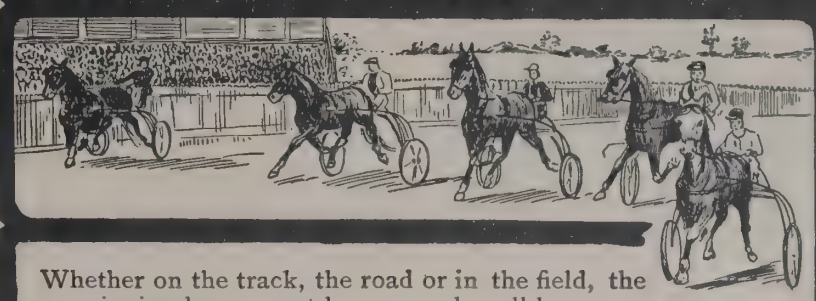
In order to introduce their Low Metal Wheels with Wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, that is only 25 inches high, fitted with 24 and 30-inch wheels with 4-inch tire, and sold for only $21.95.



This wagon is made of the best material throughout, and really costs but a trifle more than a set of new wheels, and fully guaranteed for one year. Catalogue giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who also will furnish metal wheels at low prices, made any size and width of tire to fit any axle.

Cream SEPARATORS All about them and other things for the dairy and creamery.
A. H. REID, - Philadelphia, Penn.

A WINNING HORSE



Whether on the track, the road or in the field, the winning horse must be a sound, well horse.

Mexican Mustang Liniment

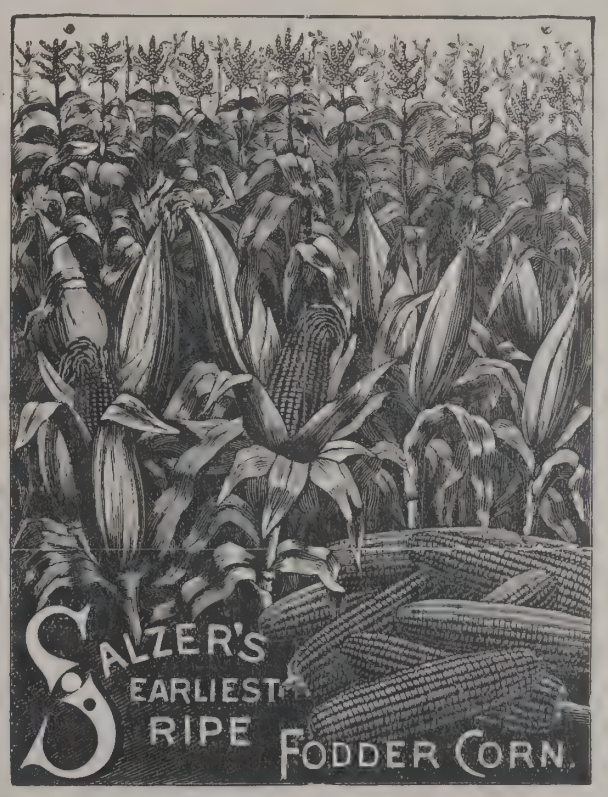
is the long time friend of the horse; the surest cure of the many ailments which beset him. It cures his sprains, stiff joints and lameness, reduces swelling and inflammation, soothes and heals barbed wire cuts, wounds and sores. It is the liniment which

Stands the Test of Time.

It has been in constant use for over sixty years. Fathers and grandfathers of this generation testified to its high curative powers for horse and man. Modern scientific discovery has not given us an equal to it in the present day. **Mustang Liniment** penetrates through the well parts, leaving them unimpaired, and gets right down to the seat of the injury, no matter how deep-seated it may be. If you have never tried it, you have been without the sovereign horse remedy of the world. If you would be guided by the experiences of millions of users, covering a large part of the last century, buy your bottle from any liniment dealer. **Three sizes, 25c, 50c and $1.00.** Largest size is cheapest. Don't fail to write us for our little book, **"Points from a Horse Doctor's Diary."**

LYON MANUFACTURING CO., 41-45 South Fifth St., Brooklyn, N. Y.

Early Ripe Fodder Corn.



This corn has leaped with one wild bound into popularity and nothing that we have ever sold has given such great satisfaction. Everywhere throughout the United States, where Salzer's Early Ripe Fodder Corn was planted, it surprized and delighted, and pleased and astonished the grower.

It Was Ripe In 60 Days

and furnished magnificent feeding Corn just at a time when farmers were short of Corn. If you plant this early, you will have fine feeding Corn by July, when you can replant same and have good Fodder Corn in September. This is the most wonderful Ensilage Fodder Corn in the world. Our catalog gives full description.

Salzer's Superior Fodder Corn.

This variety is late, but it's the greatest Fodder Corn on earth. Here are two testimonials from wide-awake farmers that will tell you what they think of this remarkable Fodder Corn. It is far ahead of such varieties as B. and W. corn, when big ears, full ears, and lots of them, together with enormous quantities of leafy, rich Fodder are desired:

Chas. E. Brandel, Truesdell, Kenosha county, Wis., says: "The Salzer Superior Fodder Corn that I got from you last spring is truly a great and wonderful Corn. Planted it the latter part of June and some of it nearly ripened before the early frosts. There are two big ears on almost every stalk, and if it had been planted earlier, there would have been magnificent Corn, thoroughly ripened."

"Racine, Wis., Sept. 14—Out on my farm we planted nearly five acres of your Salzer's Superior Fodder Corn, and it is a sight. From one square rod we cut and bound 450 lbs., and this, I believe, is at the rate of 36 tons (72,000 lbs.) per acre.—C. C. Beebe."

OTHER FODDER PLANTS. Salzer's Catalogue is brim full of rare Fodder plants for the dairy. There is nothing in the world better than Salzer's Teosinte, yielding 100 tons of green Fodder per acre, Salzer's Billion Dollar grass, with its 12 tons per acre, and Salzer's Thousand Headed Kale, Dwarf Victoria Rape, Bromus Inermis, Kaffir Corn, Sand Vetch, Jerusalem Corn and the Giant Spurry are but a few of the things found in Salzer's Catalogue.

FOR 8c. If you will mention Hoard's Dairyman when you write, we will send you a sample package of the Earliest Ripe Fodder Corn and Salzer's Superior Fodder Corn, the two best Fodder Corns on earth, together with our great Catalogue, well worth $100.00 to the wide-awake dairyman and farmer.

JOHN A SALZER SEED CO., LA CROSSE, WIS.

5,000 Farmers

ordered fence direct from our factory this year. Many of them had done so before and had found that our

ADVANCE FENCE



fit their requirements exactly. Of course the price had much to do with this. When a farmer can buy the best fence on the market at manufacturer's prices, he finds it a good and safe investment. It's so good you will order the second and third time. Your name and address on a postal card will bring circular and special prices. Have fence ready when you need it.

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BROWN

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Heaviest, strongest, most durable fence made. All wires extra large. We sell to Farmers at Wholesale Prices. Coiled Spring, Barb and Soft Galvanized Wire.

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The Brown Fence & Wire Co.
21½ Huron St., Cleveland, O.

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of the experiences of a lot of practical farmers have been worked into Page Fence. It's a farmer's fence, for all farm and stock purposes.

PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.



A FENCE MACHINE

That combines Simplicity, Durability, Rapidity and Economy, **The DUPLEX.** It makes over 100 Styles, 50 to 70 rod a day, of Horse-high, Bull-strong, Pig and Chicken-tight Fence that combines Strength, Uniformity, Permanency, Reliability and Efficiency AT COST OF WIRE. Machine on Trial. Full information free. Wire of every description at Wholesale Prices. Write today.

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FENCE! STRONGEST MADE. Bull Strong, Chicken-Tight.

Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free.

COILED SPRING FENCE CO.
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GRISWOLD WIRE FENCE

Square Mesh, Dimond Mesh Fence, Plain, Galvanized, Barbed, or Telephone Wire. Write for illustrated catalog and price list.

DILLON-GRISWOLD WIRE CO., Sterling, Ill

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THE FROST WIRE FENCE CO.,
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beats the coal trust. Burn up the old wood fence the money saved will replace with **Cyclone.** Less work to put up **Cyclone** than to patch up old fence.

CYCLONE FENCE CO.,
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TURKESTAN ALFALFA,

the wonderful forage crop which we introduced generally last year has easily surpassed all expectations of it. Trial has demonstrated these points of superiority over ordinary alfalfa: **It is hardier, stands drouth and freezing better, sprouts and starts quicker, grows faster and makes greater yield, gives better results in alkali soils and produces five crops a year.** Being the first to handle it we are **headquarters for the best imported seed.** Try it this season without fail. New, large, illustrated catalogue—**a thousand things for farms and gardens, mailed free.** Write for it at once.

CURRIE BROS. Seedsmen, Dept. M MILWAUKEE, WIS.,

KENTUCKY GRAIN DRILLS

DISK OR SHOE

THE KIND THAT'S ALL RIGHT ALL THE TIME

Brennan & Co. S. W. Agl. Wks., Louisville, Ky.

SHIPPED FROM MINNEAPOLIS, MINN. AND OMAHA, NEB.

MR. MILK DEALER. I have something new. Invaluable to you. Send for free Booklet.

S. C. SULLIVAN, 425 W. 4th, Erie. Pa.

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10 DAYS FREE TRIAL



$25.90 BUYS OUR EMPRESS TOP BUGGY, exactly as illustrated, complete with top, back and side curtains, cushion back, carpet, anti-rattlers and shafts; a thoroughly reliable and spring top buggy, the very latest style for 1903.

$28.75 BUYS OUR SUMMER BEAUTY LEATHER QUARTER TOP BUGGY, exactly as illustrated, full leather quarter extension top, full length side and back curtains, panel back, piano body, end springs, Sarven's patent wheels, everything complete, including shafts.

$25.90 BUYS OUR BOULEVARD GEM STICK SEAT RUNABOUT, exactly as illustrated, the latest style for 1903, complete with handsome cushion, back, carpet and shafts.

$49.75 BUYS OUR FAMILY FAVORITE LARGE SIZE SURREY OR CARRIAGE, exactly as illustrated, complete with handsome canopy top, full length side and back curtains, large handsome fenders, handsome lamps, full spring cushions, Sarven's patent wheels, carpet and shafts.

$31.75 BUYS OUR BIG ROAD KING COMBINATION HALF PLATFORM SPRING WAGON, exactly as illustrated, complete with two seats, full spring cushions and backs, including shafts.

10 DAYS' FREE TRIAL. WE SHIP VEHICLES ON TEN DAY'S FREE TRIAL, with the understanding and agreement that if you do not find them better in quality and lower in price than you could buy elsewhere, return the rig to us at our expense and you are not put to one penny's expense.

OUR INDIANA BUGGY FACTORY IS ONE OF THE LARGEST IN THE WORLD, and our low prices on all kinds of vehicles, open and top buggies, road wagons, runabouts, surreys, phaetons, carriages and other vehicles will surprise you. Our Prices Barely Cover the Cost of Material and Labor, with but Our One Small Percentage of Profit Added.

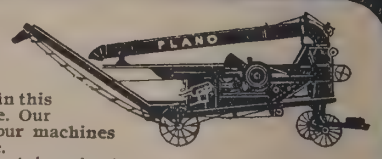
WE CAN MAKE IMMEDIATE SHIPMENT OF ANY RIG, AND OUR FREE VEHICLE CATALOGUE explains how we make the freight charges very low by shipping from KENTUCKY, MICHIGAN, MINNEAPOLIS, OMAHA, KANSAS CITY OR DES MOINES.

DON'T BUY A BUGGY OR CARRIAGE OF ANY KIND UNTIL YOU RECEIVE OUR NEW SPECIAL VEHICLE CATALOGUE, the most wonderful book ever published, the most astonishing price offerings ever made, the most liberal proposition ever heard of, offers that will surprise you. Write for our FREE VEHICLE CATALOGUE TODAY, and you will receive illustrations and complete descriptions of these five rigs, and an immense assortment of other styles, kinds and grades at correspondingly low prices.

Address, SEARS, ROEBUCK & CO., Chicago, Ill.



Buy a PLANO *and get* LASTING SATISFACTION



For five years past you have not seen our advertisement in this paper—we've been "cram full" of business; had no need for more. Our factories have been growing, but the satisfying quality of our machines remains the same—a quality that's hard to match at any price.

The Plano Binder holds the world's record for accurate tying; is the only harvester with a Fly Wheel, Lever Driven Binder, Friction Clutch Reel, etc.

The Jones Vertical Mower, though one of the simplest mowers made, shows many valuable features found in no other. Its Lifting Lever brings the bar straight up to pass a tree or stump.

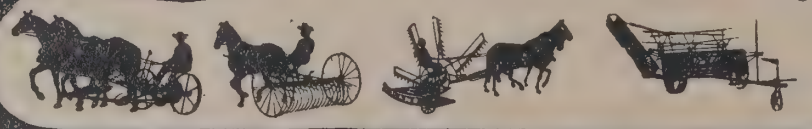
The Plano Husker and Shredder and Corn Binder are among the latest triumphs of farm implement construction; get double profit from the corn crop.

The Plano catalogue tells more about them—it's free.



PLANO DIVISION

International Harvester Co. of America, Chicago, Ills.



MAUD MULLER

raked hay in the old fashioned way.



Deering IDEAL RAKES AND MOWERS

are used nowadays by up to date farmers.

DEERING DIVISION
INTERNATIONAL HARVESTER CO.
OF AMERICA
CHICAGO, U.S.A.

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30 YEARS SELLING DIRECT

We are the largest manufacturs of vehicles and harness in the world selling to consumers exclusively.

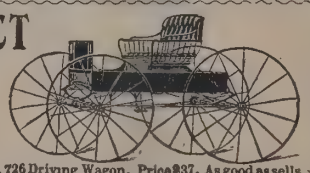
WE HAVE NO AGENTS.

but ship anywhere for examination, guaranteeing safe delivery. You are out nothing if not satisfied. We make 195 styles of vehicles and 65 styles of harness.

Large Catalogue FREE—Send for it

Visitors are always welcome at our factory

ELKHART CARRIAGE & HARNESS MFG. Co., ELKHART, IND.



No. 726 Driving Wagon. Price $37. As good as sells for $25 more. Extra ¾ in. Kelly Rubber Tire $13.

ROUND SILOS.

No corners, no angles, hence no moulding, rotting and waste. Cypress, White Pine and White Hemlock. 4 styles; 200 sizes. Best and cheapest Silos on earth. All kinds Silo machinery. Catalog free.

HARDER MFG. CO., Cobleskill, N. Y.

$45 WKLY.

selling ACME PUMP GOVERNORS. They make all pumps work easy and fit all kinds, (iron or wood) Mills run with ⅓ less wind. Agents Exclusive territory. Its Merits sell it.

PUMP GOVERNOR MNFG. CO., (K) 40 Dearborn St., Chicago, Ill.

Water In The Stable a Necessity.



It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. **Why not use the Best?** Write for descriptive circular.

C. E. BUCKLEY & CO., Poughkeepsie, N. Y.



Iron Troughs

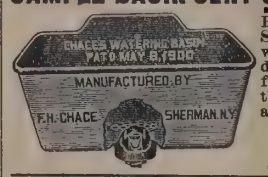
First Lot at Wholesale. Can't break or rot, nice round rim, any size or shape. Write for circular of Cow Basin, Poultry and Stock Troughs. Who will be first.

D. H. BAUSMAN, Bausman, Lanc. Co., Pa. We make Steel Swings. Fine Booklet Free.



Absolutely perfect. Water always fresh.
Soon pays the cost. Send for catalogue.
Cheapest because best. No disease where used.

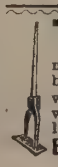
SAMPLE BASIN SENT ON APPROVAL.



Basins are fitted with Self Closing Cover which prevents all dirt and sediment from getting into them. Send for catalogue and price list.

F. H. CHACE.
Sherman, N. Y.

This Tubular Fence Post



made of Galvanized Metal, will not rust, rot nor burn, and will last a lifetime. Cheap as the best wood post. Takes any kind of woven, barb or smooth wire fence. Made plain or ornamental. For farm, lawn, cemetery, etc. Circulars and prices on application.

Bloomfield Mfg. Co. Box 104, Bloomfield, Ind.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Indigestion.

What will stop my 9-months old calf from eating old sacks, leather, rubber, paper and boards? I feed her milk and water from gravity separator, some mixed feed with what hay she will eat. Have fed her lately a little cotton seed meal and bone meal. SUBSCRIBER.
Newport, N. H.

ANSWER.

Your calf has an attack of indigestion, hence the craving for unnatural substances. Give her a teaspoonful of bicarbonate of soda in each drink of milk and feed light until the trouble has subsided. Discard the cotton seed meal at once.

Diseases of Animals.

Does the book Diseases of Horses and Cattle by Prof. D. McIntosh tell what remedies to apply for the treatment of their diseases? H. A. H.
Colebrook, N. H.

ANSWER.

The above book gives the symptoms of disease and remedies to be used. It can be obtained from this office for $1.75 post paid.

Dose of Nux Vomica.

I read in the DAIRYMAN of feeding cows nux vomica to make them come in heat, but I have lost the number in which it was printed, so I do not know how much to give them.

We are feeding the milk cows a mixture of 2 parts bran, 1 of corn meal and 1 of gluten meal. We feed the fresh cows 12 lbs. of the mixture daily and the ones that do not milk so much, are getting less. Our rough feed is drilled corn fodder at night and shredded fodder and oat hay in the morning. G. A. S.
Stitzer, Wis.

ANSWER.

The dose of nux vomica in your case would be 1 dram once daily in food, to be continued about two weeks or until successful. If you are obliged to continue longer than two weeks, it is best to rest a week or so and then begin again.

Six lbs. of bran, 3 lbs. corn and 3 lbs. gluten meal makes a very generous ration. We think you might take out at least one pound of corn meal and the same amount of gluten meal from the daily allowance.

You Can Save Your Horse

from **Spavin, Ringbone, Splints, Curbs and all forms of Lameness** by a prompt and liberal application of that old reliable and well known remedy—



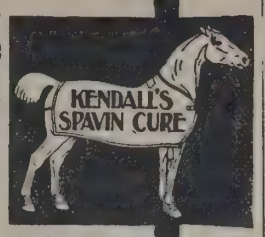
Kendall's Spavin Cure

It has the unqualified endorsement of every man who has ever used it. Here is a sample of what thousands say for it.

WORTH $200 TO THIS MAN.

Astora, Ills., May 22nd, 1900.

Dr. B. J. Kendall Co., Messrs:—Please send your Treatise on the Horse and his Diseases. Your liniment **saved a horse** for me that I expected to get $200.00 for. It can't be beat and I will be very thankful for the book. Respy, C. A. CREBBS.



It is a most valuable liniment for family use—splendid for bruises, sprains, lame back, rheumatism, etc., etc. Sold by all druggists at $1; six bottles for $5. Our book, "A Treatise on the Horse," mailed free. Write at once and address

DR. B. J. KENDALL CO., Enosburg Falls, Vt.

"SAVE-THE-HORSE"
TRADE MARK

SPAVIN CURE

Need one wonder why our written guarantee, wh ch accompanies every bottle, was constructed so it is equivalent to a bond?

SPRING VALLEY, N. Y.

About two months ago our mare became suddenly very lame in front leg between the knee and fetlock and, after using liniments, it became no better so I concluded to try "Save-the-Horse", as I reckoned no h use could afford to give the guarantee you give on a worthless thing. I procured the medicine and followed instructions to the letter and on the fifth day the lameness was nearly all gone. Two days later I began driving her short distances and every day a little further and kept up the treatment another week and since then she has not been lame a minute. I think it is a great remedy and have told a number of people about it. The price is what kept me from trying it before, but now that I have seen what it has done I think it is cheap. I have about two-thirds of the bottle left. Wishing you the success that "Save-the-Horse" certainly deserves, I am,

Yours very truly, WM. F. KUNTZ.

GREAT NECK, L. I.

On September, 19th., 1902, I procured a bottle of your "Save-the-Horse" for use on a bog spavin which had begun to be very prominent, in fact I believe it to have been about fully developed. The directions for use were adhered to minutely and before the contents of the bottle were used the spavin was a thing of the past and to-day not a sign of spavin or mark of any kind whatever remains. I appreciate the value of this remedy and it has been my intention to advise you as to the result before but it has been delayed. Anyone interested and doubtful of this cure (as I admit I was) may write me and I will state just what kind of a case it was, etc.

Respectfully, H. A. BAXTER,
Real Estate, Insurance & Investments.

Horse can be worked with either shin or ankle boots as no harm can possibly come by either destruction of hair or scalding of the limb. "Save-the-Horse" can be applied in all conditions and extremes of weather—hot or cold.

Positively and Permanently Cures

Bone and Bog Spavin, Ringbone, Curb, Thoroughpin, Splint, Chapped Hock, Shoe Boils, Weak and Sprained Tendons, and all lameness.

Contains no arsenic, corrosive sublimate or other forms of mercury, or any injurious ingredient.

Cures without scar, blemish or loss of hair.

$5.00 PER BOTTLE.

Written guarantee with every bottle, constructed to convince and protect you fully. The need of second bottle is almost impossible except in rare cases. Guarantee covers effectiveness of one bottle.

Copy of guarantee sent upon application.

$5.00 at druggists and dealers, or sent prepaid.

TROY CHEMICAL CO., TROY, N. Y., - Manufacturers.

ALSO OF VETERINARY PIXINE, FOR

Hoof Rot, Cow Pox, Chapped Teats and Caked Bag, also Scratches and Grease Heel, cases where ulcerations extend, with transverse cracks which open at every step and often bleed, no matter how complex, aggravated, deep seated or chronic; if treated according to directions, as given on circular with every box, positively cured. **Keeps the Hoofs Healthy Soft and in Perfect Form. Heals Collar and Saddle Galls, Abscesses, Sores and all Skin Diseases.**

2 oz., 25c.; 8 oz., 50c.; 5 lb. pkg., $4. At all druggists and dealers, or sent prepaid

Best Results

in feeding for milk are obtained by adding some

BUFFALO Gluten Feed

to balance the ration.

Sample and booklet

"Feed Your Stock for Best Results."

Sent free. Write to-day.

Address Department B

THE GLUCOSE SUGAR REFINING CO.,
The Rookery, Chicago, Ill.

BLATCHFORD'S CALF MEAL

THE MILK SUBSTITUTE

"There is nothing like it to raise thrifty Jersey Calves."
ASA B. GARDNER, Esq., GLENCOE, MD.

Address, BLATCHFORD'S CALF MEAL
WAUKEGAN, ILL.

Horse Owners! Use

GOMBAULT'S



Caustic Balsam

A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from **Horses and Cattle, SUPERSEDES ALL CAUTERY OR FIRING.** *Impossible to produce scar or blemish.* Every bottle sold is warranted to give satisfaction. Price **$1.50** per bottle. Sold by druggists, or sent by express, **charges paid**, with full directions for its use. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O.

COWS RELIEF STOPS DAIRY LOSSES

Expels the Terror of Caked Bag, the annoyance of Sore Teats and Dread of Hard Milkers. Used exclusively at Model Dairy. Guaranteed to cure Caked Bag in 12 to 24 hours if taken at the start. Invest 50c and save a Cow.



Price ½ lb. 50c; 1½ lbs. $1.00, post paid. "As essential in the stable as hay in the barn."
O. H. MFG. CO., Dept. H, Lyndon, Vt.

Hood Farm Remedies

Keep Stock of All Kinds

Healthy and Productive.

HOOD FARM MILK FEVER CURE, $2.50.* Have it on hand. Saves the best cows.
HOOD FARM CALF SCOUR CURE AND DIGESTIVE POWDER, $1 and $2.50 each. Promptly cure calf scours.
HOOD FARM BREEDING POWDER, $1 (by mail $1.15) and $2.50.* Makes cows breed.
HOOD FARM ABORTION CURE, $1 and $2.50.* Prevents abortion.
HOOD FARM GARGET CURE, $1 and $2.50.* Cures garget.
HOOD FARM CONDITION POWDERS, 25c., 50c. and $1.* Keep stock healthy.
HOOD FARM LINIMENT, 25c., 50c., $1 and $2.* Best wash for race horses.
HOOD FARM TONIC DRENCH, 50c. and $1.*
HOOD FARM COLIC CURE, $1.*
HOOD FARM HOG POWDERS, 25c. and $1.*
*Prepaid to any railroad express point in U. S. 25c. additional. Mention this paper.

Address C. I. HOOD CO., Lowell, Mass.

CURE "THE" COW SAVES MONEY!



CURES

DROPPING CUD, LOSS OF APPETITE, INDIGESTION, MAW-BOUND or GRAIN SICK,

And all **Internal Complaints** common to the cow.

Price: $2.00 per quart; $3 50 per half gallon; $6 00 per gallon

Ask your DRUGGIST for it or send description of cow's symptoms, and, if you will pay express charges on remedy. It will cost you nothing for a sufficient quantity to cure her.

DR. EATON J. GROSS
152 Congress St., Troy, N. Y.

Cows Barren 3 years



MADE TO BREED.

Book Free, **Moore Brothers,** Albany, N.Y

BLACKLEGOIDS

BEST PREVENTIVE OF BLACKLEG.



Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each **Blacklegoid** (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. **Blacklegoids** are sold by druggists; *ask for them.*

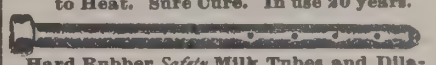
Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.

PARKE, DAVIS & CO. - DETROIT, MICH.

Branches: New York, Kansas City, Baltimore, New Orleans, Chicago; Walkerville, Ont.; Montreal, Que.; London, Eng.

ABORTION,

Failing to Breed and to bring Cows to Heat. Sure Cure. In use 20 years.



Hard Rubber *Safety* Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.
Dr. WM. HORNE, Janesville, Wis.

Only Conditioned Cows

can be good milkers nearly the whole year and carry calves nine months for next coming in. They have heavy duties. Do you wonder at their troubles, such as abortion and milk fever?

Kow-Kure

(For Cows Only.)

Is the one unfailing friend in their troubles. Prevents abortions, cures barrenness, scouring and every trouble incident to calving. A specific cow treatment bringing great profit to dairymen. Has 70,000 users. Sold by dealers. Write us for booklet, "Kow-Kure for Cows Only." It is free.



DAIRY ASSOCIATION, Lyndonville, Vt.

JONES HE PAYS THE FREIGHT.



5 BEAMS.

CHEESE FACTORY SCALES.

Solid Brass Beam and Nickle Plated. On Wheels. Freight Paid.

$15.00.

These Scales are warranted to be equal in every respect to any Scale made. We claim that they are better.

ALL SIZES SCALES EQUALLY LOW.

Box 1. **JONES OF BINGHAMTON, Binghamton, N Y.**

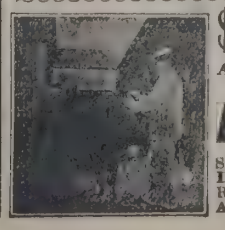
ABORTION,

Retention of Placenta and Failure to Breed.

KELLOGG'S CONDITION POWDER

is a positive cure for these diseases. Write for circular containing full information, references and price.

H. W. KELLOGG COMPANY, St. Paul, Minn.



$1 Bottle FREE

Anti-Abortion Serum
Permanently cures

ABORTION

Send for Free $1.00 Bottle.
Dr. Roberts Veterinary Remedy Co., 507 Grand Ave., Waukesha, Wis

The Progress of Dairy Education in Michigan.

ED. HOARD'S DAIRYMAN—We are congratulating ourselves on the fact that 116 young men have found it possible to come to the college for our Special Courses this winter. This number is largely in excess of any attendance we have had in the past. It bodes well for the agriculture of the state when the young men are ready to devote themselves enthusiastically to farming. It indicates that it pays as a business and that it makes possible a happy life while accumulating money. Of this number 57 are taking the course in creamery management. Most of the se young men have had experience in creamery work; some a few months only, and many of them for several years. Not a few have taken the short course previously. I know that your paper will feel like congratulating our state on this evidence of renewed activity along dairy lines. There is much need of better education of milk producers and creamery men in Michigan. By far too large a proportion of our butter is still made in the farm home with inadequate facilities and with bad methods. I am using every influence within my power to bring about a condition where the butter shall be made in the factory by men trained for the work. Our dairy school is pledged to this revolution.

Perhaps the chief characteristic of our dary school lies in the fact that a student is in the butter room each alternate afternoon and either separates or churns or does some other important work connected with the operation of making butter. This fact explains how we can hope to train men in so short a time. They are at practical work every day and at the purely technical work of butter making, each alternate day. Thus they get so well acquainted with methods and operations that correct methods become a habit. We have never had a brighter class of young men and I bespeak for them opportunities in well located factories in the immediate future.

I appreciate the great work your paper is doing for the dairy industry not only in Wisconsin but in the whole community and I want to assure you of our hearty co-operation in all your endeavors. C. D. SMITH, Dean.

Agricultural College Mich.

Feeding City Swill to Pigs.

ED. HOARD'S DAIRYMAN:—I see in your last number of the DAIRYMAN your correspondent from Frankfort, N. Y., is having pigs die by feeding city swill. I think I can tell him the cause as my wife is the originator of the idea that caused pigs to die by feeding city swill.

In 1895 we had a friend visiting us from Tully, N. Y. She said her son was running three hotels at a summer resort at Tully, was feeding a large number of pigs the refuse of the hotels and had lost about 40 pigs and two or three breeding sows up to that time. And the idea occured to my wife that it was caused by feeding dish water that contained Gold Dust, Snow Boy and other powders that are used for washing dishes.

I immediately wrote to my friend what we thought caused the death of his pigs. He discontinued feeding dish water and had no further trouble. About this time there were several other cases reported near Oswego and other parts of the state.

Dr. Veranus A. Moore B. S. M. D., Professor of Pathology, Bacteriology and Meat Inspection, New York State Veterinary college, Cornell University, Ithaca, N. Y. and other Professors from Cornell University, had been looking after these cases, but had not come to any conclusion as to the cause. Professor Moore was visiting at our place about this time On learning the experience of my friend from Tully, started home immediately, bought a litter of pigs, divided them up in four separate pens and commenced experimenting by feeding dish water that contained washing powder, to two pens, the same feed to the other two without the powder. The result was the pigs fed the powder died. The pigs in the other two pens fed the same without the powder thrived and did well.

The Agricultural Department at Washington, published a Bulletin, the result of Professor Moore's experimenting.

This powder eats the stomach and intestines and causes death. Will your correspondent please report after discontinuing feeding dish water.

N. Y. W. F. DAVEY.



for this top buggy, piano body 20, 22 or 24 in. wide, seat has solid panel spring back. Wheels, choice of height and size, 3 or 4 bow top. Boot, storm apron, shafts and anti-rattlers.

45 styles top buggies illustrated with large cuts fully described in catalog.



Extension top surrey, has large full size body, wide roomy seats with solid panel spring backs and cushions. Axles 1 1-16in. Lamps and fenders extra. **Every vehicle guaranteed for two full years.**

22 other styles surreys in our big catalogue.



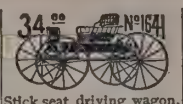
For this top buggy with **Guaranteed Rubber Tires**, piano body, roomy seat, solid panel spring back and spring cushion, 3 or 4 bow top. **The Most Wonderful Bargain** in a guaranteed rubber tired buggy ever offered. **Write for free catalogue.** It has large illustrations and full descriptions.



For this large, roomy phaeton, just what you want for solid comfort, wide, roomy spring cushion, solid panel spring back 23 in. high. Trimmed with heavy imported all wool broadcloth. Full patent leather fenders, large lamps, long distance axles. Retails for nearly twice our price.



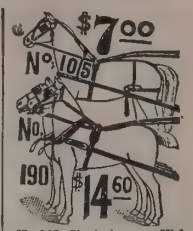
For this high arched axle, low wheel, **Guaranteed Rubber Tired** driving wagon, open head springs, long distance axles, Bradley couplers, Bailey loops, stick seat, rubber padded steps. Trimming fine whipcord or broadcloth. 21 other styles. **Don't buy until you see our catalogue and most wonderful offers.**



Stick seat driving wagon. Long distance axles, Bailey loops All complete.



Platform spring wagon, 7 ft. body, heavy gear and wheels; 12 other styles spring wagons in catalog.



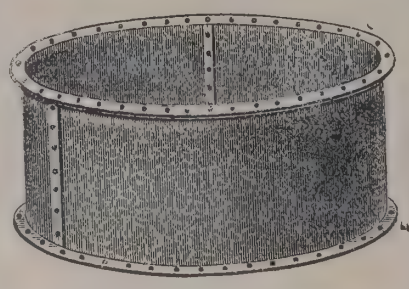
No. 105. Single harness, Nick. or Im. rubber trim. $7.00. No. 190. Dbl. harness, traces 1¼ in. $14.60. 98 styles shown in Catalogue.

SEND FOR OUR CATALOG. It illustrates and fully describes every kind of a vehicle and harness made. Cut this ad out and mail to us and we will mail the catalogue **FREE.**

MARVIN SMITH CO., 55-57-59 N. Jefferson St., CHICAGO, ILL.

NATIONAL

Galvanized Steel Tanks



Made of annealed steel galvanized. Seams securely riveted. Heavy steel angles for top rim. Will last a lifetime.



THE Weighright.

Two Scales in One.

A Portable Floor and a Counter Scoop Scale on one base.

Capacity 1-4 oz. to 300 lbs.....

Price Reasonable.

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More than all others combined.

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Mr. Wheaton's Canadian Dairy Notes.

Canadian Dairy Conventions—Patron Delegates to Convention—Creamery Instruction — Value of Cold Curing of Cheese.

ED. HOARD'S DAIRYMAN:—January is dairy convention month in Ontario. The conventions this year, the Eastern at Ottawa, during the first week, and the Western at Brantford during the second week of January, were of the usual character.

The attendance on the whole was good, though it is to be regretted that the farmers do not patronize these gatherings as much as they should. Some effort should be made to get a sprinkling of patrons present. Why would it not be a good plan to encourage factories to send representatives to these annual conventions. One good live patron from each factory, brought in direct touch with the enthusiasm and inspiration to better work, which these conventions foster would go along way towards improving the quality of the milk received and bringing about better factory buildings and equipment.

A patron delegate to either of these gatherings. who would report to the annual meeting of the factory, which sent him, could exert a marked influence in working out the reforms so much needed to bring about an improvement in the quality of our dairy products. If a couple hundred of such delegates were present at each convention, taking notes of what was said and done, speakers would exert themselves more to make an impression and would boil down their "rambling" remarks into some concise form for taking away more readily.

As we will show later, the work of instruction is likely to be taken from the control of the associations and placed more directly under Government supervision. Here, then, is a new field for the associations to enter upon, whereby they can increase their usefulness and power to a very large extent. It might be good policy to encourage factory delegates to attend ,by appropriating a small amount towards the expense of the trip. It would do no harm, at any rate, to extend a special invitation to factories to appoint delegates to the annual conventions. There is need of more co-operation among factories, and this might be a means of bringing it about. As it is at present, the patrons of factories, even in the district where the convention is held, are conspicuous by their absence.

The gatherings this year seemed to be more than ever before, meetings of makers and manufacturers. The program was prepared specially for their benefit and they turned out in goodly numbers to listen to it.

The two chief features brought to their attention were the benefits to be derived from the cool curing of cheese, and the movement for the reorganization of the instruction work of the province. The former were presented to the conventions by Prof. Robertson and J. A. Ruddick of the Department of Agriculture at Ottawa, and the latter by the Hon. Mr. Dryden, G. C. Creelman, G. H. Barr and G. G. Publow.

A general outline of these two new features in dairy work in this province has been given to readers of the DAIRYMAN in previous letters. A further reference, however, will not come amiss, especially as they mark the beginning of a new era in connection with co-operative dairying in Canada.

As presented by Mr. Ruddick experiments conducted at the four consolidated curing stations during the past season, as to the value of cold curing over the ordinary factory methods, are well shown by the following table:

PLACE.	No. Cheese	Weight Pounds.	Shrinkage Saved %.	Am't Saved in Shrinking, Lbs.	Value at Sale Price
Woodstock ..	11,657	906,565	1.58	14,327	$1,424.13
Brockville...	6 644	526,950	1.52	8,050	814.48
C wansville .	6,266	491,295	1.34	6,640	652 02
So.Hyacinthe	1,964	143,190	1.66	2,586	238.41
Total.....	26,531	2,070,996	1.51	31,403	$3,139.04

From this table it will be seen that in curing at a temperature below 60° there was a saving of 31,403 lbs. on 2,070,996 lbs. of cheeee, or 1.51 per cent. In money value this meant a saving of $3 139 04, enough to put a good many curing rooms in shape to control the temperature.

But the shrinkage is not all. The quality of the product was found to be very much improved, which should add a few thousands more to the saving in money value alone from improved curing methods. Here is something for patrons and factory owners to consider.

If the consolidated curing room idea never develops further and does not become any more important factor than at present in the curing of cheese, it has most clearly demonstrated the value of curing cheese at low temperatures. Many consider that, owing to the jealousy existing among factories and the large cost of the consolidated curing station, the movement will not be taken up by the factories generally. However, that remains to be seen.

We have explained on former occasions the syndicate work undertaken last season by the Ontario Department of Agriculture. The results from it have been so successful that the department is warranted in extending it over a wider area the coming season. To do this successfully it seems in the best interests of all concerned to consolidate the work of instruction formerly carried on by the associations, and to divert a portion of the annual grant to this more concentrated and uniform effort.

The exact details of the new scheme have not been worked out yet. The plan in general terms is to have two chief instructors, one for the east and one for the west, who will be under the direct control of the government. A number of sub-instructors will be employed, who will be guided and controlled by the chief instructors. The aim will be to organize as many of the factories as possible into groups or syndicates with an instructor over each.

The system of instruction will include cheese making, dairy buildings, as to sanitation and cleanliness, and such instruction for the patrons, who furnish milk to the factory, as may be necessary to insure a better product.

A welcome visitor to the Convention this year was Major Alvord, Chief of the Dairy Division at Washington. In his addresses he dealt chiefly with what has been accomplished in the United States for the dairy industry through organized effort, and by the expenditure of public funds to advance the industry. His addresses were listened to with interest by our dairymen.

From what we have said so far it may be inferred that the conventions were largely given up to cheese discussions. But such was not the case. Though as much time was not given to the discussion of butter, as many would have liked to have seen, and as might well be given to this important branch of dairying, still it was not sidetracked by any means.

One half day was given up entirely to the practical side of butter making, during which Prof. Dean and several other authorities gave some valuable information on the subject. The discussion turned to some extent upon the relative values of the cream gathering and separator plans of conducting creameries. The former plan is growing rapidly in sections where dairying is not made a specialty, and beef cattle production is largely carried on. Starting on this basis, the farmers are loth to give it up. The general trend of the discussion went to show that where the cream was properly taken care of and handled properly at

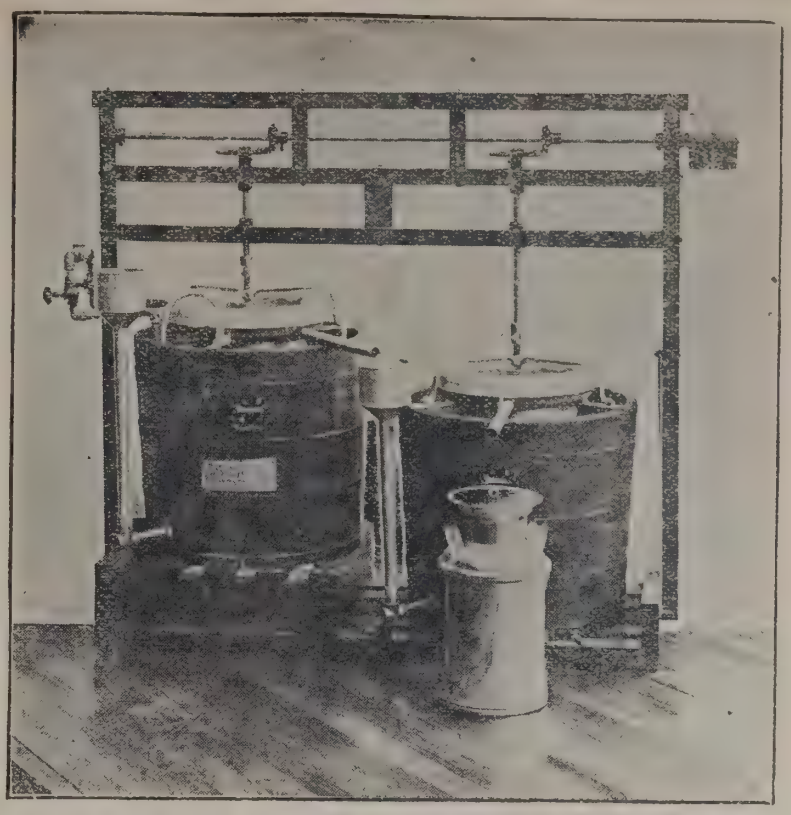
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the creameries, a very good quality of butter could be made by the cream gathered system.

At the Brantford meeting a good winter dairy exhibit was shown. The cheese, with the exception of some bad flavored ones in the September make, were of good quality. The judges criticised severely the general absence of cap cloths from the cheese. These should be on every cheese and pressed into it the same as the bandage.

The butter exhibit was good, especially that in boxes, which was pronounced to be exceptionally fine. This was winter made butter and entirely dispels the idea prevalent a few years ago, that good butter could not be made during the winter. The butter makers were criticized for not using more and better parchment paper on the boxes.

The old officers were mostly re-elected, the only change on the eastern board being the replacing of Henry Wade by Henry G'endinning, of Manila; on the western board, James Connolly, Porter Hill, Ont., was elevated to the president's chair, and ex-president Wengen made Hon vice-president. There are two new directors, John McQuacker, Owen Soundand Mr. McLeod of Vanneck, both butter men. J. W. WHEATON.

Toronto, Canada.

A Question in Ventilation.

Mr. F. A., of Deerfield, Wis, writes that he expects to build a barn next summer, 40 by 46 feet and will have the stable made as nearly air tight as possible. He asks in that event if it will be neccessary to have as many square inches of intake air flues as of outlet air flues. He also asks if there is any device for running a small churn with the ordinary wind mill.

In the first place, we suggest to Mr. A. that he consider, perhaps more carefully than he has done, whether the dimensions given are most appropriate for his purpose. Our personal opinion is that a barn 32 feet wide inside measurement is ample for a stable and we should prefer to have the additional room in length rather than in greater width. However, these are matters that every man must settle for himself according to his own ideas of what will be most convenient and available for his purposes.

In regard to the matter of ventilation, it may be stated that there is no necessity for having quite as many square inches of intake as of outgo, but it is well to provide for both very amply, as it is much easier to stop them down with slides than it is to increase the size after they are once in the building.

We do not know of any working device for running a small churn with an ordinary windmill. Mr. C. P. Goodrich, when on his farm in the town of Oakland, used to do most of his churning with wind power. He is now absent in Michigan in Farm Institute work, but when he returns we will endeavor to call his attention to this inquiry and try to get what information we can from him on this subject.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

A Great Old Cow.

Sweet Briar, a cow of the Minnesota Experiment Station dairy herd, has probably the most complete official record of any cow that has ever lived. She is now in her sixteenth year and although she has given birth to fourteen calves and has been worked up to her full capacity every year she is still in the dairy business. She was brought to the Experiment Station in October, 1891, and since that time has been on experimental work continually. The books in the dairy office show the kind and amount of feed she has consumed each day and the quantity and quality of the milk she has produced at every milking during the eleven years she has been at the Experiment Station. This cow's record ought to show a few things worth considering and worth knowing. It is generally supposed that a cow's usefulness is past at ten years, in so far as profit goes. Sweet Briar is past fifteen years and is still profitable. Again, it is supposed that pure-bred animals are less vigorous and shorter lived than scrub animals. This cow is pure-bred Guernsey and her ancestors have been bred pure for generations, yet she has outworked and outlived every scrub cow of her age that has ever been in the herd with her. While it may be true that most cows are past their period of usefulness at ten years and that the pure-bred animals are more delicate than the common stock, it does not follow that this must continue to be the case. Sweet Briar's record shows that a cow may be so cared for as to increase her period of usefulness one-half and she may be so bred as to possess the higher dairy qualities and still be as vigorous and long-lived as the native stock.

The following table shows the quantity of milk produced, the average per cent fat, and the number pounds butter made from October, 1891, to October, 1901:—

'92	6510.3	5 22	396 19
'93	7352.0	5.00	428.72
'94	4515.6	5.03	265. 0
'95	7534.1	4.96	435 75
'96	6634.0	4 86	374 83
'97	7770.9	5.41	491.00
'98	3501 3	5 06	206.62
'9	530..9	4.95	306 53
'00	5491.7	4.76	305.18
'01	6845.8	4.64	370. 9
Av for 10 yrs	6142 76	4.98	358.07

It will be seen by the table that in no one year did she make what would be considered a great record. Two different years she dropped below 300 pounds. If these happened to be the only years in which a record was kept of her work she would be considered a poor cow, while the average for ten years show her to be a very profitable cow. This emphasizes the danger of drawing conclusions from short experiments.

Sweet Briar is a cow of rather large frame though only medium in weight, about 1,100 pounds in her prime condition. She never carried very much flesh, never was a very large feeder and never gave very large quantites of milk but she kept everlastingly at it, and has not quit yet. She will hardly sell for beef when she is of no more use for milk, but it is not necessary that she should. In her fifteenth year she has made enough butter to pay for two beef cows larger than she is. This old cow's record will be published in full some time later in bulletin form and will give valuable information in dairying.—*Minnesota Farm Students' Review.*



That old copybook maxim finds its most forceful application in the waste of vitality, which is called "burning the candle at both ends." A woman is often tempted beyond her strength by domestic or social demands. Some day she awakens from this waste of strength to the woeful want of it. She has become weak, nervous and miserable.

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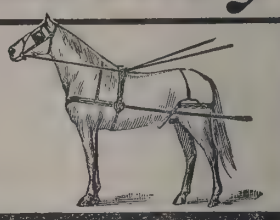


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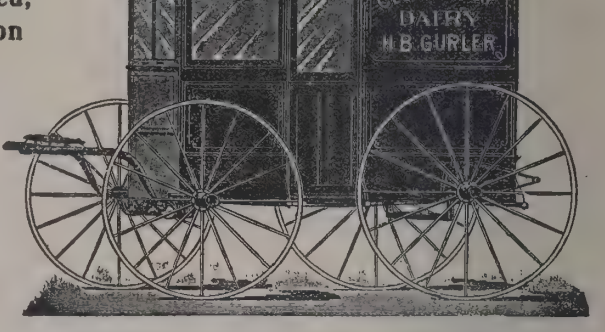
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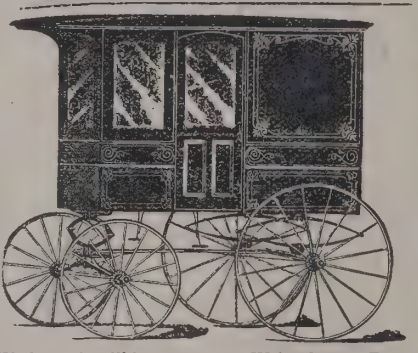


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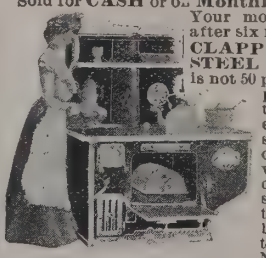
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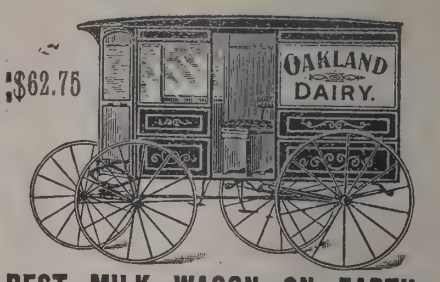
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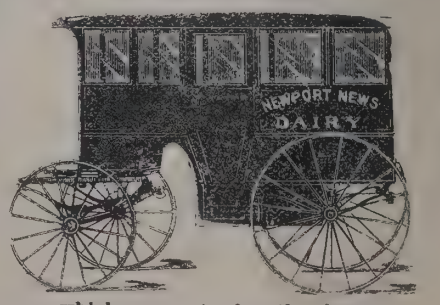
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A Cream Question.

ED. HOARD'S DAIRYMAN:—Inclosed please find creamery statement which I want your opinion on.

I send you five months of the statement, during which time my separator cream screw has been set exactly the same. I have turned the machine and timed myself by the clock so as to run it at as uniform speed as possible. The milk was from the same 14 cows (clover pasture), on the same feed all the time, none of them have been sick, they have been milked regularly in the stable and by the same milkers all the time. My machine is nearly new. This is the second season's run.

	Lbs. cream.	*Test.*
May 15	1,117	23.00%
May 30	1,211	22.00%
June 15	1,140	20 50%
June 30	1,118	21.00%
July 15	989	21 30%
July 30	924	23.20%
August 15	986	19.50%
August 30	830	19 80%
September 15	912	20.50%
September 30	866	20.80%

In the statement between July 30th and August 15th there is a variation of 3.70 per cent. Do you think it could be under the conditions named and be correct? I ask this because I have confidence in your judgment and fairness. The tests are made from a composite sample.

Our cream is gathered by boat. If you know of any convenient way of locking cans to prevent theft while in transit please let me know.

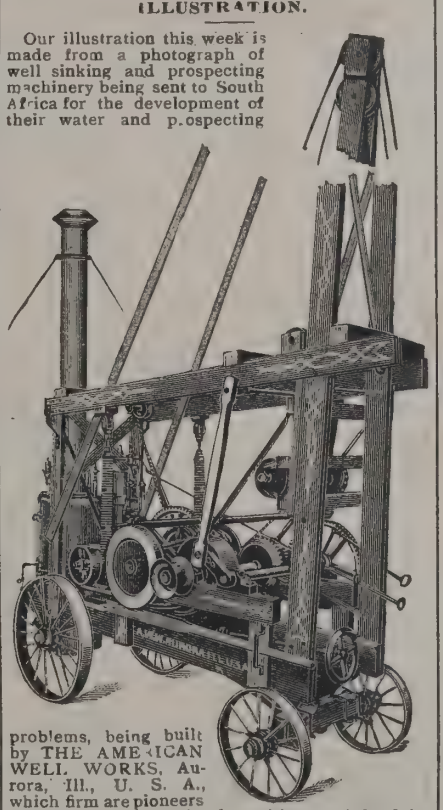
Gardiner, Ore. H. F. Mc C.

One of the impossible things in dairying is to so run a separator as to always obtain cream of the same richness in butter fat. This is owing to the large number of conditions that affect the separation. The richness of milk, temperature, speed of separator and rate of separating—all and each have an influence on the quality of the cream, and owing to the impossibility of obtaining like conditions, there may be a variation of as much as 10 per cent in the amount of butter fat in the cream.

There are various cans on the market that can be locked. Perhaps the simplest method is to make a hole in the edge of can and of cover and run the loop of a padlock through the holes.

ILLUSTRATION.

Our illustration this week is made from a photograph of well sinking and prospecting machinery being sent to South Africa for the development of their water and prospecting problems, being built by THE AMERICAN WELL WORKS, Aurora, Ill., U. S. A., which firm are pioneers in the west of this style of machinery. It is of the most simple construction consistent with its large range of work. The submerged flue boiler is of ample capacity, the engine is of a vertical reversing type, especially built for such work, belted to double crank walking beam which makes them susceptable to the highest rate of speed.



If in need of compressed air, steam or power pumps or gasoline engines remember the firm with your specifications.

Garden, Field and Flower Seeds

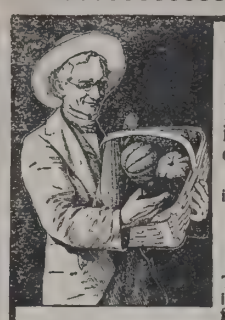
CLOVER AND TIMOTHY.
BEARDLESS SPRING BARLEY
We are recleaners of all kinds of Field Seeds and do not mix Medium and Mammoth Red Clover. Write for Field Seed Price List, also 1903 Seed Catalogue, mailed free.
THE HENRY PHILLIPS SEED & IMPLEMENT CO.
115-117 St. Clair St., Toledo, Ohio.

Reliable Northern Grown
FARM AND GARDEN SEEDS

We are **Growers** of **New** and **Improved** varieties of **Seed Grain, Seed Corn, Seed Potatoes,** and of **Pure** and **Hardy Strains** of **Vegetable Seeds** Our stock of **High Grade Timothy** and **Clover Seed, Turkestan Alfalfa, Rape, Sugar Cane, Macaroni, Wheat,** etc., is the **most complete. Hardy** and **Rare kinds** of **Small Fruit Plants, Ornamental Shrubs** and **Novelties** in **Flower Seeds. Clover Grass Mixtures for Permanent Pastures and Meadows** our Specialty. **Reasonable Prices, Best Railroad Connections, Special Seed Rate** to the Northwest. **Large illustrated catalog free. 10 rare Farm Seed Samples for 10c.**

FARMER SEED CO.,
35 4th St. Faribault, Minn.

SEEDS THE ALBERT DICKINSON CO.
DEALERS IN
GRASS SEEDS, CLOVERS, FLAX SEED, LAWN GRASS, BEANS, PEAS, POP CORN, BIRD SEEDS, BUCKWHEAT, BAGS, ETC.
OFFICES, WEST TAYLOR ST., AND THE RIVER, CHICAGO.



Everything for the Garden

Is the title of **Our New Catalogue for 1903**—the most superb and instructive horticultural publication of the day—**190 pages—700 engravings—8 superb colored plates of vegetables and flowers.**

To give this Catalogue the largest possible distribution, we make the following liberal offer:

Every Empty Envelope
Counts as Cash.

To every one who will state where this advertisement was seen, and who incloses **10 Cents** (in stamps), we will mail the Catalogue, and also send **free of charge,** our famous **50-Cent "Henderson" Collection** of seeds, containing one packet each of *Sweet Peas, Large Mixed Hybrids; Pansies, Giant Fancy Mixed; Asters, Giant Victoria Mixed; Big Boston Lettuce; Early Ruby Tomato and Cardinal Radish,* **in a coupon envelope,** which, when emptied and returned, will be **accepted as a 25-cent cash payment** on any order of goods selected from Catalogue to the amount of $1.00 and upward.

PETER HENDERSON & CO.,
35 & 37 Cortlandt Street, New York.

REPETITION

is the life of advertising—It is also the life of the largest mail-order seed trade in the world—

BURPEE'S!

Were it not for repeat-orders every year from satisfied planters we could not supply the

Best Seeds that Grow

at such moderate prices. We want every one who appreciates quality to write for **Burpee's Farm Annual for 1903.** Long known as "the Leading American Seed Catalogue," it is better now than ever before. An elegant book of 184 pages, with beautiful colored plates and hundreds of illustrations, it tells the plain truth. **Write to-day! Do not delay! It's FREE.**

W. ATLEE BURPEE & CO., Philadelphia

SALZER'S SEEDS



Beardless Barley is prodigally prolific, yielding for Mr. J. E. Wells, Orleans County, New York, 109 bushels per acre. Does well everywhere. **That Pays.**

20th Century Oats. The oat marvel, producing from 200 to 300 bus. per acre. **Salzer's** Oats are warranted to produce great yields. The U. S. Ag. Dept. calls Salzer's Seed Oats the very best. **That Pays.**

Three Eared Corn. 200 to 250 bus. per acre, is extremely profitable at present prices of corn. **Salzer's** New Golden Gate Corn yields 300 bushels per acre.

Macaroni Wheat. Greatest wheat on earth for arid, dry, hot soils—yields 63 bus. per acre. Introduced by U. S. Dept. of Agriculture. It's a wonder! **That pays.**

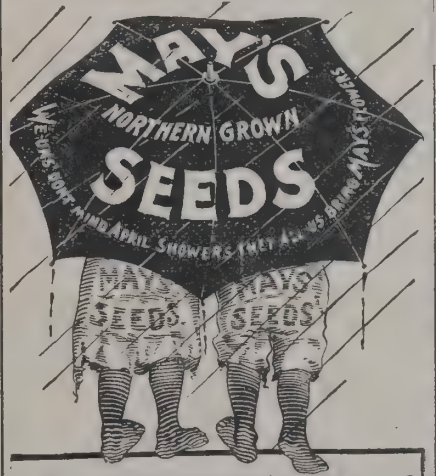
Speltz. Greatest cereal food on earth—80 bus. grain and 4 tons magnificent hay per acre. **That pays.**

Victoria Rape makes it possible to grow hogs, sheep and cattle at a cost of but 1c. a lb. Marvelously prolific, does well everywhere. **That pays.**

Bromus Inermis this and Billion Dollar Grass are the two most wonderful grasses of the century. Produce 6 tons of hay and lots and lots of pasturage besides per acre. Grows wherever soil is found. **That pays.**

$10.00 for 10c. We wish you to try our great farm seeds, hence offer to send 10 farm seed samples, containing Macaroni Wheat Teosinte, Rape, Giant Clover, Speltz, etc., (fully worth $10.00 to get a start) together with our great catalog, for 10c. postage.

John A. Salzer Seed Co. LA CROSSE WIS.



FREE HANDSOMELY ILLUSTRATED CATALOGUE OF HARDY NORTHERN GROWN FRUITS, PLANTS, ORNAMENTAL TREES, SHRUBBERY ETC. MAILED WRITE FOR IT. **SEEDS**

L. L. MAY & CO SEED GROWERS FLORISTS AND NURSERYMEN ST. PAUL, MINN.

$2.50 WORTH OF HIGH GRADE SEED FOR $1.00

Consisting of 15 1-oz. Packages as follows: Wax Beans, Green Beans, Beets, Carrots, Lettuce, Onions, Peas, Parsley, Parsnips, Radish, Spinach, Sweet Corn, Pumpkins, Squash and Turnips, and 10 full-sized Packages of Flower Seeds, each different, making $2.50 worth of Seeds which we will send to any address, postpaid, upon receipt of $1, in order to get our catalog into the homes of people who want first-class seeds from reliable house at low prices. Wernich Seed Co. Box I, Milwaukee, Wis.

WHEN YOU BUY EGGS YOU WANT GOOD EGGS
WHEN YOU BUY SEEDS YOU WANT
GOOD SEEDS
Moral: PLANT OURS

WRITE FOR CATALOGUE.
NORTHRUP KING & CO.
SEEDSMEN
MINNEAPOLIS MINN.

THE WEAR OF RUBBER BOOTS AND SHOES DEPENDS UPON THE RUBBER IN THEM.

There is absolutely no wear in any of the other ingredients of which they are composed. Every time the quality of Rubber Boots and Shoes is reduced 10 per cent., the durability is reduced over 20 per cent. because there is only one way to cheapen them, and that is to leave out Rubber and put in its place other things that have no wearing quality whatever. This cheapening process has been steadily going on for the past 40 years.

THE

BUCKSKIN BRAND

OF RUBBER BOOTS AND SHOES

are made of real rubber—and one pair of them will outwear two pairs of the standard first grades now on the market. Try a pair and be convinced. Made in Duck Boots, Duck rolled edge Overs for Socks, and Felt Boots and in Arctics and light rubber shoes.

Insist on getting the BUCKSKIN BRAND. None genuine without the word BUCKSKIN on the top front of the legs of the boots and the bottoms of the shoes. If your dealer does not keep them write us and we will see that you get them either through some dealer in your town or from us direct. We will also send you a very interesting catalogue profusely illustrated, which describes the making of Rubber Boots and Shoes from the gathering of the rubber to the finished goods.

MONARCH RUBBER CO.,
730 Bittner St., ST. LOUIS, MO.

NOT MADE BY A TRUST.



An actual test of a 2-inch strip cut from the sole of the Buckskin Boot. Note the elasticity and strength Only the best Rubber will stand a test like this. Weight of boy and swing 110 lbs.

No. 3 "Prize"



Best Feed Grinder Money Can Buy for Operation with Gasoline or Steam Engine, Tread Power, Power Wind Mill, etc.

WHY? Because it grinds rapidly making splendid feed, table meal or graham flour, has ample capacity for 4 or 5 horse power, and an automatic feed regulator, which prevents its choking down the lightest power; is built throughout of iron and steel and will last a life-time. Thousands in use for 10 and 15 years still as good as new. We make 26 sizes and styles of Feed Grinders, including the only really successful **Corn and Cob, and Corn, Cob and Shuck Feed Grinders.** Also a full line of Ensilage and Fodder Cutters, Huskers, Shellers, Wood Saws, Sweep Horse Powers, Tread Horse Powers, Wind Mills, etc.

Write to-day for free catalogue.

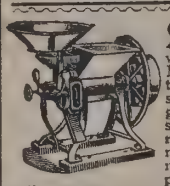
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THIS MILL

DOES ALL KINDS OF WORK on one set of grinders without injuring them. The **Tandem Sweeps are easy on the horses. No Gearing. No Friction.** It's different from all others. *(Also as belt-power mills)* 2 to 25 H. P.

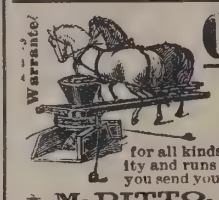
N. P. 10 Bowsher Co. South Bend, Ind.



Some Men

who use our **Quaker City Grinding Mills** claim that they save fully half the feed. Test this for yourself. We ship all mills on trial and under positive guarantee. Crush and grind all grains singly or mixed. **Ball Bearings**—run easy. Our 36th Annual Catalogue mailed **free.** We handle all standard makes of farm implements. Get our prices on what you want.

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DITTO'S
Triple Geared Ball Bearing
Feed Grinder

for all kinds of grain. Has largest capacity and runs the easiest. Try it before you send your money. Send for circulars

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Ensilage Cutters, with Blowers or Chain Carriers. Ensilage and Stalk Shredders. Tread Powers, all sizes from dog or sheep to 3-horse. Sweep Powers. Threshing Machines. Circular and Drag Saw Frames.

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BUY A LEFFEL



and you will have at once the strongest, safest and most reliable power it is possible to secure.

LEFFEL ENGINES

are made upright, horizontal, portable and on skids. They are all quick steamers, require little fuel and develop high power. 2 h. p. up. Best for creameries, dairies, skimming stations and general farm work. Send for book on *Power.*

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A Chain

is no stronger than its weakest link. A fertilizer deficient in

POTASH

is just as dangerous as a chain with a cracked link.

Our money winning books are needed by every man who owns a field and a plow, and who desires to get the most out of them. They are *free.* Send postal card.

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93 Nassau St.,
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YOU going to buy a **HARROW** Want **Best** for least **Cash**
WE make that kind.
PAY FREIGHT. Catalogue free. Write for price. G. H. POUNDER
No 7 Ft. Atkinson, Wis.
I NO YOU

SELF OPERATING LITTER CARRIER

MOST SERVICEABLE



WATERLOO, WIS. DREW ELEVATED CARRIER CO.

Cherry's Perfected Barn Equipments.

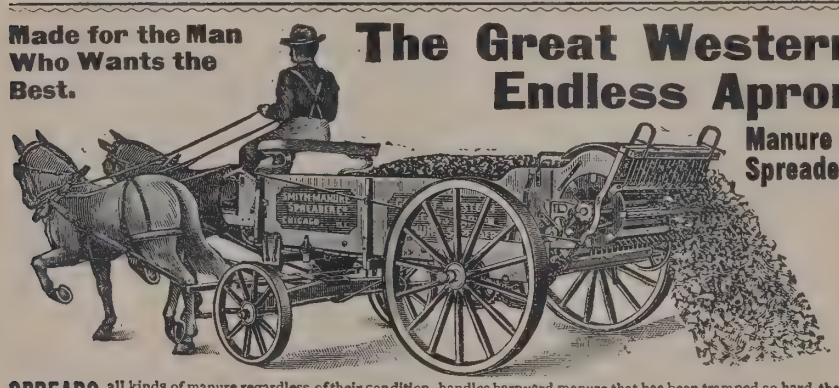
Operates on Curves and Switches. Manure Carrier, Feed Carrier, Grain Elevator and Track. Barn Door Fixtures and Track. Hay Tools.



Send for Illustrated Catalogue and Price List to
D. B. CHERRY & CO., Knoxville, Iowa.

Made for the Man Who Wants the Best.

The Great Western Endless Apron Manure Spreader.



SPREADS all kinds of manure regardless of their condition, handles barnyard manure that has been tramped so hard that it is necessary to loosen with pick, fresh stable manure, containing wet or dry straw, corn stalks, etc. Old straw stack bottoms, whether rotted or not. Cow manure fresh from the gutter, sheep manure, lime, salt, ashes, and in fact all kinds of manure and fertilizers and does it quicker, better and more evenly than by hand. Spreads as much manure in one day as 15 men can by hand. Spreads the largest load in 2 to 4 minutes. Makes the same amount of manure go three times as far and produce better results. **NON-BUNCHABLE RAKE** which forms a hopper and holds all hard chunks of manure in contact with beater until thoroughly pulverized before discharging, therefore no bunching or uneven work. The **ENDLESS APRON** is one continuous apron (Not a ½ apron) and therefore is always ready to load, no turning back into position with crank or reverse gears to cause breakage. Apron does not extend below axle. The Combined **HOOD AND END GATE** keeps manure away from beater while loading, prevents choking of beater when starting and acts as a hood and wind shield in spreading. Starts the manure in the right direction, therefore spreads more evenly. **It has a graduating lever and can be regulated to spread thick or thin 8 to 25 loads per acre while in motion. It catches the poor spots with a double dose. LIGHT DRAFT** 1st. Because the load is nearly equally balanced on front and rear wheels. 2nd. The team is as near load as it can work. 3rd. Front and rear axles are same length and wheels track. 4th. Beater shaft runs in a **ball and socket bearing,** therefore no friction. **Beater** is 23 inches in diameter. Has a shipper that **positively** throws machine into and out of gear and holds it there. **STRENGTH AND DURABILITY.** Our machine is made so strong that it is almost impossible to break it. Every piece is made extra strong regardless of cost. Every gear and sprocket wheel is keyed on. We use no pins or cheap contrivance to come loose, get out of order, break and cause trouble. **GUARANTEE.** Should any part break, wear out, or get out of order within one year, we replace free of charge. **LARGE CATALOGUE** 10 by 13 inches, with 8 large cuts shows spreader perfectly and describes it fully. Gives 34 reasons why the **Great Western Endless Apron Manure Spreader** is the best and most complete machine made and why you should have one. Also tells how to apply manure to secure best results. **Mailed free.**

SMITH MANURE SPREADER CO., 59 N. JEFFERSON ST., CHICAGO, ILL.

OUR ADVANCE AGENT $10.50



Just to make your acquaintance we offer a 16-in. Double Bourd, Steel Beam Plow, Hard as Glass all over for only $10.50. 14 in. $9.50

This is less than any dealer can buy this plow of any factory. We make cheaper plows, but *nothing better can be made at any price.* Guaranteed in every way or money refunded. Send for Big Free Catalogue of **Buggies, Harness,** 6-Hole Steel Range with high closet, $22; 64-Tooth Lever Harrow $7.60; Disc Harrows, 12-16, $17; Sulky and Gang Plows, Celebrated Hancock Disc Plow, **1000 other things.** Write now and get ready for spring work. Address

Only Plow Factory in the U. S. selling direct to the farmer.) HAPGOOD PLOW CO., Box 570, ALTON, ILL.

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Made Since 1868.



Made by experienced workmen of special material. Acknowledged by farmers superior to all others.

Sold on Their Merits.

Spike Tooth Harrows. Spring Tooth Harrows. Disc Harrows. Land Rollers. Hand Carts.

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Wheels or Shoes on Rear.

RODERICK LEAN MFG. COMPANY, Mansfield, Ohio.

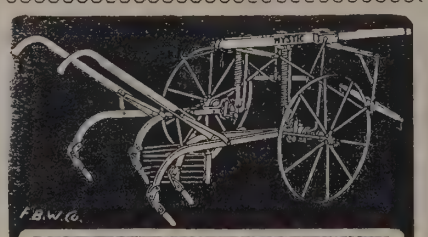
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with 20th Century Clipper PRICE ONLY $5

They feel better, look better, work better, and are less liable to catch cold. Don't let your horses stand in the barn all night with a heavy damp coat of hair on. It weakens them and they lose flesh. If clipped they dry out quickly, gain flesh and can be groomed in one fourth the time. Weighs only 15 lbs. Clips a horse in 30 minutes. Send for Catalogue H

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AVERY CULTIVATORS

are the standard throughout the corn belt. They are better equipped, are more strictly modern and more widely serviceable than any other make.

The Mystic

is the peer of all walking cultivators. Easily handled, simplest, work is perfection. Lift Springs, Steel Rod Fenders, Chilled Hubs, Soft Center Steel Shovels, features which distinguish every Avery. Also make Planters, famous Avery Wagons, "Yellow Fellow" Separators, Engines, etc. Write for free catalogue H.

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Let Them Help Themselves.

They'll not take too much, and they'll get it as they want it. Don't force animals to eat salt when they don't require it, by mixing with food.

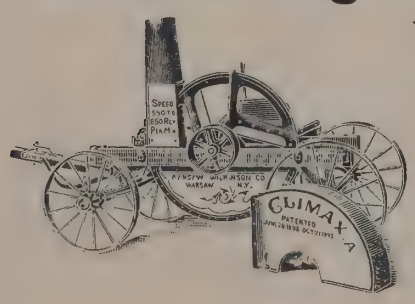
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Pure-Salt Bricks

are all salt, no impurities. Improve the quality and yield of milk. A modern convenience, always present, animals never neglected, and costs for each only about a nickel a month. See how they enjoy helping themselves when you place it within reach. For all stock. Buy of dealers or send for free booklet to

Belmont Stable Supply Co., Brooklyn, N.Y.

Climax Ensilage and Fodder Cutters.



YOUR SILAGE will keep better if cut with the "Climax." You will require less help in your silo to pack it and you can get at least one-third more into your silo than any other. These things count with every business farmer. "Climax" machines are made in various sizes—one of these sizes will suit YOU.

Our catalogue is free for the asking. Write for one today to

The Warsaw-Wilkinson Co.,
Warsaw, N. Y.

WRINGING WET Clothes dry is the reason for using any wringer. Saving clothes, buttons and money is the reason for using **Horse-Shoe Brand Wringers.** They are made with rolls of the finest Para Rubber. Every wringer is warranted. **THE AMERICAN WRINGER CO., 99 Chambers Street, New York.**

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HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., FEBRUARY 20, 1903. NUMBER 2

University of Ill

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs**
Liberal Advancements Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, New York.



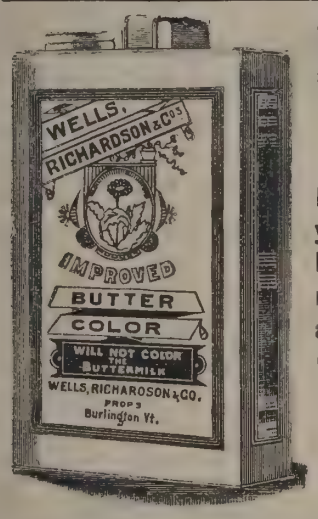
ASK YOUR DEALER IN DAIRY SUPPLIES FOR
CHR. HANSEN'S LACTIC FERMENT
To ripen your cream, ensuring
Perfect Flavor, Uniformity and Keeping Qualities in your Butter.
CHR. HANSEN'S LABORATORY, P. O. Box 1003, Little Falls, N. Y.



A Good Record
TEN CAR LOADS
which means in this case twenty-four thousand nine hundred tubs sold to one co-operative Dairy Company in Minnesota, between Feb. 1899 and July 1902, and in using them they did not lose one tub out of the entire lot. We have their letter stating this to be a fact.
This is how our GENUINE "Elgin" Tub stands up.
Made only by the ELGIN BUTTER TUB CO. at Elgin, Ill.
Schmidt Bros., Props.

HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, BOSTON.**
Medals—Bronze, 1878 Silver, 1887, World's Fair, 1893.

THE KIND THAT HAS NO MUD.



Wells, Richardson & Co.'s
Improved Butter Color
Has stood the test for many years, and users of color know that it can always be relied upon. It is the BEST and therefore the CHEAPEST COLOR on the market.
For Sale By All
First-Class Supply Houses.



ROBBER COWS.
Some cows rob the owner of the feed they eat, and of the profit of the rest of the herd. They have little or no butter fat in their milk. Find them out and send them to the block.
THE
"Sweepstakes"
Babcock Milk Tester
Will do it. Runs on ball bearings, 2 and 4-Bottle sizes with necessary glassware. Strong, convenient.
WRITE FOR CIRCULAR AND PRICES.
We handle everything in the Dairy and Creamery line.

Creamery Package Manufacturing Co.,
1, 3 and 5 W. Washington St., Chicago.
BRANCHES: Kansas City, Mo.; Minneapolis, Minn.; Waterloo, Iowa; Omaha, Neb. St. Louis, Mo.; and Cowansville, Quebec.

Your Privilege
AND YOUR DUTY.

EVERY normal man is endowded by nature with the power to think, and the man who doesn't use that power is very apt to work for some other fellow's benefit all his life.

The creameryman who sells farm separators and the dairyman who uses a farm separator have the opportunity of knowing absolutely what is the best separator made, and **should know.** It is not only a privilege but a duty that each should thoroughly investigate this matter, think it over and decide for himself. Don't be guided by some other man's prejudice or by some smooth salesman's talk, but examine a **Tubular** separator, then examine other separators and decide.



We don't want you to buy a Tubular until you have examined other separators whose chief recommendation is their cheapness, and that are more cheap in their construction than in price.

When you examine the Tubular notice the low-down supply can, the light, simple, easily cleaned bowl, the strong, solid frame, and the automatic oiling arrangement. Then remember that the **Tubular** is the lightest running separator made, that it skims more exhaustively than any other separator, and that it will always skim beyond its rated capacity. Last of all bear in mind our request that you see the **Tubular**, examine it carefully and let the machine talk for itself.

WRITE FOR CATALOGUE NO. 144.

The Sharples Co.,
28 30 & 32 So. Canal St.,
CHICAGO, ILL.

P. M. SHARPLES,
West Chester, Pa.
U. S. A.

"ADVERTISEMENT"

VERY FEW PEOPLE

Are Free From Some Form of Indigestion.

Very few people are free from some form of indigestion, but scarcely two will have the same symptoms.

Some suffer most directly after eating, bloating from gas in stomach and bowels, others have heartburn or sour risings, still others have palpitation of heart, headaches, sleeplessness, pains in chest and under shoulder blades, some have extreme nervousness, as in nervous dyspepsia.

But whatever the symptoms may be, the cause in all cases of indigestion is the same, that is, the stomach for some reason fails to properly and promptly digest what is eaten.

This is the whole story of stomach troubles in a nutshell. The stomach must have rest and assistance and Stuart's Dyspepsia Tablets give it both by supplying those natural digestives which every weak stomach lacks, owing to the failure of the peptic glands in the stomach to secrete sufficient acid and pepsin to thoroughly digest and assimilate the food eaten.

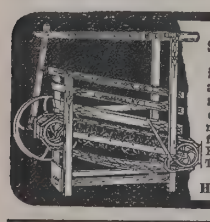
One grain of the active principle in Stuart's Dyspepsia Tablets will digest 3,000 grains of meat, eggs or other wholsome food, and this claim has been proven by actual experiment, which anyone can perform for himself in the following manner: Cut a hard boiled egg into very small pieces, as it would be if masticated; place the egg and two or three of the tablets in a bottle or jar containing warm water heated to 98 degrees (the temperature of the body) and keep it at this temperature for three and one-half hours, at the end of which time the egg will be as completely digested as it would have been in the healthy stomach of a hungry boy.

The point of this experiment is that what Stuart's Dyspepsia Tablets will do to the egg in the bottle it will do to the egg or meat in the stomach and nothing else will rest and invigorate the stomach so safely and effectually. Even a little child can take Stuart's Tablets with safety and benefit if its digestion is weak and the thousands of cures accomplished by their regular daily use are easily explained when it is understood that they are composed of vegetable essences, aseptic, pepsin, diastase and Golden Seal, which mingle with the food and digest it thoroughly, giving the overworked stomach a chance to recuperate.

Dieting never cures dyspepsia, neither do pills and cathartic medicines, which simply irritate and inflame the intestines.

When enough food is eaten and promptly digested there will be no constipation, nor in fact will there be disease of any kind because good digestion means good health in every organ.

The merit and success of Stuart's Dyspepsia Tablets are world-wide and they are sold at the moderate price of 50 cents for full sized package in every drug store in the United States and Canada, as well as in Europe.



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Saves human muscle. This ENTERPRISE POWER is unequalled for churning, separating cream, running washing machines, etc. One dog, sheep or goat works it easily. We also make a full line of large tread powers for 1, 2 and 3 horses. Full line of Ensilage and Feed Cutters, Wood Saws Threshers, Engines, Round Silos, etc. CATALOGUE FREE.
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Relieve Asthma, Bronchitis, Catarrh.
BROWN'S BRONCHIAL TROCHES
Cure Coughs, Sore Throat, Hoarseness.
Nothing excels this simple remedy.

Instructions to Patrons.

We are always glad to see any movement of creamery companies towards obtaining purer milk, and especially to note attempts in educating the patrons in better care of the milk. Much milk is dirty because the patrons have not had the cash importance of cleanliness brought home to them, and we therefore commend heartily the following circular to patrons:

IT IS IMPORTANT

To keep stables as clean as possible.

To be thoroughly neat and clean in milking.

To thoroughly wash and scald cans and pails.

To strain through good strainers.

To first wash cloth strainers in cold water.

To cool night's milk by setting cans in cool water and stirring it often.

Do not mix the warm morning's milk with the cool night's milk before cooling.

The can covers should be kept off until ready to start for creamery. A cover of wire screen should take its place meantime.

The skimmed milk must be emptied from the cans as soon as it is received at home and cans rinsed with cold water, then scalded and aired.

We cannot handle anything but strictly sweet milk.

It would be convenient for haulers if you would place the cans as near the road or driveway as possible.

Should there be an error or anything you don't understand in dealing with us, call at the office where all mistakes will be corrected. Each and every one of our patrons is invited to call, look though the creamery and inform themselves as to our methods of doing business. We test four times each month. Patrons are always welcome at testing time. Our methods are founded on business principles. We aim to deal honestly and fairly with all.

Thanking you for your patronage and soliciting a continuance of the same we are Yours truly,

RIVERSIDE BUTTER CO.

Three Rivers, Mich.

Holsteins Recommended for Public Institutions.

The State Board of Control of Minnesota recently summoned the superintendents of the state institutions to consider the advisability of inaugurating a more systematic method of managing the various farms connected with these institutions, and to determine, if possible, the kind of cattle best adapted for them; the proper management of the herd; best methods of rearing the young stock and securing economic milk production. Eleven of the twelve superintendents of state institutions were present and Prof. Haecker, chief of the Dairy Department of the Minnesota Experiment Station, was called upon to advise them. The details in regard to best methods of dairy farming, under the peculiar conditions existing at public institutions were gone over by the Professor, and a critical review given of the characteristics of each breed, physical and temperamental, and the peculiar composition of the milk of each. Taking into consideration the conditions that obtain at such institutions, and the object for which the herds are primarily kept, namely, milk for food, he recommended that the Holstein cow be selected. We are not advised as to the reasons given for this conclusion, but it indicates, at least, that the professor is free from prejudice, since it is well known that he is not recognized as a champion of this particular breed.

It is expected that the outcome of this conference will be the introduction of the breed into all Minnesota public institutions on a type basis, foundation stock to be bred at one or two institutions, and the offspring distributed among the others.

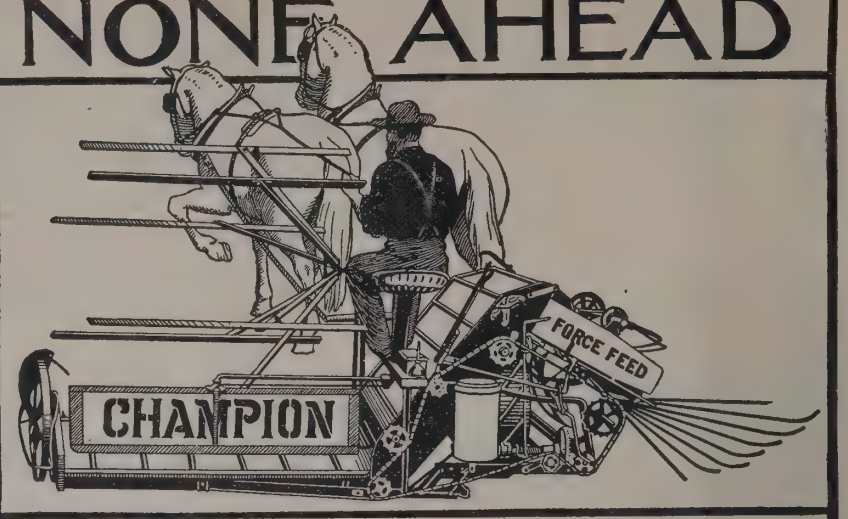
Feeding City Swill to Swine.

ED. HOARD'S DAIRYMAN: In answer to T. N. B. in HOARD'S DAIRYMAN, I never feed city swill to either pigs or chickens unless I am guaranteed no soap in swill. Soap in swill is a very frequent cause of scrofula etc, but more often death. A very little even is very poisonous.

SUBSCRIBER.

B. C.

NONE AHEAD



THERE is no binder ahead of the Champion for strength and durability, besides it has valuable improvements which greatly increase its capacity for handling difficult conditions of grain, and are useful in the usual and ordinary conditions. The most important is the **force feed** elevator which delivers the grain positively but gently to the packing arms where it is made into bundles, and choking in the elevator and waste of grain are prevented. Next is the **eccentric power-giving wheel** on the binding attachment which gives the needle an increase in power of 16 2-3 per cent over the common wheel, and permits the Champion to bind large and tight bundles in the heaviest grain without jerk or strain on the machine or on the team. Write for catalog describing these and other practical improvements on the Champion binder, also on the **Champion mowers** and **Champion hay rakes.** Handsome colored calendar sent free also if requested.

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By W. A. HENRY, Dean, College of Agriculture, Madison, Wis.

This large octavo volume of 663 pages is the only book extant which summarizes all of the feeding investigations of all of the experiment stations of both the New and the Old world. It presents the latest discoveries of the scientist, and is replete with the practical experiences of the best stockmen. The information is arranged in the most helpful and readable manner possible.

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Superior to corn, oats and hay Ton lots $24,00; half ton $12.50; 500 pounds $7.00; 100 pounds $1.50. Put up in 100-lb. sacks f. o. b. Minneapolis. Cash with order.

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NORTHERN LINSEED OIL CO.,

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When ordering mention this paper.

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Elmco Red Dog Flour

ANALYSIS:
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F. W. WOLL, Chemist, University of Wis., Agricultural Experiment Sta.

A strong, rich feed; one that offers exceptional attraction as a quick fattener, economical, uniform, producing fat without risk of cholera. Buy **Elmco Red Dog Flour** for hogs and you buy the best.

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La Crosse, Wis.

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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

Entered at Fort Atkinson, Wisconsin, as second-class matter.

Creamery Patron's Investigation at a Maine Co-operative Creamery.

ED. HOARD'S DAIRYMAN:—Following is a continuation of my report:

No. 51—Farm consists of tillage, 10; pasture, 40; woodland, 25 acres; total area, 150 acres; the orchard of two acres numbers 100 trees; principal crops are potatoes, corn, oats and beans; pasture is permanent; herd consists of 7 cows and 5 other animals; three are registered; breeds are Jersey and Durham; milking period is 10 months; no record of weight or tests of quality of milk are made.

This patron is without a silo; on full feed cows receive 6 pounds per day of a mixture of bran and meal (corn); prices are bran, $1.25; and meal, $1.50 for two bushels; has used cotton seed meal.

Estimated cost of feeding cows annually and of income for cream $25 and $45, respectively; no grain is fed on pasture; pasture season May 20 to October; does not pasture mowing land; has not tried soiling; keeps up herd by raising calves and herd is improving; rations are not balanced by calculations; skim milk is fed to calves and Chester White pigs, of which 6 to 8 are fed annually. Evidently No. 51 has a mowing field of 75 acres not included in tillage.

No. 52—Farm consists of tillage, 30; pasture, 20; woodland 6 acres; an orchard of 2 acres contains 100 trees; crops are potatoes, beans, corn and oats rotated in the order named; pasture is permanent; herd consists of grade Jersey cows, 3; heifers, 2; horses, 3; sheep, 12; and pigs, 2; milking period for cows is 10 months; no records of weight, or tests of quality of milk are made.

This patron has no silo; grain to cows on full feed consists of shorts and meal (corn) of which 4 quarts is a day's feed for a cow; prices are $1.10 and $1.45 per cwt; no cotton seed meal is fed.

Estimated cost of feeeding cows per year, $36, but has never kept account of the income for cream; does not feed grain on pasture, but does pasture mowing fields; pasture season is May 20 to Nov. 15th; never tried soiling; maintains herd partly by raising calves and partly by purchase; considers herd to be improving; does not make calculations to balance rations; considers skim milk worth 25 cents per cwt. to feed calves and Chester and Berkshire pigs, of which 4 are fed per year.

No. 53—Farm consists of tillage, 50; pasture, 25; woodland, 75 acres; an orchard of three acres contains 200 trees; principal crops are corn and potatoes; pasture is permanent; herd consists of Jersey cows, 6; other cattle, 6; cows are registered; milking period is 10 months; no records of weight of milk are kept, but cows have been tested for quality of milk. This patron has a silo; grain mixture for cows consists of corn and cob meal, bran and cotton seed meal; weights fed not stated, but prices are: Bran, $1.30, and cotton seed meal, $1.50 per cwt.; income from cream per cow $50; cost of feeding not given; grain is not fed on pasture, nor are fields pastured; full pasture season, May 20 to September.

This patron feeds his cows on a soiling system September to November; calves are raised to keep up the herd, which is improving by keeping the best for cream; rations for cows are balanced; skim milk is fed to calves and Yorkshire pigs.

No. 54—Farm consists of tillage, 40; pasture, 65; woodland, 10; wasteland, 5 acres; orchard of about 150 trees; principal crop is oats; pasture is permanent. Herd consists of common stock, 3 cows, 2 three-year-olds, 3 two-year-olds, 3 one-year-olds, and 3 calves; milking period is 10 months; no records are kept of weight of milk, nor are tests made of quality.

This patron has no silo; full daily feed of grain per cow consists of 4 quarts wheat bran and 2 quarts corn meal; prices are: Bran, $1.10; meal, $1.45 per cwt.; no cotton seed meal is fed; no grain is fed on pasture; pasture season, last of May to sometime in October; does not pasture mowing and stubble land; has not tried soiling; raises calves and is not improving herd; does not balance rations; feeds skim milk to calves and pigs, of which usually 2 or 3 are kept; does not know value of skim milk.

No. 55—Farm consists of tillage, 150; pasture, 50; woodland, 70; wasteland, 5 acres; orchard of 4 acres contains 100 trees; principal crops are hay, oats and corn; rotation is, hay, 2 years; corn, 1 year; oats, 1 year; seeding for hay again; pasture is permanent. Herd consists usually of registered bull and 10 or 12 cows with 6 or 8 head of others of various ages; breed is Durham; breeds for stock rather than for dairy purposes.

This patron has a silo. Grain feed is oats, corn and shorts; cotton seed meal is used; estimated cost of feeding cows, per year, $37.50; income per cow from cream not given; does not feed grain on pasture; pasture season about May 15 to Oct. 15; mowing fields are pastured a few days when there is a heavy growth; cows are soiled the latter part of summer.

Raise some calves and purchase some cows; herd is improving by using registered bulls; rations are not balanced by calculations, but by judgment; skim milk is fed to calves and Ohio Improved Chester pigs of which between 50 and 60 have been handled the past year.

No. 56—Blank.

No. 57—Farm consists of tillage, 25; pasture, 30; woodland 17 acres; an orchard of 1 acre contains 75 trees; principal crops are oats, corn, beans and potatoes; pasture is permanent; herd consists 9 Jerseys and Herefords, of which 4 are cows and none are registed; milking period is 7 months; no records or tests have been made of milk; but this patron has a silo; cows on full feed receive 4 pounds of shorts per day; price is $1.15 per cwt; when cotton seed meal is fed, one quart per day is allowed.

Cost of feeding and income from cream per cow is estimated at $40 and $55 respectively; no grain is fed on pasture; cows are turned to pasture May 20 to November; mowing fields are pastured about two weeks; no soiling has been tried.

Raises part of the cows required to maintain the herd, which is improving by using good sires; rations are not balanced by calculations; skim milk is valued at 4 cents per gallon or 50 cents per cwt. for calves and pigs; ten to twenty Chester Whites are handled each year.

No. 58—We have only just commenced farming.

No. 59—Farm consists of tillage, 125; pasture, 175; woodland, 100 acres; orchard of 3 acres contains 250 trees; hay and grain are principal crops; pasture is permanent; herd consists of 20 grade Jersey cows; milking period is 10 months; no records of weight or tests of quality are made: this large farm has no silo; grain feed consists of corn meal and bran, the cost of which is $1.45 and $1.25 per cwt.; have used a very little cotton seed meal; cows are pastured May 10th to November, and during latter part of season 4 quarts of bran and corn meal are fed per day per cow; fields are not pastured and cows are soiled; calves are raised to keep up the herd which is improving by introducing new blood (through the sire we are left to suppose F. E. E.) No calculations are made to balance rations.

Skim milk is used to raise calves, poultry, colts and pigs; it is fed sweet; no estimation as to value has been made; three to twenty Berkshires are raised per year.

No. 60—Farm consists of tillage 25, pasture 30, woodland 5 acres; orchard consists of 30 trees; hay, corn and potatoes are the principal crops; no rotation practiced; pasture is permanent; herd consists of Jersey and Durham cows 8, others 1; usually have some young stock; none registered; milking period is 10 months.

No records of weight or tests of quality of milk are being made; no silo on this patron's farm; full feed consists of 2 quarts per day, and head, of a mixture of meal (corn) cotton seed meal, and bran; the prices of these per bag are $1.40, $1.60 and $1.20 respectively; income per cow, per year for cream is placed at $40; does not feed grain on pasture; pasture season is from last of May to last of October; rarely pasture mowing fields. Use corn fodder and second crop of hay for soiling; raises calves to keep up herd, but fails to tell us whether the herd is improving or not.

This patron needs the help of a spring balance and a Babcock tester, in common with every other farmer who is not using them, for with these he will be sure to compare the records, year by year, of cows with those of their daughters, and to take a new interest in feeding, though his practice seems good—better in summer, perhaps, than in winter; but cows may be fresh in summer and stripping in winter, which makes a difference in the appearance of a ration; skim milk is fed to calves and pigs, of which 6 Chester Whites are fed per year.

No. 61—Farm consists of tillage 75, pasture 70, woodland 185 acres; three acres in orchard include 200 trees; the principal crops are hay, corn and oats; pasture is permanent; the herd consists of 14 cows and 11 other cattle; all being grade Durham; milking period is 10 months; no records of weight or tests of quality of milk are made.

This patron has no silo; on full feed cows receive about 7 pounds corn and five pounds bran. Prices per cwt. are $1.40 and $1.20 respectively; no cotton seed meal is fed; estimated annual cost of feeding a cow and income from cream are $30. and $40.; cows sometimes fed on pasture aud then receive 4 quarts of corn meal and bran; cows are turned to pasture middle of May and come to barn last of October; never have tried soiling; raise calves to keep up the herd which is improving by raising the best calves and using good bulls. Calculations are made to balance rations; skim milk is fed to calves and pigs.

No. 62. Farm consists of tillage 25, pasture 20, woodland 20, orchard 2, and waste land 3 acres. Orchard contains 60 bearing trees; principal crops are hay, oats, corn, potatoes and beans; pasture is permanent, but cows run in one field in fall, this portion of tillage being grazed annually after the crops are removed. Herd consists of 5 mixed bred cows, natives or mongrels and no other cattle; the milking period averages 10 months; no record of weight of milk is kept; when on full feed cows have 5 quarts each per day of a mixture of bran and oat meal (home grown) and cotton seed meal; prices per bag are $1.20, $0.90 and $1.55 respectively; has never estimated cost of feeding cows per year, but income for cream is about $35. Four quarts each per day of wheat bran and oat meal are fed cows on pasture.

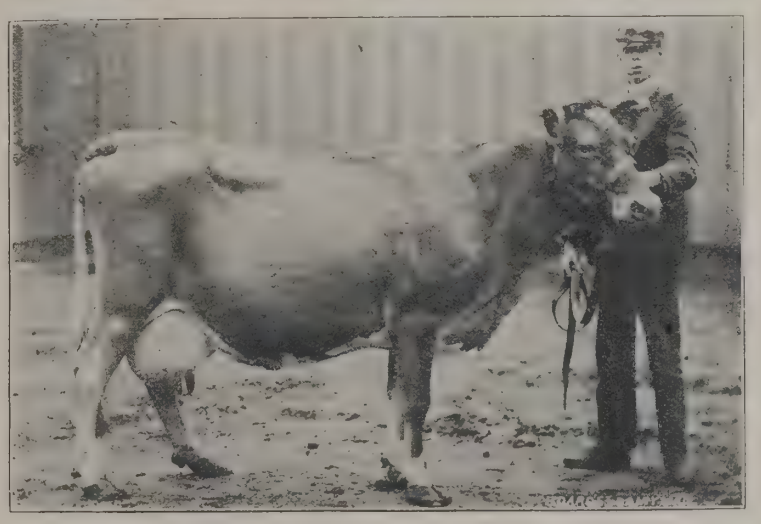
Pasture season is May 20 to Nov. 1st. As stated above one field is pastured a little in the fall; cows are soiled in August and September; herd is maintained by purchase and is improving by "purchasing the best cows I can find." No calculations are made to balance rations; skim milk is fed to calves and pigs but no estimate of its value is made; this patron only feeds porkers for home consumption.

Patron No. 62 makes the common mistake in putting dependence on the factory test of fat in cream sent, as showing any valuable fact for him, except to establish his proportional share of each month's earnings in the business; one other point is shown, perhaps, that he skims carefully, for if he ran over more milk the percentage would be lowered, yet without tests he may be leaving some fat on top skim milk for which he could realize more than the extra milk saved is worth at home.

FRANK E. EMERY.



GUERNSEY BULL, SULTAN, A. G. C. C., 8732.
Property of M. G. HATHAWAY, Trenton Jct., N. J.



GUERNSEY COW, SULTANA, A. G. C. C., 8114.
Property of S. M. SHOEMAKER, Baltimore, Md.

Scab or Itch in Cattle.

Press Bulletin.

Scab or itch, sometimes called mange, of cattle is caused by a minute mite *Psoroptes communis*, var. *bovis* that lives upon the surface of the skin and burrows in the epidermis. It does not attack other animals than cattle, although scab of sheep is caused by a similar parasite.

SYMPTOMS.

Scab or itch does not trouble cattle to any noticeable extent during the grazing season, when they are doing well on grass. Close observation is required to detect the disease in a bunch of cattle, but as soon as they are placed on dry feed, and cold weather sets in, the disease appears and, if the cattle are not doing well, in an aggravated form. Scab usually attacks young cattle, or calves, yearlings and two-year-olds, but may attack cattle of any age if they are "out of condition." The first symptom noticed is an intense itching of the skin, usually in the region of the neck or shoulders. The animals lick themselves, dig at the skin with their teeth or horns, rub against posts or barbed wire, often tearing the skin until it bleeds. The disease gradually spreads along the back, sides, and outside of legs, but does not attack the inside of the leg, thighs, or thin skin of the abdomen. In the early stages the coat looks rough; there is a scurfy condition of the skin; the scurf becomes mixed with a gummy exudate and forms crusts in the hair, sometimes one-half inch thick; the hair then comes off, or is rubbed off the badly affected area, leaving bald patches of thick, calloused, wrinkled skin. These patches often show first and prominently on the top of the neck, as if the neck had been calloused from wearing a yoke, After the hair comes off the parasites leave that part and the hair grows again. Animals suffering from scab present a dejected and debilitated appearance and fall away rapidly in flesh; they do not eat well and spend a great deal of time and energy in scratching themselves.

Scab spreads quite rapidly through a bunch of cattle, especially if the cattle are not doing well. Six or eight weeks after the disease first makes its appearance is sufficient time to disseminate the disease pretty thoroughly. Thrifty, vigorous, animals resist infection longer than others, and recover more quickly under treatment than debilitated animals. The disease is spread by direct contact and by contact with infected posts, feed-racks, walls, etc., against which infected animals have rubbed. The mites will live from a week to ten days in protected places but are killed quickly by direct sunlight.

By scraping off some of the scabs, and especially the epidermis, from the infected part and placing the material in a clean, dry, glass bottle, in a few hours minute white specks, barely visible to the naked eye, can be observed crawling on the inner surface of the bottle. By the aid of a hand lens these mites can be easily recognized.

TREATMENT.

As soon as the disease is discovered in a bunch of cattle, the affected animals should be isolated, and the infected quarters and rubbing posts disinfected with a five per cent solution of carbolic acid.

Affected animals should be well fed and cared for and be salted with a mixture of one pound of flowers of sulphur mixed with ten pounds of common salt. To cure the disease, external treatment must be applied. If a large number of cattle are affected, the most satisfactory method is to build a dipping vat, through which the animals must swim in the dip used to destroy the mites. The vat should be forty feet long. Efficient remedies used for external application are some of the coal tar products, such as car-sul, chloro-naphtholeum, zenoleum, creolin, etc.; these are used in two and one-half per cent solutions with water; that is, one part of the medicine to forty parts of water. A very effective and cheap dip is composed of lime and sulphur in the following proportions:

Flower of sulphur	21 pounds
Uuslaked lime	16¾ "
Water	100 gallons

Slake the lime to form a thick paste, sift in the flowers of sulphur and stir well; put this mixture in a kettle with twenty-five or thirty gallons of water and boil for thirty minutes at least; two hours is better. The chocolate-looking mass is allowed to settle, the clear liquid is drawn off and water enough is added to make one hundred gallons. All dips are more effective when used warm, from 100° to 110° F. Animals should be kept in the dip about two minutes, or until the scabs are thoroughly saturated. A second dipping in two weeks will kill any mites that may have hatched from the egg after the first dipping One dipping, if thoroughly done, is usually sufficient, however, to free a bunch of cattle from this disease.

Where only a few animals are affected, hand treatment can be resorted to, but it should be thoroughly done. The remedies can be applied with scrubbing brushes, cloths or sponges, and all scabs and crusts should be thoroughly saturated. The remedy should be applied warm, as in dipping. In dipping or hand treating warm, sunny days should be selected for treating the animals.

Cattle scab is rather common in some parts of the Great Plains region, and stockmen in purchasing cattle should be cautious about getting animals affected with this disease. While the death loss is usually not high, the loss of flesh, general deterioration and annoyance resulting from this disease is considerable. Cattle that have been treated should be carefully watched for reappearance of the disease, especially when taken off of grass the next season. N. S. MAYO.

Kansas Experiment Station.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

The Dairy Steer.

Every now and then somebody bobs up with a dairy steer that does something wonderful, according to his account, and then some editor who never fed a steer in his life, jumps to the conclusion that dairy cattle are all right as beef producers. If you ever see anything of this kind label it nonsense and let it go at that. Or if you want to learn a valuable lesson get some of these steers, put some high priced corn into them and learn it. There should be no dairy-bred steer; he should go onto the veal market at an early age.—*National Stockman.*

Now if the above be true the following statement is true by the same natural law.

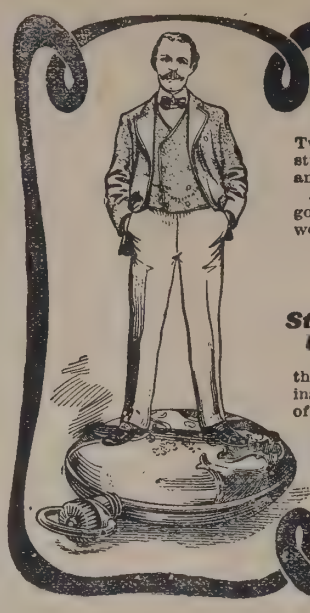
Every now and then somebody bobs up with a beefy (dual-purpose) heifer that does something wonderful, according to his account and then some editor who never milked a heifer in all his life jumps to the conclusion that beef cattle (dual-purpose) are all right as dairy producers. If you see anything of this kind label it nonsense, and let it go at that, or if you want to learn a valuable lesson, get some of these heifers and put some high priced dairy feed into them and learn. There should be no beef bred heifers for dairy work; they should go into the hands of the aforesaid editors. What is sauce for the steer is sauce for his sister, the heifer.

Alfalfa Seed

When can I get (30) lbs of alfalfa seed, as you say that is the proper amount for one acre?

Conneautville Pa. J. C. G.

See ad of John A. Salzer Seed Co. in this issue. It will cost about 10 cents per pound.



STRENGTH

Twenty-five years ago in acquainting jewelers with the strength of the Jas. Boss Stiffened Gold Watch Cases, an enterprising salesman used the method here shown. Jas. Boss Cases are still the strongest cases made. As good as solid gold in appearance. Better than gold in wearing quality. Less than solid gold in cost. In a

JAS. BOSS
Stiffened GOLD Watch Case

there is a layer of very hard composition between an inside and outside layer of solid gold reducing the cost of the case, and adding greatly to its strength. BOSS Cases are guaranteed to wear for 25 years; are recognized as the standard, and sold as such by all jewelers. Write us for a booklet.

The Keystone Watch Case Company, Philadelphia.

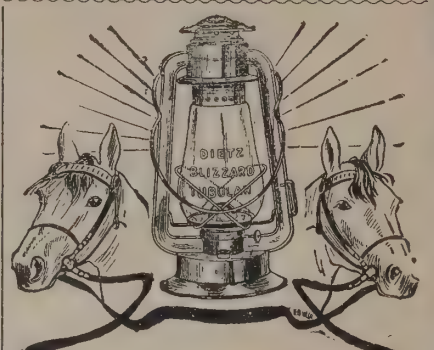
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Feed Your Land
with fertilizers rich in
Potash
and your crop will crowd your barn. Sow potash and reap dollars.

Our five books are a complete treatise on fertilizers, written by men who know. Write for them.

GERMAN KALI WORKS,
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and in a hundred duties about the barn and house the farmer wants a dependable light.

DIETZ COLD BLAST Blizzard Lantern

fits him exactly as to strength, clearness and steadiness of light and convenience and safety. Whether filling, trimming, lighting or extinguishing, you never remove the globe. It is raised, lowered and locked to burner by convenient side lever. Dietz lanterns and lamps, all kinds and sizes, are known the world over for their many superior qualities. Free illustrated catalogue shows how and why they have been for 60 years superior to all others.

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84 Laight Street., New York.
(Established 1840)



THE MARKET MAN KNOWS BUTTER

quickly absorbs odors from other articles kept in his shop. He knows also how perfectly good butter is preserved and how surely his patrons are pleased when it is wrapped in our

Pioneer Brand
Parchment Paper.

It preserves for long periods the purity of the butter, keeping in all its natural sweetness and flavor, and shutting out everything that would taint or cause it to become rancid. It is purely a vegetable paper, without smell or taste. Your name, trade mark, or dairy may be printed on every package, and it will never rub off or discolor the butter. While it protects your good butter it makes and preserves for you a good name. Send for samples and ask for copy of our booklet, "Better Butter." All sent free.

THE PATERSON PARCHMENT PAPER COMPANY,
No. 87 8th Street, Passaic, N. J.

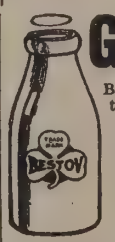
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Best way for marketing milk satisfactory to dealer and customers. Use "Bestov" Glass Milk Jars. They save driver's time and do away with waste in measuring out milk in the wagon. Cheaper in the long run than tin cans. Send for catalogue of "Bestov" dairy supplies.

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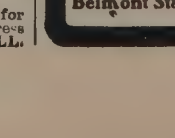
They'll not take too much, and they'll get it as they want it. Don't force animals to eat salt when they don't require it, by mixing with food.

COMPRESSED
Pure-Salt Bricks

are all salt, no impurities. Improve the quality and yield of milk. A modern convenience, always present, animals never neglected, and costs for each only about a nickle a month. See how they enjoy helping themselves when you place it within reach. For all stock. Buy of dealers or send for free booklet to

Belmont Stable Supply Co., Brooklyn, N.Y.

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Best in the world for Fence and Telephone Post Holes, Wells, etc. Used by U. S. Govt. Highest award World's Fair.



AGENTS WANTED

Thrice the work accomplished with an "Iwan" than with any other. Show this to your hardware or implement dealer or write for particulars. Special price to introduce. Address IWAN BROS., Dept. L, STREATOR, ILL.

Equalizing Cream Tests.

ED. HOARD'S DAIRYMAN:—Sometime ago you published in the DAIRYMAN the method (or description of) employed in the Hoard creameries whereby the cream tests were equalized; that is, when tested with pipette. It was a graduated scale by which additions were made to the Babcook test. I wish you would publish the same again.

We are selling the product of our creamery at "½ cent under Elgin, delivered in Chicago." Is that a fair price for a good product? I can't see why, if our product is all right and we sell to a Chicago house, we should not have Elgin price in Chicago. SUBSCRIBER.

Wis.

If the butter is high grade, we see no reason why he should not receive Elgin prices.

The following table gives the correction to be added to the reading of the Babcock cream test. We would call attention to the fact that this correction is not exact and that weighing the cream samples is by far the best method, even if it does take more time:

Reading by Measure, 17.6 c. c. Pipette.	*Reading Corrected to Nearest Tenth.*	*Reading by Measure, 17.6 c. c. Pipette.*	*Reading Corrected to Nearest Tenth.*
10	10.1	31	32.1
11	11.1	32	33.2
12	12.1	33	34.2
13	13.2	34	35.3
14	14.2	35	36.4
15	15.3	36	37.5
16	16.3	37	38.6
17	17.3	38	39.7
18	18.4	39	40.7
19	19.4	40	41.8
20	20.4	41	43.
21	21.5	42	44.1
22	22.5	43	45.2
23	23.5	44	46.3
24	24.6	45	47.4
25	25.7	46	48 6
26	26.8	47	49.8
27	27.8	48	50.9
28	28.9	49	52.1
29	29.9	50	53.2
30	31		

It is to be noted that the corrections are only applicable to cream that is practically free from air bubbles, and, therefore, cream fresh from the separator, containing more or less air, will show more difference than the table represents. The liability to errors in testing increases with the thickness of the cream. So the corrections are more certain to apply on cream of average thickness or less, than on that containing a larger per cent of fat. If it is desired to test considerable quantities of rather thick cream, as is often the case in factories which are the center of skimming station systems, it is undoubtedly best to depend upon weighing the samples for testing.

Siloing Clover.

ED. HOARD'S DAIRYMAN:—In your paper of a few weeks ago I noticed a question regarding the siloing of clover with a request that some one give their experience.

Last fall our corn crop being almost a failure, we, my father and I, decided to mix clover in with the corn. Accordingly we cut a load of clover just in the blossom to two loads of corn, and in this way filled our two silos. On opening them we found the corners badly burnt for a distance of eight inches, besides eight inches more that was not fit to feed the cattle. The sides were hurt in the same way for about one foot. This is our experience with clover thus far. It seems to me that the trouble lies in the silage not being properly packed, as I believe the silos were in very good condition. We shall try the experiment again this year and try and locate the trouble if possible. The center of the silage was in bright condition and was readily eaten by the cows.

If those who have had experience in this line can give us any information, we should be glad to know it through the columns of this paper. C. W. R.

Newport, Vt.

A Michigan Herd Record.

ED. HOARD'S DAIRYMAN:—I have been interested the past season in the reports of the dairies investigated by HOARD'S DAIRYMAN, and noticed the increase in profits on dairies reported from Holstein localities in the same state. I am inclined to think they are the most profitable for the farmers that patronize a cheese factory and feed the whey to hogs. In Lenawee Co., we have 20 cheese factories, 5 creameries, 1 condensed milk plant and the industry is still growing.

Thinking that others may be interested in milk records as well as myself, will send a record of my herd for the past season, up to Jan. 1.

No.	*Date of Freshening.*	*Lbs.*
1	May 16	4888
2	May 8	4277
3	May 9	6164
4	Mar. 12	6259
5	Feb 20	7459
6	April 12	6935
7	March 22	5988
8	June 1 (H)	4219
9	May 21	668
10	March 18	4689
11	May 24 (H)	3694
12	May 27 (H)	2778
13	July 4 (H)	2896
Total		66926
Average per cow		5148

Will milk two of the heifers all winter; balance of herd is nearly dry.

Feed for dry cows, bran, shredded fodder and mixed hay. Will give heavier grain shortly before freshening. Don't feed grain during summer. W. G.

Limecreek, Lenawee Co., Mich.

Milking Heifer Calves.

ED. HOARD'S DAIRYMAN:—The "J. A. M." article on page 1080 is certainly very amusing and instructive. We surrender all right and title to heifer breaking to J. A. M., who without dispute has an original method and points of superiority, that entitle him to world-wide attention. To teach calves five months old to give milk avoids a good many serious difficulties in dairying.

"Jam" is standing in the open door of an astonishing discovery in dairying, the originator of a "Jam-ed" breed of calveless cows, as calf bearing will not be necessary to get milk flow. It might be embarrassing to milk a calf with large rudimentaries for several weeks to discover at last that it was a steer calf, but there would be no actual loss, as it would make good beef and in reality the long sought dual-purpose animal, Jam's calveless cows would also possess the invaluable feature of not being susceptible to abortion; calf cholera would be an impossibility and no reason exists why these cows should not be continuous milkers.

These cows if fed Townsend's turnips, Gould's silage and Wing's alfalfa should develop into the *Jamdest* breed of milk producers in existence. DON JOSE.

"ADVERTISEMENT."

APPETITE COAXING.

Not Necessary When Proper Food is Used.

Coaxing up an appetite is hard work and unnecessary when a little thought is given to scientific feeding.

Fill the stomach with the wrong stuff and it is not long before the palate too is affected and even the sight of food is nauseating. Stomach and nervous ills of all kinds soon come and the body is left without nourishment.

Then take on Grape-Nuts for a few days and see the difference. Eating is no longer a duty but a delight, for the food is made of the proper grains prepared in a natural, scientific manner and the flavor is delicious. The case of a schoolma'am of Cedar Mills, Minn., is interesting. She writes: "I used to go without lunch many a day, not finding it tasty. In consequence I usually had a severe headache before the afternoon session was over, and felt nervous and cross.

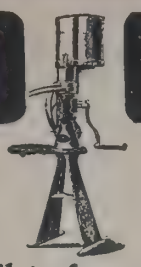
"I had almost concluded to give up teaching on this account when a friend induced me to try Grape-Nuts. I will say frankly I did not care for it at first, but tried it two or three times and then found myself beginning to enjoy the crisp, nutty flavor.

"The food has changed the order of my life. I carry it for lunch every day now. The color has come back to my cheeks and lips, and I have no more headaches or nervous spells.

"My body is full of energy and new life, and life seems worth the living, now that I have found the proper food."

Name given by Postum Company, Battle Creek, Mich.

Empire Eight Years Empire Fifteen Cows



The Empire Way Makes Cows Pay.

1895 1896 1897 1898 1899 1900 1901 1902



How's This for a Record?

Emporia, Kans., Jan. 2nd, 1903.

Empire Cream Separator Co., Bloomfield, N. J.

Dear Sirs: Have used one of your **Empire** Cream Separators for the past eight years, during which time I have been milking at all times from twelve to fifteen cows. The cost for repairs in the eight years has been only seventy-five cents. I have had experience with other separators but consider the **Empire** superior to any other, as it never caused me any bother. It is easy to clean and has proven very durable. It does good work at all times. L. H. VAHSHOLTZ, Rural Route No. 4.

The Empire Cream Separator turns more easily, is more easily cleaned, does better work, and costs less for repairs than any other, because it is the **simplest separator made.** Don't buy a separator until you have investigated the merits of the Empire.

Send for our new book on Making Milch Cows Pay.

Empire Cream Separator Co., Bloomfield, N. J.

Western Office—FISHER BUILDING, CHICAGO.

Eight Years 75 cents for Repairs Fifteen Cows



Some People

do not see the necessity for two wheels on a hoe. They like a Single Wheel Hoe because it is a trifle lighter than the Double, and it does not cost quite so much. To meet this demand we make the

No. 16 "Planet Jr." Single Wheel Hoe Cultivator, etc.

It is our latest 1903 model of this tool and is a decided improvement on anything of its kind we have heretofore offered. It is provided with two hoes for working middles or both sides at once, throwing dirt to or from the rows; three cultivator teeth for working middles; two rakes for pulverizing and smoothing, and a plow which is also an excellent furrow opener. Handles are adjustable to fit short

Planet Jr.

or tall workmen or children. All attachments are quickly and easily changed. It will work any garden crop planted in rows and one person can do more and better work with it than six men can do with hand hoes. Should you need a horse tool you will find the **No. 8 "Planet Jr." Horse Hoe, etc.,** shown below to be the best in existence.

These are but two of our fifty seeding and cultivating implements, including plain and combined Seed Sowers, Wheel Hoes, Hand Cultivators, Walking Cultivators, One and Two-Horse Riding Cultivators, Special Sugar Beet Tools, etc. Our new 1903 catalogue is educating. It contains over 100 illustrations with full descriptions and prices. It costs you nothing and will make you money. Write for it.

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THE

Improved International



The best in the world, has no superior if you want a larger butter yield. It runs easily, skims clean, and is easy to wash. It is perfect in mechanical construction and magnificent in appearance. No outside gears to catch your hands and clothes. Only three parts in the bowl. Look at the low supply can. All parts absolutely interchangeable. Write for Catalogues and Prices.

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Tacoma Blk, La Salle & Madison Sts.,
CHICAGO, ILL.

THE INTERNATIONAL CREAM SEPARATOR CO.,
LANCASTER, PA., U. S. A.

A Valuable Cow

You can add value to any cow with a

National Hand Separator

because it will save over 80 per cent. of the loss resulting from the old method of setting. It will separate warm or cold milk, light or heavy cream, and skim *clean.* We send the National and let it prove its worth right in your own home dairy.

10 DAYS' USE FREE.

Costs nothing if you don't buy—costs nothing if you do, for it pays its cost in what it saves. Send for catalogue.

National Dairy Machine Co. Newark, N. J.

COMMON SENSE Calf Feeder

Gold Medal Pan-American Exp.

The only feeder adopted by Experiment Stations.

Satisfaction guaranteed.

Easiest to operate and clean. No valves to get clogged or foul.

Prevents Scours.

Weans perfectly. Calves take to it like a baby to the bottle.

Over 50,000 in Use.

It's Nature's Own Way.

More than all others combined.

Extra gain on one calf pays for two feeders.

Nipples are reenforced without seams.

Durable. Simple. Economical. Scientific and Practical.

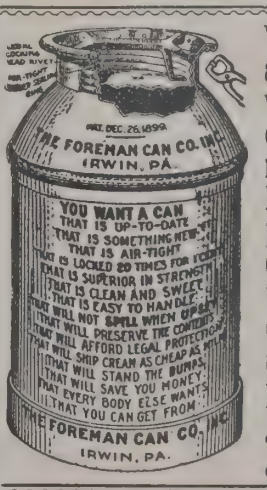


Price $1.50. Sent postpaid for $1.75.

Our Cow's Relief is guaranteed to cure caked bag in 12 to 24 hours. Heals chapped or cracked teats, sores, scratches, etc. Sample box by mail for 50 cts.

"22 Valid Reasons Why You Should Use a Feeder," free.

O. H. MFG. CO., DEPT. H LYNDON, VT.



We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity—1000 cans daily, which should enable us to fill all orders promptly.

Every can sold on a guarantee. Write for Circular H.

There's More Money

And readier money in hogs and cattle if there is mixed daily, with their feed a small amount of

Prussian Stock Food.

For all domestic animals. It conditions, begets growth, fattens. 50c and $1.00 Packages. A Pail, 1200 feeds, for $3.50. Buy of dealers. Write us for free 68-page book.

Prussian Remedy Co. St. Paul, Minn

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Can be Promptly Furnished with anything they want at reasonable prices, if they will write me. My CHILDS' PATENT MILK BOTTLE FILLER is the best on the market. Send for free catalog.

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MR. MILK DEALER. I have something new. Invaluable to you. Send for free Booklet.
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MILK TUBES Patent Coin Silver 1¾" 50c. 2¾" 80c. Improved Teat Opener 75c. Dilating plug 25c. paid on receipt of price.
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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of them read dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

Coming Events.

Wisconsin Buttermaker's Association, Waukesha, Wis., Feb. 24-26, 1903.
Texas Dairymen's Convention, College Station, July, 1903

We are receiving of late a good many requests for a bundle of copies of HOARD'S DAIRYMAN for distribution. We are very glad to forward copies for distribution, for we need the help of every reader to increase the circulation of the DAIRYMAN. Get up a club of subscribers among your neighbors. If there is going to be a meeting of the creamery or cheese factory patrons, write us for a bundle of sample copies for distribution. If you are going to a farmers' institute, have some copies with you. These meetings afford excellent opportunity to work up a good club. Write us at least a week ahead of the meeting saying how many copies you want and we will promptly forward. Give us your help.

WE have received from The MacMillan Co. a copy of Irrigation Institutions by Elwood Mead. The book is a very full discussion of the economic and legal questions created by the growth of irgated agriculture in the west, and is a very timely publication in view of the present agitation of national aid and control of irrigation in the semi-arid states. It takes up land laws, doctrines of appropriation, contract water-rights, duty and measurement of water, and irrigation in the various states where the water question has become of vital importance. It is a most timely and valuable book.

A PENNY SAVED IS TWO PENNIES EARNED.

It would seem that only a few farmers are good reasoners on economical milk production. The great mass of them are making milk just as expensively as it ever was done. The only way to economize that they know of, is to feed less. In 1901, thousands upon thousands of cow keepers half starved their cows and thus in many instances injured them greatly for years to come. The only way they could see to reduce expense, was to take it out of the cows. HOARD'S DAIRYMAN had been talking to those farmers for years about the great economy of the silo but it went into one ear and out of the other. They called that "book farming." Thousands of them are unconvinced yet. They will cut a ton or ton and a half of hay to the acre when they could cut 12 to 15 tons of ensilage having an actual feeding value of six tons to seven of their hay, and still they cannot see it.

Then comes the alfalfa question. The HOARD'S DAIRYMAN farm, with its 130 tons of fine alfalfa hay cut from 17 acres of ground last season and its two silos, has neighbors who don't believe a word in this talk about the great economic valne of the silo and alfalfa. It is a great comfort to some farmers not to believe. Hay is worth $10 a ton in Fort Atkinson. The six horses on the DAIRYMAN farm are being fed on cut corn stalks worth only $2.50 per ton. We have a great abundance of stalks, and the horses can easily spend a part of their time running the tread power. Two tons of good cut corn stalks are eqnal to a ton of timothy hay. There is $5.00 saved by feeding cut corn stalks. Besides. the horses look better, feel better, and cough less then when fed on hay. In the South "corn blades" are counted the finest of food for race horses.

Again, the combination of good juicy corn ensilage, 35 pounds, and 10 pounds of alfalfa hay is the finest thing we ever struck as a milk producer. It requires only about 3 pounds of bran a day to to keep the cows up to their maximum flow. The herd is averaging over a pound of butter fat a day, 17 of them being two and three year old heifers.

Here is the daily cost of the ration:

10 lbs. cut corn stalks at	$2.50 per ton	....	1.25 cents
35 " corn ensilage at	$2.00 per ton	....	3.5 "
10 " alfalfa hay	$10.00 "	"	....5 "
3 " bran	$15.00 "	"	....2.25 "
			12 cents.

For this we are getting, as said above, a pound of butter fat a day. We are now milking 36 cows, 30 of them calved last fall and in December. This pound of butter fat is worth today 29 cents. These figures will show the great economy of putting together two such full elements as succulent corn ensilage, and good alfalfa hay. And yet the unbelievers will hang on to their expensive, wastefull ways of feeding, and say they are doing just as well as anybody. What an uncomfortable jolt it would give some of these men if they should read and figure themselves out of their old rut.

Wisconsin Dairymen's Association Annual Meeting.

The energetic little city of Fond du Lac proved itself worthy of its opportunity when it welcomed the Wisconsin State Dairymen's Association within its gates, and by its enthusiastic efforts in making the delegates comfortable and its hearty attendance upon the sessions bore out the statement of its Mayor that though lately asleep, the city is now fully awake and in the thick of the hustle and bustle that befit an up-to-date Western town.

The thirty-first meeting of the Association was called to order by President Emery Wednesday morning, Feb. 11th, and during the exchange of congratulations, between the genial Mayor, Dr. Bishop, and various of the older members of the Association, many incidents of its early life were related, and many names mentioned which have had in the past potent influence in the up-building of this very strong and effective Association.

Uncle Stephen Favill and Ex-Gov. Hoard were the only gentlemen present who could carry their memories back to the very inception of the organization, and they recalled many interesting details of the first meeting at Watertown in 1872.

The real business of the meeting was put in motion by the reading of the President's Annual Address. President J. Q. Emery, of Albion, briefly reviewed the history of the Association and compared the conditions in the state of Wisconsin with reference to dairy matters as existing at that date with those existing to-day.

Basing an estimate upon the United States census for 1900, the revenue from the dairy industry of the state for 1902 reached at least $55,000,000, having increased within a decade one hundred and ninety per cent. Wisconsin stands third only in the list as a butter-producing state, while she leads the whole country in the manufacture of cheese.

In 1902 there were 2,697 cheese and butter factories in Wisconsin as compared with forty cheese factories and no creameries in the year 1872.

This organization not only brought into being, but has been a loving mother to the dairy school at Madison and to the Agricultural College with its many branches and opportunities; the Babcock test is one of the family of the Dairy Association; also the Dairy and Food Commission, and last but perhaps not least, the Farmers' Institutes.

The President, however, vigorously disowned for the Association any relationship with that creature which has been such a disgrace to the dairy family, viz.: oleomargarine, and closed his report by appealing to the members of the Association for help and influence in the establishment of the rural schools.

Secretary Burchard realized that this was a good time to bring forward some resolutions along the line suggested by the President and such were unanimously adopted. Among these was included a resolution directed against renovated, clarified and rechurned butter; another resolution approving the action of Congress and of the Secretary of Agriculture relating to the manufacture and sale of renovated butter, and heartily endorsing the bill now pending in the state legislature to promote the efficiency of the Dairy and Food Commission and requesting all judges, magistrates and prosecuting officers to assist the Dairy and Food Commissioner in enforcing the law relating to the sale of oleomargarine.

Mr. C. P. Goodrich, of Fort Atkinson, gave a most interesting and instructive history of his work in taking a cow census in Fond du Lac county. In such work he visited forty-eight creamery patrons and twelve cheese factory patrons; he ascertained the average number of cows milked in the whole district; he arrived, as nearly as possible, at the kinds and amounts of the different feeds given the cows and the value of such feed, and with this data, he made up a chart, giving all these details with reference to each particular herd, arriving at the average cost of feed per cow, which was $29.88; the average returns for butter from the creamery per cow, $35.82, and many other details, showing an average profit all through of $14.34, not counting calves or manure or labor. Some very interesting comparisons between different herds, showing astonishing differences, were made by Mr. Goodrich, but this chart has already appeared in your paper, and can be studied at leisure by your readers. Mr. Goodrich referred with considerable feeling to a letter lately received by him from a gentleman who was shown in the cow census reported by Mr. Goodrich last year to have been running his herd almost without profit. The young man took the lesson to heart and by weeding out unprofitable cows and adopting better methods, was able to report to Mr. Goodrich a very material improvement in the financial result of the year's work.

The evening session of Wednesday included an address on "Home Making", by Mrs. Adda F. Howie, and another by Rev. Sabin Halsey on The Clergyman as a Farmer and an interesting programme of music and readings.

The two cheese instructors employed by the Dairymen's Association to visit factories and suggest improvements, tendered their reports at the first session on Thursday morning, and these two young men, Mr. E. L. Aderhold and John B. McCready, showed in the reports read an ample justification for the expense incurred in their work and crying necessity for more expense of the same kind.

Most of the readers of HOARD'S DAIRYMAN have heard about the beautiful calves and very profitable cows that are fortunate enough to be housed in the cheery barns of the Sunny Peak Farm.

Mr. D. W. Howie Jr., of Elm Grove, read a paper in which the detail of each day's work was laid before those present, and the intelligent enthusiasm and careful attention put into that daily labor will go far toward explaining the very satisfactory results.

The veteran dairyman of Illinois, Mr. H. B. Gurler, of DeKalb, has a more than national reputation in dairy matters, and the lessons that he extracted from the annual records of sixty cows in one stable made a fine supplement to Mr. Goodrich's study of nearly as many herds. Mr. Gurler is an enthusiastic feeder of ensilage, but he is looking forward anxiously to the time when he can grow plenty of alfalfa in Illinois, even if he has to import a carload of inoculated soil from some other state, as he believes that alfalfa will be the cheapest and, next to ensilage, the most reliable feed he can depend upon.

A banquet, followed by a half dozen responses to toasts, with ex-Gov. W. D. Hoard, presiding as Toast Master, or, as he put it, "Milk Toast Master," will not soon be forgotten by the citizens of Fond du Lac, and others who were privileged to be present.

Friday, February 13th, was a day filled full of good things.

Mr. U. S. Baer, writing as one who knows that of which he speaks, told a few of the things needed in the Wisconsin cheese industry. He started out with the proposition that the introduction of Babcock test for fat and the Wisconsin curd test, the recent experiments in curing cheese at low temperature, and the requirements of the markets for a higher grade of excellence in cheese, have created a crying need for more highly educated cheese makers. These gentlemen must not only be good cheese makers, with a high appreciation of cleanliness, a thorough knowledge of apparatus and a trained ability on the financial side of the business, but they must be capable of teaching the farmer improved methods of handling stock, in feeding and otherwise; they must be able to take a Babcock test outfit into a neighborhood, gather the farmers together and make them understand and become interested in testing their animals and caring for them properly. They must have the backbone to turn away milk, if it is necessary, in order to save disaster in the manufacture of the product, and all this must be done in hearty co-operation with other cheese makers. Mr. Baer deplores the large number of small and inadequately equipped cheese factories in contiguous territory, and urges that every factory be equipped with a steam boiler, knife mills and automatic curd agitators. Mr. Baer thinks that there should be a law under which cheese makers shall be licensed, and only those who have had two or more years' experience as helpers should be permitted to manage a factory, and he also believes that as a protection to the public the cheese factories themselves should be under the supervision of a licensing body.

Mr. James G. Moore, following up the work heretofore done by the younger Mr. Goodrich, has been in the field during the past year acting as instructor in the creamery line of dairy work, going from creamery to creamery under the auspices of the of the Dairy Association. His experience has taught him that such work could be much more effectually done if the instructor could be clothed with powers similar to those of the Minnesota State Dairy and Food Commissioners, which permit of the fining of the owners of unclean cans, and also of improperly cared for pumps, pipes, and other portions of the factory. He suggests that there should be a legal standard of overrun and a more uniform system of dividend statements, as there is in many cases obviously fraudulent use made of this factor in order to draw patronage from one factory to another. Mr. Moore echoes the cry of the cheese instructors, that more instructors are absolutely necessary, as it is manifestly impossible for one man to look after eleven hundred creameries in a state as large as Wisconsin. More than this, the instructor should be able to go among the farmers themselves and assist them toward a better care and production of milk.

Mr. Charles L. Hill, of Rosendale, in an address on the subject of "Dairy Bulls," tried to answer the question so often asked him: "How can I be reasonably sure that any bull that you or any other breeder may send me, will improve

the quality of my herd?" Mr. Hill acknowledges his inability to give a direct answer to the question, but is willing to discuss the matter, and give what suggestions occur to him out of a considerable experience, and these are some of the principal points suggested by him:

First and most important, choose the breed you take a fancy to, because you will naturally give it the best care and thus achieve the best success. In seeking a bull, particularly if that is done by correspondence, the dairyman must rely largely on pedigree and the reliability of the breeder he deals with. A very important point is, if possible, to see the dam of the bull, which, according to Mr. Hill, should make at least four hundred pounds of butter in a year. An old bull, if still vigorous, is valuable, because he has proved what he can do.

The first point to be looked for in the selection of a bull would be masculinity, not necessarily coarseness, but having a resolute, sturdy, commanding appearance, showing that he has energy to spare. He should have a good muzzle, showing good appetite, and a large barrel, showing good digestive capacity, even if the barrel has caused his back to sag a little. If possible, see that his dam had a good shaped udder, and the bull himself good sized, squarely placed rudimentary teats. Let him be thin in the thighs and show no tendency to beefiness anywhere.

This bull should be fed a little grain ration, all the good hay or corn fodder he wants, but not much corn silage. A very important thing is that he have plenty of exercise daily, and by far the cheapest and best way to exercise a bull is in a tread power, where, by working an hour each day, he can easily earn his board. Care should be taken that the power is not steep or he will slip. An important item in the care of a bull is to keep his hoofs sawed off. He should have a ring in his nose about the time he is a year old, and always be handled by a staff. A daily grooming is a good thing. Do not abuse your bull, but still be firm with him. Never fool or play with a young bull, but always make him mind, and then as he grows older, never give him a chance to know he can do anything else, and never forget that it is always the gentle bull that kills the man. Our most successful dairymen agree that more than any thing else their success lies in the continued use of the best pure bred dairy sires they could find. Therefore, in the words of the revered Hiram Smith: "Buy a bull."

Another visitor from the adjacent state of Illinois was welcomed by the Association in the person of Mr. Euclid N. Cobb (known in your columns as Buff Jersey). This gentleman runs a private Agricultural University, and each one of his ten children occupies a chair in said university, and Mr. Cobb told how they do it in this infant industry; how the oldest boy is the foreman of the farm, having charge of the barns, the horses, the field work, etc.; the second looks after the dairy animals; the second girl is responsible for the attractive butter packages, which with the assistance of her younger sister, are prepared for market each day; and so on down to the youngest, each has his work to do, each is paid for his work and as the work is interchangeable at times, the good work of education goes on.

The reports of the Secretary and Treasurer showing the detail work of the year were submitted and received.

Then followed the report of the nominating committee, recommending that the present incumbents succeed themselves as officers of the Association for the coming year. The report was unanimously adopted and thereby Mr. J. Q. Emery, of Albion, re-elected as President, G. W. Burchard, of Fort Atkinson, as Secretary, and Mr. H. K. Loomis, of Sheboygan Falls, as Treasurer.

The committee on resolutions also made its report and offered a number of resolutions thanking the citizens of Fond-du Lac for their hospitality and helpful interest; the railroads for their courtesies; also thanking the officers.

Another resolution offered by Mr. Foster was adopted as follows. "Be it resolved by this Convention of the State Dairymen's Association that we approve of and request that the appropriation asked for by the Agricultural College Management this year from the legislature, be granted in full as being to the best interests of the whole people of the state of Wisconsin." And the Secretary was instructed to forward copies of the same to the President of the Senate and the Speaker of the Assembly.

A glowing account of the dairy possibilities in Northern Wisconsin was given by Mr. Fred Rietbrock, of Milwaukee, whose experience of many years in developing farm lands in Northern Wisconsin would seem to indicate that he knows whereof he speaks. The climate, soil, water, railroad facilities and the class of population already seeking homes and farms in Northern Wisconsin, would certainly seem to give promise that Mr. Rietrock's prediction will be fulfilled, namely: that within twenty-five years the vast reaches of timber land now contained in what is known as Northern Wisconsin will be as thickly populated, perhaps more so, as the more southern part of the state.

The last paper of the session was given by Prof. W. A. Henry, Dean of the Agricultural College, Madison, on "The Wisconsin Feeding Stuffs Law and Its Importance to the Farmer."

This law was formulated by Secretary Burchard and was passed in 1901, and requires every manufacturer before he can sell or offer for sale any "concentrated commercial feeding stuffs to file with the director of the Wisconsin Agricultural Experiment Station a printed statement giving the name of the manufacturer, the contents of the car or package, and stating the percentage of total crude protein or crude fat contained in such manufacture.

Also that the manufacturer shall pay an annual licence fee of $25 for each distinct brand of feeding stuffs sold in the state, which money shall be used in defraying the expenses incident to analysis and supervision of the business by the Station."

The Station shall analyze a sample of each licensed feeding stuff and if adulteration is found, the manufacturer or dealer shall be subject to a fine."

The object of this law is to protect the farmers against the many adulterations which have been put on the market and delivered to the farmers under many names, all comprehended in the term concentrated commercial feeding stuffs, such as linseed meal, cotton seed meal, pea meal, gluten meals, oil meals of all kinds etc. One very common method of adulteration is by the addition of large quantities of weed seeds, also oat hulls and other by-products from the oat meal factories, which are much lower in feeding value than they purport to be. Light oats are also mixed with corn and sold as ground corn and oats. More adulteration is found in what are called mixed feeds than in oil meal, bran and middlings.

Every farmer should have his name on the mailing list of the Wisconsin Experiment Station and he will then receive its frequent bulletins on this subject. He should be suspicious of feeding stuffs with high-sounding names sold at low prices.

With the discussiom of Prof. Henry's address, closed the Thirty-first Annual Meeting of the Wisconsin Dairymen's Association, and as one of the older members expressed it, he would have said it was the best convention they ever held had he not remembered that he had felt that way about many preceding meetings.

A. L. K.

Cheese Scores.

Wisconsin Dairymen's Convention, Fond du Lac, Feb. 11-13, 1903.

EXHIBITOR'S NAME AND POST OFFICE.	Flavor 45	Texture and stock 30	Color 15	Finish 10	Total 100
John Pfeiffer, Oshkosh	44	29	15	10	98
Unknown	44½	29	15	9	97½
Fred Pfeiffer, Oshkosh	43½	28½	14	10	96
Wm. Zwickel, Vandyne	43½	28½	14	10	96
Joicely Bros, Knowles	43	27	15	10	95
H. M. Scott, Sheboygan Falls	44	26	15	10	95
Max P. E. Radloff, Hustisford	43	26	15	10	94
Charles Gartmann, Sheboygan	42	28	15	9	94
J. O. Batchelder, Fond du Lac	44	25	15	10	94
A. Kielsmeier, Hika	42	26	15	10	93
Albert Schmidt, Fond du Lac	44	24	15	9	92
J. F. Bachman, Black Creek	42	27	13	9	91
Average					94 6

Butter Scores.

Wisconsin Dairymen's Convention, Fond du Lac, Feb. 11-13, 1903.

EXHIBITOR'S NAME AND POST OFFICE.	Flavor 45	Grain 25	Color 15	Salting 10	Packing 5	Total 100
C. M. Kates, Custer	42½	25	15	10	5	97½
E. L. Duxbury, Green Bay	42	25	15	10	5	97
G. E. Jordan, Amherst	41½	25	15	10	5	96½
W. A. Abbott, Portage	41½	25	15	10	5	96½
James Van Duser, Hebron	41	25	15	10	5	96
A. E. Dixon, Evansville	40	25	15	10	5	95
W. J. Hyne, Evansville	40	25	15	10	5	95
Gust. Trager, Mazomanie	40	25	15	10	5	95
G. A. Freeman, Pewaukee	40	25	15	10	5	95
B. F. Holbrook, Durand	40½	24¾	15	9¾	5	93
McLean & Felch, South Byron	40½	24½	15	10	5	95
A. L. Covill, Amherst Junction	40	25	15	10	5	95
R. Holcomb, Scandinavia	40	25	15	10	5	95
Henry Bast, Garnet	39	25	15	10	5	94
W. H. Caflisch, Baraboo	39	25	15	10	5	94
W. G. Jamison, Appleton	39	25	15	10	5	94
B. J. Ellis, Stoughton	39½	25	15	9½	5	94
Chester J. Chapin, Omro	39½	25	15	9½	5	94
Ole Esker, Bloomer	38	25	15	10	5	93
S. Haight, Cambridge	38	25	15	10	5	93
E. R. Powers, Fond du Lac	38	25	15	10	5	93
A. Kielsmeier, Hika	38	25	15	9½	5	92½
L. G. Cebell, Oak Center	37	25	15	10	5	92
W. H. R. Holden, Poynette	38	25	14	10	5	92
Matt Batchelder, Fond du Lac	37½	25	14½	9½	5	91½

In addition to the foregoing there were seven entries that scored less than 91 points, but in some cases at least the butter exhibited either lost flavor in transit or was not up to their average make in quality. The average score for all the entries, 32 in number, was 93.22 points, which is better than winter exhibits usually make, especially when dairy and creamery butter is all put into one class, as has been the rule in Wisconsin for two years.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Contents of Silo—Cement for Sides.

Please inform me capacity in tons of ensilage (corn) of a silo 28 feet in dimeter and in height 30 feet. If plastered inside what should plaster consist of to stand the acid. N. C. S.

Chica,o Ill.

A silo of the above dimensions should contain 370 tons if filled to the top and well packed down. For plastering the inside a good quality of cement should be used with a dove-tailed lath.

Four Per Cent Milk Wanted from Holstein-Friesian Cows.

I have been a reader of your paper for several years. I am now starting a herd of Holstein-Friesian cows; I want a young bull to head my herd, would like to know through your question column what the best butter fat strain is that gives the largest flow of milk. I don't want less than 4 per cent.

Please give me a feed ration of sugar corn fodder, yellow corn fodder, wheat bran, old process oil cake meal, cotton seed meal, mangel wurtzel beets. S. F. S. Jr.

Middletown, Del.

If we had the records of all the Holstein-Friesian cows in America, and the time to study and tabulate them, exhaustively, we might be able to answer our correspondent's inquiry with some degree of satisfaction to ourselves and with a certainty of provoking dissatisfaction with every owner of Holsteins not belonging to the particular "strain" named. But we do not have such records and they cannot be obtained. Moreover every year, and almost every day brings forward new candidates for favor. The better way for this inquirer to pursue is to insert a short advertisement stating what he wants and inviting correspondence from breeders who think they can meet his requirements.

If the roughage mentioned is literally "corn fodder" and not simply corn stover (corn stalks), we advise him to feed, say, 25 lbs. mangels, 4 lbs. bran, 2 lbs. cotton seed meal, and all the fodder the cows will eat Give half of the mangels, bran and meal, with a teaspoonful of salt at night, and the other half with salt in the morning.

Silage and Tuberculosis.

One of our Wisconsin readers is somewhat exercised because his neighbors tell him that feeding stock from silos is liable to produce tuberculosis or some kindred disease. He has used the silo for two years and is well satisfied with it.

The present writer may say that he has used the silo for twelve years, and the longer he uses it the better he is satisfied with it. Notwithstanding the claims of this man's neighbors and others, we can state with confidence that good silage is a perfectly healthful food, both for stock and for those who may use the milk from cows fed on silage, and there is, therefore, no reason in the world for him or anyone else to abandon the use of the silo.

Whey for Calves.

F. T., Niles, Mich., asks us to tell him how cheess factory patrons in Wisconsin raise their calves, using whey instead of separator skim milk.

We are not particularly advised as to the specific practices followed, but possibly satisfactory results may be obtained by using whey and linseed oil meal or dried blood to supply the protein and fat which have been taken from the milk and converted into cheese. Whey has only about one.third the feeding value of skim milk, but one should not attempt to make up this deficiency by feeding whey in larger amounts than they would feed skim milk. Wean the calf from whole milk to whey very gradually and be very careful not to overfeed. Whey should be fresh and comparatively sweet and all vessels used in holding it or feeding it should be cleaned and scalded daily. It is hardly practicable in any case to specify the amount of whey to be fed or the amount of oil meal to be added. The feeder must exercise his own judgment, watching results carefully from day to day, at first making the oil meal into jelly to mix with the whey. As the calf grows older the oil meal or dried blood may be stirred into the whey and at a very early age the calf may be taught to eat unground oats, a small handful every day.

On the remaining questions submitted this inquirer should correspond with Prof. U. S. Baer, Madison, Wis., Secretary of the Wisconsin Cheesemakers Association.

A Pennsylvania Ration.

Please make me a daily balanced ration for my dairy. I am milking 17 cows, large in size, mixed stock; made 5,500 quarts last mon h; all fresh last fall but two; they came in last April. I have plenty of fodder, timothy hay, millet, cob meal, $17.15; wheat brah, $20 a ton; grains, $21 a ton; sprouts, $19 a ton. I feed a mixture of all on cut fodder, three times daily, and all the hay and millet they will eat, without waste. Kindly form me a daily ration. J. T. M.

Paoli, Pa.

If our inquirer is feeding an average of 8 lbs. of corn stover, 7 lbs. of millet hay, 7 lbs. of timothy hay, and 8 lbs. of grain mixture (made up of equal parts by weight from the feeds named) his cattle are receiving 24½ lbs. of dry matter, which contains 1.72 lbs. of digestible protein, 11.75 of digestible carbohydrates and .51 of a pound of digestible fat. His cows are yielding about 23 lbs. of milk each per day and it would seem that the ration as above is adequate to enable them to hold up to this amount provided digestion is perfect. We incline to the opinion, however, that the addition of 1 lb. of linseed oil meal daily, if not materially increasing the present flow of milk, would have a tendency to delay the natural shrinkage incident to advancing lactation.

A South Dakota Feeding Problem.

C. W. H., of South Dakota, writes that he has plenty of speltz (emmer) that is worth 75 cents per hundred pounds; oats, 25 cents per bushel and corn fodder and millet hay. At the present time he is feeding about 10 lbs. of ground speltz and bran with what millet hay the cows will clean up twice a day, and at noon some corn stalks and some stalks with the corn on. He asks whether he can make a ration of speltz, oats and rye, or corn, with millet hay and corn stalks for roughage, without buying bran at $15 per ton.

Very likely a satisfactory ration could be made as stated, but in our judgment it would be cheaper to use some bran. Speltz has about the same feeding value as oats, and it is a question whether he can do better than to continue feeding about as he has been doing heretofore. Corn and oats mixed in equal parts by weight and ground would make a very good combination, but would probably be somewhat more expensive than to use bran in place of the oats.

A Pennsylvania Ration.

Please make up a balanced ration of the following feeds for a herd of 19 Jersey grades, mostly fresh in fall: Wheat bran (winter), $21 per ton; sugar feed, $17.50; gluten meal, $26; cotton seed meal, $28; corn, 55 cents per bushel; oats, 32 cents per bushel; corn fodder and mixed clover and timothy hay. E. S. C.
Chester Co., Pa.

The following combination from the feeds named will afford a fairly satisfactory average ration for this herd of cows. We have not included the "sugar feed" for the reason that we can find no satisfactory analysis of it. It is not mentioned in Henry's book on Feeds and Feeding nor in the latest report of the Massachusetts Experiment Station. If this inquirer's experience justifies its use, of course it can be used to take the place of some of the grains mentioned. Also, if obtainable, it would be very desirable, we think, to have some linseed oil meal, say 1 lb. of it in place of 1 lb. of gluten meal or 2 lbs. in place of 2 lbs. of gluten meal. The expense will be somewhat increased, but we think the resulting yield will more than compensate for the additional cost:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
12 lbs. hay	10.24	.58	4.75	.19
10 lbs. corn stover	5.95	.17	3.24	.07
2 lbs. gluten meal	1.76	.64	.82	.05
3 lbs. corn	2.67	.24	2.00	.13
3 lbs. oats	2.67	.28	1.42	.13
Totals	23.29	1 91	12.23	.57

A Wisconsin Ration.

Will you kindly form me a balanced ration of the following feed for cows weighing about 900 lbs. all fresh this winter.

Have for roughage good ensilage with considerable of ears in it; timothy hay worth $8, per ton; corn stover; bran, $18, per ton; oats 30 cts, per bu; corn, 40 cents; oil meal $1.50, per 100 lbs. Will it pay to sell oats and buy bran at $18 per ton?
Elk Mound, Wis. O, W.

It is about an even thing whether to feed the oats or exchange them for bran at the prices named. Our inclination would be to use the oats and we submit the following formula as furnishing a ration that ought to enable these cows to do fairly well.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
5 lbs. timothy	4.34	.14	2.17	.07
7 lbs. stover	4.16	.12	2.27	.05
4 lbs. oats	3.56	.37	1.89	.17
4 lbs. corn	3.56	.32	2.67	.17
1 lb. oil meal	.91	.29	.33	.07
Totals	24.45	1.63	13.53	.74

Buckwheat By-product and Churning.

Am feedi g my milk cows ensilage with buckwheat middlings and a little bran, Buckwheat hulls and all ground together. Besides this the cows have some hay. Do you consider this a good diet and as good as corn meal and bran? My dairyman claims it takes him much longer to churn with the feed I am now using than when I fed corn meal and bran on the ensilage. Please give me your opinion in the premises. C. L. G.
W. Hickory, Pa.

This is the second report that has come to us recently about trouble in churning, when buckwheat by-products formed a part of the ration. Probably there may be some reason for this, and we suggest if the use of this by-product is continued that they try churning at a higher temperature, say first at 65 degrees, and if this is not satisfactory, going up to 70 degrees, the temperature for churning when considerable cotton seed is fed.

But we do not think our friend should continue the use of these buckwheat by-products. Buckwheat bran, which is a combination of the hulls and middlings, is much less valuable than ground corn. This buckwheat bran has only 42 feeding units in 100 lbs., whereas corn has 84. We, therefore, suggest that he feed, say, 40 lbs. of silage, 7 lbs. of timothy hay and 5 lbs. each bran and ground corn. If buckwheat middlings could be had, separate from the ground hulls, we would recommend 4 lbs. of the bran and 4 lbs. of the middlings.

A Pertinent Tennessee Feeding Inquiry.

Please formulate me a ration of the following: cotton seed hulls, at $6 a ton; cotton seed meal, $23; bran, $19, and malt sprouts, corn hearts and cotton seed meal mixed at $20, per ton.

Have no silo but intend to build one in time for the coming winter. Winter is mild and cows can be turned on pasture except when raining.

Cows in all periods of lactation. Would you advise feeding some clover hay at $18 a ton to fresh cows instead of all cotton seed hulls?

I am a new hand at the business and in need of all the information. C. W. Y.
Hite, Tenn.

A cow confined exclusively to cotton seed hulls for roughage must have a pretty hard time of it. Although clover hay at $18 per ton is pretty expensive feed we think it would pay this inquirer to use at least 5 lbs. per day. Not knowing the proportions in which the malt sprouts, corn hearts and cotton seed meal are used in the mixture we cannot advise its use, although it may be a very satisfactory feed. We suggest, therefore, that this new hand at the business try an average daily allowance for his cows of 5 lbs. of clover hay, 6 lbs. of bran, 2. lbs. of cotton seed meal and all the cotton seed hulls the cows may care to eat, not omitting salt every day.

Whitwash Pumps.

Could you give me some information in regard to using a force pump with a spray nozzle for applying whitewash to buildings. Does it give good satisfaction? E. H. Jr.
Frederick City, Md.

The whitewash for use with a pump must be made of the usual thickness and then strained through a fine seive so as to remove all grit. Deming and Co. of Salem, Ohio, manufacture nozzles and pumps for this purpose. They give excellent satisfaction, especially on rough wood and in places where a brush cannot be used.

Wages of Butter Maker.

A young man at Carthage, Ill., asks what wages are paid to expert butter makers in this state and whether there is much demand for that kind of work. His motive for submitting this inquiry is stated to be, that he is thinking of going to the state college to learn butter making, and would like to know what wages he may expect after having become proficient.

Of course, wages in this line of work vary, as they do in all other lines of work,

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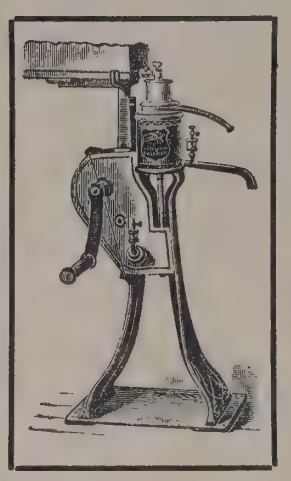
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Book No. 1 on Dyspepsia.
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Book No. 3 on the Kidneys.
Book No. 4 for Women.
Book No. 5 for Men (sealed)
Book No. 6 on Rheumatism.

Mild cases, not chronic, are often cured by one or two bottles. At all druggists.

THE U. S. WINS
IN THE
GREATEST
Cream Gathering State
IN THE UNION.



At the Nebraska State Dairymen's Convention, Lincoln, January 22–23, 1903,

THE HIGHEST SCORE
OF ALL

was awarded the Adams Centre Creamery, Archer, Neb., on

BUTTER MADE FROM U. S. SEPARATOR CREAM

This is only one of the many victories for U. S. Separator Butter this season.

WRITE FOR CIRCULARS.

For Western trade we transfer our Separators from Chicago, Minneapolis and Omaha. Address all letters to Bellows Falls, Vt.

VERMONT FARM MACHINERY CO., Bellows Falls, Vt.

WHEN YOU SEND IN YOUR RENEWAL, SPEAK TO A FEW OF YOUR NEIGHBORS AND HAVE THEM JOIN YOU. CLUB RATES: 2 Subscriptions, $1.50; 3 Subscriptions, $2.00; 4 Subscriptions, $2.50; 5 Subscriptions, $3.00.

Star Milk Coolers — Star Tubular Milk Coolers
Star Cream Coolers — Star Tubular Cream Coolers
Star Combination Milk and Cream Coolers for Factory Use.

Star Bottle Fillers
Tables
Bottles
Caps

STAR MILK COOLER CO. (TRADE MARK) STAR REGISTERED HADDONFIELD, N.J.

Star Sterilizers
Bottle Cars
Bottle Carriers
Reversing Racks

Let us hear from you — Write to us

STRAINERS, PAILS—ALL SIZES
Complete line of Star Sanitary Dairy Apparatus
—MANUFACTURED BY—
STAR MILK COOLER CO., Haddonfield, N. J.



Do not Cool Your Milk
the old-fashioned way, with a dipper or a paddle, but get an up-to-date
Milk Cooler-Aerator.
Saves Time, Labor, Patience and Money.
A Free Booklet; ask.
Champion Milk Cooler Co.
67 Main Street, CORTLAND, N. Y.

Chicago is the place to buy your supplies for least money; also quickest shipments.

Buy at Wholesale Prices

We Sell better goods at lower prices and make quicker shipments than any other firm.

and save 15 to 40 per cent on everything you use. It can be done. Over 375,000 wide-awake, careful buyers sent us their orders last month and got high-grade, honest merchandise—the kind it pays to buy—at a big saving over usual prices. They were the people who knew the value of a dollar saved. You, too, can do it. A FEW SPECIMEN VALUES are here shown, selected from our 1100-page catalogue, which contains pictures and prices on 70,000 articles of everyday use.



MORRIS CHAIR

Made of golden oak or in mahogany or weathered oak finish. Massive, heavy carved and well-finished frame; reversible cushions covered with imported figured velour plush; adjustable back. An exceedingly comfortable chair. Retailers charge $8.00 to $10.00. Order No. R72. Our Price **$4.50**



KITCHEN TABLE

A very handy time, space and labor saver; hardwood; top white and frame finished in the golden color. 2 drawers, 2 bins holding 50 lbs. of flour or sugar each, and 2 baking or meat boards. 26x46 in. Weight, 90 lbs. One of the greatest genuine bargains ever offered. Dealers ask $4.50 to $5.50. Order No. R491. Our Price **$2.95**



LACE CURTAINS

Made in imitation of and look like imported, and high-priced goods. Center has beautiful detached design, handsome ribbon and floral border, and edge woven to have the effect of the real ruffle. 48½ inches wide; 4 yards long. Exceptional value for the price. Order Number P122 ..... **$1.34**



SEWING Machine

Our very latest drop-head style. Strongly made, well finished in solid oak, does nice work, is guaranteed for 5 years and is a most wonderful machine for the price. This is positively the lowest price that any warranted machine is being sold for. Order No. L4350. Price, **$8.45**

We have everything in all grades, from the cheapest that's good to the best that's made. Write for catalogue at once, enclosing 15 cents to help pay the postage.

Our 2 Million Customers are the best endorsement of our goods, prices and methods.

Montgomery Ward & Co., *Michigan Ave. & Madison Street,* Chicago.[18]

first according to the quality, and second according to the amount of labor required. It is not an unusual thing for butter makers in Wisconsin to receive $75 a month, and frequently they have in addition to this, a house, and are furnished with fuel, butter and milk. On the other hand, there are a good many butter makers who are receiving $40 a month and less, without any perquisites. A creamery which is turning out from 200 to 1,000 pounds of butter per day, can afford to pay a competent butter maker large wages, whereas a creamery with a limited patronage must limit the wages paid to the butter maker.

Feeding Skim Milk to Pigs.

We have read with interest in your issue of January 16th, the article entitled "Skim Milk for Pigs" by Gordon H. True. We have to find use for large quantities of skim milk, and have been for the past year feeding it to pigs. We would be glad to have you tell us what should be fed with skim milk, and in what quantities at different ages, to bring forth the best results. W. T. W.
Maine.

It is hardly practicable to go over in detail such a subject as this in a single issue of HOARD'S DAIRYMAN. It is not only a very important subject but a very wide one, and one which enterprising farmers and feeders should study in all its aspects. To this end we would recommend this inquirer to provide himself with a copy of Prof. Henry's work on *Feeds and Feeding*. If it cannot be obtained elsewhere more conveniently, it will be sent from this office on the receipt of $2 00. Meantime we would say that experience seems to show very conclusively that mixing 1 lb. of corn meal or wheat middlings with from 3 to 5 lbs. of skim milk gives the most profitable returns. The amount to be fed cannot well be specified as this must be governed by so many local conditions and especially by the pigs themselves. The rule is to feed them all that they will eat without waste or leaving some of it in the trough. Repeated experiments have shown that when fed in this way 100 pounds of skim milk is easily equivalent to a half bushel of corn.

Cutting Corn Stover in Long or Short Lengths.

A New York subscriber asks whether it is better to cut dry corn stalks long or short for feeding purposes.

Like most other feeding problems this question does not admit of a direct answer. If the cut stover is to be fed dry we should prefer to have the cut long enough so that the cow could not turn the pieces on end in her mouth. On the contrary, if a considerable amount of the stover can be cut at one time, well dampened and allowed to lie in a pile and heat and soften it may with advantage be cut very short.

Distillers Dried Grains.

A Cincinnati reader asks us to give the analyses of distillers dried grains, remarking that our table specifies brewers dried grains but not the distillers dried grains, while the dealers in the latter claim they are much superior.

Distillers dried grains were not upon the market as such when our table was constructed and stereotyped, but we have frequently referred to them and prescribed them in formulas during recent months. They are substantially the same product as Atlas gluten meal which is mentioned in our table of analyses. Also there are several varieties and qualities upon the market known by the general name "distillers dried grains." Those made from corn are accounted much better than those made from rye.

Width of Feeding Alley.

A Missouri reades asks:

Can you give the exact width of feeding alley where stanchions are used on both sides, that is, what the width should be ?

This will depend very much upon circumstances. If it is desired to have the alley wide enough to take in a wagon for distributing soiling crops, 12 feet from stanchion to stanchion will be none too much. If it is only desired to have space enough for one to distribute hay with fork, or silage from a basket, this width may be reduced two or three feet. However, if one is building anew we unhesitatingly recommend the wider passage. A great trouble with our stables is that they are too small. The additional expense of adding two or four feet to the width of the building is very trifling, but the added advantage is very great.

hipping Milk Without Ice.

Can milk be successfully shipped 100 miles, to be out 12 to 15 hours without ice? If so, kindly advise as to a method. W. T. R.
Riceville, Tenn.

We do not think that the above could be successfully done unless the milk was produced under exceptionally cleanly conditions and even then we should expect a large loss from souring.

I don't make all the lamp chimneys; no trouble with mine.

MACBETH.

My name on every one.

If you'll send your address, I'll send you the Index to Lamps and their Chimneys, to tell you what number to get for your lamp.

MACBETH, Pittsburgh.



Buhl Factory Cans

represent the same maximum of superiority found in all cans bearing our famous Milk Can Trade Mark. They are made to be the **neatest, cleanest, strongest** and **most wear resisting** cans upon the market. It will pay you to know more about **Buhl Cans. Remember** the Buhl is the only can in the world that is made with the **Buhl "Victor" Can Breast** and the **Buhl "Victor" Round** handle that cannot cut the hands. We shall be pleased to mail you special circulars and other matter, which contain the helpful, money saving information you should have. When you read this you will know why there are more **Buhl Factory Cans** in use than of all other makes combined. Write us direct about cans and we will tell you where you can get them.

BUHL STAMPING CO.,
212 W. Larned St.,
DETROIT,
Mich.

E. S. WOODWORTH & COMPANY

MINNEAPOLIS, MINN.

Grain and Millstuffs, Shipping and Commission

SEND US YOUR ORDERS FOR

Bran Middlings, Flour Middlings, Red Dog Flour, Snow's Cream Flour Middlings, Chicken Feed Wheat, Dairy Feed, Mixed Feed, Corn, Oats, and Ground Feed. Old process Oil Meal. Ask for prices, and mention this paper when writing us. **CAN LOAD MIXED CARS.**

CORRESPONDENCE SOLICITED.

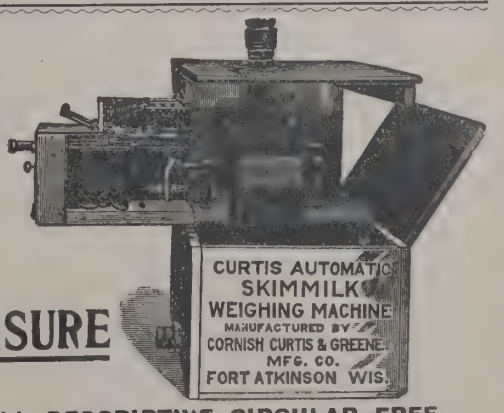
SNOW'S CREAM FLOUR MIDDLINGS IN 100-LB. SACKS. The best seller in the market. We make a specialty of Screenings for Sheep Feed

Skim Milk

Often goes to the wrong man for the simple reason that the patrons have no standard of

WEIGHT or MEASURE

and the last man suffers.



FULL DESCRIPTIVE CIRCULAR FREE.

Cornish, Curtis & Greene Mfg. Co.,

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for....
DE LAVAL ALPHA SEPARATORS.

Fort Atkinson, Wis.

A Successful Convert to Dairying.

Some Silo Questions Answered.

ED. HOARD'S DAIRYMAN:—Mr. Alf. C. Watson, of Alamogovedo, New Mexico, wishes to learn more in relation to the door of the new model, round silo. He has never seen a silo, and has never talked with a man who has seen one. All he knows of them, he has learned from HOARD'S DAIRYMAN, and from Woll's book. He cannot realize how it can keep as it is claimed it does without salt, or anything of the kind to preserve it. Mr. Watson went to West Texas when eleven years of age, and lived there among the hostile Indians, till the Civil War broke out. He then enlisted and served till its close. He then returned to Texas and engaged in the stock business again till 1887, when he removed to New Mexico. He says he has always kept ahead of civilization. He has a wife and a small (?) family consisting of eight boys and seven girls. Two years ago, he and the boys who remain at home decided to go into the dairy business. Mr. Watson writes that he has no reason to complain of their success in dairying, considering that they had grown up among Indians and Mexicans, and had known nothing but Spanish ponies and long-horned, wild, Texas-raised cows.

A neat letter head shows that the boy is made more than a silent partner in the business, and that the milk is handled in bottles, and guaranteed strictly pure.

In answer to his questions, I will say that the hoops do not go across the door space; they are fastened to the posts, which are strong enough to hold them. The door is made of one inch boards, sawed just the right length to fit between the posts, and laid in one at a time, so as to break joints. These boards are not nailed together. The outer course is laid in a little more than the width of the building paper used; the paper is laid on and the cracks marked;then it is fastened, and the inner course of boards is laid; This is continued till the top is reached. As the silage is used out, the boards are taken off, and laid away for use the next season.

I will say to Mr. Watson that he sees nothing in HOARD'S DAIRYMAN commending silage, that is not strictly true. In fact, the more I use silage, the better I like it. The preservation comes, not by adding anything to the corn but by depriving it of the oxygen that the air contains. The principle is exactly the same as the canning of fruit or vegetables. The silage is always slightly acid, but when corn is allowed to glaze before putting it in the silo,is finely cut, and lightly tramped, it will be in practically the same condition it was in the field. The fundamental principle of ensiloing fodders, is the exclusion of the air. Silage once cured, in a good silo, will keep indefinitely, if left undisturbed.

SILO QUESTIONS.

Mr. J. W. Howard, of Conetoe, North Carolina, writes that he wants to build a silo of one hundred ton capacity, and wishes to know whether he had better build of brick at $5.00 per thousand, or order one similar to the one described by me on page 953 of the DAIRYMAN.

I believe it is generally conceded that wood is by far a better material for use in building, than either brick or stone. It is usually the cheapest, too. If Mr. Howard can get Southern pine, hemlock, or spruce lumber, at fair prices, he can construct his own silo after the plans given in the DAIRYMAN, with ordinary farm labor and one day's work of a carpenter. This is a very cheap, servicable and durable silo.

For a silo of one hundred ton capacity, he will need one that will contain five thousand cubic feet of space, after allowing ten percent for settling. We will figure the size at five thousand, five hundred feet.

Of course the diameter and height may be made to conform to the space available for building, always aiming to secure height rather than breadth. If the silo is made fifteen feet in diameter, it will need to be thirty feet high, if eighteen feet in diameter, it would have to be twenty-two feet high. For the first form, three thousand feet of lumber would be required, for the second form, twenty-six hundred and fifty feet. The staves can be spliced by sawing into the ends and placing a strip of thin iron in each opening, like a dowel and these splices should be made to break joints.

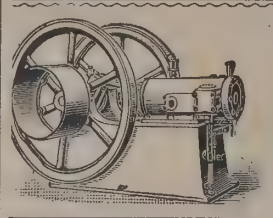
Maine. B. WALTER MCKEEN.



GASOLINE ENGINES

as power for the dairy have passed the experimental stage. Many dairymen now have them and all eventually must have them. The only questions to decide are the amount of power needed, and the most desirable make. With twenty-seven years of experience behind us, and a plant that has grown from 50 engines a year to 1500 a year capacity, we feel that we are equipped to build the best. There are other reasons why the "OTTO" is superior. We will tell them in this space from time to time. If in the meantime you need power, write us, mentioning this paper

THE OTTO GAS ENGINE WORKS, Philadelphia, Pa.



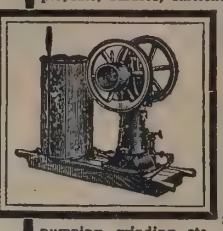
THOMPSON-LEWIS GASOLINE ENGINES

furnish the greatest possible power at the lowest possible cost in time, labor, fuel and money. They are so simple that anybody can run them without expert training or experience. Our **Volume Governor** gives uniform speed. Our **Acme Mixer** is the most positive and economical on the market. Our **Hand Starting Lever** starts engine with least effort. All bearings of **Phosphor Bronze.** Best material and workmanship throughout. Many sizes from 4 (actual) h. p. up. Best for all farm work—cutting and grinding feed, sawing wood, pumping water, separating cream, churning, etc. Send for our free catalog before you buy. It may save you time, money and annoyance.

J. THOMPSON & SONS MFG. CO., 113 BRIDGE ST., BELOIT, WIS

USE A POWER.

Here is one to fit your many needs to a nicety. Simple, safe, durable, efficient, fully guaranteed. The



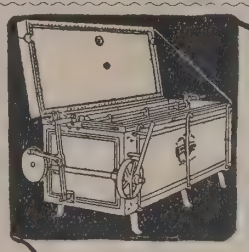
WEBSTER Vertical Gasoline Engine

develops **3 full horse power** on 2 to 3 cents an hour. Entirely self-contained, quickly carried from place to place to do farm drudgeries like sawing wood, churning, pumping, grinding, etc. We are headquarters for convenient all purpose engines, upright and horizontal. Write for free catalogue.

Webster M'f'g. Co., 1086 W. 15th St., Chicago, Ills.

DON'T BUY GASOLINE ENGINES UNTIL YOU HAVE INVESTIGATED "The Master Workman,"

a two-cylinder gasoline engine, superior to all one-cylinder engines. Costs less to buy and less to run. Quicker and easier started; has a wider sphere of usefulness. Has no vibration, can be mounted on any light wagon as a portable. Weighs less than one-half of one-cylinder engines. Give size of engine required. Please mention this paper. Send for catalogue. THE TEMPLE PUMP CO., ESTABLISHED 1853. Meagher and 15th St., CHICAGO.



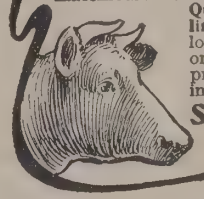
The BOYD CREAM RIPENER



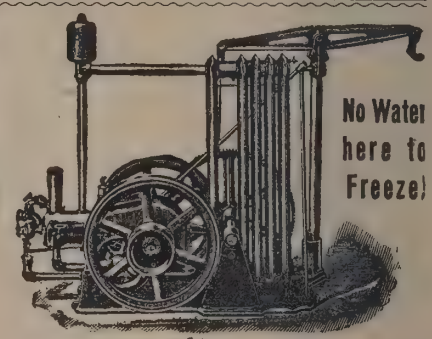
Wherever it has been introduced unqualified endorsements come, both from amateurs and experienced butter makers, upon "THE BOYD." It places cream ripening perfectly within the control of all, and reduces it to mathematical precision. Finer and more uniform flavors are the sure results. It possesses double the insulating properties and double the cooling surface of any other machine. Its cream distributor, affording rapid cooling and thorough aeration, all unite in making it the

Standard Cream Ripener of America.

We publish a special catalogue, our No. 12, devoted entirely to a description of this matchless machine. We mail it free upon request. We also manufacture the **Dairy Queen Churn, Standard Milk Cans, Cheese Apparatus and a general line of Creamery Machinery and Milk Dealers' Supplies.** Special catalogues for different lines. We are connected in no way with any trust or combination, and devote ourselves to supplying at reasonable prices, every article applicable to the creamery business. Write stating your needs, and we will mail free appropriate catalogue.



STURGES & BURN MFG. CO., Kansas City, Mo. Chicago, Ills. St. Paul, Minn.



No Water here to Freeze!

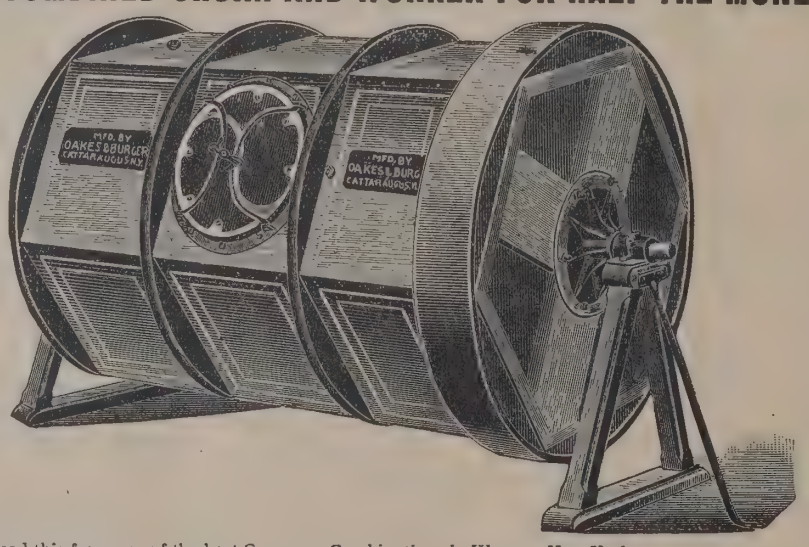
If you want a..... Gasoline Engine

that will be always ready to start, safe, reliable convenient, economical and durable, buy a **FULLER & JOHNSON Frost Proof.** No bother with water nor expense of broken cylinder, no waiting for wind or weather. All sizes, stationary and portable. Send for descriptive catalogue to the manufacturers.

FULLER & JOHNSON MFG. CO., Madison, Wis.

THE CHAUTAUQUA

A COMBINED CHURN AND WORKER FOR HALF THE MONEY



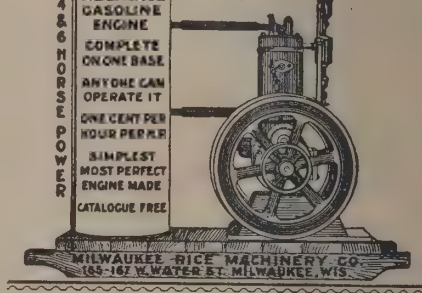
Read this from one of the best Creamery Combinations in Western New York.

OAKES & BURGER, Cattaraugus, N. Y. WILLINK, N. Y., December 28th, 1902

GENTLEMEN:—We purchased two Chautauqua churns of you in the spring of 1902 and wish to recommend the Chautauqua churn as the best combined churn and butter worker on the market without exception. We have a Victor which is a good combined machine, but prefer the Chautauqua as it is made by your firm, to any other worker. We work our butter in less than 15 minutes and it is neither salvy or streaked. (Signed) Yours truly, COLE & FISH.

Write for our new thirtieth annual catalogue of up-to-date Dairy Apparatus.

OAKES & BURGER, Cattaraugus, N. Y.

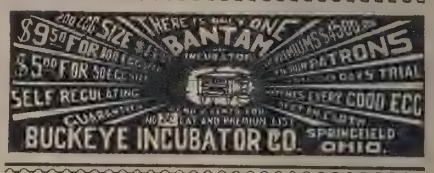


$5 FOR NOTHING.

We have paid that sum several times for less information than is contained in our grand new book, "*How to Make Money with Poultry and Incubators.*" 8x11 inches, 196 pages. It has 12 special chapters by the best experts in the country covering the entire poultry subject. Over 200 illustrations and photographic views of the *Largest and Most Successful Poultry Plants* in this and other countries. Tells about the CYPHERS INCUBATORS. *It will be sent FREE POSTPAID for the next 30 days* to all who mention this paper in writing. Address nearest office



CYPHERS INCUBATOR COMPANY,
Buffalo, N. Y. Chicago, Ill. Boston, Mass. New York, N. Y.





Don't Pay Double.

We'll sell you a better hatcher for the money than any other incubator concern on earth. New improved regulator, that can't get out of order. Big book—200 illustrations free.

SURE HATCH INCUBATOR CO., Clay Center, Neb. or Columbus, Ohio.



EASY MONEY

is made by installing a **Hawkeye Incubator.** Little cost, little care, results sure, profits large. **30 Days' Free Trial.** Catalogue free. Mention this paper.—Hawkeye Incubator Co., Box 38, Newton, Iowa.

AN EXTRA COW



can be kept without additional expense if you plant our

Eureka Ensilage Corn

Most nutritious and most to the acre, a 64 ton record. We control all seed. Large new catalog of forage crops, seeds, farm and garden implements, etc., free. Write for it.

ROSS BROTHERS, Worcester, Mass.

WATER RAISES ITSELF

to any height, any distance by the force of the natural stream with the

RIFE HYDRAULIC ENGINE.



Best for farms, country residences and irrigation. Pumps 30 ft. high for every foot of fall. Sold on 30 days trial.

RIFE ENGINE COMPANY, 126 Liberty St., New York.

"A GOOD NEW POTATO"

Rural New Yorker, Jan. 10, 1903.

WILSON SPORT.

A sport of the Blue Victor, originating in the arid mountain district of Eastern Washington. A round, slightly flattened white skinned sort, shallow eyes, good yielder, vigorous and healthy. Procure seed from originator for this new and fine quality potato. 1 lb. 50c, 2½ lbs. $1.00 by mail postpaid. 10c per lb. by express. Send money orders on Lakeside postoffice.

M. P. WILSON,
Chelan Co. Lakeside, Wash.

NOW IS THE TIME TO SUBSCRIBE FOR HOARD'S DAIRYMAN.

Water In The Stable a Necessity.



It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. Why not use the Best? Write for descriptive circular.

O. E. BUCKLEY & CO., Poughkeepsie, N. Y.

DAIRY MARKETS.

ELGIN, Ill., Feb. 16—Butter advanced 1c on the Board of Trade today, the market being firm at 26c. There were no sales on call. The sales of the week aggregated 507,000 lbs.

CHICAGO, Ill., Feb. 16—Butter—Firm; creameries, 18@25½c; dairies, 15@23c.

Eggs—steady; at mark, cases included, 14¼@4¾c.

Cheese—Steady; Twins, 12½@12¾c; Daisies, 13@13½c; Young Americas, 13@13½c.

Cattle—Good beeves, 1,300 to 1,500 lbs., 5.70@6.00; good to choice beeves, 5.30@5.65; fair to good export and shipping steers, 4.75@5.25; medium beef steers, 4.10@4.50; plain and roughish steers, 3.80@4.15; common and rough, 1,000 to 1,250 lbs., 3.00@3.65; good to fancy heifers, 4.20@4.75; good to choice feeders, 3.40@4.50; poor to plain stockers and feeders, 2 25@3.80; bulls, plain to fancy, 2.25@4.50; good to fair cows and heifers, 3.30@4.25; good cutting and fair beef steers, 2.60@3.60; common to good canning cows, 1.60@2.55; veal calves, good to fancy, 6.00@8.25; veals, coarse and common, 3.25@5.75; corn fed Western steers, 3.50@5 75; Texas bulls and grass steers, 2.75@3.20. Texas steers, fair to choice, 3.40@4.40.

Hogs—Good to prime heavy shipping, 7.15@7.32½; good to choice heavy packing, 7.05@7.25; plain to choice heavy mixed, 7.00@7.20; selected butcher weights, 7.10@7.27½; assorted light, 145 to 195 lbs., 6.60@7.00; common to good light mixed, 5 90@6.60; thin to choice, 50 to 130 lbs., 6.60@6.90; stags and rough lots, 3.50@6.35.

MILWAUKEE, Wis., Feb. 16—Butter—Creamery—extras, 25½c; extra June, (storage), 18@21c; firsts, 22c; seconds, 17c; process (renovated), 48@20c. Dairy, fancy, 17c; lines, fresh, 14@15c; roll, 14@15c; packing, 13c; whey, 10c; grease, 5@6c.

Cheese—American full cream, Twins, 12½@13c; Ycung Americas, 13@13½c: Daisies, 12½@13c; Longhorns, 12½@13c; low grades, 10@12c. Brick, fancy, 12½@13c: low grades. 10@11c. Limburger, fancy, 11½@12c; low grades, 10@11c. Swiss, drum, choice, 12½@13c: drum, No. 2, 10@11c; Block, choice, 12@12½c; Block No. 2, 10@10½c.

Eggs—Strictly fresh-laid, loss-off, cases returned, 15c; seconds, 8c; storage city, No. 1 April stock, 11@12c. Country, 10@12c.

SHEBOYGAN FALLS, Wis., Feb. 11—Cheese—Ten factories offered 353 boxes of cheese on the Call Board today and all sold as follows: 71 cases Young Americas at 13c; 143 Daisies at 13c; 40 at 12⅞c; 74 cases Longhorns at 12⅝c; 25 at 12½c. Market steady and firm.

SHEBOYGAN, Wis , Feb. 11- There were but few offerings today and sales were made at the following prices: Young Americas, 12¾@12⅞c; Daisies, 12⅜c; Longhorns, 12⅝@12¾. Total offerings 167 boxes.

PHILADELPHIA, Pa., Feb. 16—Butter—Fancy 27c. Prints near by 28c.

NEW ORLEANS, La., Feb. 16—Butter—Extras active at 26½c. Others steady and unchanged.

WASHINGTON, D. C., Feb. 16—Butter—Market firm at 26c.

LIVERPOOL, Feb. 13—Butter—Nominal.
Cheese—Firm, American finest white, and colored, 62s 6d.

Latest quotation for fancy creamery: Baltimore, 27c; St. Louis, 26c: Cincinnati, 27c; Buffalo, 26c; St. Paul, 24½c; Minneapolis, 24½c.

NEW YORK, Feb. 16—Butter—Receipts, 4,546 packages; firm, state dairy, 15@24c; extra creamery, 26c; held creamery, 18@25c; creamery common to choice, 18@25c.

Cheese—Receipts, 1,128 pkgs.; firm: state full cream, fancy, small colored fall made, 14½c; late made, 13¾@14c; small, white fall made, 14¼c; late made, 13¾c; large colored, fall made, 14¼c; late made, 13¾c; large white, fall made, 14¼c; late made, 13¼c.

Eggs—Receipts, 10,141 pkgs.; firm; state and Pennsylvania, average best, 18c: Western fancy, 17c; southern, 16½c; refrigerator, 9@13c.

BOSTON, Mass., Feb. 16—Butter—Creamery, Western extra, 25@28c: firsts, 25c; dairy, 23@24c; imitation creamery, 18@21c; ladle, 18@19c: box and print, 20@21c.

Cheese—Choice, sage, 14@14½c; fair to good, 10@12c.

Eggs—Near by, 20@22c; Western selected, 17@17½c; fair to good, 15@16c; Illinois, 18c; refrigerator, 10@13c.

BALTIMORE MARKET

BALTIMORE, Feb. 12—Butter—There is no change of moment to note in the situation during the past week. There appears to be a slight increase in the make at some of the creameries, but little if any improvement in the quality; the quality has in many instances been very unsatisfactory, and in order to prevent accumulations, concessions had to be made in order to induce purchasers to take hold, whereas the proportion of strictly fancy grades has been exceeding light, barely sufficient at times to satisfy the requirements of the local trade at full values. There is very little doing in held creamery. Imitation Creamery—Choice to fancy invoices meet ready sale. Ladles are in ample supply for present needs. Roll and packing stock are in more liberal supply; the demand is confined to sweet fresh stock; off grades are neglected. Blocks and prints, of choice to fancy quality, find ready sale. The market in general closes quiet, but firm on all desirable stock.

Creamery Separator, extras, 27c; firsts, 25@26c; seconds, 22@24c. June Creamery, extras, 25c; firsts, 23@24c; seconds, 20@22c; Imitation Creamery, extras, 20@21c; firsts, 18@19c; seconds, 15@17c, Iowa & N. W. Ladle, extras, — firsts, 19@20c; seconds, 15@16c. Ohio & Indiana Ladle, extras, — firsts, 19c; seconds, 14@16c. Roll, Ohio, extras,- firsts, 15@16c; seconds, 13c. Roll, W. Va., extras, — firsts, 14@15c; seconds, 13c. Ohio Store packed, extras, —; firsts, 15c; seconds, 13c. West Va. Store packed, extras, —; firsts, 14c; seconds, 13c. Creamery blocks (2-lb.) extras, 28@29c; firsts, 27c; seconds, 24@26c; Creamery prints (½-lb), extras, 29c; firsts, 28c; seconds, 24@26c. Md. Va. & Penna. Prints, extras, 28c; firsts, 26@27c; seconds, 22@24c. Renovated butter, extras, 21c; firsts, 20c; seconds, 17@19c.

Eggs—The market, owing to the weather, has continued in a very tame and unsettled condition since our last issue. This week, so far with a decided increase in the receipts from all sections, there is no improvement to note in the situation; buyers will only take stock enough to last from day to day, fearing a still further decline. At the close to-day the market rules very quiet on hen eggs at 17 cents. Duck Eggs—All arrivals of large clean stock have met prompt sale; demand good; market steady.

Cheese—Offerings moderate; demand quite good; market firm on all choice to fancy stock.

N. Y. State—Cheddars, fine, 14¾@15c; choice, 14@14½c; fair, 13@13½c; Flats, fine, 14½@14¾c; choice, 13½@13¾c; fair, 12½@13c; Small, fine, 14¼@14½c; choice, 13½@14c: fair, 12½@13; Ohio Flats, fine, 13½@13¾c; choice, 12¾@13c; fair, 12¼@12½c; O. Picnic, fine, 13¾@14c; choice, 13¼@13½c; fair, 12½@12¾c; Swiss Cheese, fine, 15c; choice, 12½@13½c; fair, 11@12c.

311 Exchange Place. G. M. LAMB & BRO.

NEW YORK FERTILIZER MARKET.

Potash, dbl. m're salt 48@53 per cent	1 09	@	1 11½
dbl. m'ure salt, 48@53 per cent less than 25 tons	24 00	@	30 00
sulph of basis, 90@98 per cent	2 08	@	2 14
90@98 per cent less than 25 tons	38 00	@	40 00
Kainit 25% S. of P. ℔ ton	8 80	@	9 30
less than 25 tons	9 05	@	9 55
Sylvinit, 35@37% P. ℔ unit	38	@	40
Potash muriate 100 lbs.	1 80	@	1 86½
less than 25 tons	36 00	@	40 00
Nitrate of soda	1 97½	@	2 00
Blood, Dried red ℔ unit	2 60	@	2 65
low grade	—	@	—
Concentrated tankage	15 00	@	16 00
Bones, rough ℔ ton	16 50	@	17 50
ground	20 00	@	21 00
Bone meal	18 50	@	24 00
Bone black, refuse	18 00	@	19 00
Fish guano, dried	27 00	@	28 00
acidulated	14 00	@	—
Phosphate rock, f. o. b. Char'n	9 00	@	9 25
Tenn	4 00	@	5 00
Acid phosphate	60	@	65

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Butter Wanted—About 1,000 pounds of strictly fancy western creamery butter per month. Address SPRING LAKE FARM DAIRY, 815 George St., Baltimore, Md.

Wanted—Married man with small family for general farm and dairy work. To commence work immediately. J. S. HOPKINS, Dairyman, Roodhouse, Ill.

Position Wanted—By a cheese maker. Graduate of Wisconsin Dairy School Can furnish references. Address LESLIE HAZEN, Eastman, Wis.

Wanted—A capable and experienced man in dairy work, as assistant to foreman; also milkers wanted. For particulars as to wages and work, address KEYES FARM AND DAIRY CO., 3685 Olivet St., St Louis, Mo.

Wanted—To work on dairy farm, beginning April 1st, one married man to live on farm and board one or two men; also one single man. Must be strictly temperate and must furnish satisfactory references. Good wages and steady employment for the right parties. Farm one mile from P. O. Good church and school privileges. Address C. A. ROBSON. Red Wing, Minn.

For Sale—Milk route, retailing 160 qts. daily, 6 cents in winter. 5 cents in summer; complete bottling dairy outfit with modern wagon; farm of 90 acres next to city limits, 10 acres timber, young bearing apple orchard, also orchard of 75 peach trees 3 years old; 20 cows, thoroughbred Holstein bull, 4 horses, new power wind mill, ice up for summer use. Price $6,000. W. H. BOARDMAN, Vassar, Mich.

Wanted—An up to-date De Laval or U. S. separator in perfect order, capacity about 2,000 pounds. Belt machine preferred. Also a National butter worker, capacity 300 lbs. FINE VIEW CREAMERY, Fine View, N. Y.

Wanted—Guernsey heifer calves from registered sire and dam. WILL. W. FISHER, Watervliet, Mich. 2-2

For Sale—Cheese factory with dwelling rooms, also store or saloon. LOCK BOX 5, Shawano, Wis.

Wanted—An experienced cheese maker capable of running a factory on his own responsibility. Work the year round. Married man preferred. Address J. H. SMITH, Stork, Wis.

Wanted—A steady and industrious married man and wife to run small dairy farm. C. W. MOSHER, Elva Sta, Ill. 2-2

Wanted—Second-hand aerator, capacity about 2,000 lbs. milk per hour. J. W. GATES, Manlius, N. Y.

$50.00 will buy three-year-old Jersey bull, Duke Marigold 57029, St. Lambert, Stoke Pogis, Ida Marigold stock. J. A. WATERS, Copenhagen, N. Y.

Wanted—Single man to help milk and drive retail wagon. Must be sober and a hustler. Satisfactory wages to the right man. References given and required. Address THE ATTICA DAIRY, Attica, Indiana. 2-2

For Sale—Entire herds and flocks recently purchased from the Northern Wis. Live Stock Co. by the undersigned. Ten registered Guernseys—three bulls and seven cows and heifers. Twenty-two very highly graded Guernsey cows fresh and coming in. Eight two-year-old heifers in calf to registered Guernsey bull. Six one-year-old heifers. Six heifer calves. Seven high grade milking Shorthorn heifers fresh and carrying 2d calf. Fifty high grade Shropshire ewes and registered Shropshire rams. 46⅞ bred Angora Nannies in kid to pure bred Billys. Twenty registered Berkshire sows, bred, four boars and twelve November shoats. The cows are all under six years old and have been carefully tested and culled out for past few years and have not less than three crosses of Guernsey blood. Heifers have been selected only from best cows. Come and see, or write, as this is a good chance to secure a herd of high class dairy cows. J. E. STORY, successor to Northern Wisconsin Live Stock Co., Stanley, Wis. 2-2

Wanted—Position as second hand in large creamery. One year's experience. Best of references. Address BOX 98, Wilmot, Wis.

Wanted—A cheese maker to do secretary's work, make cheese and furnish his own helper in a cheese factory receiving 4,000 to 6,000 lbs. milk daily in summer and running the whole year round. Give references and wages wanted. Address IRON CREEK CHEESE CO., Menomonie, Wis.

For the land's sake—use Bowker's Fertilizers. They enrich the earth and the men who till it.

TWO FARM SEPARATOR FACTS

FOR BOTH

Creameryman and Patrons.

In every instance where experienced creamerymen, having a knowledge of separators and appreciating the necessity of a common interest between creamery and patrons, are putting in "Farm" separators on a considerable scale. - - - - - - - -

THOSE SEPARATORS ARE THE DE LAVAL.

In every instance where the sale of ANY OTHER MAKE OF "FARM" SEPARATORS is being attempted on a considerable scale, the parties are new beginners in creamery work or else mere promoters or what the conservative creamerymen term "pirates" in the business, in either case without knowledge of separators or the character of relationship between creamerymen and patron essential to the enduring prosperity of both.

The comparison speaks for itself—it is in keeping with the difference between the De Laval and inferior makes of separators.

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence, Iowa. 50-tf

For Rent—160-acre farm, large bank barn, 30 cows, large silo, wind pump, horses, hogs, implements. Give one-third. Milk one dollar and up. None but an intelligent cow man wanted. Farm adjoins corporation. Address D. E. CHILD, Findlay, Ohio. 52 3

Young Guernsey bull calf coming 1 year old for sale. MRS. A. W. LEHMAN, Neosha, Wis. 52-3

Wanted—A man with small family to work by year on 80-acre farm. Must be temperate and steady, with some experience in caring for and milking cows. Milk goes to creamery. Good position for right man. Address LOCK BOX 24, Litchfield, Mich. 1-2

Wanted—A first-class cheese maker to make American cheese. Must be sober, steady man. Single preferred. J. M. WILDHABER, Plymouth, Neb. 1-2

Wanted—A married man with small or no family to work on dairy farm. Must be a good farm hand and good milker. Give age, experience and wages wanted. For particulars, address BELLEVUE FARM, Negaunee, Mich. 1-tf

Wanted—To lease or rent cheese factories. State terms, amount of milk received and location. Will pay patrons of factory for milk basis highest market price of cheese. FOND DU LAC CHEESE AND BUTTER CO., Fond du Lac. Wis. 1-3

For Sale—Creamery, located 100 miles northwest of Chicago, with large local retail and wholesale trade. Has run ten years without a stop. Ill health cause for selling. Address "W", Hoard's Dairyman. 1-2

Wanted—100 choice high grade Jersey or Guernsey cows, fresh or soon to be. H. I. PIERCE, Columbus, Ohio. 1-2

Buff Jersey's Son, 23 years of age, will accept a position of trust on horse breeding, cattle feeding or dairy farm. Fully competent to manage up-to-date farm or ranch along any of the above lines. No bad habits whatever. Address BUFF JERSEY, Monmouth, Ill. 1-4

Later Departure from Chicago for Sault Ste. Marie, Mich.—Via the North-Western Line. The through sleeping cars for Manistique and Sault Ste. Marie, which have been leaving Chicago at 8 p. m. daily, except Sunday now leave at 10:30 p. m. daily, except Saturday, thus affording connection with trains arriving in Chicago at a late hour. The only through sleeping car line between Chicago and "The Soo." For tickets and full information apply to agents Chicago & North-Western R'y. 1-3

For Sale—Dairy business. Terms to suit. A good chance for one willing to work. J. P. SOUTHARD, Harbor Springs, Mich. 2-2

Wanted—A reliable man of good moral habits to run creamery. All necessary labor in creamery or first-class butter maker. Good helper furnished half of each day. Operated six days in the week. Age, wages wanted. Average milk supply per day for year 1902, 3,702 lbs. Give reliable references. Address J. R. WILSON, New Concord, Ohio. P. O. Box 334. 2-2

Guernseys For Sale—Pure bred bulls and grade heifers. A. H. HINMAN, Neenah, Wis. 2-4

Buff Jersey's latest book on Farm Stock and Dairy Work is full of practical things for practical people. The Silo, how to build and fill; ensilage, its value; soil, crops, variety and how to grow. Swine, poultry and many other subjects ably treated. Send 25c for copy. Monmouth, Ill. 47-tf

Wanted—Experienced farm hand, able to milk well. Give age and wages wanted. ST. IVES PARK FARM, Mont Clare Station, Chicago, Ill. 41-tf

For Sale—The Prairie Farm, 840 acres. May be divided into five farms with buildings. In high state of cultivation, 16 miles from Toledo. One hundred cows, selected for 40 years. Terms to suit. 5%. Address E. L. LOCKWOOD, Petersburg, Mich. 46-tf

Position Wanted—As butter maker or manager of creamery. Understand all details of creamery business and work. Fifteen years experience. Make cheese also. Best of references. Address B. care Hoard's Dairyman. 47-tf

Wanted to Purchase—Second-hand up-to-date creamery outfit for 500-cow creamery. Must be in first-class condition. W. C. CURRIE, Euclid, Minn.

Are You Looking for Land?—Come up to Crandon and see what we have to offer. Fine hardwood timber country, good soil and good water. The saw-logs have been cut, but there is lots of timber still left on the land; wood, ties, bolts, pulp wood, hub timber, etc., enough to pay for it. Land lies within less than a mile of the C. & N. W. Ry., and near county seat. Low prices and easy terms of payment. Write me for maps and circulars. L. T. CRABTREE, General Land Agent, Crandon, Forest Co., Wis. 51-4

For Sale—A milk route with 40 cows and equipment. Address Box 351. Grand Rapids, Wis. 52-4

Wanted to Buy—Old Stone and Pottery Indian Pipes. Address G. A. WEST, Herman Building, Milwaukee, Wis. 52-4

Half Rates to the Mardi Gras and Winter Resorts—Via the North-Western Line. On account of the Mardi Gras at New Orleans and Mobile, excursion tickets will be sold February 17 to 22, inclusive (and for trains arriving at Mobile or New Orleans by noon of February 24), at one fare for the round trip with favorable return limits. Excursion tickets are also on sale daily, at reduced rates, to the principal winter resorts in the United States and Mexico. For full information apply to ticket agents Chicago & North-Western R'y. 52-3

Guernsey Cattle—Clover Knoll herd. Send for circular. M. SAGER, Orangeville, Pa. 50 12

Guernsey Grade Heifer—For Sale 10 Guernsey grade young heifers. Seven of the lot 1 year old; 3 six months old, all in fine condition. Just right to serve as the foundation of a fine dairy. A finely bred young bull, 10 months old, registered Guernsey, to head the bunch. These heifers were bred from some of my finest grade Guernsey and Jersey cows. The lot will be sold at reasonable price. W. D. HOARD, Fort Atkinson, Wis. 52 tf

I want to develop the best and most modern sanitary milk producing plant to supply best city trade. A snappy young dairyman with good health and habits and some money and education is invited to co-operate. A gentleman of wealth who loves farm and dairy can also find pleasure and profit in assisting. Please investigate. BOX 1423, New York City. 52-4

Dairy Cleanliness.

ED. HOARD'S DAIRYMAN:—In a previous paper we briefly considered what pure milk is, and in doing so, showing the dire results of present methods as rendering milk impure, hinted at the radical changes necessary to produce pure milk. Barring adulteration and milk from infected animals, if you produce clean milk you will have pure milk. That is the sum of the whole matter, but it is very difficult to accomplish. First, cows are not built on sanitary lines, if I may so speak, to produce pure milk for man. Roaming the plains and producing milk only to raise her offspring she probably is giving it an aseptic or sterile food.

But as we stable them, her udder is too near the manure gutter, and if she don't get her udder directly in the excreta she switches the manure there and over her sides and her neighbor's with her tail. From a sanitary and health-view point the cow would be more of a success if her udder was placed similar to the elephant's.

Again our stables are anything but sanitary; the gutter is usually too shallow and narrow, the bedding is hay, straw, or chaff and full of dust, the lintel is most often under the hay mow, a place rich with bacterial dust, and in the large majority of cases the lintel is dark, and poorly ventilated especially in cold weather. This is all wrong from the milk supply view, and also from the cow's health view of the question, and actually resolves itself into a financial loss for the proprietor.

Dairy cleanliness, as interpreted by dairymen, is a very elastic term; it usually is only relative cleanliness.

A. says he has a clean dairy; but let a man go there who has made ever so slight a study of bacteriology in a laboratory, and he will undoubtedly find his cleanliness means he is cleaner than B. and C. I visited a dairy that has been described throughout the country. That day the whole stable had been washed throughout, the attendants were dressed in clean white suits, the cows and everything apparently was clean. I took samples directly from the milk pail and found about 1000 bacteria per c. c., not in one, but several samples.

I had an attendant get a clean towel wet in hot water, and had a few cow's udders and sides wiped just before being milked; in several samples there wasn't over 400 bacteria per c. c. As I was going back toward where the first samples were taken they were feeding grain to the cows that had been milked. I took more samples and found 3000 to 5000 bacteria per c. c., and those samples of milk soured standing in the room in 36 hours. The samples containing only 400 bacteria per c. c., kept sweet standing beside the latter 4 days. I followed this milk taking samples every time it went into a different vessel.

The combined aerator and cooler increased the bacterial content, the bottle filler still more, and the operator and bottles still more, so that in samples taken from filled jars there were millions. It was a revelation to me and also to the proprietor. This man was honest and said he would institute some changes and had me go out again. I went and he had reduced the bacteria to about 50,000 per c. c., and then said: "Well, I don't know what we will do without it, but that bottle filler has got to go, and we will have to sterilize the jars."

I said: "Yes and make the man who fills, stop catching up four jars at a time with each hand, by running his fingers into the neck of the jars."

In another dairy I found the stable, cows and attendants clean, but the cows were eating hay while being milked. As soon as they stopped that practice they had less than 600 bacteria per c. c. In another stable, equally clean to all appearances, as soon as they substituted planer shavings for hay and straw for bedding, they had less than 500 bacteria per c. c.

It seems to me these instances justify me in saying dairy cleanliness as practiced is a relative term rather than absolute cleanliness.

Then what would be dairy cleanliness? Clean cows, with udders and cows' sides dampened just prior to milking, this being done with clean water that has been boiled and clean towels A clean stable with the least possible dust in the air at milking time. Milkers with clean hands to begin with and washed between the milking of each cow if necessary, because of milk getting on them or handling anything dirty; and milkers wearing a clean suit of clothes at each milking; clean milk pails, cans, strainers and every utensil the milk comes in contact with, clean.

My notion of how these should be cleaned at the farm is this: each article first rinsed free from all appearance of milk in lukewarm water. (Please take notice here is a case where lukewarm water is good.) Second, wash thoroughly with water as hot as your hands will bear with a linen crash cloth, or good bristle brush, in which water you have first dissolved some good washing powder; never soap. Third, rinse thoroughly by pouring boiling water over them until the suds are all off. If possible put in the sunshine and just before using at next milking rinse with boiling water again. Dont use cold water to rinse with because the bacteria in the water will appear in the milk.

They may not be harmful, but several epidemics of typhoid have started from the practice. One such outbreak is enough to condemn the practice and stamp it as criminal, because of its fatal consequences on the unsuspecting and helpless victim, and also because it is absolutely unnecessary.

After milking, cool rapidly to a temperature of at least 50°F., 40°F. is better, and keep from contact with the air as much as possible.

From what we have thus far written it might seem that we would drive most milk producers out of business. Such is not the case, nor is it necessary to tear down all the barns and build anew, though if any have the money to invest, I don't know of anything that can be made to pay better interest.

The writer while learning these things could not afford a new barn so did the best possible with what we had. What we accomplished, and how, will perhaps be the best instruction possible for the general milk producer.

We had a herd of fifteen cows whose stable was a lintel under the hay mow and the barn was so arranged we could not get any sunshine in save for a few hours during the afternoon.

We first thoroughly cleaned all dried manure and cobwebs and dirt and dust out of that part of the barn and sprayed thoroughly with a five per cent solution of carbolic acid and the next day repeated the operation, spraying the cattle each time. After the second spraying we turned the cattle out and whitewashed everything but the windows, using the

"ADVERTISEMENT."

A CORKER

But Not Much of a Pastor.

There was an old clergyman in Central New York State some years ago who was a very powerful speaker but whose private life was by no means exemplary. Some of the more out-spoken of his parishioners were in the habit of remonstrating with him regularly about this and his reply invariably was "Don't do as I do, do as I tell you to do."

It is so with a great many physicians. There are hundreds of medical men who fully understand the folly of drinking coffee and tea, who tell their patients not to drink either, yet who use one or the other themselves. But sometimes it knocks even the doctor out and he has to quit Old King Coffee. A physician of Wasioja, Minn., says: "I was a liberal user of coffee from my youth and my health broke down while at college in 1880, at 25 years of age, but I continued to use coffee until 1898 although I was nervous and suffered constantly from a condition known as diabetes insipidus, a condition that is well known to be due to nervousness. My weight was below par and no diet or tonic medicines were sufficient to restore my vitality and strength.

"In 1898 I became suspicious of coffee and I broke off the habit by taking up Postum. Since that time my nerves have become strong and well and my weight has increased about 30 pounds. Well boiled, it is a delicious, healthful drink, heavy with strength and muscle making qualities." Name furnished by Postum Co., Battle Creek, Mich.

Even if your physician does drink coffee, you had better do as he tells you to do. Give Postum a trial. That's the easy way to shake off coffee and get well and keep well.



MILK BOTTLES

Don't have to be sterilized. Sterilizing won't make them hold any more or any less milk. It will, however, insure the perfect purification of your jars which are to be refilled. It is absolutely necessary that this should be done if jars are to be perfectly safe for constant use.

OUR IDEAL STERILIZING OVEN

Is conveniently and substantially made. It is constructed of heavy galvanized iron throughout, with either wooden or galvanized iron shelves. The doors are packed with cork and close with special compression levers that always produce a perfectly tight joint.

Write us for full description.

WRITE FOR OUR NEW MILK DEALER'S PRICE-LIST, JUST OUT.

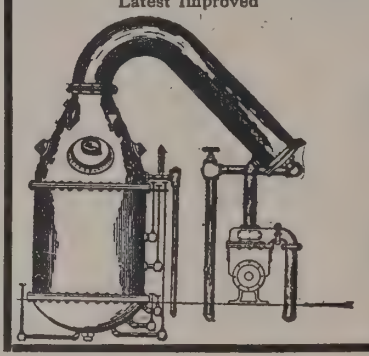
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Creamery Package Manufacturing Co.,

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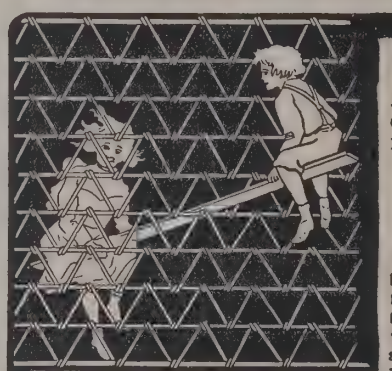


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Condensed Milk Factories built complete; put in operation instructions; small secret processes and results guaranteed By

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IT NEVER SAGS.

A fence that is perfectly woven out of wires of proper strength and full length, leaving no loose ends to unwind and injure stock.

THE HARTMAN STOCKADE FENCE

is a compact unit, made to turn the strongest and breachiest animal, yet responding to the requirements of heat and cold and always resuming its natural position. Made of the best galvanized steel wire, very heavy at top and bottom, all horizontals and trusses of ample strength. In seven heights, 18 to 54 inches. **A fence beautiful, strong and serviceable and of great permanence.** Write for free catalogue.

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PAGE

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weighs 10 pounds to the rod—bottom wires only 1½ inches apart—and don't cost any more erected than a slazy netting Send for descriptions.
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HIGH CARBON COILED SPRING STEEL WIRE — FENCE — CATALOGUE FREE. INDIANA STEEL & WIRE CO. BOX 511 MUNCIE, INDIANA.

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Now is the time to install a ram. Bailey's is always successful. He guarantees it. It is the most simple, durable, efficient and economical. If you want water at house or barn, send for catalogue No. 30 to

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5,000 Farmers

ordered fence direct from our factory this year. Many of them had done so before and had found that our

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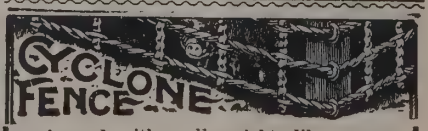
fit their requirements exactly. Of course the price had much to do with this. When a farmer can buy the best fence on the market at manufacturer's prices, he finds it a good and safe investment. It's so good you will order the second and third time. Your name and address on a postal card will bring circular and special prices. Have fence ready when you need it.

ADVANCE FENCE CO., 136 C St., Peoria, Ill.

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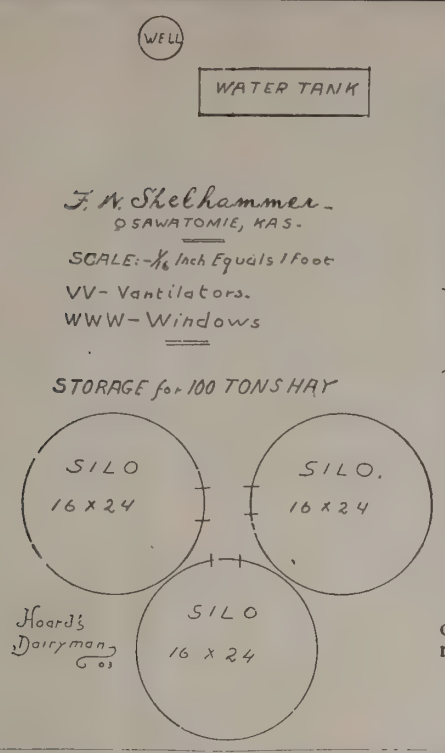
16 to 35 Cents Per Rod.

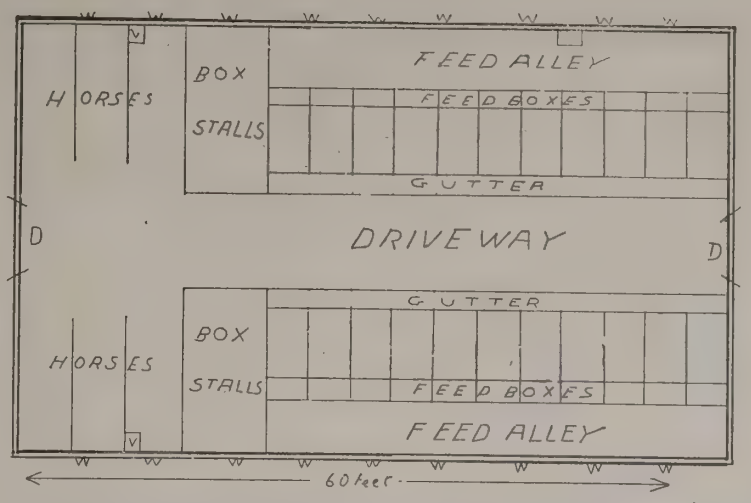
Heaviest, strongest, most durable fence made. All wires extra large. We sell to Farmers at Wholesale Prices. Coiled Spring, Barb and Soft Galvanized Wire. WRITE FOR CATALOGUE.
The Brown Fence & Wire Co. 23 Rose St., Cleveland, O.



can be made with small uprights like common fence but most of our people ask for large cross wires and get them. Write us your wire orders.

CYCLONE FENCE CO.,
Holly, Mich. Cleveland, O. Waukegan, Ill.





A Thousand Dollar Kansas Barn 36×60×20. Cement floors throughout. Frame of native timber; siding Norway pine box boards, and up to mow floor over half inch stuff and good building paper.

spray pump to put the whitewash on with.

Then this order was pursued twice each day, summer and winter.

About forty-five minutes before milking we carded and brushed the cows as clean as we could, and strung a rope across the stanchions so the cows could not lie down. Then cleaned the gutter and aired the barn. We then put on a clean canvass jacket.

Next scalded the pails, etc., and dampened one half a coarse Russian crash towel in boiling water and took our pails, keeping them top end down, and moistened the udder and sides and belly of each cow as we milked her, wiping our hands on the dry end of towel before milking. We then carried the milk directly to a small room shut off from the barn and run it over an aerator and put into the jars. All feeding was done directly after milking, and no more dust raised until next time. Taking samples every day for over a month, that milk when twelve hours old would show from 400 to 600 bacteria per c. c., and we did not reject the fore milk. When we did several times for experimental purposes, it would hardly show any bacterial life. In a room temperature of 70° F. it kept sweet two weeks.

Now, Mr. Editor and fellow milk producers, when by so simple methods as these so good results are achieved, we don't think there is any excuse for present conditions nor that our condemnation of present practices too severe.

Probably a large majority of the DAIRYMAN'S readers send their milk to the creamery or cheese factory and may think clean dairying will not benefit them. I would ask them why there is such a difference in the price of butter and cheese in the open market? I'm sure it is the difference in the degree of cleanliness. Again I know of dairies that are clean dairies that are selling butter for one dollar per pound, and cream for one dollar per quart. What does that mean? It means just this; that there are people who want clean butter and cream, that they will pay that price for it, and that it is so scarce an article that they cannot get it for less. It seems to us a statement of the case is sufficient argument for universal dairy cleanliness.

Mass. F. L. MARION.

Returning Butter Milk to Patrons.

ED. HOARD'S DAIRYMAN:—What do you consider the right and most satisfactory way of returning the buttermilk to patrons? If left to them to take their share, it generally turns out the first one that gets to the can is the "best feller," consequently the last man don't get any; then the buttermaker comes in for his share of cussing for not standing over the can with a club; have tried to solve this vexing problem many times. Some creameries charge so much per gallon to patrons, and that don't seem to give the best satisfaction; while others do not return any buttermilk at all,

While we believe the buttermilk should be returned to the patron, how can it be done in the most satisfactory manner, so each one gets what belongs to them? How would it do to keep enough hogs at the creamery to clean up the buttermilk every day, and when fitted for market, sell them taking out all expenses, turning in balance to patrons. E. S. P.

Coopersville, N. Y.

It is probable that some form of check pump would be the easiest solution of the question, dividing the buttermilk among the patrons according to the amount of butter fat each furnishes. Feeding hogs at the creamery does not seem to be a financial success, when tried on any large scale. This is probably due to the liability to disease and irregular feeding which usually occurs in such cases.

Indiana Butter Makers, Attention.

Purdue University Dairy School offers to butter makers a special course in starters and cream ripening, beginning Feb. 19th at 8 a. m. and closing Feb. 27th at noon.

Each member of the class will have daily practice in making and carrying along starters, ripening cream, scoring butter, testing milk and cream, and use of scales for cream testing.

Particular attention will be given to the practical work. This will be supplemented by lectures dealing with the principles involved.

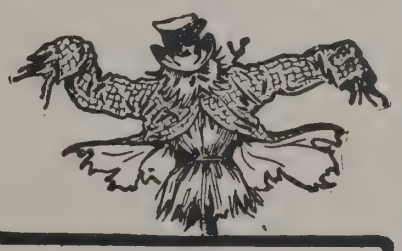
Prof. H. E. VanNorman will have charge of the course and give the instruction in testing.

Instructor S. Burrage will lecture on bacteria in relation to cream ripening.

H. N. Slater, a graduate of the Minnesota Dairy School, and a butter maker of long experience, will give the work in starter and butter scoring.

Indiana butter makers should be prompt to take advantage of this opportunity to get some work that will be very helpful in their business. The Indiana Dairy School is well equipped with new apparatus, separators, testers, heaters, weighers, combined churns, etc.

Send application promptly to Prof. H. E. VanNorman, LaFayette, Ind.



It Doesn't Scare Folks
to be told the *truth* about
Lion Coffee
The scare-crow coffees are those that hide under a glazing of factory eggs, glue and such stuff.
Lion Coffee is pure, wholesome, unglazed, rich in flavor and uniform in strength. The air-tight, sealed package insures cleanliness, freshness and uniformity.

THE RICHEST CREAM
is not as rich and thick as the lather of Williams' Shaving Soap. The man who has once discovered the comfort and ease of shaving with
WILLIAMS' SHAVING SOAP
will never use any other. It is made just for shaving, by a firm whose business has been to make shaving soap for more than 50 years. **"The only Soap fit for the face."**
• *Sold Throughout the World.*
FREE
A Trial Tablet if you mention this paper and send a 2c stamp to pay postage.
Address,
THE J. B. WILLIAMS COMPANY,
Glastonbury, Conn.

$3 a Day Sure Send us your address and we will show you how to make $3 a day absolutely sure; we furnish the work and teach you free, you work in the locality where you live. Send us your address and we will explain the business fully, remember we guarantee a clear profit of $3 for every day's work, absolutely sure. Write at once
ROYAL MANUFACTURING CO., Box 855, Detroit, Mich

Cheaper than Corn, Oats and Barley.
Attention Dairymen
The net profits to you from your cows depends largely on the expense of the digestible protein in the ration fed. There is no feed on the market today that gives you the protein at less cost than it can be secured in
Atlas Gluten Meal
It will increase the flow of milk and keep the cows in better condition with less outlay in dollars and cents than any other feed. A trial will convince you.
If your dealer cannot supply you write us.
ATLAS FEED & MILLING CO.,
Box 164, PEORIA, ILL.

We Want a BRIGHT BOY to work after School Hours

Any boy who reads this advertisement can start in business on his own account selling
The Saturday Evening Post
No money required. He can begin next week.
Many boys make over $5 a week. Some are making $15.
THE work can be done after school hours and on Saturdays. Write to us at once and we will send full instructions and 10 copies of the magazine free. These are sold at 5 cents a copy and provide the necessary money to order the next week's supply at the wholesale price. $225.00 in cash prizes next month.
THE CURTIS PUBLISHING COMPANY
455 Arch Street, Philadelphia

Best Results
in feeding for milk are obtained by adding some
BUFFALO Gluten Feed
to balance the ration.
Sample and booklet
"Feed Your Stock for Best Results."
Sent free. Write to-day.
Address Department B
THE GLUCOSE SUGAR REFINING CO.,
The Rookery, Chicago, Ill.

BLATCHFORD'S CALF MEAL
THE MILK SUBSTITUTE
'There is nothing like it to raise thrifty Jersey Calves."
ASA B. GARDNER, Esq., GLENCOE, MO.
Address, BLATCHFORD'S CALF MEAL
WAUKEGAN, ILL.

$45 WKLY. selling ACME PUMP GOVERNORS. They make all pumps work easy and fit all kinds, (iron or wood.) Mills run with ¼ less wind. Agents Exclusive territory. Its Merits sell it.
PUMP GOVERNOR MNFG. CO.,
(K) 40 Dearborn St., Chicago, Ills

Sweet Taint in the Cream.

ED. HOARD'S DAIRYMAN—We have two patrons furnishing us cream, for retail trade, who are feeding ensilage.

Most of the time we notice rather a sweetish,objectionable odor in the cream.

It is the cause of some complaint from the trade.

Do you think it due to feeding the ensilage?

Is there any way to correct the trouble?

We have instructed them to feed it immediately after milking rather than before.

Don't think they practice after feeding regularly. D. H. E. SONS.

Louisville, Ky.

There is much uncertainly in attempting to state just where the trouble is in the above case, without further information regarding conditions. The silage may be the cause of the trouble either from feeding somewhat large amounts of a silage with a pronounced flavor or from allowing the milk to stand in the barn that is full of the odor of silage. As a possible remedy we would suggest feeding the silage after milking, removing the milk at once from the barn to a clean, cool room, and if possible aeration of the milk in a place free from all barn and silo odors.

Our Jerseys.

ED. HOARD'S DAIRYMAN:—During 1902 our Jersey herd consisted of four two-year-old heifers, one three-year-old and twelve cows four years old and over. Calves were fed whole milk until two weeks old and a part ration of whole milk until six weeks old, when they were put on a ration of fresh separated milk.

We ran eighty-six thousand two hundred and sixty-two pounds of our milk through our separator, and from the cream made five thousand two hundred and eighty pounds of butter—an average of 310½ lbs. per cow. We sold four thousand eight hundred seventy-eight pounds for $1,163.43, an average of $68.44 per cow. A. L.

Pennsylvania.

A Question in Ventilation.

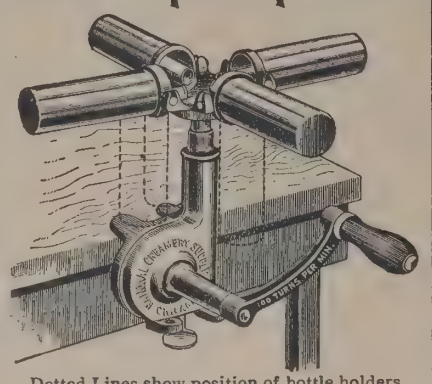
Mr. John Schmidt, Elk County, Pa., after giving HOARD'S DAIRYMAN a very handsome compliment, in stating that he can hardly wait until it reaches him every Friday, and that it has been worth at least $100 to him the past year, says that he has been remodeling his basement barn and made out of it an up-to-date cow stable, with cement floors, inlets for fresh air, ceiling of matched flooring overhead and twenty windows, mostly large ones, for admitting light. He has not yet provided the ventilating shafts for removing the foul air and as a consequence the walls on the sides of the stable are wet all around and half of the ceiling on the south side. Strangely enough the other half of the ceiling appears to be perfectly dry.

This difficulty will be overcome when he puts in the ventilating shafts, but his stable is so narrow and is so fully occupied for other purposes that, put these shafts where he will they will be more or less in the way, he thinks. This objection can be largely overcome by making the shafts not more than a foot deep and broad enough to give him the required amount of space, rather than to build them square. He can put in two or more and locate them at any convenient place in the stable, as it is immaterial where they are placed. The cold and foul air will find its way to these outlets in imperceptible currents.



In Olden Days men were broken on the wheel, now they buy **Electric Steel Wheels,** and save money. They fit any wagon. Made with either staggered or straight spokes. Let us tell you how to make a low down wagon with any size wheel, any width tire. Catalog tells. It's free. Electric Wheel Co., Box 130, Quincy, Ill.

NATIONAL Babcock Milk Tester



Dotted Lines show position of bottle holders when not in motion.

Has enclosed cut gears.
Swinging bottle-holders.
Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

DOES YOUR DAIRY PAY?

It costs no more to feed a profitable than an unprofitable cow.

NET PRICES:

No. 1,—2 bottle, complete for testing milk.... each $4 00
No. 2,—4 bottle, complete for testing milk.... each 5 00
No. 3,—2 bottle, complete for testing cream and milk, each..... 4 50
No. 4,—4 bottle, complete for testing cream and milk, each..... 5 50

Prices include full directions for making test, bottle of acid, test bottle brush, acid measure, pipette and test bottles.

We are the great Dairy Supply House of the West. We carry an immense stock of all kinds of Butter and Cheese Making Apparatus and Supplies. Write for catalogues and circulars.

National Creamery Supply Co.,
450-458 Illinois St.,
CHICAGO, U. S. A.

THE SHARPLES Sympathetic Lactator

The only thoroughly perfected and practical

COW MILKING MACHINE

adapted to the uses of large dairies.

We are now prepared to take contracts for complete installations.

DAIRY SPECIALTY CO.,
West Chester, Pa.

Victorious Barred Rocks

Recent Rochester, N. Y. show, winning 1st and 2d on cocks and three special prizes. Choice Cocks and Cockerels $2.00 and $3.00 Eggs, $2.00 for 13, $3.00 for 26. M. H. BENT,
Write for Booklet. Box 2, Antwerp, N. Y.

Fairview Farm Guernseys.

Young Bulls for sale. Good individuals from rich milkers. Ages from four weeks to old enough for service. Prices reasonable. Address
C. W. WILCOX, General Del., Des Moines, Ia.

WILL RENT

TO A RESPONSIBLE PARTY

or will sell my farm of 184 acres. Excellent land in a high state of cultivation.

NEW BARN, SILO and MILK HOUSE

Also my herd of Guernseys—three daughters of Lilly's Bony Boy and their descendants—20 females and two bulls, and Robina's Standard, the junior champion Guernsey bull of Wisconsin State Fair. Will also sell 30 head of grade Guernseys.

M. D. CUNNINGHAM,
Kansasville Wis.

Lump Jaw Spavin Curb Splint Sweeny

Cure Them

Lump Jaw in cattle, Fistula and Poll Evil in horses, and almost every blemish that a horse can have, even bad Bone Spavin, Ringbone and Knee-Sprung, can be readily cured by anybody. We want to tell you how to do it, prove that you can do it, and guarantee you success in doing it. Two big booklets explaining everything sent free. Write now.

Fleming Bros., Chemists,
228 Union Stock Yards, Chicago, Ill.

THE BROWN BESSIE HERD

Offers some splendid young cows and heifers bred to Recorder, the only living son of the famous **Brown Bessie,** winner of the 30 and 90 day butter test at the Columbian. Also a few sons of Recorder from daughters of Diploma and other tested cows are offered.

H. C. TAYLOR, Orfordville, Wis

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality F. W. TRATT, Whitewater, Wis.

HADDON GUERNSEYS

Won first prize both for herd and single cow, in the A. G. C. C. yearly tests, ending May 1, 1901. Tuberculin tested and every animal found healthy.
E. T. Gill, Haddon Farms, Haddonfield, N. J.

FOR SALE. Two Registered Guernsey Heifer Calves, five and eight weeks old. Descendants of Lady Beth, No. 3926 A. G. C. C., who in eleven months gave 10031 lbs. of milk that made 514 lbs of butter. Address,
J. R. HUSTON, Dayton, Ohio.

FOR SALE.

Guernsey Bull Le Grand Duke, 6193. First premium Ohio, Indiana, Illinois and Kentucky State Fairs; champion bull, any age, at Indiana, and senior champion at Ohio in 1902. Four years old, perfectly sound and without a superior as a show and stock bull in this country.

THE BELLE-VERNON DAIRY CO.,
Willoughby, Ohio.

Old Homestead Guernseys.

Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.

Especially low prices, standing of herd considered. No catalogue. State what you want.

L. V. AXTELL, Perry, Lake Co., Ohio.

Wasteland Guernseys

Herd headed by Sir Choral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Young registered bulls always for sale. 5 high-grade heifers in calf, a bargain. M. M. & E. J. HOLLINGSWORTH, Landenberg, Chester Co., Pa.

Rosendale Guernseys.

MATURE COWS YEARLY RECORDS range from 356 to 713 3 lbs. butter. This herd contains more officially tested cows than any other herd of the breed. All of the largest records are official ones. A particularly choice lot of tuburculin tested bulls for sale from high record dams.

GEO. C. HILL & SON, Rosendale, Wis.

GUERNSEYS FOR SALE.

Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.

JAS. H. BEIRNE, Oakfield, Wis.

GUERNSEY Bull Calves Sired by O. K. Dams of equal merit.

FRED VOGEL, JR., 165 First Avenue, Milwaukee, Wis.

NORTH OAKS FARM, ST. PAUL, MINN
(Jas. J. Hill, Proprietor.)

AYRSHIRE BULLS

Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address,

N. E. McKISSICK, Supt., Cardigan, Minn

AYRSHIRE CATTLE of both sexes, and some young ones from good business cows. Prices within reach of any dairyman. Also Chester White Pigs, March and April farrow—All from registered stock. F. TSCHUDY & SONS, Monroe, Wis.

FOR SALE. Three year old bull—BEFILIUS, 6398—brought by me from Wisconsin. Also bull calf out of Waller by Wolfrum he out of Materna. sweepstakes cow at World's Fair. W. M. MARCH, 1798 W. 39th St., Los Angelos, Cali.

CLOSING OUT SALE

—OF—

50 Head of Thoroughbred Registered A. J. C. C. Jersey Cattle

to be sold at

SALEM, OHIO, MARCH 10, 1903,

including three great service bulls,

KLONDIKE GOLDDUST, NO. 52415,

double grandson of the Famous King of St. Lambert sire of 26. **Banshees St. Lambert Boy, 63763,** grandson of the great St. Lambert Boy, sire of 54, out of the great Dairy Cow Palestine Bess, test 19 lbs. **Pedro of Kensington, 50172** grandson of old Pedro, sire of 45, by Pedro Royal Mayoram sire of 8; grandson of Prospects Rioter, sire of 13; by Stoke Pogis 5th, dam Pedro's Pretty Duchess 16 lbs. 11 oz. The breeding of the above bulls is intense and pronounced by expert judges to be the leading trio and King of Bulls, cows equally as well bred. No postponement on account of weather. Write D. H. Jenkins, Indianapolis, Ind., or Brooks & Pidgeon, Salem, Ohio, for catalogues giving full particulars.

BROOKS & PIDGEON, Salem, Ohio.

FOR SALE AT FARMER'S PRICES.

One St. Lambert bull ten months old; also bul calf three months old, or will exchange for as well bred heifers. Registered Poland China pigs for sale at all times. Correspondence solicited. FRANK SHADBOLT, Caledonia, Minn.

FOR SALE.

JERSEY BULL, one year old. Good individual of the best breeding, Also 7 months bull from tested dam. Herd headed by Fontaine's Owl, 60436. Prices on application. Address,
J. F. EGERTON, Footville, Rock Co., Wis.

VALLEY FARM Is offering some good bargains in young bulls from 1 mo. to 2 yr. old. Also B. P. Rock Cockerels, $1.25 each. Write

FRED STUBLEY,
Black Earth, Wis.

HAZEL FERN HERD. A. J. C. C. Jerseys, blood of St. Lambert, Melia Ann, Combination. Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

PROSPECT HILL JERSEY HERD.

Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

FOR SALE GOLDEN LAD BLOOD, sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.
W. J. HUSSEY, Mt. Pleasant, O

ST. OMER HERD

Offers young bulls fit for service, out of tested dams with good yearly records. Strong in Exile of St. L., King of St. L. and Stoke Pogis of Prospect. Reasonabe prices. JOS. T. HOOPES, Bynum, Md

Exile of St. Lambert

—13657—

is the sire of more tested Jersey cows than any bull living or dead, and the number to his credit will probably never be equaled by any other bull. His dam was one of the largest milkers among Jerseys, and is the dam of the three year old cow with the highest year's milk record for that age. Exile's sire is the grand sire of the cow holding the highest milk record for a year.

The mid-winter sale lists include a few tested daughters of this great bull and several cows and heifers deep in the blood that produced this famous sire. If you wish to improve your herd, or to start one, you will probably never have a better opportunity than is here offered. If interested write for lists, and please specify whether bulls, cows in milk, or heifers, are wanted.

WINTERGREEN HILL FARM,
Scottsville, N. Y

Biltmore Jerseys.

Have been Bred for work in the Dairy. Are from the choicest foundation that could be bought. Include more Prize Winners than any other Herd. Are robust, true to type and of great capacity. Are noted for large milk yields, perfect udders and teats. All tuberculin tested for the last seven years.

FOR SALE--Young Bulls from selected dams. Send full details, mentioning defects you wish to correct, blood lines, etc., and we will quote promptly, reasonably, with guaranteed description and full pedigree. Apply to

BILTMORE FARMS,
Biltmore, N. C

THAT NEW BULL

If you want a good Jersey Bull, ready for service this summer or fall, write NOW for our sale list No. 1. St. Lambert, Brown Bessie, Signal and Tormentor blood. Dams all great workers with high fat tests. Full particulars as to breeding, and milk flow, etc., of dams upon request. Address, E. E. STEVENS,
North Madison, Lake Co., Ohio.

The Evergreen Farm Herd has for sale three or four A. J. C. C. heifers bred. Also a few cows and some choice bull calves from two to six months old. Write for pedigrees and prices.

N. N. PALMER & SON, Brodhead, Wis.

FOR SALE. Clear View Stock Farm offers a few choice registered Jersey Bull Calves from 5 to 12 months old. Prices low if taken at once as must have the room.

J. S. CAMPBELL, Prop.,
Buttes, Pa

Composition of Vetch Seed.

ED. HOARD'S DAIRYMAN:—Will you please send me the analysis of sand or hairy vetch seed, also spring vetches or tares? I will have more than I can use for hay. There is no sale for hay, and the market is easily overstocked with seed.

The white or chickling vetch raised in Europe for bread and also for animals, has been found to contain a poisonous, alkaline, volatile liquid which, when taken too freely, causes lathyrismus. Horses, when fed on it a considerable length of time, drop while performing the lightest work, in consequence of paralysis of the hinder extremeties.

Have you found any of this liquid in the sand vetch or spring vetch? If so, would it be in sufficient quantities to prohibit its use in moderate quantities to the dairy cow. A. H. B.

Scio, Ore.

The above letter was sent to the Wisconsin Experiment Station and the following reply was received:

In regard to the composition of hairy vetch I would say that the seeds from this vetch contain the following amount of food materials: 16.2 per cent water, 24.0 per cent crude protein, 1.2 per cent fat, 7.5 per cent crude fibre, 3.1 per cent ash materials and 48.0 per cent nitrogen free extract.

According to Pott, the seed does not make a good food for milch cows and for horses only one-third of the ration should be made up of this seed as larger quantities have sometimes given trouble, he says. The seeds of this variety have not been examined as to alkaloids or other poisonous principles, but in the common vetch Ritthausen and Schulze have identified three different alkaloids. So it is very likely that hairy vetch also contains some alkaloids, hence care should be used in feeding the seed to farm animals. There is certainly not the danger in feeding this, however, as in feeding lupines, or there would be more known about the components of the seeds.

Madison, Wis. F. W. WOLL.

Washington State Dairymen's Association.

ED. HOARD'S DAIRYMAN:—The Washington State Dairy Association, which met this year at Kent on the 14, 15 and 16th of January, elected Mrs. E. Carmichael of Yakima City, Wash., secretary and treasurer of the Association for the ensuing year. This is the first time since the organization of the Association that this honor has gone to a lady, and in this case it is an honor well merited.

Mrs. Carmichael has an up-to-date creamery and a farm with nearly 100 head of cows and young stock on it, and is improving her herd so as to have the finest herd of milkers in this section, and in connection with the creamery and farm she also operates a general merchandise store. Truly, the new woman is coming to the front.

But this merely shows what a woman with energy and preservance may accomplish. Ten or twelve years ago this lady was left a widow with four small boys to raise and educate, and the results as above have been achieved with barely a little to start with, and the best of all, the boys have been well educated so that the two oldest occupy responsible positions in a bank. I write this short sketch solely to encourage the mothers who may be left upon their own resources. E. F. R.

Yakima City, Wash.

Butter Tests Accepted for Publication by the American Jersey Cattle Club.

Baronetti's Rose 132152—Sire, Fred Mayfield 44032; dam, Gilded Baronetti 31648; butter, 16 lbs., 4 oz.; milk, 283 lbs.; test made from Jan. 8 to 14, 1903; age, 6 years, 9 months; actual weight, 652 lbs.; fed 77 lbs. bran, 18 lbs. cotton seed meal, 8 lbs. corn meal, 175 lbs. ensilage and 49 lbs. hay. Property of Amory S. Dunbar, Augusta, Ga.

Blossom of Cherry Farm 136323—Sire, Marigold Pedro 42643; dam, Ida's Lily 54425; butter, 16 lbs., 12 oz.; milk, 187 lbs., 6 oz.; test made from Dec. 10 to 16, 1902; age, 4 years, 7 months; actual weight, 885 lbs.; fed 6 lbs. cotton seed meal, 8 lbs. corn meal, 4 lbs. ground corn and oats and 6 lbs. wheat bran, daily, clover hay *ad libitum*. Property of Frank W. Hart, Cleveland, Ohio.

Exile's Sappho 114262—Sire, Exile of St. Lambert 13657; dam, Volie of Sennett 2d. 78638; butter, 19 lbs., 11 oz.; milk, 256 lbs., 2 oz.; test made from Dec. 3 to 9, 1902; age, 6 years, 11 months; actual weight, 880 lbs.; fed 6 lbs. ground corn and oats, 8 lbs. corn meal, 6 lbs. cotton seed meal and 6 lbs. wheat bran, per day, clover hay *ad libitum*. Property of Frank W. Hart, Cleveland, Ohio.

Conan 7th of Hood Farm 138516—Sire, Hood Farm Pogis 40684; dam, Helen Barry 55840; butter, 14 lbs., 2½ oz., confirmed; estimated butter on basis of 85% fat, 14 lbs., 15⅝ oz.; milk, 289 lbs., 2 oz.; test made from Nov. 22 to 28, 1902; age, 5 years, 10 months; estimated weight, 550 lbs.; fed 3⅛ lbs. bran, 17⅛ lbs. corn meal, 17⅛ lbs. ground oats, 7 lbs. gluten feed and 12⅛ lbs. oil meal. Analysis of butter: fat, 87; water, 14.45; salt, 3.39; casein, 1.16; buttermilk, 54 lbs.; per cent fat, 1.4; total fat, 0.756; equivalent, to 14¼ oz. 85% butter. Property of C. I. Hood, Lowell, Mass.

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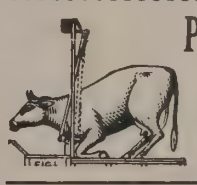


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Note and Comment.

Up in Minnesota.—Dairying East and West.—Summer Silo.—Alfalfa and Bran.—Stable Ventilation.—Wooden Silo Hoops.

ED. HOARD'S DAIRYMAN:—It was quite a long step from Syracuse, N. Y. to Albert Lea, Minn., but Institute workers have often the faculty of taking long jumps and this is one of the many, but however long the step, this is the truth in reality, that there is no such great differences in the dairy gospel preached between east and west as once existed, and the universality of dairy thought, and the oneness of the desire, is striking.

The dairy student of the eastern states, and the very beginner on the prairies are both studying the same primer, and while the frontier dairyman's English is often apt to be a little mixed in construction and pronunciation, he is after the same truth and only the best seems to satisfy him. While he may, with the high prices of beef, be a little inclined to want a beefy cow, his heterodoxy is quite as pardonable as the "doxy" of the eastern dairyman, who is wedded to his calico cow of divers and complex breeding, that is as often a boarder as a profit maker.

Out west the dairyman is more restricted in his dairy operations. He does not have the great cities for a milk market like the Ohio and New York farmers. It is pretty near butter or nothing on the prairies, and some 1,100 creameries scattered over Minnesota are fast making her a "Bread and Butter state" for truth. The failure of some of the great syndicate dairy companies has made the idea that co-operation is best, pretty solid in western Minnesota, and the farmers seem to be more and more disposed to co-operate with each other than with a firm that the contract is about all that the farmers can see to judge by, as to responsibility.

What vast amounts of feed and roughage these farmers have, and in some sections seemingly very little of this roughage, is turned into feeding rations. "The roughage is too cheap to bother with, let the cattle help themselves," is still heard, but each year more attention is paid to its better saving and feeding. Silos are being built and liked. Dairymen are finding that with a silo and their cheap grains a warm barn, and the winter months are their best ones, and silage is far ahead of the summer pasture.

At Winnebago City, one farmer, Mr Bullis, "a 56'er," has built large silos and filled them with his best corn, and is feeding a big bunch of steers silage and oil meal, and says he has only by this method found out the possibilities of an acre of corn. It was a sort of a stand off between him and the dairyman who was the most benefitted by the silo, a cow or a steer feeder. Silo building and filling to my great surprise, is one of the very live subjects up here, and not the least interesting to the farmers is the possibilities of the summer silo, as in this almost semi-arid section the summer pasture and the soiling crop are two uncertainties; but the man who plants corn here, and cares for it with frequent and shallow cultivation, has yet to report anything like complete failure. It is asserted with confidence, that within the last 15 years, there has been a climatic or some other change in the eastern northwest, which has made corn growing a certainty, and wheat growing one of luck and chance. This is a fact. The winter so far in southern Minnesota would be recognized anywhere as the genuine New Jersey article, warm, pleasant days, with little snow, and south winds—ideal winter dairying weather.

It would seem that alfalfa was to have an inning this winter everywhere, and up here the Swedes and Norwegians recognize it as the old friend of theirs from across the sea, Lucerne, and here and there is a patch of it from seed sent from the old home. Those who have little lots of it tell of its wonderful feeding value, and some think a ton of it, as fine, cured hay, is quite as valuable as a ton of bran. From this I should not dissent, if the bran was like some western material shipped to the east, which was fully one-third cob dust. Mr. J. E. Wing, who is with our corps, has had great experience with it, both in Utah and Ohio, and he is sure the rich prairie lands of this section can be made to grow three and four crops of alfalfa per year. He does not disguise the fact that it is a difficult plant to get started, and that it wants a good deal of care in making a fine, nice, rich firm seed bed, and several clippings the first summer to keep back the weeds and foxtail, and give the clover strong root growth. From what I am hearing, there is only one serious objection that may come up in the growth of the alfalfa, and that is, that it may sometimes be difficult to rent land of neighbors on which to stack the surplus crop.

What you say about the ventilation of stables, Mr. Editor, on page 1074, is good dairy gospel. We had supposed we had good ventilation in our stable in past years, but it would gather moisture on walls and ceiling and a chill would be upon the air of the stable, and with sudden falls of the outside temperature there would be undesirable falls in the stable as well, with provoking falls in the milk, three falls in conjunction, which made bad footings in the monthly milk check. With the ventilators and the stable made closer than ever so that that the air must come in at the intakes, a great change was apparent. The condensation did not appear when the cold spells came. There was only a small drop in temperature in the stable, and the milk yield would change but a little.

I can only account for this on the supposition that the dry air of the stable with the change going on, prevents the fall in temperature which the more moist air would aid. In early January there was a fall in temperature outside of something over 58° in a day, but the mercury in the stable only went down from about 70° to 50°, which is the degree aimed to be maintained. The great thing is to keep the flues drawing all the time. We are convinced now that the small and very tall flue ventilator without bends and turns is the better and will pull, be it warm or cold.

This question of farm labor is the all important one of today. It is not merely a local one confined to one section, but extends to all parts of our country and Canada. The Dominion government is about to take action in regard to the matter, by giving inducements to emigrants from Europe, hoping thereby to relieve in a measure, the great scarcity of farm help. Here is an opportunity for the Grange and the various farm organizations to exert themselves upon. It seems as though inducements could be held out to farm laborers of the old world that might bring them by families to work on the farms.

I would like to see a few such families move into our section. They used to come here, and there are thonsands more there that would be glad to come here now if our immigration laws would allow them. If nothing changes the course of events and nothing occurs to relieve the scarcity of farm help, it will in a large measure curtail the amount of farm products, thereby increasing the demand and enhancing the price.

It will increase the sale of new and improved farm machinery, that kind that will make less hand labor possible. It will injure the consumers really more than the producers, but I can't shed any tears over them. I somehow can't show them any sympathy. Those who are willing to work on the farm rather than in the mills, can have the benefit of the good prices without condemnation from any sensible person.

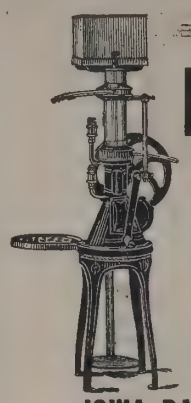
I am of the opinion that the pails of beer and the saloons near by to the

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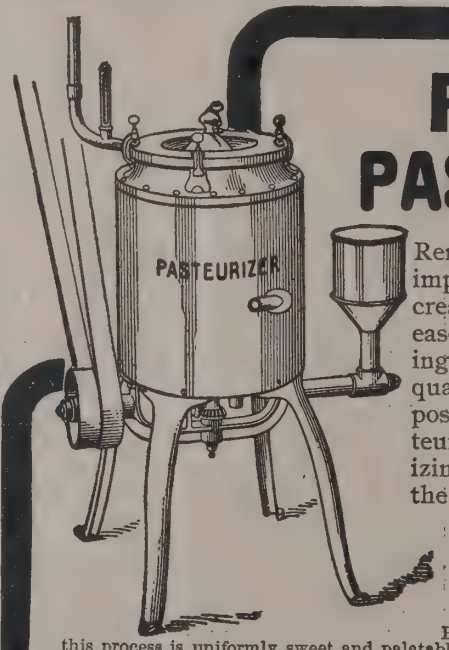
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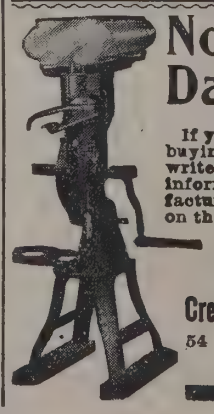
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shops, mills; and factories are the determining factors in the choice between the city and the country life of the average laboring man. One thing I do know, the farmers who furnish hard cider or a jug to their hired help somehow never have a very hard time to secure it when they need it.

These things show the character and standing of the laboring classes of today. We stand in need of a class of such men who some day aspire to become farm owners themselves. It makes my hair red to be obliged to pay exhorbitant wages to a man and then have him take his weeks' earnings and drink them up every Saturday night at the saloon, having a good time with the "boys." There are one-half the laboring men that 3 dollars per week would be better to them than nine. Those same one-half spend their entire earnings for drink and their wives take in washing and scrub by the day to support the family.

I never begrudge a good wage to a man who will use it judiciously for the benefit of his family or lay it aside to buy himself a home. It's a pleasure to have such a man around, as he is a good, interested worker; faithful, sober, and industrious.

* * * * *

I notice that the manure question is being quite freely discussed through the columns of the DAIRYMAN and I would like to take a hand in the controversy. While there is probably no question but that where considerable help is constantly required about the farm that it is cheaper while one has the manure in the wagon or sled to draw it to the field where it is to be used, but there is considerable doubt in my mind but that such a method is attended with a very great loss in fertility, especially during a winter when the ground is frozen hard and there is a heavy snow fall. The plants are dormant, incapable of absorbing or taking up the fertility as the frost and and frequent thaws unlock it, and the soil certainly cannot receive it.

We have just been having a heavy thaw here and I had occasion to take a trip of a few miles and I saw two places where manure had been spread on level fields yet you could trace the discoloration of the ice on the roadside for ¼ of a mile to a culvert crossing the road, and how much further it went I do not know. Where there is so much color there must be some fertility.

H. E. Cook, our institute conductor, says "that the best farmers practice the daily hauling of manure to the field." He meant the men with the big painted barn and underground stables, not the best farmers. I believe that the old method of taking the manure from the shed or the pile to the land just previous to putting in the crop is far better as regards saving fertility than the every day grind in our snow and frost-locked latitudes. There will certainly be less leeching from one big pile than there would be from the same pile spread over a ten acre field.

I want the value of that manure pile myself, rather than give it to the adjoining farmers, or let it finally mingle with the blue waters of the old St. Lawrence. I will work my manure pile into the corn and potato fields and the plats we are going to seed down rather than put it on top of land already seeded and lose considerable of its value as humus. Humus on top of the ground isn't humus incorporated into the soil, because it will not remain humus so long, nor have the same loosening effect when the plow turns that field over again. No, readers, work your barn yard manure, straw, etc. into the soil, then you will get practically all the fertility and its value as humus also.

N. Y. JAS. M. PLATO.

Well Said.

A good old farmer who has lots of hard sense says:

"I have worked hard all my life to make mistakes that I never would have made if I could have had a chance to know some things when a young man, that every body can know now if they have any gumption at all."

We know lots of such men who are keeping cows. They are working hard day and night to make mistakes, yet no man can turn them. They learned but little when they were young and they have learned nothing since.

As the old Hoosier said about the sick horse, "Their eyes is sot." The Lord is good to such men. He gives them one cow in five that does all she can to make up for the other four mistakes. Let any man offer to show them a better way and they will turn away from him for fear he is a "book farmer."

An Oregon Feeding Inquiry.

W. W. S. Monmouth, Or., writes that he is milking ten cows, four of them Jerseys and six Shorthorns, varying in weight from 800 to 1,200 pounds. They began to freshen last June and at various times thereafter until November 25. He is feeding at present an average of 40 lbs. clover silage, 6 lbs. oats, 3 lbs. barley, 2 lbs. oil meal and all the clover hay they will eat up clean. He raises on the farm, the clover, oats and barley. Oil meal is worth $30 per ton; bran, $18; the market prices of oats and barley not given. His ten cows are giving 210 lbs. milk daily, and he is getting 27½ cents per pound for butter fat.

Notwithstanding, he is doing so exceptionally well, he asks if we would advise any change in his methods of feeding.

While our judgment is that he is feeding more grain than is really necessary, yet we hesitate to advise cutting it down very much; and yet it is our opinion that 4 lbs. of oats and 4 lbs. of barley, with clover silage and clover hay *ad libitum*, should enable his cows to do about their very best. At all events, we think he might try it with one or two cows and see what the effect would be. Do not make the change all at once, but gradually reduce the amount as above suggested; and if he tries the experiment, we trust he will report results.

"He Won't Die

Of consumption" is a remark often made of a fleshy man. The remark expresses the popular recognition of the fact that the sign of consumption is emaciation, loss of flesh. On the other hand, a gain in flesh is a sure sign that wasting diseases are being cured.



Emaciated people with obstinate coughs, bleeding lungs, night-sweats and weakness, have been perfectly cured by the use of Dr. Pierce's Golden Medical Discovery. The several steps of the cure were recorded in ounces and pounds of increasing weight. When there is gain in flesh the wasting disease is being surely cured.

Mr. Will H. Whitmire, of Arkton, Rockingham Co., Va., writes: "Our son contracted a deep cold about the first of July, 1899, and had a terribl cough. We called a doctor and he pronounced it irritation of the bronchial tubes, with asthmatic trouble, and he informed me that my son was liable to die at any time. He told me that if we could keep the bronchial tubes open, he *might* cure him; but after treating him several weeks and my son growing worse all the time, I concluded to try Dr. Pierce's Golden Medical Discovery and 'Pleasant Pellets.' I had seen several almost miraculous cures brought about by the use of these medicines, and of course I had wonderful faith in them. He used three bottles of 'Golden Medical Discovery' at home and one vial of the 'Pellets,' and was then well enough to go to West Virginia, taking a supply with him. I am just in receipt of a letter from him from which I quote: '*I am well and hardy and getting very fleshy.*'"

The Common Sense Medical Adviser, 1008 large pages is sent *free* on receipt of stamps to pay expense of mailing *only*. Send 31 one-cent stamps for the cloth-bound volume or only 21 stamps for the book in paper covers. Address Dr. R. V. Pierce, Buffalo, N. Y.

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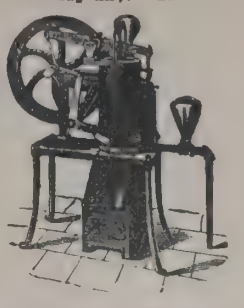
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Is quite enough for some people, but most people want water every day. If



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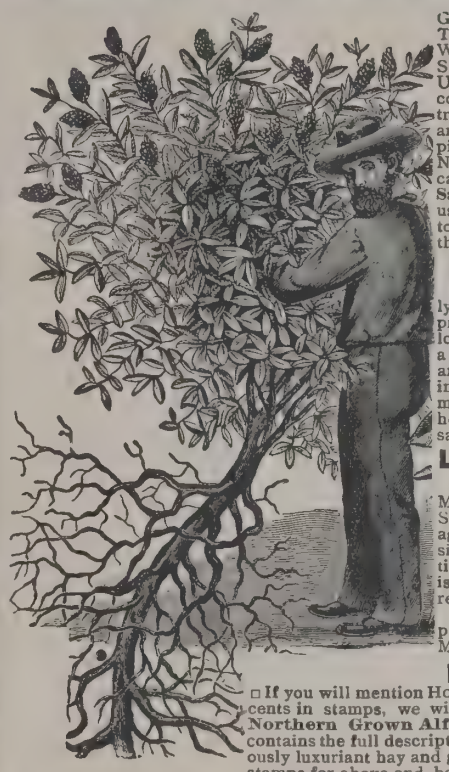
Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.



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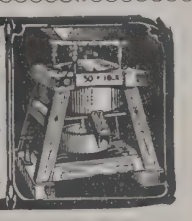
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A Pedro bull 4 years old, also some young cows of Signal and St. Lambert blood are offered for sale in advertisement among Jersey ads. by A. A. Eggleston, Painesville, Ohio. This is an offer of exceptional fine breeding and at extremely low prices. Don't fail to investigate.

The Wasson Stanchion Co., Cuba, N. Y., appreciating that the readers of HOARD'S DAIRYMAN are the most progressive dairymen in the country, have placed in our columns, this week, an advertisement of their Excelsior Revolving Stanchion. A great deal is claimed, and not without right, for this stanchion. It is comfortable for the cow and convenient for the owner. Full information regarding it the manufacturers will be glad to send. Drop a card to them referring to their ad. in HOARD'S DAIRYMAN, and request their circulars.

The pamphlet "Stassfurt Industry," just published, contains an interesting description of the famous potash mines in Germany, from which all the potash imported into this country and used for manuring is derived. The chapter about the use of potash in agriculture as one of the important ingredients of a complete fertilizer, adds largely to the value of the book, and among the many fine illustrations, those showing the experiments at Southern Pines, N. C., are of paticular interest to practical farmers. Copies of this pamphlet can be had free by writing to the German Kali Works, 93 Nassau St., New York, N. Y.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Atrophy of Muscles.

I have been trying to breed a fine colt 5 years old, and had her tied in the stall, and she pulled back till she hurt her neck badly and is so weak she can hadly stand up; she holds her head on one side, and her neck stretched, and the neck or flesh has shrunk away on one side. J. Q B.
Cayucos, California.

ANSWER.

The injuries to the neck have caused atrophy of the nerves and muscles of the neck. Apply a smart fly blister, once daily for three days, rubbing it in well each time, rest the third day and wash off the fourth; when dry apply clean lard to the surface.

Heart Trouble.

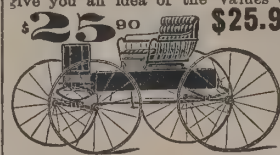
What would probably be the matter with a cow whose throat and cheeks become suddenly swollen, then her brisket, then her navel; lived 10 days after she was taken sick; ate quite a little, but with difficulty; kept her jaws going as if chewing; opened one of the bunches on brisket, after death and found it filled with bloody water, with something similar to beef suet floating in it.
SUBSCRIBER.

ANSWER.

The enlargements indicate heart trouble (pericarditis) which is a dropsical condition of the pericardium, and the blood water which you mention is common serum. There is no cure for this trouble, and it does not pay to apply medical treatment for it in the lower animals.

GREAT BUGGY BARGAINS

WE OPERATE ONE OF THE LARGEST VEHICLE FACTORIES IN THE COUNTRY, where we make a higher grade of vehicle work of all kinds than you can buy from your dealer at home, and our prices are about one-half the price charged by dealers. **OUR FREE VEHICLE CATALOGUE EXPLAINS OUR LIBERAL 10 DAYS' FREE TRIAL OFFER,** explains how we ship buggies subject to examination, payable after received, explains our binding guarantee, illustrates, describes and prices at incomparably low prices a big assortment of high grade Road Wagons, Runabouts, Open Buggies, Top Buggies, Surreys, Carriages, Phaetons, Stanhopes, Wagons, Carts, etc. **Our free Vehicle Catalogue explains how we make freight charges very low by shipping from Kentucky, Indiana, Minneapolis, Omaha, Kansas City or Des Moines, the point nearest you.** We illustrate below a few of our new 1903 rigs just to give you an idea of the values we are offering.



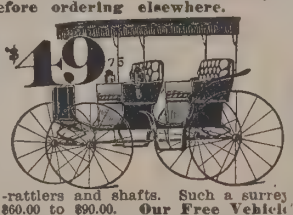
$25.90 buys this, our Boulevard Gem Stick Seat Runabout, exactly as illustrated, the latest style for 1903, complete with hand some cushion back carpet and shafts the equal of runabouts sold by others at about double the price. **Our Free Vehicle Catalogue contains an offer on this and other buggies that will surprise you.**



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$28.75 buys this, our Summer Beauty leather quarter top buggy, the latest 1903 model, complete with full length back and side curtains, cushion in seat and back, carpet, wrench anti-rattlers and shafts. **Our free Vehicle Catalogue shows a big variety of high grade buggies at correspondingly low prices,** and carries with it an offer which you **MUST SEE before ordering elsewhere.**



$49.75 buys this, our new 1903 model Family Favorite large size surrey or carriage, exactly as illustrated, complete with handsome canopy top, full length side and back curtains, lamps, large fenders, carpet, anti-rattlers and shafts. Such a surrey as others sell at $60.00 to $90.00. **Our Free Vehicle Catalogue shows this and many other handsome surreys at correspondingly low prices, and makes you an offer YOU CANNOT AFFORD TO MISS**



$31.75 buys this our new 1903 model, big Road King Combination Half Platform Spring Wagon, exactly as illustrated, complete with two seats, full spring cushions and back, and shafts. Others sell this same wagon at $40.00 to $50.00. **Our free Vehicle Catalogue shows this and many other wagons at correspondingly low prices.** If you write for it you will receive an offer no other house will make you **OUR VEHICLE CATALOGUE IS FREE FOR THE ASKING.** Just drop a postal card or write a letter and say "Please send me your free Vehicle Catalogue" and it will go to you by return mail postpaid. Our low prices big assortment, liberal terms of shipment and our guarantee proposition will astonish you. You will receive a book free that will surprise you. Address,

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Milk Wagons



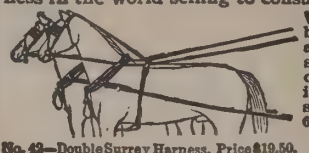
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awarded **Gold Medal** at Pan-American Exposition. **The only Feeder** adopted by experiment stations. It is the kind others try to imitate. Easiest to operate and clean.

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Extra gain on one calf pays for two feeders.

Best Feeder Made.
Michigan State Board of Health:—I tried every Calf Feeder I could find, but liked yours best.

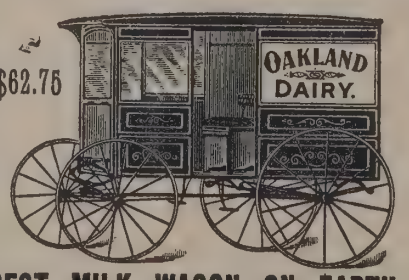
Worth $10.00.
George S. Bement, Victor, N. Y.:—I am very much pleased with the Feeder and would not be without it for $10. No trouble, no damning, no milk on your clothes, no trouble to teach the calves to take hold of it, no sucking the cows, and the best of all is that when they get about eight weeks old they don't stop for the nipple but just drink out of the pail.

The Principle is Correct.
Purdue University Agricultural Experiment Station of Indiana, LaFayette, Ind.:—We have been using the Feeder to some extent and it is in constant use at this time and we believe it to be very satisfactory in its work. The principle of **Your Feeder,** I believe to be the correct one. C. PLUMB, Director.

Advise Stock Raisers to use it.
Maryland Veterinary Hospital:—I am very much pleased with the Feeder and would advise stock raisers not to be without one.

Price $1.50 including two nipples, sent postpaid for $1.75. We guarantee satisfaction, but if you are in doubt about its value we will send one on approval for 50c to cover postage, remainder to be paid if satisfactory. **Be Sure** and send for our twenty-two reasons why you should use a feeder. It's free. Sold by one dealer in a town.

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SAVE DEALERS' PROFITS.
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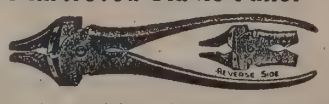
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Cronk's Improved Staple Puller



is at the front Ask your dealer to show it. Threewire cutters, two hammers, two splicing clamps—all in one tool. A staple puller that will pull staples when no other make will. A cutter that will reach wire when the button cutter will not. One day's use will save the cost of it. **$1.00,** postage paid.

CRONK & CARRIER MFG. CO, Elmira, N.Y.

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. Satisfaction guaranteed or pigs may be returned.

JOHN WHITE & SON, Adamstown, Md.

Lice on Cattle.

Please give me a remedy for lice on cattle. In last week's paper, Vol. 33, there is an inquiry from F. D., Ardoch, N. D. The answer is "See lice this issue," and treat the same way. I have looked the paper through very carefully, but fail to find anything. L. D. C.
Marion, Wis.

ANSWER.

The answer will be found on page 1087.

Book on Diseases of Cattle.

Have you a book or could you recommend one that treats on the ailments of dairy cattle.
Frederick City, Md. E. H. Jr.

ANSWER.

Veterinary Elements by Hopkins, can be obtained from this office for $1.50 post paid.

Scabs on Calves.

I have 20 heifers that late in November I found some of them losing hair around their eyes. Later I found on their necks scabby sores, rough and scaley. When scab or scales are removed the surface is raw. I am using creolin with fifty parts water on them. Can you advise anything better? J. H. W.
Caskey, Ky.

ANSWER.

These scabs are produced by parasites which live under the outer layers of the skin. Your creolin preparation will destroy them, but you must not expect to accomplish this with one application. Apply it once every two or three days until relieved and take one quart of the creolin to five gallons of water and apply with a stiff brush.

Silage for Horses.

I have been feeding ensilage two years to cattle only. I have a friend here that began feeding it this winter to horses and cattle. His ensilage was well eared corn. His cattle are all right, but all of his horses, six in number, died within a week, after they had been fed on ensilage about one month. He does not know what caused their death unless it was the silage. I examined his silage and found it to be unsound in spots, lumps every few feet as large as a man's hat, badly decayed. Do you think the silage killed the horses? Is good sound silage used very extensively as a horse food and is it perfectly safe for same?
Greensboro, Ga. W. F. B.

ANSWER.

Experience teaches us that horses will not thrive on silage even if it is well preserved, and if it is partly mouldy it is dangerous to feed at all. We are inclined to believe that the silage may have killed the horses.

Hollow Tail.

I send you a bit of cow tail which I saw cut off for hollow tail. What is the matter with a cow thus affected? SUBSCRIBER.
Corner, Ga.

ANSWER.

There is no such disease as hollow tail and the part you enclose is merely the most extreme portion of the tail, which comprises the skin and hair only, and none of the bone. This is a healthy tail, judging from its appearance, and should not have been cut off, as it is surely committing cruelty to the animal even if she be sick otherwise, as you are not bettering the case in the least.

Syringe for Abortion.

I am having trouble with my cows aborting. I am following the directions given in HOARD'S DAIRYMAN. Do you think a 16-ounce force syringe as good as a fountain syringe? R. J. B.
Elk Grove, Cal.

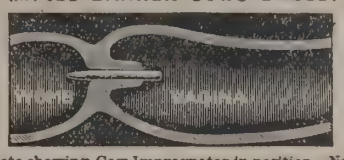
ANSWER.

You can make your own fountain syringe by taking a half-inch rubber hose about five or six feet long, then take hold of both ends, holding them up, and fill the entire hose full of the fluid. Then take your bucket full of the fluid and raise it two or three feet higher than the cow; place one end of the hose into the bottom of bucket and introduce the other into the vulva, but be sure that the suction has begun and the fluid is flowing freely. This will give a constant, steady flow and it is easier to apply. It is necessary to introduce your hand with the hose to make sure that you are gaining entrance to the uterus.

Horse Owners! Use
GOMBAULT'S
Caustic Balsam

A Safe, Speedy, and Positive Cure
The safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle, SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.* Every bottle sold is warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O.

HOOD FARM
Antiseptic
Breeding Powder
Makes Cows Breed After Abortion. Corrects Failure to Come in Season and Failure to Clean.
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Price, $1, sent by mail, $1.15. Size containing four times this quantity, $2.50. Sent prepaid for $2.75. Address
C. I. HOOD CO., Lowell, Mass.
Mention this paper.

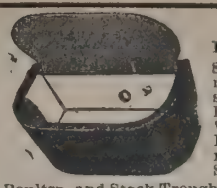
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Mailed on receipt of price. Sold only by
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Positively Prevents Blackleg. Treatise free.

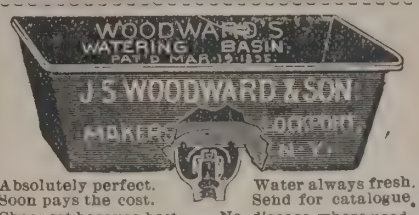
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Price ½ lb. 50c; 1½ lbs. $1.00, post paid. "As essential in the stable as hay in the barn."
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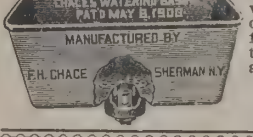
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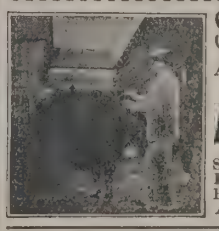
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Gasoline Engines in Cold Weather.

How to Start Them.

ED. HOARD'S DAIRYMAN:—Some time ago I saw you said something about those having experience with gasoline engines, to give the same. I got one about a year ago, twelve horse power, portable; it might do to give the weight 4,910 pounds, and the better I get its tricks learned the better I like it. For filling silo I can do nearly a man's work at the cutter or in the silo. All the engine wants after it is started is to occasionally look after the oiling; in sawing wood, it is the same; grinding feed or any work it will do; and the starting, that is the rub till you get the hang of it, or you may feel as I did sometimes, nearly disgusted. You go in the testing room on the testing floor, and they will show you how easy it is to start the engine, and tell you that is all—all right for the indoor warm room, but just take it out and hitch onto the corn husker or shredder, with the thermometer at zero, or not more than 10° or 20°, perhaps, above, with a North-wester blowing through your bones; that is the time you may think ——.

Mine is an old-style igniter; they claim the later ones start easier, but I will tell how I started mine a few times, when I could not start it very easy any other way. Just set your torch going, get your tube hot, which will take 10 or 15 minutes, then take a rope, lay one end cross or nearly so, of face of band wheel, then roll band wheel, about six or seven times, having set your balance wheels right, all the rest also, then hitch a horse or team to the loose end and start them off at a smart walk or trot; of course you want to set on your clutch, and the thing is pretty sure to go.

Take a small engine that a man can turn the wheels by hand he is all right. One man said "heat your tube and heat the gasoline before putting in the hand pump, and you can start any time;" but the best success I have when I start by hand is to take a little cup I have to pour gasoline in the starter pump, and hold that to the hole when the match goes in, then take hold of a spoke of balance wheel and pull the piston back and suck in perhaps a teaspoonful or less of gasoline, then pour the rest or what it needs in the starter pump, then turn the wheel to position, put in match and pump as usual, and strike your match, that generally gets it off after two or three trials. This is for cold weather; it does not bother that way in warm weather.

Now I think if any one wants to run a separator pump, and do some other light work, a two to five horse-power would be about right, and I don't think he would want it larger, but for silo or shredding and that kind of jobs, not less than ten or twelve horse power. If he wants to run a threshing outfit he wants fifteen to twenty horse-power. V. W. K.

Rockton, Ill.

Lice on Cattle.

ED. HOARD'S DAIRYMAN:—Immersion for cows in winter time to remove lice seems to me to come under the head of cruelty to animals, and my sympathy for them brings me to the front again.

Soon after asking you for a remedy, a neighbor gave me an excellent one and it is this:

An insect powder—name unknown to me, but yellow in color—which costs from 40 to 60 cents per lb. (according to your dealer), thoroughly rubbed into the hair of the cattle and the surrounding folds of the udder, followed by a rubbing in of sulphur, will cause death to every insect it comes in contact with; repeat if necessary. I was advised not to apply it until the stock had been watered.

In connection with the above, the stable ought to be made as clean as a good broom can make it; whitewash as thick as it can be used, applied to the ceiling, sides, floor, stanchions and worked into the cracks and crevices; even with this treatment it sometimes takes three years to eradicate them. SUBSCRIBER.

New York.

FOR SALE. A Good Dairy and Stock Farm of 120 acres, well watered, spring at door, a running brook through premises, well fenced, good house and out buildings, a small grove, barn nicely fixed for 22 cows, separator room attached. Am in dairying and have a nice herd of grade Jersey cows, a registered bull 2 years old. all located within one mile of town of 2500 inhabitants. A good cream trade with principal restaurant. Creamery in town. Would like to sell farm, dairy stock and all. A Bargain to the right man. IRA D. FOTMAN
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THE VALUE OF CHARCOAL.

Few People Know How Useful it is in Preserving Health and Beauty.

Nearly everybody knows that charcoal is the safest and most efficient disinfectant and purifier in nature, but few realize its value when taken into the human system for the same cleansing purpose.

Charcoal is a remedy that the more you take of it the better; it is not a drug at all, but simply absorbs the gases and impurities always present in the stomach and intestines and carries them out of the system.

Charcoal sweetens the breath after smoking, drinking or after eating onions and other odorous vegetables.

Charcoal effectually clears and improves the complexion, it whitens the teeth and further acts as a natural and eminently safe cathartic.

It absorbs the injurious gases which collect in the stomach and bowels; it disinfects the mouth and throat from the poison of catarrh.

All druggists sell charcoal in one form or another, but probably the best charcoal and the most for the money is in Stuart's Absorbent Lozenges; they are composed of the finest powdered willow charcoal, and other harmless antiseptics in tablet form, or rather in the form of large, pleasant tasting lozenges, the charcoal being mixed with honey.

The daily use of these lozenges will soon tell in a much improved condition of the general health, better complexion, sweeter breath and purer blood, and the beauty of it is, that no possible harm can result from their continued use, but on the contrary, great benefit.

A Buffalo physician in speaking of the benefits of charcoal, says: "I advise Stuart's Absorbent Lozenges to all patients suffering from gas in stomach and bowels, and to clear the complexion and purify the breath, mouth and throat; I also believe the liver is greatly benefitted by the daily use of them; they cost but twenty-five cents a box at drug stores, and although in some sense a patent preparation, yet I believe I get more and better charcoal in Stuart's Absorbent Lozenges than in any of the ordinary charcoal tablets."

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The only charge being $10 for entry. Send to the following for an Atlas and other literature, showing location of lands in Western Canada, and also for certificate giving you reduced freight and passenger rates, etc. The Superintendent of Immigration, Ottawa, Canada; or to the authorized agent of the Canadian government—

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W. D. HOARD, Editor of Hoard's Dairyman, says:

"I believe that northern Wisconsin is going to prove the most successful dairy region of the northwest, something like that of St. Lawrence and Lewis counties in New York.

"The peculiar salubrity of the air, the moderate heat of summer, the abundant and pure water, the good soil and luxuriant growth of grasses, all conspire to make it an ideal dairy region."

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If you want a home in the "Great Clover Belt" write for free illustrated folder to D. W. CASSEDAY, Land Agent "Soo" Line, Minneapolis, Minn.

Irrigated Lands In Wyoming

The Big Horn Basin Country

Suppose you could get a farm of your own in a country where the soil is very rich and easy to work, where the climate is perfect and free from malaria, and where the biggest kind of crops can be raised year after year whether it rains or not, would you be interested? We have a folder about the Big Horn Basin of Wyoming, which tells all about that wonderful country and the great opportunities there for making money. Send for a copy. No charge.

P. S. EUSTIS, Passenger Traffic Manager C. B. & Q. Ry. Co., 209 Adams St., Chicago.
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FOR SALE. A fine farm in Sargent Co., North Dakota, consisting of seven quarter sections with lease continuing three years on two other quarters. **Three Hundred acres in cultivation, six hundred enclosed in four pastures, remainder outlying prairie.** Improvements consist of comfortable **two story house** with eight rooms, **a fine barn** 101x112 feet with capacity for stabling sixteen head of horses and eighty-four head of cattle in stanchions besides **calf stable** for twenty head and stable for young stock, besides box stalls for hospital purposes. **Two fine silos** inside with ninety ton capacity each, besides room for two hundred and fifty tons of coarse fodder, also **root cellar** 24x24 feet. **A creamery** 22x40 feet, two story with up to date machinery, a **feed mill and elevator** 18x32 feet with bins above to hold more than four thousand bushels of grain. Mill is equipped with a **three roller mill** besides corn sheller and grain cleaner and elevators and spouts and hopper, bottomed bins for the convenient handling of grain. Mill is connected to creamery by a building 20x28 wherein is a **water wheel which drives the mill and creamery,** also a **boiler for steam** heating and hot water for use in creamery. This room is also used for carpenter and blacksmith shop. Within this room is also located an **artesian well** yielding five hundred gallons of clear soft water per minute under a pressure sufficient to drive the mill and creamery. It also provides **water on tap in the house** and in **all parts of the barn** and flows off across the pastures making several small lakes and furnishes water on four quarter sections and finally flows off into a natural water way that leads to the Red River of the north. **A water wheel at the barn furnishes power for cutting ensilage** and other purposes. There is also a granary 18x32 with basement now used for **ice house.** The house is enclosed in a **beautiful lawn** of about **eight acres** wherein is the family garden. Several hundred fine forest trees have also been planted here besides some fruit trees all of which are doing finely. This is **one of the finest and most complete** plants for general farm purposes and for stock growing and dairying to be found in the northwest. Practical up to date farmers wanting a fine plant should investigate. For particulars address **BYRON PARSONS, Evansville, Ind.**

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240 acres, 100 acres in cultivation, 50 acres in timber, rich black loam, fine house, new barn, other buildings. A Bargain. Price, $7500. easy terms

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Three-eights mile from electric car line. It has eight acres in asparagus, 4 acres in strawberries, and eight acres in orchard.

200 REGISTESED JERSEY COWS, CALVES AND GRADES.

Place has paid $4000.00 per year and a practical dairyman could make it $7000.00 per year. Will sell for about one-third cash down, balance on time. For full particulars address

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WRITE FOR OUR MAPS. We can give you a farm from $5.00 to $50.00.

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The Advantage of Spaying Cull Cows and How To Do It.

ED. HOARD'S DAIRYMAN:—In traveling round our dairy farms it may be often noticed that a great many cows are kept, which not only prove a loss to the farmer themselves, but also eat up the profits which their mates give. What to do with these animals is a problem that is always troubling the dairymen. When a cow comes in with only three teats, and another turns out to be a very poor milker, or to have some other bad fault, his first thought should be to immediately dispose of these to the best advantage.

It is a very evident fact that if they are of no use to him for milking purposes, they are certainly of no use to any other person, and it would be impossible for him to dispose of them for anything like the amount he paid for them; his only means to take him out the difficulty is to fatten them. But then again, the bulls have been running with the herd, and even if they are not already in calf, they soon will be, as it is almost impossible on most farms to keep a few cows separate from all the others and the bulls. By the time they are fat the calf is pretty well matured, and they are of little use to the butcher. In a great many cases the dairyman decides to sell these faulty animals as springers, puts them into the public sale yards and says nothing whatever about their faults.

Occasionally, even the most careful buyers, are taken in with these cows, and when they again come into milk with their old faults the same process goes on the following season. The result is there are always a great many cows which are next to useless as far as dairying is concerned amongst our herds, to get clear of which there are only two methods open to the owner. He cannot milk them to advantage, nor when they are in calf, can he get rid of them to the butcher. So he must either accept a price for them far below what he originally paid, or else he must take in some other individual with them.

Apart from the fact that the latter alternative is un-British and an undesirable method, the dairying community as a whole, is in no better position. These faulty cows are still a drag on some one and there is every likelihood of their continuing so under that system. Now the natural and proper end for a cow which does not milk up to the standard which her owner considers payable is to be killed for beef, unless, of course, she has some especially good blood in her veins and her owner wishes to rear calves from her. It is quite impossible to prepare her for the butcher if she is permitted to get in calf; and as the way our dairy farms are worked it is not convenient to keep a few cows away from the bull, the only way to get rid of these poor animals is by spaying them.

The risk from spaying is considered by experts to be very slight, and has been proved by them to entail a loss of not more than 3 per cent. Spayed cows fatten readily, and their beef is equal, in quality to that of any steer. I think the best time to spay a cow is about six weeks after she has calved, and if she has managed to get in calf again before she is spayed, it is almost a certainty, though not absolutely so, that the operation of spaying will cause her, to slip her calf. She will have recovered again in the course of a week or ten days after the operation, and with good feed will commence to fatten right away. When she is spayed, there is no more trouble with her than there is with a steer; and if her owner wishes to hold her even though she may be fat, he can do so without the fear of her getting in calf again. The universal adoption by dairymen, of a system of spaying all cows which they consider are not worth milking, would prove a boon, not only to the individuals, by rendering their useless cows marketable, but also to the dairying community as a whole.

It the so-called dairy cows which are not really fit for the dairy, are prevented from breeding, it is evident that the only heifers reared would be those bred from the cows which are really profitable milkers, and it is much more reasonable to suppose that heifers bred from good milkers will turn out good milkers themselves than those bred from culls. So that any dairyman, who, when he finds out a cow is a cull spays her, gives himself a chance to dispose of her, and at the same time, confers a benefit on the community by preventing her from going on producing culls,

It is no more a necessity to obtain the services of a qualified veterinary surgeon to spay a cow, than it is to castrate a steer. In most dairying districts, men can be found who can perform the operation in an expert manner. The cows to be operated on should be kept ten or twelve hours without food before the time the operation is to be performed. An ordinary milking bail is quite sufficient to hold dairy cows. A sapling or piece of quartering tied to the bail and extending along the off side of the cow, can be held by a man standing some feet behind her, and will keep her quite secure.

It is a mistake to tie a cow up tight with ropes, as soon as she finds she is fast she will try to lie down; perfect cleanliness should be observed during the proceedings. A bucket of water with some disinfectant should always be handy to keep the hands and the wound thoroughly cleansed. The incision is made in the triangular hollow, between the last rib and the hip, and should be about 4 inches long, and about parallel with the last rib. When the hide is cut through the muscles are nicked until the transverse muscle, which may be known from its name and the transverse way in which it runs, can be observed. Then the hand is bored through the rest, care being taken with the inside lining, known as the peritoneum, which is elastic, and may recede from the hand. It will be known when this has been bored through from the fact that the air rushes in and causes an unmistakable sound. The next thing is to find the ovaries, which may be done by pushing the hand back, as if between the two hips and close to the backbone; the end intestine will be found pendent, just under the back bone.

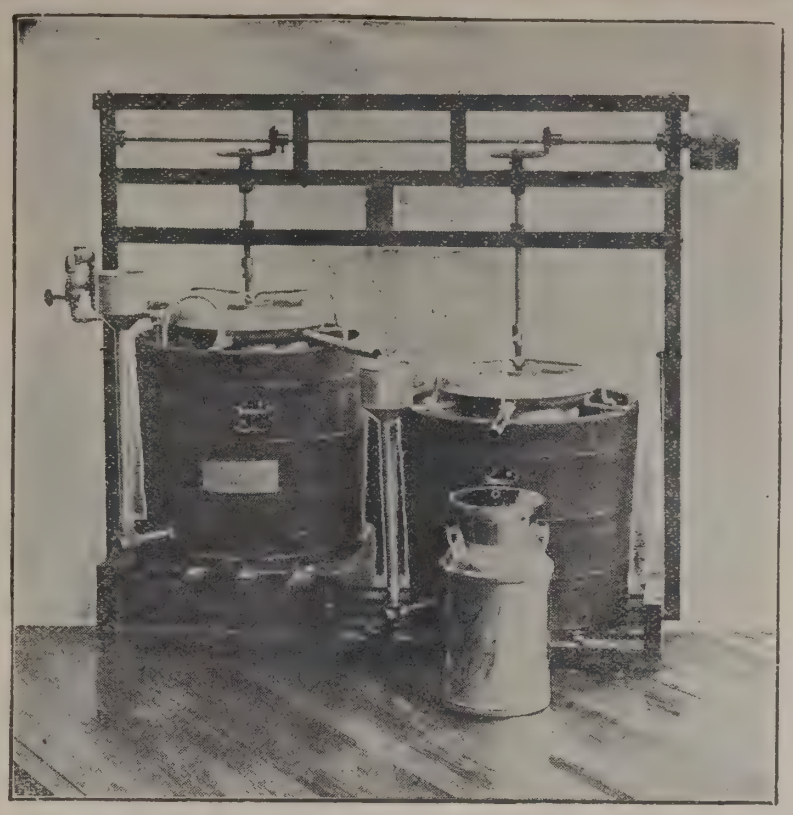
This may be followed along backwards until the hand is in a sort of pouch, known as the Douglas pouch; then the womb will be immediately under the hand. By bringing the hand forward the womb will be found to divide into two spiral-like structures called horns. These are supported by a tough membrane called the broad ligament, just at the end of which, and at the end of each horn will be found the ovary, a small hard substance, varying in size from the size of a pea to that of a pigeon's egg. When ovary is found the spaying knife may be inserted with the other hand, and by holding it in one hand, and cutting with the other, the ovary is cut short off. The same is then done with the other. Care should be taken in sewing up the incision to only take the hide. Plenty of Stockholm tar mixed with grease to prevent it from blistering may be used, and the stitches will fall out in due course of themselves. A very good plan for any man intending to try spaying is to give himself a few lessons by carefully examining the anatomy of a cow which has died or been killed.

COMPETITION OF DAIRY BREEDS OF COWS.

Before dairying became the important industry it now is, farmers paid but little attention to the class or breed of cows they maintained for dairying purposes One cow was considered quite as good as another, except in a few districts, where dairying has been carried on for some considerable time. The extent of the business on the majority of farms consisted in keeping a few cows for home use chiefly, and selling any extra butter that might accumulate at certain seasons of the year. It mattered not then whether the animals were good or indifferent or what breed they were, and they consequently received the least amount of care possible.

But things are very much altered now, and those who hope to succeed in dairying, must strive to adapt themselves to the new conditions, giving greater attention to the improvement of the breed and management of the cows they milk. A question most frequently asked by farmers is, "What is the best breed of cows?" In that form, and without knowing anything about the circumstances of the farmer, or the nature of his land, the question is not susceptible of a definite answer.

Of distinct breeds there are many, and the lesson taught by local requirements is, that there is room for them all. In the multiplication of improved races of cattle there are some that claim a place in the competition for favorable notice; that is, a breed like the Ayrshires, for example, having adapted itself to the special conditions of a district, it may then be found suitable to those of other districts so that it spreads until we begin to think there are no limitations to its extension. But this is not the case usually, for if climatic conditions do not



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NEW HAVEN, CONN.

limit its usefulness, then the conditions under which its food is obtained, very often does.

The competition in breeds is, moreover, restricted by the use for which they are variously qualified, and while many compete in certain particulars, there are comparatively few that compete in every characteristic properly.

Some breeds of cattle are specially adapted for giving large quantities of milk of no very remarkable quality, in fact it is poor; others produce a smaller quantity of very rich milk, which makes them valuable to the butter maker, while yet others are best for cheese making, or are remarkable for their capacity for producing beef. The breed does not prove to be everything; for if the land and the climate are not suitable the keeping of a particular breed for the attainment of a special object is sure to end in disappointment, even though it has an excellent reputation over a very large area of the country. AUSTRALIAN.

The Manure Question Again.

ED. HOARD'S DAIRYMAN:—I would like to say one word about the manure question that I see discussed in your paper lately. I haul out about 200 loads manure every winter and generally haul it every day and spread it on the land and sometimes on a side hill. If it runs away, some say there is a waste and some say there is not any waste. What you see running away is simply what the scientific men call tannin.

I think they are right, for I have drawn 40 loads out on a side hill and put it all in one big heap. It was there until after haying, and then when I drew it away there were 32 loads, a loss of 8 loads. And below the heap for about one rod the grass was very large the next summer and for two or three summers after, but three rods below this heap the grass was not any larger than on the upper side of this heap.

Now, if the liquid from this manure loses its strength in three rods below the heap, then there cannot be much waste in spreading broadcast every day during the winter when we have plenty of time.

What do you say to this argument? Let me hear from some of the readers of your paper in regard to the matter.

New York. T. F. KELLEY.

Pit Silos—Sorghum Silage.

ED. HOARD'S DAIRYMAN:—I wish to erect a silo this spring and as there is none in this part of the country, I wish to inquire of you whether or not a silo could be built in the ground the same as a cistern and be a sucess? We can cement on dirt without walling. Will silage keep as well under ground as above ground. Does sorghum make good silage if properly cut. E. W. B.

Fort Scott, Kan.

In localities where the ground is a tough, hard clay pit silos have been tried with success, but the soil must be such that it will not crumble. In such cases the walls of the silo are cemented directly on the dirt in such a way as to make a smooth surface that will not prevent the silage from settling.

The only objections to such a silo is the extra labor of hoisting one or two hundred tons of silage out of the pit and the very decided danger in some cases of the formation of carbonic acid gas which is liable to form in such silo pits and which can only be removed by ventilation. Sorghum makes excellent silage, excepting a slight liability to acidity and this may be corrected by mixing corn with it. The mixture makes an excellent feed.

Can a Farm Separator be Afforded.

An Illinois reader says he has seven good Durham cows and asks whether it would pay to have a farm separator.

A few years ago, when farm separators were more expensive than they are at the present time, it was agreed that a farmer with ten cows could better afford to own a farm separator than attempt to raise cream with any of the gravity methods. We think the presumption is that our friend can now afford a farm separator with his seven cows, particularly as it is more than probable that he will soon increase the number of cows.

$100 CASH PRIZE FOR ANY STUDENT OF AN AGRICULTURAL COLLEGE OR FARMER



We hereby offer $100 in cash for the best article to be written on breeding and raising Hogs. Describe ten sows that you would select for breeding. Describe boar that you would select for a cross with these sows. Describe how and what kind of grain, grains or mill stuffs you would feed sows until pigs were farrowed. Tell how many pigs you would expect from the ten sows and describe how and what you would feed sows after pigs were farrowed. State when you would commence feeding pigs and what you would use. State when you would wean pigs and what kind of feed you would give them from that time until they were six months old and what you would expect to make them weigh at the expiration of six months. State why you would expect such results from your care and kind of feed used. Describe kind of pens and yards you would use for each condition. Our aim is to have you write an article describing in a practical way just how you would raise hogs to obtain the best results. **The breed of hogs selected will Not be considered in the decision. The use of "INTERNATIONAL STOCK FOOD" will Not be considered in the decision.** The decision will be published in every leading Farm Paper in the United States and Canada. Mail your article to The American Swineherd, Chicago, Ill., on or before May 10th, 1903. **The judges will be J. W. Baynes,** editor and proprietor of **American Swineherd, Prof. Thomas Shaw** of **The Farmer,** St. Paul, Minn., and **Henry Wallace,** editor of **Wallace's Farmer,** Des Moines, Iowa. These gentlemen are well known throughout the entire country and the decision will be rendered in May, 1903. The winning article is to be our property and will be circulated throughout the world and will attract universal attention of all swine raisers. **Who will win the $100 Cash and the Honor** and at the same time write an article that will be of great practical value to every stockman? ☞**Try for it.** ☜**You may be the winner.** All articles must be mailed to **The American Swineherd, Chicago, Ill.,** on or before **May 10th, 1903.** Mark your envelope ☞"International Stock Food" Offer.☜

"INTERNATIONAL STOCK FOOD" ☞3 FEEDS FOR ONE CENT☜ is Prepared from Roots, Herbs, Seeds and Barks and Won the Highest Medal at Paris Exposition in 1900 as a High-Class vegetable, medicinal preparation to be fed to stock in small amounts as an addition to the regular feed. It is a Great Aid in Growing or Fattening stock because it increases the appetite and Aids Digestion and Assimilation so that each animal obtains more nutrition from the grain eaten. We positively guarantee that its use will make you extra money over the usual Plan of Growing and Fattening stock. "International Stock Food" can be fed in safety to Horses, Cattle, Sheep, Goats, Hogs, Colts, Calves, Lambs or Pigs. It is Absolutely Harmless even if taken into the Human System. You insist on eating medicinal ingredients with your Own food at every meal. Salt is a stomach tonic and worm medicine, Pepper is a powerful stimulating tonic, Mustard is a remedy for dyspepsia, Vinegar is a diuretic. You eat these medicinal ingredients almost with every mouthful of your food, and it is proven that these condiments promote health and strength for people and improve their digestion. "International Stock Food" contains pure vegetable medicinal ingredients that are just as safe and as necessary an addition to the regular feed of your stock if you desire to keep them in the best possible condition. "International Stock Food" is endorsed by Every High Class Farm Paper. It purifies the blood, stimulates and permanently strengthens the entire system so that disease is prevented or cured. "International Stock Food" is sold on a "Spot Cash Guarantee" by Fifty Thousand Dealers throughout the World. ☞Your Money will be Promptly Refunded in Any case of failure. It will make your Pigs or Hogs grow Amazingly and has the largest sale in the World for curing or preventing Hog Disease. ☞Beware of the many Cheap and Inferior Imitations! No Chemist can separate all the Different powdered Roots, Herbs, Barks and Seeds that we use. Any One claiming to do so Must be an Ignoramus or Falsifier.

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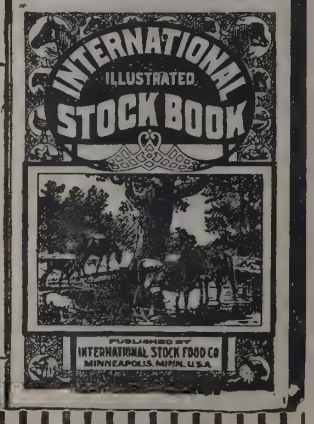
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It will pay you to use it on every stick of timber. Costs but a few cents a stick, and saves dollars in repairs, by preventing decay. It also kills germs and insects, and foul smells. We have studied wood preservation for twenty-five years, and believe Conservo is the best preservative that can be made. We *know* it is the best now made.

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GIVEN AWAY FREE

The great blood purifier, Zaegel's Swedish Essence of Life, is to be given away free to readers of this paper. This famous remedy comes as near being a bodily restorer as we are ever likely to find. When taken into the stomach it acts so pleasantly upon the digestion that a good healthy appetite results; and the liver, bowels, kidneys and bladder all come in for a share of the new strength and vigor. Rheumatism, backache and headache, biliousness and all nervous diseases are rapidly cured as well as diseases peculiar to women. There are times when a person would give almost anything to be rid of a frightful headache. Zaegel's Swedish Essence will relieve it right away. And the sour stomach, constipation, lack of energy, backache and the hundred or more little ills with which we are attacked so frequently will be quickly cured by this famous remedy. No one need trouble themselves to doubt whether this remedy will do all these things as you can have a free trial package first and see what it does for you.

Zaegel's Swedish Essence is so well known that probably quite a number of our readers are already using it but this makes no difference as a free trial package will be sent to everyone who writes. Do not neglect to get in your application at once. The best way is to sit down this minute, write a letter to M. R. Zaegel & Co., P. O. Box 989 Sheboygan, Wis., and say that you want a trial package of Swedish Essence of Life. This will be sent you by mail and is large enough to convince you of the merit of this celebrated household remedy. A 2-cent stamp should be enclosed in your letter to pay the postage on this free sample. Write for it to-day.



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25 sorts wonderful onions,
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Onion seed at but 60c. a pound.

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What Does Clarifying Remove From the Milk?

An Inquiry for Mr. Marion.

ED. HOARD'S DAIRYMAN:—It gives me very great pleasure indeed to read your paper as it arrives each week, but your correspondents occasionally make statements which are apt to be misleading. On page 1048, I notice a letter from Mr. F. L. Marion in which he says that "Clarifying not only changes the physical condition of milk, but removes a large part of one very valuable constituent, which is a sad loss in the sick room and in infant feeding."

Will Mr. Marion kindly inform me, first, as to his proofs that the physical condition of the milk undergoes a change, and second, as to the valuable constituent that is removed. If he will clear these two points I shall be glad to give the results of our work in clarifying and distributing to our city customers some 26,000 pounds of milk, daily, and this without any change in the milk, or the removal of any valuable constituent that we know of.

On page 1050 of the same issue, Prof. Dean is credited with the statement that, "Aerating of milk in Canada does more harm than good. The milk should be cooled as soon as possible, but not by that process." This may be true for cheese making, but all our experience in the city milk business goes to show that milk for city distribution should be aerated first and cooled afterwards. If this aerating is not given careful attention "smothered" milk will be the result. While I can quite understand that aeration among filthy surroundings is objectionable, yet, if the farmer is a capable milk producer the surroundings will be such that aeration should be beneficial rather than injurious.

I should like to hear the opinion of others on this latter subject, also to have Mr. Marion's experience in clarifying milk.

W. J. PALMER,
General Manager, City Dairy Co., Limited.
Toronto, Ont

Heavy or Light Cream.

A Buttermaker's Reasons for Preferring The One to the Other.

In his address on "Heavy or Light Cream" before the Michigan Buttermakers' Convention, Jay Pullen of Parma, gave these observations:

I find that there is quite a difference of opinion in regard to what per cent of cream gives the best results in making butter.

By visiting other creameries I find the boys are running a cream anywhere from 25 to 50 per cent and are all claiming to be getting good results.

I think from this, it would be hard to draw the line as to what per cent would give best results. From my experience I would recommend 35 to 40 per cent in winter, as at that time we are using a starter which will bring our per cent to about 30 or 32, which is about an ideal cream at this season of the year. If we try to churn a much heavier cream at this season we will have trouble by its sticking to the sides of the churn and not falling enough to come: while a very light cream would be a long time churning and we would find it would be hard work to get it together in large enough granules so as not to bother by running out with the buttermilk.

In summer I think about 40 to 45 per cent is about right as we are liable to get milk that is a little changed and by running a heavy cream we have less cream to cool, making onr ripening easier to control, and by churning a heavy cream it will churn quicker and you can churn at a much lower temperature, making your butter come in fine granules which will secure you good texture and body; while by running thin cream we will have more to handle, making cooling slower and if we are not very careful in handling a light cream in summer, the ripening process will get the start of us and the results are we will have overripened cream and a cream that will be full of curd, making it impossible to strain, and unless churned at a low temperature and washed three or four times our butter will be full of white caps, or more commonly called mottles.

A very large amount of the trouble from poor churning in private dairies comes from attempting to churn a thin cream. The same reasons which make it advisable to churn a heavy cream in a creamery, will apply to the private dairy, and the same favorable results will be obtained.

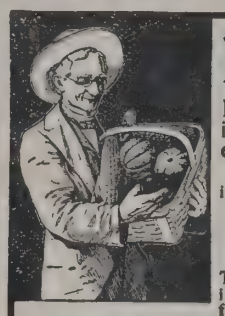
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for 1903 is free to all interested in gardening who mention this paper. If you want an up-to-date garden you ought to have it, the best seed catalogue I have ever published. The first edition alone costs over $37,000. Address

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SEED CORN

All the leading and best varieties of choice selected, thoroughly tested seed corn, which have yielded 75 to **215 bushels per acre. Costs Only 25c Per Acre for Seed.** Large descriptive catalogue of Corn and all kinds of Farm and Garden Seed mailed free if you mention this paper. IOWA SEED CO., DES MOINES, IOWA.



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To give this Catalogue the largest possible distribution, we make the following liberal offer:

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To every one who will state where this advertisement was seen, and who incloses **10 Cents** (in stamps), we will mail the Catalogue, and also send **free of charge,** our famous **50-Cent "Henderson" Collection** of seeds, containing one packet each of *Sweet Peas, Large Mixed Hybrids; Pansies, Giant Fancy Mixed; Asters, Giant Victoria Mixed; Big Boston Lettuce; Early Ruby Tomato and Cardinal Radish,* **in a coupon envelope,** which, when emptied and returned, will be **accepted as a 25-cent cash payment** on any order of goods selected from Catalogue to the amount of $1.00 and upward.

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If you want the choicest vegetables or most beautiful flowers you should read **BURPEE'S FARM ANNUAL FOR 1903,**—so well known as the "Leading American Seed Catalogue." It is mailed **FREE to all.** Better send your address TO-DAY. W. ATLEE BURPEE & CO., PHILADELPHIA.



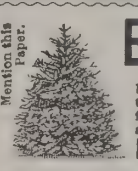
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Hardy sorts, Nursery grown, for windbreaks, ornament and hedges. Prepaid, $1 to $10 per 100—50 Great Bargains to select from. Write at once for free Catalogue and Bargain Sheet. **Local Agents wanted.**

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An 18 row golden dent, medium to large ears; large, deep, full grains and small red cob and short leafy stock. Excellent fodder. Being very early it will mature crop farther north than any other dent corn. A great drouth resister. In fact it matures so early drouth rarely catches it. We offer only best selected, carefully cured seed.

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The best book on strawberry growing ever written. It tells how to grow the biggest crops of big berries ever produced. The book is a treatise on **Plant Physiology** and explains how to make plants bear **Big Berries and Lots of Them.** The only thoroughbred scientifically grown **Strawberry Plants** to be had for spring planting. One of them is worth a dozen common scrub plants. They grow **BIG RED BERRIES.** The book is sent free to all readers of HOARD'S DAIRYMAN. Send your address to

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This Is to Tell Those Who Read It Why

Windmill Prices Must Go Up

Twenty years ago a 12-ft. wheel cost $160.00, and but few bought them. It was a prohibitive price which the invention of the steel wheel has made forever impossible.

When the Aermotor Company came into the field with the first 8-ft. steel wheel, which did the same work for $40.00, it "took the country." Later the price was reduced (without competition) to $25.00 and the downfall of the Aermotor Company and the ruin of the windmill business was freely predicted. But the result proved otherwise. The price at that time was enough. Iron and steel were low, labor was plentiful and cheap, and the man at the helm of the company foresaw that, for a few years at least, the cost of production would be less than it ever had been or would probably ever be again. It was his opportunity and he grasped it.

The Aermotor went everywhere. Where one went others followed rapidly, and the business soon reached immense proportions. By foreseeing the advance that came with prosperous times, and purchasing large quantities of material before prices advanced, the company has been able to continue the same abnormally low prices for three years in the face of a market that has doubled the cost of material and added a large percentage to the cost of labor. It did this in the hope that iron and steel would come down, but they have not and there is no prospect that they will. On the other hand, the cost of material and labor is constantly increasing. How far this may go no one can predict. To meet present conditions, a small advance in prices has become necessary. This advance does not nearly represent the increased cost of production, and it is quite probable that increasing cost of material may make further advances necessary.

THIS IS THE TIME TO BUY

If you expect to need a windmill this year, now is the time to buy. Prices may soon go higher. They certainly will not be lower. Money put into a windmill now will be well invested. Many dealers bought a stock of Aermotors before the recent small advance and will be able to sell now for lower prices than later. If you buy now you will be sure to have your windmill up and ready when you need it. Windmill men are not so busy now as they will be later. You may be disappointed if you put the matter off. You will not miss it if you buy now.

IT IS IMPORTANT THAT YOU BUY RIGHT

Buying a windmill is an important matter. You will have to live with it a good many years. It will either lessen your burdens or add to them. Water is needed every day of the year. The Aermotor was made to pump it for you. It has never failed to carry out the purpose of its creator. The first Aermotor distinguished itself by running when all other mills stood still. Each one of the succeeding hundreds of thousands of Aermotors has done the same. The reason for this is simple enough. The Aermotor was the result of design, not accident. It was made for a purpose, and that purpose was well understood in the beginning. Every requirement was carefully determined in advance. Every strain was accurately estimated. Every pound of material was arranged to the best advantage. Simplicity was added to strength. Each object to be accomplished was aimed at directly. There were no unnecessary parts, no wasted material, no stupid devices.

An Aermotor once properly erected, requires no adjusting or tinkering. This is the result, not only of perfect design, but of proper construction. The best material for each part has been carefully determined, and only the best is used. Much of the material in the Aermotors is specially made for that particular purpose. The very stiff sheet steel used in the sails is made only for the Aermotor Company. Even the Babbitt metal used in the bearings is specially made to meet the peculiar requirements for a windmill.

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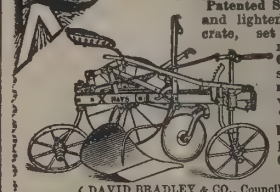
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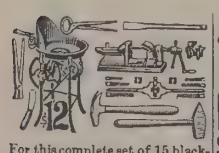
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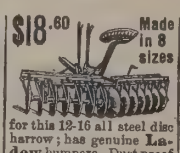


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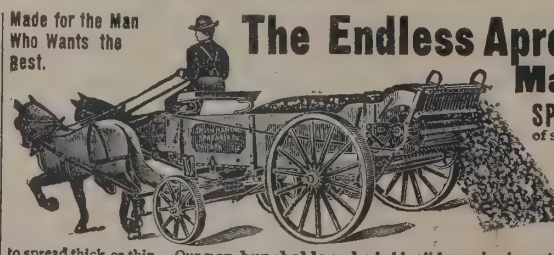
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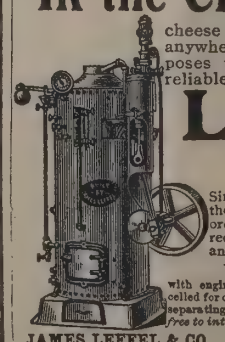
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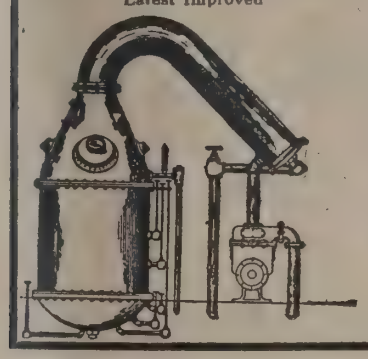
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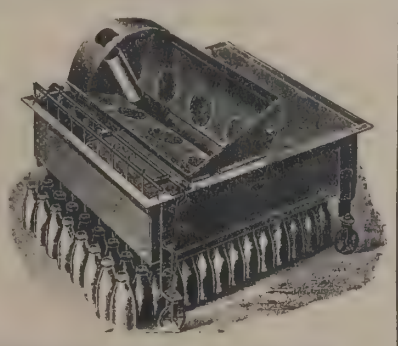
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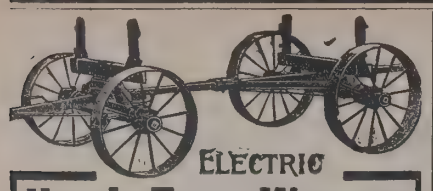
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A New York Guernsey Bull.

ED. HOARD'S DAIRYMAN:—I mail you, under separate cover, a photo of my Guernsey bull, Hedalion, No. 5409, bred by Hon. L. P. Morton. Dropped March 20, 1898. He was sired by Eriston No. 4509, out of Lady Archer 5th 6361, with a record of 9,223 lbs. milk and 500 lbs. butter in a year. His dam is Imp. Edalia No. 8921, out of Imp. Esmeralda No. 8057 with a record of 10,174 lbs. milk, 577 lbs. butter in a year. He is a very fine bull and a splendid sire. He has been exhibited 13 times and won 11 first and 2 second prizes.

JESSE THOMPSON.

Lisbon Center, N. Y.



GUERNSEY BULL, HEDALION, A. G. C. C., 5409.
Property of JESSE THOMPSON, Lisbon Centre, N. Y.

The Alfalfa Plant.

Twenty-five years ago, the millers of Minnesota and other states as well, threw their wheat bran into the nearest river to get rid of it and many thousand dollars worth of feed and fertility was wasted because no one considered it worth saving or feeding. We are now at the other extreme and every dairyman is hunting for protein feeds and paying high prices for bran and various waste products of the food factories. There are fashions in feeds as well as clothing, and for years bran has been exploited as a most necessary dairy food, a kind of staff of life for the dairy cow, and the result has been a demand that, as is usual in such cases, forced the price beyond its actual feeding value and with an accompaning lowering of its value by adulteration with various weed seeds, ground corn cobs and other things that are of little or no feeding value.

It is evident that the time has come to substitute something else for bran, for there is no indication of either lower prices or a falling off in the demand, and the farmer must turn to some other source for his protein. Among the many substitutes, there is one plant that seems to stand pre-eminent among its fellows, and that is alfalfa. It is one of the few plants that by history, tradition and practical results deserve to be classed with corn, wheat and cotton as being of great value to man, and yet its good qualities have been slow in being recognized.

For years the eastern farmer has known, in a general way, that on the Pacific coast states alfalfa has been recognized as a most valuable crop, but it has been considered that the western climate was necessary to the proper growth of the plant, and the attempts made to grow it in the Mississippi valley have been of a very half-hearted nature, and as is usual in such cases failure followed; but the time seems to have come when alfalfa will take a prominent place in the agriculture of the country, but before this can be done there must be a full understanding of the methods to be used in raising it, and the possibilities and probabilities of the plant.

HISTORY.

The alfalfa which is grown in this country is the *Medicago Sativa*, Lucerne, Purple Medeck, or more commonly, alfalfa. This last name is probably of Arabic origin and was brought to Mexico with the plant by the Spaniards and has followed the plant in all its migrations on this continent.

The name Lucerne is probably of French derivation and was the name given to it by those who brought it to the eastern coast of America some 150 years ago. Like many other cultivated plants, its native home is unknown. It is found growing in Persia and, in fact, in all parts of Western Asia it is found growing wild in much the same manner as sweet clover is found in this country. It is said to have been introduced into Greece as early as 500—450 B. C., during some of the early Persian wars.

The old Romans, among the other treasures that they gathered from all parts of the world, obtained alfalfa and recognized its value. One writer gives the method used as follows: "They chose out the best land; they dunged it and tilled it to the greatest perfection, and laid it out in beds, as for asparagus, and sowed the seed very thick, for the practical reason of enabling the plants by their thickness to better kill the weeds. The beds being harrowed very fine before sowing, which was at the end of April, the seed required to be speedily covered, lest the sun's heat should spoil it, but not with an iron tool, for the place must not be touched with iron."

Medica seed must be covered not with the plow, but with little wooden harrows. Some time after this, scratching was repeated with the same wooden instruments. They weeded it over and over, lest other grass should kill it while it was weak. The first crop they let stand until some of the seed scattered to fill the ground yet fuller of plants. After that it could be cut as young as they pleased, but they must be sure to water it often after every cutting. This was done largely by slaves, as was the weeding. The weeding was repeated after each cutting, and by these methods four to six crops were cut each year for ten years.

The most interesting part of history is that part that has never been written, and if some old Roman had given full details of how alfalfa came into the agricultural system of Rome, how it was used and where and when, it would make much more interesting reading than Gibbon's long account of Roman degradation and fall. An old English writer, Tull, writing in 1733, says: "The English gardeners make £40 off an acre of asparagus with half the labor the Romans bestowed on an acre of Medica, but as the Roman empire was then in its glory and Rome the metropolis of the world where all the richness of the earth was drawn together, the price of hay may have warranted this great outlay of labor.

Again, the Romans had not only servants but plenty of slaves, for whom they had scarcely sufficient employment, and this might lessen the expense of this tedious method of planting and ordering the Medica. But when the Romans were brought down to the level of other nations, and were in danger of being made slaves instead of having them, and the lands of Italy came to be cultivated by Italian hands only, they found something else more necessary to employ them in than the scratching, weeding and irrigation of the alfalfa, and then labor being bestowed in getting bread for themselves, they substituted other grasses of more easy culture for the food of their cattle, and they were so bigoted to all the superstitions of their ancestors that they were content to lose the use of that most beneficial plant rather than cultivate by a new, though more rational method, when they had become unable longer to continue it by the old. And so superstition chased lucerne from the Roman empire."

In 1653 Walter Blyth in his book "The English Improver Improved, or the Survey of Husbandry Surveyed" advised the English farmer to try to grow La lucerne, a French grass which is an excellent fodder and should be experimented with as every day will bring forth something or other worth our embracement."

Thus for 2500 years it has been known that alfalfa is a valuable forage crop; for 150 years it has been grown on this contient and yet the great mass of American farmers have just began to inquire as to its value and methods of growth, and it is more than doubtful whether it would not remain unknown and ignored if the wasteful methods of American farming had not dissipated the store of protein and caused an emphatic demand for new and cheaper supplies. Verily, with all our alleged rapidity, we are exceedingly slow in some things, and if alfalfa has not yet "arrived" as things seem to indicate, it is time that it should. F. G. S.

Notes from New York.

Environments of the Farmer.—Barnyard Manure.—Farm Labor.

ED. HOARD'S DAIRYMAN:—The main ambition of the farmer is to bring up and educate his children, and at the same time by a system of economy and frugality lay aside something to support himself at the time when decrepitude and age denies him the strength to longer actively engage in his chosen vocation. Many times false ideas of that economy swerve him from the right, and in the end leave him far behind his ideal goal. How many a poor man is hampered by large mortgages, a numerous family, and poor buildings. Buildings suited to the methods and systems of a generation or two ago, entirely inadequate to the modern system of agriculture.

In reading the report of the creamery investigations that are being carried on in New York and elsewhere, I can picture the many men who are working under disadvantages almost insurmountable, who are bright, intelligent fellows, yet victims of circumstances and environments that are beyond their control. My sympathy goes out to them. The sanitary building, the modern machinery, the model dairy cow, or even the silo might mean to them a deprivation far greater than any gain they might have made thereby. What are any of these as compared to the welfare, comfort of the members of their families. They cannot be considered in the same light. Neither can they be called ignorant, because they don't subscribe to the farm papers. Their ideal may lie in another direction, and who can say that it is not as noble, as lofty as any one's.

If a man could only know how long he was going to live, why then he could many times arrange things differently. Now we will suppose that a man and his wife have saved say a couple of thousand dollars towards purchasing a home, and they can buy one that is desirable for five thousand dollars, but the buildings are poor, no not exactly poor but "old-fashioned." Would any sane man advise expending that two thousand dollars in modern buildings, with the uncertainty of life hanging over the bread winner? You can call me ignorant, old-fashioned or anything you like, but I will pay that two thousand on that farm for the protection of my wife and family, regardless of looks or what the people will say.

While I believe in good cows, comfortable stables and surroundings that look respectable, I don't believe in "stepping over a dollar to pick up a cent." It don't make $10 hay worth $15 to be stored away in a gambrel roofed barn, and the old cow will chew her cud as contentedly in a weather-beaten boarded barn as she will in one painted and decorated in all the colors of the rainbow. Don't be discouraged if you should find yourself in surroundings that are not quite ideal. Make the best of them and as circumstances will allow, improve them. Progress does not mean radical, but gradual change. Radical change is not apt to be true progress. Contentment brings happiness to the cottage, or the mansion, while discontent breeds retrogression, criminals and insanity.

I am reminded of the little boy who heard his brother saying his evening prayer and when he said: "Give us this day our daily bread," piped out: "Johnnie, strike him for pie."

There is one thing that I want to caution you about, and that is this: These improvements won't come to you. No one will make you a present of them. If you get them you will have to roll up your sleeves and make the sweat start from the pores and keep it running. If you get pie you must expect to work for it.

I went hunting once with an old hunter and after we got to the woods, I commenced to find fault with the "slash" that filled them and thought there could not be any game there, and he said: "Never mind, there are many fine rabbits hid under these old brush piles," and it was sure enough. Your buildings may not be quite so modern, your ideas about farm methods a little more antiquated than your neighbors and still you may be the best citizen in many other ways.

I want to encourage you, not censure you, toward getting together a better dairy of cows. It is to your interest to do so. It can't possibly benefit me any. I know men and so do you, lots of them who have worked hard all their lives and have nothing to show for it. Don't seem to spend their money foolishly either. Those men have my pity and sympathy. Would it be right to really call them ignorant? Sickness in their families, generosity toward the church and a multitude of other things make the "best part of them under the ground." Nice, modern buildings, horses and showy harnesses and carriages are mere matters of taste, superfluities, luxuries, not really necessities.

A neighbor a few days ago went to a partition sale and really desired a farm that was being sold, but thought that the price was too high, considering the changes in the buildings he desired to make, mere matters of taste on his part.

We are apt to go to extremes in some things beside the weather.

Joe Wing, of the *Breeder's Gazette*, is with us at the Institutes. He built on his farm in Ohio a round, wooden-hooped silo last season after the plans given in HOARD'S DAIRYMAN, and is now loud in its praise. It was built as an experiment in feeding steers for the spring market, and in winter lamb fattening and sheep feeding. Ten acres of corn only were put in, but this small amount—for the season proved—as everywhere bad for corn—has already fed 60 steers and 700 eight-months-old lambs for 70 days, and is not yet quite all fed. The gain of the lambs is remarkable, and the steers are fattening as never before on the corn crop, and he tells me that, as compared with other winters, the same amount of corn is easily giving him double feeding value.

He is so sanguine over the success, and in the face of strong prejudice in the past, that he will erect two big silos next year and increase his feeding operations correspondingly, and in this he will be joined by several of his beef-feeding neighbors. Mr. Wing is satisfied that the wooden hoop—endless girth—is the hoop of all hoops for the silo, and says now he would not put iron rod, or band hoops, on a silo if they were given him and put on gratis. A pretty good pointer for intending silo builders in 1903.

Jackson, Minn. JOHN GOULD.

The Experience of an Illinois Dairyman with the Condensing Factory.

Recently, while riding on the cars to Chicago, we fell into conversation with an Illinois dairy farmer, who is a patron of a milk condensing factory. We found him to be a man of rare good sense, and his conversation was very interesting. As near as we can recall his words, they were as follows:

"I am a patron of a milk condensing factory and you know their rules about handling and feeding cows are very strict. At first, like all of the other farmers about me, I was a little inclined to rebel. I did not like the idea of their men inspecting my stables, the water supply, the kind of feed I fed and whether I kept my cows and stables clean. The truth was, we were all ignorant of what we ought to have known on these questions, and with most men, when they don't know, they don't want to know. I, like the rest, had made no special study of the sanitary side of milk production. We all thought that was mere book talk. None of us read a dairy paper or took any pains to know what we were about. I now see that we were all very ignorant of true dairy farming. I wonder sometimes how we got along as well as we did, but you see it was this way—there was really no demand that we should possess any better knowledge. But the condensing factory took that nonsense all out of us. They had no regard for our silly vanity or feelings. If we took their good money we must bring them milk that was made in the way they wanted it and so we swallowed our wounded pride when we were told that we must learn to do better, and went ahead. It was a grand school for us. Every man was brought face to face with the results of his own ignorance and stupidity, and made to see it, smell of it, and know it. For the first time in our lives, we were made to see that handling dairy cattle was really a work of brains. I think every dairy farmer ought to take a course for about six months under the rigid rules of a milk condensing factory. There is nothing like it to take ignorant conceit out of a man. I can see now how much it would have helped me if I had read and studied more on dairy questions."

There is a world of wisdom in what that Illinois dairyman said. There are thousands of farmers handling cows unprofitably, because they cannot bear to admit their own ignorance. We are all in the same boat to more or less extent. It hurts our vanity and conceit when we have lived among cows all our lives, to admit that we don't understand what we are about. But in a vast number of cases it is the straight truth nevertheless. There are poor, unsuccessful farmers in great abundance everywhere. Here and there is one who understands his business and he is very successful. What makes the difference? He understands his business better; that's all, and so he does better. Now, anything that helps us to understand our business; to look into it farther and deeper; to correct our blind conceit, that we know it all; that teaches us a knowledge of principles and how to apply them; that is the right school to go to. We can all remember certain boys when we were at school that the teacher could not teach. They had so much conceit and silly vanity that they could not see their own ignorance and need of a better knowledge. Some of those boys have gray hairs today, and keep cows, but like the Bourbons of France, they have "learned nothing and forgotten nothing."

It would give the cause of dairying a tremendous boost, if every creamery and cheese factory in the land was organized and run on the same principles that the condensing factory is run. A number of years ago we were called to a neighboring cheese factory to aid if possible in ferretting out what it was that was injuring the sale of the cheese over two cents a pound. We inspected every patron's milk as it came in, in the morning, and finally set one batch of nearly 1,000 pounds aside. The maker made up the balance of the milk and had a fine curd. This was done for two mornings and the result was the same. We then went to the patron whose milk had been set aside, and told him something was wrong on his place. At first he was inclined to resent the accusation, but finally consented to hunt it out with us. We found that his sole water supply for his cows was a foul sink hole in the pasture filled with the droppings of the cows. His milk was fairly reeking with this ferment. We persuaded him to dig a well, put in a wind mill, and after that there was no trouble. But this man was costing himself and every other patron a loss of over 2 cents a pound every day on 2,400 lbs. of cheese. Neither he nor his brother patrons thought it was worth their while to know anything about the "sanitary side of milk production."

Value per Pound of Butter Fat and Butter.

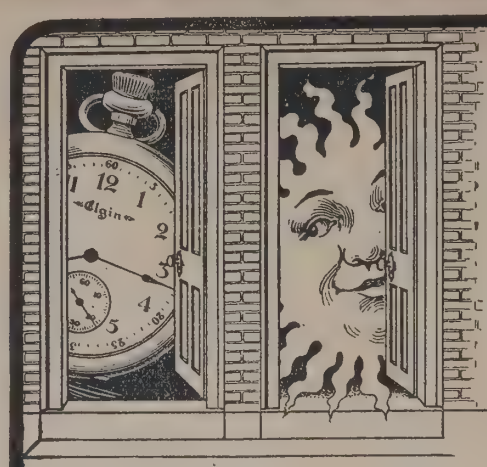
My creamery returns for part of November, read as follows: average price butter per lb., 21.80 cents; number pounds milk, 1,391; test, 4.5; number pounds butter fat, 62.595; net price of butter fat, per pound, 23.66 cents; net cash, $14.80.

Can you tell how, with total expenses 2½ cents per pound for manufacture, butter fat figures out to be worth 1.86 cents more per pound than selling price of butter? H. H. B.

Hatley, Wis.

The best course to pursue in all cases of this kind is to apply to the creamery management for an explanation. As butter sold for 24½ cents the first week in November and went higher in succeeding weeks, we are of the opinion that the price given in the creamery statement is the net price, after deducting cost of manufacture. Otherwise there was probably some mistake.

A pound of butter fat will make about 1.12 pounds of butter, therefore the butter fat has a higher value than the butter. In the present case, if the butter fat is worth 23.66 cents, and there is an overrun of ⅛, then the theroretical value of the butter would be 21.4 cents per pound, but of course the actual market value might be slightly different as in the above case. The question of cost of manufacture does not enter into the above statement.



Next Door to the Sun

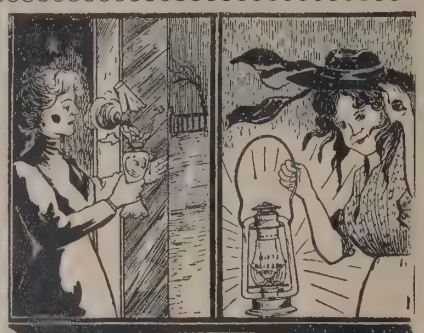
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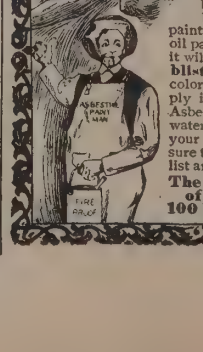
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"Practical Farmer", in the Wisconsin *Farmer* defines a balanced ration to be "a ration that can be fed with profit" and he says if it cannot be fed with profit "being balanced does not help it any."

That is a very unbalanced definition, and besides it is not practical, and coming from "Practical Farmer" does not help it any. In the first place he should have said "fed with the *best* profit." One may get a little profit even out of an unbalanced ration, providing the cows and the conditions are right. But to waste a good part of the profit, either because the ration is not well balanced, or because the cows are unfit for the work, or because the conditions (environment) are not such as good dairy sense would dictate, is to convict the man guilty of any, or all of these things, of not knowing the true principles of his business. And such a man is never a practical man.

Resolutions Adopted at the Annual Convention of the Wisconsin Dairymen's Association at Fond du Lac, February 11-13, 1903.

Resolved, That the Wisconsin Dairymen's Association, which for thirty-two years has been the recognized representative of the dairymen and dairy interests of the state, and as such, for many years has received annual appropriations from the Legislature (for two years past, four thousand dollars annually) to enable it to carry on its work of instruction and inspection, demands, as of right, that all imitations of and substitutes for dairy products shall be put upon the market under appropriate names, free from incorrect or misleading appellations or markings, and in such manner and form that purchasers and consumers may readily distinguish and recognize them as imitations or substitutes; and they especially protest at this time, that renovated, clarified and rechurned butter cannot with any propriety be denominated process butter, as though it was freshly made by some new and improved process, and should not be permitted to assume that or any other name or designation that does not clearly and unmistakably indicate its origin and character, and differentiate it from the regular product of creameries and dairies.

Resolved, That this Association unreservedly approves the legislation of Congress, and the regulations prescribed by the Secretary of Agriculture, relating to the manufacture and sale of renovated butter, as being just and right, conducive to commercial integrity, and in restraint of deceit and false pretenses. Every attempt to secure a modification of this legislation and the regulations for its enforcement, by the manufacturers of and dealers in renovated butter, is tantamount to an admission of a desire to deceive and thereby defraud the public.

Resolved, That this Association most heartily approves of the Bill now pending in the Legislature to promote the efficiency of the Dairy and Food Commission: that we endorse the stand taken by our honored president, the Dairy and Food Commissioner, to enforce to the letter the laws of the state relating to the sale of oleomargarine, and we request all judges, magistrates and prosecuting officers to give him their aid in this effort, and we cite the Association's record of more than thirty years' service in behalf of the dairy interests of Wisconsin, everywhere recognized as having been faithful, unselfish and efficient, as entitling its opinions and requests to favorable consideration by legislators and officials of every degree.

Resolved, That the thanks of this Association are due the railroads for granting to attendants at this convention reduced rates on the several lines.

Resolved, That in selecting Fond du Lac as the place for holding the 31st annual meeting of this association, the committee having the matter in charge made no mistake. The hearty, helpful interest taken in the convention by the Fond du Lac Advancement Association, the prompt attendance and close interest shown by the large body of farmers at each session from the first, shows that all classes of citizens here about are in sympathy and interested in the great work of this Association.

Resolved, That our thanks are due the officers for their unselfish devotion to the society and especially to our little band of traveling instructors who are doing better and better work as time brings experience and familiarity with its duties.

Resolved, By this convention of the State Dairymen's Association, That we approve of and request that the Appropriation asked for by the Agricultural College management this year, from the Legislature, be granted in full as being to the best interest of the whole people of the State of Wisconsin. And being it further

Resolved, That the secretary of this Association be and is hereby instructed to forward a copy of this resolution to the President of the Senate and to the Speaker of the Assembly of the State of Wisconsin,

A British Columbia Ration.

ED. HOARD'S DAIRYMAN:—Will you be good enough to give me a balanced ration from the following: My cows are grade Jerseys weighing about 1000 pounds. They are all fresh or will be by the time I get your answer. Bran, $24 00; shorts, $26.00; oats ground, $25.00; a mixture of ⅔ oats and ⅓ barley (ground) $25.00; and cocoanut meal, $32.00 per ton; oil cake cannot be gotten here and linseed meal is $6.00 a pound so I suppose that is out of the question. I want a ration from which I can get the greatest good for the money expended. I have lots of good hay of about equal parts red-top, clover, and timothy. Have also a few turnips but not enough to feed in large quantities. Can also buy good potatoes at $5.00 per ton, if it would pay me. The dealer told me when I asked him for an analysis, that it was pure cocoanut; some of the ranchers here think it is a good feed. Do you know anything about it?

One of my that cows came in last June, had a stoppage in the teat close up to the udder. There seemed to be nothing wrong with the udder, and by squeezing it, could force the milk through into the teat, but very slowly. She is a heavy milker and it would take about fifteen minutes to milk the one teat. Do you think it was carelessness in drying her off that caused it? If so let me know how you go about drying your cows up. I note in your issue of Jan. 2, page 991, you advise J. K. T. to use a bistoury and gave directions. Will this apply in my case? If so, where can I get an instrument, and what are they worth? E. H. B.

Chilliwock, B. C.

Cocoanut meal is not used in this part of the country, but, as stated by our correspondent, it is very much in favor among the dairymen on the Pacific coast. We therefore suggest that our correspondent try the following formula:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. hay	17 06	.96	7.92	.32
2 lbs. cocoanut meal.	1.79	.31	.77	.21
4 lbs. oats	3.56	.37	1.89	.17
2 lbs. barley	1.78	.17	1.31	.03
Totals	24.19	1.81	11.89	.73

We are well aware that the digestible protein in a ration of this character is much below what was deemed necessary only a few years ago, but repeated experiments seem to show that the amount stated is sufficient, at least to secure a good flow of milk. Just what the effect will be on the progeny and the future usefulness of the cows themselves has not yet been determined.

If the stoppage is caused by a film between the lower milk cistern in the udder and the milk channel in the teat, as is sometimes the case, a large knitting needle, thoroughly sterilized and well greased, may be used for puncturing it. This is not as good an instrument for the purpose as the bistoury, but frequently answers the purpose. Of course a layman in a case of this kind should proceed very cautiously. We do not think the trouble was occasioned by any carelessness in drying up the cow, and we do not feel called upon to hazard any guesses as to what may have been the cause.

"ADVERTISEMENT."

BUILDING BONES.

Of Great Importance that Children Have Proper Food.

A child will grow up with weak and small bones or strong and sturdy frame, depending on the kind of food given.

That's why feeding the youngsters is of such great importance. The children do not select the food—the responsibility rests with the parent or guardian, or with you if you select the food for a boy or girl.

The scientific selection of this food should begin as early as possible. That's when the delicate little plant needs the tenderest care. A well known lady of Chlistoga, Calif., says: "About two years ago my little niece was taken sick. When medical aid was called one physician pronounced the case curvature of the spine; another called it softening of the bones and gave but little hope of her recovery. For weeks she had been failing before her parents thought it anything but trouble from her teething.

"She had been fed on mushes and soft foods of different kinds, but at last her stomach could retain scarcely anything. At this time she had become a weak little skeleton of humanity that could not much more than stand alone.

"The doctors changed her food several times until finally she was put on Grape-Nuts which she relished from the first and ate at almost every meal and her recovery has been wonderful. She has been gaining ever since in strength and weight.

"She has eaten dozens of packages of Grape-Nuts in the last year and a half and the child is now a rosy-cheeked and healthy little girl, still clinging to her Grape-Nuts.

"It is plain the food has saved her life by giving her body the needed material to keep it well and the bone material to build with. Name given by Postum Co., Battle Creek, Mich.

Empire Empire

Eight Years



The Empire Way Makes Cows Pay.

Fifteen Cows

1895 1896 1897 1898 1899 1900 1901 1902



How's This for a Record?

Emporia, Kans., Jan. 2nd, 1903.

Empire Cream Separator Co., Bloomfield, N. J.

Dear Sirs: Have used one of your **Empire** Cream Separators for the past eight years, during which time I have been milking at all times from twelve to fifteen cows. The cost for repairs in the eight years has been only seventy-five cents. I have had experience with other separators but consider the **Empire** superior to any other, as it never caused me any bother. It is easy to clean and has proven very durable. It does good work at all times. L. H. VAHSHOLTZ, Rural Route No. 4.

The Empire Cream Separator turns more easily, is more easily cleaned, does better work, and costs less for repairs than any other, because it is the **simplest separator made.** Don't buy a separator until you have investigated the merits of the Empire.

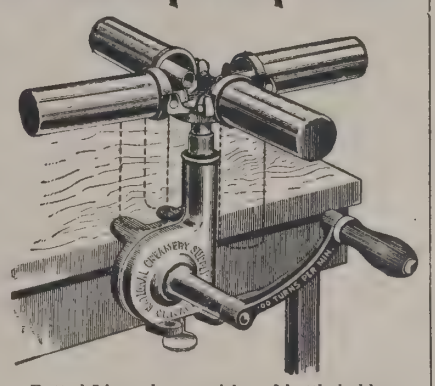
Send for our new book on Making Milch Cows Pay.

Empire Cream Separator Co., Bloomfield, N. J.

Western Office—FISHER BUILDING, CHICAGO.

Eight Years 75 cents for Repairs Fifteen Cows

NATIONAL
Babcock Milk Tester



Dotted Lines show position of bottle holders when not in motion.

Has enclosed cut gears.
Swinging bottle-holders.
Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

DOES YOUR DAIRY PAY?

It costs no more to feed a profitable than an unprofitable cow.

NET PRICES:

No. 1,—2 bottle, complete for testing milk.... each $4 00
No. 2,—4 bottle, complete for testing milk.... each 5 00
No. 3,—2 bottle, complete for testing cream and milk, each..... 4 50
No. 4,—4 bottle, complete for testing cream and milk, each..... 5 50

Prices include full directions for making test, bottle of acid, test bottle brush, acid measure, pipette and test bottles.

We are the great Dairy Supply House of the West. We carry an immense stock of all kinds of Butter and Cheese Making Apparatus and Supplies. Write for catalogues and circulars.

National Creamery Supply Co.,
450-458 Illinois St.,
CHICAGO, U. S. A.

Cream Separators
THE
Improved International



The best in the world, has no superior if you want a larger butter yield. It runs easily, skims clean, and is easy to wash. It is perfect in mechanical construction and magnificent in appearance. No outside gears to catch your hands and clothes. Only three parts in the bowl. Look at the low supply can. All parts absolutely interchangeable. Write for Catalogues and Prices.

Chicago Office,
GEO. A. ELDER, Gen. Agent,
Tacoma Blk, La Salle & Madison Sts.,
CHICAGO, ILL.

THE INTERNATIONAL CREAM SEPARATOR CO.,
LANCASTER, PA., U. S. A.

No farmer or dairyman can afford to be without one.



PRICE $30 UP.

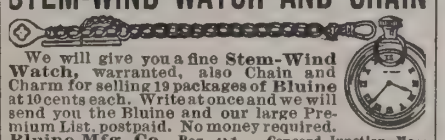
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TEN DAYS FREE TRIAL
THE ECLIPSE
Cream Separator

We want to send you an *Eclipse Cream Separator* to try. It is built double strength all through and will last and work perfectly for a life-time. It acts twice on the milk and **skims it absolutely clean.** Its interior device is simple, easy to wash and to operate. Its double process removes filth from the milk as well as separating the cream, and leaves both pure and sweet and fresh. It never gets out of order. It is guaranteed. It's a money maker and a money saver. It operates by hand, foot or motor power.

C. L. CHAPMAN CREAM SEPARATOR WORKS, ERIE, PA.

STEM-WIND WATCH AND CHAIN



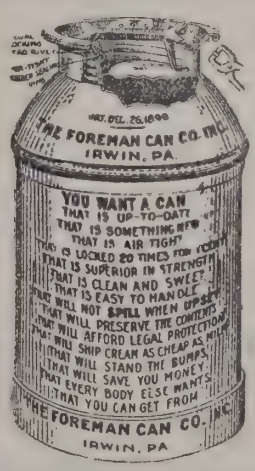
We will give you a fine **Stem-Wind Watch,** warranted, also Chain and Charm for selling 19 packages of Bluine at 10 cents each. Write at once and we will send you the Bluine and our large Premium List, postpaid. No money required.
Bluine Mfg. Co., Box 91, Concord Junction, Mass

A Handsome Book
About Mandolins, Banjos and Guitars, Free.

Any one interested in the subject of mandolins banjos and guitars can obtain a beautiful book about them free by writing to Lyon & Healy, Chicago. It contains portraits of over 100 leading artists, together with frank expressions of their opinion of the new model Washburn Instruments. Descriptions and prices of all grades of Washburns are given, together with "Facts about the Mandolin" and "How to Play the Mandolin."

LYON & HEALY,
100 Adams St., Chicago, Ill.

Washburns are sold by leading music dealers everywhere.



We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity—1000 cans daily, which should enable us to fill all orders promptly.

Every can sold on a guarantee. Write for Circular H.

STEEL ROOFING
FREIGHT CHARGES PAID BY US



Strictly new, perfect, Semi-Hardened Steel Sheets, 2 feet wide, 6 feet long. The best Roofing, Siding or Ceiling you can use. No experience necessary to lay it. An ordinary hammer or hatchet the only tools you need. We furnish nails free and paint roofing two sides. Comes either flat, corrugated or "V" crimped. Delivered free of all charges to all points in the U. S., east of the Mississippi River and North of the Ohio River

AT $2.25 PER SQUARE

Prices to other points on application. A square means 100 square feet. Write for free Catalogue No. 20.

CHICAGO HOUSE WRECKING CO., W. 35th and Iron Sts., Chicago

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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of them read dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

We are receiving of late a good many requests for a bundle of copies of HOARD'S DAIRYMAN for distribution. We are very glad to forward copies for distribution, for we need the help of every reader to increase the circulation of the DAIRYMAN. Get up a club of subscribers among your neighbors. If there is going to be a meeting of the creamery or cheese factory patrons, write us for a bundle of sample copies for distribution. If you are going to a farmers' institute, have some copies with you. These meetings afford excellent opportunity to work up a good club. Write us at least a week ahead of the meeting saying how many copies you want and we will promptly forward. Give us your help.

KANSAS AGRICULTURAL REPORTS.

At regular intervals there comes from Kansas reports and monographs bearing witness to the industry and agricultural judgment of the state secretary of agriculture, F. D. Coburn. It is not saying too much when we state that these reports are of great and permanent value; that they stand at the head of all reports of like nature, and that the state of Kansas is to be congratulated on her secretary of agriculture and his reports.

Out of the great mass of agricultural literature published each year in the United States there is much good and perhaps a larger amount that is useless, and from this mass Secretary Coburn has carefully selected such matter as is, in his opinion, applicable to Kansas conditions and valuable to Kansas farmers.

The result is as might be expected, and we see no indications that Secretary Coburn is failing to keep up to his previous high mark.

The present report is devoted mostly to the beef breeds and wheat growing, with lesser discussions on hogs, alfalfa and corn. The only blot on the escutcheon is the want of a general index, which we hope to see supplied in future volumes.

A STRONG DAIRY CONVENTION FEATURE.

There was no topic in the entire programme of the late Wisconsin Dairy Convention at Fond du Lac which produced the intense interest that did the address of C. P. Goodrich on the "Cow Census," which was taken under the direction of the Association and which was published in the DAIRYMAN of February 13th.

Here was a close, careful analysis of the cold, frozen facts concerning the intelligence, the methods and the management of 48 creamery patrons and 12 cheese factory patrons living within a short distance of the town where the convention was held. Consequently it gave a strong local interest to the work of the convention and brought out and maintained for three days a large attendance of the dairy farmers living in that portion of the state. That is just what is needed at all dairy conventions and farm institutes. The same course was pursued by the Association at its convention in Menomonie last year, and we can safely assert that no work that the Association has ever done has proved as strong in its lasting effects and in inducing a good attendance as this "Cow Census" feature.

The DAIRYMAN would suggest to the officers of Dairy Associations in other states that they make provision for the taking of similar censuses in the neighborhood of their conventions for the coming year. They will hear farmers say as we did repeatedly, at both Menomonie and Fond du Lac: "Well, there is something you can learn from. I would not have missed that for anything." The prime object of these dairy conventions and farm institutes is to get hold of the attention and reach the conviction of the farmer. It is often quite difficult to get them to attend. Somehow they do not feel interested, nor do they clearly see how such a meeting is going to be of any help to them.

But let it once be known for a few weeks previous, that a "cow census" has been taken and that a sharp, clear and truthful account for the year, of, say, 50 herds and farms, will be laid before the meeting and the room will scarcely hold the attendance.

The census is hardly practicable except where a cheese factory or creamery is in the case, so that the cash receipts of each person for the year can be authoritatively stated. In this there is no guess work. Taking the farms by number, omitting the names, leaves out all chance for personal sensitiveness and feeling, which is a good thing.

A PROPHECY FOR THOSE WHO ABANDON DAIRYING.

In sending us his most excellent address delivered before the Nebraska Dairymen's Convention on "The Special Dairy Cow in Nebraska," the author, Mr. J. F. Schlappi, has the following note of warning to utter to those young farmers who forsake dairying because they want an "easier job." It is always safe to say, "look out," to any man in the prime of life, when he gets lazy and begins to shirk labor and care. As a rule, he has started on the easy, down-hill road. Mr. Schlappi says:

"I cannot overlook Brother Wallace of Wallace's *Farmer* when he said in one of his recent articles regarding the decline of dairying in Iowa, that the fathers had paid for the farms by dairying, but that the young men, their sons, were well enough fixed and did not need to follow the confining occupation of dairying. It is my opinion that these same young men will find themselves the slaves of extravagant habits, and, if not sold out by the sheriff, they will find themselves the possessors of exhausted farms."

There are hundreds of thousands of examples in the eastern states to confirm the wisdom of Mr. Schlappi's warning. No one, not even an angel from Heaven, could convince those young, eastern farmers 40 years ago that they were pursuing a suicidal course. They turned their backs on the teachings of science and said in effect "the wisdom of ignorance is greater, yea, far greater than the wisdom of those who can render reason." Why should not history repeat itself in Iowa and Nebraska?

A BRIGHT FUTURE FOR THE BRIGHT FARM BOY.

A great many rich men in the United States are very fond of the soil. They love to have fine farms, handsome buildings, the finest of horses, cattle, sheep and swine. It gratifies both their taste and their pride to ride over their landed estate and feel that they are engaged in the most aristocratic of all callings, that of land owner and farmer.

There is a deep laid instinct for ownership in the soil, that exists alike in the hearts of the poor and the rich. But of all property ownership the farm is the most hazardous unless it is supervised by intelligence and practical judgment. Most of the wealthy owners of farms have but little, and in many cases none, of this judgment. They must depend upon hired superintendents. It is a difficult thing for any man, no matter how honest, to serve another whom he knows has no knowledge of when he is well or ill served. Human nature is weak at the best, and it is an old and true maxim that but "few men do any better than they are obliged to."

A great Polish nobleman who had large estates said:

"There are two kinds of stewards: he who thinks only of himself, and he who thinks of himself and us; happy the land owner who lays his hands on the latter. As for the steward who thinks only of us, he is not to be met with."

It is very evident then that every wealthy owner of a farm owes it to his own interest that he make a serious study of the problems of the farm. He must know thoroughly and well not only his side of the question, as an employer of labor and skill, but he must know the hired man's side of it as well. There is rapidly springing up a new department of labor, that of superintendent of farms. All thoroughly well equipped Agricultural Colleges are turning their attention to the supplying of this demand. At the present there are a hundred wanted where one can be found. The whole country is waking up to a knowledge of the value of real scientific, brain farming. The man that is wanted for the management of these great farms must be thoroughly schooled and trained in the knowledge of what science can do for the farm. He must also be active, and absolutely honest, more so even, than a bank clerk. More than this he must have a broad and well balanced judgment of soil, crop, and farm animals. But still more he must be a good judge of human nature, a tactful manager of men. In most cases such men are farming for themselves, but here is a field for the ambitious farm boy who wants to make the largest possible kind of a man of himself. There is no danger of overdoing the thing. The supply will for years fall far short of the demand. Besides what the school and books can give the young man who is seeking this field of labor, he should spend two to four years in the employ of first-class farmers who employ the best of modern farm methods, and thus learn the art of first class farm management.

PLEASE READ AND CONSIDER.

We present this week the final table and letter, on page 60, of the "Cow Census," taken by Mr. Jenkins concerning 45 patrons of the Onondaga Co., N. Y., Milk Association. The last two columns of the table tell a mighty important story, the story of profit or loss on every dollar invested in feed, and whether the farmer lets any light or not into his mind. Read the conclusion that Mr. Jenkins sums up on page 61.

What a powerful comment it is on the doctrine HOARD'S DAIRYMAN has been preaching all these years. Thirty-one of these men read agricultural papers; fourteen do not read. The average increase in profits of those who read over those who do not read is 15 cents on every dollar invested in feed, or $6.40 per cow, and on a dairy of 20 cows, $128 more than the man who does not read.

What a comment that is on the constant talk of those men who say: "I can't afford to spend one dollar a year for instructive reading." The cold facts tell a different story.

Temperature of Drinking Water for Cows.

ED. HOARD'S DAIRYMAN:—Having noticed in your paper on page 1075, where a brother farmer asked the temperature we would advise for cows drinking water, and as I have heated water for cows to drink for the last 20 years, and have endeavored to ascertain what I thought was the best, I will say a few words in regard to my experience. After trying many different degrees I find about 80 degrees about what pleases the animal the best. For at that point the cow will put her head down and commence to drink at once; and after giving water at that point for a few days, if it is a little colder she will hesitate, and at 40° will not drink at all until compelled to by thirst.

"But," says one, "why do you want water as warm as that?" Because the cow must heat the water up to 98° before it goes in the milk pail, so if the water is up to 80 she is not compelled to raise it but 18 degrees, but if it is down to 40 she is compelled to raise it 58 degrees, and she has no means to warm the water only by the food she consumes, therefore the food she consumes to heat this water cannot be used to produce milk.

Now after looking at it from this point how can we expect a cow going to a brook after a little ice water once a day, and the remainder of the day eating dry food and then give a large flow of milk.

After a cow has taken enough ice water to last her 24 hours it requires some time for her system to warm up to 98° which it must be before she can use it. Still after she has taken this water some compel her to stand out of doors for an hour or more in the cold air. They claim for exercise, when in fact she comes directly back to the barn and stands still for her master to leave his warm fire and come to let her in where she can get some food to warm her system. All the means she has to produce heat and to warm this water she has lost while standing in the cold air. Now how can we ask a cow to do this and then give a large flow of milk. Still the master thinks he does this for the good of the animal, but this is not the case.

Now I want my cows to stand for the 24 hours where the mercury stands at 70°, the water is heated to 80°. All this I can do by a system I can explain and the same system will ventilate the barns perfectly so the air will be pure for the 24 hours at a cost not to exceed 50 cents per cow for the entire winter for 30 cows.

I do not advance these ideas for some one to try at his expense and my profit. But as I have said before if they are not worth much they cost nothing. But nevertheless they are truths I can easily prove, for I have proved them for the last fourteen years. NORMAN BROWN.

West Berlin, N. Y.

The Sharples Milking Machine.

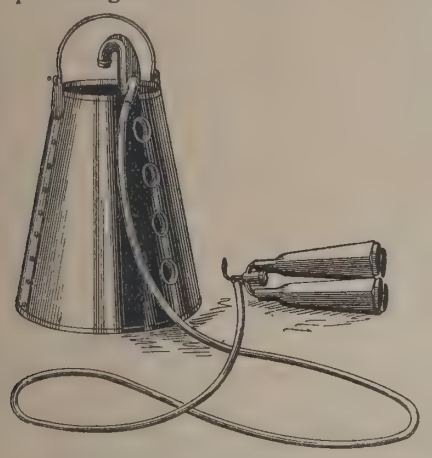
ED. HOARD'S DAIRYMAN:—The matter of a mechanical cow milker is one of deep interest to all dairymen. Many attempts have been made in this line, but for some reason all efforts heretofore have failed to produce a milker that was satisfactory. For two years past rumors have been current that the West Chester, Pennsylvania, Sharples separator people were working on the problem. A week or two since an advertisement appeared in the DAIRYMAN calling the attention of the public to the Sympathetic Pulsating Lactator, and there is hope that the knotty problem has at last been solved.

Mr. Sharples writes of his milker: The mechanical devices put on the market

have been mostly of two classes. One of them extracted the milk by suction only, and while it might do reasonably well on a hard milking cow for a season, it very soon makes the teats sore on an easy milker and its use has been abandoned, because there was no method to regulate the work. The other plan is to extract the milk by mechanical compression of the teat, and it will not work successfully. No two teats are alike in shape, and a mechanical contrivance can not be produced that will fit all of them.

The calf is the best cow milker that was ever invented. It combines both of the above methods, and in addition pulls hard on the hard milker and lets up a little on the easy one.

The Sympathetic Pulsating Lactator, manufactured by the Dairy Specialty Co., of West Chester, Pennsylvania, has used the motions of the calf as a copy. It works hard on some of the cows, and is quiet and gentle on others.



MILKING MACHINE AND BUCKET

The machine can be used to best advantage with a dairy of fifty cows or over, as it requires an engine or other power to drive it. A vacuum air pump is located at some nearby point convenient to operate it. From this a line of iron gas pipe is run above the cow stalls in the milking shed. The only service of this pipe is to exhaust the air in the milk bucket, no milk or other liquid being run through it. A small branch is fitted over each stall, and is formed into a hook on which the milk bucket hangs, a foot or two above the cow's back.

The bucket is air tight, the top being closed with a lid which is clamped securly into place by the simple act of raising the handle to lift the bucket. The mere hanging of the bucket on the hook is all that is needed to make the connection with the air pipe.

The teat cups are seen on the right hand side of the picture attached to a rubber tube, and in the center of them a small valve no larger than a hen's egg where all the regulating is done automatically. A turn of the handle under the valve sets the machine to work, and the resulting suction holds it in place until it is removed after the milking is finished. The valve and teat cups weigh but 33 ounces, and one man can use four or five of them to advantage on a string of cows. By the time he has the fourth one in place the first has finished its work and is ready to put on a new cow. In this way one man can readily do as much work as four milkers, and do it more satisfactorily to the cows and to himself. The cows do not object, but seem to enjoy the operation. The machine is easy to wash. When work is done, clear, cold water is sucked through it a few minutes and it is set away to dry. All the parts of the buckets and milkers are easily accessible and can be washed with a brush if desired.

The sympathetic action of the pulsator is the vital feature of milking never before attained mechanically. All milking machines have previously treated one cow just as another, and have failed to respond to their individual peculiarities. The sensitive, easily milked Jersey and the big, beefy Short-horn have been treated just the same, but the Lactator works on each cow differently, according to her individual characteristics. The teat cups are new and novel in their action. The cup is so constructed that it collapses at the top first, and after compressing the root of the teat follows down and strips the milk from the rest of it. The use of the machine makes much cleaner milk. It cannot get dirty; the cow has no chance to kick the bucket over, nor can the operator wet his fingers in the milk. As it is drawn from the cow the milk is in an air tight bucket and entirely free from contamination by the foul stable odors. It is carried from the stable in this bucket, and will keep sweet much longer than under ordinary circumstances, for the bacteria have no show at it in the stable.

The machine when in operation makes little noise—only a pulsation each time it takes a new breath. The harder the cow is to milk the harder and longer is the breathing, this being regulated automically. It takes from 2½ to 10 minutes to milk a cow, and one man can readily handle fifty of them. The machines are not expensive, and can be operated by any farm hand of ordinary intelligence. They milk a cow clean, and do not have a tendency to dry up the flow.

THE SHARPLES CO.

Boric Acid for Sore Teats.

ED. HOARD'S DAIRYMAN:—I notice in your Veterinary department many reports of sore, chapped and otherwise damaged teats. I have also had lots of trouble from the same cause, until some months ago, when as a sanitary measure only, I inaugurated the use of a solution of boric acid to wash the milkers hands and the cow's udders before milking. In a few days after we started this practice all soreness, chaps, etc., disappeared and we have had no trouble of that kind since. Of course I know boric acid is an anti irritant as well as an antiseptic, but the value of it as an anti-irritant did not occur to me until it had proven itself. F. N. B.

Portsmouth, Va.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Plan for Horse Barn Wanted.

Would you kindly give me a plan for a horse stable, 30×40 feet. I already have the barn, which it is proposed to place upon a stone foundation, raised the full height of the stable at the corners, but only four feet the rest of the way, so as to avoid having a basement stable, which I have supposed objectionable. The driveway of the barn is twelve feet wide, in the center; and I would like a passage (or two) by which a horse may be led between the stable and the driveway above. READER.

Wauwatosa, Wis.

As there are no specifications as to the number of horses to be provided for, it is not practicable to submit any very definite suggestions in reply to this inquiry. It would not be a very difficult matter to build an inclined plane running from the floor above down to the stable, but the probabilities are that it will have to be built with a turn, and if so it would occupy too much space to build two such passageways.

An Ontario Ration.

Could you formulate a balanced ration for cows weighing about 900 lbs., half bred Jerseys, out of the following: Bran, shorts or middlings, pulped mangels and well saved corn fodder cut. Also, would you advise mixing the pulped mangels and cut corn together and mix the bran and shorts in them, or feed the bran and shorts by themselves, dry or in a slop? H. E. W.

Keyser, Ont.

We are of the opinion that 30 lbs. of mangels, 8 lbs. of middlings, and 25 lbs., more or less, of corn stover would make a very satisfactory ration for this Ontario inquirer.

We would not mix the pulped mangels with the corn stover, because, do the best one can, the cows will leave more or less of the hard, dry pieces of the corn stalks. We would, however, mix the mangels and the middlings and add a teaspoonful of salt to each feed, night and morning. If in use it should prove that the middlings in this mixture become too pasty and too sticky, we would substitute 4 lbs. of bran for 4 lbs. of the middlings.

Which Breed of Cows for Milkmen.

There is another question on which I would like very much to ask your advice. What breed of cows would you prefer for supplying a retail milk trade? Some cream is required, but not a great deal; yet the quality of the milk must be good. We raise about half a dozen calves each year to keep up the herd, and could soon work into the most desirable breed. So far we have endeavored solely to get good individuals, and have not had the best of success. READER.

Wauwatosa, Wis.

Judging from what we know of the practice of several dairymen, who keep large herds for furnishing city milk, we are of the opinion that it is not desirable for milkmen to bind themselves to any one particular breed. It is pretty well recognized now, that, except for special trade, it is not most profitable to limit oneself to cows which produce milk carrying more than about 4 per cent fat. No one can successfully combine a milking herd for a retail trade with a breeding herd. There are many heavy milking cows among Jerseys and Guernseys, giving milk testing between 4 and 5 per cent, and there are a good many Holsteins giving milk which will average well up to 4 per cent or a little above.

A Wisconsin Ration.

I have at present 15 fresh cows, grade Holsteins; six are heifers with first calf. Wish you would make me up a ration of the following feeds: For roughage I have shredded corn, with most of the corn in it, rather moldy. I consider it very poor feeding; my neighbors, however, think it is all right; they seem to think shredded corn must be moldy. All that I have ever seen was moldy. Let me know what you think about it. I also have common red clover hay and oat straw mixed with pea vines. For concentrates, I have oats and peas mixed, which are worth 35 cents per bushel, 32 lbs.; bran costing me $16 per ton; linseed meal, $28 per ton. Would it pay me to buy corn at 50 cents per bushel, 56 lbs., and sell the oats and peas at 35 cents; also have rye at 45 cents, 56 lbs., and barley at $20 a ton? W. W.

Woodland, Wis.

We suggest that this inquirer use as an average 10 lbs. clover hay; 10 lbs. oat and pea straw, 6 lbs. bran and 1 lb. oil meal.

Moldy forage of any kind cannot well be recommended for use, but when one has it, it is perhaps asking too much to advise that he should throw it away; but it must be used with caution, and if it can be fed to anything but milch cows so much the better. Of course the degree of mold has much to do with its feeding value, or the propriety of feeding it at all. If only slightly moldy probably no injurious effects would be noted. As will be seen from our suggestions above we think the peas and oats might be better sold at the price named than fed. The combination would be but little better than bran, and the price very considerably more.

At the Dairymen's convention, at Fond du Lac, February 11-13, Mr. W. D. Howie, Jr., of Sunny Peak Farm, reported very satisfactory returns from feeding boiled rye to the thoroughbred Jerseys which constitute the dairy herd on that farm.

Alfalfa Seed.

W. W. of Woodland, Wis., writes that he intends sowing about five acres of alfalfa this spring, and as there are different varieties, wants to know which we would recommend.

So far as we are advised there are practically only two distinct varieties of alfalfa now grown, the common alfalfa and the Turkestan alfalfa. The Turkestan alfalfa is of recent introduction and the seed is not generally on the market. We presume alfalfa seed can be had from any of the seedsmen whose advertisement appears in the DAIRYMAN. The John A. Salzer Seed Company of LaCrosse, Wisconsin, claim to be making a specialty of alfalfa seed this season. It would be a good business practice to write to this company, and to others, for that matter, for catalogues, prices and other pertinent particulars.

Some Cream Questions.

I separate my own cream and take it to the creamery. Does it make difference in the test of my cream if the creameryman takes a sample of my cream for testing once a month or every other day when I deliver it? Does old cream or new cream test the highest? D. G.

Alum Rock, Pa.

If composite samples are used, the testing should be done once a week at least. If no composite samples are taken, the testing should be done every day. If the samples of cream are weighed, there should be no difference in the accuracy of the test, whether old or new cream is used. If the samples are measured, old cream will test lower.

A Wisconsin Feeding Inquiry.

Will you let me know if I could better my feeding by any change. I have ten cows, all fresh late in fall and winter; getting from 20 lbs. to 45 lbs. per day per head. Am feeding shredded stalks night and morning, timothy hay once a day, from 6 to 7 lbs. of bran per day and 1 lb. oil meal. Would it be better to grind some corn to go with it? Bran, $18 per ton; oats, 31 cents per bushel; oil meal, $29 per ton; corn, $12 ground with cob.

Wisconsin. E. R.

Where roughage is limited to corn stover and timothy hay, there is not much opportunity for feeding corn with profit. In the present case it may be a query whether the oats would not be cheaper than bran, or possibly a combination of oats and bran and oil meal would give best results. We are disposed to think that the oil meal might be increased somewhat and if oats are mixed with bran less than the amount now given would suffice. Five pounds of a mixture of bran and oats with from 1½ to 2 lbs. of oil meal, with stover and timothy hay *ad libitum*, should make a fairly satisfactory ration.

A New York Ration—Silage and Abortion.

If you would please give me a balanced ration from the following, I would be much pleased. We have on hand about one hundred tons of good silage, ten tons of very fine timothy and clover hay, about the same of timothy without any clover which can be sold for $18 in city, also twenty tons of the same timothy that is overflowed and is very dusty and muddy which cannot be sold and which will kill the cows if fed to them. Wouldn't it be all right if shaken out well and sprinkled? Can get bran for $20; gluten meal, $25; corn meal, $22; brewers grains, 10 cents per bushel in winter and 5 cents in summer, or could get anything else you would advise to make up the balanced ration.

We had fourteen abortions in our dairy the past summer and fall, and would ask if you think it possible that the silage produced it and would you advise feeding the balance of the silage that was left in the silo from last year when we come to it, if you think that was the cause? D. H

Elmira, N. Y.

This inquirer states in an unpublished portion of his communication that after leaving the High School, he entered an office and remained there for five years. All this time he had a farm of some 200 acres that did not seem to return any profit and he has concluded to make a little trial at dairying under his personal supervision, taking a portion of the herd into his own care.

We do not think the damaged timothy hay is fit to be fed to cows. And even if it does not produce bad effects, it is of so little feeding value that it would not pay to demand that a cow, in addition to giving milk, should furnish the energy required to digest and assimilate what little nutritive value may be left in such roughage. Just what to do with it is perhaps a serious problem. Possibly it might be well shaken out and fed in limited amounts to young stock, dry cows and strippers. They could pick it over and select out the best morsels and what was left would perhaps make a very good addition to the manure.

If the cows to be experimented with are fresh milkers or nearly so, we would advise feeding them a daily allowance substantially as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
40 lbs. silage	10.56	.52	5.60	.28
6 lbs. clover and timothy hay	5.12	.29	2.38	.10
20 lbs. brewers wet grains	4.86	.78	1.86	.28
4 lbs. ground corn	3.56	.32	2.67	.17
Totals	24.10	1.91	12.51	.83

It will be seen from the above that we take no stock whatever in the theory that abortions are in any respect due to the silage. The present writer has fed silage to his cows for some twelve years, and thus far has been unable to detect any unfavorable effects in any direction. We do not feed decayed and moldy silage. It is but fair to state that some very well posted dairymen do not fully agree with us on this subject and deem it prudent at least, not to feed silage to cows when in an advanced state of gestation. It is not a question of the age of silage, but of its condition. If it is sound, it does not matter whether it is one or five years old.

Blood Meal.

A subscriber at Grass Lake, Mich., asks whether the Editors or any of their readers can give any information regarding the use of blood meal, containing 87 per cent protein, in feeding dairy cows.

The Editors have to admit entire lack of experience in this line and would be glad for information on the subject from any of their readers who have had experience. The Senior Editor is experimenting with this product in connection with skim milk for calves, and is very well pleased with the results thus far. Dried blood was used in a feeding experiment with steers in Iowa last year, commencing with one-tenth of a pound per head, per day and gradually increasing until the steers were each receiving a full pound per day, in connection with 15 lbs. of corn gradually increased to 25 lbs. of corn meal per day. There would seem to be no reason why this dried blood might not prove a very acceptable addition to our list of dairy feeds, and perhaps could be fed, by commencing very moderately, up to half a pound a day.

An Ohio Ration.

Please formulate a balanced ration for milk for city trade from bran, $20 a ton; gluten meal, $30; oil meal, $28 and some ear corn; cows fed corn fodder and clover hay, the latter $10 to $12 per ton; cows from 700 to 1,000 lbs. Please say how much grain by quart measure, and how much hay by weight, fodder per bundle. A. H.
Toledo, Ohio.

We must beg to be excused from attempting to give amounts to be fed by measure, although in practice, except where careful experiments are being conducted, measures are used for apportioning the feed; but the careful feeder always checks himself by frequent weighings of the quantities as measured out, and if necessity for doing this in any case prompts a dairyman to provide himself with scales, there will be another point of advantage gained.

There is a very wide difference between fodder corn and corn stover, although the stover is very frequently termed corn fodder. Assuming that our correspondent means corn stover (corn stalks) we suggest that he try the following formula:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
12 lbs. clover hay.....	10.16	.82	4.30	.17
10 lbs. corn stover....	5.95	.17	3.24	.07
2 lbs. oil meal.....	1.82	.59	.65	.14
2 lbs. corn and cob meal.....	1.78	.13	1.26	.07
4 lbs. bran.....	3.52	.50	1.54	.12
Totals.....	23.23	2.21	10.99	.57

A Mississippi Ration.

Please formulate me a ration for my herd of dairy cows, grade and thorough-bred Jerseys, Cows should give 2½ to 3 gallons milk per day. Cotton seed meal, $21 per ton: wheat bran, $20; cotton seed hulls, $5; Johnson grass hay, $10; corn meal, $29.20. Have limited quantity of pea hay worth, perhaps, $12.50. C. C. B.
Starkville, Miss.

We suggest in this case a trial of the following formula:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. Johnson grass hay.....	8.77	.24	4.78	.07
5 lbs. cow pea hay...	4.47	.54	1.93	.06
5 " cotton seed hulls	4.45	.02	1.66	.09
2 " cotton seed meal	1.84	.74	.34	.17
5 " bran.....	4.41	.63	1.93	.15
Totals.....	23.94	2.17	10.64	.54

Of course if the limited quantity of pea hay does not permit feeding 5 lbs. per day we would feed less of it and increase the other roughage accordingly and add, perhaps a half a pound of cotton seed meal to the allowance specified.

A New York Ration.

Will you please formulate me a ration from the following feeds: Have plenty of clover hay and corn ensilage, also oats and barley mixed, about equal parts of each worth about $22 per ton; ground bran, $20; shorts, $25; Diamond gluten feed $25 and oil meal, $30. Cows in full flow.
Mohawk, N. Y. F. A. H.

We are inclined to think that the following formula furnishes a fairly acceptable average ration for a herd of cows, but for copious fresh milkers we are disposed to recommend the addition of 1 lb. of oil meal.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
10 lbs. clover hay.....	8.47	.68	3.58	.17
4 lbs. oats.....	3.56	.37	1.89	.17
4 lbs. barley.....	3.56	.35	2.62	.06
Totals.....	23.51	1.79	12.29	.61

Alfalfa in Ohia.

F. W. Y., North Jackson., O. asks whether alfalfa will do well in Mahoning county, that state.

We can only answer, that alfalfa does do well in many parts of Ohio, but whether it would be adapted to the soils and conditions on the farm of our inquirer is a very different question. There will appear in this paper from week to week articles on alfalfa giving in considerable detail the character of the soil required, the best methods of fitting the soil, sowing the seed and treating the crop during the first season .A careful perusal of these articles will enable this inquirer to determine with a very large degree of accuracy whether it would be prudent for him to make the experiment of seeding a few acres to alfalfa.

Speltz.

A Maryland reader asks to be told something about speltz, how it is produced, what is its feeding value in comparison with barley.

Speltz is classed as a variety of wheat, and in some localities, where wheat, as we know will not grow, speltz is used for human food. It carries a very hard and somewhat shrunken kernel, and is ranked about with oats in feeding value. It therefore contains more protein than barley but less carbohydrates. We question whether it would be a profitable crop in Maryland.

An Illinois Ration.

Kindly formulate me a balanced ration for cows of 1000 pounds, that have freshened during the winter, the cost being taken into consideration.

For roughage I have plenty of shredded corn fodder, a little sorghum, and a limited amount of second crop clover, but owing to the season it has quite a bit of summer grass and a little timothy mixed with it. Corn is worth 40 cents per bushel; have a grinder that will grind ear corn; oats, 32 cents; bran, $16.40 per ton, and Atlas gluten meal, $20 per ton. C. E. S.
Elmwood, Ill.

We incline to the opinion that where roughage is confined so largely to shredded corn stover, which is a highly carbonaceous feed, that it is not advisable to depend very much upon corn as a supplementary grain feed. Our suggestion, therefore, would be to use the bran and the Atlas gluten feed in equal parts, and we should feed as a rule, not less than an average of 8 pounds of this mixture per day to fresh cows. If there were some cows in the herd that seemed to have an ability to use more feed we would let them have it.

An Indiana Feeding Inquiry.

Please formulate me the cheapest balanced ration of the following feed stuffs: Corn stover and good timothy hay for roughage; corn and cob meal, 45 cents per bushel; ground oats, 36 cents per bushel; bran, $20 per ton; oil meal, new process, $32 per ton. And a balanced ration of all the following feed stuffs: Corn stalks, timothy hay; corn and cob meal at 45 cents per bushel; ground oats at 36 cents per bushel; bran, $20 per ton; oil meal, new process, $32 per ton. Have plenty of hay and corn stalks, oats and corn of my own production. J. H.
Valparaiso, Ind.

Corn stover and timothy hay are carbonaceous feeds containing but a limited amount of protein, therefore, the grain feed to go with them should be made up as far as practicable from highly nitrogenous grains, like bran, oil meal, the glutens, brewers and distillers grains. This leads us to omit corn and cob meal from consideration; but if it were otherwise we should be at a loss to know whether a bushel of corn and cob meal meant a measure of the meal or the product from 70 pounds of ear corn. When it comes to a question of selecting feeds,

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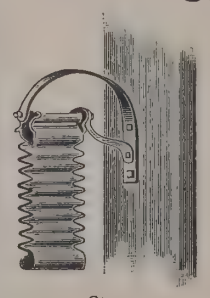
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it is quite immaterial whether they were raised on the farm or whether they are bought in the market. They have their market value in either case, and it is cheaper to feed bran at $20 a ton than oats at 36 cents per bushel. We suggest, therefore, that this inquirer mix his bran and new process oil meal in about equal parts and feed from 4 to 8 lbs. daily, apportioning the amount according to the ability of each cow to respond.

Building a Stave Silo.

I intend to build a silo next fall. I thought I would put it four feet under the ground and put a wall of stone from the bottom of the hole to about three feet above the ground and put 22 foot 2×6 staves on top of that. Is it necessary to bevel the staves? Some say that have them it is not. How many tons will it hold 16 feet across, and how many hoops will it take? E. R.
Wisconsin.

We do not think it is necessary to bevel the staves where a silo has a diameter of 16 feet. For a stave silo 22 feet high, we would put on nine hoops, placing them two feet apart at the bottom and gradually increasing the distance towards the top. A silo of the dimensions given would hold about 113 tons.

Gasoline Engine—Molasses Grains.

Will you please give me your opinion on the following: I intend to buy a gasoline engine and want to use it to pump water as the main work, besides I want to use it for grinding, sawing wood and also for running ensilage cutter, that will cut about two tons per hour. How many horse power will it require to run the ensilage cutter of that size. Would a windmill be handier for pumping water?
Do you know anything about molasses grains for feeding cows? How much protein has it?
Phillips, Wis. C. K.

The present writer had tolerably fair success last season in filling his silo with a four horse power gasoline engine. Of course this would cut under favorable conditions more than two tons per hour, but less power would have occasioned a good many difficulties. For the second filling of the silo, that is, filling in after the first filling had settled, he used an eight horse power engine, and was much better pleased with its operation than with the smaller one. The four horse power engine is ample for sawing wood, grinding, etc.

A windmill is a very cheap source of power, and a very satisfactory power for pumping water, but it is an open question perhaps whether with an engine for other purposes the expense of running the engine to pump water would not be less than the maintenance of a windmill.

We know nothing whatever about "molasses grains as such, but we recently received from a factory at Alma, Mich., a sample of what they called "molasses dried beet pulp," which analyzes about as follows for digestible nutrients: protein, 6.56 per cent; carbohydrates and fat, 59.39 per cent, thus giving a nutritive ration of 1 to 9.

Elgin Board of Trade,

A subscriber, voicing the feeling of a good many readers in different parts of the country, inquires how it is that the Elgin Board of Trade is so much of a factor in fixing the price of butter when so little butter is offered for sale at the weekly meetings of the Board, and especially how it happens when, say, somebody offers 27 cents per pound for butter the quotation committee anounces the market to be, for example, 26 cents.

The answer to inquiries of this character, is the present method of doing business by members of the Elgin Board of Trade is an outgrowth of the conditions which obtain in many of the central markets of the country and is an attempt on the part of its conservative management to minimize the influence of speculators and speculation. It not unfrequently happens that dealers in butter, and sometimes manufacturers of butter, having a considerable stock on hand will offer to buy limited lots of butter at a price above what the general market would warrant, on the theory that this will help them to dispose of their surplus at higher figures. The quotation committee of the Elgin Board of Trade, meeting every week, makes a very careful survey of the condition of the markets in this country and abroad, and of the amount of butter on hand and likely to be produced in the immediate future, and from the information thus obtained proceed to name what they consider a fair, legitimate price for butter under all circumstances, and this goes as the Elgin price.

Improved Feeding and Improved Results.—Feeding Apple Pomace.

ED. HOARD'S DAIRYMAN:—Inclosed find $1.00 to pay for one year's subscription to your valuable paper. I have only been a subscriber for the past eighteen months, but find I could not do without it, and I tell my neighbors I had rather part with all the rest of my farm papers, of which I take quite a number, than to part with HOARD'S DAIRYMAN. I am a young farmer, have only been farming four years, but have found I could not succeed in the old way. To prove it I will give some of my own experience.

Three years ago I had twenty-five cows—I had no silo but built one that fall. I sent my milk to So. Gibson creamery, from which I received $26.54 per cow for butter fat. Fed no grain after cows went on grass in spring.

About this time I became a subscriber to the American Agriculturist and began reading an article entitled "Feeding the Dairy Herd", by Prof. Woll of the Wisconsin Experiment Station, which opened my eyes considerably. I immediately began to examine my cows, my mode of feeding, stabling, etc. The outcome was, I sold until I only had five of my original cows left. In the mean time I had bought about thirty others and sold them down to fifteen, leaving me twenty to start 1902 with. The outcome of this sorting and sifting, and care is as follows:

Returns from same creamery....		$1224.44
Creamery charges for making ⅛		174.92
Milk sold last 3 weeks of Dec. 4 cents per quart.....		145.60
Calves sold and on hand.....		150.56
Pork sold.....		233.63
Feed bo't and fed to cows and hogs.....	$550.00	
Total income from cows.....		$1939.35
Total grain bought.....	$550.00	
Balance above grain.....		$1389.35

or a net profit above grain of $69.46 per cow, said cows being nothing but natives picked out of my neighbors' flocks. Not being satisfied with present profits, I have recently bought of Henry Stevens & Son, Lacona, N. Y., a registered Holstein bull to head my herd.

I wrote you an inquiry last summer in regard to apple pomace. After receiving your reply, I wrote to Vermont Experiment Station. They sent me Bulletin No 96 on Apple Pomace, a good feed for cows, which I very much appreciated. I began feeding about the middle of September, and about October 15 began putting it in silo on top of corn. Am feeding yet; have enough to last till February 15th. Feed from 10 lbs. to 15 lbs. to a feed twice daily, which is much more than Vermont Station advises, but began slowly and have noticed no ill effects from it, although very much care must be taken in feeding it to cows heavy with calf. I find it a very excellent article to take the place of corn silage, and I can make as much milk on pomace silage and hay as with corn silage and hay, the only difference, I have to feed more hay with apple pomace than with corn silage. F. F. R.
South Gibson, Pa.

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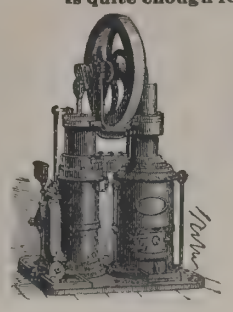
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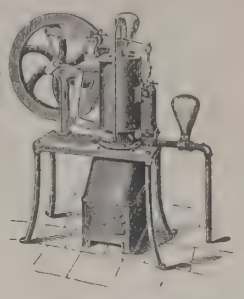


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The edge of the cap is crimped so that an absolutely tight joint is always secured between the jar and cap. The lip furnishes a convenient means of removing cap from jar without destroying it. We have just printed a little Booklet that tells all about this new cap. Send for it. Remember, we have Printed Caps, Plain Caps, Incised Caps, Parafined Caps. In fact, if you want Caps we can suit you on style, quality and price. Try us.

Pasteurizing Apparatus, Low Down Milk Wagons, Ice Cream Supplies and Apparatus, Milk and Cream Signs, Milk Jars, etc., etc.

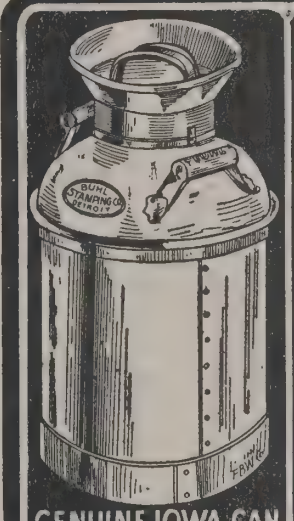
WRITE FOR MILK DEALERS' PRICE-LIST; YOU WILL LIKE IT.

Creamery Package Manufacturing Co.,

BRANCH HOUSES: Kansas City, Mo; Minneapolis, Minn.; Waterloo, Ia.; Omaha, Neb.; St. Louis, Mo.

1, 3 and 5 W. Washington St.
Chicago, Ill., U. S. A.

Canadian Branch: Cowansville, Quebec.

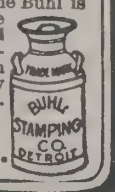


Truth to Tell

There are no other milk cans made that can equal in wearing qualities the genuine

BUHL CANS

They are tinned to stay tinned, and put together to stand years of hard service. Other cans crack easily, become dented, and being lightly tinned soon rust and go to pieces. Not so with the "Buhl Factory," "Improved Elgin" and "Genuine Iowa." They will outlast any other cans on the market, and are thoroughly and quickly cleaned. Remember, the Buhl is the only can in the world that is made with the Buhl "Victor" Can Breast and the Buhl "Victor" Round Handle. As there are many inferior imitations of this can, we stamp all ours with the Milk Can Trade Mark. Look for it. Sold by all live dealers. Ask about them, or write us direct.



BUHL STAMPING COMPANY,
212 W. Larned St., Detroit, Michigan.



The Distribution of Skim Milk.....

It is known that the just complaints of creamery patrons on account of unfair distribution of skim milk are the bane of the separator creamery business. Further disputes among patrons, annoyances to managers, hindrances to the best work of buttermakers, watering the skim milk, and many other ills in the same train are unnecessary, since the

Barber-Coleman Check Pump

has for more than five years been successfully solving the problem in many different creameries. When a patron has dropped in his check he can pump the amount of skim milk called for by his check, less the percentage taken out as cream, so in like proportion to all other checks. Its measuring apparatus is just an ordinary pump which everyone understands and knows how to operate.

Cornish, Curtis & Greene Mfg. Co.,

General Sales Agents De Laval Alpha Separators,
FORT ATKINSON, WIS.

What Reading Hoard's Dairyman Did for Him.

ED. HOARD'S DAIRYMAN:—For fifteen or sixteen years I have been a constant reader of HOARD'S DAIRYMAN. I consider it the best, most instructive and interesting paper published. Through its instruction I have built up a fine herd of 16 grade and registered Jersey cows, and a list of city customers, who take all the butter I make at 25 cents a pound.

While others are grumbling about hard times, and declare "farming don't pay," I have managed to live and lay by a little for a rainy day, thanks to the many, many useful hints I have found in HOARD'S DAIRYMAN. It is hard to make some farmers understand that the articles published in the DAIRYMAN are the hard experience of practical dairymen.

In bidding you good-by (Mr. Edwards has sold his farm and retired from the dairy business—ED.) I feel I am parting from an old friend. May your future be as bright as your past, and may you live long to carry forward the good work so well begun. Thanking you for all the benefits received, I am ever your well wisher. D. S. EDWARDS.

R. D. No. 6, Auburn, N. Y.

We desire to thank Mr. Edwards very much for the account he has given us of the benefit fifteen years reading of the DAIRYMAN has done him. He is just the kind of a reader and subscriber we like to have, for he grows on that which he feeds upon. We wish him most abundant health and happiness in the well earned rest he is taking.

A Tenant Farmer Reads the Dairyman.

Feeding and Fertilizing Queries.

ED. HOARD'S DAIRYMAN:—I can hardly praise your paper enough. I have been a constant reader and student of it for some time. I am a renter, keeping 25 cows, natives and mixed breeds; have at the head a thoroughbred Holstein bull.

Through reading the account of dairies I went to the trouble of weighing and testing each cow's milk, for one day in June. I found I only had 7 cows making a pound of butter or over, and from that down to a half a pound. The cow that does not make one pound of butter in one day could not stay with me long, if I owned her; the profit is too small.

I am feeding, at present, 20 pounds of clover and timothy hay, 2 pounds gluten feed, 4 pounds standard middlings; salt twice a day. Gluten costs $27; middlings, $19; corn meal, $22; bran, $22. Can't get cotton seed meal nor gluten meal. Cows are just coming fresh. Can you balance this any cheaper?

What is the practice in your section to pasture meadows in fall, or cut or plow under for fertilizer?

Is there as much soluble plant food in a ton of hay, spread on the land, as there is after it passes through the cow, providing it is all saved? V. H. B.

Beechertown. N. Y.

We estimate that this inquirer is feeding about 1.9 pounds digestible protein. The evidence is accumulating all the time that this is sufficient, but for his further assurance, we suggest that this correspondent try the effect of increasing the amount of gluten feed for two or three of his cows, and carefully note the results. This can only be done by weighing the milk for a week or more previous to increasing the feed, and then continuing to weigh it for ten or fifteen days afterwards.

It is quite a new experience for us to read that middlings are selling at less price than bran. Usually the difference is the other way, and some caution, therefore, should be exercised to ascertain whether there is any fault with these middlings.

It is not an uncommon practice in this part of the country to pasture meadows in the fall, although there is a feeling among better posted dairymen that this is not a good practice. When it is done, the meadow should be gone over carefully with a harrow or otherwise to break up and scatter the droppings. However, if the sod is to be turned under, either in the late fall or early spring, this will be unnecessary.

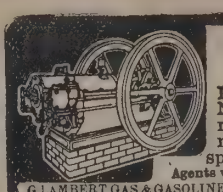
The plant food in hay or straw, spread upon the land, is not so immediately available as when it has been first passed



GASOLINE ENGINES

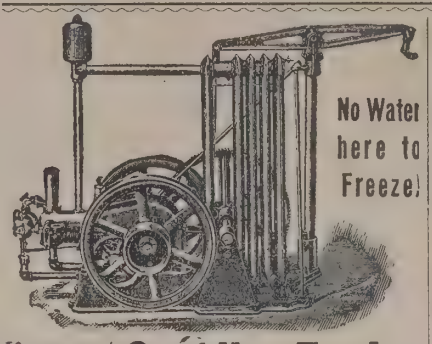
as power for the dairy have passed the experimental stage. Many dairymen now have them and all eventually must have them. The only questions to decide are the amount of power needed, and the most desirable make. With twenty-seven years of experience behind us, and a plant that has grown from 50 engines a year to 1500 a year capacity, we feel that we are equipped to build the best. There are other reasons why the "OTTO" is superior. We will tell them in this space from time to time. If in the meantime you need power, write us, mentioning this paper

THE OTTO GAS ENGINE WORKS, Philadelphia, Pa.

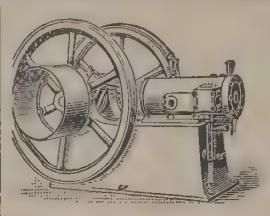


LAMBERT
Gas or Gasoline
Is the reliable engine. No long shut-down for repairs. Simple, economical. Easy to regulate speed. Strong guarantee. Agents wanted. Write for catalog.
G. LAMBERT GAS & GASOLINE ENGINE CO., Anderson, Ind.

DON'T BUY GASOLINE ENGINES UNTIL YOU HAVE INVESTIGATED "The Master Workman,"
a two-cylinder gasoline engine, superior to all one-cylinder engines. Costs less to buy and less to run. Quicker and easier started; has a wider sphere of usefulness. Has no vibration, can be mounted on any light wagon as a portable. Weighs less than one-half of one-cylinder engines. Give size of engine required. Please mention this paper. Send for catalogue. THE TEMPLE PUMP CO., ESTABLISHED 1853. Meagher and 15th St., CHICAGO.

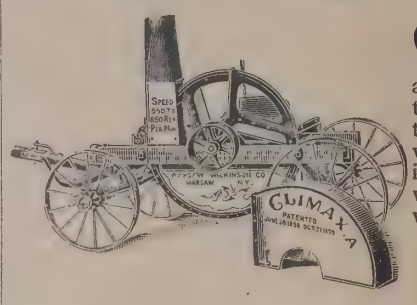


If you want a..... Gasoline Engine
that will be always ready to start, safe, reliable convenient, economical and durable, buy a FULLER & JOHNSON Frost Proof. No bother with water nor expense of broken cylinder, no waiting for wind or weather. All sizes, stationary and portable. Send for descriptive catalogue to the manufacturers.
FULLER & JOHNSON MFG. CO., Madison, Wis.



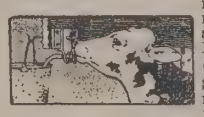
THOMPSON-LEWIS GASOLINE ENGINES
furnish the greatest possible power at the lowest possible cost in time, labor, fuel and money. They are so simple that anybody can run them without expert training or experience. Our Volume Governor gives uniform speed. Our Acme Mixer is the most positive and economical on the market. Our Hand Starting Lever starts engine with least effort. All bearings of Phosphor Bronze. Best material and workmanship throughout. Many sizes from 4 (actual) h. p. up. Best for all farm work—cutting and grinding feed, sawing wood, pumping water, separating cream, churning, etc. Send for our free catalog before you buy. It may save you time, money and annoyance.
J. THOMPSON & SONS MFG. CO., 113 BRIDGE ST., BELOIT, WIS.

Climax Ensilage and Fodder Cutters.



GOOD RESULTS are obtained by using CLIMAX machines. You can fill your silo, cut your dry fodder and pack it away in good shape, far better and in less time, than with any other. Prices no higher than for same capacity of other makes. Few wearing parts; therefore costs little to keep in repair. Several sizes. Tell us what you want to do and we will tell you what size will suit you. Catalogue free. Write for one.
The Warsaw-Wilkinson Co.,
Warsaw, N. Y.

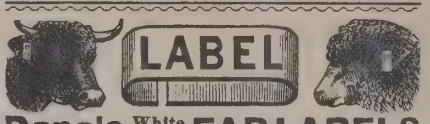
DR. REA'S IMPROVED CALF FEEDER
Established 1892. Galvanized castings. Will not rust Seamless rubber nipples, reinforced, cannot split. Makes fat calves. Price,



ONE DOLLAR.
Satisfaction guaranteed or money refunded. Booklet free.
Dr. CHAS. L. REA, 220 E. 32d St., New York.



Nature's Way
Food is not bolted, digestion is not impaired and you have no trouble teaching calves to drink if you use the
KEYSTONE CALF FEEDER.
Sent out under positive Guarantee, money refunded if not satisfactory. Coiled spring attached to nipple head prevents injury from bunting. Castings tinned—will not corrode and are more easily cleaned. Feed bucket outside calf enclosure. Nipple cannot collapse. Price complete with extra nipple, $1.50, express prepaid. Circulars mailed free.
M. T. PHILLIPS, POMEROY, PA.



Dana's White Metallic EAR LABELS
stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Samples free. Agents Wanted.
C. H. DANA, 55 Main St., West Lebanon, N. H.

STEVENS

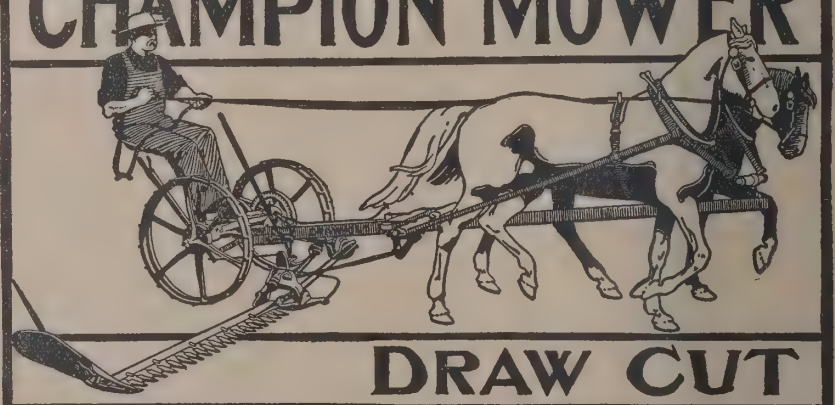


'Single Barrel Shotguns'
are acknowledged as superior to many on the market. They are good hard shooters, thoroughly made and reliable
PRICES RANGE FROM $7.50 TO $12
We also make a DOUBLE BARREL GUN, the best of its class, for $25.00.
Nearly every dealer in sporting goods and hardware can supply our firearms. If you cannot find them, we will ship direct (express prepaid) on receipt of price. *Send for 128-page illustrated catalog.*
J. STEVENS ARMS & TOOL CO.
No. 840, Main Street,
Chicopee Falls Mass.



New American Manure Spreaders
hold from 50 to 100 bushels. Spread just as thin or thick, fine or coarse, as ground requires. Don't have to stop team to make change. Most substantial, largest capacity, lightest draft.
Send today for Booklet B.
American Harrow Co
Detroit, Mich.

CHAMPION MOWER



DRAW CUT

DRAWING the finger bar of a mower from a point ahead instead of pushing it from behind gives the wheels more traction and the machine more power. This is the reason for the great cutting power of the Champion, just as it was the reason for the great cutting power of the old rear cut mowers. The Champion is front cut, but it is also draw cut, and combines the cutting power and durability of the old rear cut mowers with the safety and convenience of the modern front cuts. The Champion draws the finger bar entirely—it does not push it in the least, and in this important particular is not equalled by any other. The Champion has other valuable improvements, among them a simple and effective lining device for the finger bar, and a superb pitman having new and improved ball and socket connections both to the knife and to the fly wheel. No cramping or binding is possible with the Champion pitman, while provision is made for taking up wear and lost motion, preventing pounding and breakage. The fly wheel pin is at all times surrounded by oil, which cannot be thrown out and wasted by the revolution of the fly wheel, thus preventing heating and wear at this important and heretofore troublesome point on a mower. Write for catalog describing this wonderful modern mower, also Champion hay rakes and binders. Handsome calendar free if requested.
CHAMPION DIVISION, INTERNATIONAL HARVESTER COMPANY OF AMERICA, CHICAGO.

POSTS
We will save you money on your Telephone Poles or Fence Posts or any kind of Lumber or Building Material. Write us for wholesale prices on White Cedar Posts and Poles delivered at your station, freight paid. Send us your house and barn bills for estimates, free of cost.
POLES
WE WILL SAVE YOU THE MIDDLEMAN'S PROFIT. PRICE GUIDE ON REQUEST.
SOUTH CHICAGO AND CALUMET LUMBER CO.,
95th STREET BRIDGE, CHICAGO, ILLINOIS.

through the animal, but it is there and in some conditions of the soil the plowing under of the hay or straw is considered advisable.

THE CROSSING OF BREEDS.

A great many farmers are carried away with the idea of crossing breeds, especially among dairy cattle. In almost every instance we believe this practice does not prove as "improving" as it would be to hold to line breeding.

On this point Major Henry E. Alvord says:

"Any herd of mixed blood, with fair dairy qualities, can be rapidly built up and improved by the use of a well selected, pure-bred bull from any one of the four. They all seem to cross advantageously upon what is called "native stock" and upon females having a perceptible grade, or more, of Shorthorn or Durham blood. Guernsey and Jersey grades are especially satisfactory as dairy cows. But the pure animals of these strongly-bred races do not generally cross well among themselves. The Holsteins are very prepotent, and stamp their characteristics upon all their grades and crosses, yet they seldom "nick" well with pure animals of the other three breeds. The Guernseys and Jerseys mix well, but without improvement upon the parents of either side. The Ayrshire sire does not cross well with any of the others. A very superior dairy animal is, however, the usual result of crossing a good Jersey sire with an Ayrshire dam.

CONCERNING OUR ADVERTISERS.

J. Cam Anderson, M. D., of Holston Bridge, Va., says: "I am pleased to say after an experience of 20 years with Mexican Mustang Liniment, that I consider it as good if not the best liniment on the market, and sprains, bruises, cuts and sores, aches and pains—even pleurisy—all are greatly benefitted by its use. It is excellent for man or beast and every family should keep it constantly at hand and every livery stable keeper should buy it by the dozen lots at a time."

By the use of a good wood preservative, the life of a fence-post, or sill, or any other piece of timber that is especially exposed to decay, can be doubled. This is a fact which no careful, intelligent farmer can afford to overlook. It may be that the lumber is cheap, but that is not the main point, for when a fence falls down, or a building sags or collapses because the sill is rotten, the cost of repairing is a great deal more than the mere price of lumber. The wood preservative will cost perhaps three cents a post, and in the same proportion for all other woodwork, up to the silo or the barn. Nothing that a farmer can buy that costs so little will save so much, and a barrel of wood preservative kept on hand and religiously used will show a larger percentage of profit than any other article on the farm. Care should be taken to buy a good article, made by a concern whose knowledge and reputation guarantee the quality of their product. See ad. of Samuel Cabot, Boston, Mass.

DAIRY MARKETS.

ELGIN, Feb. 23—Butter—No offerings of butter and no sales on the board of trade to-day. The Quotation Committee declared a firm market at 27c, 1c higher than last week. Output of the week was 509,000 lbs.

CHICAGO, Ill., Feb. 23—Butter—Firm; creameries, 18@27c; dairies, 14@24c.

Eggs—Easier; at mark, cases included, 15@15¼c.

Cheese—Steady; Twins, 12½@12¾c; Daisies, 12@13½c; Young Americas, 13@13½c.

Cattle—Good beeves, 1,300 to 1,400 lbs., 5.80@6.10; choice to extra beeves, 5.40@5.85; fair to good export and shipping steers, 4.75@5.55; medium beef steers, 4.30@4.70; plain and fair steers, 4.30@4.70; common and rough, 1,000 to 1,250 lbs., 3.20@3.80; good to fancy heifers, 4.20@4.75; good to choice feeders, 3.70@4.50; poor to plain stockers and feeders, 2.40@3.60; bulls, plain to fancy, 2.25@4.50; good to fair cows and heifers, 3.35@4.25; good cutting and fair beef steers, 2.70@3.30; common to good canning cows, 1.65@2.65; veal calves, good to fancy, 6.75@8.75; veals, coarse and common, 3.25@6.50; corn-fed Western steers, 3.65@5.85; Texas bulls and grass steers, 2.75@3.20. Texas steers, fair to choice, 3.40@4.40.

Hogs—Good to prime heavy shipping, 7.25@7.45; good to choice heavy packing, 7.15@7.35; plain to choice heavy mixed, 7.00@7.20; selected butcher weights, 7.20@7.40; assorted light, 150 to 195 lbs., 6.65@7.10; common to good light mixed, 6.70@6.95; thin to choice, 50 to 130 lbs., 5.90@6.60; stags and rough lots, 3.75@6.40.

TOPEKA, Kan., Feb. 21—Butter—Market very brisk. Creamery butter, 26@27c; dairy, 17½@19¼c.

Cheese—Longhorns, 13¾c; singles 13¾c; Twins, 13c; sales 490 boxes.

LIVERPOOL, Feb. 13—Butter—Nominal.

Cheese—Firm, American finest white, and colored, 62s 6d.

PHILDELPHIA, Pa., Feb. 21—Butter—Steady at 28c; nearby prints, 30c; Western, 28c. Closed on Monday.

NEWARK, N. J. Feb. 21—Butter—Market firm at 28c.

Eggs—Steady at 16¾c.

WASHINGTON, D. C., Feb. 23—Butter firm at 28c.

NEW ORLEANS, La., Feb. 23—Butter—Market bare; extras last sales, 28½c; others quiet.

For the land's sake—use Bowker's Fertilizers. They enrich the earth and the men who till it.

KANSAS CITY, Wis., Feb. 23—Eggs—Weak; fresh Missouri and Kansas stock, 12½c, loss off, cases returned; new No. 2 whitewood cases included, 12½c.

NEW YORK FERTILIZER MARKET.

Potash, dbl. m're salt 48@53 per cent	1 09	@ 1	11½
dbl. m'ure salt, 48@53 per cent less than 25 tons	24 00	@30	00
sulph of basis, 90@98 per cent	2 08	@ 2	14
90@98 per cent less than 25 tons	38 00	@40	00
Ammonia, sulphate	3⅛		—
Kainit 25% S. of P. ℔ ton	8 80	@ 9	30
less than 25 tons	9 05	@ 9	55
Sylvinit, 35@37% P. ℔ unit	38	@	40
Potash muriate 100 lbs	1 80	@ 1	86½
less than 25 tons	36 00	@40	00
Nitrate of soda	1 95	@ 1	97½
Blood, Dried red ℔ unit	2 60	@ 2	65
low grade	—	@	—
Concentrated tankage	15 00	@16	00
Bones, rough ℔ ton	16 50	@17	50
ground	20 00	@21	00
Bone meal	18 50	@24	00
Bone black, refuse	18 00	@19	00
Fish guano, dried	27 00	@28	00
acidulated	14 00	@	—
Phosphate rock, f. o. b. Char'n	9 00	@ 9	25
Tenn	4 00	@ 5	00
Acid phosphate	60	@	65

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—A good dairy farm of 50 acres, all tillable, located one and one-half miles from city of 30000 inhabitants. A new silo, and good barn for 25 cows and 5 horses. Will sell farm alone or will also sell cows and all necessary equipment for wholesale and retail milk business including route. Address T. C. WILSON, West La Fayette, Ind. 3-2t.

For Sale—lot in Elgin, Ill. Will take nice team in part pay. C. J. KELLOGG, Woodstock, Ill.

Wanted—Guernsey heifer calves from registered sire and dam. WILL. W. FISHER, Watervliet, Mich. 2-2

Wanted—A steady and industrious married man and wife to run small dairy farm. C. W. MOSHER, Elva Sta., Ill. 2-2

Holsteins For Sale—4 cows due to calve, $500. 4 heifers, $200. 1 yearling heifer, $75. 1 yearling bull, $125, or the 10 head if sold at once for $700, as we need the room They are of the Pietertje and Pauline Paul and DeKol families, the champion milch and butter cows of the world. Speak quick. WIS. LIVE STOCK ASSOCIATION, Appleton, Wis. 1-sp

For Sale—Large and well equipped creamery and ice cream plant in leading southern city of 125,000 population. Paying $3,000 profit annually and can be increased. Steam boiler, engine, churn, butter worker, separator, Babcock test, bottle washer and ice cream plant (wholesale ice cream trade year round). Wagons, horses, office fixtures, etc. Office, creamery, and stables all under one roof. Requires ($7,000) seven thousand dollars. Satisfactory reasons for selling. Write for particulars to "ICE CREAM," care Hoard's Dairyman. 3-tf

On account of my health I will sell my thousand quart milk route with wagons, horses, eight horse power boiler, engine, double bottle washer, bottle filler, bottles, etc. A good business in a busy city. Address ERNEST D. WHEELER, Beloit, Wis.

For Sale—One of the best established dairies in the south. 130 head cattle—Jerseys, Guernseys and Holsteins. Can sell 200 gallons milk per day at an average of 30 cents per gallon. Farming and pasture lands rent very cheap. Good reason for selling. Address J. W. EDENFIELD, 408 Montgomery St., Savanna, Ga. 3-3

Wanted—Two good men, Swiss preferred, to milk and care for 50 head of Jersey cows. Wages $25.00 the first month, including room and board, with chance to improve on wages if efficient. Address W. D. ROBERTS, Fairview Creamery, Bishop, Ingo Co., Cali.

For Sale—Thirty-six high grade Holstein heifers, 14 to freshen soon; also registered 3-year-old bull HENRY AMES, Litchfield, Minn.

For Sale—Desirable dairy business with full equipment, consisting of horses, cows, farm tools, wagons, routes, etc. Leading dairy business in town of 12,000. Milk bottled. A bargain if sold at once. None but up-to-date dairymen need apply. Reason for selling—poor health. Address BOX 416, Elyra, Ohio.

For Rent—A 160-acre dairy farm. Good buildings and strong soil. Established milk route. Address W. A. POWELL, Marshall, Mich. 3-2

Wanted—Young married man, Agricultural School student, wants position in private creamery. Understands butter making, testing, steam engines, etc. W. L. F., 60 River St., Pawtucket, R. I.

Farm For Sale—Prairie View Farm, 280 acres situated midway between the cities of Eau Claire and Chippewa Falls. Suitable for dairying. Terms reasonable. For particulars Address ANDREW SKOLAS, Eau Claire, Wis.

Guernsey Bulls—Best blood, 2 Experiment Station tests. WM. BLACK, Mt. Vernon, Ind. 3-2

For Sale—A fine yearling Holstein bull sired by an extra well bred grandson of DeKol 2d and from a dam of great excellence. A persistent and large milker. T. J. JUHAN, Fort Dodge, Ia. 3-2

For Sale—Three-year-old bull, Befilius 6398, brought by me from Wisconsin. Also bull calf out of Waller by Wolfrum he out of Materna, sweepstakes cow at World's Fair. W. M. MARCH, 1798 W. 39th St., Los Angelos, Cali.

Foreman Wanted on Dairy Farm, to work farm and attend to stock. Would have to board the men. Permanent position for up-to date man. Southwest Indiana. State wages. 248 Hoard's Dairyman.

For Sale—A retail store and wagon milk trade, including De Laval Turbine Separator, 6 horse boiler and complete outfit for conducting the bottled milk business. Everything nearly new. Address G. W. MATTINGLY, Zanesville, O.

Young Guernsey coming 1 year old for sale. MRS. A. W. LEHMAN, Neosha, Wis.

Holstein Cow, with bull calf by her side, backed by the greatest milch and butter cows in the world. $100. WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis.

400,000 FARMERS

Scattered all over the World are finding a

De Laval Cream Separator

the best investment they ever made in dairying.

Might not this be true with you too?

Let the nearest local agent bring you a machine to see and try for yourself.

That is his business. This will cost you nothing. It may save you a great deal

If you don't know the agent send for his name and address—and a catalogue.

The De Laval Separator Co.,

Randolph & Canal Sts., CHICAGO.
1213 Filbert Street, PHILADELPHIA.
217-221 Drumm St., SAN FRANCISCO.

General Offices: 74 CORTLANDT STREET, NEW YORK.

327 Youville Square, MONTREAL.
75 and 77 York St., TORONTO.
248 McDermot Avenue, WINNEPEG.

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

Wanted—A married man with small or no family to work on dairy farm. Must be a good farm hand and good milker. Give age, experience and wages wanted. For particulars, address BELLEVUE FARM, Negaunee, Mich. 1-tf

Wanted—To lease or rent cheese factories. State terms, amount of milk received and location. Will pay patrons of factory for milk basis, highest market price of cheese. FOND DU LAC CHEESE AND BUTTER CO., Fond du Lac. Wis. 1-3

Buff Jersey's Son, 23 years of age, will accept a position of trust on horse breeding, cattle feeding or dairy farm. Fully competent to manage up-to-date farm or ranch along any of the above lines. No bad habits whatever. Address BUFF JERSEY, Monmouth, Ill. 1-4

Later Departure from Chicago for Sault Ste. Marie, Mich.—Via the North-Western Line. The through sleeping cars for Manistique and Sault Ste. Marie, which have been leaving Chicago at 8 p. m. daily, except Sunday now leave at 10:30 p. m. daily, except Saturday, thus affording connection with trains arriving in Chicago at a late hour. The only through sleeping car line between Chicago and "The Soo." For tickets and full information apply to agents Chicago & North-Western R'y. 1-3

For Sale—Dairy business. Terms to suit. A good chance for one willing to work. J. P. SOUTHARD, Harbor Springs, Mich. 2-2

Wanted—A reliable man of good moral habits to run creamery. All necessary labor in creamery or first-class butter maker. Good helper furnished half of each day. Operated six days in the week. Age, wages wanted. Average milk supply per day for year 1902, 3,702 lbs. Give reliable references. Address J. R. WILSON, New Concord, Ohio. P. O. Box 334. 2-2

Guernseys For Sale—Pure bred bulls and grade heifers. A. H. HINMAN, Neenah, Wis. 2-4

For Sale—Entire herds and flocks recently purchased from the Northern Wis. Live Stock Co. by the undersigned. Ten registered Guernseys—three bulls and seven cows and heifers. Twenty-two very highly graded Guernsey cows fresh and coming in. Eight two-year-old heifers in calf to registered Guernsey bull. Six one-year-old heifers. Six heifer calves. Seven high grade milking Shorthorn heifers fresh and carrying 2d calf. Fifty high grade Shropshire ewes and registered Shropshire rams. 46 ⅞ bred Angora Nannies in kid to pure bred Billys. Twenty registered Berkshire sows, bred, four boars and twelve November shoats. The cows are all under six years old and have been carefully tested and culled out for past few years and have not less than three crosses of Guernsey blood. Heifers have been selected only from best cows. Come and see, or write, as this is a good chance to secure a herd of high class dairy cows. J. E. STORY, successor to Northern Wisconsin Live Stock Co., Stanley, Wis. 2-2

Wanted—Single man to help milk and drive retail wagon. Must be sober and a hustler. Satisfactory wages to the right man. References given and required. Address THE ATTICA DAIRY, Attica, Indiana. 2-2

Buff Jersey's latest book on Farm Stock and Dairy Work is full of practical things for practical people. The Silo, how to build and fill; ensilage, its value; soil, crops, variety and how to grow. Swine, poultry and many other subjects ably treated. Send 25c for copy. Monmouth, Ill. 47-tf

Wanted—Experienced farm hand, able to milk well. Give age and wages wanted. ST. IVES PARK FARM, Mont Clare Station, Chicago, Ill. 41-tf

For Sale—The Prairie Farm, 840 acres. May be divided into five farms with buildings. In high state of cultivation, 16 miles from Toledo. One hundred cows, selected for 40 years. Terms to suit. 5%. Address E. L. LOCKWOOD, Petersburg, Mich. 46-tf

Position Wanted—As butter maker or manager of creamery. Understand all details of creamery business and work. Fifteen years experience. Make cheese also. Best of references. Address B. care Hoard's Dairyman. 47-tf

Are You Looking for Land?—Come up to Crandon and see what we have to offer. Fine hardwood timber country, good soil and good water. The saw-logs have been cut, but there is lots of timber still left on the land; wood, ties, bolts, pulp wood, hub timber, etc., enough to pay for it. Land lies within less than a mile of the C. & N. W. Ry., and near county seat. Low prices and easy terms of payment. Write me for maps and circulars. L. T. CRABTREE, General Land Agent, Crandon, Forest Co., Wis. 51-4

For Sale—A milk route with 40 cows and equipment. Address Box 351. Grand Rapids, Wis. 52-4

Wanted to Buy—Old Stone and Pottery Indian Pipes. Address G. A. WEST, Herman Building, Milwaukee, Wis. 52-4

Half Rates to the Mardi Gras and Winter Resorts—Via the North-Western Line. On account of the Mardi Gras at New Orleans and Mobile, excursion tickets will be sold February 17 to 22, inclusive (and for trains arriving at Mobile or New Orleans by noon of February 24), at one fare for the round trip with favorable return limits. Excursion tickets are also on sale daily, at reduced rates, to the principal winter resorts in the United States and Mexico. For full information apply to ticket agents Chicago & North-Western R'y. 52-3

Guernsey Cattle—Clover Knoll herd. Send for circular. M. SAGER, Orangeville, Pa. 50-12

Guernsey Grade Heifer—For Sale 10 Guernsey grade young heifers. Seven of the lot 1 year old; 3 six months old, all in fine condition. Just right to serve as the foundation of a fine dairy. A finely bred young bull, 10 months old, registered Guernsey, to head the bunch. These heifers were bred from some of my finest grade Guernsey and Jersey cows. The lot will be sold at reasonable price. W. D. HOARD, Fort Atkinson, Wis. 52 tf

I want to develop the best and most modern sanitary milk producing plant to supply best city trade. A snappy young dairyman with good health and habits and some money and education is invited to co-operate. A gentleman of wealth who loves farm and dairy can also find pleasure and profit in assisting. Please investigate. BOX 1423, New York City. 52-4

For Sale—Creamery in good condition. Well located. Good trade. W. D. COE, Washington C. H., Ohio. 3-2

Investigation of the Patrons of the Onodaga Co., N. Y. Milk Association.

Conclusion of Report, and Tabular Statements.

ED. HOARD'S DAIRYMAN:—Following is conclusion of my report:

Patron No. 41—Number of cows, 25; grade Holsteins. Cost of keeping, per cow, $49; average ration, alfalfa, corn ensilage and stover, and pasture; wet brewers grains, one-half to one bushel per day for 12 months; good stable; returns from creamery, per cow, $55.80; pounds of milk, 5,168; price of milk per 100 lbs., $1.08; reads agricultural papers.

Patron No. 42—Number of cows, 9; grade Holsteins. Cost of keeping, per cow, $45; average ration, alfalfa, corn stover and pasture; one-half bushel of wet brewers grains for twelve months, and two pounds of bran, corn and gluten meal for winter months; warm, and fairly light stable, saves the most of the liquid manure; returns from creamery, per cow, $56.57; pounds of milk, 5,307; price of milk per 100 pounds, $1.04; buys part of cows to keep up the herd; some abortion; reads agricultural papers.

Patron No. 43—Number of cows, 50; thoroughbred and grade Holsteins. Cost of keeping, per cow, $48; average ration, alfalfa and clover hay mostly; ten pounds grain, in winter, and two or three pounds in summer, feed dried brewers grains, malt sprouts, some bran and corn meal; warm stable; floor leaks some of the liquids; returns from creamery, per cow, $31.92; pounds of milk, 3,123; price of milk, per 100 pounds, $1.02; raises part of his cows; some abortion; reads agricultural papers.

Patron No. 44—Number of cows, 20; grade Holsteins. Cost of keeping, per cow, $50; average ration, alfalfa, mixed hay, corn stover and pasture; one-half to one bushel of wet brewers grains for twelve months, with a little gluten, and barley meal in winter; warm stable, fairly light; saves liquids; returns from creamery, per cow, $42.45; pounds of milk, 4,007; price of milk, per 100 pounds, $1.06; buys part of cows; reads agricultural papers.

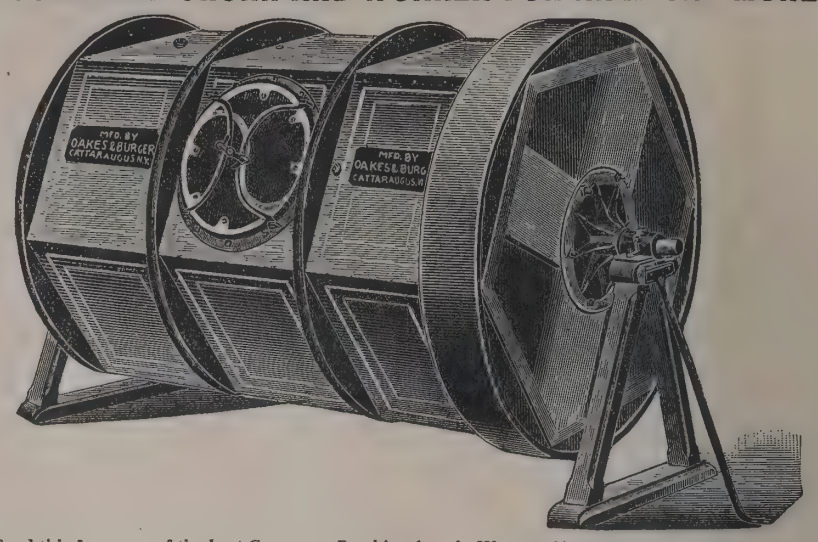
Patron No. 45—Number of cows, 13; grade Holsteins. Cost of keeping, per cow, $52; average ration, alfalfa, corn stover and pasture; one-half to one bushel of wet brewers grains for twelve months; warm stable and light; saves liquid manure; returns from creamery, per cow, $92.31; pounds of milk, 8,392; price of milk, per 100, $1.10; buys part of

TABULAR STATEMENT, 45 HERDS, ONONDAGO CO., (N. Y.) CREAMERY.

No. of patron	No. of cows	BREEDS OF COWS.	Cost of feed per cow.	Returns from creamery per cow.	Pounds of milk per cow.	Average price of 100 lbs. of milk.	Am't rec'd for $1.00 worth of feed.	Does or does not read agricultural or dairy papers.
1	40	Grade Holsteins and mixed breeds	$35.00	$50.67	4,773	$1.06	$1.45	Yes
2	38	" " " " "	38.00	48.65	4,552	1.06	1.28	Yes
3	37	Mostly grade Holsteins	50.00	63.82	5,989	1.06	1.28	No
4	20	" " "	37.00	60.44	5,622	1.07	1.63	No
5	22	" " "	47.00	64.41	5,928	1.09	1.37	No
6	13	Grade Holsteins and mixed breeds	33.00	41.69	3,956	1.05	1.26	No
7	14	Grade Holsteins and Jerseys	37.00	36.21	3,387	1.07	.98	Yes
8	22	Mixed breeds	40.00	30.38	2,967	1.02	.76	No
9	35	Thoroughbred Holsteins	51.00	35.40	3,351	1.06	.69	Yes
10	37	Mixed breeds	37.00	54.84	5,166	1.06	1.48	Yes
11	22	Grade Holsteins	45.00	48.13	4,520	1.06	1.07	Yes
12	24	" "	35.00	35.94	3,390	1.06	1.03	No
13	16	" "	37.00	65 39	5,990	1.09	1.77	Yes
14	30	" "	36.00	56.76	5,337	1.06	1.58	Yes
15	12	High grade Holstein	64.00	61.38	5,584	1.09	.96	Yes
16	30	Grade Holsteins	38 00	38.29	3,579	1.07	1.01	Yes
17	20	Grade Holsteins and Jerseys	37.00	33.40	3,116	1.07	.90	No
18	24	Grade Holsteins	38 00	57.34	5,458	1.05	1.51	Yes
19	26	" "	53.00	72.16	6,737	1 07	1.36	Yes
20	22	" "	36.00	57.12	5,427	1.06	1.46	Yes
21	32	Thoroughbred Holstein	43.00	35.74	3,382	1.07	.83	Yes
22	22	Mixed breeds	39.00	58.81	5,100	1.06	1.51	No
23	5	Grade Holsteins	45.00	79.06	7,410	1.07	1.76	Yes
24	30	" "	56.00	35.63	3,251	1.09	.63	Yes
25	15	" "	49.00	116.05	10,579	1.09	2.37	Yes
26	25	Grade Holsteins	51.00	80.29	7,301	1.10	1.59	Yes
27	12	" "	49.00	84.28	8,016	1.08	1.72	Yes
28	27	Thoroughbred Holsteins	49.00	41.07	3,746	1.10	.84	Yes
29	24	Grade Holsteins	45.00	49.41	4,594	1.08	1.10	No
30	10	Grade Holsteins and Durhams	47.00	56.97	5,384	1.06	1.21	No
31	10	Grade Holsteins	41.00	60.41	5,591	1.08	1.47	Yes
32	7	Mixed breeds	42 00	63.37	5,826	1.09	1.51	No
33	12	Grade Holsteins and mixed breeds	41.00	20.79	2,048	1.01	.51	No
34	7	Mixed breeds	40.00	88.25	8,372	1.05	2.21	Yes
35	15	" "	41.00	64.29	6,164	1.04	1 57	Yes
36	14	Grade Holsteins and mixed breeds	45.00	59.18	5,572	1.06	1.31	No
37	40	Thoroughbred Holsteins	48.00	81.24	7,849	1.04	1.69	Yes
38	22	Grade Holsteins	38.00	57.49	5,314	1.08	1.51	No
39	50	" "	49.00	79.33	7,205	1.10	1.62	Yes
40	22	Mixed breeds	41.00	51.37	4,809	1.07	1.25	Yes
41	25	Grade Holsteins	49.00	55.80	5,168	1.08	1.14	Yes
42	9	Grade Holsteins	45.00	56.57	5,307	1.04	1.26	Yes
43	50	Thoroughbred and grade Holsteins	48.00	31.92	3 123	1.02	.67	Yes
44	20	Grade Holsteins	50.00	42.45	4,007	1.06	.85	Yes
45	13	" "	52.00	92.31	8,392	1.10	1.78	Yes

THE CHAUTAUQUA

A COMBINED CHURN AND WORKER FOR HALF THE MONEY



Read this from one of the best Creamery Combinations in Western New York.

OAKES & BURGER, Cattaraugus, N. Y. WILLINK, N. Y., December 28th, 1902

GENTLEMEN:—We purchased two Chautauqua churns of you in the spring of 1902 and wish to recommend the Chautauqua churn as the best combined churn and butter worker on the market without exception. We have a Victor which is a good combined machine, but prefer the Chautauqua as it is made by your firm, to any other worker. We work our butter in less than 15 minutes and it is neither salvy or streaked. (Signed) Yours truly, **COLE & FISH.**

Write for our new thirtieth annual catalogue of up-to-date Dairy Apparatus.

OAKES & BURGER, Cattaraugus, N. Y.

Flavor

The market value of butter is unquestionably its flavor, and its flavor is unquestionably affected by the quality of the salt used. Prize winning butter makers always use DIAMOND CRYSTAL SALT—"*the Salt that's ALL Salt*"—to insure that *winning flavor*. Its pure, dry flakes quickly dissolve—assimilate *evenly* through the butter, and add a keeping quality that is inestimable. No waste—no grit—no mottled effect. The only salt in the world that's all salt. Dairymen will find our illustrated booklet "Just Salt" contains valuable hints. We send it free.

DIAMOND CRYSTAL SALT CO., ST. CLAIR, MICH.

WORCESTER SALT
IS THE BEST

The largest Creamery in the world uses WORCESTER SALT, and—this telegram tells the rest:

"Kansas City, Mo., March 7, 1902.

WORCESTER SALT CO.,
168 Duane St., New York.

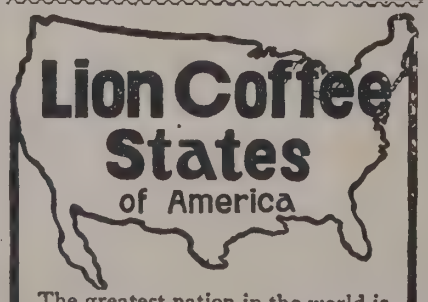
Continental won sweepstakes, also State cup trophy at Kansas Dairymen's meeting; score Ninety-Eight. Worcester Salt used ten highest scores.

G. A. MCEDWARDS."

IT TAKES THE BEST TO MAKE THE **BEST**

WORCESTER SALT COMPANY,
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Lion Coffee
States of America



The greatest nation in the world is the greatest consumer of coffee.

Lion Coffee

is the standard beverage of every state and territory of the Union. It's pure—that's why.

Always in 1 lb. air-tight, sealed packages, insuring freshness and uniform quality.

SILOS

FROM PUGET SOUND TO YOUR FARM. We shall ship to your town, Silo Stock of **Staves One Piece the Depth of Silo. Oregon Pine** which owing to length must be handled in car loads, giving to people contemplating the erection of a Silo in 1903 the benefit of through car load freight rates in a delivered price on Silo complete. Write us, giving size best adapted to your wants, and have booklet, "Silos and Silage," mailed you. It shows how to build, how to fill. **WILLIAMS MFG. CO., Kalamazoo, Mich.**

cows; no abortion; reads agricultural papers;

The amount received by each patron for $1.00 invested in feed is as follows:

No.	
41	$1.14
42	1.26
43	.67
44	.85
45	1.78

The average return of each $1.00 invested in feed of those who did not read agricultural or dairy papers was $1.20 and of those who did read was $1.35, making an average gain of $.15 for those who read over those who did not read.

The average cost of keeping a cow was $42.66, therefore he would gain $6.40 per cow, and on a dairy of 20 cows, he would receive $128 00 more than the man who did not read. W. H. JENKINS.

New York.

The Empire Meet.

ED. HOARD'S DAIRYMAN:—A creamerymen's convention decidedly unique in character was held in McGregor, Iowa, on January 28, 29, 30 and 31, under the auspices of the Empire Cream Separator Company of Bloomfield, New Jersey. Mr. E. E. Bell, the secretary and sales manager of the company originated the idea and presided at its several sessions. The object was to get together some of the leading creamery men of Iowa and Wisconsin for a general discussion of the hand separator proposition and its bearings upon the dairy interests of the day. There were about sixty-five persons present through the four days' session, and the new cream question in all its various phases was very thoroughly discussed.

Among the topics were the following:

"Economics of the Hand Separator System and its influence upon the Dairy Industry."

"The advantage to the Creameryman of the Hand Separator System in Creamery Operation."

"The advantages to the Farmer or Milk Producer in the Hand Separator System of Creamery Operation as compared with the Whole Milk System."

"The best methods for collecting cream to the central churning point in good condition."

"Methods of caring for Hand Separator Cream and why it is easier to control the quality of product through having the Farmers deliver cream than Whole Milk."

"Making extras from Hand Sepatator Cream. Why and how it can be done more easily than through operation upon the Whole Milk and Skiming Station Method."

"To what extent is it profitable for a creamerymen to interest himself in the education of the farmer in methods of operation which benfit both, and how can this education be most successfully accomplished?"

"The advantages to the Creamery man in being his own Separator agent."

"Essential qualities of a good Hand Separator."

"Is it advisable to place machines on trial with the Farmer? If so, under what circumstances and upon what conditions?"

Other topics having a more special bearing on the Empire Machine were presented at some length. Mr. Ernest E. Bell, secretary of the Empire Company, presided and kept a directing hand on the general discussion.

On of the most interesting features of the entire meeting was Mr. Bell's explanation of the scientific principles of centrifugal separation and an explanation of the Empire Separator.

Of special interest were the addresses of Charles Harding of the Hygeia Creamery Company of Omaha, and W. W. Marple of the Blue Valley Creamery Company of St. Joseph, Mo. Both of these gentlemen, as is well known, are conducting large creameries on the Hand Separator plan, and buying cream from farmers two and three hundred miles distant. Other creamery men who are operating on a smaller scale were present and added their testimony to the effect that the Hand Separator has undoubtedly come to stay, that it means a greater economy of production for the creamerymen and greater profits for the milk producer.

It was agreed that the creamery man is neglecting his best opportunities if he does not secure the agency for a good cream separator and thoroughly educate his patrons in its use. The advantages to the farmer were clearly pointed out. In the first place, the Hand Separator reduces the labor of dairying nearly one-half and is likewise a great saver of time. Moreover, it gives him fresh, warm skimmed milk for feeding purposes, thus adding very materially to his profits. From the creamery side, it was maintained by those who had tried them, that they could undoubtedly pay patrons a higher price for butter fat the year round under the Hand Separator system than they can under the whole milk system, and if the patrons use a good separator and give it proper care, the creamery men can produce a better quality of butter than he can under the whole milk system. It was admitted that when the hand separator was first introduced, such was not the case, simply because the early hand separator was of so complicated a pattern and so intricate in its mechanism that it was impossible for the patron to keep it perfectly clean, but the modern, simple separator, of few parts, is easily washed, and there is really no excuse for it not producing cream of the very highest quality, at least the gentlemen present maintained that the Empire always does it without fail.

We have not space to go into the details of the discussions, but we hope that the Empire Cream Separator Company will issue some of the excellent addresses made, in printed form, so that dairymen and creamery men in general may read them. Mr. E. E. Bell is to be congratulated upon the happy idea of this meeting.

The town of McGregor was most hospitable to the visitors, giving the convention a public reception with an address of welcome by the Mayor upon the first night, a dramatic performance on the second night and a dance on the third evening.

We understand that the Empire people will hold similar meetings in other parts of the country. They are doing a good work in agitating better dairy and creamery methods; it means more money for all personally concerned. M.

Plan for Farrowing Pen Wanted.

ED. HOARD'S DAIRYMAN:—I would like to ask Mr. Wing through the columns of your paper as to the best plans for a moveable, individual, farrowing pen or house for a brood sow.

I have been a reader of your paper for several years, and do not know how to do without it on the farm. A. B. C.

Fort Hill, Ill.



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LOW DOWN-CUT-UNDER

justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

The National Wagon Company
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THE ONLY LOW-DOWN

Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the Market.



20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for catalogue, prices and terms Wagons for carrying Bottled Milk a specialty.

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Sole Manufacturers,
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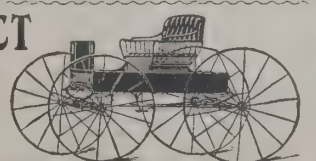
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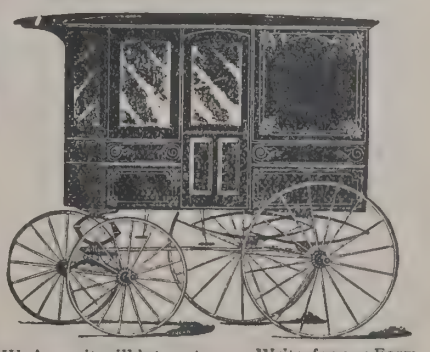
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that we're after. We propose to ship you a Split Hickory Special buggy and let you use it Free 30 days You keep it for $47.50 FREE Catalogue of vehicles. Ohio Carriage Mfg. Co., Station 154, Cincinnati, O.



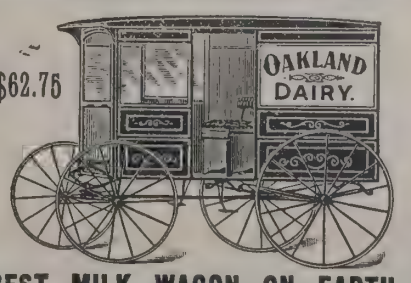
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BEST MILK WAGON ON EARTH.
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Highest Grades—Lowest Prices—Guaranteed. Shipped on Approval. Full line Buggies and Harness. Write for Catalogue and Prices.
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UNION BUGGY CO. Dept B. PONTIAC, MICH.

BUY THE BENNETT STUMP PULLER
TILE DITCHER
Handy Farm Wagon &
CORN HARVESTER
Cat. each free. H. L. Bennett, Westerville, O.

The Manure Question.

ED. HOARD'S DAIRYMAN:—This manure discussion has been very interesting to me. So far no one has just hit my own plan so I will give it in as few words as I can—perhaps it may be of service to some one.

I am pleased to say that through this section "corn is king." Nearly every farmer has his silo and the manure from the farm goes to fertilize next year's corn crop. It is either drawn out daily or in the spring.

Our farmers are coming more and more to use absorbents to save liquids. Now I believe we are entirely wrong in using our manure to produce a crop ofcorn I had a friend who was troubled with heart disease. He employed a doctor in the city of Olean, but to no purpose. He came home and a country doctor began treating his stomach. In a few months he was entirely well. Now this is, I believe the course we should follow with our corn. "Doctor our meadows,to cure our corn."

Every one knows that (in Bradford Co.) a heavy sod plowed under will, with good cultivation, produce a good crop of corn. How often I have heard farmers say, "This field is all run out. It won't raise hay this year, we must plow it up for corn." All wrong. "This field is all run out, we must manure it, sow grass seed next spring and when we have a good sod, plow it under for corn." One horse will furnish enough absorbent for five cows, with a little saw dust.

This mixed manure makes a grand top dressing for a meadow, be it drawn out daily or piled under a shed till a slight fall of snow makes it an easy thing to top dress the field farthest from the barn, which too often is the poorest on the farm.

When our country was new the falling leaves made a heavy mulch under the trees, and the rootlets were always supplied with the proper amount of water. When the trees were cut off and the ground cleaned up by burning, a handful of this soil was seen to contain countless numbers of little roots, small pieces of leaves, bark, rotten wood, moss, etc., and seemed nearly as light and mellow as a handful of down.

It has been plowed and plowed and then plowed again,each time a crop taken off, and no vegetable matter returned until now some of our soil looks more like a ball of mud. What is the remedy? Green manuring of course. Plow under twice as much as you take off and in a few years your cover crops will be so big that they simply won't turn under. Look at our tobacco growers. Thirty loads of manure to the acre. No ground permitted to lay over the winter without a heavy crop of rye growing on it. The result? Tobacco worth from $100 to $200 per acre. Are there any such possibilities in a crop of corn? Last summer I weighed a number of corn stalks. They averaged about 4 pounds each. If there are four stalks to the hill that makes sixteen pounds per hill. Planted three feet apart each way, there are about 4,500 hills per acre. This makes 36 tons per acre.

I believe that this corn is worth, everything considered, much more than any acre of tobacco, to the farmer. Is this calculation absurd? I don't think so. If we gave our corn the attention that tobacco gets I believe it would surpass 36 tons per acre.

Well! well! I have taken up too much space already and havn't said much about manure either, but whether you haul it out daily or weekly, or monthly or yearly, use it to make meadow is to be my rule for a few years to come. At least till I see the folly of it or else the benefit. L. C. BURROUGHS.

Pa.

Farm Wagon Only $21.95.

In order to introduce their Low Metal Wheels with Wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, that is only 25 inches high, fitted with 24 and 30-inch wheels with 4-inch tire, and sold for only $21.95.



This wagon is made of the best material throughout, and really costs but a trifle more than a set of new wheels and fully guaranteed for one year. Catalogue giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill,, who also will furnish metal wheels at low prices, made any size and width of tire to fit any axle.

All Humors

Are impure matters which the skin, liver, kidneys and other organs can not take care of without help, there is such an accumulation of them.

They litter the whole system.

Pimples, boils, eczema and other eruptions, loss of appetite, that tired feeling, bilious turns, fits of indigestion, dull headaches and many other troubles are due to them.

Hood's Sarsaparilla and Pills

Remove all humors, overcome all their effects, strengthen, tone and invigorate the whole system.

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Old Homestead Guernseys.

Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.

Especially low prices, standing of herd considered. No catalogue. State what you want.

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Young Bulls for sale. Good individuals from rich milkers. Ages from four weeks to old enough for service. Prices reasonable. Address C. W. WILCOX, General Del., Des Moines, Ia.

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or will sell my farm of 184 acres. Excellent land in a high state of cultivation.

NEW BARN, SILO and MILK HOUSE

Also my herd of Guernseys—three daughters of Lilly's Bony Boy and their descendants—20 females and two bulls, and Robina's Standard, the junior champion Guernsey bull of Wisconsin State Fair. Will also sell 30 head of grade Guernseys.

M. D. CUNNINGHAM, Kansasville Wis.

THE BROWN BESSIE HERD

Offers some splendid young cows and heifers bred to Recorder, the only living son of the famous Brown Bessie, winner of the 30 and 90 day butter test at the Columbian. Also a few sons of Recorder from daughters of Diploma and other tested cows are offered.

H. C. TAYLOR, Orfordville, Wis

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality F. W. TRATT, Whitewater, Wis.

HADDON GUERNSEYS

Won first prize both for herd and single cow, in the A. G. C. C. yearly tests, ending May 1, 1901. Tuberculin tested and every animal found healthy. E. T. Gill, Haddon Farms, Haddonfield, N. J.

FOR SALE. Two Registered Guernsey Heifer Calves, five and eight weeks old. Descendants of Lady Beth, No. 3926 A. G. C. C., who in eleven months gave 10031 lbs. of milk that made 514 lbs of butter. Address, J. R. HUSTON, Dayton, Ohio.

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Guernsey Bull Le Grand Duke, 6193. First premium Ohio, Indiana, Illinois and Kentucky State Fairs; champion bull, any age, at Indiana, and senior champion at Ohio in 1902. Four years old, perfectly sound and without a superior as a show and stock bull in this country.

THE BELLE-VERNON DAIRY CO., Willoughby, Ohio.

Wasteland Guernseys

Herd headed by Sir Choral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Young registered bulls always for sale. 5 high-grade heifers in calf, a bargain. M. M. & E. J. HOLLINGSWORTH, Landenberg, Chester Co., Pa.

Rosendale Guernseys.

MATURE COWS YEARLY RECORDS range from 356 to 713.3 lbs. butter. This herd contains more officially tested cows than any other herd of the breed. All of the largest records are official ones. A particularly choice lot of tuburculin tested bulls for sale from high record dams.

GEO. C. HILL & SON, Rosendale, Wis.

GUERNSEYS FOR SALE.

Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.

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GUERNSEY Bull Calves Sired by O. K. Dams of equal merit.

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AYRSHIRE BULLS

Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address,

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AYRSHIRE CATTLE of both sexes, and some young ones from good business cows. Prices within reach of any dairyman. Also Chester White Pigs, March and April farrow—All from registered stock. F. TSCHUDY & SONS, Monroe, Wis.

How Would You

like to find a JERSEY BULL CALF whose dam is paying her way in a herd of paying cows. At our prices it is just like finding them.

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—OF—

50 Head of Thoroughbred Registered A. J. C. C. Jersey Cattle

to be sold at

SALEM, OHIO, MARCH 10, 1903, including three great service bulls,

KLONDIKE GOLDDUST, NO. 52415, double grandson of the Famous King of St. Lambert sire of 26. Banshees St. Lambert Boy, 63763, grandson of the great St. Lambert Boy, sire of 54, out of the great Dairy Cow Palestine Bess, test 19lbs. Pedro of Kensington, 50172 grandson of old Pedro, sire of 45, by Pedro Royal Mayoram sire of 8; grandson of Prospects Rioter, sire of 13; by Stoke Pogis 5th, dam Pedro's Pretty Duchess 16 lbs. 11 oz. The breeding of the above bulls is intense and pronounced by expert judges to be the leading trio and King of Bulls, cows equally as well bred. No postponement on account of weather. Write D. H. Jenkins, Indianapolis, Ind , or Brooks & Pidgeon, Salem, Ohio, for catalogues giving full particulars.

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FOR SALE AT FARMER'S PRICES.

One St. Lambert bull ten months old; also bul calf three months old, or will exchange for as well bred heifers. Registered Poland China pigs for sale at all times. Correspondence solicited. FRANK SHADBOLT, Caledonia, Minn.

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JERSEY BULL, one year old. Good individual of the best breeding, Also 7 months bull from tested dam. Herd headed by Fontaine's Owl, 60436. Prices on application. Address, J. F. EGERTON, Footville, Rock Co., Wis.

VALLEY FARM Is offering some good bargains in young bulls from 1 mo. to 2 yr. old. Also B. P. Rock Cockerels, $1.25 each. Write

FRED STUBLEY, Black Earth, Wis.

HAZEL FERN HERD. A. J. C. C. Jerseys, blood of St. Lambert, Melia Ann, Combination, Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

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Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

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FOR SALE GOLDEN LAD BLOOD, sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25. W. J. HUSSEY, Mt. Pleasant, O

ST. OMER HERD

Offers young bulls fit for service, out of tested dams with good yearly records. Strong in Exile of St. L., King of St. L. and Stoke Pogis of Prospect. Reasonabe prices. JOS. T. HOOPES, Bynum, Md

Exile of St. Lambert

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is the sire of more tested Jersey cows than any bull living or dead, and the number to his credit will probably never be equaled by any other bull. His dam was one of the largest milkers among Jerseys, and is the dam of the three year old cow with the highest year's milk record for that age. Exile's sire is the grand sire of the cow holding the highest milk record for a year.

The mid-winter sale lists include a few tested daughters of this great bull and several cows and heifers deep in the blood that produced this famous sire. If you wish to improve your herd, or to start one, you will probably never have a better opportunity than is here offered. If interested write for lists, and please specify whether bulls, cows in milk, or heifers, are wanted.

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Biltmore Jerseys.

Have been Bred for work in the Dairy. Are from the choicest foundation that could be bought. Include more Prize Winners than any other Herd. Are robust, true to type and of great capacity. Are noted for large milk yields, perfect udders and teats. All tuberculin tested for the last seven years.

FOR SALE--Young Bulls from selected dams. Send full details, mentioning defects you wish to correct, blood lines, etc., and we will quote promptly, reasonably, with guaranteed description and full pedigree. Apply to

BILTMORE FARMS, Biltmore, N. C

THAT NEW BULL

If you want a good Jersey Bull, ready for service this summer or fall, write NOW for our sale list No. 1. St. Lambert, Brown Bessie, Signal and Tormentor blood. Dams all great workers with high fat tests. Full particulars as to breeding, and milk flow, etc., of dams upon request. Address, E. E. STEVENS, North Madison, Lake Co., Ohio.

The Evergreen Farm Herd has for sale three or four A. J. C. C. heifers bred. Also a few cows and some choice bull calves from two to six months old. Write for pedigrees and prices.

N. N. PALMER & SON, Brodhead, Wis.

FOR SALE. Clear View Stock Farm offers a few choice registered Jersey Bull Calves from 5 to 12 months old. Prices low if taken at once as must have the room.

J. S. CAMPBELL, Prop., Butler, Pa

Silos in Tennessee—Alfalfa.

ED. HOARD'S DAIRYMAN:—I am only a recent subscriber to your paper, but what few copies I have seen have pleased me very much. I am interested in the dairy business, own 40 cows and furnish hotels in Memphis with cream. From what information I have gathered from agricultural papers in regard to the silo, am satisfied that it would be profitable in my business. Two of my neighbors built silos, but practically they were failures. Does the climate of our southern states affect the practical use of the silo? Does the advertised silo already built have any advantage over a home made one? Fifteen years ago, this was a clover producing country, now there are no clover fields in this county. We have great difficulties in securing a stand and everybody raises cow pea hay. I would like to try alfalfa; do you think it could be grown in this climate? Will it stand a summer drouth of six weeks?

Whitehouse, Tenn. J. N. B.

Climate has no influence on the keeping quality of silage. Spoilt silage comes from imperfections in the silo itself or the quality of the material used for filling it.

Thus, too dry corn almost always results in spoilt, moldy ensilage, a condition which may be prevented by the addition of water after the silo has been filled. Unless the silage has been well packed when filling, spoilt silage will also result, and lastly a silo that is not built tight always allows a large amount of the contents to spoil. But with a properly built silo and corn of the right quality at time of filling, there is no reason why good silage cannot be made in Teneessee as well as elsewhere.

If the home made silo is properly built, it is just as good as the advertised article.

We have no doubt that alfalfa will grow in Tennessee as it has been reported as growing successfully in many of the southern states. It withstands drouth better than any other forage plant.

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If you have a horse that is lamed or blemished by any kind of a growth or enlargement, that is Knee Sprung or has Fistula, Poll Evil or Sweeny, or if there is a case of Lump Jaw among your cattle, write us at once. We will send you two big booklets. One tells you just how to cure these diseases and blemishes. The other proves that you can cure them, and we guarantee you success besides. Same methods employed by over 140,000 farmers and stock owners. Write for the books and tell us what kind of a case you have to treat.

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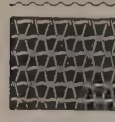


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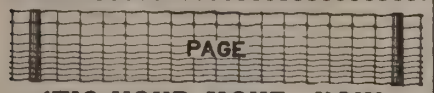
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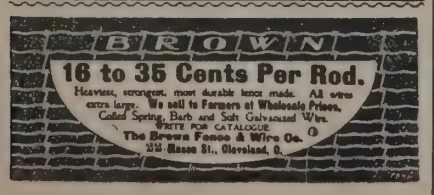
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Sadie Vale Concordia, official test, 694.3 lbs. milk containing 30 lbs. 10.18 oz. butter in 7 days.
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Sadie Vale Concordia's Paul De Kol, Premiersire, No. 27392 H. F. H. B. He is by Paul De Kol and out of our great cow Sadie Vale Concordia.

ABSOLUTELY BEST HERD OF HOLSTEIN-FRIESIANS.

We have a number of fine cows and calves for fine breeding to offer. If you are looking for the best, write us or inspect our herd.

THREE HOLSTEIN BULLS

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DE KOL 2D'S MUTUAL PAUL

His four dams are the cows that made the Holsteins famous.

Dam, De Kol 2d; G. dam Mutual Friend 3d; G. G. dam Pauline Paul; G. G. G. dam De Kol 2d.

When looking for a bull to head your herd bear in mind that De Kol 2d being a world record cow herself, is also the dam of four generations of world record heifers. I offer three bulls ready for service, each carrying 28⅛ per cent or more of the blood of De Kol 2d from choicely bred dams. They are fine individuals, growthy and vigorous, and will be sold right, quality considered.

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HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

FOR SALE. 90 Acre Farm in Waupaca Co., Wis., 1½ miles from the village of Marion. Good soil, running water, frame buildings. A bargain if taken before the first of April. Reason for selling, am an old man and recently lost my wife. Address, DANIEL CHURCHILL, Marion, Wis.

MADISON, WIS. A few choice Holstein-Fresian Bull Calves for sale. Three service bulls, including premier sire **Lord Indi De Kol, 29882,** whose pedigree combines the best blood of the De Kol and Netherland families. Now at the head of the herd **Pense Johanna, 29,332,** whose pedigree includes 7 A. R. O. cows averaging 22 lbs. 3.7 oz. Junior sire **Paul Calamity De Kol, 31095.**

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Address, F. W. ALLIS, Madison, Wis.



WANTED. NO. 1 H. F. BULL Send pedigree and official records of ancestors **For Sale** A No. 1 H. F Bull dropped Aug. 19, 1901. Dam and sire's dam bred by T. G. Yeomans.

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SOUTH SIDE FARM, WHITE BEAR, MINN.,

offers a number of thrifty well grown calves from Officially Tested Dams at bargains for quick sale, ages three to seven months. Also two fine yearlings, and one two year old.

No Yorkshires for sale at present. Orders booked for spring pigs.

Correspondence solicited.

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Have Dissolved Partnership, but if you are looking for first-class **HOLSTEINS** you can still find them here, and just now at prices that will interest you.

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Be sure to address

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First Prize Herd at New York, Indiana, Kentucky, State Fairs and at St. Louis, Mo., in 1902. All ages, both sexes, for sale. Prices very reasonable, quality considered, **T. A. MITCHELL, Weedsport, N. Y.**

FOR SALE. H.-F. Bulls, ready for service from A. R. O. Cows and sired by Sir Johanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis

FOR SALE.

2 H. F. Bull Calves, 6 months old. Sired by Johanna Aaggie's Paul DeKol 23443, (160 A. R.) from good milkers and testers.

M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

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HOLSTEINS.

Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.

A. J. DAUGHERITY Streator, Ill.

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100 HOLSTEIN-FRIESIANS 100

A. R. O. Stock For Sale.

Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz **Frank B. Fargo, Lake Mills, Wis.**

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Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

RICHLAND FARMS, GREENSBORO, GA.

We now have some very fine **HOLSTEIN BULLS FOR SALE;** also some pure bred registered **Victoria Hogs,** all ages, at bargain prices. Write us for what you want.

SHADY NOOK HERD Holstein Friesians offers three bulls from 11 to 16 months old. Two from A. R. O. dams. O. L. C. White Pigs, both sexes. White Cap Yellow Dent Seed Corn, $1.50 per bushel.

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2 H.-F. bull calves for sale. A. R. O. cows. Sired by Prince May Paul DeKol, No. 29331. IRWIN NOWLAN, Toulon, Ill.

FOR SALE.

H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address **W. H. JONES, Watertown, Wis.** Rural Route No. 2.

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Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. One Hundred head to select from. **W. B. Barney & Co., Hampton, Iowa.**

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Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherand Soldeme Clothilde. No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for description and price to **J. A. THORNTON,** Manager, Simmonsville, Vt.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No 29175. Sire: Count Colantha Alban No. 25148. Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.

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Pennsylvania Pickings.

"What is the Matter with Him?

ED. HOARD'S DAIRYMAN:—On page 1050 of HOARD'S DAIRYMAN the above question is asked, and we, "good readers" of the DAIRYMAN, are requested to answer it. The subject of the question appears to be a Pennsylvania man, and it is meet that this state should be early with an answer. There are many good and progressive dairymen in Pennsylvania, as well as many more of the kind about which the DAIRYMAN asks its question.

This is the second state in the Union as a dairy state, and of necessity we have dairymen in all the degrees. That we have many who are honestly and industriously improving their conditions, the weekly issues of the DAIRYMAN can be made to testify, for, without keeping count of them, I think there are more questions asked from Pennsylvania than from any other state.

This would indicate that our dairymen take a good dairy paper and that many of them are after all the good to which their subscription entitles them. But our trouble is not with those farmers and dairymen who read the dairy and farm papers, but rather with those to whom the journals of their business are either strangers, or the teachings and suggestions in them nothing but vanity.

It is pretty hard to teach a man who will not even look at the lesson and who takes Solomon's declaration about there being nothing new under the sun, as having literal and special reference to agricultural lines.

Manifestly, our greatest need in all farming and animal husbandry is that of more education. We are not getting it. The forces that should be most active in instruction are either doing nothing or making no show.

We have a State Dairy Union that is supposed to be the exponent and helper of all that is good and new in dairying. It is five years old, yet instead of growing with the needs of the business in the state, and in numerical and representative membership being commensurate with the importance of so great an industry, the growth is really that of the cow's tail. It has the dry rot. It has dropped into or gravitated towards politics and its little usefulness is about at an end. It now has sixty members, not over fifteen of whom are dairymen. At the last annual meeting of the Union, the president of it declared that in all the large force of so-called farmers' institute instructors, there were not over half a dozen qualified to teach the dairymen the best methods of his business.

The director of institutes made a feeble effort at a general denial of the charge, but outside of his denial the charge has stood unchallenged, publicly.

That poor teaching is worse than no teaching is demonstrated by the need of the DAIRYMAN asking its question, for while we have three or perhaps four good, advanced, dairy instructors on the force, Martin only knows how many bad ones there are, and their teaching is so dismally poor that the suspicions formed at once detect its poverty and its sham; so that when he has now and then a chance to hear the advanced teaching of a Lighty, a Detrich or a McDonald, not understanding it, by the same token he thinks it sham, also. And he goes untaught, and once a year a department bulletin comes out and tells us how many thousands attended the institute, but no foot note tells that the noses counted at the evening sessions, when school essays, recitations, or jokes swelled the crowds, are most responsible for the big numbers.

This is what is the matter with him. He needs more careful education, and he is not getting it. Occasionally he or his son gets to reading the DAIRYMAN, or some other good paper, and the new light is let in, but first "desire must ope the portal." This reading is absolutely all, with very few exceptions, he is getting in the state, second in the dairy list.

The farmers' institute, in many ways, has done much for Pennsylvania, but under the management of it for a few years past it has reverted to type, has not even kept up to the times, when it should have a position in advance.

If the DAIRYMAN in its question, and I in my answer, have respectively assumed and told what is not true, let Pennsylvania say so. W. F. MCSPARRAN.

Neufchatel Cheese.

ED. HOARD'S DAIRYMAN: Can you give me the receipt, or let me know where I can get it, for making Neufchatel cheese? W. C. B.

Leadville, Colo.

We are somewhat uncertain whether this inquirer actually wishes to know how to manufacture the true Neufchatel, or the soft sour milk cheese which is frequently found in the markets and sold under the name of Neufchatel cheese, which it is not. However, following is the method for making the true Neufchatel cheese:

The fresh morning's milk (about 90°) is set in a stone jar, holding about forty pounds or less, and only rennet enough to coagulate it in about twenty-four hours is added when standing in a room of about 60°, and, "hence, it is necessary to use a reliable rennet extract." The jar may be covered with a woolen blanket or the like, to keep the temperature uniform.

When coagulated, the whole mass is poured into a cheese cloth, which is either placed in a basket, or hung up on four supports fixed for that purpose. Here it is left twelve hours to drain. Then the cloth is gathered together round the curd, and placed in a square wooden box, with perforated bottom and sides, and a pressboard put on with weights, say a few stones, and if more weight is needed a small lever press. It is pressed for twelve hours, and then kneaded by hand *on dry cloth* into a uniform stiff paste; and it requires experience to know the right consistency.

If it is too moist, new dry cloths are placed under it, and it is worked until dry enough. But if too dry, it is a sign that either too much rennet has been used, or the curd has been pressed too much. In this case some new curd is added and carefully mixed with the other.

When of the right consistency, it is put into the molds, little tin cylinders of 2½ inches diameter and 3 inches high; as far as that goes, any little empty tin can may be used by unsoldering the top and bottom. After smoothing both ends, it is taken out again, and salted on the outside by strewing the salt on both ends, and lightly rolling them between the hands covered with salt.

They are then placed on a draining board, of any kind that is handiest, and left for twenty-four hours. In the drying room are lath shelves, on which smooth, dry straw is placed, and the cheese are laid there without touching each other. They are turned often enough not to lose shape or stick to the straw, and in two or three weeks they are covered with their "first skin," which is, when the white mold showing after five or six days, turns

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A well known figure at the National Capital is that of an attorney-at-law and solicitor of patents, who has been practicing before the courts and the Department of the Interior at Washington for more than 25 years. The experience of this gentleman with coffee is unusually interesting for it proves that although the ill results from coffee are slow they are sure. He says: "I have consumed coffee at my meals for many years, but of late years have been annoyed by deranged stomach and sleeplessness, pains in my head, nervousness and confusion of the mind. About 18 months ago I quit coffee and commenced to use Postum Food Coffee and have experienced the most pleasing and benefical results therefrom.

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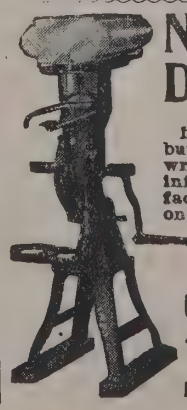
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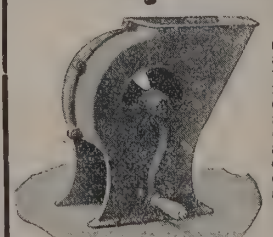
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into a blue mold. They are now taken to a cellar with similar shelves, where they are placed on end on the straw, and turned every three or four days. After three or four weeks in this place, red spots begin to appear, and the cheese is ready for the market. It takes 6 pounds of milk to one pound of cheese.

This cheese, like all kindred cheese, is hard to produce uniform, unless special rooms are provided, and I describe the manufacture just to give an idea about the principle. Experimenting in the making does not cost much, as two or three gallons of milk is all that is required, and the outfit need hardly cost anything.

Instead of straw, the wooden mats or "splashers" made of the same kind of wood as matches, may be used for drying the cheese on.—*From Monrad's A B C of Cheese Making.*

Foot and Mouth Disease.

ED. HOARD'S DAIRYMAN:—I have had that terrible foot and mouth disease in my splendid herd of 38 cattle that I was fourteen years breeding and getting to where I was. I retailed my milk at 7 cents per quart, and was milking 240 quarts a day from 24 cows, when my cattle were taken down with the foot and mouth disease.

The first day of December, 1902, my cattle were taken sick and I milked them what I could, doctored them all I knew how; washed their feet with sulpho-napthol, which killed the germ in the foot. Their mouths were so covered with ulcers that it was impossible for them to eat, and they would stand and slobber for about four or five days.

Their teats had water-like blisters on them, and by milking them, the blisters would break, and then would come a scab, and that scab made it impossible to milk them. Their udders became gargety and terribly sore. I had five of my best cows, that were so very bad they had to be killed in the stable; they were so weak that for seven days they hadn't stood on their feet.

The disease works just like this, the finer the cow is bred, and more milk she gives the worse they are affected. My two-year-old heifers seem to get over it in a week, but they are all better off to be killed than left to get well if they could.

That disease in a barn full of milch cows is terrible; the cows suffer something awful. My barn has been disinfected, and the stable repaired, new mangers and floors; and burned five tons of hay, that is, the hay that was exposed. The government pays 70 per cent of their well value; repairs of barn at cost, and market value for hay. The good old state of Massachusetts is going to pay us poor unfortunate ones the other 30 per cent on the value of our cows, and 25 cents a day for each animal quarantined after the first ten days.

My cows were all killed and buried in a trench back of the barn, 84 feet long, 7 feet wide, 7 feet deep, the 19th day of December, 1902, and still I shall keep on. When the quarantine is removed I shall purchase pure stock and commence all over again. ISAAC ALGER, JR.

Massachusetts.

Education and Ignorance.

ED. HOARD'S DAIRYMAN:—In the DAIRYMAN of Jan. 23, page 1050, you ask the good readers what ails these cow farmers who don't want to learn. Just this—ignorance, indifference and lack of gray matter.

Among all classes, are people who unhappily for themselves disregard knowledge, who having little or no information are content to live and labor under every disadvantage. They never equal nor rise above their fellow men, for as neither pleasure nor profit can be derived from them, they are compelled to labor with strong application of physical force, but none of mind.

The least intelligent among the lowest scale of farmers is sure to think that he is the best of all farmers and that his multitudinous mistakes and mishaps are owing not to his lack of skill or knowledge, but to the circumstances in which he is placed. He holds books and book farming in utter contempt. Professors and gentlemen farmers, who milk and feed with pen and ink in a sumptuously furnished office, can neither teach him nor cater to his needs, which, God knows, are many.

He has no idea of business methods and no inclination to learn. His experience of 20, 30, or 40, years is conclusive evidence that he knows that money making along dairy lines is a delusion and a snare. He never weighed a quart of milk or feed in his life and never will, but his knowledge on dairy topics is freely dispensed from the top of a dry goods box in the village store, while his cows, if they have life enough in them, are bawling for a bundle of dry corn stalks or a little straw.

He does not know that the successful man of today, be he farmer or merchant, is ever on the alert to increase his business, cheapen the cost of production and is constantly studying for more information in his special line. He has not sense enough to know that the nodding harvests in the fields, or the success in the dairy of his progressive brother farmer would crown his own efforts if he had the same knowledge, the same power and skill.

We see a man occasionally who, seeing the folly of his ways, calls to his aid the wisdom, experience and skill contained in the DAIRYMAN and agricultural and dairy literature of the day, buckles down to his work and resolutely overcomes the difficulties that beset him.

Verily, there is a mighty chasm between the ignorant and the practical, progressive farmer.

We respectfully request that "Double U Dee" not to bother his head with the man who don't want to learn, but rather put in his time and best efforts to a better purpose—that of catering to those of us who hunger and thirst for more and better knowledge along dairy lines, and continue to furnish us with the gray matter, which is characteristic of his paper, at a dollar a year, though we are willing to pay much more. J. HOWARD.

New York.

Feeding City Swill to Pigs.

ED. HOARD'S DAIRYMAN:—As T. B. N. of Frankfort, N. Y. has had trouble with his pigs from feeding "city swill" to them, and as I have seen the same effects that he has, I think that I can help him out of his difficulty.

Undoubtedly the swill has too much lye or strong potash in it which has been added to cut the grease in washing dishes. If T. B. N. will cut open one of his dead pigs he will find that the stomach and intestines are literally eaten to pieces. He should be careful to avoid feeding dishwater, using only table scraps. He can do this by furnishing an extra receptacle so they may not be mixed. Then by giving an acid test to determine the alkali (lye or soda) in the swill, I think will avoid the trouble.

As to the pigs now affected, if they will eat, be careful to give them nothing that will irritate them, so as to heal the sores. If they cannot eat drench them with something soothing. O. A. L.

Olympia, Wash.

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VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Infectious Abortion.

The dairymen in this section are having trouble in our dairies by abortion. Can you give us some light on the subject, as treatment of cows in dairies with several abortions. J. M. D.
Wiscoy, N. Y.

I have a thoroughbred Jersey heifer that by accident got with the bull and got in calf, twenty days before she was one year old. In just six months to a day she aborted. I am almost sure that this abortion was caused by injury. I let her go six months and bred again, and she carried this calf 253 days when she aborted again. How near calving time would you advise to use the carbolic acid or the powdered cramp bark treatment for abortion? Is there anything that I can give a cow that has aborted that will cause the afterbirth to come away? J. R. W.
Birmingham, Iowa.

ANSWER

This question has been answered almost every week in some torm for the past year or two.

The heifer may have had an accidental abortion, but it is always better to suspect her of being infected and liable to introduce infectious abortion into the herd. We have outlined a practical treatment for this disease on page 1039, which has proven a success in every case where it has been carried out, and would advise you to apply the same to your heifer and all animals which have aborted. The treatment consists of an application of antiseptics directly to the seat of the trouble, thus preventing the multiplication of the germs by destroying them in the very first case. We do not advise the use of carbolic acid unless you

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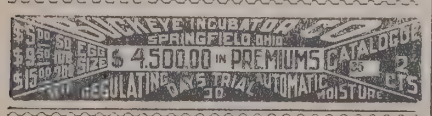
A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powdrpaint. It comes to the farmer a dry powder and all that is required is cold water to make a paint weather proof, fire proof and as durable as oil paint. It adheres to any surface, wood, stone or brick, spreads and looks like oil paint and costs about one-fourth as much.

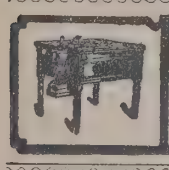
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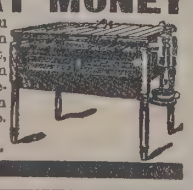


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ROYAL INCUBATOR CO.,
Dept. 424 Des Moines, Iowa.



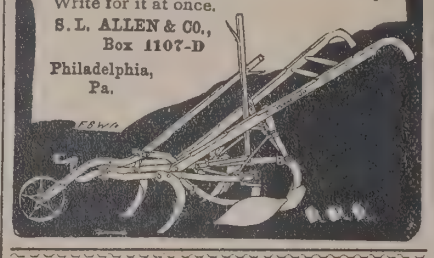
NOW IS THE TIME TO SUBSCRIBE
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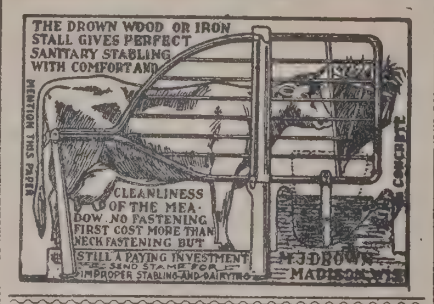
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The No. 8
"Planet Jr."
Horse Hoe and Cultivator

is without doubt the best, best known and most largely used one horse cultivator in the world. There is not a civilized country on the globe in which it is not known and used. This could not be so if it did not possess true merit and worth. It has a large number of attachments which make it readily adaptable to all uses and nearly all crops. Note the two levers. The one standing upright is for regulating the width. It changes the width of the tool for wide or narrow rows. The other lever operates the wheel and depth regulator simultaneously to a nicety. It is made of the very best material throughout and with reasonable care will last indefinitely. It is a great favorite with potato growers, truck farmers and general farmers. It is but one of our fifty seeding and cultivating implements, including plain and combined Seed Sowers, Wheel Hoes, Hand Cultivators, Walking Cultivators and One and Two-horse Riding cultivators, Special Sugar Beet Tools, etc. Our new 1903 catalogue is fine. It contains over 100 illustrations with full descriptions and prices. It costs you nothing and will make you money. Write for it at once.

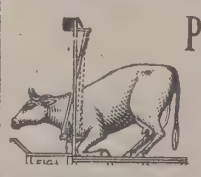
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Wilder's Stanchion
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Keeps Cows Clean.
Swings forward while getting up or lying down. Looks back while standing. Full particulars free.
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SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated Circular free. GLENORA MFG. CO., Glenora, Yates Co., N. Y.
Infringements will be prosecuted.

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to write THE WASSON STANCHION CO., CUBA, N. Y., if in need of Cow Ties or Stanchions.

Dairymen Look Here! Printing of all Kinds. I print 25,000 Health Milk Tickets with binder for $2.00, EXPRESS PAID, my tickets are popular, order at once: send for samples of anything you may need. Address EGGLESTON, "Printer," Lock Box 106, CORINTH, N. Y.

Water In The Stable a Necessity.



It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. **Why not use the Best?** Write for descriptive circular.
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400% PROFIT

THAT IS WHAT OUR FIRST STOCKHOLDERS HAVE REALIZED TO DATE. THEY WILL MAKE FULLY

400% More within the Next Six Months

THERE ARE ONLY A FEW MORE SHARES TO BE HAD AT THE PRESENT SELLING PRICE

25c. Per Share

If you want any at this price SPEAK QUICKLY, for the price will be **30c. a Share after March 5th.**

Until March 5th	
$500.00 will buy	2,000 shares
$250.00 will buy	1,000 shares
$125.00 will buy	500 shares
$50.00 will buy	200 shares
$25.00 will buy	100 shares
$12.50 will buy	50 shares

THERE is no investment at present on the market that can compare with Colorado Oil, for it is the highest grade of illuminating oil ever discovered outside of the world-famous **Tiona** district of Pennsylvania. **This is the class of Oil we have already discovered in our first well belonging to the ILLINOIS-COLORADO OIL, GAS & COAL COMPANY, in the great South Park, Park County, Colorado.** Statistics show that high grade illuminating oils are becoming a scarce product in the United States. **Do you appreciate the advantage of owning a product that great corporations are anxious to buy (and must buy)? IF YOU DO, SEND IN YOUR RESERVATIONS OF STOCK WITHOUT DELAY.** California and Beaumont oils sell for 25 cents per barrel, but the oil we have discovered commands from The Standard Oil Company the price of **$2.00 per barrel.** **The ILLINOIS-COLORADO OIL, GAS & COAL COMPANY owns free and clear of all encumbrance 1040 ACRES of the choicest oil lands in the South Park (and the Company is the pioneer Oil Company of this section.)** This acreage is sufficient for at least 500 more wells. Our property is reached by two railroads, the Colorado Midland and the Colorado Southern. The company has already invested thousands in equipments, buildings, etc., ***and has no indebtedness of any kind, no encumbrance of any kind, no preferred stock, no bonds, stock forever non-assessable.*** The Olive well of the **ILLINOIS-COLORADO OIL, GAS & COAL COMPANY** is now down to the depth of 1000 feet, and the second body of oil sands (estimated at 500 feet in thickness) will be encountered at about 500 feet more depth. At this point we can expect a flowing well and perhaps a "Gusher." Then the price of stock will go to at least ***$1.00 per share.*** Without accidents we will drill to this depth in ***two weeks,*** so don't delay in asking us to reserve you a block of shares. If desired you can purchase stock on the installment plan; 25% cash with your order, 25% in 30 days and the balance the sum of 50% in 60 days. Our prospectus, which is free for the asking, will give you all further information. Write for it at once; but don't delay in sending in your order. The **ILLINOIS-COLORADO OIL, GAS & COAL COMPANY** is sure to make many fortunes. Address:

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There is no town of importance where you can not secure

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All stanch, reliable machines for the harvest

Binders Headers Header-Binders Mowers Reapers Corn Binders Corn Shockers Huskers and Shredders Rakes Binder Twine Oil

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$2.00 TO $5.00 PER ACRE
In Lincoln Co., Miss. Finest climate on earth. Good water. No swamp. No Malaria. Grow everything. Good markets. **Keystone Lumber and Improvement Co.**, Bogne Chitto, Miss.

This Tubular Fence Post
made of Galvanized Metal, will not rust, rot nor burn, and will last a lifetime. Cheap as the best wood post. Takes any kind of woven, barb or smooth wire fence. Made plain or ornamental. For farm, lawn, cemetery, etc. Circulars and prices on application.
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wish to inject it in a greatly diluted form into the vagina or uterus after abortion. Feeding it has proven to be a flat failure, and it is only reasonable that it should be so, as the seat of the trouble is not in the stomachs, but in the envelopes of the foetus and uterus, and it stands to reason that it does not get there through the mouth or the digestive organs, but through the genital organs from the posterior, and it is through these sources that we must seek relief, by applying our antiseptics directly to the seat of the trouble. You may ask, "why wait until a cow has aborted, and why not apply antiseptic agents to these parts before abortion takes place?"

We will answer, that you never suspect abortion in your herd until one or two have aborted, and just these one or two are the germ breeders for the rest of the herd, and while the uterus is still open, you can get at the interior of the same where the germs are rapidly multiplying and get a chance to destroy them, while later on this organ closes so tightly that you cannot gain access to the interior no matter how hard you try, and if a cow is once pregnant you should never try to open the uterus, for if you do you will surely cause abortion mechanically. We only prescribe the cramp bark internally, because it is a uterine stimulant, and will strengthen this organ so that it is more able to resist the attacks of the enemy. Black haw is equally as good for this purpose.

The best way to remove the placenta is by hand, being careful to unbutton each cotyledon from the placenta, then flush the uterus with a tepid solution of permangenate of potash, using a teaspoonful to an ordinary bucket of water. This will remove the small particles which cannot be removed by hand. Giving medicine per mouth will not remove the placenta after abortion in any case.

Horse Owners! Use

GOMBAULT'S

Caustic Balsam



A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action Removes all Bunches or Blemishes from **Horses and Cattle, SUPERSEDES ALL CAUTERY OR FIRING.** *Impossible to produce scar or blemish*

Every bottle sold is warranted to give satisfaction Price **$1.50** per bottle. Sold by druggists, or sent by express, **charges paid,** with full directions for its use. Send for descriptive circulars.

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COWS RELIEF STOPS DAIRY LOSSES

Expels the Terror of Caked Bag, the annoyance of Sore Teats and Dread of Hard Milkers. Used exclusively at Model Dairy. Guaranteed to cure Caked Bag in 12 to 24 hours if taken at the start. Invest 50c and save a Cow.

Caused by Caked Bag-Spiders in the Teats Hard Milkers and Sore Teats

Makes Milking Easy for Man and Cow

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Calf Scour Treatment

SAVES THE CALVES.

At Hood Farm, Lowell, Mass., in one year, there were 83 cases of scours. Every calf was treated with these remedies and all but 3 were saved. Formerly we lost 75 per cent. of all calves affected.

Two sizes of each remedy, $1 and $2.50, large contains four times the quantity of the dollar size. Prepaid to any railroad express point in U. S., 25 cents additional.

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Brooks Appliance. New discovery. No obnoxious springs or pads. Automatic Air Cushions. **Binds and draws the broken parts together as you would a broken limb.** No salves. No lymphol. No lies. Durable, cheap. Pat. Sept. 10, 01. Sent on trial Catalogue free.

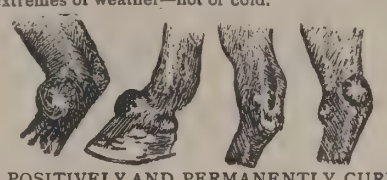
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SPAVIN CURE

Horse can be worked with either shin or ankle boots, as no harm can possibly come by either destruction of hair or scalding of the limb. "Save-the-Horse" can be applied in all conditions and extremes of weather—hot or cold.



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Written guarantee with every bottle, constructed to convince and protect you fully. The need of second bottle is almost improbable, except in rarest cases. Send for copy.

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TROY CHEMICAL CO.,

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ALSO OF VETERINARY PIXINE, FOR Hoof Rot, Cow Pox, Chapped Teats and Caked Bag, also Scratches and Grease Heel, cases where ulcerations extend, with transverse cracks which open at every step and often bleed, no matter how complex, aggravated, deep seated or chronic; if treated according to directions, as given on circular with every box, positively cured. **Keeps the Hoofs Healthy, Soft and in Perfect Form. Heals Collar and Saddle Galls, Abscesses, Sores and all Skin Diseases. 2 oz., 25c., 8 oz., 50c.; 5 lb. pkg., $4. At all druggists and dealers' or sent prepaid.**



$1 Bottle FREE

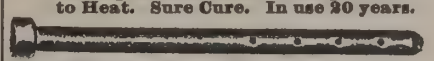
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ABORTION

Send for Free $1.00 Bottle. **Dr. Roberts** Veterinary Remedy Co., 509 Grand Ave., **Waukesha, Wis.**

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Failing to Breed and to bring Cows to Heat. Sure Cure. In use 30 years.



Hard Rubber *Safety* Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.

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Retention of Placenta and Failure to Breed.

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NO CURE, NO PAY

WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address



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$900 will buy 6000 shares, par value $6000
$600 will buy 4000 shares, par value $4000
$300 will buy 2000 shares, par value $2000
$150 will buy 1000 shares, par value $1000
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The Larger Your Investment the Larger Your Returns.

Note what you would have made on a small investment in the following companies: One thousand dollars invested in the Portland Mine seven years ago would have realized you $100,000. One hundred dollars invested in the Elkton Mine at Cripple Creek would have realized you in six months $6,000. The great Independence Mine was once offered for sale for a few hundred dollars, afterwards paid dividends to $2,000,000 per year, and was sold for $10,000,000 three years ago. There are hundreds of other companies showing the same results.

The Four Metals Mining and Milling Company owns nearly 500 acres of the richest mining property in the greatest mineral producing section of the United States. We are shipping ore now at a profit. One mine alone, which is fully equipped with modern machinery, has produced $100,000. Our other mines show at least a half million dollars worth of ore in sight. All we need now to make them heavy producers are hoisting machinery and a one hundred ton mill, and these equipments will be installed as fast as men and money can do the work, then our stockholders will receive **large dividends from their investment.** To enable us to make these improvements is the reason we are offering our treasury stock for sale. Remember we mine Gold, Copper, Silver and Lead, the greatest profit producing metals in the world. Our mining property is surrounded by mines worth millions of dollars. **When we say we are offering you a chance of a lifetime, this statement is a fact.** All that we ask is that you investigate. A postal card will bring to you our prospectus with convincing proofs that our proposition is the best on the market today. Any further information you desire will be cheerfully given.

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BARREN COWS CURED.

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BEST PREVENTIVE OF BLACKLEG.



Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each **Blacklegoid** (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. **Blacklegoids** are sold by druggists; *ask for them*

Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.

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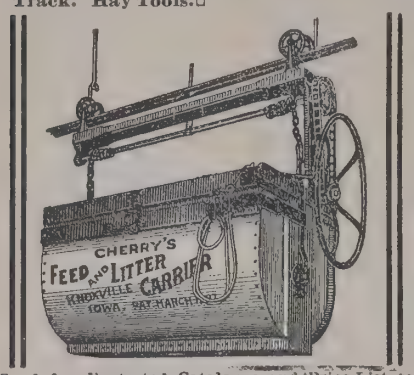
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Operates on Curves and Switches. Manure Carrier, Feed Carrier, Grain Elevator and Track. Barn Door Fixtures and Track. Hay Tools.



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Are better and cheaper; no hames will not gall but **cure sore shoulders.** Sensible, practical, humane. Agents make big money. Write for descriptive catalog and **free territory.**

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She may not come in. She may abort. It's the dairyman's hazard.

KOW-KURE
(FOR COWS ONLY)
will start her right. A special treatment for the particular troubles the cow has. Endorsed by dairy people. Booklet, "Kow-Kure for Cows Only" free.
Dairy Ass'n, Lyndonville, Vt.



Contains 87 Per Cent Protein

Swift's Soluble Blood Flour

is excellent for dairy calves. It is readily soluble and easily digested—cures and prevents scours. Write us for prices and information about Swift's Animal Foods

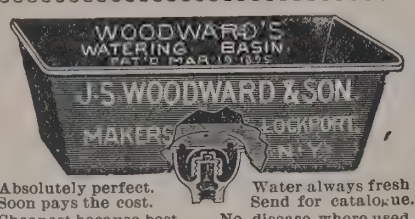
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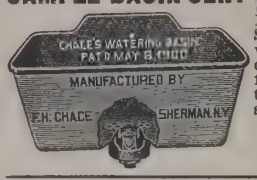
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First Lot at Wholesale. Can't break or rot, nice round rim, any size or shape. Write for circular of **Cow Basin,** Poultry and Stock Troughs. Who will be first. **D. H. BAUSMAN, Bausman, Lanc. Co., Pa.** We make Steel Swings. Fine Booklet Free.



Absolutely perfect. Water always fresh
Soon pays the cost. Send for catalogue.
Cheapest because best. No disease where used.

SAMPLE BASIN SENT ON APPROVAL.



Basins are fitted with **Self Closing** Cover which prevents all dirt and sediment from getting into them. Send for catalogue and price list.

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$3 a Day Sure

Send us your address and we will show you how to make $3 a day absolutely sure, we furnish the work and teach you free, you work in the locality where you live. Send us your address and we will explain the business fully, remember we guarantee a clear profit of $3 for every day's work, absolutely sure. Write at once
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Western Canada

Has Free Homes for Millions.

Upwards of 10,000 Americans have settled in Western Canada during the past five years. They are **Contented, Happy** and **Prosperous** and there is room still for **Millions.** Wonderful yields of wheat and other grains. The best grazing lands on the Continent. Magnificent climate, plenty of water and fuel. Good schools, excellent churches, splendid railway facilities.

FREE HOMESTEADS
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(the only charge being $10 for entry) in Manitoba, Assiniboia, Saskatchewan and Alberta. Send to the following for an Atlas and other literature as well as for certificate giving you reduced rates, etc. Superintendent of Immigration, Ottawa, Canada; or to the authorized agent of the Canadian Government—

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450 Acre Farm

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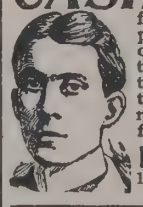
Three-eights mile from electric car line. It has eight acres in asparagus, 4 acres in strawberries, and eight acres in orchard.

200 REGISTERED JERSEY COWS, CALVES AND GRADES.

Place has paid $4000.00 per year and a practical dairyman could make it $7000.00 per year. Will sell for about one-third cash down, balance on time. For full particulars address

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farm, home, business, or other property (no matter where located or how large or small) may be obtained through me. Send description, state price, and get full particulars free. Est'd 1896. Highest references. Offices in 14 cities, from Boston to San Francisco.

W. M. OSTRANDER
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FOR SALE. A Good Dairy and Stock Farm of 120 acres, well watered, spring at door, a running brook through premises, well fenced, good house and out buildings, a small grove, barn nicely fixed for 22 cows, separator room attached. Am in dairying and have a nice herd of grade Jersey cows, a registered bull 2 years old, all located within one mile of town of 2500 inhabitants. A good cream trade with principal restaurant. Creamery in town. Would like to sell farm, dairy stock and all. A Bargain to the right man. **IRA D. FOTMAN**
Lancaster, Wis.

FOR SALE.

A Fine Farm in Sargent Co., North Dakota,

consisting of 7 quarter sections with lease continuing 3 years on two other quarters.

300 Acres in Cultivation. 600 Acres Enclosed in Four Pastures, Remainder Outlying Prairie.

IMPROVEMENTS.

HOUSE is very comfortable dwelling with eight rooms.

FINE BARN 101x112 feet with capacity for stabling sixteen head of horses and eighty-four head of cattle in stanchions. **Calf Stable** for twenty head and stable for young stock and box stalls for hospital purposes.

TWO LARGE SILOS inside with ninety ton capacity each, besides room for two hundred and fifty tons coarse fodder, and **Root Cellar** 24x24 feet.

CREAMERY 22x40 feet, two story with up to date machinery.

FEED MILL AND ELEVATOR 18x32 feet with bins above to hold more than four thousand bushels of grain, equipped with a **Three Roller Mill,** corn sheller, grain cleaner, elevators, spouts and hopper, and bottomed bins for convenient handling of grain. Mill is connected to creamery by a building 20x28 wherein is a

WATER WHEEL that **drives the mill and creamery,** and **boiler for steam** heating and hot water for use in creamery. This room is also used for carpenter and blacksmith shop. Within this room is also located an

ARTESIAN WELL yielding five hundred gallons of clear soft water per minute under pressure sufficient to drive the mill and creamery. It also provides

WATER IN HOUSE AND BARN and flows off through pastures making several small lakes, furnishing water on four quarter sections and finally flows off to natural water way that leads to Red River of the North.

WATER WHEEL AT BARN **furnishes power for cutting ensilage** and other purposes. There is also a

GRANARY 18x32 feet with basement now used for

ICE HOUSE The house is enclosed in a **beautiful lawn** of about **eight acres** wherein is the family garden. Several hundred fine forest trees have been planted here besides some fruit trees all of which are doing finely.

This is **one of the finest and most complete** plants for general farm purposes and for stock growing and dairying to be found in the northwest. Practical up to date farmers wanting a fine plant should investigate. For full particulars regarding the farm and its sale address

BYRON PARSONS, Evansville, Ind.

THE COMING DAIRY COUNTRY

Probably the richest farming country open for settlement to-day on the American continent, is the fine hardwood belt extending along the Minneapolis, St. Paul & Sault Ste. Marie Railway ("Soo" Line) in northern Wisconsin and Michigan. Acknowledged by good authorities on dairying to be the best dairy region in America. A land of Clover and Blue Grass well supplied with streams, lakes, and springs of pure water

W. D. HOARD, Editor of Hoard's Dairyman, says:

"I believe that northern Wisconsin is going to prove the most successful dairy region of the northwest, something like that of St. Lawrence and Lewis counties in New York.

"The peculiar salubrity of the air, the moderate heat of summer, the abundant and pure water, the good soil and luxuriant growth of grasses, all conspire to make it an ideal dairy region."

CHOICE LANDS AT LOW PRICES.

If you want a home in the "Great Clover Belt" write for free illustrated folder to **D. W. CASSEDAY, Land Agent "Soo" Line, Minneapolis, Minn.**

HARDWOOD TIMBER LANDS

from which the older trees have been cut but mostly covered with a fine growth of young timber, located in Marathon County, Centra' Wisconsin, are now offered for sale by us on most favorable terms to actual settlers.

This is some of the very best hardwood agricultural land in this state, with a deep, clay loam soil, gently rolling, with water easily obtainable at from 16 to 24 feet.

There is no better land for grain, grasses pastures, oats, peas, fruits or livestock, etc. Particulars will be furnished promptly on application.

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Dairy Business for Sale.

Operating on leased farm and distributing products direct to consumers at high prices. **Annual business over $25,000.00** and paying good profit. Stock, equipment, routes and good will offered at reasonable figure. **A Magnificent Opportunity** for individual of means and ability. Owner's attention demanded at other matters. Address "BUSINESS," care of Hoard's Dairyman, Ft. Atkinson, Wis.

Fine Dairy Farm for Sale.

Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence, cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. **T. S. TOMPKINS,**
Pasadena, Cal.

STOCK FARM BARGAIN.
MARQUETTE CO. WIS.

240 acres, 100 acres in cultivation, 50 acres in timber, rich black loam, fine house, new barn, other buildings. A Bargain. Price, $7500 easy terms
For particulars address **J. H. MYERS,** C 100, Mack Block, Milwaukee, Wis.

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We can sell your farm, real estate or business quickly for cash, *no matter where located.* Send description and price and learn *how.* Money to loan on good mortgages. Estab'd 1893. Offices in principal cities. Highest references.
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930 Real Estate Trust Building, Philadelphia, Pa.



200,000 ACRES TO SELECT FROM

We own 40,000 acres in Red River Valley, in Marshall and Kittson Co's, Minn. and in Walsh and Grand Forks in N. D. 15,000 acres in LaMoure, N.D. Fine stock ranches in Logan and Mercer Co's, N.D. 50,000 acres of Timber land in Aitkin Co. Minn., and Washburn Co., Wis. Also 15000 acres in Southern Minn. in Lyon and Redwood Co's, near Marshall.

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MR. MILK DEALER. I have something new. Invaluable to you. Send for free Booklet.
S. C. SULLIVAN, 425 W. 4th, Erie. Pa.

Comments and Queries from Robinswood Farm.

What Percentages of Butter Fat are to be Desired in the Economical Production of Milk for Butter Making and for Direct Consumption?

ED. HOARD'S DAIRYMAN:—The question that Mr. L. W. Peet asked in the issue of November 21st last as to the most desirable richness of milk in butter fat for economic production is a very interesting one, and one that apparently has not been given any general definite answer. I imagine that the question cannot be answered in an entirely satisfactory manner without the collection of a very much larger amount of data than has hitherto been made and collated. I know of no other avenue though which this collection of facts could be made so disinterestedly as though HOARD'S DAIRYMAN. I do not think that the decision as to this matter can be left to the various breed associations, because each one of them is composed of owners of various types of cows, to say nothing of differences of a wide nature existing between the associations themselves, for of course the Holstein champions will claim that a very big flow with a relatively small per cent of butter fat is the correct ideal.

Equally of course, and I think correctly so far as the economic production of butter fat is concerned, the Jersey people will claim that a rich per cent of fat and somewhat lesser total yield of milk is essential; while the Ayrshire advocates would naturally stand up for a medium fat percentage. I don't know just where the Guernsey folks would stand as to this question; although we know where they stand as to the color line. I am not at all certain that in our present state of scientific knowledge, we can say that the percent of butter fat in the milk has any very close relation to the whole amount of milk produced. We know as a rule that the greatest butter makers have been rather deep producers of quite rich milk. A discussion of the influences which effect large butter fat percentages in cows is a separate story, and I will here confine myself to a consideration of the query embodied in the heading.

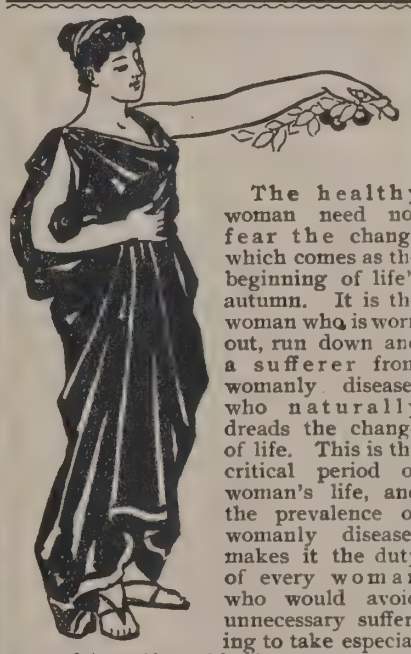
There are certain general laws which have some relation to the matter. We know that when a cow is giving her greatest flow she is producing the most butter fat, although at that time, as a rule, her milk shows the lowest percentage of butter fat. The amount of butter fat a cow can produce seemingly depends, in a large degree, on the amount of fats and carbohydrates she can digest and absorb, the proteins having comparatively little relation to this specific, fatty production. As a secondary influence determining the amount of butter fat produced, we have peculiarities of temperament and disposition in the animal as they relate to facilitating a formation and disposition of fat or its nonformation through the oxidation throughout the general system of the food constituents, from which the fat is formed, as for example in excitable, restless animals. As a third set of influences we have to consider the quantity, as well as the quality, of the blood which may be distributed through the udder, and this influence includes the proportionate strength of heart action. And fourth, we have the intensity of functional activity of the milk cells themselves, the degree of which is regulated by the development of the nerve centers of the cerebro-spinal and sympathetic nervous systems.

I think that it cannot be denied that mammary protoplasmic activity may be so intensified by high protein feeding that the protoplasmic contents of the cells are so enlarged as to prevent absorption in sufficient quantity by the cell of the elements needed for fat formation. This reason is outside of the fact that a blood current may be so loaded with protein as to prevent a due proportion of fatty and carbohydrate currents from passing into the milk cells. The whole conjunction of conditions which conduce to the presence of the most desirable percentages of fat in the milk and which include cost of feed under special conditions, is so complex that I do not think that any generally acceptable determinations can be arrived at as to the most desirable percentage. What would be the best under one set of conditions would not be so in other cases. We must usually judge the matter in relation to special conditions and always with reference to the particular case in hand.

A cow that is suited to the heavy feeding of cheap protein, as in alfalfa regions, is not just the right cow for a light and rather broad ration. Some cows may have great powers to produce fats simply because of high digestive power for protein and a deep milking capacity, and yet whose percentage test is small. Such cows may be profitable to keep when protein feed is cheaply secured, but would be unprofitable servants in other localities. Other things being equal, and in most situations, the more butter fat that a cow can produce with the least use of protein the more profitable is she to be considered, though it must not be forgotten that a certain narrowness of ration is needed for heavy work. Those cows that through climatic and other influences have developed functional pecularities which conduce to large fat percentages, though with a somewhat lesser production in the quanity of milk produced are those which make butter fat most economically.

Nevertheless it is frequently a better policy to make more pounds of butter at a greater cost per pound than to produce fewer pounds at a lesser cost per pound The cow best suited to do the work should be created in harmony with the policy adopted. So far as I can see, the only way to handle this matter practically is to feed the cows protein to the greatest extent, up to the point where they show an unprofitable return, a point that can be determined by the weighing of the milk from each and the Babcock test, and with proper regard to the health of the animal. This latter point is a matter that must be carefully considered; for if health is being undermined, productive evolution should be stopped. My opinion is that when a sufficient number of statistics has been collated, it will be found that as a general rule, the amount of fat in the milk that will be found most profitable will average through the whole year between four and five per cent, say, ranging from four to six per cent, during the different stages of lactation.

There is no reason, so far as health is concerned, why the breeder should not strive to secure in a butter cow as large a percentage of butter fat in her milk as is possible. The influences which conduce to very large percentages, do not conduce to very deep flows; and it is only when very heavy continued flows occur that danger to constitutional strength ensues. The amount of heat and energy

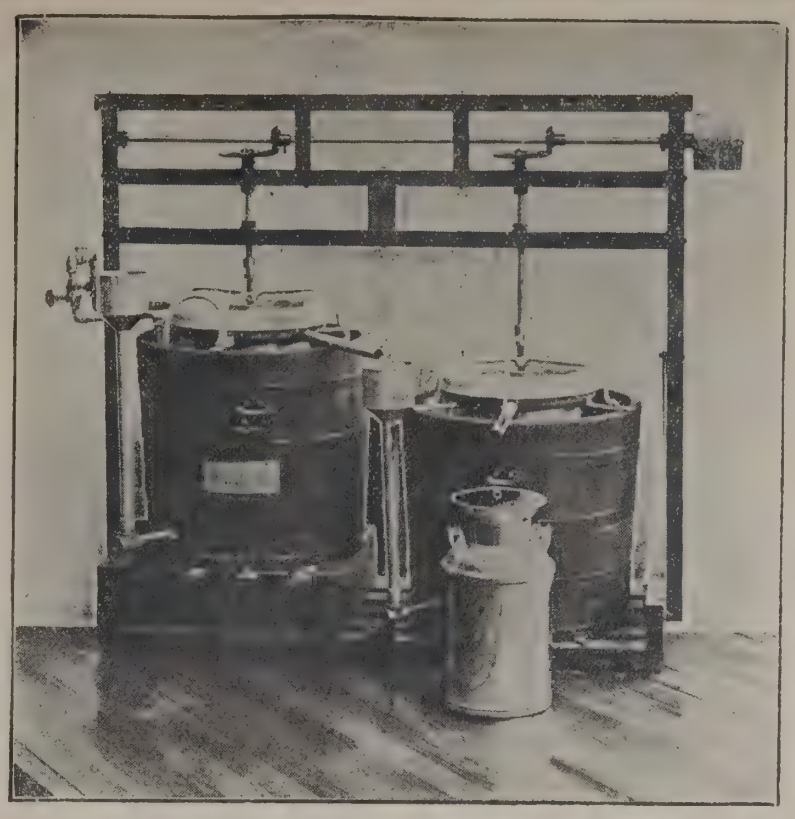


The healthy woman need not fear the change which comes as the beginning of life's autumn. It is the woman who is worn out, run down and a sufferer from womanly diseases who naturally dreads the change of life. This is the critical period of woman's life, and the prevalence of womanly diseases makes it the duty of every woman who would avoid unnecessary suffering to take especial care of herself at this time.

The ills which vex so many women at the change of life are entirely avoided or cured by the use of Dr. Pierce's Favorite Prescription. It makes weak women strong, and enables the weakest to pass through this trying change with the tranquility of perfect health.

"I have been a very healthy woman, and this time has been very hard with me," writes Mrs. Maggie Morris, of Munson Station, Clearfield Co., Pa., Box 16. "I am come to the time of change of life, and I have been sick a great deal of and on. When Mrs. Hemmis moved beside me I was sick in bed, and when she came to see me and we were talking over our sickness, Mrs. Hemmis told me to try Dr. Pierce's Favorite Prescription and 'Golden Medical Discovery,' also 'Pellets.' I got her to bring me a bottle of each from the drug store and I used them. They did me a great deal of good, and I got two more bottles of 'Favorite Prescription.' I never saw such a wonderful cure. Before I commenced your remedies I was good for nothing; was in such misery I hardly knew what to do with myself, now I can do all my work myself and feel well."

Dr. Pierce's Pleasant Pellets are easy and pleasant to take.



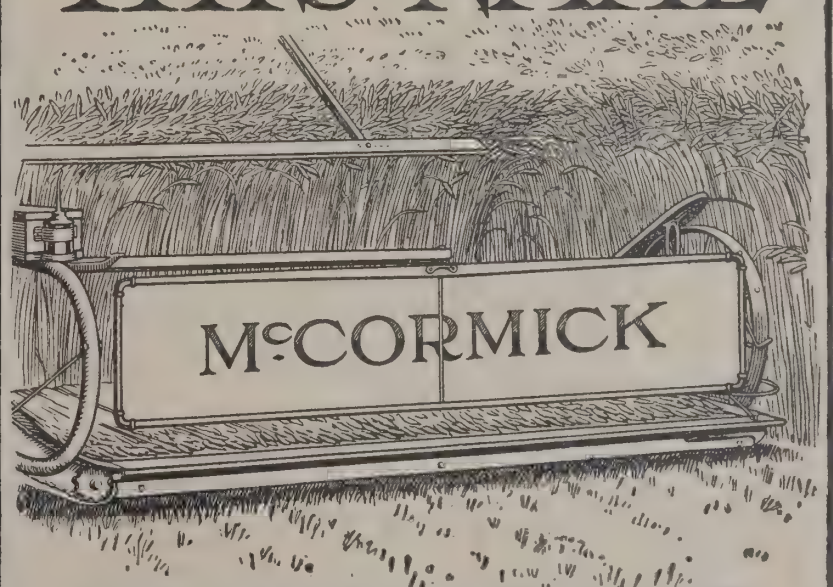
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Price $150 in Tin. $200 in Copper.

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THIS NAME



IN THE GRAIN

is a guarantee of a speedy and successful harvest. Time is money to every farmer and is always worth more when the grain is ripe than at any other season of the year; therefore, it pays the farmer well to own the McCormick—the binder that not only saves his grain, but also saves his money in saving his time.

"A MODEL MACHINE"

is the title of the McCormick book for 1903. If interested in machines write for it.

ADDRESS NEAREST McCORMICK BRANCH,
EAU CLAIRE, WIS. GREEN BAY, WIS. MADISON, WIS. MILWAUKEE, WIS.

creating food consumed in the production of even a very large production of butter fat is a relatively slight matter under good conditions of protection, care and intelligent feeding; but when there is a very heavy draining away through the udder of the other elements of milk (i. e., the protein and mineral constituents) then constitutional damage is likely to ensue.

The influences which tend to create very large milk flows and very great fat percentages are so diverse, that we have to conclude in this, as in other things, that specialization must prevail to secure the best results. The breeder who attempts to secure both conditions in one cow, is pretty sure to fail, through a dual aim, whether he is using cross breeds or thoroughbloods, and is likely to secure a small flow as well as a low per cent of butter fat through lack of singleness of aim, and hence, through lack of intensity of influence brought to bear on the desired aim. It is strange that this fact has not been generally recognized before this, in striving for the creation of a milkman's cow, where the ideal for a good milk for direct consumption should be of about three and one-half per cent of small globuled butter fat with a moderately deep flow—a condition frequently found in the Ayrshire breed; but which condition has been badly mixed and damaged through breeding for beef and fad udder and teats. I do not know of anyone who seems to have made a business specialty of breeding up a right strain of cow for the milkman. I have seen some individuals among the Ayrshires of the right type, and if I wanted to breed for the aim referred to, would base my work on the Ayrshire breed.

J. M. W. KITCHEN, M. D.

New Hampshire.

Dehorning Cattle.

ED. HOARD'S DAIRYMAN:—I see in your issue of January 23, 1903, on page 1065, the Dehorning of Cattle Recognized in Australia as Cruelty to Animals. I was once of that opinion, but by looking around and seeing how stock will horn each other I now think it a merciful operation. I had an old Jersey cow get one horn broken off the other day. I think that was more painful than to saw it off; and last fall I saw at the Sedalia Fair there were several Jerseys with the shell slipt off of the horns or one horn. Now I think that it is much more painful than to saw the horn off and the cow would look much better than with horns on. In fact I don't see that our cattle have any use for horns only to do harm.

I bought a steer of my neighbor and he hooked another steer of mine in the flank and let his bowels out and the steer died Then I sold him to my brotherinlaw and the steer hooked a cow of his in the flank and let her bowels out and she died. Then he fattened him and when he shipped him I went with the car and saw the steer go up and down in the car and just made the other cattle bellow.

Now wasn't that cruel? It is no more painful to take the horns off then to castrate a steer, but the right way to dehorn is to do it when the calf is first dropped. Just after it has sucked itself full and laid down to sleep, then go to it and hunt for the little button. You will find a little bare spot where the horn will come and just wet that spot with a little caustic potash, or this common box lye that they make soap of, is just as good. Wet that little button and the calf won't wake up under the operation and the horn will never start to grow. Now if this is cruelty to animals I would like to know why? I think that every calf ought to be done that way, but a still better way is to breed them off with hornless males, Polled Jerseys and Polled Shorthorns, Red Polls and so on. WM. H. B.

Concordia, Mo.

Silage Compared with Timothy Hay.

Will you please tell me the value of good corn silage as compared with timothy hay? P. J.
Wayland, Mich.

Timothy hay of average quality contains 49.4 per cent digestible units. Silage of average quality contains 17.1 per cent digestible units. If this was the only test of value, timothy hay would be worth nearly three times as much as silage, but timothy hay is not so easily digested as silage and quite a proportion of its digestible value must be used in furnishing energy to digest it, whereas silage is easily digested and, therefore, requires less expenditure of energy for this purpose. Again, silage is a succulent feed and there is a value in succulence which cannot be measured or even estimated in figures.

Early Ripe Fodder Corn.



This corn has leaped with one wild bound into popularity and nothing that we have ever sold has given such great satisfaction. Everywhere throughout the United States, where SALZER'S EARLY RIPE FODDER CORN was planted, it surprized and delighted, and pleased and astonished the grower.

It Was Ripe in 60 Days

and furnished magnificent feeding Corn just at a time when farmers were short of Corn. If you plant this early, you will have fine feeding Corn by July, when you can replant same and have good Fodder Corn in September. This is the most wonderful Ensilage Fodder Corn in the world. Our catalog gives full description.

Salzer's Superior Fodder Corn.

This variety is late, but it's the greatest Fodder Corn on earth. Here are two testimonials from wide-awake farmers that will tell you what they think of this remarkable Fodder Corn. It is far ahead of such varieties as B. and W. corn, when big ears, full ears, and lots of them, together with enormous quantities of leafy, rich Fodder are desired:

Chas. E. Brandel, Truesdell, Kenosha county, Wis., says: "The Salzer Superior Fodder Corn that I got from you last spring is truly a great and wonderful Corn. I planted it the latter part of June and some of it nearly ripened before the early frosts. There are two big ears on almost every stalk, and if it had been planted earlier, there would have been magnificent Corn, thoroughly ripened."

"Racine, Wis., Sept. 14—Out on my farm we planted nearly five acres of your Salzer's Superior Fodder Corn, and it is a sight. From one square rod we cut and bound 450 lbs., and this, I believe, is at the rate of 36 tons (72,000 lbs.) per acre.—C. C. Beebe."

OTHER FODDER PLANTS. Salzer's Catalogue is brim full of rare Fodder plants for the dairy. There is nothing in the world better than Salzer's Teosinte, yielding 100 tons of green Fodder per acre, Salzer's Billion Dollar grass, with its 12 tons per acre, and Salzer's Thousand Headed Kale, Dwarf Victoria Rape, Bromus Inermis, Kaffir Corn, Sand Vetch, Jerusalem Corn and the Giant Spurry are but a few of the things found in Salzer's Catalogue.

FOR 8c. If you will mention HOARD'S DAIRYMAN when you write, we will send you a sample package of the Earliest Ripe Fodder Corn and Salzer's Superior Fodder Corn, the two best Fodder Corns on earth, together with our great Catalogue, well worth $100 00 to the wide-awake dairyman and farmer.

JOHN A SALZER SEED CO., LA CROSSE, WIS.

An Interesting Advertisement

AND WHAT WILL COME OF IT

In a recent issue of a very prominent publication, I published an advertisement which read as follows:

"A SAFE INVESTMENT: Those who have modest sums saved for a rainy day, and who don't want to lose in uncertain ventures, yet who are willing to investigate an enterprise, that is conducted on honor and with every guarantee of certain profits, will learn something of interest and to their profit by addressing E. M. Armstrong, Chamber of Commerce building, Chicago. Gilt edged references in abundance."

I received a number of inquiries in answer to this announcement. The advertisement states nothing about the character of the investment, for I depended entirely upon the faith that the readers had in the publication, and confident that they would understand that no advertisement that had behind it any unreliable or improper motive could appear in the columns of this paper for any money and I wasn't disappointed in the result.

To tell you in an advertisement all about the investment in which I am interested would take too much space and cost too much money, but I will say this, that it is one of the safest investments that has been recently offered to the public and it will bear the most rigid investigation, and will pay those interested large profits for many years to come, at least calculation twenty years. I myself have invested practically all that I have in the world in the enterprise. It involves tens of thousands of dollars on my part and will make me very wealthy. A limited amount of stock is offered for sale by the directors and a few investors can be accommodated.

It is an enterprise that is endorsed by many of the most reliable and best posted business men in the country. The members of the Directory Board comprise men who would not under any circumstances allow their names to be used in connection with unreliable ventures.

FOR THE STOCK YOU WOULD SEND YOUR MONEY TO ONE OF THE SOUNDEST BANKS IN THE WEST who is the depository of the company. These points I mention that you may appreciate that the enterprise is on the soundest basis and that you would be doing business with parties whose statements are reliable.

It does not matter whether the amount you have to invest is $50, or $500, or even more. This proposition will repay you many times for the trouble of writing for further particulars and for your convenience I attach a coupon, which please sign your name to and address to me in an envelope under a 2c stamp. If you do not wish to mutilate your paper you need not cut out the coupon, but address me by letter or postal.

E. M. ARMSTRONG
322 Chamber of Commerce Bldg.,
CHICAGO.

E. M. Armstrong, 322 Chamber of Commerce Bldg., Chicago, Ill.
Dear Sir: Please send me full particulars of the reliable investment. It being understood that I am under no obligations to invest unless I choose to do so of my own free will.

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Address.....

As Good as Wheat in the Mill
Kentucky Grain Drills
Interchangeable Disk or Shoe
Brennan & Co. S.W.Agl.Wks., Louisville,Ky.
SHIPPED FROM MINNEAPOLIS, MINN AND OMAHA, NEB.

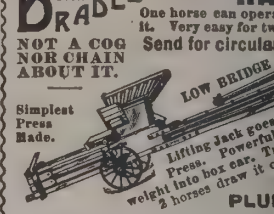

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Fully Guaranteed.
Sold on trial. We ask no money in advance. Try on your own farm, if not of largest capacity, easiest running and most durable, don't keep it. Circulars free.
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Ear Corn Grinding
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Double hopper, runs easy on ball bearings. Makes excellent corn meal. Sold on trial. Full guarantee. Send for 36th Annual Catalog. Mailed FREE. We handle all standard makes of farm implements. Get our prices on what you want.
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THIS MILL
DOES ALL KINDS OF WORK on one set of grinders without injuring them. The Tandem Sweeps are easy on the horses. No Gearing. No Friction. It's different from all others. (Also sizes belt-power mills) 2 to 25 H. P.
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Ensilage Cutters, with Blowers or Chain Carriers. Ensilage and Stalk Shredders. Tread Powers, all sizes from dog or sheep to 3 horse. Sweep Powers. Threshing Machines. Circular and Drag Saw Frames.
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NOT A COG NOR CHAIN ABOUT IT.
One horse can operate it. Very easy for two. Send for circular.
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Now is the time to install a ram. Bailey's is always successful. He guarantees it. It is the most simple, durable, efficient and economical. If you want water at house or barn, send for catalogue No. 30 to
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They'll not take too much, and they'll get it as they want it. Don't force animals to eat salt when they don't require it, by mixing with food.
COMPRESSED
Pure-Salt Bricks
are all salt, no impurities. Improve the quality and yield of milk. A modern convenience, always present, animals never neglected, and costs for each only about a nickle a month. See how they enjoy helping themselves when you place it within reach. For all stock. Buy of dealers or send for free booklet to
Belmont Stable Supply Co., Brooklyn, N.Y.

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Rich and Poor Alike Suffer From Catarrh in This Climate.

All observant physicians have noticed the enormous increase in catarrhal diseases in recent years, and the most liberal and enlightened have cheerfully given their approval to the new internal remedy, Stuart's Catarrh Tablets, as the most successful and by far the safest remedy for catarrh yet produced.

One well-known catarrh specialist, as soon as he had made a thorough test of this preparation, discarded inhalers, washes and sprays and now depends entirely upon Stuart's Catarrh Tablets in treating catarrh, whether in the head, throat or stomach.

Dr. Risdell says, "In patients who had lost the sense of smell entirely and even where the hearing has begun to be affected from catarrh, I have had fine results after only a few weeks' use of Stuart's Catarrh Tablets. I can only explain their action on the theory that the cleansing and antiseptic properties of the tablets destroy the catarrhal germs wherever found because I have found the tablets equally valuable in catarrh of the throat and stomach as in nasal catarrh."

Dr. Estabrook says, "Stuart's Catarrh Tablets are especially useful in nasal catarrh and catarrh of the throat, clearing the membranes of mucus and speedily overcoming the hawking, caughing and expectorating."

Any sufferer from catarrh will find Stuart's Catarrh Tablets will give immediate relief and being in tablet form and pleasant to the taste, are convenient and always ready for use as they can be carried in the pocket and used at any time as they contain no poisonous drugs, but only the cleansing, antiseptic properties of Eucalyptus bark, blood root and Hydrastin.

All druggists sell the tablets at 50 cents for complete treatment.

BUY A LEFFEL

and you will have at once the strongest, safest and most reliable power it is possible to secure.



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are made upright, horizontal, portable and on skids. They are all quick steamers, require little fuel and develop high power. 3 h. p. up. Best for creameries, dairies, skimming stations and general farm work. Send for book on *Power*.

ns. Leffel Co., Box 120, Springfield, O.

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Good seed assure good gardens. Gregory's seeds have been the favorites of gardeners and florists for 40 years.

Always successful.

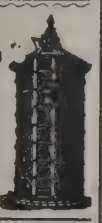


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J. J. H. Gregory & Son, Marblehead, Mass.

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SILOS SAVE the entire crop in the best feeding form. Ours are all round. No corners nor angles to admit air and mould and rot the silage. We make them of Cypress, White Pine and White Hemlock. Four styles and 200 sizes. Fit every requirement. Nothing so good, nothing so cheap. We make all kinds of machinery for filling Silos. Catalog free.



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Best in the world

From 1c. a p'k'g, & up. A lot free with every order. Great Big Catalogue FREE to all. Picture of all varieties. Send for big catalogue

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STRAWBERRIES

$2.00 a thousand for standard sorts, new beds, strong plants, FRUIT TREES Grape Vines and Small Fruits at Fair Prices. Lists Free. J. F. DAYTON, Waukon, Iowa.

Growing a Balanced Ration.—A Missouri Inquiry.

I see a great many dairymen write to you for instructions as to balanced ration of the feed they have on hand. I am writing today to know what to plant.

I have 20 acres in permanent pasture, 22 acres for field corn, about 6 acres for sorghum, about 14 acres for oats and clover or Canada field peas, about 4 acres for sweet corn and about 58 acres in clover and timothy, fine stand. I have just started in the dairy business and I wish to get started right. Now the above is my idea. What do you think of it, can you improve on it?

Bran $14.00 a ton. Would you advise sowing the oats and clover at the same time, or would you advise sowing half the 14 acre field in clover alone and the other half in oats alone, and if I failed on either or both, I could then put in peas. I will gladly listen to any change you have to make on any of the other fields.

I am running about 10 cows and I do not wish any more than that for the reason with that many I can do the most of my other work on the farm, good help is very scarce. Sell my milk right at the door, at 14 cents a gallon.

Please give me a balanced ration. I enclose stamp for reply. I am a new subscriber for the DAIRYMAN.

When my new crop comes in I expect to keep track of everything eaten by the cows.

Hannibal, Mo. N. J. L.

We cannot spare the time from other pressing duties to answer inquiries by personal letters, but must try to make all answers of more or less general interest for all readers. Moreover this inquirer gives us no information as to the feeds he now has on hand or can obtain, and it would be too much of a wild guess to suggest a formula by choosing feeds at random.

The inquiry as to best crops to raise is more specific, but even here we are more or less at sea, for the reason that 10 cows cannot consume more than about a quarter of the feed that ought to grow on the areas specified. There should be a good deal more stock kept on this farm or it will rapidly deteriorate in fertility. The most wasteful style of farming is raising hay for sale, and next to it is selling grain. It is much better to feed the hay and straw to stock and if any grain is sold, purchase other feed to take its place.

There is some doubt in our minds whether the Canada field pea will do well in the climate of Missouri, even if sown early in the spring, and almost certain failure can be predicted for this crop when sown in midsummer. It would be much safer, we think, to substitute the southern cow pea and sow with corn or sorghum. Also, we advise making a trial with two or three acres of alfalfa concerning which and the methods of raising, more will be said in the near future. It is all right to try half of the 14 acres with clover alone, but we would sow clover with the oats. If either of these should fail, a crop of cow peas could be raised, and these with clover hay and silage would go far toward furnishing the material for a balanced ration.

An Opinion on Cross Breeding.

ED. HOARD'S DAIRYMAN:—I notice considerable information published recently about cross breeding, and as I have had twenty years experience, it may probably be interesting to others. I have paid up to $1,000 for horses, $500 for cattle, good big prices for sheep, hogs and chickens, all generally of good pedigreed stock. Have tried cross breeding in its many ways, and with few exceptions, have obtained nothing but scrubs, and never in any one instance an improvement on the original stock. Five years since I quit this foolishness, and nothing now for me but good stock in its own breed. Fortunately, I was so fixed that I carried the idea of cross breeding as a fancy, regardless of profit or loss. Can see where limited means would result in sure financial failure, together with the degenerated scrub stock as a result.

Wheaton Ill. AN ILLINOIS FARMER.

Address of Kansas Experiment Station.

Will you give me the address of the Kansas Experiment Station? I wish to send for their bulletin on Growing Alfalfa, which is mentioned by John Gould in "Note and Comment" in your issue of Jan. 23. F. E. M.

Greenfield, Mass.

The address of the Kansas Experiment Station is Manhattan, Kansas.

"A GOOD NEW POTATO"

Rural New Yorker, Jan. 10, 1903.

WILSON SPORT.

A sport of the Blue Victor, originating in the arid mountain district of Eastern Washington. A round, slightly flattened white skinned sort, shallow eyes, good yielder, vigorous and healthy. Procure seed from originator for this new and fine quality potato. 1 lb. 50c, 2½ lbs. $1.00 by mail postpaid. 10c per lb. by express. Send money orders on Lakeside postoffice.

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Chelan Co, Lakeside, Wash.

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DEALERS IN
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YOU WANT
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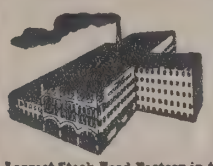
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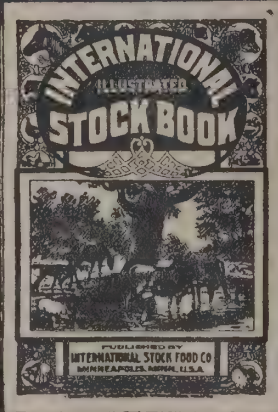
IT CONTAINS 183 LARGE ENGRAVINGS OF HORSES, CATTLE, SHEEP, POULTRY, ETC.



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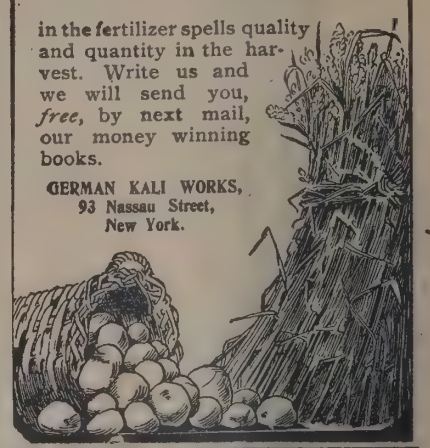
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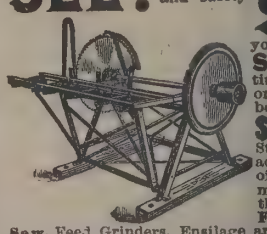
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Three Free Catalogs—T for Threshers and Engines. W for Wagons, H for Farm Implements. Write for the one you want.

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They feel better, look better, work better, and are less liable to catch cold. Don't let your horses stand in the barn all night with a heavy damp coat of hair on. It weakens them and they lose flesh. If clipped they dry out quickly, gain flesh and can be groomed in one fourth the time. Weighs only 15 lbs. Clips a horse in 30 minutes. Send for Catalogue H

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There is absolutely no wear in any of the other ingredients of which they are composed. Every time the quality of Rubber Boots and Shoes is reduced 10 per cent., the durability is reduced over 20 per cent. because there is only one way to cheapen them, and that is to leave out Rubber and put in its place other things that have no wearing quality whatever. This cheapening process has been steadily going on for the past 40 years.

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OF RUBBER BOOTS AND SHOES

are made of real rubber—and one pair of them will outwear two pairs of the standard first grades now on the market. Try a pair and be convinced. Made in Duck Boots, Duck rolled edge Overs for Socks, and Felt Boots and in Arctics and light rubber shoes.

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HOARD'S DAIRYMAN.

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Devoted to Dairying and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., MARCH 6, 1903. NUMBER 4

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Perfect Flavor, Uniformity and Keeping Qualities in your Butter.

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A Good Record

TEN CAR LOADS

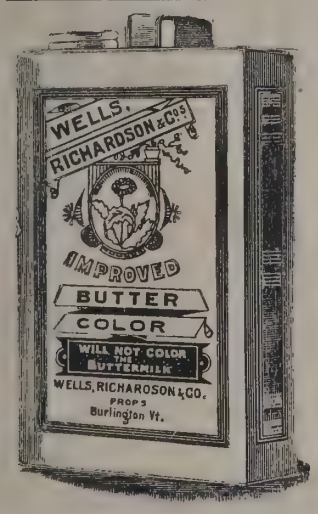
which means in this case twenty-four thousand nine hundred tubs sold to one co-operative Dairy Company in Minnesota, between Feb. 1899 and July 1902, and in using them they did not lose one tub out of the entire lot. We have their letter stating this to be a fact.

This is how our GENUINE "Elgin" Tub stands up.

Made only by the ELGIN BUTTER TUB CO. at Elgin, Ill.
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HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, BOSTON.**
Medals—Bronze, 1878 Silver, 1887, World's Fair, 1893.

THE KIND THAT HAS NO MUD.



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Improved Butter Color

Has stood the test for many years, and users of color know that it can always be relied upon. It is the BEST and therefore the CHEAPEST COLOR on the market.

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DO NOT TEST YOUR MILK



Inany tester except one built on up-to-date, scientific principles, and one that you know will do your work easily and accurately.

The Twentieth Century Noiseless Hand Tester

Has no equal on the market in grace of deign, ease of operation and accuracy of result.

Constructed on the same general line asour Turbine machine. Pockets made in pairs and of seamless brass. A large Dairy or Creamery not supplied with steam can secure just as accurate tesisas can be made with with a Turbine machine.

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We handle everything in the Dairy and Creamery line.

Creamery Package Manufacturing Co.,

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BRANCHES: Kansas City, Mo.; Minneapolis, Minn.; Waterloo, Iowa; Omaha, Neb. St. Louis, Mo. and Cowansville, Quebec.

Test the Capacity

WHEN you buy a **Sharples Tubular Separator** you not only get a separator that skims more closely than others, runs easier than others, is more convenient than others, and wears better than others, but you get a machine that will do more work for you than is claimed for it. In other words, the **Tubular** will always skim more than its rated capacity, therefore you get more for your money than is promised you.



You can buy cheaper separators than the Tubular; that is, cheap in price but not in value. They are sold cheap because they are cheap; cheap in construction, cheap in principle, and must be sold cheap or not at all. However, when you **test the capacity** of these cheap machines you find that you did not get what you thought you were buying. The **Tubular** costs a little more perhaps, but **it's worth more** and you get more value for your money when you buy the **Tubular** than you do from any of the cheap separators. **Quality** and **Capacity are what count.**

WRITE FOR CATALOGUE NO. 144.

The Sharples Co.,
28 30 & 32 So. Canal St.,
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P. M. SHARPLES,
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Wagon World-Awheel.



Half a million of these steel wheels have been sent out on our own wagons and to fit other wagons. It is the wheel that determines the life of any wagon, and this is the longest lived wheel made. Do you want a low down **Handy Wagon** to use about the place? We will fit out your old wagon with **Electric Wheels** of any size and any shape tire, straight or staggered spokes. No cracked hubs, no loose spokes, no rotten felloes, no resetting. Write for the big new catalogue. It is free.

Electric Wheel Co., Box 130 Quincy, Ills.

$3 a Day Sure Send us your address and we will show you how to make $3 a day absolutely sure; we furnish the work and teach you free, you work in the locality where you live. Send us your address and we will explain the business fully, remember we guarantee a clear profit of $3 for every day's work, absolutely sure. Write at once.

ROYAL MANUFACTURING CO., Box 855, Detroit, Mich.

Best Results

in feeding for milk are obtained by adding some

BUFFALO Gluten Feed

to balance the ration.

Sample and booklet

"Feed Your Stock for Best Results."

Sent free. Write to-day.

Address Department B

THE GLUCOSE SUGAR REFINING CO.,
The Rookery, Chicago, Ill.

Cheaper than Corn, Oats and Barley.

The Cheapest Source of DIGESTIBLE PROTEIN on the Market.

ATLAS GLUTEN MEAL

ATLAS Gluten Meal,	36.5 protein
Cream Gluten Meal,	33.3 protein
Buffalo Gluten Feed,	24.2 protein
Chicago Gluten Meal,	33.7 protein
Grano Gluten Feed,	26.4 prStein
Linseed Meal (old process)	28.8 protein
Linseed Meal new process)	27,9 protein

Experiment station reports, wherever this feed has been tested, pronounce it the greatest value in protein that the dairyman can buy.

Don't take something the dealer calls "just as good." If it cannot be purchased locally write us.

ATLAS FEED & MILLING CO.,
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BLATCHFORD'S CALF MEAL

THE MILK SUBSTITUTE

"There is nothing like it to raise thrifty Jersey Calves."

ABA B. GARDNER, Esq., GLENCOE, MD.

Address, BLATCHFORD'S CALF MEAL
WAUKEGAN, ILL.

A Substitute for a Barn.

ED HOARD'S DAIRYMAN:—As I was reading the article in the DAIRYMAN by F. I. Chapman, where he spoke of the DAIRYMAN being only for the rich, the thought occurred to me that if the dairymen of small means would speak out oftener, they would be more beneficial to them.

With your permission I will give a little of my experience, being on a rented farm with no barn for cows. So I have made a shed of poles covered with wheat straw, and enclosed on west, north and east, also with straw and southwest corner boarded up for about 12 feet. Inside I have made double stalls about 8 feet wide. Behind each stall I fastened a rail crosswise just giving cows room to lie down comfortably. In front I have made a manger about four feet long, and wide enough to hold hay for two cows. I allow the space where cows lie to fill up with straw bedding, the droppings falling outside the rail, the cows keep reasonably clean.

For ration am feeding an average of 15 lbs. bran, 1 lb. linseed meal per day with what alfalfa hay and corn fodder they will clean up.

My cows are comfortable and contented even in zero weather. As to results, one cow 6 years old, fresh 8 months, gave me last week (7 days) 123½ lbs. milk. One heifer (first calf) 107 lbs. My other cow I bought 9 weeks ago; calf had been running with her till six months old. When I brought her home she gave me one-half pint the first day; last week she gave 72 lbs. Will drop her third calf about May. My alfalfa hay was damaged by wet weather, or I would not be feeding so much grain.

Have been reading DAIRYMAN only a year, but am getting much good from it.

Ottawa, Kan. IRA R. COE.

A New York Herd Report.

ED. HOARD'S DAIRYMAN:—I enclose a report of my work with a dairy of 33 grade Jerseys for year beginning Jan. 1, 1902, to Dec. 31 of same.

Average number cows in milk	33
Of which 10 or ½ were 2 and 3 year olds	
Total amount received from creamery	$1940.15
Average test	4.4
Average earning per cow	$58.78+
Cost of grain fed per cow	10.25
Total lbs. milk	171657
Average per cow	5201+
Average price per 100 lbs. of milk	$1.13+
Allowing 10 cents per 100 for skim milk would give, per cow	5.20
Total earnings per cow	63.98

To be sure, this is not as good a report as some make. but I thought it would not leave me in the rear rank.

A STUDENT OF THE DAIRYMAN.

Java Village, N. Y.

How to Get the Best Results from Skim Milk.

ED. HOARD'S DAIRYMAN:—I cheerfully accept your criticism and know full well that greater power is needed for a large machine than for a small one, and shall only claim equivalent power for the cow. To produce power, fuel is required, and it is now claimed that even water is fuel, and is not feed fuel? If this is answered in the affirmative, then the best and most appropriate kinds will make the most milk.

My real object in this is to say something of a certain kind of feed, which is skim milk. There have been articles in the DAIRYMAN from several who have written of its merits, some valuing it much higher than others. But I have not learned as to the manner or methods employed by those who got the large results, or rather, what ingredients, if any, that were used with the milk. Mr. Plato, of this state I think, got the best results, but evidently has some secret as to what he uses and perhaps thinks it too good to make known.

I will go a little farther than others as to what I think essential, which is to put back, after the milk has been through the separator, the constituents removed, with feeds supplying the deficiency, quite possibly with much cheaper material. Is it unreasonable to suppose that if this is done, that as good results can be obtained as from the milk direct from the cow. Have we got to call on Prof. Henry or some one else that is authority on feeds for an answer to this, or, is it going to be some one who, by practice and experience, has solved the problem. When this shall have been accomplished, I will accept as facts, what now looks like exaggerated statements, of the growing and fattening of calves.

N. Y. AUGUSTUS PARSONS

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—careless ones will not be interested—should keep a barrel of Conservo on hand all the time. It will prolong the life of every stick of lumber on the place, and save dollars for every penny that it costs. Two cents' worth will make a fence post last years longer; five cents' worth will protect a sill, etc. It sinks into the wood, and prevents wet or dry rot. A scientific money saver. Send for our circular; it will pay you to investigate

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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Entered at Fort Atkinson, Wisconsin, as second-class matter.

Barn of G. E. Beakes, Delaware County, N. Y.

Ed. Hoard's Dairyman:—The photo. and diagrams show the plan of the dairy barn on the farm of G. E. Beakes, Delaware Co., N. Y. This barn accomodates 60 cows, and is planned for caring for them with the greatest convenience. It is also warm, well ventilated, and has the Buckley water buckets, which are filled by a spring of running water which was brought to the barn. The stable is made frost proof by double walls, with a dead air space between.

Ensilage from the large silo, holding 140 tons, at the end of the barn, is thrown in to a large car, or truck, and is pushed along the track in the feeding alley, and taken out with a basket and distributed in the mangers on either side. The feeding alley between the stanchions is 12 feet wide and 8 feet between the mangers. The floor between the mangers is raised 18 inches. The chutes for hay and grain are conveniently arranged on the sides of the alley, next to the mangers.

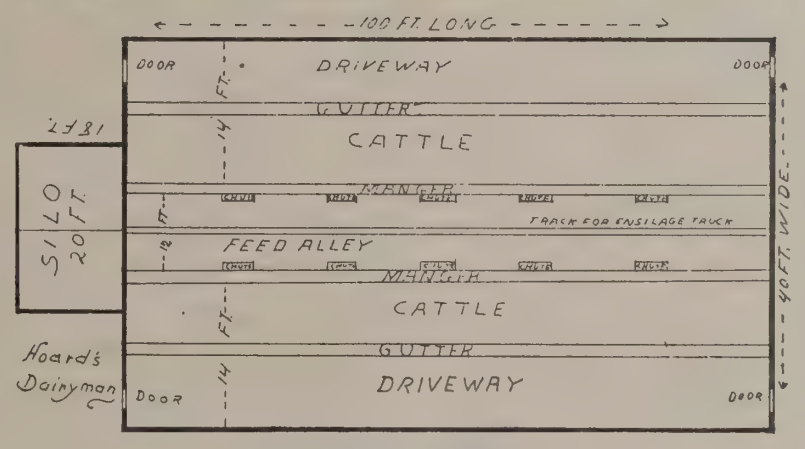
The two drive-ways are very convenient for drawing out the manure every day, which is done all winter, the gutters are tight, and no part of the manure is wasted. It will be noticed that on the second floor, the tread power is close by the silo, and that the corn does not have to be elevated but little to the top of the silo. The bridges from the two driving floors, in the second story, to the ground, are not shown in the photo. The silo is divided in the middle. A car load, or more of grain can be easily unloaded in the large bins on the second floor, from the drive-way, and the bins are also convenient for receiving the grain, when it is threshed on this floor. A horse fork is used for filling the large bays which hold 100 tons or more of hay. The hay is pitched down the chutes in the feeding alley, close to the mangers.

This barn is 40×100 feet, the posts are 32 feet long, and the basement is 9 feet high.

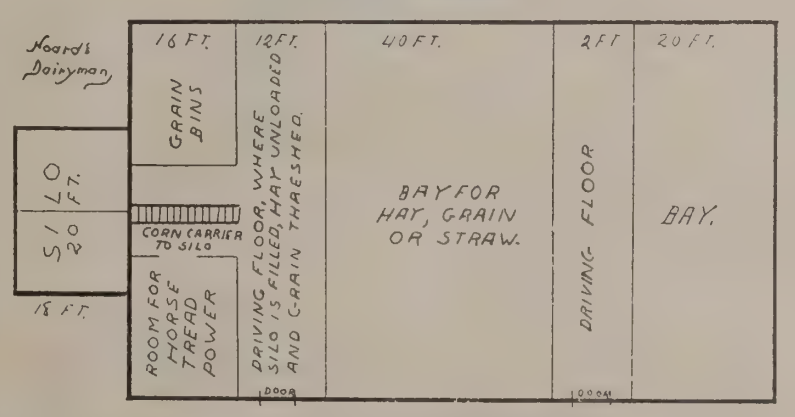
W. H. Jenkins.

Sidney Center, N. Y.





PLAN OF BASEMENT



PLAN OF SECOND FLOOR

Dairy Barn of G. E. Beakes, Deleware County, N. Y.

Bylaws of a Co-operative Creamery—Does Salt add Weight to Butter.

Ed. Hoard's Dairyman:—Will you kindly say through your valuable paper, what per cent, if any, is added to the weight of butter when one ounce of salt is used to the pound.

Also where can we obtain a practical set of Bylaws for a co-operative creamery.

Camp Point, Ill. W. T. K.

If butter is worked very dry before the salt is added, there may be an increase in weight, but under usual conditions there is a loss in weight.

1. This association shall be known as the————Co-operative Creamery Association.

2. The purpose of the association shall be to locate, establish and carry on the manufacture and sale of milk products, in such a manner as will conduce to the greatest convenience and profit of the producers over the greatest amount of territory in the town of————and vicinity. Also to purchase, use, and hold real and personal estate necessary for the transcation of the business of the association.

3. The capital stock of the association shall be————dollars, divided into——shares of ten dollars each.

4. This association shall be co-operative. Cream or milk may be purchased or accepted from any person not a stockholder on the same terms and conditions as may be prescribed for stockholders.

5. Any person directly engaged in agricultural pursuits may become a member of this association by taking one or more shares of the stock of the association.

6. 1st. The regular meetings of the association shall be held semi-annually, viz., on the first Mondays in——and——in each year, at such time and place as the Board of Directors may determine; and notice of such meetings shall be given by the clerk to each member by mail seven days at least previous to the date of said meeting. 2 Special meetings may be called either by the president, with the advice and consent of a majority of the directors, or upon written request of one-third of the stockholders of the association, upon seven days' notice as above. 3. Meetings of the Board of Directors may be called by the president or by any two directors.

7. 1st. The officers of the association, shall consist of a president, clerk, treasurer, five directors and two auditors. 2nd. The president shall be chosen annually by the board of directors, by written ballot, at the regular meeting in October. 3d. The clerk, treasurer, board of directors and auditors shall be chosen by the stockholders annually by written ballot, at the regular meeting in Oct., and all officers shall hold office until others are chosen and qualified in their stead. Vacancies in the abovenamed offices may be filled at any meeting of the stockholders; in the meantime by the board of directors. In case of the absence of the clerk a temporary clerk may be chosen and qualified in his stead.

8. At any regularly called meeting of the association, nine of the members thereof, and at any meeting of the board of directors, three members thereof, shall constitute a quorum for the transaction of business. A less number may adjourn from time to time.

9 It shall be the duty of the president, who shall be a director, to preside at all meetings of the association and of the board of directors, preserve order therein, put all questions, announce all decisions, and, in case of an equal division to give the casting vote. He shall receive and safely preserve all bonds required of officers of the association and sign all certificates or documents issued by the association or board of directors. In the absence of the president, it shall be the duty of one of the board of directors in order of their seniority, to preside at any meeting.

10. It shall be the duty of the clerk to attend all meetings of the association and of the board of directors, and to keep a correct record of the same, which record shall be open for inspection of any member. He shall give notice of all meetings and of all appointments on committees, to each member thereof, and to each officer chosen, of his election; and shall serve all such other notices as appertain to his office or as may be directed from time to time by the association or board of directors. He shall attest all certificates or documents issued, signed by the president, shall file all bills and reports and such other documents as may be ordered to be filed, and shall carry on all such correspondence as may be directed; shall act as secretary of all committees when called upon; shall keep a correct financial account between the association and its members, and shall have charge of all property not otherwise disposed of. He shall give such bonds for the faithful performance of his duty, and receive such compensation for his services, as the board of directors may determine.

11. It shall be the duty of the treasurer to receive all money belonging to the association, giving his receipt therefor. He shall draw all money for the payment of claims against the association under the direction of the board of directors. He shall make a report to the board of directors at such times as they may require. He shall perform all duties required of him by the laws of the Commonwealth, and shall give such bonds for the faithful performance of his duty as the board of directors may require.

12. It shall be the duty of the board of directors to attend to the general affairs of the association, invest the funds of the same, appoint such other agents and officers as in their judgment the interests of the association require, and fix all compensations. They shall keep or cause to be kept a correct account of all cream or milk furnished by stockholders or patrons and a correct account of all sales. They shall prescribe the rules and regulations governing the collection and delivery of the cream and milk; may cause the quality of the same to be tested as often as may be deemed expedient; may authorize the premises of any stockholder patron to be inspected, and may reject and refuse to collect or receive any cream or milk that is unsatisfactory or not furnished in compliance with the prescribed regulations. They shall establish prices and have full power over the business of the association, and shall in all cases pursue such measures as in their judgment will tend to the best interests of the association. They shall make a full report of their doings, and a full statement of the business at each regular meeting, or whenever called upon to do so by vote of the stockholders.

13. The duties of the auditors shall be to audit all accounts of the association, making a report to the board of directors at the time of the regular meetings, and such other times as they may require.

14. The net profits of the business of the associatlon, after such deductions have been made as the laws of the Commonwealth require, shall be divided pro rata among the stockholders, according to the number of shares held by each. (Note—If is understood that the profits shall not exceed 6 per cent on capital, all receipts in excess of this sum and necessary reserves being declared in payment to patrons for cream or milk furnished.)

15. 1st. Any person doing business for the association or incurring expenses therefor shall receive a just remuneration for such service or expense. 2nd. All documents issued by the association shall bear the seal thereof, said seal to be in charge of the clerk. 3rd. The directors shall procure a corporate seal. 4th. No member of the association can transfer his stock to any person not directly engaged in agricultural pursuits. 5th. In case shares are transferred by one person to another, the certificate thereof, must be surrendered to the treasurer, and the board of directors shall cause another certificate to be issued to the person to whom the transfer is made.

16. These by-laws shall not be altered or amended unless such alteration or amendment be proposed in writing one meeting previous to action being taken; provided also, that two-thirds of the members vote in the affirmative.

Loading a Heavy Hog.

Ed. Hoard's Dairyman:—Sometime ago I had quite a heavy hog I wished to

take to market. I backed my sleigh up to the hog pen door and tried to load the hog, first by coaxing, then by compelling, but neither one availed. Strength on my part was getting exhausted and seeing a neighbor passing, I called for help. "Give me a pail," said he, "and we'll have that hog on the sleigh in no time. Get her head in the opposite direction from what you want her to go, then you take a stick and steer and I will hold the pail over her nose." Well, it didn't take a minute for that hog to back onto the sleigh. D.

Pierpont Manor, N. Y.

Theo. Louis and his Hog House.

A Reply to J. A. M.

ED. HOARD'S DAIRYMAN:—How thankful I am that, after using my hog house over a quarter of a century, and thinking it fairly successful, and being foolish enough to think that it was right that one should clean out hog house and feeding floors daily; that one should use plenty of straw and other refuse material in the front yard of each stye, separated by moveable fence panels as the occasion would require, after it has served for bedding, first to induce hogs to use it as privy, but next, and of vast importance, to save by composting the most valuable grain fed manure, that has brought up a sandy soil so high in fertility that clover grows, so that men like Prof. Shaw, John Gould and others had but words of commendation—how thankful I am that one has arisen competent to point out the matters in which I have been at fault.

Being only a silversmith by trade, we had to learn as we went, ever reading and inquiring of those better informed.

We cleaned out horse and cow stables daily, and of course thought it was right to treat the hog house in the same way, and had the audacity to recommend such a house as we had found fairly satisfactory, but with such additional improvements as experience suggested, to the swine breeders at large, upon the urgent invitation of agricultural editors.

But an old fogy of 73 summers had never dreamed or thought that hogs in the nineteenth century ought to have privy and water closet, so we beg pardon of all that have been so disappointed in building after our model. However, Mr. J. A. M., from Prince Edward Island, will undoubtedly give vent to improvements that will remedy matters to some degree.

One of Iowa's largest and most successful swine breeders, the Hon. John Cownie, in a lecture before the Kansas State Board of Agriculture, said among many other good things: "You should keep your hog house just as clean as this room. After you feed them, clean the feeding floor. What would you think of your wife if she let the dishes set on the table from one morning to another? Suppose the supper was served on the same dishes; you would say to yourself that you wish you had not married that woman. I would no more think of feeding my hogs on a feeding floor that had not been cleaned immediately after the last meal, than I would of eating my dinner from the breakfast dishes without washing. I have not done it in thirty years. It is a small matter." But then he too is an old timer and therefore no criterion or authority.

Hoping that we may be forgiven by all the up-to-date swine breeders for our many errors, we shall be content if they ascribe these errors not to the heart but to the head. THEO LOUIS.

Louisville, Wis.

Defends the Holstein Breed.

ED. HOARD'S DAIRYMAN:—It is a refreshing ebullition your correspondent, A. R. F. pours forth in the issue of Feb. 6th, under the guise of candid, unprejudiced advice on "Which Breed." The indulgent satisfaction with which he imperiously rules the most popular dairy breed in the country out of its class, to his own evident satisfaction—if not to that of all "unprejudiced" (?) people—is amusing to witness but a pitiable evidence of the writer's inability as a counsel. He has found "in his experience" and "can prove" that Holstein-Friesians rate down 5th in the list of breeds, and we read on anxiously for the facts of an experience so wide and accurate as to make such a complete demonstration of their miserable failure as a dairy breed. He assures Mrs. R. B. B. that a Holstein that will make 15 pounds of butter in a week will eat twice as much as a Jersey that makes 25 pounds. What becomes of all that vast amount of feed she has the capacity to eat? Does he rate them at the head of beef producers, or has he given it all a "through ticket."

We take down the last report of economical tests and the second cow in the index is a two-year-old heifer, tested under the supervision of the Minnesota Experiment Station, making a little over 15 pounds of butter 80 per cent fat, on a ration of 7½ pounds grain, 2 5-7 pounds of hay and 47½ pounds of beet pulp, containing about 1.425 pounds protein.

With this as a basis, A. R. F.'s wonderful cows would be making their 25 pounds butter a week on a ration of less than 1 pound of protein per day. We submit it was never thought of being done and we begin to suspect A. R. is writing show bills. We read on for the facts of his experience, but they are not there; instead, we find him trying to prove the superiority of his ideal cows by quoting from an alleged test in which it appears that the best cow made less than 270 pounds butter in a year, considerably below the requirements set by the DAIRYMAN for any cow.

If the experience of a majority of the dairymen in the dairy sections of New York, Wisconsin and Illinois is of any value it clearly points to the fact that the Holstein-Friesian is the most popular and profitable dairy cow for the rich soils of this great country. Come to think of it, we do not remember of ever having read of a Jersey cow being officially tested, by an absolutely disinterested party, that made 25 pounds of butter.

In conclusion, if Mrs. R. R. B. wants cows that will produce 40 to 80 pounds milk per day and 15 to 20 pounds butter per week, and are vigorous and hearty in any climate, and produce calves like themselves, that will come up to their feed three times a day without coaxing, the Holstein-Friesian will meet her expectations. G. W. MCKAY.

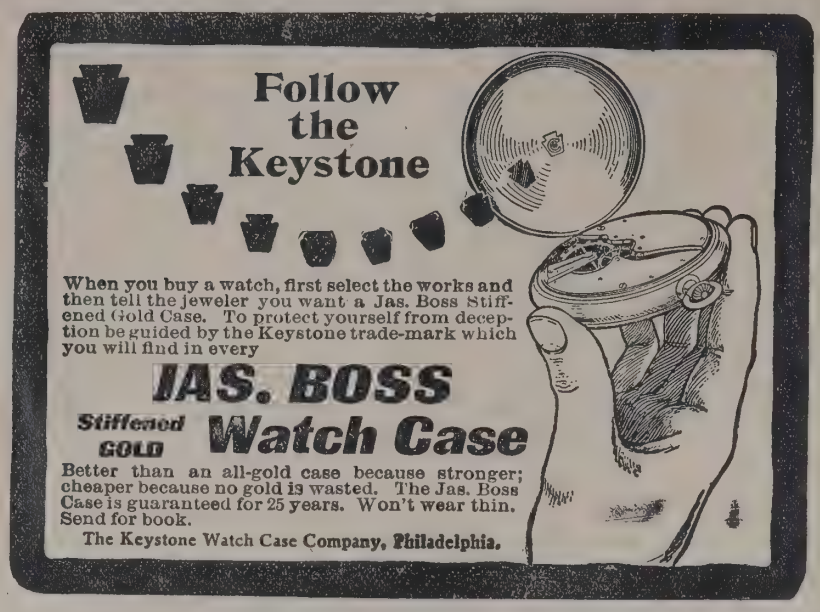
Iowa.

Alfalfa on Land that Will Produce Beets Without Irrigation.

A California reader wants to know whether alfalfa will grow on land where beets will grow without irrigation, with no rain from May to October, except occasional showers.

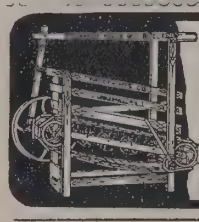
The better way to decide this question is to try alfalfa in a small way and thus ascertain definitely as to what could be depended on. While alfalfa is especially adapted for semi-arid regions, it flourishes best where irrigation can be depended on. It is, however, a plant of very deep root and will draw its sustenance from the very lowest depths in the soil. Commence with a small acreage, two or three acres at most. That is the way we are doing in Wisconsin, and by experience are learning just what kind of soil and attention the alfalfa plant needs in this climate.

This inquirer also asks whether it is better to feed middlings, bran and oil cake wet or dry. This is perhaps an open question, and practice among good farmers varies. For ourselves we prefer to feed these articles without wetting, but whenever practicable would mix them with silage.

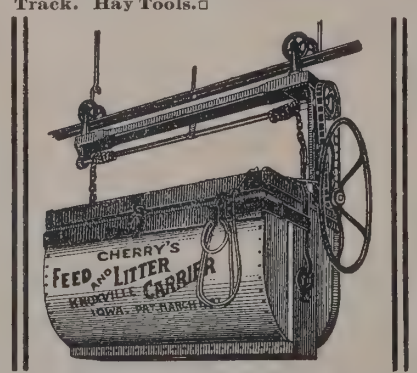




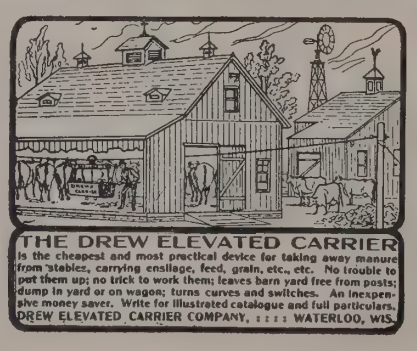
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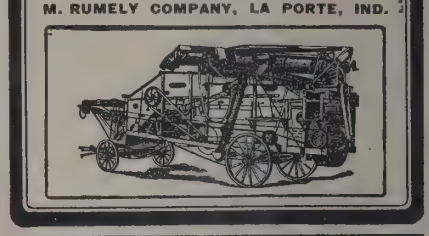
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Corn and Cow Pea Ensilage.

ED. HOARD'S DAIRYMAN:—In your issue of Feb. 6th was published a letter of mine, in which I mention the value to me this winter of my mixed corn and pea silage, as a home grown protein food for the dairy cow.

I have received more than a dozen letters, from almost as many states, written by dairymen inquiring for further particulars as to the planting, cultivating and harvesting this mixed silage.

One fact is settled in my mind by this incident viz: That HOARD'S DAIRYMAN is read over a wide extent of territory by men who aim to profit by what they read. The DAIRYMAN is not read for mere pastime; the questions asked and inquiries made show that they mean business.

I have not had time to give satisfactory answers to all these letters personally, so I ask permission to answer through the DAIRYMAN.

I will try to give a plain description of my practice, knowing, however, that it cannot fit all sections alike. I usually break a field of wheat, rye or clover stubble as soon as possible after harvesting the grain or hay, roll and harrow to get a good firm seed bed, and plant the corn and peas together in this way: use a two-horse corn planter; put corn in one box and peas in the other; drive across the field; planting corn in one row, peas in the other; turn and drive back in the same track, this plants peas in corn row, and corn in the pea row; and so on over the field.

The land being usually dry at this season, this double pressure on the grain almost insures a good stand of both corn and peas. I use plates that drop one grain of corn every 12 to 14 inches, and two or three peas every 8 or 10 inches. This requires about one gallon of corn and two gallons of peas per acre; the ground is usually warm at this season, and the young plants show very quickly. As soon as well up all over the field, run over with Hallock weeder, going with the rows; in about three days go over the field again with weeder, going across the rows.

When the corn is about six inches high, plow out thoroughly as as deep as I can go, with small points on the cultivator or double shovel, and never use the plow again, unless there is a very hard rain soon after the first plowing. After this, cultivate once a week with the weeder until corn is too tall, then use the 14-tooth Iron-Age 1-horse harrow; keep the land level. Cultivate shallow and frequent, so as to keep a lose dust mulch on the surface. Continue the cultivation until silks show plentifully over the field; by this time the peas will begin to spread and cover the row so they will help retain the moisture. I have never failed to get a fair crop in this way, even in the dryest seasons. No roots are ever broken or exposed to the hot sun; the loose dust on the surface prevents evaporation, there is always moisture found just below it, in easy reach of the little feeding roots, and the dryer the season the more benefit is shown by this shallow, level, surface cultivation. I prefer a variety of corn that will make a fairly tall stalk and several small, well-filled ears rather than one larger ear.

The Whippoorwill pea does not make as much vine as some other varieties, but bears more grain than any other. To make the best of silage I want all the grain in it that I can grow, both corn and peas. This pea will begin ripening in about 90 days, but will hold the ripe pods and keeps on forming new ones for about 120 days. Knowing this we can plant a variety of corn that will be ready for the silo at the same time, just when the pea is at its best. I want the corn well glazed, too hard for table use, when put in the silo. A half-grown, immature corn crop makes a wet, sour silage, a little better than the refuse from a vinegar factory, but I do not want it for my cows.

The ideal silage crop is a corn with fairly tall stalk, well filled with small mature ears, and the pea vines loaded with long ripe and half ripe pods. Cut this crop with the corn harvester, there is no loss; all is gathered up in bundles convenient to handle. There is nothing left but a short stub with the root.

My silos are round, stave structures, holding 33 tons each. I prefer two small silos to one large one holding the same. I finished feeding out my first one Feb. 10th; fed 10 cows and the bull just 100 days, in all eleven hundred days' feed. The work of filling that silo, that is the cutting with the harvester, hauling to the cutter, cutting and packing in the silo, cost $11.50. This is about one cent per day's feed. Then any farmer can figure what it costs him to grow the crop. It cost me last year forty-six cents per ton to grow the crop. I use a Tornado cutter, run by a horse power overhead gear—the cutter sets on a floor overhead the horse power so that less length of elevator and less power is required to fill silos. The wagons are unloaded on a platform on a level with the cutter, by lifting the bundles up from the wagon instead of throwing them down on the ground.

When silos are filled, I cover with any kind of trash that I may have. Wet this thoroughly and lay some loose boards on top, to help hold the moisture, until the covering rots and forms a solid, air-tight covering. When opening to begin using the silage, throw off this rotten mass, and always feed from the top and there is no loss of good silage.

I have used my silos nine years; have used the mixed corn and pea silage four years—first two years, planted the crops separate, cutting the peas with mower and corn by hand, hauling separately and mixing at the cutter. The use of the corn harvester gives a more even mixture and costs less to handle the crop.

Darks Mill, Tenn. J. N. M.

March
April
May

There is a best time for doing everything—that is, a time when a thing can be done to the best advantage, most easily and most effectively. Now is the best time for purifying your blood. Why? Because your system is now trying to purify it—you know this by the pimples and other eruptions that have come on your face and body.

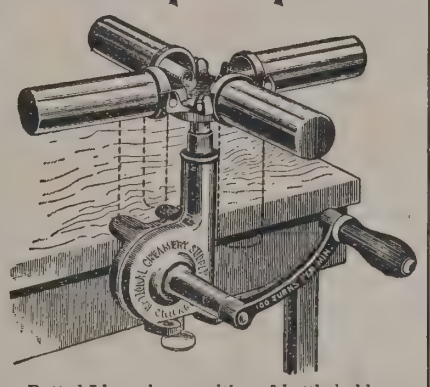
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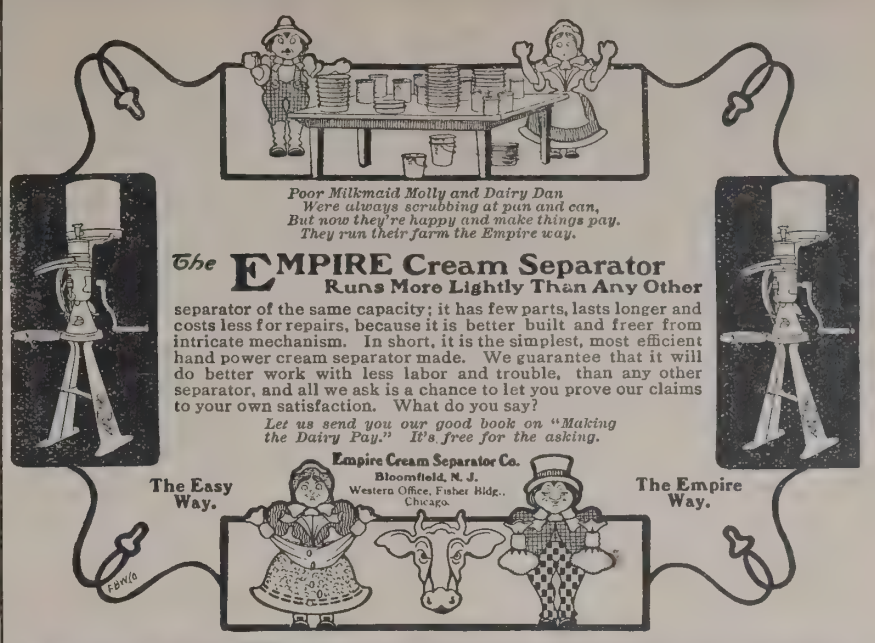
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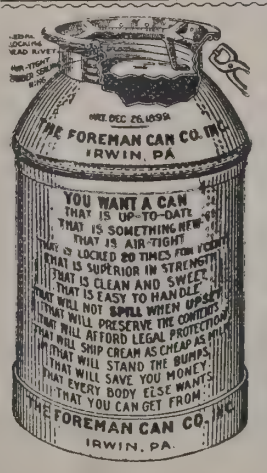
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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of them read dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

We are receiving of late a good many requests for a bundle of copies of HOARD'S DAIRYMAN for distribution. We are very glad to forward copies for distribution, for we need the help of every reader to increase the circulation of the DAIRYMAN. Get up a club of subscribers among your neighbors. If there is going to be a meeting of the creamery or cheese factory patrons, write us for a bundle of sample copies for distribution. If you are going to a farmers' institute, have some copies with you. These meetings afford excellent opportunity to work up a good club. Write us at least a week ahead of the meeting saying how many copies you want and we will promptly forward. Give us your help.

COLORING BUTTER.

The conflict of opposing sentiment which was caused by Maj. Alvord's remarks at the National Creamery Buttermakers' Convention, in which he charged that the coloring of butter as well as oleomargarine is a fraud, has served the excellent purpose of bringing out some very well considered opinions.

With this, as with all other questions of a mixed ethical and commercial character "circumstances alter cases."

The arising of a stupendous and pronounced fraud called oleomargarine and the enactment of state and national laws against it, all, or nearly all, based on the color proposition, puts the coloring of butter on different ground from what it ever occupied before. Here comes a powerfully organized swindle, with the great meat packing trust behind it, threatening serious injury to one of the greatest of our agricultural industries.

This swindle worked its way through imitating the natural and usual color of butter to the extent that fully 90 per cent of it was consumed by the eater, under the supposition that it was cow butter. That imposition was made possible in the main by stealing the yellow color of butter.

The dairymen attack this fraud at that vital point. They secure laws in thirty-three states, prohibiting absolutely its sale in the yellow color of butter. They also secured the enactment of a Federal law, which taxes it 10 cents a pound when ever offered for sale artificially colored to resemble yellow butter. By all this legislation the legitimate color status of butter is established as being yellow. By the same legislation it is also established that oleomargarine, when colored yellow, is an illegitimate and deceptive substitute for butter.

Now, here we stand, the makers of honest butter, colored yellow or of natural yellow color, on one side by common consent. and on the other side the makers of a colored fraud and imitation of butter.

In the midst of this controversy Major Alvord, Chief of the Dairy Division at Washington, stands up and declares that the coloring of butter yellow is a fraud. He seemed to have more concern about coloring an honest product in its own natural color, than he did the coloring of a counterfeit, to take its place by deception.

Discuss the matter as we will, the instincts of the dairymen of the United States were aroused to the conviction that Major Alvord was giving "aid and comfort" to the enemy of all dairymen, whether he purposed so doing or not.

SORGHUM IN THE SILO.

A certain French writer says the superiority of the American people comes from their having a new country and consequently such a wide range of experience. This is a good thought. Now, take that thought and apply it to HOARD'S DAIRYMAN. What a wide range of experience it presents on this great dairy question. Men can see almost on all sides of it in a year's reading.

Many people have written us asking: "What about siloing sorghum?" We had no experience and could not say. But here comes F. M. Parsons of Des Moines Co., Iowa, and gives *Wallace's Farmer* a good bit of valuable experience on that point. By the way, there are several other valuable considerations brought out concerning the great economy of the silo in feeding either for meat or milk.

Mr. Parsons says:

After years of experience with ensilage as a feed for dairy cows and young stock, which impressed upon me the value of it, I strove to get enough of it to feed my herd through the summer as well as winter. In the spring of 1901 I hired pasture for my cows through the day, which enabled me to break up 20 acres of meadow pasture. Upon advice of our friend, "Buff Jersey," I put this 20 acres in sorghum, drilling the seed with a corn planter, dropping about 2 to 5 seed every 16 inches in the row.

We cultivated it with a "Tower" surface cultivator, and though the season was the driest known by the present generation, it yielded 16 to 18 tons of green feed per acre. There was scarcely a weed on it, and the surface of the ground was kept well pulverized, forming the best kind of a mulch to conserve the moisture. It was planted about May 28th, and got nicely started before the dry weather set in. During the severely dry and hot weather it grew but little, but after the fall showers began to come it grew very fast, until one could hide in it on horseback. We cut it with a corn harvester, doing the work nicely and putting it in nice shape to handle; and put it into the silos with the corn, alternate loads. That year we fed about 50 head, from July 1st to May 10th next spring, from about 55 acres, the corn crop being very poor.

This year, 1902, we put the sorghum ground into corn, which yielded up to 15 tons per acre; and another 20 acre piece into sorghum. This ground being rather flat and poorly drained the yield was no more per acre than the crop of the previous year. This crop was also put into the silos (except three acres).

From the 20 acres of sorghum and about 28 acres of corn we cut 650 tons of ensilage, and 60 loads of sorghum fodder. The ensilage alone will feed 75 head, at least, for a year (from 45 acres).

The top half of the sorghum was frosted before cut. It laid on the ground from one to three days, when it was hauled up and ricked near the barn. It has kept well and is eaten up pretty well by the young stock.

Some people advise sowing sorghum broadcast, but I think it better to drill it. First, because it requires less seed. Second, I believe the yield is greater. Third, one can cut it with a corn harvester, and handle it so much easier. Fourth, growing more rank and with more stalk, there is less liability of containing prussic acid, according to the Nebraska Experiment Station.

The feeding value of sorghum fodder I believe to be about equal to timothy hay; and in the silo, I consider it worth about three-quarters as much as corn. However, there is in sorghum several other advantages. First, if the season turns out dry, if properly cultivated, sorghum will make a big crop anyway. Second, for the silo, if the corn gets too dry before cut, the sorghum furnishes enough moisture to make it keep all right if mixed properly with it. Third, there is only about a week in which to cut up the corn, while sorghum will remain green and juicy all fall, and being so thick and juicy it requires a hard freeze to hurt it. However, for the silo, if your corn gets too dry, a certain amount of nutriment is lost, irrevocably, and the sorghum won't get it back. Every day your corn stands after the proper time to cut it, the more feeding value you are losing.

Sorghum furnishes the dairyman or farmer on high priced land, a splendid substitute for timothy for his horses, and the yield is so large it will pay him to grow it for this purpose, cure it in shock or rick, and run it through a cutter or shredder when it makes splendid feed. However, for cows or cattle, I much prefer corn in the silo.

A MAN BIGGER THAN HIS FARM.

There are two classes of farmers: (1) The man who is bigger every way, than his farm. To such a man it don't make much difference how many acres he has, he runs the farm on close practical business principles and makes a profit. (2) The man whose farm is bigger than he is. No matter how many or how few acres he has, he don't run the farm; the farm runs him.

E. P. Snyder gives an account in the *Ohio Farmer* of a dairyman living near Toledo, who kept 35 Jersey cows on 100 acres of land and has made them earn the past year $4,400 gross, from which he has a profit $2,200. He makes butter and sells it in Toledo at 25 cents in summer and 30 cents in winter. His cows, counting butter, skim milk and everything, earned him over $125 apiece. This is an extraordinary herd. This man has four silos and feeds ensilage the year around, besides buying large quantities of concentrated feeds. But the secret lies in the man himself. Such a man will have the best cow he can produce, to put his feed into.

THE ALFALFA PLANT.

To the greater number of farmers the alfalfa plant is an unknown quantity, therefore, it is proper that a short description of the plant be given. Alfalfa is a smooth, upright-branching, perennial plant, growing from one to three feet high. The leaves are three parted, each part being broadest above the middle, rounded in outline and slightly toothed near the end.

The three leaflets are nearly equal in size, but the leaves vary in size on different parts of the plants and on different plants. Each leaflet when full grown, is usually one inch long and one-third to one-fourth of an inch wide.

The flowers are purple or violet in color and resemble the pea bloom in some respects. Instead of being in a close, round head as in clover, they are in long, loose clusters, or racemes as they are called, and the flowers are scattered over the plant as shown in Fig. 1. The seeds are enclosed in a pod spirally twisted in two or more complete turns, and each pod contains several seeds.

The seeds are kidney shaped and are on an average 1-12×1-6 inch. They are one-half larger than red clover seeds, and vary from a yellow brown to a bright yellow like the yolk of an egg. A field of alfalfa has a dark green color until the flowers appear when it takes on a violet shade, succeeded by a light brown as the seed pods ripen.

VARIETIES.

Besides the well known cultivated variety, there are two others which, by some authorities, are considered as distinct species. These are the yellow or sand lucerne and the more widely known Turkestan alfalfa. The first one has not at present much agricultural value, although it is recommended for use on very light, sandy, limestone soils. It will not stand water as well as the common alfalfa, but will endure cold better.

The United States government has for several years been introducing an alfalfa found on the high table lands of central Asia, and which from the local conditions under which it was found seems to deserve a somewhat extended description. The inability of the common alfalfa to thus far withstand very low temperature, has doubtless prevented its wide introduction in the northwest states, but this failing seems to be wanting in the Turkestan variety. The Department of Agriculture at St. Petersburg describes the variety as follows: "The native lucerne would seem to be a cattle fodder that cannot be replaced in countries so dry and hot as Turkestan, and the Trans-Caspian province. Experiments have shown that the native alfalfa, particularly when there is a lack of water, is vastly superior to the common alfalfa, in the crop it yields, and that it is able to grow well with a minimum supply of water—a supply so small that the common alfalfa would perish from drouth.

This peculiarity of the native lucerne is to be explained by its manner of growth. It possesses a very large root system and its leaves are covered with a thick down, and this in connection with a deep-cut orifice on the leaf enables the plant on the one hand to imbibe the moisture from the deeper layers of the soil and on the other hand to exhale it in very small quantity.

Along the Volga river at the dry-region experiment stations of Eastern European Russia, the plant was found doing well, and also in the desert and semi-desert regions east of the Caspian sea where only camels can live and clouds of dust are so thick that a wet sponge was found essential for comfort in breathing. In these localities this plant is exposed to a severe dry cold in winter, and seems to be very hardy to both dry heat and cold.

LENGTH OF LIFE.

Alfalfa is a long-lived plant and in this respect has a decided advantage as a fodder plant over the clovers. How long it will continue to grow and supply forage, under proper conditions is an open question. Fields are known to be in good condition after 25 years of continuous cropping, and there are reports of fields in California and South America several times this age.

It is a plant that requires three and even four years to reach its prime in production, and is good from seven to ten years before a decline is shown, but the decline comes not so much from lessened vitality of the plant as from the crowding in of native grass and weeds that are quick to take advantage of any opening that may present itself. Like any other cultivated crop it must have care and attention to obtain the best results, and these supplied it will continue to give large returns. The fact that its root system is so large and deep growing has a decided effect on its duration of of growth. The root tendency is always down, and if through inability to pierce through a hard-pan near the surface they

are obliged to grow laterally, they either rapidly exhaust the sub-soil or are unable to obtain the necessary moisture, the result is soon seen in a stunted growth, if not the death of the plant. The alfalfa is also very susceptible to standing water, whether on the crown of the plant or in the soil where the roots have to grow in search of food. Land where the soil water is within a few feet of the surface is not fit for prolonged growth of alfalfa. For a few years the growth seems to be normal, but the after growth is disappointing and the result is a short-lived field of alfalfa.

If the proposed alfalfa field contains hollow places, where water is liable to stand in the spring, or during periods of heavy rain in summer, such places should have provision for draining, either by open ditch or tile; otherwise such places will soon show the effect of flooding, in the death of the plants. A flooded period, which would do no injury to other crops, is fatal to alfalfa. If covered with water for over 48 hours it dies. An overflow of less than 12 hours seldom does any damage other than washing. It will not grow in water soaked soil and in such places, or poorly drained soil, the roots will rot, with the death of the plant as a sequence.

The soil water should not, for best results, come nearer to the surface than 20 to 30 feet, although there are places



where the upper soil is well drained, that the soil water may come to within 12–15 feet of the surface, without bad results, but these are exceptions. Although it kills out when too much water is supplied, yet it must have some water as well as food, and for this reason it will not grow well when the subsoil is a loose gravel, containing neither water nor food, although it may do fairly well if there is a large body of good rich soil above the gravel.

SOIL.

It is very probable that much of the failure in establishing alfalfa in the states of the middle-west has been owing to the nature of the soil. The plant likes a warm climate with a moderate rainfall and a *deep alluvial soil containing lime.* The prairie soils of the middle west are very deep and rich, containing large quantities of humus, and are thus low in lime, with a tendency to become acid unless well drained; conditions that are sufficient to materially hinder the growth of alfalfa.

It prefers a light to a heavy soil and reaches its greatest perfection on the deep, alluvial, sandy loams of river and creek bottoms. Lime is very necessary to its growth, and on the other hand, iron is very detrimental, and it is useless to try to grow this plant in locations where iron ore is known to be present. A soil of decaying limestone, or soils containing marl cannot be improved for alfalfa, as it contains besides lime, potash, magnesia, phosphoric acid and sulphates.

If the ground water contains the above elements in quantity to supply enough food, alfalfa will grow in a soil composed almost entirely of sand, but the surface layer must contain enough food to give the young plants sufficient growth to enable them to reach the food supply below. Alfalfa does well near alkali sinks where other more delicate feeders would die from excess of alkali.

Although it is capable of obtaining its food from deep in the soil, when it is once established, the young plant is comparatively delicate and must get its first year's growth in a soil containing plenty of available plant food and the soil must have a thorough preparation to render the fertilizing material immediately available to the young plant. The soil must be made so fine that the particles can come in immediate contact with the seed and it must be firmed by rolling or planking, that the drying out of the soil and loss of moisture may be reduced to the minimum, that the young plant be not deprived of the necessary water required at this stage.

For the above reason, new broken soil is not well adapted for sowing to alfalfa. The soil cannot be mellowed and broken up sufficiently, and if a heavy sod is turned under, it may ferment sufficiently to make the land slightly acid for a year or so, a condition, which is very detrimental to the growth of the young plant, yet the same land after it has been cropped for two or three years, will do excellently.

The soil should be comparatively free from weeds, and to obtain this result, a cultivated crop should precede the alfalfa. Corn and potatoes are both good for this purpose. On stiff, hard land, millet is a good crop to mellow the soil, but it must be cut before the heads appear, else enough seed will mature and shell off to re-seed the land and if thus re-seeded it makes an exceedingly bad weed. It does not follow sorghum or kafir corn well, as both of these crops exhaust the water of the soil more than other forage crops and this must be considered in dry climates or seasons.

The best crops to precede alfalfa are the legumes, Canada field peas, soy beans, cow peas or clover. They put the land in good condition and supply nitrogen and humus in the form needed by the young alfalfa plant. But whatever crop precedes alfalfa, there is none the less necessity for careful preparation of the soil and the formation of a fine seed bed if good results are to be obtained.

F. G. S.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

For Fresh Jersey Cows.

Will you please form the cheapest balanced ration of the following feeds, for fresh Jersey cows weighing about 800 lbs., to give me the largest flow of milk? Late cut timothy hay, bran $20 per ton; corn meal, $21; oil meal, $26.50. Also, best grain to feed cows in summer, when pastures are short. O. B. W.
Conneautville, Pa.

Late cut timothy hay makes very poor feed. It is probably some better than saw dust, but it is mostly woody fiber and a large proportion of it wholly indigestible. It answers of course for filling and filling is important, but it does not furnish very much available nutriment. For this reason we suggest heavier grain feeding, and do not think that 6 lbs. of bran with 2 lbs. corn meal and 2 lbs. old process oil meal would be any too much. If the very largest flow of milk, without regard to cost, was desired even this amount might be considerably increased.

Bran and corn meal, equal parts by weight make a very satisfactory summer feed for cows on pasture.

Soiling Ten Cows.

I have six acres which have been pastured for two years now. I would like to know what to put in this field for soiling in place of pasture for 10 cows (poor, scrawny Jerseys, good only for 350 lbs. butter per year average). C. I. H.
Hunt, N. Y.

Where one wants to follow soiling throughout the entire season preparations should commence the year before. There should be some clover seeding, some winter rye sown and possibly other feeds. Under the present conditions, we would advise this inquirer to sow one acre of oats and peas—1½ bushels each of seed—just as early in the spring as the ground can be worked, and 10 or 15 days after that sow another half acre of oats and peas. About May 10 sow a half acre of millet, using 10 quarts of seed, and about the same time plant an acre of corn. About the last of May or the first of June plant another acre of corn and the first of July sow an acre of millet, or plant to corn, and the first of August sow an acre of barley and oats, using 1½ bushels of each for seed.

A New York Ration for Fresh Cows.

I have 18 cows due to freshen about March 1st, and weighing about 900 pounds. Have plenty good timothy hay and good, well eared ensilage; can get grain as follows: buckwheat middlings, $18 per ton; bran, $22 per ton; meal, $21 per ton; gluten feed, $26 per ton; cotton seed meal, $28 per ton. Please give me balanced ration. J. C. B.
Maples, N. Y.

After these cows freshen and the fever incident thereto, subsides, commence with a very moderate allowance of grain and gradually increase from day to day until the cows are receiving for full feed, a daily allowance as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
10 lbs. hay	8.68	.28	4.34	.14
4 lbs. buckwheat middlings	3.49	.88	1.34	.22
4 lbs. bran	3.52	.50	1.54	.12
Totals	23.61	2.05	11.42	.69

Grass Mixtures for Maryland.

1 Which is best to use for hay and pasturage seeding, the ready mixed clover grass mixtures, or clover, timothy and red top, or one-third timothy and balance clover seed? By the clover-grass mixtures I have reference to that offered by seedsmen.

2 How frequently do up-to-date, practical dairymen remove the excrements etc., from their cow stables, even when absorbents are used?
Garrett Co., Md. J. B. M.

1 We always prefer to do our own mixing of feeds and seeds. Feed dealers and seed dealers do not make mixtures without expecting to gain some profit thereby. Clover, timothy and red top is a very satisfactory mixture both for hay and pasturage. (2) As a rule stables are cleaned only once a day.

A Vermont Ration.

Please formulate a ration out of the following feed stuffs; Bran from $23 to $24, per ton; cotton seed, $27 per ton; corn meal, $26 to $27 per ton; barley and oats, worth 50 cents per bushel and eight cents per hundred for grinding.

I have plenty of good corn silage and mixed hay, one-half clover, the corn meal, bran and cotton seed I shall have to buy, the rest I have.
Charlotte, Vt. L. W. T.

We consider barley and cotton seed meal the cheapest feeds named and hence suggest for trial as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
10 lbs. hay	8.53	.48	3.96	.16
2 lbs. cotton seed meal	1.84	.74	.34	.17
4 lbs barley	3.56	.35	2.62	.06
Totals	21.85	1.96	11.12	.60

Oak Lumber for Silo

Am thinking of building a silo in my barn this year. Have plenty of timber both oak and pine. Would the oak be as good as the pine for building same? Would rather use oak if it would answer the purpose equally well. J. C. C.
Eagle Bridge, N. Y.

For the framing timber, oak would be better than pine, but for the lining which comes in contact with the silage, pine would be preferable, because less liable to warp and get out of place.

Black Noses for Jerseys—Heavy Bran—Pronunciation of "Protein."

1. I have a registered Jersey cow, which my neighbor says is not a full-blood, because she has a yellowish nose instead of a brown or black nose as all other Jerseys have. I hold that it is simply an indication of the former irregularity in color among Jerseys. Please state who is right.

2. I have some bran that is very heavy; no trouble in putting 80 lbs. in a sack. The lot before was very light; nothing but large, coarse hulls with no white specks among them. Please tell which is the more valuable for feed, and especially which contains the more protein.

3. How do you pronounce "protein?"
Oregon. M. S. S.

(1) The yellowish nose, although unusual among Jerseys, is no indication that this cow is not a full blooded Jersey. (2) We do not consider the heavy bran as valuable feed as the lighter bran. The lighter bran contains both more mineral matter and a higher percentage of protein. (3) "Protein is properly pronounced in three syllables, as it is spelled, but in practice the two last syllables are so closely run together as to make the sound very much as though spelled "teen."

Cow Peas for Silage.

I know you are tired of answering questions about silage, but I shall ask this one anyway. I have had experience with several silos, but they were all filled from land that had been prepared for years for that purpose. I haven't this kind of land. The average land here will make about 10 bushels per acre. Is there any way of determining the number of acres that will be required to raise corn enough to fill a silo 15 feet in diameter and 30 feet high?

I have seen somewhere an article on pea vine hay for silo. How is this hay suited for ensilage; also, when mixed with corn and amber corn?
Comer, Ga. SUBSCRIBER.

Answering inquiries is a part of our regular business, and if we did not have several questions before us for answer we should feel much as a merchant does when customers are few and far between.

Land that will not make more than ten bushels of corn per acre needs immediate attention. Sow cow peas, turn them under to get the soil in a more fertile condition. Carefully husband all the excrement from stock, both liquid as well as solid, and put it out upon the land. It is much more profitable to grow ten tons of corn on one acre properly fertilized and tilled than to work two or three acres and not get any larger returns. Cow peas make excellent silage and a mixture of cow peas and corn, or cow peas and sorghum, is also well adapted for silage in the southern states.

A Virginia Ration.

Please prescribe a ration for me that can meet the ends of utility as well as economy.

We have bran, at about $1.10 per 100 lbs.; middlings, at about $1.15 per 100 lbs.; corn meal at about $1.60 per 100 lbs.; cotton seed meal at about $1.75 per 100 lbs.; cotton seed hulls, at about $8.00 per ton; clover hay at abont $17.00 per ton; wheat straw at about $10.00.

I have all Jersey cows and want to produce butter in part, and also milk for the local trade.
Portsmouth, Va. C. B. M.

From the feeds named and the prices given we do not see how it would be possible to meet the demands of utility and economy more satisfactorily than to use a formula substantially as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
10 lbs. clover hay	8.47	.68	3.58	.17
10 " C. S. hulls	8.89	.03	3.31	.17
2 " C. S. meal	1.84	.74	.34	.17
4 " bran	3.52	.50	1.54	12
Totals	22.72	1.95	8.77	.63

Unprofitable Feeding.

I have 30 cows, part grade Holsteins and rest mixed native cows. Am milking 12 cows now, part fresh in December, and the rest were fall cows; rest will be fresh soon. Am getting 140 quarts per day: am feeding 2 lbs. of hominy meal, 2 lbs. corn meal, 4 lbs. of wheat feed; 1 lb. of cotton seed meal, per feed twice a day. Please make me a formula or balanced ration, out of the kinds of feed mentioned below. Hominy meal, $25 per ton; corn meal, $23; gluten meal, $28; wheat feed, $22; oil meal, $31; cotton seed, $31. Have no roughage but mixed hay, clover, timothy, and native grass and weeds. Have warm barn and warm water for stock, and water twice a day.
Heart Lake, Pa. C. E. M.

When cows are being forced for a large test it may be all right to feed them 18 lbs. of grain per day, but for regular feeding we do not think it profitable to feed more than about half that amount. The larger feed will probably produce a larger yield, but the increase in the yield is out of all proportion to the increase in cost. For example, the daily grain allowance of these cows is costing 21.7 cents and they are yielding about 25 pounds of milk per day. With the value of the hay added the feed cost of this milk is considerably more than a cent a pound. We are of the opinion that the hominy meal and the corn meal might be gradually withdrawn and possibly 2 lbs. of the wheat feed. We would not advise doing this at once, but gradually, taking three or four weeks to make the full reduction, noting results and being governed thereby.

Will it Pay to Build a Barn and Silo?

I am living on my father's farm of 160 acres; can live here as long as he lives and probably longer if I desire. I started in the dairy business last fall; have 14 full blood Jerseys, separator, gasoline engine to run it, churn, pump water, etc. Also ice house, fixed first-class in dairy room; get 25 cents per lb., cash for all the butter we can make, four miles to town. I have good clover hay and ground feed for my cows, but they take all of the weather, (now they are out in a blizzard). Now, would it be prudent and wise for me to put up a silo and good barn for them this spring? I want to make my cows pay, and I know they are not doing it now. We have a good market, now we want to get the butter. C. H. S.
Girard, Ill.

A barn and silo for such a farm and herd as described above, would cost not less than $1,000, and probably not more than $1,200. Either sum is more than we feel at liberty to advise any one to expend on a farm where his tenure is uncertain and indefinite. Very likely, however, some arrangements might be made whereby he could be reimbursed in whole or in part for this expenditure when the farm passes into other hands. If this could be done we do not hesitate to advise building the barn and silo, and to this end we renew the advice given to an Ohio inquirer who asks about a barn for a hundred cows, to get a copy of Prof. King's book entitled *Physics of Agriculture*. This book not only contains very helpful suggestions in regard to building barns and stables, but it is crowded from cover to cover with valuable information on many other subjects that continually confront the inquiring and progressive farmer.

Sex in Breeding.

Some bulls get nearly all heifers and some the reverse. Which is the best to breed from for dairy purposes, or is there no choice, and does the sire influence the sex in any way? Is there any way to influence the sex in breeding? H. E. G.
Andover, Mass.

There are some matters concerning which nature is profoundly reticent, and the questions submitted by our inquirer are in this class. Not very long ago an Austrian physician thought he had solved the secret of nature's methods in determing sex, but he obtained but limited credence. The Czar of Russia and all his subjects are desperately anxious that a male heir may be born to inherit the crown, and it is safe to say that if there was any means for influencing sex, they would have been employed.

Rye for Silage.

We are having our first winter's experience in feeding ensilage, and are very much pleased with it. We have some rye growing which was intended for early pasture and then turn to corn for ensilage. Pasture is going to be very short; how would it do to let the rye head and put it in silo to feed when pasture is short? It is bottom land and could still put it in corn for ensilage. C. C. B.
Frederick, Md

There have been a good many failures in attempting to ensilo hollow stemmed varieties of forage. For ourselves we should not attempt to put this rye in the silo, but would prefer to turn it under as soon as it becomes too high for grazing and plant it to some crop for soiling purposes, sowing a limited amount at a time.

Milkers for 100 Cows.

I want to ask you how the dairymen or farmers manage, who milk 100 cows or more. Do they have milkers who milk 25 cows each, or do they allow 12 or 15 cows to each milker, and also give the milkers work on the farm between milkings? Any information you can give me will be thankfully received, and I would also like to hear from dairymen who have many cows, for instance, Mr. Daggett, Supt. of the McGeoch farms at Lake Mills, Wis. MAX.
Madison, Wis.

There are very few farmers in Wisconsin who milk 100 cows or more, and none, so far as we know, who do not expect the milkers to do more or less work upon the farm between milkings. Our own opinion is, that it is not advisable to expect a man to do good work when milking more than about 12 cows night and morning. It is but a short trip from Madison to Lake Mills, and it would be a very excellent plan for "Max" to visit the McGeoch farm and see for himself how matters are managed there.

A Vermont Ration.

Please formulate a ration for grade Durham and Jersey cows fresh from Aug. '02 to Feb. '03 out of the following: early cut mixed hay, good oat hay, mixed feed, $19 per ton; corn meal, $24 per ton; cotton seed meal, $28 per ton; and a limited amount of corn stover. C. F. McG.
East St. Johnbury, Vt.

Mixed feed is a very uncertain term. It may mean one thing in Vermont and quite another thing in New York or Wisconsin. A Vermont bulletin mentions a mixed wheat feed and gives it a value very closely resembling that of bran. Basing our figures upon this bulletin, we suggest as an average daily allowance, the following formula

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. mixed hay.....	8.53	.48	3.96	.16
10 lbs. oat hay.....	9.11	.43	4.64	.15
8 lbs. mixed feed.....	7.12	1.06	3.82	.24
Total.....	24.76	1.97	12.42	.55

Weight of Silage in Silo.

My silo, 38 feet high and 24 feet inside diameter, was filled ⅔ full of corn in medium condition last fall. It now contains 12 feet. What would be the weight of the first six feet and also the second six feet? What is the price of silage per ton this winter? E. P. S.
Sharon, Wis.

The top six feet will contain about 54 tons, the lower 6 feet 65 tons. The price will depend somewhat on the price of hay in your locality, but the average price will be about ⅓ that of timothy.

Swine.

Can you give us any information regarding a breed of swine known as O. I. C. breed? Would you advise purchasing this breed in preference to the thoroughbred Chester White, for breeding purposes? Would you advise raising thoroughbred Chester White pigs, or would it be more profitable to cross with the Berkshire? Which will be the most profitable feed to use for feeding pigs, white middlings, at $26.00 per ton; red middlings, at $23.00; shorts at $23.00 and ground oats a $20.00. Can either of these feeds be used at the above prices with buttermilk, for pigs, at a profite
N. H. KEENE.

It is with swine as with cattle, many men of many minds have different preferences, and as a rule those best informed are the least prepared to give expression to positive convictions. Our personal

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Simply state which book you want, and address Dr. Shoop, Box 934, Racine, Wis.

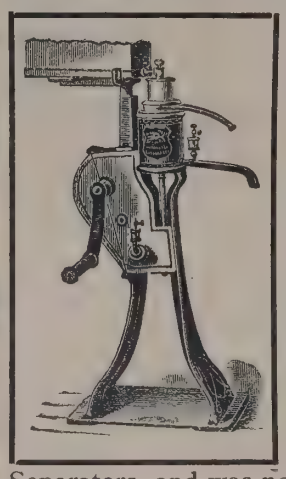
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experience with swine is more limited than it is with cows, and if we are unable to say, as we are, that any one breed of cows combines all the excellencies, still less are we prepared to say that one breed of swine is to be preferred to all others, or to any other. The Ohio Improved Chester White (O. I. C.) has given very great satisfaction to those who have tried this breed, but the same is true of the original Chester White, of the Poland China and of the Berkshire. We do not think it expedient, except for experimental purposes, to mix or cross breeds.

"Red middlings" is a new term to us and what, if anything, distinguishes it from white middlings we are unable to say, unless it be that the red middlings contain more of the re-ground bran and are in effect shorts. Whether it would be profitable to feed any of the grains above named, at the prices given, in connection with buttermilk will depend altogether upon the price that could be realized for the pigs when ready for market. With good care it is not unreasonable to expect that, commencing with pigs weighing about 50 pounds, 100 pounds of gain could be secured from 125 to 150 of white middlings and 600 to 1,000 pounds of buttermilk.

A California Ration.

Please make me a ration for my nine fresh cows of the following feeds:

Bran, $18.00 per ton; wheat middlings, $23.00; rolled barley, $25.00; oilcake meal, $30.00; cocoanut cake, $21.00.

At present I am feeding 4 lbs. of bran, 4lbs. of cocoanut cake, and all the barley straw they will eat.

I have about ten tons of barley hay that I will commence feeding now, and plenty of barley straw. I also have about 50 tons of beet pulp.

Please let me know if bean straw is good for milk cows as I can get lots of it in the fall for almost nothing; also please let me know which is best for milk cows, barley hay or oat hay, as I can raise either kind?

I fed some bean straw last December and the cows seemed to do well, bowels were in fine condition, but got bad when I commenced feeding barley straw. P. S. F.

Castroville, Cal.

We would not like to go on record as expressing an opinion that barley straw formed a satisfactory roughage for milch cows, and in that connection we beg to refer to the editorial on page 30, under the title "A Penny Saved is two Pennies Earned." It does not pay as a rule to try to cheat the dairy cow. We are very glad therefore that our correspondent is now situated so that he can do better by his cows than he has been doing in the past. We suggest that he try the following combination as an average daily allowance for his cows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. beet pulp.....	3.06	.18	2.19	
10 " barley hay.....	8.52	.57	4.66	.15
8 " " straw	6.86	.06	3.29	.05
4 " bran.....	3.52	.50	1.54	.12
4 " cocoanut meal...	3.59	.62	1.53	.42
Total.....	25.55	1.93	13.21	.74

There is no satisfactory analysis that we are able to find of bean straw. Others, like our California correspondent, have reported to us that they have found it a very satisfactory source for a part of the roughage.

There is but little difference in feeding values of barley hay and oat hay, but according to the analyses what difference there is seems to favor the barley hay.

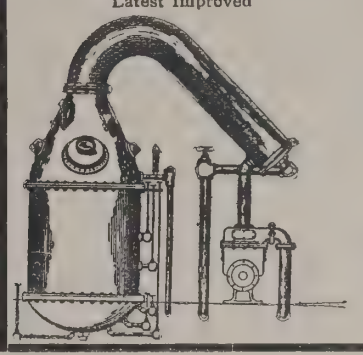
Which Breed of Cows for a Milkman?

ED. HOARD'S DAIRYMAN:—Please let me know through your columns which is the best dairy breed for a man who is shipping milk. I want a persistent milker and desire in course of time to get a thoroughbred herd. I have grade Jerseys and Guernseys and expect to purchase a thoroughbred sire to head my herd and are inclined to purchase a Jersey. From inquiries among the dairymen of my neighborhood, I learn they are in favor of the Jerseys, although they produce a smaller quantity of milk at a milking than some of the heavier milking breeds, but seem to be more persistent milkers. I like the Jerseys, but am in a quandary as to which is the best for my business. I am a young man just starting and wish to begin right. I have nice stables, well lighted and ventilated and expect to keep a record of each cow beginning the first of March. WALTER FAWCETT

Montgomery Co., Md.

If this young man can get a Jersey bull whose dam has a record of giving from 8,000 to 10,000 pounds of milk a year, he will make no mistake in selecting a Jersey. Persistence in milking is perhaps more a matter of training than of breeding. If he cannot find a Jersey bull of the character above described he might try an Ayrshire or a Holstein. The Ayrshire cross with Jerseys and Guernseys has produced some excellent cows giving quite large quantities of milk of very satisfactory quality.

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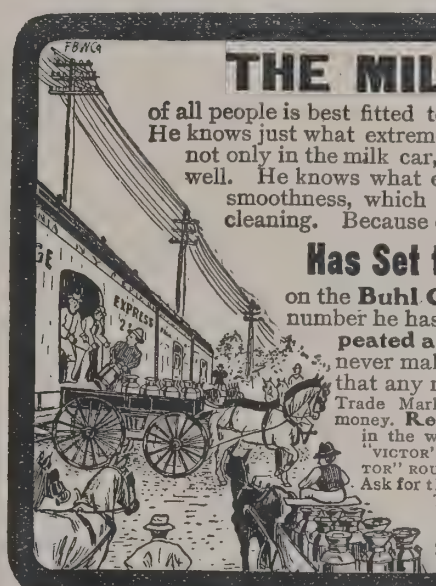
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Lion Coffee

has better strength and flavor than many so-called "fancy" brands.

Bulk coffee at the same price is not to be compared with Lion in quality.

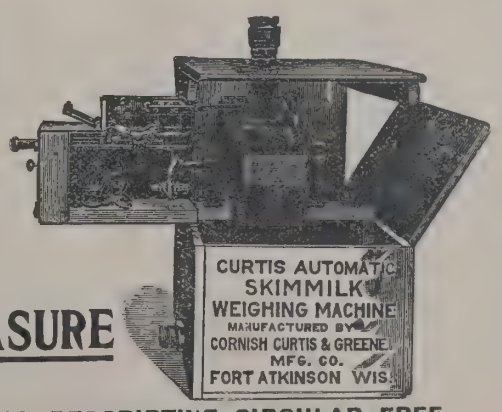
In 1 lb. air tight, sealed packages.

Skim Milk

Often goes to the wrong man for the simple reason that the patrons have no standard of

WEIGHT or MEASURE

and the last man suffers.



☞ FULL DESCRIPTIVE CIRCULAR FREE.

Cornish, Curtis & Greene Mfg. Co.,

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for.... DE LAVAL ALPHA SEPARATORS.

Fort Atkinson, Wis.

Abortion.

ED. HOARD'S DAIRYMAN:—I enclose copy of list of questions sent around to farmers, last spring, and invite editorial criticism. It was too late in the season to get many responses, and I was too busy with work on the farm to answer all who expected a reply. I will soon send for publication the new ideas I have gathered from farmers who have been troubled with abortion and renew my former offer to send, free of charge, a list of questions to all applicants.

Those desiring my own experience with the disease and my list of six different causes of the trouble in my own herd, can have it by sending $1 to HOARD'S DAIRYMAN, which will pay a year's subscription for a new subscriber and for a copy of the book "Thirty Years Among Cows." Simply say to an enterprising neighbor that a book is offered as a premium for a new subscriber, and he can have the first reading of the book. That will show him you are at work for his welfare as well as your own.

Oconomowoc, Wis. N. B. WHITE.

The following is the list of questions:

QUESTIONS FOR FARMERS TO ANSWER.—ABORTION.

1. Number of cows in herd?
2. How many aborted in 1898?
3. " " " " 1899?
4. " " " " 1900?
5. " " " " 1901?
6. " " " " 1902?
7. Have your cows been near an aborting herd?
8. Have you taken your cows to a bull used in an aborting herd?
9. What remedy have you used?
10. With what success?
11. Are cases of abortion more frequent in your township than five years ago?
12. Are they less frequent?
13. Do you salt your hay?
14. Do you mix salt with any of your feed?
15. How much do you give each cow in feed daily?
16. If you do not mix salt with feed, how often do you give salt to cows?
17. Have you ever kept large pieces of rock salt where your cows can always have access to it?
18. Have you ever fed hay that came from salt marshes?
19. Do you feed grain in summer?
20. How much daily and what kind?
21. What has been your grain feed in winter?
22. How much gluten feed daily?
23. " " oil meal daily?
24. " " cotton seed meal daily?
25. " of different kinds of grain?
26. Do you feed well eared corn in fall?
27. Do you use a silo?
28. About how many bushels of ears per acre on your best ensilage corn?
29. How much ensilage do you feed each cow daily?
30. Have you ever ground rye for your cows?
31. Have you ever noticed ergot in rye?
32. Do you feed carrots or other roots and what kinds?
35. Do you use a dog to drive cows?
36. How many inches deep is drop in your barn?
37. How wide is your stable door?
38. Have you bought a bull used in another herd?
39. Have your neighbors' cows served by your bull, aborted?
40. Have cows had a chance to smell blood?
41. Do more heifers than old cows abort?
42. How soon after aborting do you breed your cows?
43. Have you had trouble in getting them with calf?
44. Have you ever noticed white discharges from the uterus several weeks before aborting?
45. Do cows sometimes run in an icy yard?
46. Have you a vicious cow, always trying to corner another cow?
47. Have you ever noticed her putting her horns under the belly of another cow near the bag?
48. Have cows been frightened by gunners and dogs?
49. Have they been frightened any other way?
50. Do cows sometimes bloat?
51. When cows come home full of grass, do you immediately feed grain?
52. In summer, do cows have a chance to drink at noon?
53. Did your cows or heifers ever abort while running on a marsh with coarse grass?

Please answer questions and return to N. B. White, Oconomowoc, Wis. A two-cent stams will be required for return. Sign your own name, post office and state.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN—Butter advanced a half cent on the Elgin Board of Trade to-day. There were no offerings and consequently no sales were recorded. The price was made firm at 27½ cents by the Quotation Committee.

The sales for the week were 508,000 pounds.

Former markets were as follows:

Feb. 23, '03, no sales; price, 27 cents.
Mar. 3, '02, 41 tubs sold at 27 cents.
Mar. 4 '01, no sales; price, 22½ cents.
Mar. 5, '00, 30 tubs sold at 24½ cents.

Elgin, Ill., March 2. H. C. B.

How Near a Balanced Ration, Etc.

I have three full bred Jerseys, one half-bred Short-horn and Jersey; two Jerseys were fresh in May, 1902, one fresh in September, 1902; grade cow not fresh since September, 1901. I feed each cow 8 lbs. of bran and gluten meal, half and half, and 2 lbs. of oil meal and 3 bushels of cut corn fodder and a bunch of clover hay each day. From these four cows we are making 20 lbs. of butter a week.

How near have we a balanced ration?

Do you think a hand cream separator will pay, and what kind would you advise? J. A. L.

Belle Vernon, Pa.

We think this inquirer is feeding an unnecessarily liberal ration, especially when it is considered that these cows are already in an advanced stage of lactation. Of course they are doing very well under the circumstances, and he himself must be the judge as to whether they are making a profitoble return for their feed. We suggest that he try decreasing gradually the amount of bran and gluten meal and note the results. If there is not a considerable shrinkage in milk it may be profitable to feed, perhaps, not more than half as much.

It is extremely doubtful whether a hand separator used with only four cows would be a profitable investment.

CONCERNING OUR ADVERTISERS.

AN IMMENSE PLANT.

The following figures give some idea of the magnitude of the great Deering Harvester Works at Chicago: Works cover 85 acres of ground and 10,000 horse power is used in operating the plant, the consumption of coal being 500 tons daily. 10,000 people are employed by the Deering Division. 25,000,000 feet of hardwood lumber and 20,000,000 feet of pine lumber were used in 1902. 105,000 tons of steel and 90,000 tons of pig iron were used in 1902. 2,000 gallons of oil for paint and 10 000 pounds of dry paint are used daily. 30,000 miles of binder twine are made daily.

Farmer Brighton of Fairfield, Iowa, is just entering upon a new advertising campaign in this paper. It is apparent that in his combination tool—the Swine V to prevent hogs from rooting, cattle dehorner and stock marker—he has something which other farmers want. It is just a little ad. headed "No Humbug," and accompanied by a cut showing the tool and a hog's snout operated upon to show how it works. Look up this ad. if you keep hogs or have occasion to mark or dehorn.

DAIRY MARKETS.

ELGIN, Ill., March 2—Butter—There were no offerings and sales of butter on the board of trade to-day. The Quotation Committee declared the market firm at 27½c, an advance of ½c. Output of the week was 500,800 lbs.

"ADVERTISEMENT"

LIKE A DERRICK.

Pure Food Lifts the Sick Up.

Only those who have experienced the delicious feeling of returning health and vigor can properly appreciate the value of pure food. When the improper food is left off and scientific food such as Grape-Nuts is used in its place one begins to feel the glow of returning health. It feels as though some powerful derrick was lifting one up into the realms of sunshine once more.

"Some time ago I was taken sick and got so very low that I thought at times I would never be able to get out again," writes a business man of Wilmington, Del. "One day my wife saw an article in the paper about Grape-Nuts and read it to me. I was so impressed that I asked her to get some. How thankful I am that I did so. I was at that time reduced to a shadow of 75 pounds but the first week's use of Grape-Nuts brought me to my feet so that I could stand alone. By the second week I could walk out, to the great surprise of all, and now I can get out to my business without any trouble and I have made the phenominal gain up to 160 pounds.

"Improper food nearly killed me but when I left it off and used Grape-Nuts it did not take long to put me back in health. Name furnished by Postum Co., Battle Creek, Mich.

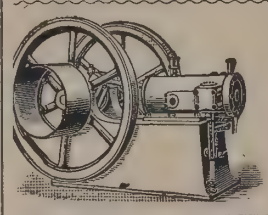
"Feed right, feel right" is a true axiom. Remember Grape-Nuts food is for Athletes, as well as the sick.



GASOLINE ENGINES

as power for the dairy have passed the experimental stage. Many dairymen now have them and all eventually must have them. The only questions to decide are the amount of power needed, and the most desirable make. With twenty-seven years of experience behind us, and a plant that has grown from 50 engines a year to 1500 a year capacity, we feel that we are equipped to build the best. There are other reasons why the "OTTO" is superior. We will tell them in this space from time to time. If in the meantime you need power, write us, mentioning this paper

THE OTTO GAS ENGINE WORKS, Philadelphia, Pa.



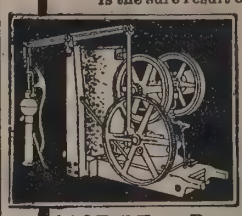
THOMPSON-LEWIS GASOLINE ENGINES

furnish the greatest possible power at the lowest possible cost in time, labor, fuel and money. They are so simple that anybody can run them without expert training or experience. Our Volume Governor gives uniform speed. Our Acme Mixer is the most positive and economical on the market. Our Hand Starting Lever starts engine with least effort. All bearings of Phosphor Bronze. Best material and workmanship throughout. Many sizes from 4 (actual) h. p. up. Best for all farm work—cutting and grinding feed, sawing wood, pumping water, separating cream, churning, etc. Send for our free catalog before you buy. It may save you time, money and annoyance.

J. THOMPSON & SONS MFG. CO., 113 BRIDGE ST., BELOIT, WIS

A Steady Water Supply

is the sure result of the use of our



Webster "Handy Man" Gasoline Engine.

Walking beam pump jack attached. Fits any pump and suited to either deep or shallow wells. Best thing ever made for the purpose.

1 1-2 Full Horse Power. Pulley for belting to light machinery—grinding, separating cream, churning, spraying, irrigating, etc. Simple, safe, efficient. Fully guaranteed.

Catalog of Vertical and Horizontal Engines of all kinds. FREE.

WEBSTER MFG. CO., 1086 W. 15th St., Chicago, Ills.

DON'T BUY GASOLINE ENGINES UNTIL YOU HAVE INVESTIGATED "The Master Workman,"

a two-cylinder gasoline engine, superior to all one-cylinder engines. Costs less to buy and less to run. Quicker and easier started; has a wider sphere of usefulness. Has no vibration, can be mounted on any light wagon as a portable. Weighs less than one-half of one-cylinder engines. Give size of engine required. Please mention this paper. Send for catalogue. THE TEMPLE PUMP CO., ESTABLISHED 1853. Meagher and 15th St., CHICAGO.



If you want a..... Gasoline Engine

that will be always ready to start, safe, reliable convenient, economical and durable, buy a FULLER & JOHNSON Frost Proof. No bother with water nor expense of broken cylinder, no waiting for wind or weather. All sizes, stationary and portable. Send for descriptive catalogue to the manufacturers

FULLER & JOHNSON MFG. CO., Madison, Wis

How To Make Money With Poultry and Incubators.

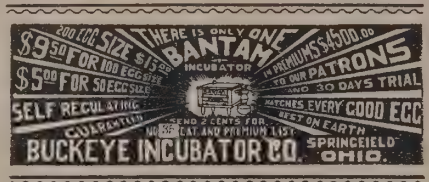
That is the title of our new 1903 book—196 large pages. It is far superior in every way to its predecessors. It embraces all that is best in poultry keeping, duck growing, broiler raising, egg farming and the production of winter chickens or roasters, drawn from the experience of the best experts in the country. It fully describes and illustrates the unequaled

CYPHERS INCUBATORS and Brooders,

which embody the greatest discovery of modern times in the field of successful incubation by artificial means. 250 illustrations show poultry plants that use Cyphers exclusively in the U. S., Canada, England, Germany, Holland, New Zealand and other foreign countries. Send 10c (merely to pay postage, as the book is free) for book No. 123. Circulars free.



CYPHERS INCUBATOR CO.,
Buffalo, N. Y., Chicago, Ill., Boston, Mass., New York, N. Y.





EASY MONEY

is made by installing a Hawkeye Incubator. Little cost, little care, results sure, profits large. 30 Days' Free Trial. Catalogue free. Mention this paper.—Hawkeye Incubator Co., Box 55, Newton, Iowa.



The New Regulator

on the Sure Hatch is really automatic and direct acting—greatest improvement of years. Don't pay double price for old style machines. Get our book and free trial offer.

SURE HATCH INCUBATOR CO., Clay Center, Neb., or Columbus, Ohio.

$5 FOR NOTHING.

We have paid that sum several times for less information than is contained in our grand new book, "*How to Make Money with Poultry and Incubators.*" 8x11 inches, 196 pages. It has 15 special chapters by the best experts in the country covering the entire poultry subject. Over 300 illustrations and photographic views of the *Largest and Most Successful Poultry Plants* in this and other countries. Tells about the CYPHERS INCUBATORS. *It will be sent FREE POSTPAID for the next 30 days* to all who mention this paper in writing. Address nearest office



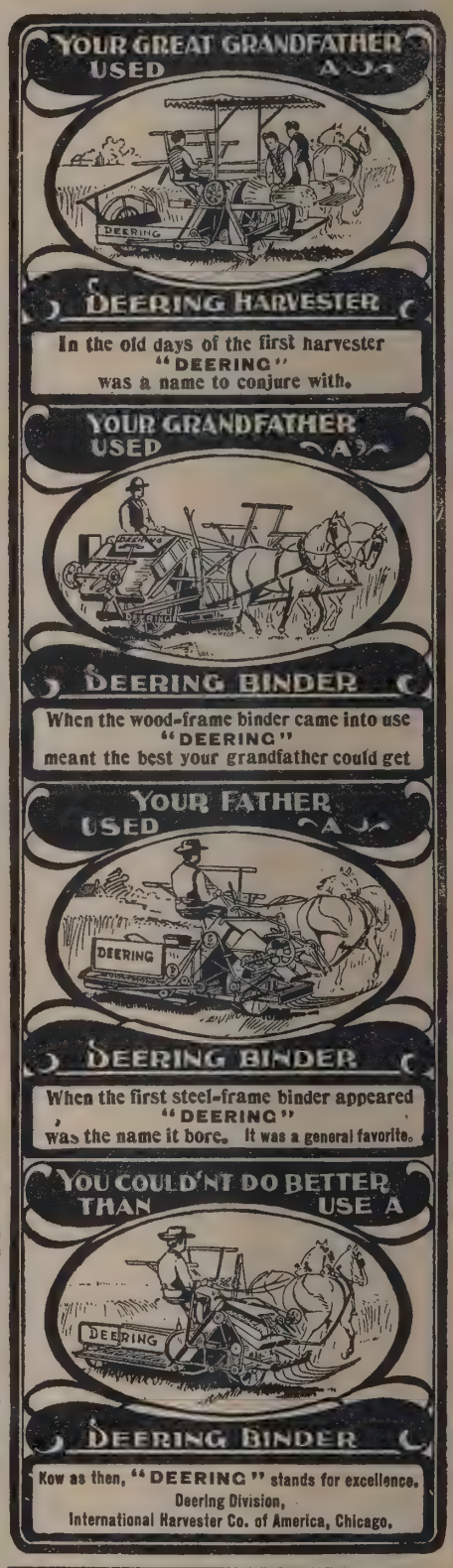
CYPHERS INCUBATOR COMPANY,
Buffalo, N. Y. Chicago, Ill. Boston, Mass. New York, N. Y.

IWANS' Post Hole and Well AUCER

Best in the world for Fence and Telephone Post Holes, Wells, etc. Used by U. S. Govt. Highest award World's Fair.



Thrice the work accomplished with an "Iwan" than with any other. Show this to your hardware or implement dealer or write for particulars. Special price to introduce. Address IWAN BROS., Dept. L, STEEATOR, ILL.





TO BE GIVEN AWAY.

For Next 30 Days Only,

we will mail our fine valuable Poultry Book FREE. Tells you all about poultry, how to make big money with poultry and eggs; contains colored plate of fowls in their natural colors. Send 10c for mailing and postage.

JOHN BAUSCHER, JR., Box 35, FREEPORT, ILL.

STRAWBERRIES

$2.00 a thousand for standard sorts, new beds, strong FRUIT TREES Grape Vines and Small plants, Fruits at Fair Prices. Lists Free. J. F. DAYTON, Waukon, Iowa.

CHICAGO, Ill., March 2—Butter—Steady to Firm; creameries, 18@27½c; dairies, 14@24c.

Eggs—Firm; at mark, cases included, 13@13½c.

Cheese—Steady; Twins, 12½@12¾c; Daisies, 13@13½c; Young Americas, 13@13½c.

Cattle—Prime beeves 1,300 to 1,400 lbs., 5.80@6.00; choice to extra beeves, 5.35@5 75; fair to good export and shipping steers, 4.85@5.30; medium beef steers, 4.35@4.80; plain and fair steers, 3.85@4.25; common and rough, 1,000 to 1,250 lbs., 3.20@3.80; good to choice heifers, 4.00@4.60; good to choice feeders, 3.80@4.70; bulls, plain to fancy, 2 40@4.60; poor to plain stockers and feeders, 2.60@3.75; fair to good cows and heifers, 3.35@4.20; good cutting and fair beef steers, 2.70@3.25; common to good canning cows, 1.65@2.60; veal calves, good to fancy, 6.00@7.50; veals, coarse and common, 3.25@5.75; corn fed Western steers, 3.65@5 80; Texas bulls and grass steers, 2.75@3.20. Texas steers, fair to choice, 3.40@4.00.

Hogs—Good to prime heavy shipping, 7.35@7.55; good to choice heavy packing, 7.25@7.45; plain to choice heavy mixed, 7.05@7.30; selected butcher weights, 7.30@7.50; assorted light, 150 to 195 lbs., 6.70@7.15; common to good light mixed, 6.75@7.00; thin to choice, 50 to 130 lbs., 6.00@6.60; stags and rough lots, 3.75@6.60.

MILWAUKEE, Wis., Mch. 2.—Butter—Creamery, extras, 27½c; firsts, 23@24c; seconds, 17c; June creamery, 18@24c; process (renovated), 17@18c. Dairy, 19c; lines, fresh, 14@15c; roll, 14@15c; packing, 13c; whey, 10c; grease, 5@6c.

Cheese- American full cream, Twins, 12½@13c; Young Americas, 13@13½c; Daisies, 12½@13c; Longhorns, 12½@13c; low grades, 10@12c. Brick, fancy, 12½@13c; low grades, 10@11c. Limburger, fancy, 11½@12c; low grades, 1c@11c. Swiss, drum choice, 12½@13c; drum, No. 2, 10@11c; block, choice, 12@12½c; block, No 2, 10@10½c.

Eggs—Strictly fresh laid, loss off, cases returned, 14c, seconds, 8c; storage, No. 1, April stock, 10@11c, country, 9@10c.

SHEBOYGAN, Wis., Feb. 25—Cheese—On the call board today Daisies and Young Americas sold at 13, and Longhorns at 12½c. Market active.

SHEBOYGAN FALLS, Wis., Feb. 25—Cheese—12 factories offered 597 boxes of cheese on the Call Board today and all sold as follows: 91 cases Young Americas at 12⅞c; 54 at 12¾c; 278 Daisies at 13c; 73 at 12⅞c; 81 cases Longhorns at 12¼c; 20 at 12c. Market steady.

FOND DU LAC, Wis., March 2—Cheese—The sales of cheese the last week have been 64 boxes Twins at 12½c and 240 boxes Daisies at 13c. The bulk of the factories will not start their season's work any earlier than common, which is about the middle of April.

BOSTON, Mass., Mar. 2—Butter—Butter trade was very quiet today and the feeling was a little weak. Creamery, near by Western extra, 26½@27c; firsts, 25@26c; dairy. 15@24c; imitation creamery, 17@20c; ladle, 16@17c: box and print, 20@27½c.

Cheese—Choice, 14@14½c; sage, 14½@15c; fair to good, 10@12½c.

Eggs—Near by, 22c; Western selected, 16½@17c; fair to good, 15@16c; Illinois, 17c; refrigerator, 10@13c.

KANSAS CITY, Wis., Mar. 2—Eggs-Higher; fresh Missouri and Kansas stock, 12¾c, loss off, cases returned; new No. 2 whitewood cases included, 13¼c. Butter—Creamery, 21@25c; dairy, 19c.

ST. LOUIS, Mar. 2.—Butter—Quiet, creamery, 20@28c; dairy, 19@21c.

Eggs—Higher, 15½c for fresh.

NEW ORLEANS, La., Mar. 2—Butter—Extras 28½@29c. Receipts insufficient. Demand heavy.

PHILADELPHIA, Pa., Mar. 2—Butter—Firm at 29c; prints, 32c.

WASHINGTON, D. C., Mar. 2—Butter firm at 28c.

TOPEKA, Kan., Feb. 28—Butter—Creamery butter, 26½@26c; dairy, 18@19c.

Cheese—Longhorns, 13¼c; singles 13¼c; Twins, 13c; sales 566 boxes.

LIVERPOOL, Mar. 2—Butter—Good United States, 80s.

Cheese—Firm, American finest white, and colored, 62s 6d.

NEW YORK, March 2—Butter—Receipts, 5,676 packages; irregular; state dairy, 15@25c; extra creamery, 28c; held creamery, 17@23½c; creamery common to choice, 18@27c.

Cheese—Receipts, 2,919 pkgs.; firm; state full cream, fancy, small colored fall made, 14½c; do white, 14¼c; large, colored, fall made, 14¼c; do large white, fall made, 14c; late made, fancy, discontinued.

Eggs—Receipts, 16,078 pkgs.; firm; state and Pennsylvania, average best, 17c; Western fancy, 16½c; southern, 16c; refrigerator, 8@13c.

BALTIMORE MARKET.

BALTIMORE, Feb. 26—Butter—The stormy and cold weather, throughout the entire dairy section, has not only caused a shrinkage in the make, but has had a damaging effect on the quality as well, consequently the receipts of strictly fancy stock are few and far between. All offerings of fresh, useful table grades are promptly taken at full values. Owing to the scarcity of fresh stock, there has been considerable inquiry for choice held creamery and several large lots have changed hands. Imitation creamery of desirable quality is in moderate supply and good demand, while defective stock is neglected entirely. Ladles—All arrivals of freah sweet solid boring stock meet quick sale. Rolls, although in moderate receipt, are not eagerly sought after, owing to their regular quality. Packing stock—The supply is equal to the requirements. All invoices of choice to fancy prints aud blocks meet quick sale. The market, at the close, presents a firm appearance, and still higher prices may prevail on all strictly fancy table grades.

Creamery Separator, extras, 28½@29c; firsts, 27@28c; seconds, 24@26c. June Creamery, extras, 25c; firsts, 23@24c; seconds, 20@22c; Imitation Creamery, extras, 20c; firsts, 18@19c; seconds, 15@17c, Iowa & N. W. Ladle, extras, —firsts, 18c; seconds, 15@17c. Ohio & Indiana Ladle, extras, — firsts, 17@18c; seconds, 15@16c. Roll, Ohio, extras, — firsts, 15c; seconds, 13c. Roll, W. Va., extras, — firsts, 14@15c; seconds, 13c. Ohio Store packed, extras, —; firsts, 14@15c; seconds, 13c. West Va. Store packed, extras, —; firsts, 14c; seconds, 12@13c. Creamery blocks (2-lb.) extras, 29@30c; firsts, 28c; seconds, 24@26c; Creamery prints (¼-lb), extras, 30c; firsts, 28@29c; seconds, 25@27c: Md. Va. & Penna. Prints, extras, 28@29c; firsts, 26@27c: seconds, 22@24c. Renovated butter, extras, 19@12c; firsts, 17@18c; seconds, 15@16c.

Eggs—The receipts of hen eggs, so far this week, have been liberal, and if the weather continues mild and open, we look for continued liberal receipts. Up to the present, the demand has been fully equal to the offerings. At the close there is little or no activity displayed, and the market is about steady at 14¼c. Duck eggs—There is a quick demand for all large clean stock, while small and dirty eggs are slighted.

Cheese—Offerings moderate; demand good; market firm on all choice to fancy stock.

N. Y. State—Cheddars, fine, 14¾@15c; choice, 14@14½c; fair, 13@13½c; Flats, fine, 14½@14¾c; choice, 13½@13¾c; fair, 12½@13c; Small, fine, 14¼@14½c; choice, 13½@14c: fair, 12½@13; Ohio Flats, fine, 13¼@13¾c; choice, 12¾@13c; fair, 12¼@12½c; O. Picnic, fine, 13¾@14c; choice, 13¼@13½c; fair, 12½@12¾c; Swiss Cheese, fine, 15c; choice, 12½@13½c; fair, 11@12c.

301 Exchange Place. G. M. LAMB & BRO.

NEW YORK MARKET.

NEW YORK, Jan. 28—Butter—Receipts for the week, 29,855 packages. Exports for the week, 2,642 packages.

Extra fresh butter sold quick on arrival at top quotations, is short and wanted at the close. The scarcity of this extreme top quality caused many buyers to take the next best; and firsts were in demand at 27@27½c with few sales at 28c. No fresh dairy here; fancy quality of new milchs makes would sell at 26@27c.

June creamery has been coming here in sample lots from all quarters, and buyers have been cautious, and took only the very finest for which they paid 23@24c; while parcels offered at 21@22½c were neglected. Exporters bought fresh ladles at 15@16c, and under grades of renovated at 12@14c. We quote:

Creamery, fresh, extra, 28c; medium, 25@27½c; poor, 18@24c; creamery, June, extra, 24@25c; medium, 21@23c; poor, 18@20c. Dairy, extra, 25@26c; medium, 20@23c; poor, 15@18c. Ladle, extra, 19@20c; medium, 15@17c; poor, 12@14c; renovated, extra, 20c: medium, 16@18c; poor, 12@14c.

Cheese—Receipts for the week—9,064 boxes. Exports for the week—4,063 boxes.

Small colored cheese have a light but steady demand from home trade and receivers report prices firm and full of confidence as to the future of the market. We quote:

Full cream, extra, 14@14¼c; medium, 13@13½c; poor, 11@12½c.

Eggs—Receipts for the week, 59 454 cases.

Supply was much lighter than last week, demand good and prices have ruled strong, with advancing iendencies at the close. Refrigerator stock is plentiful and sells at low and irregular prices. We quote:

New York & Pennsylvania, fancy fresh, per doz., 16½@17c; Northern & Western, fancy fresh, per doz 16@16½c; all sections, poor to good, per doz., 14@16c. Refrigerators, poor to good., 8@13c:

177 Chambers St. DAVID W. LEWIS & CO.

NEW YORK FERTILIZER MARKET.

Potash, dbl. m're salt 48@53 per cent	1 09	@ 1 11½
dbl. m'ure salt, 48@53 per cent less than 25 tons	24 00	@30 00
sulph of basis, 90@98 per cent	2 08	@ 2 14
90@98 per cent less than 25 tons	38 00	@40 00
Nitrate of soda	1 95	@ 1 97½
Ammonia, sulphate	3 10	@ 3 ⅛
Blood, Dried red ℔ unit	2 60	@ 2 65
low grade	—	@ —
Concentrated tankage	15 00	@16 00
Bones, rough ℔ ton	16 50	@17 50
ground	20 00	@21 00
Bone meal	18 50	@24 00
Bone black, refuse	18 00	@19 00
Fish guano, dried	27 00	@28 00
acidulated	14 00	@ —
Phosphate rock, f. o. b. Char'n	9 00	@ 9 25
Tenn	4 00	@ 5 00
Acid phosphate	60	@ 65
Kainit 25% S. of P. ℔ ton	8 80	@ 9 30
less than 25 tons	9 05	@ 9 55
Sylvinit, 35@37% P. ℔ unit	38	@ 40
Potash muriate 100 lbs	1 80	@ 1 86½
less than 25 tons	36 00	@40 00

HARD FACTS
ABOUT CREAM SEPARATORS.

What the intending buyer of a cream separator wants are **HARD FACTS**—not fanciful nonsense and alluring misrepresentation.

He doesn't care much for silly ditties about "big brother" and "little sister" separators; nor "high" and "low" feed twaddle which means nothing to any one; and he may well steer clear of fake skim-milk "records" which have no actual foundation.

But what does concern him are these HARD FACTS—

That a De Laval Cream Separator is as much superior to imitating machines as such other separators are to gravity setting systems.

That protecting patents make and keep them so—together with far greater experience and superior facilities in every way for cream separator manufacture.

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READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

For Sale—A good dairy farm of 50 acres, all tillable, located one and one-half miles from city of 30000 inhabitants. A new silo, and good barn for 25 cows and 5 horses. Will sell farm alone or will also sell cows and all necessary equipment for wholesale and retail milk business including route. Address T. C. WILSON, West La Fayette, Ind. 3-2t.

For Sale—Large and well equipped creamery and ice cream plant in leading southern city of 125,000 population. Paying $3,000 profit annually and can be increased. Steam boiler, engine, churn, butter worker, separator, Babcock test, bottle washer and ice cream plant (wholesale ice cream trade year round). Wagons, horses, office fixtures, etc. Office, creamery, and stables all under one roof. Requires ($7,000) seven thousand dollars. Satisfactory reasons for selling. Write for particulars to "ICE CREAM," care Hoard's Dairyman. 3-tf

For Sale—One of the best established dairies in the south. 130 head cattle—Jerseys, Guernseys and Holsteins. Can sell 200 gallons milk per day at an average of 30 cents per gallon. Farming and pasture lands rent very cheap. Good reason for selling. Address J. W. EDENFIELD, 408 Montgomery St., Savanna, Ga. 3-3

For Sale—Desirable dairy business with full equipment, consisting of horses, cows, farm tools, wagons, roxtes, etc. Leading dairy business in town of 12,000. Milk bottled. A bargain if sold at once. None but up-to-date dairymen need apply. Reason for selling—poor health. Address BOX 416, Elyra. Ohio. 3-tf

For Rent—A 160-acre dairy farm. Good buildings and strong soil. Established milk route. Address W. A. POWELL, Marshall, Mich. 3-2

Guernsey Bulls—Best blood, 2 Experiment Station tests. WM. BLACK, Mt. Vernon, Ind. 3-2

For Sale—The entire outfit for making American cheese; all in good order. Will be sold at a bargain. JAMES VIPOND, Shullsburg, Wis. 4-4

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

Wanted—A married man with small or no family to work on dairy farm. Must be a good farm hand and good milker. Give age, experience and wages wanted. For particulars, address BELLEVUE FARM, Negaunee, Mich. 1-tf

Buff Jersey's Son, 23 years of age, will accept a position of trust on horse breeding, cattle feeding or dairy farm. Fully competent to manage up-to-date farm or ranch along any of the above lines. No bad habits whatever. Address BUFF JERSEY, Monmouth, Ill. 1-4

For Sale—Creamery in good condition Well located. Good trade. W. D. COE, Washington C. H., Ohio. 3-2

Buttermaker Wanted—We want to hire a buttermaker whom we furnish with an assistant. Send recommendations, state salary wanted per month and experience with application to the secretary before March 21, 1903, or apply personally at the director's meeting at creamery March 21, 1903 The directors reserve right to reject any or all bids THE FARMERS' CO-OPERATIVE CREAMERY AND COMMERCIAL CO., Peter Ameson, Sec., Waterville, Iowa. 4-2

For Sale—35 grade Holstein heifers, 13 to freshen soon and fine 3 year-old registered bull. Also American cheese and Prime Ost making outfit. HENRY AMES, Litchfield, Minn.

For Sale—Only milk route in thriving town: 20 cows; 90 acre farm and implements. Building new. W. H. BOARDMAN, Vassar, Mich.

Buttermaker and Dairyman Wanted—Married; house fully furnished; no objections to children. Address J. A. DOOLITTLE, Wallingford, Conn.

Wanted—To rent a creamery that handles eight to ten thousand lbs. of milk daily in summer. Or would hire to right party to manage business. Ten years a successful creamery manager. Understand testing, pasteurizing and all creamery machines. Milk expert. No. 1 references. Correspondence solicited. Address BOX 46. Candor, N. Y.

Experienced Buttermaker wants position in up to date creamery or high class private dairy. Applicant is a graduate of Cornell Dairy School and can give best of references from present employer. Is single, an American, and twenty-six years of age. H. L. KLING, Box 162, Port Chester, N. Y.

A Married Man 30 years old, would like to correspond with parties in need of a competent man to take charge of good sized farm about April 1st. I can put the right farm on a good paying basis. Third year in present place. Good reference given. MARK HOPKINS, Jonesville, Mich. 4-2

For Sale—A fine yearling Holstein bull sired by an extra well bred grandson of DeKol 2d and from a dam of great excellence. A persistent and large milker. T. J. JUHAN, Fort Dodge, Ia. 3-2

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Wanted—Experienced farm hand, able to milk well. Give age and wages wanted. ST. IVES PARK FARM, Mont Clare Station, Chicago, Ill. 41-tf

For Sale—The Prairie Farm, 840 acres. May be divided into five farms with buildings. In high state of cultivation, 16 miles from Toledo. One hundred cows, selected for 40 years. Terms to suit. 5%. Address E. L. LOCKWOOD, Petersburg, Mich. 46-tf

Position Wanted—As butter maker or manager of creamery. Understand all details of creamery business and work. Fifteen years experience. Make cheese also. Best of references. Address B care Hoard's Dairyman. 47-tf

Guernsey Cattle—Clover Knoll herd. Send for circular. M. SAGER, Orangeville, Pa. 50-12

Guernsey Grade Heifer—For Sale 10 Guernsey grade young heifers. Seven of the lot 1 year old; 3 six months old, all in fine condition. Just right to serve as the foundation of a fine dairy. A finely bred young bull, 10 months old, registered Guernsey, to head the bunch. These heifers were bred from some of my finest grade Guernsey and Jersey cows. The lot will be sold at reasonable price. W. D. HOARD, Fort Atkinson, Wis. 52-tf

Wanted for California—Steady, temperate, reliable man experienced in farming, milking, feeding and raising thoroughbred Holstein or Jersey cattle. Good chance for right man for work by the year in this beautiful climate. State age, nationality, qualifications, wages expected, also any physical impediments. References. WILLIAM NILES, Los Angeles, Cal. 4-2

Cheese Outfit for Sale—1 Helmer's Automatic Steel Gang Cheese Press for 14½ inch hoops (new), 1 Helmer Plain Steel Press 14½ inch hoops (new), 12 galvanized 14½ inch cheese hoops (seamless), 14 tinned 14½ inch cheese hoops (seamless), 1 Schaubb power curd mill, 1 Pohl curd mill, 2 set curd knives, in fact two complete cheese outfits for sale at a bargain. RIPON CHEESE FACTORY-CREAMERY, Ripon, Wis. 4-4

A Few First-Class managers and buttermakers. Open at once. Best of references. No charges to employers. Save time by writing THE SCIENCE AGENCY, Durham, N. H. 4-5

For Sale—Dairy farm—one hundred acres with elegant dwelling, tenant house, large barn and silos, cows and everything necessary with a first-class, well established 50 gallon per day milk trade. Address C. A. SNOW, Athens, Ohio. 4-2

For Sale—Milk route, horses, harness, wagon, cans, tickets, etc. A nearly new and very complete outfit. Present net earnings about $150 co per month. A splendid business opportuity Apply to JOHN L. FISHER, Hayes Block, Janesville, Wis. 4-2

Guernseys For Sale—Pure bred bulls and grade heifers. A. H. HINMAN, Neenah, Wis. 52-4

Which Breed?

The Holstein Advocated.

ED. HOARD'S DAIRYMAN:—Under the above heading I noticed an article from A. R. F. taking exceptions to your advice to Mrs. R. B. B. as to Holsteins. This party states that he is a Jersey admirer. Some who belong to that class are blind and prejudiced, others make rash statements with no valid evidence to back it. HOARD'S DAIRYMAN belongs to no particular class, its editors stand ready to back their statements. They state the facts, and the public are at liberty to draw their conclusions. I have seen it recommend Jersey, Guernsey, Ayrshire and Holstein bulls to head herds that belonged to its readers. It stands for no particular breed, but for the best dairy cow from whatever breed.

It needs no assistance from me to back up its assertions, but as I am seeking light perhaps A. R. F. or some of your readers would turn it on. He asserts that the Holsteins rank 4 or 5 in the dairy breeds. Can it be possible that I have been deceived. I thought they ranked first. A Holstein cow giving 60 lbs. of milk in a day and making 15 lbs. of butter in a week, will eat twice as much as a Jersey giving 40 lbs. making from 15 to 25 lbs. butter in a week, and as to Ayrshires the "Holsteins are simply not in it." Jersey cow making 25 lbs. butter in 7 days, where is she? I could not find her at the World's Fair, Chicago, nor at the Trans-Mississippi at Omaha, or the Pan-American at Buffalo. Is there a cow of that breed in the United States that has made 25 lbs. butter in 7 days under the Supervision of any of our state colleges or experimenting stations? I know of many Holsteins that have made 25 lbs. and more of butter in 7 days under supervision of these stations.

Under Cornell University we have Helena Burk, 654⅛ lbs. milk and 25.44 lbs. butter in 7 days. Netherland Hengerveld, 544⅞ lbs. milk and 26.66 lbs. butter in 7 days. Burley Wayne 608 lbs. milk and 27.87 lbs. butter in 7 days. Lilith Paula DeKol 658.8 lbs. milk and 28.24 lbs. butter in 7 days as a 4-year-old. Katy Spafford a 3 year-old 590.7 lbs. milk and 26.04 lbs. butter in 7 days.

Fidessa under Supervision of California Station gave 570.7 lbs milk and 25.6 lbs. butter in 7 days, Aaltje Posch in her 2 year-old form gave under the supervision of Ontario Station, 586.5 lbs. milk and 27.07 lbs. butter in 7 days, while Mercedes Julip's Pietertje gave under supervision of the Minnesota Station, 584 lbs. milk and 29.38 lbs. butter in 7 days. These are but a small portion of the many records made by cows of this breed under supervision of these Stations, that run from 25 to over 29 lbs. of butter in 7 days.

In the 18th report of the Wisconsin Station of June 30th, 1901 on page 97, we find there has been tested by these officers in the United States, 153 Jerseys, their average daily yield was 24.5 lbs. milk and 1.26 lbs. butter fat. We find 18 Ayrshires whose average yield was 27.7 lbs. milk and 1.07 lbs. fat, besides these, 8 other breeds were tested. Of the Holstein-Friesians 493 were tested with an average daily yield of 48.9 lbs. of milk and 1.61 lbs. butter fat; nowhere does any other breed in this country anywhere near equal this production.

It is well to assume that all of these cows were among the best of their breed and the picture would indeed be interesting if 153 of these best Holstein records were placed beside of these Jerseys. Not only would it establish before the eye the utterly fallacy of such statements, that the Holsteins are 4th or 5th in dairy breeds, but the utter ignorance of, or the unreliability of such statements made by these partisan men. The truth will hurt no man, while the reverse might do him great injustice. If I understand right the Holsteins have won three-fourths of the public butter tests in this country and against all breeds; that their butter capacity is acknowledged by the leading dairymen as well as the leading Agricultural and Dairy press of America.

It is now asserted by some of the Jersey breeders and some others that the Jersey breed make butter at a less cost per pound then Holsteins and that the cost per pound must determine the real value of a breed as a butter breed. Unfortunately we have as yet not much data upon this point; we have however the cost per pound of the 24 Jersey cows that were in the dairy test at the World's Fair, Chicago; their average cost per pound of butter was 13.64 cents per pound. The cheapest butter was made by Merry Maiden at 11.66 cents per pound, and the highest was made by Grace Pansy 2nd 15.20 cents per pound. During the year, May 15th, 1901 to May 15th, 1902, we find that 62 Holstein-Friesian cows and heifers ranging from yearlings to 13-year-olds were tested in the United States, under supervision of State Institutions and by them a record of cost of such production, keep and the average cost per pound of butter was 7.58 cents per pound; the cheapest was made by Mercedes Julip's Pietertje who made 29.38 lbs. butter in 7 days at a cost of 3.8 cents per pound, and the largest cost was made by a two-year-old at a cost of 11.5 cents per pound. But 7 cows in the batch made butter at a cost of over 10 cents per pound, and 3 of these were from one herd, which might indicate that it was the feeder and not the cow that was to blame; 10 of these or nearly one-sixth of the batch made butter at less than 6 cents per pound.

Now Mr. Editor, if there is any other breed of cattle that can equal these showings, I would be grateful if some of your readers would give us the information, but I do not wish for mere opinions or assertions unless they are backed by the evidence. It is useless as well as ungrateful to lead the unlearned estray by unsustained remarks. The truth alone can survive; as to the Buffalo test, the Holsteins gave over 6,000 lbs. more than any other breed, and made 33 lbs. more butter than their nearest competitors, and won the test against all breeds, as they have of 90 per cent of all the other public butter tests in the United States. If the figures I state are true, the DAIRYMAN'S recommendation stands unim-

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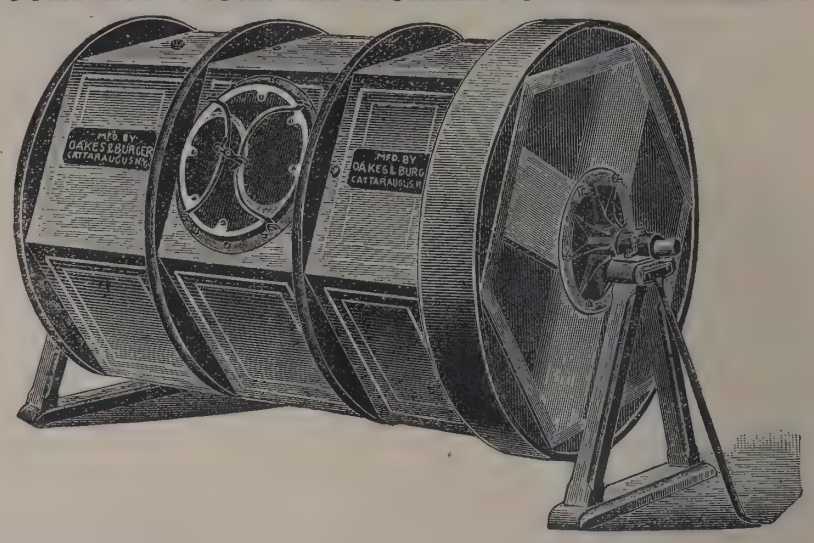
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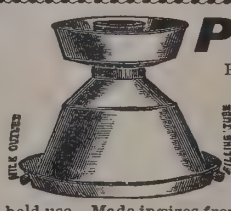


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peached, and the Holsteins are the breed for Mrs. R.B.B. FRED E. HARRIMAN.
Wisconsin.

What is Meant by the Term "Dairy Temperament.

ED. HOARD'S DAIRYMAN:—I have been a subscriber to your paper but a short time and I am very much interested in it so far. But, dear Editor, I would like for you to explain something in the Rev. J. D. Detrich's address printed on page 1104. "Temperament," he says, makes all the difference in the world. How are we at the foot of the ladder going to profit by that assertion, when we are not told one word as to what or how we are to know beef temperament from dairy temperament. "The care of the calf should begin soon as the mother has been bred." That is all right so far as it goes, but what are we to do to that mother? Now, Mr. Editor, I am in all sincerity about this matter; if there is any way whereby a new beginner can know these things, I am very anxious to know. That is why I am a reader of HOARD'S DAIRYMAN. PRESS B. CAMPBELL.
Spokane, Wash.

At the close of Mr. Detrich's address which Mr. Campbell refers, we gave a brief statement of the office of that "inner something" or quality which distinguishes the dairy cow from the beef cow, and which for the lack of a better term, years ago, we gave the name of "temperament." It is our idea that this difference in the function of animals is first determined temperamentally; that is, temperament decides whether the cow shall be a decided dairy or beef animal.

We believe—(1) That temperament decides function, whether it be the milk or beef function, which she is to serve.

(2) That it is function which decides the form she is to take.

(3) That form is the outer indication which enables us to judge of the course the animal will pursue.

So in judging, we first decide on the form; that gives us an idea of the function she is committed to, in her life work; and through both form and function we decide as to the ruling temperament to which the animal belongs.

It is temperament which stands at the parting of the ways and decides the future character of the animal.

We judge of "temperament," first, by form, and if we wish to know whether it is an established temperament, we look to the antecedent breeding of the animal. So we look to pedigree. Has it been bred for generations in constant line of this or that temperament? If so, then we have additional proof of its stability, and assurance that the animal, if mated with another of agreeing temperament, will produce after its kind.

Many cows of a beef temperament show dairy capacity and often show decided dairy form. But the line of heredity has been broken up and there is no certainty that they will breed or reproduce in the dairy line.

Two things therefore, are necessary in deciding that a male or female has dairy temperament: (1) A decided dairy form; (2) a long line of unbroken dairy heredity. The longer the line of heredity, the more decided as a rule, will be the dairy prepotency of the animal in this given line. No new beginner can at once secure a close judgment on these questions. It takes time and study. But he can commence to learn, and if he starts right, with sound physiological premises, he will learn all the sooner and surer.

A Stable Plan for 100 Cows Wanted.

ED. HOARD'S DAIRYMAN: In writing this letter, I would like to know if you would give me a plan for a basement barn, on level ground, for 100 head of cows.

I want a cement floor. Which would you prefer for the cows to stand on, a cement or a plank floor? Do you think it would be best to put a butment under each post through the center, or set the posts on top of the cement floor?

I want 16 feet on top of basement up to plate. Which would you have for a foundation, a tile brick, or a common brick?

I want cows in two rows, heading one another and a driveway between them and behind each row.

I have two silo houses. I want them for a milk room, wagon shed and horse barn, 12 head of horses. The houses are 30x60 feet. Do you think they will be large enough? If so, I want them to join the new barn on east end. The houses are setting east and west. I want two round silo houses on west end of new barn, holding enough ensilage to run 100 cows for 9 months.

I think this is sufficient, just to give you a little sketch how I would like it built. E. B.
Maumee, O.

This is too much of a problem to be answered briefly and we have not the space at our command to go into full discussion of such a subject. A man who wants to build a barn and silos for 100 cows ought to have Prof. King's book entitled "Physics of Agriculture", where, among hundreds of other questions thoroughly discussed, the subjects of barn building and stable ventilation are very fully discussed. Possibly a round barn 100 feet in diameter as described on page 341 of that work would commend itself to this inquirer. Undoubtedly a barn built on this plan would cost for sheltering 100 cows and their feed less than any other style of structure, but whether it would afford the largest degree of convenience is perhaps an open question. Our own preference would be for a building at the corner 44 feet square, with wings extending at right angles 100 feet long by 44 feet wide, somewhat after he plan illustrated on page 938 of the preceding volume. We would use the central corner space for general administrative purposes, having a driveway 16 feet wide in the center, with trap doors that could be raised when necessary to take in hay, grain or feed. The silos we would place on the outside on either side of this doorway, each 24 feet in diameter and 30 feet deep.

The two buildings now used for silos could perhaps be attached to and communicated with this central administrative department and afford all the room required for wagons and the milk room.

Prof. King's book referred to above can be supplied from this office for $1.75.

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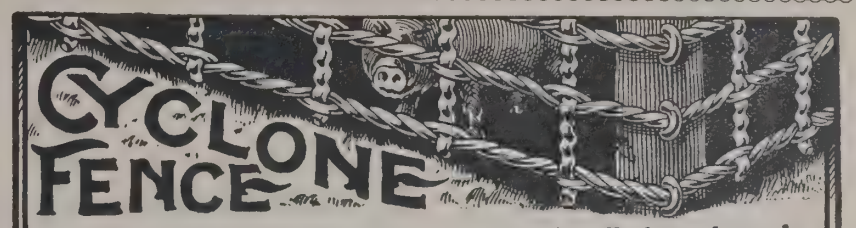
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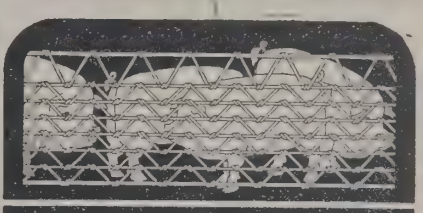
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because we sell you wire fence direct from the factory at manufacturer's prices.
The dealer does not give you a better fence than we do, but he charges you more for it. You can buy the
Advance Fence
direct from us just as cheap as the dealer can. No loose ends to unravel, ruining fence. All closely interwoven. Cross wires can't slip. No small wires used. We do not impair the quality to make our fence cheap. In fact, we depend upon the quality to hold our trade. Write a postal for circulars and prices. Have fence ready when you need it.
Advance Fence Co., 126K St., Peoria, Ill.

Wouldn't Take a Lantern.

ED. HOARD'S DAIRYMAN:—A neighbor called at my house the other night and remained until it was very dark. When he came to go away I urged him to take my lantern to show him the road. He refused saying: "I guess I know the road, I've travelled over it for 30 years."

Before he got home he ran his wagon into a ditch, was overturned, and the team ran away killing one horse. A little cheap lantern light would have saved all this. Did he really know the way? Did he know as much as he thought he did? And he had travelled over the road, he said, "for 30 years."

Some of my neighbors are just like him about taking the DAIRYMAN. O! they "know the way." I find the DAIRYMAN lantern very handy. But I am only a woman you know, carrying on a farm. But my receipts per cow are the largest of any at this creamery, and that neighbor who would not take the lantern was at my house borrowing a hundred dollars to help him out. I was glad my cows were doing enough better so I could lend it to him. I am sorry for him, but what can you do with men who are so conceited that they don't know they need a lantern? Maybe I shouldn't have written this. But then, he will never see it, for he never reads the DAIRYMAN.

ONLY A WOMAN SUBSCRIBER.

Wayne Co., N. Y.

There is a world of clean-cut truth and cutting sarcasm in the foregoing. It's a good idea she works out, taking a lantern along, so as to see a good deal more than one would without it.

It is a curious thing, but true nevertheless, that there is hardly a woman in the United States or Canada who is carrying on a dairy farm that is not a reader of HOARD'S DAIRYMAN, if she has ever seen the paper. Another thing is true: We have a list of over a hundred such women that we have found in the United States and Canada, who are carrying on farms, and *every one is a success*. Women are not overwhelmed in their own conceit. They *will* take a lantern when it will do them any good. It is a pity they could not quite often run the farm in place of the husband, who don't know even that he needs a lantern.

Cooling Cheese Curing Rooms—Cooling Curd with Cold Water.

ED. HOARD'S DAIRYMAN:—I have read your paper with much interest for several years. It comes handy for me quite often, as I am in the cheese manufacturing business. Would like to ask a question or two. I am running a cheese factory on a small scale of from 1,400 pounds to 2,000 pounds per day through the summer season; have got just a common frame building which is ship-lapped inside and outside and it also has building paper between the two, and I also have another wall about 15 inches from the main building around the curing room made of barn siding which is battened up tight. Have small doors to open out over windows for light and air, but still this does not suit me for hot weather. Do you think it would pay me to put up ice to use through the summer or could ice be used to any advantage in making cheese or holding the temperature down in the curing room. Can curd be cooled with cold water in curd sink without injury? F. D. R.

Sandyville, Iowa.

ANSWERED BY U. S. BAER, AGRICULTURAL EXPERIMENT STATION, MADISON, WIS.

In reply to your correspondent's first question, I would suggest that the subearth duct method of controlling the temperature and moisture in cheese curing rooms would be more economical and more satisfactory than cooling with ice. Another advantage with the duct is that it is always in running order and never needs attention, as would be required if ice boxes were constructed in the curing room. I have had very little experience in cooling curing rooms by means of ice, but judging from the letters of Wisconsin makers who have tried it extensively, they seem to be of the one opinion, that it hardly pays to put up ice for use in curing rooms, unless the ice-house and curing room are constructed together, that is, upon the cold storage principle.

There are two methods of cooling rooms by the use of ice. One of these is to place galvanized iron pans within a couple of feet of the ceiling of the room,

"ADVERTISEMENT."

A LAYMAN

Gave Doctor a Hint About Coffee.

Speaking of coffee a doctor of Decaturville, Ohio, says: "We used to analyze coffee at the Medical college and in spite of our laboratory tests which showed it to contain caffine, an active poison, I continued to use the drink, and later on found myself affected with serious stomach trouble, indigestion, headaches, etc.

The headaches came on so regularly and oppressed me so that I found it difficult to attend to my regular duties. One day last Nov. I met a friend whom I had known to be similarly afflicted. His marked improvement in appearance caused me to enquire what he had been doing. He announced that he had, some time ago, quit coffee and was using Postum Food Coffee. To this change he attributed the change in his health.

I took the hint, even from a layman, and made the same change myself. The first week I noticed a little difference but not much. The third week the change was almost magical. I have continued with the Postum and now my digestion is perfect, the nervous headaches have entirely disappeared, and I am well. My own analysis of the Postum Food Coffee shows it to be a pure food drink of strong character, which is a marked contrast to the old fashioned coffee." Name given by Postum Co., Battle Creek, Mich.

Good News to Stock Owners

Just the information that you must have to successfully treat Fistula, Poll Evil, Sweeny, Knee-Sprung, Curb, Splint, Spavin, Ringbone and all blemishes hard or soft, also Lump Jaw in cattle.



Bone Spavin Ringbone Lump Jaw



Certain and inexpensive methods fully described in our two big booklets, which we send free if you have a case to treat. Over 140,000 farmers rely upon these same methods. Write for the books.

FLEMING BROS., Chemists,
228 Union Stock Yards, Chicago, Ill.

WHITEMAN'S MILK BOTTLE FILLER fills 8 bottles at a time. The cost is $40.00. Will allow you $2.00 for freight.
A. V. WHITEMAN, 144 Chambers St. N. Y. City. Milk Bottles and Supplies.

BUY DIRECT FROM FACTORY, BEST
MIXED PAINTS
At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.

THE SHARPLES Sympathetic Lactator

The only thoroughly perfected and practical

COW MILKING MACHINE

adapted to the uses of large dairies.

We are now prepared to take contracts for complete installations.

DAIRY SPECIALTY CO.,
West Chester, Pa.

NORTH OAKS FARM, ST. PAUL, MINN
(Jas. J. Hill, Proprietor.)
AYRSHIRE BULLS
Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address,
N. E. McKISSICK, Supt., Cardigan, Minn

AYRSHIRE CATTLE of both sexes, and some young ones from good business cows. Prices within reach of any dairyman. Also Chester White Pigs, March and April farrow—All from registered stock. F. TSCHUDY & SONS, Monroe, Wis.

AYRSHIRE BULLS
A choice lot of Young Bulls 3 mo. to 1 year old from heavy milkers at farmers' prices. Also cows and heifers. HOWARD COOK, Beloit, O.

THE BROWN BESSIE HERD
Offers some splendid young cows and heifers bred to Recorder, the only living son of the famous Brown Bessie, winner of the 30 and 90 day butter test at the Columbian. Also a few sons of Recorder from daughters of Diploma and other tested cows are offered.
H. C. TAYLOR, Orfordville, Wis

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality F. W. TRATT, Whitewater, Wis.

HADDON GUERNSEYS
Won first prize both for herd and single cow, in the A. G. C. C. yearly tests, ending May 1, 1901. Tuberculin tested and every animal found healthy.
E. T. Gill, Haddon Farms, Haddonfield, N. J.

Wasteland Guernseys
Herd headed by Sir Choral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Young registered bulls always for sale. 5 high-grade heifers in calf, a bargain. M. M. & E. J. HOLLINGSWORTH, Landenberg, Chester Co., Pa.

Rosendale Guernseys.
MATURE COWS YEARLY RECORDS range from 356 to 713.3 lbs. butter. This herd contains more officially tested cows than any other herd of the breed. All of the largest records are official ones. A particularly choice lot of tuburculin tested bulls for sale from high record dams.
GEO. C. HILL & SON, Rosendale, Wis.

GUERNSEYS FOR SALE.
Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.
JAS. H. BEIRNE, Oakfield, Wis.

GUERNSEY Bull Calves Sired by O. K. Dams of equal merit.
FRED VOGEL, JR., 165 First Avenue, Milwaukee, Wis.

Old Homestead Guernseys.
Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.
Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL, Perry, Lake Co., Ohio.

Fairview Farm Guernseys.
Young Bulls for sale. Good individuals from rich milkers. Ages from four weeks to old enough for service. Prices reasonable. Address
C. W. WILCOX, General Del., Des Moines, Ia.

GET RICH QUICK.
Not through any bunco game but by buying one of those Jersey Bull Calves that we are offering. You will find it a paying investment.
SUNNY PEAK FARM,
ELM GROVE, WIS.

FOR SALE
AN EXCELLENT
HERD OF JERSEYS
in perfect working trim. Reason for selling—being away from home can not give proper attention.
FOR RENT—an excellent farm, 175 Acres in cultivation, near the Iron Mountain R. R., 30 miles from St. Louis the great World's Fair City. Also within 2 miles of two very large manufacturing industries. Well adapted and fitted for dairying and Milk shipping. P. O. Festers, Mo. For further particulars address
C. H. FAKE, Bonne Terre, Mo.

CLOSING OUT SALE
—OF—
50 Head of Thoroughbred Registered A. J. C. C. Jersey Cattle
to be sold at
SALEM, OHIO, MARCH 10, 1903,
including three great service bulls,
KLONDIKE GOLDDUST, NO. 52415,
double grandson of the Famous King of St. Lambert sire of 26. Banshees St. Lambert Boy, 63763, grandson of the great St. Lambert Boy, sire of 54, out of the great Dairy Cow Palestine Bess, test 19 lbs. Pedro of Kensington, 50172 grandson of old Pedro, sire of 45, by Pedro Royal Mayoram sire of 8; grandson of Prospects Rioter, sire of 13; by Stoke Pogis 5th, dam Pedro's Pretty Duchess 16 lbs. 11 oz. The breeding of the above bulls is intense and pronounced by expert judges to be the leading trio and King of Bulls, cows equally as well bred. No postponement on account of weather. Write D. H. Jenkins, Indianapolis, Ind., or Brooks & Pidgeon, Salem, Ohio, for catalogues giving full particulars.
BROOKS & PIDGEON, Salem, Ohio.

FOR SALE AT FARMER'S PRICES.
One St. Lambert bull ten months old; also bul calf three months old, or will exchange for as well bred heifers. Registered Poland China pigs for sale at all times. Correspondence solicited. FRANK SHADBOLT, Caledonia, Minn.

FOR SALE.
JERSEY BULL, one year old. Good individual of the best breeding, Also 7 months bull from tested dam. Herd headed by Fontaine's Owl, 60436. Prices on application. Address,
J. F. EGERTON, Footville, Rock Co., Wis.

VALLEY FARM Is offering some good bargains in young bulls from 1 mo. to 2 yr. old. Also B. P. Rock Cockerels, $1.25 each. Write
FRED STUBLEY,
Black Earth, Wis.

HAZEL FERN HERD. A. J. C. C. Jerseys, blood of St. Lambert, Melia Ann, Combination, Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale.
Estate W. S. Ladd, Portland, Oregon.

PROSPECT HILL JERSEY HERD.
Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

FOR SALE GOLDEN LAD BLOOD. sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.
W. J. HUSSEY, Mt. Pleasant, O

ST. OMER HERD
Offers young bulls fit for service, out of tested dams with good yearly records. Strong in Exile of St. L., King of St. L. and Stoke Pogis of Prospect. Reasonabe prices. JOS. T. HOOPES, Bynum, Md

Exile of St. Lambert
—13657—
is the sire of more tested Jersey cows than any bull living or dead, and the number to his credit will probably never be equaled by any other bull. His dam was one of the largest milkers among Jerseys, and is the dam of the three year old cow with the highest year's milk record for that age. Exile's sire is the grand sire of the cow holding the highest milk record for a year.
The mid-winter sale lists include a few tested daughters of this great bull and several cows and heifers deep in the blood that produced this famous sire. If you wish to improve your herd, or to start one, you will probably never have a better opportunity than is here offered. If interested write for lists, and please specify whether bulls, cows in milk, or heifers, are wanted.
WINTERGREEN HILL FARM,
Scottsville, N. Y

Biltmore Jerseys.
Have been Bred for work in the Dairy. Are from the choicest foundation that could be bought. Include more Prize Winners than any other Herd. Are robust, true to type and of great capacity. Are noted for large milk yields, perfect udders and teats. All tuberculin tested for the last seven years.
FOR SALE—Young Bulls from selected dams. Send full details, mentioning defects you wish to correct, blood lines, etc., and we will quote promptly, reasonably, with guaranteed description and full pedigree. Apply to
BILTMORE FARMS,
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THAT NEW BULL
If you want a good Jersey Bull, ready for service this summer or fall, write NOW for our sale list No. 1. St. Lambert, Brown Bessie, Signal and Tormentor blood. Dams all great workers with high fat tests. Full particulars as to breeding, and milk flow, etc., of dams upon request.
Address, E. E. STEVENS,
North Madison, Lake Co., Ohio.

The Evergreen Farm Herd has for sale three or four A. J. C. C. heifers bred. Also a few cows and some choice bull calves from two to six months old. Write for pedigrees and prices.
N. N. PALMER & SON, Brodhead, Wis.

FOR SALE. Clear View Stock Farm offers a few choice registered Jersey Bull Calves from 5 to 12 months old. Prices low if taken at once as must have the room.
J. S. CAMPBELL, Prop.,
Butler, Pa

using crushed ice and salt in these pans. I think perhaps a better method would be to construct an ice-box of 2-inch lumber covered on the outside and the inside with galvanized iron; this could be set on legs ten or twelve inches from the floor and two by four pieces set edgewise in the bottom to place the ice on; below the ice there should be a shelf made of galvanized iron extending from side to side of the box with flow enough to carry off the water, thus permitting the air to come in contact with the water. This box should have an air tight cover which can be opened and closed as desired. In a room of three thousand cubic feet a box of from twenty to twenty-five cubic feet would be required in order to maintain uniform temperatures. With the data at hand there is no question but that the so-called sub-earth duct system of cooling curing rooms is much preferable to that of ice used in the manner mentioned

With reference to the second question I would say that I have advised people in very warm weather to try the use of cold water on the curd. I could not see that it would do any harm so long as the curd was not left in the water too long; simply rinsing it with cold water, leaving it in a minute or so to lower the temperature. I do not advocate anything particularly in this line. I think, however, in hot weather when the factory is very warm, and we have curds that could be handled better if the temperature was lower at time of salting and pressing and there was no other way to lower it, I think I should dash a few pails of well water over the curd. I would suggest that the gentleman experiment to his own satisfaction.

We carried on quite a number of experiments to illustrate the results of rinsing curds at different temperatures and the effect on the quality of cheese as compared with unrinsed goods. We found that by rinsing the curds we would make cheese of more uniform quality and better keeping quality. They were somewhat better in flavor and the color was usually brighter and more transparent. This rinsing is done with water at a temperature of 94 to 98 degrees Farenheit just prior to the application of salt. This removes the free fat and thick white whey from the surface of the curd particles. I do not believe in washing curds to any extent, as in another series of experiments we found that curds washed repeatedly made very poor cheese; in fact, the curing was materially retarded and the flavors developed were very objectionable.

Annual Meeting Ayrshire Breeders' Association.

ED. HOARD'S DAIRYMAN:—The 28th annual meeting of the Ayrshire Breeders' Association was held at the Fifth Avenue Hotel, New York, January 29, 1903, with about fifty members and visitors present.

The officers elected were: Geo. H. Yeaton, Dover, N. H., president; Obadiah Brown, Providence, R. I., Thomas Turnbull, Jr., Casanova, Va., Charles C. Doe, South Newbury. Vt., E. J. Fletcher, Greenfield, N. H., vice-presidents; C. M. Winslow, Brandon, Vt., secretary; N. S. Winsor, Greenville, R. I., treasurer; J. F. Converse, Woodville, R, I., J. Andrew Casterline, Dover, N. J., executive committee for three years. The report of the treasurer showed about $5,000 in treasury. The report of the secretary showed a removal by death of six members and twenty-four new members added.

It was voted to continue the Home Dairy test for the next year with the same premiums.

It was voted to make an exhibit of Ayrshires in the Dairy Test at St. Louis in 1904, and to assist members in making a creditable show of Ayrshires in the ring at St. Louis.

Twenty-four dined together and after dinner for about two hours the different members spoke on subjects of interest.

C. M. WINSLOW, Secretary.
Brandon, Vt.

Cleaning Milk with Separator.

ED. HOARD'S DAIRYMAN:—Being in the milk business, would like to ask through the DAIRYMAN if any milkman has tried running their milk through a cream separator and then mixing it together again. What advantage is it in regard to keeping the milk sweet longer, and does it improve or injure the milk and in what way? SCOTNEY BROS.

Michigan.

It does not improve milk that has been kept or shipped to run it through a separator as the soluble dirt has gone into solution, and cannot be removed. If the milk can be run through the separator as soon as it is produced, the process helps materially in its cleanliness and keeping qualities. An objection to this method of handling milk, is that the cream does not rise as well as on fresh milk, and the customer usually judges of milk by the amount of cream that rises.

TIME, MONEY AND LABOR SAVED

CHILD'S PATENT



MILK BOTTLE FILLER.

EVERY progressive dairyman wants the easiest, cleanest and best bottling machine on the market provided he can get it at the right price. He will find on investigation that CHILD'S PATENT MILK BOTTLE FILLER answers all of these requirements. It was awarded the only prize for Automatic Milk Bottle Fillers at the Paris Exposition of 1900, and it has remained ever since absolutely the best machine of the kind on the market. It possesses many labor-saving devices which are more fully described in our illustrated free catalogue and which will fully commend it to the observing dairyman. It is so simple in construction that a child could operate it. Write today for full particulars.

J. S. BIESECKER,
59 Murray St., New York City.

Before ordering supplies for your dairy, or creamery, get our prices and save money. Hundreds of satisfied customers can testify to our business methods.

BIG PROFIT IN HOGS.

The hog question is an interesting one. Some farmers are much more successful than others. It is a big difference whether you get 8 lbs or 17 lbs of pork out of a bushel of corn fed to hogs, or 19 lbs out of a bushel of wheat. No other animal will give the number of pounds of gain for feed consumed that hogs will. They are the farmer's mortgage lifter.

The AMERICAN SWINEHERD is a specialist and the best authority on the hog industry. Its success is attained by concentrating on one line.

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Professor Kennedy of the Iowa Agricultural College says "Your paper is a leader on the feed question."

A 2 years' course in hog raising.
Teaching how to be successful.
How to make the greatest profit.
How to get 17 pounds of pork out of a bushel of corn.
How to get 19 pounds of pork out of a bushel of wheat.
How to double the growth and gain over usual methods.
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How to utalize without expense the costly experience and gathered wisdom of capable and successful feeders and breeders of swine.

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Send us $1.00 for 2 years' subscription to the AMERICAN SWINEHERD, and it will entitle you to a free copy of our HAND-BOOK on "HOG HYGIENE" with trade secrets, recipes, feeding tables, valuable information, etc. This will equip you for successful and profitable hog raising.

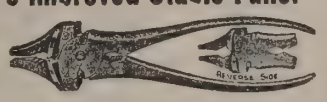
If this offer is accepted within 10 days we will send you in addition a wonderfully suggestive picture in colors, "Uninvited Guests", showing the pigs partaking of a meal uninvited.

This gives you $5.00 for $1.00, and 2 years' schooling in successful hog raising.

If you accept this offer you will want the paper as long as you are interested in swine.

Address: AMERICAN SWINEHERD,
535 Como Bldg., Chicago, Ill.

Cronk's Improved Staple Puller



is at the front. Ask your dealer to show it. Three wire cutters, two hammers, two splicing clamps—all in one tool. A staple puller that will pull staples when no other make will. A cutter that will reach wire when the button cutter will not. One day's use will save the cost of it. $1.00, postage paid.

CRONK & CARRIER MFG. CO, Elmira, N.Y.

30 POUNDS 10.18 OZ. BUTTER

In Seven Day Official Test.
Home of the
WORLD'S CHAMPION BUTTER COWS.

BROTHERTOWN STOCK FARMS

DEANSBORO, N. Y. McADAM & VON HEYNE Props.

Sadie Vale Concordia, official test, 694.3 lbs. milk containing 30 lbs. 10.18 oz. butter in 7 days.

Mercedes Julip's Pieterje, official test 584 lbs. milk containing 29 lbs 5.7 oz. butter in 7 days.

Sadie Vale Concordia's Paul De Kol, Premiersire, No. 27392 H. F. H. B. He is by Paul De Kol and out of our great cow Sadie Vale Concordia.

ABSOLUTELY BEST HERD OF HOLSTEIN-FRIESIANS.

We have a number of fine cows and calves for fine breeding to offer. If you are looking for the best, write us or inspect our herd.

MADISON, WIS.

A few choice Holstein-Fresian Bull Calves for sale. Three service bulls, including premier sire Lord Indi De Kol, 29882, whose pedigree combines the best blood of the De Kol and Netherland families. Now at the head of the herd Pense Johanna, 29,332, whose pedigree includes 7 A. R. O. cows averaging 22 lbs. 3.7 oz. Junior sire Paul Calamity De Kol, 31095.

THE MONONA FARM HERD.
Address, F. W. ALLIS, Madison, Wis.



WANTED. NO. 1 H. F. BULL
Send pedigree and official records of ancestors of For Sale A No. 1 H. F Bull dropped Aug. 9, 1901. Dam and sire's dam bred by T. G. Yeomans.

Wm. O. Jackson & Sons, South Bend, Ind.

BROOKSIDE HERD

offers SPECIAL inducements to quick buyers. We must sell at once to reduce herd to stabling capacity. All ages, both sex. Correspondence solicited. Visitors welcome. Address,

STEVENS BROTHERS, Lacona, N.Y.

Holstein Freisian Bulls

SOUTH SIDE FARM, WHITE BEAR, MINN.,

offers a number of thrifty well grown calves from Officially Tested Dams at bargains for quick sale, ages three to seven months. Also two fine yearlings, and one two year old.

No Yorkshires for sale at present. Orders booked for spring pigs.

Correspondence solicited.

HENRY STEVENS & SONS

Have Dissolved Partnership, but if you are looking for first-class HOLSTEINS you can still find them here, and just now at prices that will interest you.

WE MUST SELL.

Be sure to address
HENRY STEVENS & SON (NOT SONS)
Box 208. Lacona, N. Y.

OAKLAND FARM HOLSTEIN-FRIESIANS

OFFICIALLY TESTED.

First Prize Herd at New York, Indiana, Kentucky, State Fairs and at St. Louis, Mo., in 1902. All ages, both sexes, for sale. Prices very reasonable, quality considered, T. A. MITCHELL, Weedsport, N. Y.

FOR SALE. H.-F. Bulls, ready for service from A. R. O. Cows and sired by Sir Johanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis

FOR SALE.

3 H. F. Bull Calves, 6 months old. Sired by Johanna Aaggie's Paul DeKol 23443, (160 A. R.) from good milkers and testers.

M. S. CAMPBELL, Genoa, DeKalk Co., Ill.

CLOVERDALE HERD

HOLSTEINS.

Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.

A. J. DAUGHERITY Streator, Ill.

TYRANENA HERD

100 HOLSTEIN-FRIESIANS 100

A. R. O. Stock For Sale.

Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz Frank B. Fargo, Lake Mills, Wis.

Holstein-Friesian Bull Calves

Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

RICHLAND FARMS, GREENSBORO, GA.

We now have some very fine HOLSTEIN BULLS FOR SALE; also some pure bred registered Victoria Hogs, all ages, at bargain prices. Write us for what you want.

SHADY NOOK HERD

Holstein Friesians offers three bulls from 11 to 16 months old. Two from A. R. O. dams. O. L. C. White Pigs, both sexes. White Cap Yellow Dent Seed Corn. $1.50 per bushel.

W. R. GATES, Fort Atkinson, Wis.

GLENVIEW HERD.

2 H.-F. bull calves for sale. A. R. O. cows. Sired by Prince May Paul DeKol, No. 29331. IRWIN NOWLAN, Toulon, Ill.

FOR SALE.

H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address W. H. JONES, Watertown, Wis. Rural Route No. 2.

HOME FARM HERD

Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. One Hundred head to select from. W. B. Barney & Co., Hampton, Iowa.

Markham Manor Farms, Simonsville P. O. Andover, Vt.

Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for description and price to J. A. THORNTON, Manager, Simmonsville, Vt.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS | 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No 29175. Sire: Count Colantha Alban No. 25148. Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.

WM. EVERSON & SONS, Lake Mills, Wis.

LOOK HERE.

34 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by Gem Pietertje Hengerveld Paul DeKol, or Sir Ormsby DeKol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days, average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd? McGEOCH HERD is located at Lake Mills, Wis., 56 miles west of Milwaukee. For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis Residence: National Ave. near 40th. Phone, South 1601.

HIGH-CLASS HOLSTEIN-FRIESIAN BULLS and Bull Calves from A. R. O. dams and the best Advanced Registry sires. Cows all officially tested; I breed from no others. Correspondence from breeders and progressive dairymen invited. Malcolm H. Gardner, Darien, Wis.

HOLSTEINS

High Class Advanced Registry Stock only. Best butter families. Stock for sale.

Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.

HOLSTEIN BULL CALVES. | Johanna Family. (both sire and dams). ALSO BERKSHIRES.

Wright's Farm. Berlin, Wis.

WOODLAKE HERD.

Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN, Station D., R. 1. Minneapolis, Minn

Oak Grove Herd Headed by Mechthilde DeKol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

.....YOU MAY.....

BEGIN AT THE HEAD

to improve your dairy herd with a bull whose dam has official record of 18 lbs. 6.3 oz., sires dam 20 lbs. 8.8 oz. Individual right. Price Right.

McKAY BROS., Buckingham, Iowa.



OHIO'S
FAMOUS HERD
—OF—
Holstein Cattle
OWNED BY
W. B. Smith & Son
2488 W. Broad St.
Columbus. O

CLYDE PAUL DE KOL.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

The Maples Herd offers H. F. A. R. O. Cows and Heifers of all the leading families in calf to Beryl Wayne De Kol Paul, dam Beryl Wayne, 27.87 lbs. butter A. R. O. Lelith Pauline De Kol's Count, dam Lelith Pauline De Kol 28.24 lbs. butter A. R. O.

Quick buyers may obtain great bargains in heifer and bull calves from the above named great sires. JOHN C. GODFREY,
Pennellville, N. Y.

A. & G. Herd Holstein-Friesians —Choice-Bred BULL CALVES for sale, from 1 to 18 months old. from dams with official records, and sired by sons of De Kol 2d and Netherland Hengerveld. Herd contains 5 sisters of Lilith Pauline DeKol (who holds the world's official butter record of 28 lbs. 3 oz) 25 granddaughters of DeKol 2d, 5 daughters and 7 granddaughters of DeKol 2d's Paul DeKol (the sire of Lilith Pauline De Kol) and granddaughters of Paulina Paul, Netherland Hengerveld, Mutual Friend, Princess of Wayne, Johanna, Etc., Etc.

AVERILL & GREGORY, The Yates, Syracuse, N. Y.

Iowa State Dairy Association.

The twenty-sixth annual meeting of the Iowa State Dairy Association was held at Cedar Rapids Feb. 3, 4 and 5. The attendance, though fair, would have been greatly increased had not the most severe snow storm of the season enrolled itself among the delegates at the opening session.

The meetings were held in the Auditorium, where the exhibits were pleasingly displayed in artistic booths under the balcony, and chairs arranged on the ground floor comfortably seated the convention. The butter room, situated on the second floor, was opened to the public on Thursday morning.

There were 97 entries of butter, of which only two were in the dairy class. The highest score in the creamery class was awarded to H. J. Evans, Strawberry Point, whose score was 97.5. S. Peterson, of New Hampton, held a close second with 97.25 points. Third, P. M. Jeun, Toronto, 96.5. In the dairy class, M. S. Barber, Marion, scored 90, the other contestant being D. J. De Hough, of Boyden, score not announced. As a whole the butter was very good for this season of the year, and Prof. McKay, the expert in charge, commented favorably upon it.

The convention was called to order promptly at 7:30 Tuesday evening by President S. B. Shilling. After the invocation Mayor C. H. Huston cordially welcomed the convention on behalf of the city. H. J. Neitirt, of Walker, president of the National Buttermakers' Association, responded for the delegates.

Pres. Shilling in his annual address, which followed, reviewed the work of his administration, tending to the improvement of Iowa high grade butter. Action was necessary, he said, for Iowa, the oldest dairy state in the country, held the lowest average of all the states at the Milwaukee convention. He gave as one of the reasons for this state of affairs the exceeding large number of creameries,—900 compared to the other states, where few possess three hundred.

The failure of the legislature to appropriate funds to advance dairy interests also lowered Iowa's standard He scored the legislature heavily. In touching phrases he spoke of John Stewart, who built the first creamery in Iowa, at Delaware, but whose grave near Anamosa still remains unmarked. He expressed the hope that the dairymen of the state would show their appreciation of the labors of this pioneer by erecting over his grave a suitable monument. He closed by advocating a graduated license law for buttermakers.

H. R. Wrignt, of DesMoines, "live" dairy commissioner, so introduced, gave an interesting talk on the possibilities of Iowa, as a dairy state.

"The Kicking Heifer in Fly Time" was treated by J. S. Triggs in his usual pleasing style.

The convention did not assemble until Wednesday afternoon, as the morning was givun over to the machinery exhibits. W. B. Barney, Hampton, opened the program wfth his paper on "Silos for Iowa Dairymen." His address was full of pointed information.

"The Profitable Dairy Cow" by J. N. Munsey, and "Creamery Centralization," by C. B. Hubbard, both of Independence, deserve greater mention than our space will allow. The last on the program for the afternoon session was a discussion or debate, "Hand Separator *vs.* Whole Milk System," lead by prominent members. Except in a few minor points, the hand separator system was easily proved superior from facts submitted by those who have tested it.

Prof. C. F. Curtiss of the state college at Ames, addressed the evening session on "Modern Dairying." Chas. Y. Knight of the National Dairy Union, gave a short talk on the oleomargarine question. He reviewed the main steps taken against this fraud, showed the results accomplished under the present law, warned the dairymen against the dangers of engaging the process butter faction against them, and closed by urging renewed support from all in the fight before the next Congress.

Thursday morning the scores were given out and the butter opened to inspection. At eleven o'clock the meeting was called to order for the election of officers. The new officers are as follows: President, S. B. Shilling, Mason City; Vice President, W. B. Barney, Hampton; Secretary, P. H. Kieffer, Strawberry Point; Treas., F. A. Leighton, New Hampton.

The convention closed Thursday afternoon, after a well-attended and interesting session.

THE RESOLUTIONS.

The committee on resolutions submitted the following report which was adopted by the convention:

We, your committee on resolutions, beg leave to submit the following resolutions, and respectfully recommend their adoption:

WHEREAS, We desire to express our appreciation of the loyalty and co-operation of our efficient Secretary of Agriculture, Hon. James Wilson, who has ever been the faithful friend and defender of dairy interests, and,

WHEREAS, We realize with regret that the present chief of the dairy division of the Bureau of Animal Industry of the Agricultural department of the United States is not in sympathy with the dairy sentiment of this country upon important matters, and such lack of sympathy is the cause of friction which has practically nullified his usefulness in that capacity, therefore, be it

Resolved, That we urgently request the appointment of some competent man to fill this position at as early a date as possible. And be it further

Resolved, That the secretary of this association be instructed to send a copy of these resolutions to the Secretary of Agriculture, as an expression of the desire of the dairymen of Iowa.

Resolved, That we return many thanks to the officers of the National Dairy Union as a partial expression of our appreciation of their untiring and able efforts in behalf of the dairymen and honest butter in securing the passage by Congress of the oleomargarine law of 1902.

Resolved, That we also extend our thanks to Senators Allison and Dolliver, and our representatives in Congress for their loyalty to the dairymen and honest butter, and their valuable assistance in securing the enactment of our present oleomargarine law.

Resolved, That the Iowa State Dairy Association extends cordial greetings to the dairymen of the eastern states, and we hereby express the hope that the western contingent may meet them in their own country in joint convention in the near future.

Resolved, That the Iowa State Dairy association urges upon the Iowa World's Fair commission the importance of setting aside a fund sufficient to make a creditable exhibit of the dairy interests of this state at the Louisiana Purchase Exposition.

Resolved, That the Iowa State Dairy Association express its profound gratitude for the generous treatment and cordial hospitality accorded us by the Cedar Rapids Hotel Men's association and the citizens of Cedar Rapids generally.

Resolved, That we thank the railroads leading into this city for courtesies shown, and the granting of low rates for the delegates,

WHEREAS, John C. Daly, has retired from the secretaryship of this association, be it

Resolved, That for his many years of faithful service, and his zealous work in behalf of the association and the dairy interests of the state at large, he is entitled to the sincere and hearty thanks of every member of this association.

Resolved, That this association appreciates the good results already obtained and to be secured through the work of expert instructors of dairymen and buttermakers; and that the magnitude of the dairy industry of this state warrants us in asking that the next session of the legislature give authority for the appointment of five additional dairy commissioners, to the end that the profits of the dairy people of the state may be increased, and the industry further developed.

Resolved, That we most heartily endorse and recommend the appointment of Mr. Edward Sudendorf as superintendent of the dairy exhibit at the Louisiana Purchase Dairy exposition, whose peculiar fitness for the place is everywhere recognized.

Pennsylvania Pickings.

Beef vs. Butter.

ED. HOARD'S DAIRYMAN:—We had a good many dairymen scattered over the country who, about this time last year, began quietly turning their attention from cows to steers—not that butter was not a fair price, but beef was soaring and had money in it. There were other dairymen who, while not discarding their cows, went sky-larking after that mythical ani-

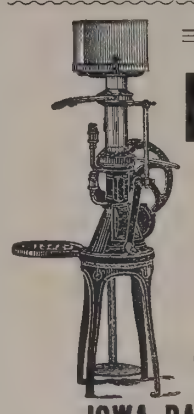
THE ESQUIMO

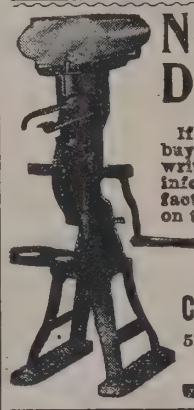
The Esquimo eats blubber. The lumbermen eat pork. These people are constantly exposed to cold and physical strain. Experience has taught them that fatty foods give warmth and nourishment.

For those who have cold and thin bodies, or are threatened with consumption or any wasting disease, there is no fat in so digestible and palatable a form as Scott's Emulsion. Physicians prescribe it.

We'll send you a little to try, if you like.
SCOTT & BOWNE, 409 Pearl street, New York

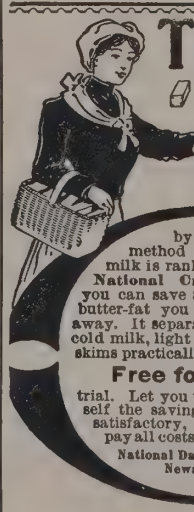
WE TAKE THE RISK
of your being satisfied, and glad you bought the cream separator that makes money for you.
THE AMERICAN
Is Sold On Trial.
The price makes it easy for every cow owner to buy. Run this separator and make money. The catalogue is free and we want you to have one. Write to-day.
American Separator Company,
Medal Winner at Paris Exposition. Box 1023 Bainbridge, N. Y.


THE
Iowa Dairy Separator.
Simplest Bowl on the Market.
Cream Flows From Top. Easy to Clean.
The machine is bushed at every bearing place with Phosphor Bronze. Write us for Catalog No. 40.
IOWA DAIRY SEPARATOR COMPANY, WATERLOO, IOWA.

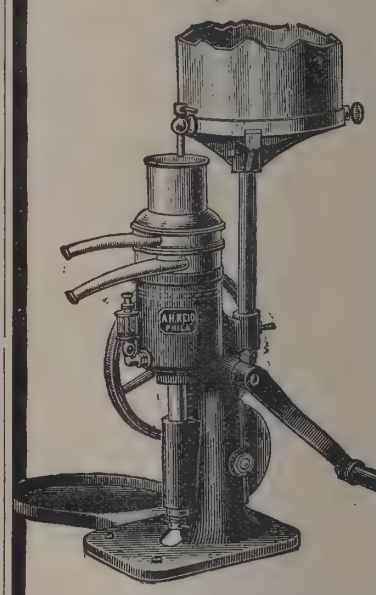

Notice to Dairymen
If you are thinking of buying a Cream Separator write us for Catalogue and information. We manufacture the best machine on the market.
Davis Cream Separator Co.,
54 to 64 N. Clinton St.
CHICAGO, ILL.


Cream Separators
THE
Improved International
The best in the world, has no superior if you want a larger butter yield. It runs easily, skims clean, and is easy to wash. It is perfect in mechanical construction and magnificent in appearance. No outside gears to catch your hands and clothes. Only three parts in the bowl. Look at the low supply can. All parts absolutely interchangeable. Write for Catalogues and Prices.
Chicago Office,
GEO. A. ELDER, Gen. Agent,
Tacoma Blk, La Salle & Madison Sts.,
CHICAGO, ILL.
THE INTERNATIONAL CREAM SEPARATOR CO.,
LANCASTER, PA., U. S. A.

WORLD CREAM SEPARATOR CO.
NEW OXFORD
BALL BEARING
Cream Separator
Sold on guarantee to be the best on the market. Catalog free.
WORLD CREAM SEPARATOR CO., 41 Main St., Council Bluffs, Ia.


Throwing Butter Away
by the old method of skimming milk is rank folly. With a National Cream Separator you can save 80 per cent. of the butter-fat you are now throwing away. It separates both warm and cold milk, light or heavy cream and skims practically *clean*. We send it
Free for 10 Days
trial. Let you test it—see for yourself the saving it makes. If not satisfactory, send it back—we pay all costs. Catalogue free.
National Dairy Machine Co.,
Newark, N. J.

Reid's Hand SEPARATOR



The "best" separator is that one which does its work most thoroughly and easily, that is built of strongest material, and that is most easily washed and kept in order.

First cost is a great point with a buyer, but ease of running, perfection of skimming and simplicity in washing are even greater considerations.

The **Reid Hand Separator** has but a single cylinder inside the bowl, and skims as closely as one-hundredth of one per cent. Indeed, some tests indicate "not a trace" of fat in the skim milk.

The Reid is perfectly planned and strongly built, and it literally "runs like a watch."

As to our guarantee of excellence, we make the strongest statement that can be expressed in words: **Money back (less freight) if the buyer is not satisfied.**

There is a new (free) booklet about the Reid Hand Separator.

Sizes run from 150 lbs. to 500 lbs. per hour.

A. H. REID
CREAMERY AND DAIRY SUPPLY CO.,
PHILADELPHIA, PA.

ERIE CAN REFRIGERATORS should be used on all milk cans from April to Oct. Prevent sour and churned milk. Booklet free. S. C. SULLIVAN, M'f'g., Erie. Pa

mal known as the general-purpose cow, with the accommodating capacity of making milk when it was wanted, or making beef when it was in demand.

Now, such quick turns do the humors of trade make that at this time our market in Philadelphia is so full of medium beef that it is a drug, and many of our sensational farmers, who dropped cows and picked up steers at pretty stiff prices, are confronted with lower prices for fat cattle than they paid for the same cattle as stockers.

I do not make this record with any feeling but one of sympathy for those who have found the new venture unprofitable, but underlying this market mutation is the everlasting lesson of stick-to-ativeness that we, farmers and dairymen and cattlemen, need to learn.

The divorce business in agriculture is playing out. When we go into growing corn or potatoes, or making milk or butter or beef, we want to do it for better or worse, stand by our choice and keep up even with the fellows who are doing the very best at it.

STATE TESTING MILK.

Some State Senator has introduced a bill known as the Senate Bill 104, into the Senate at Harrisburg to provide for the appointment of a state milk and cream inspector or tester. He shall have a certificate from the Dean of State College that he is competent to judge of acid, examine bottles and turn the Babcock. He shall be around where milk and cream are sold by the Babcock test and see that there is no cheating going on. There shall be as many of these inspectors appointed at $5 a day etc., as the Dairy and Food Commissioner finds necessary to cover the state.

I do not believe that the dairymen and creamerymen want any such a bill erected into a law, for I am sure any differences that may exist between the sellers and buyers of milk can be adjusted by themselves.

Citizens of Pennsylvania may head off a pernicious enactment of this kind if they will at once, upon reading this, write their representatives at Harrisburg protesting against the passage of Senate Bill 104.

DISTRUST.

This element that exists to such an unfortunate extent on the part of dairymen toward the creamerymen to whom they sell milk, is very unfortunate in a business relationship and is bound to be distracting in mutual co-operation necessary to the success of both parties.

There are many instances in which the Babcock test is in the hands of dishonest or tricky manipulators, and proportionately as many evidences of dishonesty chargable to the producers of the milk. Happily for our faith in our fellows, it is easy to believe that the systematic practice of dishonesty on the part of either is the exception and not the rule.

My observation has been that the average creameryman, by the very force of acute competition, is paying all he can afford to pay, and is always willing that the interested patron shall witness his testing operations.

It is true, I think also that the most complaining about the test comes from those men who are most ignorant, have no faith in "book farmin'" and will read no dairy papers, and to whom the judgment of the acid test is a mystery, and is, therefore, entitled to their discredit. It is such a simple and inexpensive matter for the dairyman to himself own a Babcock or to club with his neighbors in in the ownership of one. that a check can be kept on the creameryman.

To do this is a duty each dairyman owes his own interests; and of such far reaching benefit would such a simple business precaution be, that its adoption all over our state would be the greatest single uplift our dairying has ever had. Its educational effect would be felt at once, and we would find a great weeding out among our cows; for while I am a most strenuous advocate of the farmer making all the manure he can, I would not advise his keeping animals for that purpose only.

I have read that our State Deputy Secretary of Agriculture and Director of Farmers' Institutes, when boasting of the wealth of the state, said that our cows made 140 pounds of butter each. If this authority knew what he was talking about, there must be very many of our cows making much less than 140 pounds for we have a great many making very much more. But if this authority is true, and makes the right average for our cows, then we are about keeping them for their manure.

A MILKING MACHINE.

The other day I attended a meeting of the Dairymen's Association of Eastern Pennsylvania, held in West Chester, Pa., and had the pleasure of inspecting the extensive separator works of Mr. P. M. Sharples, and of examining closely the new "Sharples Sympathetic, Pulsating Lactator." I think they will milk that name down, somewhat later.

It was not shown in the act of milking, but from its simplicity, apparent ease of management and its almost human adaptation to the needs of its business, it looks a success. While it may not reach the perfection of the conscientious, skilled milker, I feel sure it will surpass the work of the careless, dishonest or indifferent milker.

The machine is operated by producing, with a vacuum air pump, operated by any convenient power, a partial vacuum in a system of pipes over the cows. The milk pail is closed and from it runs a small rubber hose to the teat cups fitted to the cow's teats.

There has been no effort made to milk a cow in less time than a speedy hand milker would consume doing it, but the economy in the machine comes in by the man's being able to manage from four to eight buckets, and it is well known in these times of scarce laborers, it is easier to get a man to manage a machine than to manipulate teats.

W. F. McSPARRAN.

When is Milk from a Fresh Cow Fit for Food?

This inquiry is submitted by a Vermont reader. Cows vary somewhat in this particular. For ordinary purposes the milk is generally all right after three days, but for full assurance, many laws in the different states prescribe that milk shall not be used until the sixth day after freshening.

"ADVERTISEMENT."

THE VALUE OF CHARCOAL.

Few People Know How Useful it is in Preserving Health and Beauty.

Nearly everybody knows that charcoal is the safest and most efficient disinfectant and purifier in nature, but few realize its value when taken into the human system for the same cleansing purpose.

Charcoal is a remedy that the more you take of it the better; it is not a drug at all, but simply absorbs the gases and impurities always present in the stomach and intestines and carries them out of the system.

Charcoal sweetens the breath after smoking, drinking or after eating onions and other odorous vegetables.

Charcoal effectually clears and improves the complexion, it whitens the teeth and further acts as a natural and eminently safe cathartic.

It absorbs the injurious gases which collect in the stomach and bowels; it disinfects the mouth and throat from the poison of catarrh.

All druggists sell charcoal in one form or another, but probably the best charcoal and the most for the money is in Stuart's Absorbent Lozenges; they are composed of the finest powdered willow charcoal, and other harmless antiseptics in tablet form, or rather in the form of large, pleasant tasting lozenges, the charcoal being mixed with honey.

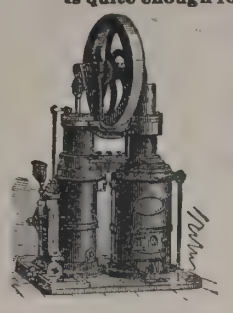
The daily use of these lozenges will soon tell in a much improved condition of the general health, better complexion, sweeter breath and purer blood, and the beauty of it is, that no possible harm can result from their continued use, but on the contrary, great benefit.

A Buffalo physician in speaking of the benefits of charcoal, says: "I advise Stuart's Absorbent Lozenges to all patients suffering from gas in stomach and bowels, and to clear the complexion and purify the breath, mouth and throat; I also believe the liver is greatly benefitted by the daily use of them; they cost but twenty-five cents a box at drug stores, and although in some sense a patent preparation, yet I believe I get more and better charcoal in Stuart's Absorbent Lozenges than in any of the ordinary charcoal tablets."

Cream SEPARATORS All about them and other things for the dairy and creamery.
A. H. REID, - Philadelphia, Penn.

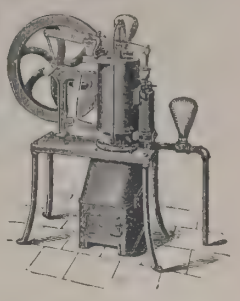
HALF ENOUGH WATER

Is quite enough for some people, but most people want water every day. If



RIDER or ERICSSON HOT AIR PUMPS

Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.



Rider - Ericsson Engine Co.,

35 Warren St., NEW YORK.
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692 Craig St., MONTREAL, P. Q.
40 Dearborn St., CHICAGO.
40 N. 7th St., PHILADELPHIA.
Teniente Rey, 71 HAVANA.
22 Pitt St., SIDNEY, N. S. W.



New American Manure Spreaders

hold from 50 to 100 bushels. Spread just as thin or thick, fine or coarse, as ground requires. Don't have to stop team to make change. Most substantial, largest capacity, lightest draft.

Send today for Booklet B.

American Harrow Co
Detroit, Mich.

Made for the Man Who Wants the Best.

The Great Western Endless Apron Manure Spreader



spreads all kinds of manure, fresh, well rotted, fine, coarse, hard, mixed, full of straw, full of corn stalks, etc.

Will also spread **compost, lime, land plaster, salt, wood ashes, cotton seed and hulls,** and in every case do it quicker, better and more evenly than it can be done by hand. Spreads as much manure in one day as twelve men can load and spread by hand and the job is much better when done. Spreads the largest load a team can haul in 2 to 4 minutes. It makes the same amount of manure go three times as far and at the same time produce better results.

REGULATED to spread much or little while in motion. Puts it on thick on poor spots—2 to 25 loads per acre. **ENDLESS APRON**—always ready to load. No turning back into position with crank.

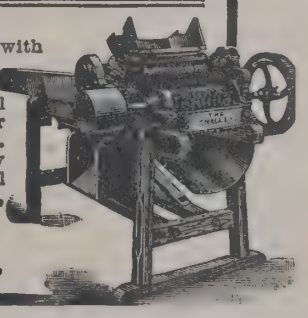
COMBINED HOOD AND END GATE keeps manure away from beater while loading and acts as hood in spreading. Catches all flying sticks, stones, etc. Front wheels cut under, and machine can be turned in its own length. Made in two styles and four sizes. Capacity 30 to 70 bushels. It saves **time, labor and money** and will double the crops. Makes all manure so fine and spreads it so evenly that it is immediately available for plant food.

LARGE CATALOGUE 10 by 13 inches, with 8 large cuts shows the spreader perfectly and describes it fully. Tells also how to apply manure to secure best results. **Mailed free.**

SMITH MANURE SPREADER CO., 55 N. JEFFERSON ST., CHICAGO, ILL.

The SMALLEY Fodder Shredder

The lightest running Fodder Shredder made. Operates with less power, handles fodder in best condition, and is less liable to breakage than any other shredder. Can be supplied with snapping rolls that will remove all the ears just the same as a husker. The Smalley Shredder is adapted to the handling of either green or dry fodder. Strong and durable, and will outlast a dozen of the saw pattern machines. Write for free catalogue that tells all about it, and also describes our Drag and Circular Saw, Sweep and Tread Powers, Ensilage Cutters and Carriers, Grinding Mills, etc. Address Dept. H.



SMALLEY MFG. CO., Manitowoc, Wis.

WINCHESTER
"NEW RIVAL"
FACTORY LOADED SHOTGUN SHELLS

Give these shells a thorough trial, and you will find them to be as nearly perfect as experience, ingenuity, brains and equipment can make them. They are made with the Winchester patent corrugated head, which has made Winchester "Leader" and "Repeater" Smokeless Powder Shells so popular and satisfactory. Winchester Factory-Loaded "*New Rival*" Shells are thoroughly waterproof, and are loaded by exact machinery with the standard brands of powder, shot and wadding which makes them uniform and reliable.

Shoot Them and You'll Shoot Well

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Lump Jaw.

I have a young thoroughbred bull which has a hard lump about the size of a man's fist behind the jaw, directly below the ear. It is not fast to the bone, but is loose under the skin near the wind pipe. Animal is in good condition.

Have a cow with lump in her teat. It is soft as though full of something. Has been there about a year and bothers in milking. E. P.
Ringwood, Ill.

ANSWER

The lump may be removed surgically with safety; also the lump on the teat, but the latter had better be removed when the cow is dry.

Te Prevent Breeding.

I have a large Angora cat (female) which I do not want to breed. Could you tell me of any remedy which will keep her from coming in heat?
North Adams, Mass. N. E. C. W.

ANSWER.

The only reliable way to keep any female from breeding is to spay her. This is a sure cure, and there is little or no danger in the operation. Employ a qualified veterinarian.

Pneumonia.

I wish you would give me through the DAIRYMAN a treatment for pneumonia, as that is something that troubles us considerably here. J. E. M.
Albuquerque, N. M.

ANSWER.

To treat pneumonia it is necessary to know what kind of pneumonia you are troubled with. Authorities recognize three or four kinds. It is also necessary to know the probable cause, in order to form an opinion, without a personal examination. Please give us a complete history of your trouble and carefully note the symptoms of each stage of the disease, and any other information which you may possess. We shall then be able to make an intelligent diagnosis and offer a remedy which will be productive of some good, rather than to guess wrong.

Black Leg.

Is black leg a germ diseae?
At what time is it best to vaccinate?
Is there any liability of producing ill effects from the vaccine?
Are are all cattle equally subject to it, or are cattle over three or four years of age subject to it at all? B. F. S.
Caltin, Wash.

ANSWER.

No. 1 Yes.
No. 2 Any time before they have contracted the disease.
No. 3 No.
No. 4 Yearlings and two-year-olds are most subject to this disease but it may attack cattle of any age.

Cribbing.

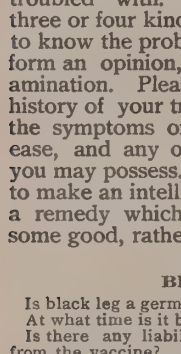
I have a mare colt rising two years old, and this fall she started cribbing. SUBSCRIBER.
Montinette, Ont.

ANSWER.

Cribbing is the result of idleness. Colts which are confined to the stable and are well fed contract this vice for pastime. Give her a box stall in which there is not possible chance to cribb, have no manger whatever, nor other possible place upon which she may place her teeth; feed from a shallow box on the floor in one corner of the stall and have your hay rack so high that she cannot arch her neck and commit the act. This is the safest way to remedy the evil, as they soon forget it. Plenty of exercise is always indicated. Drive her if possible.

Fleshy Growth in Teat.

We have a heifer fresh for the first time, that seems to have a fleshy growth in the upper part of one teat. By spreading with a knitting needle a few drops of milk can be induced to come out but that quarter of the udder does not secrete much milk, while a good flow is obtained from the remaining three teats. The teat commences to enlarge rapidly about 2½ inches from the lower



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Used and Endorsed by Adams Express Company.
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Beware of so-called Elixirs—none genuine but Tuttle's. Avoid all blisters; they offer only temporary relief, if any



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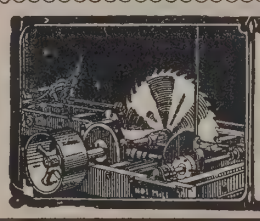
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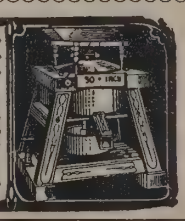
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Handsome Catalogue Free if you cut this out and give name of paper.



For extra fine double buggy harness retails at $30.00. Nickel or Davis Rubber trimmed. 1¼ in. traces, 1 in. lines, full kip collars, open or blind bridles. 50 styles buggy harness to select from. Single buggy harness $4.45 to $21.50.

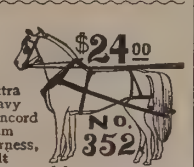
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For this farm harness with breeching. 1½ in. traces with chain ends. ¾ in. bridles with pigeon wing blinds. ¾ in. lines. Breast straps 1¾ in. with snaps and slides. Collars extra. 40 styles heavy team harness. The greatest bargains ever made. **Write for free catalog.**

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For hook and terret pad, team harness with iron hame tugs, **something new,** most durable made. Traces 1½ in. x 6½ ft., doubled and stitched, breast straps and martingales 1½ in. Lines 1 in. x 18 ft. Cut from best oak tanned leather. With collars, $26.00.

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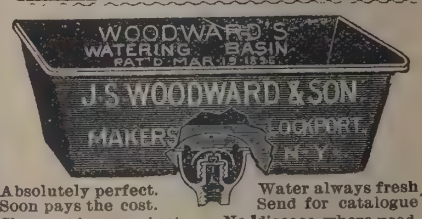
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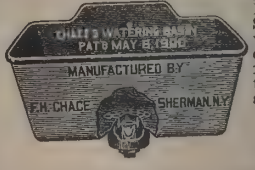
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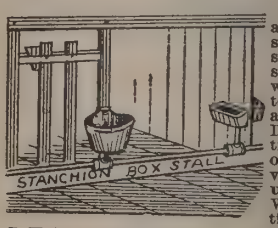
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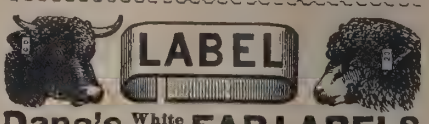
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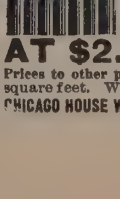
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AT $2.25 PER SQUARE
Prices to other points on application. A square means 100 square feet. Write for free Catalogue No. 20.
CHICAGO HOUSE WRECKING CO., W. 35th and Iron Sts., Chicago

end. It does not seem to be inflamed or sore. Can you give us an idea of the cause of the trouble and remedy?

We also have an older cow that has a hard growth at the lower end of the teat which the milk does not pass. That quarter of the udder seems to be well supplied with milk. What is the cause and remedy?

Wis. C. L. A.

ANSWER.

If the growth is within the teat you may lance it with the teat bistoury from the inside and apply Tincture of Iodine over the swelling on the outside. The Iodine may be applied once daily with a brush or feather. The bistoury ought to be sufficient without the Iodine in the other cow.

Milk Fever.

A cow nine years old, has been dry four weeks which time I reduced her feed to 1 qt. bran, 8 qts. shorts mixed night and morning, with all hay, corn fodder and range hay she wanted; (cows run on range all winter.) One week before freshening kept her in pasture and yard so that she would not wander into timber and hide her calf. She dropped calf about on time, in good warm dry shed, and was given water with chill off first day and same feed continued. I milked dry after calf had sucked all wanted both night and morning After 24 hours cow did not eat hay and next feed refused bran, lying down often and walking somewhat unsteady. No passage from bowels during the 24 hours following. At this time I gave one qt. raw linseed oil but saw no effects of same next morning; flow of milk small for her. I thought she was holding for a calf. A high fever for which I gave aconite and belladona. At the end of 36 or 48 hours he was down with limbs straight out and suffering terribly; she soon died. G. A. C.

Citronelle, Ala.

ANSWER.

Your cow had milk fever, and it is quite likely that your dose of aconite thus helped to shorten her life. Aconite must never be given in milk fever as it tends to stop the heart's action which is very tardy in this disease. The only preventive is to keep the cow in moderate flesh before calving and keep the bowels open.

The Schmidt treatment which has been given so often in these columns is a sure cure.



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Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

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Abortion Treatment

Hood Farm Abortion Cure is proving the most successful remedy for this very prevalent trouble that we have yet seen.

After Abortion cows should be injected with Hood Farm Antiseptic Breeding Powder, which thoroughly disinfects, kills all germs and **makes cows breed.** Also successful where cows fail to clean and where they do not come in season regularly.

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Dollar size Breeding Powder, by mail $1.15; $2.50 size prepaid for $2.75.

Hood Farm Flexible Injection Tube, for administering the Powder, 75 cents; by mail, 90 cents. Address

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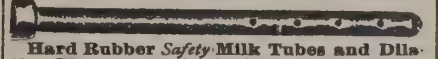
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Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.
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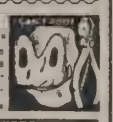
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Failing to Breed and to bring Cows to Heat. Sure Cure. In use 20 years.



Hard Rubber *Safety* Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.
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WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address



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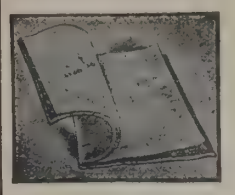
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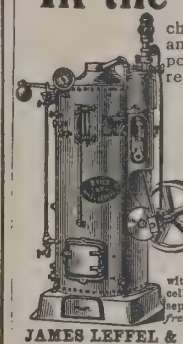
GREAT POULTRY BOOK FREE.

On another page of this issue of our paper will be found advertisement of the Cyphers Incubator Co., Buffalo, N. Y. We would not call attention to this matter at this time, but for the fact that these are the people who are responsible for a new era in the publication of incubator and brooder literature. We wish to point out to those of our readers who have seen their annual books and catalogues in the past, that the New Year Book for 1903, entitled "How to Make Money with Poultry and Incubators," now being sent out, is in every way superior to its predecessors.



Nothing has been left undone to make this Poultryman's Guide and Catalogue the most entertaining and instructive work ever published, devoted exclusively to the real business of growing and marketing poultry for profit. "How to Make Money with Poultry and Incubators," consists of 196 pages, is profusely illustrated, giving over 300 photographic views of many of the largest and most successful poultry plants in the United States, England, Germany, New Zealand, and South Africa, and contains twelve special chapters, each written by an expert, treating of profitable poultry-keeping in all branches, as follows: Starting with an Incubator, Handling Chicks in a Brooder, Feeding the Chicks, Duck Producing on a Large Scale, Broiler Raising, Profitable Egg Farming, The Egg and Poultry Combination, Egg and Fruit Farming, Scratching Shed-House Plans, Incubator Cellar and Brooding House Plans, Feeding for Eggs, and Standard Bred Poultry. Everything is made so plain that it can be understood by all. Those of our readers who have never seen a "Cyphers" Annual Guide, and are interested in the latest developments in incubators, brooders, poultry foods and appliances, should write at once to the Cyphers Incubator Company's nearest office, Buffalo, N. Y., Chicago, Ill., Boston, Mass., or New York City, N. Y., and they will send a copy free, postage paid (during next thirty days only), provided you mention this paper.

In the Creamery,



cheese factory, on the farm or anywhere else, and for all purposes there is no power so reliable as a

Leffel Engine.

Simplest in construction, makes them easiest to run and keep in order. Being easy steamers they require the minimum of fuel, and develop highest power.

Upright or Horizontal with engine on boiler, or separate." Unexcelled for cutting, grinding, pumping, saving, separating, churning, etc. *Book on Power free to intending buyers, stating wants.*

JAMES LEFFEL & CO., Box 120, Springfield, O.

Creasey Ice Breakers



Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right.

Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.

J. S. L. WHARTON, Mfr.,
17th & Clearfield Sts. Philadelphia, Pa.



CHAIN-HANGING
CATTLE STANCHION
The Most Practical
CATTLE FASTENER
ever invented.
Manufactured and For sale by
O. H. ROBERTSON,
Forestville, Conn.

There's More Money
And readier money in hogs and cattle if there is mixed daily, with their feed a small amount of
Prussian Stock Food.
For all domestic animals. It conditions, begets growth, fattens. 50c and $1.00 Packages. A Pail, 1200 feeds, for $3.50. Buy of dealers. Write us for free 68-page book.
Prussian Remedy Co. St. Paul, Minn

CREAMERYMEN, DAIRYMEN and MILK DEALERS
Can be Promptly Furnished with anything they want at reasonable prices, if they will write me. My CHILDS' PATENT MILK BOTTLE FILLER is the best on the market. Send for free catalog.
J. S. BIESECKER,
59 Murray St., New York City.

NOW IS THE TIME TO SUBSCRIBE
FOR
Hoard's Dairyman.



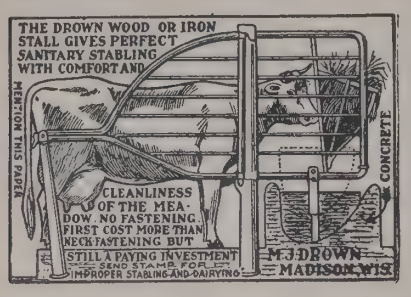
People Buy Butter by the Nose.

They may also taste it, but if it does not smell sweet they are not likely to do so. Your butter may suit the public nose exactly when it leaves your dairy or creamery, but how about it at the end of a week's handling by other parties? Is it not wiser and better for the butter and your reputation to so pack it that neither will be endangered? You can make sure of these points by wrapping every print in a sheet of our

Pioneer Brand Parchment Paper.

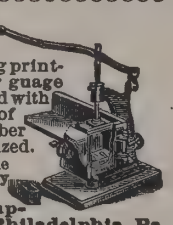
It will keep that rancid lot close by from spoiling yours. It keeps out all destructive germs and injurious odors and entirely preserves all the flavor and natural sweetness. It makes fastidious buyers want more of your butter. You see we print your name, name of dairy or creamery or other private trade mark or brand on every sheet. It helps to build a reputation for your butter. Just think these things over and then write us for samples of paper and booklets. **Be sure to ask for our booklet, "Better Butter."** We mail these free.

The Paterson Parchment Paper Co., 37 Eighth St., Passaic, N. J.



"KEYSTONE"

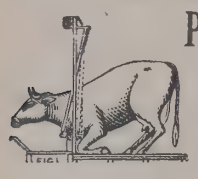
BUTTER PRINTING MACHINE. A self-guaging printer; will print and weigh or guage the butter simultaneously and with great speed. Strongly made of selected cherry lumber. Iron parts galvanized.



TRADE MARK BESTOV

Send for catalogue "Bestov" dairy supplies.

Dairymen's Supply Co., Dept. B, Philadelphia, Pa.



Prescott's Swinging Swivel tanchion

Keeps Cows Clean. Swings forward while getting up or lying down. Locks back while standing Full particulars free.

E. PRESCOTT, Beverly St., Boston, Mass.



The BEST Cattle Fastening.

SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated Circular free. GLENORA MFG. CO., Glenora, Yates Co., N. Y.

Infringements will be prosecuted.

DO NOT FORGET

to write **THE WASSON STANCHION CO., CUBA, N. Y.,** if in need of **Cow Ties or Stanchions.**



Scott's Perfect Swinging And Self Closing Cow Stanchion

Each cow shuts herself in place.

CIRCULARS FREE.

B. C. SCOTT, 211 Beach Street, **Bridgeport, Conn.**

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. Satisfaction guaranteed or pigs may be returned.

JOHN WHITE & SON, Adamstown, Md.

Now is the Time Go West!

Cheap Railroad Tickets

From February 15 to April 30 we shall sell tickets to California and the North Pacific Coast, also to many intermediate points such as Helena, Butte, Spokane and Salt Lake City, at greatly reduced rates. Only $33, for instance, from Chicago to California or Puget Sound; $30.50 to Spokane; and from St. Louis and other places in proportion.

This is Your Opportunity

Why should you not go out and see the country? It costs so little and you can easily see what an education it will be for you to take such a trip. The Northwest, in particular, is full of interest. A visit to that country may be the turning point of your life. Send to me for our folder giving full information about how to go, about the trains and rates, and our comfortable tourist sleeping car service.

Burlington Route

P. S. EUSTIS, Passenger Traffic Manager, Chicago, Burlington & Quincy Ry. Co., 705 209 Adams Street, Chicago.

FOR SALE.

A Fine Farm in Sargent Co., North Dakota,

consisting of 7 quarter sections with lease continuing 3 years on two other quarters.

300 Acres in Cultivation, 600 Acres Enclosed in Four Pastures, Remainder Outlying Prairie.

IMPROVEMENTS.

HOUSE is very comfortable dwelling with eight rooms.

FINE BARN 101x112 feet with capacity for stabling sixteen head of horses and eighty-four head of cattle in stanchions. **Calf Stable** for twenty head and stable for young stock and box stalls for hospital purposes.

TWO LARGE SILOS inside with ninety ton capacity each, besides room for two hundred and fifty tons coarse fodder, and **Root Cellar** 24x24 feet.

CREAMERY 22x40 feet, two story with up to date machinery.

FEED MILL AND ELEVATOR 18x32 feet with bins above to hold more than four thousand bushels of grain, equipped with a **Three Roller Mill,** corn sheller, grain cleaner, elevators, spouts and hopper, and bottomed bins for convenient handling of grain. Mill is connected to creamery by a building 20x28 wherein is a

WATER WHEEL that drives the mill and creamery, and **boiler for steam** heating and hot water for use in creamery. This room is also used for carpenter and blacksmith shop. Within this room is also located an

ARTESIAN WELL yielding five hundred gallons of clear soft water per minute under pressure sufficient to drive the mill and creamery. It also provides

WATER IN HOUSE AND BARN and flows off through pastures making several small lakes, furnishing water on four quarter sections and finally flows off to natural water way that leads to Red River of the North.

WATER WHEEL AT BARN furnishes power for cutting ensilage and other purposes. There is also a

GRANARY 18x32 feet with basement now used for

ICE HOUSE The house is enclosed in a **beautiful lawn** of about **eight acres** wherein is the family garden. Several hundred fine forest trees have been planted here besides some fruit trees all of which are doing finely.

This is **one of the finest and most complete** plants for general farm purposes and for stock growing and dairying to be found in the northwest. Practical up to date farmers wanting a fine plant should investigate. For full particulars regarding the farm and its sale address

BYRON PARSONS, Evansville, Ind.

HARDWOOD TIMBER LANDS

from which the older trees have been cut but mostly covered with a fine growth of young timber, located in Marathon County, Central Wisconsin, are now offered for sale by us, on most favorable terms to actual settlers.

This is some of the very best hardwood agricultural land in this state, with a deep, clay loam soil, gently rolling, with water easily obtainable at from 16 to 24 feet.

There is no better land for grain, grasses pastures, oats, peas, fruits or livestock, etc. Particulars will be furnished promptly on application.

RIETBROCK LAND AND LUMBER CO., Athens, Wis.

THE COMING DAIRY COUNTRY

Probably the richest farming country open for settlement to-day on the American continent, is the fine hardwood belt extending along the Minneapolis, St. Paul & Sault Ste. Marie Railway ("Soo" Line) in northern Wisconsin and Michigan. Acknowledged by good authorities on dairying to be the best dairy region in America. A land of Clover and Blue Grass well supplied with streams, lakes, and springs of pure water

W. D. HOARD, Editor of Hoard's Dairyman, says:

"I believe that northern Wisconsin is going to prove the most successful dairy region of the northwest, something like that of St. Lawrence and Lewis counties in New York.

"The peculiar salubrity of the air, the moderate heat of summer, the abundant and pure water, the good soil and luxuriant growth of grasses, all conspire to make it an ideal dairy region."

CHOICE LANDS AT LOW PRICES.

If you want a home in the "Great Clover Belt" write for free illustrated folder to **D. W. CASSEDAY, Land Agent "Soo" Line, Minneapolis, Minn.**

160 Acre FARMS IN WESTERN CANADA FREE

Western Canada

The Vast Areas of this Remarkable Agricultural Country are attracting more attention than any other District in the World.



"The Granary of the World."

"The Land of Sunshine."

The Natural Feeding Grounds for Stock.

Area Under Crop in 1902—1,987,330 Acres.

Yield 1902—117,922,754 Bu.



Abundance of water. Fuel plentiful. Building material cheap. Good grass for pastures and hay. A fertile soil, a sufficient rainfall and a climate giving an assured and adequate season of growth.

Homestead Lands of 160 Acres FREE.

The only charge being $10 for entry. Close to Churches, Schools, etc. Railways tap all settled districts. Send for Atlas and other literature to Superintendent of Immigration, Ottawa, Canada; or to the authorized Canadian Government Agent—

T. O. CURRIE,

12 B. Callahan Bldg., Milwaukee, Wis.

J. M. MacLACHLAN,

307 Third Street, - Wausau, Wis.

200,000 ACRES TO SELECT FROM

We own 40,000 acres in Red River Valley, in Marshall and Kittson Co's, Minn. and in Walsh and Grand Forks in N. D. 15,000 acres in LaMoure, N.D. Fine stock ranches in Logan and Mercer Co's, N.D. 50,000 acres of Timber land in Aitkin Co. Minn., and Washburn Co., Wis. Also 15,000 acres in Southern Minn. in Lyon and Redwood Co's, near Marshall.

WRITE FOR OUR MAPS. We can give you a farm from $5.00 to $50.00.

BURCHARD-HULBURT INVESTMENT CO.

705-7 Manhattan Bldg. ST. PAUL, MINN.

450 Acre Farm

FOR SALE

Three-eights mile from electric car line. It has eight acres in asparagus, 4 acres in strawberries, and eight acres in orchard.

200 REGISTERED JERSEY COWS, CALVES AND GRADES.

Place has paid $4000.00 per year and a practical dairyman could make it $7000.00 per year. Will sell for about one-third cash down, balance on time. For full particulars address

E. P. ODENEAL, Jackson Miss.

Fine Dairy Farm for Sale.

Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence, cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling.

T. S. TOMPKINS, Pasadena, Cal.

STOCK FARM BARGAIN.

MARQUETTE CO., WIS.

240 acres, 100 acres in cultivation, 50 acres in timber, rich black loam, fine house, new barn, other buildings. A Bargain. Price, $7500, easy terms.

For particulars address **J. H. MYERS,** C 100, Mack Block, Milwaukee, Wis,

FOR SALE. A Good Dairy and Stock Farm of 120 acres, well watered, spring at door, a running brook through premises, well fenced, good house and out buildings, a small grove, barn nicely fixed for 22 cows, separator room attached. Am in dairying and have a nice herd of grade Jersey cows, a registered bull 2 years old, all located within one mile of town of 2500 inhabitants. A good cream trade with principal restaurant. Creamery in town. Would like to sell farm, dairy stock and all. A Bargain to the right man. **IRA D. TOTMAN Lancaster, Wis.**

FOR SALE. 90 Acre Farm in Waupaca Co., Wis., 1½ miles from the village of Marion. Good soil, running water, frame buildings. A bargain if taken before the first of April. Reason for selling, am an old man and recently lost my wife. Address, **DANIEL CHURCHILL,** Marion, Wis.

A Virginia Letter and Queries.

ED. HOARD'S DAIRYMAN:—Our cows have been doing very well this winter, but would like to make them do better. We have 29 cows, 7 are heifers with first calf, 2 are culls and will go to market soon. They have averaged nearly 20 lbs. butter a day this year. We also have 9 heifers that will freshen during the year. We are feeding corn stover and pea hay for roughage, 20 big ears of corn (about 10 lbs. grain) to each animal a day, and ground feed consisting of 3 parts Vim oat feed, 1 part cotton seed meal, varying from 1 lb. to 7 lbs. according to the milking qualities.

Owing to an unfavorable season we had to buy nearly all of our feed, which was very high, corn costing $2.50 per bbl., delivered. We paid $4.50 for enough to feed the cows, heifers, etc. Feeding it in the shuck, there is very little labor, and the hogs that have lived on the manure pile and skimmed milk will sell for about $300 in April, which will pay a good part of the feed bill, which is not the case where ground feed is used exclusively.

We have been cutting and shredding the stover with a two-horse sweep power, but it is so hard on the horses when the weather is bad, that we have decided to get a gasoline engine, which can water the cows and do other little jobs.

We tried a silo many years ago, but abandoned it, owing to the cost of filling, etc., but there is so much written about them now, that it looks as if we will have to give it another trial.

It is almost impossible to get extra help here in summer.

What kind of a ration would corn silage and cow pea hay make, without any grain? We would use the Albemarle Prolific corn, which Mr. Meroney describes on page 1106, which ears very freely. We are preparing to put 40 acres in corn and 40 acres in cow peas. If the weather is at all favorable, that will give us all the peas the cows will eat once a day, and some for the horses and hogs, and about one-half of the corn and stover that we will need. Mr. Meroney claims excellent results from silage alone, made of corn and peas, but he can graze rye or grass all winter, while our cows stay in the stable all winter, except long enough every day for them to drink and the stables cleaned.

I notice in the DAIRYMAN that the analysis of cow pea silage is little higher in protein than corn. There is always a drop, of at least one-tenth in the flow of milk when we stop feeding pea hay, and the loss of butter is greater.

Would the hogs get any good from the droppings from the cows if fed on corn silage and pea hay?

What would be required to make a balanced ration for a 900-lb. cow giving 30 lbs. of 5 per cent milk, in addition to the silage and hay?

What size silo, round or square, will it take to hold 168 tons? I figure 40 lbs. a day for 40 head, 210 days.

How much land will be required to grow the corn, using the Albemarle Prolific variety, which yields ⅓ or more forage than ordinary field corn? The ordinary corn averages about 9 feet in height here.

How do you test cream with Babcock milk tester? The bottles are scaled to 10 per cent.

How soon after calving is a cow's milk good for butter? B. B. T. & SON.

Broadrun, Va.

Notwithstanding the very favorable reports which have been made from time to time by Mr. Meroney and others in regard to feeding a combined silage, we are disposed to think that under ordinary circumstances it is profitable to feed at least some grain in connection with silage of any description, or alfalfa hay. It is true that the cow has very capacious stomachs and a very large digestive capacity, but notwithstanding this it is hardly practicable to expect a cow to be able to consume and digest enough coarse fodder to furnish the material required to make liberal quantities of milk. When grain feed of various kinds is very dear it may be a question whether the extra amount of milk secured by feeding grain will yield a profit. Considerations of this character emphasize the necessity for deeping a daily record of what each cow does—in short, whether she is a profitable milker or not. Like our correspondent we are very much surprised at the very low content of feeding credited to cow pea silage. We think there must be some mistake about this, as the results are out of all comparison with the figures given in the analyses.

We are of the opinion that swine would find very poor picking following cows fed on silage and it is very questionable whether on the whole it is not more profitable to grind corn, especially when it is high in price, than it is to feed it whole and depend on swine to collect and utilize the unground kernels and undigested meal after passing through the cows.

In this part of the country we should expect 40 acres of corn and 40 acres of cow peas to furnish a good deal more roughage than forty cows could consume.

A silo to hold 168 tons may be 18 feet in diameter and 32 feet deep, or 19 feet in diameter and 30 feet deep, or 20 feet in diameter and 28 feet deep.

For testing cream in the ordinary milk bottles divide the sample into three approximately equal parts and add as much water as cream and proceed as for testing milk, using three test bottles and combining the readings to ascertain the full amount of test for the cream.

Milk may frequently be used for butter making the fourth day after the cow freshens, but the better plan is to wait until the sixth day.

Spelz and Bromus Inermis.

A reader at Utica, Ill., asks where he can find a feeding analysis of spelz and bromus inermis, and whether they will do well in Illinois.

There is not to our knoweledge any satisfactory analysis of either spelz or bromus inermis. At all events they have not yet found a place in the general feeding tables as published. Spelz has been analyzed in Minnesota and seems to carry about the same feeding value as oats, but neither spelz nor bromus have passed the trial stage in this country. We would not advise this inquirer to do more than try these things in a very small way, and thus find out for himself whether they are adapted to his soil and climate.

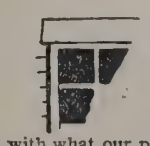
We are more disposed to tender this advice in the present case from the fact

ONE STEP MORE

Will be fatal to the sleep-walker. Will he draw back or will he take the final, fatal step? A great many people are in peril like the sleep-walker. They are diseased. The disease is progressing day by day. The time comes when one more step away from health is fatal. The man who has suffered from indigestion or gastric trouble goes some night to a dinner and returns home to find he has taken that last step from health which can never be taken back.



To neglect the cure of indigestion or some other form of stomach trouble is dangerous. It is also inexcusable. Dr. Pierce's Golden Medical Discovery cures diseases of the stomach and other organs of digestion and nutrition. It purifies the blood, stimulates the liver, cures biliousness, and eliminates bilious poisons from the system.



"The praise I would like to give your 'Golden Medical Discovery' I cannot utter in words or describe with pen," writes Jas B. Ambrose, Esq., of 1205 ½ Mifflin St., Huntingdon, Pa. "I was taken with what our physicians said was indigestion. I doctored with the best around here and found no relief. I wrote you, and you advised me to use Dr. Pierce's Golden Medical Discovery. I took three bottles and I felt so good that I stopped—being cured. I have no symptoms of gastric trouble or indigestion now."

If you ask your dealer for "Golden Medical Discovery" because you have confidence in its cures, do not allow yourself to be switched off to a medicine claimed to be "just as good," but which you did not ask for and of which you know nothing.

You can get the People's Common Sense Medical Adviser, 1008 pages, paper covers, *free* by sending 21 one-cent stamps, to pay expense of mailing *only*. Address Dr. R. V. Pierce, Buffalo, N. Y.

Salzer's Alfalfa or Lucerne.



Glory enough! Ring the bells! Shout for joy! The year of jubilee has come! How's that! Why, sir, it has been made possible to grow Salzer's Alfalfa Clover in every state in the Union, North, South, East or West—why, sir, cold Minnesota, and freezing Wisconsin, and treeless Nebraska, and the prairies of Illinois and Iowa, and the bottoms of Indiana, and the pineless soil of Michigan, and the rich farms of New York and Pennsylvania—yes, every state can grow from two to four crops of Alfalfa, if **Salzer's Northern Grown Alfalfa** seed is used! That's acclimated, that's hardy, that's tough, and we believe tougher and better than the Turkestan Alfalfa!

It's a Wonderful Clover.

It's the greatest clover on earth, it's extremely early, the first crop cut in May, the second prodigal yield in July, the third in August, and lots and lots of pasture besides. It's great as a fertilizer, sending 10 to 25 feet after moisture and nourishment. It withstands drouth, wet, indeed, when once established it defies all elements, returning yields that will gladden the heart and fill the purse of every farmer growing same.

Look at This Testimonial.

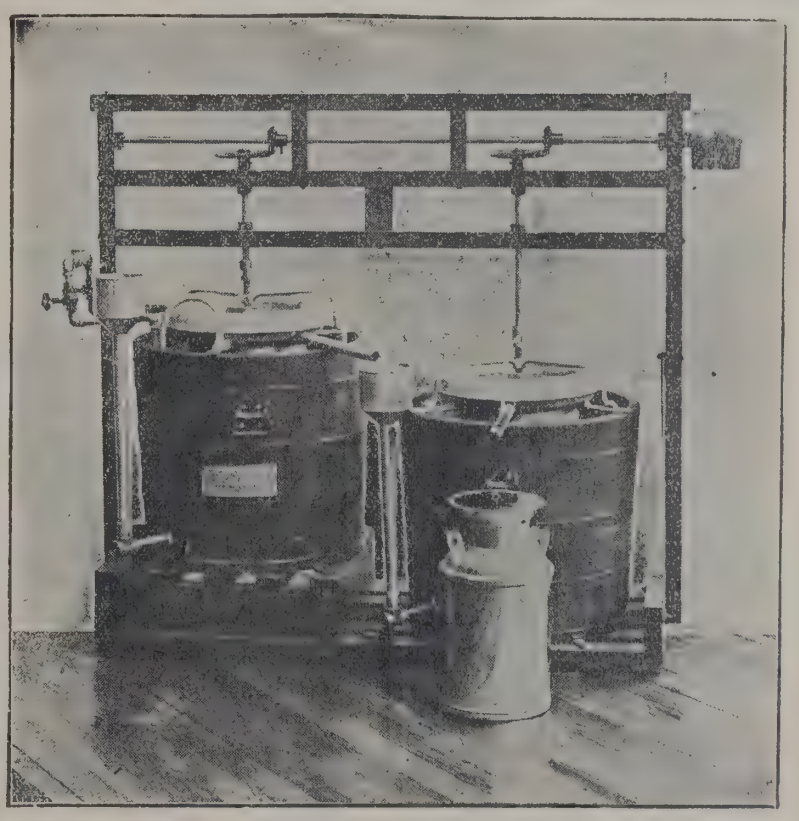
Carl G. Kleinstueck, Saxonia Farm, Mich., has this to say: "I have a patch of Salzer's Alfalfa Clover that I seeded 13 years ago, which yielded four big crops last year, besides good fall pasture. It has been cut three times already this season, and the fourth crop is about six inches high today, and will be ready for mowing in about three weeks."

We have hundreds like it coming from all parts of the United States. It will pay you, Mr. Farmer, to give Salzer's Alfalfa a trial.

For 6 Cents.

If you will mention HOARD'S DAIRYMAN when you write, enclosing 6 cents in stamps, we will mail you a sample package of **Salzer's Northern Grown Alfalfa Clover Seed**, as also our catalogue that contains the full description of how to grow with success this wonderously luxuriant hay and grass producing plant. Send today 6 cents in stamps for above and be sure to mention HOARD'S DAIRYMAN.

JOHN A. SALZER SEED CO., La Crosse, Wis.



A GREAT SUCCESS.

The Miller Cream Pasteurizer has a capacity of from 450 to 600 lbs. per hour.

Price $150 in Tin. $200 in Copper.

THE MILLER PASTEURIZING MACHINE CO.

CANTON, OHIO.



IF YOU ONLY KNEW

how much money you can save and how much better stove or range you can get, you'd send to-day for full particulars about the

KALAMAZOO Steel Stoves & Ranges

Sold direct from our factory on **360 Days Approval Test**, backed by a $20,000 bank bond. We guarantee perfect satisfaction or ask no pay. We pay the freight. Ask for catalogue No 183.

KALAMAZOO STOVE COMPANY, MFRS., KALAMAZOO, MICH.

All our Cook Stoves and Ranges have patent oven thermometers.

that the inquirer reports milking 15 cows and making 110 pounds of butter per week, with some of the cows in milk all last summer. He is feeding 50 lbs. of silage, 4½ to 5 lbs. of bran and 3 lbs. of gluten to each cow per day, and weighing the milk. Where one is doing as well as this, we no not consider it advisable to inaugurate any radical changes either in the cows or crops.

CONCERNING OUR ADVERTISERS.

All of our readers who are interested in dairy stock are aware that owners of good cows sustain heavy losses each year from milk fever. This disease attacks the best cows in the herd. Hood Farm Milk Fever Cure is proving quite successful. We have been furnished a copy of the following letter from General Lawrence's farm superintendant at Medford, Mass., and we take pleasure in publishing it for the benefit of cattle owners:

"I recently had a very severe case of milk fever but the cow came out all right. This is the first cow taken with milk fever, that we have been able to save. We have lost three in the last twelve years out of a small herd. We have had what we call good veterinary service, and think we have given good care.

"This last cow was taken after she commenced to calve. All action stopped and the calf died. I administered Hood Farm Milk Fever Cure as directed, and in about seven hours the cow began to brighten up a little. She improved very slowly each hour, and at the tenth hour we took the calf away. The cow had then gained strength to assist. The next morning she got up on her feet, but was quite shaky. The improvement was gradual but sure from that time on.

"We used no other medicine in this case but one large dose of the Hood Farm Milk Fever Cure. I think enough of this remedy not to allow a cow to calve in our stable without having some on hand for early use, for in some cases you haven't much time to wait for remedies." C. L. BLAKELY, 343 Winthrop St, Medford, Mass.

THE LYON MANUFACTURING CO., Brooklyn, N. Y. GENTLEMEN:—It seems to me that among your testimonials to the efficacy of Mexican Mustang Liniment you hardly give enough prominence to its wonderful curative power on inflamed and caked udder in cows. I have used it for two years in my stable, and since I began its use have not had a case which was not relieved by a few applications. A thorough bathing of the udder with hot water, followed by gentle and persistent rubbing in of the "Mustang," will, I believe, cure any case, leaving the teats in good order—unless suppuration has already begun. If others in the dairy business knew this it would save much worry and loss. Respectfully

Columbus, Ga. MRS. A. I. YOUNG.

Though good seeds are scarce this spring, we feel assured that any of our readers applying to that old reliable seed house, Johnson & Stokes, Philadelphia, will be well taken care of. Even if seeds are bought elsewhere it would be well to write for their Garden and Farm Manual and see what development is reached by different varieties of vegetables and fruits from the photographs therein reproduced. The book is illustrated throughout by reproducing photographs of seed products. This firm takes a good deal of pride, and at the same time serves its own interests, in living so scrupulously up to its old time reputation for supplying only the best to be secured in the seed line. This manual suggests superiority in its every page. There is no better place to get a true estimate of the novelties. Whatever is of real worth is sure to be found with this firm, and by illustration from photograph and accurate description, you know exactly before ordering just what its merits are. The book is mailed free. Consult their new advertisement appearing in this issue for correct address before writing.

THE CHIEF CONSTRUCTIVE FORCE IN AGRICULTURE.

Two generations ago our grandfathers harvested their wheat and oat crops with the McCormick reaper, and little did they dream that the crude machine they used would be the forerunner of such marvelous advancement in the methods of harvesting grain as has been developed within recent years. Today more than two and one-half million agriculturists harvest their crops with McCormick machines. Since 1831, the year in which the first successful reaper was constructed in a blacksmith shop at Steele's Tavern, Va., the McCormick has been one of the chief constructive forces in developing the agricultural resources of the world. For more than three score years the McCormick has represented the highest attainment in the manufacture of harvesting machines, and this name has become a household word throughout the world. "A Model Machine" is the title of a new book which has just come from the press. It is an interesting publication and should be in the hands of everyone who needs or operates a harvesting machine. When writing please mention HOARD'S DAIRYMAN, and ask for a 1903 McCormick Calendar, if you have not received one, which will be sent, together with the book without charge. Address the nearest McCormick agent.

WOOD PRESERVATIVES.

Decay is the greatest enemy to silos, and dairymen and farmers will do well to look carefully into the merits of well known wood preservatives. It is not too much to say that the life of a silo can be doubled by treating the wood work thoroughly with a scientifically made preservative. Paint will not fill the bill, because it will not penetrate the wood, but a bona fide preservative will sink into the pores and tan the albuminous parts of the wood so that it will resist decay for a long time. These preservatives can be had at moderate prices, and the cost of treating a silo of ordinary size is so small that the profit to the owner is very large. All the other woodwork on the place can be treated in the same way with great advantage. See add of Samuel Cabot, Boston, Mass., this issue.

It is a great satisfaction to us to call the attention of our readers to the ad. of Ross Brothers, the well known seed and implement house of Worcester, Mass., which appears elsewhere in this issue of our paper. To hundreds of our readers this firm needs no introduction. To those who are not so fully acquainted with them we are pleased to state that they have been established for many years, and have built up a large business, due undoubtedly to the splendid line of goods they handle, and their honorable and fair methods. They issue a very complete catalogue—in fact, it would be difficult to think of anything the modern business farmer requires which cannot be supplied by this firm. Write for one of their catalogues to-day, and mention this paper.

Moldy Bread Poisonous for Cattle.

A gang of Italian laborers were working on the Chicago & Northwestern R'y., near Appleton, Wis., recently, and they threw some pieces of moldy bread over the fence to a cow, which ate it at once. In a short time the cow died in the convulsions of gastritis. The farmer owning the cow brought suit against the railroad company for the value of the animal and recovered $40, it being shown that the moldy bread was a poison to the bovine species. We believe there is some truth in this matter. A few years since, the senior editor lost a very valuable cow and young bull from gastritis, both of whom had been fed the waste scraps from the family table in which was included several pieces of moldy bread. Moldy ensilage, and especially moldy bran, is quite apt to produce serious stomach derangement in cows.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.



Why don't you get a
Horseshoe Brand Wringer?

It will lighten your day's work

Every wringer is warranted from one to five years. The rolls are made of Para Rubber. They wring dry, last long, and will not break buttons. Our name and trade-mark is on every wringer and roll.

The American Wringer Co.
99 CHAMBERS ST., NEW YORK CITY
We manufacture the Wringers that wring the Clothes of the World

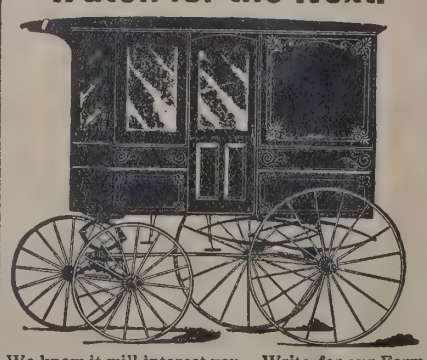
Appleton
Handy Farm Truck.



All the advantages of any steel wheel truck made and a far stronger construction. 32 inch rear and 28 inch front wheels, wide tires, extra strong skeins and axles, etc.

Special Prices for a Short Time.
Write to-day for full information, catalogue and prices to
APPLETON MANUFACTURING CO.
35 FARGO ST., BATAVIA, ILL., U. S. A.

ANOTHER BEAUTY
Watch for the Next.



We know it will interest you. Write for our Form E catalogue showing many other styles.
THE O. ARMLEDER CO., Cincinatti, O.

DEAL DIRECT WITH THE FACTORY



Don't pay retail price for carriages or harness. Write for our catalogue and learn about our system of selling direct from factory to customer. Two profits are saved to you. Satisfaction is guaranteed, or you can return the purchase and we will pay freight charges both ways. We have the largest assortment of buggies, surreys, phætons, carriages, and other high grade vehicles, as well as harness and horse accessories, in America. Write for the catalogue to-day.
THE COLUMBUS CARRIAGE & HARNESS COMPANY,
Factory and General Office, COLUMBUS, O. } Write to
Western Office and Distributing House, ST. LOUIS, MO. } nearest office.

Your Dairy



May be kept ever so clean, your cattle may be pedigree stock and you may feed them in the most approved manner, but your patrons will never suspect these things if you deliver milk from a ramshackle wagon. An attractive milk wagon attracts trade; it's not a luxury, but a practical necessity.

The Koenig & Luhrs wagons are built for the business. They embody every convenience, are handsome in finish and general appearance, are made of good materials and are so well put together that they'll last for years. A quarter of a century's practical experience has taught us the "know how" of good wagon building. Are you considering a new wagon? It will pay you to get our catalog and prices before placing your order.

Koenig & Luhrs Wagon Co.,
Quincy, Ill.

30 YEARS SELLING DIRECT



Large Catalogue FREE Send for it.

We are the largest manufacturers of vehicles and harness in the world selling to consumers exclusively.
WE HAVE NO AGENTS
but ship anywhere for examination, guaranteeing safe delivery. You are out nothing if not satisfied. We make 195 styles of vehicles and 65 styles of harness.
Visitors are always welcome at our Factory.



No. 644—Top Buggy; with ¾ in. Kelly Rubber Tires. $52.50. As good as sells for $35 more.
No. 327—Surrey. Price $78. As good as sells for $50 more.
ELKHART CARRIAGE & HARNESS MFG., CO. Elkhart, Ind.

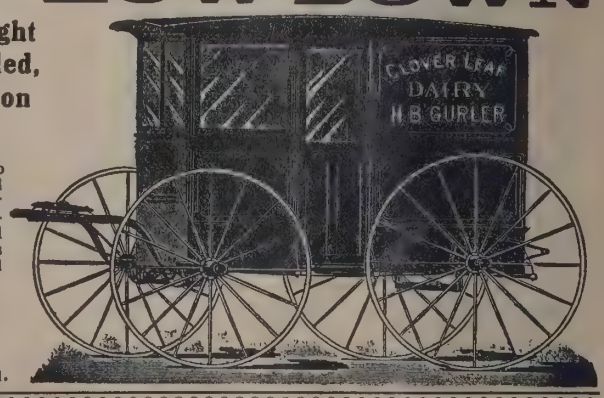


The National
LOW DOWN CUT-UNDER

justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

The National Wagon Company
CHILLICOTHE, OHIO.

THE ONLY LOW-DOWN
Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the Market.



20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for catalogue, prices and terms Wagons for carrying Bottled Milk a specialty.

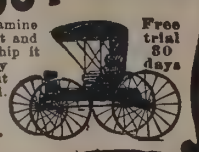
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Sole Manufacturers,
De KALB, - - Ill.

$62.75



BEST MILK WAGON ON EARTH.
SOLD DIRECT TO CONSUMER ONLY.
Highest Grades—Lowest Prices—Guaranteed. Shipped on Approval. Full line Buggies and Harness. Write for Catalogue and Prices.
SAVE DEALERS' PROFITS.
UNION BUGGY CO. Dept B. PONTIAC, MICH

HAVE A BUGGY WITH US



Hitch up to it, use it, examine it. If you like it, keep it and pay us only $47.50 or ship it back. The Split Hickory Special is the best put together buggy ever offered. Catalogue FREE.
Ohio Carriage Mfg. Co., Station 154, Cincinnati, O.
Free trial 30 days

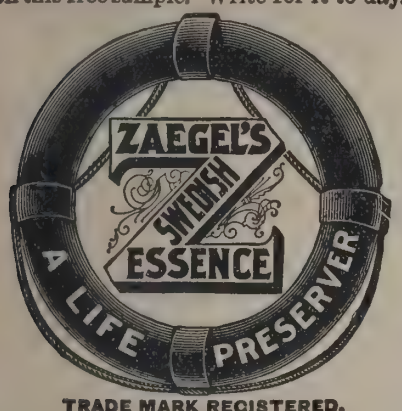
$45 WKLY. selling ACME PUMP GOVERNORS. They make all pumps work easy and fit all kinds, (iron or wood.) Mills run with ⅓ less wind. Agents Exclusive territory. Its Merits sell it.
PUMP GOVERNOR MNFG. CO., (K) 40 Dearborn St., Chicago, Ill.

Try it Free

The great blood purifier, Zaegel's Swedish Essence of Life is to be given away free to readers of this paper.

This remarkable medicine by *removing disease germs from the blood* has an action that effects the entire system. It tones up the stomach and creates an appetite; works on the liver and has a mild, continuous effect upon the bowels thus cleaning out the entire system; it makes new rich blood, regulates the heart and kidneys and rids the body of all waste matter. It also induces a gentle perspiration, thus preventing fevers and congestion. Rheumatism, backache and headache, biliousness and all nervous diseases are rapidly cured, as well as diseases peculiar to women. No one need trouble themselves to doubt whether this remedy will do all these things, for you can have a free trial package first and see what it does for you.

Do not neglect to get in your application at once. The best way is to sit down this minute, write a letter to M. R. Zaegel & Co., P. O. Box 989, Sheboygan, Wis., and say that you want a trial package of Swedish Essence of Life. This will be sent you by mail and is large enough to convince you of the merit of this celebrated household remedy. A 2-cent stamp should be enclosed in your letter to pay the postage on this free sample. Write for it to-day.



TRADE MARK REGISTERED.

RUPTURE CURED while you work. You pay $4 when cured. No cure, no pay. ALEX. SPEIRS, Box 846, Westbrook, Me.

A Clear Saving

$10 to $45

On a Sewing Machine

"Young"

TOLEDO, O.



Don't take our word for this—we *can prove* it. We ship from factory *"on approval"* at factory prices. We have no agents, pay no commissions, hence save you money. We publish the most comprehensive book ever written about Sewing Machines, handsomely printed in colors, with *cloth* Samples of ruffling, tucking, etc. done with attachments. This book tells you what constitutes a *really* high grade Machine—how to detect the weak points—the right price to pay, etc., and how to dispose of your old Machine.

Send for FREE Samples and Book No. B-5903

THE HOMER YOUNG CO. Ltd. (Makers) Toledo, O

Farmers and Gardeners,

tens of thousands of them, for 40 years have annually relied upon

GREGORY'S SEEDS

Experience has taught that they **ARE THE BEST.** Sold under three warrants that our seed will do their part in the making of the crop. Catalogue free.

J. J. H. GREGORY & SON
Marblehead, Mass.

GREGORY'S SEED CATALOGUE FOR 1903

FREE Our handsome **Garden Annual** and **Seed Catalogue.** Send your address on a postal to-day, or for 4c. in stamps and the names of 3 neighbors who are actual seed buyers we will send our catalogue and **packet of the Giant Red, Madam Perret PANSY** if you write before March 15th. Address,

OLE'S SEED STORE, Pella, Iowa. **SEED**

The Result of our Pig Feeding Experiment.

ED. HOARD'S DAIRYMAN:—We wrote you last November about our pig family and promised to give the result in detail. We have never been an advocate of feeding pigs for profit on purchased grain, and we attribute our little margin of profit at this time, partly to the abnormally high price of pork.

We placed 25 pigs in our new hog house last November that were between seven and eight weeks old. Inventoried them at $48, ($2.00 each; one lame one thrown in). That was the best offer we could get. As we could not afford to produce pigs to that age for the price, we must resort to another expedient; hence the experiment with following result. They were grade Chester Whites and were all thrifty; all fed in one pen; no sickness or loss. We fed them wheat middlings at $1.00 per hundred weight and milk, at 12 cents per hundred, purchased at creamery. We inventoried cut beets at 20 cents per bushel basket, and cull corn 25 cents, about what they were worth to feed the dairy.

1,000 lbs. wheat middlings at $1.00 per cwt	$10.00
600 lbs. ground rye at $1.00 per cwt.....	6.00
70 bushels ear corn at 25 cents.....	17.50
1,500 lbs. skim milk at 12 cents per cwt.....	1.80
5 bushels cut beets at 20 cents.....	1.00
	$36.30
Inventory 25 pigs.....	48.00
Total cost to February 1.....	$84.30
12 pigs sold, weighed 1,020 lbs. at 6 cents..	$61.20
13 pigs in pen, weighed 1,040 lbs.....	62.40
Total.....	$123.60
Deduct total cost.....	$84.30
	$39.30
Two stock pigs were fed in same pen, and as the cost of feed was about $1.35 each, we charge them $2.70 for feed, leaves our margin for feeding.....	2.70
	$42.00

They were placed in the pen November 12, so were fed about 80 days. Neighbor Brown, who has been quite an extensive feeder of pigs, tells us that pigs fed as they were should have weighed more at that age, but the scales don't say so. We have a pile of manure that is well worth the bedding used, and we can't count the time much as it took no more trips to the piggery to feed 27 pigs than it would to have fed seven, and we are "out of woods" in much better shape than had we sold them as weanlings.

Whether it will pay to feed the remaining 13 longer is a question to be determined. Four years ago we bought 15 of the same quality of pigs that averaged 100 lbs. in weight for three and one-half (3½) cents per lb., delivered to the pen, and we paid the same price for middlings to feed them, $1.00 per cwt. That is why we say the high price of pork has helped us out. Perhaps some one else could have done better, but these figures are facts and we are satisfied, but don't care to make pig feeding a specialty.

New York. FRANK SHELDON.

The Cost of Ignorance.

At a recent meeting of the Ohio State Farmers' Institute, Mr. L. P. Bailey, of Tacoma, gave an address on "The Condition and Needs of the Dairy Industry in Ohio." Mr. Bailey did not mince matters any. He said that in 1850 Ohio stood second in rank as a dairy state; now it has sunk to the sixth rank. He claimed that the Ohio farmer had stood still; had not cared to give himself the education and knowledge that the farmers of Wisconsin, Iowa and Illinois were reaching out for, and he gave this pat illustration of the tremendous cost of such contented ignorance.

There are some ten renovated butter factories in Ohio that pay the farmers 8 to 10c per lb. for their butter (?) and try to made it fit to use on the old landlady's principle, "If you'd seen what I took out o' that butter you'd call it pretty clean!" The margin between the 10c per pound paid for this low grade stuff and the 23½c per lb., the average Elgin price for 1902, was the vast premium paid by farmers for ignorance and carelessness, a total of some $325,000 for Ohio alone last year.

That was a good illustration, for the butter the renovated factory buys, is the butter of costly, wasteful ignorance every time. Such farmers would groan in spirit at the idea of paying a dollar a year for a paper like HOARD'S DAIRYMAN, that would show them a better way, but they will willingly lose fifty dollars a year on the butter of ignorance, and feel perfectly contented.

The Maule Seed Book

for 1903 is free to all interested in gardening who mention this paper. If you want an up-to-date garden you ought to have it, the best seed catalogue I have ever published. The first edition alone costs over $37,000. Address

WM. HENRY MAULE,
1711 Filbert Street,
PHILADELPHIA, PA.

BURPEE'S Largest Mail-Order Seed House in the World. In buying BURPEE'S SEEDS, direct by mail you get your money's worth in the **Best Seeds that Grow**—and you have your choice of **Rare Novelties for 1903,** which cannot be had elsewhere. **Write to-day** (a postal card will do) for our **complete catalogue**—**FREE to all** who intend to purchase seeds.

W. ATLEE BURPEE & CO., Philadelphia.

MAYFIELD NURSERIES
MOST NORTHERN IN AMERICA
FRUIT TREES, SMALL FRUITS, SHRUBS, ROSES & ORNAMENTAL STOCK.
WE GROW AND SUPPLY THE GROWERS OF THE WEST AND NORTHWEST WITH HARDY IRON CLAD ACCLIMATED VARIETIES.
ORDER DIRECT FROM THE NURSERY AND PROCURE THE BEST STOCK.
ILLUSTRATED CATALOGUE FREE. MAYFIELD NURSERIES, ST. PAUL, MINN.

THE END

of this ear indicates a perfect type of thoroughbred corn. **The end of the harvest** will demonstrate the fact that our improved varieties of Seed Corn will yield 20% to 50% more than the older kinds. It costs

Only 25 Cents Per Acre

to plant our choice, tested seed corn. You can't afford to risk doubtful stock or inferior varieties. Large illustrated catalog of 23 varieties of pedigreed Seed Corn and also Seed Wheat, Oats, Potatoes, etc. mailed free if you mention this paper. We are the largest seed corn dealers in U. S.

IOWA SEED CO., Des Moines, Iowa.

AN EXTRA COW



can be kept without additional expense if you plant our

Eureka Ensilage Corn

Most nutritious and most to the acre, a 64 ton record. We control all seed. Large new catalog of forage crops, seeds, farm and garden implements, etc., free. Write for it.

ROSS BROTHERS, Worcester, Mass.

Mention this Paper.



EVERGREENS

Hardy sorts, Nursery grown, for windbreaks, ornament and hedges. Prepaid, $1 to $10 per 100—50 Great Bargains to select from. Write at once for free Catalogue and Bargain Sheet. Local Agents wanted.

D. Hill, Evergreen Specialist, Dundee, Ill.

GOOD SEEDS CHEAP.

Best in the World.

None so low in price. Largest illustrated seed catalogue ever printed, FREE. Engraving of every variety. Price only 1 cent per pkg, and up. A lot of extra packages, rare sorts, presented FREE with every order. Send name and address by card or letter.

R. H. SHUMWAY, Rockford, Illinois.

TURKESTAN ALFALFA,

the wonderful forage crop which we introduced generally last year has easily surpassed all expectations of it. Trial has demonstrated these points of superiority over ordinary alfalfa: **it is hardier, stands drouth and freezing better, sprouts and starts quicker, grows faster and makes greater yield, gives better results in alkali soils and produces five crops a year.** Being the first to handle it we are **headquarters for the best imported seed.** Try it this season without fail. New, large, illustrated catalogue—**a thousand things for farms and gardens, mailed free.** Write for it at once.

CURRIE BROS. Seedsmen, Dept. M MILWAUKEE, WIS.,



Strawberry Plants and Seed Potatoes.

How to Grow Biggest Crops. Finest Fruit.

DESCRIPTIVE CATALOGUE FREE. Send for it. Bargains in New Varieties.

FLANSBURGH & PEIRSON, Leslie, Mich.

SALZER'S SEEDS



Beardless Barley is prodigally prolific, yielding for Mr. J. E. Wells, Orleans County, New York, 109 bushels per acre. Does well everywhere. **That Pays.**

20th Century Oats. The oat marvel, producing from 200 to 300 bus. per acre. **Salzer's** Oats are warranted to produce great yields. The U. S. Ag. Dept. calls Salzer's Seed Oats the very best. **That Pays.**

Three Eared Corn. 200 to 250 bus. per acre, is extremely profitable at present prices of corn. **Salzer's** New Golden Gate Corn yields 300 bushels per acre.

Macaroni Wheat. Greatest wheat on earth for arid, dry, hot soils—yields 63 bus. per acre. Introduced by U. S. Dept. of Agriculture. It's a wonder! **That pays.**

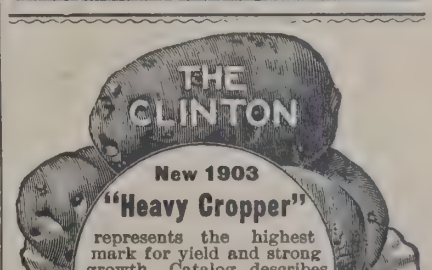
Speltz. Greatest cereal food on earth—80 bus. grain and 4 tons magnificent hay per acre. **That pays.**

Victoria Rape makes it possible to grow hogs, sheep and cattle at a cost of but 1c. a lb. Marvelously prolific, does well everywhere. **That pays.**

Bromus Inermis this and Billion Dollar Grass are the two most wonderful grasses of the century. Produce 6 tons of hay and lots and lots of pasturage besides per acre. Grows wherever soil is found. **That pays.**

$10.00 for 10c. We wish you to try our great farm seeds, hence offer to send 10 farm seed samples, containing Macaroni Wheat Teosinte, Rape, Giant Clover, Speltz, etc., (fully worth $10.00 to get a start) together with our great catalog, for 10c. postage.

John A. Salzer Seed Co. LA CROSSE WIS.



New 1903

"Heavy Cropper"

represents the highest mark for yield and strong growth. Catalog describes it. Also tells of

All Leading Varieties of Potatoes,

Field Seeds and Garden Seeds. Low Prices. Large Stock. Send postal for catalogue.

L. L. OLDS, Drawer J, Clinton, Wis.

Garden, Field and Flower Seeds

CLOVER AND TIMOTHY,
BEARDLESS SPRING BARLEY

We are recleaners of all kinds of Field Seeds and do not mix Medium and Mammoth Red Clover. Write for Field Seed Price List, also 1903 Seed Catalogue, mailed free.

THE HENRY PHILLIPS SEED & IMPLEMENT CO.
115-117 St. Clair St., Toledo, Ohio.



This Is to Tell Those Who Read It Why

Windmill Prices Must Go Up

Twenty years ago a 12-ft. wheel cost $160.00, and but few bought them. It was a prohibitive price which the invention of the steel wheel has made forever impossible.

When the Aermotor Company came into the field with the first 8-ft. steel wheel, which did the same work for $40.00, it "took the country." Later the price was reduced (without competition) to $25.00 and the downfall of the Aermotor Company and the ruin of the windmill business was freely predicted. But the result proved otherwise. The price at that time was enough. Iron and steel were low, labor was plentiful and cheap, and the man at the helm of the company foresaw that, for a few years at least, the cost of production would be less than it ever had been or would probably ever be again. It was his opportunity and he grasped it.

The Aermotor went everywhere. Where one went others followed rapidly, and the business soon reached immense proportions. By foreseeing the advance that came with prosperous times, and purchasing large quantities of material before prices advanced, the company has been able to continue the same abnormally low prices for three years in the face of a market that has doubled the cost of material and added a large percentage to the cost of labor. It did this in the hope that iron and steel would come down, but they have not and there is no prospect that they will. On the other hand, the cost of material and labor is constantly increasing. How far this may go no one can predict. To meet present conditions, a small advance in prices has become necessary. This advance does not nearly represent the increased cost of production, and it is quite probable that increasing cost of material may make further advances necessary.

THIS IS THE TIME TO BUY

If you expect to need a windmill this year, now is the time to buy. Prices may soon go higher. They certainly will not be lower. Money put into a windmill now will be well invested. Many dealers bought a stock of Aermotors before the recent small advance and will be able to sell now for lower prices than later. If you buy now you will be sure to have your windmill up and ready when you need it. Windmill men are not so busy now as they will be later. You may be disappointed if you put the matter off. You will not miss it if you buy now.

IT IS IMPORTANT THAT YOU BUY RIGHT

Buying a windmill is an important matter. You will have to live with it a good many years. It will either lessen your burdens or add to them. Water is needed every day of the year. The Aermotor was made to pump it for you. It has never failed to carry out the purpose of its creator. The first Aermotor distinguished itself by running when all other mills stood still. Each one of the succeeding hundreds of thousands of Aermotors has done the same. The reason for this is simple enough. The Aermotor was the result of design, not accident. It was made for a purpose, and that purpose was well understood in the beginning. Every requirement was carefully determined in advance. Every strain was accurately estimated. Every pound of material was arranged to the best advantage. Simplicity was added to strength. Each object to be accomplished was aimed at directly. There were no unnecessary parts, no wasted material, no stupid devices.

An Aermotor once properly erected, requires no adjusting or tinkering. This is the result, not only of perfect design, but of proper construction. The best material for each part has been carefully determined, and only the best is used. Much of the material in the Aermotors is specially made for that particular purpose. The very stiff sheet steel used in the sails is made only for the Aermotor Company. Even the Babbitt metal used in the bearings is specially made to meet the peculiar requirements for a windmill.

THE AERMOTOR COMPANY KNOWS WHAT IS BEST IN A WINDMILL

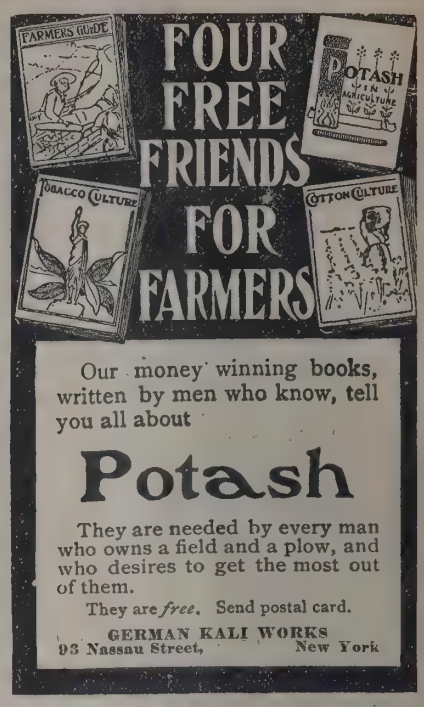
It is not a difficult matter to make a windmill. They have been made for centuries. It is, however, a difficult matter to make the best that can be made. To do that requires peculiar skill and ingenuity. The Aermotor Company, alone, has shown remarkable originality or genius in the business, It has had more experience than all others combined in making steel windmills. Isn't it fair to conclude that it knows what is best in a windmill? The best costs no more than an inferior imitation. If you buy anything less than the best you do not get the most for your money.

But the best may be a dismal failure if poorly erected. The erector must know how to plan the job, get the parts together properly, and detect the least thing wrong with its working. Aermotor dealers know how. They are selected for that reason. Most of them have been handling the Aermotor from the beginning. They are men of trained judgment and mechanical ability. To get the best out of the best mill, one of them should erect it for you.

WRITE FOR OUR WINDMILL BOOK

We have a book that tells all about windmills. It begins with the Dutch wind mills of 1400 and ends with the Aermotor of 1903. It contains 125 pictures to show you what windmills should do and what they should be. It tells all that invention has done for them. When you read this book you will know all that anyone knows about windmills. You will know the right kind from the wrong kind and know all the differences. To avoid a mistake don't buy without reading it. The book is free. Simply write for it.

AERMOTOR CO., 1225 12th St., Chicago



FOUR FREE FRIENDS FOR FARMERS

Our money winning books, written by men who know, tell you all about

Potash

They are needed by every man who owns a field and a plow, and who desires to get the most out of them.

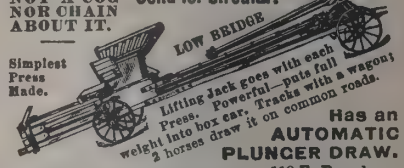
They are *free*. Send postal card.

GERMAN KALI WORKS
93 Nassau Street, New York

DOUBLE CAM BRADLEY STEEL HAY PRESS

One horse can operate it. Very easy for two. Send for circular.

NOT A COG NOR CHAIN ABOUT IT.



Simplest Press Made.

Lifting Jack goes with each Press. Powerful—puts full weight into box car. Tracks with a wagon; 2 horses draw it on common roads.

Has an AUTOMATIC PLUNGER DRAW.

DAVID BRADLEY MFG. CO., 110 E. Broadway BRADLEY, ILL.

AN ACRE OF CORN

and its possibilities under the Silage system—being the theme of

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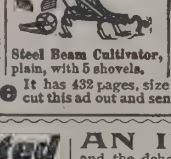
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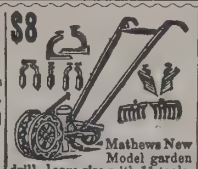
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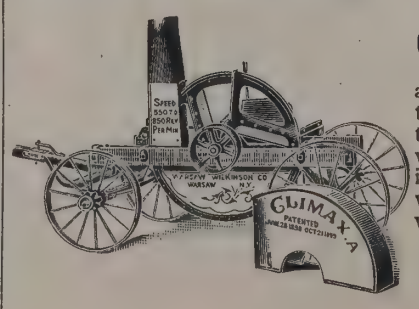
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VOLUME XXXIV. FORT ATKINSON, WIS., MARCH 13, 1903. NUMBER 5

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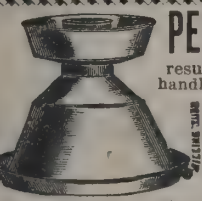


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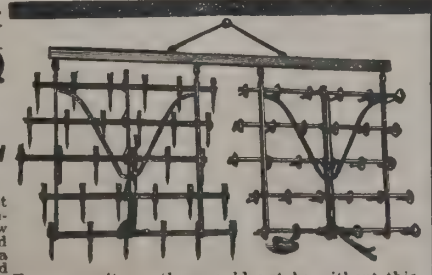
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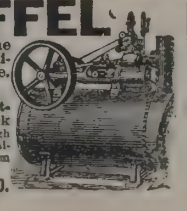


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THE special train-load of **Sharples Tubular Cream Separators** shipped to western customers on February 7th, 1903, was only a starter for the month, as the total sale of the **Tubulars** for February was greater than the sale of all other separators combined for the same period. **The only train-load and the largest shipment of Cream Separators ever made, together with the overwhelming supremacy of sales during February attest the efficiency and popularity of the Tubular machines.**

The rush is on and the dairymen as well as the dealers should get their orders in before the grass begins to grow and everybody wants separators all at once.

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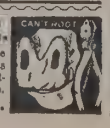
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FARMER BRIGHTON, FAIRFIELD, IOWA.

A Washington Herd Report.

ED. HOARD'S DAIRYMAN:—We send you our yearly report of the Elmwood Herd of A. J. C. C. Jerseys as shown by our monthly creamery statements, beginning Sept. 1st 1901, and ending Aug. 31st 1902. Pounds of milk, 82,574; pounds of butter, 5,132; cash earned $1,155.89; number of cows 13, six of which were heifers with first calves; average per cow, pounds milk 6,352; pounds butter, 394.7; cash earned, $88.91. The leading two-year-old heifer, Golden Glow 2d 148165, by Golden Grand 53658, out of Golden Glow 129238, imported, was 2 years old Sept. 18th 1901. Freshened Sept. 6th, began saving her milk Sept 10th, from which date to June 25, 1902, she gave 6,067 lbs. 3 oz. milk; her milk tested 6 per cent fat in Sept., was not tested again until May 14 and 15, 1902. A sample of four milkings was taken in which she gave 41 lbs. 7 oz. milk, duplicate tests of which showed 7.3 per cent fat. During the month of May she gave 638 lbs. 7 oz. milk. Again on June 13 and 14 a sample of four milkings were taken in which she gave 36 lbs. 6 oz. milk, duplicate tests of which were made showing 7.4 per cent fat. For the 20 days in June she gave 342 lbs. milk and on July 25, she produced a fine calf at full time; she is a typical Golden Lad heifer, inbred to him. Now that you may see that we are getting good value for our skim milk which is fed to hogs, part to calves and chickens and perhaps the chickens pay as much per 100 lbs. for it as either the hogs or calves. Dec. 10, 1901, we sold seven, 10-months-old pigs that weighed 2400 pounds, average 343lbs. at 5½ cents per pound, $132; butchered four pigs, 1000 lbs. at 5½ cents equals $55; sold one at $12, total $199.

Again on Sept. 10, 1902, we sold fifteen 9-months old pigs, weight, 4,028 lbs. at 6¼ cents equals $251.75; butchered 4 pigs 1100 lbs. at 6¼ cents equals $68.75, total $320.75; for this last lot of 19 pigs we fed $133.22 worth of shorts, the balance was made on skim milk and clover. We keep two brood sows and one boar and raise the pigs. We raised twelve calves, two of which we took from a neighbor who was going to knock them in the head, and raised them; made veal of them; sold one for $16 which weighed 200 lbs. at 8 cents; other one for $19 95 which weighed 249 lbs. at 8 cents; pretty good for grade Jersey skim milk calves. At present we have 12 pigs that weigh 200 each, feeding them ground wheat, clover hay and skim milk. We raise two litters of pigs a year.

You can see we have learned quite a few things in reading HOARD'S DAIRYMAN for the past 10 years. Among the things learned was if I expected to get profit in dairying I must keep dairy cows and utilize the skim milk and not board an unprofitable cow and not to expect profit from a general-purpose cow renamed "Dual-purpose." I tried to breed a dual-purpose cow; she was my old time ideal. I bred to the so-called milking strain Short-horn bulls until I had 15-16 Short-horn blood, and the more Short-horn blood I got the better beef cows I produced, but it was at the expense of dairy products

Washington. A. M. STEVENS.

Important Notice to Farmers Concerning Oat Smut.

All Wisconsin farmers have without doubt noticed smutted heads of oats in their fields from time to time, but probably few of them realized the enormous loss due to this fungus pest. The Experiment Station at Madison has been carefully investigating the subject for several years past and last season it studied smut in oat fields in a large number of counties in the state. From these studies it estimates that the loss to the oat crop for the whole state amounts to 17 per cent,—that is, our farmers might have had 17 bushels more of oats for every hundred that they actually secured. The Station estimates that the total loss due to oat smut last season was at least five million dollars. It was found during these visits to farms that many oat raisers thought they had little or no smut in their crop, yet when it was carefully examined losses were found ranging from five to thirty-five per cent. A perfect remedy for oat smut is announced by the Experiment Station, which tells us that the chemical used costs but one cent for each bushel of seed oats treated. Our farmer readers wishing to know in full of the treatment for oat smut, should send a postal card to Agricultural Experiment Station, Madison, Wis., asking for a copy of Bulletin 98, which gives full directions for treating seed oats to prevent smut.



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Remit by draft on Chicago or New York, or Post Office orExpress Order (never by personal check), addressing Hoard's Dairyman, Fort Atkinson, Wis.

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Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

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Entered at Fort Atkinson, Wisconsin, as second-class matter.

Building a Silo.

Ed. Hoard's Dairyman—Will you permit me to answer the following letter through the Dairyman?

Having read your article in Hoard's Dairyman on the round silo, I thought would like to have a few more particulars if you would be kind enough to give them to me. I want to put up a silo for next winter, as I find I cannot grow sufficient roots to keep up the flow of milk through the winter. Have any amount of hemlock on the farm, so am getting some logs cut 20 feet long. To make a silo the same size as yours, I should require 16 pieces 2x6 and three pieces 6x6; is that right? How deep have you got your foundation? Would brick do as well as stone? In making holes for the iron bands to go through the 6x6, do you make holes in the center of the extra four inches you have to spare, or make them so that the iron band will come close to the staves? Also, how do you get the iron bands shaped to fit tight against the staves? To complete the band right round the silo after you have the first half on, what distance do you allow in the post at the back for the second half to start from? About how many acres of corn did it take to fill yours last year? Is is necessary to have the staves planed on all sides or do you think it possible to use them just as they are sawed? Should they be cut any length of time to dry before putting up, or put up when sawed? A. E. G.

Rockville, N. B.

I will gladly answer Mr. G——'s questions as far as I am able. In the first place, will say that he will find no better timber than his hemlock, if it is sound. The circumference of my silo is 40.84 feet, taking out the space occupied by the door, door posts and middle post, five feet, and we have 35.84 ft. to be filled by the staves. As these staves are but six inches wide, it will require seventy-one of them, or if he desires to make the silo a trifle larger, seventy-two; this together with the three posts and the two pieces of 4x6, framed between the doors, will constitute all the lumber required, which will be practically, 1525.60 feet, and to this we may add about fifty feet, for the double boarding for the doors.

In my previous article I should have said that these door posts have grooves cut in the inside corners, two inches each way, in which the boards making the door ean be placed, and brought just flush with inside of silo. My foundation is eight inches deep.

If I did not have the stone, I would prefer cement rather than brick, and cement can be made into a grout by mixing with small, or broken stone quite cheaply. It need not be laid more than four inches deep if placed upon a good, solid, smooth foundation, that will not be acted upon by frost. It will be impervious to water, while brick being quite porous, is not so.

In making holes for the hoops through the posts, care is taken to have the inside of the holes just two inches from inside edge of posts so that the hoops will come close to the staves. They are bored a little angling, coming, on side of posts where nuts are to be applied, at about the middle, or three inches from each edge. These holes were bored in the posts before they were placed in position. Using one-half inch iron for the hoops, we found no difficulty in shaping them to the silo. Mr. G. may have them shaped in the tire roller at his blacksmith shop, if he desires to do so.

If seventy-two staves are used, one post at the back of silo will be exactly in the middle of the circumference, making the hoops of equal length on both sides. They should be cut so that they may be 19, 18 feet in the clear, or between washers, when the nuts are turned down.

Our staves are not planed, or beveled at the edges, with the exception of the two standing next the door posts, which are beveled to fit fairly against the posts. I see no advantage in planing, or beveling the edges of staves, except to improve the looks of the silo. Ours keeps the silage perfectly and stands well through the summer.

There is no particular need of letting the lumber dry any length of time before putting it up, still if the staves are dried out some, they will handle easier. If the lumber is quite dry, it will only be necessary to bring the hoops sufficiently tight to get a good tension; if it is green, they should be turned up as tight as can be done with safety. If lumber is allowed to dry, care should be taken to stick it up perfectly true, and weight it so that it will not warp or twist.

Another essential feature of our silo was omitted from my former article. After everything is completed, a rim of cement about 4 inches high was laid against the bottom of staves on the inside, and allowed to extend out about 6 inches on the bottom, and this makes the bottom somewhat kettle shaped and insures an air tight joint between the foundation and the ends of staves and posts. Our silo was filled with the stover of sweet corn after the ears had been removed for fodder. It will hold fifty tons of silage, and we have filled it from five acres of this stover. We have grown Sanford corn for our square silo, securing the same amount from about three and one-half acres, using the entire plant for silage. B. Walker McKeen.

Maine.

Schwertfeger is "Mad" and Threatens.

Mister Hoard, Eshquire:—Wat you mean anyway py sending me two of your babers—und one of dem marked mit a plue bencil? Oh ho! you want to insult me— you do? Wat for you make a ring around und a tick line under dem words wat Mr. Howard wrote way from New York on bage 65, "We respectfully request 'Double U Dee' not to bother his head *with the man who don't want to learn*," und den send *it to me*? Do you want to make belief dat Mr. Howard he mean *me*, heh?

Mr. Howard he didn't mean me a tall; because I was shure he is a shmart man; und one shmart man he always can dell anodder mitout seeing him!

But you are so mad dat my letter got in de baber wen you was gone away sout, und dat odders now don't pelief no more dat you got de best kows—you chust don't know wat to do mit yourself! Und you pean chust watching for a chantce to git efen mit me efer since—yessir, dat's wat you are!

Und anodder ting I want to say to you—you got to discharge dat man wat sets up de dipe! He shpoiled my shpelling de last time und I was awfully ashamed wen I seen it, because some of dem readers might not know how it was und tink I can't write no petter! You discharge him und hire some one else. Oh, say, *I got a poy*—he's a shmart one, chust like his pa—may be you gif him a drial? He ain't none of "dem wat don't want to learn." He does all de correcting of my shpelling—watefer little may pe needed—und my frients say it's gitting petter all de time. Don't you tink so doo? Hain't my shpelling petter dan in my last letter? Yessir I tink so. He's going to the high-school now, but he can shtop any time you want him—he knows a good deal now already.

But now I said so much—I'm going to say some more, because may be after all some of de beoples might tink I don't know so much as you. May pe dey tink I got only dat one cow—say wat for call her a "Cherman Kow," anyway! I didn't say she was a Cherman cow—und she ain't! I got her from an Irishman und he got her from a blue—I mean true blue—Yankee. Und I found out she's got a fine bedigree. Her mudder's mudder, only, was a parnyard cow, but my cow's fourfodders was all numbered stock. (My poy says dat ain't de right word for it, I should say register; may pe he's right but I dasn't gife him right efery time, or he'll tink he knows it all.) Yessir she is a fine cow—as goot und I tink petter dan any wat you got! Und I got four more wat is nearly as good—wat you tink of dat, eh?

Und you ought to pe ashamed of yourself anyway—trying to make odder beople pelief I am one of dem kind wat don't wan't to learn! You know it chust as well as I dat wen I puilt my new parn last summer, and silo, I made it chust exactly like your own—only different und a good deal petter. I got more windows und more light in it as you got, und as my wife lets in her barler—because she's afraid de carpets will tan—und I got more fentilators all ofer in de walls and on de top; und witewash all ofer:—Shaw, wat you talking apout anyway! It only makes me mad when I tink of it, because you know it well enough I'm one of dem egressive farmers (dare goes dat poy again—he says dat is de wrong word—und I don't care, you know wat I mean, und if it hurts your feelings I'm glad of it!) You're only chellous, dat's wat is!

But you petter not fool mit *me*! Because if you make me any worser mad I'll chust bublish de record wat my cows got at de creamery last year, und it'll knock yours in a cocked hat!

August Friederich Wilhelm Schwertfeger.

Jefferson, Wis.,

Conditions in Cattaraugus County, New York.

Ed. Hoard's Dairyman:—Enclosed find my renewal for Dairyman, as we find so much matter of great importance to cow keepers in it. I cannot see why dairymen don't everyone of them have it. Every number is worth the price of subscription to us; would that I could have sent along some new subscribers, but when I ask a farmer if he takes Hoard's Dairyman he looks at me with a blank stare. Upon being pressed for reasons answers: "times are pretty good, don't think I need any advice about running my dairy; seem to get along as well as any one in the dairy business."

Now as to the dairy business in this section. There are about 12.000 cows within a radius of 10 miles of Ellicottville,



JERSEY BULL, IDA'S RIOTER OF ST. LAMBERT, JR., A. J. C. C., 39616.
Property of J. W. Helme, Adrian, Mich. (See article on page 108).

nearly all of them patronizing cheese factories, owned mostly by combination; factories open about April 1st and close in November. The milk is all paid for by the pool system. Everyone gets the same, good or bad. As near as I can learn the milk does not bring only about $30 per cow on an average. Hay always commands a good price and grain has nearly all to be bought and has been very high these past few years. Seems as though the cost of keep was more than the income, yet the dairymen seem to be pretty well contented as they are—they don't attend the Farmers Institutes even. As for us we have learned from Hoard's Dairyman that other ways are better, that feed and care amount to much, that a balanced ration is very necessary for good returns and profit.

Now up bobs Prof. Haecker and John Gould saying that so much protein is not needful. Why, I heard John Gould say at an Institute in Ellicottville that cows did not want any corn meal, only give them bran; (question, what if they get thin? give more bran); and now his winter ration of grain is corn, oats and middlings. So where are we at? C. E. C.

Ellicottville, N. Y.

It is always in order to inquire where we are at, but in this particular matter it should not be forgoten that scientific feeding is a matter of very recent growth, and it is not wise to tie ourselves too firmly to any rule or theory. Messrs. Gould and Haecker and others like them, recognizing that the price of protein has advanced 100 per cent and more in recent years, have been experimenting to ascertain whether it is indispensable to feed as much protein as was recommended a few

years ago. HOARD'S DAIRYMAN has been urging them to do this in the interests of the dairymen of the land. It has figured out to its own satisfaction that a very considerable proportion of the protein as heretofore fed is unaccounted for, with the probabilities that it has been used by the animals for purposes where the much cheaper carbohydrates would have answered the same end. The gentlemen who have been making these experiments do not pretend that the problem has been solved in all its relations, but they do say that for the present purposes of milk making, less protein is required than has heretofore been deemed necessary. What the effect of feeding this small amount of protein may be upon the future usefulness of the cow, or the dairy possibilities of her progeny is still an open question, and they are experimenting along these lines.

Removal of Holstein Herd.

ED. HOARD'S DAIRYMAN:—It is the intention of Mr. McGeoch to move the McGeoch herd of Holstein-Friesian cattle from Lake Mills to one of the farms near this city. He is forced to this conclusion from the fact that other business cares, make it impossible for him to visit the herd in its present location, except at long intervals.

As neither the farm here, nor the buildings are large enough to care for the present large herd, he has concluded to hold a public sale here in Milwaukee on May 6th, at which time we will sell some seventy head of the very best cattle in the herd.

While it is with much regret that he is forced to reduce the herd, he believes the breeders will appreciate the fact, that never before has the same high class of cattle been placed upon the block.

Among the number to be sold will be the two great service bulls, Gem Pietertje Hengerveld Paul DeKol, who, in addition to his rich breeding and great individual merit, has already proven himself a sire of the first rank, one of his daughters, Duchess Ormsby 2d's Hengerveld DeKol, holding the World's record for age, and the others are high up in the list; and DeKol 2d's Paul DeKol No. 2, who is probably the best bred Holstein Friesian bull living, as he is a full brother to the great young cow, May Hartog Pauline DeKol, who has just broken the World's record by making 29 lbs., 4.3 oz. in seven, and 112.05 lbs. in thirty days, under official test, at the age of four and a half years.

He is also half brother to the great cow, Lillith Pauline DeKol, who broke the record two years ago by making 28 lbs., 3.8 oz., at four years of age. In addition to this, he has some ten daughters who have qualified for advanced registry by making high official records, so has proven his prepotency as a sire.

A limited number of young bulls, all from most approved sires and from officially tested cows, will be offered at the sale. Believing that breeders will gladly accept the opportunity to buy the best class of cows, we have concluded to place in the sale, the best in the herd, including the great heifer, Duchess Ormsby 2d's Hengerveld DeKol, who holds the World's record for age, having made 19.02 lbs. of butter in seven days, at the age of 2 years, 1 month and 29 days, the average per cent of fat for the week being 4.36.

This heifer is no freak, as her dam has record of 21.31 lbs., average fat 4.16, and her granddam record of 24.80 lbs., average fat, 5.44. Dame Marjory DeKol a half sister of the above heifer, will also be included, she having record at 2 years, 4 months and 24 days of 16.19 lbs. butter in seven, and 65.08 lbs. in thirty days.

Liscombe Aaggie 3d at 3 years, 11 months and 26 days, has a record of 21.58 lbs. in seven, and 86.69 lbs. in thirty days This last is largest record ever made by a three-year-old cow in thirty days.

Piebe Queen 2d's Princsss at 4 years, 9 months, has record of 22.18 lbs. in seven days.

Wit Duchess at 5 years, 5 months, and 5 days has record of 24.88 lbs. in seven days.

In addition to the above lot of cows, we will sell all the cows with large records, that we have in the herd. By doing this we hope to make it the most attractive sale of Holstein-Friesian cattle that has been held, since the system of official testing has been established, and trust that all breeders and dairymen who are looking for most desirable sort of Holstein cows of proven ability, will make it a point to be in attendance.

Milwaukee, Wis. H. B. DAGGETT, Mgr.

Sorghum for Milk.

ED. HOARD'S DAIRYMAN:—Is sorghum a milk producer? Will it make good feed in the fall when pasture is short? How is the best way to sow it, in rows or with a grain drill, the same as oats? How much seed is required to sow one acre?

Bryan, Ohio. H. J. N

Sorghum corresponds very closely in feeding value to corn stover and consequently has about the same value as a milk producer. The following summary from a bulletin of the Nebraska Experiment Station, gives the most important characteristics of sorghum as a forage plant:

Chemical examinations show that the feeding value of sorghum is greatest when the plant is young.

When 2 feet high it contains three times as much nitrogenous matter, twice as much fats, and only two-thirds as much fiber or woody material as it does when it has attained its growth and formed seeds.

Young sorghum is an almost perfect stock food, since it contains flesh-forming materials and fat-forming materials in the ratio of 1 to 7.

When nearly mature this ratio is 1 to 23, the fat-forming materials being very excessive. Therefore the crop should be used for pasturage before the seeds form.

It would be profitable to begin to pasture the sorghum when it is not more than 2 feet high, since the stalks first eaten off will usually produce a second growth of young cane, which will balance the increasing fat-forming properties of the other crop.

Young sorghum is a very succulent food. It contains about 85 per cent of water, or only 15 per cent of dry matter.

Over 150 pounds per day of the green fodder would be required to furnish sufficient food for growing cattle or milch cows of 1,000 pounds weight.

The best results are obtained by using some dry feed along with sorghum pasturage.

As compared with forage plants which are available for late summer pasturage, young sorghum is somewhat deficient in flesh-forming material, containing less than blue-grass or Brome grass, about the same as timothy, and a little more than Indian corn.

Sorghum should be cut for fodder at as early a stage as it can be well cured.

Analyses show that after the period of flowering the sorghum stalk rapidly becomes more fibrous or woody and the proportion of the more valuable food principles is correspondingly decreased.

Sorghum fodder does not possess any great feeding value.

Even if cut while heading out it will have a somewhat smaller amount of flesh-forming material than most hay crops, and less than corn fodder, but more than straw of the small grains.

The fondness live stock have for this fodder is doubtless due to the sugars which it contains.

Its relatively high percentage of heat and energy-producing materials makes it especially adaptable for cold-weather feeding.

For seeding, a good seed bed should be prepared, and if for feed, 10 to 12 pounds of seed per acre should be put in with a wheat drill and the soil planked or rolled afterwards.

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Charcoal effectually clears and improves the complexion, it whitens the teeth and further acts as a natural and eminently safe cathartic.

It absorbs the injurious gases which collect in the stomach and bowels; it disinfects the mouth and throat from the poison of catarrh.

All druggists sell charcoal in one form or another, but probably the best charcoal and the most for the money is in Stuart's Absorbent Lozenges; they are composed of the finest powdered willow charcoal, and other harmless antiseptics in tablet form, or rather in the form of large, pleasant tasting lozenges, the charcoal being mixed with honey.

The daily use of these lozenges will soon tell in a much improved condition of the general health, better complexion, sweeter breath and purer blood, and the beauty of it is, that no possible harm can result from their continued use, but on the contrary, great benefit.

A Buffalo physician in speaking of the benefits of charcoal, says: "I advise Stuart's Absorbent Lozenges to all patients suffering from gas in stomach and bowels, and to clear the complexion and purify the breath, mouth and throat; I also believe the liver is greatly benefitted by the daily use of them; they cost but twenty-five cents a box at drug stores, and although in some sense a patent preparation, yet I believe I get more and better charcoal in Stuart's Absorbent Lozenges than in any of the ordinary charcoal tablets."

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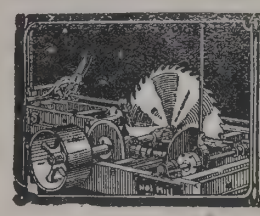
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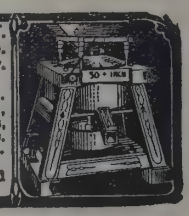
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Old Time Dairying in New England.

ED. HOARD'S DAIRYMAN:—Yours of the 12th inst is at hand and contents noted. I will say that it is no fault of your paper that I dropped my subscription. I am 73 years old and wife is almost 75. We had to give up farming on account of old age. I moved from New Hampshire to Minnesota in 1856, and just as soon as we got in shape to make butter, we were able to get the best price in the market where we were located.

I came here 25 years ago and went into wheat raising, and we made some money at first, but in 1883 we had an early frost that caught most of the wheat so immature that it was not fit for market, and the consequence was, that it put me in "a hole" as the saying was. We were milking 4 or 5 cows and taking our butter to our groceryman for which he was paying us 25 cents per lb.

We found that we had sold about $200 worth when we came to settle our bills. This turned me into a dairyman, and I followed it up until last March when I quit. I have often said that it was my dairy that kept me from a failure.

For the last 15 years I have sold to families and got cash and never less than 20 cents per lb. in summer and where I had a good customer, that was the price by the year. I supplied some families for over 15 years. You have been doing a great work and I wish you well.

My father and mother were engaged in dairying when I was a boy, and I had a boy's work to do in helping the work along. I might give you some idea of how our dairy was run so that you could form some idea of an old New England dairy of 60 years ago. We kept from 12 to 20 cows. We had a dairy room for doing the work in, and a room on the north side of the house to set the milk in at some seasons of the year. Then we had a cellar walled up with nice faced stone and a flat stone bottom.

Our milk was set in a brown earthen pan that would hold about two gallons—these pans were made at a pottery about ten miles from where we lived, and were so made that we could not pile them one into another to nest them, if we did it would split the bottom one in two. These pans were set on the bottom of the cellar, which was cold setting "sure."

The milk was skimmed every third milking and the pans brought up and washed and scalded in a brass kettle set in brick. Each pan singly, by taking it in one hand and dipping it into the kettle of boiling water, then they had to be set out to sun through the day. Just think, if you will, of the work to handle about thirty of those pans over every morning and evening as compared with a "Baby Separator."

My mother was very particular to have every thing clean and our butter used to sell for the top prices in market. L. D.

Crookston, Minn.

Swill-fed Pigs Dying.

The Question not Settled.

ED. HOARD'S DAIRYMAN: Some time ago I wrote you about some pigs that I was losing.

You referred the questions to your readers. The result was several answered and all agreed that it was powered soap or salt in large quantities that killed them. Since writing the first I have read a bulletin issued by Cornell University entitled, "Powered Soap as a cause of death among swill-fed hogs." I find the same symptoms they discribe, with possibly a little variation. They would be off feed first; later would turn dark colored around ears; later along belly and back part of hams; some would have fits; would walk wildly about in apparently a dazed condition between the fits; would die in a fit; froth at the mouth when dying; vulva would look as though in heat; head, belly and hams very purple after death.

I opened several, the lungs would be dark colored, spongy and frothy; little or no gall; stomach of some, full of undigested food; large intestines streaked with blood.

As soon as I read bulletin I discontinued feeding swill. Fed bran, middlings and skim milk, but they kept dying just the same. I have one pig left, has been sick about three weeks, but is much better now, have been feeding all the swill she will eat for about a week; she is no worse.

Do not think it is powered soap in swill, as swill was dry, was gathered twice a week. Several of my acquaintances keep hogs, draw swill; they all are troubled with same complaint, more this winter than common.

Is it cholera, or a disease peculiar to swill fed hogs. Is there any thing that can be fed to cure, or prevent cholera?

N. Y. T. B. NICHOLAS.

A New York Letter.

Inquiry as to Malt Sprouts.

ED. HOARD'S DAIRYMAN:—As I write one of our frequent winter visitors, a howling blizzard, is raging outside; wind very high and air so full of snow one can see but a few rods.

It makes us long for a warmer climate and summer skies.

December milk at the shipping station here, netted $1.38 per can of 85 lbs., or about $1.62 per cwt. January price is 10 cents less per can, but have heard of no reduction for February as yet.

Some factories in this section making butter and light skim cheese netted over $1.60 for November milk and nearly or quite $2.00 in December.

Very little corn was raised last season, consequently many silos empty are or only partially filled, while owing to poor weather in haying, hay is poor quality. This creates a demand for mill feeds, even greater than comman among those not fortunate enough to have well filled grain bins of their own raising.

Last year I raised 500 bushels of oats and peas, which ground and fed with distillers grains makes a very satisfactory grain ration, not the least of whose merits is its cheapness compared with buying all grain fed.

Most milk producers here will feed little but gluten feed, no matter how high the price.

Yesterday I bought a small quantity of malt sprouts, with an analysis of 26% crude protein, 1.01% fat, at $15 per ton, being about $4 less than cost to the feed dealer, who can hardly get rid of them at that price, but a great call for gluten at $26 per ton.

Would like the opinion of the Editor as to the value of malt sprouts either through the DAIRYMAN or by correspondence. I would like to hear from any one who knows anything about Southern or Central New Jersey regarding prices of land and products and dairy conditions generally, also climate and if favorable for persons afflicted with catarrh, etc. Please send me sample copies of the DAIRYMAN and I will try to place them where they will do the most good. L. B. W.

Cortland Co., N. Y.

We have found malt sprouts comparatively a very cheap feed and a very satisfactory one. It is sometimes complained that these sprouts are not relished by cows, but we have personally met with no objections of this kind from our herd. However, we would advise feeding only in limited amounts, letting 4 to 5 lbs. be the maximum allowance for a day.

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ASKING QUESTIONS.

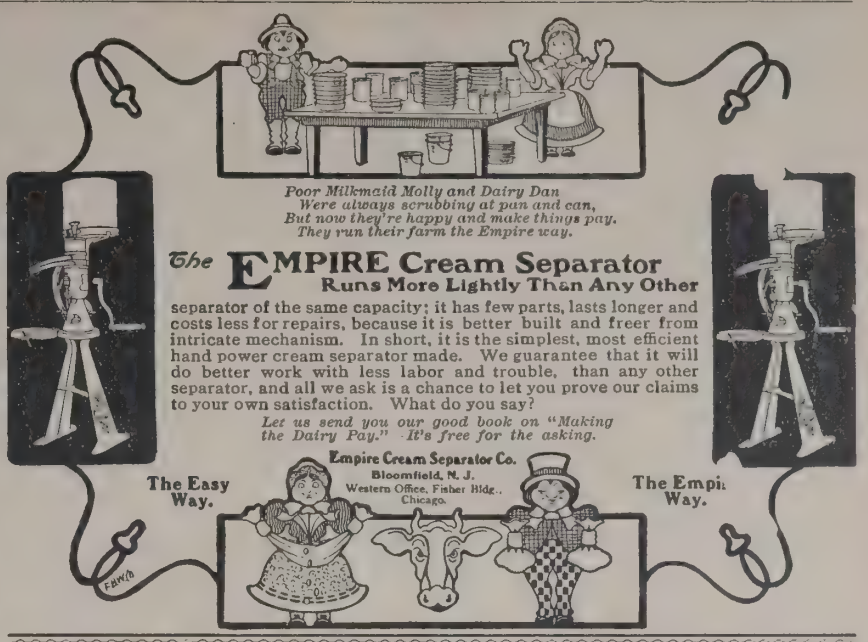
An Inquiry Changed a Man's Whole Life.

When you get a man to recognize that his bad feelings come from improper food and that he can get well by using scientific food, the battle is half won. One of New York's business men says:

"I was troubled for a long time with indigestion, headache, and stomach trouble, and had taken various medicines but with no good results. I concluded to see how a change of food would affect me. I never cared particularly for cereals of any kind, but ate meat and pastry continually and drank coffee.

I found on inquiring, that Grape-Nuts were highly spoken of and decided to give them a trial. To say I was surprised at the result would not begin to do justice to my feelings. My headaches left me; my brain became clearer and active; my attacks of indigestion grew fewer and fewer until they ceased entirely and where I once went home tired, fagged out and indisposed to any exertion whatever, I now found a different state of affairs.

My color was good, my muscles strong and firm and fully equal to anything I asked of them, instead of soft and flabby. I live two miles from my business and walk it daily back and forth, if the weather permits. I am 55 years old and feel as well and strong as when I was 30, and can ride 70 miles a day on a bicycle without feeling any bad results." Name given by Postum Co., Battle Creek, Mich.





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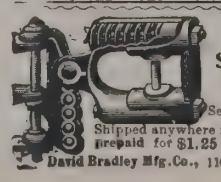


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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of them read dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

We are receiving of late a good many requests for a bundle of copies of HOARD'S DAIRYMAN for distribution. We are very glad to forward copies for distribution, for we need the help of every reader to increase the circulation of the DAIRYMAN. Get up a club of subscribers among your neighbors. If there is going to be a meeting of the creamery or cheese factory patrons, write us for a bundle of sample copies for distribution. If you are going to a farmers' institute, have some copies with you. These meetings afford excellent opportunity to work up a good club. Write us at least a week ahead of the meeting saying how many copies you want and we will promptly forward. Give us your help.

ANOTHER RECORD BREAKING HOLSTEIN COW.

It is reported from New York that Messrs. McAdam and VonHeyne, of the Brothertown Stock Farms at Deansboro, N. Y., have eclipsed the record made by Mercedes Julip's Pietertje in Minnesota, last year. This new candidate for premier honor is Sadie Vale Concordia, a ten year-old cow, bred and always owned in New York, formerly a member of the Yeomans' herd at Walworth in that state. She has had a very distinguished record all through her life, and this last test has been officially supervised by Prof. C. C. Cole, representing the Cornell University Experiment Station.

With that blissful inaccuracy which Holstein breeders still persist in following, Sadie Vale Concordia is credited with having produced milk in seven days sufficient to make 30 pounds, 10.18 ounces of butter, whereas Mercedes in Minnesota, last year, but now owned by Messrs. McAdam and VonHeyne, was credited with 29 pounds, 5.7 ounces. There is no pretense on the part of the better informed Holstein breeders that any such amount of butter could have been made, but because some years ago the Holstein-Friesian Association adopted the practice of adding 25 per cent to the fat in the milk for estimating the yield of butter the same rule continues to be followed. Every well informed person knows that it is utterly impossible to produce standard commercial butter at this rate, even when no allowance is made for the inevitable losses in creaming and churning and it is high time that our Holstein-Friesian friends relieved themselves of the not unjust charge of publishing records founded on such false pretenses.

Neither Sadie Vale nor Mercedes need any misleading statements to establish their claim to the highest honors as butter producing cows, and it is high time that Experiment Stations, which are called in to make these official tests, should be relieved of the implied endorsement connected with the publication of these records. All that the station representatives do is to certify to the amount of milk and the amount of fat contained in the milk, but the records as published seem to imply that the station representatives guarantee the published report as to the equivalent butter. This is bringing the stations into a responsibility that does not belong to them and we suggest that they adopt some measures to relieve themselves from the same.

From the figures given, HOARD'S DAIRYMAN estimates that Sadie Vale Concordia yielded in seven days, 694.3 pounds of milk, containing 24.5 pounds of fat, and that had this milk been creamed and the cream churned, it would have been quite possible to have made 28 pounds, 9.6 ounces of standard commercial butter, and not any more than this. And this undoubtedly is the largest record, supervised by Experiment Station representatives, ever made by any cow at any time.

HOARD'S DAIRYMAN, therefore, extends its most sincere congratulations to Messrs. McAdam and VonHeyne in being the fortunate owners of two such cows as Sadie Vale Concordia and Mercedes Julip's Pietertje.

PRINCIPLES OF ANIMAL NUTRITION.

Under the above title Dr. Armsby has brought together the results accumulated during the past two decades, on the theory and practice of animal nutrition, and the result is a book of some 600 pages, discussing at length the fundamental principles underlying the processes of digestion and assimilation.

As the author states in his preface, the book is not a treatise on stock feeding, and its use will be strictly confined to agricultural chemists, and those who are advanced students in feeding animals.

The nutrition of animals is probably the most difficult subject which enters into the domain of chemistry, on account of the many unknown factors which enter into it, and especially so because of the unweighable factor which we call life, and which enters as an essential part into all investigations which the chemist undertakes. As each animal is a law unto itself in this respect, hard and fast deductions cannot be made from one or several experiments, and it is only by compiling the results from many workers and a large number of trials that deductions approximating the truth can be made. The work which Dr. Armsby has published is essentially a compilation of the statistics of nutrition, and the numerous references show how thoroughly the work has been accomplished.

The subject is divided into two parts: (1) The income and expenditure of matter. (2) The income and expenditure of energy. Under the first head are discussed foods, metabolism, relation of metabolism to food supply, and influence of muscular exertion on metabolism. Under the second head are included force and energy, conservation of energy in the animal body, food as a source of energy, internal work, maintenance and utilization of energy.

The data which furnish the material for a discussion of the above subjects is exceedingly voluminous, and not at the command of the average student, as it is scattered through the scientific literature of several countries, and Dr. Armsby has done a most valuable piece of work in thus bringing this immense mass of material into a shape that it is available to the average student.

FARMERS SHOULD ADVERTISE MORE.

As a rule, the farmer pays but little attention to advertising. He is not used to it, and consequently has not good judgment as to what it will do for him. A few years ago a neighbor had a fine, four-year-old Guernsey bull that he wanted to sell to prevent inbreeding. All that the stock yards people in this city would pay for the animal was $40. He spoke to us about it. We told him that the stock yard was no market for breeding animals. The men to sell that kind of stock to were the men who want them for breeding purposes. We suggested that he put a small advertisement in the DAIRYMAN, but when we told him it might cost him $5, he took fright at once. He could not look beyond that $5. Finally we coaxed him to try it, and he received, he said, a bushel of letters, finally selling the bull for $70, and had to send back several drafts of that amount to those who wanted to buy, but were too late with their money. He made $25 by the investment or 500 per cent. He learned his lesson and practiced on it until his death a year or so ago.

Last autumn we had 460 bushels of fine two-rowed Bavarian barley to sell. All the buyers in this vicinity would pay was 55 cents. A small advertisement in the DAIRYMAN has sold 430 bushels, all we can spare, at $1.25 per bushel, bag included.

A few years ago we persuaded three farmers near this city, who had each a half dozen or so nice Jersey and Guernsey grade heifer calves to advertise them. Answers came from a dozen states, and they all went in a bunch to a purchaser in Idaho. Farmers do not often enough try to co-operate in this way. Somebody must come along and urge them into it. That shows lack of good business enterprise.

Good reward and profit can often be made on many products of the farm, like seed grain, dairy cattle, well bred pigs and fowls, by advertising them in a good farm paper, and especially in the local paper. The paper is a go-between that should be used more than it is. Farmers should use good business judgment as well as merchants and manufacturers. It is more than half the battle to be a good seller.

The Alfalfa Plant.

The Seed Bed.

The most important single factor in raising alfalfa, is the preparation of the seed bed, for this crop demands a very careful preparation of the soil if partial or total failure is to be avoided, for the young alfalfa plant, as so often stated, is delicate and exceedingly particular regarding its surroundings.

The soil for alfalfa should be thoroughly pulverized and deeply plowed, but it must be given time to settle before seeding, and only the surface layer allowed to be loose. If it is necessary to plow the ground before seeding, do it as early as possible, harrow thoroughly and then wait for a good rain to settle the soil before seeding. Seeding on new plowed ground will not give good results. A well cultivated corn field cleared of stalks will make an excellent field for seeding to alfalfa, as it only needs harrowing.

The careful preparation of the seed bed is especially necessary where rain is scarce and in such conditions a deep seed bed is necessary to hold the moisture necessary for the growth of the young plant. The soil must be made fine enough that the particles can come in immediate contact with the young plant and this can only be done by the repeated use of the harrow, repeated several times so the capillarity of the soil will not be interrupted until within two inches of the surface. This necessitates that the lower layers of soil be well compacted either by rolling or by the action of moisture. If the lower layers be well settled and the upper two inches in the form of a dry mulch, the moisture coming from below will be arrested at the point where the seed is placed for germination and the result will be an abundant supply of food continually brought to the rootlets of the young plant.

If, on the other hand, the lower layers of soil be loose as turned up by the plow, the water will not come above the line of soil that has been broken in plowing and the young alfalfa plant is liable to die from drouth and exhaustion.

Heavy clay lands should be plowed deep the previous fall, followed by a thorough use of the harrow in the spring. The alternate frost and thawing during the winter sets free much plant food and makes the tough clayey soil more granular and easier to work in the spring, but whatever the nature of the land it must be thoroughly prepared by use of harrow, roller, or planker, or there will be much labor lost and small returns for years from the poor stand secured.

TIME OF SEEDING.

The young alfalfa plant needs warmth and moisture and is very susceptible to frost, and cold rains are very retarding. If there is moisture in the ground, it may be sown any time from when oats are sown, to the middle of August. In northern localities it is not well to sow after the first of August, as the plant will not make sufficient growth to form a protecting mulch to shelter it during the winter. This is especially necessary in the north and western states where there is great liability of dry, cold winters, and the land is without its protecting layer of snow. This being wanting, the plant must be allowed to furnish its own protection, or it will quickly winter kill. On land that is weedy, an early sowing is preferable to prevent the weeds from getting an undue start and not only smother the young alfalfa plants, but also rob them of the supply of water, which is necessary to the alfalfa, and the growth once stopped the weeds soon shoot ahead.

In southern localities where there is plenty of rain, fall sowing is preferable as it gives the alfalfa a chance to get ahead of the weeds in the spring and there is less danger of the weeds crowding out the young alfalfa plants. It may be said as a rule that if the winters are severe and dry, spring sowing is preferable, but if the weeds are numerous and there is a liability of plenty of rain and a long warm fall then fall sowing is preferable.

THE SEED.

In the south where the winters are light the locality from which the seed comes is of but little importance and so long as it is clean, plump, well ripened and new, it will give good results. In northern states, with long, cold winters the vitality of the plant and its ability to resist must be considered.

As a rule it is best to obtain seed from the same latitude or a little north of the place where the seed is to be sown and in this we are following the rule that applies to other seeds, as wheat, barley, etc. It has also been shown that seed from land not irrigated will do better under unfavorable conditions than seed from irrigated land.

Old seed should not be used, but a moderate age is no drawback, the quality of the seed depending more on how it is harvested and handled than on its age. If the seed is plump and well ripened without stack burn it will keep well for several years, but dark, shrunken seed is always poor.

The new seed is of a bright yellow color, but after the first year grows darker in color. If it is dark and shows signs of

mold, it should be discarded. It should be clean and free from foreign seeds, the most common of which are sweet clover and dodder. Of the two, the dodder is the worse pest and the most difficult to get rid of, as it is a parasite and lives on the alfalfa plant. The sweet clover, if not allowed to seed, will soon kill out, as it is an annual.

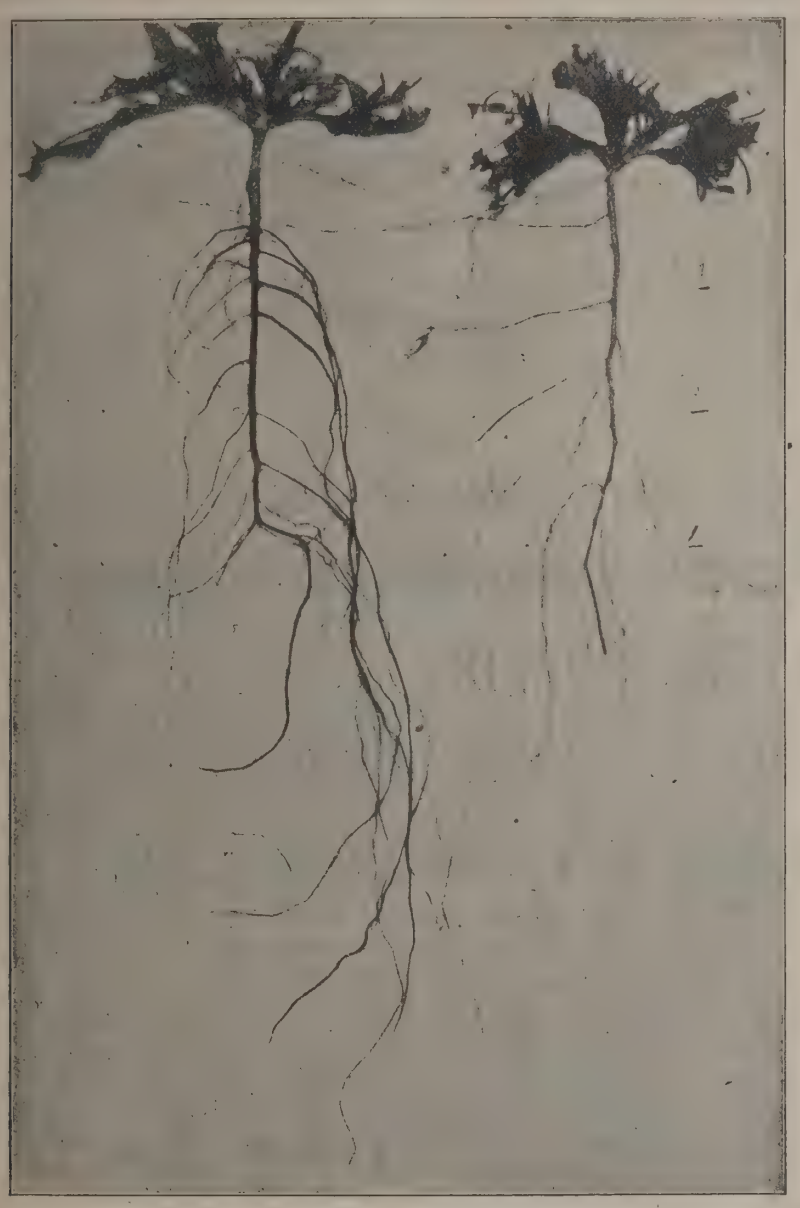
Saving expense by using a small amount of seed to the acre is poor economy, both in the beginning and end. There have been cases when 15 pounds to the acre have produced good results, but these are exceptional cases and must not be taken as a rule for average conditions and especially on weedy land. It is better to err on the safe side and sow from 25 to 30 pounds of seed per acre—30 pounds is not too much in Wisconsin. A small quantity of seed is liable to produce a coarse, woody growth, which contains neither so much nutriment nor is so palatable to the stock. It should be remembered that the leaves contain four times as much protein as the stems, the seed, giving it sufficient moisture and causing quick germination.

The usual grain drills are not built so as to handle, in a satisfactory manner, seeds as small as alfalfa, so, to overcome this defect, it is well to mix the seed with equal parts of bran, coarse corn meal or sawdust. In some cases half the seed is drilled in one way and then cross drill with the other half; this does away with the liability of bare spots where the drill may have failed to work, and there is a more even distribution of the seeds.

In some localities where there is abundant moisture, and large numbers of weeds, the seed is planted in drill rows wide enough apart for cultivation by horse power. The above conditions are common in the southern states.

THE NURSE CROP.

The is much diversity of opinion regarding nurse crops. In this locality it is common to sow oats, about 1½ bushels per acre, and cut the oats just as they are heading out. This makes a good quality of oat hay and gives a profitable crop from



ALFALFA PLANTS GROWN ON UPLAND. SEEDED SEPTEMBER, 1901. PLANTS DUG APRIL, 1902. KANSAS EXPERIMENT STATION.

therefore, a large, woody stem and small growth of leaves are not wanted.

HOW TO SOW.

If the conditions are all good, soil and air moist, the most even stand is obtained by sowing the seed broadcast, but these conditions are rare. If there is much wind and there is a dry season, the seed from broadcast seeding germinating close to the surface is soon dried out and the young plants are killed out as fast as they germinate.

The best way to sow alfalfa is with a press drill, especially in soils that are light and liable to dry out or blow. The drill should put the seed just where the soil is moist, and this should not be over one inch from the surface. In very light, dry soils, an inch and a half may be found proper, but as a rule, not over an inch is the proper depth. The wheels of the press drill pack the soil closely around the alfalfa field the first year. Letting the oats grow beyond the heading out point is of decided injury to the young alfalfa plants, both in the large amounts of water they remove during growth and the lessening of the available plant food. This same is true to a greater or less extent of all nurse crops, especially if they are allowed to approach maturity: in such cases they take so much moisture and fertility from the alfalfa that a failure of the crop most wanted is not uncommon. Perhaps the one condition where a nurse crop is necessary is where very light soils are subject to heavy winds. In such a case, the nurse crop might aid in holding the soil and prevent uncovering the young alfalfa plants; but the general tendency seems to be towards dispensing with the nurse crop.

TREATMENT AFTER SEEDING.

If the alfalfa has been sown on heavy soils and there should be heavy rains before the young plants show themselves, there is liable to be a crust formed, that the young plants cannot penetrate. In such cases a light harrowing will loosen the crust and sometimes save the crop from smothering.

Spring seeded alfalfa will usually need to be run over with the mower several times to keep the weeds down. The mower knife should be set high, and the weeds cut so often that they may be allowed to remain on the ground without smothering the young plants. Some experts mow the alfalfa 3 or 4 times the first year, even when there are no weeds, as the pruning seems to make the plant more vigorous. If the cutting of the weeds has been neglected until the growth is heavy, they must be raked off the ground to prevent smothering the alfalfa. No stock of any kind should be allowed on alfalfa the first year of its growth and in the northern states the fall growth should be neither pastured nor cut.

F. G. S.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Brick Silo.

I read a good deal of silo building of all kinds, but not of a brick silo built with air spaces in wall and how thick the wall should be. Is a brick silo as good as any other silo? J. W. R.
Grafton, Wis.

Prof. King, in his work on *Physics of Agriculture*, says that very excellent silos may be made of brick and where brick of good quality can be obtained for $4.25 to $7.00 per thousand a silo which will last indefinitely, may be made at a moderate cost. The foundation should be made of stone and the walls should come at least a foot above the ground and go below the frost line. If the brick portion of the silo is not to be more than 20 feet high, three courses of brick, with a two-inch dead air space between the two outer courses are considered sufficient, but if the silo is to be more than 20 feet high four courses of brick should be used for the lower third; three courses for the middle third, and for the upper third there may be only two courses. Iron rods should be imbedded in the wall between each of the lower doors. It is very important in laying the brick for a silo wall that they should be wet. If this is not done, the brick will so completely dry out the mortar that it cannot set properly and become strong. To make the walls air tight, they should be either given two coats of thick cement wash repeated every two or three years or else be plastered with a good coating of cement mortar.

We do not advise any one to commence building a brick silo, a barn, or scarcely any other farm structure, without first procuring this most excellent book of Prof. King's which is filled so full of the most valuable information, information of a kind which is not otherwise readily accessible, and is in almost daily demand by every farmer. The book costs only $1.75, and this is a very small price to pay for assistance in avoiding the numberless mistakes which a farmer is otherwise liable to make.

A Milk Book Wanted.

I want a book in which to record the names of the cows, with the number of pounds of milk yielded at each milking, and I presume a number of the kind have already been made. If you know of such books, please give me the names of the publishers so that I can get specimen pages. It costs as you know, less to buy one ready made than to have one specially made. W. O. C.
Cave Spring, Ga.

Since receiving this inquiry we have made diligent search for a book that would seem to answer the requirements of our correspondent but without avail, and it is our personal opinion that really such a book is not needed. Let there be a weekly milk sheet kept in the stable, on which to record the weights of milk and the tests from time to time. From these weekly sheets let there be kept in an ordinary ledger, an account with each individual cow, crediting her from week to week or month to month with the milk yield and its amount of butter fat. On the other side of the ledger charge her with whatever may seem to be appropriate in the way of feed and care, and at the end of the year settle with her as with any any other ledger account.

What Crops to Grow.

My farm comprises about 175 acres. About 50 acres of this is in rye and wheat, and about 40 acres in clover. I expect to put 25 or 30 acres in ensilage corn next year, and the question in my mind is as to what would be the best use to make of the balance of the land with reference to the cheapest and best maintenance of 25 or 30 cows. Of course the question is, how most cheaply to get sufficient protein. The soil is a sandy loam.

On the above I shall much appreciate the benefit of your suggestions.

Do you recommend the planting of artichokes for cows and pigs, and if you do, what in your judgment is the best way of getting the crop into the ground, and how should the crop be cared for?
Buffalo, N. Y. G.

Beyond suggesting that in our judgment it would be desirable for this inquirer to commence in a small way with a few acres of alfalfa, we do not feel competent to tender any specific advice. The 40 acres of clover and 25 to 30 acres of ensilage corn will furnish a good deal more roughage than thirty cows can dispose of in twelve months. What other crops to grow must be determined largely, if not exclusively, by local conditions. We should endeavor to raise such crops as would bring us at the ordinary market prices the largest returns, and then in selecting feeds for cows, we should be governed by what home raised grains would sell for in the market and what other food stuffs could be purchased at. This we consider the most economical way of getting protein. If in that vicinity it has already been demonstrated that cow peas or soy beans can be raised with profit, it would be eminently proper to plant a few acres of one or the other or both of these crops, but until their adaptibility to the soil and climate is determined these crops should be grown only in an experimental way.

We have had no experience with artichokes and therefore do not consider ourselves competent to advise in the premises.

Ensilage Molds.

We have been having trouble with our ensilage not keeping perfectly. Our silo is stave, 16 by 23 feet. When filled the joints become perfectly tight.

The ensilage does not spoil near the outside, but a foot or two in from the staves and in the middle we find large pockets of green and sometimes red mold. About ten per cent is in this condition.

This is our third year's experience with ensilage but have never been able to discover the cause of it molding. Previously we did not use any water when filling the silo, but this year kept the fodder well sprinkled but cannot see that the results are any different. Where the ensilage is not moldy it is in fine condition. J. M. M. & S.
Shippenburg, Pa.

We also are quite unable to assign a cause for the molding of this ensilage as reported and if any of our readers can throw any light on the subject we will be greatly obliged for the information.

Idaho Queries.

1. What effect on the test does it have for the samples to get frozen in composite bottles?

2. Can a cow be fed to enrich her milk or to make more butter fat in the milk?

3. Does it make any difference in the test of a cow's milk where the calf is given 2 teats and the other 2 are milked, or is it better to give calf first milk from all and keep for use the last from all teats, or which is the best way to milk with a calf to get the best test from the cow? Our people here do not know how to milk to get the best results and most of them milk with calves? A.L.G.
Menan, Idaho.

1. As frost does not destroy fat it follows that if the composite sample is thoroughly mixed before the sample for testing is removed, freezing will not affect the test.

2. A cow cannot be fed so as to permanently increase the per cent of fat in her milk. This is a matter which is governed almost exclusively by the individuality of the cow. Generous feeding will increase the quantity of the milk, but without changing its quality.

3. It will probably make no difference in the test of a cow's milk if the calf is strictly limited to two teats and the other two milked. The better way, of course, is not to let the calf suck at all, but if for any reason this cannot be, then let the calf have the first milk from all the teats and reserve the last milk for use. The first milk drawn from the udder is not nearly as rich in butter fat as that which is drawn later.

Silo for British Columbia.

Would you kindly send the number of the DAIRYMAN, which contains instructions for building a round silo on the cheapest plan, as I am thinking of building one for 10 or 12 cows. Also, if you have any number containing instructions as to the best way of making oat and pea silage, please send it. C. W. D.
Crofton, B. C.

See the letter on page 99 for suggestions in regard to cheap construction of silos. Oats and peas should be cut for silage when quite green—the oats before turning and the peas when the major part of the pods are fairly filled.

Are Dilating Plugs a Cure for Hard Milkers?

Will a dilating plug cure a hard milker, or do you have to continue to use it day after day and year after year? J. H. A.
Riverside, Cal.

It is doubtful if dilating plugs will permanently cure very hard milking cows. Probably the only remedy in such cases is to use a bistoury or sharp small-bladed knife to sever the sphincter muscle at the end of the teat in one or two places.

Building a Silo with Wood Hoops.

Would like to have your opinion on this silo plan. Diameter 15 feet, three thicknesses, ½-inch green oak hoops, single thickness pine flooring inside and weather boarded outside. Should 3-inch or 4-inch flooring be used? It would be easy to build, cheap, and when it began to decay, it could be lined inside with cement, or another thickness of flooring. Silage without a roof on has a rotten smell down a few inches after a rain, that the stock don't like is my experience. C. C. B.
Clermontville, O.

We think a silo built on the plan above outlined would give very excellent satisfaction. In general practice it may be said that the narrower the flooring used the better, but we should not hesitate to use flooring four inches wide.

Will It Pay to Build Silos in Montana.

K. C. H., of Billings, Montana, writes that they can raise three good crops of alfalfa in a season, and all kinds of roots and asks whether under these conditions it will pay to build a silo.

Ordinarily we do not advise building silos where corn cannot be profitably grown. There have been a few silos built in California for storing alfalfa, but where the weather conditions do not too much interfere with curing the alfafa for hay, and where roots can be cheaply grown in abundance, we are disposed to think that a silo is not a prime necessity.

Simultaneous Feeding and Milking.

Several years ago we had one or two cows and sold a little milk, feeding them when they were being milked. We now milk fifteen and feed them in the same way, which has become quite a burden. Would like to make a change and feed them before milking or after, but fear they will not give down. What would you advise? B. & B,
Dermott, Ark.

The practice in our stable is to feed all the cows just before milking. Those that finish their feed before the milker gets to them are satisfied and stand quiet. The practice at Sunny Peak Farm, as detailed by the young man in charge, at the recent convention of the Wisconsin Dairymen's Association, is to feed each cow immediately before milking, and when asked if this practice did not comsume too much time the young man said that with their system it did not. Cows are very much creatures of habit and when the regular routine is changed they are very apt to shrink in their milk more or less, for a time, but usually recover when they become accustomed to the change.

Progeny from Young Heifer and Bull.

Having to dispose of our registered Holstein bull on account of his kinship to our younger stock, I selected a 10-months calf out of a herd of 5. His color, conformation and breeding were of the best, but the price was much below the price of the other calves. All were registered. Upon inquiry, I was informed by the breeder that both the sire and dam of my selection were youngsters. He was the first calf of a 2-year-old heifer and the sire was a yearling, and for that reason was not as salable. Outside of prejudice, what is the objection to my selection for stock purposes, if I keep him until he is two-years-old or older?
Sandy Hill, N. Y. F. S

We should not object to the animal in question for the reason assigned. History, whether of the human family or of the bovine family, does not prove these objections to be well founded.

Will Heavy Feeding Ruin Cows?

Have 25 cows, Jerseys and grade Jersey and am feeding about 13 lbs, of grain besides shredded corn stalks and hay to each of the heaviest milkers and about 10 pounds grain to the others.

Most of them fresh in October and November last. They are giving from 280 to 300 quarts daily.

Am new in the dairy business and my neighbors say that such heavy feeding continued will ruin the cows in a year or so. Are they right?
Bernardsville, N. J. G. W. T.

We do not think that the amount of grain fed will be likely to injure the cows. The more serious question with us is whether it is profitable to feed so much, and this question can only be definitely settled by actual trial. On general principles, we should consider 10 pounds of grain ample for the heaviest milkers, and probably 6 pounds would suffice for those giving considerably less. This reduction in feed may result in a slight reduction in product, but it may still be more profitable. If the cows now receiving this heavy grain ration are not laying on superfluous flesh the presumption is that they are making very good use of it, provided it is well digested.

An Illinois Ration.

E. B. S., of Griggsville, Ill., has shredded fodder and timothy hay for roughage, rye is worth 50 cents per bushel; wheat, 50 cents; corn, 40 cents; bran, $16.00 per ton; ship stuff, $18.00; oil meal, $25.00. He has a corn sheller and can grind grain on the farm. He is five miles from market and he asks whether it would not be cheaper to grind the wheat and rye feed rather than haul to market and exchange for bran and ship stuff.

There are two objections to using the wheat and rye. One is that they are not as cheap as the corn and bran and oil meal, and the other is that they are too concentrated and do not carry sufficient protein to make a proper ration with such carbonaceous feeds as corn fodder and timothy hay. We, therefore, think it necessary to use some bran in the ration, and would recommend as an average grain allowance for his herd, 3 lbs. of bran, 3 lbs. of ground corn, 2 lbs. of oil meal. This allowance of grain, with approximately 20 lbs. of shredded fodder and timothy hay, will give a ration containing nearly or quite 1¾ lbs. digestible protein with carbohydrates and fat in proper proportion.

Some More on the Breed Question.

ED. HOARD'S DAIRYMAN: In the Feb. 6th issue of the DAIRYMAN under heading of "Which Breed" I read an article by A. R. F. which is quite misleading to one starting in the dairying business.

He claims to be a practical dairyman but his article is written entirely from a Jersey fancier's standpoint, regardless of conditions actually existing in well managed dairy herds of either of the three breeds mentioned by him.

I formerly owned a registered Ayrshire herd, which was selected and bred for dairy purposes, and at the present time I have a registered Holstein herd second to none as to dairy qualities.

Am also connected with a large Jersey herd which contains among the milkers nearly five hundred registered cows, and from my experience, think the article by A. R. F. should be somewhat criticised.

In the first place his figures (which are

"ADVERTISEMENT."

Dr. Shoop's Rheumatic Cure

Costs Nothing If It Fails.

Any honest person who suffers from Rheumatism is welcome to this offer.

I am a specialist in Rheumatism, and have treated more cases than any other physician, I think. For 16 years I made 2000 experiments with different drugs, testing all known remedies while searching the world for something better. Nine years ago I found a costly chemical in Germany which, with my previous discoveries, gives me a certain cure.

I don't mean that it can turn bony joints into flesh again; but it can cure the disease at any stage, completely and forever. I have done it fully 100,000 times.

I know this so well that I will furnish my remedy on trial. Simply write me a postal for my book on Rheumatism, and I will mail you an order on your druggist for six bottles Dr. Shoop's Rheumatic Cure. Take it for a month at my risk. If it succeeds, the cost is only $5.50. If it fails, I will pay the druggist myself—and your mere word shall decide it.

I mean that exactly. If you say the results are not what I claim, I don't expect a penny from you.

I have no samples. Any mere sample that can affect chronic Rheumatism must be drugged to the verge of danger. I use no such drugs, and it is folly to take them. You must get the disease out of the blood.

My remedy does that even in the most difficult, obstinate cases. It has cured the oldest cases that I ever met. And in all my experience—in all my 2000 tests—I never found another remedy that would cure one chronic case in ten.

Write me and I will send you the order. Try my remedy for a month, as it can't harm you any way. If it fails it is free.

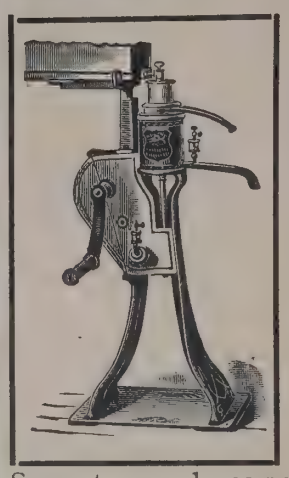
Address Dr. Shoop, Box 934, Racine, Wis.

Mild cases, not chronic, are often cured by one or two bottles. At all druggists·

The Champion Buttermaker

OF ALL THE ANNUAL WINTER CONVENTIONS

USES U. S. SEPARATORS.



At the Annual Meeting of the Vermont Dairymen's Association, at Rutland, January 6–8, 1903, there were 150 entries of butter, and that of Mr. J. F. McLam, Supt. of the Green Mountain Creamery, West Topsham, received the highest score

98½ POINTS,

and won

GRAND SWEEPSTAKES AND GOLD MEDAL.

This butter was made from cream separated by creamery size U. S. Separators, and was not only the highest score at this convention, but so far this season is the

HIGHEST SCORE AT ANY STATE DAIRYMEN'S CONVENTION

The U. S. Also Holds World's Record for Clean Skimming

For Western trade we transfer our Separators from Chicago, Minneapolis and Omaha. Address all letters to Bellows Falls, Vt.

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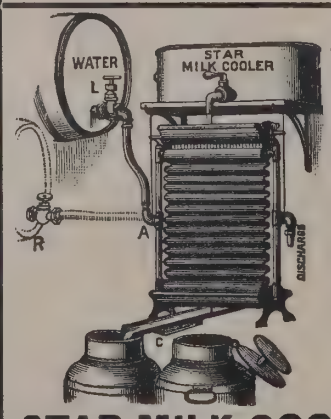
STEEL ROOFING.

We manufacture all kinds of Steel Roofing and Siding; also Steel Ceilings and Roofing Paints. Write for prices.

Lloyd Iron Roofing and Paint Co., 97 Monroe St., CHICAGO

HAVE YOU A STAR MILK COOLER

OR A STAR CREAM COOLER?



These machines will cool down to within 2 degrees of the temperature of the water run through them in the hottest weather.

They are made of such good material and last so long that our agents complain we make them too strong for they never wear out.

NO TIN MACHINE.

ALL COPPER, THOROUGHLY LINED.

Made in all sizes, to be used with water under pressure and without.

WRITE FOR 1903 COOLER FOLDER.

Gold Medal at Pan-American.

STAR MILK COOLER CO., Haddonfield, N. J.



Up-to-Date Dairymen

—USE A—

Milk Cooler-Aerator.

at the farm. The **CHAMPION** is simple, cheap, effective—it is the best there is. Our Booklet about it for the asking.

Champion Milk Cooler Co.

67 Main Street, CORTLAND, N. Y.

to be understood an average of each breed in a good working herd) are quite high as to daily milk yield, especially the Ayrshires, and as to 7 days' butter production, 15 lbs. is approximately correct for all three breeds, but the 25 lb. cow he speaks of is not found in any breed only by forced feeding, and is as often met with among the Holsteins as the Jerseys.

He claims that it requires twice the feed for the Holsteins that it does for the Jersey, now that is decidedly erroneous.

The amount of concentrates required by each is about the same. The grain ration of the Holsteins can be substituted to quite an extent by protein crops grown on the farm as alfalfa, sunflower, and soy bean ensilage etc., but the Jersey does not take to this method of feeding as does the Ayrshire, and will fall off both in milk and flesh when subjected to it.

I find the cost of keeping the Holstein does not exceed that of the Jersey, while the cost for the Ayrshire is less.

When a No 1 fancy butter is desired, Jersey blood is indispensible in the herd, as the cream is more exhaustively churned, and the butter has a firmer texture than that of the Holstein or Ayrshire.

As to relative cost of producing butter fat with beef as a side line as Mrs. B. speaks of, I believe there is no breed equal to the Holstein, and the young stock is in equally as great demand as either Ayrshire or Jersey.

For cheese making I find the Holstein and Ayrshire to rank foremost, giving about a 3.8 per cent milk at moderate cost.

The Holstein beef is inferior to none of the dairy bred beef, as I am well convinced from use on my own table, and also selling in the market.

Now I am partial to no breed, only so far as they show superiority in dairy work and true type breeding.

Mrs. B. makes no mistake in following the DAIRYMAN'S advice in selecting Holsteins.

One word more, have plenty of good ensilage to fall back on in time of drouth as well as for the winter months.

Briarcliff Manor, N. Y. F. W.

Profitable Cows.—Helpful Paper.—Good Returns.

ED. HOARD'S DAIRYMAN:—Will you kindly give in your columns what you would consider the most economical balanced ration with herds grass and clover hay mixed, for roughage, and feeds at the following prices: Bran, $22.00 per ton; middlings, $24.00; corn meal, $26.00; gluten feed, $28.00; cotton seed meal, $30.00.

I have a herd of 8 cows, two full blooded and four grade Jerseys, and two natives. Three of them are two-year-olds, the rest matured cows.

The following is their record for the year or 1902:

Value of butter made	$513.96
Milk and cream used at home	45.62
Pigs sold	69.20
Calves sold	31.50
Calf kept	15.00
Total	$675.28
Value of hay and grain fed cows	$226.95
" " " " pigs	36.91
Paid for pigs bought	4.00
Total expense	$267.86
Balance	$407.42
Average profit	$50.93

On December 31 1902, I still had 14 pigs not quite ready for market, which had been fed from the grain charged in the foregoing bill, the profits from which will appear in the record of 1903 instead of 1902.

Our butter is made at home, and sold for 25 cents a lb. for the year.

I have HOARD'S DAIRYMAN and a De-Laval separator. If I had a silo, I think I could increase the profits materially.

Franklin Co., N.Y. J. C. S.

Where a dairyman is able to report such results as are given above, it seems to us a good deal like "Carrying coals to Newcastle" to offer advice in regard to feeding. Whether regard be had to the amount of butter made, or the net returns from the cows, this man seems to have reached a very satisfactory method of feeding and caring for his herd. We only wish he had reported his average ration. If he had, we are more than half inclined to think, it would have included about 4 lbs. bran, 3 lbs. of gluten feed, 1 lb. cotton seed meal and hay *ad libitum*.

To compare this man's record with the records given in our several cow censuses, where the returns were taken from the creamery, it would be necessary to deduct from the value of the butter made the ordinary creamery charges for manufacturing. When this is done there will still remain at least $450 cash income from butter, or approximately $2.00 in money for every dollar's worth of feed consumed. Very few dairymen can make such a showing as this, but it is safe to say that the majority of dairymen might make such a showing if they would. They must, of course, have good cows and must keep a daily record of what each cow does, in order that they may be well advised whether the cows are profitable or not; and then note what Mr. J. C. S. says about a helpful paper, However, it does not suffice to simply subscribe for a paper or to buy books, unless one studies the paper and the books, assimilates the information given and puts it into practice.

Transfers of Guernsey Cattle.

BULLS.

Alexander of Levin 8362, Henry M. Kratz to Edgar I Kinder, Bridgeville, Del.
Count Quadt 8423, Est. L. Hinman to Emil Jacobsen, Green Bay, Wis.
Dainty's King 8443, George C. Hill & Son to John J. Dietrich, Black River Falls, Wis.
Eli of Fenimore 7669, Edward S. Clark to J. C. Mackay, West Davenport, N. Y.
Gilford's Deputy 8431, Canterbury Shakers to Fred R. Weeks, Gilford, N. H.
Glassville Lad 8440, J. N. Greenshields to A. A. Pearson, Glassville, N. B.
Isaleigh Rob Roy 8439, J. N. Greenshields to W. I. Devereux, Ridgetown, Ont.
Isaleigh Bell Boy 8438, J. N. Greenshields to Peter Grant, Stewiacke, N. S.
Isaleigh Peter 8437, J. N. Greenshields to Roper Bros., Charlottetown, P. E. I.
Kid of Fenimore 7666, Edward S. Clark to Rush Bartlett, Winfield, N. Y.
Lord Dainty 8267, George C. Hill & Son to Rose Parker, Echo, Montana.
Pi ot of Fenimore 7868, Edward S. Clark to C. Shaul, Richfield Springs, N. Y.
Pes's Belmont 6914, The Belle Vernon Farms Dairy Co., to Buckland & Lorentz, Outville, Ohio.
Pendennis L. 8036, George C. Hill & Son to S. M. Ingalls, Fond du Lac, Wis.
Richard S. 8424, Collen B. Meirs to Dr. George A. Silver, Windsor, N J.
Red Jacket 8166, H. M. Cowles to D. P. Cooley, Grandby, Conn.
Star of Fenimore 7664, Edward S. Clark to C. T. Wetmore, Bloomville, N. Y.
Sir Mac of Cedar Grove 8436, Wm. A. Barber to Hardin & Derby, Rodman, S. C.
Swift 8422, Howard Reiber to F. H. Kimble, Springboro, Pa.
Wizard of Fenimore 7666, Edward S. Clark to Rush Bartlett, Winfield, N. Y.

COWS.

Anna of Belle Vernon 15818, J. A. Beidler to G. B. Tallman, Perry, N. Y.
Becky Sharp 14610. J. P. Welsh to Louis M. Starr, New York City, N. Y.
Beauty of Cedar Grove 15803, Esther of Cedar Grove 15805, Lady of Cedar Grove 15802, Queen of Cedar Grove 15804, Wm. A. Barber to Hardin & Derby, Rodman, S. C.
Conceit 14724, Duchy 15516, Lady Prink 15518, Sudine 14721, Tired 13680, Walter Cuting to T. H. Eaton, Brockton, Mass.
Fair Breeda 13534, Hope's Beauty 14041, George E. Wakeman to C. O. Potter, Leonta, N. Y.
Fern's Beauty 15774, F. A. Jenkins to C. O. Potter, Leonta, N. Y.
Faucette's Pretty Maiden 13837, The Belle Vernon Farms Dairy Co., to J. M. Johnston, Chesterland, Ohio.
Mirthine 13448, George C. Hill & Son to W. Nicholls, Trempealeau, Wis.

WM. H. CALDWELL. Sec.

Peterboro, N. H., Feb. 16, 1903.

"ADVERTISEMENT."

HE CAN.

Because he has Been Over the Road.

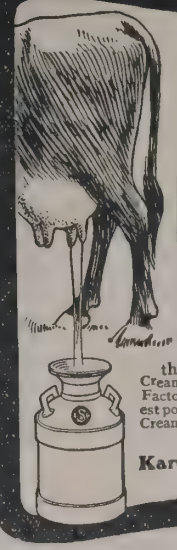
A Grocer down in Texas said that when he first put in a stock of Postum Food Coffee he concluded to try it himself to know how well he could recommend it to his customers. He says: "I quit using coffee and had Postum prepared according to directions on the package and found it a most healthful, toothsome beverage.

I had been troubled seriously with stomach trouble, but after leaving off coffee and using Postum I gradually got better and better. That interested me so I persuaded my Mother-in-law, who is over sixty and a confirmed coffee drinker, to quit coffee and drink Postum.

She has suffered for years with stomach trouble and food coming up in her throat after eating. As soon as she quit coffee and began using Postum this distress stopped and she has been getting better and better ever since.

A short time ago a lady who was starting West bought up my entire stock of Postum for fear she could not find it where she was going.

From my own experience one can readily see that I can recommend Postum very highly." Name given by Postum Co., Battle Creek, Mich.



The Cow Man

is pretty sure to be interested in the matter of milk cans. If you happen to be such a man we are favoring you by calling attention to our line of

STURGES Standard Approved **Milk Cans**

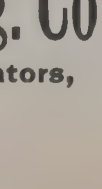
It is the best made line of milk cans in the world. Cans that are hedged against crushing and denting, seams soldered and tinned and retinned to shut out all chance of rust and secure perfect cleansing, and with perfect handles for convenience and security. The patterns include the famous **Iowa, Elgin, Chicago, Burn, Omaha, Wisconsin,** and other makes. Our Special Milk Can Catalogue will interest you if you want to buy the best.

We also manufacture and sell the now celebrated Dairy Queen Churn, the Boyd Cream Ripener, Success Skim Milk Weigher and a general line of Creamery and Dairy Machinery and Supplies, as well as building complete Butter and Cheese Factories equipped with the latest appliances. We handle only high grade goods and on the lowest possible margins of profit. We have separate catalogs covering the several branches of the Creamery and Dairy Supply business. Write us for anything you need and we'll mail you catalog.

STURGES, CORNISH & BURN COMPANY,
Kansas City, Mo. Chicago, Ills. St. Paul, Minn.

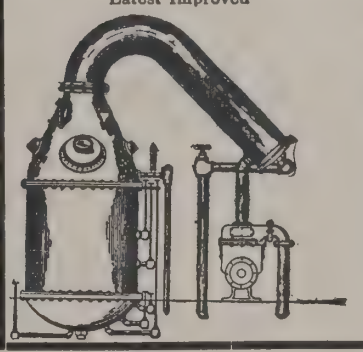
BUHL CANS ARE NOT Like Other Milk Cans Because They Are Better

This is equally true of the **Buhl Factory, "Improved Elgin" and Genuine Iowa Cans**; superior material, design, workmanship, and smooth finish combine to produce those **long wear** qualities for which the **Buhl Cans** are so renowned. **Remember** the Buhl is the only can in the world that is made with the BUHL "VICTOR" CAN BREAST and the BUHL "VICTOR" ROUND HANDLE. They may cost a little more than common cans—we do not know, for we cannot tell how badly "the trust" and others are beating you. We know that the small added cost of the **Buhl Cans** will prove the best can investment you ever made. Every can that is stamped with our famous Milk Can Trade Mark, as shown here is a genuine **Buhl Can.** The mark is a guarantee of all around excellence. Ask your local dealer for **Buhl Cans.** If he does not have them he can get them for you. Write us about it. We will see that you are supplied.



Buhl Stamping Company, 212 W. Larned Street, Detroit, Mich.

Latest Improved



Builder of more successful milk condensing factories than any other man in the world.

ROGERS' Milk Condensing Machinery.

Condensed Milk Factories built complete; put in operation instructions inall secret processes and results guaranteed By

R. R. ROGERS, 93 Chope Place, Detroit, Mich



The Distribution of Skim Milk.....

It is known that the just complaints of creamery patrons on account of unfair distribution of skim milk are the bane of the separator creamery business. Further disputes among patrons, annoyances to managers, hindrances to the best work of buttermakers, watering the skim milk, and many other ills in the same train are unnecessary, since the

Barber-Coleman Check Pump

has for more than five years been successfully solving the problem in many different creameries. When a patron has dropped in his check he can pump the amount of skim milk called for by his check, less the percentage taken out as cream, so in like proportion to all other checks. Its measuring apparatus is just an ordinary pump which everyone understands and knows how to operate.

Cornish, Curtis & Greene Mfg. Co.,

General Sales Agents De Laval Alpha Separators,
FORT ATKINSON, WIS.

Experience with Clover Ensilage.

ED. HOARD'S DAIRYMAN:—In your issue of Feb. 20, page 29, I note C. W. R., of Newport, Vt., gives his experience in siloing clover and asked if those who have had any experience in this line to give it through the columns of your paper for the benefit of its readers. I will add my mite as it may be the means of saving some one as it has me, some money. As all of your readers must know, in this part of the state of New York it rained almost incessantly from June first until August first. However, we did secure quite a crop of hay, such as it was. The first we cut was the last week in June and much of it was nearly spoiled, and by the time my farmer was through with the last of his haying the first was almost ready to bloom again, but by the time it was ready to cut again our barns were full of hay and grain, and what to do with the second cutting was a question before us. Having one sound stave silo 20 feet in height standing outside next to the bank where we drive in, I readily saw that by building up a scaffold we could easily pitch grass directly in the silo. This was mixed grass about one-third timothy and already headed. We began cutting and drawing and putting it directly in the silo, tramping as hard as as possible.

Some experiments were made by putting in some wilted or nearly dry grass in places, and another was made by letting it stand over Sunday and Monday and again filling, and another by cutting some before dinner and let it wilt for two hours or a little more, as that was on top, it was thoroughly sprinkled and tramped hard.

Some may say: "Why not run it through the cutter?" It would be better in many ways as it would pack better and would feed out better also, but as help was very scarce at the time we concluded upon the whole to leave the Blizzard standing in the barn and see what could be done in a cheap way, as three men could easily cut and put in quite an amount each day, but to work it rapidly four would be better, as one team could be kept on the mower and one on the wagon all the time, and cut only as it was taken up.

Now for results: As soon as we needed extra feed in November we looked after our grass silo, as the other two had been filled with corn.

In the meantime two hoops about one-third of the way down from top broke, and had to be mended.

The hoops could not be drawn up quite tight again, therefore some loss in that direction. But the loss, considering our mistake, was but small, about one two-horse load of mouldy stuff was drawn out and spread on the field. Except some around the outside where the hoops broke, all was fine feed. The cows were fed what they would eat up clean, twice a day, until about the first of January. Thinking perhaps some fresh cows were not getting quite feed enough, another silo was opened that was filled with corn, ears and all. A feed of 20 lbs. per day was given, instead of the grass ensilage, but with no increase of milk. The clover has kept well; as the first of March will finish it, you see we have lately fed it slow. Some care had to be exercised or the cows would over feed on it.

I am so well pleased with my venture that I shall try to have some second

Farm Wagon Only $21.95.

In order to introduce their Low Metal Wheels with Wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, that is only 25 inches high, fitted with 24 and 30-inch wheels with 4-inch tire, and sold for only $21 95.



This wagon is made of the best material throughout, and really costs but a trifle more than a set of new wheels and fully guaranteed for one year. Catalogue giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who also will furnish metal wheels at low prices, made any size and width of tire to fit any axle.

$45 WKLY. selling ACME PUMP GOVERNORS. They make all pumps work easy and fit all kinds, (iron or wood.) Mills run with ⅓ less wind Agents Exclusive territory Its Merits sell it. PUMP GOVERNOR MFG. CO., 40 Dearborn St., Chicago, Ill.



GASOLINE ENGINES

as power for the dairy have passed the experimental stage. Many dairymen now have them and all eventually must have them. The only questions to decide are the amount of power needed, and the most desirable make. With twenty-seven years of experience behind us, and a plant that has grown from 50 engines a year to 1500 a year capacity, we feel that we are equipped to build the best. There are other reasons why the "OTTO" is superior. We will tell them in this space from time to time. If in the meantime you need power, write us, mentioning this paper

THE OTTO GAS ENGINE WORKS, Philadelphia, Pa.



LAMBERT
Gas or Gasoline
Is the reliable engine. No long shut-down for repairs. Simple, economical. Easy to regulate speed. Strong guarantee.
Agents wanted. Write for catalog.
LAMBERT GAS & GASOLINE ENGINE CO., Anderson, Ind

DON'T BUY GASOLINE ENGINES UNTIL YOU HAVE INVESTIGATED "The Master Workman," a two-cylinder gasoline engine, superior to all one-cylinder engines. Costs less to buy and less to run. Quicker and easier started; has a wider sphere of usefulness. Has no vibration, can be mounted on any light wagon as a portable. Weighs less than one-half of one-cylinder engines. Give size of engine required. Please mention this paper Send for catalogue. THE TEMPLE PUMP CO., ESTABLISHED 1853. Meagher and 15th St., CHICAGO.

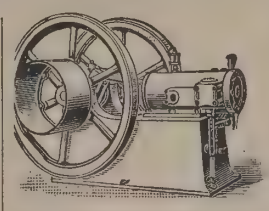


No Water here to Freeze!

If you want a..... **Gasoline Engine**

that will be always ready to start, safe, reliable convenient, economical and durable, buy a FULLER & JOHNSON Frost Proof. No bother with water nor expense of broken cylinder, no waiting for wind or weather. All sizes, stationary and portable. Send for descriptive catalogue to the manufacturers.

FULLER & JOHNSON MFG. CO., Madison, Wis.



THOMPSON-LEWIS GASOLINE ENGINES

furnish the greatest possible power at the lowest possible cost in time, labor, fuel and money. They are so simple that anybody can run them without expert training or experience. Our **Volume Governor** gives uniform speed. Our **Acme Mixer** is the most positive and economical on the market. Our **Hand Starting Lever** starts engine with least effort. All bearings of **Phosphor Bronze.** Best material and workmanship throughout. Many sizes from 4 (actual) h. p. up. Best for all farm work—cutting and grinding feed, sawing wood, pumping water, separating cream, churning, etc. Send for our free catalog before you buy. It may save you time, money and annoyance.

J. THOMPSON & SONS MFG. CO., 113 BRIDGE ST., BELOIT, WIS.

A NEW ROLLER

Rolls all kinds of smooth, rough, or uneven land; rolls back and dead furrows, etc. The **Wilder Flexible Roller** yields to all uneven surfaces and always rolls. Convenient weight box. Spring seat. Best material. Will last indefinitely. Fully protected by patents. All steel and iron except tongue and cross bars. Instantly changed to rigid roller if desired. **Standard size 7 feet.** Prices on special lengths on request. Write for circulars, prices, etc. Prices will go up very soon.



Not like any other—It's Better.

J. K. Wilder & Sons, Box 11. Monroe, Mich.

STEEL ROOFING
FREIGHT CHARGES PAID BY US



Strictly new, perfect, Semi-Hardened Steel Sheets, 2 feet wide, 6 feet long. The best Roofing, Siding or Ceiling you can use. No experience necessary to lay it. An ordinary hammer or hatchet the only tools you need. We furnish nails free and paint roofing two sides. Comes either flat, corrugated or "V" crimped. **Delivered free of all charges** to all points in the U. S., east of the Mississippi River and North of the Ohio River

AT $2.25 PER SQUARE

Prices to other points on application. A square means 100 square feet. Write for free Catalogue No. 20.

CHICAGO HOUSE WRECKING CO., W. 35th and Iron Sts., Chicago

DR. REA'S IMPROVED **CALF FEEDER**
Established 1892.

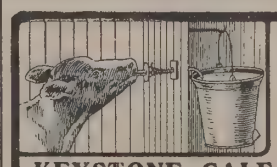


Galvanized castings. Will not rust. Seamless rubber nipples, reinforced, cannot split. Makes fat calves. Price,

ONE DOLLAR.

Satisfaction guaranteed or money refunded. Booklet free.

Dr. CHAS. L. REA, 220 E. 32d St., New York.



SENT out under positive guarantee. Money refunded if not satisfactory. No bolting food. Perfect digestion. All tinned—no rust.

KEYSTONE CALF FEEDER

Patented under No. 721,384. Used and endorsed by Mass. Ag'l College as follows:

Mr. M. T. Phillips. Dear Sir:—I write to say that the Calf Feeder is giving excellent satisfaction. We have found it to be all one could ask for in a feeder. It is easily cleaned and appears to be durable. Yours truly, E. A. JONES, Supt.

Complete with extra nipple, $1.50, express prepaid. Circulars free.

M. T. PHILLIPS, POMEROY, PA.



WHITFORD IMPROVED CALF FEEDER

Best because the only one with Ball-and-Socket Joint, letting Nipple move freely in any direction; attaches and detaches instantly; takes apart and cleans easily; strongest and most durable. Needed on every farm. Price only **$1.50** or $1.75 prepaid. Write to-day. ☞ *Agents Wanted.*

MAHLER BROS., 82 La Salle St., CHICAGO.



DON'T READ THIS

If You are not a Milk Dealer, Dairyman or Farmer.

Our Ideal Steamer and Feed Cooker is an absolute necessity. Heats water, cooks feed, steams cans, bottles and other utensils, and furnishes ample power for dairy turbine separators, turbine bottle washers, etc. Furnished complete with steam gauge, water column, safety valve, globe valve, blow off valve, pump, grates, one length water hose and other fittings. This boiler is made of regular boiler iron and has locomotive flues. Burns coal, wood and corncobs. You can't afford to be without it.

	Diameter of Shell	Height of Shell	No of 2-inch Flues	Length of Boiler Over All	Shipping Weight
No. 1	19 inches	40 inches	9	54 inches	350 lbs.
No. 2	19 inches	44 inches	13	58 inches	400 lbs.

We have a complete line of Boilers and Engines. Write for prices.

Creamery Package Manufacturing Co.,

BRANCH HOUSES: Kansas City, Mo; Minneapolis, Minn.; Waterloo, Ia.; Omaha, Neb.; St. Louis, Mo.

1, 3 and 5 W. Washington St.
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Get the Best Milk Cooler



AND AERATOR.

LARGEST COOLING SURFACE EASIEST TO CLEAN.

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Ask for our new Thirtieth Annual Catalogue of Dairy Apparatus and Supplies.

OAKES & BURGER, Cattaraugus, N. Y.



COMMON SENSE Calf Feeder

awarded **Gold Medal** at Pan-American Exposition. **The only Feeder** adopted by experiment stations. It is the kind others try to imitate. Easiest to operate and clean.

Most Durable, Simple, Economical, Scientific and Practical.

Do not be deceived by imitators. Shams are never imitated. **More Common Sense Feeders are in use than all others combined.** Over 50,000 in use. No valves to get clogged or foul. Nipples reinforced and cannot collapse. The calf feeder is a perfect weaner. A substitute for nature.

Extra gain on one calf pays for two feeders.

Best Feeder Made.
Michigan State Board of Health:—I tried every Calf Feeder I could find, but liked yours best.

Worth $10.00.
George S. Bement, Victor, N. Y.:—I am very much pleased with the Feeder and would not be without it for $10. No trouble, no damning, no milk on your clothes, no trouble to teach the calves to take hold of it, no sucking the cows, and the best of all is that when they get about eight weeks old they don't stop for the nipple but just drink out of the pail.

The Principle is Correct.
Purdue University Agricultural Experiment Station of Indiana, LaFayette, Ind.:—We have been using the Feeder to some extent and it is in constant use at this time and we believe it to be very satisfactory in its work. The principle of **Your Feeder,** I believe to be the correct one. C. PLUMB, Director.

Advise Stock Raisers to use it.
Maryland Veterinary Hospital:—I am very much pleased with the Feeder and would advise stock raisers not to be without one.

Price $1.50 including two nipples, sent postpaid for $1.75. We guarantee satisfaction, but if you are in doubt about its value we will send one on approval for 50c to cover postage, remainder to be paid if satisfactory. **Be Sure** and send for our twenty-two reasons why you should use a feeder. It's free. Sold by one dealer in a town.

O. H. MANUFACTURING COMPANY, DEPT. H, LYNDON, VERMONT.

MILK TUBES Patent Coin Silver 1¾" 50c. 2¾" 80c. Improved Teat Opener 75c. Dilating plug 25c. Postpaid on receipt of price. G. P Pilling & Son, 2d and Arch Sts., Phil., Pa.

WRINGING WET Clothes dry is the reason for using any wringer. Saving clothes, buttons and money is the reason for using **Horse-Shoe Brand Wringers.** They are made with rolls of the finest Para Rubber. Every wringer is warranted. THE AMERICAN WRINGER CO., 99 Chambers Street, New York.

cutting for the silo until I can get a stand of alfalfa, for from experiences, the silo is just the place for that, as in our place it is almost impossible to cure the first cutting and if one has it in the silo, it would be ready for the drouth, when it does come. If it does not come, then you are ready for winter anyway.

Now for the things I shall try to avoid next time. Not to let any wilt for a moment, and not stop for dews in the morning. Have the hoops secure and trample as hard as possible.

Auburn, N. Y. A. D. BAKER.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—Butter did not change in price to-day on the Board of Trade. There were no offerings and consequently no sales were made. The official market was made firm at 27½ cents by the price committee.

The output of the week was 508,600 pounds.

Former markets:

	Sales.	Price.
March 2, '03	0	27½c.
March 10, '02	0	26c.
March 11, '01	0	22c.
March 12, '00	0	24c.

Elgin, Ill., Mar. 9, '03. H. C. B.

CONCERNING OUR ADVERTISERS.

BUGGIES FOR THE MILLION.

The opportunity to get one of the famous Split Hickory Vehicles at the low prices at which they are now offered to the public by the manufacturers is one that is the part of wisdom to take advantage of. Especially is this true in view of the fact that thirty days are allowed every purchaser who desires it, to try the buggy on his own premises and ascertain by actual use and inspection how good the vehicle actually is. The first step, and the wise one is to send your address to the Ohio Carriage Mfg. Co., Station 154, Cincinnati, Ohio, for their illustrated catalogue and price list. The rest of it is easy. Their catalogue illustrates and quotes prices on vehicles, harness and saddles of every description also, and will be found interesting to all horse owners. Write them for their catalogue and please mention HOARD'S DAIRYMAN.

Sturges & Burns Co., of Chicago, Ill., have sent out the following "notice to the trade:" Through a fire which occurred on the 21st ult., a portion of our factory was damaged; there will be naturally some delay in getting out orders in hand, but which, however, will not exceed ten days, and we hope you will bear with us under the circumstances. If you will send in your further orders we assure you they will be appreciated and the slight delay will not be such as to inconvenience you.

A Holstein-Friesian bull is wanted by Wm. O. Jackson & Sons, South Bend, Ind. Read their ad. among Holstein-Fresian ads on another page for particulars.

The Whitford Improved Calf Feeder is advertised on another page of this issue by the manufacturers, Messrs. Mahler Bros., of 32 La Sale St., Chicago. Since calf feeders are being very generally used, the main question is not whether to buy or not, but what one is the best. The Whitford seems to have some decided advantages, It is easily attached to the fence or building and detached as easily. The ball-and socket construction gives the nipple a perfectly free motion in any direction, thus approximating as nearly as possible the natural method. Cleanliness is as important here as in "baby's bottle." This style of feeder takes apart easily for cleaning. Write today for free circulars. Address as above.

DAIRY MARKETS.

ELGIN, Ill., March 9—Butter—No butter was offered to-day and there were no regular sales. The market was declared firm at 27½c. Output of the week, 508,600 lbs.

CHICAGO, Ill., March 9—Butter— Steady; creameries, 18@27½c; dairies 14@24c.

Eggs—Easier; at mark, cases included, 16½c.

Cheese—Steady; Twins, 12½@12¾c; Daisies, 13@13½c; Young America, 13@13½c.

Cattle—Prime beeves, 1,300 to 1,400 pounds, 5.60@5.75; choice to extra beeves, 5.15@5.25; fair to good export and shipping steers, 4.65@5.10; medium beef steers, 4.10@4.65; plain to fair beef steers, 3.80@4.60; common to rough, 1,000 to 1,250 lbs. 3.20@3.75; good to choice heifers, 3.85@4.50; good to choice feeders 3.80@4.65; poor to plain stockers and feeders, 2.50@3.75; fair to good cows and heifers, 3.15@4.20; good cutting and fair beef cows, 2.60 @3.25; common to good canning cows, 1.65@2.65; veal calves, good to fancy, 5.75@7.00; veals, coarse and common, 3.25@5 50; corn-fed western steers, 3.65@5.85. Texas bulls and grass steers, 2.75@3.20. Texas steers, fair to choice, 3.40@4.00.

Hogs—Good to prime heavy shipping, 7.45@7.60; good to choice heavy packing, 7.40@7.50; plain to choice heavy mixed, 7.25@7.45; selected butcher weights 7.45@7.60; assorted light, 150 to 195 lbs. 7.00@7.30; thin to choice, 50 to 130 lbs., 6.30@6.80; stags and rough lots, 4.00@6.60.

MILWAUKEE, Wis., March 9—Butter—Creamery—extras, 27½c; firsts, 23@24c; seconds, 17c; June creamery, 18@24c; process (renovated), 17@18c. Dairy, fancy, 19c; lines, fresh, 15@16c; roll, 15@16c,

Cheese—American full cream, Twins, 12¾@13c; Young Americas, 13@13½c: Daisies, 12¾@13c; Longhorns, 12¾@13c; low grades, 10@12c. Brick, fancy, 12½@13c; low grades, 10@11c. Limburger, fancy, 11¾@12c; low grades, 10@11c. Swiss, drum, choice, 12¾@13c; drum, No. 2, 10@11c; Block, choice, 12@12½c; Block No. 2, 10@10½c. Receipts for the week, 31,991 lbs.

Eggs—Strictly fresh-laid, loss-off, cases returned, 16c; seconds, 8c; storage city, No. 1 April stock, 10@11c. Country, 9@10c.

KANSAS CITY, Mo., Mar. 9—Eggs—Weak; fresh Missouri and Kansas stock, 13¾c, loss off, cases returned; new No. 2 whitewood cases included, 14½c. Butter—Creamery, 21@25c; dairy, 19c.

ST. LOUIS, Mar. 9.—Butter—Steady, creamery, 20@23½c; dairy, 18@21½c.

Eggs—Lower, 15c for fresh.

Latest quotation for fancy creamery: Baltimore, 28c; Cincinnati, 29½c; Buffalo, 29c; St. Paul, 25½; Minneapolis, 25½c.

NEWARK, N. J. Mar. 9—Butter—Market firm at 28c.

Eggs—Firm at 18½c.

NEW ORLEANS, La., Mar. 9—Butter—Extras scarce at 29c Ladles 15@16c Renovated, best 19c.

WASHINGTON, D. C., Mar. 2—Butter—Market firm at 28½c.

PHILDELPHIA, Pa., Mar. 9—Butter—Market firm; solids 29, nearby prints, 32c; Western, 30c.

NEW YORK, March 9—Butter—Receipts, 5,851 packages; firm; state dairy, 15@24c; extra creamery, 28c; held creamery, 27@28c; creamery common to choice, 18@27c.

Cheese—Receipts, 1,420 pkgs.; firm; state full cream, small colored fall made, 14¾c; do white, 14½c; large, colored, fall made, 14¼@14½c; large white, fall made, 14@14¼c.

Eggs—Receipts, 7,020 pkgs.; state and Pennsylvania, average best, 19c; Western fancy, 12½c; southern, 18c; refrigerator, 12@16c

BOSTON, Mass., Mar. 9—Butter—Creamery, Western extra, 26@27c; firsts, 25c; dairy. 23@24c; imitation creamery, 17@20c; ladle, 16@17c: box and print, 20@21½c.

Cheese—Choice, 14@14½c; sage, 14½@15c; fair to good, 10@12½c.

Eggs—Near by, 22c; Western selected, 19c; fair to good, 17@18c; Illinois, 19c

LIVERPOOL, Mar. 9—Butter—Good United States, 80s.

Cheese—Steady, American finest white, 63s; colored, 62s 6d.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

For Sale—Large and well equipped creamery and ice cream plant in leading southern city of 125,000 population. Paying $3,000 profit annually and can be increased. Steam boiler, engine, churn, butter worker, separator, Babcock test, bottle washer and ice cream plant (wholesale ice cream trade year round). Wagons, horses, office fixtures, etc. Office, creamery, and stables all under one roof. Requires ($7,000) seven thousand dollars. Satisfactory reasons for selling. Write for particulars to "ICE CREAM," care Hoard's Dairyman. 3-tf

For Sale—One of the best established dairies in the south. 130 head cattle—Jerseys, Guernseys and Holsteins. Can sell 200 gallons milk per day at an average of 30 cents per gallon. Farming and pasture lands rent very cheap. Good reason for selling. Address J. W. EDENFIELD, 408 Montgomery St., Savanna, Ga. 3-3

Guernseys For Sale—Pure bred bulls and grade heifers. A. H. HINMAN, Neenah, Wis. 2-4

For Sale—Creamery, located 100 miles northwest of Chicago, with large local retail and wholesale trade. Has run ten years without a stop. Ill health cause for selling. Address "W", Hoard's Dairyman. 5-2

Am an American Farmer, 40, married, temperate, open for situation, 10 years in present place as superintendent of large stock farm. Desire to make change. Who wants me? Box 88, Chicopee Falls, Mass.

Butter Wanted—We want to contract for the output of a good sized creamery in Minnesota or Wisconsin. Factory must be equipped for making extras the year round. Will pay good price and cash for each shipment. Address FERRY BUTTERICO., 238 Quimby St., Cleveland, Ohio. 5-2

Wanted—Married man with small family, also a single man. Must be good milkers and stockmen. Give experience and wages wanted. Steady work the year round. Commence at once. C. H. CROOK, Ottawa, Ill.

For Sale—A registered Jersey bull, dropped March 17, 1901; dam tested 16 lbs. 10 oz. butter in seven days. A strong, vigorous fellow deep in the blood of Diploma, sire of 56 tested cows. Also bull calf dropped Dec. 20, 1902, sired by a son of Pedro, sire of 45 tested cows, and out of a granddaughter of Diploma. Will be sold cheap if taken soon. Address E. E. RUNNER, Rochester, Ind.

Wanted—A foreman or manager of an up-to-date dairy. Married man preferred. Good wages to right man. Also want two good milkers not afraid of work. High class dairy and first-class wages to right kind of men. Address MARCH, care Hoard's Dairyman. 5-2

Position Wanted—By a young married man on a first-class dairy. Understands the care of milk, engine and separator. Reference furnished and required. Address FRANK SCHLOSSER, P. O. BOX 499, Streator, Ill.

Situation Wanted—To operate a cheese factory. Have had one year's experience under a number one cheese maker, and I am a graduate of the Wisconsin Dairy School at Madison. I am a single man. Address ARTHUR BOIS, Marengo, Ill. 5-2

Excursion Tickets to State Farmers' Institute and Mid-Winter Fair, at Marshfield, Wis.—Via the North-Western Line, will be sold at reduced rates March 16, 17 and 18, limited to return until March 20, inclusive. Apply to agents Chicago & North-Western R'y.

Homeseekers' Excursions to the Northwest, West and Southwest, and Colonist Low Rates West—Via the North-Western Line. Excursion tickets at greatly reduced rates are on sale to the territory indicated above. Standard and tourist sleeping cars, free reclining chair cars and "the best of everything." For full particulars apply to agents Chicago & North-Western R'y 5-sp

For Sale—A butter dairy complete, with 42 cows. Located near the best market in the west. A good chance for a small capital. For full particulars address 412, care of Hoard's Dairyman. 5-4

Wanted—Promptly, a single white man who is under thirty years of age, and a first-class milker and feeder. Write, giving full particulars, wages wanted with board. Don't send stamp. Address GLENFREW FARM, Sewickley, Pa.

For the land's sake—use 'Bowker's' Fertilizers. They enrich the earth and the men who till it.

Carlots of Separators

One of our would-be competitors, whose most successful department has always been his advertising one, is industriously circulating the story of a "trainload shipment West of twenty-four cars of separators."

Unkind critics say that nearly all of these cars were nailed up before the public was invited to inspect the wonderful array and the suspicion exists that there was not much in some of them; while it is said that a number got "hot-boxes" and had to be cut out before many stations away from the starting point; and others say that the manufacturer in question had been saving up stock for the event for six months past and that it represented a season's shipment.

However, there would be nothing very remarkable about such a spectacle even if true. We ship **double that many cars of machines every month and to single customers of the De Laval machines**—the Continental Creamery Company of Topeka, Kas., and the Beatrice Creamery Co. of Lincoln, Neb.—have **each** ordered **more than that many cars of machines** for their own account during the first six months of 1903. Many other agents and creameries will use nearly as many.

All the big, successful and long experienced users of separators are users and patrons of the **De Laval** machines. This fact of itself is the strongest possible testimony to their all-around superiority, whether bought in carlots, trainloads, or the single machine of the ordinary purchaser.

The De Laval Separator Co.

Randolph & Canal Sts., CHICAGO.
1102 Arch Street, PHILADELPHIA.
217-221 Drumm St., SAN FRANCISCO.

GENERAL OFFICES:
74 Cortlandt St., NEW YORK.

327 Commissioners St. MONTREAL.
75 & 77 York Street, TORONTO.
248 McDermot Avenue, WINNIPEG.

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

Wanted—A married man with small or no family to work on dairy farm. Must be a good farm hand and good milker. Give age, experience and wages wanted. For particulars, address BELLEVUE FARM, Negaunee, Mich. 1-tf

Buttermaker Wanted—We want to hire a buttermaker whom we furnish with an assistant. Send recommendations, state salary wanted per month and experience with application to the secretary before March 21, 1903, or apply personally at the director's meeting at creamery March 21, 1903. The directors reserve right to reject any or all bids. THE FARMERS' CO-OPERATIVE CREAMERY AND COMMERCIAL CO., Peter Ameson, Sec., Waterville, Iowa. 4 2

For Sale—The entire outfit for making American cheese; all in good order. Will be sold at a bargain. JAMES VIPOND, Shullsburg, Wis. 4-6

A Married Man 30 years old, would like to correspond with parties in need of a competent man to take charge of good sized farm about April 1st. I can put the right farm on a good paying basis. Third year in present place. Good reference given. MARK HOPKINS, Jonesville, Mich. 4-2

For Sale—Seven registered Guernsey cows and heifers, one Guernsey bull two years old, twenty very high grade Guernsey cows three to five years old fresh and coming fresh this spring. Fourteen registered Berkshire sows bred to farrow April and May. Fifty full blood unregistered Shropshire ewes Forty ⅞ bred Angora goats. Apply to J. E. STORY, successor to N. Wis. Live Stock Co., Stanley, Wis.

Good Creamery Property—Proposals for the purchase of the building and fixtures of the North Star Dairy Association, located at McIntosh, Minn., will be received by the undersigned secretary The outfit includes a full equipment of the latest improved butter and cheese making machinery. The company also has a lease of the site so long as it is used for creamery purposes. C. C. OSTBY, Sec. Dated at McIntosh, Feb. 26th, 1903.

Young Guernsey coming 1 year old for sale. MRS. A. W. LEHMAN, Neosha Wis. 5-2

For Sale—Reid separator, nearly new, capacity 2,700 lbs. per hour; 15 horse boiler; 10 horse Erie engine; engine in excellent condition; also piping, pulleys, shafting, belts, vats, pumps, etc. Complete outfit. LAFAYETTE CREAMERY CO., Darlington, Wis.

Position Wanted—In creamery as buttermaker. Have had long experience in creamery business. Can furnish first-class references. Am single, sober and reliable. State wages. Apply FRITZ S. OHLSSON, 5801 Lexington Ave., Chicago, Ill. 5-3

For Sale—Desirable dairy business with full equipment, consisting of horses, cows, farm tools, wagons, routes, etc. Leading dairy business in town of 12,000. Milk bottled. A bargain if sold at once. None but up-to-date dairymen need apply. Reason for selling—poor health. Address BOX 416, Elyra, Ohio. 3-tf

Buff Jersey's latest book on Farm Stock and Dairy Work is full of practical things for practical people. The Silo, how to build and fill; ensilage, its value; soil, crops, variety and how to grow. Swine, poultry and many other subjects ably treated. Send 25c for copy. Monmouth, Ill. 47-tf

Wanted—Experienced farm hand, able to milk well. Give age and wages wanted. ST. IVES PARK FARM, Mont Clare Station, Chicago, Ill. 41-tf

For Sale—The Prairie Farm, 840 acres. May be divided into five farms with buildings. In high state of cultivation, 16 miles from Toledo. One hundred cows, selected for 40 years. Terms to suit. 5% Address E. L. LOCKWOOD, Petersburg, Mich. 46-tf

Position Wanted—As butter maker or manager of creamery. Understand all details of creamery business and work. Fifteen years experience. Make cheese also. Best of references. Address B, care Hoard's Dairyman. 47-tf

Guernsey Cattle—Clover Knoll herd. Send for circular. M. SAGER, Orangeville, Pa. 50-12

Guernsey Grade Heifer—For Sale 10 Guernsey grade young heifers. Seven of the lot 1 year old; 3 six months old, all in fine condition. Just right to serve as the foundation of a fine dairy. A finely bred young bull, 10 months old, registered Guernsey, to head the bunch. These heifers were bred from some of my finest grade Guernsey and Jersey cows. The lot will be sold at reasonable price. W. D. HOARD, Fort Atkinson, Wis. 52-tf

Wanted for California—Steady, temperate, reliable man experienced in farming, milking, feeding and raising thoroughbred Holstein or Jersey cattle. Good chance for right man for work by the year in this beautiful climate. State age, nationality, qualifications, wages expected, also any physical impediments. References. WILLIAM NILES, Los Angeles, Cal. 4-2

Cheese Outfit for Sale—1 Helmer's Automatic Steel Gang Cheese Press for 14½ inch hoops (new), 1 Helmer Plain Steel Press 14½ inch hoops (new), 12 galvanized 14½ inch cheese hoops (seamless). 14 tinned 14½ inch cheese hoops (seamless), 1 Schaubb power curd mill, 1 Pohl curd mill, 2 set curd knives, in fact two complete cheese outfits for sale at a bargain. RIPON CHEESE FACTORY-CREAMERY, Ripon, Wis. 4-4

A Few First-Class managers and buttermakers. Open at once. Best of references. No charges to employers. Save time by writing THE SCIENCE AGENCY, Durham, N. H. 4-5

For Sale—Dairy farm—one hundred acres with elegant dwelling, tenant house, large barn and silos, cows and everything necessary with a first-class, well established 50 gallon per day milk trade. Address C. A. SNOW, Athens, Ohio. 4-2

For Sale—Milk route, horses, harness, wagon, cans, tickets, etc. A nearly new and very complete outfit. Present net earnings about $150 co per month. A splendid business opportuity Apply to JOHN L. FISHER, Hayes Block, Janesville, Wis. 4-2

Pure Maple Sugar and Syrup For Sale—Made on our own farm. Reference: Citizens Bank of Arcade, N. Y. Address, W. H. RICE, Chaffee, N. Y. 15-2

Building up a Dairy Herd.

(Paper read before the Round-up State Farmers' Institute at Owosso, Mich., Feb. 26th, 1903, by J. W. Helme of Adrian.)

In the year 1893, being dissatisfied with fruit growing on my forty acre farm in Adrian city, I determined to change to dairying. Having no practical knowledge of expert dairying, my first step was to post myself and I subscribed for HOARD'S DAIRYMAN and other papers. After reading these, I determined to have a thoroughbred herd of some dairy breed, and upon the conclusion of the World's Fair test, I naturally selected the Jersey. I next subscribed for the *Jersey Bulletin* and bought all the Jersey literature I could get to post up on Jersey families.

After considerable study I decided on the St. Lambert family, and especially the Matilda branch of that family. Matilda 4th, who gave 16,000 pounds of milk in one year, was to my mind the greatest Jersey cow that ever lived. I had $500 to buy stock with, and the question came up, shall I buy ten "fair" cows and have my herd in operation at once, or shall I buy one or two extra cows and breed up. My cupidity said "buy ten"; my good judgment said "buy the best at any price."

I finally purchased a grandaughter of Matilda 4th, for which I paid $300 spot cash. She was in calf to the best living bull at that time, the sire of Ida Marigold who had just won sweepstakes at the World's Fair. She dropped me a bull calf, just what I wanted to head my new herd.

Pretty big price you say. Well, she was the best investment I ever made. Last year, at the age of sixteen years, she dropped me a calf that I sold for $75, and gave me 7,000 pounds of milk which sold in the form of cream for over $100, and she has been doing this for each of the nine years she has been with me. She was not a phenomenal milker, but very persistent, hard to dry up, rugged and healthy. She had a pedigree in which every animal had been a star. This is what counted the most. Today every animal in my herd, twenty-five in number, are her daughters or grand-daughters, and every one in milk will produce more milk and butter when mature than she.

Here is the first lesson in building up the herd.

Like produces like, but more often the likeness of an ancestor. A calf from an extra fine grade cow may "take back" to a worthless ancestor. The foundation of a dairy herd should be a great performer, with a pedigree full of great performers. Neither alone will do. We should have both. Thus, the more star performers in the pedigree, the less chance you have of drawing blanks in the offspring. I also bought another registered cow for $150 of similar breeding. With these two cows I founded my herd in March, 1894.

To review briefly: To start a dairy herd, first read the dairy papers and books, and get posted. Next, select the breed you like best, for that is the one you will be the more liable to be successful with. But it should be a dairy breed, viz.: Jersey, Guernsey, Holstein, or Ayrshire. Avoid the beef breeds for the dairy, and especially that mythical thing known as the "general-purpose cow." A cow does one of two things with her feed, she puts it either on her back or in the milk pail. She cannot do both. For foundation animals, get the best. The foundation cow should be a good performer, with a pedigree of good performers behind her. The sire should have a similar pedigree and a great mother behind him.

Now, we have got a start, the process of grading up is the work of years. However good the herd is, there will always be a "poorest cow." A better one must be raised to take her place. Dairy calves should be raised on skim milk, bran, clover hay and pasture, feeding liberally, but not of any fattening food. Breed not younger than 15 months old and not older than 21 months, varying according to the size of the heifer.

In my experience, the three months preceding the birth of the first calf is the time to make the cow. During these three months I feed all the grain they will eat up clean and plenty of roughage. The young heifer must at this time develop her calf, her udder and keep up her own growth. Never does she need as liberal a feeding as at this period, and as milk fever never occurs with first calf, there is no danger.

Having got the herd in milk, the next things necessary are scales and a Babcock test. Every cow's milk should be weighed night and morning and a record kept of the same. Get a spring balance that weighs 30 pounds; set back the dial the weight of the milk pail; make a blackboard at the barn, ruled to accommodate a week's milk record. The milker then has only to hang his milk pail on the scales and record the result on the board—not two seconds of extra work. Each week remove the record to your dairy account book. You will be surprised how the cows will vary from your estimate of them. At the end of the year many a cow that required two pails to hold her milk when flush will be found behind her more modest sister who kept everlastingly at it.

Now you can begin to cull; discard every cow that goes dry on her own notion; while every cow should be dry six or eight weeks previous to calving, she should be forced dry. She ought to be giving at least sixteen pounds per day when you start in to dry her up. Discard the cow with short teats, she takes too much time to milk; also the cow with a dainty appetite. The profitable dairy cow should eat everything in sight. Every year select the two most promising heifers to bring up to take the place of the two poorest cows.

Sires may be bred to their own daughters, but not to their grandaughters. A change of sire is necessary at this time. Get the very best you can buy; remember he is half the herd, and if he is only common your herd will go backward instead of forward. Never breed to anything but a thorough-bred sire, and above all, don't cross breed. Think a minute of what you are doing by cross breeding. Here stands a Jersey; for seven centuries the farmers of Jersey Island have been breeding her to produce milk and butter. Think of it! Seven centuries of brain and labor in that little animal to get the blood running to milk and butter. Here stands a Short-horn, bred for a like period to produce beef. How thoughtless the farmer is, who at one fell stroke destroys the work of seven centuries. How egotistical to think that one man in a year could improve the thought and labor of centuries.

Select your dairy breed and stick to it. If you can not afford thoroughbreds then get grades of the same breed, but avoid scrubs and cross breeds. Feed grain every day in the year. The benefit will come not so much at once in extra milk as it will in the succeeding years from the extra condition of your cows and the effect on their offspring, which is your future herd. I give in the following table the results of my herd for the celandar year of 1902. No cow should be kept unless she gives 6,000 pounds of 5% milk after her second calf. While I milked 12 animals during the year, three of them were

Spring Humors

Cause many troubles,—pimples, boils and other eruptions, besides loss of appetite, that tired feeling, fits of biliousness, indigestion and headache.

The way to get rid of them and to build up the system that has suffered from them is to take

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Forming in combination the Spring Medicine *par excellence*, unequalled for purifying the blood as shown by radical and permanent cures of

Scrofula	Salt Rheum
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All Kinds of Humor	Psoriasis
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Testimonials of remarkable cures mailed on request. C. I. HOOD CO., Lowell, Mass.

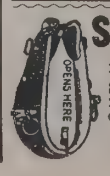
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Brooks Appliance. New discovery. No obnoxious springs or pads. Automatic Air Cushions. Binds and draws the broken parts together as you would a broken limb. No salves. No lymphol. No lies. Durable, cheap. Pat. Sept. 10, 01. Sent on trial Catalogue free.

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Are better and cheaper; no hames will not gall but cure sore shoulders. Sensible, practical, humane. Agents make big money. Write for descriptive catalog and free territory.

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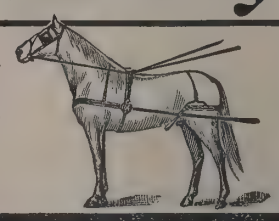


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It is foolish to pay two or three profits on a carriage or harness. We sell at unequaled low prices, not because our goods are "cheap," but because we save heavy expense and the middlemen's profits by our direct way of selling.

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THE COLUMBUS CARRIAGE AND HARNESS CO.,
Factory and General Office, Columbus, O.
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Write to nearest office.

30 YEARS SELLING DIRECT

We are the largest manufacturs of vehicles and harness in the world selling to consumers exclusively.
WE HAVE NO AGENTS.
but ship anywhere for examination, guaranteeing safe delivery. You are out nothing if not satisfied. We make 195 styles of vehicles and 65 styles of harness.
Large Catalogue FREE—Send for it
Visitors are always welcome at our factory
ELKHART CARRIAGE & HARNESS MFG. Co., ELKHART, IND.



No. 726 Driving Wagon. Price $37. As good as sells for $25 more. Extra 2¼in. Kelly Rubber Tire $13.



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LOW DOWN CUT-UNDER

justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

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THE ONLY LOW-DOWN

Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the Market.



20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for catalogue, prices and terms Wagons for carrying Bottled Milk a specialty.

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Sole Manufacturers,
De KALB, - - Ill.

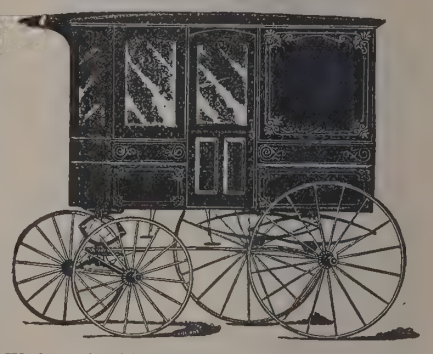
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SAVE DEALERS' PROFITS.
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Watch for the Next.



We know it will interest you. Write for our Form E catalogue showing many other styles.
THE O. ARMLEDER CO., Cincinatti, O.



SILO SENSE

presumes the use of the modern round silo. They are the cheapest and best, and preserve the silage better than all others. There are no angles or corners to admit the air and cause the silage to mold or rot. We make them in four styles and 200 sizes. Made of Cypress, White Pine and White Hemlock. Anybody can set them up. We also make a full line of Ensilage and Fodder Cutters, Tread Powers, Wood Saws, Threshers, Engines, etc. Send for Book on Silos and Ensilage. Mailed free.
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The **Economy Silo**

Made of selected lumber, by skilled mechanics and special machinery. Continuous hoops—airtight—the best and cheapest. Write for illustrated catalogue and information.
ECONOMY SILO AND TANK CO.
1814 Market St., Philadelphia, Pa.

Split Hickory SPECIAL

Is a buggy that anyone may be proud of. It is as strong as the best Split hickory can make any vehicle. Only $47.50 Free 30 Days' Trial. Ohio Carriage Mfg. Co., Station 154, Cincinnati, O.



Send for Cat.

ERIE CAN REFRIGERATORS should be used on all milk cans from April to Oct. Prevent sour and churned milk. Booklet free. S. C. SULLIVAN, M'f'g., Erie, Pa

only in the herd eight months, so my herd averaged eleven cows.

Name.	Pounds milk.	Babcock Test. %
Bina, 8 months., first calf	4901	6
Elsie William, second calf	8202	5
Angela "	6630	5.4
Bessie, 8 months, second calf	5433	5.8
Nan, second calf	5644	5.2
Rose Edson, third calf and over	6300	6
Doris Dale "	6537	5
Jenesie "	7671	5.2
Ollie Fisk "	6814	6.2
Edna, 8 months "	4954	5
Scrubby, grade "	5265	5
Matilda, 16 years old	6806	5
	75157	
Annual average per cow, 6832 pounds.		5.4

Each of the above cows was dry during the year from 4 to 8 weeks. The above figures indicate a butter production of 4,600 lbs. or over 400 lbs. per cow.

The milk of this herd is made into cream and the cream sold directly to the consumer in Adrian city. Considerable skim milk is also sold at 2 cents a quart. Balance of skim milk goes to feed thoroughbred calves, all of which are sold for breeding purposes. Under such circumstances the returns are hardly a fair comparison for the average dairy herd. I give them for what they are worth. Cream and skim milk sold during the year, $1,350. Young stock sold $325, making gross returns of over $150 per cow.

These figures do not include milk and cream for a family of six, nor two quarts a day for the hired man, nor butter that we get from an occasional churning when the cream trade is dull, nor calves on hand dropped during the year.

I think that after looking over these results I feel that my method of building up a dairy herd has been fairly successful.

Raising Alfalfa in Idaho.

Some Dairy Conditions.

ED. HOARD'S DAIRYMAN:—I am sometimes called the alfalfa crank of these parts as I usually have better success than my neighbors in getting a good stand. It has been my delight for twenty years to seed, raise and feed lucerne, as it is more commonly called out here.

My way in this climate is as follows: Plow the land in the fall or as early in spring as practicable, let it lay till the latter part of May, then, if clay land, disk; if sand or soft loam, harrow smooth and then pack the land with a heavy roller.

A sheep herd is still better; then plant four pounds and not to exceed six pounds of seed to the acre with a press drill. Never plant anything else with it unless you are born for luck. Alfalfa loves sunshine and lots of it. The hotter the shine the faster the growth.

If the season is dry, weeds or grain of any kind absorbs the moisture and retards growth the same as weeds in corn or any other crop. If the season is wet the alfalfa needs the air and sun. I repeat, for a good stand of alfalfa give it clean ground and plenty of sun.

Don't mow it as some recommend; that is the first crop after seeding until it begins to bloom. By that time the weeds, if there are any, will be ripe and will not start again so quick.

When mown don't leave the crop on the ground, as some recommend, as the shade is not what it wants. Rake the crop up clean with a horse rake, set the rake to dig all it will. Never be afraid to scratch lucerne ground. The above theories are positively demonstrated to win in my land and climate. Further than that this deponent saith not.

Your paper has considerable interest for me though the major part of it is Latin or Greek to me. I have never seen a silo, as corn is not a crop here. Never see oil cake or cotton seed this far west. Flax seed is sold here as a drug at fifteen cents per pound. Gluten meal we know nothing of.

We quarantine against Jersey cattle as carefully as any other pest. I have a a thirty-five cow dairy. That is what I suppose you would call a parody on a dairy, as I milk in open sheds, let my cows lie out only when I am milking. Having large cows they act as a cold storage. When it is very cold weather they hold up their milk, and when the thaw comes they let it down.

We don't move our sheds to get away from the muck, for the reason that in the summer we take our cows out on a range and don't need the sheds moved. In winter they are frozen down, and we can't move them. We breed for long legged cows so their teats won't drag in the mud when it thaws, and they don't get scratched up so bad in the brush on the summer range. By letting them lie out in the snow in cold weather if their teats crack, the cracks freeze up and heal quicker than in warm stables.

For a balanced ration we feed all the whole straw they will eat and all the lucerne we can afford. We have a separator and churn and tread mill power. Feed the skim milk to calves and pigs. Just keep what pigs will thrive on the milk and buttermilk and dish water. Pigs have no shelter. Keep warm by squealing and rustling for center place.

We put a little milk in the bottom of a pail, let one calf have his nose in the pail and a calf on each ear of the one with his nose in the pail, then a calf on that calf's ear and so on *ad infinitum*.

Our cows are every kind and color but Jersey, from Texas to Canada. The only condition in buying, they must be long legged, gentle and easy to milk. If a cow is easy to milk, we never turn her down whether she gives a quart or only a pint. If we get a kicker or hard milker, we cross her with the butcher's block to improve the breed.

We pasture stubble and all other fields we can get our cows into, and they are good rustlers. The summer ranges consist largely of sheep tracks and rocks with plenty of mountain scenery. The cows travel over very steep hills from four to ten miles per day. Some of them lie out and only get milked from two to three times per week, but as the weather is cool in the mountains, the milk don't sour in their bags only when it thunders very hard. In June last they had in the yard from 4 to 6 inches of snow for several days at a time. Now from this conglomerate herd, under the above conditions from January 1st, 1902, to Jan. 1st, 1903, we have sold:

Pigs sold	$240.00
Market price of calf crop	600.00
Butter and milk used in family of 15	200.00
Have sold on the market. butter	1950.00
Total	$2,990.00

EXPENSE ACCOUNT.

To one hired hand	$420.00
To interest on value of cows	150.00
To four girls old enough to help	600.00
To wife for tending babies and post office, and helping churn.	600.00
To separator oil for U. S. separator and sundries	50.00
To 150 tons alfalfa at $4 per ton	600.00
To six months of stubble fields and mountain scenery	180.00
To myself for keeping girls and hired hand at work and playing with babies	390.00
Total	$2,990.00

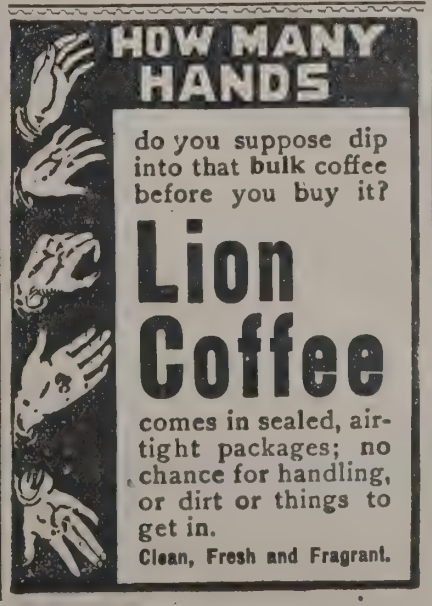
Can any of your advertisers furnish us a breed of cows to the following order?

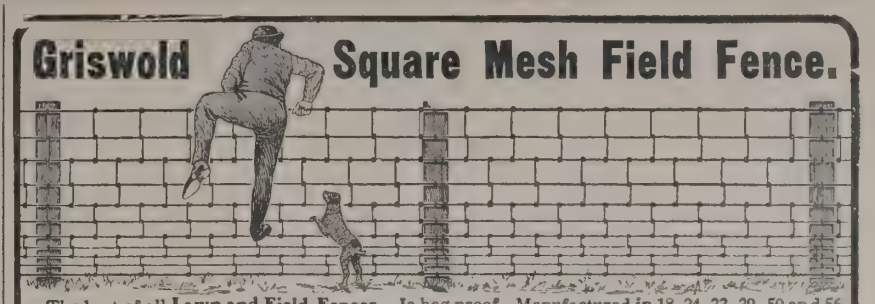
Dehorned, detailed, and left hind leg should be a little longer than the other and consist of one straight bone and be braced from gambrel joint to shoulder to prevent any forward movement, with a capacity for carrying milk over on Sunday, holidays and rainy days. Warranted to stand in any climate while being milked. With a shield in front of the bag to prevent wire scratches while going through the wire fence into the neighbor's field. Provided with a safety valve as an insurance against lucerne bloat.

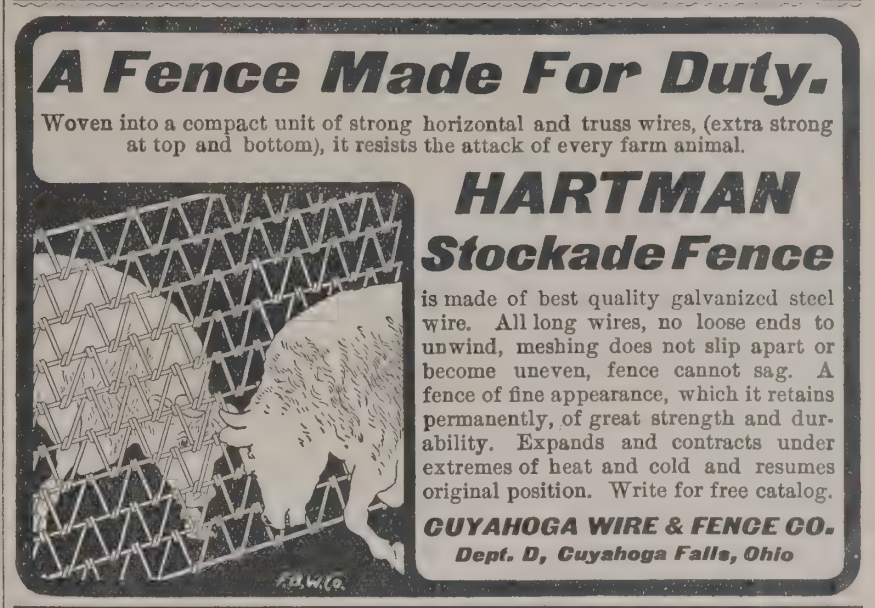
The above described, all-purpose cow will find ready sale in the wild and wooley west.

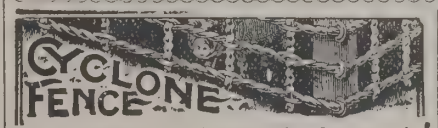
WOOLEY WEST.

Idaho.





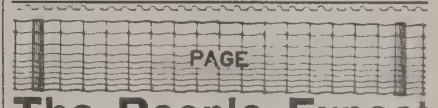






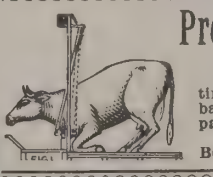




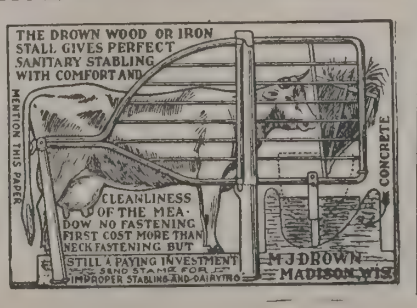


DO NOT FORGET to write THE WASSON STANCHION CO., CUBA, N. Y., if in need of Cow Ties or Stanchions.



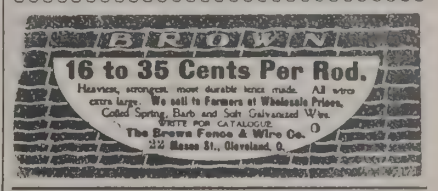






Are You With Us?







VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Lump Jaw.

What is lump jaw? Is it curable and what will cure it? J. W.
Hibbing, Minn.

ANSWER.

This disease is due to the presence of the germs known as Actinomycoces which locate in the vicinity of the lower jaw and cause tumors of various sizes which, as time goes on, attach themselves to the bone. As long as the tumor is free from the bone it may be removed surgically with the best results, but after it is once fixed to the bone there is no reliable cure.

Probably Blood Poison.

I have a cow that has a swelling between the horns, and also over the right eye around the horn. The enlargements are as hard as bone. She has been dehorned. The swelling first appeared some weeks ago and the cow then suffered great pain, holding her head high in the air and uttering groans continuously. She also rubs the enlargements against the wall. SUBSCRIBER.
Miles Collier Corner, Ga.

ANSWER.

The enlargements appear to be due to blood poison which may have resulted from the dehorning by using a rusty saw, or infection may have taken place later by coming in contact with any unclean object. It is advisable to poultice the enlargements twice daily with warm linseed poultice to favor an eruption. You may give the animal the following; quinine sulphate, 1 ounce; gentain root (powdered), 3 ounces; dried sulphate of iron, 1 ounce. Mix, and make into 12 powders, give one in food or drench twice daily. It is best not to use the milk.

Abortion—Shedding Teeth

I had four cows in my herd that had abortion when about six months along. I separated them from the rest, and have had no more. Would they be good to keep over for another year, or better to let them go to beef?

I have a three-year old mare coming four in the spring. She does not seem to do well. Hair is rough and dry, and she looks gaunt all the time.
Burke, N. Y. J. G.

ANSWER.

Keep them separate until they are entirely over the discharge from the vagina and do not breed them for at least four or six months after abortion; if you do they may infect the bull and carry the disease through the entire herd. It would be advisable to disinfect the genitals of these cows as prescribed for abortion on page 1036 of the DAIRYMAN, Jan. 16, 1903.

The colt is shedding her temporary teeth and there may be some difficulty in doing so. Have the teeth examined and you will find the cause of your trouble.

Retention of Placenta and Other Items.

No. 1. Jersey cow calved three days ago, but does not clean afterbirth. She has been troubled that way every time she calved. I tried to unbutton the afterbirth, but it seems grown on. I got considerable of it away, most of the buttons: it smells decayed.

No. 2. I now have three heifers 18 months old; they did not get enough to eat, and are small but well bred; they are with calf. I am feeding them oats, bran, oil meal and corn stover. They are fat now but small. What shall I do with them?

No. 3, Have two horses; they have had worms two years, and still have them. G. K.
Racine, Wis.

ANSWER.

No. 1. If you do not understand how to remove the placenta completely, you should not attempt to tear away part of it, as that will make it difficult to get it at all. By the time you read this answer it will be too late to attempt to remove the balance by hand. Take a teaspoon-



Free to Horse and Cattle Owners

Our two large booklets telling how to cure Lump Jaw in cattle, Spavins and all kinds of blemishes upon horses, also Fistula, Poll Evil, Sweeny and Knee-Sprung. Inexpensive methods, easily employed by anybody, and that cannot fail to cure

We know of over 140,000 farmers and stockmen who rely upon these same methods, and for whom we have saved hundreds of thousands of dollars. Books mailed free if you write stating what kind of a case you have to treat.

FLEMING BROS., Chemists, 228 Union Stock Yards, Chicago, Ill.

Paint Without Oil.

Remarkable Discovery That Cuts Down the Cost of Paint Seventy-Five Per Cent.

A Free Trial Package is Mailed to Everyone Who Writes.

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powdrpaint. It comes to the farmer a dry powder and all that is required is cold water to make a paint weather proof, fire proof and as durable as oil paint. It adheres to any surface, wood, stone or brick, spreads and looks like oil paint and costs about one-fourth as much.

Write to Mr. A. L. Rice, manufacturer, 346 North St., Adams, N. Y., giving the name of the dealer from whom you buy your paints. Mr. Rice will send you a free trial package, also color card and full information showing you how you can save a good many dollars. Write to-day.

A Handsome Book

About Mandolins, Banjos and Guitars, Free.

Any one interested in the subject of mandolins banjos and guitars can obtain a beautiful book about them free by writing to Lyon & Healy, Chicago. It contains portraits of over 100 leading artists, together with frank expressions of their opinion of the new model Washburn Instruments. Descriptions and prices of all grades of Washburns are given, together with "Facts about the Mandolin" and "How to Play the Mandolin."

LYON & HEALY,
100 Adams St., Chicago, Ill.

Washburns are sold by leading music dealers everywhere.

200 ACRE DAIRY FARM
—FOR SALE—

Good land, well improved and plenty of timber. Have 25 cows and a milk route which takes all the milk produced. It is within 2 miles of Hastings. For full particulars address Lock Box 237, Hastings, Mich.

WHITEMAN'S MILK BOTTLE FILLER

fills 8 bottles at a time. The cost is $40 00 Will allow you $2.00 for freight.

A. V. WHITEMAN, 144 Chambers St. N. Y. City. Milk Bottles and Supplies.

BUY DIRECT FROM FACTORY, BEST

MIXED PAINTS

At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N Y.

THE SHARPLES Sympathetic Lactator

The only thoroughly perfected and practical

COW MILKING MACHINE

adapted to the uses of large dairies.

We are now prepared to take contracts for complete installations.

DAIRY SPECIALTY CO.,
West Chester, Pa.

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. Satisfaction guaranteed or pigs may be returned.
JOHN WHITE & SON, Adamstown, Md.

NORTH OAKS FARM, MINN ST. PAUL,
(Jas. J. Hill, Proprietor.)

AYRSHIRE BULLS

Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address,

N. E. McKISSICK, Supt., Cardigan, Minn

AYRSHIRE CATTLE of both sexes, and some young ones from good business cows. Prices within reach of any dairyman. Also Chester White Pigs, March and April farrow—All from registered stock. F. TSCHUDY & SONS, Monroe, Wis.

AYRSHIRE BULLS

A choice lot of Young Bulls 3 mo. to 1 year old from heavy milkers at farmers' prices. Also cows and heifers. HOWARD COOK, Beloit, O.

MRS. LEA'S MILK AND BUTTER PURIFIER.



Removes all Weed, Garlic, Vegetable and Animal odor and taint from the milk and in no way injures the cow to which it is fed.

Maj. H. E. Alvord, Chief of the Dairy Division, Agricultural Department, Washington, D. C., says in a recent letter: "It seems to me that the experimental stage of this matter has passed **Everybody** as far as I know (and I have been interested to make diligent enquiry) who have used the "Purifier" intelligently, is satisfied that it does what is claimed for it, remarkable as some of these claims are."

Dr. J. W. Mallet, Professor of Chemistry, University of Virginia, Charlottesville, Va., says: "The Preparation in question (Mrs. Lea's Milk and Butter Purifier) contains nothing capable of injuring the cows receiving it or in any way rendering the milk and butter of such cows injurious or objectionable for human consumption."

Manufactured by VIRGINIA CATTLE FOOD COMPANY, Danville, Va.
Write Us for Prices and Further Information.

THE BROWN BESSIE HERD

Offers some splendid young cows and heifers bred to Recorder, the only living son of the famous **Brown Bessie,** winner of the 30 and 90 day butter test at the Columbian. Also a few sons of Recorder from daughters of Diploma and other tested cows are offered.
H. C. TAYLOR, Orfordville, Wis

GUERNSEYS FOR SALE.

The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality F. W. TRATT, Whitewater, Wis.

GUERNSEYS.

HADDON FARMS—Home of the noted GLENWOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

Wasteland Guernseys

Herd headed by Sir Choral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Young registered bulls always for sale. 5 high-grade heifers in calf, a bargain. M. M. & E. J. HOLLINGSWORTH, Landenberg, Chester Co., Pa.

Rosendale Guernseys.

MATURE COWS YEARLY RECORDS range from 356 to 713 3 lbs. butter. This herd contains more officially tested cows than any other herd of the breed. All of the largest records are official ones. A particularly choice lot of tuburculin tested bulls for sale from high record dams.
GEO. C. HILL & SON, Rosendale, Wis.

GUERNSEYS FOR SALE.

Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.
JAS. H. BEIRNE, Oakfield, Wis.

GUERNSEY Bull Calves

Sired by O. K. Dams of equal merit.
FRED VOGEL, JR., 165 First Avenue, Milwaukee, Wis.

Old Homestead Guernseys.

Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.

Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL, Perry, Lake Co., Ohio.

Fairview Farm Guernseys.

Young Bulls for sale. Good individuals from rich milkers. Ages from four weeks to old enough for service. Prices reasonable. Address
C. W. WILCOX, General Del., Des Moines, Ia.

FOR SALE

AN EXCELLENT

HERD OF JERSEYS

in perfect working trim. Reason for selling—being away from home can not give proper attention.

FOR RENT—an excellent farm, 175 Acres in cultivation, near the Iron Mountain R. R., 30 miles from St. Louis the great World's Fair City. Also within 2 miles of two very large manufacturing industries. Well adapted and fitted for dairying and Milk shipping. P. O. Festers, Mo. For further particulars address

C. H. FAKE, Bonne Terre, Mo.

Exile of St. Lambert

—13657—

is the sire of more tested Jersey cows than any bull living or dead, and the number to his credit will probably never be equaled by any other bull. His dam was one of the largest milkers among Jerseys, and is the dam of the three year old cow with the highest year's milk record for that age. Exile's sire is the grand sire of the cow holding the highest milk record for a year.

The mid-winter sale lists include a few tested daughters of this great bull and several cows and heifers deep in the blood that produced this famous sire. If you wish to improve your herd, or to start one, you will probably never have a better opportunity than is here offered. If interested write for lists, and please specify whether bulls, cows in milk, or heifers, are wanted.

WINTERGREEN HILL FARM,
Scottsville, N. Y.

FOR SALE AT FARMER'S PRICES.

One St. Lambert bull ten months old; also bull calf three months old, or will exchange for as well bred heifers. Registered Poland China pigs for sale at all times. Correspondence solicited. FRANK SHADBOLT, Caledonia, Minn.

FOR SALE.

JERSEY BULL, one year old. Good individual of the best breeding. Also 7 months bull from tested dam. Herd headed by Fontaine's Owl, 60436. Prices on application. Address,
J. F. EGERTON, Footville, Rock Co., Wis.

VALLEY FARM

Is offering some good bargains in young bulls from 1 mo. to 2 yr. old. Also B. P. Rock Cockerels, $1.25 each. Write

FRED STUBLEY,
Black Earth, Wis.

HAZEL FERN HERD. A. J. C. C. Jerseys, blood of St. Lambert, Melia Ann, Combination. Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

PROSPECT HILL JERSEY HERD.

Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

FOR SALE.

Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

FOR SALE

GOLDEN LAD BLOOD. sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.
W. J. HUSSEY, Mt. Pleasant, O

ST. OMER HERD

Offers young bulls fit for service, out of tested dams with good yearly records. Strong in Exile of St. L., King of St. L. and Stoke Pogis of Prospect. Reasonable prices. JOS. T. HOOPES, Bynum, Md

Biltmore Jerseys.

Have been Bred for work in the Dairy. Are from the choicest foundation that could be bought. Include more Prize Winners than any other Herd. Are robust, true to type and of great capacity. Are noted for large milk yields, perfect udders and teats. All tuberculin tested for the last seven years.

FOR SALE--Young Bulls from selected dams. Send full details, mentioning defects you wish to correct, blood lines, etc., and we will quote promptly, reasonably, with guaranteed description and full pedigree. Apply to

BILTMORE FARMS,
Biltmore, N. C.

THAT NEW BULL

If you want a good Jersey Bull, ready for service this summer or fall, write NOW for our sale list No. 1. St. Lambert, Brown Bessie, Signal and Tormentor blood. Dams all great workers with high fat tests. Full particulars as to breeding, and milk flow, etc., of dams upon request. Address, E. E. STEVENS,
North Madison, Lake Co., Ohio.

The Evergreen Farm Herd has for sale three or four A. J. C. C. heifers bred. Also a few cows and some choice bull calves from two to six months old. Write for pedigrees and prices.
N. N. PALMER & SON, Brodhead, Wis.

FOR SALE

Pedro Bull, 4 years old, kind and sure. Also young cows, Signal and St. Lambert blood, at farmers prices A. A. EGGLESTON,
Painesville, Ohio.

ful of permanganate of potash in two gallons of warm water, and inject into the uterus (all at one injection) allow this to remain as long as she will keep it, then follow with as much warm water; this will flush out all the sloughing particles of placenta. Repeat once daily until clean.

No. 2. Keep the heifers and give them a chance to show what they can do at the pail. Small cows are often large producers.

No. 3. To remove the worms give the following: Santonin, 20 grains; Barb. aloes, 6 drams; oil of turpentine, 1 ounce; linseed oil, 1 quart; mix, and give at one dose.

Abortion.

I have a fine Jersey cow, three years old last August; July 8th, 1901, she had a calf. She has aborted three times since; bred her again last week; she carries her calves about five months.
Rochester, Minn. A. T. S.

ANSWER.

You should not breed the cow for at least six months, in order to give nature a chance to repair the weakened parts within. The following tonic will hasten repair: Powdered gentian root and dried sulphate of iron, of each four ounces; mix, and give a teaspoonful in food once or twice daily.

Crude Oil Causes Sores.

Some calves were turned in wood pasture in the spring and fed some, but the ticks nearly ate them up. Range cattle ran in it the year before and I enclosed it. I tried every thing; the last was crude oil, which did not kill them for a while, but when the ticks left, their hide got so thick and rough that it cracked, and has taken all the ambition out of two of them. The bull is the worst.
Citronelle, Ala. L. R.

ANSWER.

It is best not to apply anything irritating at all; kerosene is not indicated; best wash off with soap and rain water, and if skin is very dry, apply a little lard to soften and soothe the parts.

Cow Growing Blind.

I have a cow 6 years old which is almost blind. It has been coming on her for nearly 2 years. She can tell light from darkness and can see objects which are some distance away from her, but cannot see things close by. Her eyes look all right and any one would not know but that she could see all right from the looks of her eyes.
Grafton, Mass. E. P. G.

ANSWER.

The causes for these conditions vary so much that it is difficult to say what may have brought about the trouble in your case. As a rule it does not pay to apply a treatment, nor are they successful.

Switching Mare.

In the issue of Jan. 30., you answer J. E. L. R., of Clair Sta., N. B., about a horse that is a bad switcher. I have a mare that has a similar habit. She catches the line and presses it down a second or two and then kicks and gives up the line. I do not understand your answer. You say "if it is a mare, the trouble may be in the clitoris, in this case the organ is amputated." Now I looked in my dictionary and half a dozen other books, including the Bible for that word clitoris and can not find it. M. S. S.

ANSWER.

If your mare is in foal, it is not safe to have her operated until she drops the foal. Then it is best to employ a competent veterinarian, who may perform the operation on the tail so that she cannot hold the lines, and she will soon get over this habit. The clitoris is the erectile female organ analogous to the penis in the male. This is sometimes inflamed and and in such a case can be amputated, which will remedy the switching evil. Your veterinarian will understand how to perform the operation, and which of the two methods to choose.

May be Lice.

Please tell me why cattle lick themselves and rub against fences more than commen this open winter. T. R. P.
Excelsior Springs, Mo.

ANSWER.

Lice may be the cause of the cattle rubbing themselves. Examine them closely and if they are lousy take 12 tablespoonfuls of Zenolum to each gallon of water and drench them to the skin. Repeat in a week. This will rid them of the lice, but you must go over the entire animal, and all of them in the herd.

BROOKSIDE STOCK FARM
HOLSTEIN-FRIESIAN CATTLE
Henry Stevens & Son, Lacona, N. Y.
offer some great bargains, to quick buyers, in 1, 2, and 3 year old heifers; also young cows and bulls.
Stock First-Class. We Must Sell
Address as Above. P. O. Box 208.


WANTED. NO. 1 H. F. BULL Send pedigree and official records of ancestors. For Sale A No. 1 H. F Bull dropped Aug. 9, 1901. Dam and sire's dam bred by T. G. Yeomans.
Wm. O. Jackson & Sons, South Bend, Ind.

Rupture Cured Free

The Rice Method is Unparalleled in the Annals of Medical Success.

A Cheap Home Cure That Anyone Can Use Without Pain, Danger or Loss of Time From Work.

IS SENT FREE TO ALL.

To the thousands upon thousands of ruptured people who have worn trusses all their lives and have become discouraged, the Rice method will


CHIEF J. H. ALEXANDER.

prove a Godsend. Upon writing to Dr. W. S. Rice, 1824 Main St., Adams, N. Y., he will freely and gladly send you a trial of his method by mail so you can test it in your own home. Do not be backward about writing. Remember it costs you nothing to try this wonderful method.

Chief J. H. Alexander of the Detroit, Mich., Fire Department, 40 years of age, and for seven years a sufferer from rupture in its worst form, after trying every truss on the market without relief, finally decided to undergo an operation, but was persuaded to postpone it until he had tried the Dr. Rice method, with the result that he was quickly and permanently cured. He says:

"I was so badly ruptured that I feared I would have to leave the Department. In fact I did not believe anything except a surgical operation would help me. No truss did me any permanent good, but Dr. Rice's method cured me and I am today as well as ever I was in all my life. Hundreds of my associates and comrades in the Department know and can testify to my wonderful cure, and I am perfectly willing to tell my experienee for the benefit of others." Mr. Alexander's address is No. 108 20th St., Detroit, Mich.

The thousands of testimonials received by Dr. Rice mean more than such expressions usually do. A person may take a medicine and perhaps get well. He would probably recover anyway. But a rupture is a break of the muscles and there are no imaginative cures. The cure must be complete and in the face of thousands of such cures who can doubt that this wonderful Rice method will certainly and permanently cure even the worst ruptures.

MONONA FARM MADISON, WIS. Offers for sale a few well bred Holstein-Freisian Bull Calves. Also two Service Bulls at reasonable prices. The Monona Farm Herd is founded on the best stock of the De Kol, Netherland, and Clothilde families. Pense Johanna 29332 the head of the herd has 7 A. R. O. dams averaging 22 lbs. 3.7 oz. Junior sire Paul Calamity De Kol 31095.
THE MONONA FARM HERD
Address, F. W. ALLIS, Madison, Wis.

30 POUNDS 10.18 OZ. BUTTER
In Seven Day Official Test.
Home of the
WORLD'S CHAMPION BUTTER COWS.
BROTHERTOWN STOCK FARMS
DEANSBORO, N. Y. McADAM & VON HEYNE Props.
Sadie Vale Concordia, official test, 694.3 lbs. milk containing 30 lbs. 10.18 oz. butter in 7 days.
Mercedes Julip's Pieterje, official test 584 lbs. milk containing 19 lbs 5.7 oz. butter in 7 days.
Sadie Vale Concordia's Paul De Kol, Premiersire, No. 27392 H. F. H. B. He is by Paul De Kol and out of our great cow Sadie Vale Concordia.
ABSOLUTELY BEST HERD OF HOLSTEIN-FRIESIANS.
We have a number of fine cows and calves for fine breeding to offer. If you are looking for the best, write us or inspect our herd.

Holstein Freisian Bulls
SOUTH SIDE FARM, WHITE BEAR, MINN.,
offers a number of thrifty well grown calves from Officially Tested Dams at bargains for quick sale, ages three to seven months. Also two fine yearlings, and one two year old.
No Yorkshires for sale at present. Orders booked for spring pigs.
Correspondence solicited.

OAKLAND FARM HOLSTEIN-FRIESIANS
OFFICIALLY TESTED.
First Prize Herd at New York, Indiana, Kentucky, State Fairs and at St. Louis, Mo., in 1902. All ages, both sexes, for sale. Prices very reasonable, quality considered, T. A. MITCHELL, Weedsport, N. Y.

FOR SALE. H.-F. Bulls, ready for service from A. R. O. Cows and sired by Sir Johanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis

FOR SALE.
2 H. F. Bull Calves, 6 months old. Sired by Johanna Aaggie's Paul DeKol 23443, (160 A. R.) from good milkers and testers.
M. S. CAMPBELL, Genoa. DeKalk Co., Ill.

CLOVERDALE HERD
HOLSTEINS.
Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.
A. J. DAUGHERITY Streator, Ill.

TYRANENA HERD
100 HOLSTEIN-FRIESIANS 100
A. R. O. Stock For Sale.
Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz Frank B. Fargo, Lake Mills, Wis.

Holstein-Friesian Bull Calves
Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

RICHLAND FARMS, GREENSBORO, GA.
We now have some very fine HOLSTEIN BULLS FOR SALE; also some pure bred registered Victoria Hogs, all ages, at bargain prices. Write us for what you want.

SHADY NOOK HERD Holstein Friesians offers three bulls from 11 to 16 months old. Two from A. R. O. dams. O. L. C. White Pigs, both sexes. White Cap Yellow Dent Seed Corn, $1.50 per bushel.
W. R. GATES, Fort Atkinson, Wis.

GLENVIEW HERD.
2 H.-F. bull calves for sale. A. R. O. cows. Sired by Prince May Paul DeKol, No. 29331. IRWIN NOWLAN, Toulon, Ill.

ARMOUR'S BLOOD MEAL Cures Scours in Calves.
First proved by the Kansas Agricultural Experiment Station, and since corroborated by thousands of leading stockmen who have used it without a single failure. Equally effective for the diarrhea of all animals.
PREVENTS weak bones, paralysis of the hind legs and "thumps" in pigs; "big head" of foals; "rickets" of all young animals; abortion due to incomplete nutrition, and a host of other troubles.
A Potent Food for Work Horses, Dairy Cows, Poultry.
Write us for booklet giving valuable information about Blood Meal and our other feeding products. Consult us free of charge regarding stock diseases.
THE ARMOUR FERTILIZER WORKS,
Chicago. Omaha. Baltimore. Atlanta. Jacksonville.

A. & G. Herd Holstein-Friesians —Choice-Bred BULL CALVES for sale, from 1 to 18 months old. from dams with official records, and sired by sons of De Kol 2d and Netherland Hengerveld. Herd contains 5 sisters of Lilith Pauline DeKol (who holds the world's official butter record of 28 lbs. 3 oz) 25 granddaughters of DeKol 2d, 5 daughters and 7 granddaughters of DeKol 2d's Paul DeKol (the sire of Lilith Pauline De Kol) and granddaughters of Pauline Paul, Netherland Hengerveld, Mutual Friend, Princess of Wayne, Johanna, Etc., Etc.
AVERILL & GREGORY, The Yates, Syracuse, N. Y.

FOR SALE.
H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address W. H. JONES, Watertown, Wis. Rural Route No. 2.

HOME FARM HERD
Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. One Hundred head to select from. W. B. Barney & Co., Hampton, Iowa.

Markham Manor Farms, Simonsville P. O. Andover, Vt.
Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherand Soldeme Clothilde. No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for description and price to J. A. THORNTON, Manager, Simmonsville, Vt.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS | 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No 29175. Sire: Count Colantha Alban No. 25148. Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.
WM. EVERSON & SONS, Lake Mills, Wis.

HIGH-CLASS HOLSTEIN-FRIESIAN BULLS
and Bull Calves from A. R. O. dams and the best Advanced Registry sires. Cows all officially tested; I breed from no others. Correspondence from breeders and progressive ddirymen invited. Malcolm H. Gardner, Darien, Wis.

HOLSTEINS
High Class Advanced Registry Stock only. Best butter families. Stock for sale.
Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.

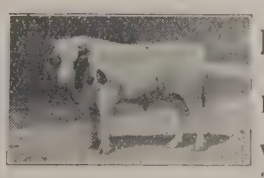
HOLSTEIN BULL CALVES. | **Johanna Family.** (both sire and dams). ALSO BERKSHIRES. Wright's Farm. Berlin, Wis.

WOODLAKE HERD.
Advanced registry Holstein-Friesians of leading families at reasonable prices Small calves of both sexes cheap. JOHN B. IRWIN, Station D., R. 1. Minneapolis, Minn

Oak Grove Herd Headed by Mechthilde DeKol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

.....YOU MAY.....
BEGIN AT THE HEAD
to improve your dairy herd with a bull whose dam has official record of 18 lbs. 6.3 oz., sires dam 20 lbs. 8.8 oz. Individual right. Price Right.
McKAY BROS., Buckingham, Iowa.

The Maples Herd offers H. F. A. R. O. Cows and Heifers of all the leading families in calf to Beryl Wayne De Kol Paul, dam Beryl Wayne, 27.87 lbs. butter A. R. O. Lelith Pauline De Kol's Count, dam Lelith Pauline De Kol 28.24 lbs. butter A. R. O.
Quick buyers may obtain great bargains in heifer and bull calves from the above named great sires. JOHN C. GODFREY, Pennellville, N. Y.

OHIO'S

FAMOUS HERD
—OF—
Holstein Cattle
OWNED BY
W. B. Smith & Son
2488 W. Broad St. Columbus. O
CLYDE PAUL DE KOL.

THREE HOLSTEIN BULLS
sired by
DE KOL 2D'S MUTUAL PAUL
His four dams are the cows that made the Holsteins famous.
Dam, De Kol 2d; G. dam Mutual Friend 3d; G. G. dam Pauline Paul; G. G. G. dam De Kol 2d.
When looking for a bull to head your herd bear in mind that De Kol 2d being a world record cow herself, is also the dam of four generations of world record heifers. I offer three bulls ready for service, each carrying 28½ per cent or more of the blood of De Kol 2d from choicely bred dams. They are fine individuals, growthy and vigorous, and will be sold right; quality considered.
GEO. F. CARTER,
126 North Salina St. Syracuse, N. Y.


HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

BROOKSIDE HERD
offers SPECIAL inducements to quick buyers. We must sell at once to reduce herd to stabling capacity. All ages, both sex. Correspondence solicited. Visitors welcome. Address,
STEVENS BROTHERS Lacona N.Y.

Prices and Market at the Delhi, N. Y. Creamery.

ED. HOARD'S DAIRYMAN:—Will you (unless there may be some reason why you do not wish to do so) please give me space in your columns to briefly answer the following note just received from a subscriber to your valuable paper.

For it is, it seems to me, a question of general importance and one which will I think be of interest to many of your readers.

MR. E. J. BROWNELL, Delhi, N. Y.:—I have just noticed your article in HOARD'S DAIRYMAN and wish I was near enough to look in and see what you are doing. We have been in the co-operative business 12 years, but have only made butter and used the skim milk on the farm.

Your prices are so much above our prices that I am going to ask you to give me the method you use to get these results.

Do you make butter and ship skim milk and butter milk, or do you ship whole milk, pasteurized and bottled?

We commenced in this co-operative as the first one in this part of the Elgin district and had a hard fight against a combination of creameries, who treated us as you were treated by the Borden people, only perhaps worse. We made a success and many co-operative creameries have been started around here imitating us.

Now the Borden people are putting in many condensaries and bottling plants among these creameries and can dry them up because they can only make butter to sell. We see that we will be soon in the same situation that you were in when you commenced, unless something is done to get more money out of milk than selling the butter, and are thinking of putting in a co-operative condensary; have $20,000 raised now among the farmers, for that purpose, but may conclude that we better do something else and would be very thankful if you can show us some way of handling milk that we can keep the Borden people out of here. They are now within 20 miles of us and are trying now to get in a plant 10 miles from us. M. B. R.

Bowers, Wis.

First off, I will say you seem, for I think I said nothing in the article to which you refer, to indicate that fact—to jump to the conclusion that I am personally interested in the management of the "Delhi Co-operative Creamery Co.," either as a patron or a member of the board of managers.

Now, while this is not the case, I have, since receiving your letter, shown it to the Secretary and Manager of that concern and had an interview with him, and think I am prepared to give, briefly, an intelligent answer to at least a part of your inquiries.

To your first question: "Do you make butter and ship skim milk and buttermilk, or do you ship whole milk pasteurized and bottled?

The milk is largely made up into butter and the skim milk into casein, very little of the latter being taken back by the farmers and fed upon the farm, although many believe it might thus be turned to better profit.

None of the milk is pasteurized or shipped in bottles, although the creamery is fully equipped for that work, if the conditions should indicate that it would return greater profit.

The aim of the management has been to take advantage of every available opportunity to secure the best possible prices for the product of this establishment and the success is largely attributable, no doubt, to this fact.

Being located within easy reach of the largest milk and butter markets of the country, and in a section in which is produced, probably, the best milk in this country, (for good authorities agree that nowhere else is the quality of the same amount of milk equalled as in these Delaware valleys), give us some natural advantages here that other sections may not be able to secure.

But making the best of these advantages is, without doubt, one of the key notes to the success here attained, and what has been accomplished here might, it would seem, in a large measure at least, be done in other places with proper managment.

To illustrate briefly, Mr. E. R. Harkness, the secretary and manager of this creamery, cited a few instances to which I will refer. On the morning on which I called upon him they were shipping sixty

"ADVERTISEMENT."

NEVER TOO LATE.

To Try a Good Thing.

I am fifty-two years old and for forty years of that time I have been a chronic catarrh sufferer, says Mr. James Gieshing, of Allegheny City; with every change of weather my head and throat would be stuffed up with catarrhal mucus.

I could not breathe naturally through the nostrils for months together and much of the time I suffered from catarrh of the stomach. Finally my hearing began to fail and I realized something must be done.

I tried inhalers and sprays and salves which gave me temporary relief and my physician advised me to spray or douche with Peroxide of Hydrogen. But the catarrh would speedily return in a few days and I became thoroughly discouraged.

I had always been prejudiced against patent medicine, but as everything else had failed I felt justified in at least making a trial.

Our good old family physician, Dr. Ramsdell, laughed at me a little, but said if I was determined to try patent medicines, he would advise me to begin with Stuart's Catarrh Tablets because he knew what they contained and he had heard of several remarkable cures resulting from their use, and furthermore that they were perfectly safe containing no cocaine or opiates.

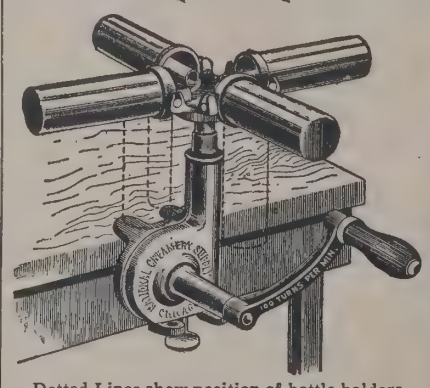
The next day I bought a fifty cent box at a drug store, carried it in my pocket, and four or five times a day I would take a tablet; in less than a week I felt a marked improvement which continued, until at this time I am entirely free from any trace of catarrh.

My head is clear, my throat free from irritation, my hearing is as good as it ever was and I feel that I cannot say enough in praise of Stuart's Catarrh Tablets.

These tablets contain extract of Eucalyptus bark, blood root and other valuable antiseptics combined in pleasant tablet form, and it is safe to say that Stuart's Catarrh Tablets are far superior in convenience, safety and effectiveness to the antiquated treatment by inhalers, sprays and douches.

They are sold by druggists everywhere in the United States and Canada.

NATIONAL
Babcock Milk Tester



Dotted Lines show position of bottle holders when not in motion.

Has enclosed cut gears.
Swinging bottle-holders.
Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

DOES YOUR DAIRY PAY?

It costs no more to feed a profitable than an unprofitable cow.

NET PRICES:

No. 1,—2 bottle, complete for testing milk.... each $4 00
No. 2,—4 bottle, complete for testing milk.... each 5 00
No. 3,—2 bottle, complete for testing cream and milk, each..... 4 50
No. 4,—4 bottle, complete for testing cream and milk, each..... 5 50

Prices include full directions for making test, bottle of acid, test bottle brush, acid measure, pipette and test bottles.

We are the great Dairy Supply House of the West. We carry an immense stock of all kinds of Butter and Cheese Making Apparatus and Supplies. Write for catalogues and circulars.

National Creamery Supply Co.,
450-458 Illinois St.,
CHICAGO, U.S.A.

The New 1903 REID HAND SEPARATOR

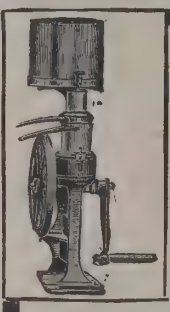


The 1903 Reid Hand Separator is the most exact milk skimmer ever made—it is simplest, fastest, lightest running, and affords most butter-producing material under all conditions. It creates a new source of revenue and maintains the income—

WEARS LESS, LASTS LONGEST

Every Reid Hand Separator is sent out under a positive guarantee, and is sold on its own merits. If you want a separator we will send a Reid on approval—work it ten days and if it does not excel all others return at our expense. Send for new catalogue and revised price list, mailed free.

A. H. REID, 30th and Market Sts., Philadelphia, Pa.



YOU DO THE TESTING

on your own farm and make sure you have a bargain and a money maker, when you buy the

AMERICAN CREAM SEPARATOR.

A friend to every man who owns a cow. A machine that is sold on its merits at a surprisingly low price. Get in touch with us. Write for our catalogue. **It Is Free.**

American Separator Company,
Won Medal at Paris in 1900. **Box 1023 Bainbridge, N. Y.**



Notice to Dairymen

If you are thinking of buying a Cream Separator write us for Catalogue and information. We manufacture the best machine on the market.

Davis Cream Separator Co.,
54 to 64 N. Clinton St.
CHICAGO, ILL.

Big Profit in Cows

is but a question of getting *all* the cream (butter fat) out of the milk. With the old setting system your loss is over 80 per cent greater than with a

NATIONAL Hand Separator



A valuable machine you can test in your own home or dairy

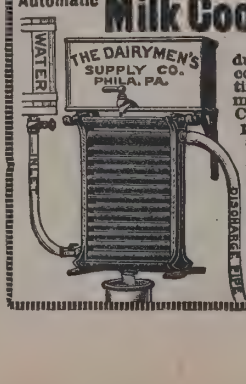
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National Dairy Machine Co., Newark, N. J.

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Made of the best conducting material—sheet copper and coated with tin outside where the milk comes in contact. Cools milk quickly. Expels all animal odors and the smell of grass and garlic. Aerates it thoroughly. Can be easily cleaned. Fully guaranteed. Used by the most progressive dairymen. Send for catalogue "Bestov" dairymen's supplies.

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The best in the world, has no superior if you want a larger butter yield. It runs easily, skims clean, and is easy to wash. It is perfect in mechanical construction and magnificent in appearance. No outside gears to catch your hands and clothes. Only three parts in the bowl. Look at the low supply can. All parts absolutely interchangeable. Write for Catalogues and Prices.

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THE INTERNATIONAL CREAM SEPARATOR CO.,
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NEW OXFORD
BALL BEARING
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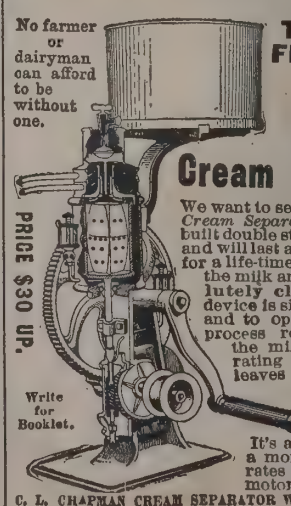
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No farmer or dairyman can afford to be without one.

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We want to send you an *Eclipse Cream Separator* to try. It is built double strength all through and will last and work perfectly for a life-time. It acts twice on the milk and **skims it absolutely clean.** Its interior device is simple, easy to wash and to operate. Its double process removes filth from the milk as well as separating the cream, and leaves both pure and sweet and fresh. It never gets out of order. It is guaranteed.

It's a money maker and a money saver. It operates by hand, foot or motor power.

C. L. CHAPMAN CREAM SEPARATOR WORKS, ERIE, PA.

cans of milk at what, as he said might be called an exhorbitant rate, but did not know whether the order would be continued or for how long a time.

The day previous a firm in the city wired them if they could supply them with that amount and at what price.

He wired in reply, making a price that that he, himself, considered it almost exhorbitant and that he would ship the amount the following day, unless ordered not to do so, and receiving no word shipped the milk at the rate fixed.

So, also on various occasions he had had an opportunity to sell a large amount of buttermilk at a high price, even receiving as high as 75 cents per can for that by-product in some instances, and taking advantage of all these chances, has helped to swell the gross receipts. Whether you are in a position to thus secure the benefit of extra demands of the market, for much or any of your product, you can best judge for yourself, but I think I have said enough to show how to some extent, the large prices shown have been here obtained.

E. J. BROWNELL.

Delhi, N Y

Returns from the First Year's Alfalfa Seeding.

ED. HOARD'S DAIRYMAN:—I have a piece of river bottom land rented. The owner wants me to seed it to alfalfa this spring by itself, without a nurse crop. Could I get enough hay from it the first year to pay me for my work and the rent of the land?

Sometimes my butter has a strong taste in the winter. Would the Lactic Ferment I see advertised prevent it?

Bowling Green, Ky. C. L. D.

The first year's returns from alfalfa are usually small as it takes one season for the plant to become thoroughly rooted and a producer, and it is doubtful if the returns would pay for the cost of seed and preparation of the land.

It would depend on the treatment of the cream. If the cream is kept for a number of days before churning and has already taken on the flavor complained of, the lactic ferment would do no good, but if the cream is churned daily the use of a starter might help the flavor of the butter.

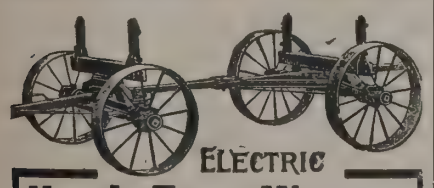
Handling Manure.

ED. HOARD'S DAIRYMAN:—In connection with the discussion by Norman Brown and others as to the advisability of spreading manure as fast as made, I would like to call attention to an experiment, which is being conducted by the Hatch Experiment Station at Amherst, Mass. In this experiment a moderately sloping field was divided into five plots and each plot sub-divided into two equal parts, one-half being manured broadcast from wagon or sled, and on the other half an equal number of loads are put into a large, carefully made pile. These heaps are spread in spring and then planted to corn or millet.

Results thus far show a decided increase in crop on the halves treated with manure piled and spread in spring, over the other half of plot, manure spread at time of hauling.

I was a student in the winter course, 1902, at the Massachusetts College, and Prof. Brooks spoke strongly against spreading manure as it accumulates and allowing it to lie on the surface till spring, and I am sure any one interested in this experiment will find himself repaid if he will write to Prof. W. P. Brooks or the Hatch Experiment Station for further particulars. LEON LITCHFIELD.

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make the work easier for both the man and team. The tires being wide they do not cut into the ground; the labor of loading is reduced many times, because of the short lift. They are equipped with our famous **Electric Steel Wheels**, either straight or stagger spokes. Wheels any height from 24 to 60 inches. White hickory axles, steel hounds. Guaranteed to carry 4000 lbs. Why not get started right by putting in one of these wagons. We make our steel wheels to fit any wagon. Write for the catalog. It is free.

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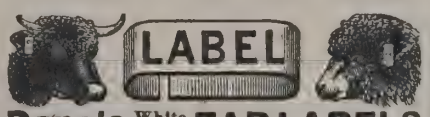
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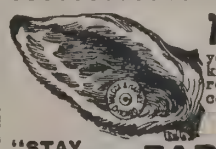


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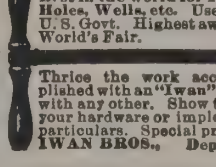
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This corn has leaped with one wild bound into popularity and nothing that we have ever sold has given such great satisfaction. Everywhere throughout the United States, where SALZER'S EARLY RIPE FODDER CORN was planted, it surprized and delighted, and pleased and astonished the grower.

It Was Ripe in 60 Days

and furnished magnificent feeding Corn just at a time when farmers were short of Corn. If you plant this early, you will have fine feeding Corn by July, when you can replant same and have good Fodder Corn in September. This is the most wonderful Ensilage Fodder Corn in the world. Our catalog gives full description.

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This variety is late, but it's the greatest Fodder Corn on earth. Here are two testimonials from wide-awake farmers that will tell you what they think of this remarkable Fodder Corn. It is far ahead of such varieties as B. and W. corn, when big ears, full ears, and lots of them, together with enormous quantities of leafy, rich Fodder are desired:

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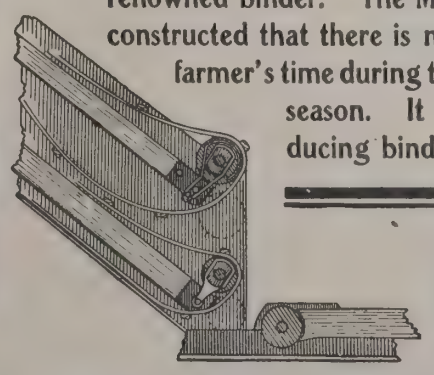
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binder, then they are easily and quickly removed. This is only one of the many good features to be found on this world-renowned binder. The McCormick is so constructed that there is no waste of the farmer's time during the busy harvest season. It is a profit producing binder.



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70 Holstein-Friesian Cattle
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Sale to be held at McGeoch Farm, "Redbrae" opposite entrance to Soldiers' Home on National Avenue. Electric Cars, National Ave., run to farm every five minutes.

40 OFFICIALLY TESTED COWS AND HEIFERS 40

Among these will be found the great heifer **Duchess Ormsby 2d's Hengerveld DeKol** who holds the **World's Record** for heifer with first calf, having made at age of 2 years, 1 month, 29 days, 19.02 lbs. butter in seven days.

DAME MARJORY DE KOL, a half sister, with record at 2 years, 4 months and 24 days of 16.19 lbs. butter in seven and 65.08 lbs. in thirty days.

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A FINE LOT OF HEIFERS FROM OFFICIALLY TESTED DAMS. A few richly bred young bulls and the two great service bulls **De Kol 2d's Paul De Kol No. 2** and **Gem Pietertje Hengerveld Paul De Kol** will be included in the sale.

Altogether this is the most desirable lot of Holstein-Friesians, either from the standpoint of the breeder or dairyman, that has ever been offered at public auction. All are cordially invited to be present.

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100 days run, 12,000,000 lbs. Sugar
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There is no "water in these securities. $215,000 stock and 115,000 bonds sold at par at private sale to date, and all proceeds go into the plant or into the Treasury for working capital. I offer subject to prior sale the remaining $85,000 stock at $10 a share (par) 135,000 Bonds at par and accrued interest. SEND FOR CIRCULAR.

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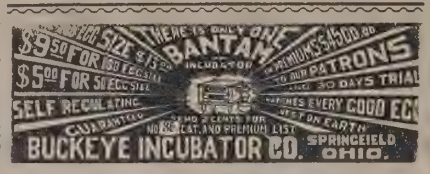
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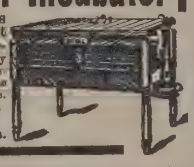
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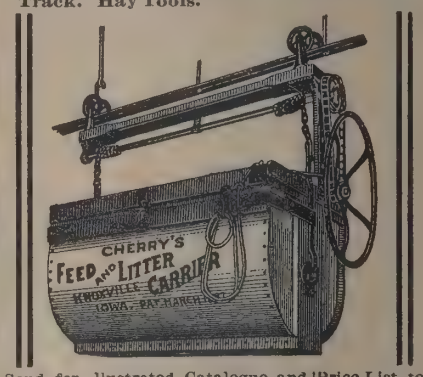
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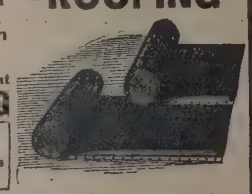
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FRANK WEBSTER.

Cambray, Ont.

It will be noticed that Mr. Webster is not one of those readers of the DAIRYMAN, who thinks the paper is not adapted to his use because it is published in another state. There is something queer about this. We wonder if it is in the man. We shall be very glad to have Mr. Webster write us concerning his experience in growing alfalfa in Canada.

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Trade Mark

SPAVIN CURE

Horse can be worked with either shin or ankle boots, as no harm can possibly come by either destruction of hair or scalding of the limb. "Save-the-Horse" can be applied in all conditions and extremes of weather—hot or cold.



POSITIVELY AND PERMANENTLY CURES bone and bog spavin, ringbone (except low ringbone), curb, thoroughpin, splint, capped hock, shoe boil, weak and sprained tendons and all lameness.

$5 00 PER BOTTLE.

Written guarantee with every bottle, constructed to convince and protect you fully. The need of second bottle is almost improbable, except in rarest cases. Send for copy.

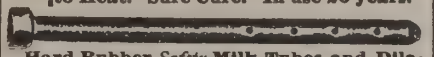
$5.00 per bottle, at all druggists' and dealers', or express paid by the manufacturers.

TROY CHEMICAL CO.,
TROY, N. Y.

ALSO OF VETERINARY PIXINE, FOR Hoof Rot, Cow Pox, Chapped Teats and Caked Bag, also Scratches and Grease Heel, cases where ulcerations extend, with transverse cracks which open at every step and often bleed, no matter how complex, aggravated, deep seated or chronic; if treated according to directions, as given on circular with every box, positively cured. **Keeps the Hoofs Healthy, Soft and in Perfect Form. Heals Collar and Saddle Galls, Abscesses, Sores and all Skin Diseases. 2 oz., 25c., 8 oz., 50c.; 5 lb. pag., $4. At all druggists and dealers' or sent prepaid.**

ABORTION,

Failing to Breed and to bring Cows to Heat. Sure Cure. In use 20 years.



Hard Rubber *Safety* Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.

Dr. WM. HORNE, Janesville, Wis.

ABORTION,

Retention of Placenta and Failure to Breed.

KELLOGG'S CONDITION POWDER

Is a positive cure for these diseases. Write for circular containing full information, references and price.

H. W. KELLOGG COMPANY, St. Paul, Minn.

BLACKLEGOIDS

BEST PREVENTIVE OF BLACKLEG.



Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each **Blacklegoid** (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. **Blacklegoids** are sold by druggists; *ask for them.*

Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.

PARKE, DAVIS & CO. - DETROIT, MICH.

Branches: New York, Kansas City, Baltimore, New Orleans, Chicago; Walkerville, Ont.; Montreal, Que.; London, Eng.

BARREN COWS CURED.

Our treatment has been used successfully since 1878 in every state in America, Canada and Great Britian. Write for Pamphlet.

MOORE BROS., Veterinary Surgeons, Albany, N. Y.

READ THE FOLLOWING:

Owing to the fact that the following advertisement was not inserted in last week's issue we hereby extend to all readers of this paper seven days additional time or until March 21st to send in your orders at the 15c rate.

BY ORDER OF THE BOARD OF DIRECTORS.

$75 BECOMES $100
BY MARCH 14TH
PROFITS 33⅓%
$75 BECOMES $150
IN EIGHTY DAYS
PROFITS 100%

WE GUARANTEE THE ADVANCE IN PRICE OF SHARES

SHARES NOW 15C EACH. PAR VALUE $1.00

ADVANCE TO 20C MARCH 14TH. ANOTHER ADVANCE TO 25C APRIL 14TH

THE FOUR METALS MINING & MILLING COMPANY

ARE MINING GOLD, COPPER, SILVER AND LEAD IN FOUR GREAT MINERAL STATES, ARIZONA, COLORADO, NEW MEXICO AND WYOMING

To you this means FOUR fortunes in one. We have four times the opportunity others have. We are offering you an investment four times better than any other.

The Four Metals Mining and Milling Company owns and controls 483½ acres of some of the richest Copper, Gold, Silver and Lead mining property in the United States to-day. They have been extensively developed, and thousands of dollars have been expended. **Our Gold property has produced $100,000 up to date, and is still producing.** Our Copper properties have shipped several car loads of ore, and over $500,000 worth of ore of every grade of richness is ready to be taken out and shipped as soon as the proper machinery has been installed. All we need on our Silver and Lead property is a 100-ton mill to make it also a large paying mine. Our properties are surrounded by and lie adjoining to many great million-dollar mines.

The Entire Management will Bear the Most Searching Investigation

OFFICERS and DIRECTORS

President—J. R. MCKINNIE, President of the *Exchange National Bank*, Colorado Springs, Colo.

Vice President—W. P. GARRISON, President of The Illinois-Colorado O. G. & C. Co., Chicago.

Secretary—A. D. AITKEN, Member of Colorado Springs Mining Stock Exchange Association, Chicago.

Treasurer—E. C. SHARER, Secretary of Pike's Peak Coal Company, Colorado Springs, Colo.

Director—M. W. SAVAGE, Proprietor *International Stock Food Company* of Minneapolis, Minn.

Director—HON. L. L. AITKEN, Member of Colorado State Legislature, Colorado Springs, Colo.

The following table shows what you can get for your money before March 14th:

$900 will buy 6000 shares, par value $6000
$600 will buy 4000 shares, par value $4000
$300 will buy 2000 shares, par value $2000
$150 will buy 1000 shares, par value $1000
$ 75 will buy 500 shares, par value $ 500
$ 30 will buy 200 shares, par value $ 200
$ 15 will buy 100 shares, par value $ 100

If you desire you can purchase the above on the installment plan. 25% cash with your order, 25% to be paid in 30 days, and the balance, 50%, in 60 days. **The larger your investment the larger your returns.** Note what you might have made in the following companies:

$ 50 invested in Le Roi in 1896, now $8000
$100 invested in United Verde, now $150000
Above are only two examples out of hundreds.

WE SHALL PAY DIVIDENDS. Our stock will advance in price at least 400% within the next six months. We are offering you the chance of a lifetime. A postal card will bring to you our prospectus, with convincing proofs that our proposition is the best on the market to-day. If you have not time to investigate, send in your order at once, and investigate afterwards, and if not satisfied with your investigation, we will return you your money. All orders dated on or before March 14th will receive shares at the 15c rate. ACT QUICKLY. Address

ANDREW D. AITKEN, SECRETARY
THE FOUR METALS MINING & MILLING COMPANY
1518 UNITY BUILDING, CHICAGO, ILL.

The time for sending in subscriptions on the above has been extended to March 21st

READ THE ABOVE

CURE "THE" COW

NO CURE, NO PAY



WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address

DR. EATON J. CROSS,
152 Congress St., Troy, N. Y.



Butter is Exposed

to many contaminating odors in commission houses and shops before it reaches the consumer. If the creameryman will wrap every pound print separately in

Pioneer Brand

Parchment Paper

he will shut out all foreign odors and taints and preserve its purity, sweetness and flavor. He will be safeguarding his brand in the best butter protector known. **Pioneer Parchment** is a **pure vegetable** parchment—not an imitation. It is tougher and stronger when wet than when dry. It imparts no taste or smell to the butter for the very good reason that it does not have either. You ought to have your name or brand printed on every package you sell. If you really make good butter, that is your most effective means of getting a reputation for it. We know how to do that printing so that it will not rub off or discolor the butter—print what you want. Our free samples of parchment paper are most convincing of their great worth to the butter maker. Write and ask for them. And our free book, **"Better Butter"** will interest and instruct you. Ask for it too.

THE PATERSON PARCHMENT PAPER COMPANY.
No. 87 8th Street, Passaic, N. J.

THE PATERSON PARCHMENT PAPER CO. PASSAIC, N.J. TRADE-MARK REGISTERED PIONEER



We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity—1000 cans daily, which should enable us to fill all orders promptly.

Every can sold on a guarantee. Write for Circular H.



Let Them Help Themselves.

They'll not take too much, and they'll get it as they want it. Don't force animals to eat salt when they don't require it, by mixing with food.

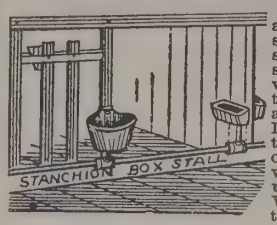
COMPRESSED

Pure-Salt Bricks

are all salt, no impurities. Improve the quality and yield of milk. A modern convenience, always present, animals never neglected, and costs for each only about a nickle a month. See how they enjoy helping themselves when you place it within reach. For all stock. Buy of dealers or send for free booklet to

Belmont Stable Supply Co., Brooklyn, N.Y.

Water In The Stable a Necessity.



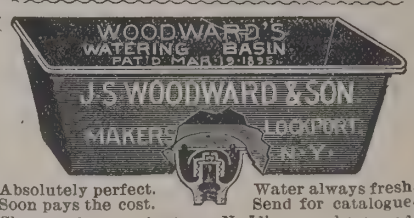
It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. **Why not use the Best?** Write for descriptive circular.

C. E. BUCKLEY & CO., Poughkeepsie, N. Y.



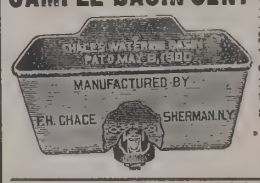
Iron Troughs

First Lot at Wholesale. Can't break or rot, nice round rim, any size or shape. Write for circular of **Cow Basin,** Poultry and Stock Troughs. Who will be first.
D. H. BAUSMAN, Bausman, Lanc. Co., Pa. We make Steel Swings. Fine Booklet Free.



Absolutely perfect. Water always fresh.
Soon pays the cost. Send for catalogue.
Cheapest because best. No disease where used.

SAMPLE BASIN SENT ON APPROVAL.



Basins are fitted with **Self Closing** Cover which prevents all dirt and sediment from getting into them. Send for catalogue and price list.

F. H. CHACE,
Sherman, N. Y.

ASTHMA TAKEN FROM THE SYSTEM. Never returns. Nothing remains which can produce an attack. Eat anything, sleep soundly and stand exposure. Appetite improved; blood enriched; nerves strengthened; whole system built up; life made enjoyable. **Book 41F Free,** containing reports of many interesting cases. **Dr. HAYES, Buffalo, N. Y.**

CASH For YOUR FARM

We can sell your farm, real estate or business quickly for cash, *no matter where located.* Send description and price and learn *how.* Money to loan on good mortgages. Estab'd 1893. Offices in principal cities. Highest references.

A. A. ROTTNER & CO.,
930 Real Estate Trust Building, Philadelphia, Pa.

FARM LANDS BURCHARD-HULBURT INVESTMENT CO. ST. PAUL MINN.

200,000 ACRES TO SELECT FROM

We own 40,000 acres in Red River Valley, in Marshall and Kittson Co's, Minn. and in Walsh and Grand Forks in N. D. 15,000 acres in LaMoure, N.D. Fine stock ranches in Logan and Mercer Co's, N.D. 50,000 acres of Timber land in Aitkin Co. Minn., and Washburn Co., Wis. Also 15,000 acres in Southern Minn. in Lyon and Redwood Co's, near Marshall.

WRITE FOR OUR MAPS. We can give you a farm from $5.00 to $50.00.

BURCHARD-HULBURT INVESTMENT CO.
705-7 Manhattan Bldg. ST. PAUL, MINN.

160 ACRE FARMS IN WESTERN CANADA FREE

Western Canada

Land of the Sunshine, Grain Growing, Mixed Farming.

The Reason Why



more wheat is grown in Western Canada in a few short months, is because vegetation grows in proportion to the sunlight.

Area Under Crop in Western Canada 1902—1,987,330 Acres.
Yield 1902—117,922,754 Bu.

Abundance of water and fuel. Building material cheap. Good grass for pasture and hay. A fertile soil. A sufficient rainfall and a climate giving an assured and adequate season of growth. All these conditions are found in Western Canada.

160 Acre Homesteads FREE

The only charge being $10 for entry. Send to the following for an Atlas and other literature, showing location of lands in Western Canada, and also for certificate giving you reduced freight and passenger rates, etc. The Superintendent of Immigration, Ottawa, Canada; or to the authorized agent of the Canadian government—

T. O. CURRIE,
12 B. Callahan Bldg., Milwaukee, Wis.
J. M. MacLACHLAN,
307 Third Street, Wausau, Wis.

Weight

Salt that makes weight makes money for the butter maker. DIAMOND CRYSTAL SALT—*"the Salt that's ALL Salt,"* made weight for one creamery at the rate of $8,000 a year in additional profit. The secret is simply this: Whatever weight you add in DIAMOND CRYSTAL SALT, *you obtain in increased weight of butter.* Its pure, dry flakes dissolve completely and become a part of the butter, instead of being washed out, or adhering to the worker rolls, like common, gritty, flinty salt. Our illustrated booklet "Just Salt" is just the thing for dairymen. Free on request.

DIAMOND CRYSTAL SALT CO., ST. CLAIR, MICH.

WORCESTER SALT
IS THE BEST

The largest Creamery in the world uses WORCESTER SALT, and—this telegram tells the rest:

"Kansas City, Mo., March 7, 1902.
WORCESTER SALT CO.,
168 Duane St., New York.
Continental won sweepstakes, also State cup trophy at Kansas Dairymen's meeting; score Ninety-Eight. Worcester Salt used ten highest scores.
G. A. McEDWARDS."

IT TAKES THE TO MAKE THE **BEST**

WORCESTER SALT COMPANY,
168 DUANE STREET, NEW YORK.

HARDWOOD TIMBER LANDS

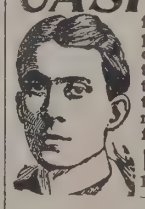
from which the older trees have been cut but mostly covered with a fine growth of young timber, located in Marathon County, Centra' Wisconsin, are now offered for sale by us on most favorable terms to actual settlers.

This is some of the very best hardwood agricultural land in this state, with a deep, clay loam soil, gently rolling, with water easily obtainable at from 16 to 24 feet.

There is no better land for grain, grasses pastures, oats, peas, fruits or livestock, etc. Particulars will be furnished promptly on application.

RIETBROCK LAND AND LUMBER CO., Athens, Wis.

CASH FOR YOUR



farm, home, business, or other property (no matter where located or how large or small) may be obtained through me. Send description, state price, and get full particulars free. Est'd 1896. Highest references. Offices in 14 cities, from Boston to San Francisco.

W. M. OSTRANDER
1519 N. A. Building, Philadelphia

FOR SALE. A Good Dairy and Stock Farm of 120 acres, well watered, spring at door, a running brook through premises, well fenced, good house and out buildings, a small grove, barn nicely fixed for 22 cows, separator room attached. Am in dairying and have a nice herd of grade Jersey cows, a registered bull 2 years old, all located within one mile of town of 2500 inhabitants. A good cream trade with principal restaurant. Creamery in town. Would like to sell farm, dairy stock and all. A Bargain to the right man. **IRA D. FOTMAN**
Lancaster, Wis.

FOR SALE. 90 Acre Farm in Waupaca Co., Wis., 1½ miles from the village of Marion. Good soil, running water, frame buildings. A bargain if taken before the first of April. Reason for selling, am an old man and recently lost my wife. Address, **DANIEL CHURCHILL,** Marion, Wis.

THE FINEST GRASS LANDS IN THE WORLD

Nowhere else in the U. S. are all conditions as favorable for **Stock Raising and Dairying** as in the region around the head of Lake Superior. Natural grass lands where timothy and clover are already well started, for sale at $6 to $8 per acre, within 25 miles of Duluth. Fine climate and spring water. Splendid market. For further particulars address

GUARANTY FARM LAND COMPANY,
DULUTH, MINN.

Fine Dairy Farm for Sale.

Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence, cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. **T. S. TOMPKINS,**
Pasadena, Cal.

STOCK FARM BARGAIN.
MARQUETTE CO., WIS.
240 acres, 100 acres in cultivation, 50 acres in timber, rich black loam, fine house, new barn, other buildings. A Bargain. Price, $7500. easy terms.
For particulars address **J. H. MYERS,** C 100, Mack Block, Milwaukee, Wis.

A Washington Cow Census.

ED. HOARD'S DAIRYMAN:—I have taken a cow census in our immediate neighborhood. This is the result:

Dairyman No 1 feeds 45 cows an average of about 30 lbs. of beets and what hay (timothy) the cows will eat (probably 25 or 30 lbs.), no grain. No dairy papers. Gets 90 gallons milk per day; sells milk to condensary at $1.45 per 100 pounds. Protein in this ration, about 1.20 lbs., carbohydrates (not including fat) about 15 lbs., (as these are large cows I assume that they eat 30 lbs. hay); 17 lbs. milk per cow, per day.

No. 2. Feeds 21 cows 8 quarts shorts (ground bran) and timothy hay, no roots. Gets 36 gallons; sells to condensary at 11 cents per gallon, for the year, without test. Protein, 1.70 lbs.; carbohydrates, 16 lbs; 15 lbs. milk per cow, per day. No dairy papers.

No 3. Feeds 13 cows 25 lbs. potatoes and timothy hay (very little clover in it), no grain. Gets 18 gallons; sells to condensory at about 15 cts. per gallon for 4 per cent milk. Protein, .93 lbs.; carbohydrates, 15.5 lbs.; 12 lbs. milk per cow, per day. No dairy papers.

No 4. Feeds 42 cows 20 lbs. beets, 3 lbs. shorts and timothy hay. Takes milk to local creamery, gets 10 per cent overrun and pays 3 cents for making and selling butter; gets skim milk back. Protein, 1.06 lbs.; carbohydrates, 14.9 lbs.; 16 lbs. milk per cow, per day. No dairy papers.

No. 5. Feeds about 13 full-blood Jerseys bran and shorts and immature and frosted corn silage; no hay. Pays $40 per month for man, $50 per month for mill feed, and gets about $60 and skim-milk from creamery. Silage thrown in. Reads dairy papers and is well posted.

No 6. Feeds 13 cows (grade Jerseys) 30 lbs. pea and oat silage, 12 lbs. roots, 12 lbs. alfalfa, 6 lbs mixed hay; at a total cost of about 21 cents per cow. There are in this herd only 4 cows in full milk, 5 strippers (being carried over for fall cows) and 4 heifers. Gets about 23 gallons. Has separator run by bull; takes cream to creamery. Receipts from creamery for Dec. $107. Protein, 2.64 lbs.; carbohydrates, (no fat) 14 lbs.; 15 lbs. milk, per cow, per day. Reads dairy papers.

Now can you explain what the protein content of these feeds has to do with the milk yield. Also how to calculate the relative value of feeds. For instance, when shorts are worth $20 per ton, what is skim milk worth for hogs? Also what are potatoes worth as feeds for hogs and cows?

Now please don't tell us that milk is worth half as much as a bushel of corn, for we don't know anything about corn here. Have Principles and Practices of Stock Feeding by Vermont Station, but can't make much out of this method when roots or milk are compared with grain, etc. It seems to me that the results will be anything but accurate.

Sumner, Wash. W. J. L.

The facts given are both too few and too scattering to justify drawing conclusions as to the value of protein in a ration. Those who fed a small amount of protein might have done much better had they fed protein more liberally, and No. 6, who fed an excess of protein had some cows too far advanced in lactation and others too young, to permit expectation of large returns. No. 5 fed both poorly and expensively. He should have had some clover or alfalfa hay to help out the inferior silage, and then feed only about half as much bran and shorts.

Skim milk by itself alone is not a particularly valuable feed except for calves, but has a markedly beneficial effect when combined with wheat middlings and fed to thrifty pigs in the proportion of 3 to 5 lbs. milk to each pound of middlings. Used in this way, with middlings at $20 per ton, skim milk is worth not less than 25 cents for 100 lbs. As the proportion of skim milk is increased, its effective feeding value is decreased.

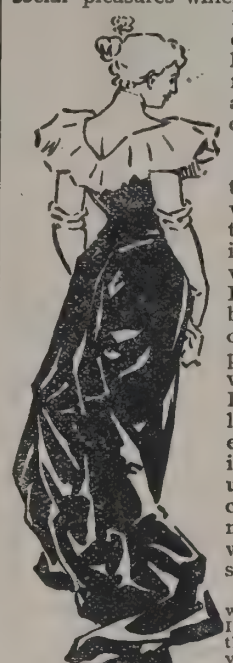
The Manure Question Reviewed.

A Veteran Wisconsin Dairyman Contributes to its Solution.

ED. HOARD'S DAIRYMAN:—The manure question repeatedly argued in the DAIRYMAN, is certainly one of the most

The Price of Pleasure.

It is hard for a lovely woman to forego the pleasures of the life which she was created to enjoy and adorn. She may have to be busy all day in office or in store, yet she cannot deny herself the social pleasures which are offered her.



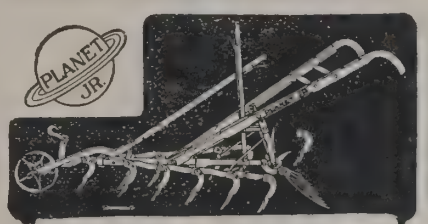
But the fatigue is often too great for her, and she suffers from headache and backache as a consequence of over-exertion.

Women who are tired and worn out will find a perfect tonic and nervine in Dr. Pierce's Favorite Prescription. It cures headache, backache and the other aches and pains to which women are subject. It establishes regularity, dries weakening drains, heals inflammation and ulceration, and cures female weakness. It makes weak women strong and sick women well.

"I am so pleased with your instructions, I hardly know what thanks to give you for your kind favors," writes Mrs Milo Bryant, of Lota, Thomas Co., Ga. "I suffered so much with great pains in my back and the lower part of my stomach and palpitation of the heart, that at times I could hardly lie down. Could hardly get up in the morning, but after using three bottles of 'Favorite Prescription' and two vials of Dr. Pierce's Pleasant Pellets, I am like a new woman."

Sick women, especially those suffering from diseases of long standing, are invited to consult Dr. Pierce, by letter, *free*. All correspondence is held as strictly private and sacredly confidential. Address Dr. R. V. Pierce, Buffalo, N. Y.

RUPTURE CURED while you work You pay $4 when cured. N cure, no pay. ALEX. SPEIRS, Box 846, Westbrook M



The "Planet Jr." 12 Tooth Harrow, Cultivator and Pulverizer

shown above, is the special friend of the strawberry grower, market gardener and trucker. It is scarcely less highly appreciated by the general farmer who likes clean growing crops and thorough cultivation. The twelve teeth may be set at two angles, and with the aid of the upright lever which expands or closes the harrow to fit any width of row, makes a clean sweep of the space at one passage. No weed can withstand such thorough stirring and mixing of the soil. The long lever operates the wheel and controls the working depth perfectly. The pulverizer behind passes over all and smooths, crushes and levels the whole. The fatal "root pruning" is avoided and fine surface cultivation

Planet Jr.

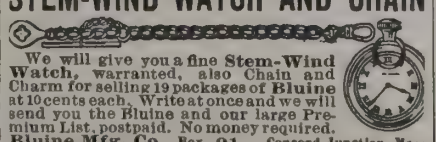
assured. Being made entirely of the best material, it will last indefinitely.

The No. 25 "Planet Jr." Combined Hill and Drill Seeder, etc., as below, is shown here to let us remind you that we are the largest makers in the world of hand, garden, seeding and cultivating implements, including plain and combined Seed Sowers, Wheel Hoes, Hand Cultivators, Walking Cultivators and One and Two-Horse Riding Cultivators, Special Sugar Beet Tools, etc. Our new 1903 catalogue is beautiful and instructive. It contains over 100 illustrations with full descriptions and prices. It costs you nothing and will make you money. Write for it.

S. L. ALLEN & CO.,
Box 1107-D
Philadelphia,
Pa.



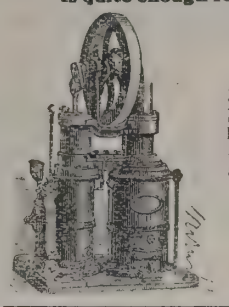
STEM-WIND WATCH AND CHAIN



We will give you a fine Stem-Wind Watch, warranted, also Chain and Charm for selling 19 packages of Bluine at 10 cents each. Write at once and we will send you the Bluine and our large Premium List, postpaid. No money required.
Bluine Mfg. Co., Box 91 , Concord Junction, Mass

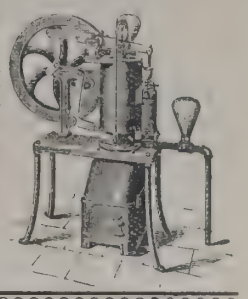
HALF ENOUGH WATER

Is quite enough for some people, but most people want water every day. If



RIDER or ERICSSON HOT AIR PUMPS

Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.



Rider - Ericsson Engine Co.,

35 Warren St., NEW YORK.
239 Franklin St., BOSTON.
692 Craig St., MONTREAL, P. Q.
40 Dearborn St., CHICAGO.
40 N. 7th St., PHILADELPHIA.
Teniente Rey, 71 HAVANA.
22 Pitt St., SIDNEY, N. S. W.

THE WEAR OF RUBBER BOOTS AND SHOES DEPENDS UPON THE RUBBER IN THEM.

There is absolutely no wear in any of the other ingredients of which they are composed. Every time the quality of Rubber Boots and Shoes is reduced 10 per cent., the durability is reduced over 20 per cent. because there is only one way to cheapen them, and that is to leave out Rubber and put in its place other things that have no wearing quality whatever. This cheapening process has been steadily going on for the past 40 years.

THE BUCKSKIN BRAND

OF RUBBER BOOTS AND SHOES

are made of real rubber—and one pair of them will outwear two pairs of the standard first grades now on the market. Try a pair and be convinced. Made in Duck Boots, Duck rolled edge Overs for Socks, and Felt Boots and in Arctics and light rubber shoes.

Insist on getting the BUCKSKIN BRAND. None genuine without the word BUCKSKIN on the top front of the legs of the boots and the bottoms of the shoes. If your dealer does not keep them write us and we will see that you get them either through some dealer in your town or from us direct. We will also send you a very interesting catalogue profusely illustrated, which describes the making of Rubber Boots and Shoes from the gathering of the rubber to the finished goods.

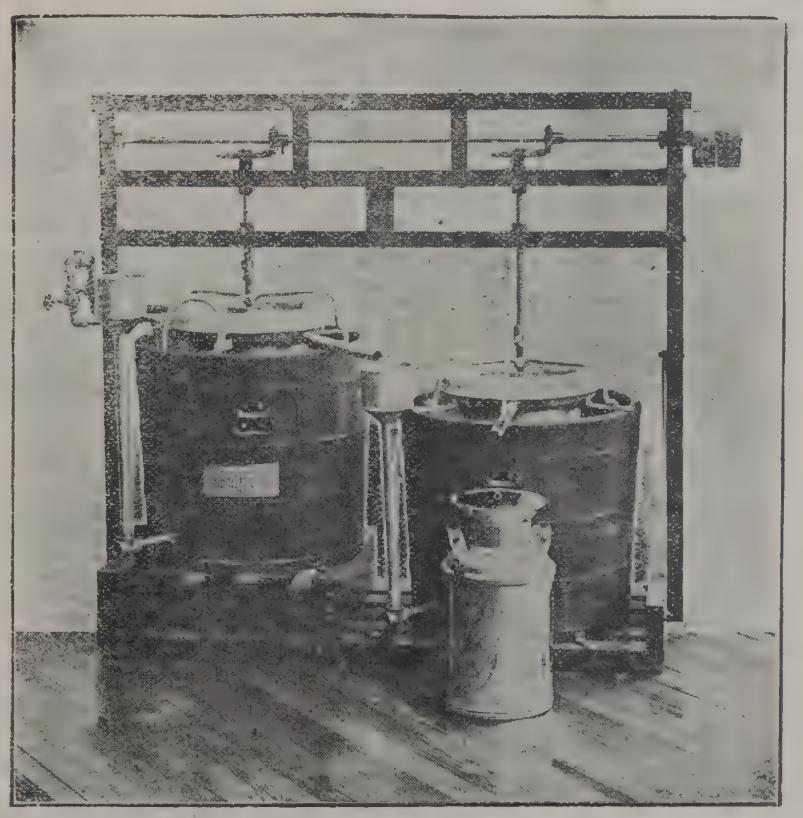
MONARCH RUBBER CO.,
730 Bittner St., ST. LOUIS, MO.

NOT MADE BY A TRUST.



An actual test of a 2-inch strip cut from the sole of the Buckskin Boot. Note the elasticity and strength Only the best Rubber will stand a test like this. Weight of boy and swing 110 lbs.

A GREAT SUCCESS.



The Miller Cream Pasteurizer has a capacity of from 450 to 600 lbs. per hour.

Price $150 in Tin. $200 in Copper.

THE MILLER PASTEURIZING MACHINE CO.
CANTON, OHIO.

important questions the farmer has to deal with, and I am always glad to read anything concerning the matter, but I was somewhat surprised at the teaching and arguments made by a N. Y. gentleman in an article entitled, "Note and Comment," in the issue of Feb. 20.

I fully agree with Mr. Kelly, who holds that the loss of manural values Mr. Plato suspected took place, when he saw the colored ice, were only imaginary, for it takes so little of this liquid to taint a vast amount of ice or water, that let it be as it may, tannin or the genuine liquid, the loss is only trifling in comparison to the loss when manure is left any length of time in a heap in the yard, subject to heating and leaching.

I will confess that years ago, there was a time that I was a firm believer of Mr. Plato's theory, that I would not dare to haul manure on frozen ground; but when one of my neighbors, in a case of necessity, hauled manure on his meadow on the slope of a hill in the winter, and I watched eagerly for the results the coming summer, and then saw the luxurious growth of grass only extended as far as the manure went, my theory was upset.

I also cannot agree with what Mr. Plato says about humus. I can not see the difference whether this decaying process of vegetable matter takes place on top of the soil, or in the soil, as long as we have the humus in the land, and with all my experience, I am fully convinced that there is no place on the farm, where the manure is applied to greater advantage than on growing grasses. There it will turn to humus, and will help to make a good sod, and when a good sod is turned under, it means humus.

At last, but not least, comes in another question in connection with the manure question, namely: the labor question, and we must not only ask when should we haul the manure, but more so, when can we haul it. In my case it would simply be impossible to haul all the manure accumulated during the winter, and do all the plowing, sowing and planting at the same time, without hiring extra help. Now with us, in this part of the country, it is often utterly impossible to secure this extra help, consequently the result would be that the manure could not be hauled at all. Then what about the losses?

CHARLES LINSE.

Wisconsin.

Michigan Educational Butter Contest.

ED. HOARD'S DAIRYMAN:—Michigan will have a six months' educational butter scoring contest, beginning with May next and continuing through the month of October. Much enthusiasm is shown over this proposed educational feature in butter making, and we believe nearly every Michigan butter maker will be represented in it.

In view of the large number of private dairymen in the northern part of the state, it was deemed well, also, to admit dairy butter in this contest. The dairy and creamery butter will, however, be kept entirely distinct from each other, each being placed in a class by itself. Diplomas will be issued at the close of the contest to the third having received the highest score. The three highest in each class will have the rank indicated in the diplomas.

The Governor of the state has very generously offered two gold medals, one to the person receiving the highest average score in the creamery class, and one to the person receiving the highest average score in the dairy class.

The State Board of Agriculture has also shown its interest in the work by offering $150 to be used toward paying the expenses of the judges. After each scoring a letter will be sent to each participant, in which defects in the butter are pointed out, and remedies for overcoming them suggested.

It is to be remembered, therefore, that in this educational test, the primary object is not to see who shall be the winners, but rather to offer a school in which the man with the lowest score shall receive the same, if not more benefit than the one with the highest score. And as the names of those with the lowest scores will not be known to the public, the man who has no idea of what his butter may score, should not be deterred from entering this educational test.

Those who desire to enter the contest should at once correspond with John Michels, Agricultural College, Mich.

JOHN MICHELS.

Agricultural College, Mich.

WHEN YOU NEED A RAKE



HITCH TO A

NEW CHAMPION LOCK-LEVER

YOU will thereby **escape the annoyances and expense** which your old rake caused. Champion teeth-holders are malleable and will not break; the rake head is heavy angle steel securely trussed and will not sag; and the wheels have each 16 strong, oval staggered spokes with heavy flanged tire. But more than this, you secure **greater convenience** of operation and adjustment. The teeth may be locked down or not for gathering as desired. When locked, no effort is required to hold them while gathering, and a boy may rake the heaviest hay and bunch it with the rake as well as a man. This is why it is called **a lock-lever rake.** Another convenience is the hand latch, by which the driver may change the position of the teeth on the ground without taking out bolts or pins, and as easily as he can change the tilt of the cutters on his mowing machine. Besides, the Champion has reversible ratchets and axles, providing **double life** at a single cost, and removable axle bushings in the hubs which may be easily replaced when worn. **Write for catalog** describing Champion binders, mowers and rakes, and for handsome colored calendar, sent free on request.

CHAMPION DIVISION, INTERNATIONAL HARVESTER COMPANY OF AMERICA, CHICAGO.

The Practical Man

appreciates the saving in wear and tear, in friction, draft and labor gained by the simplicity of

Plano Mowers

He knows the value of abolishing needless mechanism and applying power direct.

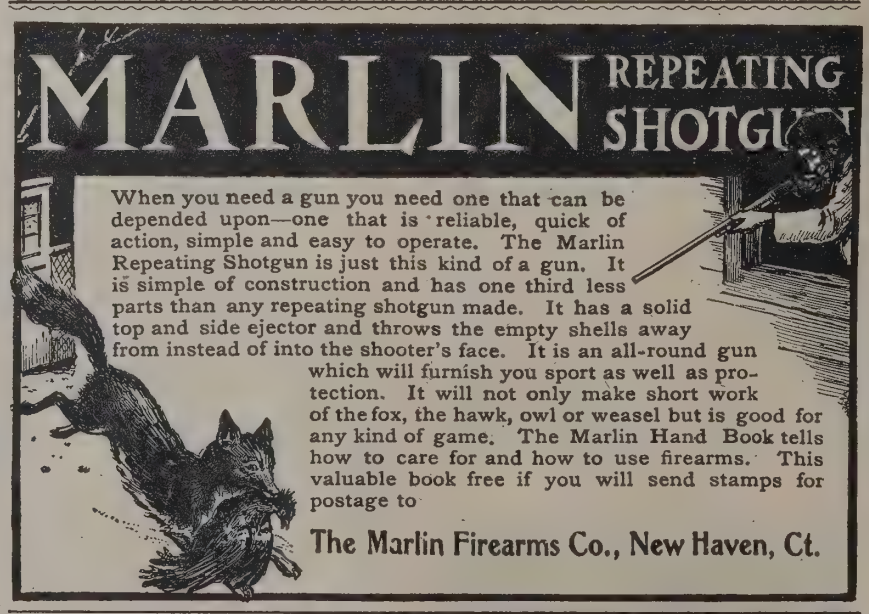
Plano's simple, automatic Clutch Shift, strong internal Drive Gear, easy-acting Vertical Lift Device and self-adjusting Draft Rod are the kind of Mower improvements that appeal to him. They are the outgrowth of experience and scientific ingenuity.

Our catalogue explains them and tells about some other interesting products of the Plano shops—Grain Binders, Headers, Reapers, Mowers, Rakes, Corn Binders, and Huskers and Shredders. The "Plano" is the Husker famed for its safe, swift and satisfactory work. Catalogue free.

PLANO DIVISION
International Harvester Co. of America
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MARLIN REPEATING SHOTGUN



When you need a gun you need one that can be depended upon—one that is reliable, quick of action, simple and easy to operate. The Marlin Repeating Shotgun is just this kind of a gun. It is simple of construction and has one third less parts than any repeating shotgun made. It has a solid top and side ejector and throws the empty shells away from instead of into the shooter's face. It is an all-round gun which will furnish you sport as well as protection. It will not only make short work of the fox, the hawk, owl or weasel but is good for any kind of game. The Marlin Hand Book tells how to care for and how to use firearms. This valuable book free if you will send stamps for postage to

The Marlin Firearms Co., New Haven, Ct.

WINCHESTER

"LEADER" FACTORY LOADED SHOTGUN SHELLS.

For uniformity of loading, evenness of pattern, strong shooting qualities and all-round superiority, Winchester Factory Loaded "Leader" Shells excel. The next time you buy, insist upon having these shells. : : : :

THEY ARE THE SHELLS THE CHAMPIONS SHOOT.

Cheaper than Corn, Oats and Barley.

Attention Dairymen

The net profits to you from your cows depends largely on the expense of the digestible protein in the ration fed. There is no feed on the market today that gives you the protein at less cost than it can be secured in

Atlas Gluten Meal

It will increase the flow of milk and keep the cows in better condition with less outlay in dollars and cents than any other feed. A trial will convince you.

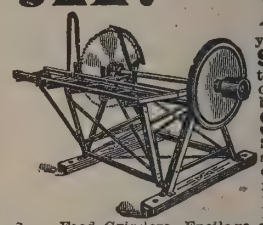
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Box 164, PEORIA, ILL.

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is the cause of much present anxiety but there is a practical way of overcoming it to some extent.

SEE! With an Appleton Wood Saw you can rapidly and with ease and safety SAW your own wood and SAVE COAL, time, labor, money; or saw your neighbor's wood and make $5 to $15 A DAY



Strong, rigid frame, adjustable dust proof oil boxes, etc. We make 5 styles. Also the famous "Hero" Friction Feed Drag Saw, Feed Grinders, Ensilage and Fodder Cutters, Huskers, Shellers, Sweep Horse Powers, Tread Powers, Wind Mills, etc. Write to-day for Free Catalogue.

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Ensilage Cutters, with Blowers or Chain Carriers. Ensilage and Stalk Shredders. Tread Powers, all sizes from dog or sheep to 3-horse. Sweep Powers. Threshing Machines. Circular and Drag Saw Frames.

Handsome Catalogue Free. Send for it.

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TRY IT BEFORE YOU BUY IT

We believe we have the best farm grinder made and are willing to let you prove it.

DITTO'S
Triple Geared Ball Bearing
FEED GRINDER

is sent on trial. If it is not the largest capacity, easiest runner, don't keep it.

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600 Good 2nd-hand Wheels $3 to $8.

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Barren Cows.

Have you one? It takes the profit of two to carry her in the herd. There's a remedy.

KOW-KURE CURES,

not only barrenness, but milk fever, garget, slinking. It is not "for all animals." It's for cows only. It solves the difficulties for breeding cows. A powder to be mixed with the food. Endorsed by thousands of dairy people. Sold by dealers. Write us for free booklet, "Kow-Kure for Cows Only,"

Dairy Association, Lyndonville, Vt.

...THE...
FARMER PROSPERS.

Success in Agriculture means prosperity for all. When the farmer prospers all classes enjoy good times. In order to prosper the farmer must keep posted in all matters pertaining to his business and secure the full margin of profit he is entitled to receive on his crops. He must keep pace with and adopt the most approved methods for cultivating and marketing his crops. The farmer cannot succeed without a practical, progressive and up-to-date farm paper. It is his best investment.

Such a Paper is

THE FARM HOME
OF SPRINGFIELD, ILLINOIS,

which contains 20 or more pages of valuable information of great interest and practical value to every farmer and each member of his family. THE FARM HOME continues to be the leading favorite with the stock feeder, the dairyman, the swine breeder, the sheep breeder, the poultryman, and the farmer interested in better home making and the education of the boys and girls.

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The Breeders' Gazette ($2.00) and the Farm Home ($1.00) will both ($3.00) be sent you one year for one dollar and a quarter.

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The regular annual single subscription rate for each paper named above is given in parenthesis.

Send to The Farm Home at Springfield, Ill., one or more orders for the above leading popular favorites at the cut rates named, which are the lowest that can be obtained. Remit in most convenient safe funds.

Any other paper not named above will be furnished at lowest club rates.

Good results are obtained by advertising in THE FARM HOME, Springfield, Ill. Circulation now exceeds Thirty Thousand Copies. The publishers of THE FARM HOME guarantee circulation and good results to advertisers It is the only Farm Paper in Central Illinois and its circulation reaches the up-to-date prosperous farmer in the rich Corn Belt. Sample copy and rates for advertising sent on application.

THE FARM HOME
SPRINGFIELD, ILL.

Handling Manure.

ED. HOARD'S DAIRYMAN:—Several articles have been given of late in regard to manure, when to haul and spread upon the farm, methods of saving, etc. This is a subject which ought to receive more attention among dairymen, especially in a locality like this, where eight carloads of commercial fertilizer were used last year in small part of county, a dairying region and many creameries, nearly three hundred dollars paid for freight to R. R. Co., about the same amount cost of hauling from station to farms, mixing and applying to crops.

As to the time of spreading manure, no fixed rule can be established for different farmers or even one for all seasons on same farm. Last winter the ground was frozen very hard and the floods of December and March, which came without softening the soil, must have taken a large percentage of the valuable part of the manure from our sloping fields, while this winter the ground has not been frozen very hard at any time, is open and porous, in condition to receive manure containing all the liquid direct from stable.

During warm weather we endeavor to haul the manure direct to the field, but often a heavy rain will take away several dollars fertility before time will permit of securing it for the soil.

All things considered I am fully convinced that a roof to cover manure for every dairy barn is just as important in proportion to the product to be saved as a silo for the corn, or barn room for the hay; then we can spread it upon the field or not as the season or time for hauling permits.

During the summer, when not feeding from silo, we stable our cows while milking, in an enclosed shed about sixty feet long (plenty of windows on both sides) by putting a shed roof on west side, it will keep out the hot sun and also protect the manure piles. My plan is to use for the roof, boards taken from fences, which have been replaced with wire, nailing them to sticks which are spiked to plate under eaves, rafters supported by braces from timber six feet below; roof projecting eight feet; no posts to be in the way of driving close to piles.

At the northeast corner of bank barn, where cows are wintered, is a shed attached, fifty feet long and high enough to allow a shingled roof to extend twenty feet in width, which gives plenty of room for straw and granary above, with manure underneath. These plans are such as may be followed by those who do not wish to build extensively; a covered barn yard, or shed separate from barn may be better, when circumstances allow; care should always be taken not to darken or shut out sunlight from stables where cows are kept during the winter.

Land may be cheaply improved by using small fields for night pasture.

By feeding linseed meal, wheat bran and buckwheat shorts to stock kept in stables, having tight floors, using horse manure as an absorbent, if nothing better is at hand, crops may be improved and commercial fertilizer bill lessened.

Orwell, Pa. F. I. C.

Letters Regarding Coming Sales.

An Importation of Island Jerseys.

ED. HOARD'S DAIRYMAN:—Mr. F. S. Peer, well known as a breeder and importer of farm stock, landed in New York City on the 14th with 136 head of very high class stock, Jerseys, Guernseys, sheep, swine and Welch ponies. We can not have too many high class animals brought to this country. Anything that is likely to improve or strengthen the breeds in this country, should be most welcome by all. Mr. Peer has been doing good work in this line since 1891, making two and sometimes three importations a year for some of the best breeders in this country and Canada. To many of our readers, Mr. Peer is better known as the author of Soiling, Ensilage and Stable Construction, a book that has had a most extraordinary sale, having reached a seventh edition in its revised form in little over a year from the time of its publication. * *

It CURES THE HURT



Whether on domestic animals or on the human body, there is no remedy for the treatment of sores and injuries equal to



Mexican Mustang Liniment.

If the horse has barbed wire cuts, scratches, galls, stiff joints, growths, it effects a speedy cure. For cuts, ulcerations, swellings, inflammations on cows or other animals, it is equally powerful. It is the one absolutely sure cure for sore teats and caked udder in cows. Rheumatism, sprains, lame back and like ailments of mankind have no more effectual remedy. It has been

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and its popularity is ever on the increase. What other liniment can boast such a record? It is the liniment which more than any other gets right down through the skin and muscles to the deepest injury. The number of those who testify to the great healing and curative powers is legion. It has gone into all lands. **In bottles of three sizes, 25c, 50c and $1.00.** Largest size is cheapest. Sold by dealers everywhere. Write us for free booklet, "Points from a Horse Doctor's Diary."

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Is the life of advertising—It is also the life of the largest mail-order seed trade in the world—
BURPEE'S!
Were it not for repeat-orders every year from satisfied planters we could not supply the
Best Seeds that Grow
at such moderate prices. We want every one who appreciates quality to write for **Burpee's Farm Annual for 1903.** Long known as "the Leading American Seed Catalogue," it is better now than ever before. An elegant book of 184 pages, with beautiful colored plates and hundreds of illustrations, it tells the plain truth. **Write to-day! Do not delay! It's FREE.**
W. ATLEE BURPEE & CO., Philadelphia

210 Kinds for 16c.
It is a fact that Salzer's seeds are found in more gardens and on more farms than any other in America. There is reason for this. We own and operate over 5000 acres for the production of our choice seeds. In order to induce you to try them we make the following unprecedented offer:



For 16 Cents Postpaid
25 sorts wonderful onions,
25 sorts elegant cabbage,
15 sorts magnificent carrots,
25 peerless lettuce varieties,
25 rare luscious radish,
20 splendid beet sorts,
75 gloriously beautiful flower seeds,
in all 210 kinds positively furnishing bushels of charming flowers and lots and lots of choice vegetables, together with our great catalogue telling all about Macaroni Wheat, **Billion Dollar Grass,** Teosinte, Bromus, Speltz, etc., all for only 16c. in stamps and this notice.
Onion seed at but 60c. a pound.
JOHN A. SALZER SEED CO.,
La Crosse, Wis.

RAPE It pays to sow **Dwarf Essex Rape** which has proved to be the most valuable forage plant in existence for Sheep, Hogs or Cattle. Costs only about 35 cents per acre for seed; yields 20 tons per acre. Our seed was grown in Essex, England, and is extra choice. Descriptive circular and sample free if you mention this paper. Ask for copy of our large illustrated catalog of Garden and Farm Seeds. Free for the asking.
IOWA SEED COMPANY, DES MOINES, IOWA.

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the Kind that Leads
cost more—yield more, sold by all dealers.
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Sell High Grade
SEEDS
of All Kinds at
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Pride of the South.
Extra Early Ohio.
All standard, all well known and reliable varieties of potatoes $3.50 a Barrel.
Write for our catalogue and prices of a large line of varieties garden and farm seeds.
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We will send you free our Large Illustrated 1903 Catalog. Contains everything in the line of seeds for the farm, home or market garden. All the old reliable varieties and some things now offered for the first time. Special prices to cash buyers. Best, most reliable and cheapest seed collection offers ever made. Plants for ornamenting grounds. Full line garden tools, etc.
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We are recleaners of all kinds of Field Seeds and do not mix Medium and Mammoth Red Clover. Write for Field Seed Price List, also 1903 Seed Catalogue, mailed free.
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We hereby offer $100 in cash for the best article to be written on breeding and raising Hogs. Describe ten sows that you would select for breeding. Describe boar that you would select for a cross with these sows. Describe how and what kind of grain, grains or mill stuffs you would feed sows until pigs were farrowed. Tell how many pigs you would expect from the ten sows and describe how and what you would feed sows after pigs were farrowed. State when you would commence feeding pigs and what you would use. State when you would wean pigs and what kind of feed you would give them from that time until they were six months old and what you would expect to make them weigh at the expiration of six months. State why you would expect such results from your care and kind of feed used. Describe kind of pens and yards you would use for each condition. Our aim is to have you write an article describing in a practical way just how you would raise hogs to obtain the best results. **The breed of hogs selected will Not be considered in the decision. The use of "INTERNATIONAL STOCK FOOD" will Not be considered in the decision.** The decision will be published in every leading Farm Paper in the United States and Canada. Mail your article to The American Swineherd, Chicago, Ill., on or before May 10th, 1903. **The judges will be J. W. Baynes,** editor and proprietor of **American Swineherd, Prof. Thomas Shaw** of **The Farmer,** St. Paul, Minn., and **Henry Wallace,** editor of **Wallace's Farmer,** Des Moines, Iowa. These gentlemen are well known throughout the entire country and the decision will be rendered in May, 1903. The winning article is to be our property and will be circulated throughout the world and will attract universal attention of all swine raisers. **Who will win the $100 Cash and the Honor** and at the same time write an article that will be of great practical value to every stockman? ☞ **Try for it.** ☜ **You may be the winner.** All articles must be mailed to **The American Swineherd, Chicago, Ill.,** on or before **May 10th, 1903.** Mark your envelope ☞ **"International Stock Food" Offer.** ☜

"INTERNATIONAL STOCK FOOD" ☞ 3 FEEDS FOR ONE CENT ☜ **is Prepared from Roots, Herbs, Seeds and Barks and Won the Highest Medal at Paris Exposition in 1900 as a** High-Class vegetable, medicinal preparation to be fed to stock in small amounts as an addition to the regular feed. It is a Great Aid in Growing or Fattening stock because it increases the appetite and Aids Digestion and Assimilation so that each animal obtains more nutrition from the grain eaten. We positively guarantee that its use will make you extra money over the usual Plan of Growing and Fattening stock. "International Stock Food" can be fed in safety to Horses, Cattle, Sheep, Goats, Hogs, Colts, Calves, Lambs or Pigs. It is Absolutely Harmless even if taken into the Human System. You insist on eating medicinal ingredients with your Own food at every meal. Salt is a stomach tonic and worm medicine, Pepper is a powerful stimulating tonic, Mustard is a remedy for dyspepsia, Vinegar is a diuretic. You eat these medicinal ingredients almost with every mouthful of your food, and it is proven that these condiments promote health and strength for people and improve their digestion. "International Stock Food" contains pure vegetable medicinal ingredients that are just as safe and as necessary an addition to the regular feed of your stock if you desire to keep them in the best possible condition. "International Stock Food" is endorsed by Every High Class Farm Paper. It purifies the blood, stimulates and permanently strengthens the entire system so that disease is prevented or cured. "International Stock Food" is sold on a "Spot Cash Guarantee" by Fifty Thousand Dealers throughout the World. ☞ Your Money will be Promptly Refunded in Any case of failure. It will make your Pigs or Hogs grow Amazingly and has the largest sale in the World for curing or preventing Hog Disease. ☞ Beware of the many Cheap and Inferior Imitations! No Chemist can separate all the Different powdered Roots, Herbs, Barks and Seeds that we use. Any One claiming to do so Must be an Ignoramus or Falsifier.

A $3000.00 STOCK BOOK FREE

IT CONTAINS 183 LARGE ENGRAVINGS OF HORSES, CATTLE, SHEEP, POULTRY, ETC.

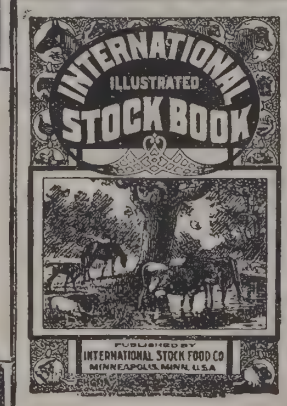


The Cover of this Book is a Beautiful Live Stock Picture ☞ Printed in Six Brilliant Colors. Book is 6½ by 9½. See engraving for greatly reduced design of cover. It cost us $3000 to have our Artists and Engravers make these life Engravings. This Book contains a Finely Illustrated Veterinary Department that will Save You Hundreds of Dollars. It describes common Diseases, and tells how to treat them. It also gives Description, History and Illustrations of the Different Breeds of Horses, Cattle, Sheep, Goats, Hogs and Poultry. It contains testimonials, and Life Engravings of many very noted Animals. The Editor Of This Paper Will Tell You That You Ought To Have This Book In Your Library For Reference.

$10.00 CASH, we will send you, **IF BOOK IS NOT AS STATED.**

This Book Mailed Free, Postage Prepaid, If You Write Us (letter or postal) and Answer These 2 Questions:
1st.—Name This Paper. 2d.—How Much Stock Have You?

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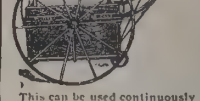
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Tips forward and picks up a barrel or heavy article same as a warehouse truck. No heavy lifting.



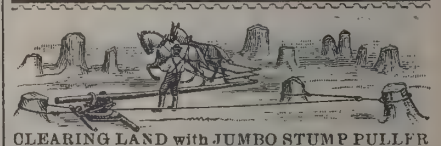
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WE make that kind. PAY FREIGHT. Catalogue free. Write for price, G. H. POUNDER No 7. Ft. Atkinson, Wis
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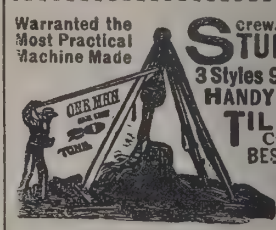
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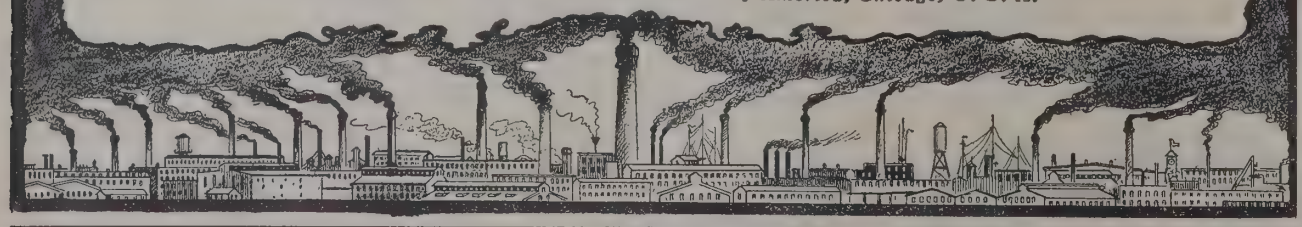
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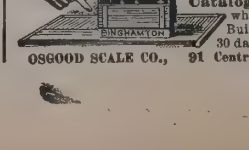
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Send us your address and we will show you how to make $3 a day absolutely sure. We will furnish the work and teach you free, you work in the locality where you live. Send us your address and we will explain the business fully, remember we guarantee a clear profit of $3 for every day's work, absolutely sure. Write at once.

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VOLUME XXXIV. FORT ATKINSON, WIS., MARCH 20, 1903. NUMBER 6

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs**
Liberal Advancements Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, New York.



ASK YOUR DEALER IN DAIRY SUPPLIES FOR
CHR. HANSEN'S LACTIC FERMENT
To ripen your cream, ensuring
Perfect Flavor, Uniformity and Keeping Qualities in your Butter.
CHR. HANSEN'S LABORATORY, P. O. Box 1003, Little Falls, N. Y.



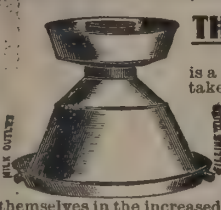
A Good Record
TEN CAR LOADS
which means in this case twenty-four thousand nine hundred tubs sold to one co-operative Dairy Company in Minnesota, between Feb. 1899 and July 1902, and in using them they did not lose one tub out of the entire lot. We have their letter stating this to be a fact.
This is how our GENUINE "Elgin" Tub stands up.
Made only by the ELGIN BUTTER TUB CO. at Elgin, Ill.
Schmidt Bros., Props.

HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, BOSTON.**
Medals—Bronze 1878 Silver, 1887, World's Fair, 1893.

THE KIND THAT HAS NO MUD.



Wells, Richardson & Co.'s
Improved Butter Color
Has stood the test for many years, and users of color know that it can always be relied upon. It is the BEST and therefore the CHEAPEST COLOR on the market.
For Sale By All First-Class Supply Houses.



THIS PERFECTION MILK COOLER AND AERATOR
is a simple device for cooling and aerating milk. It quickly and effectually takes out all animal heat, and with it all animal odors, odors arising from stables, feed, etc. This method of treatment makes the milk keep sweet much longer. It is better for making butter, cheese, etc., and will stand shipment much better.
Cost But Little and Last Indefinitely.
They are made in sizes from 1 to 200 cows and will quickly pay for themselves in the increased reputation they give your product. They come very nearly taking the place of ice in warm weather. Send for illustrated circulars and prices
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sills, planking and all other woodwork that is likely to rot, by treating with
Conservo Wood Preservative.
It will pay you to use it on every stick of timber. Costs but a few cents a stick, and saves dollars in repairs, by preventing decay. It also kills germs and insects, and foul smells. We have studied wood preservation for twenty-five years, and believe Conservo is the best preservative that can be made. We *know* it is the best now made.
Send for circular, it costs nothing, and may save much.
SAMUEL CABOT, Manufacturing Chemist, 80 Kilby St., Boston, Mass.

ACCELERATOR.

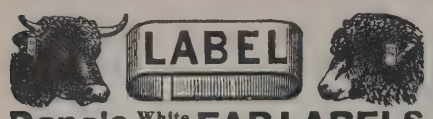
What is an Accelerator? If we were discussing cream ripening it might mean a starter---something to hasten the ripening process. But we are not talking about cream ripeners; we are talking about cream separators, **Sharples Tubular Cream Separators for factory use,** therefore we want the creameryman to think about this and get the word fixed in his mind. We will soon show him what our "accelerator" means for him, and it means a good deal. Wait.



The Sharples Tubular Dairy Separators have had an "accelerator" behind them always, and its other name is **quality.** It is **quality** that makes the demand for the **Tubular, quality** that makes the sales of the **Tubular** so far in advance of other separators; **quality** that makes the shipment of train loads of **Tubulars** possible; and **quality** that has made the **Sharples Cream Separator Works** the largest and best equipped in the world. It is **quality** that has prompted thousands of dairymen to buy **Tubulars** and that same **quality** will induce you to buy a **Tubular** if you will compare it with any other separator.

WRITE FOR CATALOGUE NO. 144.

The Sharples Co., 28 30 & 32 So. Canal St., CHICAGO, ILL.
P. M. SHARPLES, West Chester, Pa. U. S. A.



Dana's White Metallic **EAR LABELS**

Stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Samples free. **Agents Wanted.**

C. H. DANA, 55 Main St., West Lebanon, N. H

Cheaper than Corn, Oats and Barley.

ATLAS GLUTEN MEAL

Protein for Less Money Than It can be Purchased In Any Other Feed.

Any dairyman that will give this feed a fair trial will not only find it better than other gluten meals but as well the most economical feed that can be purchased.

IT WILL INCREASE

the flow of milk 25 per cent and keep the cows in excellent condition.

All we ask is a trial, if your dealer does not keep it, write us.

ATLAS FEED & MILLING CO.,

Box 164, PEORIA, ILL.

Best Results

in feeding for milk are obtained by adding some

BUFFALO Gluten Feed

to balance the ration.

Sample and booklet

"Feed Your Stock for Best Results."

Sent free. Write to-day.

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THE GLUCOSE SUGAR REFINING CO.,
The Rookery, Chicago, Ill.

BLATCHFORD'S CALF MEAL

THE MILK SUBSTITUTE

"There is nothing like it to raise thrifty Jersey Calves."

ADA B. GARDNER, Esq., GLENCOE, MO.

Address, BLATCHFORD'S CALF MEAL
WAUKEGAN, ILL.

There's More Money

And readier money in hogs and cattle if there is mixed daily, with their feed a small amount of

Prussian Stock Food.

For all domestic animals. It conditions, begets growth, fattens. **50c and $1,00** Packages. **A Pail, 1200 feeds, for $3.50.** Buy of dealers. Write us for free 68-page book.

Prussian Remedy Co. **St. Paul, Minn**

A FIFTY-ACRE ONTARIO FARM.

Mr. Isaac Bundy of Tillsonburg, Ont., writes that he has 50 acres of land on which he keeps 16 cows, 4 young cattle, 1 bull, 3 horses and 1 colt. He has two silos and seldom buys any feed except wheat bran and pea bran. He mixes these two kinds of bran and feeds about 12 lbs. per day at a cost of 10 cents. In addition he feeds a half bushel of corn silage twice a day and some clover hay twice a day. He is a milk dealer and has been delivering milk in town for over twenty years.

It follows that Mr. Bundy must be a pretty good farmer and has a pretty good farm to raise all the feed required for this stock. His rotation seems to be corn, oats and clover. The oats he cuts green and makes into hay and after cutting the first crop of clover, he uses these fields for pasture, changing back and forth every week so as to give the cows clean, fresh grass all the time.

Like other progressive farmers, he does not seem to be quite content and so makes inquiry about cow peas and other varieties of the regular pea vines. He already has 3½ acres of alfalfa seeded last spring on which, as might have been foretold, he secured a good catch. He is now drawing out cow manure and spreading it on the alfalfa and inquires how it would be to put a harrow on when the frost is out of the ground to spread the manure more evenly. He has heard somebody say at a Farmers' Institute, that manure spread on clover would smother it.

The cow pea is, in fact, a bean and its natural habitat is in the South. Some attempts have been made to grow it in some of the northern states and where all the conditions were favorable, quite good results have been attained. It is probable that this plant, like the corn plant, will adapt itself to northern climate and conditions, but at the present time we would not be justified in advising our Ontario friend to do more than try cow peas on a very limited scale indeed. It is possible that by planting a few seeds and re-planting seed from these one or two years, he might develop a variety that would just meet his conditions. Meantime, as he is anxious to add something to his present rotation that will tend to further enrichment of the soil, we suggest that he mix some of the small varieties of the Canada peas with his oats to cut for hay. He has done well, we think, in putting in some alfalfa and we do not think a light top dressing of manure will have any unfavorable effect. At all events, we are treating a portion of our alfalfa fields in this way this spring. Of course, a heavy top dressing would smother any kind of a crop. Alfalfa is a heavy producer and while it sends its roots deep into the ground to unlock the fertility beyond the reach of many other plants, it is not to be expected that it can continue to furnish large returns unless the soil has something paid back to it.

In a postscript to his letter Mr. Bundy says, "I raise three times as much feed and keep three times as much stock as my neighbor does from 200 acres, and make more money." He also says, "I have been a subscriber to HOARD'S DAIRYMAN for two years and am delighted with it. Have learned so much from it that I would not like now to do without it for twice the price."

If a dairyman, as successful as Mr. Bundy has been and is, can obtain so much benefit from reading a dairy paper, how it it that other dairymen who are not so successful, can afford to deny themselves such opportunities for improving their condition.

AN indication of how a business man looks on the alfalfa question is furnished by Mr. Scully, who is the owner of some 100,000 acres of land scattered over several states of the middle west. In leasing this land, there is a provision calling for the seeding of 20 per cent of the leased land in alfalfa. The idea is, that even in times of severe drouth the alfalfa will supply hay enough to pay the rent of the farm. How many farmers are looking as far ahead as the above landlord?

ARMSTRONG & McKELVY	Pittsburgh.
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Furthermore, no scraping or burning will be required when repainting becomes necessary.

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Bran Middlings, Flour Middlings, Red Dog Flour, Snow's Cream Flour Middlings, Chicken Feed Wheat, Dairy Feed, Mixed Feed, Corn, Oats, and Ground Feed. Old process Oil Meal. Ask for prices, and mention this paper when writing us. **CAN LOAD MIXED CARS.**

CORRESPONDENCE SOLICITED.

SNOW'S CREAM FLOUR MIDDLINGS IN 100-LB. SACKS. The best seller in the market. We make a specialty of Screenings for Sheep Feed

PURE OIL MEAL.

USE FOR MILCH COWS AND FATTENING STOCK.

Superior to corn, oats and hay Ton lots $23,50, half ton $12.25; 500 pounds $6.75; 100 pounds $1.50. Put up in 100-lb. sacks f. o. b. Minneapolis. Cash with order.

This Meal is Guaranteed Absolutely Pure. We also manufacture Strictly Pure Linseed Oil.

NORTHERN LINSEED OIL CO.,

MINNEAPOLIS, MINN.

When ordering mention this paper.

QUALITY ELMCO MARK

WE GUARANTEE every pound of feed we put out under ELMCO quality mark. There is none other like it. We are the Sole Manufacturers of this brand and we seek the trade of Feed Buyers desiring high-grade feed. It costs more than common grades quoted, but don't let a difference of from 2 ½ to 5c per 100 lbs. higher cost influence you into buying cheap, adulterated feed. It pays to buy superior quality feed just as surely as it pays to buy superior quality in any line of goods. Write us at once for prices and particulars of each grade of ELMCO feed. Shall we put your name on our quotation list for ELMCO Feed prices?

LISTMAN MILL CO, La Crosse, Wis., U. S. A.

Sole Manufacturers of **ELMCO FEED.**

THE MILL WHERE **MARVEL** FLOUR IS MADE.

Hoard's Dairyman

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Remit by draft on Chicago or New York, or Post Office orExpress Order (never by personal check), addressing Hoard's Dairyman, Fort Atkinson, Wis.

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Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

Entered at Fort Atkinson, Wisconsin, as second-class matter.

WISCONSIN BUTTERMAKERS' MEETING.

The Wisconsin Buttermakers' Association held their second annual meeting, at Waukesha, Feb. 24-27

The first meeting, that of last year, was somewhat in the nature of an experiment, it being uncertain to what extent the buttermakers of the state would support such an association, although the necessity for it was evident.

The second meeting has shown that the association has passed beyond the experimental stage, and that its future is assured. The association was fortunate in starting out with a set of officers who were both conservative and experienced in handling matters of this kind, and there is no doubt that the success of the association is largely due to the labors of President Fulmer and Secretary Farrington. In closing his report, Secretary Farrington said that at the last meeting of the officers it was decided to ask the legislature for an annual appropriation of $1,500 for the purpose of meeting the expenses of the annual meetings, printing reports, and to aid in promoting the dairy industry. A bill for this purpose has been introduced in the legislature, and each member of the association was urged to use his influence to have the bill become a law.

It is to be hoped that the representatives at Madison will recognize the value of the work of such an association, and give them the desired aid; the dairy industry of the state is a source of great wealth, and it should certainly have the needed assistance to enable it to compete with neighboring states that are making every effort to improve their output of dairy products.

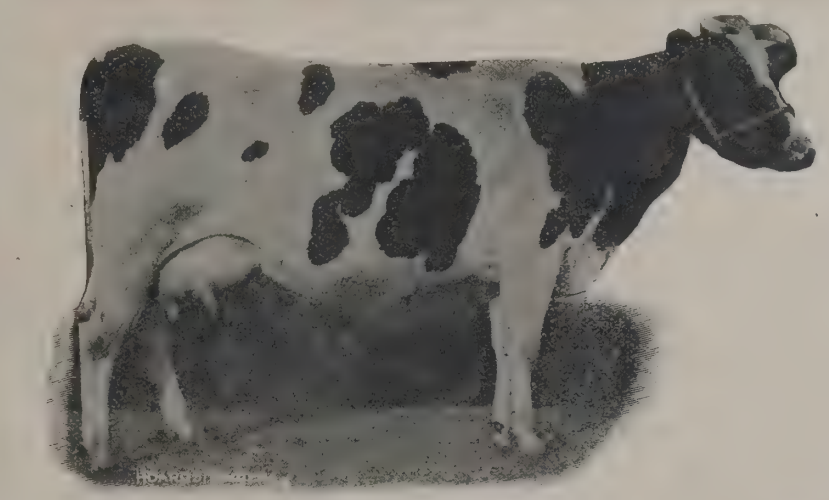
President F. B. Fulmer in his address praised the progress of the association and urged the enrollment of more members. He urged members to work for the passage of the bill appropriating a sum to the association. He said in part:

"The creamery industry in general has had a prosperous year. Prices for butter have averaged higher than for some years past. New and successful creameries have been established, and older ones have increased their output. This is due largely to increased production, and not to enlarged territory. There seems to be general, practical knowledge permeating the ranks of actual producers as well as the manufacturer of milk products.

"The success of our organization depends upon judicious and timely business management, and then upon the interest manifested at the convention. The officers are largely responsible for the arrangement of details for the convention, and for looking after the interests of the association between the annual meetings."

Dairy and Food Commissioner, J. Q. Emery, speaking on the subject of Creamery Inspectors and alluding to the bill now before the Wisconsin Legislature increasing the force of the commission, said: "The Minnesota commission includes fourteen persons; the Michigan commission, twelve, the Province of Ontario, Canada, sixteen, and the Province Quebec fifty."

"Since the organization of the commission the dairy industry has increased threefold. In 1902 it reached a production, including all by-products, the estimated valuation of which is $55,000,000. The demands upon the commission have become correspondingly large. In addition, the commission has been charged with the enforcement of food laws covering all substances used for food or drink, the laws governing the sale of drugs, linseed oil, colored grain, impure ice, and adulterated cattle feeds. But this greatly enlarged scope and work of the commission has not been accompanied with a corresponding increase to the working force of the dairy and food commissioner.



HOLSTEIN COW, MANNETTE OF PLEDGE 2d, H. F. H. B., 39518
Property of T. A. Mitchell, Weedsport, N. Y.

"There are, in round numbers, about 2,800 creameries and cheese factories in Wisconsin. The number of creameries and cheese factories in this state is greater than in any other state of the union. These creameries and cheese factories are daily receiving milk from a multitude of patrons, who offer the milk in varied degrees of cleanliness or uncleanliness, and, consequently, in as varied sanitary or unsanitary conditions.

"This great dairy industry cannot be regarded as merely a private business enterprise. When the dairy industry offers to the public an article of food for general consumption it is a proper concern of the state that the food product thus offered her citizens be genuine, clean, unadulterated and wholesome.

"One competent, energetic person can visit and properly inspect not more than four creameries and cheese factories a week. To make his inspection efficient or effective he must spend the morning hours of each day in inspecting the milk received into the creamery or factory, for upon the quality of the milk received depends in large measure the quality of the butter or cheese product. Allowing fifty working weeks in the year one man could inspect not to exceed 200 creameries or cheese factories, yearly. This amount of work is believed to be an over estimate of what one man can accomplish. Surely no one man could do more. Now, allowing 200 creameries or cheese factories to be inspected in a year by one man it would require fourteen men to inspect once a year each of the 2,800 creameries and cheese factories in the state."

This question of a larger number of creamery inspectors is not one that Wisconsin can afford to neglect, in view of the work that is being done in other states. Wisconsin dairy products now stand among the first, but greater assistance must be given the dairy industry if they are to be kept there.

J. H. Godfrey, an instructor in the dairy school at Madison, and Prof. E. H. Farrington of Madison conducted a discussion on the subject of pasteurized butter. Mr. Godfrey stated that nearly all the foreign butter that is made, is made by this process, and that American trade is demanding it more and more every year and that it behooved Wisconsin butter men to study this subject carefully so they may stay in with the procession when all butter is made by this process. Pasteurized cream butter has the advantage over raw cream butter in the fact that after the cream is pasteurized the fermentation and germ life is checked, making the butter comparatively free from the danger of contracting a rancid odor after being packed.

Dr. Richard Fischer, a chemist of the dairy and food commission, gave an interesting talk on "The Composition and Detection of Oleomargarine." It is said that during the siege of Paris in the Franco-Prussian war, butter was not to be obtained in the city and some of the French scientists composed a substitute from animal fat, and that, Mr. Fischer stated, was the beginning of oleomargarine. He said that at the present time France consumed daily between 60,000 and 80,000 pounds of oleo. He explained the two simplest ways of detecting the product; one by boiling it, as when butter boils it makes no noise and lots of foam, and oleomargarine makes a great deal of noise and little foam. The boiled substances could also be set off to cool and the cooling oleo would form in a lump while butter will always granulate.

Prof. F. W. Woll, of Madison, spoke at length on "Butter Contests in Foreign Countries." His address was especially interesting to the butter men, as he confined his remarks principally to Denmark, which country is the generally accepted criterion among all butter producers, and Mr. Woll quoted the adage, "Do as Denmark does and you are all right," to uphold his lavish praise of the business in that country. Previous to 1870 Denmark was a great agricultural country, but the accession of a strip of the country's best farming land by Germany caused the Danes to look about for other occupations, and a medal was struck by the state in 1870 bearing the inscripton: "What is lost outside must be gained from within," and so the people took to the business of buttermaking to retrieve their lost fortunes. Although the business is hardly a century old in Denmark, it is represented by a capital of about $7,000,000, averaging $7,000 to a creamery, and 500 or 800 cows to each creamery. In drawing comparisons between Denmark and Wisconsin he said that this state supports 2,018 creameries, valued at $5,000,000 and averaging $2,400 per factory. Equipment is much more expensive in Denmark than here on account of the system of pasteurizing the cream, which the trade demands. The state, in Denmark, conducts the competitions and all creameries are notified by wire to send their sample immediately, leaving no chance for special preparation. The butter is scored by experts two days and fourteen days after its arrival. The exhibits cost the government about $10,000 annually, but as at the present time all poor grades have been practically eliminated it is considered a gilt-edge investment.

Prof. A. W. Richter, of the University at Madison, gave a practical talk on fuel and its use in the creamery, giving many valuable points on the methods of firing boilers and advice on how to handle fuel and furnaces so as to obtain the greatest heating effect from material used. He spoke very favorably of the use of peat as a fuel for creamery use.

State Creamery Inspector Moore spoke of the "Inside and Outside of Wisconsin Creameries" and urged that more attention be paid to cleanliness among the state creameries, and also gave some good advice on refrigeration and ventilation.

Prof. Oscar Erf of the Illinois Agricultural College, discussed creamery buildings and illustrated his address by the use of several charts, showing a septic tank arrangement for the disposal of sewerage on level ground locations and also the methods of construction of cement floors, creamery walls and floors and also plans for two creamery plants, complete.

One of the most important questions connected with the creamery industry was then taken up, viz: Whole milk creamery and hand separator cream.

In regard to the above, the creamery industry is in a transition state owing to the rapid introduction of hand separators among creamery patrons. In their eagerness to sell hand separators the agents are making claims and statements which cannot but result in a deterioration of the butter made from hand separator cream, if these methods continue. If there is any one place where cleanliness is an essential it is in the use of a hand separator, but many agents are teaching the buyers of their machines that the bowl requires cleaning but once every few days, or a week in some cases, and that in any case a pail of water thrown into the bowl is all that is necessary. It needs no prophet to tell the result of such teaching on the cream produced and its effect on the future of the butter industry of the state, and unless the separator agents stop appealing to the lazy side of human nature as an aid in disposing of their machines the quality of Wisconsin butter is sure to suffer and the result will be a wholesale discarding of the hand separator.

E. L. Duxbury, of Green Bay, who won the sweep-stakes gold medal at Milwaukee, described the process of making his prize butter. He said they have an ordinary creamery, locality and patrons, but he made a careful study of local conditions and made improvements wherever possible. He rejected all milk that he considered unfit for butter of the highest grade and then followed the modern dairy school teaching as to handling the cream and butter.

The following officers were elected:

President, J. G. Moore, Albion; Vice-President, W. J. Hyne, Evansville; Secretary, F. B. Fulmar, Ettrick; Treasurer, E. C. Dodge, Lake Mills.

Sweepstake gold medal was won by G. G. McIntyre, Whitewater, with score of 98.

Silver medal won by Wm. J. Hyne, Evansville, score 97½.

Following is list of scores of 90 and over:

C. O. Black, Deerfield	93
J. E. Boettcher, Guthrie	97
F. Blumestein Sullivan	92
H. S. Bowman, Sauk City	90⅛
Frank Boss, Edgerton	95⅛
H. Berkholtz, Middleton	94
Wm. Buchanan Whitewate:	94⅛
R. P. Bjerregaard, Green Bay	93

F. W. Boss, Leyden	93½
D. R. Burritt, Burlington	92
Jos. Bast, Stockbridge	91
S. L. Benson, Fennimore	91
C. J. Chapin, Omro	92
A. L. Covill, Nelsonville	93
J. J. Cook, Burlington	93
E. L. Duxbury, Green Bay	95
E. O. Dasch, Ironton	93
A. Erickson, Volga	93
E. L. Eastman, Saukville	90
W. J. Feind, Helenville	94½
M. Gullickson, Cushing	90
H. E. Griffin, Hancock	90
H. A. Goetch, Winthrop, Minn	95
Edw. Golz, Princeton	93
C. Gerlach, Grafton	95
H. E. Gilbert, Alma Center	91½
L. A. Goodchild, DePere	93½
Erick H. Ermanson, Northland	90
O. E. Holland, West DePere	94½
H. Henrickson, Morrisonville	90½
Wm. J. Hyne, Evansville	97½
E. L. Hovey, Capron, Ill	93
E. J. Hildeman, Belle Plain	93½
F. Jaquith, Dartford	94
Chas. Kemmer, Almana	91
J. A. Klokker, Markesan	92
E. E. Koch, McFarland	93½
F. H. Kelling, Jefferson	96
Paul Knoll, Johnson Creek	95½
C. M. Kates, Custer	93½
F. W. Kuhl, Adams	92½
L. C. Lee, Hanover	95
P. L. Lawrence, Gibson	91
W. H. Lester, Albion	93
R. C. Miller, Marshall	94
F. E. McCormick, Almond	94
G. G. McIntyre, Whitewater	98
E. C. Mitchell, Dodgeville	90
E. C. McCormick, Buena Vista	97
W. McAdam, Vernon	94
A. McLane, Whitewater	92
P. D. Nelson, Plover	97
J. C. Quirk, Burlington	97
A. W. Streber, Brothertown	95
W. A. Stewart, Eagle	93
Jos. Schirmer, Wales	94
J. W. Stryker, Lomira	91
Gust. Trager Mazomanie	91
A. E. Thompson, Poplar Grove, Ill	94
R. E. Tomblinson, Navan	96
G. E. Jordan, Amherst	96½
M. L. VanDreser, Bloomer	93½
J. C. Weber, Fond du Lac	92
A. E. Weaver, Darien	94
J. F. Weber, Hartford	93
R. C. Whitney, Poysippi	92½

F. G. S.

A Stable Plan for Criticism.

ED. HOARD'S DAIRYMAN:—I would like a little information in regard to fixing my barn. It stands on a slope of about 8 or 9 feet in the length, with16-foot posts. When I got the place the east or lower end was fixed up for 6 cows and 3 horses across the end. Now, my plan is to dig out under the whole barn, which is 40×60, put a stone foundation under it and fix it up something after the plan I enclose, provided there is no serious objections to this plan. I have never seen what I considered a very handy dairy barn and whether my plan would be satisfactory after I got it done or not I am unable to say. But my reasons for standing their heads to the wall are: The hay boxes will not be in the way of the hay carrier at time of filling the hay loft, stock will not be blowing their breath in each other's faces, and then there will be room in the middle to back a manure wagon or boat in, at cleaning out time and go to the field with the manure.

If my reasons are faulty, or you can suggest anything better, give it to me for I am young at the business, but old enough in years. Tell me how I can best ventilate a barn of that kind, and about what is the cost of a good cement floor per square?

I have a spring above the barn so that I can pipe the water into the barn for stock and washing off the floor once in a while if necessary.

I am one of your short-time subscribers, but if I can raise a dollar at the expiration of my subscribtion, I shall want the DAIRYMAN to continue coming my way.

My reason for not planning my barn for more stock is, I have less than 80 acres and I expect to run to dairying exclusively, sell my calves for veal and feed the milk to the pigs. I have experimented with young stock, all I am able to. A good veal at 6 or 8 weeks old, ought to be worth $6.00 to $8.00, and when I keep them until they are a year old they have got to be pretty smooth and about the right color if I can get more than $12.00 for them, so I have come to the conclusion that young stock don't pay on a small farm. J. P. S.

Downing Wis.

We see no special objection to the plan submitted for refitting this basement stable, except that, so far as the plan shows, there is much wider space in the center than is really necessary, and we should prefer to have this extra space on the sides in front of the cattle. The central driveway for cleaning out the droppings, does not need to be more than 8 feet wide from gutter to gutter. We would make the gutters 18 inches wide, the platform of sufficient width to afford the cows standing room and for mangers, and after that take what space is left for feeding alley in front. It is not to be expected that everybody will be equally pleased with any system of arranging a stable. For ourselves, we prefer to have the cows face outward, both as a matter of convenience in caring for the animals and for further assurance against contamination.

For ventilating a barn of this character, we should use the King system, which provides for taking in fresh air at the upper part of the stable and removing the cold and foul air from the bottom. Instead of letting the fresh air come directly through the wall it is advisable to have openings outward as low down as possible, connecting with flues in the wall which lead up to the top and then turn into the stable. This prevents all possibility of the warm air escaping. Build a central stack, or ventilating shaft, about 2 feet square at or near the west end of the stable and let it run directly up through the ridge.

Cow Comfort and Discomfort.

ED. HOARD'S DAIRYMAN:—We who are interested in the dairy industry, having started in on another year, let us make it more prosperous than the one just past, not because we did not do justice to it, but because we are one year older and have added something to our store of knowledge and will profit in the future by our mistakes in the past. If we should visit some dairy sections of our country in the summer months and observe the many different methods of handling the dairy cow, we would be surprised to see that so many people still retain the idea that the cow is a machine which only needs feed, regardless of kind or quantity, to keep her in fair condition. They treat her worse than they do some of their machinery and think she is at her best.

If a good profit is not obtained, they either condemn the cow or say there is no money in dairying. The cow's system is governed by a net work of nerves similar to our own and we know that if we are kept in a nervous, excitable state, our system will sooner or later become in a poor condition, our health fails us and we can not do the work we could do under more favorable surroundings. So it is with the dairy cow. Her work is not like that of the horse and ox, but is the manufacturing of milk.

If she is kept in a pasture where there is but a small amount of good grass and when it is time to milk her, a dog, or boy on a horse, is sent after her who chases her all the way to the place of milking, she is then milked in this excitable condition, I can say from experience thathowever good a cow may be, she will not be of any profit to her owner if treated in this manner? We all know that if we are excited or angry that our food does not seem to digest as easily as when we are in the opposite. It is simply due to the glands failing to perform their duty, caused by the nerves not acting in each, so that they might perform their duty as nature intended they should. So it is with the cow when she is in an excitable condition, she should not be milked for

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her milk glands will not work well in this state. The milk is not all elaborated when we begin to milk, but is secreted by the milk glands during the milking process.

This is why we should put so much stress on trying to keep the dairy cow in as comfortable a condition as possible so that the milk glands (which are the most important at this time) can do their best, for the milk is what we keep her for. If we fail to do this, we had better not keep her, for she will only be at a loss to us. Let us try in the future to keep the dairy cow in as comfortable a condition as possible which can be done mostly without cost and see at the end of the year if your cow has not increased her profits at least 10% without 1 cent of an investment compared to other years when she was treated otherwise. LESTER STORY.

So. Dakota.

Creamery Patrons' Investigation and a New York Herd Report.

ED. HOARD'S DAIRYMAN:—I have been a reader of HOARD'S DAIRYMAN for ten years or more, and what little success I have attained in dairying I owe to its teachings.

I have been much interested in the creamery patrons' investigation going on for some time. It gives one an idea of what dairymen are doing in other localities, and I notice it matters but little about our location commercially throughout this great central west, as the prices of all our feed stuffs are nearly alike, only a little variation in the freight rates, and since the advent of the creamery the price of butter is about the same, so that we are practically all on the same level, and if one is not doing as well as his neighbor there must be something wrong about his management, either in care, feeding, or breeding and selection.

I will give you a report of my herd of cows for the last year; cows are grade Jerseys of medium size; number of cows, 19; 4 were two-year-old heifers, the other 15 were of all ages up to 14 years, commencing with October:

	Lbs. Milk.	Test.	Butter fat.	Cash.
October, 1901...	9,822	4.55	446.9	$ 93.42
November.....	10,076	4.55	458.4	110.47
December.....	12,105	4.8	581.	134.21
January, 1902...	10,880	4.4	478.7	114.40
February	9,157	4 8	439.5	123.44
March	9,144	4.9	448.	117.37
April.....	9,836	4.9	481.	119.51
May.....	9,102	4.7	427.8	90.24
June.....	7,608	4.7	357.5	70.42
July.....	4,634	4.9	227.	43.13
August.....	3,644	4.9	178.5	34.45
September.....	2,733	4.5	122.9	25.07
Total.....	98,741		4648.2	$1076.55

Average lbs. of milk	5,186
Average butter fat	244.6
Cash average returns	$56.66

For $1.00 worth of feed $1.70 returns for butter alone. Skim milk is valued for what it is worth for feeding. These prices are net at the creamery, the cost of making being deducted. I figure it cost $32.40 per cow for feed. Ration for winter was:

Corn silage 40 lbs. at $2.00 per ton	$.04
10 lbs. clover hay $6.00 per ton	.03
10 lbs. shredded corn fodder	.01¼
2½ cotton seed meal $26 per ton	.03¾
Total	$ 11½
200 days at 11½ cents per day	$23.00
165 days pasture 40 cts. per week	9.40
Total	$32.40

This winter I am feeding a different ration as I don't like to feed all cotton seed for a grain ration. Am feeding a mixture, bran, 2 lbs; cotton seed meal, 2 lbs.; gluten meal, 1½ lb. Am feeding on an average about 6 lbs. per day, some more some less; ration this winter costing 13.5 cts. per day. I don't know as the cows are doing any better. This winter the hay and silage is not of as good quality owing to the cool, wet season. Farm consists of 100 acres; cultivate 55 acres, 20 acres pasture, wood lot, 20 acres; 5 acres for yard and hog lot.

I raise five or six calves and 30 to 40 hogs every year. Keep a registered Jersey bull and am improving herd with each succeeding cross. Rotation of crops are corn, wheat and clover, raise a few acres of oats, sugar beets and potatoes and know that the fertility of the farm is increasing with this practice.

I might add that I have sometimes made 30 cents per hundred feeding skim milk to hogs. It depends on the thriftness of the hogs and the price sold for.

I wish to ask one question. Some of my cows when fresh give 30 to 40 pounds of milk per day and generally shrink to 20 to 25 pounds per day, after giving milk four or five months. I want to ask, is it possible to maintain this large yield of milk 7 or 8 months, and if so, would it be profitable to do so. F. P. P.

New York.

Resolutions of the Ohio Dairymen's Association.

WHEREAS, The Ohio Dairymen's Association in convention assembled, representing the immense dairy interests of the state, and desiring that our dairy products shall be so improved as to command better markets and more remunerative prices; and, that they be freed from a competition of deception, therefore be it

Resolved, That this Association endorses the work of the National Dairy Union in securing the passage of the national oleomargarine law, of May 9th, 1902, and, that we commend the officers of the Union and especially Mr. Charles Y. Knight, its able secretary, for their honest, persistent and loyal devotion to the dairy interests of the country.

That we commend the Hon. James Wilson, Secretary of Agriculture, for the stand taken by him upon the branding of "renovated butter," and, that we earnestly protest against any modifications of the laws and regulations that would permit the selling of renovated for pure creamery butter.

That we instruct the legislative committee of this association to secure, if possible, the passage, by our General Assembly, of such laws as may be necessary to revise and bring up to date the dairy laws of our state.

That this Association recognizes the pressing necessity of state instructors, whose duties shall be to visit dairies, creameries and cheese factories and furnish such instruction to the operators of same as will enable them to produce a better quality of milk and its products; and, that this work be respectfully commended to the Dairy and Food Commissioner, to the end, that the commission may become in fact what it is in name, a Dairy and Food Commission instead of as heretofore a Food Commission only.

That we commend the "educational test" being conducted by the N. C. B. A. in conjunction with the Agricultural Department of the National Government and urge our butter makers to enter the contest as a means of greatly improving their product and themselves as butter makers.

That we urge upon the General Assembly the necessity of enacting a law governing the analyses and branding of stock foods.

That we recommend to the Executive Committee of the N. C. B. A. the advisability of holding the 1904 convention of that Association in an eastern city; and, that we very cordially indorse the claims of Buffalo, New York for the convention.

That we endorse the candidacy of Mr. E. Sudendorf for Superintendent of the Dairy Department of the Louisiana Purchase Exposition of 1904.

That we commend the very efficient work being done by the Dairy School of the O. S. U., and respectfully recommend the appropriation of sufficient funds to properly equip the school with the much needed machinery to make it the equal of any dairy school in the country.

That the Association considers as an injustice the action of Congress in cutting down to $1,500,000 the appropriation for a building to be occupied by the United States Department of Agriculture; and that we hereby urge such additional appropriation, as may be necessary, to build a home for the department equal to its needs.

That we urge an early passage by the United States Senate, of the House bill providing for the importation of blooded and registered stock, free of duty.

That we extend the thanks of this Association to the Trusttes of the O. S. U. for the use of Townshend Hall in which to hold this convention of the Association.

That whereas, this Association has been deprived, by the death of Prof. L. F. Hickman, of the services of one of its most efficient and active members, therefore be it resolved: That we deeply deplore our loss and that we desire to bear testimony to his character and worth, and of the value of his work for this Association in its organization and early history, and that we pay this tribute to his memory by a rising vote of the Association.

A. SLAUGHTER
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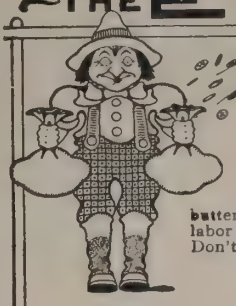
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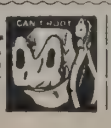
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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of them read dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

We are receiving of late a good many requests for a bundle of copies of HOARD'S DAIRYMAN for distribution. We are very glad to forward copies for distribution, for we need the help of every reader to increase the circulation of the DAIRYMAN. Get up a club of subscribers among your neighbors. If there is going to be a meeting of the creamery or cheese factory patrons, write us for a bundle of sample copies for distribution. If you are going to a farmers' institute, have some copies with you. These meetings afford excellent opportunity to work up a good club. Write us at least a week ahead of the meeting saying how many copies you want and we will promptly forward. Give us your help.

WE have received a copy of the fourth edition of Monrad's A. B. C. of cheesemaking. That four editions of this little work have been issued, is a good commentary on its value. Besides the methods used in making Cheddar, there are also descriptions and instructions for making the less well known foreign varieties such as Gouda, Brie and Neufchatel, sour milk cheeses—cottage, schmierkase, etc. It makes an excellent hand book for those who are interested in little known varieties of European origin, but which are beginning to have a wide sale in this country. It can be obtained from this office for 50 cents post paid.

TRULY HOPEFULL.

Mr. W. F. Roberts, of the Fern Spring Farm, Riceville, Tenn., sends us the names of five of the employes of that farm, who wish to subscribe for the DAIRYMAN as Mr. Roberts says "on their own volition," at their own expense. Mr. Roberts further adds: "This gives the future a very hopeful aspect both for them and us."

When the hand that labors is guided by a brain that hungers for knowledge, it is indeed a hopeful aspect.

HOG CHOLERA.

Some of the Canadian farmers claim that the somewhat remarkable exemption from hog cholera in the Dominion, is largely due to the fact that they feed very much less corn, more peas, barley and oats. Certain it is that ten Canadians grow peas where there is one in the United States. Of course, if the farmers buy hogs reckless of where they come from, they will introduce the cholera into districts where it has never before existed, and there it will stay. This the Minnesota farmers did a few years ago, against the earnest warning that Theodore Louis gave them, and they have suffered severely on account of it. There is no doubt that the feed has a great influence in creating a condition of the physical system so that the germs of cholera take easy hold, or, to the contrary, are easily resisted.

We are unable to see why more farmers do not make larger use of the pea crop. With dairy farmers especially is the pea doubly valuable, for they apply splendidly to both cows and hogs, and it is not a difficult matter to grow them when *once* the laws of pea growth are studied. By the way, every plant has its own special law of growth. If we study these laws and conform to them, we are more apt to be successful.

INVESTIGATION IN MILK PRODUCTION.

Prof. Haecker Reports Progress.

A most notable contribution to the solution of the problem as to what becomes of the feed eaten by a dairy cow, and, as a corollary, what are the elements which should enter into her daily ration, and the proportional amounts of each, is contained in Bulletin 79 (January, 1903) of the Minnesota Agricultural Experiment Station, by Prof. T. L. Haecker, Division of Dairy Husbandry.

Ever since the formation of the dairy herd at that Station, in the fall of 1891, very complete records have been kept of the feed and yield of every cow, and from these records, tabulated and combined in various ways, Prof. Haecker discusses, in the bulletin recently issued, the following subjects:

1. The Food of Maintenance.
2. Nutrient Requirements.
3. Protein Requirements.
4. Influence of Stage of Lactation on Nutrient Requirements.

As the bulletin covers sixty solid pages, with an average of one table to each page, it is manifestly impossible to reproduce in these columns the statements of facts upon which the conclusions drawn are based. Those who wish to study the questions in detail must obtain a copy of the bulletin. Primarily, the bulletin is published for residents of the state of Minnesota, but it is probable that people residing in other states can obtain a copy by addressing Prof. T. L. Haecker, St. Anthony Park, Minnesota.

For the benefit of such of our readers, as have not the time or inclination to grapple with the statistics and arguments in detail, we give below a summary of the more important conclusions put forward:

1. The factors for food of maintenance in the Wolff feeding standard are in excess of the requirements.

2. The food of maintenance expressed in (digestible) nutrients, for a barren dry cow, when at rest in stall may be tentatively suggested to be 0.6 of a pound of protein, 6.0 pounds of carbohydrates, and 0.1 of a pound of ether extract, per 1,000 pounds live weight; or when at work in a dairy, with ordinary good care and comfortable quarters, 0.7 lb. protein, 7.0 lbs. carbohydrates and 0.1 lb. ether extract.

3. The total nutrient requirements in milk production depend (1) Upon the weight of the cow; (2) Upon the quantity of milk yielded; (3) Upon the quality of the milk; (4) Upon the age of the cow,—heifers by reason of extra feed for growth, requiring nearly 50 per cent more available nutrients to a pound of milk than mature cows.

4. Rations having a nutritive ratio of 1:7.7 (1.68 lbs. digestible protein) and 1:9.7 (1.32 lbs. digestible protein) were as effective in the production of milk, butter fat and other milk solids, as was the one having a nutritive ratio of 1:6.3 (2.04 lbs. digestible protein).

5. The protein required in milk production depends upon the quantity and quality of milk yielded; for every increase of one-tenth in the per cent of fat add .0007 pound of protein for each pound of milk.

6. A maximum yield is secured at a minimum cost of food by a proper adjustment of the amount of nutriment in the ration to the animal's needs for maintenance and for product yielded, and the bulk of the ration to its feeding capacity.

7. During the early stages of the period of lactation, cows lose rapidly in body weight, and during this period, usually lasting into the 11th week, yield dairy products, in excess of the amount provided for by the food consumed.

8. The normal net nutrient requirement per pound of butter fat is approximately 6.25 lbs. (a little less with cows giving rich milk) and per pound of total milk solids, 2.4 lbs.

It is not to be expected, and Prof. Haecker does not claim, that the last word has been written on the topics discussed. He puts forward his conclusions tentatively, subject to such modification as further experience may require. Other stations will doubtless test these conclusions—indeed have already tested them in some degree, and as far as they have gone, confirmed them. And hundreds upon hundreds of dairymen have already profited from the information thus obtained.

SMALL OR LARGE FARMS.

A young man in Illinois started in the dairy business three years ago, on a rented farm, containing 188 acres, with common cows. He is improving his herd by the use of a pure bred sire as fast as possible, and shipping milk to the city of Chicago. He has only a small and poor pasture and therefore depends largely upon soiling, with the following rotation: First, fall rye, then early barley, then oats and peas, and lastly fodder corn.

His father has a farm of 172 acres and wants the young man to give up the large farm and work his small one. It is proposed to build a first-class dairy barn and silo on the small farm and keep all the cows that the farm will carry, depending principally upon alfalfa and corn for roughage, buying bran, dried brewers grains, etc., for concentrates, and straw for bedding. He thinks that by reducing the area for pasture to a small lot and using soiling crops and silage for summer, and silage and alfalfa hay for winter, that he can make the small farm carry 40 cows.

We think the young man is right in his plan and that the small farm, well tilled in an intensive way, will yield a larger profit than the larger farm. We should depend very largely on the silo, both for winter and summer feeding, and if alfalfa proves, as we are very confident it will, well adapted to the soils and conditions of Illinois, we should depend very largely upon corn and alfalfa as the main crops, trying in a small way at first, to grow some cow peas with the corn for silage. We would have two silos, one for summer and one for winter.

It would be a most excellent education for this young man to make a visit to Mr. Gurler's farm at DeKalb, Ill. We are very certain that Mr. Gurler would be more than pleased to explain his methods and are certain that any advice that he could get from Mr. Gurler would be well worth heeding.

Eyes Opened.

An Ontario Report and Feeding Inquiry.

ED. HOARD'S DAIRYMAN:—Enclosed please find two dollars ($2.00) to extend my subscription from March 21st, another year and also to pay for a copy of The Dairyman's Hand Book.

Have been reading your paper for nearly two years and feel now as though I could not get along without it. We are living in a community where dairying is looked upon as necessarily combined with beef making to get a profit. Nearly all our farmers judge a cow as much by her appearance for producing beef making offspring, as for her ability to give profitable quantities of milk.

Our milk all goes to a cheese factory where it is pooled, and we pay 2 cents a pound for making.

Reading and studying your paper has opened my eyes considerably, both in regard to what cows should produce to be profitable and the kind of feed to raise to feed them on.

We have on hand early cut clover (which the cows eat greedily), ensilage from well eared corn, a lot of corn stover for roughage, about 1,800 lbs. bran, cost $15.00 a ton; oats worth 30 cts. and wheat worth 65 cts. a bushel for concentrates. Can get more bran at $18.00 a ton, oil meal at $35.00 a ton.

1. Would it pay to change oats for bran? Have a crusher to crush oats at home.

2. Please give a balanced ration from above, for fresh cows weighing from 900 lbs. to 1,100 lbs. These cows, 6 in number including one 2-year heifer, averaged 6,000 lbs. milk in 1901; estimated partly from weighing and partly from returns from cheese factory.

Ontario. WARREN STRINGER.

We earnestly urge this correspondent to put a set of spring balances in his stable and weigh and record the amount of milk given by each cow at each milking. There is no other way known to us by which a dairyman can definitely determine which of his cows give him best returns for the feed consumed. Every one who has tried this has found occasion to modify his judgment in regard to the paying ability of the different cows in his herd.

There is no considerable difference in the feeding value of oats and bran at the prices named. Therefore, we include both in the formula which follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
10 lbs. clover	8.47	.68	3.58	.17
4 lbs. bran	3.52	.50	1.54	.12
4 lbs. oats	3.56	.33	1.89	.17
Totals	23.47	1.90	11.21	.67

Less hay and some stover might well be included in the formula, but in that event it might be necessary to increase slightly the amount of grain. The larger cows will probably require more of the coarse fodder and the larger mikers might well have more grain.

Notes from New York.

The Hay Industry.—Maple Sugar Making.

ED. HOARD'S DAIRYMAN:—We are in the midst of hay pressing, one of the big jobs with us. We have already baled 80 tons and have 10 tons of hay and 15 to 20 tons of straw yet before we are through. The weather has been rough and stormy, making many breaks between times when we could not press, lengthening it out to a rather tedious job. But "every cloud has a golden lining," and we expect to reap our reward later. This selling hay to be shipped away from the farm is a leading industry in our immediate vicinity, and the question of soil fertility in connection with it is one that is more and more asserting itself to the minds of the farmers themselves.

I have spent considerable time in studying this question from every point of view and have come to the conclusion that selling hay or milk to be made into cheese, the former is as advantageous as the latter as regards soil fertility with the possible

exception that where a dairy is kept more or less commercial feeds are purchased and added to the fertility gathered on the farm. Now, perhaps this may cause a furor and send some shivers up the backs of a certain few who read the DAIRYMAN, but human nature is weak and it is human nature the world over that when there is a fair "bite" for the cows in the aftergrowth of their meadows to turn them on and leave them there until the roots of the grass is about all that remains, leaving the plants without vitality enough to withstand the winter, and so it takes half the next growing season and all the stable manure to bring them back to the point where the cows were turned on the meadows.

Did you, readers, ever notice that on nine-tenths of the dairy farms you know there are spots where the meadows are producing rank crops of hay and all the rest of the farm the hay is light and poor. Why is it? Why the cows were kept off the new seeding and the manure was all put there, while no fertility of any name or nature was put on the other meadows. What fertility nature provided was given to the cows by an improvident husbandman, but the next year the cows roam at will over that field and the soil soon comes to the level of the rest.

Now, I don't mean to make the claim that cows are a detriment to a farm when they are handled as they should be, but in the hands of that nine-tenths of the farmers they are certainly of no advantage as regards fertility. Why, I have seen the manure from 20 cows and 3 horses spread on a three-acre plot, literally covered with manure. If that man had, as he ought to have, say, one hundred acres under cultivation it would take him 33 years to go over his farm. That plot would never see any fertilizing material again in 33 years and every bit of after feed grazed off year after year.

Readers, do any of you pursue such methods? I hope not, but if you do, change them, change them for a summer silo, or a system of soiling, or sell off the cows, get rid of them, they are a damage to your farm. We find here that the farms devoted exclusively to hay, or with very small dairies as compared to their areas, are the heaviest hay producers. Now, why is it? Their rotations are shorter, and their soil cultivation is better. They have made a study of better crops just as the dairyman should of better cows, and the result is, that with none or little fertility added to their farms, still they rank first in crop production and money value. I do not make the claim that a dairy farm cannot be kept in a higher state of fertility than one where no dairy is kept, but that in nine-tenths of the cases it isn't and is directly traceable to the bad methods of the farmer and dairyman rather than to the dairy. Again I have often thought that a dairy created idle habits.

The cheese factory, usually in some central location, calls together the patrons and forms the habit of gathering somewhere to idle away their time. Every one knows that the more one goes to the corner grocery the more they want to go and do go when there is work at home that needs their attention. The corn and potatoes are overrun with weeds, the fences are out at the elbows and the pigs are in their wives' garden patch, still they have time to swap yarns at the corner grocery. Weeds in the potatoes and a look of shiftlessness around the premises are excusable when there is a press of farm work; at any rate one does not feel so badly about it, if he has been driven with work all the time.

A farmer cannot afford to idle away his time. He must be up and at it, if he ever expects to own a home of his own and get it paid for. He should be a good farmer as well as a good dairyman in order to be a success.

I suppose that many of the readers of the DAIRYMAN have never been in a sugar bush and seen the sugar evaporated nor ever sugared off and eaten Jack wax. Well, it is quite an industry in the south part of our (Jefferson) county, and we buy our sugar from that source. Although we have probably 50 sugar maples scattered around the farm that would make all the sugar we would care for, but too much hurry and work to bother with sugar making.

Of course if we make our own sugar, we would have a better and purer grade of sugar, for sugar makers are quite apt to use considerable brown sugar in their families at this time of year, and there is quite a temptation to make 4½ cent sugar into that worth nine or ten cents a pound. I don't say that they ever mix it, but it sometimes tastes as though they did. Pure imagination on our part I suppose.

A few years ago I took the time to visit a large bush and see the apparatus used there. The sap was gathered and syphoned into a large, copper lined cistern, from which it fed into the evaporator through a float valve, so that the attendant could, if neccessary, attend to other things, or even leave everything open and go to the house and to bed and rest, assured that nothing could happen that would do any damage. There are times when the sap is running that the evaporators are run to their full capacity, night and day, for one can only make sugar when the sap runs. An old Dutchman once purchased a farm which had a good bush on it, and he made elaborate preparations for sugar making, and when his neighbors questioned him about it he he said: "Vell, if it pees a goot peesness I keeps him up all summer," but sad to relate, when the buds start the sap stops, and then they make vinegar one or two runs, and gather into the sugar house the buckets and wait for another sugaring season.

I have seen maple sugar that had been placed into a trough when hot and stirred with a hoe, that was fine and white, granulated like other sugar, but of course did not taste like anything but maple sugar. My mother used to make warm biscuits, and we would eat maple syrup with them when I was a boy, and it seemed to me that I would never have nor desire a better dish; but that was syrup made in our own bush and was all maple.

There is plenty of hard work connected with sugar making, but it is partly compensated for by the company one generally has at this season, so that nearly every day you sugar off, and have a royal good time all around, so that one scarcely notices the hard work part.

This is a great time for the children, especially the boys; they are strictly in it from the time they are up in the morning until the pan is swung off the fire, and the syrup is taken to the house, and the fires banked for the next day's work. I can remember going into the bush with the men, and riding on the sled that had a hogshead chained on, driving around among the trees, gathering sap and then going to the sugar house, or shanty, as we called it, and building fires under the huge pan, most of the time being in the way of the men, but probably working harder than any one on the job.

I wish that every reader of the DAIRYMAN could have a treat of real maple sugar. But I expect that those who can not make it in their latitudes have something else that we can't have, that will compensate them, and be to them a luxury. While this has no connection to the dairy cow or to farm management, still it may be as interesting and a change from the regular line of thought as taken up by the DAIRYMAN, giving seasoning to the paper, and making the other articles more appreciated. JAS. M. PLATO.

New York.

Oil Meal for Lice on Cows.

ED. HOARD'S DAIRYMAN:—I think I have a better remedy for lice on cows, than the one described by "Subscriber" on page 44. I have always made it a rule not to buy my cows, but to raise them, raising the heifer calves from the best cows. My Babcock tester and scales are always handy and ready for use, so that I am enabled to keep the best and dispose of the worst. Sometimes buy a bull calf when I think I can buy a better one, than I can raise from my own stock. I have been dairying for over 26 years and have never had any trouble from disease of any sort.

Some years ago I made a departure from my rule and bought a fresh cow from a neighbor and soon discovered that she was pretty well peppered with lice and having read somewhere, I think it was in the DAIRYMAN, that oil meal fed was a pretty sure remedy, I got some and gave her a generous dose in her ration; it certainly acted like magic, for in a very few days the lice had all left for parts unknown and I have never been bothered with them, either before that time or since. J. T. M.

Brandelwin Summit, Pa.

A New York Herd Report.

ED. HOARD'S DAIRYMAN: — Having read reports from various dairies, in your valuable paper, I thought I would send a report of my dairy of 23 cows. They are a mixture of Holstein and Ayrshire. Or to put it exactly, they are common stock.

I began drawing milk to a Limburger factory, March 11th and drew until Dec. 24th. The amount of milk per month and the price is as follows:

March	6,505	$1.—
April	13,873	.9632
May	17,964	.7914
June	20,219	.8050
July	19,423	.7763
August	17,686	.8722
September	15,530	1.0702
October	11,373	1.1755
November	6,927	1,3200
December	4,352	1.1500
Total	133,852	

The whole amount of money taken in was $1,250.07, making an average of $54.35 per cow.

The kind of grain used is mostly "mixed feed" and corn meal is fed until about the 20th of May and then cows depend on pasturage alone until the 1st of September, when the same ration of grain is given.

During the season I used $300 worth of the above grains. Counting pasturage at $5.00 per cow, and hay at $16.00, a profit of $20.35 is left. The hay and pasturage is furnished by my farm of 150 acres. B. W.

West Branch, N. Y.

Soap for Washing Milk Cans.

ED. HOARD'S DAIRYMAN:— In your last issue we note on page 26 "Instructions to Patrons." They are so nearly identical with a circular that we issued last year that we enclose a copy.

We have been asked several times why we object to soap for washing cans. It is not because of any harm that will result from a proper use of soap, but because more than half the people will put a bar of soap in the can while washing it and pieces of soap will be scraped off and stick in the seams and most of it will remain there to taint the milk.

HARLAN CRY. CO.

Harlan, Ia.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Butter Fat and Butter.

To settle a controversy, will you please give the amount of butter 100 pounds of milk, testing 4.1, should make? C. C. W.

Hampstead, Md.

One hundred pounds of 4.1 per cent milk will make 4.78 pounds of butter, calculating the overrun at 1-6. The actual creamery overrun may be slightly above or below this, according to conditions.

Cows Losing Flesh.

Will you please advise me in the matter of compounding a ration for my cows? Have a mixed herd, will average about 1,000 lbs. We are now feeding malt sprouts, linseed meal (new process), cotton seed meal, distillers dried grains, 34% protein, 12% fat, wheat bran and corn and cob chops, with good corn fodder as roughage. Malt sprouts on hand cost me $16.50 per ton; linseed meal, $28; cotton seed meal, $28; distillers dried grains, $26; wheat bran, $23; corn is worth about 60 cents per bushel. The ration I am now feeding gives a good flow of milk, but my cows seem to be losing flesh. R. C.

Morristown, Pa.

It is quite the proper thing for cows giving a good flow of milk to lose more or less flesh. It is an indication that the dairy temperament is stronger than the flesh-making temperament. However, if these cows are losing flesh more rapidly than they should, the ration might be modified to some extent by increasing the proportion of carbohydrates, and the way to accomplish this would be to substitute ground corn for the corn and cob chops, omitting the cob. Cob meal of itself has very little feeding value, but experience has shown where clear ground corn is the only grain that the addition of cob meal seemed to be a benefit; but where bran and malt sprouts and dried grains are used there is no necessity for this. We see no particular necessity for including either malt sprouts or cotton seed meal in the mixture. New process linseed meal, distillers dried grains and ground corn with a little bran mixed would make quite as good a mixture, in our judgment; or omit bran and include the malt sprouts as being much cheaper.

Cost not to be Considered.

We have corn ensilage, very nice and well preserved (but no corn in it, the very wet weather shut us off so we could not tend the corn, the stalks were nice but no ears), mixed hay, clover and timothy. Please formulate me a ration with wheat bran, corn meal and old process oil meal, labeled about 32 per cent protein, to obtain most milk, not taking cost into consideration.

Auburn Center, Pa. C. W. P.

A mixture of 6 parts bran with 3 parts ground corn and 2 parts old process oil meal, all by weight, in connection with the silage and mixed hay will make a very acceptable ration. The amount of the grain mixture to be fed will depend almost entirely upon the capacity of the cows to respond, and this can only be determined by close observation in connection with the weighing and testing of the milk. Undoubtedly some of the cows in this herd could profitably use 12 or 14 pounds of this grain mixture, and others not more than half as much. Commence by feeding moderate amounts and increase gradually with each cow as long as she shows ability to use the feed for milk making purposes, but if there is a considerable increase in body fat or weight, the limit of profitable feeding has been passed.

Silo for Twenty Cows.

I wish to build a silo large enough to hold feed for 20 cows. Would like some advice on building and prices at which same ought to be built; also something in regard to the manner in which it should be filled, and material which is best to fill with. M. B.

Liberty, Ind.

A silo for 20 cows should hold at least 80 tons, and, if a round silo is built, probably its best dimensions would be 16 feet in diameter and 24 feet in depth. We can hardly afford to repeat, in response to every inquiry, specific directions for building silos, but would refer this inquirer to the communication on page 99.

Corn is the standard crop for silage but other crops may be used. In locations where the cow pea can be grown to advantage we think it desirable to mix cow peas with the corn. Cow peas and sorghum also make a good mixture for silage. It is practicable to put whole corn into a silo, but it is much better in our opinion to run the corn and other material through a cutter, cutting it into pieces about ¾ of an inch long and elevating it either by carrier or blower over the top of the silo, keeping it evenly distributed and well tramped around the edges.

Butter fat and Cream.

What per cent of butter fat is required in cream to make it good to whip? Will 25 per cent cream whip? If milk tests 3.6 per cent, will 10 gallons of this milk make 1 gallon of cream 36 per cent, By separator, and 9 gallons—1 gallon of cream, 34.2 per cent. D. R.

Milton, Ont.

From 22 to 25% of fat makes a good whipping cream, but age and temperature have a great influence in making the cream a good whipper. The cream should be 12 hours old at least, and be cold when whipped; 50° F., or below is necessary in some cases.

Ten gallons of 3.6 per cent milk will make very close to 1 gallon of 36 per cent cream and 9 gallons of the above milk will make 1 gallon of 32 per cent cream.

A New York Ration.

Will you kindly form me a ration for cows weighing from 700 to 800 lbs. Having corn silage with but little corn in it and clover hay; corn meal $23; bran, $24; middlings, $28; gluten feed, $30; oil meal, $32 to $35; cotton seed meal; $35.

Dryden, N. Y. F. P. H.

As a basic ration we would suggest 30 lbs. of silage, 10 lbs. of clover hay, 4 lbs. of bran, 2 lbs. ground corn. For the heavier milkers add 1 lb. or 2 lbs. of gluten feed. Let the cows have salt twice a day, a large teaspoonful each time.

Rape not Recommended for Milch Cows.

I would like to beg your indulgence and ask an oft repeated question to be answered as you see fit. It is this: Can I sow oats and rape together? and use it safely for pasture for dairy cows, if I turn them on in the morning, and take them out before noon so they get no more of it that day.

I have been for some time a reader of your paper and find very much that is of interest as well as benefit to an up-to-date dairyman. W. C. A.

Johnstown, Wis.

Rape is seldom or never recommended as a forage for milch cows as it has a strong tendency to produce tainted milk. Prof. Shaw tried rape at the Ontario Agricultural College without experiencing any objectional results and it may be that with wider experience rape may be accepted as a standard food for milch cows, but hardly as a pasture plant. The tramping of the cows through the fields would destroy more than they could consume. Probably the better way would be to let the rape have considerable growth and then cut it for a soiling crop. We do not apprehend that there would be any danger to the cows in using the rape and oats as suggested, the more serious question being whether it would be profitable.

Cream Not Whipping.

Can you tell me of some process by which cream may be rendered thicker and so easier to "whip."
Tallahassee, Fla. J. P. A.

As the above inquiry comes from Florida, it is probable that much of the trouble in the cream not whipping comes from its being held at too high temperature. Cream for whipping should contain 22–25 per cent of fat, and should be as cold as it can be made, below 50° F. always. It must also be over 12 hours old before it will whip well. Sometimes where cream, even under the above conditions, still refuses to whip, a small quantity of viscogen is used; this is a combination of lime and sugar that when used in small amounts makes the cream thicker and easier to whip. The viscogen can be obtained from dairy supply houses.

A New York Ration.

I would like a balanced ration to correspond with clover and timothy hay, to feed fresh cows, to keep in good flesh and give a good flow of milk. Cows high grade Holsteins. Corn meal, $22 per ton; distillers grain, $26 per ton; Buffalo gluten $26 per ton: middlings, $24 per ton; bran, $22 per ton; oats, 40 cents per bu. J. G. H.
East Ashford, N. Y.

From the feeds named and the prices given, we should be disposed to try as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
20 lbs. hay	17 06	.96	7.92	.32
5 lbs. grains	4.60	1.23	1.94	.57
3 lbs. corn	2.67	.23	2.00	.13
Totals	24.33	2.42	11.86	1.02

If the hay is high in price and limited in amount, less hay and more grain is fed.

Peas and Oats for Silage.

I put about ten acres into soiling crops and it occurs to me that I might plant it all to oats and peas at one planting and put it in one of my silos for summer feeding, thus doing away with the many plantings and daily cutings and hauling, usual in a system of summer soiling.

I could then plant the same land to barley and peas later, say in July, after the oats and peas are cut and insure the two crops on all the land. Please tell me what you think of this before plowing time?

How much green feed, in tons, could I get from well fertilized land in these two crops, and about what would the same stuff weigh, if cured into hay? Will green winter rye make good ensilage for a few weeks? J. L. M.
Hazelbrook Farm, Wayland, Mass.

We think the plan of cutting the peas and oats into the silo will work successfully, especially if the oats are not allowed to become too ripe. Experience thus far has not favored the attempt to silo hollow stemmed forage. Hence we could not advise attempting to make silage of green rye, but there seems to have been little or no difficulty with the mixture of oats and peas, J. L. M. is much better qualified to estimate the probable amount of feed to be obtained from this land than we can possibly be.

Adding Stable to Barn.

I am going to ask through the columns of your paper about building a cow stable. I have an old barn which will do for keeping hay in, enough for 20 cows or more. Now this old barn is about 70 ft. long and my intention is to build one slanting roof stable on one side of the old one and joining the same. How wide would you build it for one row of cows, and how would you build it to make it convenient for feeding from the heads. Can get an 18 foot slanting roof, and how many windows, as this would be on the north side of the old one?
Iola, Wis. A, J. B.

It is unfortunate, we think, that this stable addition to the barn must be built on the north side. Sunlight is a very much needed adjunct to every stable. However, one must sometimes do as best he can, if he cannot do as well as he would. Where one cannot get direct sunlight, he should get as much indirect sunlight as possible, and to this end we would put in not less than ten windows, 7 feet apart from center to center and 3½ feet from either end. If the feeding alley is to be provided for in the addition, we think it should not be less than 16 feet wide at least. This will give a feeding alley 4 feet in the clear, 2 feet for mangers, 4½ feet for standing platform, 18 in. for gutters, and 4 feet for walk behind the cows. It would be an easy matter to provide one or more hay chutes from the main barn into the feeding alley. We would make arragements for at least three ventilating flues, leading up the back side of the stable and under the rafters into the main barn and out through a cupola.

Sand in a Well.

A subscriber at Jackson, Tenn, writes that he has a bored well with a pump worked by hand or power. He had about 18 feet of water in this well, but did not think that quite sufficient, so sunk the same point about 6 ft. furtherdown into a sand bed and is now troubled with very fine sand, "as fine as flour", he writes, which fills up the openings in the point and chokes the valve in his pump. He inquires whether it would be possible to dig a well 3½ feet in diameter, sinking it about 12 feet below the water line, but not into this bed of quicksand, as we understand it, and by laying up a brick wall in cement, fence out the sand so it will not bother him.

If the water bearing strata is not so loose as to be continually caving in, he could probably dig and brick up the well in the manner suggested, but possibly might be obliged to resort to curbing, and then find more or less difficulty in sinking the well. This matter of sinking wells is coming to require the service of experts, and, if possible to obtain one, we think Mr. B. would be justified in going to quite a little bit of expense to have such a person come and look the situation over and give advice in the premises. Possibly the better way would be to endeavor to sink a pipe through the present layer of quicksand.

Bean Meal for Cows.

Would like to inquire about the nutritive value of stained beans; could sell them for about $14 per ton. We have wheat bran, Globe gluten feed 28 per cent protein. Whether it would be an advantage to grind and mix with bran and gluten to feed Jersey cows, and what effect would they have on the butter? Also feed cows corn silage with some clover hay. We have been feeding cotton seed meal; are about out now. How would ground beans compare with cotton seed meal? W. & I.
Tompkins Co., N. Y.

Bean meal while rich in protein falls considerably below cotton seed meal in this respect. It is not yet a recognized feed for milch cows, probably because other feeds answering the same purpose are usually much cheaper. We have also heard it reported that cows do not as a rule relish this bean meal. What its effect may be on the quality of the butter is also problematical. We would advise our friends to make a trial in a moderate way and ascertain for themselves as to both these points, and report to the DAIRYMAN for the benefit of other readers. If the meal proves palatable to the cows, and does not affect the quality of the butter, the following formula suggests a ration that ought to prove eminently satisfactory as an average for a herd of cows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
10 lbs. hay	8.47	.68	3.58	.17
3 lbs. beans	2.57	.69	1.51	.04
5 lbs. bran	4.40	.63	1.93	.15
Totals	23.36	2.39	11.22	.57

Velvet Beans in Wisconsin.

I spent several weeks in Florida, last winter, and brought home a few velvet beans merely for

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ASK FOR HELP.

A Postal Will Bring You a Way to Get Well.

Think how often you have read this offer. Why do you wait, while thousands write me and get well?

If you sick ones could only know what I know, you all would write.

I will mail you an order—good at any drug store—for six bottles Dr. Shoop's Restorative. You may take it a month on trial. If it succeeds, the cost is $5.50. If it fails, I will pay the druggist myself—and your mere word shall decide it.

Whatever your prejudice or doubt, you must know this:—If the remedy did not succeed, the offer would ruin me. It must be apparent that I have learned how to cure.

When I have the faith to take all the risk, won't you merely write a postal to get well?

I have spent a lifetime in learning how to strengthen weak inside nerves. My Restorative brings back that power which alone operates the vital organs. I treat a weak organ as I would a weak engine, by giving it the power to act. My way always succeeds, save when a cause like cancer makes a cure impossible. And most of these chronic diseases cannot be cured without it.

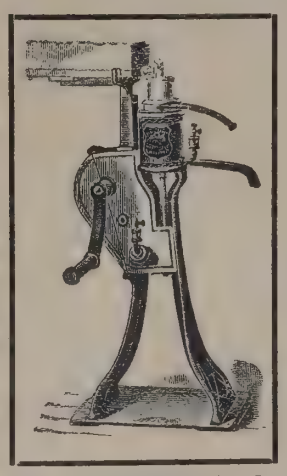
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Simply state which book you want, and address Dr. Shoop, Box 934, Racine, Wis.

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"More separators in a single shipment than any of our competitors are able to manufacture in a year's time. . . . . .

Bless the dear man's heart, we have sold in the last two months **Twenty-four Carloads of U. S. Separators to one customer alone,** and this is only one customer out of several hundred that we are daily shipping U. S. Separators to.

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Our sales are so large that, notwithstanding we have on our payroll nearly 800 persons, we cannot accumulate stock. The Dairymen all over the country are crying for U. S. Separators, and we are going to supply them.

THE U. S. SEPARATOR HOLDS THE WORLD'S RECORD

for close skimming, and is acknowledged to be the most thoroughly and substantially made, and will wear the longest.

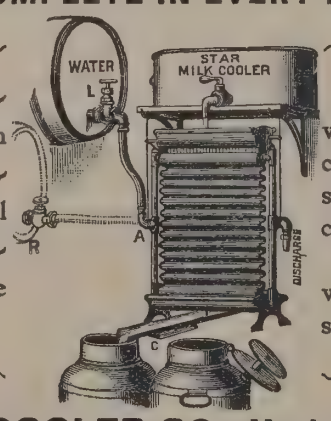
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It states the advantages to be gained from cooling your milk properly and gives full illustrations of the apparatus required for the purpose.



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its flowering vines. Afterward I saw an article in your paper from Mr. Kline Varn, of Ft. Meade, Florida, telling of value of beans on a farm. I sent to him and got some beans and also had a brother send up a peck, all of which I planted in different places, and under many conditions, but I did not get a flower or really a good plant. True the spring was backward, and many of the first I planted did not start at all, and then frost came very early so the benefits were nothing as I could see. C. L. A.

Eau Claire, Wis.

The velvet bean is not a northern plant, and it is very doubtful if it is worth the time and trouble to make any attempt to raise it in Wisconsin. Soy bean or alfalfa will give much better returns than the velvet bean.

The Best Strain of Holstein-Friesians.

A correspondent asks us to tell him where he can obtain the best strain of Holstein-Friesians, and submitting a list of feeds requests a ration formula.

If we had the records of all the Holstein-Friesian cows in America, and the time to study and tabulate them exhaustively, we might be able to answer our correspondent's inquiry with some degree of satisfaction to ourselves and with a certainty of provoking dissatisfaction with every owner of Holsteins not belonging to the particular "strain" named. But we do not have such records and they cannot be obtained. Moreover every year, and almost every day brings forward new candidates for favor. The better way for this inquirer to pursue is to insert a short advertisement stating what he wants and inviting correspondence from breeders who think they can meet his requirements.

If the roughage mentioned is literally "corn fodder" and not simply corn stover (corn stalks) we advise him to feed, say, 25 lbs. mangels, 4 lbs. bran, 2 lbs. cotton seed meal and all the fodder the cows will eat. Give half the mangels, bran and meal, with a teaspoonful of salt at night, and the other half, with salt, in the morning.

Temperature at Which Milk Sours.

What temperature will milk sour quickest at, and what temperature will bottled milk keep and separate most favorably at? H. C.

Chicago, Ill.

Milk will sour quickest at a temperature between 90° and 100°F., and the rate of souring decreases slowly as the temperature is lowered until at 40°F., there is little growth of bacteria and the formation of acid is very slow.

Bottled milk should be kept as far below 50°F. as conditions will warrant, if it it is expected to keep for any length of time.

Another Barn Plan Wanted.

Mr. H. B. S., of Chateaugay, N. Y., writes as follows:

We are about to build a dairy barn large enough to stable about 60 head of cattle and 8 horses, size of barn to be 40 ft. x 160 ft.; no basement. We have an idea of the Shawver plank frame in mind and would be pleased for your opinion about building, The question of stable floors, cow ties, etc., presents itself and any information about the same will be appreciated.

Our first suggestion to this correspondent is that a barn 160 ft. long involves a good many more extra steps than it would to build a barn with double wings as suggested on page 938 of the preceding volume. Neither do we think it necessary that a stable should be 40 feet in width. Thirty-two feet in the clear is, in our judgment, quite sufficient.

The Shawver plank frame system of building is all right, but we have abundant reason to believe that even this is more expensive than necessary. We see no reason why a barn may not be built on the same principle that large store houses are built, and we suggest to this inquirer, as we have to several others, that it would be money well invested to purchase a copy of King's Physics of Agriculture, where this question of barn building, stalls, and other important farm questions are so thoroughly and scientifically discussed.

Alfalfa Questions.

Where can I get flaxseed meal in 100 lb. lots?

Will alfalfa do well on open, coarse, sandy soil on river bottom land where water stands 10 to 25 ft. from the surface, and in times of high water, less? W. P. H.

Muscatine, Iowa.

Linseed meal in small amounts can probably be best obtained from your local market.

Alfalfa should do well on such soil, provided that the upper layer contains sufficient food material and the ground water does not come nearer to the surface except for short periods. If the water comes to within 5 feet of the surface and stays there for long periods, it would not be well to risk alfalfa in such a location.

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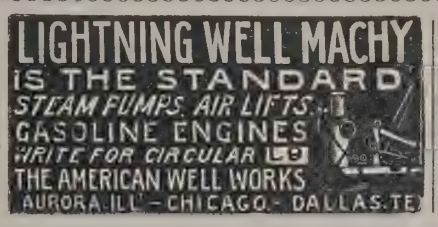
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Rejected on Account of "Coffee Heart."

Life insurance companies have fully established the fact that the use of coffee causes an organic derangement of the heart, shortening the long beat and imperiling life. For this reason habitual coffee drinkers are refused life insurance in many cases. A well-known merchant of White's Creek, Tenn., proprietor of a large store there, says:—"Three years ago I was examined for life insurance and to my surprise was rejected because my heart action was at times out of place 15 beats in 60.

"I consulted several good doctors and was invariably asked by them, "Do you drink ardent spirits? use tobacco? or drink coffee?' to the first I answered 'Very little,' to the second, 'No,' to the last, 'Yes,' and they would all say 'Quit coffee.'

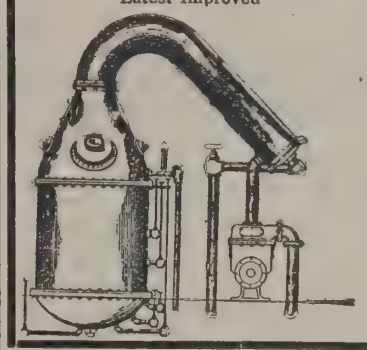
"I determined to do this. I had read about Postum Cereal Coffee and bought and used it and I liked it as well as the best of real coffee and as a result of its use in place of coffee I find myself without a skip in my heart action and I can get insurance on my life cheaper by 25 per cent (notwithstanding the advance in age), than I could when I first commenced using Postum." Name furnished by Postum Co., Battle Creek, Mich.



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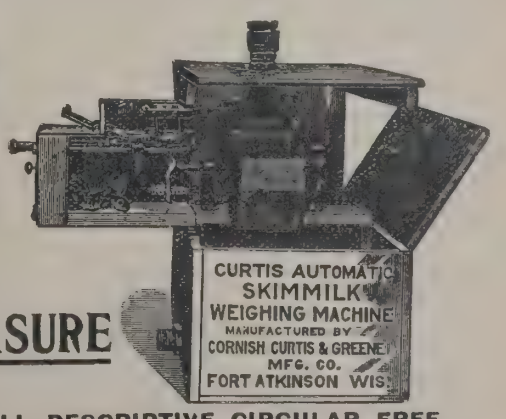
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Fort Atkinson, Wis.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—On the Elgin Board of Trade today, butter advanced one cent. Seventy-five tubs were offered for sale, but were not sold, although 29 cents were bid. The price was made firm at 28½c by the Quotation Committee. The sales for the week were 508,500 pounds. Former markets were as follows:

	Sales.	*Price.*
March 9, '03	0	27½c.
March 17, '02	0	27c.
March 18, '01	0	21½c.
March 19, '00	0	34c.

Elgin, Ill., Mch. 16, '03. H. C. B.

The McGeoch Sale.

ED. HOARD'S DAIRYMAN:—Never since first importations were made, have Holstein-Friesian cattle been in so great demand, nor stood so high in popular favor, as at the present time. Much of this is due to the wise system adopted by the Holstein-Friesian Association of having the cows of this breed officially tested by representatives of the different state Experiment Stations and the records, so made, stand today as unchallenged monuments to the great superiority of the Holstein-Friesian cow as a butter producer.

The public sale scheduled to take place May 6th in Milwaukee, Wis., of a draft of some seventy head of these cattle, from the herd of Mr. A. N. McGeoch, is peculiarly attractive at this time, as some forty cows and heifers will be sold that have been officially tested.

Among these will be found the great heifer, Duchess Ormsby 2d's Hengerveld DeKol, who at age of 2 years, 1 month and 29 days, has record of 19.02 lbs. of butter in seven days. This record stands at the head, being the largest amount of butter ever produced by a heifer with first calf. A half-sister, Dame Marjory DeKol, also ranks well up near the head, having record at 2 years, 4 months and 24 days of 16.19 lbs. butter in seven, and 65.08 lbs. in thirty days.

Liscomb Aaggie 3d, the best of the three-year-olds, has record of 21.58 lbs. butter in seven and 86.69 lbs. in thirty days. Piebe Queen 2d's Princess at age of 4 years, 9 months, has record of 22.18 lbs. butter in seven days.

Wit Duchess at 5 years, 5 months, 5 days of age, has record of 24.88 lbs. butter in seven days..

In addition to the list of cows that will be offered, we will place on sale a most attractive lot of young heifers and bulls of the richest breeding and all from officially tested cows. The two great service bulls, DeKol 2d's Paul DeKol No. 2 and Gem Pietertje Hengerveld Paul DeKol, will be included in the sale list. The first named has eight daughters in the list and is also a full brother to the wonderful young cow, May Hartog Pauline DeKol, who at four and a half years of age, has just demonstrated the wonderful capacity of the Holstein-Friesian cow by making an official record of 29.26 lbs. of butter in seven and 112.08 lbs. in thirty days. He is also a half-brother to the great cow, Lillith Pauline DeKol, who has official record of 28.23 lbs. butter in seven and 127.49 lbs. in thirty-five days.

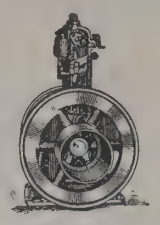
Gem Pietertje Hengerveld Paul DeKol is the sire of the world's record heifer, Duchess Ormsby 2d Hengerveld DeKol, Dame Majority DeKol and others high up in the list.

Such breeding as these two great bulls have, coupled with their individual merit and great prepotency, places them well to the head as the greatest of living sires.

As is probably well known to your readers, the cows of the McGeoch herd run very high in per cent of fat in their milk. Believing that fat can be bred, but not fed, into milk, the families selected have been those in which the cows have shown an ability to give milk testing high in fat, and we point with pride to the fact that a greater number of cows in this herd have averaged over four per cent fat during official test than in any other.

While it is with the utmost regret that we find it necessary to reduce the number of cattle to the capacity of their new quarters, yet we believe that in placing the best cattle in the herd in the sale, that the same will be appreciated by all who are interested in the welfare of the breed and that the opportunity to add to present herds, or to establish new ones, will be taken advantage of at this sale.

Milwaukee, Wis. H. B. DAGGETT.



GASOLINE ENGINES

as power for the dairy have passed the experimental stage. Many dairymen now have them and all eventually must have them. The only questions to decide are the amount of power needed, and the most desirable make. With twenty-seven years of experience behind us, and a plant that has grown from 50 engines a year to 1500 a year capacity, we feel that we are equipped to build the best. There are other reasons why the "OTTO" is superior. We will tell them in this space from time to time. If in the meantime you need power, write us, mentioning this paper

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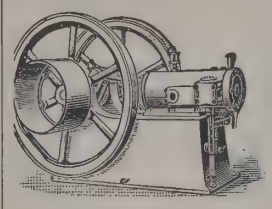
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Strong and durable for pumping, sawing, grinding, churning, etc. Guaranteed. Full line vertical and horizontal engines.
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a two-cylinder gasoline engine, superior to all one-cylinder engines. Costs less to buy and less to run. Quicker and easier started; has a wider sphere of usefulness. Has no vibration, can be mounted on any light wagon as a portable. Weighs less than one-half of one-cylinder engines. Give size of engine required. Please mention this paper. Send for catalogue. THE TEMPLE PUMP CO., ESTABLISHED 1853. Meagher and 15th St., CHICAGO.



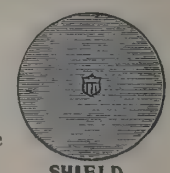
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THOMPSON-LEWIS GASOLINE ENGINES
furnish the greatest possible power at the lowest possible cost in time, labor, fuel and money. They are so simple that anybody can run them without expert training or experience. Our Volume Governor gives uniform speed. Our Acme Mixer is the most positive and economical on the market. Our Hand Starting Lever starts engine with least effort. All bearings of Phosphor Bronze. Best material and workmanship throughout. Many sizes from 4 (actual) h. p. up. Best for all farm work—cutting and grinding feed, sawing wood, pumping water, separating cream, churning, etc. Send for our free catalog before you buy. It may save you time, money and annoyance.
J. THOMPSON & SONS MFG. CO., 113 BRIDGE ST., BELOIT, WIS.


KEYSTONE.

Are You Looking for CAPS?


SHIELD.

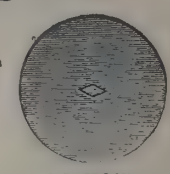
If so, you need look no further, because you get the best results right here. Our caps are made of best spruce pulp fibre and are odorless and tasteless. We have four brands and can suit the ideas of all buyers, at prices consistent with quality of goods. If you are interested, give quantity and grade desired, and our many years experience in the manufacture of caps is yours.

You send the Postal; We send our New Milk Dealers' Price-List, giving full information and prices.

Creamery Package Manufacturing Co.,
1, 3 and 5, Washington St.,
Chicago, Ill., U. S. A.


BELL.

BRANCH HOUSES: Kansas City, Mo. Minneapolis, Minn. Weter.oo. Ia. Omaha, Neb. St. Louis, Mo.
Canadian Branch; Cowansville, Quebec.


DIAMOND.



SILOS
We are manufacturing a first class round silo at a price far below competition. We guarantee our stock, we guarantee our workmanship. Silo 20x40 will cost you $275.00 built of Georgia Pine, with a discount from this of 5 per cent for freight.
Farmers, write for our prices and club discounts. Agents wanted everywhere.
NATIONAL SILO & LUMBER COMPANY,
LINESVILLE, PA.

Chestnut for Silos.

ED. HOARD'S DAIRYMAN:—Kindly ask your readers to give their experience with chestnut lumber for silos; pine is getting way out of sight. C. I. H.
Hunt, N. Y.

DAIRY MARKETS.

ELGIN, Ill., Mar. 16—Butter—Butter advanced 1c today, the quotation committee declaring the market firm at 28½c; 4,500 lbs. were offered, but there were no sales. Output of the week, 508,500 lbs.

CHICAGO, Ill., March 16—Butter—Steady to Firm; creameries, 18@28c; dairies, 14@24c.

Eggs—Easier; at mark, cases included, 15@15½c.

Cheese—Steady; Twins, 12½@12¾c; Daisies, 13 13¾c; Young Americas, 13@13½c.

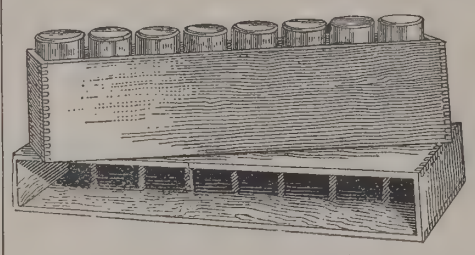
Cattle—Plain beeves 1,200 to 1,400 lbs., 5.65@5.85; choice to extra beeves, 5.20@5.60; fair to export and shipping steers, 4.65@5.15; medium beef steers, 4.10@4.65; plain to fair beef steers, 3.80@4.60; common and rough, 1,000 to 1,200 lbs., 3.20@3.75; good to choice heifers, 3.85@4.50; good to choice feeders, 3.90@4.80; poor to plain stockers and feeders 2.75@3.85; fair to good cows and heifers 3.30@4.20; good cutting and fair beef cows, 2.60@3.15; common to good canning cows, 1.60@2.50; veal calves, good to fancy, 6.00@7.40; corn fed Western steers, 3.65@5.85; veals, coarse and common, 3.25@5.85; Texas bulls and grass steers, 2.75@3.20. Texas steers, fair to choice, 3.75@4.60.

Hogs—Good to prime heavy shipping, 7.50@7.72½; good to choice heavy packing, 7.40@7.60; plain to choice heavy mixed, 7.30@7.50; selected butcher weights, 7.45@7.62½; assorted light, 150 to 195 lbs., 7.15@7.40; common to good light mixed, 7.05@7.30; thin to choice, 50 to 130 lbs., 6.35@6.90; stags and rough lots, 4.40@4.60.

MILWAUKEE, Wis., Mch. 16.—Butter—Creamery, extras, 28c; firsts, 23@24c; seconds, 17c; June creamery, 18@24c; process (renovated), 17@18c. Dairy—Fancy, 19c; lines, fresh, 15@16c; roll, 15@16c; packing, 12½c; whey, 10c; grease, 5@6c. Market firm on all lines of fancy No. 1 stock; light supply. Receipts. 9,700 lbs.

Cheese—American full cream. Twins, 13@13½c; Young Americas, 13@13½c; Daisies, 13½@14c; Longhorns, 12½@13c; low grades, 10@12c. Brick, fancy, 13@13½c; low grades, 11@12c. Limburger,

All Well-Appointed Dairies and Ceamerries



Where large or small quantities of bottles are used, need drainer racks. Draining of bottles after washing is a serious question to many. My Drainer Racks hold eight and ten bottles, which is the width of the average bottling machines in use.
They are made of second-growth pine, well made. The spindles or dowels are put right in the middle in such a way that they do not drive through when the rack receives a blow on the side, the holes for the spindle being bored but half way through the side of the rack. By having the spindles in the center of the rack it makes no difference which side of the rack is up. I also furnish them with spindles so arranged that they can be piled on top of each other. I have sold many thousands in the last year, and consider it one of the greatest labor savers in a dairy or creamery. My illustrated catalogue tells you all about this as well as any other article you need. A postal card will bring it to you.
J. S. BIESECKER, 59 Murray St. NEW YORK CITY.

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. Satisfaction guaranteed or pigs may be returned.
JOHN WHITE & SON, Adamstown, Md.

LARGE IMPROVED YORKSHIRES
The small York grown up; the best white hog, easy keeping and prolific Young stock for sale.
E. E. STEVENS, R. F. D., No. Madison, Lake Co., O.

WINCHESTER REPEATING RIFLES



No matter what your ideas or preferences are about a rifle, some one of eight different Winchester models will surely suit you. Winchester Rifles are made in all calibers, styles and weights; and whichever model you select, you can count on its being well made and finished, reliable in action and a strong, accurate shooter.
FREE Send your name and address on a postal card for our 164 page illustrated catalogue.
WINCHESTER REPEATING ARMS CO.
NEW HAVEN, CONN.

fancy, 12@12½c; low grades, 10@11c. Swiss, drum choice, 14@15c; drum, No. 2, 12@13c; block, choice, 12½@13c; block, No 2, 10@11c. Receipts, 5,470 lbs.

Eggs—Strictly fresh laid, loss off, cases returned, 15c, seconds, 10c. Market easy; demand fair and movement is not all that might be desired; receipts liberal and market is well supplied. Receipts, 720 cases.

SHEBOYGAN FALLS, Wis., March 11.—Seventeen factories offered 784 boxes of cheese on the Call Board today, and all except 67 sold as follows: 12 Twins at 12½c; 189 cases Young Americas at 12½c; 72 at 12¼c; 370 Daisies at 13c; 29 cases Longhorns at 13½c; 45 at 13c. Market quiet. Next meeting, March 25.

NEW YORK, March 16—Butter—Receipts, 4,251 packages; steady; state dairy, 26@27c; extra creamery, 29c; held creamery, 17@24c; creamery common to choice, 19@28½c.

Cheese—Receipts, 977 pkgs.; strong; state full fancy, small colored, fall made, 15c; small white, fall made, 14¼c; large, colored, fall made, 14¼@14¼c; large white, fall made, 14@14¼c.

Eggs—Receipts, 7,212 pkgs.; steady; state and Pennsylvania, average best, 18½c; Western fancy, 18c; Kentucky, 18c; southern, 17c.

BOSTON, Mass., Mar. 16—Butter—Creamery, Western extra, 26¼@28c; firsts, 25@26¼c; dairy, 24@25c; imitation creamery, 17@20c; ladle, 16@17c: box and print, 20@21c.

Cheese—Choice, 14@14½c; sage, 14½@15c; fair to good, 10@12½c.

Eggs—Near by, 23c; Western selected, 19c; fair to good, 18@18½c; Illinois, 19@19½c; western dirties, 15c.

LIVERPOOL, Mar. 16—Butter—Good United States, steady. 80s.

Cheese—Steady, American finest white, 66s; colored, 65s 6d.

PHILADELPHIA, Mass., Mar. 16—Butter—Firm, good demand; extra western creamery, 30c; near by prints, 32c.

Eggs—Frm, good demand; fresh near by and western, 16½c at the mark; southwestern, 16½ at the mark; southern, 16c at the mark.

Cheese—Quiet but firm; New York full creams, prime small, 14@14¼c; fair to good, 13¾@13¾c; prime large, 14c; fair to good, 13½@13¾c.

BALTIMORE, March 16—Butter—Firm, unchanged; fancy imitation, 21@23c; creamery, 28@29c; ladle, 18@19c; roll, 17@18c; good roll, 16@17c: store packed, 15@17c.

Eggs—steady, lower; fresh, 16c.

Cheese—Firm, unchanged; large, 14¼@14½c; medium, 14⅜@14¾c: small, 14½@14¾c.

KANSAS CITY, March 16.—Butter—Creamery, 22@23c; dairy, 19c.

Eggs—lower; fresh Missouri and Kansas stock, 11¾c, cases returned; new whitewood cases included, 12½c.

ST. LOUIS, March 16—Butter—Quiet; creamery, 20@28½c; dairy, 18@21½c.

Eggs—Lower at 12c for fresh.

NEW ORLEANS, La., Mar. 16—Butter—Separators scarce aad active at 29c; renovated, 19c; ladles 14@16c

WASHINGTON, D. C., Mar. 16—Butter—Market firm at 29c.

NEWARK, N. J. Mar. 16—Butter—Market steady at 29c.

Eggs—Quiet at 18c.

TOPEKA, Kan., Mar. 14—Butter—Creamery butter, 27½@28½c; dairy, 16½@19c.

Cheese—Sales 453 boxes; Longhorns, 13¼c; Twins, 13c; Daisies, 14c.

NEW YOKE MARKET.

NEW YORK, Mar. 7—Butter—Receipts for the week, 33,054 packages. Exports for the week, 3,623 packages.

Extra fresh creamery butter has been short all the week and under good demand. Prices advanced about 2c per round since our last and close steady with stocks well cleaned up. Firsts and seconds had free inquiry and prices were close up to the price of Extras. Fancy quality of New York State Dairy, made from new milk, sold at 25 to 27c, but there is so little of it arriving that we note sales of several lines of strictly fine goods it is hardly quotable There was more doing in June make, and at 23@24c, and several hundred tubs of really goodstock at 21@22c. and one good parcel of sound butter at 20c.

Shippers bought freely of good to fine fresh ladles at 15@16c, and renovated butter, at about same price. Market closes steady. We quote:—

Creamery, fresh, extra, 29c; medium, 26@28½c; poor, 20@25c; creamery, June, extra, 23@24c; medium, 21@22 c; poor, 16@20c. Ladle, extra, 19@20c; medium. 15@17c; poor, 12@14c.

Cheese—Receipts for the week—10,612 boxes. Exports for the week—4,115 boxes.

Quotations were marked up on fancy September cheese, a quality that can hardly be found in this market, but for all other grades there has been no improvement; we note sales of good to fine quality of small colored cheese at 13¼@14¼c, with an occasional sale at 14⅛, and there were sales for Eastern accounts of small white cheese at 13½@14c.

Shippers keep nibbling away at under grades full cream and Winter make skims at prices ranging from 8@12c. We quote:—

Full cream, small extra, 14½@14¾; medium, 13½@13¾; poor. 10@12½c. Full Cream, large, 14@14½ medium, 13@13¾; poor, 10@12c.

Eggs—Receipts for the week, 33,902 cases.

Recipts were moderate and trade good; prices are 19@19½ cents and strong at the close. We quote:—

New York & Pennsylvania, finest, per doz. 19½@20c; Northern & Western, finest per doz. 19@19¼c; all sections, fair to good, per doz., 15@18c. Refrigerators, fair to good., 12@16c:

177 Chambers St. DAVID W. LEWIS & Co.

BALTIMORE MARKET.

BALTIMORE, Md., March 12—Butter—Soon after our last issue, there was an unsettled feeling prevading the market, which tended to check buying to some extent; but at the opening of the market this week, there was a better feeling prevailing and buyers were not slow in taking hold of any and all attractive offerings. Extras continue in very moderate supply; hence there has been a much better inquiry for firsts and good seconds. In fact, there has been a very close clearance of all fresh stock suitable for table purposes. There is very little trading in storage creamery, unless the quality is strictly fine. Fancy imitation creamery meet a prompt sale, and in several instances our top prices have been exceeded. Ladles are in fair supply; all fresh, sweet arrivals find ready sale, but defective lots are hard to sell, even at reduced prices. Rolls and packing stock—The receipts are fully equal to the requirments. Prints and blocks meet quick sale, when of satisfactory quality. The market closes fairly active and firm at the advance over our last quotations on all attractive stock.

Creamery Separator, extras, 29@29½c; firsts, 27@28c; seconds, 24@26c. June Creamery, extras, 24c; firsts, 21@22c; seconds, 20c; Imitation Creamery, extras, 21@22c; firsts, 19@20c; seconds, 16@18c, Iowa & N. W. Ladle, extras, —firsts, 18c; seconds, 15@17c. Ohio & Indiana Ladle, extras, — firsts, 17@18c; seconds, 15@16c. Roll, Ohio, extras, — firsts, 15c; seconds, 13c. Roll, W. Va., extras, — firsts, 14@15c; seconds, 13c. Ohio Store packed, extras, —; firsts, 14c; seconds, 13c. West Va. Stored packed, extras, —; firsts, 14c; seconds, 12@13c. Creamery blocks (2-lb.) extras, 30c; firsts, 28@29c; seconds, 25@27c; Creamery prints (½-lb), extras, 30@31c; firsts, 29c; seconds, 25@28c: Md. Va. & Penna. Prints, extras, 29@30c; firsts, 26@28c; seconds, 22@25c.

Eggs—Soon after our last issue, there was quite a falling off in the receipts, and with an active demand the market has from day to day been kept well cleaned of all desirable offerings, and prices have been advanced right along; today under continued moderate supplies and a brisk consumptive demand, the market closes firm at 17½ cents. Duck eggs have been in fair receipt, but the supply has not been equal to the demand; hence, the market has been kept well cleaned of all desirable offerings at steady values. NOTE—Ship all of your eggs in cases, and not in barrels or boxes.

301 Exchange Place. G. M. LAMB & BRO.

NEW YORK FERTILIZER MARKET.

Nitrate of soda	2 25	@	2 35
Blood, Dried red, ℔ unit	2 65	@	2 70
low grade	—	@	—
Concentrated tankage	15 00	@	16 00
Fish guano, dried	27 00	@	28 00
acidulated	14 00	@	—
Acid phosphate	60	@	67½
Phosphate rock, f. o. b. Char'n	5 00	@	7 00
Tenn.	3 60	@	3 75
Bones, rough, ℔ ton	16 50	@	17 50
ground	20 00	@	21 00
Bone meal	18 50	@	24 00
Bone black, refuse	18 00	@	19 00
Potash, dbl. m're salt 48@53 per cent	1 12	@	1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons	25 00	@	30 00
sulph of basis, 90@98 per cent	2 11	@	2 18
90@98 per cent less than 25 tons	38 00	@	40 00
Potash muriate 100 lbs	1 83	@	1 95
less than 25 tons	36 00	@	40 00
Kainit 25% S. of P., ℔ ton	9 30	@	9 50
less than 25 tons	9 50	@	10 50
Sylvinit, 35@37% P., ℔ unit	41	@	46

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—Pure bred Guernsey bulls and grade heifers. Also Early Black Soy Beans at $2.00 per bushel. A. H. HINMAN, Neenah, Wis. 6-4

Angelus Herd of Guernseys—For sale three-year-old bull, Befilius 6398. brought by me from Wisconsin. Also bull calf out of Waller by Wolfrum he out of Materna sweepstakes cow at World's Fair. W. M. MARCH, 1798 W. 39th St., Los Angelos, Cal. 6-2

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

For Sale—Large and well equipped creamery and ice cream plant in leading southern city of 125,000 population. Paying $3,000 profit annually and can be increased. Steam boiler, engine, churn, butter worker, separator, Babcock test, bottle washer and ice cream plant (wholesale ice cream trade year round). Wagons, horses, office fixtures, etc. Office, creamery, and stables all under one roof. Requires ($7,000) seven thousand dollars. Satisfactory reasons for selling. Write for particulars to "ICE CREAM," care Hoard's Dairyman. 3-tf

For Sale—Creamery, located 100 miles northwest of Chicago, with large local retail and wholesale trade. Has run ten years without a stop. Ill health cause for selling. Address "W", Hoard's Dairyman. 5-2

Butter Wanted—We want to contract for the output of a good sized creamery in Minnesota or Wisconsin. Factory must be equipped for making extras the year round. Will pay good price and cash for each shipment. Address FERRY BUTTER CO., 238 Quimby St., Cleveland, Ohio. 5-2

Wanted—A foreman or manager of an up-to-date dairy. Married man preferred. Good wages to right man. Also want two good milkers not afraid of work. High class dairy and first-class wages to right kind of men. Address MARCH, care Hoard's Dairyman. 5-2

Situation Wanted—To operate a cheese factory. Have had one year's experience under a number one cheese maker, and I am a graduate of the Wisconsin Dairy School at Madison. I am a single man. Address ARTHUR BOIS, Marengo, Ill. 5-2

For Sale—A butter dairy complete, with 42 cows. Located near the best market in the west A good chance for a small capital. For full particulars address 412, care of Hoard's Dairyman. 5-4

Young Guernsey coming 1 year old for sale. MRS. A. W. LEHMAN, Neosha, Wis. 5-2

Jersey Bulls—3 fine calves. grandsons of Diploma. Write ROLLA OLIVER, Dearborn, Mo. 6-2

Wanted—Three married men, with or without families, to work on large dairy. Must be good milkers. Salary $25 00 per month, house rent and fuel furnished. Give experience and all particulars. RICHLAND FARMS, Greensboro, Ga. 6-4

Holstein-Friesian Bull Calves For Sale—Sired by Duke DeKol, grandson of DeKol's Butter Boy. Dams are heavy milkers. Address E. W. MOORE, Spring Creek, Warren Co., Pa.

Experienced butter and cheese maker, graduate of Wis. Dairy School, wishes to change position. Have handled gasolene engines and ammonia machines. Good references. Prefer to go south, or to the Pacific coast. Address M. 66, care Hoard's Dairyman.

Wanted—May 15th man and wife for fancy dairy farm. Both must be neat and capable. Exceptionally fine place for right party. References required. LOCK BOX 360, Hinsdale, Ill.

$65.00 buys a Holstein bull ready for service. Dam's official test is 16 lbs. 12 oz. McKAY BROS., Buckingham, Ia. 6-2

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

For Sale—The entire outfit for making American cheese; all in good order. Will be sold at a bargain. JAMES VIPOND, Shullsburg, Wis. 4-6

Position Wanted—In creamery as buttermaker. Have had long experience in creamery business. Can furnish first-class references. Am single, sober and reliable. State wages. Apply FRITZ S. OHLSSON, 5801 Lexington Ave., Chicago, Ill. 5-3

For Sale—Desirable dairy business with full equipment, consisting of horses, cows, farm tools, wagons, routes, etc. Leading dairy business in town of 12,000. Milk bottled. A bargain if sold at once. None but up-to-date dairymen need apply. Reason for selling—poor health. Address BOX 416, Elyra. Ohio. 3-tf

Pure Maple Sugar and Syrup For Sale—Made on our own farm. Reference: Citizens Bank of Arcade, N. Y. Address W. H. RICE, Chaffee, N. Y. 5-2

For Sale or Exchange—Registered Guernsey bull Dewey of Brookside 5512, A. G. C. C., to avoid inbreeding. Sire, Rupprecht 4461. Dam, Queen of Brookside 10205, Age of bull 5 years March 18. For further particulars address R. C. OESTREICH. Kewaunee, Wis. 6-3

For Rent—Creamery with full outfit of machinery for making butter, in perfect working order. Location in best farming section of western New York. For further particulars address O. C. CURTIS, Hilton, N. Y. 6-2

For Sale—Southern dairy farm of 350 acres in edge of city of 20,000 population. On electric line. Railroad through land. 225 head of dairy cattle. Horses, mules, oxen, wagons and complete outfit included. Address Room 2, Court House, Anderson, Ind.

Wanted—Whole sweet milk shipped to Pittsburg daily at market price. Write to 5145 Penna. Ave., explaining distance and train time to city.

Wanted—One married man to do general farm work, wife to cook for 6 or 8 men. Also wanted—3 or four good milkers who can milk 25 cows daily. None but sober men need apply. Farm located in state of Iowa. Address No. 6 N. Ray St., New Castle, Pa. After 22nd address OAKDALE CREAMERY CO., Fort Dodge, Ia.

Large Dairy for Sale—Having decided to quit the dairy business I will sell at public sale at my farm on the Circleville Pike 1 mile east of Washington Court House, O., on Thursday, April 2nd, ninety-seven head of good dairy cows, Shorthorn, Holstein and Jersey stock. 1 thoroughbred Holstein bull, Prince Butter Boy, No. 25458, registered in 17th Volume of H. F. H. B., and from a great milk and butter family. Four dairy wagons, milk bottles and dairy outfit, thirty head of good feeding cattle, fifty head of hogs, fifteen head of horses and mules. Hogs, horses and cattle to be sold in forenoon. Sale of dairy cows to commence at 12 o'clock. Washington Court House is 40 miles south west of Columbus, O., on the Baltimore & Ohio Railroad. MRS. N. A. TAYLOR. 6-2

Good cheese maker wanted. Address HUBERT BERGS, Poniatowski, Wis.

For Sale—1 DeLaval cream separator, Alpha No 1. WEXFORD EXCHANGE, LTD., Wexford, Pa. 6-tf

Buff Jersey's latest book on Farm Stock and Dairy Work is full of practical things for practical people. The Silo, how to build and fill; ensilage, its value; soil, crops, variety and how to grow. Swine, poultry and many other subjects ably treated. Send 25c for copy. Monmouth, Ill. 47-tf

Wanted—Experienced farm hand, able to milk well. Give age and wages wanted. ST. IVES PARK FARM, Mont Clare Station, Chicago, Ill. 41-tf

For Sale—The Prairie Farm, 840 acres. May be divided into five farms with buildings. In high state of cultivation, 16 miles from Toledo. One hundred cows, selected for 40 years. Terms to suit. 5%. Address E. L. LOCKWOOD, Petersburg, Mich. 46-tf

Position Wanted—As butter maker or manager of creamery. Understand all details of creamery business and work. Fifteen years' experience. Make cheese also. Best of references. Address B. care Hoard's Dairyman. 47-tf

Guernsey Cattle—Clover Knoll herd. Send for circular. M. SAGER, Orangeville, Pa. 50-12

Guernsey Grade Heifer—For Sale 10 Guernsey grade young heifers. Seven of the lot 1 year old; 3 six months old, all in fine condition. Just right to serve as the foundation of a fine dairy. A finely bred young bull, 10 months old, registered Guernsey, to head the bunch. These heifers were bred from some of my finest grade Guernsey and Jersey cows. The lot will be sold at reasonable price. W. D. HOARD, Fort Atkinson, Wis. 52-tf

Cheese Outfit for Sale—1 Helmer's Automatic Steel Gang Cheese Press for 14½ inch hoops (new), 1 Helmer Plain Steel Press 14½ inch hoops (new), 12 galvanized 14½ inch cheese hoops (seamless). 14 tinned 14½ inch cheese hoops (seamless), 1 Schaubb power curd mill, 1 Pohl curd mill, 2 set curd knives, in fact two complete cheese outfits for sale at a bargain. RIPON CHEESE FACTORY-CREAMERY, Ripon, Wis. 4-4

A Few First-Class managers and buttermakers. No farm hands. Best of references. No charges to employers. Save time by writing THE SCIENCE AGENCY, Durham, N. H. 4-5

Wanted—An experienced butter maker for private creamery making 250 lbs. a week. Must be a good milker and thoroughly understand fine Jersey stock. State age, wages expected, reference. Address F. W. HART, City Hall, Denver, Colo.

Wanted—To trade city property for retail milk dairy. C. MENDENHALL, 1020 20th St., Anderson, Ind.

Posision Wanted—As cheese maker by a man that understands the work. Has Wisconsin Dairy certificate. Good reference. State wages in first letter. Address G. CARMAN, Minneapolis, Minn. 103 Washington Ave., So.

Swiss Cattle For Sale—As I intend to quit farming after this year, and am not situated so I can milk many cows this season, I will sell several cows and heifers and a few young bulls at very low prices for the quality of the stock. Come and see the stock and get prices. T. H. INMAN Hanover, Wis. 6-4

Creamery For Sale—A complete creamery plant in good condition for sale at a bargain. Only been run a short time. For particulars address SEC'Y. WESTERVILLE CREAMERY CO., Westerville, S. D.

BUYING A CREAM SEPARATOR.

To make no mistake in this is of the utmost importance. You don't buy one very often and it is not only a question of first cost but of daily profit or loss, daily operation, and daily wear and tear.

The right choice is really simple. In reality the De Laval machines are in a class by themselves—head and shoulders above all imitating machines.

Protecting patents make and keep them so—together with far greater experience and superior facilities in every way for cream separator manufacture.

Every big and experienced user of separators knows this and uses De Laval machines exclusively—both in factory and farm sizes.

But you may be without separator knowledge or experience. Therefore take steps to see and try a De Laval machine for yourself. It will cost you nothing to do so. That is part of the local agent's business. If you don't know him write for his name and address.

Try imitating machines too if you will and can get them, but don't put your name to an order of any kind until you know the facts about the De Laval machines and have tried one. That means your buying one.

THE DE LAVAL SEPARATOR CO.

RANDOLPH & CANAL STS., CHICAGO.
1213 FILBERT STREET, PHILADELPHIA.
217-221 DRUMM ST. SAN FRANCISCO.
General Offices: 74 CORTLANDT STREET, NEW YORK.
121 YOUVILLE SQUARE, MONTREAL.
75 & 77 YORK STREET, TORONTO.
248 McDERMOT AVENUE WINNIPEG.

For the land's sake—use 'Bowker's' Fertilizers. They enrich the earth and the men who till it.

A Creamery for Twenty-five Cows.

ED. HOARD'S DAIRYMAN:—We expect to build a small creamery for a herd of twenty to twenty-five cows. How large should the building be? Would want room for a refrigerator, combined churn and butter worker, cream vat (600-lb. capacity), separator, milk tester, etc. How large a refrigerator should we put in?

What size boiler would be necessary to furnish steam for power, heating, washing, etc.? What size engine?

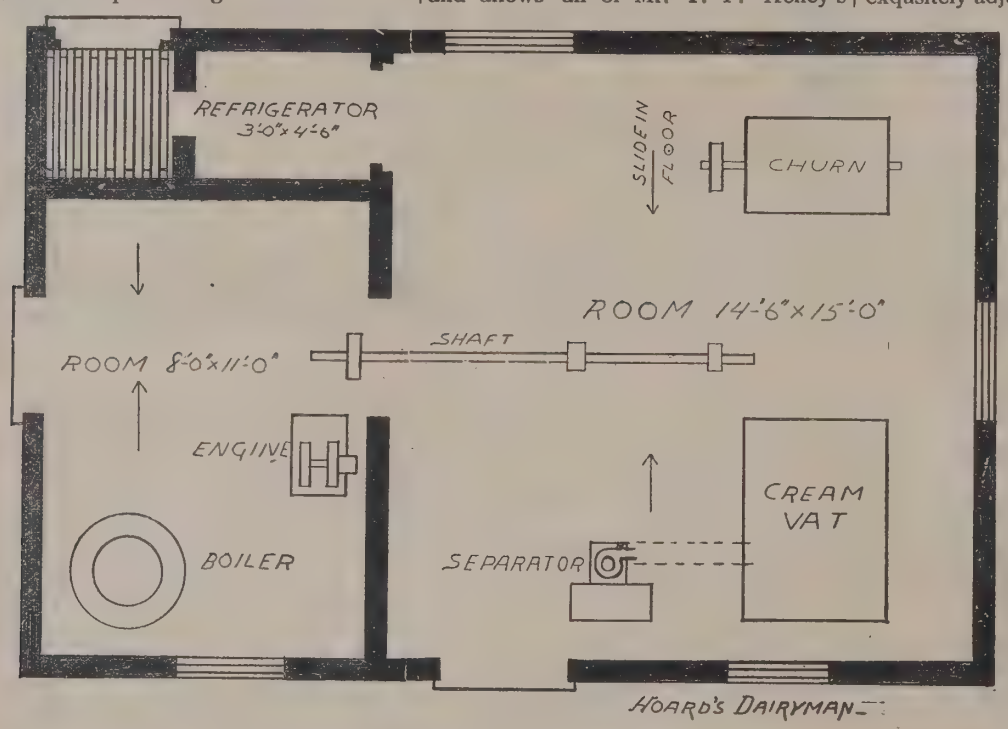
Would a gasoline engine be preferable or cheaper, using a stove for heating purposes? Would it do to put the engine in the creamery building and the boiler in a lean-to? Any suggestions from you or readers of the DAIRYMAN would be thankfully received. J. M. M. & SONS.

Shippenburg, Pa.

In response to the foregoing letter we present herewith a floor plan for an up-to-date farm creamery. The building is 16'×24', outside measurement, and has six-inch walls. It is intended to be only one story, and this should be not less than 9 feet in the clear.

The boiler and engine should be of sufficient capacity to furnish all the power required on the farm, such as sawing wood, pumping water, grinding feed, husking and shredding corn, filling silo, etc. In addition, it may be expedient to think about heating the house and furnishing electric light for house and barn.

For these purposes nothing less than an 8-horse power engine should be installed, and the boiler should be capable of producing 10 to 12-horse power.



GROUND PLAN FOR FARM CREAMERY.

On many accounts we should prefer an 8-horse power gasoline engine, and, if only the creamery is to be warmed and supplied with hot water, get a small heater or boiler, or use a stove as suggested.

We would prefer not to place the engine in the same room with the separator, cream vat and churn. It will be observed that the Babcock test is not located on the plan. Its proper place, in our judgment, is in the boiler and engine room, but if a hand machine is used, it can be moved about to suit one's convenience.

The floor of the creamery should have a gradual *slope* (not slide as the engraver puts it) towards the center, to a shallow open gutter leading to the sewer. Use only the best quality of Portland cement for the floor.

The Manure Question Again.

ED. HOARD'S DAIRYMAN:—I have watched with much interest the views expressed recently by different correspondents, on dispositions of stable manure. The subject, though a perennial one, is always interesting, because of its vital importance to farmers. As one of the fraternity I have had occasion to make a close study of the matter for a number of years, and have adopted the plan of hauling direct from the stables to the field at all seasons.

I cannot, however, endorse the plan of spreading in the winter months. It is much better to throw out in small piles at suitable distances for spreading, and allow it to remain until ready to plow in spring; this for several reasons: First, because these piles being of pyramid shape will turn most of the rain that falls upon them, and will not leach.

Second, because ground will dry much faster than if the manure is spread as hauled, allowing plows to start several days earlier. This last is a matter of no small importance, as we find the earlier plowing is done, the better for the crop and also for the teams.

I am aware that a man's circumstances and surroundings will, and should, have much to do with the plan he pursues, and that "local men have local ideas."

If I had come into possession of a farm already fixed with covered barn yard, or a very costly and complete manure cellar, or lived in a community where straw or other absorbents were not to be had cheaply, I might use these fixtures, but for the average farmer the cost in "cash" and "muscle" overbalances any gain to be derived from any extra manipulation.

As to whether the manure be applied on the plowed land or turned under, it matters but little. The main point is to get it there, and with as little "red tape" as possible. There are still a few ——— some one please supply a name for the fellow who feeds his cattle in the open yard and wheels the manure from his horses out and spreads it over the yard, and allows all of Mr. T. F. Kelley's "tannin" to leach away for a year, then hauls out the residue for his wheat crop. If I should do this, I should expect to get a financial "tanning" pretty soon.

I think the answer to Mr. Kelley's query about the liquid from his big 40-load heap is, that top of his large pile being somewhat conical, or roof-shaped turned the water off so that there was but little leaching to it, quite a different thing from being spread over the entire surface. O. W. GENT.

Maryland.

Clarified Milk.

Does Clarifying Change the Composition.

ED. HOARD'S DAIRYMAN;—By printing the "Inquiry for Mr. Marion" regarding clarified milk, I take it the reply is to be through your columns. I would like to know why dairymen shouldn't consider that knowledge is as much merchandise as apparatus is?

There remains yet some investigation to be done in the matter I referred to, to determine amounts and percentages, and so I'll not go into details at present. First he wants proof as to change of physical condition due to the centrifuge. Observation and comparison furnish it. It has also been noted by physicians. Perhaps a good answer is the regular "Yankee answer." Here it is: Does Mr. Palmer suppose it possible to subject milk to the strong tearing apart force of centrifugal separation and afterward be able to unite the parts so it is as good an emulsion as in untreated milk?

As one noted physician said, "can you make milk of it after it has been through the separator? It is all right to call it "modified milk" or "clarified milk," but it isn't milk."

His second question I'll answer in the same way. Does Mr. Palmer think the centrifugal force of the separator is so exqusitely adjusted, even if it was possible, that there is nothing but matter foreign to milk in the so-called "separator slime?"

Thirdly, Mr. Marion hasn't had any "experience in clarifying milk" and never expects to have, but has had a thorough schooling in keeping milk clean and free from odors and taints.

You say "clarified milk" and the question is immediately suggested, why clarified?

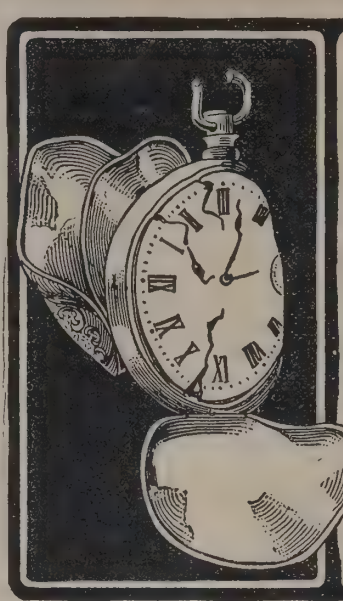
The term carries its own condemnation. Milk should not need clarifying, and as pointed out in the article he questions, this process is of less public benefit than pasteurization, and neither have removed the product of bacterial life whether it be only lactic acid, or some toxin, or something else. Any so called cleaning process for milk only sets a premium on unclean milk production. Milk produced under methods such as are outlined in the DAIRYMAN of Feb. 20th, removes the neccessity of clarifying and is better milk for all purposes and far superior for infant feeding, or use in the sick room. An individual, or company organized, supplying milk produced under such conditions would certainly win the trade, and with far less capital invested than in "The City Dairy Co. Limited."

Now in regard to the aeration of milk, as Mr. Palmer asks for information on the subject. He says: "milk not aerated is smothered." I know of a dairy where the milk is poured directly from the pail into the bottle filler and the caps snapped in the jars as soon as it is possible; and according to experts and the customers of that dairy "They never knew what milk was until they tasted that."

Yes that is a clean dairy and the cattle are fed sweet and wholesome food.

I believe when milk is produced in stables where there are strong odors and the cows may get food containing weeds or other matter that may taint the milk, aeration will improve the taste and smell of such milk. From a sanitary and biological view the way aeration is usually conducted is all wrong. Then it naturally follows that milk intended for cheese or butter "aerating does more harm than good," as flavor in these products is the result of the action of organisms made known by biology. So aeration, not removing the cause of bad flavors, is wrong.

The thing to insist on in milk production is sanitary conditions in the stable, and scientific cleanliness in milking and



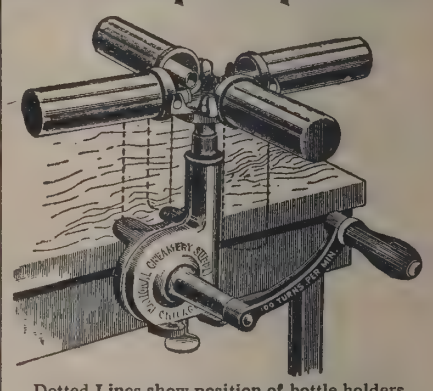
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handling milk afterward.

Now Mr. Editor, I would like to call attention to another question involved in the city milk question that needs the careful consideration of all the large dealers receiving milk from many dairies; and also the boards of health. They should confer on the subject.

There is abundant evidence that there have been many epidemics spread by milk supplies. In such cases it has usually been traced to one dairy.

That means this, one thing should be done and always done.

The milk delivered on each route should be the milk from the same dairies, each delivery. The value of such a practice to the public is obvious. The value to the dealer is as great in a pecuniary sense. I won't elaborate for that too is obvious to the man that will see, and the man that won't, ought to lose his business, but it is hard on the public to have to run the risk until he does.

Mass. F. L. MARION.

Salting Cattle on the Back.

ED. HOARD'S DAIRYMAN:—I have a small herd of graded Jersey cattle, have a registered Jersey bull, and expect to improve my herd.

I use a Palmer barrel churn, and get 25 cents per pound for my butter.

I make nice clean beds of fresh pine sawdust for my cattle every day.

I do not believe in dehorning milk cattle or bulls. Dehorning produces muscle, the thing we do not want much of in milk cows. Dehorning decreases the courage and ambition of a bull and thereby lessens the purity and excellence of the breed.

I salt my cattle entirely on their backs. I do this for several reasons. The cattle take the salt as they want it. The salt clears the skin and improves the hair. Cattle thus salted not only lick themselves, but they lick each other, and this creates a friendly feeling among them. My horned cattle stand together in stalls without fighting, or injuring each other.

Lice and warbles will not stay on a cow that is salted on the back once or twice a week.

The ox-fly will not deposit its eggs on a salty back. Salt and sulphur sprinkled on hogs will keep off lice and mange.

I have been taking HOARD'S DAIRYMAN, for two years and cannot get along well without it. W. F. W.

Bowersville, Ga.

Good Returns from a Canada Farm.

ED. HOARD'S DAIRYMAN:—I have noticed a number of reports published in your paper from different farmers, so I thought I would tell you what I did last year on a farm which seven years ago would only keep 1 pair of horses and 4 cows. We kept nine cows, part of which were young. From the 1st of May 1901 to April 30th 1902, we sent to the creamery, 46,767 lbs. of milk, or about 5,196 lbs. per cow, which brought us $373.84, or $41.53 apiece. Count the skim milk at 20 cents per hundred and it would amount to $93.35, or an average of $51.91 per cow. Some people will say that 20 cents per hundred is too much for skim milk, but on that I fatted eleven pigs which brought $226.80, and I am sure the milk made at least half of it. This year we are milking one more cow and up to present have done better, so perhaps you will here from us again.

Quebec. ALONZO IMPEY.

Failure of the Farm Boy, an Experience.

ED. HOARD'S DAIRYMAN:—I notice an article, "A Bright Future for the Bright Farm Boy." Let me give a little of my experience on the subject. I have given years of study and practical work to master the profession of stock raising, making gilt edge butter and farming, to make farming profitable. I have had charge of two farms in the last ten years, that the owners told me they lost $900 and $1,200 in the last eighteen months. The first farm I rented; paid a cash rent for stock and all, and met my payments and had a little left. Then the owner wanted more rent and everything done up with a sand paper finish. He was a professional man living in the city and was unreasonable, so I gave up the place.

The next was a large farm and owned by a lawyer. He told me he had been losing money for some time when I took charge. I put on 25 cows, and raised all the hogs that the milk would feed judiciously. I employed more help, netted him over $50 per cow for butter alone, paid expenses and gave him $3,600 the first year. Did nearly $1,000 better the second and he was not satisfied yet, so then I quit.

Now with the above record and good recommends in answer to an add. in an eastern paper, I am offered $35 a month for myself and wife. Now I do not see much encouragement in my experience to master the profession and give your time to such men that seem to want a genii, at least such has been my experience to come in contact with so far. READER.

N. Y.

Poisoning of Cattle by Common Sorghum and Kaffir Corn.

During the past few years, the Nebraska Experiment Station has investigated the loss of cattle from eating green sorghum and Kaffir corn. The prediction of the veterinarian that a chemical poison would be found has been fully verified. While work was in progress, two English investigators discovered that prussic acid can be obtained from the Egyptian great millet. A little later and entirely independently, the Nebraska investigators discovered that prussic acid can be obtained from our common sorghum and Kaffir corn.

The poison is always present in at least minute traces, but becomes dangerous only when the plant is arrested by dry weather at certain stages of its growth. Sunlight, such as prevails in the arid and semi-arid parts of the country, causes the development of the poison in excess. When the symptoms of poison do not appear so violently as to make medical treatment out of the question, drenching the animal with a solution of corn syrup or with sweet milk is suggested.

Thoroughly cured Kaffir corn that had been especially deadly before harvesting, was fed to an animal without producing any symptoms of poisoning.

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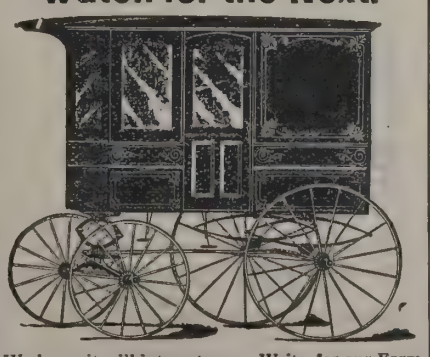
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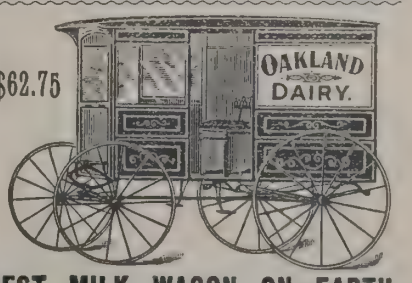
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VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Bloating.

I bought a yearling heifer two weeks ago. She was bloated badly when bought and has been bloated more or less ever since. Her droppings are too soft for an animal on dry feed. She eats well, but is dumpish and dull. R. H.
Oswego, Ill.

ANSWER.

This is a sign of indigestion, which is also proven by the unnatural condition of the droppings. Make a complete change in diet, feed such as is easy to digest and not too much at a time. Give plenty of salt to increase the thirst, and give in food, twice daily, a tablespoonful each of hyposulphite of soda and powdered ginger. If she will not eat it, you may dissolve it in a quart of warm water and drench.

Cough—Heart Troubles.

I have a calf that in shipping got a very bad cold and dysentery set in with it. She coughs some, if you rub her throat, she coughs a good bit yet; will she get over it or has she a deeper and more serious trouble? I have a cow; about three weeks ago she refused her feed; appeared like indigestion. She is getting very poor, eats part of the time as though her jaws were sore; have examined her jaws and can not find any sores; do not think she laid down in 48 hours till today she laid down. Her legs appear to be swollen; yesterday her lower jaw, beginning where the jaw bones come together and going towards the throat, was swollen terribly, then to the brisket and that was badly swollen. Her eyes are bright and she carries her ears up in good style, does not appear to suffer any. F. W. S.
Lowellville, Mahoning Co., O.

ANSWER.

1. Rub the throat with ammoniacal liniment once daily for a week and give a tablespoonful of honey or molasses on the tongue occasionally after meals; she will most likely soon recover.

2. We are inclined to believe that your cow has heart trouble, judging from the above symptoms. This may have been caused by swallowing some sharp object which sometimes works its way through the digestive organs into the heart and brings about the symptoms you mention. If this is the case you can do nothing better than to give good nursing and keep her strong.

Lump in the Teat.

I have a cow that during all the last milking period had a lump, the size of a hen's egg, at the top of one teat, and gave very little milk from that quarter. Can that be remedied after the next calving? Another cow which has the end of one teat lacerated, so that the milk comes out in a spray and leaks somewhat. It is now healed up. Could I cauterize it when the cow is dry, so that the milk would flow in the proper way? Another cow which will take the full every day if allowed, was so with the last calf which was born dead. E. W.
Merced, Cal.

ANSWER

1. The lump can be taken out as soon as the cow is dry without danger to the cow.

2. It is not safe to cauterize, as she will leak from the teat all the more. It is best to let well enough alone in this case.

3. The abnormal sexual appetite is due to a diseased condition of the sexual organs, the cause of which can only be ascertained by a personal examination.

Chronic Indigestion.

I have a registered Ayrshire bull that was taken sick about a week ago. He for the last two weeks has been eating very little. He seemed to gradually eat less at each feed until he stopped altogether, and for the last four days has not eaten any thing. I gave him Tuesday 1 lb. Epsom salts and 1½ ozs. ginger the day after. F. P.
Ellicott City, Md.

ANSWER.

We have not been able to draw a positive conclusion from your description, but are inclined to believe that your bull had chronic indigestion and that your physic was too severe and too long continued for the irritable digestive tract. The bicarbonate in tablespoonful doses would have been sufficient, with small feeds of easily digested food. An animal in this condition should have plenty of salt at his will to increase the thirst.

Warbles.

The so called "warbles" or "grubs" in the backs of cattle are very plenty and troublesome this winter. Please give a life history of this troublesome insect. N. S. F.
Berlin, N. D.

ANSWER.

Warbles or wolves as they are commonly known, are caused by insects depositing their eggs on cattle during the warm season, and the larvae develop in the tumors. When they have attained sufficient size, they escape and cause no further injury to the cattle except to decrease the value of the hide. Usually they can be squeezed out sufficiently to be grasped with a pair of small forceps and thus drawn out completely and destroyed by fire or crushing them under the foot. Care must be taken not to break them while pulling. The cavity may be washed with a solution of Zenoleum, 1 to 50 parts of water. The cattle may be washed occasionally with this solution during fly season, to prevent the insects from depositing the eggs.

Pigs with Rheumatism.

What will I do for pigs that have rheumatism, or stiff joints in the hind parts? H. T. R.
Crawford Corners, Pa.

ANSWER.

Please give description of your trouble so we may be able to form an idea of what the disease may be.

Lymphangitis.—Rectal Prolapsus.

I have a mare with left hind leg badly swollen on inside and very tender and sore.

I also have a pig about 4 months old with its rectum out about three inches; has been so for three weeks. A. J. M.
Anagance, N. B.

ANSWER.

No. 1. This is an inflammation of the lymphatics, sometimes called Monday morning disease, which is caused by high feeding during periods of idleness; this brings about an excessively rich condition of the blood, which causes a stoppage in the circulation, and inflammation follows. By the time you read this article, your horse will have passed the acute stage, and the swelling will have partially disappeared. The first step to take is to avoid all grain and feed hay and bran mashes only. Give the horse a physic, consisting of aloes 7 drams, and

Peculiar To Itself

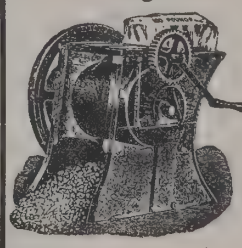
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Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address,

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AYRSHIRE CATTLE of both sexes, and some young ones from good business cows. Prices within reach of any dairyman. Also Chester White Pigs, March and April farrow—All from registered stock. F. TSCHUDY & SONS, Monroe, Wis.

AYRSHIRE BULLS

A choice lot of Young Bulls 3 mo. to 1 year old from heavy milkers at farmers' prices. Also cows and heifers. HOWARD COOK, Beloit, O.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality F. W. TRATT, Whitewater, Wis.

GUERNSEYS.

HADDON FARMS—Home of the noted GLENWOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

Rosendale Guernseys.

MATURE COWS YEARLY RECORDS range from 356 to 713.3 lbs. butter. This herd contains more officially tested cows than any other herd of the breed. All of the largest records are official ones. A particularly choice lot of tuburculin tested bulls for sale from high record dams.

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GUERNSEYS FOR SALE.

Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.

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GUERNSEY Bull Calves

Sired by O. K. Dams of equal merit.

FRED VOGEL, JR., 165 First Avenue, Milwaukee, Wis.

Old Homestead Guernseys.

Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.

Especially low prices, standing of herd considered. No catalogue. State what you want.

L. V. AXTELL, Perry, Lake Co., Ohio.

Wasteland Guernseys

Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.

M. M. & E. J. HOLLINGSWORTH,
Landenberg, Chester Co., Pa.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

FOR SALE GOLDEN LAD BLOOD. sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.

W. J. HUSSEY, Mt. Pleasant, O.

FOR SALE AT FARMER'S PRICES.

One St. Lambert bull ten months old; also bul calf three months old, or will exchange for as well bred heifers. Registered Poland China pigs for sale at all times. Correspondence solicited. FRANK SHADBOLT, Caledonia, Minn.

FOR SALE.

JERSEY BULL, one year old. Good individual of the best breeding. Also 7 months bull from tested dam Herd headed by Fontaine's Owl, 60436. Prices on application Address,

J. F. EGERTON, Footville, Rock Co., Wis.

VALLEY FARM Is offering some good bargains in young bulls from 1 mo. to 2 yr. old. Also B. P. Rock Cockerels, $1.25 each. Write

FRED STUBLEY,
Black Earth, Wis.

HAZEL FERN HERD. A. J. C. C. Jerseys, blood of St. Lambert, Melia Ann, Combination. Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

PROSPECT HILL JERSEY HERD.

Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

Exile of St. Lambert

—13657—

is the sire of more tested Jersey cows than any bull living or dead, and the number to his credit will probably never be equaled by any other bull. His dam was one of the largest milkers among Jerseys, and is the dam of the three year old cow with the highest year's milk record for that age. Exile's sire is the grand sire of the cow holding the highest milk record for a year.

The mid-winter sale lists include a few tested daughters of this great bull and several cows and heifers deep in the blood that produced this famous sire. If you wish to improve your herd, or to start one, you will probably never have a better opportunity than is here offered. If interested write for lists, and please specify whether bulls, cows in milk, or heifers, are wanted.

WINTERGREEN HILL FARM,
Scottsville, N. Y

ST. OMER HERD

Offers young bulls fit for service, out of tested dams with good yearly records. Strong in Exile of St. L., King of St. L. and Stoke Pogis of Prospect. Reasonable prices. JOS. T. HOOPES, Bynum, Md.

Biltmore Jerseys.

Have been Bred for work in the Dairy. Are from the choicest foundation tha could be bought. Include more Prize Winners than any other Herd. Are robust, true to type and of great capacity. Are noted for large milk yields, perfect udders and teats. All tuberculin tested for the last seven years.

FOR SALE--Young Bulls from selected dams. Send full details, mentioning defects you wish to correct, blood lines, etc., and we will quote promptly, reasonably, with guaranteed description and full pedigree. Apply to

BILTMORE FARMS,
Biltmore, N. C.

The Evergreen Farm Herd has for sale three or four A. J. C. C. heifers bred. Also a few cows and some choice bull calves from two to six months old. Write for pedigrees and prices.

N. N. PALMER & SON, Brodhead, Wis.

FOR SALE

Pedro Bull, 4 years old, kind and sure. Also young cows, Signal and St. Lambert blood, at farmers prices A. A. EGGLESTON,
Painesville, Ohio.

READY FOR SERVICE

We are offering a solid color yearling Jersey Bull, 56 per cent blood of five of greatest Jerseys that ever lived; out of a young cow scoring 360 lbs. butter within a year, second season. Sound and all right, well grown and thrifty. A bargain at $100. For particulars address

E. E. STEVENS,
North Madison, Lake Co., Ohio.

Shipped On Approval



We will ship any bicycle C.O.D. on approval *without a cent deposit* and if accepted allow 10 DAYS FREE TRIAL before purchase is binding.

New 1903 Models

"Bellise," complete $8.75
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no better bicycles at any price

Any other make or model you want at one-third usual price. Choice of any standard tires and best equipment on all our bicycles. *Strongest guarantee.*

RIDER AGENTS WANTED in every town to buy sample wheel at *special price* and take orders for our improved '03 models. *There's big money in it.*

500 Good 2nd-hand Wheels $3 to $8.

DO NOT BUY a bicycle until you have written for our free catalog with large photographic engravings and full descriptions.

MEAD CYCLE CO. Dept. 216-C Chicago.

ginger 2 drams, give as a drench, or make into a ball and insert per mouth. Then rub the swollen parts with equal parts of mercurial ointment and lard once daily. You may also give a tablespoonful of sulphate of soda.

No. 2. The prolapsus must be replaced, but first wash the parts with warm water, and drop in it a little laudanum to prevent the pig from straining it out again. It is best to give one-half grain of morphine hypodermically. After the bowel has been replaced, you may inject starch gruel with a little laudanum, once daily into the rectum.

Blood Trouble—Inversion of Uterus.

Last summer I lost 2 calves; the skin would crack several places and blood would come out of each crack. They would lie with all four legs stretched from them and bleed all over, then after laying like this a few days they would die. I also have a cow that pushed the calf house out last time she calved. H. C.
Enumclaw, Wash.

ANSWER.

No. 1. Making a rough guess at your case, we believe your calves had some kind of blood trouble, but are not prepared to state positively that it is. Your information and description are insufficient to form an opinion.

No. 2. Inversion of the uterus is rarely repeated by any one animal, and it is likely that your cow will come right this time, keep her as near as possible in a normal condition.

Barrenness.

We have two cows that do not get with calf although served repeatedly by sure bull. One dropped calf Oct. 28th 1902. Seems to be in heat all the time. Have to keep her tied up or let out alone. The other cow is not so bad but does not get in calf. V. V. F.
Howell, Mich.

ANSWER.

If a cow is constantly in heat there is a diseased condition of the organs of generation which will require a personal examination by a skilled veterinarian who will be able to locate the cause and remove it.

Acute Indigestion.

Please tell me what is the matter with my calves. They fall, roll, kick and foam at the mouth, act just as though they had the fits. In a little while they seem to be all right, but it will come on them almost any time again. Wm. H. B.
Concordia, Mo.

ANSWER.

Your calves have acute indigestion, which, if allowed to continue, will become chronic. You are crowding your calves too fast, which brings about this trouble. Cut down the amount of food given and give a teaspoonful of bicarbonate of soda in food, or drench twice daily, and the trouble will soon subside.

Internal Injury.

A cow dropped calf about 3 weeks ago. At the time of calving womb came out the size of a large bucket; replaced it, since when she has continually declined until now she is a mere skeleton; she refuses to eat almost everything.
Springfield, O. C. O. S.

ANSWER.

The cow must have injured herself besides the uterine trouble, as the latter (if properly replaced) requires no further treatment. We should advise you to give good nourishment and the following powder in food morning and night: Powdered gentian root, 3 ozs.; dried sulphate of iron, 2 ozs.; sulphate of quinine, 6 drams; ammonium chloride, 1½ ozs. Mix and give one teaspoonful at a dose.


The Books are Free


Spavin Lump Jaw

You can cure Bone Spavin, Bog or Blood Spavin, Ringbone, Curb, Splint or any blemish hard or soft, Fistula, Poll Evil, Sweeny or Knee-Sprung, also Lump Jaw in cattle, with very little trouble or cost. Our two booklets tell you how and prove that you can do it, and we will guarantee you success in every case. Over 140,000 farmers and stockmen are doing it our way. If you have a case to cure write us and we will send you the books free.

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OAKLAND HERD
HOLSTEIN-FRIESIANS
Will make a special price on a few CHOICE YOUNG BULLS.
We also offer young females very cheap just now as we can winter more stock than have pasture for.
T. A. MITCHELL, Weedsport, N. Y.

GLENVIEW HERD
A few fine heifers and bulls for sale. Also some A. R. O. cows. IRVIN NOWLAN, Toulon, Ill.

EDGETOWN FARM
90 Holstein-Friesians 90
Stock for sale from A. R. O. cows. Herd headed by Gem Pietertje Paul De Kol, No. 27282, backed by eight official records, averaging 23.44 lbs. butter.
E. J. FARGO, Lake Mills, Wis.


CLYDE PAUL DE KOL.

OHIO'S FAMOUS HERD —OF— Holstein Cattle
OWNED BY
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Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

HOME FARM HERD
Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. One Hundred head to select from. W. B. Barney & Co., Hampton, Iowa.

Markham Manor Farms, Simonsville P. O. Andover, Vt.
Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for description and price to J. A. THORNTON, Manager, Simmonsville, Vt.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS | 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No 29175. Sire: Count Colantha Alban No. 25148. Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.
WM. EVERSON & SONS, Lake Mills, Wis.

30 POUNDS 10.18 OZ. BUTTER
In Seven Day Official Test.
Home of the
WORLD'S CHAMPION BUTTER COWS.
BROTHERTOWN STOCK FARMS
DEANSBORO, N. Y. McADAM & VON HEYNE Props.
Sadie Vale Concordia, official test, 694.3 lbs. milk containing 30 lbs. 10.18 oz. butter in 7 days.
Mercedes Julip's Pieterje, official test 584 lbs. milk containing 79 lbs 5.7 oz. butter in 7 days.
Sadie Vale Concordia's Paul De Kol, Premiersire, No. 27392 H. F. H. B. He is by Paul De Kol and out of our great cow Sadie Vale Concordia.
ABSOLUTELY BEST HERD OF HOLSTEIN-FRIESIANS.
We have a number of fine cows and calves for fine breeding to offer. If you are looking for the best, write us or inspect our herd.

Holstein Freisian Bulls
SOUTH SIDE FARM, WHITE BEAR, MINN.,
offers a number of thrifty well grown calves from Officially Tested Dams at bargains for quick sale, ages three to seven months. Also two fine yearlings, and one two year old.
No Yorkshires for sale at present. Orders booked for spring pigs.
Correspondence solicited.

RICHLAND FARMS, GREENSBORO, GA.
We now have some very fine HOLSTEIN BULLS FOR SALE; also some pure bred registered Victoria Hogs, all ages, at bargain prices. Write us for what you want.

SHADY NOOK HERD Holstein Friesians offers three bulls from 11 to 16 months old. Two from A. R. O. dams. O. L. C. White Pigs, both sexes. White Cap Yellow Dent Seed Corn, $1.50 per bushel.
W. R. GATES, Fort Atkinson, Wis.

Holstein-Friesian Bull Calves
Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

BROOKSIDE STOCK FARM
HOLSTEIN-FRIESIAN CATTLE
Henry Stevens & Son, Lacona, N. Y.
offer some great bargains, to quick buyers, in 1, 2, and 3 year old heifers; also young cows and bulls.
Stock First-Class. We Must Sell
Address as Above. P. O. Box 208.


WANTED. NO. 1 H. F. BULL
Send pedigree and official records of ancestors For Sale A No. 1 H. F. Bull dropped Aug. 9. 1901. Dam and sire's dam bred by T. G. Yeomans.
Wm. O. Jackson & Sons, South Bend, Ind.

AUCTION SALE OF
70 Holstein-Friesian Cattle
from the herd of
ARTHUR N. McGEOCH
Sale to be held at
MILWAUKEE, WIS.,
Wednesday, May 6, '03
Sale to be held at McGeoch Farm, "Redbrae" opposite entrance to Soldiers' Home on National Avenue. Electric Cars, National Ave., run to farm every five minutes.
40 OFFICIALLY TESTED COWS AND HEIFERS 40
Among these will be found the great heifer **Duchess Ormsby 2d's Hengerveld DeKol** who holds the **World's Record** for heifer with first calf, having made at age of 2 years, 1 month, 29 days, 19.02 lbs. butter in seven days.
DAME MARJORY DE KOL, a half sister, with record at 2 years, 4 months and 24 days of 16.19 lbs. butter in seven and 65.08 lbs. in thirty days.
LISCOMB AAGGIE 3D at 3 years, 11 months and 26 days with record of 21.58 lbs. in seven and 86.69 lbs. in thirty days.
PIEBE QUEEN 2D'S PRINCESS at 4 years, 9 months, with record of 22.18 lbs. in seven days.
WIT DUCHESS at 5 years, 5 months, 5 days, with record of 24.88 lbs. in seven days.
A FINE LOT OF HEIFERS FROM OFFICIALLY TESTED DAMS. A few richly bred young bulls and the two great service bulls **De Kol 2d's Paul De Kol No. 2** and **Gem Pietertje Hengerveld Paul De Kol** will be included in the sale.
Altogether this is the most desirable lot of Holstein-Friesians, either from the standpoint of the breeder or dairyman, that has ever been offered at public auction. All are cordially invited to be present.
Catalogues ready early in April. Send for one. Address
H. B. DAGGETT, Mgr.,
STATION A. MILWAUKEE, WIS.

A. & G. Herd Holstein-Friesians —Choice-Bred BULL CALVES for sale, from 1 to 18 months old. from dams with official records, and sired by sons of De Kol 2d and Netherland Hengerveld. Herd contains 5 sisters of Lilith Pauline DeKol (who holds the world's official butter record of 28 lbs. 3 oz) 25 granddaughters of DeKol 2d, 5 daughters and 7 granddaughters of DeKol 2d's Paul DeKol (the sire of Lilith Pauline De Kol) and granddaughters of Pauline Paul, Netherland Hengerveld, Mutual Friend, Princess of Wayne, Johanna, Eto., Etc.
AVERILL & GREGORY, The Yates, Syracuse, N. Y

FOR SALE. H.-F. Bulls, ready for service from A. R. O. Cows and sired by Sir Johanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis

FOR SALE.
H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address W. H. JONES, Watertown, Wis. Rural Route No. 2.

CLOVERDALE HERD
HOLSTEINS.
Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.
A. J. DAUGHERITY Streator, Ill.

TYRANENA HERD
100 HOLSTEIN-FRIESIANS 100
A. R. O. Stock For Sale.
Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz Frank B. Fargo, Lake Mills, Wis.

BROOKSIDE HERD
offers SPECIAL inducements to quick buyers. We must sell at once to reduce herd to stabling capacity. All ages, both sex. Correspondence solicited. Visitors welcome. Address,
STEVENS BROTHERS Lacona N.Y.

MONONA FARM Offers for sale a few well bred Holstein-Freisian Bull Calves. Also two Service Bulls at reasonable prices. The Monona Farm Herd is founded on the best stock of the De Kol, Netherland, and Clothilde families. Pense Johanna 29332 the head of the herd has 7 A. R. O. dams averaging 22 lbs. 3.7 oz. Junior sire Paul Calamity De Kol 31095.
MADISON, WIS.
THE MONONA FARM HERD
Address, F. W. ALLIS, Madison, Wis.

HIGH-CLASS HOLSTEIN-FRIESIAN BULLS and Bull Calves from A. R. O. dams and the best Advanced Registry sires. Cows all officially tested; I breed from no others. Correspondence from breeders and progressive ddirymen invited. Malcolm H. Gardner, Darien, Wis.

HOLSTEINS
High Class Advanced Registry Stock only. Best butter families. Stock for sale.
Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.

HOLSTEIN BULL CALVES. | **Johanna Family.** (both sire and dams). ALSO BERKSHIRES.
Wright's Farm. Berlin, Wis.

WOODLAKE HERD.
Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN, Station D., R. 1, Minneapolis, Minn.

FOR SALE.
2 H. F. Bull Calves, 6 months old. Sired by Johanna Aaggie's Paul DeKol 23443, (160 A. R.) from good milkers and testers.
M. S. CAMPBELL, Genoa, DeKalk Co., Ill.

.....YOU MAY.....
BEGIN AT THE HEAD
to improve your dairy herd with a bull whose dam has official record of 18 lbs. 6.3 oz., sires dam 20 lbs. 8.8 oz. Individual right. Price Right.
McKAY BROS., Buckingham, Iowa.


HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

The Maples Herd offers H. F. A. R. O. Cows and Heifers of all the leading families in calf to Beryl Wayne De Kol Paul, dam Beryl Wayne, 27 87 lbs butter A. R. O. Lelith Pauline De Kol's Count, dam Lelith Pauline De Kol 28.24 lbs. butter A. R. O.
Quick buyers may obtain great bargains in heifer and bull calves from the above named great sires. JOHN C. GODFREY,
Pennellville, N. Y.

The Special Dairy Cow in Nebraska.

[Address of J. F. Schlappi, of Lincoln, Neb. before the Nebraska Dairymen's Association.]

Mr. President and Bro. Dairymen:—One would almost feel out of place to talk on the Special Dairy cow here, since that phase of the cow question has not been agitated to any great extent. The idea has always been, and it does yet exist, to a large extent, that she must be "beef," or at the very outside, "Dual-Purpose capacity."

In my talk before this meeting last year, I touched on the Special Dairy Cow.

It must have been owing to the "Beef Breeders" meeting which was in session here about the same time that there were several "Beef" men present at the Dairymen's meeting, at least, one of whom had considerable to say that Nebraska was not adapted to the "Special Dairy Cow," and went on to explain at considerable length.

Now say, Brother Beef Breeder, we greatly prefer to have those fences of the proverbial kind, "Hog tight and Bull strong," for we would suffer infinitely more from the results, but at the same time you might be convinced that a good milker pays best.

Having now resided in the state over a year and more familiar with conditions regarding the dairy interests, and coming in contact with dairymen in nearly every part of the state I am more than ever convinced that the special dairy cow is as well, if not better, adapted to Nebraska than any other state. Not only am I certain of that, but the best evidence we have, though the dairy interest is in its very infancy, the enormous sums of money paid by the creamery companies of the state, not to say anything of the millions of pounds of butter made on the farm.

Here now, comes the suggestion, if the dairymen of the state are doing all of this with what we might call the "No Purpose Cow" how much better would the results be, if the "Special Purpose Cow" took their place.

We have proof from many sides, where men, and women too, have brought up the average of their herds to 300—350 lbs. of butter fat, per year, and more, and in one case a woman made the mark 400 pounds for the year. What some do, others can equal, and I want to see the day when every dairy cow in Nebraska will average 400 pounds of butter fat, every twelve months.

This may seem optimistic to you, but remember the world moves; only a short while ago the man who milked a cow was sneered at, by the fellow that did his milking on horseback, but today you find that very same individual has traded his broncho for a milk stool.

Am I making mis-statements? Am I guessing? The proof I have to offer is their own statements, for I have rubbed elbows with just that class of men for nearly a year.

To feed a cow a whole year to get a $20.00 calf or to do the same act with a selected cow, and receive for cream (if you don't want to make butter) at your nearest R. R. Station, from $35 to $75 per year, per cow, and raise a heifer as good as can be raised, on skimmed milk, and if a steer and you think him not the kind you want, dispose of him on the spot. Calf skin shoes are in demand, and with all this leeway it does not require the assistance of a reader of Blackstone to find the balance in favor of the selected cow.

In an investigation among creamery patrons, which Ex.-Gov. Hoard, of Wis., is now, and has been carrying on for several years in HOARD'S DAIRYMAN, at his own expense, of thousands of dollars, not in the Eastern States only, but in Iowa as well, the invariable conclusions are in favor of the selected cows and a fairly balanced ration, to such an extent that in the creamery at Montrose, Pa., out of 50 patrons, twenty-five read dairy papers and twenty-five did not read and get in touch with modern ideas and methods, but note the sensitive part. The twenty-five who read dairy papers averaged $50.23 per cow, per year; the others who knew it all, of course, averaged $32.95.

Of course, there may be a "penny wise and pound foolish" excuse for the eastern dairyman in not feeding a balanced ration to his cattle, but here in Nebraska no excuse can be given for not attaining highest results, where the greatest forage plant in existance can be grown so cheaply. Now gentlemen, I want to ask you, why shouldn't the dairy business be

"ADVERTISEMENT".

SUPERIOR MERIT.

Remarkable Curative Properties of a Remedy for Indigestion and Stomach Weakness.

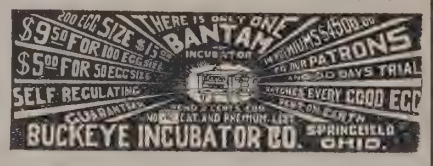
Stuart's Dyspepsia Tablets, a preparation for the cure of dyspepsia and the various forms of indigestion and stomach trouble, owes its great success as a cure for these troubles to the fact that it is prepared for disease and weakness of the stomach and digestive organs *only*, and is not recommended or advised for any other disease.

It is not a cure-all, but for any stomach trouble it is undoubtedly the *safest*, most sensible remedy that can be advised with the prospect of a permanent cure. It is prepared in tablet form, pleasant to taste, composed of vegetable and fruit essences, pure pepsin and Golden Seal, every one of which act effectively in digesting the food eaten, thereby resting and invigorating the weak stomach; *rest* is Nature's cure for any disease, but you cannot rest the *stomach* unless you put into it something that will do its work or assist in the digestion of food.

That is exactly what Stuart's Dyspepsia Tablets do, one grain of the digestive principle contained in them will digest 3,000 grains of meat, eggs or similar wholesome foods; they will digest the food whether the stomach is in working order or not, thereby nourishing the body and resting the stomach at the same time, and *rest* and *nourishment* is Nature's cure for any weakness.

In persons run down in flesh and appetite these tablets build up the strength and increase flesh, because they digest flesh-forming food which the weak stomach cannot do, they increase the flow of gastric juice and prevent fermentation, acidity and sour watery risings.

Stuart's Dyspepsia Tablets can be found at all drug stores at 50 cents per package.





The Sure Hatch's Latest
An automatic, direct acting regulator that surpasses any other improvement ever made in incubators. Send for new illustrated catalog and free trial offer
SURE HATCH INCUBATOR CO.
Clay Center, Neb., or Columbus, Ohio.

GREAT POULTRY BOOK FREE...

Those of our people who are interested in poultry for profit should send for a free copy of the new 1903 book (No. 70) **"How to Make Money with Poultry and Incubators,"** published by the Cyphers Incubator Company, Buffalo, N.Y. The greatest recommendation we can give this book is that it is the best thing the Cyphers Company has published. It consists of 196 pages, 8x11 ins.-contains 12 special chapters, covering the subject of Profitable Poultry keeping as follows; Starting with Incubators. Handling Chicks in Brooders. Feeding Chicks. Duck Producing on Large Scale. Broiler Raising. Profitable Egg Farming. Egg Poultry Combination. Egg and Fruit Farming. Scratching-Shed House Plans. Incubator Cellar and Brooding House Plans. Feeding for Eggs. Standard Bred Poultry. Each subject handled by an expert. 300 photographic views of largest poultry plants in United States, England, Germany, New Zealand and South America. Most valuable book of the kind ever issued. Write to-day for free copy and judge for yourself. Sixty pages devoted to complete illustrated description of Cyphers Non-Moisture Incubators, Apartment Brooders, Poultry Foods and Clover Products.

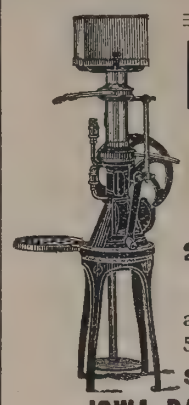




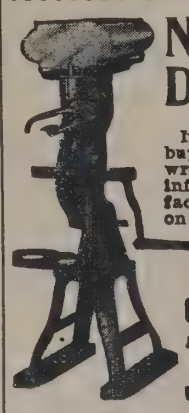
TO BE GIVEN AWAY.
For Next 30 Days Only,
we will mail our fine valuable Poultry Book **FREE.** Tells you all about poultry, how to make big money with poultry and eggs; contains colored plate of fowls in their natural colors. Send 10c for mailing and postage.
JOHN BAUSCHER, JR., Box 35, FREEPORT, ILL.

WHITEMAN'S MILK BOTTLE FILLER fills 8 bottles at a time. The cost is $40 00. Will allow you $2.00 for freight.
A. V. WHITEMAN, 144 Chambers St. N. Y. City. Milk Bottles and Supplies.

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THE
Iowa Dairy Separator.
AN UP-TO-DATE MACHINE
REPLETE WITH PRACTICAL IDEAS
It is built in the following sizes:
250, 350, 450, 600, 750 POUNDS PER HOUR
Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.
SEND FOR CATALOGUE NO. 60 AND PRINTED MATTER.
IOWA DAIRY SEPARATOR COMPANY, WATERLOO, IOWA.



Notice to Dairymen
If you are thinking of buying a Cream Separator write us for Catalogue and information. We manufacture the best machine on the market.
Davis
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Cream Separators
THE
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The best in the world, has no superior if you want a larger butter yield. It runs easily, skims clean, and is easy to wash It is perfect in mechanical construction and magnificent in appearance. No outside gears to catch your hands and clothes. Only three parts in the bowl. Look at the low supply can. All parts absolutely interchangeable. Write for Catalogues and Prices.
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NEW OXFORD
BALL BEARING
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Sold on guarantee to be the best on the market. Catalog free.
WORLD CREAM SEPARATOR CO., 41 Main St., Council Bluffs, Ia.



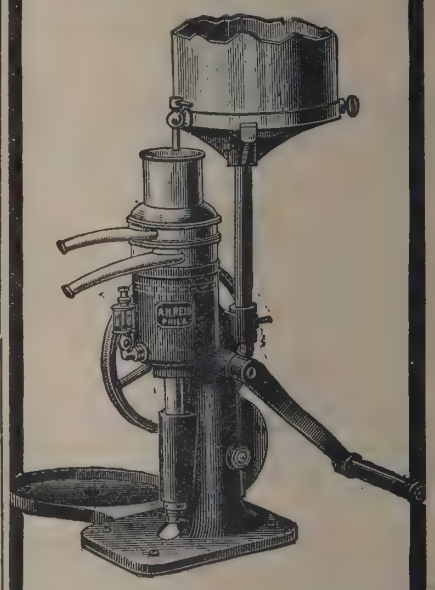
SPRING BALANCE
ADJUSTABLE DIAL HAND
Graduated to register 30 lbs. and 60 lbs. in tenths. A reliable accurate scale, enabling dairymen to know just what quantity of milk produced by each cow. Send for illustrated catalog of dairymen's supplies.
TRADE MARK BESTOV
DAIRYMEN'S SUPPLY CO., Dept. B, Phila., Pa.



We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity—1000 cans daily, which should enable us to fill all orders promptly.
Every can sold on a guarantee.
Write for Circular H.

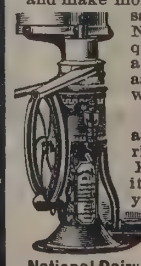
ERIE CAN REFRIGERATORS should be used on all milk cans from April to Oct. Prevent sour and churned milk. Booklet free. S. C. SULLIVAN, M'f'g., Erie. Pa

Reid's Hand SEPARATOR



The "best" separator is that one which does its work most thoroughly and easily, that is built of strongest material, and that is most easily washed and kept in order.
First cost is a great point with a buyer, but ease of running, perfection of skimming and simplicity in washing are even greater considerations.
The **Reid Hand Separator** has but a single cylinder inside the bowl, and skims as closely as one-hundredth of one per cent. Indeed, some tests indicate "not a trace" of fat in the skim milk.
The Reid is perfectly planned and strongly built, and it literally "runs like a watch."
As to our guarantee of excellence, we make the strongest statement that can be expressed in words: **Money back (less freight) if the buyer is not satisfied.**
There is a new (free) booklet about the Reid Hand Separator.
Sizes run from 150 lbs. to 500 lbs. per hour.
A. H. REID
CREAMERY AND DAIRY SUPPLY CO.,
PHILADELPHIA, PA.

End Your Butter Troubles
with a **National Hand Separator** and make more and better butter from same quantity of milk. The National will do it easier, quicker and pay its cost in a very short time. We don't ask you to take our word—we send the machine for
10 Days' Free Trial
and let it prove its worth right in your own dairy. *You take no risk*—we assume it *all*. If it does not meet your expectations, send it back—we pay the costs. Our catalogue tells more—write for it, it's free.



National Dairy Machine Co., Newark, N. J.

carried on, on the same principle as any other business in the land?

In all business carried on today the specialist is called for, and why, is very apparent. A person, no matter what his position or occupation may be, can and will be more proficient if one single purpose or one line of thought or work is followed. In other words he becomes an expert in his calling.

Let two men with two ideas, or two different occupations, start out with two other men, each one of the latter taking one of the ideas or occupations of the former, and the former will be so far behind, that sight will be lost of him before sun down, so to speak.

This holds true in every phase of life. The more we specialize and singleize, the more proficient will we become. Just so with the dairy cow. When you look for a cow that will be equally as profitable for beef as a milk producer, I can assure you that cow, or breed, does not exist; and as far, as I can see, it will be a very long time before that vacancy is filled. While we all have different likes, as well as dislikes, yet the one thing we are all looking for, without exception, is what can be expressed in dollars and cents. So, let us see what advantages are afforded in that direction by the special dairy cow. In the first place all will admit that the dairy interests are increasing in Nebraska more rapidly, perhaps, than in any other state in the Union, and right it should, for there is no place on earth where feed, and that of the most valuable kind for feeding the dairy cow, can be produced as cheap as here. Why is the dairy interest increasing in Nebraska? Because farmers have learned the certainty of its income. In a year of excessive moisture, as the past season has been, the uncertainty of crops is lost sight of for the time being; nevertheless, very many know with only too vivid recollections, the hardships during uncertain seasons. But how was it with the man who milked a few cows? He had not much difficulty in meeting obligations, and at the same time had plenty for his family to eat and wear.

While in Iowa last summer I became acquainted with a gentleman who gave me his history substantially, as follows:

"I was raised in Eastern Iowa. Father always milked a considerable number of cows. Whenever we boys asked for money we always got it. When I became of age I married and went west, to Cherokee county, Ia., bought a farm there and raised grain. For five years I raised each year a big crop of corn. When it was marketed there were always notes at the bank to be paid as well as store accounts to be settled; and when all was squared up, the corn crop was used up and winter before me with no money. I told my wife that this would never do, and that I intended doing as father did, to try dairying. I did so, and now ship cream to Sioux City, and receive my money every month in the year. Debts now are unknown, and we have a nest egg in the bank."

It is needless for me to enumerate the advantages derived from dairying. Every body admits that, but the time has come when we should pay more special attention to the business and derive larger profits than heretofore, in other words, specialize.

A good dairy cow will produce each year, from the time she is two years old (it is a good plan to have them become producers at that age, if possible) until the end of her usefulness, as much as she would sell for at any time during the year. But here is where the trouble comes in, to get the majority of farmers to realize (knowing that a dairy cow is of not much value for beef), that she has made him more profit than any other cattle could have done in the same time. I have sometimes said, and am still of the opinion, that we can afford to give her a decent burial at the end of her career.

Milk and butter values are high and are going to be still higher. I base my opinion on the rapid growth of the city, or consumer population, and the almost standstill (if not retrogression) of the producer in proportion to the consumer.

I anticipate you wish to ask, what breed shall we tie to for special dairy purpose? I will answer, any special purpose breed. There is no breed but what you will find some first-class individuals among them. Of course, you will find a very much larger per cent of good ones among the special dairy breeds and, therefore, I would say, choose the breed that you have a natural liking for, but above all you must select the individual to secure the best results.

In travelling over the state I see in almost every bunch of cattle some one cow, or may be more, with best of indications of a first-class dairy cow, and yet, the owner, in many cases, does not seem to think very much of her. The fact is, the animal has not had an opportunity to develop her best qualities,—feed and care are great factors in developing the dairy cow.

In breeding for special dairy cow you will always have a considerable per cent of them prove unsatisfactory; in other words, they have inherited the beefy tendency of some ancestor, and no amount of coaxing will convert them into anything different. But if you keep right on, raising the best from the best, you will be rewarded in a comparatively short time, in possessing a first-class dairy.

There is just one thing more along this line and that is, you may not be very enthusiastic at first, but as you progress you will find special dairying very facinating, as well as profitable. Just a word in closing, that will mean unquestioned success in the dairy business,—if any question or uncertainty arises, *ask* and *follow* the advice of the mother of your children. J. FRED SCHLAPPI.

Lincoln, Neb.

Pea and Oat Silage.

ED. HOARD'S DAIRYMAN:—I would say in answer to C. H. W., in DAIRYMAN of Feb. 13th, that I wet pea and oat silage if it has dry leaves or stalks or gets badly wilted after mowing. I don't cut silage into silo but put it in whole. Peas and oats are bulky here and settle slowly; we have to wait several days sometimes for silage to settle. In that case we wet down well when we stop. Our silage is in splendid condition. Have no trouble in getting it out. Can see no object in cutting into silo excepting that it will probably settle faster. We are feeding over 2.5 lbs. protein with grain, excepting what is in silage. W. J. LANGDON.

Washington.

Clover Ensilage

ED. HOARD'S DAIRYMAN:—In your last week's issue, C. H. R., of Newport, Vt., inquires for information in regard to the use of clover for silo. Last summer in June I filled one of my silos with clover of the mammoth variety. I cut the clover while in full bloom; had one team mowing, one horse raking, and four teams drawing the clover. I instructed the man that did the mowing, not to cut the clover any faster than the teams would draw it, as I did not want the clover to wilt. We run the clover through the ensilage cutter, cut it as fine as we could. I kept it well tramped down in silo and put on about 5 pounds of salt per load and kept it very wet, throwing on three or four pails of water per load. It kept very nice and the cows ate it readily, and did well, giving good returns in the milk pail. My silo is the round stave silo with cement bottom, which I believe to be the best. Clover silage requires more water than corn, as the clover gets very hot during the heating or cooking process, and unless it is kept very wet it will fire burn and turn white. I believe that good clover silage with a balanced ration of grain is better for milch cows than corn silage. E. R. W.

Footville, O.

When lamp chimneys don't break my name is on them.

MACBETH.

If you'll send your address, I'll send you the Index to Lamps and their Chimneys, t tell you what number to get for your lamp

MACBETH, Pittsburgh.



ROBBER COWS.

Some cows rob the owner of the feed they eat, and of the profit of the rest of the herd. They have little or no butter fat in their milk. Find them out and send them to the block.

THE "Sweepstakes"
Babcock Milk Tester

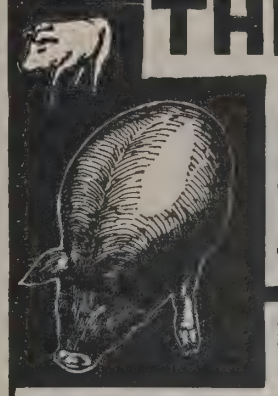
Will do it. Runs on ball bearings, 2 and 4-Bottle sizes with necessary glassware. Strong, convenient.

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We handle everything in the Dairy and Creamery line..

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1, 3 and 5 W. Washington St., Chicago.
BRANCHES: Kansas City, Mo.; Minneapolis, Minn.; Waterloo, Iowa; Omaha, Neb. St. Louis, Mo. and Cowansville, Quebec.

THIS RUNT



Weighed only 56 pounds when 14 months old.

This runt was farrowed April 19, 1900, and weighed only 56 lbs. July 20, 1901. On that day I began feeding it the Prussian Stock Food. I fed it twice a day for 60 days and then three times a week It consumed 12 pounds Prussian Stock Food. I sold it January 9, 1902 and it weighed 254 pounds—G. HINDS, Rockford, Illinois.

HOGS GAIN 3 LBS. A DAY.

John Herbers, one of my customers, fed Prussian Stock Food to his hogs that he was fattening and weighed them several times when feeding it and they made an average gain of three pounds a day to each hog.—Conrad Meis, Templeton, Iowa.

FATTEN HOGS AND CATTLE

AT THE SMALLEST COST. *Add a small quantity Prussian Stock Food to the regular grain ration of every animal fed. It conditions the stomach and bowels, purifies the blood, improves digestion and enables the animal to get the most out of feed consumed.* THE BEST FOR HORSES. Will put them in condition for SPRING WORK.

PRUSSIAN STOCK FOOD

DOES NOT TAKE THE PLACE OF THE RATION. It creates appetite and capacity for a full ration.

PRUSSIAN STOCK FOOD is Guaranteed to give satisfaction, when used according to direction, or the price paid will be refunded. If no dealer in town, write us. Tell us how many head of stock you have and where you saw this ad. and we will send you our 68 page Farmer's and Stockman's Hand Book FREE.

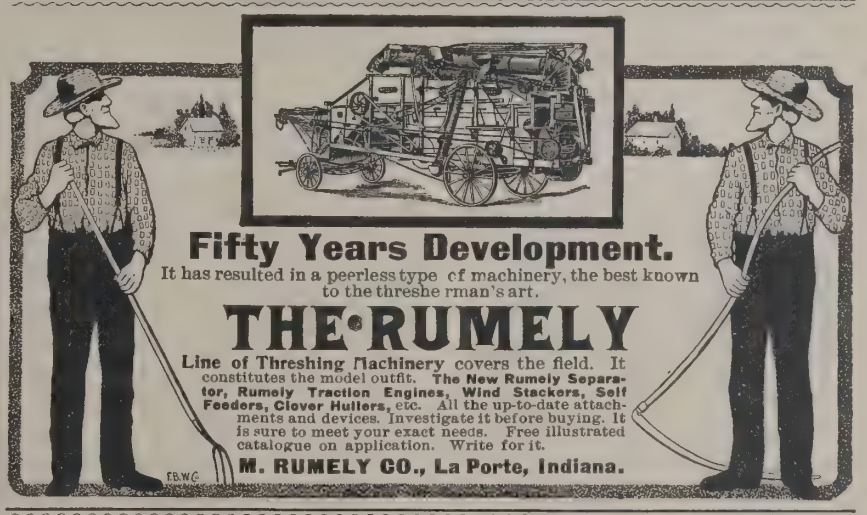
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Fifty Years Development.

It has resulted in a peerless type of machinery, the best known to the threshe rman's art.

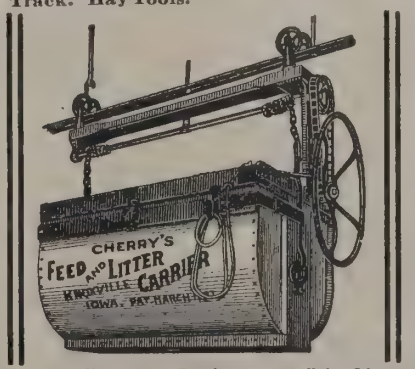
THE RUMELY

Line of Threshing Machinery covers the field. It constitutes the model outfit. The New Rumely Separator, Rumely Traction Engines, Wind Stackers, Self Feeders, Clover Hullers, etc. All the up-to-date attachments and devices. Investigate it before buying. It is sure to meet your exact needs. Free illustrated catalogue on application. Write for it.

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Cherry's Perfected Barn Equipments.

Operates on Curves and Switches. Manure Carrier, Feed Carrier, Grain Elevator and Track. Barn Door Fixtures and Track. Hay Tools.



Send for Illustrated Catalogue and Price List to D. B. CHERRY & CO., Knoxville, Iowa.



THE DREW ELEVATED CARRIER

is the cheapest and most practical device for taking away manure from stables, carrying ensilage, feed, grain, etc., etc. No trouble to put them up; no trick to work them; leaves barn yard free from posts; dump in yard or on wagon; turns curves and switches. An inexpensive money saver. Write for illustrated catalogue and full particulars. DREW ELEVATED CARRIER COMPANY, WATERLOO, WIS.

Cream SEPARATORS

All about them and other things for the dairy and creamery.

A. H. REID, - Philadelphia, Penn.

Beginning in a Small Way.

ED. HOARD'S DAIRYMAN:—Am a new man in the farm line, starting in to make butter at home in a small way, 8 cows now and will increase a trifle probably. Will you kindly tell me if you think it advisable to buy a hand cream separator for that number of cows? At present we are feeding the fore milk to calves, the butter milk to pigs, and churning the strippings and what cream we get from the fore milk. We have no good milk house yet and find it hard to keep the cream from getting strong, if we try to churn cream only. Bought a run down farm last fall, and am looking to HOARD'S DAIRYMAN especially to help us out. Kindly advise us as you see fit.

Mannington, W. Va. B. E. M.

There was a general concensus of opinion a few years ago that any dairyman having ten cows could not afford to be without a farm separator. More recently the opinion has prevailed that a farm separator would be profitable with even fewer cows.

We cannot quite understand the reason for the cream getting strong, unless it be that there is no appropriate place for keeping it from day to day. But with the advent of a farm separator, we think this trouble will largely disappear and then there will be no question about "fore milk" and strippings, but the whole milk will be run through the separator and the warm, fresh skim milk given the calves. Keep the cream in some place free from contaminating odors, and if further trouble is experienced, write us more in detail as to conditions and we may have further suggestions to offer.

Grating over Gutters.

C. A. D., Rock Co., Wis., wishes information as to dimensions and kind of material to use for making the wooden grating mentioned on page 4 of the current volume.

CONCERNING OUR ADVERTISERS.

TRUE TO THEIR NAME.

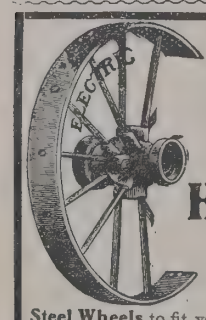
The Champion Harvesting machines are certainly true to their title, especially as they are represented in new machines for 1903. These machines retain all the new and distinctive improvements as well as the old points of advantage which have made this machine so popular in the past.

We do not hesitate to advise our readers to send direct to the Champion Division of the International Harvester Company for their handsome catalog, which tells in an interesting and convincing way the points of interest in this high grade harvester. The book will be mailed cheerfully upon application.

160 ACRES AN HOUR.

On one of the bonanza ranches in North Dakota a little incident occurred last harvest which illustrates with what nonchalance the natives view events that would create a furore in the east.

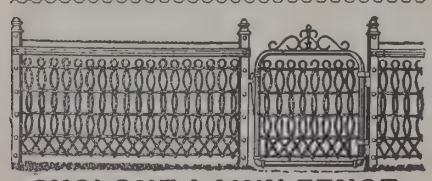
A binder expert was sent out from a big harvester plant in Chicago to look after a large number of binders that were in use on the big ranch. He ascertained that the machines would meet him at a certain crossroads at 8 o'clock on a certain morning. He managed to be on time at the place



A Low Wagon at Half Price.

The cheapest, the easiest and the best way to get a low wagon is to buy a set of **Electric Steel Wheels** to fit your farm wagon. If you don't want to bother with changing the wheels buy a set to fit your old gear. If you have no old gear you can buy one for a song, as there are thousands of them lying around the country. A set of **Electric Steel Wheels** costs less than one-half the price of a low wagon. They are made to fit any wagon. They make a new wagon out of your old one with wheels that cannot rot or break. Made with straight or staggered spokes, wide or narrow tires. Save blacksmith bills. Write for our **Handy Farm Wagon Catalog.** Tells about our full line of Electric implements. **It Is Free.**

ELECTRIC WHEEL CO.,
Box 130 Quincy, Ills.



CYCLONE LAWN FENCE.
Our catalog with styles and prices will interest buyers
CYCLONE FENCE CO.
Holly, Mich. Cleveland, Ohio. Waukegan, Ill.

$28 FREE
FOR A TESTIMONIAL

You can have ripe tomatoes June 15th, ripe melons July 1st, new potatoes and cucumbers May 15th. All other vegetables or flowers as early by using Gold Mine Hot bed. It protects all kinds of plants from frost, cold raw winds and storms. Keeps off the bugs, insects, cutworms Stimulates plant life in such a manner as to make them grow three times as fast. Indorsed and recommended by every agricultural paper in the United States, and by every farmer that has used them. There is not a Tool or implement that the farmer buys that will bring him in as large returns each year as this. It will pay for itself forty times a year, with proper usage.

We have reduced the price from $1.50 per dozen to 85 cents, for immediate acceptance. Sold on the same guarantee to give satisfaction as plows, binders, and mowers are sold, or money refunded. When you find they are better than you expected them kindly send us a testimonial. Next year you will want more of them; we will reciprocate your kindness with a present.

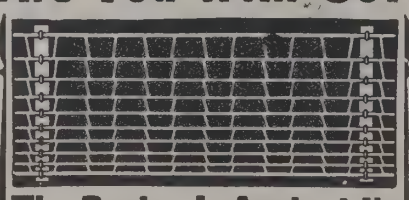
We will give 200 Gold Mine Hot Beds to the person sending in the best report; 100 for second best; 50 for third; value $28, and pay all charges to destination. Premiums paid in November. Points considered—Earliness yield, amount of money made, with one dozen. Please do not delay your orders.

Reference by permission: Commercial Bank Greentown.

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Square Mesh, Dimond Mesh Fence, Plain, Galvanized, Barbed, or Telephone Wire. Write for illustrated catalog and price list.
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16 to 35 Cents Per Rod.
Heaviest, strongest, most durable fence made. All wires extra large. We sell to Farmers at Wholesale Prices. Coiled Spring, Barb and Soft Galvanized Wire.
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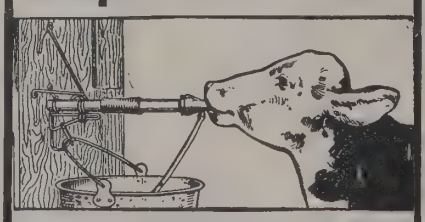
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Established 1892.



Galvanized castings. Will not rust. Seamless rubber nipples, reinforced, cannot split. Makes fat calves. Price,
ONE DOLLAR.
Satisfaction guaranteed or money refunded. Booklet free.

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Simplex Calf Feeder



The only practical feeder made. The only rational system of feeding calves.

The unique features of the **Simplex Feeder,** found in no other device, namely, the direct nipple connection and the universal movement of the arm, make it a perfect feeder.

Simple, durable, easily put up, easily cleaned. Can be attached to wall, fence, or other suitable support.

No more "teaching the calf to drink." Promotes digestion. Prevents scours. Adds to the value of the calf, whether raised for the dairy or for veal. **Price, postpaid, $1.50.**

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KALAMAZOO BUGGIES are the standard by which other makes are judged. They are best. We manufacture all our buggies and guarantee the quality to be the very highest. No seconds. We have made buggies 23 years and originated the plan of selling direct from factory to you on

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giving you all profits usually paid to wholesaler and retailer. Send for our **New Buggy Book, FREE.** Make a selection and give the buggy a trial. Every vehicle we offer for sale made in our own factory.

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Laton, Fresno County, proves to be an Ideal Home for Farmers and

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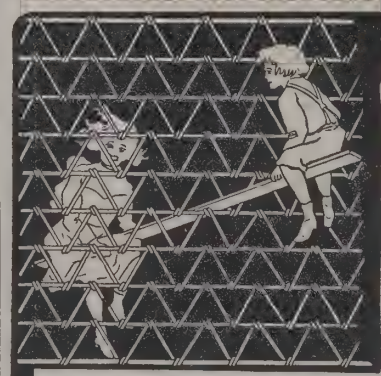
60,000 ACRES OF IRRIGATED LAND IN THE

HEART OF CALIFORNIA

Alfalfa a specialty. Creameries on the Estate. Ample Railroad Facilities. Land Sold on Easy Terms in Small or Large Lots.

WRITE THE MANAGERS

404 GREAT NORTHERN BUILDING.....CHICAGO.



IT NEVER SAGS.

A fence that is perfectly woven out of wires of proper strength and full length, leaving no loose ends to unwind and injure stock.

THE HARTMAN STOCKADE FENCE

is a compact unit, made to turn the strongest and breachiest animal, yet responding to the requirements of heat and cold and always resuming its natural position. Made of the best galvanized steel wire, very heavy at top and bottom, all horizontals and trusses of ample strength. In seven heights, 18 to 54 inches. **A fence beautiful, strong and serviceable and of great permanence.** Write for free catalogue.

CUYAHOGA WIRE AND FENCE COMPANY,
DEPARTMENT D, CUYAHOGA FALLS, OHIO.



COMMON SENSE Calf Feeder

awarded **Gold Medal** at Pan-American Exposition. **The only Feeder** adopted by experiment stations. It is the kind others try to imitate. Easiest to operate and clean.

Most Durable, Simple, Economical, Scientific and Practical.

Do not be deceived by imitators. Shams are never imitated. **More Common Sense Feeders are in use than all others combined.** Over 50,000 in use. No valves to get clogged or foul. Nipples reinforced and cannot collapse. The calf feeder is a perfect weaner. A substitute for nature.

Extra gain on one calf pays for two feeders.

Best Feeder Made.
Michigan State Board of Health:—I tried every Calf Feeder I could find, but liked yours best.

Worth $10.00.
George S. Bement, Victor, N. Y.:—I am very much pleased with the Feeder and would not be without it for $10. No trouble, no damning, no milk on your clothes, no trouble to teach the calves to take hold of it, no sucking the cows, and the best of all is that when they get about eight weeks old they don't stop for the nipple but just drink out of the pail.

The Principle is Correct.
Purdue University Agricultural Experiment Station of Indiana, LaFayette, Ind.:—We have been using the Feeder to some extent and it is in constant use at this time and we believe it to be very satisfactory in its work. The principle of **Your Feeder,** I believe to be the correct one. C. PLUMB, Director.

Advise Stock Raisers to use it.
Maryland Veterinary Hospital:—I am very much pleased with the Feeder and would advise stock raisers not to be without one.

Price $1.50 including two nipples, sent postpaid for $1.75. We guarantee satisfaction, but if you are in doubt about its value we will send one on approval for 50c to cover postage, remainder to be paid if satisfactory. **Be Sure** and send for our twenty-two reasons why you should use a feeder. It's free. Sold by one dealer in a town.

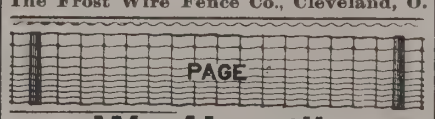
O. H. MANUFACTURING COMPANY, DEPT. H, LYNDON, VERMONT.

800 MILES



Frost Fence constructed on Penn. Lines. They find it the best and cheapest, considering weight and quality, on the market. Place your money where it will do the most good. Catalogue free.

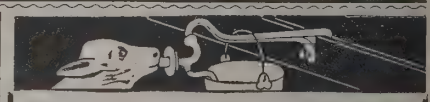
The Frost Wire Fence Co., Cleveland, O.



We Heartily

Recommend Page Fence for the worst breachy stock, and it does just as well for quiet stock.

PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.



ONLY BALL AND SOCKET CALF FEEDER

on market. Nipple moves freely in any direction as in nature. Many other original features. Not an imitation but most improved feeder made. Result of years practical experience. Approved and used by experiment stations. Easiest to clean, strongest and most durable. Price..... **$1.50** or $1.75 prepaid. Free circular tells why this feeder is the best. Write the manufacturers today. **MAHLER BROS.,** 34 La Salle St., Chicago, Ill.

HIGH CARBON, COILED SPRING STEEL WIRE FENCE
CATALOGUE FREE.
INDIANA STEEL & WIRE CO.
BOX 511 MUNCIE, INDIANA.

designated. For some time no machines put in an appearance, but after waiting impatiently for about an hour he saw a cloud of dust down the road and the long line of Deering machines hove into sight.

Accosting the driver of the first machine, he inquired the cause of the delay, and that individual coolly answered: "Sorry to keep you waiting boss; but we stopped a little way up the road to cut a small piece of oats."

The "little piece of oats" amounted to some one hundred and sixty acres. It took just about an hour for that army of Deering machines to care for it.

THE SAMSON WINDMILL.

At the mammoth windmill plant of the Stover Manufacturing Co., Freeport, Ill., the largest factory of its kind in the world, are made the appropriately named "Samson" windmills, strong, powerful and storm resisting.

The Samson, Double-Gear Windmill, in addition to its ability to resist violent gales by its construction, is the one scientific wind machine built on a plan that appeals to every person who ever saw any "wheels go 'round." This double gearing, which is exclusive with the Samson and found in no other windmill, consists practically of two sets of gearing, or two pinions and two spur gears engaging each other, making two trains to transmit the power of the wheel to the pump. The sequel shown in actual service proves the double gearing to be one of the most valuable features in the entire theory of the transmission of wind power. The particular points gained by it are:

1. More than four times the strength of any other windmill using like amount of material.
2. Distribution of burden and diminution of wear by use of four bearings instead of one.
3. The lasting qualities are double those of any other mode of construction.
4. Its center crank, or both ends of the crank-pin driven instead of one as in other makes. No chance for pin to get out or work loose.
5. The pitman and plunger operate centrally between bearings, dispensing entirely with all over-hanging and torsional strain.

There is lots more of interest to be told about the Samson, and it is told in detail in a handsome illustrated book which The Stover Mfg. Co. will be glad to send to such of our readers as are interested and will write for it.

Hiles & Myers, successors to J. H. Myers, who has been advertising with us for some time have recently sold the farms of Eugene Solomon and F. H. Seavy in Marquette county and the farm of J. H. Liebe in Wood county. If any of our readers in Wisconsin wish to buy or have a farm they desire to sell they will find it to their interests to communicate with Hiles & Myers whose address is C 100 Mack Block, Milwaukee, Wis.

Keep your buildings well painted. If you don't do it because you want your buildings looking neat, attractive, do it as a matter of economy. No well kept and well managed farm goes without paint. There is hardly any expenditure that gives the owner more satisfaction than well painted buildings, and the dairy farmer has the help that may at odd times be employed in this work. On another page will be found the card of the Sieck Paint Co., of Chicago, whose business of selling paints by mail should interest our readers just at this time. They guarantee their paints and their catalogue contains a full line of paints and supplies. This company has been doing business in one place for over fifteen years and has the confidence of its thousands of patrons. If our readers want to do any painting this year we shall be glad to have them write the Sieck Paint Co. for their prices, and don't forget to mention this paper.

ORIGINATORS OF 30 DAY PLAN.

In another part of this issue we are printing the advertisement of the Kalamazoo Carriage and Harness Mfg. Co., of Kalamazoo, Mich. These people are the originators of the Free Trial Plan of sending vehicles anywhere with the privilege of 30 days examination and trial, the purchaser being perfectly satisfied before he accepts the vehicle. This plan was unique in its conception, and a good many dealers thought it was impractical but the quality of the goods that the Kalamazoo Carriage and Harness Mfg. Co. turn out justify them in making this very liberal offer, as they manufacture a fine grade of vehicles. Their business has increased very much in the past few years, and anyone who is interested in getting really a first-class job at the lowest prices should write to them for their free catalogue, which is now ready for distribution. Their address is The Kalamazoo Carriage and Harness Mfg. Co., No. 148 Ransome St., Kalamazoo, Michigan.

HOOD FARM
Antiseptic
Breeding Powder

Makes Cows Breed After Abortion. Corrects Failure to Come in Season and Failure to Clean.

"I had a heifer that aborted her first calf and she failed to breed again, though three different bulls were tried. I decided to give Hood Farm Antiseptic Breeding Powder a trial. After one month's treatment the heifer was bred successfully and in due time she gave me a fine heifer calf for which I have been offered $25." JOSEPH MASON, Bacon Farm, Newton Highlands, Mass.

Price, $1, sent by mail, $1.15. Size containing four times this quantity, $2.50. Sent prepaid for $2.75. Address

C. I. HOOD CO., Lowell, Mass.

Mention this paper.

Dr. Rea's Cow Impregnator
MAKES BARREN COWS BREED.



Photo showing Cow Impregnator in position. Neck of the womb is *medicated*, dilated and softened.

SEND FOR FREE TREATISE ON BARREN COWS AND TESTIMONIALS.

$2 buys one Cow Impregnator
$5 buys five Cow Impregnators
Mailed on receipt of price. Sold only by
Dr. Chas. L. Rea, 220 East 32d St., New York.

DR. REA'S BLACKLEG VACCINE
Positively Prevents Blackleg. Treatise free.

THIS TRADE MARK
on a package guarantees to the public that it is genuine. Beware of imitations. Substitutes yield the dealer more profit, but cost you the same.

Bickmore's Gall Cure
is the quickest, surest and best cure known for Harness, Collar and Saddle Galls, Scratches, Grease Heel, Speed Cracks, Wire Cuts, etc. Just as good for Chapped, Torn or Cracked Teats on cows. Sold by all dealers and guaranteed by us. Sample mailed for 10 cents. Get it now and have it ready when you need it.



BICKMORE GALL CURE CO., Box 515, Old Town, Me.

OUT THEY GO

The crowds are going to **Morton County, North Dakota**; rich black soil, clay subsoil, producing heavy crops—where **corn grows.** Excellent water, 10 to 30 feet deep. **Coal is Free.** Stock feeding only about six weeks in the year. **Our Creamery** butter brings Elgin prices. We own 175,000 acres and sell farm lands for $7 to $12 per acre; grazing lands $4 to $7. **Free Homestead** lands adjoining. 9,000 people now in County. Healthiest climate. Write for facts and maps.

Wm. H. Brown & Co.

Mandan, N. Dakota, or 181 La Salle St., Chicago.
(Where did you see our Ad?)

Horse Owners! Use
GOMBAULT'S
Caustic Balsam



A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all liniaments for mild or severe action. Removes all Bunches or Blemishes from **Horses and Cattle, SUPERSEDES ALL CAUTERY OR FIRING.** *Impossible to produce scar or blemish.* Every bottle sold is warranted to give satisfaction. Price **$1.50** per bottle. Sold by druggists, or sent by express, **charges paid,** with full directions for its use. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O

Sore Shoulders



sore neck, sore back, &c., resulting from collar, saddle or harness gall and chafing, and all forms of canker, callous, &c., are instantly relived and cured with

Tuttle's Elixir.

Used and endorsed by Adams Express Company.

Dr. S. A. Tuttle. Wolcott, Vt., July 15, 1899.
Dear Sir:—I had a horse that had two bunches on his shoulder, caused by wearing a new collar. Less than one bottle of your Elixir cured it after six months' standing. L. W. FISHER.

Cures also **curb, splint, contracted cord,** all forms of lameness and **colic,** distemper, founder, pneumonia, &c.

TUTTLE'S FAMILY ELIXIR cures rheumatism, sprains, bruises, etc. Kills pain instantly. Our 100-page book, "Veterinary Experience," **FREE.**

Dr. S. A. TUTTLE, 62 Beverly St., Boston, Mass.

Beware of so-called Elixirs—none genuine but Tuttle's. Avoid all blisters; they offer only temporary relief if any

Cash for Your Farm

We can sell your farm, home or business quickly for cash, no matter where located. Send description and we will show you how. Offices in 16 cities. Established 1893. **A. A. ROTTNER & CO.,** 739 Real Estate Trust Building, Philadelphia, Pa.

A REGULAR INCOME

can be safely secured, without speculative risk, by an investment made in our INVESTMENT DEPARTMENT. Modern financial methods, intelligently conducted, insure a regular and substantial semimonthly income to investors in this department of our business, and does not subject the funds to the risks which are incurred by speculative ventures. To those who appreciate the value of SAFETY and who desire to procure a larger return on their capital than is offered by savings banks and the ordinary mediums of investment; our pamphlet, "A LESSON IN FINANCE" will prove most interesting and instructive. It will be mailed free on application.

THE PENNSYLVANIA FINANCE CO.,
Pennsylvania Bldg. Philadelphia, Pa.

FOR SALE

One $250 De Laval Steam Cream Separator. Also 5-horse power boiler and engine, only used few months. Good reason for selling. Also Babcock cream tester, all piping included. This is a good chance for dairyman or someone wishing to start a creamery. **GOOD AS NEW.** All for $325, cost the owner $500. Write immediately to 5145 Penn. Ave, Pittsburg, Pa. Will ship to your depot.

BARREN COWS CURED.

Our treatment has been used successfully since 1878 in every state in America, Canada and Great Britian. Write for Pamphlet.

MOORE BROS., Veterinary Surgeons, Albany, N. Y.

BLACKLEGOIDS



BEST PREVENTIVE OF BLACKLEG.

Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering; measuring or mixing is necessary. Accuracy of dosage is always assured, because each **Blacklegoid** (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. **Blacklegoids** are sold by druggists; *ask for them.*

Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.

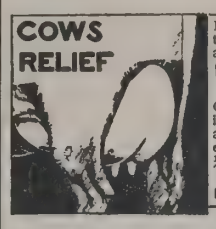
PARKE, DAVIS & CO. - DETROIT, MICH.
Branches: New York, Kansas City, Baltimore, New Orleans, Chicago; Walkerville, Ont.; Montreal, Que.; London, Eng.

CURE "THE" COW
NO CURE, NO PAY



WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address

DR. EATON J. GROSS,
152 Congress St., Troy, N. Y.



Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.

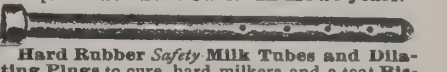
Used Exclusively at Model Dairy

Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.

O. H. MFG. CO.,
Dept. H, Lyndon, Vt.

ABORTION,

Failing to Breed and to bring Cows to Heat. Sure Cure. In use 20 years.



Hard Rubber *Safety* Milk Tubes and Dilating Plugs to cure hard milkers and a teat **Bistoury.** Send for testimonials.
Dr. WM. HORNE, Janesville, Wis.

ANTITOXIN

For the Cure and Prevention of Milk Fever.

No quackish humbug but a scientific fact. Works on same principle as antitoxin injection in man for diphtheria, destroying poison in system. Out of 110 cases treated in Portland, Mich., 109 recovered last year. Easily administered with a syringe. Inexpensive. Write for particulars to **DR. W. E. A. WYMAN, V. S., Prospect, Ohio.**

ABORTION,

Retention of Placenta and Failure to Breed.

KELLOGG'S CONDITION POWDER is a positive cure for these diseases. Write for circular containing full information, references and price.
H. W. KELLOGG COMPANY, St. Paul, Minn.

Butler's Cart

It is just the thing for milk cans, barrels, boxes, baskets, sacks and a hundred other things. It is strong, neat, practical; does the work of all other carts combined.



Sold direct to you at the right price.

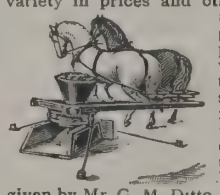
For circulars address

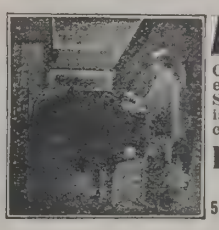
BUTLER MFG. CO., Kensett, Iowa.

ILLUSTRATION.

THE DITTO FEED GRINDER.

Parties about to invest in a feed mill should take counsel of their better judgment and not buy one whose chief recommendation is its cheapness. In the end it will be found to be a poor investment. Though the same claims run largely through the entire feed grinder list, it is apparent from the variety in prices and other considerations that there are different degrees of worth, essential points of difference, which, if you could see them in operation side by side, would unalterably fix the choice on one or the other. We claim no originality for this thought. It is suggested by the strong invitation given by Mr. G. M. Ditto of Joliet, Illinois, to the prospective buyer on his free trial plan to place his triple geared ball bearing mill along side any and all comers, and to count his loser if it does not do faster grinding, run steadier, show less draft, more durability, more uniform feed and a greater variety of work. It is this mill which appears in the cut herewith. The essentials of a feed mill must all be comprehended in this statement. The Ditto guarantee says his mill will do 20% more work under like conditions than any other two horse sweep mills made. As the Ditto mills are shipped on five days free trial to all responsible people, we see no reason why a purchaser should not assure himself of being right by availing himself of the Ditto offer. It is a mill with a reputation. If not the best, it is one of the best mills made. Its first cost may be a trifle more than some mill you would be able to buy, but in the end you would not regret the investment.





ABORTION

Can be successfully treated with **Anti-Abortion Serum.** Easily administered and permanently cures. Information free.

DR. ROBERTS
VETERINARY REMEDY CO., ,
512 Grand Ave., Waukesha, Wis.

"SAVE-THE-HORSE"
— TRADE MARK —
SPAVIN CURE.



HOWE & CO.,
REAL ESTATE, ESTATES CARED FOR
AND BUSINESS OPPERTUNITIES.
247 Washington St., Room 2.

Boston, Mass., Jan. 21, 1903.

Dear Sirs: I have used a bottle of "Save-The-Horse," and I consider it the best thing that as yet I have been able to obtain for what it was intended it having entirely cured a very valuable mare which has been lame since last September with a sprained ankle. We had her blistered twice and laid up for two months, but it did no good. I was just ready to breed her when I gave it a trial; she is now entirely sound. Yours respectfully,
ALBERT E. BAKER.

POSITIVELY AND PERMANENTLY CURES bone and bog spavin, ringbone (except low ringbone), curb, thoroughpin, splint, capped hock, shoe boil, weak and sprained tendons and all lameness, $5.00 PER BOTTLE.

Written guarantee with every bottle, constructed to convince and protect you fully. The need of second bottle is almost improbable, except in rarest cases. Guarantee covers effectiveness of one bottle.

Copy of guarantee sent upon application.
$5.00. druggists and dealers, or sent prepaid.
Boston city trade supplied by Sartwell, Heinold & Humphrey, 75 Federal St., EASTERN DRUG COMPANY, Boston and

Troy Chemical Co., Troy, N. Y.

Also veterinary Pixine, the scientific, anti-septic healing ointment, for hopple chafes, sores, grease heel, scratches, speed cracks and skin diseases. 2 oz. 25c., 8 oz. 50c., 5-lb. package $4.00.

RUPTURE CURED while you work. You pay $4 when cured. No cure, no pay. ALEX. SPEIRS, Box 346, Westbrook, Me.

Milking Machines.

ED. HOARD'S DAIRYMAN—Noticing an article in your issue of Feb. 27th, regarding a new milking machine, I was interested at once because if it will do its work thoroughly, it ought to be economical on any large dairy farm, but more especially because if there is any way of milking without exposing the milk to the dusty air and odors of a stable, it is very desirable from a sanitary standpoint.

This has been my study for several years in connection with producing milk for physicians use and for people who want clean, pure milk for the table. Among other methods tried was a closed pail and rubber tubes about 18 inches long with one end made large to go over the teats, the other end emptying into the pail.

The results the first few days were very satisfactory and we correspondingly elated. It looked as if we might be able to produce almost sterile milk and that as cheaply as ordinary milk is now produced. We know what asepsis means, and how hard it is to keep milk utensils aseptic, and we exercised especial care with those rubber tubes. After a few days the number of bacteria in the milk began to increase and the result was that that with all the aseptic precautions and antiseptic measures, those rubber tubes would bear, we couldn't keep them sterile. If we got them sterile, we destroyed the tubes very quickly.

This is all in accord with the findings of Dr. Ernest Wende, of Buffalo, N. Y., who after an extended study of the use of long-tube nursing bottles, showing the practical impossibility of keeping them sterile, and one year after prohibiting their sale, though the population increased, the infantile deaths decreased. That is the public health side of the question. The effects of running milk through rubber tubes, that is going to the creamery, would make pasteurization imperative because the lactic acid organism won't be the only germ found in those tubes.

This phase of the question is of as much importance to the manufacturers as to dairymen and the public; and in the interests of the public and dairymen and the manufacturers this report is made.

Mass. F. L. MARION.

Hot Milk as a Stimulant.

Hot milk is an admirable stimulant. Dealing with this well known fact, the *Lancet* states that milk heated too much, above 100° F., loses for a time a degree of its sweetness and density. None who, fatigued by overexertion of body or mind, has ever experienced the reviving influence of a tumbler of this beverage, heated as hot as it can be sipped, will willingly forego a resort to it because of its being rendered somewhat less acceptable to the palate. The promptness with which its cordial influence is felt is indeed surprising. Some portion of it seems to be digested and assimilated almost immediately, and many who now fancy they need alcoholic stimulants when exhausted by fatigue, will find in this draught an equivalent that will be abundantly satisfying and far more enduring in its effects. This should be taken note of by all hard-working people. —*Dairy World* (*Eng*).



Why don't you get a
Horseshoe Brand Wringer?
It will lighten your day's work
Every wringer is warranted from one to five years. The rolls are made of Para Rubber. They wring dry, last long, and will not break buttons. Our name and trade-mark is on every wringer and roll.

The American Wringer Co.
99 CHAMBERS ST., NEW YORK CITY
We manufacture the Wringers that wring the Clothes of the World

A NEW ROLLER
Rolls all kinds of smooth, rough, or uneven land; rolls back and dead furrows, etc. The
Wilder Flexible Roller


Not like any other—It's Better.
yields to all uneven surfaces and always rolls. Convenient weight box. Spring seat. Best material. Will last indefinitely. Fully protected by patents. All steel and iron except tongue and cross bars. Instantly changed to rigid roller if desired. Standard size 7 feet. Prices on special lengths on request. Write for circulars, prices, etc. Prices will go up very soon.
J. K. Wilder & Sons, Box 11, Monroe, Mich.


BAILEY'S HYDRAULIC RAM.
Now is the time to install a ram. Bailey's is always successful. He guarantees it. It is the most simple, durable, efficient and economical. If you want water at house or barn send for catalogue No. 30 to
PRICE W. BAILEY,
Seneca Falls N. Y.

RIFE HYDRAULIC ENGINE
WATER RAISING
by water power is the sure, economical way. A constant stream for irrigation, stock or household use. PUMPS TO ANY HEIGHT. No attention. The thing for the country home. Sold on 30 days trial. Write for free catalogue.
RIFE ENGINE CO.,
126 Liberty St. New York.

SAMPLE BASIN SENT ON APPROVAL.

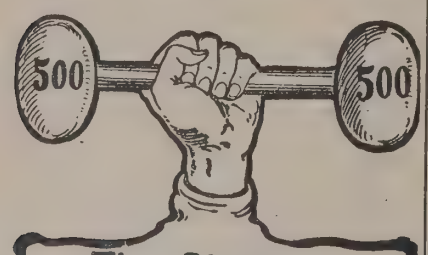

Basins are fitted with Self Closing Cover which prevents all dirt and sediment from getting into them. Send for catalogue and price list.
F. H. CHACE,
Sherman, N. Y.



Absolutely perfect. Soon pays the cost. Cheapest because best.
Water always fresh. Send for catalogue No disease where used.

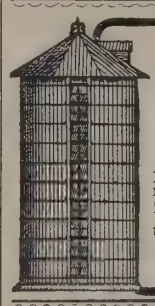
Water In The Stable a Necessity.

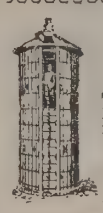

It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. Why not use the Best? Write for descriptive circular.
C. E. BUCKLEY & CO., Poughkeepsie, N. Y.



The Strength
of the coffee you buy adds to its value in the cup.
Lion Coffee
comes to you fresh and of full strength, always in sealed, air-tight packages. Bulk coffees lose their strength, deteriorate in flavor, and also gather dirt.
Uniformity, freshness and full strength are insured to users of Lion Coffee.

HARDWOOD TIMBER LANDS
from which the older trees have been cut but mostly covered with a fine growth of young timber, located in Marathon County, Centra' Wisconsin, are now offered for sale by us on most favorable terms to actual settlers.
This is some of the very best hardwood agricultural land in this state, with a deep, clay loam soil, gently rolling, with water easily obtainable at from 16 to 24 feet.
There is no better land for grain, grasses pastures, oats, peas, fruits or livestock, etc. Particulars will be furnished promptly on application.
RIETBROCK LAND AND LUMBER CO., Athens, Wis.


The
Economy Silo
Made of selected lumber, by skilled mechanics and special machinery. Continuous hoops—airtight—the best and cheapest. Write for illustrated catalogue and information.
ECONOMY SILO AND TANK CO.
1814 Market St., Philadelphia, Pa.


ROUND SILO.
...THE...
"PHILADELPHIA"
The only Perfect, Continuous Open Front Silo made. See open top patent roof. Ask for catalogue.
E. F. SCHLICHTER,
321 Vine St., Philadelphia, Pa.
Also made in the West by
DUPLEX MFG. CO., So. Superior, Wis.


Let Them Help Themselves.
They'll not take too much, and they'll get it as they want it. Don't force animals to eat salt when they don't require it, by mixing with food.
COMPRESSED
Pure-Salt Bricks
are all salt, no impurities. Improve the quality and yield of milk. A modern convenience, always present, animals never neglected, and costs for each only about a nickle a month. See how they enjoy helping themselves when you place it within reach. For all stock. Buy of dealers or send for free booklet to
Belmont Stable Supply Co., Brooklyn, N.Y.

200,000 ACRES TO SELECT FROM
We own 40,000 acres in Red River Valley, in Marshall and Kittson Co's, Minn. and in Walsh and Grand Forks in N. D. 15,000 acres in LaMoure, N.D. Fine stock ranches in Logan and Mercer Co's, N.D. 50,000 acres of Timber land in Aitkin Co. Minn., and Washburn Co., Wis. Also 15,000 acres in Southern Minn. in Lyon and Redwood Co's, near Marshall.
WRITE FOR OUR MAPS. We can give you a farm from $5.00 to $50.00.
BURCHARD-HULBURT INVESTMENT CO.
705-7 Manhattan Bldg. ST. PAUL, MINN.

200 ACRE DAIRY FARM
—FOR SALE—
Good land, well improved and plenty of timber. Have 25 cows and a milk route which takes all the milk produced. It is within 2 miles of Hastings. For full particulars address Lock Box 237, Hastings, Mich.

FOR SALE. 90 Acre Farm in Waupaca Co., Wis., 1½ miles from the village of Marion. Good soil, running water, frame buildings. A bargain if taken before the first of April. Reason for selling, am an old man and recently lost my wife. Address, DANIEL CHURCHILL, Marion, Wis.

Fine Dairy Farm for Sale.
Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence, cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. T. S. TOMPKINS,
Pasadena, Cal.

FARM FOR SALE 160 Acres Wood Co., Wis. Stable and other buildings. 100 acres under plow. Horses, stock, machinery, tools etc. included. Abundant water, good soil. Price $5000. Particulars of Hiles & Myers, C 100 Mack Block, Milwaukee, Wis.

160 ACRE FARMS IN WESTERN CANADA FREE
Western Canada
Has Free Homes for Millions.

Upwards of 10,000 Americans have settled in Western Canada during the past five years. They are **Contented, Happy** and **Prosperous** and there is room still for **Millions.** Wonderful yields of wheat and other grains. The best grazing lands on the Continent. Magnificent climate, plenty of water and fuel. Good schools, excellent churches, splendid railway facilities.
FREE HOMESTEADS
OF 160 ACRES
(the only charge being $10 for entry) in Manitoba, Assiniboia, Saskatchewan and Alberta. Send to the following for an Atlas and other literature as well as for certificate giving you reduced rates, etc. Superintendent of Immigration, Ottawa, Canada; or to the authorized agent of the Canadian Government—
T. O. CURRIE,
12 B. Callahan Bldg., Milwaukee, Wis.
J. M. MacLACHLAN,
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Now is the Time Go West!
Cheap Railroad Tickets
From February 15 to April 30 we shall sell tickets to California and the North Pacific Coast, also to many intermediate points such as Helena, Butte, Spokane and Salt Lake City, at greatly reduced rates. Only $33, for instance, from Chicago to California or Puget Sound; $30.50 to Spokane; and from St. Louis and other places in proportion.
This is Your Opportunity
Why should you not go out and see the country? It costs so little and you can easily see what an education it will be for you to take such a trip. The Northwest, in particular, is full of interest. A visit to that country may be the turning point of your life. Send to me for our folder giving full information about how to go, about the trains and rates, and our comfortable tourist sleeping car service.
Burlington Route
P. S. EUSTIS, Passenger Traffic Manager,
Chicago, Burlington & Quincy Ry. Co.,
705 209 Adams Street, Chicago.

THE FINEST
GRASS LANDS
IN THE WORLD
Nowhere else in the U. S. are all conditions as favorable for **Stock Raising and Dairying** as in the region around the head of Lake Superior. Natural grass lands where timothy and clover are already well started, for sale at $6 to $8 per acre, within 25 miles of Duluth. Fine climate and spring water. Splendid market. For further particulars address
GUARANTY FARM LAND COMPANY,
DULUTH, MINN.

A Discussion on Feeding.

ED. HOARD'S DAIRYMAN:—Agricultural Experiment Stations have done incalculable good to feeders of farm animals in developing the science of feeding. Prof. Henry has weighted animal husbandry with obligations upon which he can hope to realize fully only in the next world. No agricultural paper is alive to all the demands upon it, if it makes no provision for replying to inquiries as to compounding feed rations, and a live-stock or dairy paper that does not make a prominent, interesting and valuable feature of formulas for balanced rations out of all sorts of combinations of food stuffs, under widely varying conditions, in response to requests from its readers would be a back number, and yet in all that has been written and taught, there is little or no reference to a principle that is fundamental in the feeding of dairy cows, and in the proper understanding of which and the ability to apply it, practically rests the largest measure of profit.

For the better comprehension of my contention, let us make the very proper division of the subject into the science of feeding and the art of feeding, and in its considera'ion differentiate clearly between them. Scientists by analysis and experiments have determined the elemental composition of the animal structure. They have established principles and elaborated formulas to supply the waste incidental to its existence and use, and by so much, have developed the science of feeding.

This science is largely comprehended in "Balanced Ration," the standard for which owes its initiatory establishing and is primarily based on the average analysis of the rations fed by one hundred successful feeders of dairy cows in the United States — a standard that is being more or less modified or extended by experience and experiment. Of those one hundred successful feeders, it is altogether probable that there was not one who could make a calculation of the chemical analyses of the rations fed or who knew whether or not it was properly balanced, whether it was 1:6 or 6:1. They had acquired the art of feeding, with no knowledge of the science.

In the development and promulgation of the science the feeders art has been almost if not entirely overlooked—certainly so far as any persistent and material insistence upon the necessity for its acquirement is in evidence. In so far and by so much as teachers and exponents of the science of feeds and feeding have seemed to present as of primary importance the consideration of the cow as a dairy machine, and as such to be fed on mechanically scientific principles with humanitarian treatment as corollary, and have neglected to magnify the art of the feeder, or have, by indirection, tended to make it appear of secondary importance, just so far and by just so much have they overlooked a fundamental principle that should be given every possible emphasis in elemental and primary instruction in feeding.

It is comparatively an easy matter to enunciate a rule and supply figures for compounding a ration. The how to so apportion that ration as to best meet the individual requirements of widely differing animals cannot be reduced to formula or figures. Language cannot convey it; experience only can teach it, through constant practice only can skill in it be acquired—herein is the art of feeding.

Having acquired the ability to compound a properly balanced ration from the materials at hand, or by the help of the ever willing DAIRYMAN obtained a formula for the feed ration, the most profitable results possible can only be secured in its use through an intimate knowledge of the peculiarities of individual members of the herd. Peculiarties in assimilation, whether for milk or flesh, of digestion as shown in the voidings, in required quantity to secure the maximum product in the pail for the minimum expenditure of feed and animal energy.

Every reader hereof knows that weight merely is of secondary consideration in the feeding of his work horses, or even farm hands; knows that not infrequently those of equal weight, doing practically the same work, require very different quantity of feed to maintain equal condition. We have on our farm two outstanding illustrations of this fact. In each of two pairs of horses of practically the same weight as their mates, working on an evener with them is a horse that keeps in prime condition, kicks up his heels after a day that sends his mate soberly to the stable with no disposition for frolic or superfluous expenditure of energy, and requires, really won't consume over two-thirds of the grain and hay his mate actually needs to be kept in similar condition.

Can science or scientist disclose the why of this? Can he or it evolve a formula by which you can compound a ration equally good, pound for pound, for such differing individualities? Can the scientist, can you, Mr. Editor, can you, reader, formulate a rule by familiarity with which, inexperience can determine how by scale and measure to economically feed such varying peculiarities in individual horses? Workers of oxen know they differ as markedly. Those well advanced in skill in feeding milch cows know that it is equally true with them.

How is the feeder to know how to feed which? The "Feeders' Column," "Answers to Inquiries," "Wanted to Know," or what not columns in the dairy papers don't tell us, or except barely suggest the necessity of knowing in the occasional hedge of "judgment should be exercised" when supplying a formula for properly compounding a ration out of available food materials. Professors of feeds and feeding leave too much to the imagination in the meagre hints they offer in this direction, present almost no suggestion of the intense determination that is required, that is absolutely essential to completest success, to know from day to day, from feed to feed, just the quantity of grain and forage required by each individual cow in the herd to so keep appetite on edge as to compel consumption of requisite material for proper maintenance and largest flow of milk consistent with commercial economy.

The necessity for acquiring the art of feeding has received scant, if any, emphasis and its fundamental principles singularly overlooked, if indeed their importance has been at all recognized. Certainly in the publications incident to the development of the science of feeding there is no evidence of a just appreciation of the art required in application of the science if justifiably expected results are to accrue. A habit of generalizing to cover all sorts and conditions, has taken such possession of teachers and writers that they do not, as a rule, emphasize as they should distinctive factors that control highest results. In times of close competition and narrow margins "generally" will not count except for

OSTRICH LOGIC.

"When I can't *see* danger there is no danger." That's the logic of the ostrich which hides its head and exposes its body to the hunter. There are not a few people who seem to have gone to the ostrich to learn logic. The most dangerous enemies of humanity are the enemies which can't be seen, the disease breeding microbes which infect the blood. It is harder to get the microbe out of the blood than to keep it out, but Dr. Pierce's Golden Medical Discovery does both, by purifying the blood and then keeping it pure.



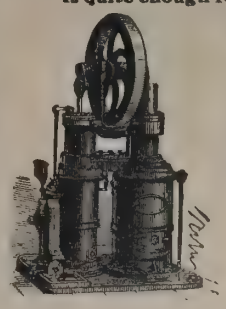
If there are eruptions on the skin, boils, pimples, sores or other signs of impure blood, use Doctor Pierce's Golden Medical Discovery, which will purify the blood and cure the eruptions which come from it.

"My blood was all out of order, and I had to go to the doctor," writes Mrs. James R. Moss, New London, Stanly Co., N.C. "He gave me medicine which helped me for a short time. In the winter of 1895 I got worse than I had ever been. My tonsils were enlarged and my neck swollen all out of shape; my throat was sore and I could not cure it. My husband went for the doctor, but he gave me no encouragement. He helped me a little, but it did not last long. He attended me for twelve months, when I heard of a lady whose condition was like mine, who was taking your medicine and was getting well. So I secured some of the medicine and began taking it. In one week I was able to do my cooking. When I began taking the medicine I could sit up only a few minutes at a time, and I could rest or sleep only a little while at a time. My throat was so sore at times I could not even swallow sweet milk, and my tonsils were full of little eating sores. My left side was swollen out of shape and I could hardly get my breath. The doctor said I would not get well, but three bottles of Dr. Pierce's Golden Medical Discovery, three bottles of his 'Pellets,' three bottles of Dr. Sage's Catarrh Remedy and the use of salt water did the work and cured me."

Dr. Pierce's Pleasant Pellets cure constipation and its consequences.

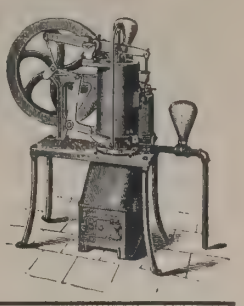
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Is quite enough for some people, but most people want water every day. If



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Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.



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The Right Start

"Well begun is half done" when it comes to economical harvesting. One distinct advantage in using

Plano Harvesting Machines

Is their remarkable freedom from breakage.

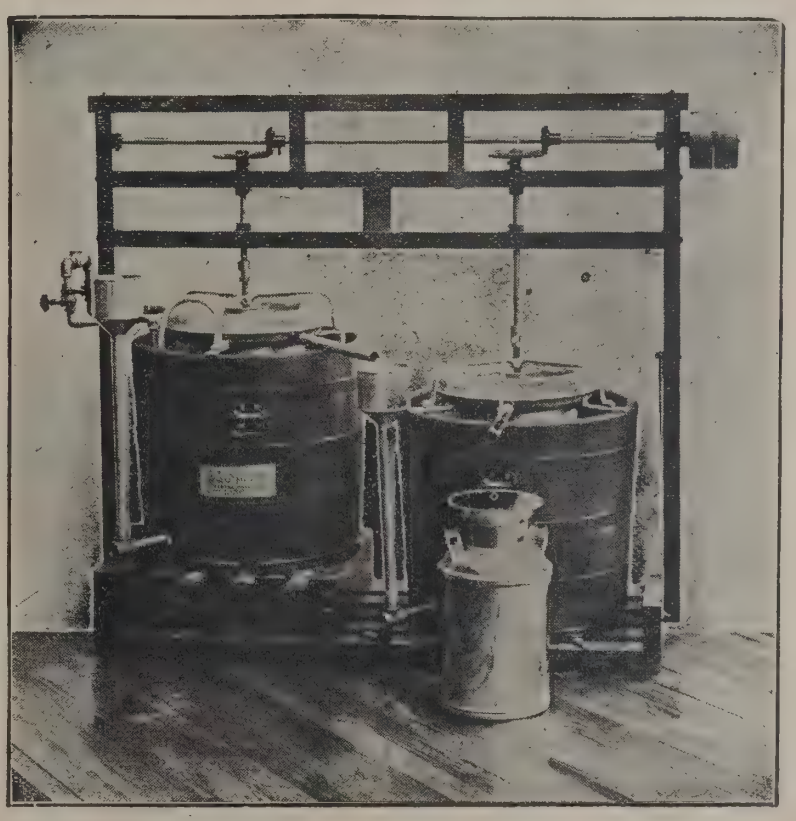
Their simplicity, as well as ingenious and thorough construction, contributes to this — prevents many vexatious and costly delays. The simple PLANO KNOTTER illustrates it; comprised of only 16 pieces (about half the usual number) it has made the highest record ever made by any Knotter for unvarying accuracy and durability; it ties whole harvests without missing a sheaf.

The *Plano Binder* has many other interesting points it pays to know about, such as its self-regulating Fly-Wheel, Reel with safety Friction Clutch, etc.

When you buy a *Plano Harvester, Mower, Header, Reaper, Rake, Corn Binder* or *Husker and Shredder*, you are insured against a lot of trouble and expense. Our catalogue tells how and why; ask for a copy; it's free.

PLANO DIVISION
International Harvester Co. of America
CHICAGO, ILL.

A GREAT SUCCESS.



The Miller Cream Pasteurizer has a capacity of from 450 to 600 lbs. per hour.

Price $150 in Tin. $200 in Copper.

THE MILLER PASTEURIZING MACHINE CO.
CANTON, OHIO.

possible failure, and "average" margin may mean bare escape from financial loss. No individual cow in a herd should be permitted to become a charge on the most profitable, even if the average shows a profit, (this is not original or new but it will bear increased emphasis). Even if every individual in the herd is made to yield a demonstrable profit on the expenditure properly chargeable to *her* account, the average of the whole is not liable to be such as to inspire socialistic legislation, to distribute the accumulated wealth acquired in dairy husbandry.

Something more is required than ability and training to compound a balanced ration, weigh the cows, calculate the quantity of dry matter, carbohydrates and protein each should have, dump the ration into the hopper and sit down at the other end of the machine to draw off the product. Any man who can read, write and cipher, knows which end of a cow goes next the manger, what, when and how to pull to secure the product, can run a milk machine if he will study and observe the scientific rules for such purposes made and provided. Whether or not he can keep the machine in order to turn out the maximum quantity in proportion to its capacity every day, and show a profit, may suggest a cow of another color.

Editors and professors should add still farther to the almost snowed under accumulation of obligations they have put upon the dairy industry, by insisting in season and out of season upon the necessity of feeders knowing by careful observation of individuals day by day, from feeding to feeding the specific results in detail and their accurate tabulation for future comparison and suggestion. Hammer away with increasing din till fuller appreciation is realized of that art in feeding of which the science is the superstructure rather than the foundation. They should set forth in the class room, from the platform and through the columns of dairy and stock journals, with the skill and completeness for which their training and equipment should fit them, the value and method of acquiring the habit of observation that tells the skillful feeder almost intuitively at each feeding whether a full, a diminished or increased ration is best for each cow, what use is being made of the food consumed, whether to add weight to the carcass, passed in the voidings, or for profit by way of the milk pail, that shall acquaint him with the peculiarities of individuality that determine the measure of profit or loss from each, and to know not merely how to make her profitable, but how to make her most profitable, regardless of comparison with averages.

GEO. T. VAN NORMAN.

Massachusetts.

Rye for Silage.

Mr. G. W., of Philadelphia, Pa., finds that he needs two copies of the DAIRYMAN, one for himself at home, and another for the superintendent of his farm, at Wawa, Pa., where they are feeding about 200 cows, and find that, although a large quantity of ensilage was put away last year, it is likely to become short before ensilage time comes around again next September. He writes that he has a large quantity of fall rye growing, and could very well supplement his stock of corn ensilage with rye cut in the spring. He asks whether there would be any objection to feeding rye silage, cut before the maturing of the head.

We are not prepared to advise the attempt to store rye in a silo. The secret of success in making silage is to exclude the air and thereby prevent, or at least control, the fermentation. Rye and other hollow stemmed varieties of grain would carry a large amount of air with them into the silo, and it would be practically impossible to displace it, we fear. At all events, attempts in this direction have hitherto proved unsuccssful. However, if any of the readers of HOARD'S DAIRYMAN can quote experience to the contrary, we shall be very glad to hear from them, as this is a matter of very considerable importance.



Samson Windmill Stronger than The Storms

WHEN YOU BUY A WINDMILL

You buy it for a long time and your money entitles you to the best. No other piece of machinery has as much constant wear. The mill that stands the weather—fair and foul—365 days and nights in the year must be built right or go to pieces. Better buy right once than wrong many times. Our

Samson Double Gear Windmill

is the result of years of study and the expenditure of large sums of money, which have produced a perfect mill. The **Samson** is the very acme of windmill construction. All others are merely windmills; the **Samson** is more than a windmill—it is a wind *machine* built on scientific principles that place it far and away ahead of all others.

Among its many **strong features** found on no other mill, stands most prominently its **double gear**, which in reality is two sets of gears or two pinions and two spur gears engaging each other, and making two trains to transmit the power of the wheel to the pump. This feature is the most valuable one ever incorporated in a windmill. With its four bearings, in place of one, the strain of the load is distributed to four points, giving the very minimum of friction, resistance and wear, and the maximum of power and endurance and doing away with all overhanging strain. This double gearing and its bearings retain their rigidity and tightness under all conditions. The **Samson** has five times the strength of any other windmill using a like amount of material and at the same time is the lightest running of any on the market. Other points of superiority are many, among them durability, high-grade material, skilled workmanship on all parts, easiness of running in slightest breeze, detachable boxings, perfect brake and governor, double pump rod and guide, wick feed oilers, etc. You should know more about the **Samson**. We tell the story in a beautifully **illustrated booklet** that has cost us thousands of dollars to print. It is yours for the asking. Write today. You will be glad if you do.

THE STOVER MANUFACTURING CO., - Dept. P, Freeport, Ill.

SAVES ITS COST ON THE FIRST CROP.

It spreads all kinds of manure, lime, galt, ashes, compost, etc., either broadcast or in rows. Does it better than it can possibly be done by hand.

Do you know of any other piece of machinery for use on the farm of which this can be truly said?



The Improved Kemp Manure Spreader

not only makes easy work of getting out the manure, but by the way in which it breaks it up and makes it fine, it more than trebles the value of the same. It will break up and spread evenly, manure that cannot be handled with a fork. It doesn't matter how hard, lumpy, caked, strawy, or stalky the manure is, this machine will spread it. It makes fine, well rotted manure go a long ways in top dressing wheat in the spring, meadow lands, pasture, etc. Being mounted on broad faced wheels, it can be handled on any kind of ground without serious cutting in or rutting. Can spread back and forth, as front wheels turn entirely under. Can be turned on the ground it stands on. 1903 machine has our new **Beater-Freeing Device, Apron-Returning Device** and numerous other improvements. Send for latest catalogue (free) and read about these and other advantages and also about **"How to Grow Big Crops."** Remember that the only original and genuine Kemp Manure Spreader is made by us and the patents thereon have been fully sustained by a recent decision of the U. S. Circuit Court. KEMP & BURPEE MFG. CO., BOX 48, SYRACUSE, N. Y.



New American Manure Spreaders

hold from 50 to 100 bushels. Spread just as thin or thick, fine or coarse, as ground requires. Don't have to stop team to make change. Most substantial, largest capacity, lightest draft.

Send today for Booklet B.

American Harrow Co
Detroit, Mich.



The **KEYSTONE** Dehorning Knife makes the dehorning of cattle simple and easy. Operation over in an instant; but a moment's pain. Clean, smooth, clear cut, with no bruising or crushing. Highly valued by stockmen. Fully warranted.

Send for free Circulars.

M. T. PHILLIPS, POMEROY, PA.



IF YOU ONLY KNEW

how much money you can save and how much better stove or range you can get, you'd send to-day for full particulars about the

KALAMAZOO Steel Stoves & Ranges

Sold direct from our factory on **360 Days Approval Test**, backed by a $20,000 bank bond. We guarantee perfect satisfaction or ask no pay. We pay the freight. Ask for catalogue No 163.

KALAMAZOO STOVE COMPANY, MFRS., KALAMAZOO, MICH.

All our Cook Stoves and Ranges have patent oven thermometers.

FARMERS WHO MAKE MONEY

Use modern machinery like

Deering Light Draft Harvesters



"They save all the crop"

They aid materially to place farming on a profitable basis

BINDERS, HEADERS, HEADER-BINDERS, MOWERS, REAPERS, CORN BINDERS, CORN SHOCKERS, HUSKERS and SHREDDERS, RAKES, KNIFE GRINDERS, BINDER TWINE, and OIL

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PAINT Anti-Trust, Fireproof Economical — Durable.

Saves you 50 to 80% on your PAINT BILL. Instructive booklet, "Economical Painting" and sample of Paint mailed FREE. We are not in the trust.
WARD PAINT CO., 721 Larrabee St., Chicago.

A Well Painted House



adds very largely to the value of your property. It shows prosperity. A mortgage can't stay on a well painted house. But the paint stays on if it's our house paint, ground in raw linseed oil in the good old fashioned way. Best for houses, barns and fences. If you want to paint anything write us what and how large it is, and out of our fifteen years' experience we'll tell you the best kind of paint, how much to use and how to do it. We sell everything you need for painting and we will send you **free** our catalog and fine color card. We'd like to have you write us

"Just to save your money."

OILEAD

SIECK PAINT COMPANY, Dept. D, Chicago, Ill.

STEEL ROOFING

FREIGHT CHARGES PAID BY US



Strictly new, perfect, Semi-Hardened Steel Sheets, 2 feet wide, 6 feet long. The best Roofing, Siding or Ceiling you can use. No experience necessary to lay it. An ordinary hammer or hatchet the only tools you need. We furnish nails free and paint roofing two sides. Comes either flat, corrugated or "V" crimped. **Delivered free of all charges** to all points in the U. S., east of the Mississippi River and North of the Ohio River

AT $2.25 PER SQUARE

Prices to other points on application. A square means 100 square feet. Write for free Catalogue No. 20.

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ZAEGEL'S SWEDISH ESSENCE A LIFE PRESERVER

TRADE-MARK REGISTERED.

This remarkable medicine by *removing disease germs from the blood* has an action that effects the entire system. It tones up the stomach and creates an appetite; works on the liver and has a mild continuous effect upon the bowels, thus cleaning out the entire system; it makes new, rich blood, regulates the heart and kidneys and rids the body of all waste matter. It also induces a gentle perspiration, thus preventing fevers and congestion. Rheumatism, backache and headache, biliousness and all nervous diseases are rapidly cured, as well as diseases peculiar to women.

TRY IT FREE

No one need trouble themselves to doubt whether this remedy will do all these things, for you can have a free trial package first and see what it does for you.

Do not neglect to get in your application at once. The best way is to sit down this minute write a letter to M. R. Zaegel & Co., P. O. Box 989 Sheboygan, Wis., and say that you want a trial package of Swedish Essence of Life. This will be sent you by mail and is large enough to convince you of the merit of this celebrated household remedy. A 2-cent stamp should be enclosed in your letter to pay the postage on this free sample. **Write for it to-day.**

The Most Power for the least money, for any purpose on the farm, can be secured from our **Fearless Railway Horse Powers.** We make them for 1, 2, 3 and 4 horses, with speed regulators. Unequalled for Cutting and Grinding Feed, Sawing Wood, Threshing, Pumping Water, etc. Also make Threshers, Engines, Feed Cutters, Silos, etc. *Illustrated Catalog Free.*



HARDER MFG. CO., Cobleskill, N. Y.

PAY FOR YOUR GRINDER



by doing an occasional job for your neighbor. Works easily, grinds quickly, prices low, 3 kinds—Sweep, Geared and Power. Never break, grind coarse or fine. Unrivaled in capacity and quality of work. Write to-day for Catalog A 67 before buying. Agents wanted everywhere.

W. J. ADAM, JOLIET, ILL.

"ST. ALBANS" LINE

Ensilage Cutters, with Blowers or Chain Carriers. Ensilage and Stalk Shredders. Tread Powers, all sizes from dog or sheep to 3-horse. Sweep Powers. Threshing Machines. Circular and Drag Saw Frames.

Handsome Catalogue Free. Send for it.

ST. ALBAN'S FOUNDRY & IMPLT. CO., St. Albans, Vt.

AN ACRE OF CORN

and its possibilities under the Silage system—being the theme of

"A BOOK ON SILAGE"

By Prof. F. W. WOLL

of the University of Wisconsin. Revised and up-to-date, neatly bound into a volume of 224 pages. It embraces full information from planting to feeding the crop, and includes working plans and specifications for building all silos. Also embraces:

I.—Silage Crops. II.—Silos.
III.—Silage. IV.—Feeding of Silage
V.—Comparison of Silage and other Feeds.
VI.—The Silo in Modern Agriculture,

And illustrations and complete plans for round and rectangular silos, dairy barns, tables of compounded rations, etc. **Mailed for 10c.** coin or stamps.

SILVER MFG. CO., Salem, Ohio.

Vicious Hand Separator Advertising.

ED. HOARD'S DAIRYMAN:—As a friend of the hand cream separator, both for the farmer and for the creameryman, I think it is proper to take exception to some of the advertising that is done by the separator manufacturers. I have in my hand a very neat folder gotten out by one of the largest separator manufacturers, and in looking it over carefully I find where the author is pointing out the leaks of the dairyman. Among other things, I find this: "There is a hole in the bucket when he makes a trip to the creamery every day instead of twice a week."

At every dairymen's or butter-makers' convention and in the dairy papers we continually see the hand separator agent getting flogged for telling his customers that it is necessary to wash the separator only once a day or perhaps two or three times a week. Nothing, seemingly, could be more vicious or detrimental to good butter making than such advice but when we see advice, such as the above, coming directly from the poor agent's headquarters we should feel that the agent is open to forgiveness.

I seems that many hand separator manufacturers are getting decidedly overanxious to do business and in their anxiety put such things in their advertisements. We all know that it is difficult enough to make gilt edge butter from hand separator cream, and it is also difficult enough to get the farmers to deliver their cream as often as they should without their being told that twice a week is often enough.

It is an admitted fact that the making of good butter must be done at the creameries, and it is a matter of constant effort on the part of the buttermakers and the creamery managers toward educating the farmers to produce a first-class article in the way of milk or cream from which to make fancy butter. Then the hand separator people come along and tell the farmers to do just what he has been made to believe he should not do, and there is no end of trouble.

We hope that the hand separator manufacturers may be able to sell their machines on their own merits, without teaching users to adopt methods that will certainly be detrimental to good butter making. G. S.

Plymouth, Ind.

Transfers of Guernsey Cattle.

BULLS.

Gount Gwendoline 8318, Reward of Merit 8419, Geo D. Telfer to Geo. C. Hill & Son, Rosendale, Wis.
Count Moore of Lauderdale 8420, F. W. Tratt to W. H. Moore, Elkhorn, Wis.
Captain Yates 7762, L. L. Davis to C. F. Larsen, Morgan, Minn.
Duke of Sharon 7801, H. F. Dimock to Thomas E. Porter, South Coventry, Ct.
Dandy of Alva 5451, Sidney Fisher to A. J. Stevens, Bedford, Que.
Fair Breeder's Boy 8411, Feru's Prince 8412, Geo. E. Wakeman to C. O. Potter, Leonta, N. Y.
Ione's Anchor 8393, M. M. & E. J. Hollingsworth, to W. H. Coleman, Gage, N. Y.
Melvia's Duke 8415, Henry P. McCornstock to Chas. Kimberly, Monterey Mass.
Ping 7397, H. McK. Twombly to R. W. McEwan, Whippany, N. J.
Prince Pitcher 8416, Anthony Higgins to F. R. Boocock, Scarsdale, N. Y.

COWS.

Anazella 15316, Jno. F. Buker to F. A. Parker, South Leeds, Me.
Alfreda of Twin Farms 13318, Buell T. Holcomb to B. J. Moses, Westsimsburg, Conn.
Agnes of Fort Atkinson 7448, Sarah of Jefferson 9551, W. D. Hoard to M. E. Moore, Cameron, Mo.
Bonita of Paxtang 14613, Butterfly of Paxtang 15056, Soprano of Paxtang 15667, J. L. Hope to R. W. McEwan, Whippany N. J.
Betsey Brown of Chester 15075, A. J. Snyder to Moses Taylor, Mount Kisco, N. Y.
Carrie Nation 14637, J. P. Welsh to H. H. Suavely, Lancaster, Pa.
Fern's Pride 12320, Feru's Pride 2nd. 15411, Marshall Girl 14970, May Hope 15330, Pride's 1st. 14040, Geo. E. Wakeman to C. O. Potter, Leonta, N. Y.
Heidi 9:73, Ocie 10719, E. W. Tillotson to W. T. Wells, Newington, Conn.
Inez Pet 15779, Geo. D. Telfer to Geo. C. Hill & Son, Rosendale, Wis.
Lady Maid of Wolf Rock 15773, Lady Maud of Wolf Rock 15772, E. B. Crane to H. F. Dimock, So. Coventry, Conn.
Latilla 15778, Zella 14963, Geo. D. Telfer to M. L. Weller, Rosendale, Wis.
Maggie Carter 15775, R. G. & S. I. Murphy to Horace F. Hayes, Buffalo, N. Y.

WM. H. CALDWELL, Sec'y.

Feb. 9, 1903, Peterboro, N. H.



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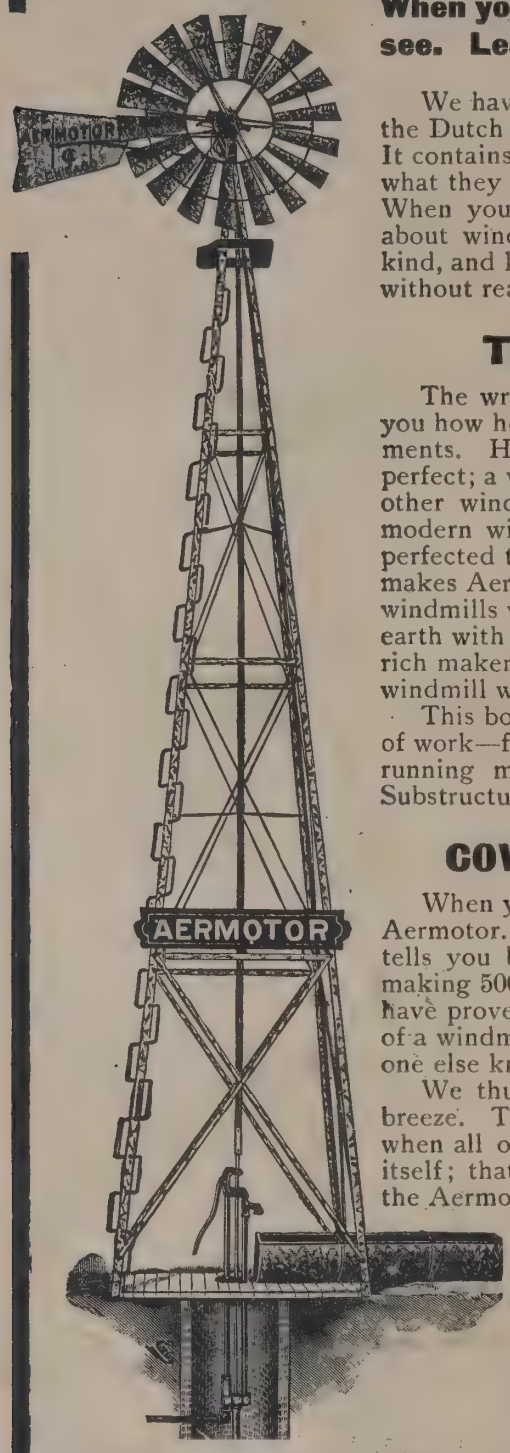
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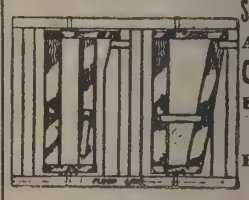


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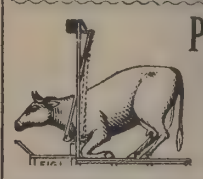
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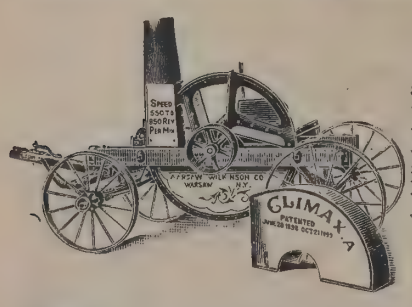


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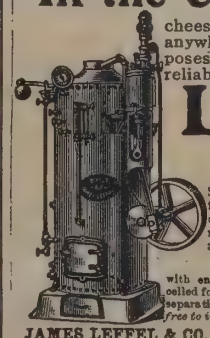
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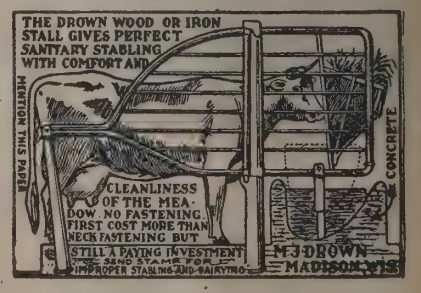
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VOLUME XXXIV. FORT ATKINSON, WIS., MARCH 27, 1903. NUMBER 7

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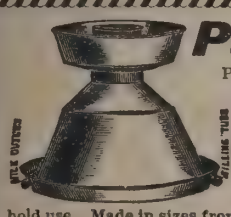
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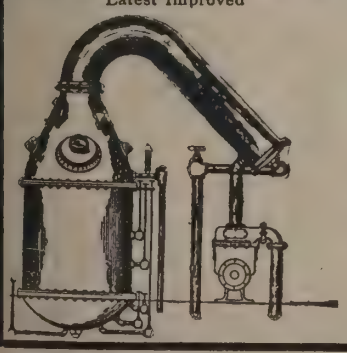
Pull the lid off a can of milk at any shipping or delivery station and put your nose over it. Smells badly doesn't it? Do you know why? It is because the milk was not properly treated. If it had passed through a

PERFECTION MILK COOLER AND AERATOR

it would **smell sweet, be sweet and remain sweet.** It takes out all animal heat and with it all bad odors of **animal, stable or food.** Milk so treated makes perfect butter and is perfect for household use. Made in sizes from 1 to 200 cows. Send for free illustrated circulars and prices

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Reproduction of a photograph showing part of solid



trainload of Tubular Separators shipped to customers west of Chicago.

Another Railroad Accident.

ON FEBRUARY 7th., 1903, that antiquated exponent of "hasbeenism", the once notorious "Disky Valwinkle Munchausen", while indulging in one of his favorite pipe dreams of 'steen hundred thousand separators sold (in his mind) chanced to loiter for a few moments on the main line of Cream Separator Progress and was struck by the **Sharples Special**, a through train consisting of twenty-four carloads of the famous **Tubular** separators enroute to western customers, —the largest single shipment of cream separators ever made. Poor old "Disky Val" was knocked high into the air, but finally hit the earth with a dull sickening thud which might have been worse but for the fact of his being in his normal condition of hot air inflation. A good bit of the wind was knocked out of him and it took him nearly four weeks to catch his breath again. His first statement evidenced his inability to comprehend the magnitude of this trainload of **Tubular** separators and his belief that it was all a horrible nightmare. It is really pitiful to witness the old fellow's gibberings about "nailed up cars", "hot boxes", "six months' orders", etc., all indicative of his rapid decline into second childhood. The effect of the blow can be better appreciated if the reader will observe that he momentarily ceased to prate about what "he used to do" and took up the song of what his distributing agents for Nebraska and Kansas are "going to do" (perhaps).

The enormous sale of the Tubular Separators is not maintained by extravagant tales of what we used to do nor of what we are going to do, but by virtue of what a superior machine it is "Right Now." This trainload shipment applies neither to the past nor the future but is just what we claim,—the first and only solid train load of cream separators ever shipped;—twenty-four cars in all, each one containing more than twenty-four thousand pounds of Tubular Separators, as the railroad records will show. It is perhaps difficult for our "has been" competitors to believe that a special train load of separators in addition to our regular car load shipments from day to day could be gotten together. It is only made possible by the overwhelming superiority of the Tubular separators which has built up the largest and best equipped cream separator works in the world.

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Swift's Animal Foods balance excess of carbohydrates in corn. Cheaper than corn, bran, or oil meal, and give better results.

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THE MILK SUBSTITUTE
"There is nothing like it to raise thrifty Jersey Calves."
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WAUKEGAN, ILL.

ERIE CAN REFRIGERATORS should be used on all milk cans from April to Oct. Prevent sour and churned milk. Booklet free. S. C. SULLIVAN, M'f'g., Erie. Pa

Another Man Who Bettered His Conditionby Using Good Dairy Sense.

ED. HOARD'S DAIRYMAN:—I subscribed for your paper several years, and always found it useful and interesting. It was the means of my having more cows and better cows than I had before. Reading your paper, and also the feed question as discussed through it's columns in such a way, and to any one that was not fast in the old rut, could by trying for himself make several times the price of your paper in an increase in milk and saving of feed.

I have a retail milk route in the city of Trenton, and I wanted if possible to have the best milk sold in the city; in order to do that I parted with my general-purpose cows as fast as they were milked out, and put Jerseys in their place. I, of course, knew very little about Jerseys, but I supposed there must be difference in them, so in order to get a better understanding, I began with the *Jersey Bulletin*, which I think a very good paper, particularly the purpose it aims at, viz., the Jersey first, last and all the time, but to be candid with you, I think your paper gives a more practical view of dairying; it shows through its columns the difference in herds, and the keeping of them that must be a benefit to some.

It is a pretty hard job to change some farmers' methods, as I think you have found out before this. My first effort in Jersey line was buying Idle Eve and her two heifer calves, paying $120 for them. My neighbors thought I had lost my reason; they knew I had lost my cash, they said. She was fresh, calf about two weeks old; I took the calf off and raised it and began milking her. I tried hard to make it home for her. She gave for me 32 pounds of milk a day, for awhile; that was in March, 1901; in May of that year, she gave 228 pounds in seven days, in June, for 30 days, 864¾ lbs., and for the year, 8998 lbs.; she has never been dry. "I can't dry her up;" she has never had a bull calf, her last calf being a fine heifer by Matilda 4th Butter Bull, due to calve again the 13th. March; milking 10 pounds a day now. She has in the two years paid for herself over again several times. Her first heifer, Regal Eve H. R. No. 159090 is by Regal George, a St. Lambert, is due to calve again June 29th, 1903; is now giving 16 pounds per day. She is a beautiful orange fawn, black points, square udder with teats on each corner. Have been offered $100 for her.

My second offense was buying the bull, General Ewing, by Matilda 4th Butter Bull, dam Signalana by Signal, "a cow," a Jersey cow that Ihave seen give 20 quarts dry measure in two milkings. Since then I have bought several and bred some. My herd is now averaging 8 quarts per cow in this weather, zero or below, for the last week and eight inches snow on the ground. I read of some that makes this look small, very small, but I am milking and selling for eight cents per quart, between 170 and 180 quarts each day which I think fair for a 70-acre farm with 22 cows. Heifers,9 not in milk; horses 5. The farm raises all feeds except bran, gluten and flax.

You asked in your letter to hear from me, but I know you will be surprised to hear so much so I will stop. I do not think there is a better paper printed than HOARD'S DAIRYMAN. I read it nearly every week. A. M. HELLINGS.

Trenton, N. J.

Abortion—Sweet Clover in Alfalfa.

ED. HOARD'S DAIRYMAN:—I have had considerable loss with abortion with cows. Have not been able to save one calf as yet. There are two to calve Have only seven cows and five aborted about one month before their time. Cows are of all ages.

Now, the man who has sweet clover growing in his alfalfa, need have no fear, as the sweet clover will soon disappear if it does not seed. That has been my experience. Can alfalfa and clover be successfully siloed just as it comes from the field without chopping? Will a root cellar answer this purpose? J. M.

Rich, Idaho.

ANSWER.

See abortion, this issue.

Alfalfa and clover can be siloed without trouble if well packed and not too young. Clover should be siloed when the blossoms are beginning to turn. It is very doubtful if a root cellar will serve as a silo unless the walls are cemented and made smooth and air tight.

ARMOUR'S BLOOD MEAL Cures Scours in Calves.

First proved by the Kansas Agricultural Experiment Station, and since corroborated by thousands of leading stockmen who have used it without a single failure. Equally effective for the diarrhea of all animals.

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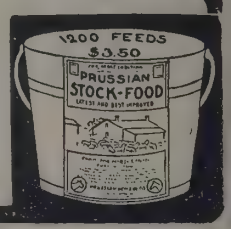
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See that every sack bears our quality mark, ELMCO.

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Hoard's Dairyman

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

W. D. HOARD COMPANY, Publishers.

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Stalled on the First Patron.

Ed. Hoard's Dairyman:—Having read in the Dairyman a number of the results of investigations among dairymen in different localities to ascertain the cost of milk compared to the cost of feed, I started out on a little investigation of my own in a cheese factory district and got stalled with the first patron. Said patron was about an average farmer in his community, and when he was satisfied I was neither an assessor nor census enumerator, he seemed willing to answer my questions truthfully. His farm consisted of 70 acres tillable land and meadow, and 80 acres of rough, hilly pasture that produces a variety of grasses. When I stopped at his place, his herd, which consists of 16 cows and 8 head of young cattle, were picking at some dry corn stalks thrown out on the leeward side of a nine wire fence. Although not a very cold day, the air was chilly and the cattle looked rough and uncomfortable. They were breedy looking grade Ayrshires, somewhat thin in flesh. Mr. Patron was working in the stable, which was none too warm, but perhaps warm enough, for cattle stand out most of the day in this northern winter and for that kind of treatment I think he bred wisely when he bred the Ayrshires. Mr. Patron knew nothing about the amount of revenue from his dairy. He milked from 16 to 20 cows during the summer, made very little, if any winter milk. His factory dividend from April to November was anywhere from $30 to $90 per month —when less than $30 per month, he kept it home and made butter. as he would not drive to the factory for less than a dollar a day.

Occasionally he sold milk to a peddler, but kept no account of it. Raised a few calves every year and kept a few pigs, but kept no account of the cost. "If I get a poor milker, or an unsound cow, I sell her, and sometimes if I get overstocked, I sell the pick of the dairy if the buyer pays me enough, and they hardly ever pick the best ones. I seldom feed the cows grain except as they may freshen early in the spring, then I feed them a little grain until they go out to grass. I figure to have them give milk while the grass grows, and a fairly dry season is better for my pasture than a wet one." As we entered the house we struck an atmosphere of tidiness and economy in every department.

"Last year," said he, "I had a good potato crop and got a good price for them and expended about $400 in repairs on the house."

"No," said he, "I never keep any account of expenses. If I did I guess there would be times when I would quit farming, but the business is a little better now. We make a living and pay our expenses and, I guess, make a little money every year, and when I drive in town occasionally I take a little whisky."

When asked what the Mrs. Patron did for recreation as an offset to his whisky indulgence, "Well," said he, "the madam is quite a home bird. Don't care to go out much, although she did spend two weeks on a visit to the city last October, and the getting ready and car fare and one thing or other took the price of a spotted cow. But that don't matter. The first words she said as she crossed the door sill was: 'I am awful glad to get home.'"

If the editor or business manager of your much esteemed paper can see any nucleus from which to radiate a balance between the cost of production and the receipts from this man's dairy, I yield the palm.

Certainly, he may attribute mostly his partial financial success to the frugality of his life partner. He seems fairly satisfied with about 60 per cent of what his farm and dairy might produce with a little better feed and care.

If the associate editor or any of the staff can make any suggestions that would cause this farmer, who reads no agricultural literature, to sharpen his pencil for a more strenuous action and figure out of the old rut, we will see to it that he gets a sample copy. Frank Sheldon.

Sandy Hill, N. Y.



HOLSTEIN COW, LADY CREAMELLE DeKOL, H. F. H. B., 47439.
Property of John B. Marcou, Princeton, Mass.

Creamery Patrons' Investigation at a Maine Co-operative Creamery.

Ed. Hoard's Dairyman:—Following is the continuation of my report:

No. 62—Thinks his cows are improving by purchasing to maintain the herd. He may be right, depending perhaps on how far back he dates his new system. There was a time, he will remember, when some of the old red cattle of Maine, (See a Report of the Maine Board of Agriculture), were on his farm. Those cattle were of the class championed by Prof. Curtis of Iowa. They were hard to beat as milkers, butter and cheese makers and for working oxen. In connection with purchasing cows, an old English veterinarian has recorded an experience of 20 or 30 years of the canny Scots of Ayr in this line. Readers may understand that, viewed from its influence on the Ayrshire breed in Ayr, it was not regarded as at all successful, and the Scots are careful buyers.

No. 63—Farm consists of tillage, 30; pasture, 30; woodland, 40 acres. There is a small orchard of about 40 trees; corn, potatoes, grain and hay constitute the principal crops; pasture is permanent; herd consists of seven cows. old and young, 2 oxen and 2 two-year-olds; the breed is Jersey, but none are registered; milking period is 10 months; no record or tests of milk are made; intend to build a silo soon.

On full feed cows are fed 4 pounds of corn and cob meal and cotton seed meal; prices are, for corn meal, $1.40 per cwt, and cotton seed meal, $1.50 per bag; cost of feeding varies with prices of foods; when hay is $10 per ton, the cost is about $40 per year; no account is kept of income from cream.

No grain is fed on pasture; cows are turned to pasture early and run out days until late in the fall, but they are housed every night in the year. Cows are soiled every year after the pasture begins to fail; herd is maintained by raising calves; cows are also raised to sell; try to improve the herd by using the best bulls means at hand will afford; calculations are made to balance rations; skim milk is fed sweet to calves and sour to pigs; Chester White pigs are bred for sale, and about 1,000 pounds of pork is fattened each year.

No. 64—Farm consists of tillage, 40; pasture, 70; woodland, 10; waste land, 10 acres; four acres are in an orchard containing 200 trees; principal crops are hay, oats, corn and potatoes; the rotation is hoed crops, grain and hay; pasture is permanent; the Jersey herd consists of cows, 6, and 5 other animals; the milking period is 10 months; queries as to records are unanswered, but there is no silo on this farm; on full feed cows receive 5 pounds of bran and cotton seed meal; prices are $24 and $32 per ton.

No estimate of cost of feeding or income per cow is given; pasture season ranges from May 10th to Nov. 15th; mowing fields are not grazed; the soiling system has not been tried; herd is kept up by raising calves from the best cows and using thoroughbred bulls when possible. In answer to query as to calculations to balance rations, this patron says: "I endeavor to make the grain ration highly nitrogenous, but do not fully balance it." Here is a close approach to scientific feeding, if the proportions of bran and cotton seed meal are varied with the kind of coarse feed, as we may suppose is the case from the reply. Hence when the oat straw is being fed, the grain may be three of cotton seed meal and two of bran; reversed to 3 bran and 2 cotton seed meal with good hay and when clover hay is fed *ad libitum*, there might be a substitution of 2 of corn meal for 2 cotton seed meal in the first.

A variation of the coarse food, making it three-fourths straw and one-fourth clover hay would also be a close approximation, and if the straw holds out, it could be used in the clover hay ration instead of corn, which might be exchanged for cotton seed meal, or fed to fattening stock. This patron is silent as to use and value of skim milk, but he raises calves, and that tells where much of the milk goes.

No. 65—Farm consists of tillage 35, pasture 15, woodland 2 acres; orchard consists of 9 trees; principal crops are hay and oats; pasture is permanent; herd consists of milking cows and heifers 11, young heifers 5; all are Jersey but none are registered; the average length of milking period is 10 months; no records of weight of milk are made but tests of quality are made; this patron has no silo.

On full feed cows receive 1½ pounds of cottonseed meal and 3 pounds wheat bran per day; prices in January 1903 were $1.60 and $1.10 per cwt. respectively; the income per year from cream, per cow, is $40.44, but the cost of food, per cow, has been omitted; cows are fed on pasture, 1 quart each cottonseed meal and wheat bran per head; May 20th to Nov. is the pasture season; has not tried soiling cows; raises calves to maintain herd which is improving by using good sires; calculations are made to balance rations; skim milk is fed to pigs and calves; usually winter 6 Chester Whites and raises 20 to 25 pigs per year.

Patron No. 65 evidently understands that two-thirds of a cow's capacity for food goes to her support and he feeds to get as near the other third as he can for production. If he tries March and September litters he might double his number of pigs from 3 to 4 sows. Unsold fall pigs will be thrifty shotes of a handy market size in early spring while all unsold March pigs will be heavy enough for profitable porkers by Thanksgiving. We suggest this change might raise many more net dollars from the same food if tried fairly.

No. 66. Farm consists of tillage, 20; pasture, 30; woodland, 10 acres. The orchard consists of 60 trees not yet in bearing; principal crops are hay and grain; no regular rotation is practiced; pasture is permanent. Five grade Jersey cows constitute the herd; no other cattle are kept. The milking period is "about 40 weeks" or 9½ months; no records are kept; milk has been set in glass tubes to judge of its quality. This patron has no silo; full feed to cows consists of 3 quarts each, twice per day, of corn and oat meal and half a pint of cotton seed meal, (a quart of cottonseed meal is approximately 1½ lbs., a half pint is therefore 6 ounces, or three-fourth pound per day—F. E. E.) corn costs 75 cents per bushel, cottonseed meal, $1.60 per cwt., oats are raised on the farm.

Estimate of yearly cost to feed a cow, $35; estimated income from cream $6.25 to $6.75 per month for five months; then less; this averages $6.50 for five months and $3.25 for 4½ months which equals $47.12 per year.

Cows are fed on pasture, two quarts of corn and oat meal per day, or per feed; cows are on pasture as soon as feed is good and run till cold weather. Mowing fields are not grazed and fodder corn is used when needed. Some likely calves are purchased and raised to keep up the herd; herd is headed by thoroughbred bull, and an effort is being thus made to improve it. By watching results in milk pail, rations are changed to balance up the yields; considers the value of skim milk to vary with the breed of animals fed. Fattens 4 or 5 cross-bred Chester Berkshire's each year.

No. 67—Farm consists of tillage, 40; pasture, 100; woodland, 40 acres. This farm has no orchard; the crops are hay, corn and grain; pasture has been alternated with crops in the past; herd of grade Ayrshires consists of 7 cows and heifers giving milk, 4 oxen, 1 bull, and 6 young animals with 3 horses. No stock is registered; milking period is 10 months; no records of yield and the only test is as can be judged by quantitity of milk as

TABULAR STATEMENT OF RATIONS SUGGESTED FOR NO. 64.

Lbs fed.	NAME OF FEED	Lbs. of organic substance	Lbs. of protein.	Lbs. of carboh'y-drates,	Lbs. of fat.	Lbs. of nutritive substance	Nutritive ratio 1—
20	oat straw	17.288	——?	8.912	0.176		
3	cotton seed meal	2.668	1.021	.645	.275		
2	wheat bran	1.639	.239	.736	.056		
	Total	21.595	1.260?	10.293	.507	12.06	9
	2ND RATION.						
20	mixed hay	15.972	.598	7.576	.208		
2	cotton seed meal	1.712	.681	.43	.183		
3	wheat bran	2.459	.359	1.105	.084		
	Total	20.143	1.638	9.111	.475	11.224	6
	3RD RATION.						
20	red clover hay	16.444	1.23	7.20	.20		
1	cotton seed meal	.856	.3405	0.215	.0915		
2	corn meal	1.659	.106	1.183	.072		
2	wheat bran	1.639	.239	.736	.056		
	Total	20.598	1.9155	9.334	.4195	11.669	5.4

milked; full feed to cows consists of 2 lbs. bran, 2 lbs. corn meal, 3 lbs. gluten meal; prices are $1.10, $1.40 and $1.40 per cwt.

Estimated cost to keep a cow a year is as follows:

400 lbs. corn meal	$ 5.60
600 lbs. bran	6.60
600 lbs. gluten meal	8.40
2½ tons hay	20.00
5 months pasture	5.00
Total	$45.60

Feed cows on pasture according to conditions; they are on pasture from 10th or 20th of May into October; sometimes graze mowing fields; soiling is employed to help out the pasture; nearly all cows are raised but sometimes one is purchased; try to improve the herd by using good bulls; estimates skimmed milk to be worth 25 cents per hundred pounds to feed calves and pigs; feed only 2 pigs a year.

No 67—Is a new man in his present location and has been on his farm only since late in last July. He has had a silo and an orchard and says, "These will come here later." He hopes to raise more grain and clover and thus save expense in purchased grain. A newcomer with progressive ideas is a help to his town.

No. 68—Farm consists of tillage, 30; pasture, 35; woodland, 13 acres; orchard of 25 trees covers half an acre; principal crops are corn, oats and potatoes; pasture is permanent; herd consists of 6 Jersey cows and 4 other cattle; milking period is 10 months; no records are kept; no tests made, and there is no silo on this farm.

Full feed to cows consists of 4 quarts wheat bran, 1 quart each cotton seed and corn meals; prices are $1.10, $1.60 and $1.35 per cwt; estimated cost of feeding, $35 and income $40 per cow; pasture season, May 15 to 20th until cold weather; fields are not grazed; herd is improving by breeding; rations are balanced; skim milk is valued at 15 to 20 cents per cwt. for feeding while sweet; feed annually 12 to 20 Chester White pigs.

No. 69—Farm consists of tillage, 40; pasture 25; woodland, 50; and waste land 35 acres; there is no orchard; principal crops are sweet corn, oats, beans, potatoes and buckwheat; the Jersey herd consists of 6 to 8 cows and 3 to 5 other cattle; none are registered; average milking period is 10 months; no record of yields are kept, but some tests of milk are made; there is no silo on this farm; shorts and middlings are fed; cost is $1.15 to $1.35 per bag.

Cost of feed and income from cream per cow per year is placed at $25 and $40 respectively; cows are pastured May 15 to Oct. 15 and no grain is fed on pasture; fields are seldom grazed; no trial has been made of soiling, but herd is maintained by raising calves; herd is apparently improving by use of thoroughbred Durham sires; rations are not balanced by calculation; use skim milk to raise calves and about 4 Chester White pigs a year.

No. 70—Farm consists of tillage, 50; pasture, 30; woodland, 20 acres; orchard consists of 50 trees on two acres, principal crops are hay and grain; no regular rotation; pasture is permanent; herd consists of 8 to 12 Durham and Jersey cows, of which none are registered; milk period is 10 months; no records of yields are kept, but some tests of quality of milk are made; there is no silo on this farm.

Grain feeds used are bran, corn and cob-meal and cottonseed meal; no amounts are given for full feed; bran costs $1.15 and cotton seed meal $1.50 per cwt.; estimated cost of feeding and income, per year, per cow, are $35 and $40 to $45 respectively; cows are on pasture from May 15th to sometime in October, and receive no grain during that period; fields are not grazed; cows are soiled late in fall; herd is maintained mostly by purchase; herd is improving "by buying the best that can be found;" rations are balanced by calculation; skim milk is fed fresh to Chester White pigs, of which 35 to 40 are fed yearly.

No. 71—Farm consists of tillage, 55; pasture, 75; woodland, 70 acres; the orchard contains 225 trees; principal crops are corn, potatoes, grain, hay; rotation is corn and potatoes first year; grain or Hungarian, second year; clover, third year. This patron does not state how long the land lies in grass; pasture is permanent; the herd consists of 12 to 15 cows, and 12 others, all grade Jersey; the milking period averages 10 months; no records of yields are kept, but some tests have been made; this patron admits the ownership of a silo.

On full feed each cow receives 3 quarts of shorts and cotton seed meal per day; prices are respectively $1.45 and $1.15 per cwt. The estimate of yearly cost to feed and income from cream per cow is $30 and $40. These cows are not mature, as half are heifers; cows are never given full feed of meal on pasture; cows go to pasture middle of May and run into November; fields are grazed with sheep only; have never tried soiling; herd is kept up by raising calves, and is "slowly improving." In regard to balancing rations this patron says: "I believe in feeding quite a per cent of protein;" feeds skim milk to calves and pigs, for which use it is valued at 25 to 30 cents per cwt.; improved Chester Whites are bred and about eight are handled each year.

FNANK E. EMERY.

Concerning Dehorning.

ED. HOARD'S DAIRYMAN:—In your issue of 27th Feb, Wm. H. B. of Concordia, Mo., advocates dehorning. In support of his idea he gives instances of injury inflicted by cattle wearing horns. At the Dublin dairy we now have 150 milch cows and none of them wear horns. Furthermore, no more cattle will be used on the place until they have been dehorned. Within a year we lost two fine cows and have had some abortions as the result of permitting the cattle to wear horns. The number of cattle which have been bruised, jammed, horned and otherwise injured, is considerable. We consider it a barbarous practice to use cows with horns.

One vicious cow will inflict more pain in a day than will be inflicted by dehorning a whole herd. In dehorning more than 250 cattle, we had not a single bad result. The horns will not grow on our calves—the buttons are taken off. When men become more nearly civilized, they will not arm poor dumb brutes with weapons for inflicting pain and injury upon themselves. Then too, the men who handle the cattle are entitled to some consideration. Each man needs two eyes, but if cows have horns, he is liable at any time to lose an eye, or to suffer other injury. Dehorned cattle are gentler, do not fight, are more easily handled, keep in better condition and give more milk and butter.

One bull who was becoming vicious, became quite docile when his horns fell off. It certainly does improve a bull's temper to take away his weapons. Some Jersey men object to dehorning, as the score cards allow several points for the horns. We concluded that the points of the horns was what we principally objected to, though we object to the entire horn. We use Jerseys and Jersey grades principally. We get 30 cents for our butter fat and the skim milk we find a sale for, also at a good price. By June we shall have 125 cows giving milk. We shall run our herd up to 200 or more cows later on. It is my plan to do all I can to develop the dairy interests of my section. Have sent you some subscribers for which I asked no premiums. I think your paper ought to be in the hands of all the dairymen and of cow keepers.

Stephenville, Tex. L. Y.

WE have received from the Elgin Dairy Report, a copy of "Weekly Prices" for 1902. This little book contains much that is valuable in the nature of dairy statistics, including the weekly prices of butter on the Elgin and other boards of trade for the last 22 years, and other material packed in a small compass; the price is 25 cents.

March
April May

There is a best time for doing everything—that is, a time when a thing can be done to the best advantage, most easily and most effectively. Now is the best time for purifying your blood. Why? Because your system is now trying to purify it—you know this by the pimples and other eruptions that have come on your face and body.

Hood's Sarsaparilla and Pills

Are the medicines to take—they do the work thoroughly and agreeably.

Accept no substitute.



Truth to Tell

There are no other milk cans made that can equal in wearing qualities the genuine

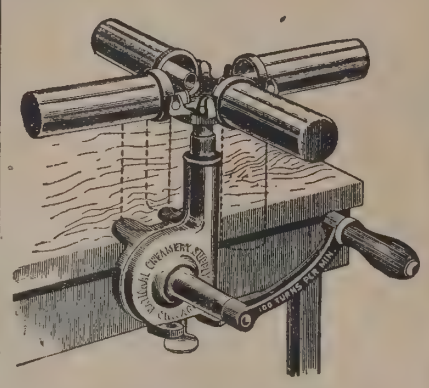
BUHL CANS

They are tinned to stay tinned, and put together to stand years of hard service. Other cans crack easily, become dented, and being lightly tinned soon rust and go to pieces. Not so with the "Buhl Factory," "Improved Elgin" and "Genuine Iowa." They will outlast any other cans on the market, and are thoroughly and quickly cleaned. **Remember,** the Buhl is the only can in the world that is made with the **Buhl "Victor" Can Breast** and the **Buhl "Victor" Round Handle.** As there are many inferior imitations of this can, we stamp all ours with the **Milk Can Trade Mark.** Look for it. Sold by all live dealers. Ask about them, or write us direct.



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NATIONAL
Babcock Milk Tester



Dotted Lines show position of bottle holders when not in motion.

Has enclosed cut gears.
Swinging bottle-holders.
Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

DOES YOUR DAIRY PAY?

It costs no more to feed a profitab than an unprofitable cow.

NET PRICES:

No. 1,—2 bottle, complete for testing milk.... each ..	$4 00
No. 2,—4 bottle, complete for testing milk.... each	5 00
No. 3,—2 bottle, complete for testing cream and milk, each	4 50
No. 4,—4 bottle, complete for testing cream and milk, each	5 50

Prices include full directions for making test, bottle of acid, test bottle brush, acid measure, pipette and test bottles.

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SAVE YOUR KITCHEN GREASE

Easy and quick is soap-making with

BANNER LYE

With one can—10 cents—you can make ten pounds of pure hard soap or twenty gallons of soft soap in ten minutes.

No boiling, no large kettles required.

Dissolve a can of **Banner Lye** in 3½ pints of cold water. Melt 5½ pints of clean grease. When cool, pour the **Banner Lye** water into the grease, and stir for a few minutes.



This will make better soap than you can buy. Send for our free book,

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WHITEMAN'S MILK BOTTLE FILLER fills 8 bottles at a time. The cost is $40.00. Will allow you $2.00 for freight.
A. V. WHITEMAN, 144 Chambers St. N. Y. City. Milk Bottles and Supplies.

Theory of the Lactometer.

ED. HOARD'S DAIRYMAN:—Will you please give an explanation of the principle of the lactometer, how used and whether it is accurate in detecting water in milk and approximate cost of instrument. J. H.

San Felipe, Calif.

This instrument is a form of hydrometer for determining the specific gravity of milk. The ordinary, or board of health lactometer, is graduated from 0 to 120. When immersed in distilled water at a temperature of sixty degrees F. it sinks to the 0 mark. When immersed in milk whose specific gravity is 1.029 at a temperature of sixty degrees F. it sinks to the 100 mark. Such milk is considered pure, as it has been found that milk seldom, if ever, is poor enough in solids to have a lighter specific gravity than 1.029.

This graduation from 100 to the 0 mark is equally divided, and is made for the purpose of testing milk whose specific gravity is less than 1.029. When this condition is found, it almost always follows that the sample tested has been diluted with water or some other fluid.

The graduation from 100 to 120 is made for the purpose of testing milk whose specific gravity is *greater* than 1.029. Most milk has a specific gravity *higher* than 1.029, and in some cases it has been found as high as 1.035, the average being 1.032.

The Quevenne lactometer is graduated from 15 to 45. When immersed in milk at a temperature of 60°F., whose specific gravity is 1.029, it sinks to the 29 mark. The graduation to 15 is for testing milk whose specific gravity is *less* than 1.029. The graduation from 29 to 45 is for testing milk whose specific gravity is *greater* than 1.029.

Thus it will be seen that 100 on the ordinary and 29 on the Quevenne are coincident. If the Quevenne is used the specific gravity can be determined by prefixing 1 and a "0". If the Quenvenne reading is 30, we would write 1.030, which would be the correct specific gravity. It is not necessary to bring the milk to a temperature of 60°, as a correction can be made by adding one degree to the ordinary lactometer reading to every three degrees of temperature *above* 60, and by subtracting one from lactometer reading for every three degrees of temperature below 60.

This corrects the reading from 50 to 70° of temperature, but, if milk is *colder* than 50° it were better to warm it to 50°. If *warmer* than 70° it were better to cool it to 70°.

This may be satisfactorily determined by the operator by making a careful test at 70°, correcting it as explained above, then cooling to 60° and comparing results. If the Quevenne lactometer is used, the correction is made by adding one-tenth to every one degree of temperature *above* 60°, and subtracting one-tenth for every one degree *below* 60°.

There are instances where milk can have a specific gravity of less than 1.029, and be pure and unadulterated. This is milk exceedingly rich in fat. If the fat has passed the point where the albuminoids refuse to follow, and, if having a specific gravity of 94-100, which is lighter than water, the ordinary lactometer will sink below the 60° mark, and the Quevenne will sink below the 29 mark. For this reason, where any doubt exists as to the purity of the milk, a sample should be tested by the Babcock test, and the per cent of fat ascertained.

The specific gravity alone, as shown by the lactometer, is merely an indication of the quality of the milk and cannot be considered as accurate unless the Babcock test is used with it to prove adulteration or skimming, but it will pick out the suspicious samples which can then be tested for fat and its actual condition thus shown. They cost from 75 cents to $2.00, according to quality and make.

Some Arkansas Figures.

What Kind of Aerator.

ED. HOARD'S DAIRYMAN:—What kind of aerator is the best for use in a dairy of from forty to fifty cows? I was impressed that the "Circular Cooler" might be good, though my means of knowledge in that direction has been limited.

I am interested in dairying and furnish hotel trade in Eureka Springs. One hotel "The Crescent," owned by the Frisco R. R., uses daily, in the height of the season, from eighty to one hundred gallons. I sell, delivered on platform station a few rods from my house, at sixteen cents per gallon and the milk is taken to the city on the train, a distance of two and one-half miles.

I keep two distinct breeds, Jersey and Red Polled Durham. Of the two I find the Jersey more profitable. I feed daily 12 lbs. of bran, 2 lbs. of corn meal and a reasonable amount of alfalfa.

After reading the various reports in your paper as to yield of milk, I am quite well satisfied with my last year's production. The average per cow was $11.08 per month, or $110.80 for ten months. I use the DeLaval Separator (Baby No. 2). The price of skim milk is ten cents per gallon, and cream $1.00 (4 gals. in one). The above yield was for milk at sixteen cents per gallon, and the price of bran ranges from fifty cents to seventy-five cents per hundred. It is worth seventy cents at the present time. Butter at twenty-five cents per pound is only about eight and one-third cents per gallon for milk, so I sell the milk.

This country is better adapted to fruit raising than to dairying. My 4,000 Elberta (mostly) peach trees of three years growth produced over 2,000 bushels of peaches last year, many weighing as high as 18 and 20 ounces. My pear trees of two years growth produced pears weighing twenty ounces.

Between the two extremes of North and South, Carroll Co., Ark., with its pure spring water and genial climate, is a most desirable place to live. B. A. D.

Eureka Spring, Ark.

Aerating milk is not so much insisted upon now as formerly. If practiced at all, it should be only under the most sanitary conditions, entirely removed from all possibility of contamination from odors or dust. There have been several articles in the DAIRYMAN recently on this subject. There is possibly a best aerator, but if so we have to confess our inability to point it out. Consult the advertisements in the DAIRYMAN, write to the advertisers for descriptions of their apparatus and its method of working and then get that one which appeals most forcibly to your judgment.

Wooden Hoops for Silos.

A. T. S., of Palmer, Ind., makes inquiry on this subject and is respectfully referred to answers given to other inquiries on the same matter.

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Was Pronounced Incurable But Got Well on Pure Food.

Sometimes in a case of disease resulting from the use of improper food the symptoms are so complex that medical science cannot find the seat of trouble, and even the most careful hospital treatment fails to benefit. A gentleman of Lee, Mass. says: "On April 1st, 1900, I was sent home by one of our Massachusetts hospitals, saying nothing more could be done for me. I have been a great sufferer from nervous diseases and rheumatism and nervous prostration and had previously been treated at Sharon Springs and by a number of doctors without getting much assistance.

One day I was felling worse than usual when I read an article about your Grape-Nuts that impressed me so that I sent out for a package. I commenced using it at breakfast the next day.

For fifteen months I never missed one day. If you ever saw anyone grow strong and improve it was I. I gained from 125 pounds to my old weight 165. I will always be a cripple from rheumatism but otherwise I am so much improved that I now feel as well as any man in the country." Name furnished by Postum Co., Battle Creek, Mich.

There is a receipe book in each package of Grape-Nuts that will interest the housekeeper.

The Old Way



**The heavy old milk cans are covered with dust,
All piled up in grim array.
Their mission is ended—on the shelf let 'em rust,
We work in the EMPIRE WAY.**

The Cat is Watching.

Tabby, of course, does not understand why it is so. Perhaps she remembers the days when Molly thought it was a day's work to wash the cans and pans they kept the milk in. Molly knows though that it is the

Empire Cream Separator

that lessens the work and keeps all the profits of the dairy right at home. The sweet milk is left for feeding your stock. There is money in most separators, but the most money in an **Empire.** It is the simplest in construction, the lightest running, the easiest to clean—the most profitable in every way. We have a book that tells you why. Get it.

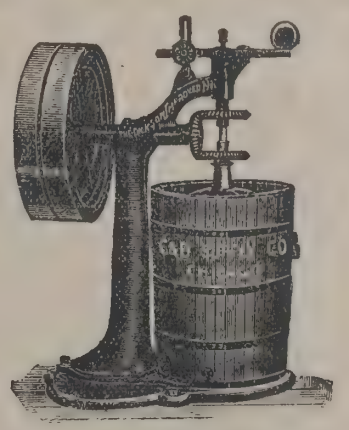
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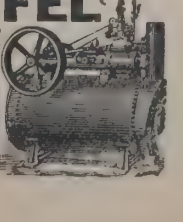
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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own ight who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

THE HIRED MAN.

This is a perennial subject of complaint with some dairymen, and strange enough there are men who never say a word, who keep plenty of help, and somehow they get along nicely, never have trouble with their help, or rarely so, and they make money. As sly as we may keep it we believe there is a good deal in the farmer as well as in the hired man. Mr. E. Grimm, of Clayton Co., Iowa, writes a very readable article to *Wallace's Farmer* on this subject which he concludes as follows:

"Now, my advice to the dairy farmer is this: Stick to the dairy. Get a good, reliable hired man, even if you have to pay him a little more. Help him to milk your cows, or at least go with him often enough to teach him to treat the cows gently. Let him unhitch in time to get done with the milking and chores by the time your neighbor who does not milk, gets done with his. Do not treat dairying as a side issue, but as the main branch of farming, and you will have no more trouble with dairying than with any other line of farming."

We say now, as we have often said before, too many farmers try to get a full day's work out of the hired man and then expect him to turn in and help do the milking twice a day. Small wonder that he kicks.

The Special-Purpose Butter Cow.

She Will be Bred on the Dairy Farms; Not Purchased.

ED. HOARD'S DAIRYMAN:—Thirty years ago the greatest share of the beef out-put of this country, was reared on the Government lands of the far west—the public ranges. The stock used was of a lank, mongrel type, known as Texas cattle. They were active and hardy and were driven and fed after the manner of the annual migration of the wild buffalo, whose pastures they had usurped. They were not ideal beef animals, but they were numerous, prolific, hardy and could rustle for their sustenance. Nevertheless, though their proportion of choice meat to cheaper parts, put them at a disadvantage when they reached the market, their owners clung to them quite tenaciously for their prior advantages and looked askance at efforts to improve their types by crosses of the improved pure, beef, breeds. The fear was that, in improving them for the butcher's block, they would impair their adaptation to the climate and to the long drive over the ranges- the only way then available for reaching the remote shipping points. But experiment finally removed doubts, and the more readily, as conditions gradually changed and the drives grew shorter. The public ranges became largely converted into private ranches and the railroads and packing houses came to the cattle, enabling the latter to reach the distributing market on wheel instead of hoof. So bulls of the improved beef breeds were repeatedly used upon the Texan foundation until the whole type of the herds have been changed. Where would one look for the old fashioned Texan steer in these days, if he could possibly have use for such? The Texan type has disappeared and in its place are close imitations of the Shorthorn, the Hereford and the Polled Angus. And the reason of it is, that nobody could now afford to raise the old sort even if he possessed the stock as it was. Every herdsman was obliged to grade up his stock to the improved type, or go to the wall. The change has added millions beyond comprehension to the value of the annual beef production of the country. Yet the first steps toward effecting it were quite generally regarded with doubt. Its value is now so plain as to provoke the inelegant slang: "a man without eyes can see it with his mouth." This great work of transformation has drawn upon the pure-bred beef herds of the country and given them a profitable market for their bulls.

Not so evident to the casual observer, but more startling when brought to the comprehension of the economist, is a parallel phase awaiting a like change in the field of dairying. By the census statistics of 1900 (the latest I have at hand), the total number of dairy cows in the country was 18,112,707. These were all cows kept primarily for milk and were milked; not those for beef and veal raising whose calves ran with them. The milk product was 7,728,583,350 gallons. This milk was of course divided among many uses—part marketed in bulk or in condensed form, part made into cheese, and much the larger share made into butter. The total product of butter was 1,492,699,143 pounds. Of cheese only about one-fifth as many pounds were made as of butter. Calling the average price of the butter 17 cents per pound, the butter crop was worth the enormous sum of $253,758,854.31. If we divide the total number of gallons of milk by the whole number of cows, we find that the average cow gave approximately 421⅙ gallons or 3,370 pounds per year. If it takes 22 pounds of average milk to make a pound of butter (and it takes all of that) the cows would average 153 1-5 lbs. of butter per year; worth at 17 cents per lb., $26.05. Dividing the general butter product by the average product of each cow, would give us 9,743,467 as the number of cows devoted to making the butter—considerably more than half of the milking cows in the country.

If the country requires 9¾ millions of butter cows, and the present average cow with butter at 17 cents per pound only brings a gross income of $26.05 (in addition to the value of her skim-milk, calf and manure), it is evident that many cows are kept at a loss, and that the dairyman of today with the average cow, is even more critically in need of improved machinery (in cows) than was the beef cattlemen of the ranges, thirty years ago, with his average Texan cattle. That the average cow of the 9¾ millions kept for butter making, is not paying her way, is evident. Nor with butter dairying as the leading feature, can her case be mended by her as a general-purpose cow, because her failure in butter is a sacrifice that will more than wipe out any profit that there may be in finally feeding her into beef.

The beef of the country is now made with greatest profit by a specialist cow, and only a comparatively small and generally inferior share is made by any other cow. Milk for sale in bulk is, in small part, made with best economy by a specialist cow, but the mass of it is made with less profit by the mongrel cow. A very small share of the butter of the country is made, at greatest profit, by a specialist cow, but the great mass of it is made with less economy, by the mongrel cow. The mongrel cow, even in the rare instances in which she is fairly good at the three requirements is never the most economical worker at either, and is not "improved machinery" of the highest class. The consideration of by-products is of course one of the sources of modern manufacturing economy, where margins of profit are close, but by-products are never profitable to work out where they detract in the slightest degree from the most economical production of the staple which is the direct object of manufacture.

We have seen that are over nine millions of cows used in the United States for making butter (Major Henry E. Alvord, chief of the dairy division of the U. S. Bureau of Animal Industry, has just sent me a private estimate that there are ten millions), and it would be a very large estimate to say that a half million of them are high class, special-purpose butter cows. But in time a transformation will occur by grading up the mongrel stock with pure-bred bulls of the special butter-producing breeds, just as a parallel transformation has been accomplished by grading up Texas herds with bulls of the special beef breeds. The greatest profits in butter dairying will be made by those who first obtain the improved machinery in the shape of special-purpose butter cows. As the whole mass of cows used for butter production become gradually improved toward that standard, the increased output of butter will tend to lower the market price. Let any butter dairyman working with ordinary cows, ask himself what the effect upon his profits would be if each of his cows, from the same feed, gave fifty per cent more butter than they do. There are large numbers of cows in the country, so perfect in the proclivities of their physical organism for the conversion of food into butter, that from a given quantity of food they can and do render four times as much butter as the average cow used in this country for butter making. These cows represent a standard to be aimed at in grading up the mongrels. Such cows are not all



JERSEY COW, SULTANNA'S ROSETTE, A. J. C. C., 149740.

Dam of Flying Fox, Ravachol, Forfarshire, John Bull. Age 13 years.



JERSEY COW, BROOKHILL ROSE 2d, P. 3440, H. C.

A famous Island Jersey cow, dam of the great bulls Reminder, Golden Jolly, Ironomy, Brookhill Fox.

confined to the pure breeds. I believe I have seen high grade Jerseys that, in butter dairying, could, at a given food cost, render as many pounds of butter as any pure-bred cow.

Between the average cow in use for butter making and the best of the cows of the special butter breeds, there is a wide gap to be closed, and depending upon how fast he is able to close it, lies the main profit of each dairyman. If, as a first step, he can change his ordinary cows and replace them with an equal number of already improved stock, without paying too big a difference, that is by far his best way, his quickest way and his surest way of shifting from the down-grade to the up-grade. But manifestly this door is open only to the very few. There is not enough of such improved stock in existence to go around. There is an easier, though a slower and not as immediately sure, way, but it involves less ready money, and is the one by which the great general transformation is gradually to be effected and maintained. Each dairyman must raise his own heifer calves and with them supplant his present cows. To do this, he must either own or have access to a pure-bred bull of an established breed of butter cows.

And so much depends upon the quality of that bull! Right there is a most critical point. A man selecting forty cows to pay his cash for and start a dairy with, would clearly see the importance of carefully investigating the dairy quality of each cow to see if he was getting money-worth. But too many men would skimp on their bull and fail to bestow on his selection the same careful investigation of his dairy quality (for dairy quality is innate, though latent, in the bull) that he would give to the selection of a single cow. Yet if he is to raise his heifer calves and use them in the dairy, there is as much of his future success at steak in the dairy quality of that bull as in his whole forty cows, and even more if he raises more than one heifer apiece from them.

To me it seems evident that the two breeds, most available for grading up the butter quality of the promiscuous stock, are the Jersey and Guernsey. These breeds are so near akin that their inter-crossed animals seem to breed true, but for some reason the Jersey type is more firmly fixed and is transmitted with more uniformity. But, dear me! there are Jersey bulls and Guernsey bulls and bulls of every pure breed too, that would be fearfully disappointing to the dairymen who used them for grading up butter-dairy herds. Every pure breed of milking stock, without exception, has a share of culls among its fine animals and it seems to me that a cull of pure breed is the worst kind of a cull. Unfortunately there are as many culls of the male sex as of the female, and the males do far the greatest damage. As nobody else will have the degenerate cow the butcher reluctantly has to take her, but the degenerate bull is liable to get shoved off among the farmers, to perpetuate his deficiences and detract from the prestige of the breed.

While I have spoken ot the Channel Island breeds as the most likely to prove the great lifters of the fortunes of the special-purpose butter cow, I do not claim, under all circumstances, that they would be immediately successful. Where a dairyman has already begun with an infusion of Holstein blood from the butter strains of that breed and is pleased with the results, let him stick to Holstein blood and not change to the Jersey or Guernsey in subsequent crosses. There is no "nick" between the Holstein and the Jersey. They are as oil and water to each other. It is a stand-off between them; each undoes the other and will continue to do so, until one in quantity has submerged the other. On the other hand Ayrshires and Jerseys usually mix with splendid results.



JERSEY BULL, GOLDEN FERN'S LAD, P. 2160, H. C.

A famous Jersey bull recently imported from England by F. S. PEER. Sire of Flying Fox and a great list of celebrities.

Now that I have warned against cull bulls let us turn to the good ones. I asked consideration of the effect of a fifty per cent increase in the butter yield of the average cow from a given unit of food. There are plenty of cases where twice that improvement has been effected with a single cross of a high-class Jersey bull on mongrel cows. It would not be difficult at all to find a Jersey bull which, crossed upon forty average cows, used in producing the butter crop of the country, would beget heifers that at maturity would average fifty per cent more butter from a given amount of food than their dams. Among such bulls of the past were Duke of Darlington, Ramapo, Pedro, Lord Dartmouth, (all sons of Eurotas), Stoke Pogis 3rd and Stoke Pogis 5th, King of St. Lambert, Imported St. Helier, Imported Tormentor, Signal, Imported Rioter 2d, Combination, Sir Harry, and the list might be extended indefinitely.

It may be said that bulls of that quality cannot be spared from thoroughbred herds to waste their quality upon common stock, and it is true that a special, high grade of bulls must always be retained for the benefit of the thoroughbred seed stock; but as between them and the culls (which should never be sold or given to the practical dairyman) there are classes of bulls that would do splendid work for dairymen who raise their own cows. Breeders of Jerseys, is it not your mission and your business, to effect among yourselves a system whereby a dairyman wanting a bull for grading purposes who appeals to your organization to aid him in his selection, shall get one highly typical of the best qualities of the breed and not get a cull instead? It can be done.

Again, communities of dairyman can keep on joint account, a small herd of exceedingly fine, high-class thoroughbreds from which their members can obtain bulls with an exact knowledge of the type of parentage from which they spring; or they can send committees to the great herds of the country and to the great auction sales to buy the bulls of such parents (shown on the spot) as met their approval in type. Bull calves of magnificent parentage may occasionally be had at these sales as low as $125, which in a year's time will come into use. Of course, most of the better ones will sell much higher, and some that would effect capital results, may go lower, but the point with the dairyman is to get *the best bull he is able to command.* If he can effect a forty per cent improvement in one cross it is much more profitable than to effect it in four crosses of ten per cent each. "The bull is half of his herd."



A ROW OF JERSEY WORKERS,

In the herd of CASE & WALKER, Rushville, Ind.

Let dairy associations send committees to the coming sales of Jerseys this spring to investigate the subject of bulls and the difference in their values. On April 15th, Frank C. Ward's importation, deep in Golden Lad's blood, will be sold near New York, headed by the young bull Golden Streamer, a magnificient son of his magnificent sire, (see picture of his dam) Forfarshire, and with him a splendid lot of young cows bred to him and worthy to produce bulls for the improvement of the stock of butter cows. On April 28th Case & Walker will close out their herd at Rushville, Indiana, headed by the great prize bull Carnation's Fern's Lad, with many of his get, from daughters of Golden Lad, Golden Fern's Lad, Financial King, The Owl, and other great sires, and backing up to such great butter families as those of Interest, Golden Glitter, Brookhill Rose 2d, Jersey Skater, etc.

It looks now as though Mr. Frank S. Peer will sell early in May an importation of Island-bred and England-bred Jersey cattle now at the U. S. Government Quarantine Station at Athenia, N. J., among which is the world-famous bull, Golden Fern's Lad, the average quality of whose get has been higher than that of any sire in the history of the Jersey breed, judging by their winnings in the prize rings and dairy tests, and the prices they have uniformly brought on the Island of Jersey, in England and in this country. He surpassed even his double grandsire, Golden Lad, in this respect. All of the best judges and most discriminating buyers take off their hats to "Fern." He got the highest priced animal in Mr. Cooper's importation of 1900, the heifer-in-milk Golden Sultana, at $1,600, and also at his sale of 1902, the bull Flying Fox, which brought $7,500—the highest auction price, anywhere, for a Jersey.

Fern also got the great prize bull, Imported Carnation's Fern's Lad, at the head of Case & Walker's "Jersey Isle" herd at Rushville, Ind. Fern has also several daughters in that herd, two of which are out of the famous Island Queen of cows, Brookhill Rose 2d, a granddaughter of Sultanne through the latter's son, Count Wolseley. Mr. Peer, when securing "Fern" from the Chestall Herd of J. Reid Walker, Rugeley, England, who had bought him some years ago on the Island, also got a wonderful collection of other stock therefrom, including eight of Fern's daughters and a good number of cows in calf by him. This herd, with exception of that of Lord Rothschild, is perhaps the most distinguished in England. A unique feature of Mr. Peer's selections from it is the young bull Brookhill Fox, by Flying Fox out of Brookhill Rose 2d, (both above mentioned) and a lot of heifers, some of them Fern's daughters, bred to him. Brookhill Rose 2d is the dam of the great Island bulls Reminder, Isonomy and Golden Jolly and a lot of Mr. Ward's imported heifers are bred to the latter, as is also true of a number of Mr. Cooper's present importation.

Brookhill Rose 2d as dam of great bulls, ranks among recent Island cows second only to Rosette 5th, the dam of Flying Fox, Ravachol, John Bull and Forfarshire, and it is a significant fact that both are granddaughters of that leading fountain of merit, old Sultanne P-7-H. C., and these two cows are the nearest female ancestors of Mr. Peer's young bull, Brookhill Fox.

Mr. T. S. Cooper's sale will occour at Linden Grove, Coopersburg, Pa., on May 30 and in it will be Rosette 5th's son, Forfarshire, the kingliest bull that ever crossed the water. His sons are sterling and his daughters are gems. Mr. Frank C. Ward who searched the Island thoroughly, places them ahead of all, and bought the young bull Golden Streamer by Forfarshire to breed his cows

[Continued on page 158]

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Feeding Brood Mares. Suckling Foals.

I have two mares that will bring colts soon, but will be located where but little pasture can be had. Can obtain shelled corn, corn chop, shorts, bran, oats and flaxseed meal. The oats are out of proportion in cost, but will feed it if necessary. Also prairie, timothy, clover and alfalfa hay. Please prescribe a balanced ration by weight. I want to work the team at light work if I keep them on this ration. J. T.

Tonganoxie, Kas.

The fact that many colts are foaled in the fall and their dams kept on dry feed through the winter, the colts meanwhile thriving, is conclusive proof that pasture is not particularly essential to success. Prescribing a formula for a ration in such cases, giving specific amounts of specific feeds, and this more especially where the dams are to be worked, is wholly impracticable. Make a mixture of corn chop, oats and bran, equal parts by weight,—and feed enough of this daily, in connection with 12 to 15 lbs. of hay, to keep the mares in good condition. Alfalfa hay has been tried for horses at the Utah Experiment Station with good results, but its effect upon brood mares in milk has not, to our knowledge, been reported on. Try it at first, therefore, in a moderate way, and be governed by results. If necessary, use enough flax-seed meal to keep the bowels in proper condition, and withal do not omit something more than a pinch of salt every day.

Back Numbers Wanted—When to Feed Grain.

I have Index to volume 33, but not the papers. How can I get the papers giving information about alfalfa?

Also please inform me which is the better plan to feed grain, before or after milking? E. C. M.

Lewiston, Ill.

We could furnish the issues indicated at the rate of two cents each.

Cows are so much creatures of habit that it is not advisable to change, whatever practice may have been followed. Our own plan is to feed all the cows immediately before commencing to milk.

A Vermont Ration.

Please give me a balanced ration from the following feeds: Cows fresh in milk, have plenty of hay, mostly timothy, some clover mixed in; bran, $23 per ton; cotton seed meal, $30; corn meal, $24; dried brewers grain, $28.50, licensed to contain not less than 33 per cent protein, 11 per cent fat. I have one ton of Buffalo gluten feed that I bought last summer, and the rest I shall have to buy. I have 29 cows now, but shall milk 40 this summer. M. A. C.

East Berkshire, Vt.

It is much to be regretted, of course, that cows are coming fresh in milk at this season of the year. Experience has proven over and over again that cows freshening in the fall will yield quite a liberal per cent more milk during the lactation period than when coming fresh in the spring, and in addition one has the benefit of the better prices secured for dairy products during the winter. Our advice to this inquirer, and to others similarly situated, is to breed his cows, at the earliest possible period, so as to have them freshen next time in the early winter and after that in the fall. Meantime, these cows should be carried forward to grass, encouraged to give all the milk they are capable of giving, and to that end we suggest that they be fed 20 lbs. hay, more or less as each cow's appetite may demand, and in connection with that as an average grain allowance, 2 lbs. of the gluten feed, 4 lbs. of the dried grains and 2 lbs. of ground corn,

Our opinion is that the dried grains are not a product from breweries, but from distilleries. Brewers dried grains contain on an average only about 15.7 per cent of digestible protein, or 20 to 25 per cent by chemical analysis.

A West Tennessee Silo.

I saw in your last issue what you had to say of silos in West Tennessee. The only one I have known of here was a failure. Please tell me what size silo it would take to hold feed to feed with other roughage, a hundred head of cattle five months, and what ought it to cost to have silo built, also, will you refer me to some reliable contractor as near me as possible, that would build and guarantee same? J. W. E.

Kenton, Tenn.

A round silo 21 feet in diameter and 32 feet deep would probably suffice, in connection with other roughage, to feed 100 head of cattle five months. We should, however, generally prefer to build two silos 16 feet in diameter and 30 feet deep, or 17 feet in diameter and 27 feet deep rather than one large silo.

We would not like to submit any estimate as to probable cost of a silo in the locality where this correspondent resides. There are advertisers in our columns who offer to build and ship silos and they will submit their own estimates. Or our friend can get the lumber and build a silo with help from the directions which have so often been published in the DAIRYMAN.

Salting Butter in the Churn

Can you give me the process of salting butter in the churn? I have tried it without success, putting in two ounces to the pound. We supply families, and must have a uniform article, and if we can salt the butter in the churn and not have to work it in the bowl, it will save us time and work. W. N. K.

Centreville, Pa.

Salting butter in the churn was a favorite method a few years since, but seems to have gone out, as we hear nothing about it now. If the churning is stopped when the butter is in fine granules, the salt sifted evenly over the mass, and the churn rocked to bring the butter into a mass, the butter will be evenly salted. This butter will requires working to remove the excess of water, and it is doubtful if the salting in the churn is any advantage or saving in work over the regular method of salting and working.

An Unaccountable Falling off in Yield of Milk.

Last winter we fed the following ration for cows numbering about 80: 15 lbs. alfalfa hay, 20 lbs. wheat straw, 3 lbs. bran, 2 lbs. ground wheat, 1 lb. corn meal, which amounts to protein, 2.40; C. H., 16.42; E. E., .43. This winter we are feeding the following ration to the same cows: 20 lbs. oat straw, 12 lbs. alfalfa hay, 1 lb. cotton seed meal, 6 lbs. bran, which amounts to protein, 2.59; C. H., 15.65; E. E., .61. Last winter we got about 1,500 lbs. per day. This winter we are running only 900 lbs.

The cows are handled in the same way and by the same men and freshened about the same time. These cows were shipped here from Iowa and Wisconsin; are Holstein and Durham grades. Were shipped a year ago last fall.

Shortly after they came here we had a siege of foot and mouth disease, but they soon recovered from this. I am at a loss to know the cause of this decrease. The cows are all or most all under 8 years old. Would be glad to know what you think about the matter. R. E. B.

Macon, Mo.

We do not think that the difference in the manner of feeding is sufficient to account for the falling off in the milk yield from 1,600 pounds per day to 900 pounds, or nearly 50 per cent.

We incline to the opinion that the cows were fed too heavily a year ago and got into the habit of laying on flesh, and that this year they are turning their feed more to flesh than to milk. If this guess on our part should correspond approximately with the facts we think it doubtful if these cows can ever be brought back to profitable milking, certainly not during the present period of lactation.

It is incredible, we think, that these cows should have had true foot and mouth disease last year and recover from it and do as well as they did. Foot and mouth disease is very contagious and would have run all through the neighborhood.

A Vermont Feeding Inquiry.

What is the best way to feed my stock? They are mostly grade Jerseys, some thoroughbreds. I have a good quantity of oats and ear corn and good hay. Can get bran or middlings at $24.00; oil meal, $35.00. I carry milk to creamery. Cows will be freshening now for two months. Three already freshened; sixteen cows in all. E. P. F.

Hortonville, Vt.

Good hay in connection with a mixture of oats and corn in equal parts by weight, makes a very satisfactory ration, but the chances are, we think, that it would be more expensive than a combination of bran and middlings at the prices named. With either combination, a small allowance of oil meal daily would be altogether in order, not so much for its nutritive properties as for its hygienic influence.

Does it Pay?

I am one of your two bit subscribers who are getting the worth of their money out of your paper. The creamery business is new here. I am milking 3 Jersey cows worth $60 each, that have been fresh three months. Feed alfalfa hay at $8 per ton and 10 quarts of loose bran to each cow daily, at $18 per ton. Get 21 lbs. of 4.4 milk daily from each cow, which sells for 29 cents for fat at creamery. Delivering milk costs 12 cents per 100 lbs. My cows are small and light feeders, pretty and gentle, four years old. Whenever I lessen feed, milk shrinks, and cows get more costive. Now, my neighbors say it won't pay to feed over three quarts of bran, at the price. What do you say, and how good are my cows? I do not know how much the ten quarts of bran weigh, nor how much hay they eat, so can't tell about the profits. Can you? L. B. Z.

Milton, Ore.

Every dairyman should have either a set of scales or spring balances that will weigh up to 30 pounds. Had this correspondent had the means of weighing his bran and his hay, and could have told us how much he was feeding, we would have been better informed and, therefore, better enabled to submit suggestions. It is probable that his 10 quarts of bran will weigh approximately 8 pounds, and presumably his cows are eating less

"ADVERTISEMENT."

Dr. Shoop's Rheumatic Cure

Costs Nothing If It Fails.

Any honest person who suffers from Rheumatism is welcome to this offer.

I am a specialist in Rheumatism, and have treated more cases than any other physician, I think. For 16 years I made 2000 experiments with different drugs, testing all known remedies while searching the world for something better. Nine years ago I found a costly chemical in Germany which, with my previous discoveries, gives me a certain cure.

I don't mean that it can turn bony joints into flesh again; but it can cure the disease at any stage, completely and forever I have done it fully 100,000 times.

I know this so well that I will furnish my remedy on trial. Simply write me a postal for my book on Rheumatism, and I will mail you an order on your druggist for six bottles Dr. Shoop's Rheumatic Cure. Take it for a month at my risk. If it succeeds, the cost is only $5.50. If it fails, I will pay the druggist myself—and your mere word shall decide it.

I mean that exactly. If you say the results are not what I claim, I don't expect a penny from you.

I have no samples. Any mere sample that can affect chronic Rheumatism must be drugged to the verge of danger. I use no such drugs, and it is folly to take them. You must get the disease out of the blood.

My remedy does that even in the most difficult, obstinate cases. It has cured the oldest cases that I ever met. And in all my experience—in all my 2000 tests—I never found another remedy that would cure one chronic case in ten.

Write me and I will send you the order. Try my remedy for a month, as it can't harm you any way. If it fails it is free.

Address Dr. Shoop, Box 934, Racine, Wis.

Mild cases, not chronic, are often cured by one or two bottles. At all druggists.

A GREAT COMBINATION!



GOOD COWS AND A U.S. SEPARATOR FILL THE FARMER'S POCKETS WITH MONEY!

The U. S. Separator gets all the cream from the milk,
The cream makes the butter,
The skim-milk makes the calf,
All bring in the cash.

301 Send for Catalogue

VERMONT FARM MACHINE CO., Bellows Falls, Vt

STEEL ROOFING.

We manufacture all kinds of Steel Roofing and Siding; also Steel Ceilings and Roofing Paints. Write for prices.

Lloyd Iron Roofing and Paint Co., 97 Monroe St., CHICAGO.

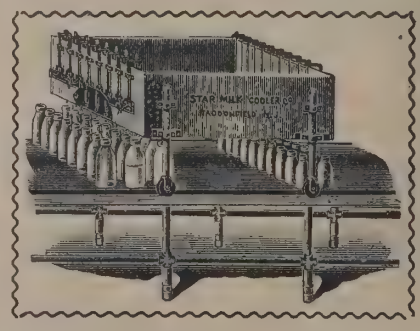
THE STAR FILLER

METAL CASE

Shown on Non-Absorbent Stone Table, supported on Galvanized Iron Framework with new adjustable legs. An O. K. Filler.

Made with
8 Spindles, Qts.
16, " "
18 " 8 "
and 10 Pints.

Nothing to get out of order.



Is operated by pushing a sliding bar which raises the spindles all at one time out of the tubes. No rubber, consequently no smell.

Send for 1903 Bottle Filler Folder which shows all sizes and styles we manufacture.

STAR MILK COOLER CO., Haddonfield, N. J.



EASY.

It is easy to go on losing money by taking care of milk in the old way, that is, by not taking care of it: But it is easy, too, to take proper care of your milk with a

Champion Milk Cooler-Aerator

The Champion is pre-eminently the easy Cooler—easy to buy, easy to take care of, easy to use.

A Booklet for the asking.

Champion Milk Cooler Co., 67 Main Street, CORTLAND, N. Y.

than 20 lbs. of alfalfa hay per day. The expense for feed is, therefore, about 15 cents per day, per cow. Twenty-one pounds of 4.4 per cent milk contains .924 pounds of fat, of the value of 26.8 cents at 29 cents per pound. It costs 2½ cents to deliver the 21 pounds of milk, which deducted from the value of the fat will leave 24.3 cents income from 15 cents worth of feed, or at the rate of $1.60 for each dollar's worth of feed. We venture to say that his neighbors who feed only 3 quarts of bran, will not get as profitable returns.

To Build a Silo with Wooden Hoops.

I am very much interested in the wooden hoops for silo spoken of by John Gould and will some one kindly give plan for hooping by that method? We wish to put up a silo this year and if we can save from $25 to $40, it will mean considerable? Have thought of putting the corn in whole the first year. Do you think it would be wise and how should it be laid in to insure best keeping in a round silo?
Meridean, Miss. S. P. S.

Make a circle on the ground or a smooth platform, of the diameter of the proposed silo and drive stakes or set up blocks at intervals of 2 or 3 feet and bend the first layer of the hoop around this form, tacking it lightly to the stakes. After this put on the second, third and fourth layers, nailing them together firmly and breaking joints. Around each layer overlap the joint of the preceding layer 4 or 5 feet. Make enough of these wooden hoops so that they may be put in place about 2 feet apart at the bottom and the second and third spaces and afterward increase the distance gradually until at the top the hoops may be 4 feet apart. Put these hoops in place, being very careful to have them exactly plumb and firmly stay-lathed, and then ceil up the inside with narrow flooring.

We do not advise putting whole corn in the silo, and yet it is done to a greater or less extent with very considerable success. Great care must be taken, however, in packing the corn very close, not only around the edges but all through the silo. As it is very difficult to get the butts of the stalks just even, the usual practice is to double over the tops of the bundles near the outside and thus crowd them up close. If the corn is not cut with a harvester and bound in bundles, it should be gathered together in small bunches and treated in the same way.

Results from Feed not Satisfactory.

We milk 20 grade Jerseys and are shipping cream and do not think we are getting the best results of the feeds, as we are feeding. We are mixing 200 lbs. bran; 100 lbs. gluten meal; 100 lbs. oil meal, old process; 100 lbs. cotton seed meal and feeding good ensilage night and morning and stalks at noon and 8 qts of the above mixture in 2 feeds to the best milkers and 4 qts. to the rest. If you can make any improvements in feeds, kindly do so. J. F. & S.
Walworth, N. Y.

There would seem to be no reason why cows fed as above should not do well, provided they receive all the silage they will consume without waste, and the grain mixture weighs not less than a pound to the quart. If not now giving salt night and morning try mixing a teaspoonful with each feed, and give the grain with the silage, and not as a separate feed.

Should a Stave Silo be Anchored to Foundation.

In building a stave silo do the staves sit on the cement bottom with nothing to anchor them? If so is there not danger when silage is being packed that the staves will rise and let in air. J. C. L.
Louisville, Ga.

The staves are set directly on the foundation and are not anchored or fastened in any way thereto. The settling of the silage has no upward thrust and no tendency to lift the staves off the foundation. It is desirable, however, to put a little clay or cement around the bottom of the staves either inside or out, or both, to prevent the air from finding a passage under the staves.

Alfalfa Seed.

I find there are different kinds of alfalfa seed on the market, viz.: Turkestan and common. Is the Turkestan enough better to justify the extra expense in seeding 6 acres? Common is quoted at $12 per cwt. and Turkestan at $25. D. E. C.
Trempealeau, Wis.

A good quality of the common alfalfa seed is probaly all that is necessary for the man's crop, but it would not be unwise to try the Turkestan on one or two acres.

Siloing Clover.

I receive your paper weekly and wish you would send me ½ dozen sample papers, as I wish to get my neighbors to take same. Would you kindly tell me how to cut clover, and how to put it in a silo, or what plan would you take to fill a silo starting from the field? Can I fill a silo half with clover and balance with corn? To build a new barn and also a silo. I have 620 acres of lime stone loamy ground and am milking 18 head of cows and expect to milk twice as many when I can make more room. I live 2½ miles East of Cumberland, Md., and milk sells at .08 per qt. and 24 cts. per gallon. I also raise hogs, from 80 to 100 head. Where can I buy a silo all ready to put up? R. A. B. T.
Cumberland, Md.

See the communication from Mr. Baker on page 106, and one from E. R. W. page 137. There is no objection to filling a silo partly with clover and finishing with corn. See our advertising columns for manufacturers of silos.

Keeping Butter in Summer.

Can you tell me how I can prevent butter from spoiling duri g the hot summer months, when the plentifulness of it compels me to keep it for a month or two. I have a refrigerator and cellar?
Catawissa, Pa. H. S. G

Butter cannot be kept in the summer without some change in quality, but a good cold storage will prevent any serious change in flavor. Neither a cool cellar nor a common refrigerator is sufficient. A cold storage where the temperature can be kept below freezing is the only safe place for keeping butter.

A Discouraged Tenant Farmer.

ED. HOARD'S DAIRYMAN:—After reading the editorial sermon, "Making a Start", on page 6 Feb. 13, I have concluded that it was meant for those who owned farms of their own. It seems to me there is a wide gulf between the tenant farmer and the way you teach to conduct work on a dairy farm. I am working a farm on shares.

My landlord refuses to place any of those things on the farm, that you teach should be on a well conducted dairy farm: Namely a silo, replace the old fashioned stanchion with some more comfortable method of tying, drain underneath the floor, and put in tight gutters back of cows.

Now if you can tell me how that gulf can be bridged, I will be very thankful. It makes me discouraged to read the DAIRYMAN, and then to think I can not have things as other folks do, and as they should be. Sometimes I think I would rather work for someone for wages, that has things up to date, than to work a farm myself. If you can give me any encouragement, it will be gladly received.

I have grown beets for the cows about every year. But this year I am thinking of growing sugar beets for the factory at Menomonee, and having pulp shipped back for the cows, at a cost of 87 cents per ton. Do you think it will pay?
DISCOURAGED FARMER.
Waukau, Wis.

We can't blame you for being a bit discouraged with that blind, stupid, landlord, who don't know enough about good dairy farming to deserve such a tenant. But the way out for the present, in our opinion, is to change landlords There are hundreds of farmers who read the DAIRYMAN, who are up-to-date men, who will appreciate and encourage a live man, who wants to do his level best. Send us your full name and address, and we will refer all parties who want a good tenant, to you.

Put a small ad. in the special Notice Column of the DAIRYMAN saying: "Wanted—A live up to date landlord, who has a good dairy farm, with silo and good buildings to rent. Address ——— Care DAIRYMAN." Try it and see what will come of it.

Feeding Value of Bean Straw.

ED. HOARD'S DAIRYMAN:—On page 81, P. S. F., Castroville, Cal., asks for information with reference to the feeding value of bean straw, and as we are in one of the important bean producing sections I thought I might give my "mite" in return for the many helps which I have received from the columns of your paper. Bean straw, or bean fodder as it is called here, is highly prized as a feed for stock of all kinds and makes an excellent feed for milch cows when fed in connection with hay, straw or corn stover, but it is necessary to use a little care, not to overfeed when commencing its use, as it has a tendency to produce looseness of the bowels.

After the cows become accustomed to it, they may be fed what they will clean up at one feed a day. It is rich in fat forming elements evidently as the cows are always sleek and in good condition when fed on it, provided they have proper care in other respects.

I would like to hear through the DAIRYMAN from any one who has tried cow peas or soy beans in western New York and found them a success. J. N.
Wyoming Co, N. Y.

Paint Without Oil.

Remarkable Discovery That Cuts Down the Cost of Paint Seventy-Five Per Cent.

A Free Trial Package is Mailed to Everyone Who Writes.

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powdrpaint. It comes to the farmer a dry powder and all that is required is cold water to make a paint weather proof, fire proof and as durable as oil paint. It adheres to any surface, wood, stone or brick, spreads and looks like oil paint and costs about one-fourth as much.

Write to Mr. A. L. Rice, manufacturer, 346 North St., Adams, N. Y., giving the name of the dealer from whom you buy your paints. Mr. Rice will send you a free trial package, also color card and full information showing you how you can save a good many dollars. Write to-day.

A Handsome Book

About Mandolins, Banjos and Guitars, Free.

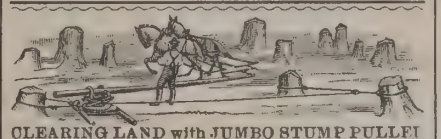
Any one interested in the subject of mandolins banjos and guitars can obtain a beautiful book about them free by writing to Lyon & Healy, Chicago. It contains portraits of over 100 leading artists, together with frank expressions of their opinion of the new model Washburn Instruments. Descriptions and prices of all grades of Washburns are given, together with "Facts about the Mandon" and "How to Play the Mandolin."
LYON & HEALY,
100 Adams St., Chicago, Ill.
Washburns are sold by leading music dealers everywhere.

Creasey Ice Breakers



Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right. Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.
J. S. L. WHARTON, Mfr.,
17th & Clearfield Sts. Philadelphia, Pa.

ASTHMA TAKEN FROM THE SYSTEM. Never returns. Nothing remains which can produce an attack. Eat anything, sleep soundly and stand exposure. Appetite improved; blood enriched; nerves strengthened; whole system built up; life made enjoyable. Book 41F Free, containing reports of many interesting cases. Dr. HAYES, Buffalo, N. Y



CLEARING LAND with JUMBO STUMP PULLER
Send for my catalog of JUMBO, CLIMAX & CHIEF Stump Pullers before buying. Can save you money. Also make DITCHERS, house-moving CAPSTANS & bog land Cutters. O. D. Edwards, Albert Lea, Minn.

A Golden Rule of Agriculture:

Be good to your land and your crop will be good. Plenty of

Potash

in the fertilizer spells quality and quantity in the harvest. Write us and we will send you, *free*, by next mail, our money winning books.

GERMAN KALI WORKS,
93 Nassau Street,
New York.



Cheaper than Corn, Oats and Barley.
The Cheapest Source of
DIGESTIBLE PROTEIN
on the Market.

ATLAS GLUTEN MEAL

ATLAS Gluten Meal,	36.5 protein
Cream Gluten Meal,	33.3 protein
Buffalo Gluten Feed,	24.2 protein
Chicago Gluten Meal,	33.7 protein
Grano Gluten Feed,	26.4 prStein
Linseed Meal (old process)	28.8 protein
Linseed Meal new process)	27,9 protein

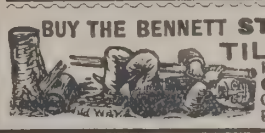
Experiment station reports, wherever this feed has been tested, pronounce it the greatest value in protein that the dairyman can buy.

Don't take something the dealer calls "just as good." If it cannot be purchased locally write us.

ATLAS FEED & MILLING CO.,
Box 164, PEORIA, ILL.



MONARCH STUMP PULLER.
Will pull 6-ft. stump in 3 minutes. Guaranteed to stand 250,000 pounds strain. For illustrated catalogue and discounts, address MONARCH GRUBBER CO., Lone Tree, Ia



BUY THE BENNETT STUMP PULLER
TILE DITCHER
Handy Farm Wagon &
CORN HARVESTER
Cat. each free. H. L. Bennett, Westerville, O.



The Distribution of Skim Milk.....

It is known that the just complaints of creamery patrons on account of unfair distribution of skim milk are the bane of the separator creamery business. Further disputes among patrons, annoyances to managers, hindrances to the best work of buttermakers, watering the skim milk, and many other ills in the same train are unnecessary, since the

Barber-Coleman Check Pump

has for more than five years been successfully solving the problem in many different creameries. When a patron has dropped in his check he can pump the amount of skim milk called for by his check, less the percentage taken out as cream, so in like proportion to all other checks. Its measuring apparatus is just an ordinary pump which everyone understands and knows how to operate.

Cornish, Curtis & Greene Mfg. Co.,

General Sales Agents De Laval Alpha Separators,
FORT ATKINSON, WIS.

A DAY WITH A FINE JERSEY HERD.

It is one thing to be a broker and quite another to be a builder. So indeed it is quite a different thing in the way of instruction to spend a day or a week at a farm devoted to the development of Jersey cattle along true dairy lines, from what it would be to merely look over a herd at an auction sale. A few years ago, the senior editor of the DAIRYMAN had the pleasure of spending a day on the famous Jersey breeding farm of Mr. Frank W. Hart, of Cleveland, Ohio. We then recorded our convictions that Mr. Hart was an instinctive breeder, guided by cardinal principles, holding the work of his hands true to the final outcome—that of making the Jersey cow as large and profitable an expression of dairy capacity as it is possible to make her

It was with renewed interest therefore, that we responded to the invitation of Mr. Hart to make one of a party of about 40 Jersey breeders and dairymen to visit his farm March 13. The day was propitious and a run of an hour on the electric railway brought us to the famous Cherry Farm.

The recent enlargement of the barns and other changes in the general arrangement of the buildings makes a harmonious, commodious and instructive picture to start with. Practical thought and intelligent purpose stand out here. The day was spent in looking over some of the more notable cows and young things, but more especially in making of it a great object lesson in the study of prepotent breeding power. At the head of the herd stands that powerful Jersey exponent, King's King of St. Lambert, 12 years old and as active and alert as any of his sons. This bull has 25 daughters in the tested list, and nearly the same number that will go in the list in the near future.

It was worth going across the continent to read the lesson of what "blood can do" as cow after cow, some two-year-old heifers and others, old cows, all with splendid udders were led out, and at once surrounded with an eager group of men, all hard students of this problem of dairy breeding. The editor of the DAIRYMAN could not help calling their attention to the strong, rugged backs and the rise at the pelvic arch of old King and all his noted daughters and sons. Some day we hope dairy breeders will begin to study the significance of this great channel of nerve force, the back bone and its conformation, as well as what it means to the purposes involved.

Mr. Hart is doing some wonderful work in in-breeding. Two young bulls were shown with 100 per cent of the blood of King's King, and finer examples of constitution and personal vigor cannot be found.

The entire company partook of a bountiful collation tendered by the generous host and left Cherry Farm delighted with the instructive lessons in dairy cattle the day had brought them. The following are the names of the guests of the day:

Prof. C. S. Plumb, of Ohio State University, Columbus; Prof. J. W. Decker, Ohio State University, Columbus; Prof. C. F. Mabery, of Case School of Applied Science, Cleveland, Ohio, whose Windemere Jersey Farm is at North Gorham, Maine; Mr. H. K. Stewart, Washington C. H., Ohio; Mr. W. H. O. Goist, Girard, Ohio; Mr. Geo. E. Scott, Mt. Pleasant, Ohio; Mr. H. C. McCamon, Signal, Ohio; Mr. John Gould, Ohio; Dr. T. W. McDermott, Willoughby, Ohio; Mr. R. C, Miller, Cleveland, Ohio; Mr. J. E. Gray, Youngstown, Ohio; Mr. W. J. Pontius, Canton, Ohio; Mr. J. E. White, Greenfield, Ohio; Mr. C. P. Dickerman, Mallet Creek, Ohio; Mr. J. S. Devol, Marietta, Ohio; Col. A. T. Dempsey, Secretary of Ohio Jersey Cattle Club, Columbus, Ohio; Messrs. W. T. Williams, F. G. Robb and A. W. Eldred, North Olmstead, Ohio; Messrs. F. M. Wilson and T. L. Calvert, Selma, Ohio; Manager Geo. H. Wilson, of Pennsylvania Reform School Herd, Morganza, Pa.; Messrs. Woodworth & Son, Geneva, O.; Messrs. R. J. Hyde and W. O. Kindig, Medina, Ohio; Mr. H. H. James, proprietor Walnut Lake Jerseys, Detroit, Mich.; Mr. A. M. Carr, Mr. Chas. Brooks and Mr. A. C. Pidgeon, of Salem, Ohio; Mr. L. V. Axtell, the Guernsey breeder of Perry, Ohio; Manager Curtis and Herdsman Aukeman, of Old Orchard, Painesville, Ohio; Manager N. A. Bucklin, of Sugar Loaf Herd, Chillicothe, Ohio; Mr. Jenkins, son of D. H. Jenkins of the *Jersey Bulletin*; W. D. Hoard, of HOARD'S DAIRYMAN.

A rousing vote of thanks was tendered Mr. Hart for his kindly hospitality and the opportunity for rare information he had so generously afforded.

THE MANURE QUESTION.

On the question of whether it is best to haul the manure every day from the stable to the field, there is a great variety of opinion, and altogether too few facts are adduced. As is well known, the editors of the DAIRYMAN believe and practice the method of hauling each day as long as the cows are on winter keep. Here are some well demonstrated facts to bear on that practice: Prof. Voorhees of the New Jersey Experiment Station, found that where the solid and liquid manure was applied together, the yield was 3.38 times greater than when solid manure was applied alone. Now when the manure is drawn every day, the liquids go with it. When piled up to be drawn at some future time the liquids have leached out of it. So there is a gain of 3.38 times to start with. He also found that the fresh solid and liquid manure, combined, was more effective than fermented solid and liquid manure. The average yield of solid and liquid manure is 12¾ tons per cow of 1000 pounds weight per annum. This manure contains 117 lbs. nitrogen, 77 lbs. phosphoric acid and 89 lbs. potash. It has been found that when the manure is left in heaps for 109 days, it loses 37 per cent of its nitrogen, 51 per cent of its phosphoric acid and 47 per cent of its potash. It strikes us that this loss is much greater than the loss from washing which so many think they see. It is well to remember that the loss through fermentation and consequent evaporation where the manure is piled, cannot be readily seen. A little discoloration in the washing of manure is easily seen. To the farmer the latter may look ten times bigger than it really is, while the former is really ten times greater than can be seen. It required careful, chemical analysis by Prof. Voorhees to detect the loss by fermenting.

From this we judge there is the least loss in hauling the manure out when it is fresh and before any fermentation has set in. Besides all that, there is the economy of labor. We are hauling at a time of year when hired help is cheapest and there is the most leisure. In the spring and fall the conditions on the help questions are reversed.

This is a lesson in Farm Economics.

Why Will Not Others Do Likewise.

Mr. P. P. Eddy, of Kandiyohi county writes us the following letter:

"Enclosed find $1.00 for renewal of subscription for another year. This will make the 10th year that we have been readers and always find something new, and to show what progress we have made in the dairy line by following your advice and everlasting sticking to it, will say that 10 years ago we were letting the calves run with the cow, and at the end of the year had a calf worth 7 to 10 dollars to help pay the board of the cow, which was $25, at least. With a full-blood Jersey sire at the head, for the past ten years,



GASOLINE ENGINES

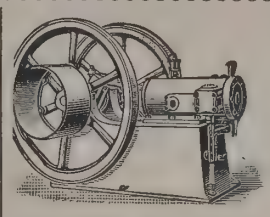
as power for the dairy have passed the experimental stage. Many dairymen now have them and all eventually must have them. The only questions to decide are the amount of power needed, and the most desirable make. With twenty-seven years of experience behind us, and a plant that has grown from 50 engines a year to 1500 a year capacity, we feel that we are equipped to build the best. There are other reasons why the "OTTO" is superior. We will tell them in this space from time to time. If in the meantime you need power, write us, mentioning this paper

THE OTTO GAS ENGINE WORKS, Philadelphia, Pa.



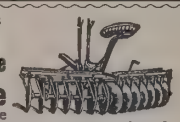
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Is the reliable engine. No long shut-down for repairs. Simple, economical. Easy to regulate speed. Strong guarantee.
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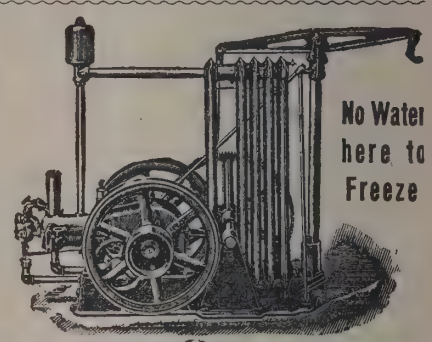


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furnish the greatest possible power at the lowest possible cost in time, labor, fuel and money. They are so simple that anybody can run them without expert training or experience. Our Volume Governor gives uniform speed. Our Acme Mixer is the most positive and economical on the market. Our Hand Starting Lever starts engine with least effort. All bearings of Phosphor Bronze. Best material and workmanship throughout. Many sizes from 4 (actual) h. p. up. Best for all farm work—cutting and grinding feed, sawing wood, pumping water, separating cream, churning, etc. Send for our free catalog before you buy. It may save you time, money and annoyance.
J. THOMPSON & SONS MFG. CO., 113 BRIDGE ST., BELOIT, WIS.

$18.60 for this Our Genuine Wolverine



12-16 Disc Harrow. It has the strongest and best angle steel frame, LaDow bumpers, the only bumper that overcomes the inthrust. We use the best steel discs heavy steel shafting and the only absolutely dust proof oil tubes Improved scrapers with broad steel points and cutting edges We guarantee this harrow to work in all kinds of soil and to give satisfaction where all others fail.
SEND US $1.00 and we will ship this 12-16 disc harrow to you. When it arrives, examine it. If you find it exactly what you want and the best harrow you ever saw, pay the freight agent the balance ($17.60) and the freight (freight averages about 50c for each 100 miles.) 2-horse double tree $1.00 extra, 3-horse $1.45. We will ship the same day order is received. Order now or write for catalogue.
Marvin Smith Co., 55 N. Jefferson St., Chicago.



If you want a..... **Gasoline Engine** that will be always ready to start, safe, reliable convenient, economical and durable, buy a FULLER & JOHNSON Frost Proof. No bother with water nor expense of broken cylinder, no waiting for wind or weather. All sizes, stationary and portable. Send for descriptive catalogue to the manufacturers,
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MRS. LEA'S MILK AND BUTTER PURIFIER.



Removes all Weed, Garlic, Vegetable and Animal odor and taint from the milk and in no way injures the cow to which it is fed.

Dr. Jacob Michaux, Richmond, Va., and Dr. W. L. Robinson, Danville Va., Ex-Presidents of the Virginia Medical Society, write as follows: Gentlemen—Having been consulted by you with regard to your "LEA'S MILK AND BUTTER PURIFIER" we beg leave to state after many careful experiments that we are most favorably impressed with its value. From the standpoint of physicians we have no hesitation in saying that the milk from cows to which it is fed is acceptable to the delicate palates and stomachs of the sick in cases where ordinary milk is not borne. We, having a knowledge of the formula, further state that it is not in any way injurious to either the stomachs or systems of the animals to which it is fed, nor to the stomachs or systems of persons using the milk from such animals. We further believe from our knowledge of your preparation that it so favorably influences the digestion of the animal that it will prevent those abnormal fermentations which produce injurious chemical reactions in the secretions and milk of said animals. We advise that Sanitary Dairies be encouraged to use this product, as it furnishes a milk not only devoid of all vegetable and animal odors and flavors so objectionable and so frequently found in milk not thus treated but that it is a sweet and pure article for the table and for the use of invalids. [Signed] JACOB MICHAUX, M. D.
W. L. ROBINSON, M. D.

Manufactured by VIRGINIA CATTLE FOOD COMPANY, Danville, Va.
Write Us for Prices and Further Information.



The Gem FIBRE PACKAGE.
The border of this advertisement is a section of the Package cut in half. It shows just how the Package is made. Note the three thicknesses of fibre in the walls. Note how the sides and the inside bottom are pressed and dovetailed together. Note how the whole is reinforced by the extra bottom. It's lined throughout with parchment paper. Treated as it is, it is impervious to moisture, mildew or mould. It will not sweat in warm weather and is slow to freeze in cold weather. It's the ideal market package for anything but is specially desirable for butter. Made in numerous convenient sizes. Illustrated booklet and samples mailed free.
THE GEM FIBRE PACKAGE CO.,
Dept. E, Gem Building, Detroit, Mich.

KEEP HOARD'S DAIRYMAN IN A FILE. It preserves each copy and keeps them handy for reading and reference. We buy these binders in large lots and sell them to our readers for just what they cost us. We want you to have them. We willh send a heavy Manilla Binder witw cloth back, postpaid, for 30c, or nill send for one new subscription (not your own.) We will send a strong, handsome Binder, very serviceable, postpaid, 60c, or will send for two subscriptions (your own subscription and one new one will obtain this.)

DON'T SEND A CENT Try a "1900" Washer for 30 days, free of all charges, freight prepaid both ways. The "1900" Ball Bearing Washer is the simplest, easiest machine ever made for washing clothes. Saves time, money and worry. Write at once to "1900" Washer Co., 219 A State St., Binghamton, N. Y.

NOW IS THE TIME TO SUBSCRIBE FOR **HOARD'S DAIRYMAN.**

our herd the past year brought us about $70 each."

From an income of *seven* dollars per cow annually to an income of *seventy* dollars per cow annually, in nine years, is a consummation that ought to set at rest every doubt as to the earning capacity of the special-purpose dairy cow. It ought also to provoke others to follow so good an example, which is, in brief: Get good advice, follow it, and everlastingly stick to it.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—Butter remained firm at 28½ cents on the Elgin Board of Trade today. Union offered 40 tubs and Garden Prairie 60, asking 29 cents, and Newman's bid of 28½ was refused. The output for the week was 507,850 pounds. The Quotation Committee reported the market firm at 28½ cents. Former markets were:

	Sales.	Price.
March 16, '03	0	28½c.
March 24, '02	0	27c.
March 25, '01	40 tubs	21½c.
March 26, '00	0	24c.

The New York market remained firm at 29 cents. Recipts 5,700 tubs.

Elgin, Ill., Mar. 23, '03. H. C. B.

DAIRY MARKETS.

ELGIN, Ill., March 23—Butter—Six thousand pounds of butter offered, but none sold on the Board of Trade to-day. The market was declared firm at 28c½. Output of the week was 507,850 lbs.

CHICAGO, Ill., March 23—Eggs—Firsts, at mark, cases included, 13@13¼c; miscellaneous receipts, at mark, cases returned, 12½@12¾c; seconds, per case, $3.30; Duck eggs, per doz., 25c; goose eggs, 50c.

Cheese—Twins, per lb., 13@13¼c; Daisies, 13@13½c; Longhorns, 13@13½c; Swiss, 11½@15c; Brick, 11½@13c; Brick, 11½@12¼c; Young Americas, 13¼c.

Butter—Creamery extras, per lb., 27½c; firsts, 24@26c; seconds, 18@20c; dairies, 24c; packing stock, 12½@13c; ladles, 15c; process butter, 18c; June extras, 23c; roll, 13c.

Cattle—Plain beeves 1,200 to 1,400 lbs., 5.55@5.75; choice to extra beeves, 5.20@5.50; fair to good export and shipping steers, 4.60@5.15; medium beef steers, 4.10@4.50; plain to fair beef steers, 3.90@4.60; common and rough, 1,000 to 1,250 lbs., 3.30@3.80; good to choice heifers, 3.85@4.50; good to choice feeders, 4.00@4.90; poor to plain stockers and feeders 2.75@3.90; fair to good cows and heifers 3.30@4.20; good cutting and fair beef cows, 2.60@3.15; common to good canning cows, 1.60@2.50; veal calves, good to fancy, 6.10@7.25; corn fed Western steers, 3.65@5.85; veals, coarse and common, 3.25@5.85; Texas bulls and grass steers, 2.75@3.20. Texas steers, fair to choice, 3.75@4.60.

Hogs—Good to prime heavy shipping, 7.70@7.85; good to choice heavy packing, 7.60@7.80; plain to choice heavy mixed, 7.55@7.75; selected butcher weights, 7.65@7.80; assorted light, 150 to 195 lbs., 7.40@7.65; common to good light mixed, 7.35@7.55; thin to choice, 50 to 130 lbs., 6.85@7.10; stags and rough lots, 4.40@6.60.

KANSAS CITY, Mar. 23—Eggs—Weak; fresh Missouri and Kansas stock, 10¾c, cases returned; new No. 2 whitewood cases included, 11½c. Butter—Creamery, 21@25c; dairy, 19c.

BALTIMORE, Mar. 23—Butter—Firm unchanged; fancy imitation, 21@23c; fancy creamery, 29@30c; fancy ladle, 18@19c; fancy roll, 17@18c; good roll, 16@17c; store packed, 15@17c.

Eggs—Steady, unchanged, fresh, 14c.

Cheese—Firm, unchanged; large, 14¼@14½c; medium, 14⅝@14¾c; small, 14½@14¾c.

NEW YORK, March 23—Butter—The market was fairly active at a ruling price of 29c for extra creamery and 28½c for high scoring firsts. The arrivals were moderate and contained a very small percentage of fancy table stock. Creamery extras, 29c; state dairy, tubs, fancy, fresh, 27c.

Cheese—The market is on a strong and substantial basis, but prices are not higher. State full cream, small, fall-made, colored, fancy, 15c; state full cream, large do, 14½@14¾c.

Eggs—Further weakness developed this morning under enormous receipts of fresh stock. Trade was very active. State and Pennsylvania fresh-gathered firsts, 14¾c; western fresh-gathered firsts, 14¾c.

BOSTON, March 23.—Butter — Creamery, western, extra, 26½@27½c; western firsts, 25½@26¼c; dairy, 15@25c; imitation creamery, 17@20c; ladle, 16@17c; box and print, 20@28c.

Cheese—Choice, 14@14¼c; sage, 14½@15c; fair, to good, 10@12¼c.

Eggs—Near by, 19c; western selected, 15½c; fair to good, 14½@15c; Illinois, 15½c; western dirties, 14@14½c.

PHILADELPHIA, March 23.—Butter — Firm, good market; extra western creamery, 30@30½c; near by prints, 33c.

Eggs—¼c lower; fresh near by, western and southwestern, 14½c at the mark; southern, 14c at the mark.

Cheese—Quiet but firm; New York full creams, prime small, 14½@14½c; fair to good, 13½@14c; large prime, 14@14¼c; fair to good, 14¼@13¾c.

BALTIMORE MARKET.

BALTIMORE Md., March 19—Butter—The firm feeling noted in the market in our issue of last week has not abated any; but on the contrary, there is a firmer tone and prices on all choice to fancy offerings have been advanced. There has not as yet been any increase in the receipts. Extras continue in very light receipt, and at times the supply has been in sufficient for the demand. There has been a fair demand for well-kept storage creamery. Imitation creamery—There is a quick demand for choice to fancy invoices. There is a prompt sale awaiting all arrivals of choice fresh ladles, of which the supply is very light. Rolls—All lots of good to choice, arriving in good condition, meet ready sale. Store-packed—While in light receipt, the supply is about equal to the demand. Receipts of choice to fancy blocks and prints meet quick sale. The market closes steady and firm on all desirable fresh grades.

Creamery Separator, extras, 29½@30c; firsts, 28@29c; seconds, 24@26c. June Creamery, extras, 24c@25; firsts, 22@24c; seconds, 19@21c; Imitation Creamery, extras, 21@22c; firsts, 19@20c; seconds, 16@18c, Iowa & N. W. Ladle, extras, — firsts, 18c; seconds, 15@17c. Ohio & Indiana Ladle, extras, — firsts, 17@18c; seconds, 15@16c. Roll, Ohio, extras, — firsts, 15c; seconds, 13c. Roll, W. Va., extras, — firsts, 14@15c; seconds, 13c. Ohio Store packed, extras, —; firsts, 14c; seconds, 13c. West Va. Stored packed, extras, —; firsts, 14c; seconds, 12@13c. Creamery blocks (2-lb.) extras, 30@31c; firsts, 28@29c; seconds, 25@26c; Creamery prints (½-lb), extras, 31c; firsts, 29@30c; seconds, 26@28c: Md. Va. & Penna. Prints, extras, 2j@30c; firsts, 27@28c: seconds, 23@25c; Renovated Butter, extras, 19@20c; firsts, 17@at 18c; seconds, 15@16.

Eggs—With continued mild weather in all of the principal egg sections, the gatherings have been quite liberal; consequently there has been a considerable increase in the receipts; so far the supply has not been at all excessive, as the demand has been fully equal to the offerings; the market to day rules about steady at 14½ cents. Duck Eggs in active demand.

Cheese—Offerings and demand moderate; market firm on all choice to fancy stock.

N. Y. State—Cheddars, fine, 14¾@15c; choice, 14@14½c; fair, 13@13¾c; Flats, fine, 14½@14¾c; choice, 13½@13¾c; fair, 12½@13c; Small, fine, 14¼@14½c; choice, 13½@14c: fair, 12½@13; Ohio Flats, fine, 13¼@13¾c; choice, 12¾@13c; fair, 12¾@12½c; O. Picnic, fine, 13¾@14c; choice, 13¼@13½c; fair, 12½@12¾c; Swiss Cheese, fine, 15c; choice, 12½@13½c; fair, 11@12c.

301 Exchange Place. G. M. LAMB & BRO.

NEW YORK FERTILIZER MARKET.

Nitrate of soda		2 25	@ 2 ¼
Blood, Dried red	₱ unit	2 65	@ 2 70
low grade		—	@ —
Concentrated tankage		15 00	@16 00
Fish guano, dried		27 00	@28 00
acidulated		14 00	@ —
Acid phosphate		60	@ 67½
Phosphate rock, f. o. b. Char'n		5 00	@ 7 00
Tenn		3 60	@ 3 75
Bones, rough	₱ ton	16 50	@17 50
ground		20 00	@21 00
Bone meal		18 50	@24 00
Bone black, refuse		18 00	@19 00
Potash, dbl. m're salt 48@53 per cent		1 12	@ 1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons		25 00	@30 00
sulph of basis, 90@98 per cent		2 11	@ 2 18
90@98 per cent less than 25 tons		38 00	@40 00
Potash muriate 100 lbs		1 83	@ 1 95
less than 25 tons		36 00	@40 00
Kainit 25% S. of P	₱ ton	9 30	@ 9 50
less than 25 tons		9 50	@10 50
Sylvinit, 35@37% P	₱ unit	41	@ 46

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—A two horse Heebner's level tread power, on trucks, in good condition for $45. Address ALFRED MIRITZ, Kewaskum, Wis. 7-3

Creamery For Sale—Well located in Southern Wisconsin. Good building. Machinery in good repair. Lots of milk winter and summer. Address X X, care Hoard's Dairyman.

For Sale—First-class creamery in a good railroad town, with best of machinery, ice house filled with ice, cold storage room, and all in good running order. Brick building in good locality. Good reasons for selling. Address BOX 219 North Fairfield, Ohio.

For Sale, a Creamery—The Star Valley Creamery Co., located 1 mile south-east of Towersville, Wis., will offer for sale on or before May 1st, 1903, the following described property: One creamery building including engine room and ice house, one 8-horse upright engine, milk and cream vats, churn, butter worker, one four beam scale, one single beam scale, and all kinds of creamery supplies Could be at a very small expense converted into a cheese factory. For particulars write W. C. WARREN, Pres., Towersville, Wis., or GEO. E. ANDERSON, Sec'y., R. F. D. 5, Viroqua, Wis. 7-3

For Sale—The directors of the Oneida Creamery Co. offer for sale at Rhinelander, Wis., the creamery situated in that city. Creamery is in first-class condition and fully equipped in every respect with the latest machinery. Sale will be held at creamery at 2 p. m., Thursday, April 2, 1903 and will be sold to the highest cash bidder at that time and place. ARTHUR TAYLOR, President, F. H. HILDEBRAND, Secretary.

For Sale—Creamery, Ice Cream and Commission Business in good Iowa town. Splendid refrigerator that will hold over a carload and plenty of ice packed. 20 horse-power boiler, 10 horse-power engine—everything in good shape, long lease on building. Will be sold cheap. Address H. N., care of Hoard's Dairyman, Fort Atkinson, Wis. 7-2

Cheese Outfit for Sale—1 Helmer's Automatic Steel Gang Cheese Press for 14½ inch hoops (new), 1 Helmer Plain Steel Press 14½ inch hoops (new), 12 galvanized 14½ inch cheese hoops (seamless), 14 tinned 14½ inch cheese hoops (seamless), 1 Schaubb power curd mill, 1 Pohl curd mill, 2 set curd knives, in fact two complete cheese outfits for sale at a bargain. RIPON CHEESE FACTORY-CREAMERY, Ripon, Wis. 4-4

For Sale—The entire outfit for making American cheese; all in good order. Will be sold at a bargain. JAMES VIPOND, Shullsburg, Wis. 4-6

For Rent—Creamery with full outfit of machinery for making butter, in perfect working order. Location in best farming section of western New York. For further particulars address O. C. CURTIS, Hilton, N. Y. 6-2

For Sale—Large and well equipped creamery and ice cream plant in leading southern city of 125,000 population. Paying $3,000 profit annually and can be increased. Steam boiler, engine, churn, butter worker, separator, Babcock test, bottle washer and ice cream plant (wholesale ice cream trade year round). Wagons, horses, office fixtures, etc. Office, creamery, and stables all under one roof. Requires ($7,000) seven thousand dollars. Satisfactory reasons for selling. Write for particulars to "ICE CREAM," care Hoard's Dairyman. 3-tf

White Wyandotte Eggs—95 cts. per 15; $1.50 per 30. MAPLE SHADE FARM, Grantsville, Md.

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

Position Wanted—In creamery as buttermaker. Have had long experience in creamery business. Can furnish first-class references. Am single, sober and reliable. State wages. Apply FRITZ S. OHLSSON, 5801 Lexington Ave., Chicago, Ill. 5-3

For Sale—A butter dairy complete, with 42 cows. Located near the best market in the west. A good chance for a small capital. For full particulars address 412, care of Hoard's Dairyman. 5-4

Jersey Bulls—3 fine calves, grandsons of Diploma. Write ROLLA OLIVER, Dearborn, Mo. 6-2

Wanted—Three married men, with or without families, to work on large dairy. Must be good milkers. Salary $25 00 per month, house rent and fuel furnished. Give experience and all particulars. RICHLAND FARMS, Greensboro, Ga. 6-4

$65.00 buys a Holstein bull ready for service. Dam's official test is 16 lbs. 12 oz. McKAY BROS., Buckingham, Ia. 6.2

For Sale—Pure bred Guernsey bulls and grade heifers. Also Early Black Soy Beans at $2.00 per bushel. A. H. HINMAN, Neenah, Wis. 6-4

Angelus Herd of Guernseys—For sale three-year-old bull, Befilius 6398, brought by me from Wisconsin. Also bull calf out of Waller by Wolfrum he out of Materna, sweepstakes cow at World's Fair. W. M. MARCH, 1798 W. 39th St., Los Angelos, Cal. 6-2

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

For Sale—One Gould's power pump, 3x16, tight and loose pulleys; one Young America gang cheese press; one Cheddar gang cheese press; one curd sink; one smoke stack, 14 inches x 24 feet. Will be sold separately. HARLAN CREAMERY CO., Harlan, Iowa. 7-2.

For Sale—Ten 15-16 Guernsey heifers, 2 years old, coming in. Also 3 registered bulls. Address J. D. POWERS, Fort Atkinson, Wis. 7-2.

For Sale—A registered 2-year-old Jersey Bull, two fresh cows and two yearling heifers. Best of breeding. J. BLACK, Bremen, Ohio.

For Sale—Two registered Guernsey bulls, 4 and 7 months old. C. J. TELFER, Fort Atkinson, Wis. 7-2.

Wanted—Good Holstein bulls, all ages, cheap. ROBERT BEEMIS, Appleton, Wis.

For Sale—Cheap, a No. 6 Improved U. S. Cream Separator, as good as new, only been used a few months. WM. N. SHEPARD, Beloit, Wis. 7-2

Guernseys For Sale—Six cows and seven heifers. All registered. Send for circulars. EDW. SHARPLES, Landenberg Pa. 7-tf

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For Sale—The Prairie Farm, 840 acres. May be divided into five farms with buildings. In high state of cultivation, 16 miles from Toledo. One hundred cows, selected for 40 years. Terms to suit. 5%. Address E. L. LOCKWOOD, Petersburg, Mich. 46-tf

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Large Dairy for Sale—Having decided to quit the dairy business I will sell at public sale at my farm on the Circleville Pike 1 mile east of Washington Court House, O., on Thursday, April 2nd, ninety-seven head of good dairy cows, Shorthorn, Holstein and Jersey stock. 1 thoroughbred Holstein bull, Prince Butter Boy, No. 25458, registered in 17th Volume of H. F. H. B., and from a great milk and butter family. Four dairy wagons, milk bottles and dairy outfit, thirty head of good feeding cattle, fifty head of hogs, fifteen head of horses and mules. Hogs, horses and cattle to be sold in forenoon. Sale of dairy cows to commence at 12 o'clock. Washington Court House is 40 miles south-west of Columbus, O., on the Baltimore & Ohio Railroad. MRS. N. A. TAYLOR. 6-2

For Sale or Exchange—Registered Guernsey bull Dewey of Brookside 5512, A. G. C. C., to avoid inbreeding. Sire, Ruppresht 4461, Dam, Queen of Brookside 10205, Age of bull 5 years March 18. For further particulars address R. C. OESTREICH. Kewaunee, Wis. 6-3

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Big Frames, of 2x6 Timbers, Throughout.

ED. HOARD'S DAIRYMAN:—Forty years ago, a man contemplating the erection of a barn or other building as wide as 36 feet and a post of 20 ft., would consider nothing smaller than ten inches square for the frame, and the sills and lower ties would surely not be of less solidity than one foot square. These old frames were strong and fairly rigid, we

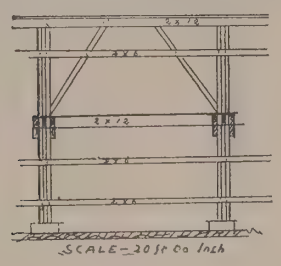


FIG. I.

must allow, though the frequent reports of barns blown down by gales seem to throw doubt upon their solidity

To erect a barn of the size and style shown in Figs. 3 and 4, called for a pile of scantling almost as large as is required to build a good sized wooden ship. Necessity is the mother of invention, and as big timber became scarce, architects and builders began to reduce the size of the scanttling. For many years, 4 inches was the thickest stick a builder would dare put in a frame of any size. The old manner of framing with cross ties tennoned into the posts and braces from these was still followed with the change, that instead of a wood tennon and mortise, a

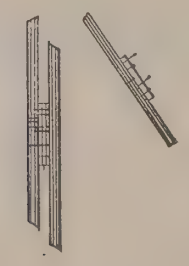


FIG. II.

bolt of iron was used, which was the first improvement in framing. Gradually tennoning and mortising were done away with by the best carpenters and bolts of iron with nuts and spikes, took their place. This is about as far as the majority of architects and carpenters have got yet.

When, a few years ago, the plank frame came before the public, many were skeptical of its utility, and are yet. Any doubt of its strength and general utility has passed away. But these so-called plank frames were, or are, apparently such a net work of planks, and from the fact also, that there appears to be no rule or system, or scientific method of framing, are, probably on this account, slowly coming into public favor.

The frame of the present day must of necessity be of light timber and to raise a structure of the light timber consistent with strength and freedom from net work of interior frams ties and braces is the question of the hour.

I believe these diagrams which I now place before the reader meet the needs of the hour, the great essentials viz: lightness of lumber, 2×6 stuff throughout, strength and rigidity and freedom from interior net work of timbers. The frame I call a brace frame from the fact that the whole frame is built of ordinary brace material, and from the manner of framing in which so many of the timbers act in the capacity of braces, or in looking on the frame the function of so many timbers appear to be that of braces.

Look at Fig 1, which shows a portion of the middle wall of this building. Notice that the posts are two thicknesses of 2×6 timber spread two inches and resting on stone pillars. Why space two inches? Can't you see the triple cross ties of 2×6 laid one above the other, making a 2×12 timber? See one of those 2×12s is placed in the 2 inch space in each of the posts. You can notice the ends in fig. 1.

The tie is spiked solid, and two other ties of the same material are spiked on either side. Here we have a tie of three thicknesses of 2x12s and with two space of 2 inches. Those tie spaces will later contain the purline posts and the upper and lower braces. See fig. 3.

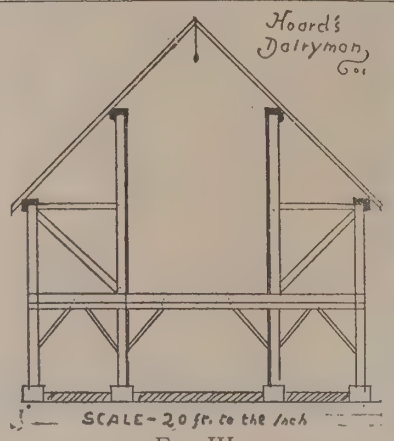


FIG. III.

The purline posts, like the brace posts, are two 2x6 scantlings and like the posts are placed with two 2-inch spaces in the cross-ties. These purlines have a plate-cap or fastening just like the main plate. The plate in figures 2 and 3, is two tiers of 2x6, spiked on top of the posts and fastened with two other ties of 2x6s in the lower edges of post tops —the drawings show very plainly.

There is only one cross-tie in these frames, and that is in the basement ceiling, some 8 to 10 feet from the floor, where it will never bother. It is braced below to both posts and purlines; and above, that is, between the purline posts, the center is open to the roof. Nothing here to obstruct you or to duck your head against—all clear to the roof. From top of post to cross tie, you notice a brace, that brace is but 2x6 pieces. Pretty small you say. It would be too small if the force exerted was pushing, but it is not. It is pulling, and your mathematicians will tell you how many times more the tensile strength of a crushing timber is, compared to its pushing strength.

Now notice the short tie from top of post to purline (Fig. 3.) That timber is double, that is, there are two of them, oftener three of them. Why three of them and only one of the braces adjoining? Because the strength of the upper cross-

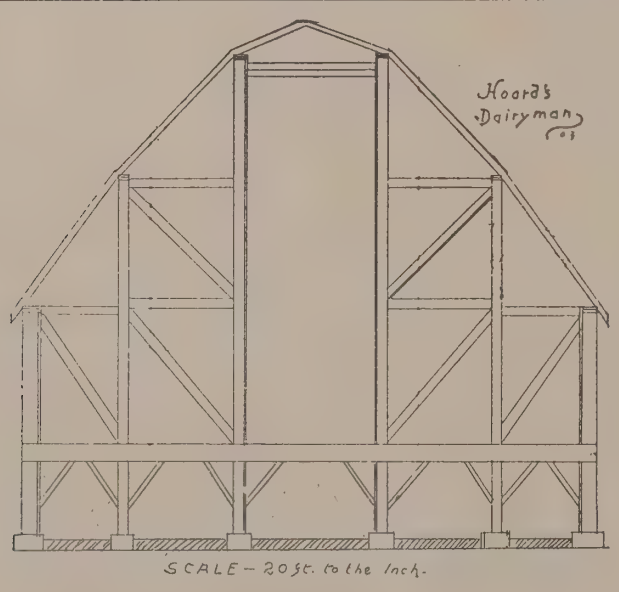


FIG. IV.

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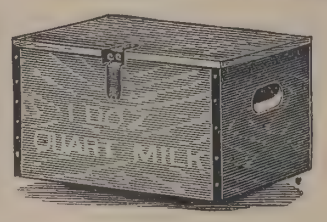
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Those of our people who are interested in poultry for profit should send for a free copy of the new 1903 book (No. 70) "How to Make Money with Poultry and Incubators," published by the Cyphers Incubator Company, Buffalo, N.Y. The greatest recommendation we can give this book is that it is the best thing the Cyphers Company has published. It consists of 196 pages, 8x11 ins.—contains 12 special chapters, covering the subject of Profitable Poultry keeping as follows; Starting with Incubators. Handling Chicks in Brooders. Feeding Chicks. Duck Producing on Large Scale. Broiler Raising. Profitable Egg Farming. Egg Poultry Combination. Egg and Fruit Farming. Scratching-Shed House Plans. Incubator Cellar and Brooding House Plans. Feeding for Eggs. Standard Bred Poultry. Each subject handled by an expert. 300 photographic views of largest poultry plants in United States, England, Germany, New Zealand and South America. Most valuable book of the kind ever issued. Write to-day for free copy and judge for yourself. Sixty pages devoted to complete illustrated description of Cyphers Non-Moisture Incubators, Apartment Brooders, Poultry Foods and Clover Products.



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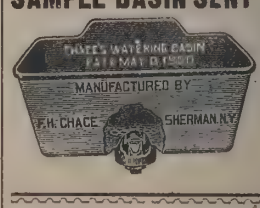
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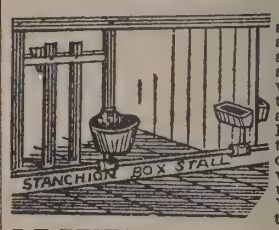


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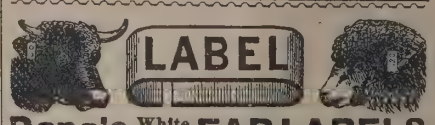
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piece is pushing, crushing, and thus needs to be many times stronger. Will that frame spread, will be the first thought, I apprehend. The long purline of doubled 2x6s is fastened a t or near the foot by two braces to the main cross-tie, rendering its end immovable. Now notice the long brace from its foot at cross-tie to top of plate. That brace prevents spreading at the plate, while the triple 2×6, from top of post to purline, resists the pushing or spreading force of the purline itself, and the weight of the roof exerted by the purline. No, this frame cannot spread. You may spike in another angular brace if you think a piece of 2×6 is not strong enough, but to do so, will be useless labor if the one stick is a sound one and well spiked. Now you would want to nail a tie—a collar beam—on the peak to keep the building from spreading. If you do that you spoil the principle of this frame. There is no need of it at all. That open centre from the floor to the peak is one of the beautiful characteristics of the frame.

We think no more need be said, as the drawing shows the style, principle and method very minutely. The posts are set on stone pillars, as shown in Fig. 3. The floor and adjacent foundation is built of concete. Sills have no place in a modern barn. For siding, strips of 2×6 are nailed sufficiently near for boarding, as shown in Fig. 1. Every spike in this frame counts and strengthifies. Twenty foot pieces are not needed. Short pieces of 2×6—any length — by splicing. See method of splicing. Fig. 2.

Now, see the plan of the big 60-foot barn (Fig. 4) with a post of 25 feet. That it takes your eye I apprehend, and you will be ready to say that this frame is stronger and better than the other,—is not as liable to spread. Not a bit; it is precisely on the same principle as the smaller with the exception that the cross-tie in the peak, joining the interior purlines, is made of a double tier of 2x6 binders.

That upper tie is certainly needed in so wide a barn as 60 feet. Here we have two sets of purlines, and our brace method is carried along upward; the principle however, is the same. The size of the timbers in the big building is the same, 2×6, but we double and treble them. When we use two in the smaller, we use three in the big, and so on. We want no timber bigger than 2x6. The roof on the big barn is a gambrel roof. On the small. er one(Fig. 3) the roof is an ordinary half pitch. J. A. M.

Moldy Ensilage.

ED. HOARD'S DAIRYMAN:—I saw in DAIRYMAN, March 13, that J. M. M. & S. had trouble in their silo of molded ensilage. Now I do not know how many cattle he has to feed from his 16×23 silo, but I judge by my own experience he does not feed it out fast enough or he has put the ensilage in too ripe. Both would have a tendency to make it mold. My advice to J. M. M. & S., is to cut the ensilage a little greener and put some poor hay on top, then some boards, then some stone and some sawdust around the edge and let it stand till cold weather. We cannot expect something good without some labor. Now go slow, do not let your ensilage get too ripe or dry, nor too green—better too green than too ripe to save the mold—and if your silo is tight, you will not have the mold that you speak of. N. P.

Springfield, Vt.

Effect of Spaying Cows on Milk Flow.

Information Wanted.

ED. HOARD'S DAIRYMAN:—We have been interested of late in the subject of spaying cows for the dairy. In my dairy I had the operation performed yesterday on one cow, which has of course as yet not sufficiently recovered to show the result. To-day she is very sore, off her feed and giving but little milk. However, she looks bright to-night and has begun to eat. Our idea is to treat all the cows in the dairy which are marked for ultimate disposal to the butcher in this manner. The cow marked as the next subject, is a large grade Short-horn, which has always given a good flow of milk until again in calf, when she would soon dry off and go four months or more to her next freshening. We expect the operation mentioned to hold her in milk longer, when we hope to have her ready for the butcher.

I write this letter hoping that you may be able to give some experience of others through your paper, along this line, which may be of assistance to us and any of your readers who may be interested in the subject. The question we would like most to have answered is: What has been the effect of the operation on the *quantity and duration* of the milk flow?

Batavia, New York. F. B. R.

The above inquiry is respectfully referred to such of our readers as have had experience along the lines indicated.

When is Milk From a Fresh Cow Fit for Food?

ED. HOARD'S DAIRYMAN:—If you will pardon for taking up this question for only a few words I will give an old method of determining when the milk from any fresh cow becomes good.

It is well understood that the first milk is provided for a special purpose and it gradually changes to "normal" milk in from two to four or five days. Some one found that when heat was applied to the milk of the first few days after parturition it would coagulate promptly. The test for the change to normal consists in boiling a little of the freshly drawn milk. It might be a spoonful in a large spoon or in a small dipper over a lamp. It is but a few moments work and if it boils without coagulating the change has occured and the milk is "normal." The change varies and as a rule it may be well to begin to boil milk from a healthy subject by the fourth or fifth milking.

A custom quite common in the south in early days, and in certain sections, now, allows the calves to luxuriate on the milk for a month or six weeks under the feeling that it was not fit for human food.

Bloomington, Ill. F. E. E.

ED. HOARD'S DAIRYMAN:—I often see inquiries in the papers, how to tell when to use the milk from fresh cows Take a little of the milk, after about the ninth milking, and boil it, if it is not good it will thicken. I have known cases where it was considerable time before it was good. R. A. B.

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ED. HOARD'S DAIRYMAN:—Will you please ask the question, how many dairymen want a corn planter that will drop both corn and cow peas at once, but each one separate, and have a narrow opener in front of it? If we can't get one any nearer, we can get one at Chicopee Falls, Mass., but I would like to get one nearer at home. WM. H. B.

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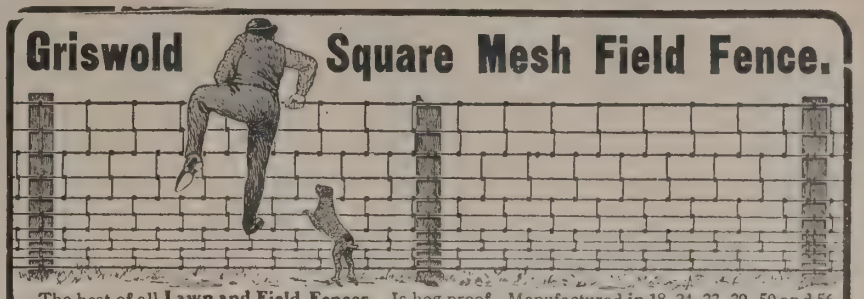
A lady of Atlanta, Ga., says, "My mother was a slave to the whims of her children and let us eat and drink anything we called for, particularly she gave us coffee and lots of it.

I grew up delicate, nervous, half sick and miserable. When I was about grown I began having serious spells with my heart and my condition became so bad my friends decided I could not live long. At a consultation of physicians one of the doctors proposed that I discontinue coffee. This was years ago before Postum was discovered. I quit the coffee and in a year or two my heart was perfectly well.

Several years later when I had a home of my own I imagined that the stimulant of coffee might benefit me, so I started in on it and in a few days the old symptoms of heart trouble returned. I quit it and took up Postum Food Coffee for my morning beverage and the heart trouble disappeared. I find Postum aids my digestion and has helped to build up my whole system.

I now use it three times a day and give it to my children with the knowledge that it is a powerful, delicious liquid food instead of a pernicious poison." Name given by Postum Co., Battle Creek, Mich.

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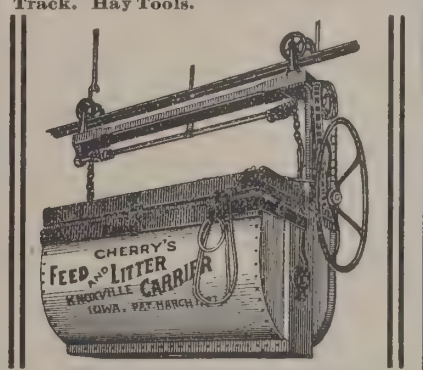
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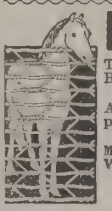


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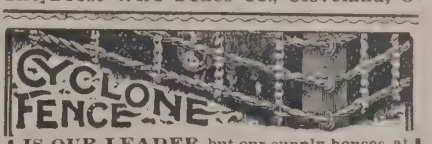


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PRICE W. BAILEY, Seneca Falls N. Y.

A Special Purpose Butter Cow.

[Continued from page 151]

and heifers to. Mr. Ward predicts, by what he has seen of Forfarshire's get on the Island, that in bringing the bull himself to this country, Mr. Cooper will be found to have put the cap sheaf upon all of his glorious work as an importer. I can personally sympathize with Mr. Ward's enthusiasm for Mr. Cooper's splendid importation of last year containing a few of Forfarshire's get. I noticed and called attention to the fact how well they compared with their neighbors and it was no easy end to keep up in that array of the very cream of the Island of which the most numerous feature was the get of the Flying Fox, the half-brother of Forfarshire.

When it came to the sale, Flying Fox himself brought the top price, but the next bull in order of price was a young son of Forfarshire. The latter had no daughter in milk in the sale, but the Fox heifers in milk, which best pleased the bidders, were those whose udders and teats most closely resembled the lacteal machinery of old Rosette. There will be a lot of sons and daughters of Forfarshire and cows bred to him to be sold in this sale as well as the bull himself. Of course he will go into some great thoroughbred herd, but among his bull calves and through those to come from the cows bred to him, his quality may occasionally be secured at a price that the practical dairyman could well afford to pay.

Well selected bulls, springing from such stock as these four sales will distribute, are infinitely better for grading purposes than the cast-offs of less highly organized herds, and the advantage of an auction is that the price is fixed by the buyers and not by the seller. And it very often is a much lower price than it would be if the seller fixed it. Intrinsically good things are quite apt to be held pretty high at private sale the effort being to work off less valuable animals for the lower price. Even at a sale, as well represented as Mr. Cooper's was last year, many animals sold for less than they cost him on the Island, and they were all right too, and in some instances proved remarkably profitable to the buyers.

I think no experienced person would deny that an increase of only five per cent in butter yield, from a given unit of food, would be a very low estimate for a single cross of a well chosen Jersey bull upon the average cow used for butter making in the United States, nor that an increase of full fifty per cent occasionally takes place. Were it possible (as in time it will be) that the entire nine million cows used for butter making should receive even an average of only five per cent increase, the added value to the butter crop of the country would reach the tidy sum of $12,687,942.72, provided the price did not fall. Of course it would take a long time to so improve the entire butter-cow stock that the whole twelve millions of dollars would be added to the country's wealth. Think of the number of pure-bred bulls it would take to grade up nine millions of cows! But it will not take so very long for any individual dairyman, who chooses to go about it, to realize his share of it. And if he does it at once, he will have the advantage of getting his increase before the general improvement has been so extensive as to lower the price of butter. Jersey breeders need to push an aggressive campaign of enlightenment upon this subject among practical dairymen. A permanent market for bulls should be established that will command confidence and sustain the thoroughbred herds.

HARK COMSTOCK.

Reclaiming Sandy Lands for Alfalfa.

ED. HOARD'S DAIRYMAN:—If I have made any success of dairying, and I feel that I have, it is due almost entirely to the information I have received from your paper during the past 8 years, and while I have been a close student of dairy matters all these years I don't know as much to-day about such matters as I thought I knew eight or ten years ago. During these years my whole thought was how to make a small farm (70 acres) pay. Thanks to the teachings of the DAIRYMAN. I believe alfalfa and the silo have solved the problem.

But now I have a different proposition to consider.

I have just bought another farm of 240 acres joining the Michigan Agricultural College farm, of which I hope to make a stock farm for cattle, sheep and hogs. About 40 acres of this land is quite sandy; indeed, there are several knolls covering 8 or 10 acres that seem to be about all sand. This sandy land is nearest the buildings and has been over cropped and under fertilized until it is in bad shape, although I am told by old residents that this very land formerly raised large crops. The sand is of a yellow color, and has more or less humus in the top 8 to 10 inches. Can't say how far below surface the subsoil is, but not very close.

This land is from 8 to 15 feet above the Cedar river which flows along one side of it. I want to cover about 80 acres of this farm with alfalfa, sand lucerne, sandy vetch, or other leguminous crops as soon as possible.

I want to know how to treat this much abused sandy land to bring the best results in the least time.

My idea is to sow cow peas or sand vetch with perhaps some highly nitrogenous fertilizer for a starter, plowing the cow peas under in the fall and sow the ground to rye. I would plow the sand vetch under the second season, continue this, if necessary, until the weeds are killed or smothered, and enough humus and fertility is stored in the soil to grow sand lucerne on the higher and more sandy portions and alfalfa on the lower and less sandy levels. I have had no experience with any of these crops except alfalfa, and so am in need of advice. Balance of farm offers no unusual problems.

C. D. W.

Lansing, Mich.

C. D. W. appears to be headed the right way. Just what commercial fertilizer, if any, would best serve his purpose the professors at the Michigan Agricultural College could tell him much better than we could hope to do. Alfalfa needs good supplies of potash, and the Senior Editor of this paper has derived marked advantage from applying wood ashes on his fields. Lime is also needed if not already in the soil. Let us have some discussion on this subject by those who have experimented.

Suggestions for Enlarging a Barn and Stable.

ED. HOARD'S DAIRYMAN:—I enclose you a ground plan of the basement of our cow stable, which is 38×50 feet and perspective plan of the front or east end of the same. The north and east sides of the basement are solid stone walls with the exception of the 2 little windows one in the root cellar and the other on the stairs, both being on the east side. The stable is built on the west side of the road where the land slopes to the west, and which gives us an entrance right from the road onto the stable floor over the cattle, and then on the south side we have the cow yard which is on a level with the basement floor. The latter is entirely of Portland cement, including

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GOOD DAIRY
near Newport, Ark. 40 acres, 40 cows, 6 room house, 2 large barns, chicken house, dairy implements. $1600 cleared per year. Everything guaranteed as represented. Price $2500 cash. Address
BOX 571, CHANDLER, OKLA.

EGGS FOR HATCHING
I can serve you better than ever with eggs for hatching. White, Barred and Buff Rocks, Cornish Indian Games, Dark Brahmas and many other varieties. Also Ducks and Geese. All prize winners. Write for prices. J. P. Gonigam, Ottawa, Ill.

AYRSHIRE CATTLE of both sexes, and some young ones from good business cows. Prices within reach of any dairyman. Also Chester White Pigs, March and April farrow—All from registered stock. F. TSCHUDY & SONS, Monroe, Wis.

THE BROWN BESSIE HERD
Offers some splendid young cows and heifers bred to Recorder, the only living son of the famous Brown Bessie, winner of the 30 and 90 day butter test at the Columbian. Also a few sons of Recorder from daughters of Diploma and other tested cows are offered.
H. C. TAYLOR, Orfordville, Wis

PETER C. KELLOGG, Auctioneer, is instructed by MR. FRANK C. WARD to sell at auction
WEDNESDAY, APRIL 15th, 1903,
commencing at 10 o'clock his own personally selected importation of
JERSEY CATTLE
of choicest quality which arrived per S. S. "Mesaba" at New York, October 1, 1902. Total Herd, consisting of about 75 head, all in catalogue. None reserved or sold privately. Sale will take place at Hexamer's Riding Academy, 219 Hudson St., Hoboken, N. J. (3 minutes from ferry) 30 minutes from City Hall Park, or Union Square, New York City, by ferries from Barclay and Christopher Streets. The cattle may now be seen at White Oak Ridge Stock Farm, near Milburn, N. J., 50 minutes from New York on the D. L. & W. R. R. For catalogues, ready April 5, address
PETER C. KELLOGG, 107 John St., New York. FRANK C. WARD, 26 Railroad Place, East Orange, N. J.

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AYRSHIRE BULLS
Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address,
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AYRSHIRE BULLS
A choice lot of Young Bulls 3 mo. to 1 year old from heavy milkers at farmers' prices. Also cows and heifers. HOWARD COOK, Beloit, O.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

GUERNSEYS.
HADDON FARMS—Home of the noted GLENWOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

Rosendale Guernseys.
MATURE COWS YEARLY RECORDS range from 356 to 713.3 lbs. butter. This herd contains more officially tested cows than any other herd of the breed. All of the largest records are official ones. A particularly choice lot of tuburculin tested bulls for sale from high record dams.
GEO. C. HILL & SON, Rosendale, Wis.

GUERNSEYS FOR SALE.
Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.
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GUERNSEY Bull Calves Sired by O. K. Dams of equal merit.
FRED VOGEL, JR., 165 First Avenue, Milwaukee, Wis.

Old Homestead Guernseys.
Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.
Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL, Perry, Lake Co., Ohio.

Wasteland Guernseys
Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.
M. M. & E. J. HOLLINGSWORTH, Landenberg, Chester Co., Pa.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis 33660, A. J. C. C., a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

FOR SALE GOLDEN LAD BLOOD. sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

COTTAGE FARM GUERNSEYS
Young stock of both sexes. Some of them out of cows in Advanced Registry, 3 cows now in Advanced Registry, and others soon will be. Also 3 Heifers sold from the Herd the past year have been admitted. Service bull combines the breeding of Lord Stanford and Mary Marshall. Please note change of address.
EZRA MICHENER, Michener, Bucks Co., Pa.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.
W. J. HUSSEY, Mt. Pleasant, O

FOR SALE AT FARMER'S PRICES.
One St. Lambert bull ten months old; also bull calf three months old, or will exchange for as well bred heifers. Registered Poland China pigs for sale at all times. Correspondence solicited. FRANK SHADBOLT, Caledonia, Minn.

FOR SALE.
JERSEY BULL, one year old. Good individual of the best breeding. Also 7 months bull from tested dam. Herd headed by Fontaine's Owl, 60436. Prices on application. Address,
J. F. EGERTON, Footville, Rock Co., Wis.

VALLEY FARM Is offering some good bargains in young bulls from 1 mo. to 2 yr. old. Also B. P. Rock Cockerels, $1.25 each. Write
FRED STUBLEY, Black Earth, Wis,

HAZEL FERN HERD. A. J. C. C. Jerseys, blood of St. Lambert, Melia Ann, Combination. Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale.
Estate W. S. Ladd, Portland, Oregon.

PROSPECT HILL JERSEY HERD.
Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

Exile of St. Lambert
—13657—
is the sire of more tested Jersey cows than any bull living or dead, and the number to his credit will probably never be equaled by any other bull. His dam was one of the largest milkers among Jerseys, and is the dam of the three year old cow with the highest year's milk record for that age. Exile's sire is the grand sire of the cow holding the highest milk record for a year.
The mid-winter sale lists include a few tested daughters of this great bull and several cows and heifers deep in the blood that produced this famous sire. If you wish to improve your herd, or to start one, you will probably never have a better opportunity than is here offered. If interested write for lists, and please specify whether bulls, cows in milk, or heifers, are wanted.
WINTERGREEN HILL FARM, Scottsville, N. Y

ST. OMER HERD
Offers young bulls fit for service, out of tested dams with good yearly records. Strong in Exile of St. L., King of St. L. and Stoke Pogis of Prospect. Reasonabe prices. JOS. T. HOOPES, Bynum, Md.

Biltmore Jerseys.
Have been Bred for work in the Dairy. Are from the choicest foundation tha could be bought. Include more Prize Winners than any other Herd. Are robust, true to type and of great capacity. Are noted for large milk yields, perfect udders and teats. All tuberculin tested for the last seven years.
FOR SALE--Young Bulls from selected dams. Send full details, mentioning defects you wish to correct, blood lines, etc., and we will quote promptly, reasonably, with guaranteed description and full pedigree. Apply to
BILTMORE FARMS, Biltmore, N. C.

The Evergreen Farm Herd has for sale three or four A. J. C. C. heifers bred Also a few cows and some choice bull calves from two to six months old. Write for pedigrees and prices.
N. N. PALMER & SON, Brodhead, Wis.

READY FOR SERVICE
We are offering a solid color yearling Jersey Bull, 56 per cent blood of five of greatest Jerseys that ever lived; out of a young cow scoring 360 lbs. butter within a year, second season. Sound and all right, well grown and thrifty. A bargain at $100. For particulars address
E. E. STEVENS, North Madison, Lake Co., Ohi

the mangers. I would like your valuable assistance in giving me a plan whereby I can build an addition to the stable for 20 more cows with calf pens, and 4 horses, (3 single stalls and 1 box) carriage room for 4 carriages, also creamery and ice house and engine room. On account of selling the land and buildings on the east side of the road, I am obliged to have more room. I also intend to build another silo. J. A. D.

Wallingford, Conn.

We are unable to devise any better plan than to extend the present structure to the west fifty feet to accomodate cows and calves, and provide for horses and carriages on the floor above the basement. If possible, break through the wall on the north and put in some windows. We would not combine creamery and ice house with barn, but erect a separate building about midway, (if practicable) between house and barn. The ice house, also, should be by itself.

Scotch and American Ayrshires.

ED. HOARD'S DAIRYMAN:—I have recently received the report of the official milking tests of Ayrshire cows in Scotland for the year 1902, and have selected the five giving the highest record for butter, also the five giving the highest record in the Home Dairy test in the states for the year 1902, a comparison of which is of interest, all being official and supposed to be among the best of the breed in either country.

The natural conditions in Scotland are more favorable for a large dairy yield from the same cows than in America on account of the more uniform moisture in Scotland, and its consequent succulence of pasturage. The record in both countries shows a good degree of uniformity and a good class of dairy cows.

As the names of the individual cows in Scotland were not given, but their owners instead, I have adopted a uniform method. The report is for two consecutive milkings.

SCOTCH

OWNERS.	Lbs. of milk.	Per cent butter fat.	Butter.
William Winter	60	3.87	2.73
James Littlejohn	52	3.50	2.11
W. C. Alexander	30	5.92	2.05
W. C. Alexander	45	4.47	2.03
A. Gemmil	46	3.30	1.76
Average	46		2.13

AMERICAN.

C. M. Winslow & Son	51	3.80	2.26
L. S. Drew	42	4.60	2.25
Howard Cook	46	4.00	2.14
Geo. H. Yeaton	42	4.50	2.10
W. V. Probasco	47	3.80	2.08
Average	45		2.16

C. M. WINSLOW, Sec'y.
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HOME FARM HERD.
Headed by **COLANTHA 4TH'S LAD.** Official test of their nearest dams 25.1 lbs. butter in seven days. Herd numbers 125 head.
BEST FAMILIES REPRESENTED.
Special prices on six or eight bulls of serviceable age. **W. B. BARNEY & CO., Hampton, Ia.**

STAR FARM HOLSTEINS.
Chief service bull, Mercedes Julip's Pietertje Paul, dam Mercedes Julip's Pietertje, made 1901, world's official butter record, 29 lbs., 5.7 oz. in 7 days; sire Johanna Rue 2d's Paul De Kol, sire of Wit Duchess, 24.88 lbs., in 7 days. Sire's dam, Johanna Rue 2d. You can buy anything you want in registered Holsteins at Star Farm. You can save money by buying at Star Farm. You can order a Johanna Mercedes bull calf from Fall increase to head your herd. No catalogue. Write for just what you want. Horace L. Bronson, Cortland, N. Y.

Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. **C. H. STEVENS, Jefferson, Wis.**

THREE HOLSTEIN BULLS
sired by
DE KOL 2D'S MUTUAL PAUL
His four dams are the cows that made the Holsteins famous.
Dam, De Kol 2d; G. dam Mutual Friend 3d; G. G. dam Pauline Paul; G. G. G. dam De Kol 2d.
When looking for a bull to head your herd bear in mind that De Kol 2d being a world record cow herself, is also the dam of four generations of world record heifers. I offer three bulls ready for service, each carrying 28½ per cent or more of the blood of De Kol 2d from choicely bred dams. They are fine individuals, growthy and vigorous, and will be sold right, quality considered.
GEO. F. CARTER,
126 North Salina St. Syracuse, N. Y.

GLENVIEW HERD
A few fine heifers and bulls for sale. Also some A. R. O. cows. **IRVIN NOWLAN, Toulon, Ill.**

EDGETOWN FARM
90 Holstein-Friesians 90
Stock for sale from A. R. O. cows. Herd headed by Gem Pietertje Paul De Kol, No. 27282, backed by eight official records, averaging 23.44 lbs. butter.
E. J. FARGO, Lake Mills, Wis.



OHIO'S FAMOUS HERD
—OF—
Holstein Cattle
OWNED BY
W. B. Smith & Son
2488 W. Broad St., Columbus, O.
CLYDE PAUL DE KOL.

OAKLAND HERD
HOLSTEIN-FRIESIANS
Will make a special price on a few **CHOICE YOUNG BULLS.**
We also offer young females very cheap just now as we can winter more stock than have pasture for.
T. A. MITCHELL, Weedsport, N. Y.

Markham Manor Farms, Simonsville P. O. Andover, Vt.
Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Solderne Clothilde. No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for description and price to **J. A. THORNTON, Manager, Simmonsville, Vt.**

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No 29175. Sire: Count Colantha Alban No. 25148. Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.
WM. EVERSON & SONS, Lake Mills, Wis.

30 POUNDS 10.18 OZ. BUTTER
In Seven Day Official Test.
Home of the
WORLD'S CHAMPION BUTTER COWS.
BROTHERTOWN STOCK FARMS
DEANSBORO, N. Y. McADAM & VON HEYNE Props.
Sadie Vale Concordia, official test, 694.3 lbs. milk containing 30 lbs. 10.18 oz. butter in 7 days.
Mercedes Julip's Pieterje, official test 584 lbs. milk containing 29 lbs. 5.7 oz. butter in 7 days.
Sadie Vale Concordia's Paul De Kol, Premiersire, No. 27392 H. F. H. B. He is by Paul De Kol and out of our great cow Sadie Vale Concordia.
ABSOLUTELY BEST HERD OF HOLSTEIN-FRIESIANS.
We have a number of fine cows and calves for fine breeding to offer. If you are looking for the best, write us or inspect our herd.

Holstein Freisian Bulls
SOUTH SIDE FARM, WHITE BEAR, MINN.,
offers a number of thrifty well grown calves from Officially Tested Dams at bargains for quick sale, ages three to seven months. Also two fine yearlings, and one two year old.
No Yorkshires for sale at present. Orders booked for spring pigs.
Correspondence solicited.

RICHLAND FARMS, GREENSBORO, GA.
We now have some very fine **HOLSTEIN BULLS FOR SALE;** also some pure bred registered **Victoria Hogs,** all ages, at bargain prices. Write us for what you want.

SHADY NOOK HERD Holstein Friesians offers three bulls from 11 to 16 months old. Two from A. R. O. dams. O. L. C. White Pigs, both sexes. White Cap Yellow Dent Seed Corn, $1.50 per bushel.
W. R. GATES, Fort Atkinson, Wis.

Holstein-Friesian Bull Calves
Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

BROOKSIDE STOCK FARM
HOLSTEIN-FRIESIAN CATTLE
Henry Stevens & Son, Lacona, N. Y.
offer some great bargains, to quick buyers, in 1, 2, and 3 year old heifers; also young cows and bulls.
Stock First-Class. We Must Sell
Address as Above. P. O. Box 208.



WANTED. NO. 1 H. F. BULL
Send pedigree and official records of ancestors. For Sale A No. 1 H. F. Bull dropped Aug. 9, 1901. Dam and sire's dam bred by T. G. Yeomans.
Wm. O. Jackson & Sons, South Bend, Ind.

AUCTION SALE OF
70 Holstein-Friesian Cattle
from the herd of
ARTHUR N. McGEOCH
Sale to be held at
MILWAUKEE, WIS.,
Wednesday, May 6, '03
Sale to be held at McGeoch Farm, "Redbrae" opposite entrance to Soldiers' Home on National Avenue. Electric Cars, National Ave., run to farm every five minutes.
40 OFFICIALLY TESTED COWS AND HEIFERS 40
Among these will be found the great heifer **Duchess Ormsby 2d's Hengerveld DeKol** who holds the **World's Record** for heifer with first calf, having made at age of 2 years, 1 month, 29 days, 19.02 lbs. butter in seven days.
DAME MARJORY DE KOL, a half sister, with record at 2 years, 4 months and 24 days of 16.19 lbs. butter in seven and 65.08 lbs. in thirty days.
LISCOMB AAGGIE 3D at 3 years, 11 months and 26 days with record of 21.58 lbs. in seven and 86.69 lbs. in thirty days.
PIEBE QUEEN 2D'S PRINCESS at 4 years, 9 months, with record of 22.18 lbs. in seven days.
WIT DUCHESS at 5 years, 5 months, 5 days, with record of 24.88 lbs. in seven days.
A FINE LOT OF HEIFERS FROM OFFICIALLY TESTED DAMS. A few richly bred young bulls and the two great service bulls **De Kol 2d's Paul De Kol No. 2** and **Gem Pietertje Hengerveld Paul De Kol** will be included in the sale.
Altogether this is the most desirable lot of Holstein-Friesians, either from the standpoint of the breeder or dairyman, that has ever been offered at public auction. All are cordially invited to be present.
Catalogues ready early in April. Send for one. Address
H. B. DAGGETT, Mgr.,
STATION A. MILWAUKEE, WIS.

A. & G. Herd Holstein-Friesians —Choice-Bred BULL CALVES for sale, from 1 to 18 months old, from dams with official records, and sired by sons of De Kol 2d and Netherland Hengerveld. Herd contains 5 sisters of Lilith Pauline DeKol (who holds the world's official butter record of 28 lbs. 3 oz) 25 granddaughters of DeKol 2d, 5 daughters and 7 granddaughters of DeKol 2d's Paul DeKol (the sire of Lilith Pauline De Kol) and granddaughters of Pauline Paul, Netherland Hengerveld, Mutual Friend, Princess of Wayne, Johanna, Etc., Etc.
AVERILL & GREGORY, The Yates, Syracuse, N. Y.

FOR SALE. H.-F. Bulls, ready for service from A. R. O. Cows and sired by Sir Johanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis

FOR SALE.
H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address **W. H. JONES, Watertown, Wis.** Rural Route No. 2.

CLOVERDALE HERD
HOLSTEINS.
Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.
A. J. DAUGHERITY Streator, Ill.

TYRANENA HERD
100 HOLSTEIN-FRIESIANS 100
A. R. O. Stock For Sale.
Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz **Frank B. Fargo, Lake Mills, Wis.**

BROOKSIDE HERD
offers SPECIAL inducements to quick buyers. We must sell at once to reduce herd to stabling capacity. All ages, both sex. Correspondence solicited. Visitors welcome. Address,
STEVENS BROTHERS Lacona N.Y.

MONONA FARM Offers for sale a few well bred Holstein-Freisian Bull Calves. Also two Service Bulls at reasonable prices. The Monona Farm Herd is founded on the best stock of the De Kol, Netherland, and Clothilde families. Pense Johanna 29332 the head of the herd has 7 A. R. O. dams averaging 22 lbs. 3.7 oz. Junior sire Paul Calamity De Kol 31095.
MADISON, WIS.
THE MONONA FARM HERD
Address, **F. W. ALLIS, Madison, Wis.**

HIGH-CLASS HOLSTEIN-FRIESIAN BULLS
and **Bull Calves** from A. R. O. dams and the best Advanced Registry sires. Cows all officially tested; I breed from no others. Correspondence from breeders and progressive ddirymen invited. **Malcolm H. Gardner, Darien, Wis.**

HOLSTEINS
High Class Advanced Registry Stock only. Best butter families. Stock for sale.
Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.

HOLSTEIN BULL CALVES. | **Johanna Family.** (both sire and dams). ALSO BERKSHIRES.
Wright's Farm. Berlin, Wis.

WOODLAKE HERD.
Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. **JOHN B. IRWIN,** Station D., R. 1, Minneapolis, Minn.

FOR SALE.
3 H. F. Bull Calves, 6 months old. Sired by Johanna Aaggie's Paul DeKol 23443, (150 A. R.) from good milkers and testers.
M. S. CAMPBELL, Genoa. DeKalk Co., Ill.

.....YOU MAY.....
BEGIN AT THE HEAD
to improve your dairy herd with a bull whose dam has official record of 18 lbs. 6.3 oz., sires dam 20 lbs. 8.8 oz. Individual right. Price Right.
McKAY BROS., Buckingham, Iowa.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

The Maples Herd offers H. F. A. R. O. Cows and Heifers of all the leading families in calf to Beryl Wayne De Kol Paul, dam Beryl Wayne, 27.87 lbs. butter A. R. O. Lelith Pauline De Kol's Count, dam Lelith Pauline De Kol 28.24 lbs. butter A. R. O.
Quick buyers may obtain great bargains in heifer and bull calves from the above named great sires. **JOHN C. GODFREY,**
Pennellville, N. Y.

A Unique Ohio Meeting.

The Hart Jersey Herd Visited.

ED. HOARD'S DAIRYMAN:—Something quite unique transpired in Northern Ohio, the other day, which utterly disproves that Friday is an unlucky day, or 13 is a Hoodoo; but on the other hand, both are now associated with one of the pleasantest of occasions that has transpired in dairy circles for a long time. The story about it is like this: Mr. Frank Hart, of Cleveland, one of its most prominent merchants, has a large farm, near Painesville, with its accompaniment of fine, large barns, and well appointed belongings, not to mention his elegant summer home, and here are domiciled a very fine herd of over 100 Jerseys, made up of the choice selections of several of the bluest of the blue blood families from England and the Island. Probably no other herd in the United States contains so many strong individuals in both cows and bulls, as does this "Cherry Tree Farm" herd.

But the occasion was this: Mr. Hart had invited on that Friday, and the 13th at that, about forty of the most prominent breeders of Jerseys and dairymen in the state, to meet him that day and be his guests, and see his herd, and look over his farm. Among the notables present was ex-Gov. Hoard; Prof. C. S. Plumb, of the Ohio State Ag'l College; Prof. J. W. Decker, of the Ohio Dairy School; George E. Scott, the "Dairy Straw" man; Prof. Maybridge, of Adelbert College, and others of not less renown. The party congregated at the Forest City House, in Cleveland, where a special electric car was taken for the farm, 28 miles away. The day had promised rain, but soon cleared into the warmest and most pleasant of March days. The run to the farm was made up the famous Euclid Ave., through the palatial residence section of East Cleveland, through the unending grape farms of Euclid and Wickliff, along the famous Mentor ridge road, past the modest home of the Garfields, and finally on the Concord prairie we stop and are welcomed by the proprietor, and the crowd is soon sight seeing, and admiring the fine cows and young things, as well as a group of bulls, young and old.

No attempt will be here made to tell of the Golden Lad, Tormentor, St. Lambert, Stoke Pogis, Signal and St. Helier blood there represented, and some of the extreme top crosses exhibited, beyond this, that it was an opinion oft expressed, that another such herd of 100 in number could not be found in the United States. Mr. Hart seems to be an adept in every detail that pertained to the breeding and management of this herd, and it is a creation wholly of his, a result of an intense research and application to the study of Jersey cattle, and the result is flattering to him beyond common place compliments and set phrases. It is summed up in six words: "He is master of the art." At the conclusion of a two hours' inspection of herd and surroundings, the electric car was again boarded, and a two miles trip taken to the beautiful little city of Painesville, where at "The Parmely" a very fine noon lunch was spread, and for an hour as guests of Mr. Hart the bountiful repast was enjoyed, spiced with no end of jokes, Jersey talk, and social chat, that took quite wide range, even including President Roosevelt with his "refreshing independence."

Then there was a return to the farm, and individual inspection made of a score or more of the herd and an inspection also of the fine herd of nearly equal number of Jerseys of a close neighbor, Mr. Silverthorn. Then the car was boarded with city intention. On the homeward journey attention was called, and after a brief review of the day and its pleasures, and how thoroughly it had been enjoyed by all, by John Gould, that gentleman moved the heartiest vote of thanks possible to Mr. Hart, as a feeble expression of the appreciation on the part of the visitors for his kind and bountiful hospitality, and wishes for him for much good things in store for the future. The vote was carried with the heartiest of a three times one. Mr. Hart responded in well chosen words and went somewhat into detail as to the "working value" of his herd, and showed that valuable blue-blood cows were not too good for a commercial dairy and were yielding him a fine dividend, beyond the pleasure he received from the ownership of so fine a herd. "Public Square," said the conductor, and out into the blaze of the electric lights of a great city went the "forty-two," each for their own homes, carrying the recollection of a most pleasant day, and the other thought that the host was not only well named, but that, besides, he carried a greater heart, and the generous hospitality of the day was its best outward expression.

JOHN GOULD.

Western Reserve, O.

A Missouri Dairy Report.

ED. HOARD'S DAIRYMAN:—During the year 1902 we kept 7 cows, two of which were two-years-old, also 7 yearlings and 2 horses. Bought all our ground feed, which was very high: Corn, 75 cents per bushel; bran, $1.00 to $1.20 per 100 lbs.

The products of the 7 cows were as follows:

Milk sold at retail	$469.65
Milk, cream and butter used at home	50.00
Calves sold	22.35
Two calves on hand	15.00
Total	$557.00
Our total cash expense for corn and bran for the 16 head of stock was	79.80
Balance	$477.20

Our ration for our cows was wheat bran, corn meal, oat hay cut in the milk, and alfalfa, fed according to our best judgment, after following the instructions given by the best dairy paper we can find, HOARD'S DAIRYMAN. Our little herd of cows consists of 3 full blood and 4 grade Jerseys. Milk sold at 20 to 25 cents per gallon.

Alfalfa is one of the most important factors in our success.

C. H. T.

Elsberry, Mo.

Bermuda Grass for Pasture—Time to Dehorn.

ED. HOARD'S DAIRYMAN:—Have several 12 months-old heifers, Jerseys. What is the best season of year and at what age is best to dehorn them? Dehorned several 18 months-old heifers last fall, but notice their horns continue to grow until now horns or stubbs are about 2 inches long. Can this growth be stopped when dehorned at this age?

Have an old, very old pasture in wild grass. Would you advise me to sow Bermuda for pasture? What about Johnson grass for land you only want in future for pasture?

J. H. W.

Casky, Ky.

There is no special time for dehorning, any season will do, except in fly season If the horns have grown as long as you mention, it is best to dehorn them.

There seems to be a general dislike to sowing Johnson grass, owing to the difficulty of getting rid of it when once introduced, as it is like quack grass in its manner of growth with creeping root stalks that is almost impossible to eradicate. If there is absolute surety that the land will be wanted only for pasture in the future and that it can be prevented from spreading to other fields, Johnson grass might be sown, but not otherwise. Bermuda grass has the good qualities of Johnson grass and is also difficult to eradicate, but not to such extent. It is of little value north of Virginia, but where



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The 1903 Reid Hand Separator is the most exact milk skimmer ever made—it is simplest, fastest, lightest running, and affords most butter-producing material under all conditions. It creates a new source of revenue and maintains the income—

WEARS LESS, LASTS LONGEST

Every Reid Hand Separator is sent out under a positive guarantee, and is sold on its own merits. If you want a separator, we will send a Reid on approval—work it ten days and if it does not excel all others return at our expense. Send for new catalogue and revised price list, mailed free.

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250, 350, 450, 600, 750 POUNDS PER HOUR

Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.

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is but a short journey on the farm that runs the

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the one that gets the profits, and runs without an expert. We let you test it yourself and return if it is not a money maker for you. The price makes it easy to buy. Write now for free catalogue.

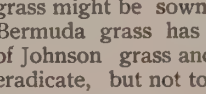
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THE Improved International

The best in the world, has no superior if you want a larger butter yield. It runs easily, skims clean, and is easy to wash. It is perfect in mechanical construction and magnificent in appearance. No outside gears to catch your hands and clothes. Only three parts in the bowl. Look at the low supply can. All parts absolutely interchangeable. Write for Catalogues and Prices.

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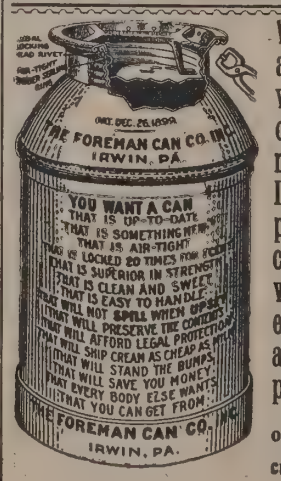
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If you are thinking of buying a Cream Separator write us for Catalogue and information. We manufacture the best machine on the market.

Davis Cream Separator Co., 54 to 64 N. Clinton St. CHICAGO, ILL.



We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity—1000 cans daily, which should enable us to fill all orders promptly.

Every can sold on a guarantee.

Write for Circular H.



NEW OXFORD BALL BEARING Cream Separator

Sold on guarantee to be the best on the market. Catalog free.

WORLD CREAM SEPARATOR CO., 41 Main St., Council Bluffs, Ia.

No farmer or dairyman can afford to be without one.



TEN DAYS FREE TRIAL

THE ECLIPSE Cream Separator

We want to send you an *Eclipse Cream Separator* to try. It is built double strength all through and will last and work perfectly for a life-time. It acts twice on the milk and skims it absolutely clean. Its interior device is simple, easy to wash and to operate. Its double process removes filth from the milk as well as separating the cream, and leaves both pure and sweet and fresh. It never gets out of order. It is guaranteed.

It's a money maker and a money saver. It operates by hand, foot or motor power.

E. L. CHAPMAN CREAM SEPARATOR WORKS, ERIE, PA.

NO HUMBUG. Three in One.



Swine V, Stock Marker and Calf Dehorner. Stops swine from rooting. Makes 48 different ear marks. Extracts Horns. Price $1.50. Send $1 for trial. If it suits, send balance. Pat'd May 6, 1902. Hog and Calf Holder only 75c.

FARMER BRIGHTON, FAIRFIELD, IOWA.

it can be grown, makes excellent pasturage and produces large amounts of hay. We should hesitate to introduce such grasses where there is such an excellent native variety as the Kentucky blue grass, which in that locality, makes an ideal pasture. A thorough harrowing or disking of the old pasture, with a liberal top dressing of manure, and sow with blue grass, white and red clover, timothy, red top and perhaps orchard grass if there is much shade. Under the usual pasture conditions, a variety of grass will give better results than any one or two varieties.

Returns From Skim Milk.

ED. HOARD'S DAIRYMAN:—Having read in a recent issue of the DAIRYMAN of a creamery operator of Washington being dissatisfied with the way some were writing of their success and large returns from skim milk, I thought I would write my experience on the subject as a calf food. I started with rather a thrifty bull calf, on Nov. 2nd he was dropped, I fed him ten days on whole milk, after which I gradually reduced to skim milk and shorts; after fifteen days old he was confined to skim milk and shorts with what oat hay he cared for, which was 375 lbs., or 1½ bales from that time until he was killed, during which time I fed him three bags or 255 lbs. shorts which was mixed with the milk always and in no other way. On the 21st day of August I killed him, and he dressed 333 lbs. I sold the front quarters for 10 cents per pound or $16.30; the hind quarters we made use of at home, and if any one thinks the meat is not first-class, he is laboring under a wrong impression. I sold the hide for $2.00 and considered my calf worth $35 36. As to cost of feed:

255 lbs. shorts at $1.05 per cwt	$2.67
375 lbs, hay at 40 cents per cwt	1.50
Cost of hay and grain	$4.17

Now we have $31.13 left for our skim milk, which I am sorry to say I am unable to give an accurate account of, but to the best of my judgment it is in the neighborhood of 27½ or 28 cents per cwt. I raised 17 heifer calves; sold $94 worth of hogs and raised a number of young ones and all from 17 cows. As a food for calves I think separated skim milk, if properly handled and fed, is very valuable, but must not be fed in large quantities to young calves, under six weeks old. It is my opinion that three-fourths of the trouble arising from scours is from that cause. J. H. POTTER.

Shellville, California.

Milk for a Gallon of Cream.

ED. HOARD'S DAIRYMAN:—What is the standard pounds of milk to make a gallon of 25 per cent cream?

CITY CREAMERY.

Montgomery, Alabama.

There can be no definite or standard number of pounds of milk to make a gallon of cream, as it will vary according to the richness of the milk. A gallon of 25 per cent cream will contain 2.02 lbs. of fat, and to make this amount will require 5.9 gallons of 4 per cent milk and 4.7 gallons of 5 per cent milk, and milk containing different per cents of butter fat in proportion.

Returns from a Wisconsin Holstein Herd.

ED. HOARD'S DAIRYMAN:—I send you a report of my herd of thoroughbred Holstein cows for the year of 1902, which might be of interest to the many readers of HOARD'S DAIRYMAN. I should like to see more of the dairymen give a report of what they are doing. I think it would be a good way to help to advance dairying. It would help to make a strife among the dairymen to see who could make the best average. I deliver my milk to Brick cheese factory. I get for my milk 80 cents to $1.10 per hundred. The number of cows milked is ten. Number of pounds of milk delivered to factory, 82,756.

Cash received for the same	$762.08
Six calves sold	79.35
Four calves raised, valued when dropped	60.00
Milk taken for family use	14.00
Value of whey	105.00
Total amount	$1,020.43
This makes average per cow	$102.04

My cows in 1901 average for 8 cows $106.11. I have gone back instead of going ahead, but it was not my fault. I had bad luck with them. I had hard work to do what I did. Do please let me hear from you through the DAIRYMAN what you think of the yield of ten cows.

Alderley, Wis. J. M. G.

It is not necessary to express an opinion on the above. An average of $102 per cow is large enough to do its own talking, and have an opinion of its own.

Transfers of Guernsey Cattle.

BULLS.

Attle of Green Valley 8433, Rachel Asch to James T. Armour, Bay View, Md.
Ben Hur of Maple Ridge 8452, Edwin Miller to C. J. Hupp, Birmingham, Mich.
Bob Spencer 8453, J. R. Huston to A. J. Kuhns, Dayton, Ohio.
California's Gold Mine 7919, March & Philip to W. M. March, Los Angeles, Cal.
Clinton B. 8421, Ezra Michener to D. Heston Scott, Carversville, Pa.
Dido's Standard 7683, N. K. Fairbank to Swartz & Coe, Eagle, Wis.
Duke of Butter 8451, Andrew B. Sill to Andrew Schul, Hamilton, Ohio.
Earl of Aston 8293, R. H. Warder to Frank Sherman, LaCrosse, Wis.
Fantine's Zac Taylor 8446, Mrs. E. B. Patterson to Mrs. Marion G. Hathaway, Tranton Junction, N. I.
Seth 7993, N. K. Fairbank to Mrs. W. D. Richardson, Garden City, Minn.
Tobias 7858, N. K. Fairbank to J. T. Lease, Ridott, Ill.
Dero Don 8460, C. G. Dondero to J. H. Swift, Oakland, Me.
Milwaukee 8457, Helen M. Sweet to Fred Vogel, Jr., Milwaukee, Wis.
Michael of Maple Glen 8056, Corydon Peck to F. B. Buckley, Valley Falls, N. Y.
Nelson C. Duke of Wheatland 8468, Harrison C. Crocker & Son, to Joseph M. Cox, Scottsville, N. Y.
Pride of Kennebec 8461, C. G. Dondero to Frank B. Brooks, Clinton, Me.
Rosamond Lad 8474, C. L. Sisson to O. Koogle, Ohio City, O.
Traveller Faucette 6738, James L. Branson to Robert M. Hogue, Germantown, Philadelphia, Pa.
Victor Blue of LaGrange 6269, John G. Mobley to H. A. Barrows, Monticello, Fla.

COWS.

Arba of Oak Ridge 15841, Helen M. Sweet to Fred Vogel, Jr., Milwaukee, Wis.
Bettina of Fern Ravine 15372, Fred Vogel, Jr., to Nels Nelson, Black Creek, Wis.
Beatrice of River Bend 4834, H. W. Barbour to T. C. Collins, Farmington, Ct.
Ellorel of Valley View 15855, J. H. Hunter to Rice Bros., Bennington, Vt.
Hebe of Mayesville 15857, John G. Mobley to C. M. Boykin, Mayesville, S. C.
Lindell 15849, Ruth G, 15850, F. C. Dunning to E. C. Patten, Topsham, Me.
Lady Rosette 2nd 6661, H. B. Williams to O. J. Wrolstad, Iolo, Wis.
Lillian Sherwood 15854, C. L. Richmond to Wm. C. Schulze, Philadelphia, Pa.
Lily Faucette 8445, Viola Faucette 12890, James L. Branson to Robert H. Hogue, Germantown, Philadelphia, Pa.
Mabel of Oak Ridge 15842, Herbert L. Sweet to Fred Vogel, Jr., Milwaukee, Wis.
Queen Faucette 11878, James L. Branson to E. T. Gill, Haddonfield, N. J.
Xarifa of Bear Creek 6607, L. B. & H. B. Williams to Dr. M. Ravn, Scandinavia, Wis.
Bonetta of Paulsdale 15839, Est. Wm. M. Paul to E. T. Gill, Haddonfield, N. J.
Belle of the Homestead 10701, Jessie Jeweller of Fairview 5874, E. T. Gill to J. P. Bardes. Flemington, N. J.
Bonetta of Paulsdale 15839, Hazel of Haddon 15840, E. T. Gill to Harry Yates, Buffalo, N. Y.
Cortona 14832, A. J. Snyder to F. C. Lippincott. Camden, N. J.
Countess Lonan 11904, Lassie's Omega 12799, Maltie 9184, Senorita 15597, Waller 9561, March & Philp to W. M. March, Los Angeles, Cal.
Daisy of Levin 14683, Squire's Estella 15076, A. J. Snyder to Moses Taylor, Mount Kisco, N. Y.
Evaline's Best 14592, D. L. Stevens to H. C. Cook, Rosston, Pa.
Forest Rose of the Highlands 15837, J. M. Duncan to G. B. Tallman, Perry, N. Y.
Flossie of Elm Place 15833, Forest Rose of the Highlands 15837, Jennie of Hop City L. 15449, Lady Y. 15838, Lillie of Hop City L. 15448, Maplehurst Ethel 15834, G. B. Tallman to Harry Yates, Buffalo, N. Y.
Mildred D. 5036, Victorine of Fernwood 10966, Thomas E. Brooks to E. T. Gill, Haddonfield, N. J.
Onega 15371, John Henry Livingston to Claude Moore, Madalin, N. Y

WM. H. CALDWELL, Peterboro, N. H., Feb. 23, 1903. Secretary.



COMMON SENSE
Calf Feeder

awarded Gold Medal at Pan-American Exposition. The only Feeder adopted by experiment stations. It is the kind others try to imitate. Easiest to operate and clean.

Most Durable, Simple, Economical, Scientific and Practical.

Do not be deceived by imitators. Shams are never imitated. More Common Sense Feeders are in use than all others combined. Over 50,000 in use. No valves to get clogged or foul. Nipples reinforced and cannot collapse. The calf feeder is a perfect weaner. A substitute for nature.

Extra gain on one calf pays for two feeders.

Best Feeder Made.
Michigan State Board of Health:—I tried every Calf Feeder I could find, but liked yours best.

Worth $10.00.
George S. Bement, Victor, N. Y.:—I am very much pleased with the Feeder and would not be without it for $10. No trouble, no damning, no milk on your clothes, no trouble to teach the calves to take hold of it, no sucking the cows, and the best of all is that when they get about eight weeks old they don't stop for the nipple but just drink out of the pail.

The Principle is Correct.
Purdue University Agricultural Experiment Station of Indiana, LaFayette, Ind.:—We have been using the Feeder to some extent and it is in constant use at this time and we believe it to be very satisfactory in its work. The principle of Your Feeder, I believe to be the correct one. C. PLUMB, Director.

Advise Stock Raisers to use it.
Maryland Veterinary Hospital:—I am very much pleased with the Feeder and would advise stock raisers not to be without one.

Price $1.50 including two nipples, sent postpaid for $1.75. We guarantee satisfaction, but if you are in doubt about its value we will send one on approval for 50c to cover postage, remainder to be paid if satisfactory. Be Sure and send for our twenty-two reasons why you should use a feeder. It's free. Sold by one dealer in a town.

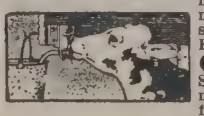
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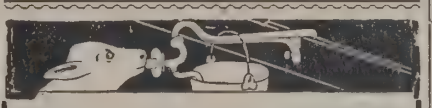
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Patented under No. 721,384. Used in about forty experiment stations. Mass. Ag'l College writes as follows: Mr. M. T. Phillips, Dear Sir:—I write to say that the Calf Feeder is giving excellent satisfaction. We have found it to be all one could ask for in a feeder. It is easily cleaned and appears to be durable. Yours truly, E. A. JONES, Supt.
Complete with extra nipple, $1.50, express prepaid. Circulars free.
M. T. PHILLIPS, POMEROY, PA.

DR. REA'S IMPROVED CALF FEEDER
Established 1892.



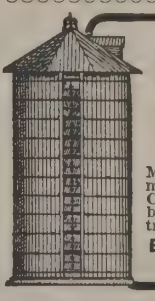
Galvanized castings. Will not rust. Seamless rubber nipples, reinforced, cannot split. Makes fat calves. Price,
ONE DOLLAR.
Satisfaction guaranteed or money refunded. Booklet free.
Dr. CHAS. L. REA, 220 E. 32d St., New York



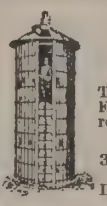
ONLY BALL AND SOCKET CALF FEEDER on market. Nipple moves freely in any direction as in nature. Many other original features. Not an imitation but most improved feeder made. Result of years practical experience. Approved and used by experiment stations. Easiest to clean, strongest and most durable. Price..... $1.50
or $1.75 prepaid. Free circular tells why this feeder is the best. Write the manufacturers today. MAHLER BROS., 34 La Salle St., Chicago, Ill.



ROUND SILOS. No corners, no angles, hence no moulding, cutting and waste. Cypress, White Pine and White Hemlock. 4 styles; 200 sizes. Best and cheapest Silos on earth. All kinds Silo machinery. Catalog free.
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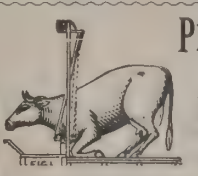


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The only Perfect, Continuous Open Front Silo made. See open top patent roof. Ask for catalogue.
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We are manufacturing a first class round silo at a price far below competition. We guarantee our stock, we guarantee our workmanship. Silo 20x40 will cost you $275.00 built of Georgia Pine, with a discount from this of 5 per cent for freight.
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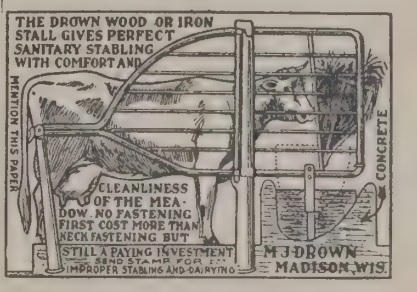
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$28 FREE
FOR A TESTIMONIAL

You can have ripe tomatoes June 15th, ripe melons July 1st, new potatoes and cucumbers May 15th. All other vegetables or flowers as early by using Gold Mine Hot bed. It protects all kinds of plants from frost, cold raw winds and storms. Keeps off the bugs, insects, cutworms. Stimulates plant life in such a manner as to make them grow three times as fast. Indorsed and recommended by every agricultural paper in the United States, and by every farmer that has used them. There is not a Tool or implement that the farmer buys that will bring him in as large returns each year as this. It will pay for itself forty times a year, with proper usage.

We have reduced the price from $1.50 per dozen to 85 cents, for immediate acceptance. Sold on the same guarantee to give satisfaction as plows, binders, and mowers are sold, or money refunded. When you find they are better than you expected them kindly send us a testimonial. Next year you will want more of them; we will reciprocate your kindness with a present.

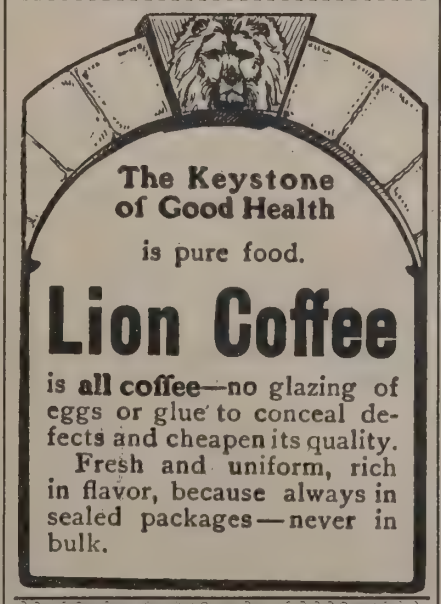
We will give 200 Gold Mine Hot Beds to the person sending in the best report; 100 for second best; 50 for third; value $28, and pay all charges to destination. Premiums paid in November. Points considered—Earliness yield, amount of money made, with one dozen. Please do not delay your orders.

Reference by permission: Commercial Bank, Greentown.

W. M. WOODWORTH, Greentown, Ind.

$45 WKLY. selling ACME PUMP GOVERNORS. They make all pumps work easy and fit all kinds, (iron or wood.) Mills run with ⅓ less wind Agents Exclusive territory. Its Merits sell it. PUMP GOVERNOR MNFG. CO., (K) 40 Dearborn St., Chicago, Ill.

MILK TUBES
Patent Coin Silver 1¾" 50c. 2¾" 80c. Improved That Opener 75c. Dilating plug 25c.
Postpaid on receipt of price.
G. P Pilling & Son,
2d and Arch Sts., Phil., Pa.



The Keystone of Good Health
is pure food.
Lion Coffee
is all coffee—no glazing of eggs or glue to conceal defects and cheapen its quality.
Fresh and uniform, rich in flavor, because always in sealed packages—never in bulk.

Cream SEPARATORS
All about them and other things for the dairy and creamery. A. H. REID, Philadelphia.

CONCERNING OUR ADVERTISERS.

About Mower

If a mowing machine never broke until it was worn out, there would not be the large number sold annually that there is at present. Farmers could save expense for themselves and cut down this number if they would take proper care of their machines, keeping the fast running parts properly oiled, the nuts tight, and the various parts in proper adjustment. In buying a new mower, it is well to notice what provision has been made for taking up wear and lost motion and preventing pounding, thus preventing untimely breakage and the early laying aside of the machine. The Champion Draw Cut Mower will repay an examination with this point in mind.

Calves scour and die as the result of incomplete nutrition. Too little protein has been furnished in the food of the pregnant dam; hence the foetus is imperfectly developed. The milk of a dam so fed is similarly lackingin this most requisite ingredient. Armour and Co.'s dried blood meal, advertised elsewhere in this issue, serves to immediately balance the ration of cows and calves—of other females and their offspring—so that these evils do not occur. It is pure dried powdered blood of bullocks, and contains 87 per cent of digestable protein, besides the other necessary and valuable constituents of fresh blood, so that starchy foods may be easily and cheaply balanced by the addition of small quantities of this important product of the packing houses, Working animals are strengthened and invigorated; young growing animals fully nurtured; and sick animals restored to normal weight and health, when fed dried blood meal as an adjunct to their other foods. It has a hundred other important uses. Many of these are set forth simply and truthfully in the booklet published by the Armour Fertilizer Works Readers of this paper will do well to procure a copy of this booklet, which will be sent free of charge. Blood meal will keep poultry healthy, and make hens lay.

The Business Eye.

It requires a business eye to see an opportunity when it presents itself. The ability to see things as they are is the one thing which agriculturists should possess if they mean to make a success out of whatever they undertake to do. It is the power of discernment that enables them to keep up interest in their work, and it is enthusiastic interest in what one is doing that gives life its zest and enables one to do his best. In the purchase of a binder, for example, a good business eye is needed. There are many details in the construction of the machine that should be carefully examined; and where this is done the farmer in the great majority of instances buys the McCormick, because it is preeminently the machine for the man with an eye for business.

The possibility of a dry season should be a factor in the choosing of seed corn. A variety well calculated to resist drouth in the King of the Earlies, grown and marketed by Currie Brothers, the seedmen of Milwaukee, Wis. As will be noticed by their advertisement elsewhere in our paper, it possesses in abundance about every other requirement the planter looks for. In addition to its being an excellent variety, purchasers can always depend on the Currie stock being most carefully selected from the best ears, uniform in type, well matured and without suspicion of having been touched by frost. Prices are quoted in the advertisement. The Currie catalog for 1903 is an inexhaustible mine of good things for the farm and garden. Everything that is standard, many valuable specialties. It is mailed free for the asking.

The readers of Hoard's Dairyman are liberal patrons of the manufacturers of the better grades of wire fencing, not simply that good fencing is a good deal of a necessity on the dairy farm where many fine cows are kept but as well from the fact that Hoard's Dairyman is read by a very progressive, up-to-date class of farmers who succeed by doing things well. With the coming of spring many a rod of new fencing will be put up by our readers and we urge a better acquaintance with those advertised in our columns. It costs but a postal card to obtain an expensive catalogue that fully sets forth the merits of a particular fence and there are advertised in our columns a half a dozen different kinds and they are the best that can be found in the market. Some prefer one, some another, but the way to do is to take a little trouble such as we suggest and find out which you individually prefer. Don't wait until you have expended a hundred or so dollars in new fencing and then wish you had put in some other kind. Satisfy yourself by the opportunity of selection first. It costs no more to have what you want and there is no need of your money buying anything else. Write these advertisers and kindly mention Hoard's Dairyman.

Cure "The" Cow, advertised in our columns, is well spoken of by a reader, as the following correspondence shows:

Nortonville, Kan., Dec. 28, 1902.

Dr. Eaton J. Gróss, 152 Congress St. Troy, N. Y. Dear Sir:—I saw your adv. in Hoard's Dairyman for Cure "The" Cow. I have a cow that is dumpish and stupid, eats very sparingly, and has been that way for the last 4 days. She acts to me like she had lost her cud and looks somewhat bloated; but bowels are open and regular, is dry now and will be in, the first week in January. If you will send me sample of your remedy, I will thoroughly try the same and recommend it to others, as no one keeps cow remedies in this country. I keep 41 cows and there is over 500 right around here. I will let others know if it does what you claim for it. Yours respectfully,

O. J. Langworthy

I shipped Mr. Langworthy, Dec. 30, 1902, ½ gallon $3.50 size Cure "The" Cow free of charge to introduce it in his locality, the following letter will speak for itself:

Nortonville, Kan., Feb. 12, 1903.

Dr.-Eaton J. Gross, 152 Congress St., Troy, N. Y., Dear Sir:—The reason I did not write you sooner is, that about the time I had one cow well, another was affected the same way. One cow is entirely well and the other better. I am more than satisfied with the results of Cure "The" Cow, and shall recommend the same to others here. As soon as sample sent is gone, I shall order more to keep on hand. Very respectfully yours,

O. J. Langworthy.

Rumely Company New Catalog.

From the city of La Porte, Indiana, "the Maple City", comes fresh from the press, the 1903 catalog of our regular advertising patron, the M. Rumely Company. In acknowledgment of the pride all its people have in this enterprising city, it bears on its front cover page a beautiful wreath of Autumn tinted maple leaves, on the back page a cut in colors of the great Rumely manufactory with the leaf embellishment, and the book throughout is attractive in form and substance. It has a fit subject. Its purpose is to illustrate and describe the well known and popular Rumely Traction Engines and Separators. The objects of a catalog are well conceived and maintained to the end. No one can take up the book without being impressed with the fact that the Rumely Company intends that the purchaser shall know all about the Rumely goods. About one-half the book is taken up with full page illustrations. Every point is made plain, so far as illustration can do it, and the descriptions are so minute and exact as to leave no questions or doubts in the mind of the reader when he has finished. The Company evidently proceeds upon the theory that if threshing machinery buyers appreciate just what their line consists of, it will be amply able to take care of itself against all competition. This must be conceded a wise policy where goods have the sterling character possessed by those of this concern. The book will be welcomed by all who are interested in high grade threshing machinery. It will be mailed free to anyone writing for it.

The Dietz Search Light.

The illustration herewith represents one of the search lights manufactured by that famous old lantern house, R. E. Dietz Company, New York. We believe such a light assigned to definite stations in barn or stable would never be parted with after a month's service. The light it sheds is strong and clear, very effectually taking the place of electric light. A definite position should be assigned it on shelf or nail, where it will best command each apartment where work is frequently done at night. It will serve a hundred most valuable purposes, as grooming and harnessing horses, cleaning stables, hitching up and unhitching, milking, feeding, etc. It is also a most valuable, inexpensive light to install in a hall or on the front porch to command the approach to the house. It will be noted that it is fitted for hanging or setting on shelf. It is also conveniently carried from place to place, so that the same light may do duty in the yard and in each of several chosen stations inside. It is one of a long line of lanterns and lamps manufactured by the Dietz Company who advertise in our columns. They will send free their illustrated catalogue to anyone writing for it.

Horace L. Bronson, proprietor of Star Farm Cortland, N. Y., writes: I take pleasure in announcing to readers of Hoard's Dairyman, that I have placed at the head of Star Farm herd, Mercedes Julip's Pietertje Paul. I do not advertise him as the best Holstein bull in the world, for I realize that there must be divergence in opinion as to the respective merits of the best strains of Holstein-Friesians. However, as this bull is now only a yearling and just coming into usefulness, I deem it proper to place his breeding before the public and let it decide as to its merits. His dam is Mercedes Julip's Pietertje No. 39480, and she made a world's official seven-day record in December, 1901, of 29 lbs., 5.7 oz. butter. This cow combines the blood of many of the most noted of Holstein Friesian animals. Pietertje 2nd, holds the world's record for milk with 30,318½ lbs. in one year. Mercedes won the Breeders' Gazette challenge cup in 1883, with a record of 99 lbs., 6½ oz. butter in thirty days, 24 lbs. 6 oz. in seven days, 3 lbs. 10 oz. in one day. Julip was sired by Mink Prince, a son of Mink, record 29 lbs. 5 oz. butter in ten days. In the pedigree of this great cow are the famous bulls, Jaap, Mercedes Prince, Keyes 6th, Pietertje 2nd's Holland King and Mink Prince, so much for the dam. The sire of this young bull is Johanna Rue 2nd's Paul De Kol No. 21724. His breeding is hardly less prominent than that of the dam. Great in breeding, he has already proven



A Good Record

TEN CAR LOADS

which means in this case twenty-four thousand nine hundred tubs sold to one co-operative Dairy Company in Minnesota, between Feb. 1899 and July 1902, and in using them they did not lose one tub out of the entire lot. We have their letter stating this to be a fact.

This is how our GENUINE "Elgin" Tub stands up.

Made only by the ELGIN BUTTER TUB CO. at Elgin, Ill.

Schmidt Bros., Props.



YOU also will have machines suitable for every condition of the harvest field. The Champions have improvements which lighten the work and increase the effective life of the machine.

A catalog describing them and handsome colored calendar will be sent free on request to

CHAMPION DIVISION, INTERNATIONAL HARVESTER COMPANY OF AMERICA, CHICAGO.

WE POINT WITH PRIDE

TO ITS RECORD IN THE SHORT SPACE OF SEVEN MONTHS

—THE—

ILLINOIS COLORADO OIL GAS & COAL COMPANY

HAS MADE A PROFIT OF 500 PER CENT FOR ITS STOCKHOLDERS

on the advanced price of shares. It will fully make 500 per cent more within the next few months. There are only a few more shares to be had at the present selling price - - - - - - - - - - - - - - - - - -

30c A SHARE

If you want any at this price, speak quickly for the drillers of the ILLINOIS COLORADO OIL GAS & COAL COMPANY are working day and night to reach the second large body of oil sands. Following table will show you what you can get for your money. - - - - - - - - - - - - - - - - -

$600 will buy 2,000 shares — **$60 will buy 200 shares**
300 will buy 1,000 shares — **30 will buy 100 shares**
150 will buy 500 shares — **15 will buy 50 shares**

The oil this well has already produced is the highest grade in the United States, and commands a price of $2.00 a barrel. This makes it by far the best investment on the market, for statistics show that this high grade is becoming a scarce product in the United States. Do you appreciate the advantage of owning a product that great corporations are anxious to buy? THE ILLINOIS COLORADO OIL GAS & COAL COMPANY have 1040 acres, room for at least 500 wells, on the line of two railroads. The company owns engines, force pumps, and all machinery necessary to drill to the depth of 3,000 feet, has no indebtedness of any kind, no incumbrance, no preferred stock or bonds. Stock is fully paid and non-assessable. The company is a corporation for the people. Remember the price of shares is now 30c, and as soon as the drills penetrate the vast oil sands the stock will go at $1.00 a share. Without accidents, two weeks will be sufficient to complete our well. Fifty shares is the lowest amount of stock sold. If you cannot pay the full amount of your subscription fn cash, we will accept 25 per cent with order, 25 per cent in 30 days, and 50 per cent in 60 days. THE ILLINOIS OIL GAS & COAL COMPANY is a sure money maker. Don't delay in sending in your order.

M. L. COFFEE,

Suite 541, Unity Building. CHICAGO, ILLINOIS.



Lump Jaw
Spavin
Ringbone
Fistula
Poll Evil
Knee-Sprung



Cure Them All

You can cure all these diseases and blemishes easily, thoroughly and inexpensively. You can also cure Curb, Splint, Sweeny and soft enlargements of every description. If you have any such cases to treat, write us. We will send you two big booklets giving you all the information you need. No matter how old the case or what has failed, we will guarantee a cure by the methods the books tell of—methods now employed by over 140,000 farmers and stockmen. Write today.

FLEMING BROS., Chemists, 228 Union Stock Yards, Chicago, Ill.

10 DAYS FREE TRIAL



We will send any bicycle to any address with the understanding and agreement that you can give it 10 DAYS' FREE TRIAL and if you do not find it easier running, handsomer, stronger, better finished and equipped, more up to date and higher grade than any bicycle you can buy elsewhere at $5.00 to $15.00 more money, you can return it to us at our expense and you will not be out one cent.

$10.95 Buys our new HIGH GRADE 1903 NEWTON BICYCLE, which we guarantee stronger, easier riding, better equipped; better frame, wheels, hubs and bearings than you can get in any other bicycle for less than $20.00. OUR 1903 NAPOLEON BICYCLE is priced at about ONE-HALF the lowest price asked by others. For Free Bicycle Catalogue, hundreds of price surprises in bicycles and supplies, our Free Trial and Guarantee Proposition and our Most Astonishing Offer, cut this ad. out and mail to SEARS, ROEBUCK & CO., CHICAGO

his prepotency. He is the sire of Wit Duchess No. 43953, with an official seven-day butter record of 24.88 lbs., and eight other A. R. O. daughters. His dam is Johanna Rue 2nd, record 21 lbs. 4.5 oz. butter in one week. Granddam, Johanna Rue, record 21 lbs. 3.3 oz. in seven days. The sire of Johanna Rue 2nd's Paul De Kol is Paul Mutual DeKol No. 18726, sire of three A. R. O. daughters. His sire is Paul DeKol, two A. R. O. daughters, his dam, Mutual Friend 2nd., record 27 lbs. 8 oz. butter in seven days official. It would seem as if this breeding would satisfy the requirements of the most exacting. I submit with confidence that no other bull but Mercedes Julip's Pietertje Paul combines the blood of the three great cows, Johanna Rue, Mutual Friend 2nd. and Mercedes Julip's Pietertje. Star Farm has some of the most promising young official butter record heifers that can be found in the country to-day. These have been bred to Mercedes Julip's Pietertje Paul. From the fall increase I shall be able to furnish breeders with male calves, and their breeding will be second to none. The price will be reasonable.

An Ohio Herd Statement.

ED. HOARD'S DAIRYMAN:—Enclosed please find $1.00 for which please send me your valuable paper another year, which I could not think of doing without. Below is statement for year ending Jan. 1, '03; it is not very good, you may print it or throw in waste basket as you like. Hope to do better another year.

Dr.		Cr.	
Invested Jan. 1, '02	$325.62	Milk sold	$ 843 70
Cows bought.....	279.50	Cows & calves..	123.18
Grain and feed....	141.18	Increase (raised)	60.00
Balance.....	762.52	Pres. worth or cost	481.94
	$1,508.82		$1,508.82

This is from an average of 12 cows; have 15 now. In addition to above I have raised about $125.00 worth of hogs; we sell milk and cream, and I am going to try and raise my own cows instead of buying. Cows would sell for more than they cost at present time. I have not made any account of feed raised on farm, only what I had to buy. Cows are natives and grades of Durham and Holstein. I have a Holstein bull and expect to breed up by buying good bulls of a butter strain of Holsteins; I like them very much. Have only been in the business for three years, and can truly say that all I ever knew or have learned, has come from your valuable paper and 3 years keeping cows. R. E. F.

North Kingsville, Ohio.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Infectious Abortion.

My cows are all aborting at from 5 to 8 months. What can I do to prevent it? SUBSCRIBER.
Mass.

ANSWER.

Your cows have infectious abortion and require the strictest adherence to the following instructions in order to free your herd from the dreaded malady which is ruining so many of our valuable dairies and greatly cutting down the annual income to the owners.

We must, first of all, isolate the cows which have aborted; destroy the afterbirth and foetus, and thorougly disinfect the stables in which they have aborted; whitewash the walls and give plenty of light in the stables. About the best agent to apply to the floor is air-slaked lime. Apply it once daily after cleansing, In the absence of lime, wood ashes or land plaster may be used instead. If in the grass season, it is advantageous to put the healthy cows to pasture. The cows which have aborted should not be allowed to retain the afterbirth; the same should be promptly and completely removed, and the uterus and vagina thoroughly cleansed by irrigating same with a 2 per cent solution of carbolic acid, a 1-5000 solution of bichloride of mercury, or other disinfecting agents. This can best be done by using a large sized fountain syringe, and should be repeated once daily, until the disappearance of the vaginal discharge. Until this has entirely disappeared no cow should be used for breeding purpose, or be allowed to be returned into the herd among the healthy cows. We may also increase the power of resistance of all the animals by means of food rich in nitrogen, and a teaspoonful or two of powdered cramp bark in food, once daily.

Swollen Teat.

I have a valuable cow that freshened about two weeks ago. When she came in there seemed to be some obstruction in one of her teats, and it was almost impossible to press any milk out, I opened the passage with a bistoury when a copious flow of milk and blood came. Was able to milk it out for about two days when it became sealed again. I repeated the operation with about same results. Now she has almost ceased to milk from that quarter. Udder is in good condition but the teat is swollen and inflamed. Have bathed it thoroughly twice a day with hot water, then applied a mixture of lard and coal oil. What can I do for her and is there any chance of bringing that quarter to a normal condition.

Which is the cheapest grain to feed with alfalfa; rolled barley, $1.40 per hundred, corn meal, $1.50 bran, $1.40. Will it pay to feed, say 2 quarts per day to each animal? W. J. W.
Riverside, Cal.

ANSWER.

It appears that you have introduced some septic germs into the teat while opening it or afterwards, or the teat would not swell as you state. You cannot be too careful in keeping your bistoury thoroughly aseptic before inserting it. It is advisable to keep on milking even if you get but little milk in order to keep the quarter alive for the next freshening. Otherwise your procedure was all right.

Barley has approximately 78 per cent of feeding units, and corn 84 per cent. There is therefore but little choice between them at the prices named. However we should prefer the barley, and thihk it would pay to feed it.

Brain Affliction.

My bull keeps going around in a circle about his own length. He will keep it up for half an hour, then rest awhile and start again: he always goes to the right, has got no appetite, takes no notice of a cow. J. I.
Chesterfield Co., Va.

ANSWER.

This is an affliction of the brain caused by a parasite which is usually fatal, no matter what you may do.

Hollow Horn.

I have a cow that for two or three days at a time would refuse to eat and then would eat again for a few days and then be off her feed again till at last she went about two weeks. She got extremely poor, and I came to the conclusion she had hollow horns and bored both horns and poured turpentine on top of the head. In two or three days after boring, she began to eat and now eats as much as any cow in the stable, and gained up fairly well in milk, but will not gain in flesh.
Markham, Ont. C. E. C.

ANSWER.

There is no such disease as hollow horns. The cow could not have been very sick if she lived through the treatment you have applied, as boring holes in the horns and pouring in turpentine is surely committing cruelty to the animal. Since she has practically recovered from whatever may have been the trouble, there is nothing to be done, but give her good food and enough of it, also give salt at liberty and she will soon gain in flesh.

Colic During Pregnancy.

I have a valuable brood mare. She is 12 years old; weight 1200 lbs. Three months previous to her foaling time she is subject to what looks very much like colic but as she does not bloat and her bowels seem to be all right I do not think it the genuine colic, but rather think it is her water. In her last case I gave her ½ teacupful mixed with about 50 drops of laudanum turpentine and the result was she lost her colt the 3rd day after the treatment; is doing farm work. Her feed, oats, hay and some grass in season. Would you advise me to breed her again? H. S.
Wayne Co Mich.

ANSWER.

These colicy pains are noticed during certain periods of gestation and had best be left alone unless the attacks are too violent. If any medicine is to be given, an ounce of tincture of ginger will suffice. We believe your remedy was the cause of abortion.

Twin Teats.

I have a calf, three weeks old, that has twin teats in place of one hind teat. Both are perfect and exactly the size of the others and as close together as they can be without being united. Is there any way to remove one of them without injuring the other, or producing any bad results?
Petersburg, Va. R. W. W.

ANSWER.

It will require a personal examination to ascertain whether or not one of the teats can be amputated without injuring the function of the other.

Barrenness.

Have a heifer 14 months old, she comes in heat regular every 21 days, have taken her to the bull three times; yesterday was the last time. She is in fair condition eats well and looks well, seems all right every way only does not get with celf.
Tacoma, Wash. J. C N.

ANSWER

See barrenness, this issue.

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all liniaments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.* Every bottle sold is warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O.

Calf Scours Don't let your calves die from this disease. You can save them by using Hood Farm Calf Scour Treatment, which consists of Calf Scour Cure, a liquid preparation which checks the scours, and Digestive Powder, a preparation of pepsin, which aids digestion, creates an appetite and keeps the calf from becoming stunted in growth.

HOOD FARM
Calf Scour Treatment
SAVES THE CALVES.

At Hood Farm, Lowell, Mass., in one year, there were 83 cases of scours. Every calf was treated with these remedies and all but 3 were saved. Formerly we lost 75 per cent. of all calves affected.

Two sizes of each remedy, $1 and $2.50, large contains four times the quantity of the dollar size. Prepaid to any railroad express point in U. S., 25 cents additional.

Address C. I. Hood Co., Lowell, Mass.
Mention this paper.



CHAIN-HANGING CATTLE STANCHION
The Most Practical CATTLE FASTENER ever invented. Manufactured and For sale by O. H. ROBERTSON, Forestville, Conn.

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. Satisfaction guaranteed or pigs may be returned.
JOHN WHITE & SON, Adamstown, Md.

LARGE IMPROVED YORKSHIRES
The small York grown up; the best white hog, easy keeping and prolific Young stock for sale.
E. E. STEVENS, R. F. D., No. Madison, Lake Co., O.



ABORTION
Can be successfully treated with Anti-Abortion Serum. Easily administered and permanently cures. Information free.
DR. ROBERTS VETERINARY REMEDY CO.,
513 Grand Ave., Waukesha, Wis.

ABORTION,
Failing to Breed and to bring Cows to Heat. Sure Cure. In use 20 years.

Hard Rubber *Safety* Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.
Dr. WM. HORNE, Janesville, Wis.

ABORTION,
Retention of Placenta and Failure to Breed.
KELLOGG'S CONDITION POWDER is a positive cure for these diseases. Write for circular containing full information, references and price.
H. W. KELLOGG COMPANY, St. Paul, Minn.

"SAVE-THE-HORSE" TRADE MARK
SPAVIN CURE



H. A. BAXTER, Real Estate, Insurance, Investments, Great Neck, L. I.

On September 19th., 1902, I procured a bottle of your "Save-the-Horse" for use on a bog spavin which had begun to be very prominent, in fact I believe it to have been about fully developed. The directions for use were adhered to minutely, and before the contents of the bottle were used the spavin was a thing of the past, and today not a sign of spavin or mark of any kind whatever remains. I appreciate the value of this remedy, and it has been my intention to advise you as to the results before, but it has been delayed. Anyone interested and doubtful of this cure (as I admit I was) may write me and I will state just what kind of a case it was, etc. Respectfully,
H. A. BAXTER.

POSITIVELY AND PERMANENTLY CURES bone and bog spavin, ringbone (except low ringbone), curb, thoroughpin, splint, capped hock, shoe boil, weak and sprained tendons and all lameness. $5.00 PER BOTTLE.

Written guarantee with every bottle, constructed to convince and protect you fully. The need of second bottle is almost improbable, except in rarest cases. Guarantee covers effectiveness of one bottle.

Copy of guarantee sent upon application.
$5.00. druggists and dealers, or sent prepaid.
Boston city trade supplied by Sartwell, Heinold & Humphrey, 75 Federal St., EASTERN DRUG COMPANY, Boston and
Troy Chemical Co., Troy, N. Y.
ALSO OF VETERINARY PIXINE, FOR Hoof Rot, Cow Pox, Chapped Teats, and Caked Bag, also Scratches and Grease Heel, cases where ulcerations extend, with traverse cracks which open at every step and often bleed, no matter how complex, aggravated deep seated or chronic; if treated according to directions, as given on circular with every box, positively cured. Keeps the Hoofs Healthy, Soft and in Perfect Form. Heals Collar and Saddle Galls, Abscesses, Sores and all Skin Diseases. 2 oz., 25c.; 8 oz., 50c.; 5 lb. pkg., $4. At all druggists and dealers' or sent prepaid.



COWS RELIEF
Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.
Used Exclusively at Model Dairy
Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.
O. H. MFG. CO., Dept. H, Lyndon, Vt.

ANTITOXIN
For the Cure and Prevention of Milk Fever.
No quackish humbug but a scientific fact. Works on same principle as antitoxin injection in man for diphtheria, destroying poison in system. Out of 110 cases treated in Portland, Mich., 109 recovered last year. Easily administered with a syringe. Inexpensive. Write for particulars to DR. W. E. A. WYMAN, V. S., Prospect, Ohio.

NOW IS THE TIME TO SUBSCRIBE FOR Hoard's Dairyman.

BLACKLEGOIDS
BEST PREVENTIVE OF BLACKLEG.



Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each Blacklegoid (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. Blacklegoids are sold by druggists; *ask for them.*
Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.
PARKE, DAVIS & CO. - DETROIT, MICH.
Branches: New York, Kansas City, Baltimore, New Orleans, Chicago; Walkerville, Ont.; Montreal, Que.; London, Eng.

BARREN COWS CURED.
Our treatment has been used successfully since 1878 in every state in America, Canada and Great Britian. Write for Pamphlet.
MOORE BROS., Veterinary Surgeons, Albany, N. Y.

CURE "THE" COW
NO CURE, NO PAY

WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address DR. EATON J. GROSS,
153 Congress St., Troy, N. Y.

The Manure Question.

ED. HOARD'S DAIRYMAN:—I have read the pros and cons of the top dressing question in the DAIRYMAN with some indifference because since 1866 I have been familiar with the discussions of Connecticut farmers' conventions, and they quit discussing it years ago. The reasoning of Mr. J. M. Plato seems to be so unanswerable that I am prompted not to try and answer it by any argument, but to give a few facts.

Nearly forty years ago, an old farmer up in Northern Connecticut was showing me through a barn that would hold 40 tons of hay, cattle to eat it and the manure under the cover. He told me the neighbors said the manure would be so handy that he would plow it in for corn and potatoes and spoil his farm. "Not a shovelful of manure," he said, "has ever gone out of that barn to be plowed in." I thought if he read the doings of the "Farmers' Club" in the *New York Tribune* and imbibed the wisdom of Solon Robinson and other wise men, he would know that he had better plow in his manure than spread it on his old side hills. The grass on the old side hills, however, was a wonder to me, and I went home and told my father about it. He said those Litchfield county hills were natural grass land; we couldn't grow grass that way.

A little later on, the farmers' conventions took the matter up for discussion, and I quit plowing in manure with the result that the old farm is quite "natural grass land" now, and will carry more than double the stock that it would when the manure was plowed in. *Per contra*, there are plenty of Connecticut farmers that have never attended a farmers' convention, or read a report of the proceedings, that still plow in manure, but I don't happen to know of a farm where the manure made on the farm, has been relied on to maintain the fertility and that plowed in, that has not continuously decreased in producing capacity, and I know of a farm not half a mile, as the crow flies from my own, that has practically had no hay or grain sold from it in forty years, that will not keep one quarter the stock that the owner's father kept, simply, as I believe, because the father fed his cattle on the meadows and the son put them in the barn and plowed in the manure.

That old system of our fathers, of feeding from a stack and letting the cattle crawl into the corner of a Virginia rail fence for shelter, was cruelty to animals but no one ever heard of meadows running out under that system. Of course there is a reason for this. The good God that made this world and put, in due time, us creatures on it, made a law that the soil that should sustain vegetable and hence animal life should be made and kept fertile by what dropped on the surface. He arranged that the salt should find its way to the sea, but He also provided that the sea should not rob the soil of its chemicals needed for vegetation. "Plato thou reasonest well," but over and over again experiments have shown that nature's law is hard to beat.

Carefully as nature guards fertilizers dropped on the soil, it makes no provision for saving it in a pile. If Mr. Plato doesn't believe this, let him, next winter, haul each alternate load of manure on to his land and put the other in a pile covered or uncovered as he may elect. When his pile is ready to cart, when the frost is all out and the spring rains over, let him spread it over the same space that his fresh manure covered, and watch the result. If he does not find that the longer he leaves his pile the less it is worth, let him report.

One more fact and I have done. While, many years ago, I was still somewhat skeptical as to top dressing I tried a little experiment. Having a hollow nearly a quarter of an acre in extent, that the Editor in chief of the DAIRYMAN may remember as directly in front of the basement of a new barn that he wanted I should board up, for fear my cattle would get too much ventilation in cold nights, I conceived the idea of spreading manure around the rim of this saucer like place. Under the top soil of six or eight inches there is a hundred feet of sand and gravel so that, except when the ground is frozen, there is never any water in the hollow. I took a time when there was a foot of good solid snow on the ground and spread the manure. When the snow melted with the sun and warm rains, there were two feet of water in the middle of the hollow and it was nice and brown. It stayed there till the frost came out of the ground, and then disappeared. I chuckled to think that, while a lot of that fertilizer had got away from where I put it, it had not got away from me. When commercial fertilizers first came into use, in Connecticut, we farmers used to judge of their value by the smell. It took the scientists of the Connecticut Experiment Station quite a while to convince us that the stink was not a fertilizer; neither is color. That two feet of brown water wasn't worth a tinker's damn. The grass grew where I put the manure.

It is possible to put manure on the surface where heavy winter or spring rains will wash it away bodily. A neighbor of mine owns a field just above a meadow of mine and wishing to enrich it he plowed in a lot of manure. We had bad rains the following spring and a ditch was washed in his lot that took soil, manure and all down on to my meadow. Meeting him near the place later on I told him that I wished he would build a dike his side of the stone wall that made the division fence. He inquired why and I told him the grass was getting to lodging so down in the hollow in my meadow that it bothered me to get a machine through it. His reply was "dang ye, I'll come down then next year and cut that grass my self and cast it up where it belongs." He then told me that he plowed in that manure for fear the goodness would leach out and run on to my land. Good turf and grass stubble will possibly let manure run away in a brook but plowing won't help the matter.

Connecticut. R. L. HINMAN.

Capacity of Silo—Length of Carrier.

How many tons of ensilage will a silo hold that is 14 feet in diameter and 22 ft. deep? And how long a carrier will it require to elevate silage in a silo that is sixteen ft. high and the foundation 1 ft. high, silage to go over the rafter plate?

Weyauwega, Wis. W. P. K.

A silo of the dimensions specified, if fully filled, will hold 70 tons of silage, and require a carrier about 25 feet in length for elevating the silage over its top.

"ADVERTISEMENT."

NEVER TOO LATE.

To Try a Good Thing.

I am fifty-two years old and for forty years of that time I have been a chronic catarrh sufferer, says Mr. James Gieshing, of Allegheny City; with every change of weather my head and throat would be stuffed up with catarrhal mucus.

I could not breathe naturally through the nostrils for months together and much of the time I suffered from catarrh of the stomach. Finally my hearing began to fail and I realized something must be done.

I tried inhalers and sprays and salves which gave me temporary relief and my physician advised me to spray or douche with Peroxide of Hydrogen. But the catarrh would speedily return in a few days and I became thoroughly discouraged.

I had always been prejudiced against patent medicine, but as everything else had failed I felt justified in at least making a trial.

Our good old family physician, Dr. Ramsdell, laughed at me a little, but said if I was determined to try patent medicines, he would advise me to begin with Stuart's Catarrh Tablets because he knew what they contained and he had heard of several remarkable cures resulting from their use, and furthermore that they were perfectly safe containing no cocaine or opiates.

The next day I bought a fifty cent box at a drug store, carried it in my pocket, and four or five times a day I would take a tablet; in less than a week I felt a marked improvement which continued, until at this time I am entirely free from any trace of catarrh.

My head is clear, my throat free from irritation, my hearing is as good as it ever was and I feel that I cannot say enough in praise of Stuart's Catarrh Tablets.

These tablets contain extract of Eucalyptus bark, blood root and other valuable antiseptics combined in pleasant tablet form, and it is safe to say that Stuart's Catarrh Tablets are far superior in convenience, safety and effectiveness to the antiquated treatment by inhalers, sprays and douches.

They are sold by druggists everywhere in the United States and Canada.

HARDWOOD TIMBER LANDS

from which the older trees have been cut but mostly covered with a fine growth of young timber, located in Marathon County, Central Wisconsin, are now offered for sale by us on most favorable terms to actual settlers.

This is some of the very best hardwood agricultural land in this state, with a deep, clay loam soil, gently rolling, with water easily obtainable at from 16 to 24 feet.

There is no better land for grain, grasses pastures, oats, peas, fruits or livestock, etc. Particulars will be furnished promptly on application.

RIETBROCK LAND AND LUMBER CO., Athens, Wis.

The LACUNA de TACHE GRANT

Laton, Fresno County, proves to be an Ideal Home for Farmers and

DAIRYMEN

60,000 ACRES OF IRRIGATED LAND IN THE

HEART OF CALIFORNIA

Alfalfa a specialty. Creameries on the Estate. Ample Railroad Facilities. Land Sold on Easy Terms in Small or Large Lots.

WRITE THE MANAGERS

404 GREAT NORTHERN BUILDING.....CHICAGO.

200 ACRE DAIRY FARM —FOR SALE—

Good land, well improved and plenty of timber. Have 25 cows and a milk route which takes all the milk produced. It is within 2 miles of Hastings. For full particulars address Lock Box 237, Hastings, Mich.

FARM FOR SALE 160 Acres Marquette Co., Wis. Good house, barn and other buildings, 120 acres under plow, rich soil, plenty of water. Price $6,400. Particulars of HILES & MYERS, C-100 Mack Block, Milwaukee, Wis.

OUT THEY GO

The crowds are going to **Morton County, North Dakota**; rich black soil, clay subsoil, producing heavy crops—where **corn grows.** Excellent water, 10 to 30 feet deep. **Coal is Free.** Stock feeding only about six weeks in the year. **Our Creamery** butter brings Elgin prices. We own 175,000 acres and sell farm lands for $7 to $12 per acre; grazing lands $4 to $7. **Free Homestead** lands adjoining. 9,000 people now in County. Healthiest climate. Write for facts and maps.

Wm. H. Brown & Co.

Mandan, N. Dakota, or 131 La Salle St., Chicago (Where did you see our Ad?)

200,000 ACRES TO SELECT FROM

We own 40,000 acres in Red River Valley, in Marshall and Kittson Co's, Minn. and in Walsh and Grand Forks in N. D. 15,000 acres in LaMoure, N.D. Fine stock ranches in Logan and Mercer Co's, N.D. 50,000 acres of Timber land in Aitkin Co. Minn., and Washburn Co., Wis. Also 15,000 acres in Southern Minn. in Lyon and Redwood Co's, near Marshall.

WRITE FOR OUR MAPS. We can give you a farm from $5.00 to $50.00.

BURCHARD-HULBURT INVESTMENT CO.

705-7 Manhattan Bldg. ST. PAUL, MINN.

DOUBLE CAM BRADLEY STEEL HAY PRESS

One horse can operate it. Very easy for two.

NOT A COG NOR CHAIN ABOUT IT.

Send for circular.



Has an AUTOMATIC PLUNGER DRAW.

DAVID BRADLEY MFG. CO., 110 E. Broadway BRADLEY, ILL.

IWANS' Post Hole and Well AUGER

Best in the world for Fence and Telephone Post Holes, Wells, etc. Used by U. S. Govt. Highest award World's Fair.



Thrice the work accomplished with an "Iwan" than with any other. Show this to your hardware or implement dealer or write for particulars. Special price to introduce. Address IWAN BROS., Dept. L, STREATOR, ILL.

160 ACRE FARMS IN WESTERN CANADA FREE

Western Canada

Land of the Sunshine, Grain Growing, Mixed Farming.

The Reason Why

more wheat is grown in Western Canada in a few short months, is because vegetation grows in proportion to the sunlight.

Area Under Crop in Western Canada 1902—1,987,330 Acres.

Yield 1902—117,922,754 Bu.

Abundance of water and fuel. Building material cheap. Good grass for pasture and hay. A fertile soil. A sufficient rainfall and a climate giving an assured and adequate season of growth. All these conditions are found in Western Canada.



160 Acre Homesteads FREE

The only charge being $10 for entry. Send to the following for an Atlas and other literature, showing location of lands in Western Canada, and also for certificate giving you reduced freight and passenger rates, etc. The Superintendent of Immigration, Ottawa, Canada; or to the authorized agent of the Canadian government—

T. O. CURRIE, 12 B. Callahan Bldg., Milwaukee, Wis.

J. M. MacLACHLAN, 307 Third Street, - Wausau, Wis.

THE FINEST

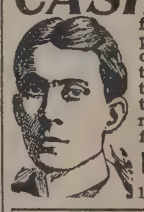
GRASS LANDS IN THE WORLD

Nowhere else in the U. S. are all conditions as favorable for **Stock Raising and Dairying** as in the region around the head of Lake Superior. Natural grass lands where timothy and clover are already well started, for sale at $6 to $8 per acre, within 25 miles of Duluth. Fine climate and spring water. Splendid market. For further particulars address

GUARANTY FARM LAND COMPANY,

DULUTH, MINN.

CASH FOR YOUR



farm, home, business, or other property (no matter where located or how large or small) may be obtained through me. Send description, state price, and get full particulars free. Est'd 1896. Highest references. Offices in 14 cities, from Boston to San Francisco.

W. M. OSTRANDER

1519 N. A. Building, Philadelphia

Fine Dairy Farm for Sale.

Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence, cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling.

T. S. TOMPKINS, Pasadena, Cal.

Agricultural Education.

ED. HOARD'S DAIRYMAN:—Your very thoughtful and helpful editorial on page 54 of the DAIRYMAN of Feb. 27th, reaches me at a time when my mind is running along the same subject. Thanking you most heartily for these words of encouragement to the boy who loves agriculture, but has limited or no capital and who wishes to find employment from others at fair remuneration, in order that he may some day own land of his own, let me add a few thoughts and statements.

First of all let it be said that any young man who can do a full day's work on a farm, and has a fair common-school education, can greatly improve his earning capacity by pursuing the short course in Agriculture at our Agricultural College here at Madison. Every year we have many hundreds of letters coming to us asking us to recommend some young man from among our students to help on a farm. One writer keeps common cows, farms in a general way and wishes simply a good, steady, farm hand. However, he is willing to pay from $2 to $3 per month more wages to one of our students than he would have to pay to a common hand because he believes he can get that much more service out of such employe. He knows that our Short Course student will usually be more thoughtful and careful in his work, that he knows something about the care and management of cattle, the planting and caring for crops, etc. Now, as it costs a boy somewhat less than $100 to stay with us a single term in the Short Course, it will be seen that the young man is getting a large return from his investment of this small amount of money and time, for the increase in wages is so much clear gain to him,—his clothes and other expenses will be no more for having studied with us than if he had not taken the course

Another class of farmers have pure-bred stock and are carrying on a somewhat higher grade of farming. These men will often pay our students from $3 to $8 per month more wages than they give to common farm hands. They want more intelligence, more skill and more loyalty and zeal. On such farms as this second grade, the young men have an opportunity to increase their knowledge of matters agricultural and enlarge their experience by dealing with pedigreed livestock, the growing of crops in an up-to-date manner and the higher management of the farm generally. Although getting good wages, as the owners of such farms are always willing to pay, these young men are really going to school—the great school of practice—every day they are working. They are combining up-to-date practice with more or less theory and getting a mixture of the two that is to them something as good as gold itself.

When a young man has completed the Short Course and had one or more years experience on such a drill farm as this last, we can usually help him to a still better position if he can show from his employer a satisfactory recommendation of ability, efficiency and loyalty, and if he has completed his work with us in a satisfactory manner.

There are men who own farms which must be managed by others. The owner does not live on the land, or if he does, he is too busy with other duties. He must have a manager to carry most of the burdens for him. Here is a chance for a well trained young man—trained in both theory at the school and practice on the above described farm—to find an outlet for his energies, ability and training at fair compensation. The wages for this class of men ranges from $30 per month and board up to $60 and $75, and in a few cases goes higher. We have many calls for men at $30 and $35 to act as herdsmen, make butter on the farm, etc.

Now, in quoting the above wages I ask the young men who read this article to think of what they would probably get if they offered the same ability, training and faithfulness in some other lines of human effort. These are better wages than they could get with the same ability and preparation as clerks in banks in stores or as teachers in the public schools. Moreover, the frugal young man, who is all the time working for others, if he is wise and farsighted, is gaining a fund of experience which is as good as money itself, and which will prove of the highest use to him when he finally goes into farming on his own account. Such a young man will have learned a thousand things of the most useful character to help him on in successful farming.

As to the number of calls for young men in these different lines, let me repeat that they are many times our ability to supply. Men are willing to pay for training and expertness in the matter of farm employes, and from our side of the case I am sorry to say that we are not nearly able to supply the demand, nor have we the students of the proper training and mental attitude toward the business. Even with a number of our agricultural students we find them "wanting a job" and hoping that somebody will give them a very large wage, when in turn they are willing to give but very ordinary services. I have had a Short Course student ask me to recommend him for the position of farm manager when he could not show me a single recommendation from a former employer telling that he was efficient and deserved promotion. On the other hand, I am glad to report that a large percentage of our young men have proved themselves worthy of good positions. Here is a case in point. One of Wisconsin's most successful farmers said to me a short time ago: "Professor, the Short Course boy who has been working for me has been receiving $25 per month. You know I have but a small farm and my son is growing up to do the work so that I will not need a helper longer. Now, the young man you sent me is worth more than I am paying him. He is one of the best farm operators I ever saw. I want you to get him a position at larger wages than I am able to pay. I am ready to recommend him, for he is worthy."

Mr. Editor, we soon found a place for this young man and could find places for hundreds if not thousands more. There must be hundreds of young men reading HOARD'S DAIRYMAN that are looking for just such opportunities as have been here pointed out. These young men are hesitating whether to continue life as farm hands or try to get employment on the railways, become school teachers, go into a store, find a place in a bank, or something of that kind. If these young men do not love the country and farm life, then let them go into one or the other vocations. If they are earnest and patient, they will succeed in some fair measure. If however, they love the farm, with its fruits, flowers, cattle and other domestic animals, if they would rather till the soil than do anything else,

STARTLED

By some sudden sound she drops the vase upon the floor. She is nervous and may be told that nervousness is a luxury which only a rich woman can afford to indulge in. Nervousness has cost many a woman her position. Sometimes when women run machinery the price of nervousness is mutilation,—a finger lost or perhaps the whole hand crushed.



Nervousness in women is commonly but a symptom of womanly disease. It is useless in such cases to "doctor" for the nerves alone. Cure the diseases which attack the delicate womanly organism and nervousness will be cured also.

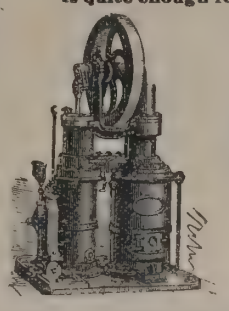
Dr. Pierce's Favorite Prescription makes weak women strong, sick women well. It establishes regularity, dries weakening drains, heals inflammation and ulceration, and cures female weakness. It tranquilizes the nerves and induces refreshing sleep.

"In the fall of 1897, I was troubled with nervousness, headache, heart trouble and female weakness," writes Miss Blanch M. Bracey, of Sala, Oswego Co., N. Y. "Last summer I wrote you and you advised me to try your 'Favorite Prescription' and 'Golden Medical Discovery.' I did so and I began to improve rapidly. Continued taking the medicine, half a dozen each of 'Favorite Prescription' and 'Golden Medical Discovery' for the space of five months, and in less than a year had regained my former health."

Dr. Pierce's Pleasant Pellets clear the muddy complexion.

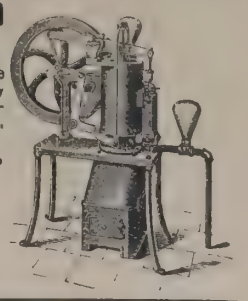
HALF ENOUGH WATER

Is quite enough for some people, but most people want water every day. If



RIDER or ERICSSON HOT AIR PUMPS

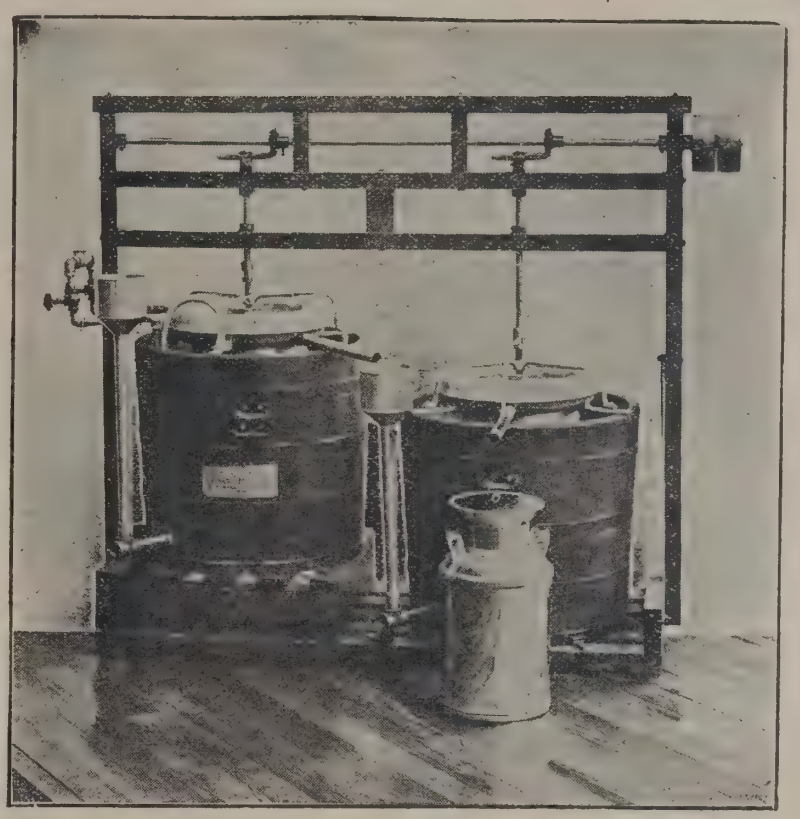
Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.



Rider - Ericsson Engine Co.,

35 Warren St., NEW YORK.
239 Franklin St., BOSTON.
692 Craig St., MONTREAL, P.Q.
40 Dearborn St., CHICAGO.
40 N. 7th St., PHILADELPHIA.
Teniente Rey, 71 HAVANA.
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A GREAT SUCCESS.



The Miller Cream Pasteurizer has a capacity of from 450 to 600 lbs. per hour.

Price $150 in Tin. $200 in Copper.

THE MILLER PASTEURIZING MACHINE CO.

CANTON, OHIO.



Let Them Help Themselves.

They'll not take too much, and they'll get it as they want it. Don't force animals to eat salt when they don't require it, by mixing with food.

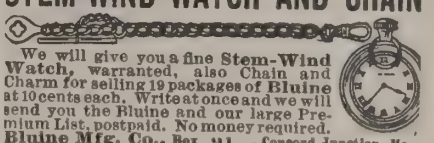
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are the ones that will get with calf, that do not abort, and that get through calving easily and safely.

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stands for just these things. It's a specific treatment for cow troubles. Not a food; a remedy to mix with food, safe, powerful, sure. Invaluable to dairymen. Dealers sell it. Write us for FREE booklet.

Dairy Ass'n, Lyndonville Vt.

provided that they have fair compensation for so doing, let me say to them, that there is ample opportunity for all their abilities and energies along agricultural lines. They should not forget that the agricultural interests of this country are measured by the investment of twenty billions of dollars; that the products of the farms each year aggregate five billions of dollars. That while in many lines young men are looking for "jobs", there are tens of thousands of land owners looking for high grade, intelligent farm help ranging from ordinary workmen up to those thoroughly skilled in the business. As indicated in your editorial, there are hundreds of men wanting butter makers, herdsmen, foremen and managers.

May I say in closing, Mr. Editor, that I wish no one who reads this communication to write me asking that I recommend him for a position. That is not fair. We can recommend only those who have studied with us, and been tested. I am forced to write these last lines because I am frequently appealed to by entire strangers who are seeking employment.

W. A. HENRY,
Dean, College of Agriculture, University of Wisconsin, Madison.

A Suggestive Letter From Prof. I. P Roberts, of Cornell College.

ED. HOARD'S DAIRYMAN: — I seldom have time to read long articles but I have fully read the article entitled "Cow Census", in your issue of the 13th. This article should certainly arouse your readers to fact that nearly one-half of the cows of your state, and I think of New York State as well, are kept without profit. In the figures given, only the food cost of milk and its product is stated. Nothing is allowed for depreciation of buildings, or of cows, and, above all, nothing for labor. True, this census was taken in a year when cattle foods were exceptionally dear. However, I stand by my statement, that nearly one-half of the cows of the United States are kept at little or no profit and this fact is discouraging, after all that has been said and done, and after your paper, and similar papers, have been showing conclusively that only good cows, intelligently fed, can produce fair profits.

I do not see the slightest indication in the article that a single dairyman visited, had kept any accurate account whatever of the milk produced, of the time expended or of the food consumed. Neither was any estimate made, nor do I believe the dairyman could have made an intelligent estimate as to the total labor cost of keeping the dairy or the cost per cow. With so many of the prime factors left out, how is it possible to ever get at the facts?

You will excuse me for being a little pessimistic at this time. If we could only energize the man, the problem would be largely solved. I have seen one of the changes which are necessary to improve the profits in the dairy and may have laid more stress on this one than on any other "book" knowledge. We now dare use this word. If a man would read HOARD'S DAIRYMAN for one year, and make an honest, persistent effort to follow one-tenth of the valuable information and teaching which it contains, the dairy problem for that man would be largely solved.

And now with the danger that I will be misundertsood, I enclose the title page of a book which will be out of press in a few weeks. I have little or no interest in selling the book, but I do believe if it is studied carefully it will do something towards eliminating the leaks on the farm, and above all, it may help to lift the farmer to a plane where he will have enough knowledge and energy to look after his own business, know at the begining of each year what he is worth, make plans for at least twelve months ahead, and know at the end of that twelve months whether he has received three or thirty cents per hour for his labor. There is no way of finding the losses but to set forth current facts day by day and then gather them together and digest them somewhat in the same manner that Mr. Goodrich practiced in the article referred to. He went from place to place and got facts, set those facts down, then quietly digested and arranged them so that when they appear in your paper they were invaluable.

My wish and hope is that you may be spared many long years to present "book" knowledge in season and out of season to the dairymen of this country that they may be instructed, energized and induced to look after their own business as carefully as manufacturing business must be looked after if it succeeds.

Ithica, N. Y. I. P. ROBERTS.

The book Prof. Roberts alludes to and which has just been issued from his pen, is entitled "The Farmer's Business Hand Book." It prescribes excellent forms for keeping farm accounts, how to take a trial balance sheet, accounts with particular fields, animals, milk accounts, ration accounts and the household account. Part II treats of Rural Law, concering Property, Deeds, Conveyances, Trespass and Water Rights, Drainage, Highways, Contracts, Employer and Employe, Rights, Liens and Notes, Mortgages, Gifts, Wills and Taxes.

Part III. Contains a summing up of valuable knowledge from the last U. S. census. It is an invaluable book for any farmer to own, as indeed are all the books Prof. Roberts has ever written.

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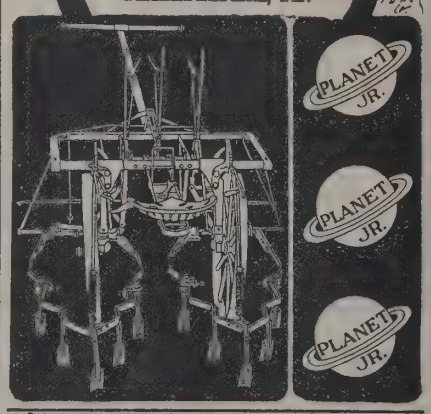
The No. 72 "Planet Jr."

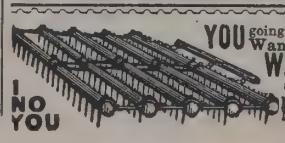
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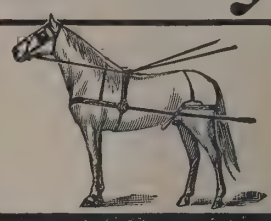


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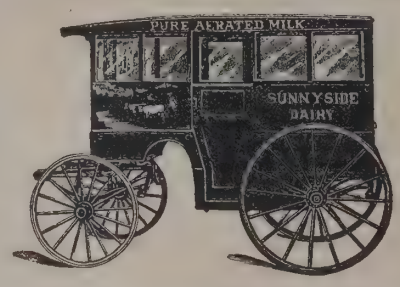
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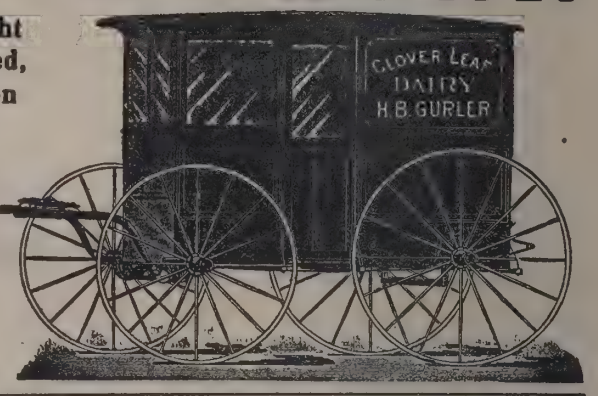
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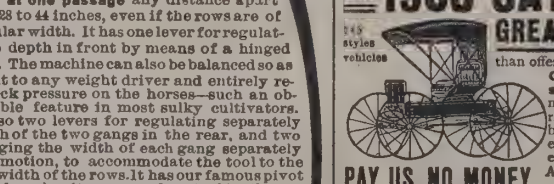
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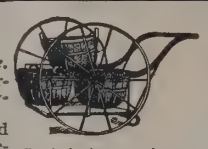
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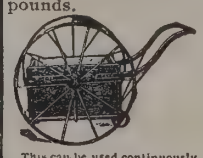
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Charcoal is a remedy that the more you take of it the better; it is not a drug at all, but simply absorbs the gases and impurities always present in the stomach and intestines and carries them out of the system.

Charcoal sweetens the breath after smoking, drinking or after eating onions and other odorous vegetables.

Charcoal effectually clears and improves the complexion, it whitens the teeth and further acts as a natural and eminently safe cathartic.

It absorbs the injurious gases which collect in the stomach and bowels; it disinfects the mouth and throat from the poison of catarrh.

All druggists sell charcoal in one form or another, but probably the best charcoal and the most for the money is in Stuart's Absorbent Lozenges; they are composed of the finest powdered willow charcoal, and other harmless antiseptics in tablet form, or rather in the form of large, pleasant tasting lozenges, the charcoal being mixed with honey.

The daily use of these lozenges will soon tell in a much improved condition of the general health, better complexion, sweeter breath and purer blood, and the beauty of it is, that no possible harm can result from their continued use, but on the contrary, great benefit.

A Buffalo physician in speaking of the benefits of charcoal, says: "I advise Stuart's Absorbent Lozenges to all patients suffering from gas in stomach and bowels, and to clear the complexion and purify the breath, mouth and throat; I also believe the liver is greatly benefitted by the daily use of them; they cost but twenty-five cents a box at drug stores, and although in some sense a patent preparation, yet I believe I get more and better charcoal in Stuart's Absorbent Lozenges than in any of the ordinary charcoal tablets."

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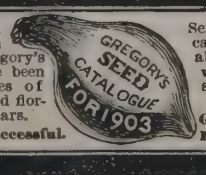
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A Typical Guernsey Herd.

ED. HOARD'S DAIRYMAN:—I had occasion last fall to go to Perry, N. Y., a beautifully neat little town in Wyoming Co., and while there, visited the Elm Place Farm, and inspected the herd of Guernsey cattle made famous in the last two years by their phenomenal yearly butter records, officially made under the public supervision of a representative of Cornell Agricultural College.

I was very cordially received by Mr. Geo. B. Tallman, the enterprising owner who is an enthusiastic lover of the Guernsey and has great faith in her as a butter cow.

On the farm and under the careful management of Mr. Tallman, while running with a herd of nearly fifty, Portia of Maplehurst 10071, gave in one year 11622.-25 lbs of milk which tested 602.37 lbs. of butter fat, equivalent to 702.7 lbs. churned butter.

Daisy Maid of Elm Place 14197, gave 9045.80 lbs. of milk and 47347 lbs. of butter fat in 3 yr. form; Elite of Maplehurst 8492, gave 9197.35 lbs. of milk and 472.06 lbs. butter; Pride of Maplehurst 10070, gave 9053.70 lbs. of milk and 446.52 lbs. butter fat in one year.

Buttercup of Maplehurst 8994 gave 9127.40 lbs. milk and 446.98 lbs. butter fat. All of the cows named are of the Maplehurst family which Mr. Tallman had the good fortune and good judgment to secure from their breeder, and, I believe, bought the entire family, some 30 individuals. This family has been very closely bred, but shows no sign of weakness of constitution but rather the reverse, being large framed with a rugged constitution and great digestive capacity, turning a large amount of feed with profit into the pail. I was also very much taken with Mentor Maid 13261, who has an official record of 299.9 pounds of milk and 16.02 lbs. of butter fat in 7 days.

Many other good ones I saw there, especially some of the younger cows, but space forbids my giving each one a personal mention, but I cannot pass without mention of the three grand herd bulls the big half of the herd.

Penwyn 4590 comes first as he has more good works to show so far. A massive, low-built fellow, 7 years old, with great digestive capacity, loose mellow hide of beautiful color, large milk veins and good wells, with well placed rudimentary teats. His tail is fine and long, reaching half way from hock to ground.

Disposition perfect, as I do not remember hearing a complaint from him while there. His best recommendation was his daughters in milk. After examining a few of them, one could almost pick them out by their prominent fore udders and large, well placed teats; even the few grades which Mr. Tallman has out of him, showed the same good points to a marked degree.

The Young Glenwood Girl bull, Glenwood Chief 7076, comes next. A very toppy, showy fellow with a fine head and neck so carried as to indicate that he belongs to the aristocracy, with smooth, well made barrel and color superb. A show bull in every particular.

The third bull, Malcolm of Maplehurst 5626, full brother to Portia, plainer to look at, but has, if I mistake not, indications of a sire whose daughters will be phenominal producers, truly the great essential in the dairy cow.

I found Mr. Tallman a business man from tip to toe, but very unassuming; in fact, the brag was entirely left out of his make-up, and in looking over his herd he merely mentioned the names of his cows and occasionally remarked that that one or this one had just recently been admitted to the advanced record. The records of many of the cows I learned from other sources.

Time passed all too quickly and I had to return home, thus ending one of the most pleasant trips of my life.

W. A. ALEXANDER.

Cayuga Co., N. Y.

Size of Manure Shed.

ED. HOARD'S DAIRYMAN:—The shed described on page 1061 of HOARD'S DAIRYMAN'S issue of Jan. 23, 1903, was built for some thirty cows, but is a little small for that number of cows. Should build 24 by 30, or make it a little deeper, say 10 feet. You can then use more litter under cows, or put in more waste straw, etc., from around the barn.

New York. NORMAN BROWN.

RUPTURE CURED while you work. You pay $4 when cured. No cure, no pay. ALEX. SPEIRS, Box 846, Westbrook, Me.

It pays for itself on the first crop grown after its use.



It Spreads Manure,

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Is the only Spreader **ENDLESS APRON** and made that has an the many advantages which it possesses. It's always in place and ready to receive the load without any turning back either by hand or complicated, easily broken machinery. The front and rear axles are of same length which, with the

Broad Tires Prevents Rutting

of fields, meadows, etc. and makes

LIGHT DRAFT. SPREADS ALL KINDS OF MANURE, wet, dry, frozen, light, chaffy, packed or caked Spreads lime, plaster, wood ashes, cotton-seed and hulls, etc. **Can be changed instantly to spread thick or thin while the machine is in motion—3 to 25 loads per acre.**

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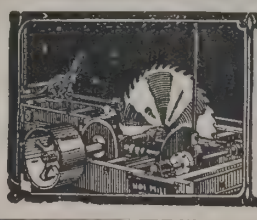


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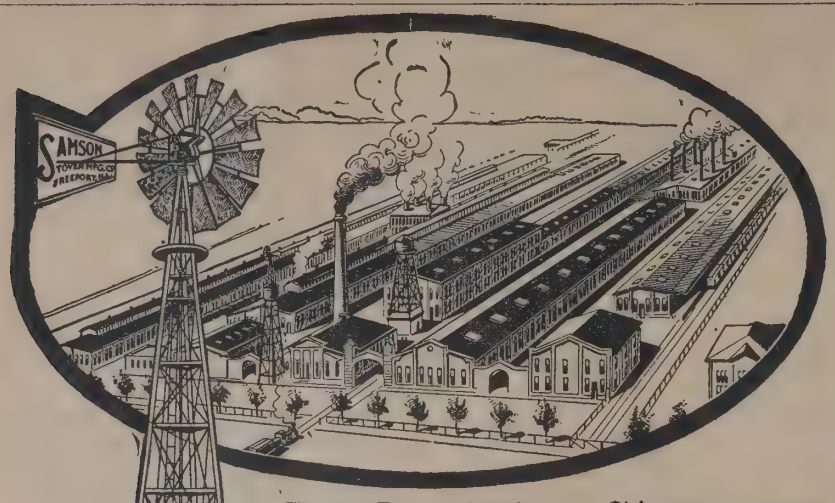
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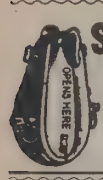
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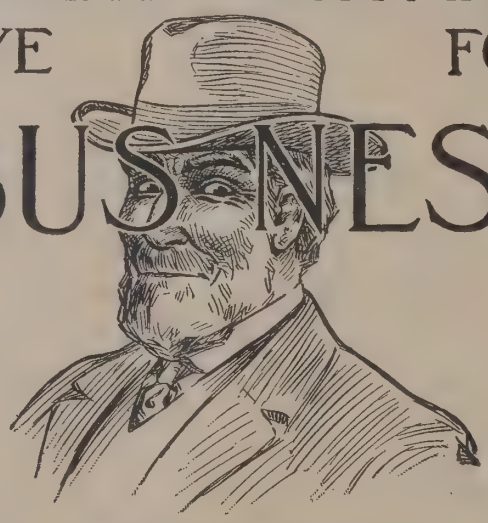
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VOLUME XXXIV. FORT ATKINSON, WIS., APRIL 3, 1903. NUMBER 8

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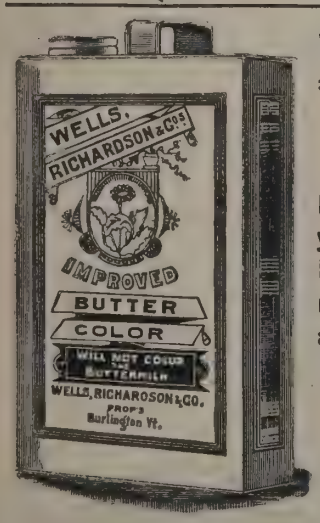
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THE ECHOES had scarcely died away after the unearthly howl set up by the antiquated "Disky Valwinkle Munchausen" until the air again resounded with a screech from that amusing old romancer "Ananias Vermont Radish-grater" who it seems was following his friend "Disky" along the track, and so intent upon finding out where he was going that he failed to notice the **Sharples Special** until it had lifted him into the air a sufficient distance to get a better view of the separator situation than he had ever had before. Being a light weight as compared with his friend he staid up longer and had more time to think it over. The dear old fellow tries to cover his sore spots and bravely asserts that he is not hurt,—like unto the small boy who spluttered through his tears, "I'm not crying, this is the way I laugh." Anybody can see that these old fellows are not hurt; it's plain enough from the way they bluster and snort about what they are going to do, how much they have sold (conditionally) to be delivered when (?), where (?) and to whom (?). Oh, no! they're not hurt, they're tickled to death. (?). . . . . .

THE FORCE OF THE ARGUMENT lies in the indisputable fact that there was nothing imaginary or speculative about the SHARPLES SPECIAL TRAIN; it was an immense reality witnessed by hundreds, and evidenced by the records; many of the machines going to former agents of our "has been" competitors, who have learned by experience the advantage of selling an up-to-date, reliable, efficient and attractive separator as compared with a back number, and are therefore selling hundreds of the Sharples Tubulars. Some of our competitors' best agents have asked for the Tubular agency, but we are forced to disappoint them because the territory required is covered by good agents of our own. - - - - - - - - -

WRITE FOR CATALOGUE NO. 144.

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We are receiving of late a good many requests for a bundle of copies of HOARD'S DAIRYMAN for distribution. We are very glad to forward copies for distribution, for we need the help of every reader to increase the circulation of the DAIRYMAN. Get up a club of subscribers among your neighbors. If there is going to be a meeting of the creamery or cheese factory patrons, write us for a bundle of sample copies for distribution. If you are going to a farmers' institute, have some copies with you. These meetings afford excellent opportunity to work up a good club. Write us at least a week ahead of the meeting saying how many copies you want and we will promptly forward. Give us your help.

Conditions in Nova Scotia.

ED. HOARD'S DAIRYMAN:—I wrote you some time ago on this subject. I said that the "Credit System" was the curse of Nova Scotia, as it compelled those farmers and dairymen, not wealthy enough to "bide a wee", to barter off their produce for necessaries and concentrated feed, thus paying a very high price for that which they could purchase reasonable for cash. I thought that I made my meaning clear, but in your comment on my letter, you advised the farmers to club together and buy by the carload.

Now, that is exactly what they cannot do, as they (as I mentioned above) have to dispose of their produce for trade and cannot lay their hands on the cash. And even if they could get enough to buy feed for one year, what would they do the next, as it is impossible to get cash for the finished product. But there is ne'er so dark a night but day dawns at last and I believe that that day is now dawning for Nova Scotia in this matter of establishing creameries. The creameries can sell their product where a private dairyman cannot, and by their monthly cash payments are putting the farmer in a position to buy where he can get the best bargain, and as he has the cash the dealers are now very anxious to please him.

I do not at all blame the dealers for not paying cash for dairy butter, as the general run of dairy butter is a very poor article indeed. The dealers pay all that it is worth when they pay within five cents per pound of the creamery article. You may consider that five cents is quite a difference, but that is the exact figure representing the difference, during the past summer, here in Nova Scotia.

Of course there are quite a number yet who prefer to eat very indifferent dairy butter, but that is because their taste has never been educated. I formerly held the opinion (before I entered the creamery business and developed that educated taste) that we had quite a few very fine dairy buttermakers. Now, I find that it is a rare occurance to run across a person who makes good butter in a private dairy.

It will be up hill work to convince the farmers that the creamery is the proper place to dispose of their milk. They have gotten into the way of making butter at home. Their butter is good, etc., and worth as much as the creamery article any day. They consequently feel insulted when you tell them that the creamery stands for improvement all along the line. We find that the men are more willing to send the milk than the women, and for this reason: The women are used to trading at least a part of the butter off for any little necessaries they might happen to need.

Now the monthly milk check is generally cashed by the father or brother who pockets the money and lets the women get along the best they know how. I have merely touched on conditions as they are presented to us, probably if acceptable, I may write further at another time. NOVA SCOTIAN.

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Comments and Queries from Robinswood Farm.

More About Butter Fat Percentages.—Who Shall Set up Ideals as to Cow Types, and What Shall They Be?—Enlightenment the Result of Educational Prepotency.

ED. HOARD'S DAIRYMAN:—In my last letter I referred to the question of the desirable amounts of butter fat that should be aimed for in the milk of the butter cow, and stated that the determination of that question would be largely dependent on the nature of the feed available for the cow. The nature of the feed is the largest influence at work in forming the cow, and hence, in evolutionary work, is potent in creating those anatomical and physiological conditions which more immediately determine the percentage of fat produced. The outside economic conditions, then, are really those which should determine this question of fat percentages in the milk. Under a continuous influence of one set of conditions one type of butter cow will be produced, while a different set of influences will result in another type.

There seems to be a false idea prevalent in some quarters, that a cow will make milk of equal richness, no matter what her feed may be. This is a mistake. In order to enable her fat creating organs to produce a full butter fat percentage, the cow has got to be fed a full supply of fat forming food of a sufficiently digestible nature. There is a physiological limit to the power of these fat creating organs, but a cow can produce but relatively little fat from pure protein, earthy salts and pure water alone. She has got to have a full supply of the other elements as well. Two very much more important questions to the dairyman breeder than this one of fat percentages are:

1st, As to the total milk production that it is best to limit a cow to, at various ages in order to secure the best progeny; and the 2d is, as to the rate with which milk production should be pushed as the animal grows at various stages of her growth.

The two questions are really one. There is a certain class of mercantile breeders who do all they can to secure early large production. The committee of the A. J. C. C., having the question in hand as to the requirements for an advanced registry, have put down as one point, that 6,000 lbs. of milk with the first calf, should be considered as a sufficiently meritorious characteristic to entitle an animal to enter the advanced registry. That is a vice in a Jersey, not a merit. 6,000 lbs. of 2.5 per cent milk is not too much for the first lactation of a cow that would weigh 1,500 lbs. at maturity; but it is entirely too much for a cow that would only weigh 900 lbs. at maturity, and whose milk would test 5.0 on an average.

It is of course understood that the percentages of solids not fat, run somewhat evenly with the butter fat percentages, and the thing that drains the cow's strength in milk production is not the water that goes into the milk pail. The essential matter, which does drain constitutional strength, is mostly that which is composed of nitrogenous and earthy elements. A Holstein cow, because her milk is thin, may be allowed a very much larger flow of milk, so far as weight is concerned, in proportion to her size, than a Jersey or Guernsey, though as to the latter there is in her present stage of evolution very little danger of over-productiveness.

The generally too prevalent practice of pushing for a great early production, I consider as bad for progeny, and bad for inducing persistency of yield. But no one need worry over great butter fat yields in a cow unless there is an exceptionally deep flow of milk, rich in all solids.

This matter opens up a question for the A. J. C. C. to consider. From a scientific point of view it has got to establish, at least, two ideal standards, or else it has got to put down the very large yielding cow of milk containing small or moderate fat percentages as being outside the ideal. I think it had better stick to the ideal cow having large butter percentages, or else put up no ideal at all. What is really wanted is a registry of such information as will allow the individual breeder to use his judgment in carrying on his work. The breed association that in the future is going to give the breeders of that breed the best facilities to do good breeding, is the one whose breed will go to the front, through the production of the greatest number of good cows.

The Pan-American sufficiently demonstrated the fact that there are good individual cows in every breed, though it did not demonstrate the value of breed influence in creating desirable progeny. But so far as securing a real improvement in breeds—an improvement that will be for the benefit of the dairy farmer, I see very little hope from the action of the breed associations themselves. Ideals and demands will have to be set up by outsiders such as dairymen's and farmer's associations and by the state and national stations. I trust, inasmuch as I am not personal in the matter, that I will be pardoned if I say frankly that it seems to me that the various breed associations have fallen into the control of a few who use the associations for pushing the financial interests of a few members of each association, and that these associations do more or less work that is effective in bamboozling the general breeding and dairy public.

This state of affairs may be entirely due to ignorance on the part of those running these asssociations. For charity's sake we will let it go at that.

But there is some ignorance in this world that ought to be fought without gloves, and it is the duty of the stations and other representatives of the dairy public at large to give dairymen such collected information relating to the make up of the right kind of a cow as will call for an intelligent striving to meet the needs of dairymen by breeders. HOARD'S DAIRYMAN ought to be to the fore in this work.

In my own herd, I must say that up to now I have not been able to say that the fat percentages have had any very close relation to the quantity of milk produced. But then I have not had any extraordinary flows. Some of my largest yielders have had the largest percentages of butter fat. Of course the larger percentages of fat the better, so far as profit is concerned, and I shall strive in that direction. The influences which go to produce the large production of fat, are numerous, and are probably not as yet all understood. But so far as I can see, influences which conduce to extraordinary flow of milk, tend to reduce the percentage of fat. There is comparatively little difference so far as good selection of individual cows is concerned in their power to make butter fat economically, no matter what the breed; but there is a big difference so far as general breed influence is concerned. It would also seem that breed influence very considerably differs in power to produce milk solids not fat, although power to digest proteins is one desideration in such animals as make milk containing much cheesy matter.

It seems to me that as we pursue the study of dairyology, we are more and more brought face to face with the fact that recognition of differentiation of type is a necessity for the conducting of dairying in its various specialities in the most successful manner. Every breeder should take up some special line or aim as to type and work to that end. Still there are those who love their dual-purpose cow.

I suppose that there is some occult reason why one should wish that the ignorant dairyman should come to a knowledge of the light. He does come to it whenever the forces of education overcome by main strength the influences which keep him ignorant. The latter are very strong. They include atavistic (hereditary) influence. When one considers the amount of educational work going on in religious, moral, political and civic matters, and notes how slowly those influences reform human nature, we need not wonder that dairy enlightenment does not spread like wild-fire. One of the lessons that it is hard to accept is, that one may be too greedy to be of the greatest good to oneself, and this reflection applies to the matter of expecting an indefinite progression in the profitableness of any kind of cow. One ought not to expect too much of one's neighbor or of one's cow. But it is a safe thing to always keep up a stiff expectancy as to one's own actions for good.

Every dairyman could be made a good dairyman if sufficient influence were brought to bear on him from outside; but for the most part the costs of regenerating the poor dairyman is so great that it will not pay any one to undertake the matter. It is because of this heavy cost that I have lately advocated a consolidated action on the part of Jersey breeders in educating dairymen as to the merits of the right kind of Jersey cows, and here again the difficulty is experienced in securing a change of view. Adults change their methods of thought slowly. There is a physicial reason for it.

J. M. W. KITCHEN.

New Hampshire.



HOLSTEIN BULL, DeKOL ACMA, H. F. H. B., 25184.

Property of FRANK BREWSTER, Bowers, Wis.

Mr. Wheaton's Canadian Dairy Notes.

Output of Cheese—The Coming Season—Fodder Cheese—Butter Markets—Dairy Markets.

ED. HOARD'S DAIRYMAN:—Canada's output of cheese for 1902, when all is marketed, is likely to aggregate in value about $21,000,000. Though the bulk of the make has gone forward to Great Britain, there is still a little on this side of the Atlantic, and until every box is shipped any figures that may be given are not complete.

However, there is so little on hand that statements as to actual shipments so far will be approximately correct. From May 1st, 1902, up to Feb. 18, 1903, there were shipped 2,360,446 boxes, as compared with 2,114,107 boxes for the corresponding period of the season previous, showing the large increase of 246,339 boxes. The value of these shipments will aggregate between $20,000,000 and $21,000,000, or over two-thirds of the total value of the imports of cheese into the United Kingdom, for the same period. This is the largest output in the history of the Canadian cheese trade.

While the make has been the largest in the history of the business, the prices realized by the farmer for his milk have been high. Many a dairyman during September and October, 1902, realized $1.00 per cwt. net, for his milk. Even at the smaller factories, where running expenses are proportionately high, patrons realized 90c and 95c per cwt., the last two months of the making season. There is big money in the business at these figures and the fellow who could not make his cows pay a good profit had better try some other avocation.

Just now both dealer and producer are considering the outlook for the coming season. With a very short supply of old stock and values at a high range, the outlook for the commencement of the season is exceedingly bright. It is reported that contracts have already been made for early fodder cheese at 11¼c and 11½c per lb., or about 2c per lb. lower than what good old stock is selling for.

At these high figures it will take more than moral suasion to prevent factories from opening up early. Other years the trade has been to the front with a strong appeal to factory men not to make early cheese as its inferior quality would injure our reputalion in England. But no such appeal has yet appeared. It looks as if those in the trade were anxious for the factories to get to work at once. The contracts already referred to, and the seeming anxiety of many dealers to do business indicate that such is their view.

This keeping of the fodder cheese "bugbear" in the background at this time, may be taken as proof that the judgment of the cheese trade on this point is not to be trusted and that they advise making early fodder cheese or not according as it suits market conditions, without any regard to the bad effect the sending forward of a large quantity of inferior stuff will have on the markets later on. If it is bad for the industry to export this inferior fodder stuff one season, why it is not another season? This is the question the producer is asking, and he is becoming more and more inclined to trust his own judgment in the matter and let the trade "go hang."

Looked at from a totally disinterested standpoint the less early fodder cheese put upon the English market the better, whether the price be high or low. Any large quantity sent forward will surely injure the sale of the better quality later on. It would be better to keep the winter creameries running longer and convert the raw product into butter.

When the raising of the calves and the young stock on the farm is taken into account, the farmer will, in our opinion, be money in pocket if he makes butter instead of cheese during March and April, and has the skim milk at home for feeding purposes. Let the farmer figure this out for himself and he will find our contention about right even in this year of high prices for cheese.

The butter market at the moment is not of such a buoyant character as that for cheese. The export trade has not been the most satisfactory of late. Creameries have, as a rule, found it more profitable to sell to the local trade. Some lots of new milk butter have already appeared, selling at from 20c to 22c, a fair price considering the somewhat unsatisfactory condition of the export trade.

There is always a good demand for finest quality, which every dairyman should aim to turn out.

To keep in touch with all that is going on in the Canadian dairy world, one must go farther afield than was necessary five or ten years back, when Ontario and Quebec contained all that was worth noticing in connection with the industry. To-day, dairying in all the provinces must be reckoned with. Each has its dairy organization and government oversight, to a greater or less degree, over the industry. In fact, many of the provinces, where the industry is comparatively new, profiting by the experience of the older sections, have more up-to-date methods of giving instruction and helping the patron and maker, than those where dairying had its beginning.

This was shown very clearly at the dairy conference at Ottawa, last April, when the instructors from each of the provinces outlined their methods of work. There is no notice yet of a repetition of this conference this year. It is to be hoped, however, that another conference will take place.

The Quebec dairymen from all reports, held one of the best conventions of the year a few weeks ago. Both makers and patrons were present by the hundreds. Though the proceedings were in French, the information imparted was none the less valuable on that account.

Last year Quebec had 1,012 factories in operation and 47 syndicates. Each syndicate contained from 20 to 25 factories, each in charge of a competent instructor, who visited each of the factories regularly. Ontario dairymen are taking up the syndicate plan, and several are likely to be in operation during 1903. The syndicate plan is the ideal one when uniformity of product and high quality are sought for.

Quebec summer creamery butter leads all others made in Canada, in point of quality. The make has increased rapidly of late years, and that province is nearly as much a butter as a cheese country. Some figures given at the recent convention show how Quebec is forging ahead in dairying. From 1890 to 1900 Ontario increased the value of her dairy output by $7,136,965, while Quebec increased hers by $9,343,371, a balance in favor of the latter of $2,206,406. The people of Quebec have good reason to be proud of the splendid showing they have made.

The output of the five creameries in British Columbia last year was 700,000 lbs. This is not a bad record for a new province, having less than 6,000 farms containing 5 acres and upwards. The British Columbia Dairy Association the last year or two has been giving more attention to bringing in improved stock than to practical dairying. At the annual convention held early last month, it was decided, however, to give more attention in the future to the manufacturers' side of the business. The Pacific province should be in a position to supply its local trade with butter. This it is not doing at the present time, so there is plenty of room for the Association and its members to do effective work in the next few years.

The latest is Algoma. Reports from the district around Sault Ste Marie indicate that this section of Ontario offers special inducements for profitable dairying. The weather is cool, the pastures are rich and succulent and good water is plentiful. More than this there is plenty of timber and stone for building stables and such like.

And so the industry is widening out and keeping pace with the pioneer in building up the newer portions of this great Dominion. J. W. WHEATON.

Toronto, Canada.

Cedar Hill Jersey Farm Notes.

ED. HOARD'S DAIRYMAN:—When I found my name on the program of the Wisconsin State Dairymen's Association Convention I looked forward with pleasure to meeting many old friends and making new ones. In both of these I was not disappointed, but the old feeling of being away from my old home and native state is stronger than ever. When I was a young man I owned a piece of land in Sheboygan Co. in same township our friend Hyatt lives in. This was not good enough for me, so I sold it and went to Kansas where I not only lost the price of the land, but also a dozen years of my young manhood.

The paper read by Mr. Fred Rietbrock of Milwaukee, on the Possibilities of Dairying in Northern Wisconsin, was of great interest to me as I am watching the development of the cheap lands in my native state, and may some day own a home there again. All of my relatives on my father's side are living in Wisconsin and have every since the early forties. I would like to correspond with people who are in the cheap-land sections in Wisconsin.

Come to think of it I do own an interest in some Wisconsin land and may look forward to occupying it some time. This land is in the beautiful Forest Home Cemetery in Milwaukee county. My father was laid to rest there in 1856.

***

Last week we sold some condensed skim milk, $450 worth. We find that condensing skim milk is one of the most profitable side lines of our farming operations. The condensed product is in form of Berkshire pork, 24 June pigs weighed 6500 lbs. Last fall we sold 20 hogs, average weight, 303 lbs. at 6 cents. We yet have 22 head that easily weigh 250 lbs. each. I was in the dairy county of Walworth, Wisconsin on my recent trip and found the dairymen who were patronizing creameries, kicking because they had to pay 10 cents per can for skim milk. I would kick if I had to sell ours for 50 cents per hundred pounds. The feeding value is not perhaps 50 cents, but the health of our hogs and the quality also must be considered. I have never lost a hog with cholera, thumps, kidney or other worms, and skim milk, warm and sweet, is the direct cause of our freedom from disease. While our hogs are Berkshires, we have a type distinctly our own, in comparison with the hogs of same breed throughout our county that receive treatment accorded hogs that are barred from milk.

My subject at the recent dairy meeting at Fond du Lac, "How to Keep and Educate Children on Our Farms" is one that I have to use theoretically, in fact, at least in the future, as the family circle is now broken by my oldest son taking charge of a stock farm in Missouri. As we yet have nine children at home we will continue the methods we described at the convention, fitting the three remaining sons for positions on up-to-date farms, either their own or others. The herd manager, our son now 20 years of age, is I think one of the most skillful feeders of dairy cattle in the country and as a calf raiser he has no equal. 74 out of our herd of 80 Jerseys were reared by him.

My last edition of Stock Farm and Dairyman's Hand-book is about exhausted and I am now preparing for the printer a work much larger and I trust fully up-to-date. All I ask is it may be received as heartily as former editions. As usual it will be distributed at cost of publication. BUFF JERSEY.

Monmouth, Ill.

Corn and Cow Peas.

Some time ago I read an article in your paper in regard to siloing corn and peas, the writer saying it was a great success with him and made almost a balanced ration. Please tell me what kind of peas to plant and at what time to plant them after the corn is planted. Could we harvest them without a corn harvester and how near a balanced ration it would make? G. W. W.

Wilmington, Del.

You will find this subject very fully discussed on page 77 of the current volume.



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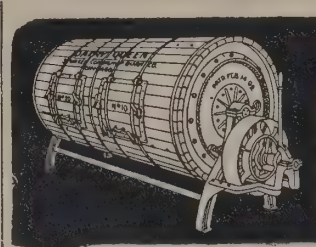
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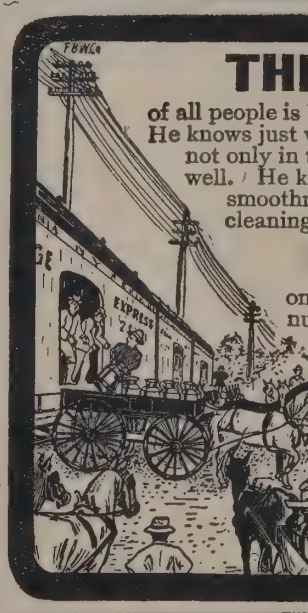
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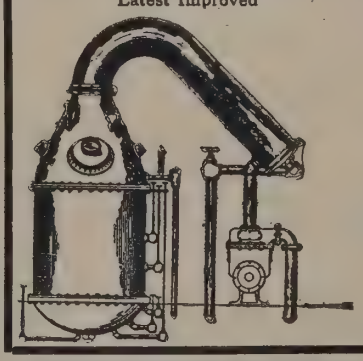
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From the New York Farmer's Institutes.

The Science and Practice of Feeding Animals as Taught at the New York Farmer's Institute by G. W. Cavanaugh and H. E Cook, who also Answered Questions Relating to these Subjects.

ED. HOARD'S DAIRYMAN: — G. W. Cavanaugh, of Cornell University, talked on the Science of Feeding Animals. In connection with this address, he gave the results of the analysis of fertilizers, and cattle foods, which have been made at the experiment stations. They have found that cattle foods especially have been adulterated; oat hulls are mixed with corn meal, and sold for corn and oat feed; corn cobs are ground fine and mixed with wheat bran. The law now requires the dealer in grains to give a guaranteed analysis of his mixed foods. The balanced ration for the animal must first have the protein element, which makes blood and muscle; the carbohydrates, or starch and sugar, make heat and fat; and the ash or mineral part, the bones. The protein can, to an extent, take the place of the carbohydrates, but the carbohydrates cannot take the place of the protein; carbohydrates, which are supplied by corn fodder and timothy hay, are the cheapest and should be used in the right proportion to make up the balanced ration. For each one pound of digestible protein we should have from 5½ to 6½ pounds of carbohydrates.

Prof. Cavanaugh said that the proprietary stock foods, which are sold in small packages for 12 to 50 cents or more per pound, are made up mostly of linseed meal or some kind of wheat feed, common salt, saltpetre, gentian, etc. These stock foods do not cost more than two to four cents per pound, as they are made up and one can buy these ingredients and make his own condition powders or stock foods.

In connection with Prof. Cavanaugh's address, H. E. Cook spoke on the Practice of Feeding Animals. He said the ideal ration should come as near to grass as possible. There is no food for the cow so cheap as corn ensilage to supply the carbohydrates in the ration. Then we should try to grow some protein crops, as oats and peas, clover or alfalfa. We cannot depend on the grass crop every year, because of frequent drouths, but we can generally get a good corn crop. With good corn ensilage and clover, you can have nearly a balanced ration, which can be grown on the farm, so that less grain need be fed. We must learn to grow the most of the food for the cows on the farm, if we are to make a profit in dairy farming.

Instead of purchasing grain to supplement short and dry pastures, grow oats and peas, corn, etc., and alfalfa. One ton of alfalfa hay is nearly equal to one ton of wheat bran, and four to six tons per acre is not a large crop. I would experiment with a small plot; it is worth making the effort, even if you fail. It requires a deep, well drained soil, and lime or ashes in the soil makes it more congenial to alfalfa, which belongs to the clover family. Make a very fine seed bed and sow 30 pounds of seed per acre, alone, with no nurse crop, early in the spring. When the alfalfa is a few inches high, mow it to kill the weeds and then mow it before the blossoms appear. You can generally mow it three times. I would leave the fourth crop on the ground as a protection for the roots in the winter.

In reply to questions, Mr. Cook said the chief value of turnips, mangels and other roots for cows, is their succulence You can get a succulent food much cheaper with the corn ensilage. I cannot afford to raise roots for cows, because I have ensilage. If I did not have ensilage I would raise roots. I would sow 1-3 timothy with red clover, for we are not always sure of a good catch of clover. The best preparation for the corn crop is to grow a good clover sod. If you feed a cow a good ration, you will have very little use for condition powders, or stock foods. A cow very seldom needs medicine if she is well fed.

The following questions were handed in and answered at this meeting:

What is the best feed for eight-week-old pigs to fit them for market as soon as possible?

H. E. Cook: If you have skim milk, feed with it wheat middlings and a little corn meal. The more skim milk you have, the less middlings and more corn meal you can feed. A little powdered charcoal is good for pigs, as it aids digestion.

What breed of cows does the eastern milkman prefer?

Mr. Cook: He wants a cow of good size. Probably the Holstein or Ayrshire, or crosses between the two breeds make the best cows for the milkman.

What about the general-purpose cow?

Mr. Cook: I do not want a general-purpose cow. She should be bred for one purpose. There is no other breed that will make butter fat so cheap as the Jersey and Guernsey, because they have been bred for this purpose.

Shall we raise our cows or buy them?

Mr. Cook: I raise my cows. I can seldom buy good cows.

What proportion of peas would you sow with oats?

Mr. Cook: On rich land I would sow fewer oats, about 1½ bushels to one bushel of peas; on land not very rich, two bushels of oats and one of peas.

How shall we spend the income from the farm above expenses?

Mr. Cook: I prefer to invest my profits in improvements on my farm.

Should manure applied in the fall be plowed under?

Mr. Cook: No, I plow manure under for no crops except corn and potatoes.

Shall we buy commercial fertilizers on the dairy farm?

Mr. Cook: I buy nothing but South Carolina rock. This supplies what the stable manure lacks. Very seldom is nitrogen or potash lacking on the dairy farm where the stable manure is all saved and applied without loss.

How is the best way to get rid of quack grass?

Mr. Cook: Thorough cultivation with the disc harrow; better have quack growing on the land than not anything.

How shall we get rid of weeds in the pasture?

Mr. Cook: Probably the cheapest way is to keep a sufficient number of sheep to eat them down close, and feed the sheep something in the pasture.

W. H. JENKINS.

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Lining a Water Tank with Cement.

I have a square water tank that leaks at the joints. Could I lath up the sides and cement, or would it crack and come off? H. K.

Ducktown, Tenn.

Unless you are so far south that the tank will not freeze up in winter, there would be danger of the cement coming off. If there is no danger of frost, the cement will probably work well if it is put on thick enough, and that can only be determined by experiment.

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"I lost nine months valuable time, and three of Chicago's best physicians said I must die. I weighed about 140 pounds, which is skeleton weight for me. So I resigned myself to my fate and went home to the country to die. It was there a cousin introduced me to Grape-Nuts and new life. I threw all my medicines away and at the end of two weeks' use of Grape-Nuts had to admit that I had gained 4 pounds. In the next few weeks I ate absolutely nothing but Grape-Nuts and pure rich cream and gained 18 pounds.

"I began to take interest in the events of the world again. From this point my recovery has been rapid and to-day I am physically in the best condition I ever was in my life. I had no trouble to get a position with the Anaconda Copper Mining Co. at a better salary than before.

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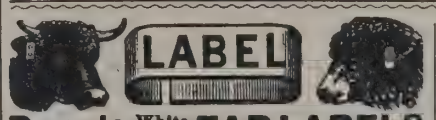


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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own ight who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

THE closing paragraph in Mr. Becker's letter in our inquiry columns is a unique compliment. "I got," says he, "from your good farming paper, silo, alfalfa, and, what is better, Guernseys for dairy business."

Evidently Mr. Becker has been reading to good purpose and good profit. We are gratified to believe that his is by no means an exceptional case, but, on the other hand, we are painfully aware that too many readers are not as receptive to the truth as Mr. Becker has been.

A LAWYER'S OPINION OF THE DAIRYMAN.

A great many professional men, lawyers, bankers, merchants, and some preachers, read HOARD'S DAIRYMAN. They are the owners of dairy farms and want the best source of dairy information they can get. Many of them subscribe for several copies of the paper to be sent to their foremen and such hired men as show an intelligent interest in their work. Here is a letter from a New Jersey lawyer:

HOARD'S DAIRYMAN

GENTLEMEN:—Through inadvertence my subscription to your paper was allowed to lapse. I take pleasure in reading it. I regard it as one of the best investments I make concerning my farm. It is read, I might say, with avidity, for it is fresh, bright and original, and it brings us of the East into touch with the West and its methods, which are at the head in all that stands for progress.

Patterson, N. J. W. H BELCHER.

THE MODERN STAVE SILO.

We give herewith diagrams descriptive of the method of building a modern stave silo, according to the directions given by Mr. Walter McKeen of Maine, on pages 953 of the preceding volume and 99 of the current volume.

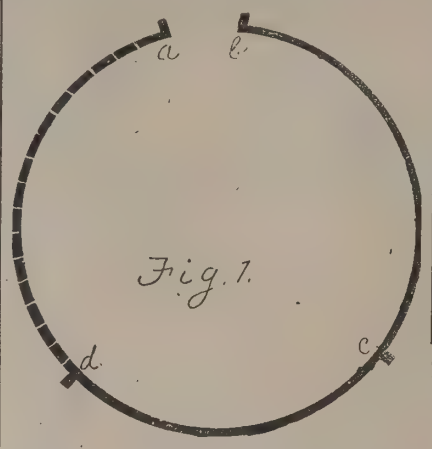
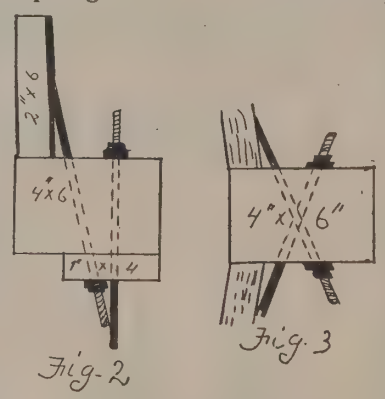
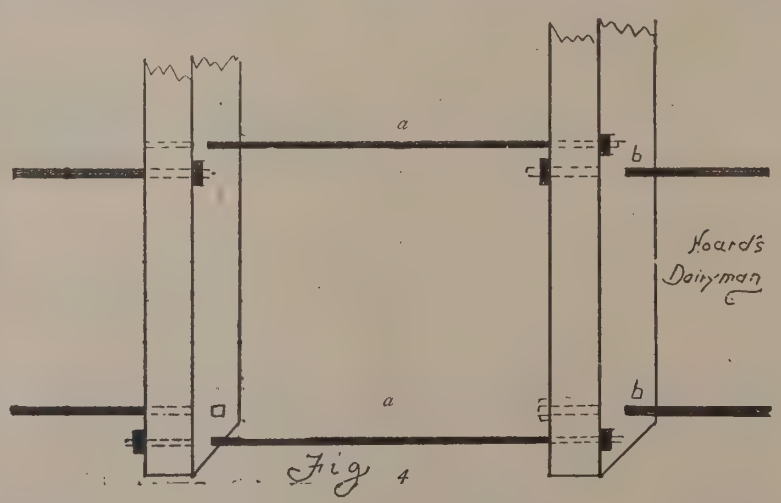


Figure 1 represents a longitudinal cross section of the silo, showing the location or arrangement of the staves and the posts through which the hoops run. The door posts a and b having had a piece 1×4 securely nailed on their inner sides as shown in Fig. 2 to receive the boards for closing the doorway, setting back 2 inches from the inner edge, and having been bored for receiving the main silo hoops and the rods or bolts which tie them together, are framed or otherwise temporarily (but firmly) tied to each other 2½ to 3 feet apart, and the rods or bolts inserted and fastened as shown at a a in Fig. 4, and always closely adjoining the main hoops b b. The distances apart or spacing of these rods and the hoops



will depend upon the height of the silo. For a silo 20 feet high, we would make the lower two spaces not more than 2 feet; the next two spaces, 2½ feet each; the next two, 3½ feet, and the next, or last, space 4 feet.

Observe that the holes for the hoops must be bored diagonally, starting (for the center) about one inch from the line where the outside of the stave will come, and coming out a full inch further away, in order to give room for a large washer and nut, as shown in Figs. 2 and 3.



Set up these posts a and b at the point most convenient for taking out the silage, and see that they are exactly plumb and securely stay-lathed; also set up posts c and d and fasten in place. Now, commence to put up the staves, as nearly as practicable on the circle, until the post c is reached, using old barrel staves, or thin strips of any kind, to hold them in place. Tighten up, say, three of the hoops, reaching from b to c, so as to hold this section in place, and then proceed in like manner with the sections c d and d a. Have the hoops 4 to 6 inches longer than may be apparently necessary, and well threaded back at the ends so that the posts c and d may be moved to accommodate the staves, making the circle a few inches larger, in place of fitting the staves to a specific form.

It is not necessary that all the staves should be exactly of the same width, but none should be more than 6 inches, and narrower would be preferable. It is not necessary that the staves should be beveled or tongued and groved, and some say they need not be jointed or planed. If they are sawed true and of even width throughout, this is doubtless true, but our experience is that lumber is seldom sawed in this manner and we do not advise attempting to build without having the lumber either re-sawed or jointed.

The bottom of a silo may conveniently be four feet lower than the feeding floor of the stable, and the foundation should be at least a foot above the level of the ground. The foundation wall may be made of stone, or concrete, or extra hard brick, and the staves may set back from from the inner edge of the wall 2 to 4 inches. The "regulations" prescribe that only the best quality of Portland cement should be used for plastering the inner surface of the foundation, but the present writer used common water lime, as an experiment, three years ago, and it is still in good order. Put some clay or cement on the inside at the foot of the staves to make sure of a joint impervious to air.

Some sort of a roof or covering is necessary to keep out snow and storms after the feeding of the silage has commenced. This may be cheap and temporary, or more elaborate, expensive and durable.

Cypress is undoubtedly the best lumber for building a stave silo, but any kind of lumber may be used, unless it be elm and basswood.

A LETTER FROM A CANADIAN HIRED MAN.

The Senior editor of the DAIRYMAN confesses to a good deal of interest in that useful class of men who work on the farm by the month. From the time we were sixteen years of age till we were twenty-one, that was the kind of life we led. We look back now with profound respect for one man for whom we labored four years and who did everything in his power to teach us the principles of dairy farming. With him we were trained in the care of 50 cows, the making of butter and cheese, and all matters pertaining to farm work. The following letter from Mr. L. H. Walbridge of Carroll, Manitoba, himself a farm hand, is one which we are proud to receive and print. We only wish that every hired man was actuated by his spirit and intelligence:

ED. HOARD'S DAIRYMAN:—I am leaving here for Melita, Man., April 1st, so you will kindly change the address of my paper. Being but a farm laborer, and very busy, I have not the time to spare to get some subscribers for you. I am sorry for this, as I am firmly convinced of the great value of HOARD'S DAIRYMAN to every man who will read it. I am saving my money to commence farming for myself, so I go where I can get the most money, consequently am here, there and all over.

I believe your paper is of practical benefit to every reader, and more than that, to some who are not readers. For instance, when a hired man by careful perusal and study of your paper, has been stimulated to render better and more skillful service to his employer, surely the employer who has never read the paper is benefited also. I am getting $175 for 7 months commencing April 1st. After that I may go to the United States and work on a dairy farm as I have done before. I can easily spare $1 for HOARD'S DAIRYMAN. Your well wisher,

L. H. WALLBRIDGE.

Melita, Man.

Mr. Wallbridge need have no fear of difficulty in securing a place on a first-class dairy farm, either in the United States or Canada. There are hundreds of first-class dairy farmers who are looking for just such men, to whom they will be glad to pay first-class wages.

COMMENT ON BACK NUMBERS AND THINGS.

That was a good thoughtful article on the manure question by L. C. Burroughs of Pennsylvania, page 62 of Feb, 27th issue. It makes no difference whether his method agrees with our own or not. When a man sits down and writes out of the fullness of good earnest thought and practice it can't help being valuable.

By the way that was an interesting calculation Mr. Burroughs made as to the weight of an acre of green corn stalks. Then besides he told a big truth about the value of sowing rye every fall on stubble land as a cover crop to plow under the next spring. These better ideas and practices are what distinguish an up-to-date farmer who thinks and reads from one of the "go-it-in-the-dark" kind.

Every number of HOARD'S DAIRYMAN contains articles on alfalfa worth ten times its cost to any farmer that has gumption in him. Last week a man came 300 miles to look over our alfalfa fields and note how the cows look that it is fed to. He had accidently got hold of a copy of the DAIRYMAN the week before. He subscribed and says he considers that he is out hundreds of dollars because he has not known of the paper all these past years.

What a difference there is in farmers as well as other men.

Prof. Erf, of the Illinois Agricultural College, and Mr. E.S. Wiggin, of Springfield, Ill., took in the Wisconsin Creamery Butter Makers' Convention at Waukesha, and on their way home paid the DAIRYMAN, the Hoard Creamery and the W. D. Hoard Dairy Farm, a visit. They expressed themselves as very greatly interested in what they saw at the creamery and especially in the stables at the farm. Mr. Wiggin is proprietor of the Leland Hotel at Springfield and operates a large dairy farm in connection therewith. He is a young man of clear sighted ability and energy, and has promised to give our readers some of his experience. Prof. Erf is doing strong, conscientious work among the dairy farmers of Illinois. We hope they will encourage him.

The heartfelt sympathy of HOARD'S DAIRYMAN is felt, if not often expressed, for those good dairy farmers in the New England states who have been wrestling with the foot and mouth disease. That was a brave letter written by Mr. Isaac Alger Jr., of Massachusetts, on page 65. Mr. Alger shows the right spirit, the spirit of hope and pluck. We have a hearty admiration for men who face the "ultimate good," with courage and faith. His description of the character of the disease shows how wise it was for the government to take hold of it with a resolute hand.

OUR cows, the year 1902, gave us good returns, and I give the teachings of the DAIRYMAN credit for part of it at least.—C. W. Pierson, Auburn Center, Pa.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

An Illinois Ration.

Please formulate balanced ration from any or all the following feeds, viz.: Mixed hay, clover and timothy, not very good quality, $8.00 per ton; corn and cob meal, $10.00; old process oil meal, $26.50; bran, $16.25; oats, $20.00 corn fodder, fine quality, B. & W. with large ears. Only small quantity of oats on hand, which I can sell for seed; have written for prices on gluten meal; have also a few hundred pounds soja beans, which I raised myself. I have approximately 20 cows, giving milk at all times; raise some of the most desirable heifer calves on separator skim milk.
Paw Paw, Ill. E. G.

We recommend for trial say, 10 lbs. clover and timothy, 10 lbs. corn fodder, 3 lbs. corn and cob meal, 3 lbs. bran, and 2 lbs. soja beans, or 2 lbs. oil meal. If any cow will eat more of the corn fodder, let her have all she will eat without unnecessary waste. This is the allowance for 24 hours, and we should feed half of the grain at night, and half in the morning, with not less than a teaspoonful of salt with each feed. Cows that have commenced to shrink perceptibly will need less grain, and we would make the first reduction by omitting one-half of the oil meal or soja beans.

Remodeling a Minnesota Barn.

I have a barn 60 feet long, 28 feet wide, with plank floor that is now rotten. I have mangers on each side, built up to the walls with a driveway right through the barn. I have to put in new floor soon; would you advise me to remodel the barn, so as to make it handy? I would like to keep about 25 cows, 6 horses and place for calves; may have to build to it on one side, probably on the north side, so as to get the light and sunshine in from south. J. A.
Minnesota.

Remove the wall from either north or south side and build an addition 9 feet wide. This will give a clear space 33 feet wide and 54 feet long, just enough to comfortably accommodate 26 cows, with passage ways at both ends. Then add enough to the length of the barn, and the full 37 feet in width, to accommodate the horses on one side, and reserve the other side for calf pens, box stalls, and miscellaneous purposes. This will allow feeding alleys, next to the walls on both sides, 5 feet wide; mangers 2 feet wide; standing platform, 4 feet wide; gutters, 18 inches wide; and a central driveway, 8 feet wide. Set the permanent posts, where the wall is taken out, so they will not interfere with the proper apportionment of stalls for the cows.

Rye Does Not Make Satisfactory Silage.

Is there any objection to rye for silage for feeding cows for milk? The milk is used directly as milk and not made into butter. W. R. C.
Philadelphia, Penn.

If rye could be successfully made into silage it could doubtless be fed without tainting the milk, but it is difficult, not to say impossible, to preserve hollow stemmed varieties of forage in a silo.

Frost Killing Young Alfalfa.

Is it considered that frost will kill newly sown alfalfa after it has sprouted, because if so, it is desirable to delay sowing till the spring is farther advanced. I. S. A.
Lower Lake, Cal.

It is well to delay the sowing until the season can be fairly thought to be settled. We have never had any experience in this matter but would judge that the frost would give the young alfalfa plants a discouraging set back.

Timothy and Alfalfa.

We are referred to you by the San Joaquin Ice Co., of Fresno, as the proper person to ask: "What is the relative value of timothy and alfalfa hay as butter fat producers?"
If you are in possession of the information desired, will you kindly favor us with same.
Laton, Cal. N. & S.

There are no *exact* data from the experiment stations, but practical dairymen who have fed both kinds of hay would not exchange one ton of alfalfa for two tons of timothy.

Addition to Barn for Stable.

J. D., Bay City, Mich., has a barn 30 feet wide to which he proposes to add 20 feet in length for a cow stable. This addition must also contain a bin for beet pulp and a hospital (box) stall. He has in mind a narrow central feeding alley, with a row of cows on either side. He also asks if a trap door over the feeding alley at one end will serve the double purpose of ventilation and putting down feed. We have given this problem considerable thought, and do the best we can, there does not appear space for more than seven cows—5 on one side, occupying not less than 16 feet and 2 on the other side, 6 or 7 feet, as the balance of the 20 feet extension will be needed for passage ways and the pulp bin and box stall. Ventilating the stable in the manner proposed is a sure way to make it cold. The exit for foul air should start at or near the floor, in order to draw off the coldest and most impure air.

Which Breed Again.

I would like a little information in regard to dairy cows. I am a young dairyman. Am selling milk at 6 cents per quart, cream at 12 cents per pint. Would like to improve my herd. What breed of cows shall I buy, so as to have good quality as well as quantity? Will it pay me to buy thoroughbred cows? J. F.
Dayton, O.

There will be an interesting and well reasoned communication from our german friend, Schwertfeger next week. He is not altogether an expert in the use of English, but all the same he manages to make his arguments and conclusions understandable. Get the breed you like best, but be careful not to get the scrubs of that breed, and withal do not expect to get first-class quality at a fourth-class price?

We do not think it advisable for any one to invest in a herd of thoroughbreds until he has had some thoroughbred experience. First get the best bull you can buy, and of the breed you prefer, and raise some first-class grades. Frequently, an aged bull, that has proven his prepotency, can be bought for much less than his real value (we bought such an one this winter for $45, because his owner was unwilling to use him longer, having a prejudice against inbreeding). Caring for those grades will prepare the way for giving thoroughbreds proper care. Grow into the business gradually by purchasing, as opportunity offers, here and there, a high class thoroughbred cow.

Virginia Swine Queries.

I would like to get some information about hog raising. In the first place, which of the several breeds do you consider the best? Second, does it pay to winter fall pigs, corn being worth 50 cents, bran $20 per ton? Third, what is the earliest crop that can be planted for hogs in spring? I have a young orchard that I use for hog grazing; what can I plant to have very early feed for them? My sows are due to farrow 1st of March, and want to plant something to suit the pigs. A SUBSCRIBER.
Charlottesville, Va.

1. It is quite beyond our ability to pronounce judgment as to which is the best breed of hogs, or cows, or sheep, or horses.

2. The price of hogs and cattle and butter and cheese usually follows very closely upon the varying prices of feed, and, as a rule, the man who has the courage to feed liberally, when feed stuffs are high in price, receives a good profit.

3. Probably nothing would be better or earlier than oats and peas and a patch of rape.

A Quebec Feeding Inquiry.

1. Am feeding my cows as follows: Bran, 6 lbs.; cotton seed meal, 2 lbs.; turnips, 20 lbs. and all the good mixed hay they will eat. Is that fairly balanced?

2. Have some three-year-old heifers calved the first of the winter and giving on above feed about 20 lbs. milk per day. Would you consider these of sufficient promise to warrant keeping?

3. Have on hand oats at 40 cents and barley at 60 cents. Will it pay to grind these instead of buying bran $22 and cotton seed at $30? What is the comparative values of these feeds? Can buy whole wheat ground at $24 and corn at——
Quebec. SUBSCRIBER.

1. Four to six years ago, with the best information then obtainable, and following the lead of German investigators, the ration described above would have been very generally approved. It carries nearly 2½ lbs. of digestible protein with carbohydrates and fat in substantially the recognized proportions. There are yet plenty of dairymen, and probably a great majority of the professors and instructors in our Agricultural Colleges, who still adhere to these standards, but they are unable to tell us what becomes of this amount of protein. Protein is the most expensive element in food stuffs and the most difficult to provide in farm crops. A line of evidence and reports from experiment stations and careful dairymen, affords us sufficient justification for recommending, at least for trial, a very material reduction in the amount of protein. We should expect practically as good results, if 2 lbs. of ground barley were substituted for the 2 lbs. of cotton seed meal. This would not be a very large saving—less than a cent a day per cow—but it is the aggregate of such small savings that determines whether a dairyman is to be a drudge or a capitalist. Bankers do not scruple to look carefully after the pennies, both of income and outgo, and dairymen should not be so indifferent to the one hundred per cent of profit which follows the saving of each penny.

2. We should consider the present yield of those heifers as promising future dairy efficiency.

3. We cannot see that anything would be gained by substituting either oats or barley for bran at the prices named.

A Vermont Feeding Inquiry.

A. O. K., Bradford, Vt., asks whether cotton seed meal is worth any more pound for pound than corn meal. He is feeding his cows at present 1 bushel of corn silage made from corn fodder without any ears, clover and timothy hay all they will eat up clean, and for concentrates about 3 quarts of mixed feed (bran and middlings) and 3 pints of cotton seed meal daily. Corn meal is worth $23; cotton seed meal, $30, and he wishes to know which is the cheaper feed considering the price of each and under the conditions that obtain with him.

For mere nutritive purposes the corn meal would be the cheaper, but for feeding in connection with silage, clover and timothy hay and the mixed feed mentioned we should prefer the cotton seed meal.

Ration from Corn Fodder and Bran.

Will you kindly give me a ration for new milch cows, weight about 1,000 lbs. I have plenty of corn fodder, in fact the cows now run in a 40 of corn, as it was cut and husked, corn was all in milk when cut; I also have bran of a good quality.
Dodge County, Wis. H. E. K.

Just what may be the feeding value of that "corn fodder" is very uncertain, but it would seem that it ought to be fairly good, if it was well cured and has been well protected. Estimating on such a basis, these fresh cows ought to have from 8 to 10 lbs. of bran daily with salt, and all the corn fodder they will eat. And be careful not to make the too common mistake of estimating a pint of bran as being the same as a pound. There are different qualities of bran, some heavy and some light, but it is not often that a quart of bran weighs to exceed ten ounces. It would require eight quarts of such bran to weigh five pounds.

Ringing A Bull.

Will you please tell me through your columns, what is the proper method of putting ring in a bull's nose. G. S. W.
Unity, Me.

You may send to C. H. Dana, West Lebanon, N. H., for his Bull Nose Punch, price by mail $1.25, or may use a trocar and canula (which is our method), or, in urgent cases, a small, sharp knife will answer, to make the incision. First of all, the animal must be securely fastened and the head so tied that he cannot move it much. Then make the hole, and if the punch is used the end of the ring will press through in the groove; if the trocar is used, withdraw it, leaving the canula projecting, insert the end of the open ring in it and as the canular is taken out the ring will follow. When only a knife is used, push the little finger through the slit, pass one end of the ring close to the end of finger and crowd through as the finger is removed. Bull rings are jointed or hinged, and when closed a small screw holds the parts together.

From Texas.

I have a small dairy of about 25 cows, mixed cattle, some Jerseys, some Durhams and some Holsteins. I want to know what kind of a male would you put with that kind of bunch of cattle to get the best dairy cows. I want quality and quantity also, and furthermore, I have been contemplating selling my whole bunch and getting full blood Jerseys. Would it pay me to do that or not? I sell my milk and butter at home. I don't ship to any creamery. E. K. J.
Stephenville, Tex.

For simple dairy purposes, that is, for the production of milk and butter, we do not think it would be profitable for this inquirer to invest in high-priced thoroughbreds of any breed. Get a sire of the breed personally preferred and that will serve your purposes better than to follow the advice of any other person.

A California Ration.

Enclosed are prices taken from a daily paper in San Franscisco.
Alfalfa hay costs me $13; have plenty of A 1 burr clover hay which is not quoted as it is usually all bought up by dairymen at the ranches. Feed at present as follows: Clover hay about 21 lbs. daily; bran about 6 lbs daily; middlings about 4 lbs. daily; salt about ¼ lb. daily.
Out here most of the dairymen feed the grain wet, would like your idea on same. Please give me a balanced ration from inclosed price list.
Alameda, Cal. F. W. A.

The clipping enclosed with the above communication quoted outside prices for bran, $21; middlings, $27; rolled barley, 26; oil meal, $26.50; cocoanut, meal, $22; corn meal, 31.

We are of the opinion that the ration as fed would give very good results, but thinks that 2 to 3 pounds of the cocoanut meal in place of the middlings would be an improvement.

It is almost the invariable custom in this part of the country to feed the grain portion of the ration without wetting.

A New York Ration.

Please formulate a ration for Jersey cows fresh in January, out of the following: Bran, $23; oats, 40 cents per bushel; cotton seed meal, $30 per ton; brewers grains, $26; oil meal, $30; corn meal, $24; for roughage, clover hay, somewhat damaged by weather. C. E. S.
Moravia, N. Y.

With clover hay for roughage we would select brewers grains and corn meal for concentrates, using three parts of the former to one part of the latter by weight. Let the grains be thoroughly soaked before using.

Cream and Butter Yield.

How many lbs. butter would 831 lbs. cream, testing 29 make? The cream is measured with a pipette same as the whole milk. SUB.
Caldwell, Idaho.

The above amount of cream should make about 287.2 lbs. of butter, according to theory. The actual amount may be above or below this amount, depending on creamery conditions and the accuracy of the testing. Measuring cream for testing with a pipette is not an accurate method and the calculated results may be quite different from the creamery returns.

Wood Hoops and Best Lumber for Silo.

As I am a new subscriber to your paper, I have seen a few sketches speaking of the wooden hoops for silos, but have not seen a description how they are made. As I wish to build a silo next season, I would like all the information I can get along this line. Will you either send me your paper giving a description of the same or give it through the columns of the DAIRYMAN? As I have timber on my own place and saw mills near by, which would you consider best and most durable for building stave silo, red oak, black ash or tamarack? C. O. A.
St. Wendall, Minn.

Direction for making and setting up wooden hoops for a silo will be found on page 153.

There is no reason why the tamarack, if sound and free from shakes, should not make good staves for a silo, and either the oak or ash may be used for the same purpose. We should prefer to have the staves not more than 4 inches wide, but there would be no special objection if they were 6 inches.

A Ration for Cows to Freshen in April.

Will you please formulate for me a balanced ration for a dairy which freshen in April? Cows vary in weight from 700 lbs. to 1,000 lbs. Clover and timothy hay, ground oats and barley (⅔ barley), corn meal, $23.50; Atlas gluten meal, $29.00; bran, $24. Also grain ration for pasture. D. R.
Norwood, N. Y.

We do not deem it advisable to feed full rations to cows immediately after freshening, but prefer to take 15 to 30 days to bring them to the maximum allowance. Subject to this reservation, we suggest for an average ration as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
20 lbs. hay.....	17.06	.96	7.92	.32
5 lbs. oats and barley.	4.45	.45	2.67	.17
3 lbs. Atlas gluten....	2.64	.74	1.16	.34
Totals.....	24.15	2.15	11.75	.83

The smaller cows will probably not require so much of the hay, and only the best milkers the full allowance of grain.

The mixture of oats and barley will be an excellent supplement to pasturage. In addition, give the cows all the hay they will eat. One who has never tried feeding hay when cows are on pasture, will be surprised at the greediness with which they will eat it.

The Babcock Machine.—Good and Poor Cows.

Which is the best the Twentieth Century noiseless hand tester or the Babcock tester?
Also can you tell me what a cow should test to be called a good cow and also a poor cow? What is the average test of a cow? C. H.
Mindoro, Wis.

The above machines are virtually the same machines, differing slightly in construction and material used. Any one of them will be found suitable for doing the work of testing.

The value of a cow depends on the total amount of fat she gives in a year rather than in the richness of her milk. An animal giving 3 per cent milk may yield enough of it in a year to be a valuable animal, while a 5 or 6 per cent cow may give but a relatively small amount of rich milk and be a very poor producer. An animal that will produce 200 pounds of butter a year, just about pays for her feed and it may be taken as a dividing line between the good and poor cows.

Grass Seed for Pastures

I see in last week's paper you advise sowing Red Top, Orchard Grass, Blue Grass, Timothy and Clover for permanent pasture. I wish you would please tell me the quanity per acre of each kind, to make up the above mixture. R. P. K.
Shelburne, N. Y.

The amount of the various grasses to be sown will vary according to the judgment of the sower and locality, but for an average the following will do:

Red top	2 lbs
Orchard grass	5 lbs
Blue grass	5 lbs
Timothy	3 lbs
Clover	3½ lbs

Ropy Milk.

Why does milk get ropy when a couple of days old? Trouble is all with evening's milk. Have a herd of 30 cows, Holsteins, Guernseys, and Holstein and Guernseys mixed. As soon as through milking, milk is stood in water and stands till morning. Morning milk is cooled and all taken and sold. Has the feed anything to do with it?
Dravosburg, Pa. D. B. G.

Ropy milk comes from the introduction of a specific bacterium that causes the milk to become ropy. When once introduced it is very persistent and difficult to get rid of. Everything about the dairy that is used in handling or comes in contact with milk must be scalded with boiling water containing washing soda. This must be done thoroughly, as the ropy bacteria are very hard to get rid of and may have to be repeated two or three times before normal conditions are obtained.

Sixteen Silo Questions.

I mean to build a stave silo this next summer and am getting the stuff now. Have a good offer of some excellent spruce 18 feet long, 2 inches thick and ranging from 4 to 7 inches wide.

1. Is two inches too little to keep it from springing?
2. Also to keep silage from freezing?
3. Is it an advantage to plane the stuff?
4. To tongue and groove it? Shall keep from 10 to 12 cows next year and 3 or 4 calves. Some silage left over would be a help to me, as our pasture in August and later is short and I shall probably keep cows in at night all summer. Later on I hope to keep 16 cows or more.
5. Could I safely build any more than 12 feet in diameter?
6. Should I build 24 feet high or 27 feet?
7. How many tons will silo hold in each case?
8. How much lumber will it take?
9. How many hoops and how far apart?
10. What thickness of iron?
11. Are they better in three sections than in two for tightening?
12. How many doors, what size, and how far from being directly over each other to keep silo strong?
13. Is natural rock cement or Portland the best for foundation for silo and manure shed?
14. How much sand to mix with it?
15. What size stones and how deep the tier of stones below cement?
16. If staves are joined one at top and next one at bottom, will the bottom ones spring out with the pressure?

Sorry to have to ask so much, but I only know what little I have read about silos. Never saw but one and it was a botched job and a failure. Am a new subscriber. E. A. B.
Hatley, Que.

1. Lumber two inches thick is abundantly strong for stave silo.
2. Later experience shows that a little freezing around the outside of the silo is not particularly injurious.
3. We prefer to have the lumber planed, but this is not indispensable.
4. We do not consider tonguing and grooving necessary.
5. For the number of animals kept and to be kept, 12 feet in diameter would be a maximum size.
6. A silo 27 feet in depth is preferable to one 24 feet in depth.
7. Silos of the dimensions indicated will hold respectively 47 and 56 tons.
8. The amount of lumber required will depend altogether on the character of the roof. A very cheap and inexpensive roof will answer every practical purpose, but if one wants to make a more finished building a more expensive roof will be required.
9. A silo 27 feet in depth will require ten to eleven hoops. The four lower hoops should be spaced 2 feet, the next two 2 to 2½ feet and the others from 3 to 4 feet.
10. Round iron ⅝ inches in diameter makes the best hoops.
11. We should prefer to have the hoops in three sections.
12. The doors are placed directly one above the other and preferably plan to have a continuous opening from top bottom. See in this connection the communication from Mr. McKeen on page 99, and the article and illustrations in this issue.
13. Portland cement is uniformly recommended.
14. Consult local masons.
15. For bottom of silo and manure shed lay first a concrete foundation 4 to 6 inches. It is made of one part Portland cement to six parts sharp sand or small stones and over this a cement covering 1 inch thick composed of cement one part to three parts sharp sand.
16. The hoops will prevent springing out of staves.

A Husker for Filling Silo.—Raising Alfalfa Seed.—Dragging Alfalfa to Exterminate White Clover.

I would like to get your advice on filling my silo with a corn husker so as to get the ears in the corn crib. How will ensilage without corn keep? I have 22 acres of alfalfa which I would like to raise seed from. I don't know anything about it in that line. Now I would like to find out whether it can be thrashed with a common grain thresher successfully and how many bushels can be raised to the acre as an average crop. Is it a good plan to drag young alfalfa to get rid of white clover which appeared last fall on alfalfa? Alfalfa is doing very well here.

I must thank you for what I learned from your good farming paper, for I got a silo, alfalfa, and, what is better, Guernseys for dairy business.
Faribault, Minn. N. B.

We do not know of any attachment to a husking machine that will deliver the stover (stalks) in a silo in proper condition. Moreover, there is no place where the grain (corn ears) will keep better or do more good than in the silo. Of course, it is all right to have some corn in the crib, but we would not want to put near all of it there.

Will some one who has had experience with raising and threshing alfalfa seed answer the inquiry on that subject?

We very much doubt whether dragging will kill the white clover, but cannot speak from experience or from knowledge gained from others.

Cows not Doing Well—Silage not the Cause.

I mail you under a separate cover a sample of my silage. My cows are not doing well on it. I am feeding all that they will eat of silage, 5 lbs. of Quaker dairy feed and all the long fodder they will chew up. Please tell me what you think of the silage as to quality. C. H. G.
Middletown, Del.

Sample of silage received, and seems to be of such fair quality that it is impossible to attribute to it the failure of the cows to meet expectations. We should rather expect to find the cause, either in the character of the "long forage" or the quality and amount (if only 5 lbs. per day) of the grain feed used. Without further information on these points, we are unable to offer specific suggestions.

Cheese Making in a Private Dairy.

W. F. W., of Alexandria, Ind., like many other of our readers, inadvertently allowed his subscription to expire, but when the paper stopped coming he missed it so much that he not only renewed for himself but persuaded one of his neighbors also to become a subscriber.

Mr. W. keeps comparatively only a few cows but endeavors to make them pay the expenses of his farm and family so that whatever else he can raise and sell becomes clear profit. For some years he has made cheese in the summer and built up quite a profitable local trade. He asks for some specific information in regard to cheese making and how to handle the cheese while curing so as not to be bothered by the cheese fly. He also wants to know what is the best

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Mild cases, not chronic, are often cured by one or two bottles. At all druggists.

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GOOD COWS AND A U.S. SEPARATOR FILL THE FARMER'S POCKETS WITH MONEY!

The U. S. Separator gets all the cream from the milk,
The cream makes the butter,
The skim-milk makes the calf,
All bring in the cash.

101 Send for Catalogue

VERMONT FARM MACHINE CO., Bellows Falls, Vt.

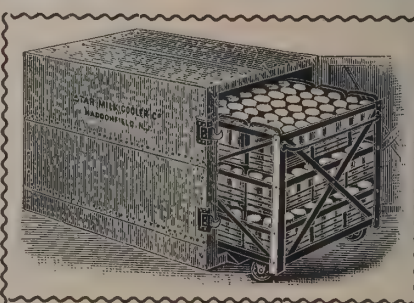
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A Saddle was returned at our expense a few days ago. Although it had been properly boxed, it was damaged by rats before being unpacked, according to customer's letter. Of course this was no fault of ours, but he got a new saddle just the same. Do you know of any other firm who would have given him the same liberal treatment? Why not buy your supplies from a firm with whom it is a pleasure to deal? All goods guaranteed and prices always lowest, quality considered.

Our next advertisement will show how the goods arrived. Watch and see if the packer told the truth.

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It contains 1100 pages of wholesale prices and pictures of everything you eat, wear or use.

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kind of cows for cheese. At present his herd consists of Grade Jerseys but he is crossing them with Holstein-Fresians with a view to increasing the yield of milk.

We recommend Mr. W. to send $1.75 to this office and get a copy of Prof. Decker's book on Cheese Making. This work is more adapted for large factories but the same principles obtain whether one is making cheese on a large scale or a small scale, and this book will be found very helpful even in a private cheese dairy.

We have some question whether this inquirer is exactly on the right track in seeking to obtain cows which will give him a larger flow of milk containing a smaller per cent of fat. It must be conceded that 4 per cent milk will not make quite one-third more weight of cheese than 3 per cent milk, but it does make cheese of a better quality. When one is supplying a private local trade, quality is often of more importance than quantity.

The general market does not make as much distinction in quality of cheese as it should, but local home trade does make this distinction and as a rule is quite willing to pay liberally for the best quality of all kinds of farm products.

Silage or Soiling Crops.—Size of Silo.

H. B., Glen Ellyn, Ill., asks which is better, where there is no pasture, to depend upon such soiling crops as rye, oats and peas, clover and corn, or to build a silo. The probabilities are, that neither method exclusively would give best results. For the benefit of the land it is a good plan to sow some fall grain as a winter cover crop and early spring pasturage, and especially to get something to turn under to add humus to the soil. In addition, something must be raised for hay. Cows fed on silage, whether in winter or summer, crave some dry forage, and should have it. Peas and oats make both good silage and good hay. So we say it is not wise to depend exclusively on corn for silage. Then, too, there comes in the question of alfalfa, which is being so fully discussed in our columns from week to week.

H. B. asks what size silo to build, but omits to indicate how many cows or other animals he expects to feed. A very safe proposition is to allow one cubic foot of space per day for each animal.

Silage all the Year.—Molasses—Young Bull.

1. Can I keep cows on silage and the necessary dry feeds with some grain the year round? If so is there a work treating on the same? I have a silo large enough for over half the year now.

2. What is the added value to dried brewers grains that are soaked in the molasses from the sugar factories.

3. How much service is safe to give a Jersey bull ten months old. H.

Holland, Mich.

1. Silage may be fed with quite as much success and in similar manner in summer as in winter. There is no book, known to us, which treats specifically on this subject. The main objection to depending exclusively upon silage for summer feeding, is that it does not work in well with a proper rotation of crops.

2. We are of the opinion that nothing is added to the feeding value of brewers grains for cows by treating them with molasses.

3. None at all.

A Case Where it Would Not Pay to Build a Silo.

Would it pay me to build a silo when I would have to haul the corn or clover two miles to get it to the silo, and not able to make more than three loads a day, each one and half tons in weight.

What is the best cure for scours in a calf nine months old, caused by green grass with too much water in it, or too soft? Blood meal I find to be the very best thing for young calves, but not a sure cure in old calves with a bad case of scours.

Ross Valley, Cal. M. M.

It would hardly be practicable to fill a silo at the rate suggested, as it would occupy too much time. Possibly by changing work or hiring extra help, the work could be finished in a week or less. A distance of two miles we would not consider an insuperable objection.

The "best cure" for any trouble occasioned by over-eating or eating improper food is to eat less or provide more suitable food. Cases of the character suggested really do not need medicine, but judicious diet. A little scorched flour or other dry feed would tend to allay the effects of the improper food.

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MONEY TO COOKS.

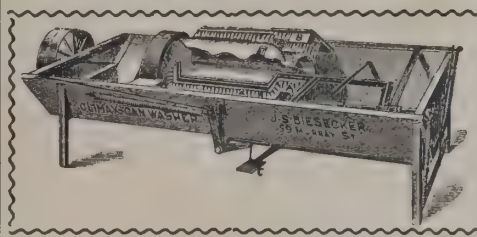
$7,500 00 Donated to be Divided Among Family Cooks.

The sum of $7,500.00 will be distributed between now and midsummer among family cooks, in 735 prizes ranging from $200.00 to $5.00.

This is done to stimulate better cooking in the family kitchen. The contest is open to paid cooks, (drop the name "hired girl" call them cooks if they deserve it) or to the mistress of the household if she does the cooking. The rules for contest are plain and simple. Each of the 735 winners of money prizes will also receive an engraved certificate of merit or diploma as a cook. The diplomas bear the big gilt seal and signature of the most famous food company in the world, The Postum Cereal Co., Ltd., of Battle Creek, Mich., the well known makers of Postum Coffee and Grape-Nuts. Write them and address Cookery Dept., No. 338, for full particulars.

This remarkable contest among cooks to win the money prizes and diplomas will give thousands of families better and more delicious meals as well as cleaner kitchens and a general improvement in the culinary department, for the cooks must show marked skill and betterment in service to win. Great sums of money devoted to such enterprises always result in putting humanity further along on the road to civilization, health, comfort and happiness.

CLIMAX MILK CAN WASHER



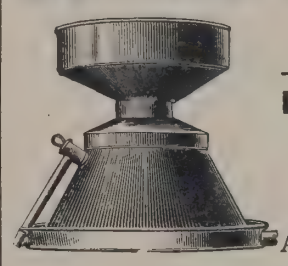
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WHY wash cans in the Creamery by hand when it can be done by steam or other power? The **CLIMAX** washes the can outside as well as inside. It saves time and extra help. An expert can wash 175 cans an hour. It is a money saver for the wide-awake creameryman. Buy one of these machines and you will never regret it. A postal will bring additional information, prices and a copy of our illustrated catalogue. Write today.

I will make you a quotation on anything you want or request.

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PERFECT FLAVOR IN BUTTER AND CHEESE

results from perfect milk. Perfect milk is that which has been properly handled from the moment it left the cow until it reaches the finished product.

THE PERFECTION MILK COOLER AND AERATOR

makes a perfect milk. It takes out all animal odors and those arising from stables or feed. It retards **loppering** and **souring;** prevents the **cowy odor** in butter and **deleterious gasses** in cheese. City boards of health are insisting on milk that is properly cooled and aerated. This machine is **simple, quick** and **effective.** Made in sizes from 1 to 200 cows. Send for free circulars.

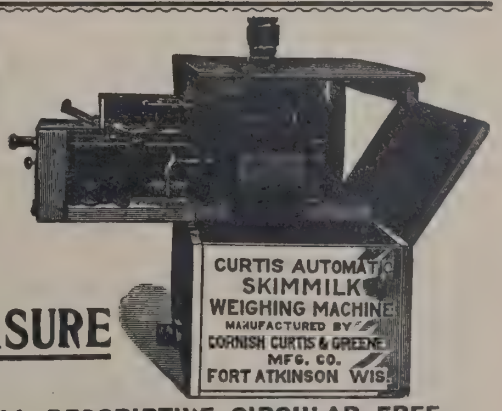
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Often goes to the wrong man for the simple reason that the patrons have no standard of

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and the last man suffers.



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Agents for.... DE LAVAL ALPHA SEPARATORS.

Fort Atkinson, Wis.

When and how is alfalfa seed secured, harvested and threshed? We invite readers having had experience to reply to Mr. Becker's inquiries, printed in another column.

R. C. Phelps, Westerville, Ohio, sending check for two subscriptions, writes: "The Dairyman is worth many times its cost. We have increased the average per cow $15.00 since taking it."

HE SUBSCRIBES FOR TWO COPIES OF THE DAIRYMAN.

There are quite a number of subscribers on our books who take regularly two or more copies of the Dairyman, one for themselves and the others for their men. We were quite interested at the Fond du Lac Dairy Convention in hearing a friend relate the situation as it existed with him. He is a thorough, up-to-date dairy farmer and employs three men steadily, by the year. His story, as he gave it to us, was about in these words.

We had been talking over the strange difference in the returns and profits of one farmer and another at the same creamery or cheese factory, and I asked him to explain it. "That is easily explained", he said. "One man takes an interest in his business and tries to learn, the other don't. That is all there is about it. One man stimulates his mind with good dairy reading. The other reads nothing and there is a mental deadness in that household all around. I noticed years ago that Hoard's Dairyman was worth four times what it cost in its effect on my men. It made them brighter, more thoughtful and it gave us all something to talk about in our own work. They know more and that makes them feel like doing the best they can. Why, I had to take an extra copy in order to get a chance to read the paper myself when I wanted it. You are on the right track in this question. The farmers need stiring up to see what it is that ails them. It is a lack of live brain work. They are losing thousands upon thousands of dollars, and they don't know it, nor do they know that it is for the lack of better thought and knowledge that they are where they are."

We thought, what a contrast. Here is a man making fine profits in dairying, and taking an extra copy of Hoard's Dairyman for his hired man. His next neighbor working harder, taking milk to the same creamery, getting less money for it than the feed cost, and saying he "wouldn't have the paper in his house if they would give it to him.." What a grudge some do owe themselves. How they set traps for their own feet.

A Kansas Ration.

Ed. Hoard's Dairyman:—I am running a creamery, sheller, feed mill and thresher, all with one boiler. I read your Dairyman with much interest.

Your balanced rations interest me. I want to make a balanced ration for cows, horses and hogs, using the largest quantity of kaffir corn, as it is the most reliable crop and cheapest grain. I now use 3 bushels kaffir corn to one bushel of oats for cows and add one bushel corn for horses and shoats.

I want to grind and mix the feed for our patrons, kaffir corn is worth 30 cents for 56 pounds; corn, 35 cents for 56 pounds; oats, 30 cents for 32 pounds. Patrons like this feed and I want to improve it if I can. J. R. M.

Cedar Vale, Kansas.

A combination of the character indicated should prove satisfactory to dairymen who have alfalfa hay for roughage, but where reliance is mainly upon corn silage, corn stover, timothy and prairie hay, something containing more protein would seem to be demanded. Horses at work would also be better fed, with a grain mixture containing a larger proportion of oats.

Cow Comfort.

A Question for Mr Brown.

Ed. Hoard's Dairyman:—In this volume of the Dairyman on page 54, I read an article by Norman Brown in which he said: "I want my cows to stand for the 24 hours where the mercury stands at 70°, the water is heated to 80°. All this I can do by a system I can explain and the same system will ventilate the barns perfectly so the air will be pure for the 24 hours at a cost not to exceed 50 cents per cow for the entire winter for 30 cows."

Now I would ask that Mr. Brown explain his system and give it through the columns of the Dairyman for the benefit of his brother farmers who may be planning on improvements.

It is a fact plainly evident in this part the country that the farmer who does not read the agricultural literature of the day finds his place at the rear of the procession, and each year he loses through his wasteful methods many times enough to keep his table supplied with the leading farm papers. H. L. S.

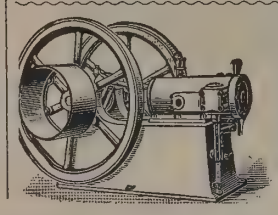
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360 acre farm, 4⅛ miles from Crookston, Minn., (a city of 7,000 inhabitants), and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 ft. square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all w ll painted and in very good repair, and has a fine artesian well. Every acre of this farm in under a high state of cultivation, and is well drained by a slight ravine running through the farm, merely sufficient for self dralnage. The soil is a rich deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50.

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired, Price $19.00 per acre.

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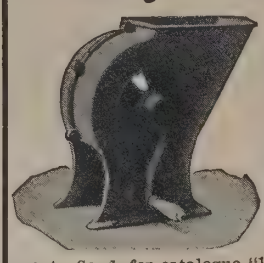
Plain black soft wire was first introduced to take the place of wooden fences, but owing to the expansion and contraction caused by the change of weather, it would soon sag between posts, become unsightly, besides permitting the stock to crowd the wires apart and pass through or over the fence. Barb wire was then substituted to prevent this, but being made from soft wire, it would also sag between posts, and not only injured the stock, but failed to accomplish the desired result. To overcome these difficulties the light weight woven wire fabric was introduced, but owing to the fact that the manufacturers are compelled to use small soft tie wires for supports, instead of large size hard spring wire, it has been found to be a very expensive product, as the small soft tie wires, on account of their size, and further weakened by wrapping, will soon break.



FROST COILED SPRING WIRE.

The Frost Wire Fence Co., of Cleveland, Ohio, was organized for the purpose of producing and furnishing the American farmer, or user of wire fencing, with an article that would give entire satisfaction. This has been accomplished by them by the invention of machinery for the production of the genuine coiled spring wire, containing twice the strength of soft and even gauge, and fully providing for expansion and contraction. Also for the production of heavy hard spring stays for supports and metal bindings to unite wires at crossings in a cheap and practical manner. Their success has been phenomenal. It now requires thousands of tons of hard spring wire annually to supply the demand for the Frost Fence. We call our readers' attention to their advertisement and would suggest that you request them to mail you a copy of their "1903" catalogue, describing the Frost Fence, Coiled Spring Wire and Steel Gates.

Creasey Ice Breakers



Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right.

Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.

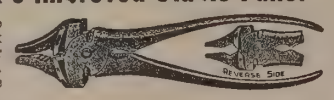
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17th & Clearfield Sts. **Philadelphia, Pa.**

MR. MILKMAN Erie Can Refrigerators fit all milk cans and are the best thing out. Write for information. **S. C. SULLIVAN, 425 W. 4th., Erie, Pa.**

"1900" BALL BEARING WASHER sent free, without advance payment, freight prepaid both ways on 30 days trial. Mr. Geo. N. Burnet, Ashtabula, O., says, "Have done 1200 washings and is good for 1200 more. Beats them all, and have tried 8 different machines." Write at once to "1900" Washer Co., 219A State St., Binghamton, N. Y.

WRINGING WET Clothes dry is the reason for using any wringer. Saving clothes, buttons and money is the reason for using **Horse-Shoe Brand Wringers.** They are made with rolls of the finest Para Rubber. Every wringer is warranted. **THE AMERICAN WRINGER CO., 99 Chambers Street, New York.**

Cronk's Improved Staple Puller



is at the front. Ask your dealer to show it. Three wire cutters, two hammers, two splicing clamps—all in one tool. A staple puller that will pull staples when no other make will. A cutter that will reach wire when the button cutter will not. One day's use will save the cost of it. **$1.00,** postage paid.

CRONK & CARRIER MFG. CO, Elmira, N.Y.

STEEL ROOFING

FREIGHT CHARGES PAID BY US



Strictly new, perfect, Semi-Hardened Steel Sheets, 2 feet wide, 6 feet long. The best Roofing, Siding or Ceiling you can use. No experience necessary to lay it. An ordinary hammer or hatchet the only tools you need. We furnish nails free and paint roofing two sides. Comes either flat, corrugated or "V" crimped. **Delivered free of all charges** to all points in the U. S., east of the Mississippi River and North of the Ohio River

AT $2.25 PER SQUARE

Prices to other points on application. A square means 100 square feet. Write for free Catalogue No. 20.

CHICAGO HOUSE WRECKING CO., W. 35th and Iron Sts., Chicago

Watering Lands

is not expensive if you employ the force of the natural stream. The



RIFE Hydraulic ENGINE

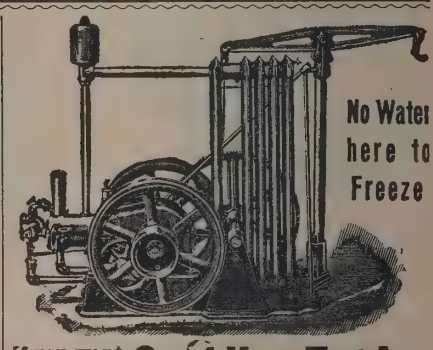
is run by natural forces and delivers a constant flow of water to any height at any distance. No attention. No expense. Made in sizes to fit all purposes. Write telling how far you wish to carry water, elevation, fall etc., and get complete plans and estimates. **All Engines sold on 30 days' FREE TRIAL.** Send for free catalogue.

RIFE ENGINE COMPANY, 126 Liberty St., New York.

WELL DRILLING MACHINES

The kind every well posted man uses. Why not buy **the latest and best?** Old style machines are "not in it." Our late ones are great money earners. Address

Loomis Machine Co., Tiffin, Ohio.



If you want a..... **Gasoline Engine**

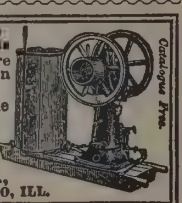
that will be always ready to start, safe, reliable convenient, economical and durable, buy a **FULLER & JOHNSON Frost Proof.** No bother with water nor expense of broken cylinder, no waiting for wind or weather. All sizes, stationary and portable. Send for descriptive catalogue to the manufacturers,

FULLER & JOHNSON MFG. CO., Madison, Wis.

3 HORSE POWER.

You get it full measure at a cost of 3 cents an hour if you use the

WEBSTER Vertical Gasoline Engine.



Strong and durable for pumping, sawing, grinding, churning, etc. Guaranteed. Full line vertical and horizontal engines.

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WEBSTER M'F'G. CO.,
1086 W. 15th Street, CHICAGO, ILL.

10 DAYS FREE TRIAL



We will send any bicycle to any address with the understanding and agreement that you can give it **10 DAYS' FREE TRIAL** and if you do not find it easier running, handsomer, stronger, better finished and equipped, more up to date and higher grade than any bicycle you can buy elsewhere at $5.00 to $15.00 more money, you can return it to us at our expense and you will not be out one cent.

$10.95 Buys our new HIGH GRADE 1903 NEWTON BICYCLE, which we guarantee stronger, easier riding, better equipped; better frame, wheels, hubs and bearings than you can get in any other bicycle for less than $20.00.

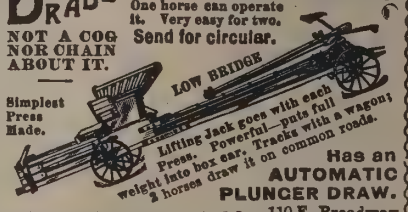
OUR 1903 NAPOLEON BICYCLE is priced at about **ONE-HALF** the lowest price asked by others. For **Free Bicycle Catalogue,** hundreds of price surprises in bicycles and supplies, **our Free Trial and Guarantee Proposition and our Most Astonishing Offer,** cut this ad. out and mail to **SEARS, ROEBUCK & CO.,** CHICAGO

DOUBLE CAM BRADLEY STEEL HAY PRESS

One horse can operate it. Very easy for two.

NOT A COG NOR CHAIN ABOUT IT.

Send for circular.



Has an AUTOMATIC PLUNGER DRAW.

DAVID BRADLEY MFG. CO., 110 E. Broadway BRADLEY, ILL.

There's More Money

And readier money in hogs and cattle if there is mixed daily, with their feed a small amount of

Prussian Stock Food.

For all domestic animals. It conditions, begets growth, fattens. **50c and $1.00 Packages. A Pail, 1200 feeds, for $3.50.** Buy of dealers. Write us for free 68-page book.

Prussian Remedy Co. **St. Paul, Minn**

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

DAIRY MARKETS.

ELGIN, Ill., March 30.—Butter—Ruled firm on the Board of Trade to day at 28½c per lb. Sales in this district for the week were 504,750 lbs.

CHICAGO, Ill., March 30 Butter—Firm; creameries, 18@28c; dairies, 14@24c.

Cheese—Steady; Twins, 13@13¼c; Daisies, 13¼@13½c; Young Americas, 13½c.

Eggs—Firm at mark, cases included, 13c.

Cattle—Brisk demand for all grades of cattle at steady to strong prices. The best offered sold at 5.40, against 5.50 a week ago. Most of the beef steers sold at 4.4c@5. Some 1,350-lb Iowa fed Texas sold at 5.30; yearlings averaging only 713 lbs sold at 5.10, distilling steers 4.45@4.90 and 1,243@1,520-lb fed westerns 4.50@5. Both exporters and shippers bought freely, largely at 4.75@5.10. Native butcher stock sold at former prices, with stockers and feeders strong. Native cows and heifers, 1.50@4.75; bulls, 2.40@4.35; calves, 4.25@7, and stockers and feeders, 2.80@4.55.

Hogs—Average cost price of hogs for the day 7.26, or 7c lower than Saturday. Some early sales showed only 5c decline, but after the opening prices were generally 10c lower. Trade was slow all day, yet only 4,000 remained in the pens at the finish. One fancy load averaging 280 lbs sold at 7.55, with 284@308 lbs at 7.50. Selected light sold largely at 7.10@7.15.

MILWAUKEE, Wis., March 30—Butter—Creamery—extras, 28½c; firsts, 22@23c; seconds, 17c; June creamery, 18@20c; process (renovated), 17@18c. Dairy, fancy, 19c; lines, fresh, 15@16c; roll, 15@16c; packing, 12½c: whey, 10c; grease, 5@6c.

Cheese—American full cream, Twins, 13@13½c; Young Americas, 13@13½c: Daisies, 13¾@14c; Longhorns, 12¾@13c; low grades, 10@12c. Brick, fancy, 13@13½c; low grades, 11@12c. Limburger, fancy, 12@12½c; low grades, 10@11c. Swiss, drum, choice, 14@15c; drum, No. 2, 12@13c; Block, No. 2, 10@11c.

Eggs—Strictly fresh laid, cases returned, 12½c; seconds, 8c. Receipts, 750 cases; Saturday, 1,101 cases.

SHEBOYGAN FALLS, Wis., Mar. 25—Cheese—22 factories offered 1,137 boxes of cheese on the Call Board today and all sold as follows: 12 Twins at 12¾c; 27 cases Young Americas at 12½c; 255, 12¼c; 14, 12c; 381 Daisies at 12½c; 193 cases Longhorns, 12½c; 307 at 12¼c. Market quiet.

SHEBOYGAN, Wis., Mar. 25—Cheese—On the call board today there were offerings of 525 boxes of cheese All sold at 12½c. The board will meet weekly hereafter at 5 o'clock p. m.

NEWARK, N. J., Mar. 30—Butter—Market steady at 29c.

Eggs—Firm at 14¾c.

NEW ORLEANS, La., Mar. 30—Butter—Market steady. Extras 29c. Renovated 19c. Ladles 15c. Eggs 12½c.

TOPEKA, KAN., Mar. 28—Creamery butter 27½ to 29c; dairy 16½ to 19c.

Cheese—Longhorns 13¾c; Twins 13¼c; Daisies 13¾c. Sales 372 boxes.

LIVERPOOL, Mar. 30—Butter—Good United States, steady. 80s.

Cheese—Strong, American finest white, 69s; colored, 69s

Latest quotation for fancy creamery: Cincinnati, 30½c; Newark, N. J., 29c; Buffalo, 29c; St. Paul, 27c; Minneapolis, 27c.

NEW YORK, Mar. 31—Butter—Receipts, 52,214 packages; market firm; state dairy, 17@25c; extra creamery, 29c; held creamery, 15@24c; creamery, common to choice, 19@28½c; factory, 13@16c. renovated, 12@13½c.

Cheese—Receipts, 1,090 packages; market firm; state full cream, fancy small colored, fall made, 15c; small white, fall made, 14¾c; large colored, fall made, 14½@14¾c; large white, fall white, 14¼@14½c,

Eggs—Receipts. 15,754 packages; firm; state and Pennsylvania, 15@15¼c; western, 14¾c; southern, 14¼o; Kentucky, 14¾c.

BOSTON, Mass., March 30.—Butter—Creamery western extra, 26@27c; western firsts, 25@26c; dairy, 24@25c; imitation creamery, 17@20c; ladle, 14@16c; box and print, 20@21½c.

Cheese—Choice, 14½c; sage, 14½@15c; fair to good, 10@12½c.

Eggs—Near by, 17@18c; western selected, 15c; fair to good, 14½c; Illinois, 15c; western dirties, 13½c.

PHILADELPHIA, Pa., March 30—Butter—Firm, good demand; extra western creamery, 30@30½c; near by prints 33c.

Eggs—Steady; fair demand; fresh near by western, and southwestern, 14½ at the mark; southern, 14c at the mark; duck eggs, 26@28c; geese eggs, 10@15c.

Cheese—Steady fair demand; New York full creams, prime small, 14¼@14½c; fair to good, 13¾ 13½c; prime large, 14@14¼c; fair to good, 13¾@ 13¾c.

BALTIMORE, Mar. 30—Butter—Firm unchanged; fancy imitation, 21@25c; fancy creamery, 29@30c; fancy ladle, 18@19c; fancy roll, 17@18c; good roll, 16@17c; store packed, 15@17c.

Eggs—Firm, unchanged, fresh, 13¾c.

Cheese—Firm, unchanged; large, 14¼@14½c; medium, 14⅜@14¾c; small, 14½@14¾c.

KANSAS CITY, Mar. 30.—Butter—Creamery, 21@25c; dairy, 19c.

Eggs—Firm; fresh Missouri and Kansas stock, 10¾c, cases returned; new No. 2 whitewood cases included, 11½c.

ST. LOUIS, March 30.—Butter—Quiet; creamery, 21@29½c; dairy, 18@21½c.

Eggs—Steady; 11c for fresh.

BALTIMORE MARKET.

BALTIMORE Md., March 26—Butter—Although the receipts of choice to fancy grades continue rather light, the supply is about equal to the requirements. The prevailing high prices for extras and firsts have retarded the demand to some extent. There has been quite a brisk demand for choice held creamery and several good size lots have changed hands during the week. Imitation creamery—While there is some little increase in the supply, there is little if any improvement in the quality. Choice stock finds ready sale. Ladles, when of satisfactory quality, meet prompt sale. Rolls—The unfavorable weather of the past few days has caused several lots to arrive in bad condition: all receipts in good order are sold promptly. Store-packed—There has been a better inquiry for fresh sweet stock. All invoices of choice to fancy blocks and prints meet quick sale. The market in general closes quiet, but firm on all attractive offerings.

Creamery Separator, extras, 29½@30c; firsts, 27@29c; seconds, 23@25c. June Creamery, extras, 23c@24; firsts, 21@22c; seconds, 18@20c; Imitation Creamery, extras, 21@22c; firsts, 19@20c; seconds, 16@18c, Iowa & N. W. Ladle, extras, — firsts, 18c; seconds, 14@16c. Ohio & Indiana Ladle, extras, — firsts, 17@18c; seconds, 14@16c. Roll, Ohio, extras, — firsts, 15c; seconds, 13c. Roll, W. Va., extras, — firsts, 14@15c; seconds, 13c. Ohio Store packed, extras, —; firsts, 14c; seconds, 13c. West Va. Stored packed, extras, —; firsts, 14c; seconds, 12@13c. Creamery blocks (2-lb.) extras, 30@31c; firsts, 28@29c; seconds, 25@26c; Creamery prints (½-lb), extras, 31@32c; firsts, 29@30c; seconds, 26@28c: Md. Va., & Penna. Prints, extras, 29@30c; firsts, 27@28c; seconds, 23@25c; Renovated Butter, extras, 19@20c; firsts, 17@at 18c; seconds, 15@16.

Eggs—The receipts, so far this week, while fairly liberal, have not been up to expectations; the demand has kept pace with the supply, consequently there has been a close clearance from day to day. The indications are that as soon as the country roads get in better condition, that there will be quite an increase in the receipts; the market to day closes in good shape at 14 cents. Duck Eggs are in fair receipt; the demand continues very good. After Easter there will not be such a demand, so we advise you to ship all you can immediately. Goose Eggs are in quick demand at the present time, but will not be after Easter.

Cheese—Offerings and demand moderate; market firm on all choice to fancy stock.

N. Y. State—Cheddars, fine, 14¾@15c; choice, 14@14½c; fair, 13@13½c; Flats, fine, 14½@14¾c; choice, 13½@13¾c; fair, 12½@13c; Small, fine, 14¼@14½c; choice, 13½@14c: fair, 12½@13; Ohio Flats, fine, 13½@13¾c; choice, 12¾@13c; fair, 12¼@12½c; O. Picnic, fine, 14@14½c; choice, 13¼@13½c; fair, 12½@12¾c; Skims, fine, 12@12½c; choice, 11@11½c; fair, 8@10c; Swiss Cheese, fine, 15c; choice, 12½@13½c; fair, 11@12c.

301 Exchange Place. G. M. LAMB & BRO.

NEW YORK FERTILIZER MARKET.

Acid phosphate		60 @	67½
Phosphate rock, f. o. b. Char'n		5 00 @	7 00
Tenn		3 60 @	3 75
Bones, rough	₩ ton	16 50 @	17 50
ground		20 00 @	21 00
Bone meal		18 50 @	24 00
Bone black, refuse		18 00 @	19 00
Potash, dbl. m're salt 48@53 per cent		1 12 @	1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons		25 00 @	30 00
sulph of basis, 90@98 per cent		2 11 @	2 18
90@98 per cent less than 25 tons		38 00 @	40 00
Potash muriate 100 lbs		1 83 @	1 95
less than 25 tons		36 00 @	40 00
Kainit 25% S. of P	₩ ton	9 30 @	9 50
less than 25 tons		9 50 @	10 50
Sylvinit, 35@37% P	₩ unit	41 @	46
Nitrate of soda		2 ¼ @	2 30
Blood, Dried red	₩ unit	2 65 @	2 70
low grade		— @	—
Concentrated tankage		15 00 @	16 00
Fish guano, dried		27 00 @	28 00
acidulated		14 00 @	—

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Experienced butter and cheese maker, graduate of Wis. Dairy School, wishes to change position. Have handled gasoline engines and ammonia machines. Good references. Prefer to go south, or to the Pacific coast. Address M. 66, care Hoard's Dairyman. 8 3

Farm Manager, capable and experienced in dairy farm work is desirous of securing a position. 39 years old and have had 20 years experience in the work. Have successfully managed registered herds of dairy cattle and am familiar with modern dairy machinery and methods. Well educated. Address R. E. N., care Hoard's Dairyman. 8-4

For Sale—A two horse Heebner's level tread power, on trucks, in good condition for $45. Address ALFRED MIRITZ, Kewaskum, Wis. 7-4

For Sale, a Creamery—The Star Valley Creamery Co., located 1 mile south-east of Towersville, Wis., will offer for sale on or before May 1st, 1903, the following described property: One creamery building including engine room and ice house, one 8-horse upright engine, milk and cream vats, churn, butter worker, one four beam scale, one single beam scale, and all kinds of creamery supplies Could be at a very small expense converted into a cheese factory. For particulars write W. C. WARREN, Pres., Towersville, Wis., or GEO. E. ANDERSON, Sec'y., R. F. D. 5, Viroqua, Wis. 7-3

For Sale—Creamery, Ice Cream and Commission Business in good Iowa town. Splendid refrigerator that will hold over a carload and plenty of ice packed. 20 horse-power boiler, 10 horse-power engine—everything in good shape, long lease on building. Will be sold cheap. Address H. N., care of Hoard's Dairyman, Fort Atkinson, Wis. 7-2

For Sale—The entire outfit for making American cheese; all in good order. Will be sold at a bargain. JAMES VIPOND, Shullsburg, Wis. 4-6

For Sale—Complete city dairy (no cows) and ice cream plant in thriving southern city. Output 500 gallons milk daily at profit of 9 and 10 cents. Daily expense less than $30.00. Price $7.000. Can furnish experienced dairyman and ice cream maker with $2,000 cash to invest in the business as a partner, or will sell as a whole. Best reason for sulling. Address "APRIL", care of Hoard's Dairyman, Fort Atkinson, Wis. 8-tf

For Sale—Five high grade Guernsey heifers 8 to 18 months old. Sold to make room for registered stock. HENRY TIPPERY, Callensburg, Pa.

Medium Red Clover Seed for sale, crop of 1901, in lots of 2½ bushels or more, $7.00 per bushel. sacks free. J. M. WAGNER, Hillsboro, Wis. 8-tf

For Sale—Bull calf 7 months old, also heifer calves from 2 to 10 months old all well bred A. J. C. C. Jerseys. Price low for quality. F. X. HOFFMANN, Millersville, Sandusky Co., Ohio.

For Sale—U. S. Separator No. 6, $65.00. Dairy farm of 101 acres $4,000. M. R. BUCHANAN. Columbia, Tenn. 18-2

For Sale—Three registered Holstein bulls one year old; also a few heifers. FRANK BREWSTER, Bowers, Wis. 8-2

For Sale—Gang press and 16 hoops 8x15. Pohl curd mill, self salter. Curd knives. Been in use 12 months. Will sell any or all cheap. E. B. HALL, Langdon, N. Y.

DE LAVAL CREAM SEPARATORS

ARE SO MUCH BETTER THAN

OTHER CREAM SEPARATORS

BECAUSE—They are constructed under many all-important patents, which cannot be used by any other manufacturer and which enable De Laval machines to skim cleaner and produce a more even and more thoroughly churnable cream than is otherwise possible, at much less speed and wear, and with much greater ease of operation.

BECAUSE—The De Laval makers have ever been first and foremost in the manufacture of Cream Separators throughout the world—have ever led where others follow—their factories being among the finest machine shops in the world and their knowledge of Cream Separators far greater and more thorough than that of any comparatively inexperienced would-be competitor.

BECAUSE—The one purpose of the De Laval makers has ever been the production of the very best Cream Separator possible regardless of cost, instead of the mistaken "cheapness" which is the only basis upon which any would-be competitor can even make pretence of seeking a market.

BECAUSE—The vastly greater sale of De Laval machines—ten times all others combined—enables the De Laval makers to do these things and much more in the production of the perfect Cream Separator that no one else could attempt.

A De Laval catalogue explaining in detail the facts here set forth may be had for the asking.

The De Laval Separator Co.

Randolph & Canal Sts., CHICAGO.

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GENERAL OFFICES: 74 Cortlandt St., NEW YORK.

121 Youville Square, MONTREAL.

75 & 77 York Street, TORONTO.

248 McDermot Avenue, WINNIPEG.

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

For Sale—A butter dairy complete, with 42 cows. Located near the best market in the west. A good chance for a small capital. For full particulars address 412, care of Hoard's Dairyman. 5-4

Wanted—Three married men, with or without families, to work on large dairy. Must be good milkers. Salary $25 00 per month, house rent and fuel furnished. Give experience and all particulars. RICHLAND FARMS, Greensboro, Ga. 6-4

For Sale—Pure bred Guernsey bulls and grade heifers. Also Early Black Soy Beans at $2.00 per bushel. A. H. HINMAN, Neenah, Wis. 6-4

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

For Sale—One Gould's power pump, 3x16, tight and loose pulleys; one Young America gang cheese press; one Cheddar gang cheese press; one curd sink; one smoke stack, 14 inches x 24 feet. Will be sold separately. HARLAN CREAMERY CO., Harlan, Iowa. 7-2.

For Sale—Ten 15-16 Guernsey heifers, 2 years old, coming in. Also 3 registered bulls. Address J. D. POWERS, Fort Atkinson, Wis. 7-2.

For Sale—Two registered Guernsey bulls, 4 and 7 months old. C. J. TELFER, Fort Atkinson, Wis 7-2.

For Sale—Cheap, a No. 6 Improved U. S. Cream Separator, as good as new, only been used a few months. WM. N. SHEPARD, Beloit, Wis. 7-2

Guernseys For Sale—Six cows and seven heifers. All registered. Send for circulars. EDW. SHARPLES, Landenberg Pa. 7-tf

For Sale—1 DeLaval cream separator, Alpha No. 1. WEXFORD EXCHANGE, LTD., Wexford, Pa. 6-tf

Helper Wanted—I want a young man as helper in my creamery here. I will teach him up-to-date creamery practice and in addition pay $100.00 for six months, beginning April 1st. DEWITT GOODRICH, Goldfield, Ia. 7-2

Auction—Wednesday, April 8th, at 9 a. m., at Prairie Farm, 3½ miles south of Petersburg, Michigan. Dispersing sale of my entire herd of 75 cows. A clean sweep. Also 2 brood sows and 2 boars. Farms for sale. Farms to let. Fields to let. Time on approved notes at 6%. E. L. LOCKWOOD, Prop.

The Business Herd of Holstein Cattle For Sale or Exchange—Having fifteen more cows than we can procure nearby pasture for, we desire to sell at once at their cash value, or exchange for horses, draft blood and brood mares preferred. If you desire some first-class cows of this breeding, with official records and breeding second to none, let us hear from you at once. F. G. JOHNSTON & CO., Sta. B, Columbus, O. 8-2

Having to devote my time to other business, I offer at private sale my entire herd of registered Holsteins—one of the best bred in the state—12 cows to calve soon, 1 DeKol herd bull and 7 yearling heifers. B. F. THOMPSON, Detroit, Mich.

For Sale—One fine registered yearling Guernsey bull. Address S. L. DIETZ, Hyde's P. O., Md. 8-4

Buff Jersey's latest book on Farm Stock and Dairy Work is full of practical things for practical people. The Silo, how to build and fill; ensilage, its value; soil, crops, variety and how to grow. Swine, poultry and many other subjects ably treated. Send 25c for copy. Monmouth, Ill. 47-tf

Wanted—Experienced farm hand, able to milk well. Give age and wages wanted. ST. IVES PARK FARM, Mont Clare Station, Chicago, Ill. 41-tf

Guernsey Cattle—Clover Knoll herd. Send for circular. M. SAGER, Orangeville, Pa. 50-12

A Few First-Class managers and buttermakers. No farm hands. Best of references. No charges to employers. Save time by writing THE SCIENCE AGENCY, Durham, N. H. 4-5

Swiss Cattle For Sale—As I intend to quit farming after this year, and am not situated so I can milk many cows this season, I will sell several cows and heifers and a few young bulls at very low prices for the quality of the stock. Come and see the stock and get prices. T. H. INMAN Hanover, Wis. 6-4

For Sale or Exchange—Registered Guernsey bull Dewey of Brookside 5512, A. G. C. C., to avoid inbreeding. Sire, Ruppresht 4461. Dam, Queen of Brookside 10205, Age of bull 5 years March 18. For further particulars address R. C. OESTREICH. Kewaunee, Wis. 6-3

Wanted—Situation by expert retail dairy manager. All branches of the business thoroughly understood. Have references second to none. Address J. O. G., care Hoard's Dairyman. 8-tf

For Sale—Yearling Jersey bull ready for service. Dam tests 17 lbs. 7 oz. in 7 days. Sire, pure St. Lambert service bull in herd of E. R. Hicks. Price $50.00. GEO. A. BUCKSTAFF, Oshkosh, Wis. 8-2

For Sale—Salem's King, 5362, A. G. C. C., 5 years old. A. PARKS, Pickett, Wis. 8-2

Gasoline Engine, 1½ h. p., Fairbank, for sale. Good condition. Also 2,500-lb. cream separator, one milk pump and a cream tester. For full particulars and price address E. DUCLOS, Peotone, Ill.

Wanted—A second hand set of Holstein-Friesian Herd Books. W. H. DOOLITELL, Oak Hill, N. Y.

Very Low Rates to California and Return—Via the North-Western Line First class round-trip tickets on sale May 3d and 12th to 18th, to Los Angeles and San Francisco. Favorable limits and stop over privileges and choice of routes. The overland limited, most luxurious train in the world, leaves Chicago daily 8:00 p. m. Less than three days en route. Drawing room and compartment sleeping cars, observation cars, dining cars, buffet-library cars, (barber and bath) electric lighted throughout. Three trains a day from Chicago to the coast through without change. Daily and personally conducted tourist car excursions to California, Washington or Oregon. For particulars apply to ticket agents Chicago & North-Western R'y. 8-7

Half-Rates to New Orleans, La.—Via the North-Western Line. Excursion tickets will be sold at one fare for round trip April 11, 12 and 13, limited to return by special extension until April 30, inclusive, on account of Annual Convention National Manufacturers' Association. Apply to agents Chicago & North-Western R'y. 8-2

Which Breed?

ED. HOARD'S DAIRYMAN:—In the DAIRYMAN of March 6, under the above caption is a reply to A. R. T., signed by Fred E. Harriman that contains certain statements, which it seems to me are very misleading, and which should not be allowed to pass without explanation. I do not desire to take the space in your valuable paper, which might be more profitably devoted to some other subject. I realize fully that the discussion of the breed question by the partisans of any particular breed is likely to be barren of any good results. But so is the partisan discussion of any other subject. There are certain fundamental principles connected with the selection of a breed that should not be lost sight of, and it seems to be necessary to emphasize them over and over again before the average farmer begins to realize that they exist. It is doubtful if this question is capable of solution in the abstract. Which is the best breed? If there is any best breed we all want to know which one it is so that we may secure it. It seems to me it is much like the question, which is the best kind of pie? It depends somewhat on who made the pie, and the individual taste of the eater. And in regard to breed it depends somewhat on the purpose for which the cows are kept, and the individual taste of the keeper. What I have to say in this article has reference to breed simply as an economic butter producer.

Let me premise that a test like the Pan-American or Columbian can never determine which is the best breed. Such tests simply show that the Jerseys or the Guernseys or the Holsteins competing, according to the result, produced butter at a lower cost than their competitors. The result was affected by many conditions, such as the skill of the herdsmen in compounding rations, the physical condition and environment of the cows, their age, previous treatment, period of lactation, etc. This much, however, can be said: The price of feeding stuffs was the same for all, the environment was the same, and the herdsmen were left free to feed little or much, a wide or a narrow ration as in their judgment seemed best. But five other cows from the same breed might have made a better or a poorer showing. There is no certainty even that if the test were repeated with the same cows the next year that the result as to the breed or the individuals composing the breed would be the same. From this I trust no one will conclude that I am belittling the value of such tests. In my judgment they are of very great value, and are an important factor in determining which breed one is to select. But they are only one factor, and they do not or never can determine which breed, as such is best. Their importance is enhanced by the length of the test, and the fullness of the data concerning feeds and their cost.

There can be no argument, I take it, that net profit is of primary importance to the farmer, as it is to every other business man. In selecting a breed or the individual cows of a breed, the important question is, what will be left after the feed has been paid for? Of course this includes feed produced on the farm as well as that bought. It ought not to be necessary to make this statement, but I find that it is.

Mr. Harriman says in his article "the truth alone can survive; as to the Buffalo test, the Holsteins gave 6000 lbs. more than any other breed, and made 33 lbs. more butter than their nearest competitors, and won the test against all breeds as they have, of 90% of all other public butter tests in the U. S." As this statement is for the most part not true, according to Mr. Harriman's standard it is not entitled to survive. The Holsteins did produce 33 lbs. more butter fat, not butter, than their nearest competitor, but they were fourth in the butter fat contest, not first, for the reason that the net profit was below that of the Guernseys, the Jerseys, and the Ayrshires. The official figures are as follows: Net profit, Guernseys $230.10, Jerseys $225.44, Ayrshires $217.68, Holsteins $210.56. Of course it does not follow, as I have already stated, that one is justified in drawing the conclusion that the Holsteins rank fourth as a butter breed. Five other Holsteins might have stood third, or second, or even first.

It ought not to be necessary to point out that seven day tests are of very little value except for advertising purposes. Even when the cost of feed is considered, and in such tests no account is usually taken of the cost of feed, such tests simply show what the particular cow can do for a very brief period, under a system of forced feeding, that would destroy the value of the cow if continued very long, and has very little importance in determining the selection of cows for a working dairy where net results alone are valuable. Of two cows, each giving 6,000 lbs. of milk in a year, the one which gives a big flow of milk in the flush of feed but dries off early, is less valuable for all dairy purposes, than the one which gives a smaller amount of milk from day to day, but is a persistent milker. I have had in one of my dairies two cows standing side by side, one of which never gave over 38 lbs. of milk in a day, while the other gave 59 lbs. At the end of the lactation period the 38-lb. cow had given over 1,000 lbs. more milk than the 59-lb. cow, and both cows were of the same breed. I give these figures simply for the purpose of showing how little importance should be attached to seven day tests.

Mr. H. compares the cost per pound of producing butter as shown by certain tests of Holsteins and Jerseys made at different times and under different circumstances, in which comparison the result is shown to be very unfavorable to the Jersey. It does not seem possible that he can believe that his basis of comparison is a fair one, or that the conclusions that he draws therefrom are of any value to a person seeking information to enable him intelligently to decide as between Jerseys and Holsteins as economic producers of butter. No data are given as to the conditions under which the Holsteins produced butter at such an abnormally low cost. Whether they were running on good pasture and fed only a small grain ration, or whether they were stabled and everything they ate charged to them does not appear. He might have materially lowered the cost, low as it was, had he made it a one day test and not have fed the cow anything at all on the day of the test. It does not even appear whether the price of feeds was the same, the environment the same, or the period of lactation the same. All of the factors entering into the tests must be determined to give the comparisons any value. If he had taken the Buffalo test, extending over a period of six months, where the price of feeds was the same and the environment the same, the result would have been

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justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

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THE ONLY LOW-DOWN

Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the Market.

20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.



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Highest Grades—Lowest Prices—Guaranteed. Shipped on Approval. Full line Buggies and Harness. Write for Catalogue and Prices.

SAVE DEALERS' PROFITS.

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Split Hickory SPECIAL



Is a buggy that anyone may be proud of. It is as strong as the best Split Hickory can make any vehicle. Only $47.50 Free 30 Days' Trial. Send for Cat.

Ohio Carriage Mfg. Co., Station 154, Cincinnati, O.



TO BE GIVEN AWAY.

For Next 30 Days Only,

we will mail our fine valuable Poultry Book FREE. Tells you all about poultry, how to make big money with poultry and eggs; contains colored plate of fowls in their natural colors. Send 10c for mailing and postage.

JOHN BAUSCHER, JR., Box 35, FREEPORT, ILL.

quite different. The Holsteins in that test produced butter fat at a cost of a little more than twelve cents per lb., and the Jerseys at a little more than eleven cents. I have taken the figures for butter fat rather than those for churned butter advisedly, for the reason that the basis for estimating the butter from the fat is not always the same and consequently liable to be misleading. But if the average cost per lb. of butter is preferred, the Jerseys produced for 9.48 cents per lb., and the Holsteins for 10.93 cents, making them seventh in the list.

If any valuable results are to follow the discussion of the breed question, we must get rid of the polemic spirit. When we approach this or any other problem, we must do so not with the spirit of the lawyer holding a brief for his client, but in the spirit of a judge charging a jury, with the scientific spirit whose purpose is the discovery of the truth. In conclusion let me say that I do not own any Jerseys, and consequently am not prejudiced in their favor. A. A. B.

Otto, N. Y.

A Proposed Barn and Stable Plan.

An Embryo Ohio Dairyman.

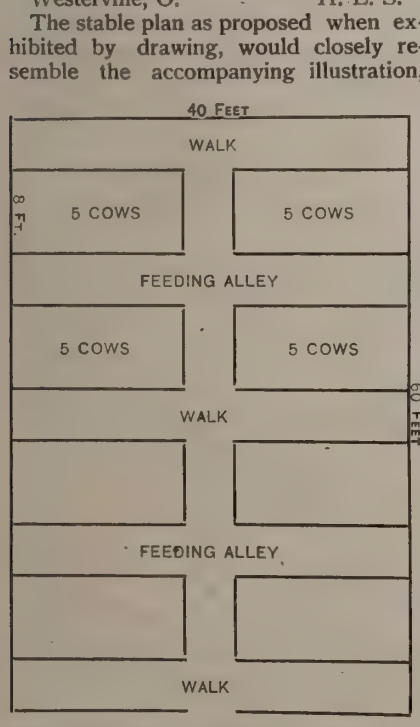
ED. HOARD'S DAIRYMAN:—I am a dairyman in embryo and am not hampered by either experience or preconceived opinions, so am ready to assimilate both hand-book and journal.

Upon a recently purchased farm, I am preparing to place a "cow barn," with mows above, to accomodate 40 cows. I have calculated upon a 40x60 foot floor space. This includes a passage way 5x60 ft., and passages crosswise from this before and behind the four rows of stalls. Have I been liberal enough in my estimate? Would an 8 ft. ceiling be about the proper height? Shall put in cement floor and ample light and ventilation.

Another question I should like to ask regarding the silo. In getting out timber for barn, would it be advisable and safe, to get out 2x6 in. oak, (which will cost me the cutting,) for silo studding, providing I use a drop siding on the outside, and double sheet the inside (circular) breaking joints—or single sheeting and plaster with cement mortar?

Westerville, O. H. L. S.

The stable plan as proposed when exhibited by drawing, would closely resemble the accompanying illustration,



and thus looked at, seems to condemn itself, The central alley is too narrow, and the neccessity for distributing feed from it, 16 ft. on either side, and also removing the droppings, involves a large amount of unnecessary labor. A stable 40x60 ft. is also too small for 40 cows and makes no provision for box stalls or calf pens. The building should be at least 80 feet long, and we would fasten the cows in two parallel rows facing outward. We consider an 8 ft. ceiling sufficient. The oak studding for silo will be satisfactory, but it does not need to be larger than 2x4 in.

The Cream Separator in Kansas.

ED. HOARD'S DAIRYMAN:—An interesting and significant meeting of hand separator dairymen and cream shippers was held in Salina, Kansas, on March 2nd and 3rd., under the auspices of the Empire Cream Separator Co., Bloomfield, N. J. About 100 representative dairymen and creamerymen were in attendance.

Monday's session was largely given up to a discussion of the hand separator question from the creameryman's point of view. Mr. Ernest E. Bell, secretary of the Empire Cream Separator Company, presided. The discussion of the advantages of the hand separator system to the creameryman, brought out the fact that by enabling him to draw upon a larger district for his cream than it is possible to draw upon for milk, he is enabled greatly to reduce the cost of production, and by making larger and more uniform shipments of butter, to command a better price in the market. The creamerymen admitted that the whole milk creamery is already a thing of the past, simply because it has been superseded by a better and more economical system. The relative merits of the various hand separators on the market, were freely discussed, the ideal conditions insisted upon being simplicity of construction, easy of operation and especially, ease of cleaning. Cleanliness is the first requisite of good dairy products, and unless a machine can be easily cleaned it will in a short time, become foul and turn out a poor quality of cream, from which it is impossible to make a good quality of butter.

Monday evening's session was occupied by newspaper men who instructed the creamerymen how they can spread the glad gospel of the better system of dairying.

Tuesday was "patron's day," and many interesting facts were brought out on the farmer's side of the question. One Iowa gentleman present said that he could not afford to go to the old system of dairying on his farm for $500 a year—not that he received quite that much more money for his cream, but taking into consideration the extra cash from his monthly checks and the extra value of his skim milk, the added value of his calves and the fewer stunted pigs he raised, he is considerably more than $500 ahead, to say nothing of the labor he has saved.

A Nebraska farmer said that under the new system his wife and boys conduct the dairy, and during 1902 their cream checks amounted to $600, which they were able to leave untouched for current expenses. Easy running and simplicity of construction were the features especially insisted upon in the separator.

In the evening the visitors were entertained at a banquet given them, by the Empire Cream Separator Co., at the National Hotel. Covers were laid for 100 guests, including a few representative citizens of Salina. Wednesday morning the meeting adjourned to attend the Kansas State Dairymen's Association meeting at Manhattan, the trip being made in special a car.

The Empire Cream Separator Co., which is conducting a series of similar meetings in the dairy states of the west, deserve great credit for the educational influence it is exerting.

M.

Quality of Skim Milk.

I use a No. 2 baby separator and the skim milk shows 2-10 of 1 per cent fat; is that as clean skimming as you would expect? My buttermilk shows 2-10 of 1 per cent. What ought it to show?

Westland, Ohio. A. W. E.

The skim milk should not contain over 0.1 per cent fat and the buttermilk not over 0.3 per cent, when good work is being done.

"True as the needle to the pole" is the hand to the minute on an

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This Taylor Stanchion



is made of angle steel lined with hard wood on side next the animal's neck. It is lighter, neater and stronger than any other stanchion made. Swings on chain at top and bottom and admits of greatest freedom of motion. Cattle can lay with head on side. Easiest opened and closed. Reliable Agents Wanted. Write for special terms, prices, etc.

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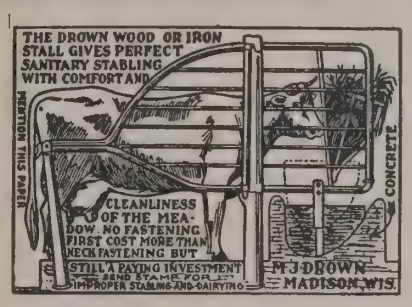
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This is the only Cow Stall with a centering hinge Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars. R. A McLERY & CO., Palmyra, Wis.



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The Most Practical CATTLE FASTENER ever invented. Manufactured and For sale by O. H. ROBERTSON, Forestville, Conn.

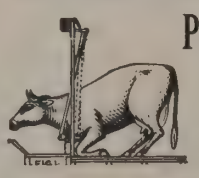




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SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated Circular free. GLENORA MFG. Co., Glenora Yates Co., N. Y.

Infringements will be prosecuted.



Prescott's Swinging swivel tanchion

Keeps Cows Clean.

Swings forward while getting up or lying down. Looks back while standing Full particulars free.

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Scott's Perfect Swinging And Self Closing Cow Stanchion

Each cow shuts herself in place.

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quickly absorbs odors from other articles kept in his shop. He knows also how perfectly good butter is preserved and how surely his patrons are pleased when it is wrapped in our

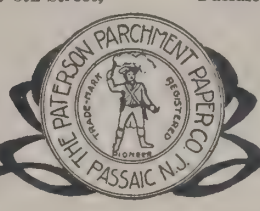
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Every ounce of salt used in salting butter with

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Dairy Conditions and Prospects in Northern Illinois.

Milk Prices for the Coming Year.

The Borden Condensing factories at Elgin, Carpentersville, Algonquin, McHenry, Belvidere, Dixon and St. Charles made semi-annual contracts for milk on Thursday. The price paid is an average of 5 cents higher per hundred than a year ago and is the highest paid since 1893. The average price is $1.04½ per hundred. For April and September the price is $1.20, for May and July 95c, for June 85c, and for August $1.10. The farmers here are fairly well satisfied although they claim that the price of feed and the cost of production is more than equal to the advance. Oatman Bros. of Dundee pay the same average, but the price by months differs. It is: April, August and September, $1.15; July, $1.10; May, 90c, and June, 80c.

The Elgin Butter Co. pays an average of $1.02⅚, the highest price ever paid by that company for summer milk. The price by months is as follows: April, $1.15; May, 92c; June, 85c; July 95c; Aug. $1.08, and Sept. $1.18.

W. W. Sherwin at St. Charles will pay 2c less each month than the Borden Company, an average of $1.02⅚.

A meeting of Dundee dairymen, who have formed an organization, was held and a general feeling to change the method of farming was manifested. Many stated their intention of abandoning exclusive dairying and going into general farming, paying especial attention to the raising of hogs and calves, and taking some milk to the factories.

Dundee is the center of one of the best dairying districts of Illinois and one of the prominent dairymen of that section has this to say of the proposed change of plan:

"The farmers of Dundee township have tried to maintain better prices for milk, while Elgin and Algonquin farmers have stood back and practically done nothing. We are fixed, and well fixed, for making milk in this country and our farmers have grown into the practice of handling cows and milk but the remuneration has gone so low they cannot stand it. See the price of fresh cows—new milkers—$50 to $65 and when we sell them for from $10 to $30, where is the profit?

"At a dairymen's convention it was figured that the average price for the milk of each cow in Illinois was $29, while the cost of producing this milk is $33 per head, so where is the encouragement of keeping our big dairies in the business?

"Pork is high, and is going to stay high priced as long as our laboring man, the meat eater, keeps to work, and that will be as long as the manufacturers continue to flourish, which looks like a long time yet.

"We see by the papers that the western farmers are organizing, both grain and meat producers, to hold and obtain better prices for their products, and why should not milk producers do the same? We cannot do any worse than we are now doing, even if we stop producing milk. Butter and cheese are higher than they have been for 25 years, and are going to stay high in price. Chicago is demanding all the milk produced within reach of it, and other large cities have got to have milk. These condensing factories are short of milk. They cannot fill their orders at the present time. Why should we not have a living price for our labor?

"The milk business is the most confining, most laborious and most dirty work of any other mode of farming. See the prices of horses and all kinds of machinery and still going higher. Grain we have to buy, costs more than Chicago prices and all feed we buy is higher here than in Chicago.

"We think it far better to try other modes of farming—sell a few hogs, and instead of buying horses and cows, have some to sell each year. Sell a few tons of grain and such stuff instead of buying all the year round—straw of all kinds, also shredded stalks when baled command a good high price. Let us try some other way—it will only take a short time to grow into other ways of farming.

"While we look for and expect a better price for our milk this summer we do not think it will be high enough but what mixed farming will pay better. Farm lands are renting 150 miles west of here for $7 per acre and the product which pays it is grain, and that same land is selling as high as $150 per acre with poorer buildings than ours here."

Elgin, Ill. H. C. B.

Transfers of Guernsey Cattle

BULLS.

Arbol 8492, Helen M. Sweet to Fred Vogel Jr., Milwaukee, Wis.
Benny B 8485, R. Hallowell to Frank L. Smith, Birchton, N. Y.
Capt. Robbie 2nd 8466, Ben Cark to Geo. C. Hill & Son, Rosendale, Wis.
Daisy's Jeweller 8456, Chas. Solveson to J. A. Thomas, Ryan, Iowa.
Duke of Conway 8488, J. B. Palmer to S. H, Boice, Conway, Mass.
Howard Pointer 6863, Edward Morrell to Est. James Moore, Bridewater, Pa.
Isaleigh Traveller 4785, J. N. Greenshields to Mrs. G. M. Slipp, Jacksonville, N. B.
Lord Golden 5039, Geo. C. Hill & Son to M. Ravn, Scandinavia, Wis.
Imp Lover Bold 8400, H. McK. Twombly to Est. W. S. Ladd, Portland, Ore.
Lamont's Farm Lad 7399, Wm. C. Lamont to D, V. Borst, Gardnersville, N. Y.
Mendham Chief 8495, R. V. Lindabury to Henry C. Pitney, Morristown, N. J.
Prince H. of Hickory Grove 8490, Wright & Parks to C. T. Vaugh, North Meehoopany, Pa.
Pose's Squire 8043, O. T. Remington to Ben E. Benson, Elk Mound, Wis.
Sir Bishop of Rosendale 7817, Chas. L. Hill to Ganz Bros., Otjen, Wis.
Solomon of Homestead 8494, L. V. Axtell to John Morgan, Plainfield, Ind.
Trilby's Gold 8372, S. M. Shoemaker to R. B. Harrison, Chesterfield, N. J.
Tully of Homestead 8487, E. D. Watkins ta L. V. Axtell, Perry, O.

COWS.

Arbutus M. 15894, Helen M. Sweet to Fred Vogel Jr. Milwaukee, Wis.
Blanche Select's Daughter 15895, Burton Lady 15675, Cazenovia's Daisy 3nd 15213, Ieronie 25637, Minnie Minard 14825, Ralph Dwight to E. G. Moore, Oxford, N. Y.
Elsie Bishop 15652, Falicia 15852, May Bishop 13366, Minnie C. 15800, Olive of Richmond 15815, Ben Clark to M. L. Welles, Rosendale, Wis.
Edna of Worthington 15880, W. S. Stevenson to J. C. Bowser, Craigsville, Pa.
Inez Pet 15776, Geo. C. Hill & Son to L. D. Staples, St. Joseph, Minn.
Ilma of Fern Ravine 15322, Fred Vogel Jr., to J. G. Hickcox, Milwaukee, Wis.
Kathara 12741, John Henry Livingston to C. I. Sisson, Almond, N. Y.
Lady Helen of Rosendale 15091, Mina V. Hill to M. Ravn, Scandinavia, Wis.
Lady Dainty 15464, Geo. C. Hill & Son to O. J. Wrolstad, Iola, Wis.
Lady Helen of Homestead 12254, J. C. Hickcox to Dr. J. A. McLeod, Milwaukee, Wis.
Mabel Butler 2nd 11587, W. S. Stevenson to Fred Oesterling, Butler, Pa.
Rose of Bonnie Brook 13760, W. S. Stevenson to Grant H. Goehring, Brush Creek, Pa.
Reiber's Dove 15878, W. S. Stevenson to Howard Reiber, Butler, Pa.
Wisconsin Mabel 11293, Fred Vogel Jr., to Dr. J. A. McLeod, Milwaukee. Wis.
Yolo McQueen 15886, Wm. H. Borden to S. I. Murphy. Woodbine, Pa.
Yolo McQueen 15886, S. I. Murphy to George Wood, Philadelphia, Pa.

WM. H. CALDWELL, Sec'y.
Peterboro, N. H., March 16, 1903.

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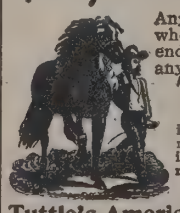
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Complete outfit of a private creamery all in good order and ready for business as son as set up. . . . . .

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is spurious or untruthful. It needs nothing but the truth to support it. It is undoubtedly the best veterinary remedy known to man.

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TUTTLE'S FAMILY ELIXIR cures rheumatism sprains, bruises, etc. Kills pain instantly. Our 100-page book "Veterinary Experience." FREE.

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Beware of so-called Elixirs—none genuine but Tuttle's. Avoid all blisters; they offer only temporary relief, if any

THE BROWN BESSIE HERD Offers some splendid young cows and heifers bred to Recorder, the only living son of the famous Brown Bessie, winner of the 30 and 90 day butter test at the Columbian. Also a few sons of Recorder from daughters of Diploma and other tested cows are offered.

H. C. TAYLOR, Orfordville, Wis

PETER C. KELLOGG, Auctioneer, is instructed by MR. FRANK C. WARD to sell at auction

WEDNESDAY, APRIL 15th, 1903,

commencing at 10 o'clock his own personally selected importation of

JERSEY CATTLE

of choicest quality which arrived per S. S. "Mesaba" at New York, October 1, 1902. Total Herd, consisting of about 75 head, all in catalogue. None reserved or sold privately. Sale will take place at Hexamer's Riding Academy, 219 Hudson St., Hoboken, N. J. (3 minutes from ferry) 30 minutes from City Hall Park, or Union Square, New York City, by ferries from Barclay and Christopher Streets. The cattle may now be seen at White Oak Ridge Stock Farm, near Milburn, N. J., 50 minutes from New York on the D. L. & W. R. R. For catalogues, ready April 5, address

PETER C. KELLOGG, 107 John St., New York. FRANK C. WARD, 26 Railroad Place, East Orange, N. J.

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. Satisfaction guaranteed or pigs may be returned.

JOHN WHITE & SON, Adamstown, Md.

LARGE IMPROVED YORKSHIRES

The small York grown up; the best white hog, easy keeping and prolific. Young stock for sale.
E. E. STEVENS, R. F. D., No. Madison, Lake Co., O.

NORTH OAKS FARM, MINN ST. PAUL,
(Jas. J. Hill, Proprietor.)

AYRSHIRE BULLS

Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address,

N. E. McKISSICK, Supt., Cardigan, Minn

YORKSHIRES A few choice imported Boars. September farrow. Also pigs from imported stock ready for delivery in 8 weeks. W. H. FISHER, Spahr Bldg, Columbus, O

AYRSHIRE CATTLE of both sexes, and some young ones from good business cows. Prices within reach of any dairyman. Also Chester White Pigs, March and April farrow—All from registered stock. F. TSCHUDY & SONS, Monroe, Wis.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality F. W. TRATT, Whitewater, Wis.

GUERNSEYS.

HADDON FARMS—Home of the noted GLENWOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

Rosendale Guernseys.

MATURE COWS YEARLY RECORDS range from 356 to 713.3 lbs. butter. This herd contains more officially tested cows than any other herd of the breed. All of the largest records are official ones. A particularly choice lot of tuburculin tested bulls for sale from high record dams.

GEO. C. HILL & SON, Rosendale, Wis.

GUERNSEYS FOR SALE.

Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.

JAS. H. BEIRNE, Oakfield, Wis.

GUERNSEY Bull Calves Sired by O. K. Dams of equal merit.

FRED VOGEL, JR., 165 First Avenue, Milwaukee, Wis.

Old Homestead Guernseys.

Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.

Especially low prices, standing of herd considered. No catalogue. State what you want.

L. V. AXTELL, Perry, Lake Co., Ohio.

Wasteland Guernseys

Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.

M. M. & E. J. HOLLINGSWORTH, Landenberg, Chester Co., Pa.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

FOR SALE GOLDEN LAD BLOOD. sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.

W. J. HUSSEY, Mt. Pleasant, O

FOR SALE AT FARMER'S PRICES.

One St. Lambert bull ten months old; also bull calf three months old, or will exchange for as well bred heifers. Registered Poland China pigs for sale at all times. Correspondence solicited. FRANK SHADBOLT, Caledonia, Minn.

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JERSEY BULL, one year old. Good individual of the best breeding. Also 7 months bull from tested dam. Herd headed by Fontaine's Owl, 60436. Prices on application. Address,

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VALLEY FARM Is offering some good bargains in young bulls from 1 mo. to 2 yr. old. Also B. P. Rock Cockerels, $1.25 each. Write

FRED STUBLEY, Black Earth, Wis.

HAZEL FERN HERD. A. J. C. C. Jerseys, blood of St. Lambert, Melia Ann, Combination. Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

PROSPECT HILL JERSEY HERD.

Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

COTTAGE FARM GUERNSEYS

Young stock of both sexes. Some of them out of cows in Advanced Registry. 3 cows now in Advanced Registry, and others soon will be. Also 3 Heifers sold from the Herd the past year have been admitted. Service bull combines the breeding of Lord Stanford and Mary Marshall. Please note change of address.

EZRA MICHENER, Michener, Bucks Co., Pa.

ST. OMER HERD

Offers young bulls fit for service, out of tested dams with good yearly records. Strong in Exile of St. L., King of St. L. and Stoke Pogis of Prospect. Reasonabe prices. JOS. T. HOOPES, Bynum, Md.

Biltmore Jerseys.

Have been Bred for work in the Dairy. Are from the choicest foundation tha could be bought. Include more Prize Winners than any other Herd. Are robust, true to type and of great capacity. Are noted for large milk yields, perfect udders and teats. All tuberculin tested for the last seven years.

FOR SALE--Young Bulls from selected dams. Send full details, mentioning defects you wish to correct, blood lines, etc., and we will quote promptly, reasonably, with guaranteed description and full pedigree. Apply to

BILTMORE FARMS, Biltmore, N. C.

The Evergreen Farm Herd has for sale three or four A. J. C. C. heifers bred Also a few cows and some choice bull calves from two to six months old. Write for pedigrees and prices.

N. N. PALMER & SON, Brodhead, Wis.

READY FOR SERVICE

We are offering a solid color yearling Jersey Bull, 56 per cent blood of five of greatest Jerseys that ever lived; out of a young cow scoring 360 lbs. butter within a year, second season. Sound and all right, well grown and thrifty. A bargain at $100. For particulars address

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HOME FARM HERD.

Headed by **COLANTHA 4TH'S LAD.** Official test of three nearest dams 25.1 lbs. butter in seven days. Herd numbers 125 head.

BEST FAMILIES REPRESENTED.

Special prices on six or eight bulls of serviceable age. **W. B. BARNEY & CO.,** Hampton, Ia.

STAR FARM HOLSTEINS.

Chief service bull, Mercedes Julip's Pietertje Paul, dam Mercedes Julip's Pietertje, made 1901, world's official butter record, 29 lbs., 5.7 oz. in 7 days; sire Johanna Rue 2d's Paul De Kol, sire of Wit Duchess, 24.88 lbs., in 7 days. Sire's dam, Johanna Rue 2d. You can buy anything you want in registered Holsteins at Star Farm. You can save money by buying at Star Farm. You can order a Johanna Mercedes bull calf from Fall increase to head your herd. No catalogue. Write for just what you want. **Horace L. Bronson, Cortland, N. Y.**

Oak Grove Herd Headed by Mechthilde De-Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. **C. H. STEVENS, Jefferson, Wis.**

The Maples Herd offers H. F. A. R. O. Cows and Heifers of all the leading families in calf to Beryl Wayne De Kol Paul, dam Beryl Wayne, 27.87 lbs. butter A. R. O. Lelith Pauline De Kol's Count, dam Lelith Pauline De Kol 28.24 lbs. butter A. R. O.

Quick buyers may obtain great bargains in heifer and bull calves from the above named great sires. **JOHN C. GODFREY,** Pennellville, N. Y.

FOR SALE.

2 H. F. Bull Calves, 6 months old. Sired by Johanna Aaggie's Paul DeKol 23443, (160 A. R.) from good milkers and testers.

M. S. CAMPBELL, Genoa, DeKalk Co., Ill.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

HIGH-CLASS HOLSTEIN-FRIESIAN BULLS

and Bull Calves from A. R. O. dams and the best Advanced Registry sires. Cows all officially tested; I breed from no others. Correspondence from breeders and progressive ddirymen invited. **Malcolm H. Gardner, Darien, Wis.**

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High Class Advanced Registry Stock only. Best butter families. Stock for sale.

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HOLSTEIN BULL CALVES. | **Johanna Family.** (both sire and dams). ALSO BERKSHIRES. **Wright's Farm. Berlin, Wis.**

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100 HOLSTEIN-FRIESIANS 100

A. R. O. Stock For Sale.

Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz **Frank B. Fargo, Lake Mills, Wis.**

BROOKSIDE HERD

offers SPECIAL inducements to quick buyers. We must sell at once to reduce herd to stabling capacity. All ages, both sex. Correspondence solicited. Visitors welcome. Address,

STEVENS BROTHERS Lacona N.Y.

MONONA FARM Offers for sale a few well bred Holstein-Freisian Bull Calves. Also two Service Bulls at reasonable prices. The Monona Farm Herd is founded on the best stock of the De Kol, Netherland, and Clothilde families. Pense Johanna 29332 the head of the herd has 7 A. R. O. dams averaging 22 lbs. 3.7 oz. Junior sire Paul Calamity De Kol 31095.

MADISON, WIS.

THE MONONA FARM HERD.
Address, **F. W. ALLIS, Madison, Wis.**

FOR SALE. H.-F. Bulls, ready for service from A. R. O. Cows and sired by Sir Johanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis

FOR SALE.

H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address **W. H. JONES, Watertown, Wis.** Rural Route No. 2.

CLOVERDALE HERD

HOLSTEINS.

Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.

A. J. DAUGHERITY Streator, Ill.

GLENVIEW HERD

A few fine heifers and bulls for sale. Also some A. R. O. cows. **IRVIN NOWLAN, Toulon, Ill.**

EDGETOWN FARM

90 Holstein-Friesians 90

Stock for sale from A. R. O. cows. Herd headed by Gem Pietertje Paul De Kol, No. 27282, backed by eight official records, averaging 23.44 lbs. butter.

E. J. FARGO, Lake Mills, Wis.



OHIO'S FAMOUS HERD —OF— Holstein Cattle

OWNED BY

W. B. Smith & Son

2488 W. Broad St., Columbus, O.

CLYDE PAUL DE KOL.

OAKLAND HERD

HOLSTEIN-FRIESIANS

Will make a special price on a few **CHOICE YOUNG BULLS.**

We offer females, any age, very cheap just now as we can winter more stock than have pasture for.

T. A. MITCHELL, Weedsport, N. Y.

Markham Manor Farms, Simonsville P. O. Andover, Vt.

Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for description and price to J. A. THORNTON, Manager, Simmonsville, Vt.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS | 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No 29175. Sire: Count Colantha Alban No. 25148. Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.

WM. EVERSON & SONS, Lake Mills, Wis.

30 POUNDS 10.18 OZ. BUTTER

In Seven Day Official Test.

Home of the

WORLD'S CHAMPION BUTTER COWS.

BROTHERTOWN STOCK FARMS

DEANSBORO, N. Y. McADAM & VON HEYNE Props.

Sadie Vale Concordia, official test, 694.3 lbs. milk containing 30 lbs. 10.18 oz. butter in 7 days.

Mercedes Julip's Pieterje, official test 584 lbs. milk containing 29 lbs. 5.7 oz. butter in 7 days.

Sadie Vale Concordia's Paul De Kol, Premiersire, No. 27392 H. F. H. B. He is by Paul De Kol and out of our great cow Sadie Vale Concordia.

ABSOLUTELY BEST HERD OF HOLSTEIN-FRIESIANS.

We have a number of fine cows and calves for fine breeding to offer. If you are looking for the best, write us or inspect our herd.

Holstein Freisian Bulls

SOUTH SIDE FARM, WHITE BEAR, MINN.,

offers a number of thrifty well grown calves from Officially Tested Dams at bargains for quick sale, ages three to seven months. Also two fine yearlings, and one two year old.

No Yorkshires for sale at present. Orders booked for spring pigs.

Correspondence solicited.

RICHLAND FARMS, GREENSBORO, GA.

We now have some very fine **HOLSTEIN BULLS FOR SALE;** also some pure bred registered **Victoria Hogs,** all ages, at bargain prices. Write us for what you want.

SHADY NOOK HERD Holstein Friesians offers three bulls from 11 to 16 months old. Two from A. R. O. dams. O. L. C. White Pigs, both sexes. White Cap Yellow Dent Seed Corn, $1.50 per bushel.

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Holstein-Friesian Bull Calves

Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

BROOKSIDE STOCK FARM

HOLSTEIN-FRIESIAN CATTLE

Henry Stevens & Son, Lacona, N. Y.

offer some great bargains, to quick buyers, in 1, 2, and 3 year old heifers; also young cows and bulls.

Stock First-Class. We Must Sell

Address as Above. P. O. Box 208.



WANTED. NO. 1 H. F. BULL

Send pedigree and official records of ancestors. For Sale A No. 1 H. F. Bull dropped Aug. 9, 1901. Dam and sire's dam bred by T. G. Yeomans.

Wm. O. Jackson & Sons, South Bend, Ind.

AUCTION SALE OF

70 Holstein-Friesian Cattle

from the herd of

ARTHUR N. McGEOCH

Sale to be held at

MILWAUKEE, WIS.,

Wednesday, May 6, '03

Sale to be held at McGeoch Farm, "Redbrae" opposite entrance to Soldiers' Home on National Avenue. Electric Cars, National Ave., run to farm every five minutes.

40 OFFICIALLY TESTED COWS AND HEIFERS 40

Among these will be found the great heifer **Duchess Ormsby 2d's Hengerveld DeKol** who holds the **World's Record** for heifer with first calf, having made at age of 2 years, 1 month, 29 days, 19.02 lbs. butter in seven days.

DAME MARJORY DE KOL, a half sister, with record at 2 years, 4 months and 24 days of 16.19 lbs. butter in seven and 65.08 lbs. in thirty days.

LISCOMB AAGGIE 3D at 3 years, 11 months and 26 days with record of 21.58 lbs. in seven and 86.69 lbs. in thirty days.

PIEBE QUEEN 2D'S PRINCESS at 4 years, 9 months, with record of 22.18 lbs. in seven days.

WIT DUCHESS at 5 years, 5 months, 5 days, with record of 24.88 lbs. in seven days.

A FINE LOT OF HEIFERS FROM OFFICIALLY TESTED DAMS. A few richly bred young bulls and the two great service bulls **De Kol 2d's Paul De Kol No. 2** and **Gem Pietertje Hengerveld Paul De Kol** will be included in the sale.

Altogether this is the most desirable lot of Holstein-Friesians, either from the standpoint of the breeder or dairyman, that has ever been offered at public auction. All are cordially invited to be present.

Catalogues ready early in April. Send for one. Address

H. B. DAGGETT, Mgr.,

STATION A. **MILWAUKEE, WIS.**

PLEASANT VALLEY STOCK FARMS

DELPHI FALLS, N. Y.

SECOND ANNUAL SALE OF REGISTERED

HOLSTEIN-FRIESIAN CATTLE.

50 HIGH CLASS, YOUNG COWS AND HEIFERS

10 YOUNG BULLS WITH LARGE A. R. O. BACKING

SYRACUSE, N. Y., APRIL 22ND, 1903

This will be the CHOICEST offering ever offered at public sale. LARGE A. R. O. RECORDS, FASHIONABLE BREEDING, GREAT INDIVIDUALITY.

E. A. CALLAHAN, Albany, N. Y.
B. V. KELLY, Syracuse, N. Y.
Auctioneers.

C. F. HUNT,
Manlius, N. Y.

CATALOGUES NOW READY.

HOLSTEIN-FRIESIANS

FERMANACH HERD, ARCADA, MO.

SPECIAL OFFER—Three Young Bulls. Prince Mercedes Pietertje 29325, born Oct. 20th, 1901, grandson Mercedes Julip Pietertje A. R. O., 29 lbs. 5.7-10 oz., sire Mercedes Mechthilde Pietertje 25795, dam Princess Pietertje Coeln, record 76 lbs. butter 60 days with first calf.

Geertje M. 3rd Johanna De Kol 30614, born Jan. 18th, 1902, sire Johanna Rue 2d Paul De Kol 21724, sire of nine A. R. O. cows of large records and by Paul Mutual De Kol, out of Mutual Friend 2d, dam Geertje M. 3 A. R. O., 18 lbs. 12.9-10 oz.

St. Louis De Kol 30613, born March 26th, 1902, sire Johanna Rue 2d De Kol, dam Winnifred Pride Beauty 2d 53038, whose dam has A. R. O. record 18 lbs. 6.8 oz. Here is a splendid opportunity to procure a combination of the richest blood of the breed at very low price. **THOS. CAINES, Supt.**

A. & G. Herd Holstein-Friesians —Choice-Bred BULL CALVES for sale, from 1 to 18 months old. from dams with official records, and sired by sons of De Kol 2d and Netherland Hengerveld. Herd contains 5 sisters of Lilith Pauline DeKol (who holds the world's official butter record of 28 lbs. 3 oz) 25 granddaughters of DeKol 2d, 5 daughters and 7 granddaughters of DeKol 2d's Paul DeKol (the sire of Lilith Pauline De Kol) and granddaughters of Pauline Paul, Netherland Hengerveld, Mutual Friend, Princess of Wayne, Johanna, Etc., Etc.

AVERILL & GREGORY, The Yates, Syracuse, N. Y

.....YOU MAY.....

BEGIN AT THE HEAD

to improve your dairy herd with a bull whose dam has official record of 18 lbs. 6.3 oz., sires dam 20 lbs. 8.8 oz. Individual right. Price Right.

McKAY BROS., Buckingham, Iowa.

WOODLAKE HERD.

Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. **JOHN B. IRWIN** Station D., R. 1, Minneapolis, Minn.

The Art and Science of Feeding.

ED. HOARD'S DAIRYMAN:—In a recent communication to the DAIRYMAN, the writer hereof sought to direct attention to the scant emphasis, in proportion to its importance, being given to the art as distinct from the science of feeding. While desiring to recognize and show full appreciation of the science as so far developed, and give credit due to all and sundry instrumental in that development, it was sought to impress the thought that inasmuch as science rightfully considered, is a part of and helpful to the art, teachers of the science and writers on how to feed, should lay greater stress, than is being given, on the necessity of acquiring that art, if best possible results are to be secured through knowledge of the science.

It is the purpose of this communication to indicate direction in which effort may be made to establish methods by which students and others can acquire rudimentary instruction, at least in fundamental principles, that will be most helpful at the beginning of the experience essential in complete equipment, in shorter time with a minimum of mistakes and discouragements, and to present some of those principles as demonstrated in my personal experience.

As a first requisite, a habit must be acquired of close, careful, discriminating observation, to a degree that enables prompt, almost intuitive, instant recognition of variations in condition from day to day. It includes intimate knowledge of temperament, moods, habits, appetite, evidence of digestion and assimilation, in short, the individuality of each and every animal included in the care. As of initiatory importance in this connection, some method must be provided by which effort and results can be readily comparable and interest stimulated. Tabulated permanent records are a prime essential, dual in form and of a character to show the amount of grain and forage consumed and the resultant product by individuals. The record of combinations and nature of rations may be more general as to distribution, but should be accurately specific in kind and nutritive ratios with space for memoranda of results and notes of impressions, suggestions, findings and conclusions. That for performance should provide for weight of each milking, a. m. and p. m., total daily yield of herd and individuals for a week or month. We prefer those for a month, our sheets having provision for such record for twenty-five cows each. With suitable scales, one for weighing feed, one conveniently placed and balanced with pail so reading shows weight of milk as taken from the cows and a graduated scoop holding four quarts, the essential preliminaries are provided. Their intelligent use will furnish replies to the following questions, upon the full understanding of which, and just appreciation of them as influencing factors, success depends, and incidentally determine whether or not a feeder can be developed from the material at hand.

Does each and every cow of similar weight and apparent capacity require equal quantity of feed for maintenance and most profitable returns?

What proportion, in pounds, of grain ration does each cow require to produce her maximum flow of milk?

Is the maximum flow sufficiently in excess of the ordinary to justify an increase in amount of grain over that required for the ordinary?

What influence in yield of milk in pounds and ounces do varying conditions and kinds of forage exercise?

For best result with each individual, what proportion of total ration should be grain, what forage, and does varying produce results at the pail or in condition?

At what time in her period of lactation does this, that or another cow utilize an undue proportion of her feed to put on excess of flesh, and how much reduction of grain ration will she stand and return the maximum flow of milk for the period and still acquire and maintain judicious condition against time of freshening?

These are some of the questions suggested in an off-hand consideration of the subject and indicate a thousand and one factors in the art of successful feeding.

In a general way Science furnishes a reply to those questions in bulk as follows—"for the average cow weighing one thousand pounds a properly balanced ration containing—pounds of dry matter, in two feeds daily is required", and adds as a clincher, an after-thought, a sort of a hedge for shelter from responsibility for possible disappointing results, "judgment should be exercised and variation made as experience may suggest." This general formula for the "average" may be most useful and the resultant value of the skill, experimentation and effort represented in it cannot be overestimated. Its highest value to the feeder however is in its suggestiveness as a whole, as a starter, a position from which to make intelligent variations, in which lies concealed very much of the dairymen's profit or loss.

In our herd of about 300 milch cows it would surprise you to know, it might expose me to the charge of Munchausenism if I were to say how many cows there are of larger weight requiring actually a smaller ration of grain and forage to produce a larger daily yield of milk than others that weigh less and give less milk, though showing a profit on their care and keep

Is there any reason, other than ignorance of method to secure it, why you, reader, if a feeder of dairy cows, should not prefer a fifteen or twenty per cent profit on individuals in your herds to five or ten per cent over cost of feed and labor? We have cows that will show even a greater difference, fed with the due regard to the principles to which I am seeking with every possible emphasis to direct your attention, than would result from a scientific, machine method of feeding pure and simple. Do you know the per cent of profit or loss which each individual in your herd is returning? Do you know whether or not a variation in quantity of ration fed each will add appreciable profit without injury to any or shortening her period of usefulness? Assuming that you know how to compound a perfect ration, or have obtained formula for one from the DAIRYMAN, are feeding the amount per head for cows "averaging 1000 lbs" and wish to know which of your cows will most surely respond profitably to a variation in feed, possibly, if you write to the Senior Editor of the DAIRYMAN, giving approximate dimensions of point and butt of her wedge shape, with outline drawing of her pelvic arch, he may tell you. If he should tell you to "use your judgment" and you realize that you have not any "judgment," perhaps if you will send exact measurements by "scale of points" to Prof. Henry and his classes in animal husbandry, they will from the dimensions of the machine be able to tell you its capacity for returns

"ADVERTISEMENT"

MORE THAN HALF.

Suffer From Coffee Drinking.

Coffee does not set up disease with all people using it, on the other hand it absolutely does create disease in thousands and thousands of cases perfectly well authenticated and traceable directly to coffee and nothing else.

This statement may hurt the feelings of some coffee drinkers but the facts are exactly what they are.

Make inquiry of some of your coffee drinking friends and you may be certain of one thing, one half of them, yes more than half, suffer from some sort of incipient or chronic disease. If you want to prove its the coffee, or would prefer to prove it is not the coffee, in these cases, take coffee away from those persons for from ten days to a month, don't change the food in any other way but give them Postum Food Coffee, and the proof of whether coffee has been the trouble or not will be placed before you in unmistakable terms.

A young lady in the St. Mary's Academy, Winnepeg, Can., says: "One of our teachers suffered a long while from indigestion. She was a coffee drinker. She became worse steadily and finally was reduced to a point where the stomach did not retain any food, then electricity was tried but without avail. She, of course, grew weak very fast and the doctor said the case was practically incurable.

"About that time I was attracted to a statement in one of the papers regarding the poisonous effect of coffee and the value of Postum Food Coffee. The statement was not extravagant but couched in terms that won my confidence and aroused me to the belief that it was true. I persuaded our teacher to leave off the morning cup of coffee altogther and use Postum Food Coffee.

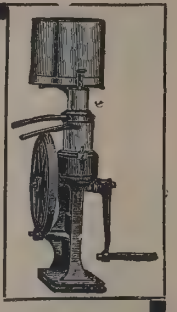
"A change took place. She began to get better. She has now regained her strength and is able to eat almost every kind of food and has taken her position as teacher again." Name given by Postum Co., Battle Creek, Mich.

WE TAKE THE RISK

of your being satisfied, and glad you bought the cream separator that makes money for you.

THE AMERICAN

Is Sold On Trial.



The price makes it easy for every cow owner to buy. Run this separator and make money. The catalogue is free and we want you to have one. Write to-day.

American Separator Company,

Medal Winner at Paris Exposition. **Box 1023 Bainbridge, N. Y.**

THE

Iowa Dairy Separator.



AN UP-TO-DATE MACHINE REPLETE WITH PRACTICAL IDEAS

It is built in the following sizes:

250, 350, 450, 600, 750 POUNDS PER HOUR

Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.

SEND FOR CATALOGUE NO. 60 AND PRINTED MATTER.

IOWA DAIRY SEPARATOR COMPANY, WATERLOO, IOWA.



You can add value to any cow with a

National Hand Separator

because it will save over 80 per cent. of the loss resulting from the old method of setting. It will separate warm or cold milk, light or heavy cream, and skim *clean*. We send the National and let it prove its worth right in your own home dairy.

10 DAYS' USE FREE.

Costs nothing if you don't buy—costs nothing if you do, for it pays its cost in what it saves. Send for catalogue.

National Dairy Machine Co.
Newark, N.J.

Cream Separators



THE Improved International

The best in the world, has no superior if you want a larger butter yield. It runs easily, skims clean, and is easy to wash It is perfect in mechanical construction and magnificent in appearance. No outside gears to catch your hands and clothes. Only three parts in the bowl. Look at the low supply can. All parts absolutely interchangeable. Write for Catalogues and Prices.

Chicago Office,
GEO. A. ELDER, Gen. Agent,
Tacoma Blk, La Salle & Madison Sts.,
CHICAGO, ILL.

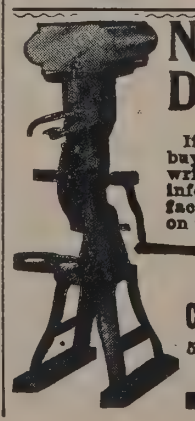
THE INTERNATIONAL CREAM SEPARATOR CO.,
LANCASTER, PA., U. S. A.



NEW OXFORD
BALL BEARING
Cream Separator

Sold on guarantee to be the best on the market. Catalog free.

WORLD CREAM SEPARATOR CO., 41 Main St., Council Bluffs, Ia.

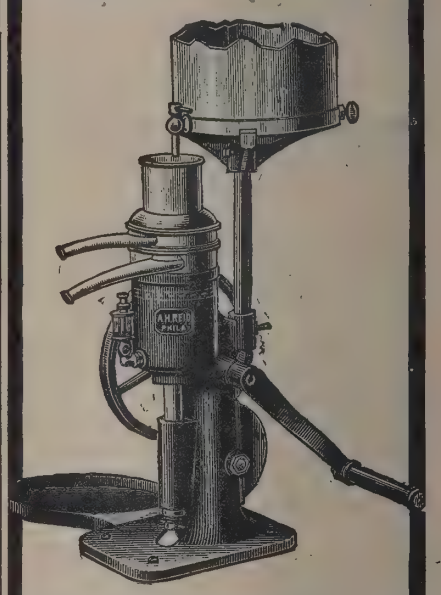


Notice to Dairymen

If you are thinking of buying a Cream Separator write us for Catalogue and information. We manufacture the best machine on the market.

Davis Cream Separator Co.,
54 to 64 N. Clinton St.
CHICAGO, ILL.

Reid's Hand SEPARATOR



The "best" separator is that one which does its work most thoroughly and easily, that is built of strongest material, and that is most easily washed and kept in order.

First cost is a great point with a buyer, but ease of running, perfection of skimming and simplicity in washing are even greater considerations.

The **Reid Hand Separator** has but a single cylinder inside the bowl, and skims as closely as one-hundredth of one per cent. Indeed, some tests indicate "not a trace" of fat in the skim milk.

The Reid is perfectly planned and strongly built, and it literally "runs like a watch."

As to our guarantee of excellence, we make the strongest statement that can be expressed in words: **Money back (less freight) if the buyer is not satisfied.**

There is a new (free) booklet about the Reid Hand Separator.

Sizes run from 150 lbs. to 500 lbs. per hour.

A. H. REID
CREAMERY AND DAIRY SUPPLY CO.,
PHILADELPHIA, PA.

RUPTURE CURED while you work. You pay $4 when cured. No cure, no pay ALEX. SPEIRS, Box 846, Westbrook, Me.

"It's Dead Easy"

to shave yourself if you only have the right kind of shaving soap—the kind which thoroughly softens the beard and makes it easy to cut; the kind which produces a creamy, lasting lather and which

WILLIAMS' SHAVING SOAP

has a healing and soothing effect on the face. **Williams' Shaving Soap** is just that kind. It is the *only* soap for shaving, and has a world-wide reputation. **"The only Soap fit for the face."**

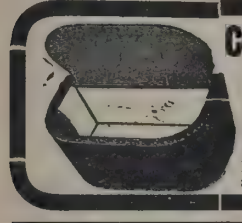
Sold Throughout the World.

FREE

A Trial Tablet if you mention this paper and send a 2c stamp to pay postage.

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THE J. B. WILLIAMS CO.,
Glastonbury, Conn.

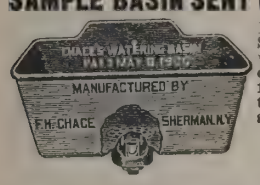


COW BASIN

SELF CLOSING LID.

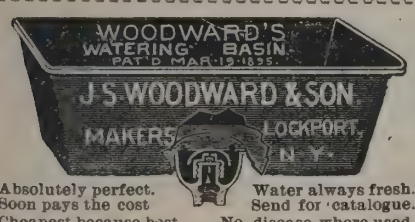
Pure white Porcelain. No rust, no filth, no splashing. **D. H. Bausman,** Bausman Lane Co., Pa. Iron, Pig, Chick, and Stock Troughs.

SAMPLE BASIN SENT ON APPROVAL.



Basins are fitted with **Self Closing** Cover which prevents all dirt and sediment from getting into them. Send for catalogue and price list.

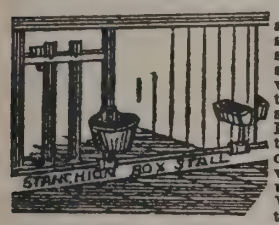
F. H. CHACE,
Sherman, N. Y.



Absolutely perfect. Soon pays the cost Cheapest because best.

Water always fresh. Send for catalogue. No disease where used.

Water In The Stable a Necessity.



It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. **Why not use the Best?** Write for descriptive circular.

C. E. BUCKLEY & CO., Poughkeepsie, N. Y.



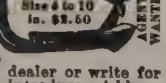
BAILEY'S
HYDRAULIC RAM.

Now is the time to install a ram. Bailey's is always successful. He guarantees it. It is the most simple, durable, efficient and economical. If you want water at house or barn, send for catalogue No. 30 to

PRICE W. BAILEY,
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IWANS' Post Hole and Well AUGER

Best in the world for Fence and Telephone Post Holes, Wells, etc. Used by U. S. Govt. Highest award World's Fair.



Thrice the work accomplished with an "Iwan" than with any other. Show this to your hardware or implement dealer or write for particulars. Special price to introduce. Address **IWAN BROS., Dept. L, STREATOR, ILL.**

Cream SEPARATORS

All about them and other things for the dairy and creamery. **A. H. REID, Philadelphia.**

ASTHMA TAKEN FROM THE SYSTEM. Never returns. Nothing remains which can produce an attack. Eat anything, sleep soundly and stand exposure. Appetite improved; blood enriched; nerves strengthened; whole system built up; life made enjoyable. **Book 41F Free,** containing reports of many interesting cases. **Dr. HAYES, Buffalo, N. Y.**

in proportion to the raw material put into it; but it is more than probable you will be told to "exercise your judgment." How are you going to acquire that essential "judgment", without that close discriminating observation of individual peculiarities in temperament, appetite, assimilation, milk yield, etc., etc., I am trying to indicate and emphasize, and which finds method in knowing amount of grain and forage fed from feed to feed and comparison of resultant milk yield as shown in each milking every day, from time of freshening to going dry for next calf? Herein is where science falls short in disclosing exact method, and its exponents derelict in properly emphasizing this all important and absolutely essential element in most profitable application of the Science of Feeding to the business of dairying.

Pardon a digression, a speaking to a question of "personal privilege." Some of my readers may be disposed to ask, "are you taking your own medicine?" "Do you know which of your cows will respond profitably to a variation of feed ration?" I reply, yes and no. "Yes," in that we are applying the principle, and results secured are the suggestion and foundation for this and my former communication; "No," in that I do not know every cow with whom a variation may or may not be profitably made. Wauwinet Farm has a herd of milking cows in three interchangeable sections; one at the home farm, consisting of 143 head; one five miles off, of sixty odd; and one sixty miles away, with something over one hundred. The effort of the Superintendent is in this direction with each feeder and in every case results secured have justified the effort and stimulated increased zeal. The more specific cases indicated in this letter are actual and the direct result of the feeder's effort in response to specific instructions.

An extreme has had some advocates that best results are secured through knowledge of and catering to preferences of individual cows for one or another variety of mixtures of food stuffs, the claim being that other things being equal a cow will eat more of that which her taste prefers and return therefore a proportionately larger yield of milk. While on its face this theory seems plausible and of some value, I conceive it to be far-fetched and impractical, for the reasons that palatable preference and adequate consumption for capacity of production can be cultivated for any really suitable food stuffs. The range bred steer or cow knows nothing of corn, but can be educated to eat it. By intimate knowledge of condition of appetite and by judicious catering to it, a milch cow can be educated to eat ravenously and with enjoyment anything really suitable for her purpose.

It is time to discard from practical consideration the influence of the palate, except so far as it induces consumption of food, upon assimilation and consequent physical well-being. As evidence the maintenance of life for considerable periods by foods introduced into the system through silver tubes or by injection, where the offices of mastication have not been used, and again the acquired depraved appetites that crave that which is harmful and results in physical undoing.

Having the science as developed and so ably and consistently expounded in the recognition of the fundamental principles I have sought to indicate, and in the evolution of best methods for their practical application, largely rests the measure of profit to be realized from its promulgation. And it is up to the DAIRYMAN to so attach the art to the science of feeding in its "Answers and Inquiries" that a just conception of its importance is recognized, and to the Professors to introduce into the pedagogics of their institutions whatever of method is best calculated to impress their students with a just appreciation of the wide field for cultivation which is open to them in the art of feeding, of which science is the handmaiden and servant.

GEO. T. VAN NORMAN.

West Newton, Mass.

A Silo For Twelve Cows.

I want to increase my herd from six to twelve cows. I have only seven acres of tillable land and sixteen of blue grass. By building a silo of 60 tons capacity will this seven acres yield sufficient silage to fill silo. If so please give approximate cost and dimensions. T. P. N.

Shelbyville, Ky.

Seven acres of corn should yield not less than seventy tons of silage. A silo 12 ft. diameter and 24 feet deep would hold 48 tons of silage, enough to feed 12 cows for fully 250 days.



RIPPLEY'S

Whitewashing, Spraying and Painting Machine.

GUARANTEED to be AS REPRESENTED

Read Our 60 Days Special Offer Below.

This Machine will Whitewash Buildings, Walls, Barns, Poultry Houses, doing it far better, saving ¾ the time over the old method of using brush. Will Whitewash Buildings, or Spray Trees any height by using extra hose and extension rod to elevate Spray. Endorsed and used by hundreds of noted Breeders. It is used and endorsed by Sid Conger, Shelbyville, Ind.; U. R. Fishel, Hope, Ind.; Meadowbrook Poultry Farm, Dallas, Pa.; G. W. Brown, Camden, Ark.; A. G. Duston, Marlboro, Mass.; Texas State Fair Ass'n, Dallas, Texas. **W. B. Dean, Secretary of State Board of Agriculture, Yankton, S. Dak., says:** "We gave all State Fair Buildings two coats with your machine. It is a complete success and a great labor saver." In order to get them introduced in every locality, we will allow freight to your station, for the

NEXT SIXTY DAYS ONLY at the following net cash prices: No 6.—Eight Gallon Heavy Galvanized Steel, complete as shown in cut with 10 feet of ½ inch hose and one 8-foot bamboo extension rod and brass cylinder pump with agitator, **$12.00.** No. 7.—Sixteen Gallon size, **$15.00.** Terms cash with order, or we will ship C. O. D., if $3.00 accompanies order. Take advantage of our Special Offer. Send for our 100-page 1903 Catalog. Mail orders direct to

Rippley Hardware Co., Box 20, Grafton, Ills.
Or Box 20, Watertown, So. Dak.

EASTERN AGENTS:—Excelsior Wire and Poultry Supply Co., New York, N. Y., Johnson & Stokes, Philadelphia, Pa. Chicago Agent, Vaughan's Seed Store, Chicago, Ill.



COMMON SENSE
Calf Feeder

awarded **Gold Medal** at Pan-American Exposition. **The only Feeder** adopted by experiment stations. It is the kind others try to imitate. Easiest to operate and clean.

Most Durable, Simple, Economical, Scientific and Practical.

Do not be deceived by imitators. Shams are never imitated. **More Common Sense Feeders are in use than all others combined.** Over 50,000 in use. No valves to get clogged or foul. Nipples reinforced and cannot collapse. The calf feeder is a perfect weaner. A substitute for nature.

Extra gain on one calf pays for two feeders.

Best Feeder Made.
Michigan State Board of Health:—I tried every Calf Feeder I could find, but liked yours best.

Worth $10.00.
George S. Bement, Victor, N. Y.:—I am very much pleased with the Feeder and would not be without it for $10. No trouble, no damning, no milk on your clothes, no trouble to teach the calves to take hold of it, no sucking the cows, and the best of all is that when they get about eight weeks old they don't stop for the nipple but just drink out of the pail.

The Principle is Correct.
Purdue University Agricultural Experiment Station of Indiana, LaFayette, Ind.:—We have been using the Feeder to some extent and it is in constant use at this time and we believe it to be very satisfactory in its work. The principle of **Your Feeder,** I believe to be the correct one. C. PLUMB, Director.

Advise Stock Raisers to use it.
Maryland Veterinary Hospital:—I am very much pleased with the Feeder and would advise stock raisers not to be without one.

Price $1.50 including two nipples, sent postpaid for $1.75. We guarantee satisfaction, but if you are in doubt about its value we will send one on approval for 50c to cover postage, remainder to be paid if satisfactory. **Be Sure** and send for our twenty-two reasons why you should use a feeder. It's free. Sold by one dealer in a town.

O. H. MANUFACTURING COMPANY, DEPT. H, LYNDON, VERMONT.

DR. REA'S IMPROVED CALF FEEDER
Established 1892.



Galvanized castings. Will not rust. Seamless rubber nipples, reinforced, cannot split. Makes fat calves. Price.

ONE DOLLAR.

Satisfaction guaranteed or money refunded. Booklet free.

Dr. CHAS. L. REA, 220 E. 32d St., New York

Simplex Calf Feeder



The only practical feeder made. The only rational system of feeding calves.

The unique features of the **Simplex Feeder,** found in no other device, namely, the direct nipple connection and the universal movement of the arm, make it a perfect feeder.

Simple, durable, easily put up, easily cleaned. Can be attached to wall, fence, or other suitable support.

No more "teaching the calf to drink."

Promotes digestion. Prevents scours. Adds to the value of the calf, whether raised for the dairy or for veal. **Price, postpaid, $1.50.**

AGENTS WANTED. A great seller. Write today. Interesting booklet free.

MOSELEY & PRITCHARD MFG. CO.,
Dept. 3, Clinton, Iowa.



SENT out under positive guarantee. Money refunded if not satisfactory. No bolting food. Perfect digestion. All tinned—no rust.

KEYSTONE CALF FEEDER

Patented under No. 721,384. Used in about forty experiment stations. Mass. Ag'l College writes as follows: Mr. M. T. Phillips, Dear Sir:—I write to say that the Calf Feeder is giving excellent satisfaction. We have found it to be all one could ask for in a feeder. It is easily cleaned and appears to be durable. Yours truly, E. A. JONES, Supt.

Complete with extra nipple, $1.50, express prepaid. Circulars free.

M. T. PHILLIPS, POMEROY, PA.

MILK TUBES Patent Coin Silver 1¾" 50c. 2¾" 80c. Improved Teat Opener 75c. Dilating plug 25c. Postpaid on receipt of price. **G. P Pilling & Son,** 2d and Arch Sts., Phil., Pa.

Cherry's Perfected Barn Equipments.

Operates on Curves and Switches. Manure Carrier, Feed Carrier, Grain Elevator and Track. Barn Door Fixtures and Track. Hay Tools.



Send for Illustrated Catalogue and Price List to
D. B. CHERRY & CO., Knoxville, Iowa.

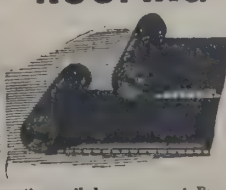


THE DREW ELEVATED CARRIER

is the cheapest and most practical device for taking away manure from stables, carrying ensilage, feed, grain, etc., etc. No trouble to put them up; no trick to work them; leaves barn yard free from posts; dump in yard or on wagon; turns curves and switches. An inexpensive money saver. Write for illustrated catalogue and full particulars.

DREW ELEVATED CARRIER COMPANY, WATERLOO, WIS.

DON'T Place Your Order For **-ROOFING-** Until You Have Seen **CAREY'S** Magnesia Flexible Cement **ROOFING**



It Can't Be Equalled For Durability. For Flat or Steep Roofs QUICKLY APPLIED.

Sample Cat. and full information mailed upon request, Free. **The Philip Carey Mfg. Co., 19 Wayne, Lockland, O.**

Moldy Ensilage.

ED. HOARD'S DAIRYMAN:—On page 103, inquiry from Shippensburg, Pa., you ask for explanation of moldy silage.

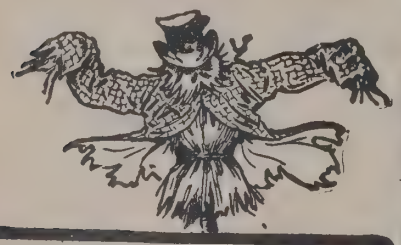
Silage spoils from two causes, first from air outside coming from imperfect silo; second, from too much air left in silage at time of filling, causing combustion. This silo has not been properly tramped or rammed; or corn too ripe and not sufficiently wet at time of filling. Nearly all the failures in making perfect silage come from not realizing the necessity of density, and the even distribution of corn as cut.

I have seen several instances of mold from leveling with a 4-prong fork, throwing bunches of blades and husks in spots. I advise not filling more than 5 or 6 feet in height a day, and thoroughly ramming all over silo. I never give any special instructions as to ramming around the edges, but try to make it as dense as possible throughout, thus securing cold silage, as heat in vegetable matter is the first stages of decay, and will not be found in perfect silage. A. B. H.

Lenape, Pa.

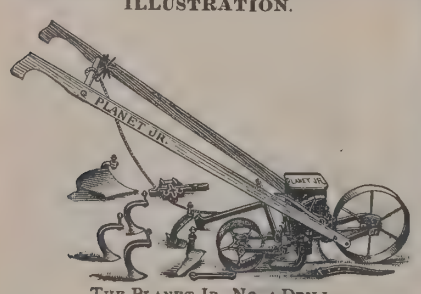
CONCERNING OUR ADVERTISERS.

We are very glad to call to the special attention of our readers the ad of Rippley Hardware Co., of Grafton, Ill., which appears elsewhere in this paper. Their new 1903 compressed air sprayer is unquestionably the latest and most improved machine on the market. The machine has a great many uses. In fact, it is a real necessity on the modern farm. Not only is it the best machine for treating fruit trees, etc., with various solutions and insecticide, but there is nothing better to use for spraying poultry houses, hog pens and other out buildings with insecticide or whitewash. Everyone knows the value, we might say the necessity of a liberal use of whitewash about the farm buildings. The difficulty heretofore, has been the labor of applying it, but with this compressed air sprayer, the work is done more quickly, and a great deal more thoroughly than was ever possible by the more laborious hand work. One very important feature is the air compressor, by which a minutes pumping will create sufficient pressure to discharge the entire solution in a fine mist-like spray or a continuous stream, as desired. To those who have used other sprayers of equal capacity in which constant pumping is necessary in order to discharge the contents, this one feature alone will commend the machine, if there was not another point wherein it differed, but besides this it is fitted with a safety valve, which makes it absolutely impossible to pump up to bursting pressure. Moreover, the sprayers are all tested to a



It Doesn't Scare Folks
to be told the *truth* about
Lion Coffee
The scare-crow coffees are those that hide under a glazing of factory eggs, glue and such stuff.
Lion Coffee is pure, wholesome, unglazed, rich in flavor and uniform in strength. The air-tight, sealed package insures cleanliness, freshness and uniformity.

ILLUSTRATION.



THE PLANET JR. NO. 4 DRILL.

The little hand implement shown herewith, Planet Jr. Combined Drill, etc., has such a wide nse that it must be a familiar sight to most of our readers. With due respect to other tools of this character it must be confessed that this Planet Jr. No. 4 is the most serviceable all around tool that can be taken into the garden. The thing that distinguishes it especially is its comprehensiveness. By means of its attachments the purchase of a single tool gives you the service of four, seeder, hoe, cultivator and plow, every one most excellently suited to its own particular work. Though for years it has been cousidered the par excellence tool, it has received valuable improvements for 1903. For every purpose short of the large operations where a Planet Jr. horse tool might profitably be substituted this is unquestionably the tool to buy. Converting it from one tool to another is the work but of a minute. Its perfect work, its special adaptation to the thing which needs to be done, and its easy running, put a premium on good cultivation. Description catalogue and free information by the manufacturers, S. L. Allen & Co., Philadelphia.

That Tired Feeling

Is a Common Spring Trouble.

It's a sign that the blood is deficient in vitality, just as pimples and other eruptions are signs that the blood is impure.

It's a warning, too, which only the hazardous fail to heed.

Hood's Sarsaparilla and Pills

Remove it, give new life, new courage, strength and animation.

They cleanse the blood and clear the complexion.

Accept no substitute.

Hood's Sarsaparilla promises to cure and keeps the promise.

RUBEROID
(Trade Mark Registered)
ROOFING
AND
P & B PAPERS
FOR LINING SILOS.
ABSOLUTELY
WATER PROOF AND AIR TIGHT
ENSURES CLEAN, DRY ENSILAGE.
...THE...
STANDARD PAINT COMPANY
100 William Street,
NEW YORK.

30 DAYS FREE TRIAL TO PROVE IT
We are the **originators** of the **30 day free trial plan** by selling buggies direct from factory to user. The 30 days' trial proves the
KALAMAZOO QUALITY
to be the very highest. We make our buggies in our own factory, and know them to be all A1. No seconds. Get our new Free Buggy Book. It is highest authority on the buggy question, and will show you how to save all profits.
KALAMAZOO CARRIAGE & HARNESS MFG. CO.,
148 Ransome St.
Kalamazoo Mich.





CLEARING LAND with JUMBO STUMP PULLER
Send for my catalog of JUMBO, CLIMAX & CHIEF Stump Pullers before buying. Can save you money. Also make DITCHERS, house-moving CAPSTANS & bog land Cutters. C. D. Edwards, Albert Lea, Minn.

Dietz Lanterns
make the way plain in night work or travel. Always shed a strong, clear, white light, with no choking, sooting or smoking.
Over Sixty Years the Favorite.
Made in many styles and sizes for all purposes, as hand lanterns, driving lamps, post lamps for streets, for front of country residences, church doors, etc. CATALOGUE SENT FREE.
R. E. DIETZ COMPANY, 94 Laight Street, New York.
Established 1840



MILK DEALERS' TINWARE



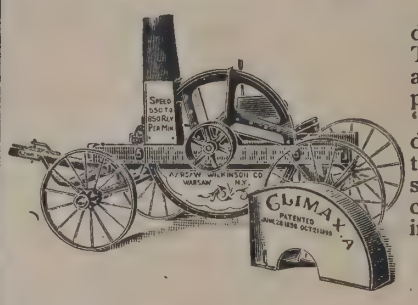
CREAM CANS
furnished with either Linked or Measure cover. Made of best heavy block tin, with all seams soldered smooth, **both inside and out.** All sizes of dippers, skimmers, measures and shipping cans. Strainers, "skimmed milk" tags, and in fact all tinware used by Milk Dealers are found here.

Write for Milk Dealers' Price List.

Creamery Package Manufacturing Co.,

BRANCH HOUSES: Kansas City, Mo. Minneapolis, Minn. Waterloo, Ia. Omaha, Neb. St. Louis, Mo.
Canadian Branch: Cowansville, Quebec.
1, 3 and 5, W. Washington St.
Chicago, Ill., U. S. A.

Climax Ensilage and Fodder Cutters.

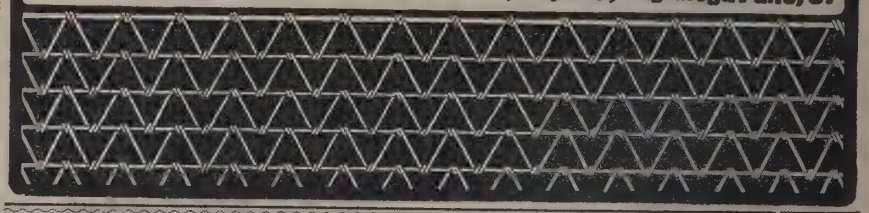


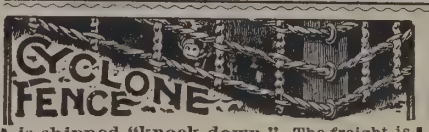
"THE COMPLETE MACHINE." Wind delivery. No more trouble with carriers. The "Climax" can be set up, ready for work, at a 35 foot silo, in 20 minutes. Takes less power to operate than any other made. The "Climax" is guaranteed to elevate **any** fodder in **any** conditions—we make no exceptions. Eight years of success bear out our statements. Don't put off getting your machine until the season is on. Write us for information and get our catalogue—it's free.

The Warsaw-Wilkinson Co.,
Warsaw, N. Y.

STUDY THIS FENCE.

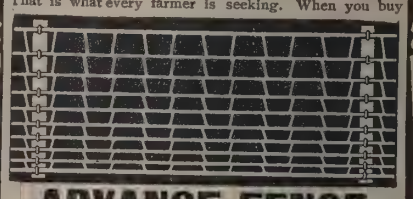
Note how splendidly it is made. See the extra heavy top wire and the large, strong middle wires. Note how completely it is inter-woven. There is no chance for stay wires to slip or shift, making large and irregular meshes. There are no loose ends to untwist, unravel and injure stock. In its weaving, there is ample provision for contraction and expansion, so that it is never known to break or sag as a result of extreme heat or cold. In any height from 18 to 54 inches. Strong and handsome, proof against all kinds of stock. Write for catalogue.
CUYAHOGA WIRE & FENCE CO., Dept. D, Cuyahoga Falls, O.



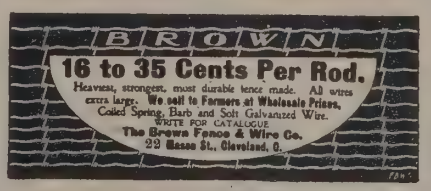


is shipped "knock down." The freight is less and when it's up all laterals are pulling alike and all uprights perpendicular. We sell plain and barbed wire, staples, etc.
CYCLONE FENCE CO.,
Holly, Mich. Cleveland, O. Waukegan, Ill.

We Make Honest Fence
AT A REASONABLE PRICE.
That is what every farmer is seeking. When you buy



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you get a good fence at the price of a poor one. The hand fence machine can't compete in price and quality.
WE SELL DIRECT TO THE FARMER AT WHOLESALE.
That saves you the dealer's profit. It's all interwoven, no loose ends to unravel, ruining fence. Cross wires can't slip. Our prices are as low as can be made for a good fence. Your name and address on a postal card will bring circulars and special prices. Write at once.
ADVANCE FENCE CO., 126 R ST., PEORIA, ILL.



BB FENCE We'll tell you the cheapest and best way to build it. Of any kind of wire, for any requirement, with cheap labor, no machine and we'll tell you how to fix your old fences too. Write B. B. FENCE CO., 1345 Clark St. RACINE, WIS.

GRISWOLD WIRE FENCE
Square Mesh, Dimond Mesh Fence, Plain, Galvanized, Barbed, or Telephone Wire. Write for illustrated catalog and price list.
DILLON-GRISWOLD WIRE CO., Sterling, Ill.





Don't Pay Double.
We'll sell you a better hatcher for the money than any other incubator concern on earth. New improved regulator, that can't get out of order. Big book—200 illustrations free.
SURE HATCH INCUBATOR CO.,
Clay Center, Neb. or Columbus, Ohio.

HIGH CARBON COILED SPRING STEEL WIRE FENCE
CATALOGUE FREE.
INDIANA STEEL & WIRE CO.
BOX 511 MUNCIE, INDIANA.



PRICE CATCHES TRADE,
but our quality holds it year after year after year.
PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.

A GOOD SWIFT KICK



is what you'll want your son to give you for buying flimsy woven fence, after you have seen how far superior The Frost Heavy Hard Wire Fence is to it. No comparison. Catalogue, etc., free.
The Frost Wire Fence Co., Cleveland, O.

pressure of 60 pounds before being shipped out, which alone insures absolute safety. We trust a large number of those who see this notice and ad will write them for catalog and circulars; address, "Rippley Hardware Co., Grafton, Ill." and kindly mention this paper when writing.

BUYING A WINDMILL.

One doesn't buy a windmill every day. In fact, if one buys the right kind of windmill on the start one doesn't need to buy a second windmill for the same service in a lifetime. The Samson windmill, the perfected wind machine of the Stover Manufacturing Co., Freeport, Ill., is, as its name indicates, the strongest and most powerful and longest lived of all windmills. Perfect mechanical construction accomplishes all this, the double gearing, an exclusive feature in the Samson, maktwo trains to transmit the power of the wheel to the pump, and doing away with the hard work and wearing out of the old style windmills. The Stover Mfg. Co. solicit an opportunity to send each of our readers their beautiful and valuable catalogue about the Samson windmill. A postal card with your name and address will get it.

STOCKMEN'S SUPPLIES.

We recommend our readers to procure without delay the new illustrated catalogue of F. S. Burch & Co. Their popular remedies are as widely known as they are appreciated.

A new feature of this house this year is their list of premiums to their customers, even so small an order as $5.00 carrying some free gift while on larger orders shearing machines, dipping tanks, and other useful and desirable articles may be obtained absolutely free or at greatly reduced prices according to the value of the order. This spirit of dividing profits with patrons is at once generous and wise. It will be much appreciated by present customers of this house, and we predict will bring them a large additional patronage.

When a man will deliberately, and without solicitation, write a letter like the one published below, in endorsement of a preparation, it is pretty good evidence of its worth and value. "Bickmore's Gall Cure, which you recommend so highly, has done the business. My horse had a chronic sore back of one year's standing. I had offered ten dollars repeatedly to anyone who would furnish a cure and let me drive him. I drove 25 days in May, and applied the cure before putting on the pad as directed, and the sore got better every day. You can not say too much for it. It is worth $10 a box to anyone who has a horse as mine was. Yours respectfully, R. S. BORRADAILE, Sodus Centre, N. Y." We have carried the advertisement of the Bickmore's Gall Cure in our columes from time to time for years, and in all that time we do not remember to have ever heard a single complaint against it or its manufacturers. See the advertisement and the guarantee on another page of this issue of our paper. Write them for sample and printed matter.

"THIRTY YEARS SELLING DIRECT."

This is the headline with which our friends the Elkhart Carriage and Harness Manufacturing Co., of Elkhart, Ind., announce their readiness for this season's campaign. To have been continuously in business for so long a time and all that time to have been selling direct to the consumer is in itself noteworthy and speaks louder than anything else of the high quality of their goods and their honorable and liberal methods in dealing with their customers. The Elkhart people make every vehicle and harness they sell and sell only to the consumer. Their catalogue is illustrated with large photographic views of the latest styles and will be sent free to any reader of this paper. Write today and address as above.

OLD FRIEMDS.

It's like meeting an old friend to pick up a piece of silverware of any kind anywhere, and find it stamped with the old reliable guarantee of excellence, "1847 Rogers Bros." It has taken more than fifty years of hard work and conscientious effort on the part of the manufacturers to make those words the indisputable guarantee which we all know them to be. The original and only "1847 Rogers Bros." silverware, "the silver plate that wears" is manufactured by the Meriden Brittania Company of Meriden, Conn. it affords us more than usual pleasure, because of the world renowned merit of the articles which they manufacture, to carry their advertisement in these columns. Readers will find the advertisement on another page of this issue, and we recommend its careful perusal. Considering the hundreds and hundreds of different designs, etc., it is not possible for the advertiser to name any specific article. The wise thing to do, therefore, is to write for their new book which contains all that is latest and best in knives, forks, spoons, etc. When you have decided upon the particular pattern and article that you wish, you can go to any reputable dealer and buy it with the absolute certainty of securing the best, for it will bear the well known stamp "1847 Rogers Bros.," and no better guarantee can be given by anybody. Our readers should be careful to look for the brand and insist upon finding it on every piece, for therein lays your security in buying an article of which most of us necessarily know so little. We throw out this precaution for the reason that most best things have spurious imitators, and in this case your safeguard is the old and original brand.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

An Undersized Bull.

I have a young bull, 10 months old, that is rather small for his age; was fed on hand separator milk and would not eat oats when young. He ought to be a third larger if he had done well; he is smart and eats oats this winter. Will his heifer calves make as good cows for milk as if he was big for his age? C. W.
Baraboo, Wis.

ANSWER.

The progeny of this bull are liable to do as well as any other, provided his blood lines are in that direction.

Caked Udder.

I have a cow that I fear will loose one quarter of her bag. In the first place the end of the teat scabbed over so that it was with difficulty that I could get any milk from that teat and in two days more the quarter caked hard and is very hot and inflamed. I also have a cow with sore teats and udder. The first I noticed wrong was her teats were rough and appeared to be chapped, and in a few days the teats were scabby and it soon worked up onto the bag and that was the same as teats only more so. It seems to be inclined to spread.

I would like to know when is the best time to feed grain, just before watering or just after, or would you prefer to feed it at some other time? I have never heard that matter discussed in the agricultural papers and by lecturers, but have often thought I would like some on the subject, also when is the best time to feed grain to a horse and the best time to give it water? A. O. K.
Bradford, Vt.

ANSWER.

The bathing and hand rubbing is very important. Milk her as often as possible and apply warm lard, rubbing it in well with the flat of your hands, or you may apply lanolin instead of lard.

We believe the start of the trouble is due to cow pox.

It seems to make no material difference in ruminating animals whether you water before feeding, or after, as the water in these animals does not enter the rumen in which the food is stored and afterwards returned to the mouth for mastication, but passes right into the second so that the water does not come in direct contact with the food which has been just swallowed. But in the horse it is different. The horse has only one stomach through which the water must pass as well as the food and if a horse is watered after eating it is liable to wash some of the food in the stomach (which is not yet prepared to leave that organ), into the bowels where it will act as an irritant to these organs and cause some of the most stubborn cases of colic. Therefore a horse should always be watered before feeding.

Hog Lice.

Please give me a remedy for hog lice, both on the hog and in the bed or house. W. S. B.

ANSWER.

Make a solution of one pint of creolin to four gallons of water and drench the hogs to the skin with this solution by using a spray pump or sprinkling can. As a rule but one application is necessary.

For the land's sake—use Bowker's Fertilizers. They enrich the earth and the men who till it.



GOMBAULT'S
CAUSTIC BALSAM

A safe, speedy and positive cure for

Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a **HUMAN REMEDY** for **Rheumatism, Sprains, Sore Throat,** etc., it is invaluable.
Every bottle of **Caustic Balsam** sold is Warranted to give satisfaction. Price **$1.50** per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address
THE LAWRENCE-WILLIAMS COMPANY, Cleveland, Ohio.



THE SPRING WORK

Above trade mark on every box.

is sure to bring sore shoulders. You need not lay your horse off a day if you use

BICKMORE'S GALL CURE.

It's the sovereign remedy for all **Galls, Scratches, Wire Cuts, Grease Heel,** etc. in horses. **Torn** or **Cracked Teats,** etc. in cows. Sold by local dealers everywhere, who are directed to refund money if it fails. Enclose us 10 cents for testing sample.
BICKMORE GALL CURE COMPANY, Box 515, Old Town, Me.



Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.
Used Exclusively at Model Dairy
Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ⅓ lb 50c, 1¼ lb $1.00, postpaid.
O. H. MFG. CO.,
Dept. H, Lyndon, Vt.

HOOD FARM
Abortion Treatment

Hood Farm Abortion Cure is proving the most successful remedy for this very prevalent trouble that we have yet seen.

After Abortion cows should be injected with Hood Farm Antiseptic Breeding Powder, which thoroughly disinfects, kills all germs and **makes cows breed.** Also successful where cows fail to clean and where they do not come in season regularly.

Hood Farm Abortion Cure, dollar size, prepaid to any railroad express point in the U. S., $1.25; $2.50 size, containing four times this quantity, $2.75.

Dollar size Breeding Powder, by mail $1.15; $2.50 size prepaid for $2.75.

Hood Farm Flexible Injection Tube, for administering the Powder, 75 cents; by mail, 90 cents. Address
C. I. HOOD CO., Lowell, Mass.
Mention this paper in ordering.

Dr. Rea's Cow Impregnator
MAKES BARREN COWS BREED.

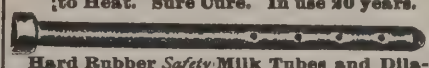


Photo showing Cow Impregnator in position. Neck of the womb is *medicated,* dilated and softened.
SEND FOR FREE TREATISE ON BARREN COWS AND TESTIMONIALS.
$2 buys one Cow Impregnator
$5 buys five Cow Impregnators
Mailed on receipt of price. Sold only by
Dr. Chas. L. Rea, 220 East 32d St., New York.
DR. REA'S BLACKLEG VACCINE
Positively Prevents Blackleg. Treatise free.



ABORTION
Can be successfully treated with **Anti-Abortion Serum.** Easily administered and permanently cures. Information free.
DR. ROBERTS
VETERINARY REMEDY CO.,
1514 Grand Ave., Waukesha, Wis.

ABORTION,
Failing to Breed and to bring Cows to Heat. Sure Cure. In use 20 years.



Hard Rubber *Safety* Milk Tubes and Dilating Plugs to cure hard milkers and a teat **Bistoury.** Send for testimonials.
Dr. WM. HORNE, Janesville, Wis.

ABORTION,
Retention of Placenta and Failure to Breed.
KELLOGG'S CONDITION POWDER
is a positive cure for these diseases. Write for circular containing full information, references and price.
H. W. KELLOGG COMPANY, St. Paul, Minn.

"SAVE-THE-HORSE"
TRADE MARK
SPAVIN CURE



POSITIVELY AND PERMANENTLY CURES bone and bog spavin, ringbone (except low ringbone), curb, thoroughpin, splint, capped hock, shoe boil, weak and sprained tendons and all lameness.

——FOOL TALK——

About 35 years ago a young mechanic called on old Commodore Vanderbilt, then head of the New York Central Railroad, in an effort to secure a trial on a New York Central train of a new device for stopping trains by compressed air.

"Air!" the Commodore is said to have exclaimed. "Air! Stop a train with air! I've not time to listen to such 'fool talk,' young man," and he didn't. Neither would anyone else for many a long day

George Westinghouse, for he was the man of the "fool talk," believed in himself and the utility of his invention. He kept right on in spite of Commodore Vanderbilt and the others till he forced recognition. Would a man trust himself aboard a passenger train today if he knew that train was not fully equipped with Westinghouse's invention—the air brake? It is said that Vanderbilt's road had some difficulty in getting it when finally it was wanted.

Many a man says "fool talk" when he reads the claims made for "Save-the-Horse" spavin cure, but the dawn of enlightenment is as certain as the rising of the sun, and the man who says "fool-talk" after reading the facts so plain and convincing as given by us, reaffirmed by the letters published in these columns every week, and in our booklet, is repeating Commodore Vanderbilt's mistake. No man need be in doubt as to what "Save-the-Horse" spavin cure can, and cannot, do. If you have a case different from what are described in booklets and advertisements, send us full particulars as to the age, location, cause of the lameness or swelling, the horse's action, previous treatment, and also the veterinarian's diagnosis, if you know he is competent, and we will tell you frankly as to the possibilities of our remedy. Write for booklet and copy of guarantee and any information desired.

Heed this:—
Work horse continuously if desired.
"Save-the-Horse" cures without scar, blemish or loss of hair.
Contains no arsenic, corrosive sublimate or other form of mercury or any ingredient that can injure the horse. $5.00 PER BOTTLE.
Written guarantee with every bottle.
There is no condition or arrangement we can make more binding to protect you than our guarantee.
NEED OF SECOND BOTTLE IS ALMOST IMPROBABLE EXCEPT IN RAREST OF CASES.
$5.00 at all druggists' and dealers', or express prepaid.
TROY CHEMICAL CO., Troy, N. Y., manufacturers.
Also Veterinary Pixine, for grease heel, scratches, speed cracks, cases where ulcerations extend, with transverse cracks which open at every step and often bleed, no matter how complex, aggravated, deep seated or chronic; if treated according to directions, as given on circular with every box, positively cured.
KEEPS HOOFS HEALTHY, SOFT AND IN PERFECT FORM.
Heals collar and saddle galls, hopple chafes, abscesses and all skin diseases.
Two oz., 25c.; 8 oz., 50c.; 5 lb., $4; all druggists and dealers, or sent prepaid.

ANTITOXIN
For the Cure and Prevention of Milk Fever.
No quackish humbug but a scientific fact. Works on same principle as antitoxin injection in man for diphtheria, destroying poison in system. Out of 110 cases treated in Portland, Mich., 109 recovered last year. Easily administered with a syringe. Inexpensive. Write for particulars to
DR. W. E. A. WYMAN, V. S., Prospect, Ohio.

BLACKLEGOIDS
BEST PREVENTIVE OF BLACKLEG.



Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each **Blacklegoid** (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. **Blacklegoids** are sold by druggists; *ask for them.*
Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.
PARKE, DAVIS & CO. - DETROIT, MICH.
Branches: New York, Kansas City, Baltimore, New Orleans, Chicago; Walkerville, Ont.; Montreal, Que.; London, Eng.

BARREN COWS CURED.
Our treatment has been used successfully since 1878 in every state in America, Canada and Great Britian. Write for Pamphlet.
MOORE BROS., Veterinary Surgeons, Albany, N. Y.

CURE "THE" COW
NO CURE, NO PAY



WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address
DR. EATON J. CROSS,
152 Congress St., Troy, N. Y.

Moldy Silage.

ED. HOARD'S DAIRYMAN:—In issue of March 13, page 103, J. M. M. & S. had trouble with moldy silage. Being a student of seven years' experience with three silos I would suggest that 23 feet is a little too low for the best results in silos, and to overcome this, either cut the corn a little greener, use more water, or cut it in shorter lengths, or do some of all, is probably better. If a cutter with blower can be secured it will almost pulp the corn. This year seems a peculiar year on silage, and most silos have some mold. The stalks appear to be more porous than usual, owing possibly to the excessive rains while growing.

If J. M. M. & S. had used no water this year, they would have found it much worse. The blower would be my first effort, with a little earlier cutting and wetting quite thoroughly, especially the top, as I presume that has the most mold in it. Last put not less than 20 barrels water on it after full, packing it well.

Butler Co., Ohio. P. CLAWSON.

Alfalfa Seed.

From which crop of alfala can we raise the seed? Is it the 1st., 2nd., 3rd. or 4th. crop? I cut my alfalfa 4 times last year and the 5th crop was very good but it was too late to cure it right and pasture it. S. H.

Crystal City, Mo.

Alfalfa seed should not be taken from the first crop as the flowers like clover, have not been fertilized and will not develop a profitable amount of seed. The second crop is usually best adapted for seed production.

"Haecker's Standard."

In the number of the DAIRYMAN for Feb. 12th, 1903, there is an article on "Feeding a cow 12 months," and in it there is made mention of Haecker's standard being used. Would like to know if that is a book or printed formula for feeding cows. If so, would like to purchase one.

Littleton, Col. M. R. H.

See the article, "Principles of Animal Nutrition," on page 102.

Two Lives of a Wagon



for one if the wheels would hold out. If yours are about spent don't fritter money away in repairs. Make a new wagon out of the old gears with

Electric Metal Wheels.

That settles the repairs, and you have the modern **Low Down Handy Wagon.** Wheels that are all strength, good for 4,000 lbs. burden. Straight or staggered oval steel spokes and broad tires. There's no drying out, no rutting, no breakdowns. Light draft and light labor. Made to fit any axle.

Write for illustrated Electric Wheel Catalogue. **Mailed Free.**

ELECTRIC WHEEL CO., Box 130, Quincy, Illinois.

A Handsome Book

About Mandolins, Banjos and Guitars, Free.

Any one interested in the subject of mandolins banjos and guitars can obtain a beautiful book about them free by writing to Lyon & Healy, Chicago. It contains portraits of over 100 leading artists, together with frank expressions of their opinion of the new model Washburn Instruments. Descriptions and prices of all grades of Washburns are given, together with "Facts about the Mandolin" and "How to Play the Mandolin."

LYON & HEALY,
100 Adams St., Chicago, Ill.

Washburns are sold by leading music dealers everywhere.

OUT THEY GO

The crowds are going to **Morton County, North Dakota**; rich black soil, clay subsoil, producing heavy crops—where **corn grows.** Excellent water, 10 to 30 feet deep. **Coal is Free.** Stock feeding only about six weeks in the year. **Our Creamery** butter brings Elgin prices. We own 175,000 acres and sell farm lands for $7 to $12 per acre; grazing lands $4 to $7. **Free Homestead** lands adjoining. 9,000 people now in County. Healthiest climate. Write for facts and maps.

Wm. H. Brown & Co.

Mandan, N. Dakota, or 181 La Salle St., Chicago.
(Where did you see our Ad?)

The Maule Seed Book

for 1903 is free to all interested in gardening who mention this paper. If you want an up-to-date garden you ought to have it, the best seed catalogue I have ever published. The first edition alone costs over $37,000. Address

WM. HENRY MAULE,
1711 Filbert Street,
PHILADELPHIA, PA.

HARDWOOD TIMBER LANDS

from which the older trees have been cut but mostly covered with a fine growth of young timber, located in Marathon County, Centra' Wisconsin, are now offered for sale by us on most favorable terms to actual settlers.

This is some of the very best hardwood agricultural land in this state, with a deep, clay loam soil, gently rolling, with water easily obtainable at from 16 to 24 feet.

There is no better land for grain, grasses pastures, oats, peas, fruits or livestock, etc. Particulars will be furnished promptly on application.

RIETBROCK LAND AND LUMBER CO., Athens, Wis.

The LAGUNA de TACHE GRANT

Laton, Fresno County, proves to be an Ideal Home for Farmers and

DAIRYMEN

60,000 ACRES OF IRRIGATED LAND IN THE

HEART OF CALIFORNIA

Alfalfa a specialty. Creameries on the Estate. Ample Railroad Facilities. Land Sold on Easy Terms in Small or Large Lots.

WRITE THE MANAGERS

404 GREAT NORTHERN BUILDING.....CHICAGO.

Now is the Time Go West!

Cheap Railroad Tickets

From February 15 to April 30 we shall sell tickets to California and the North Pacific Coast, also to many intermediate points such as Helena, Butte, Spokane and Salt Lake City, at greatly reduced rates. Only $33, for instance, from Chicago to California or Puget Sound; $30.50 to Spokane; and from St. Louis and other places in proportion.

This is Your Opportunity

Why should you not go out and see the country? It costs so little and you can easily see what an education it will be for you to take such a trip. The Northwest, in particular, is full of interest. A visit to that country may be the turning point of your life. Send to me for our folder giving full information about how to go, about the trains and rates, and our comfortable tourist sleeping car service.

Burlington Route

P. S. EUSTIS, Passenger Traffic Manager,
Chicago, Burlington & Quincy Ry. Co.,
705 209 Adams Street, Chicago.

Fine Dairy Farm for Sale.

Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence, cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. T. S. TOMPKINS,
Pasadena, Cal.

160 ACRE FARMS IN WESTERN CANADA FREE

Western Canada

The Vast Areas of this Remarkable Agricultural Country are attracting more attention than any other District in the World.



"The Granary of the World."
"The Land of Sunshine."
The Natural Feeding Grounds for Stock.
Area Under Crop in 1902—1,987,330 Acres.
Yield 1902—117,922,754 Bu.

Abundance of water. Fuel plentiful. Building material cheap. Good grass for pastures and hay. A fertile soil, a sufficient rainfall and a climate giving an assured and adequate season of growth.

Homestead Lands of 160 Acres FREE.

The only charge being $10 for entry. Close to Churches, Schools, etc. Railways tap all settled districts. Send for Atlas and other literature to Superintendent of Immigration, Ottawa, Canada; or to the authorized Canadian Government Agent—

T. O. CURRIE,
12 B. Callahan Bldg., Milwaukee, Wis.
J. M. MacLACHLAN,
307 Third Street, - Wausau, Wis.

200 ACRE DAIRY FARM
—FOR SALE—

Good land, well improved and plenty of timber Have 25 cows and a milk route which takes all the milk produced. It is within 2 miles of Hastings. For full particulars address Lock Box 237, Hastings, Mich.

FARM FOR SALE 50 Acres in Portage Co., Wis.

House, barn and other buildings, 40 acres under plow, horses, machinery, tools, etc. included. Price $2000. Write to HILES & MYERS, C-100, Mack Block, Milwaukee, Wis.

Cash for Your Farm

We can sell your farm, home or business quickly for cash, no matter where located. Send description and we will show you how. Offices in 16 cities. Established 1893. A. A. ROTTNER & CO., 739 Real Estate Trust Building, Philadelphia, Pa.

GREEN **RAPE** costs 25 cents per TON!

Greatest, Cheapest Food on Earth for Sheep, Swine, Cattle, etc.

Will be worth $100 to you to read what Salzer's catalog says about rape.

Billion Dollar Grass

will positively make you rich; 12 tons of hay and lots of pasture per acre, so also Bromus, Pencat, Spelz (400 bu. corn, 250 bu. oats per acre), etc., etc.

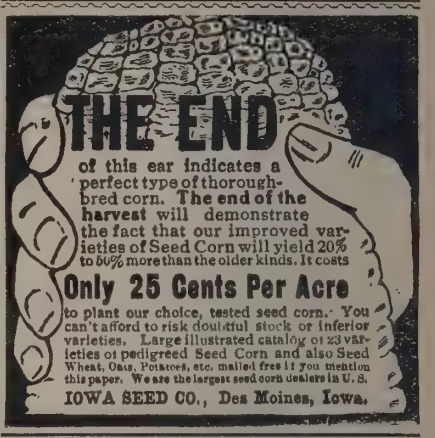
For this Notice and 10c.

we mail big catalog and 10 Farm Seed Novelties, fully worth $10 to get a start.

For 16c. we mail 150 kinds of Flower and Vegetable Seeds and catalog.

JOHN A. SALZER SEED CO., LA CROSSE, WIS.

THE END



of this ear indicates a perfect type of thoroughbred corn. **The end of the harvest** will demonstrate the fact that our improved varieties of Seed Corn will yield 20% to 50% more than the older kinds. It costs

Only 25 Cents Per Acre

to plant our choice, tested seed corn. You can't afford to risk doubtful stock or inferior varieties. Large illustrated catalog of 23 varieties of pedigreed Seed Corn and also Seed Wheat, Oats, Potatoes, etc. mailed free if you mention this paper. We are the largest seed corn dealers in U. S.

IOWA SEED CO., Des Moines, Iowa.

GOOD SEEDS CHEAP.

Best in the World.

None so low in price. Largest illustrated seed catalogue ever printed, FREE. Engraving of every variety. Price only 1 cent per pkg, and up. A lot of extra packages, rare sorts, presented FREE with every order. Send name and address by card or letter.

R. H. SHUMWAY, Rockford, Illinois.

Mention this Paper.



EVERGREENS

Hardy sorts, Nursery grown, for windbreaks, ornament and hedges. Prepaid, $1 to $10 per 100—50 Great Bargains to select from. Write at once for free Catalogue and Bargain Sheet. Local Agents wanted.

D. Hill, Evergreen Specialist, Dundee, Ill.

$28 FREE

FOR A TESTIMONIAL

You can have ripe tomatoes June 15th, ripe melons July 1st, new potatoes and cucumbers May 15th. All other vegetables or flowers as early by using Gold Mine Hot bed. It protects all kinds of plants from frost, cold raw winds and storms. Keeps off the bugs, insects, cutworms. Stimulates plant life in such a manner as to make them grow three times as fast. Indorsed and recommended by every agricultural paper in the United States, and by every farmer that has used them. There is not a Tool or implement that the farmer buys that will bring him in as large returns each year as this. It will pay for itself forty times a year, with proper usage.

We have reduced the price from $1.50 per dozen to 85 cents, for immediate acceptance. Sold on the same guarantee to give satisfaction as plows, binders, and mowers are sold, or money refunded. When you find they are better than you expected them kindly send us a testimonial. Next year you will want more of them; we will reciprocate your kindness with a present.

We will give 200 Gold Mine Hot Beds to the person sending in the best report; 100 for second best; 50 for third; value $28, and pay all charges to destination. Premiums paid in November. Points considered—Earliness yield, amount of money made, with one dozen. Please do not delay your orders.

Reference by permission: Commercial Bank, Greentown.

W. M. WOODWORTH, Greentown, Ind.

EGGS FOR HATCHING

I can serve you better than ever with eggs fo hatching. White, Barred and Buff Rocks, Cornish Indian Games, Dark Brahmas and many other varieties. Also Ducks and Geese. All prize winners. Write for prices. J. P. Gonigam, Ottawa, Ill.

200,000 ACRES TO SELECT FROM

We own 40,000 acres in Red River Valley, in Marshall and Kittson Co's, Minn. and in Walsh and Grand Forks in N. D. 15,000 acres in LaMoure, N.D. Fine stock ranches in Logan and Mercer Co's, N.D. 50,000 acres of Timber land in Aitkin Co. Minn., and Washburn Co., Wis. Also 15,000 acres in Southern Minn. in Lyon and Redwood Co's, near Marshall.

WRITE FOR OUR MAPS. We can give you a farm from $5.00 to $50.00.

BURCHARD-HULBURT INVESTMENT CO.
705-7 Manhattan Bldg. ST. PAUL, MINN.

Mr. S. E. McNair of Livingston County, New York, asks for a report from dairymen who have had some practical experience in soiling cows through the entire summer. He has read Peer's work on Soiling, but is not quite satisfied. Short, crisp reports on this subject would be very timely just now, especially from those who have been successful to a greater or less degree. It is no particular objection to "soiling" cows that three out of five, who have tried it, have not been satisfied, provided the other two have been successful, the presumption in such cases being that the failures were due, not to the system, but to the inefficient manner in which it was practiced.

Alfalfa in Canada.

Ed. Hoard's Dairyman:—Do you think I could raise alfalfa in this Canadian climate. I have some ground on the east side of a hill, where the snow always lies deep so that it almost never freezes and the soil seems very strong, as some of it has been bearing timothy for nearly ten years and still cuts a fine crop. If you think this would be suitable for alfalfa, would you please tell me how to prepare the ground, when to sow, how much seed will be required per acre, where it can be obtained, and at what cost? Would you tell me also if it will raise a crop the first year or would I need to sow some kind of grain with it? E. B.

East Bolton, Que.

The Ontario Agricultural College distributed alfalfa seed for several years to farmers throughout Ontario and found that in some localities it was quite successful and in others it was a failure. The failure seemed to come from poor seed, winter killing and improper soil. This shows that alfalfa can be grown in Canada under proper conditions. We do not know enough regarding your local conditions to say positively that you can grow it, but would advise a trial on a small scale this year. The seed will cost 10 or 12 cents per pound and you will find directions for sowing and the preparation of the ground in recent numbers of the Dairyman.

Dairy Returns in Oregon.

Ed. Hoard's Dairyman:—Having seen very little from Oregon, I thought I would let you hear from an amateur dairyman. I started two years ago with 4 cows. I first got me an Empire cream separator, 400 lbs. capacity. Then I subscribed for Hoard's Dairyman, then I got Henry on Feeds and Feeding, and Woll on Soiling and Silo. Then I got me a pair of scales and weigh every pound of milk each cow gives at each milking, and set it down on tablets to the credit of each cow, and weigh every bit of feed she eats and charge same to her, so I know just what each cow is doing all the time. We sell our cream, what we don't churn for our own use.

Two years ago, I built me a round silo, 12 ×27 feet and filled it with clover, and it was first-class silage too. Last year I filled it with clover and fed through the summer, and in fall refilled with corn, but liked the clover the best. The cows ate the clover better than they did corn and gave more milk and the cream tested higher. Now I will tell you what my cows are doing. Last year I milked 6 cows, and family and hired hands made 8 grown persons all the time, and haying, silo filling and harvesting a 200-acre farm, took lots of butter. We sold $363.09 worth of butter and cream anyway. This year we are milking 7. In the month of February we sold (one of my cows is 2 years old and one 15 mos.)

7 cows.

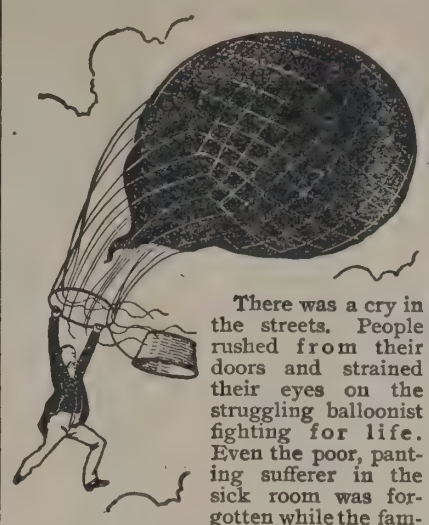
2 qts. whole milk each day, 5 cents	$2.80
1 pt. cream	2.30
Cream check from creamery 233 days	45.15
Cream churned 4½ days	7.26
3640 lbs. skim milk	5.48
Total	$62.99

FEED PER COW.

7 pounds ground oats and barley	$.07
1 pound oil meal	.015
35 pounds clover silage	.02
10 pounds hay	.03
Cull potatoes	:015
Total fed	$0.15
15x7 equals total one day	1.05
28 days equals	29.40
Clear profit	$33.59

J. M. W. Bonney.

Woodburn, Oregon.



There was a cry in the streets. People rushed from their doors and strained their eyes on the struggling balloonist fighting for life. Even the poor, panting sufferer in the sick room was forgotten while the family gazed breathless at this strange tragedy of the air. Then they went back to the sick room to tell of the terrible struggle for life they had just witnessed. It did not occur to them that under their very eyes a more terrible, more pathetic struggle was going on daily.

There can be nothing more pitiful than the struggle the consumptive makes against disease. The greatest help in this struggle is gained by the use of Dr. Pierce's Golden Medical Discovery. It cures obstinate coughs, weak and bleeding lungs, emaciation, and other ailments which if neglected or unskillfully treated find a fatal termination in consumption.

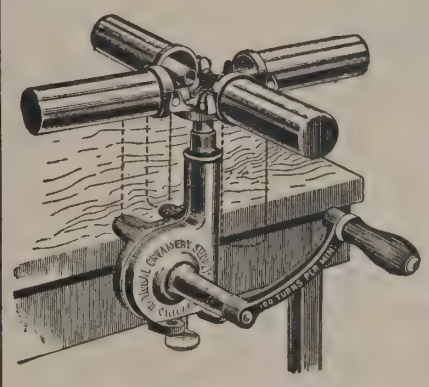
"In 1898 one of my daughters was suffering on account of a severe cough, hectic fever, wasting of flesh and other symptoms of diseased lungs," writes Rev. Joseph H. Fesperman, of Barium Springs, Iredell Co., N. C. "I promptly gave her Dr. R. V. Pierce's Golden Medical Discovery with gratifying success, and she now enjoys excellent health. This being true, I hereby heartily endorse your medicines."

Accept no substitute for "Golden Medical Discovery." There is nothing "just as good" for diseases of the stomach, blood and lungs.

Dr. Pierce's Pleasant Pellets assist the action of the "Discovery."

NATIONAL

Babcock Milk Tester



Dotted Lines show position of bottle holders when not in motion.

Has enclosed cut gears.
Swinging bottle-holders.
Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

DOES YOUR DAIRY PAY?

It costs no more to feed a profitab than an unprofitable cow.

NET PRICES:

No. 1,—2 bottle, complete for testing milk.... each	$4 00
No. 2,—4 bottle, complete for testing milk.... each	5 00
No. 3,—2 bottle, complete for testing cream and milk, each	4 50
No. 4,—4 bottle, complete for testing cream and milk, each	5 50

Prices include full directions for making test, bottle of acid, test bottle brush, acid measure, pipette and test bottles.

We are the great Dairy Supply House of the West. We carry an immense stock of all kinds of Butter and Cheese Making Apparatus and Supplies. Write for catalogues and circulars.

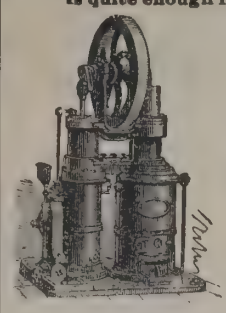
National Creamery Supply Co.,

450-458 Illinois St.,
CHICAGO, U. S. A.

$45 WKLY. selling ACME PUMP GOVERNORS. They make all pumps work easy and fit all kinds (iron or wood.) Mills run with ¼ less wind Agents Exclusive territory. Its Merits sell it PUMP GOVERNOR MNFG. CO. (E) 40 Dearborn St., Chicago, Ill.

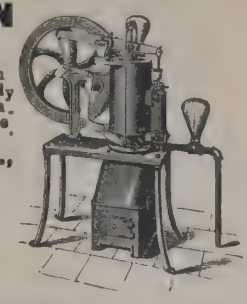
HALF ENOUGH WATER

Is quite enough for some people, but most people want water every day. If



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Are used you can have water every day in th year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.



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692 Craig St., MONTREAL, P. Q.
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Teniente Rey, 71 HAVANA.
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PLANO

TIES EVERY SHEAF

Why bother with a "cheap" or worn-out Binder when a PLANO will save temper, time and team?

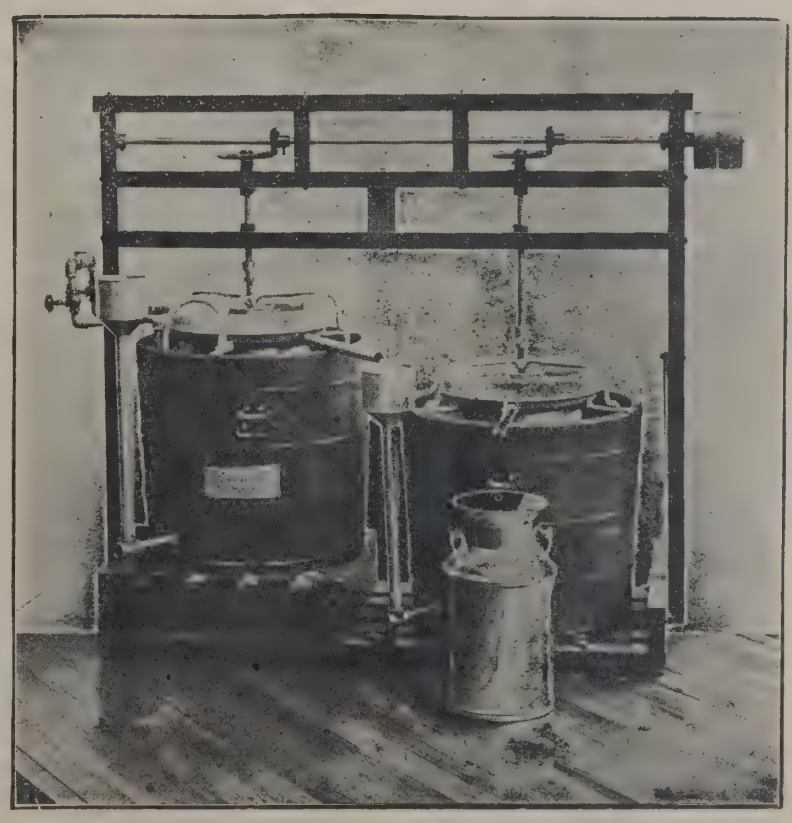
The Plano Binder holds the highest record ever made for accurate tying; its famous Knotter (composed of only 16 pieces—about half the usual number) has actually tied 391,000 bundles without missing one, and ties harvest after harvest without a miss.

Built to work well under trying circumstances, the Plano Binder handles ordinary crops with greatest ease. The stored power of its patent Fly Wheel prevents miring or choking down—makes the draft uniform and light.

If you want a Binder, Header, Reaper, Mower, Rake, Sickle Grinder, or Husker and Shredder, call on the Plano agent. Catalogue free.

PLANO DIVISION
International Harvester Co. of America
CHICAGO, ILL.

A GREAT SUCCESS.



The Miller Cream Pasteurizer has a capacity of from 450 to 600 lbs. per hour.

Price $150 in Tin. $200 in Copper.

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CANTON, OHIO.

AN ACRE OF CORN

and its possibilities under the Silage system—being the theme of

"A BOOK ON SILAGE"

By Prof. F. W. WOLL

of the University of Wisconsin. Revised and up-to-date, neatly bound into a volume of 234 pages. Itembraces fullinformation from planting to feeding the crop, and includes working plans and specifications for building allsilos. Also embraces:

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And illustrations and complete plans for round and rectangular silos, dairy barns, tables of compounded rations, etc. **Mailed for 10c.** coin or stamps.

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Ensilage Cutters, with Blowers or Cham Carriers. Ensilage and Stalk Shredders. Tread Powers, all sizes from dog or sheep to 3 horse. Sweep Powers. Threshing Machines. Circular and Drag Saw Frames.

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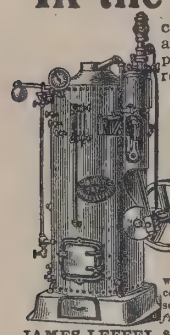
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Light Draft, High Lift, Powerful Lifting Spring; Boy can handle it. Patented Stop carries the plow and lightens draft. Shipped in crate, set up and sharpened ready for use. Spring Clevis eases draft and saves harness. Automatic Lock on rear wheel. Celebrated "Garden City Clipper" bottoms used.

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In the Creamery,



cheese factory, on the farm or anywhere else, and for all purposes there is no power so reliable as a

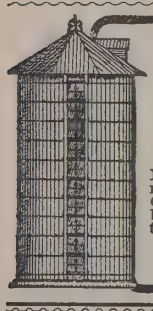
Leffel Engine.

Simplest in construction, makes them easiest to run and keep in order. Being easy steamers they require the minimum of fuel, and develop highest power.

Upright or Horizontal

with engine on boiler, or separate. Unexcelled for cutting, grinding, pumping, sawing, separating, churning, etc. *Book on Power free to intending buyers, stating wants.*

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Made of selected lumber, by skilled mechanics and special machinery. Continuous hoops—airtight—the best and cheapest. Write for illustrated catalogue and information.

ECONOMY SILO AND TANK CO.
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Farmers, write for our prices and club discounts. Agents wanted everywhere.

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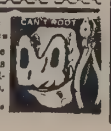


ROUND SILO.
...THE...
"PHILADELPHIA"

The only Perfect, Continuous Open Front Silo made. See open top patent roof. Ask for catalogue.

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321 Vine St., Philadelphia, Pa.
Also made in the West by
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NO HUMBUG. Three in One.



Swine V, Stock Marker and Calf Dehorner. Stops swine from rooting. Makes 48 different ear marks. Extracts Horns. Price $1.50. Send $1 for trial. If it suits, send balance. Pat'd May 6, 1902. Hog and Calf Holder only 75c.

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The Only Double-Gear Mill, Frictionless, Noiseless, Perfect as a Watch, and Works In Any Wind

Every man who is about to install a new windmill, or replace an old one, should familiarize himself with the workings of the **Samson Double-Gear Windmill.** Its actual work all over the world demonstrates that it does four times the work of all old style machines, and lasts twice as long. It works perfectly in the heaviest wind, or under the gentle pressure of the summer zephyr. Try to ride a bicycle up-hill, using only one pedal to propel it. You are doing the work of the old single-geared mill. It's a strain on you, and on the machine. It's slow work. Now try the same hill, using both pedals, and you will understand the principle of the **Samson Double-Gear Mill,** and why it is the most **reliable** and **economical** mill made.

WHAT THE DOUBLE-GEAR IS

This feature alone places the **Samson** in a class by itself. It consists of two (2) gearings engaging each other, making two (2) trains to transmit power to the pump. The entire mechanism is ingeniously simple, giving the least resistance or friction and precluding the danger of strain on any part. The gear case has four (4) bearings or points of contact, giving great rigidity and strength to the operating parts. The weight of the wheel is borne squarely by a long bearing within its own hub. Every part is specially contrived to withstand sudden and violent storms, to distribute weight, and minimize wear. The tower, sails and vane are constructed of rust-proof galvanized steel.

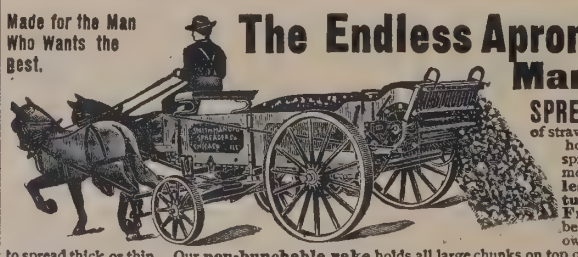
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THE STOVER MANUFACTURING CO., Box P, Freeport, Ill.

Made for the Man Who Wants the Best.

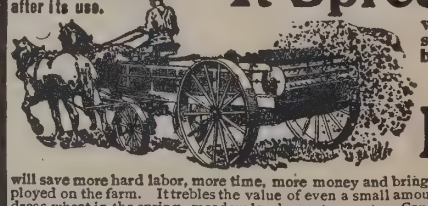


The Endless Apron Great Western Manure Spreader.

SPREADS and **pulverizes** all kinds of manure, fresh, well rotted, mixed, full of straw or cornstalks, sheep manure. No matter how tough, we guarantee our spreader to spread it so evenly that one load will do more good than three spread by hand. **Endless Apron** is always ready to load. **No turning back** after each load is spread. **Front wheels** cut under and machine can be turned in its own length. **REGULATED** motion to spread thick or thin. Our **non-bunchable rake** holds all large chunks on top of beater until they **are thoroughly pulverized. Combined Hood and End Gate** keeps manure away from beater while loading and acts as wind hood in spreading. **LIGHTEST DRAFT** ever produced on a manure spreader, because front and rear wheels track and the load is nearly equally balanced on front and rear axles which brings load up close to horses. **Send for free illustrated catalogue** giving full description and how to apply manure to secure best results. **Saves time, labor, money.**

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It pays for itself on the first crop grown after its use.



It Spreads Manure,

wet, dry, lumpy, caked, strawy, full of corn stalks, etc., better than it can possibly be done by hand. Spreads lime, ashes, salt, compost, etc.

THE IMPROVED

Kemp Manure Spreader

will save more hard labor, more time, more money and bring about better results than any other machine that can be employed on the farm. It trebles the value of even a small amount of manure. It is the only thing that can successfully top dress wheat in the spring, meadow lands, pastures, etc. Can be hauled onto any land easily and without injury to land, as wheels have broad tires. Can be turned on the ground it stands on, as front wheels turn entirely under. It is strong and durably made of good material and with ordinary care will last indefinitely. Greatly improved for 1903. Send for new illustrated catalogue and "How to Grow Big Crops"—Free. Remember that the only original and genuine Kemp Manure Spreader is made by us and the patents thereon have been fully sustained by a recent decision of the U. S. Circuit Court.

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The Price is Right Too. Known the World Over.

FARMERS' $125 SAW MILL

Cuts 2000 Feet Lumber a day with only 4 h. p. DeLoach Variable Feed Saw Mills, 4 to 100 h. p., any price. DeLoach Mill Machinery, Planers, Shingle, Lath and Corn Mills, Water Wheels, etc. DeLoach Mill Mfg. Co., Box 801 Atlanta, Ga.

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Careful Farmers

—careless ones will not be interested—should keep a barrel of Conservo on hand all the time. It will prolong the life of every stick of lumber on the place, and save dollars for every penny that it costs. Two cents' worth will make a fence post last years longer; five cents' worth will protect a sill, etc. It sinks into the wood, and prevents wet or dry rot. A scientific money saver. Send for our circular; it will pay you to investigate

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They are *free.* Send postal card,

GERMAN KALI WORKS
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Appleton-Goodhue Wind Mill.

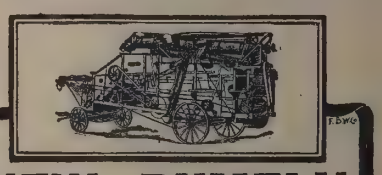
A full wheel with double arms of heavy channel steel, engine way guide, self-oiling boxes, covered gears, a perfect governor, a noiseless brake, etc. Prices right.



Towers guaranteed against cyclones and tornadoes.

Illustrated Catalogue describing them and our famous grinders, cutters, shellers, wood saws, huskers, horse powers, etc., **free.**

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exemplifies all that is best in the threshing machine maker's art. Nothing approaches it for him who makes threshing a business. It threshes, cleans, saves for the farmer, makes money for its owner and has the speed and durability. Threshermen should investigate the Wind Stacker, Self Feeder and other attachments and features which mark the Rumely as the prince of threshers. Write for the Rumely catalogue before buying. Mailed free.

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"Bellise,"	complete	**$8.75**
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DO NOT BUY a bicycle until you have written for our free catalog with large photographic engravings and full descriptions.

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Butler's Cart

It is just the thing for milk cans, barrels, boxes, baskets, sacks and a hundred other things. It is strong, neat, practical; does the work of all other carts combined.



Sold direct to you at the right price.

For circulars address

BUTLER MFG. CO., Kensett, Iowa.

A SIGNIFICANT COMMENT.

Mr. C. M. Sanders, of Penfield, Ga., in writing a business letter to the DAIRYMAN says:

"I have been trying to induce some of my neighbors to take the DAIRYMAN, but I find that the most of them who are successful dairymen are already subscribers to it and the others do not seem to need any help."

Dairy Statistics in the United States.

ED. HOARD'S DAIRYMAN:—I gather from the last United States census reports (1900), the following of interest to dairymen.

The number of farms in Illinois..... 264,151
The number of farms in Illinois reporting dairy cattle..... 230,625
The number of cows reported in Illinois. 1,007,664
The value of their products.....$29,638.619
or about twenty nine dollars per cow.

The Illinois cows average only 454 gallons of milk, or 3,850 lbs. for each cow per year.

I find the ideal cow gives 2,754 lbs. of milk in thirty days.

I find Kansas cows average less than twenty dollars per cow, also Nebraska and South Dakota.

	Cows.	*Product.*	*Ave. per cow.*
Iowa.....	1,423,648	27,516,870	$19.30
Minnesota.....	753,632	16,623,460	23.00
Vermont.....	270,194	9,321,389	36.00
New York.....	1,501,608	55,474,155	37.00
New Hampshire...	115,036	5,591,272	55.00

I find in our own state the three principal counties are:

	Farms.	*Cows.*	*Value product.*	*Ave. per cow*
Mc Henry.....	2,598	52,593	$2,243,974	$48.00
Cook.....	4,491	35,030	1,585,252	44.00
Kane.....	2,163	42,744	2,177,289	50.00

It is generally accepted that it costs thirty dollars and over to feed an ordinary cow one year.

In Mr. Gurler's work of testing and keeping records for one year of over three hundred cows, he finds the extremes to be:—One cow charged $2.07 to make 100 pounds of milk, or 52 cents for one pound of butter fat. The best cow, 29 cents for 100 pounds of milk, or 6 6-10 cents per pound of butter fat and the H. B. Gurler herd averaged a net profit of twenty six dollars per head over and above the cost of feed.

Dairymen! Study these figures, then weed out the poor, unprofitable cows, and take better care of and feed a more balanced ration to those that pay a profit. JOSEPH NEWMAN, President Illinois Dairymen's Association.

Elgin, Ill.

Alfalfa in Washington.

ED. HOARD'S DAIRYMAN:—I notice in issue 27 ult., page 56, inquiry by F. W. T., North Jackson, Ohio, about alfalfa. This is our main crop here, and we have it on every foot of land where it will grow. We find that a sandy loam, with gravel subsoil, is the typical land for this plant. One thing it does not like, and that is wet feet. It will not live where water stands within two or three feet from surface. As the plant sends down a very strong tap-root (I have seen them 9 or 10 feet long) it soon gets a good hold and must be a great feeder.

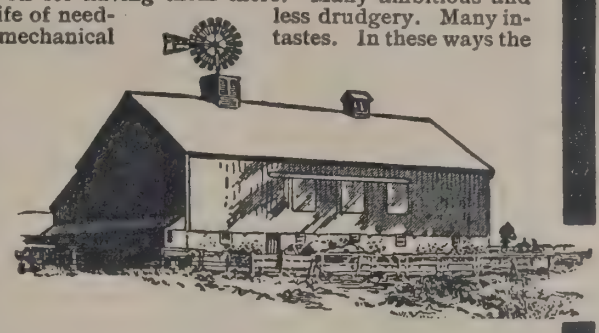
From what I have seen in this state and California, I would not hesitate to try it on any land with good, natural drainage, even pretty heavy clay.

We have some trouble here with its winter killing when we have very cold weather and no snow on the ground to protect it. With us it will stand any drouth, even 8 months, after it gets one year old; it will not do it first year.

Mission, Wash. S. C. H.

KEEP THE BOYS ON THE FARM

Don't let drudgery drive the boys away from the farm. You need them. They need you. They will be better off on the farm. The country will be better off for having them there. Many ambitious and capable boys leave the farm for the city to escape a life of needless drudgery. Many ingenious boys go to the city workshops to satisfy their mechanical tastes. In these ways the country every year loses to the cities thousands of its brightest and most capable boys.



But you can't blame the boys. The boy never yet lived who enjoyed turning the grindstone for two straight hours. There is no particular fun in turning a corn sheller for that length of time. The fodder cutter comes in the same class. It is a mighty disagreeable job to chase a pair of horses around an old sweep power every time you want to grind a little feed for the stock. But when it comes to pushing a buck saw through ten cords of hard wood — well, who can blame the boys for getting sick and tired of farm life? The boy is foolish who grinds his life out with useless drudgery.

AN AERMOTOR DOES THE WORK, THE BOYS HAVE THE FUN

Modern devices and improved machinery will take away from farm life nine-tenths of all its drudgery. A power Aermotor erected on the barn will grind the grain, shell the corn, cut the fodder, saw the wood, turn the grindstone and pump the water. It will do more than this. It will give the boys a chance to develop their mechanical ability. There is something wonderfully fascinating in the whir-r-r and buzz of machinery. Where is there a good healthy boy who doesn't enjoy shoving a hickory stick up in front of a circular saw? The sound is music to his ears. A power Aermotor, an Aermotor Steel Frame Saw and three boys will saw ten cords of wood in a day. The boys will enjoy it, too, from start to finish. The next day the Aermotor will be ready to shell 300 bushels of corn. It will grind 100 bushels at the same time, and not require 15 minutes attention for that part of the work.

AN AERMOTOR GRINDER TAKES CARE OF ITSELF

The Aermotor Grinder is a marvel of simplicity and efficiency. It is built with a centrifugal feed, which regulates itself perfectly to the velocity of the wind. It will take the grain as fast as the mill will grind it, and no faster. Build a good, big hopper above the grinder to supply the grain as needed, and it can be left to take care of itself for hours at a time. That is different from a team of horses and a sweep power, isn't it?

PUT THE AERMOTOR ON THE BARN

With a power Aermotor on the barn, and all the machinery under cover, stormy days can be spent most profitably. There is always plenty of wind on a stormy day. Work done then is all clear gain.

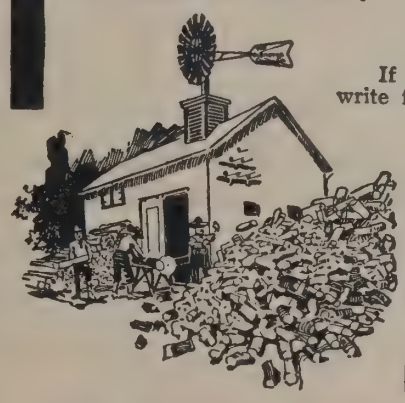
Fit up a nice little shop with machinery to be run by an Aermotor; make half the tools you now buy. Mend the broken wagons, plows, etc. Be independent and save money. Do work for the neighbors and make money. Many power Aermotors have paid for themselves the first year. Give the boys work that they like to do and keep them contented on the farm.

THE POWER AERMOTOR HAS NO EQUAL

But remember that the Aermotor is the only successful power windmill ever built. It has been imitated, but the vital features which make it so much more powerful than all others have been overlooked. It has no equal as a power producing windmill.

Every farmer who raises grain, and every stockman who feeds grain, should have a power Aermotor on his barn. Large sums of money are spent for farm machinery which is used only a few days each year. A power Aermotor, which costs less, will be found useful 365 days each year.

Many people get along year after year without a power Aermotor, but after they have had one a few weeks they always wonder how they ever lived without it. They would as soon think of giving up the reaper, mower, or horse-rake as the power Aermotor. No farmer can boast that his place is equipped with all modern farm machinery if it lacks a power Aermotor.



LET US SEND YOU OUR BOOK

If you would like to know more about the power Aermotor, write for our book. Remember that the Aermotor is the result of 5000 experiments to learn how to get the utmost power from the wind. You can't afford to buy any power mill except the Aermotor. You would pay more and get less if you bought any other. This book tells you why. It is free for the asking.



AERMOTOR CO.

1225 TWELFTH ST., CHICAGO



A DOG POWER
Saves human muscle. This ENTERPRISE POWER is unequalled for churning, separating cream, running washing machines, etc. One dog, sheep or goat works it easily. We also make a full line of large tread powers for 1, 2 and 3 horses. Full line of Ensilage and Feed Cutters, Wood Saws Threshers, Engines, Round Silos, etc. CATALOGUE FREE.
Harder Mfg. Co. Cobleskill, N. Y.



IF YOU ONLY KNEW

how much money you can save and how much better stove or range you can get, you'd send to-day for full particulars about the

KALAMAZOO Steel Stoves & Ranges

Sold direct from our factory on **360 Days Approval Test**, backed by a $20,000 bank bond. We guarantee perfect satisfaction or ask no pay. We pay the freight. Ask for catalogue No. 183.

KA' AMAZOO STOVE COMPANY, MFRS., KALAMAZOO, MICH.

All our Cook Stoves and Ranges have patent oven thermometers.

THEY'RE ALL RIDING DEERINGS



The general use of **DEERING LIGHT DRAFT HARVESTERS** is suggestive of their excellence

Anywhere one may travel he will meet with Deering machines in the fields. Wherever grass or grain is grown, "DEERING" is a familiar name.

DEERING DIVISION
INTERNATIONAL HARVESTER CO. of AMERICA, CHICAGO

BINDERS HEADERS HEADER-BINDERS
MOWERS REAPERS CORN BINDERS RAKES
CORN SHOCKERS HUSKERS AND SHREDDERS
KNIFE GRINDERS OIL BINDER TWINE

What Thousands of My Clients Say

When I tell you that thousands of clients have endorsed my methods of handling real estate (no matter where located) it ought to prove that I can surely be of service to you if you want to buy or sell any kind of a farm, home or business in any part of the country. At least it should convince you that you cannot afford to buy or sell without investigating my proposition. When I say that I can give you better service than any other broker, I am only repeating what thousands of others have said. I don't ask you to take my word. I am willing to be judged by my works. Here are extracts from a few recent letters from well pleased clients.



"I received your check today covering the full amount realized on my building lots at Boulder, Colo. I am pleased with the way you have handled this matter, and can endorse your methods of completing quick sales." Very respectfully, H. McC. Hart, Halifax, Box 227, Nova Scotia.

"In reply to your favor of recent date I take pleasure in saying that the farm purchased through you is in every way satisfactory and well worth the price I paid for it. The first price you asked me was the right price." Very truly yours, CALVIN HARRINGTON, Cambridge, Md.

"I am in receipt of your letter acknowledging draft covering commission on the sale of my office building at Amsterdam, N. Y., for $10,000 cash. I wish to thank you for the interest you have taken in the matter and express my satisfaction in having entrusted you with the business." Very truly, W. G. BARNES, Seattle, Wash.

"We have received the check in full payment for our New Jersey property. It is a remarkable fact that this property has been on the market and in the hands of various agents for more than twenty years and your success in making a cash sale in a short time is proof to us that you are the only agent who ever made a real effort to dispose of it." Very truly yours, MR. & MRS. O. C. WHITTEMORE, Athol, Mass.

"You did for me what I failed to do myself. You found me a buyer in a remarkably short time. In my opinion there is no other man in your line of work who can equal you." Very truly yours, J. O. DICKINSON, Colorado Springs, Colo.

"Your San Francisco manager, Mr. Guy C. Calden has just closed a sale of my store and real estate at Ben Lomond, Santa Crus, Calif. Owing to the business-like fashion and rapid manner in which you handled this sale for me, I am prompted, as a matter of appreciation, to say that your method for finding cash buyers is unquestionably without a peer." Very truly, BENJ. LLOYD, San Francisco, Cal.

"I beg to acknowledge receipt of the papers in settlement of the Florida property placed in your hands last February. I wish to thank you for the prompt and efficient manner in which the sale was made, and couple my endorsement to the many you already have from those who have been benefitted by your work." Very respectfully, R. H. PEACOCK, P. M., Winterhaven, Fla.

If you want to get cash for your property, no matter where it is or what it is worth, fill out, cut out, and mail the left hand coupon and find out what I can do for you.

If you want to buy any kind of a property, in any state or territory, fill out, cut out, and mail the right hand coupon and I will find just the property you want.

DO IT NOW.

W. M. OSTRANDER, Suite 1519, North American Building, PHILADELPHIA

Offices in 14 Cities from Boston to San Francisco

If You Want to SELL, Fill Out, Cut Out, and Mail this Coupon to Me To-day

W. M. OSTRANDER, ...*1903*

1519 North American Bldg., Philadelphia.

Please send without cost to me, a plan for finding a cash buyer for my property, which consists of.....

.....

in the town or city of.....

County of.....and state of.....

and which I desire to sell for $.....

The plan is to be based upon the following brief description of the property:.....

.....

.....

.....

Name.....

Address.....

.....

If you want to BUY, Fill Out, Cut Out, and Mail this Coupon to me To-day.

W. M. OSTRANDER, ...*1903*

1519 North American Bldg., Philadelphia.

With a view of buying, I desire information about properties which correspond approximately with the following specifications:

Kind of property.....

Size.....State.....

City or County or part of State preferred.....

The price must be between $.....and $.....

I will pay.....down, and the balance.....

.....

.....

.....

.....

Name.....

Address.....

.....

H II

LIBRARY OF THE UNIVERSITY of ILLINOIS

HOARD'S DAIRYMAN.

University of Ill

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., APRIL 10, 1903. NUMBER 9

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs**
Liberal Advancements Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, New York



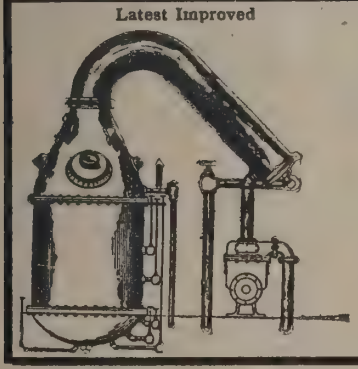
ASK YOUR DEALER IN DAIRY SUPPLIES FOR
CHR. HANSEN'S LACTIC FERMENT
To Ripen your cream, ensuring
Perfect Flavor, Uniformity and Keeping Qualities in your Butter.
CHR. HANSEN'S LABORATORY, P. O. Box 1003, Little Falls, N. Y.



BEST OF ALL
GENUINE
ELGIN BUTTER TUBS
ELGIN BUTTER TUB CO., ELGIN, ILL.

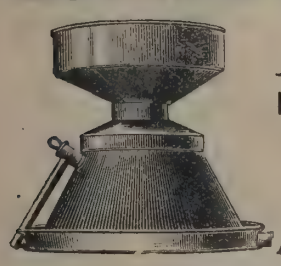
HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, BOSTON.**
Medals—Bronze 1878 Silver, 1887, World's Fair, 1893.

Latest Improved

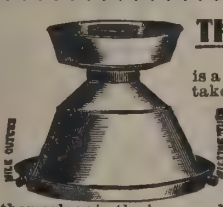


Builder of more successful milk condensing factories than any other man in the world.
ROGERS' Milk Condensing Machinery.
Condensed Milk Factories built complete; put in operation instructions in all secret processes and results guaranteed By
R. R. ROGERS, 93 Chope Place, Detroit, Mich

Get the Best Milk Cooler



AND AERATOR.
LARGEST COOLING SURFACE
EASIEST TO CLEAN.
WRITE US FOR PRICES.
Ask for our new Thirtieth Annual Catalogue of Dairy Apparatus and Supplies.
OAKES & BURGER, Cattaraugus, N. Y.



THIS **PERFECTION** MILK COOLER AND AERATOR
is a simple device for cooling and aerating milk. It quickly and effectually takes out all animal heat, and with it all animal odors, odors arising from stables, feed, etc. This method of treatment makes the milk keep sweet much longer. It is better for making butter, cheese, etc., and will stand shipment much better.
Cost But Little and Last Indefinitely.
They are made in sizes from 1 to 200 cows and will quickly pay for themselves in the increased reputation they give your product. They come very nearly taking the place of ice in warm weather. Send for illustrated circulars and prices
L. R. Lewis Mfr., Box 10, Cortland, N. Y.

HAVE YOU A HEIFER?
She may not come in. She may abort. It's the dairyman's hazard.
KOW-KURE
(FOR COWS ONLY)
will start her right. A special treatment for the particular troubles the cow has. Endorsed by dairy people. Booklet, "Kow-Kure for Cows Only" free.
Dairy Ass'n, Lyndonville, Vt.



STOCKMENS SUPPLIES
Sheep Dips, Tanks, Worm Cures, Ear Marks Punches, Tattoo Markers, Shearing Machines Shears, Sheep Marking Paint, Lamb Feeders Lice Paint, Poultry Supplies, Veterinary Remedies, etc. Write for Catalogue AE.
F. S. BURCH & CO., 144 Illinois St., CHICAGO



"Yes, I've changed my mind. All separators are not alike. The Suspended Bowl Tubular is different from the others. It's better, much better, as you will agree if you try it.

WATCH THE BLACKBOARD

THE NEW SUSPENDED BOWL Factory Tubular Separator has been given a year's most exhaustive and thorough test. It has proven its superiority over all other factory separators to such a degree that we are ready to demonstrate our absolute confidence in it by placing it with any responsible creamery operator upon the most liberal plan ever known. There is not the slighest obligation to buy or keep the machine, the user is the sole judge as to its merit, and if for any reason whatever he does not want it he may return it. Descriptive circulars now ready.

WRITE FOR CATALOGUE NO. 144.

The Sharples Co.,
28, 30 & 32 So. Canal St.,
CHICAGO, ILL.

P. M. SHARPLES,
West Chester, Pa.
U. S. A.

Best Results

in feeding for milk are obtained by adding some

BUFFALO Gluten Feed

to balance the ration.

Sample and booklet

"Feed Your Stock for Best Results."

Sent free. Write to-day.

Address Department B

THE GLUCOSE SUGAR REFINING CO.,
The Rookery, Chicago, Ill.

Cheaper than Corn, Oats and Barley.

ATLAS GLUTEN MEAL

Protein for Less Money Than it can be Purchased in Any Other Feed.

Any dairyman that will give this feed a fair trial will not only find it better than other gluten meals but as well the most economical feed that can be purchased.

IT WILL INCREASE

the flow of milk 25 per cent and keep the cows in excellent condition.

All we ask is a trial, if your dealer does not keep it, write us.

ATLAS FEED & MILLING CO.,
Box 164, PEORIA, ILL.

BLATCHFORD'S
CALF MEAL
THE MILK SUBSTITUTE

"There is nothing like it to raise thrifty Jersey Calves."
ASA B. GARDNER, Esq., GLENCOE, MD.

Address, BLATCHFORD'S CALF MEAL
WAUKEGAN, ILL.

Your Butter

is all right when it leaves your hands, but how about it when it has stood around the market or grocery a few days absorbing all kinds of odors? The only safeguard to your reputation is a perfect package.

Our New Gem Fibre Box

is the one perfect butter package. The border of this ad, which is a section of the box, shows how well it is made. Double and triple walls of impervious fibre; dovetailed walls and inner bottom; reinforced with extra bottom and lined throughout with parchment paper. Impervious to **moisture, holds the brine and will neither sweat, must nor mildew.** Send to-day for free booklet and sample.

THE GEM FIBRE PACKAGE CO.,
Dept. E, Gem Building, Detroit, Mich.

A Visit to Washington.

ED. HOARD'S DAIRYMAN:—Washington is the business home of the Government of the United States! This city is, and of right ought to be, the model city of the world, the House and the Home of the Model Government of the world; a Government with its ebbs and flows, and ups and downs of tidal life, but ultimating in a flood of fortune to fortunate people of this Northern and Western area and its annexes.

George Washington has the right to the Fatherhood name of this town, and its history is worthy of repetition until it is known as a household word. Topographical engineering has here done its perfect work, and here perhaps more than in any other town on earth is demonstrated the grand fact, that physical environments have to do with mental and moral and spiritual status, and Washington, as a Town, is formed up for hightest human habitation. George Washington, himself an engineer, was the Father of this Town; L'Enfant, the French engineer, was his chief executive, and they together surfaced this town at its start, and for a century since, with all the aids of highest and best engineering skill heroically applied, there has been evolved this surfacing and building of an area for a town proper, and its results are here visible in the faces and forms and manners of its inhabitants.

Washington is an object lesson in topographical religion; its streets are designed, its grading roofs the town, and these streets are a preface to those golden streets of Paradise; and cleanliness, every where apparent, which is next to Godliness, betokens it. The heavens here let loose their water from the clouds, not to be sullied and soured in detaining bog or mud hole, to breed disease and death, but to do its cleansing work and to go joyfully on its way to the Potomac, to the ocean, and to its return again to the clouds, in its eternal rounds of beneficent washings of the face of the earth, notably in Washington, over this correct surface grading and through a sewer system that is the science of exit. Here it may do its doings, quickly and well, and merit that old commendation, "well done thou good and faithful servant; enter thou into the joy of thy Lord." Happy clouds that hover over Washington! Happy water, that falling here, is not impeded in its work!

Washington, its ornate buildings, the delightful presence of its citizenship, its great function as the Governmental Township of a great nation, may be treated by other hands, but let me lay the garland of merited tribute at the feet of its surface grading and its scientific sewers, which are foundational in their service, but that sustain and uplift this higher human life, existent here at this focal center of all that American citizenship holds most dear; the running of the scientific governmental machinery for a free people, without vibration and without friction or break.

Thank God that the physical area upon which this seat of government rests is correct.

AN OLD ROADMASTER

Transfers of Guernsey Cattle.

BULLS.

Howard Hill 7315, Long Bros. to H. J. Slicker, Alum Rock, Pa.
Jolly Boy of Haddon 8475, E. T. Gill to S. I. Murphy, Woodbine, Pa.
King Faucette 8480, James L. Branson to E. T. Gill, Haddonfield, N. J.
Prince Kuser 8481, Wm. T. Gillespie to John S. Cullen, Port Deposit, Md
Queen of Guernsey's Hero 8484, J. W. Knight to Albert N. Purrington, White Rock, Me.
Sir Bonny 6084, O. Koogle to A. R. Collins, Xenia, Ohio.

COWS.

Ada Alice 13889, N. E. Smith to C. J. Hayes, Hydeville, N. Y.
Aline of Castle Brook 10941, Pretty Violet 6938, Stella Wynne 14281, G. B. Tallman to E. B Hewes, Ripley, N. Y.
Bessie Bride 9401, Count's Olive 8044, Fantine of Lilyvale 15870, Rhoda P. of Linden 15869, Tillie de la Pailloterie 15867, Long Bros. to H. J. Slicker, Alum Rock, Pa.
Cozie Bridget 15874, A. R. Collins to Chas. L. Bales, Xenia, Oh.
Daisy Passmore 9156, Daisy's Allien 12313, Martha M. Nicholls to John B. Nicholls, Blythedale, Pa.
Millwoods Miss Cautious 15865, Est. E. F. Bowditch to Charles H. Jones, Weston, Mass.
Manitowoc Bessse 11181, Louis T. Voigt to M. L. Welles, Rosendale, Wis.
Pinta of Haddon 15871, E. T. Gill to Harry Yates, Buffalo. N. Y.
Rosetta of Clayton 15877, Isaac B. Pancoast, to Hiram D. Newkirk, Clayton, N. J.

WM. H. CALDWELL,
Peterboro, N. H., Mar. 9, 1903. Secretary.

For the land's sake—use Bowker's Fertilizers. They enrich the earth and the men who till it.



Cows and Calves

which have been fed

PRUSSIAN STOCK FOOD,

mixed with the other rations, will be in prime condition for best results when changed to grass. It will condition the system and prevent scours and other troubles arising from the sudden change. **Prussian Stock Food** is the **best condition powder** and **Blood Purifier** on the market. Horses, Cattle, Hogs and sheep grow rapidly and remain healthy from its use.

How It Pays the Dairyman.

"I am using **Prussian Stock Food** with great success. Following is a true statement of the flow of milk from my 16 milch cows. For the month of January, 1902, I received 11,090 lbs. of milk and the test was 4.40. I cannot speak too highly of **Prussian Stock Food.** The flow of milk from the same 16 cows for the month of February, 1902, (28 days only) was 10,330 lbs.; amount of check, $106.39. I wish to state that four of my cows are only 2-year old heifers. Two cows came fresh last June, six in September and eight in November and December, 1901.
JOHN McCORMICK, Waterloo, Wis."

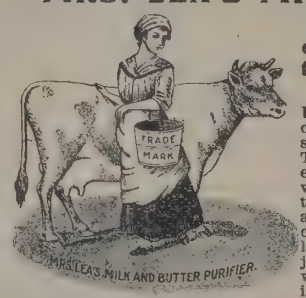
Calves Average Gain of 80 lbs. per month.

"There is nothing equaling your Stock Food, especially for calves. Our calves, ranging from 5 to 10 months old, have made an average gain of 80 lbs. per month. So I cannot say too much for your Food.
E. SOUERS, Warren, Ind."

Ask your dealer for **Prussian Stock Food.** Don't take a substitute. Send us the names of six farmers and we will send you our **"Stockman's Guide"** free.

PRUSSIAN REMEDY COMPANY, St. Paul, Minn.

MRS. LEA'S MILK AND BUTTER PURIFIER.



Removes all Weed, Garlic, Vegetable and Animal odor and taint from the milk and in no way injures the cow to which it is fed.

Dr. Jacob Michaux, Richmond, Va., and **Dr. W. L. Robinson,** Danville Va., Ex-Presidents of the Virginia Medical Society, write as follows: Gentlemen—Having been consulted by you with regard to your "LEA'S MILK AND BUTTER PURIFIER" we beg leave to state after many careful experiments that we are most favorably impressed with its value. From the standpoint of physicians we have no hesitation in saying that the milk from cows to which it is fed is acceptable to the delicate palates and stomachs of the sick in cases where ordinary milk is not borne. We, having a knowledge of the formula, further state that it is not in any way injurious to either the stomachs or systems of the animals to which it is fed, nor to the stomachs or systems of persons using the milk from such animals. We further believe from our knowledge of your preparation that it so favorably influences the digestion of the animal that it will prevent those abnormal fermentations which produce injurious chemical reactions in the secretions and milk of said animals. We advise that Sanitary Dairies be encouraged to use this product, as it furnishes a milk not only devoid of all vegetable and animal odors and flavors so objectionable and so frequently found in milk not thus treated but that it is a sweet and pure article for the table and for the use of invalids. [Signed] JACOB MICHAUX, M. D.
W. L. ROBINSON, M. D.

Manufactured by VIRGINIA CATTLE FOOD COMPANY, Danville, Va.
Write Us for Prices and Further Information.

E. S. WOODWORTH & COMPANY

MINNEAPOLIS, MINN.

Grain and Millstuffs, Shipping and Commission

SEND US YOUR ORDERS FOR

Bran Middlings, Flour Middlings, Red Dog Flour, Snow's Cream Flour Middlings, Chicken Feed Wheat, Dairy Feed, Mixed Feed, Corn, Oats, and Ground Feed. Old process Oil Meal. Ask for prices, and mention this paper when writing us. **CAN LOAD MIXED CARS.**

CORRESPONDENCE SOLICITED.

SNOW'S CREAM FLOUR MIDDLINGS IN 100-LB. SACKS. The best seller in the market. We make a specialty of Screenings for Sheep Feed

QUALITY ELMCO MARK

Elmco Red Dog Flour

—ANALYSIS:—

Moisture 9.81 Crude Protein 18.51 Ether Extract 4.73

F. W. WOLL, Chemist, University of Wis., Agricultural Experiment Sta.

A strong, rich feed; one that offers exceptional attraction as a quick fattener, economical, uniform, producing fat without risk of cholera. Buy **Elmco Red Dog Flour** for hogs and you buy the best.

Manufactured only by LISTMAN MILL CO.,
La Crosse, Wis.

Hoard's Dairyman

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Schwertfeger Settles the Question of the Best Breed.

Dear Gufferner:—I got your letter all right. You want to know iff I wouldn't been so kind und seddle dat Breed Gueshtion wat has all along been making so much dishputements in de bapers. Wy, shure ting—surtinly! Dat's easy for me. I'm really surprished dat you didn't ashk my help before. But I guess I know how it iss: You tought you had it all fixed and broved up dat your kind was de bestest;—lem me see, wat you call dem again? Herefort? No, dat can't be, de Herefort is a fine beef cattle, und yours is de dairy kind; well it makes no differenz wat de name is, dey got a nice color anyway;—und now all to wonced comes dwo fellows from New York, one I tink is an Irishman und de odder must be a Cherman nobleman because his name shtarts mit "von", und dey shows dat dey got ofer dirty bounds of butter from one cow in chust sefen days; und she was a *Holshtein* mit a horriple name —I couldn't efen read it, but her middel name was Chulip. Well, I dont tink dats so anyway; und I see you has been trying to figger it down to 24.5 bounds.

Aber I dont care efen iff it iss dirty; dont you let dat worry you a tall. Day say exceptshuns prove de rule, but dat aint so mit cows. Because one cow gifs a whole lot dat's no sign dat all de rest of de same breed do de same; nossir! I found dat out long ago. Days been all kinds of dests made mit all kinds of cows und breeds, aber dat dont brove wich iss de best; it only broves dat dere are a *whole lot* of breeds wat iss all *good nuff*. But wat is de best breed for John oder Joe oder Jacob dat debends untirely ubon de kind of a man John und Joe und Jacob iss, und de kind of farms dey got, und on a whole lot of odder tings.

You dont undervershtand dat? Well, I can exshplain. We take John furst: He got a hundert and dwenty acres of good fine land wat would be chust de ting for dairying; aber he always got trubbel getting help—somehow de hired men und he dont get along fery well, und he dont like to work any doo well himself—eshpecially he dont like milkin. So he dont want to haf doo many cows to milk. He sooner raise shteers und sell beef und may be some sheep und grain und a few colts und such. Well, now, for dat man mit *such* a conshtitution, you wouldn't say dat de Chursey oder Gurnsey oder Holshtein oder Airsher und all dem butter making kinds was de best, would you? Off course not! He better puys him some Short-horns or such like. He's one off dem fellers wat dalks so much about de "chaneral burpose cow." You see he wants to get *some* milk because he's got to haf it for lots of tings, und den—well it brings him some reaty cash wat always comes hanty. Aber you can see trough de whole fellow—hiss heart runs on selling de *critters* not deir broduct; he wants to sell grain und *beef* &c., und de dairy end iss only a side show mit him.

Den dake Joe! Hiss farm is not gwite so goot as John's; but he's a worker! He would milk fifdeen or dwenty cows alone if he got to; aber he don't haf to because he's got a goot hired man und a couple of stout poys off his own growing up, who help in de summer und in de winter doo before und afder school. Mit him all dat labor has to count. So he works his farm for all wat iss. He ain't got no dwenty-year-old worn out basture; no Sirree! His basture was his hayfield for dwo years before now und will be his cornfield dwo years later. Den he raises lots of corn und hay und as much grain as he needs for feed. Now wat's de best breed of cows for him, heh? A goot *dairy* cow of course, such as de Gurnsey oder Chersey oder Holshtein, &c. Aber *wich* one, you want to know. Well dat depends a goot deal on de man's notions. Dat feller is going to make money out of any of dem, shure, und it makes nix ous wich one he chooses. But now Joe, he's a fellow wat figgers like dis: He's got dwo silos und dey dake so many acres of corn to fill mit. Den he's got to have so much land in hay, so much in grain, so much bashture, und dat leaves him so much ofer for corn for de hogs und to grind up for de cows oder de young shtock. So he finds he can keep a whole lot of hogs, ashpecially iff he gets lots of shkim milk. Und he likes to raise hogs anyway: Dem ringles in de tails und dat cholly grunt wen dey dife into de troff full of schwill, dat appeals to his heart. Of course Joe dezides for de Holshtein—und den because he's doing so well mit dem he prags und tells everybody dat de Holshtein is de best cow. He don't say a darn wort about dem tree oder four wat he first had in de lot wat gafe only fifty bounds of milk und broke de law effery day because it dested less as tree prozent! Und he don't say nodding about wat a lot of drubbel he had to imbrove his cows so as to make his aferage test come up to four und tree tents prozent—I tink now it's efen a little more. Aber wat we care, he got dere chust de same; und dat was und iss chust de right kind of cow for him, und he's making lots of money. Now wat goot would some of dem odder kinds been for him? Joe's got great bick hands und so haf all his poys. Iff deyd taken one of dem short milk boints of some cows wat I know in each hand de milk would all run down deir shleeves. Nossir, Joe bicked chust de most brofitable cow for him—eferyting reconsidered.

Und now we come to Jacob. He's got chust as goot a farm as John und blenty of help und he's a worker doo. But he dont go so much on hogs, und he likes the color und chentle look of de Gurnsey. Und he figgers that if he dont keep gwite so many hogs, he don't need so much shkim milk und not so much corn, und can keep a few more cows und make chust so much money. Und den he's got a lonely dodder,—it's a fine gurl, my Peter goes to see her gwite often—well it don't make no differenz wat de poys is all shtarted from dat kind! Nossir, I don't! Und it's none of your pusiness if I like dem, anyway. I can dakes my choice chust like John und Joe und Jacob, can't I? Aber to set your mind in rest I will say once for all, iff I was so sitchuated dat I could keep a pull, oder iff my neighbor had sense enuff not to change his'n every year or dwo, I would have no common shtuff cattle, nor efen grades. I would keep only derroughbreds mit registers und bedigrees a mile long. Dems de kind were de money is in. Oh, you git fooled on me iff you tink I ain't an eggressife farmer. I know a whole lots more dan I can dell you to onced. Aber you got me shliding off my subjeck, und to come back: I tink I hafe shpoken blain enuff now already. *Dare ain't no best dairy cow* except wen hitched up mit de man wat fits to her. "Dat will shtop gompetition for imbrovement," you say? Nossir-ee, no such ting. Chust let de man wat likes any one kind de best, according to his notions, go aheat und make his herd de most berfect of dat breed, und brove it by de results und you see wat brices he can git for dem und deir babies —und I don't care not wat breed he tries it mit—wedder it's a Chursey oder a Gurnsey oder a Airsher oder a Holshtein oder Weinshtein oder Beershtein—de result will be de same. Und dat's wat lots are doing now already. Dey don't bodder deir heads about de abshtract gwestion of wat is de best breed, because dey know dere ain't none wat is best for eferypody, und dey don't dry to make de whole country beliefe dere is only one kind in de world fit for a dairy cow; dey devilupp de one dey like best und by her results confince odders likewise sitchuated dat deirs is de best for dem.

Now I know I haf cleared dat matter all up in your mind und you feel easy apout it again. "Didn't like to trouble me?" Oh, dat's nodding. I could write a whole baper full for you. Jhust call on me for help any dime you get muddled.

Yours druly,
August Friederich Wilhelm Schwertfeger.

Corrected by Peter Schwertfeger, *c fils.*



JERSEY BULL, TOLEDO PEDRO, A. J. C. C., 51776
Property of Paul Hanson, Taylor, Wis.

Rearing Calves in Australia.—Milking Machines Not Yet a Success.—Other Dairy Notes.

Ed. Hoard's Dairyman:—A very bad system has been carried on in regards to Calf Rearing, on most of the dairies in this state. But it is pleasing to note that in some instances a much more successful and modern system is in progress. In a great many instances where the calves are saved, they are mostly half starved, and when grown up are nothing better than poddies.

HOW THE CALVES ARE RAISED.

As soon as the calves are born, they are taken away to the calfery. Their first abode is in a long, narrow shed, containing about 25 small pens on both sides, with a passage in the center. Here the young animals are taught to drink milk. As soon as this part of the business is thoroughly taught, they are allowed to run in a small enclosure, where there are others somewhere about the same age. A good plan is to get them out as soon as it is possible, as they appear to do much better than if shut up. After a time the older ones are removed to another appartment, and when they reach the age of about six months, they are turned out altogether and allowed to run in the open paddocks of these enclosures for the young calves when they start to eat grass. Under this system the animals never seem to lose condition, but on the other hand, look healthy, their coats appearing quite glossy, and do not seem to be stunted in any way. Their food is made up of skim milk which contains a small portion of patent calf food, lacto fornia. This is given in the morning. Their evening meal consists of a portion of hay tea. Most probably the addition of these two extras helps in a great measure to keep them in a healthy condition.

The lacto fornia is mixed with hot milk and the hay tea is also hot when added for the evening meal. The hay tea is made from meadow hay, which is stewed all day in a boiler. This appears anything but a natural way of raising calves, but nevertheless they appear to thrive splendidly. Sometimes, when the animals are very hungry, they take too much; hence it is advisable to have some person attending to them who regulates their meals. In good herds it is well worth one's while to go in for a good system of calf rearing, as each animal is well worth saving. The heifers will come in later as dairy cows, and the bulls are well worth keeping for sires.

MACHINE MILKING IN AUSTRALIA PROVES A FAILURE.

The progress of mechanical milking has been watched, during the last twelve months especially, with the keenest of interest in this country, and nearly every person thought (like myself) that perfection had been attained at last. This fact was clearly perceivable owing to the number of new machines that were installed, and the enthusiasm that was displayed on each occasion. But I am sorry to have to state that they have not come up to full expectations and dairymen will still have to wait some time yet till the present difficulty is overcome. This is most regretable, for success seemed certain and the great problem of labor in connection with dairying was apparently solved in a very satisfactory manner.

A great number of dairymen have had their sheds fitted up with machines during the last year or two and for a time everything seemed to go along perfectly, but now a number of machines are standing idle, and hand milking has been resumed. On one farm they were in use for two years or more, and everything appeared to be going along in a satisfactory manner, until lately. As I have previously stated, for a time the machines worked splendidly, and the animals seemed not to object to them in any way, but developments have taken place which I think will lead to the abandonment of this mechanical milker for a time however, until the defects have been overcome.

The apparant trouble seems to arise from the fact of the cows, when in the full flush of the season, not giving down their milk properly to the machine, and

singular to say, this applies to cows that have been machine milked before being turned out prior to the last calving. The main fault seems to lie in the action of the teat cups, to which the animals so gradually acquire a dislike, and after giving down, from half to three-quarters of their milk, they instantly cut off the supply. It is stated that if the cow is at once stripped by hand, very little milk is obtained, but if left alone for five to ten minutes after the teat cups are removed, a hand-milker can obtain all the rest of her milk.

The inconvenience and expense of following such practice with a large herd would be an absolute bar to the adoption of the machines. However, it is very probable that all difficulties will be overcome ere long. Great improvements have been effected since milking machines were first tried, and if the only defect lies in the formation of the teat cups, this difficulty will soon be overcome.

The idea in connection with the cup is to render its action as nearly like that of a calf sucking as possible. In the Lawrence-Kennedy machine—the one which until quite recently was considered to be an absolutely successful mechanical milker—the rubber lining of the cup contracts and expands and there is a slight jerking motion, closely resembling that of a calf sucking; but this action does not altogether produce the action of the tongue of the calf on the teats. The cups of another machine, known as the Hartnett, is said to succeed better in this respect. The latest improvements in the L-K. machine is the alteration in the character of the teat cup. The leading feature of this machine is a double pipe, one applying pressure to the teat, and the other drawing the milk in an uninterrupted flow. The teat cup is fitted with an inside lining of pliable rubber, so arranged that the air pressure to the teat is exerted downwards from the udder to the point of the teat, producing a gentle drawing motion. The second pipe draws the milk away into the cans by vacuum pressure.

In the original machine—one pipe being used—the vacuum exerted pressure on the teat, and at the same time drew the milk into the cans; when a large flow had to be dealt with, the passage to the milk pail sometimes got blocked. The new machine remedies this defect, and it is said to work much faster than the old machine. It would be a thousand pities to accept defeat after so much has been accomplished. Not only is the milking machine desirable, but it is a necessity, in a community like this, where the labor difficulty is more or less acute, and where the employees of a dairy farm are practically masters of the situation Dairying cannot be carried on unless the cows are milked regularly twice a day, and the work performed with a skill and rapidity that can only be acquired after considerable practice. Good milkers are not easy to obtain, and there is no doubt the difficulty in that direction has handicapped the dairying, the development of the dairying industry. Farmers will not take the risk of largely increasing their herds, when a strike of even a day's duration on the part of the milkmen might ruin half the cows. So few hands are required to work enough milking machines to cope with a large herd, that the risk of a strike is proportionately lessened, and even if there was no actual saving in cost the certainty of being always able to get the work done is such an advantage to farmers that they would have no fears in regard to enlarging their operations. For this reason alone it is to be hoped that the defect which has been discovered in connection with the latest milking machine will be easily rectified, and that success achieved which all producers desire.

AUSTRALIAN DAIRY PRODUCE.

Prices ruled higher, but supplies diminished in the recent Australian butter season in England. A record was established for prices, as the London market quotations for the best averaged 109s 6d per cwt., or 1s 1d better than the previous season, which was 108s 5d. The season experienced in the country was so exceptionally bad, owing to the drought principally, that the quantity of Australian butter exported was not much more than half the exports of the previous season. The total quantity of butter received by England from this country during the season 1901-'02, was about 7,669 tons as against 15,293 tons the previous season. New Zealand supplies amounted to 7,307 tons, which is only 362 tons less than those from Australia. It is a very evident fact that the drought in Australia and the increasing requirements for South Africa have greatly lessened the exports to the home country; as is clearly shown by the following figures:

The supplies of Australian butter during the past three seasons have been 17,208 tons, 15,293 tons, and 7,669 tons, respectively. New Zealand exports were 7,465 tons, 7,252 tons, and 7,307 tons. The Australian consignment was made up of 116,351 cwt. from Victoria, 32,365 cwt. from New South Wales, 2,937 cwt. from Queensland, and 1,725 cwt. from South Australia. For the last five seasons there has been an improvement in the prices of Australian butter, the average price for choicest having been 100s 4d, 104s, 104s 6d, 108s 5d, and 109s 6d per cwt., respectively. Danish butter, over the same five years has averaged on the English market, 110s 7d, 113s 6d, 116s 5d, 118s 3d, and 118s 3d, respectively. The deterioration in the quality of the Australian butter is greatly deplored, and the main cause, apart from drought, is attributed to the increasing use of the home separator. In a hot climate like ours the result of farmers separating their own cream and delivering it to the factory at irregular intervals is sure to effect the making of perfect butter.

It cannot be expected that a vat containing cream of three or four different ages all blended together will produce as good butter as a vat of cream, all of one age. The individuals, who have forced private separators on Australian farmers, have done a great injury to Australian butter and have reduced the product on the British market. The deterioration is not noticeable in the New Zealand butter; this is owing probably to the excellent system of grading adopted by New Zealand, and the lower temperature at which the butter is carried in transit to the home country. Then, again, in New Zealand the bulk of the milk is daily delivered direct into the factory, each day's cream thus being kept under the control of the factory manager. As to the prospects of the present butter season everything points to a further decrease. From present indications the coming winter is going to be severe and to make matters worse, the opening of the season has been very late. South Africa will probably require a good deal this season and the high prices ruling for cattle in this country has a tendency to reduce the milking herds, as producing animals for beef has paid better than butter making the last couple of seasons; hence the probability is that our exports of butter will be considerably less. In New Zealand I dare say there will be an increase, although the high prices ruling for cheese this season will probably induce many to go more extensively for this article. On the whole, the prospects of the approaching wet season are very gloomy indeed. Most of the best dairying country is in a frightful state, there being but little fodder to carry the cows through the summer and if the autumn rains are late in coming, thus preventing a good growth before the cold weather sets in, there is every likelyhood of the losses being very severe, as very few farmers have made any preparations in regards to growing fodder crops, making ensilage or laying up a store of meadow hay.

AUSTRALIA.

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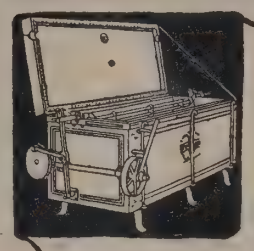
MACBETH, Pittsburgh.

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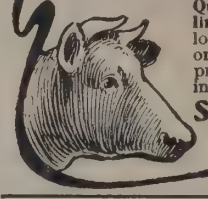
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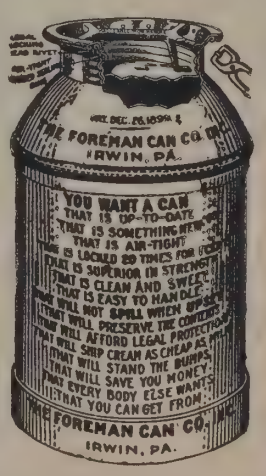
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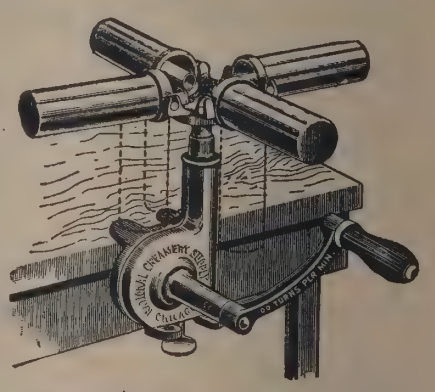
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New York Farm and Dairy Notes.

Selected from the New York Institutes, March 21, 1903.

ED. HOARD'S DAIRYMAN:—John Gould, of Ohio, discussed the silo, as follows: He advised building a silo from the standpoint of economy. You can utilize the corn plant for feeding with the smallest loss, with the silo. It enables the dairyman to produce more milk in the winter when prices are higher. There is a great loss in drying corn fodder because of the succulence, to the milch cow. He told how he obtained his seed corn from Virginia, the common white variety that is grown in that locality. It contains more sugar than the varieties of field corn grown in the northern states. Build a good silo, but this you can do without great expense. Do not put iron hoops on the silo, but make wooden hoops; have girths sawed and nail these together so as to make a round hoop. A good form for the silo is the octagon, or it can be made round, pine flooring may be used on the outside; then you put on tar paper on the inside, and over this for the inside lining use some kind of half inch lumber, and this makes a tight silo. You can use clay for bottom, if you have good drainage.

H. E. Cook spoke on "Barn Building." Three things we want are warmth, sunshine and ventilation. The right temperature is from 50 to 60 degrees. In my stable the temperature does not go below 50 degrees in cold weather. The wall should be built with a space or dead air chamber between the walls, this is made by boarding and papering on both sides of the studding, instead of putting the building paper between the boards on the outside of the studding.

I do not build the stable over 9 feet high and give each cow about 500 square feet of space. I do not build any more plank floors but build them of cement as the expense of the cement floor is but little more and it will never wear out. For a foundation I compact the soil, then lay in small stones to the right level, then pour around them this cement and then put the finishing surface which is made of cement and sand and floated with a board to roughen it so the bedding will stick to it. Cut short pieces of iron pipe and anchor then in the cement for the studding for the partitions. The cement floor should be kept well bedded. I would plank the horse stalls.

Address by C. W. Cavanaugh on the "Chemistry of the Soil." He spoke of the selection of fertilizers for different soils. He said the commercial fertilizers contain nothing that is not in the soil or stable only in different form. Chemical analysis does not tell the needs of the soil as well as experiments in growing plants in it. The amount of humus in the soil indicates the amount of nitrogen in it. This humus is exhausted by cultivation and we must supply humus to the soil by stable manure or plowing under green crops.

These should be the main source of nitrogen on the farm. Humus also increases the water holding capacity of the soil. The cheapest form in which to buy phosphoric acid is South Carolina rock, if the soil needs phosphoric acid. If the stalk or woody part of the plant makes small growth it indicates the lack of phosphoric acid. If the soil contains potash that is unavailable, this can be unlocked by the use of land plaster. Clay soils usually contain plenty of potash.

The following questions were asked and answered at this meeting.

What would you cover silage with?

Mr. Cook: I do not cover my silos, there is a little loss but not enough to pay for covering. We tread the surface as firmly as possible and there will be less loss if the ensilage is cut finely.

What is the best way to kill poverty grass?

Mr. Cook: Probably the only way is cultivation and the rotation of crops.

What is the value of whey and how can we get the most out of it?

Every 100 pounds of whey contains 6 pound of solids. The whey should be used before it gets sour to get the most out of it.

Will it pay a person who has had three years experience in a butter factory to take a short winter course in dairying at Cornell?

Prof. Cavanaugh: It is the experience of those who have taken the course, that it is the greatest value to them and they would not lose the knowledge that they obtained there for hardly any consideration. It has been the means of making some of the best butter and cheese makers. It's a good opportunity for the young man and may help him to a good position.

Would you advise using soap on milk strainers?

Mr. Cook: No use sal soda.

When is the proper time to plow for corn?

Mr. Witter: My practice is to plow in the first part of May, this for my locality, for then you get the warmth given out by decaying sod, especially with the clover sod. This fermentation aids the corn to make a better growth. I plow only from 7 to 8 inches.

What would you do for a cow that holds up her milk?

Mr. Cook: I would get rid of her if it was a habit with her. Mr. Witter expressed the opinion that it depended on the temperament of the cows and that if nervous cows were excited in any way while milking, they could not help it.

Can milk be thoroughly pasteurized without changing the flavor?

H. E. Cook: Pasteurizing will in a degree improve the flavor of the milk, especially winter milk that has not been well cared for.

How can we clarify milk for the city delivery?

Mr. Gould: The only way is to keep the stable clean and have plenty of sunshine in it. Strain the milk well and cool down to 40 degrees. Don't use a cloth strainer more than two days, burn it up.

What shall we feed with skim milk to make the best ration for pigs?

Mr. Gould: I have seen good results from feeding middlings with skim milk and I would put in a very little corn meal.

What is the relative value of shredded corn fodder and ensilage?

Mr. Gould: The shredded corn fodder is about equal to timothy hay. It lacks the succulence of the ensilage.

Will rape fed to cows affect the quality of the milk?

Mr. Cook: It will. I would not grow it to feed to cows but it is good for hogs and sheep.

What will prevent a cow from leaking milk?

Mr. Cook: I do not think it can be prevented by any operation that is safe.

W. H. JENKINS.

A Minnesota Ration.

Please give me balanced ration for fresh grade Jersey cows giving 20 to 30 pounds milk per day. Oats, 35c; corn, 55c; bran, $19.00; middlings, $20.00; oilmeal, $30.00; wild hay, $12.00; timothy and clover, $14.00. F. B. Mc. L.

Wrenshall, Minn.

We incline to the opinion that, at the prices quoted, this inquirer can do no better than to give his cows, as the average daily allowance, 2 lbs. bran, 3 lbs. ground corn and 1 lb. oil meal, with all the hay each will eat without waste. If the wild hay is of good quality, this may be used exclusively, and another pound of oil meal added to the grain allowance.

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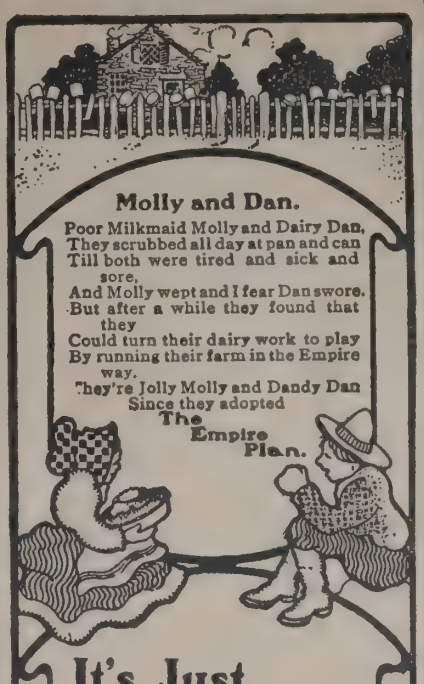
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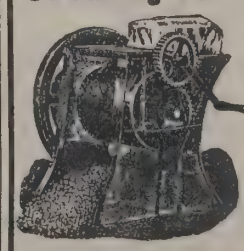
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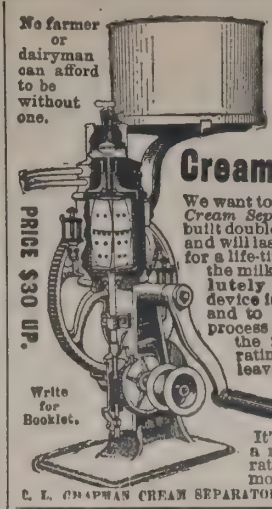


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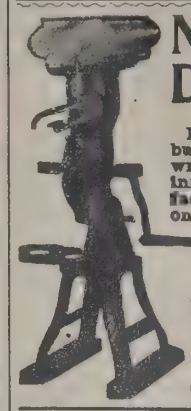
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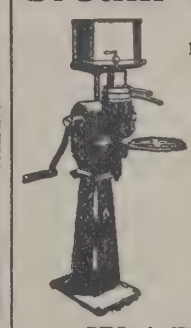
by the old method of skimming milk is rank folly. With a **National Cream Separator** you can save 30 per cent. of the butter-fat you are now throwing away. It separates both warm and cold milk, light or heavy cream and skims practically *clean*. We send it

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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

PROF. Carlyle of the Wisconsin Experiment Station is reported to have said at the Marsfield Round Up Institute that he did not believe that there was a heifer calf born in Wisconsin that could not be fed to make 300 lbs. of butter a year. The Professor has unlimited faith in feed. Feed is all powerul. So great is his belief in it that we expect to hear of his saying that there is not a colt born in Wisconsin that could not be fed to trot a mile in 2-20, or a boy that cannot be fed so as to make a statesman equal to Senator Spooner. To such ends at last does the dual-purpose idea come.

ALFALFA FOR HENS.

There is one advantage of alfalfa over all other forage plants that we have never seen exploited in the agricultural press. That is its value for hens. Our large flock of Buff Plymouth Rock fowls have fed on it for two years almost constantly, so fond are they of it, that the field which lies next to the poultry house is kept constantly fed close to the earth by the fowls. We believe it is a great promoter not only of the laying habit, but as well of the growth of and size of the fowls. Persons who try alfalfa in a field near the barn, will find their hens feeding on it at all times of the day.

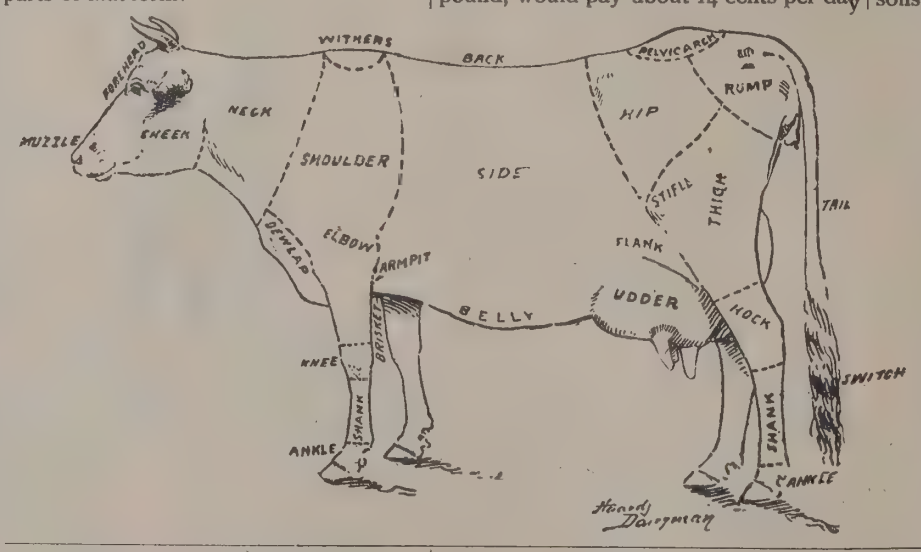
What is Meant By the Term "Flank."

There seems to be some confusion in the meaning of terms as applied to the conformation of dairy cattle. For instance, take the term "flank." The Guernsey scale of points in describing the desirable dairy temperament in both cows and bulls calls for "a thin, arching flank." The word flank here means that part of the body connecting the belly with the hind legs, as shown in the following diagram:



In all beef animals it is counted desirable to have this bottom line of the body to run as straight as possible. A thin arch to the flank is not counted a good beef sign. A writer in the Guernsey Herd Register for October, 1902, describing the Bull LeGrande Duke, at the Ohio State Fair, says, "A bit more arch of the rib forward, and an added *depth of flank* would serve to his advantage." It is evident that there is needed a better agreement of understanding as to the meaning of terms when applied to the conformation of dairy cattle. "An added depth of flank" would be in line with the beef conformation. Unconsciously, almost, many of our dairy people and judges carry in their minds the old Shorthorn definition of outline.

We republish herewith the cut issued some years ago by HOARD'S DAIRYMAN, giving our ideas of the dairy form and the terms used in defining the various parts of that form:



AMONG OUR EXCHANGES.

H. E. Cook contributes two, good, sound thoughts, among others, to the *National Stockman.*

He speaks of the great demand for service bulls this spring as testified to by breeders, and then asks if the nice heifer calves from these bulls will be fed and given a good, strong start as they should be. Will the owners give them a couple of quarts of new milk, say for four weeks? It will surely pay if you have a good strong calf. Some men can never see the prospective cow that is in the heifer calf. Such men never develop an animal as they might

His second thought is this: "Put a good cow into the hands of a poor dairyman and she will soon sink to his level or comprehension of cow requirement." Lots of men have tried it; it is true every time.

The Oklahoma Experiment Station has been investigating the pasturing of alfalfa and it finds that one of the chief reasons of failure is due to pasturing it with cattle or horses.

S. McKelville of Plainfield, Neb., argues in the *Twentieth Century Farmer* in favor of the same old dual-purpose cow for Nebraska dairymen and talks about the special-purpose dairy cow as being confined to limited districts and towns. By that we are to infer that Nebraska dairymen do not know enough to make the true dairy cow profitable. That is the stock argument that these dual-purpose fellows use everywhere. Seven hundred and eighty-seven farmers have been investigated by HOARD'S DAIRYMAN in its various Cow Censuses. The dual-purpose men, on the average, suffer badly in point of clean profit with the men who use special dairy breeds.

W. F. Jensen, of the Kansas Continental Creamery, says: "I never affirmed that a distinct breed of dairy cows would be the most profitable on Kansas farms." What is the matter with Kansas? Are her feeds, her climate, her farmers so terribly lacking that the same profit that a special dairy cow brings in Wisconsin or Ohio can not be had there? Some of the good dairy herds of Kansas ought to send Bro. Jensen some figures. The real dairy cow seems to be in his mind a matter of locality, and still all over the Union she is doing the most profitable work and a lot of dual-purpose men don't know it. She is not adapted to Kansas, Nebraska, Iowa, Minnesota, Illinois, etc., so they say.

We suppose poor returns at the creamery and at last 20 to 30 per cent less net profit per cow year after year, is especially adapted to the farmers of those states. Great argument that.

The science of good farming will consist very largely hereafter in a better study of farm economics. Stop waste by a better understanding of economical methods. Here is a good illustration in beef making taken from the *National Farmer* and *Stock Grower* of St. Louis:

A "baby-beef" calf which could be made to weigh 1,000 pounds in 365 days and sell on the market at 5 cents per pound, would pay about 14 cents per day for his keep from birth to market. A two-year-old beef made to weigh 1,000 pounds, say in 720 days, and which might possibly sell at 4½ cents per pound in market, would earn 6¼ cents a day from birth to market. A three-year-old steer, weighing but 1,000 pounds, would be well sold to-day at 4 cents per pound, and would earn 3¾ cents per day from birth to market. The fact of the matter is, that large numbers of range cattle reaching 1,000 pounds in three to four years old do not earn 2 cents a day from birth to market. A cattleman needs to know what his steers are earning by the day.

A false notion of true economy however would be to do as some dairymen are doing. They discard a cow that would earn them 25 cents a day for one that will not pay for her keep in milk, but will give them a calf that will earn 14 cents a day.

The following incident recorded by the *Ohio Farmer* may have its counterpart in some other herds:

"Our veterinary editor was recently called to see a herd near this city (Cleveland, Ohio) that was running down without any apparent cause. At last he requested to be shown the food that was given them. The secret was there. It was commercial feed stuff, composed largely of ground corn cob, oat hulls, etc. The cows were starving. He ordered a change of food and the cows at once began to pick up and increase the milk flow."

PUSHING CONVICTION ON THE FARMERS.

Every step of advance that has been made in dairy farming in every community of farmers, has been wrought out by overcoming the prejudice and enlightening the judgment of the men who were most concerned.

This has been the history of every creamery and cheese factory. At first there was almost an utter lack of knowledge of what to do in a co-operative sense; a lack of judgment of what they ought to expect of a creamery and especially a lack of understanding concerning what they ought to do to make the keeping of cows a success to themselves individually, and so make the creamery a success as a whole.

But few farmers have ever given themselves any study or investigation into the best methods of practice. Most men think that dairying simply consists in keeping a lot of cows just as they would keep any other cattle. So when a creamery is started in one of these general farming districts there is needed above everything else some one to push the right sort of knowledge among the people.

Well posted men know what a cow should earn; what kind of a cow to keep; what sort of care she should have; how they should care for the milk so the creamery can do good work with it, and finally what a good creamery should do for them. All this knowledge must be learned.

These remarks are prompted by reading a circular which Schlosser Bros. of Plymouth Ind. have addressed the farmers about them, giving some of the reasons why the keeping of cows is not more profitable among them than it is.

This is what they say, and it applies with great force to the farmers in hundreds of communities all over the land. They are not making the money they should make simply because they do not comprehend the keeping of cows as they should comprehend it. Schlosser Bros. say:

"The average number of cows per farm in the vicinity of Plymouth is but a little over three, and no special attention is given the few cows kept, yet we were able to buy last year, 1,465,817 pounds of milk, for which we paid $12,-621.20. Is this not conclusive proof that dairying could be made the most profitable part of our farming, if careful and intelligent attention were given it?

The expense of handling the dairy product is too great where the number of cows to the farm is so small. The larger the amount of milk the cheaper it can be handled and the more the creamery can pay for it.

Cows do not receive the proper care and feed. Comfort and a full balanced ration are absolute neccessities if good results are expected.

Too many "scrub" cows and not enough well-bred dairy cows. Also too many farmers trying to make a beef cow do dairy work.

Too much of the milk produced in the summer when the prices are low, and not enough in the winter when prices are high.

Not enough silos. The most economical and best winter feed for cattle of all kinds is silage.

Too many farmers who "think" it does not pay to milk cows. The revenue from the dairy industry in Wisconsin last year was $55,000,000. Does it pay the Wisconsin farmers to milk?"

Milk Computator—Cottage Cheese.

ED. HOARD'S DAIRYMAN:—Page 1085 you advertised "Newton's Computator." Is it the one that gives amount for pounds, price and test? That is, does it tell the price of 1,111 lbs. milk at $1.44, 4.15 per cent test, basis 4 per cent test? Show manner of working.

Can you put us onto the way to make buttermilk without making butter? And how to make cottage cheese for profit?

Massillon, Ohio. "OHIO."

The computator enables one to read off directly the amount of butter fat in pounds and the value of the butter in money. It does not give the results in the way you indicate above.

The skim milk should be thoroughly mixed with some good flavored buttermilk and allowed to ripen until the curd just forms. If it is now churned, a very fair buttermilk will result.

The following description of cottage cheese is from Decker's Cheesemaking:

A great many city dairies that turn a large part of their milk into the form of cream have skim milk left on their hands, and to make the business pay as well as possible, they naturally look for a means of disposing of this skim milk. Usually there is quite a demand for the sour milk curd, known as Dutch cheese, cottage cheese, or smierkase.

As this has been made probably for centuries, it would seem an easy task, and so it is, if conditions are just right, but as large dairies sometimes have difficulty in obtaining uniform results, a short chapter treating about the manufacture of this cheese from a scientific standpoint may be helpful.

As has been explained, the ca sein o milk is precipitated by rennet and dilute acids. Sweet milk can be heated to the boiling point without curdling, but as acid develops, the milk will first be coagulated at the higher temperatures, and then as the acidity increases, the temperature at which it will curdle, is gradually lowered until skim milk containing eight-tenths of a per cent of acid will curdle spontaneously. At about 70° F. skim milk will not increase in acidity above nine-tenths of a per cent as the growth of the lactic acid germ is inhibited. This amount of acid begins to redissolve the curd and make it mushy, so that it is hard to handle, and the acid also makes a sharper flavor than is desirable.

Fat in milk or cream takes the place of some of the milk serum. Cream containing 35 per cent fat will curdle with about five-tenths of a per cent of lactic acid, and milk containing 5 per cent fat will develop hardly more than seven-tenths p·r cent of acid. This is because the fat displaces a portion of the serum.

When other fermentations than pure lactic acid occur, trouble may ensue, for gas may make the curd froth so that it may be impossible to use it, or the flavor may be impaired. The way out of such a difficulty is to use a lactic ferment starter in the milk.

As acidity plays such an important part, it is desirable to measure the acid from time to time. For this a Farrington Acid Test outfit is required. In addition to the apparatus previously described for testing milk for an acidity of two-tenths per cent, a graduated glass cyclinder of 100 c. c. capacity is required for measuring the water carefully. One tablet is used for each 19.5 c. c. of water, or five tablets for 97 c. c. of water. The titration is then made with 17.5 c. c. of milk measured into the tea cup with a Babcock pipette. Each cubic centimeter of the alkali solution required is equal to one one-hundredth of one per cent of lactic acid.

The milk should be set in a steam heating vat, and the increase in acidity watched. Probably 80° F. will be found to be a good temperature at which to hold it. If it is desired to have the vat come off at a certain time, the ripening can be regulated by the temperature at which the milk is held.

The increasing acidity should be watched and when the point at which it will curdle is just at the temperature at which it is setting, the temperature can be raised, and by stirring, the curd will form and break, and as the temperature rises the whey will be expelled and the curd will collect in little grains and firm up. Possibly the operator may find it better to let the milk begin to curdle before turning on the steam. The curd will probably be firmed sufficiently by raising the temperature to 120° F. The stirring is kept up until the curd is firm enough and then it is allowed to settle.

As soon as the curd has settled so that it will not interfere with the whey strainer, the whey is drawn off and the curd is dipped with a curd pail into a cloth strainer. This strainer is made of linen strainer cloth, and is in the form of a tube so that it can be shipped over a wooden frame. The ends of the frame are supported by wooden horses, which are set over a drain to catch the whey. The curd is stirred in this strainer to free it from the excess of whey. Perhaps a little cream or butter may be added to the curd at this time to make it softer and more palatable. Cottage cheese, like other kinds, is more desirable if it contains a good quantity of butter fat. A little dry sage or caraway seed may also be worked into it to it to give it flavor. Salt to suit the taste, probably about two pounds to the thousand pounds of milk, is also worked in.

Local conditions may affect the form in which the cheese is put up for sale. It can be put into balls or loaves, which are cut later, or in paper packages, such as are used for oysters and ice cream. It always pays to put up any article in as clean and attractive a form as possible.

Milking Machines in England.

ED. HOARD'S DAIRYMAN:—Considering the agitation over the mechanical milker, the following extract from a letter received from Mr. F. E. Boyant, senior partner in Broadmoor Dairy, is of value, coming as it does, from a practical dairyman of wide experience.

"I have been looking into the merits of the Lawrence-Kennedy milking machine, i. e.—the machine you know, we read about in HOARD'S DAIRYMAN.

There are over 500 of these machines in use in Australia, and about 90 in England. I went down to a place called Gillingham's in Dorset to see it work; the machine had been installed at this dairy for nearly two years, so I thought it would be a good place to go, as they had cows that had been milked by the machine before calving and had since freshened and were again being milked by the machine.

I saw forty cows milked at this place in twenty-five minutes (with eight machines) by a man to put the "teat cups" on, and a boy to carry the milk to the dairy.

The machine got practically all the milk; the cows were stripped out afterward and a gallon and a half was all that was got from the forty cows.

The owner of the dairy told me he considered it saved him a lot of money and time and that since using the machine he has had no "three teaters," no sore teats or cow pox and that there is no question but what the milk is much cleaner and keeps better,

At this place they generally milk about 120 cows in summer and they had the pipes laid to all sorts of out of the way places where they milked bunches of cows.

So far I see no reason to doubt that the machine is entirely practical. It is very simple, nothing to get out of order and easily kept clean."

H. P. BLAIR,
Supt. Broadmoor Dairy.
Colorado Springs, Colo

The above report does not quite agree with what our Australian correspondent writes, unless we assume that improvements, not yet perfected in Australia, have been put into use in England.

Success and Trouble With Wood Hoop Silo.

ED. HOARD'S DAIRYMAN:—In September 1900, I built my second silo, as I had the lumber on the farm I made a wood hoop silo. Used for hoops, green elm sawed 3x½, so they are 3x3; for lumber used 1x6-in. Elm and red oak; nailed elm on inside hoop, broke joints with red oak with tarred paper between.

It stands beside a matched stave silo, and a jacket around them both, with two lengths of 16-ft. lumber with a hip roof so I have a bin on top that will hold 25 loads of corn so I never have to fill the second time. I have just finished feeding some silage that was put in in 1900, and it kept perfectly, to within 3 inches of the bottom. Never lost a bushel of silage by mold from either silo, after they were fairly opened. When asked which I like best I have to say both. When I fill silos I fill both at once and have two men in each silo so it is well packed in.

I know of two other wood hoop silos that used best hemlock fence boards for lumber, made double, same as mine except the tarred paper, and both are troubled with mold, so last summer the top half of one of them was taken off on inside, and paper put in, and this winter as far as the paper goes there is no trouble; how it will be below the paper remains to be seen. H. R. S.

Perry, N. Y.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Is It Practicable to Winter Pigs on Clover or Oat and Pea Silage?

Kindly let me know the cheapest way to winter pigs from three months old up. Can I keep them in a fairly thrifty condition on clover or oat and pea ensilage?

I want to winter them in a fairly thrifty condition ready for clover pasture in the spring.

Mt. Vernon, Wash. T. R.

It is reasonable to expect that the pigs would "live" on such silage, but they would not thrive and grow as they should. They should have in addition some corn or barley, or grain of similar composition.

For Cows to Freshen in April.

Will you please formulate a ration for me for cows to freshen in April? Ration to be of wheat bran and gluten meal and hay (timothy and white grass) and oat hay. The hay and oat hay was beaten into insensibility by a four-inch fall of hail on July 24th and most of the finer part was beaten into the ground. Have no oats, corn, stover or silage to help balance a ration, thanks again to that hail storm.

What proportion should I mix the bran and gluten meal and how much of the mixture shall I feed with this poor hay before my cows freshen, and how much after they freshen? Cows are Holstein-Friesian and Holstein-Friesian grades.

Corry, Pa. C. J. F.

It is simply impossible to offer a rule or formula for feeding cows under the conditions named. Presumably the damaged roughage contains but little available nutriment, but no one can say how much or how little. In such cases there can be no other dependence except the skill and judgment of the feeder. Prior to freshening we should not want to feed more than one pound of gluten meal daily with perhaps four pounds of bran. After freshening, increase the grain allowance gradually, slightly increasing the proportion of gluten, until the limit of profitable production is reached.

A Vermont Ration.

Am a beginner in dairying and need help along the profitable feeding line.

My cows are grade Jerseys from 700 to 900 lbs., 19 in number, giving 250 lbs. milk daily, nearly all fresh except four that freshened in September. Have not been grained until two weeks ago. Was feeding one bushel silage from immature corn and early cut timothy, and getting 220 lbs. milk. Now am feeding a mixture of 100 lbs. bran at $1.20; 75 lbs. cotton seed meal at $1.50, and 100 lbs. dried brewers grains at $1.50. We feed from 4 to 6 lbs. on silage and what hay they will eat twice daily. The grain amounts to 55 cents a day and increase of milk about 30 cents. Can you formulate me a profitable ration? Bran, $1.20; corn meal, $1.15; cotton seed meal, $1.50; linseed, $1.50; corn and oats, $1.20—barrel of oats and two barrels corn ground together.

Am weighing each cow's milk daily, and have just received a Babcock tester and will test all cows for production at a profit. Have just bought a high grade Jersey bull and heifer. Want to start right as I have just bought a farm and have got a $3,000 mortgage to pay. A. N.

Johnson, Vt.

Two weeks is not sufficient time for the increase in feed to show its full effect. The ration now fed ought to produce better results, but while the silage lasts we should prefer 4 lbs. corn and oat chop and 2 lbs. linseed oil meal to the present mixture, to be fed always in connection with the silage. Add also night and morning a large teaspoonful of salt.

Sunflowers with Corn for Silage.

Will you or some of your readers please tell me if I can mix sunflower seed with corn and plant together with planter? Can I get protein by so doing? I want to put this corn and sunflower into silo 14x30 in one operation. Cow peas do not do very well with us in corn. G. H. W.

York Road, Md.

We have only one report concerning the combination of sunflowers with corn for silage and that is published on page 1,046, in the issue for January 24, 1902. In that case, the writer and one of his neighbors, mixed the sunflower seeds with corn in the ratio of about 1 to 5, planting at the same time. The crop was harvested with a corn binder, just when the petals were falling from the sunflower heads, the seeds being fully formed, and put into the silo in quarter inch lengths,—sunflower stalks and all.

The most noticeable matters in connection with the experiment were an unusual settling of the silage, and the development of an odor resembling that of linseed oil.

Cows ate the silage with great relish, and at the time of writing no untoward results had developed. The grain mixture fed in connection was composed of 6 parts bran, 3 parts gluten, and 1½ parts of cotton seed meal, of which only about 4 lbs. per day were fed. Sunflowers add nothing to increase the percentage of protein in the silage.

Painting Inside of Silos.

Kindly let me know whether it is advisable to tar the inside of wood silos. We are told that the fermentation generates an acid from the tar which is injurious to cattle. If so, what about using ashphalt? E. J. B.

Macon, Ga.

The trend of opinion at the present time is that it is better not to apply anything to the wood on inner surface of silo.

Depth of Silage to be fed Daily.

Will you please inform me as to the depth of silage necessary to be taken off the surface every day to keep the silage from spoiling. I notice on page 127, you advise M. B. to build one 16 feet diameter, 24 feet deep. Allowing for settling, about 1½ inches in depth could be used each day if fed 180 days. Would this be enough to keep from spoiling? W. G. H.

Cherry Valley, N. Y.

Something depends upon the weather. Under ordinary conditions but little damage will accrue if fully one inch in depth is removed every day, but for full assurance we should prefer to take off more. Henry, in his work on Feeds and Feeding says the rate of removal should be not less than 1.2 inches per day.

Cob Meal.

I have seen so much said in your paper about corn and cob meal; will you please let me know what is the feeding value of cob meal for milch cows? J. Q. T.

Walker, Mo.

Cob meal has very little feeding value, but it is useful in diluting or extending the ground corn kernels. Corn meal or ground corn is too concentrated for profitable feeding by itself, but should be diluted with oats, bran, or cob meal. There is quite a line of experiments which tend to prove that corn and cob meal is quite as effective as the ground corn without the cob, and the reason for this is assumed to be that when the corn is fed alone, quite a proportion passes off undigested.

Starting a Dairy in North Carolina.

O. R. H., Pelham, N. C., is about to commence dairying with 15 to 20 cows, and is anxious for some advice as to the best breed of cows for butter purposes, also for suggestions as to machinery for such a dairy, and whether a silo 12×22 ft. will be sufficient to feed 20 cows for six months.

His first inquiry has been discussed over and over again. We would not advise any beginner to start in the dairy business by purchasing a herd of thoroughbreds of any breed. Better get together a selected herd of grades or natives, the best that can be had and place at the head a bull of the breed most agreeable to personal fancy, and do not let the matter of cost have too much influence in making choice of the animal. The best is almost always the cheapest, regardless of price.

The second request can be best answered by saying that information of this character should be sought from those who make a business of dealing in such goods. Write to the parties who advertise in the DAIRYMAN and ask them to submit a list with prices. The two indispensable articles will be a separator and a combined churn and butter worker. For a beginning, both can be worked by hand, but something in the way of power will be required sooner or later, and it seems to be the prevailing opinion at present, that a gasoline engine is the most convenient and least expensive.

A round silo 12×22 ft. will have a capacity of about 44 tons, which is less than should be provided for 20 cows. Better make the silo 14 feet in diameter.

Beet Pulp and Corn Silage.

A number of our grangers here are talking about sending for beet pulp for feeding in place of ensilage. What is your opinion of the relative value of beet pulp as compared with ensilage? Price quoted for beet pulp F. O. B. here is $2.75 per ton.

Richville, N. Y. A. F. S.

According to the feeding tables beet pulp contains about 8 per cent of digestible feeding units and Wisconsin corn silage approxinately 17 per cent. We therefore estimate beet pulp to be worth one-half as much as corn silage.

A New York Ration.

Please formulate a balanced ration for heavy milking grade Jerseys, to freshen in March, from the following feeds produced on farm, adding whatever grains are necessary to balance up the ration: Corn ensilage, well eared, daisy hay mixed with red top and timothy cut when daisies were in full bloom, oats and corn; wheat bran, $21; linseed meal, $28; gluten, $26. M. H. P.
Bayport, N. Y.

After the cows freshen and the fever incident thereto has passed away, gradually increase the feed until the following amounts are used:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
10 lbs. hay	8.50	.38	4.07	.12
2 lb. oil meal	1.82	.59	.65	.14
3 lbs. corn	2.67	.24	2.00	.13
3 lbs. oats	2.67	.28	1.42	.13
Totals	23.58	1.88	12.34	.73

After feeding as above for sometime try the effect of increasing the allowance of corn and oats, and if the results seem to justify the expense keep on increasing until the cow is receiving 10 to 12 lbs. of grain per day.

An Ohio Ration.

Please give me a ration from the following:
Clover hay, $12.00; bran, $18.00; shorts, $17.00; gluten meal, $25.00; cotton seed meal, $25.00; oil meal, $25.00; malt sprouts, $12.00; corn and oats, $20.00.
My cows are all Durham cows, and have been fresh since the first of the year. C. H.
Shepard, O.

From the feeds named above and the prices given we should select as a general average for a herd of cows about as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. clover hay	16.94	1.36	7.16	.34
4 " malt sprouts	3.59	.74	1.48	.07
4 " corn and oats	3.56	.34	2.28	.17
Totals	24.09	2.44	10.92	.58

Blood Meal for Cows.

What is your opinion of feeding blood meal to dairy cattle, meal costing $55 per ton at packing house in Chicago and quoted 87 per cent protein.
Mt. Vernon, O. A. B.

In the absence of experience, it is not safe to hazard very positive "opinions." Of course any product carrying so much protein can be fed only in very limited amounts, and in connection with other concentrates. Notwithstanding her very capacious stomach, a cow cannot eat sufficient roughage to enable her to do her best at manufacturing milk. From a quarter to a third of the dry matter in other average rations should be in some kind or kinds of concentrates. Very likely if one was feeding barley, or oats, or bran and corn, he might use with profit a pound or less of this blood meal in the daily ration.

Mowing Weeds in Alfalfa.

In a late number you say spring seeded alfalfa will usually need to be run over with a mower several times to keep the weeds down. The mower knife should be set high, etc. Now at our institute, the speaker claimed it was almost certain death to the alfalfa to cut it high and it should always be cut with the knives low. Now who is right? W. A. S.
Perry, N. Y.

The custom in the west is to set the knife high when mowing the weeds in alfalfa and there do not seem to be any unsatisfactory results from so doing.

What Kind of Peas.

Please tell me though the DAIRYMAN what kind of peas they use for pea meal in Canada. Is it the black-eyed Marrowfat? A. J. B.
Torrington, Conn.

We do not recall at this writing the specific name of the pea most commonly used. It is generally called the "Canada Field Pea," is much smaller than the Marrowfat and has a smooth skin.

Whether and Where to Buy Cows.

C. M. C., of Missouri, writes that a railroad is being built near him, and there is likely to be a large number of men at work, all summer. He makes ice cream, butter and buttermilk and also has a retail trade in whole milk in an adjoining town. He expects an increasing demand for his products and asks for our opinion as to whether he should buy a car load of springers at Kansas City, or try to pick up good cows nearer home, which are scarce and high in price. It must be manifest that the facts stated are not sufficient to enable one so far away as we are, to form any very valuable opinions.

In buying a car load of springers in such a market as Kansas City, one must expect to get a liberal proportion of culls and kickers, and some very excellent milkers. The difference in cost may more than counter-balance the added risk—for some risk there is, even when dealing with one's neighbors. If we could buy the car lot in one bunch at 15 to 20 per cent less than it would cost to buy at home we should be disposed to run the chances.

Raw vs. Pasteurized Milk.

Which milk is best for private customers, raw milk or pasteurized, and why?
Which milk is best if first cooled and clarified by running through separator, pasteurized or raw?
Columbus, Ohio. D. J. S.

Clean, raw milk can not be improved upon, provided it is kept clean, and can be supplied to the customers in that condition. If milk has to be shipped long distances in summer and is not produced under sanitary conditions, it will improve its food value and keeping quality to pasteurize it. If the milk can be run through the separator as soon as it is produced it will add considerable to its cleanliness and keeping quality, but there is no use in doing it if the milk is allowed to stand several hours before clarifying.

Wild Onion Taint in Milk.

Do you know of anything that will destroy or tend to lessen the effect of wild onions in milk? Our pasture has a great many wild onions and our customers complain so much. N. T. J.
Knoxville, Tenn.

Mrs. Lea's Milk and Butter Purifier, which is advertised in these columns, is highly recommended for that purpose. We have had no personal experience with this remedy, but it is highly spoken of.

Cleaning Milk Cans.

I have heard it said, don't wash your milk cans with soap. Will you please inform me the best method of washing cans and keeping them clean and sweet?
I ship milk to the city of Philadelphia and our cans come back occasionally in bad condition, in warm weather sour etc. Please tell me just how to do this to keep them sweet, and what to use?
Hopwell, N. J. J. M. D.

Soap is not recommended, because where hard water is used, it forms a sticky compound with the lime and casein that clings to the sides of the can, and is difficult to remove. There is also danger of the soap being scraped off in the edges of the can, which will not help the flavor of the milk.

For sour cans, a rinsing with cold

"ADVERTISEMENT."

Dr. Shoop's Rheumatic Cure

Costs Nothing If It Fails.

Any honest person who suffers from Rheumatism is welcome to this offer.

I am a specialist in Rheumatism, and have treated more cases than any other physician, I think. For 16 years I made 2000 experiments with different drugs, testing all known remedies while searching the world for something better. Nine years ago I found a costly chemical in Germany which, with my previous discoveries, gives me a certain cure.

I don't mean that it can turn bony joints into flesh again; but it can cure the disease at any stage, completely and forever. I have done it fully 100,000 times.

I know this so well that I will furnish my remedy on trial. Simply write me a postal for my book on Rheumatism, and I will mail you an order on your druggist for six bottles Dr. Shoop's Rheumatic Cure. Take it for a month at my risk. If it succeeds, the cost is only $5.50. If it fails, I will pay the druggist myself—and your mere word shall decide it.

I mean that exactly. If you say the results are not what I claim, I don't expect a penny from you.

I have no samples. Any mere sample that can affect chronic Rheumatism must be drugged to the verge of danger. I use no such drugs, and it is folly to take them. You must get the disease out of the blood.

My remedy does that even in the most difficult, obstinate cases. It has cured the oldest cases that I ever met. And in all my experience—in all my 2000 tests—I never found another remedy that would cure one chronic case in ten.

Write me and I will send you the order. Try my remedy for a month, as it can't harm you any way. If it fails it is free.

Address Dr. Shoop, Box 934, Racine, Wis.

Mild cases, not chronic, are often cured by one or two bottles. At all druggists.

A GREAT COMBINATION!



GOOD COWS AND A U.S. SEPARATOR FILL THE FARMER'S POCKETS WITH MONEY!

The U. S. Separator gets all the cream from the milk,
The cream makes the butter,
The skim-milk makes the calf,
All bring in the cash.

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We manufacture all kinds of Steel Roofing and Siding; also Steel Ceilings and Roofing Paints. Write for prices.

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at the farm. The CHAMPION is simple, cheap, effective—it is the best there is. Our Booklet about it for the asking.

Champion Milk Cooler Co.

67 Main Street, CORTLAND, N. Y.

water, followed by thoroughly scalding with hot water, containing washing soda, followed by clean hot water, will be found sufficient.

Should Heifers be Milked before Calving.

Please state whether heifers should be milked prior to dropping first calf, and if so, what would be the probable benefit? L. H. M.
Florence, S. C.

We would not milk in such cases unless it seemed to be indispensable in order to prevent serious inflammation of the udder. It is advisable, in our opinion, to induce the largest distension of the heifer's udder consistent with safety.

Butter Fat in Cream.

Will 400 lbs. of 25 % cream make more butter than 500 lbs. of 20% cream. Or in other words, is there any reason why a creamery patron should make more by running his cream 20% than he would if he run it 25%? W. C. S.
Waupaca, Wis.

There is not enough difference in the amount of butter that can be churned from 400 pounds of 25 per cent cream, and 500 lbs. 20 per cent cream to make an appreciable difference in the money returns. The only difference would be the amount of fat left in the extra 100 lbs. of butter milk, which might possibly amount to 5 cents, but which would not be appreciable on the total weight of butter churned out.

Partly Skimmed Milk Not Standard.

Milk in Ohio testing 3 per cent, is considered "of standard quality" according to law. Now if you have milk testing say 4½ or 5 per cent butter fat, and you reduce it down, to say, 3½ per cent butter fat, could it be said within the law, that your milk is yet of standard quality?
Ohio.

We are not advised as to the precise terms of the Ohio law, but presume it does not differ materially from the laws in other states. If such is the case, it will be found there is a provision against removing any of the fat.

A Vermont Ration.

What will be a good ration for my 15 cows, mostly fresh in March? I have good hay and good corn silage for this year. Have to buy all my grain at following prices: corn meal, $1.25; bran, $1.15; wheat feed, $1.25; gluten, $1.45; cotton seed meal, $1.50; middlings, $1.15 per 100 lbs. S. M. S.
Cambridge, Vt.

Cows freshening in March should be carried through to grass very liberally and should be fed both hay and grain for some time after being turned to pasture. Indeed, it is quite the proper plan to give them some hay all through the summer and fall. For the present, we suggest the following as an average daily allowance.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients. Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
10 lbs. hay	8.53	.48	3.96	.16
4 lbs. bran	3.52	.50	1.54	.12
2 lbs. gluten feed	1.80	.46	1.01	.05
2 lbs. ground corn	1.78	.16	1.33	.08
Totals	23.55	1.99	12.04	.62

And in this connection we want to emphasize what Mr. Van Norman says on page 184 about the art of feeding as distinguished from the science of feeding. It is of little avail to follow blindly and unthinkingly any prescribed formula without regards to results. There has been too much of that both with the farmer and the scientist. Watch each cow and bring her to book by weighing her milk, and if the milk product does not respond to the feed consumed, feed less or more, until she does respond, trying the increase for 10 days or 2 weeks to give the cow a fair show.

Cement Silos.

I wish to ask if a silo can not be made of grout, cement and gravel. They are making a bridge here across the Great Miami river, of grout. I should think it would be just the thing for a silo, Or would it freeze, being on the outside and silage wet? Is it necessary to put a roof on a silo? X.
Dayton, O.

It is quite practicable to build a silo from cement and gravel as suggested. Indeed this style of construction is becoming quite popular in Canada, where the English practice, of building once for all, is more prevalent than on this side the line. Of course there will be some freezing, but this objection is not given much weight at the present time. It is not necessary to put such a roof on a silo as one would put on a barn or a house, but there should be roof enough to keep out the greater part of the snow in winter, and in practice nearly every silo is provided with a substantial roof.

What Kind of Root Crop.

Will you please tell me which variety of root crop you would advise me to raise on rich bottom land to be fed to a winter dairy, where quanity and quality are both to be considered? E. D. C.
Chester, N. Y.

Where one has a silo and can raise a good crop of corn, his best profit will lie in letting other people raise and feed roots, but where circumstances seem to make it imperative to grow roots of some kind, there is probably no variety which will return better results than manglewurtzels, called mangles for short, or sometimes stock beets.

Feeding Values of Skim Milk and Whey.

Will you please give the feeding values of sweet whey as soon as can be gotten from the cheese factory; and sweet skim milk from a hand separator on the farm, for calves and pigs.
Dorchester, Wis. A. W.

The feeding value of both skim milk and whey depends very largely upon the feeding skill of the man who uses them. Neither is fit to be fed alone, but either makes an excellent supplement to other feeds. They are very unlike, in that skim milk is a highly nitrogenous feed, whereas whey is almost purely carbonaceous. Therefore with skim milk, especially for pigs, we mix ground corn or middlings,—not less than one pound to five of milk—and with whey the demand is for oil meal, or some of the glutens. Thus fed a hundred pounds of skim milk is worth half as much as a bushel of corn and whey approximately one-third as as much as the skim milk. Specific, iron-clad rules for feeding cannot be given. If the feeder will not, or cannot, exercise some skill and judgment, based upon skillful, daily observation of results, he will be sadly disappointed with the outcome.

Size of Silo Required.

Blue Joint or Red Top for Hay.

ED. HOARD'S DAIRYMAN:—I want to build a silo. I have about 20 head of cattle in all and want to build a silo to hold enough to feed the whole year, now will you please tell me how large to build?

Also, will you please tell me what kind of grass will do best, and which has the most feeding value blue joint or red top? I have several low marshy places which I ditched last fall and cleared and plowed up and want to seed them down. My intention was to sow oats as a nurse crop, and cut when it commences to head out, and seed to alsike clover, timothy and either blue joint or red top. W. N.
Cecil, Wis.

If we estimate an average of 35 lbs. of silage daily, per cow, it will require 130 tons to carry 20 cows through the year, and making allowance for waste and small increase in number of animals, the silo should have a capacity of nearly or quite 150 tons. A round silo, 18 feet in diameter and 30 feet deep, or one 20 feet in diameter and 26 feet deep will have such capacity. In either case there would be more surface exposed than is desirable. Two silos, 15 feet in diameter and 26 feet deep would give better satisfaction.

There is considerable difference of opinion as to the adaptability and feeding value of blue joint hay. It is a native grass and some authorities claim that it does not do well under cultivation. Others recommend it very highly. On the whole, it would appear that the red-top should be preferred.

Further Facts Wanted About Silage and Silos.

ED. HOARD'S DAIRYMAN:—I read in John Gould's article, page 52, in the Feb. 27th number of your paper, that Joe Wing fed 60 steers, 700 eight-months-old lambs, for 70 days on 10 acres of ensilage and it was not all gone. Now to the uninitiated, this sounds fishy indeed, but if Bro. Gould or Wing will tell us just how much dry feed and how much grain was fed with this ten acres of corn, we might be able to approximately figure out the real worth of this ensilage.

I will take my initiatory degree in silo construction and use this season. Have the material on the ground, for stave silo 13x26 feet, will use the built-up wooden hoops, nailed on. Will try some clover in it for feeding after harvest, and corn in the fall. Will report my suceess or failure in the future. G. C.
West Unity, Ohio.

The amount of silage fed to those steers and lambs probably did not exceed 160 tons, and is quite practicable to raise that amount on 10 acres of fertile land, properly cultivated. After G. C. has mastered his "initiatory degree" in silos and silage, John Gould's statement will appear credible, and we shall await with much interest the promised report of his success.

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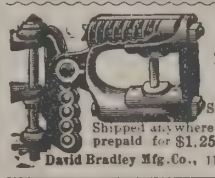
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Saves Team, Harness and Implements.
Send for descriptive matter.
Shipped anywhere in United States, charges prepaid for $1.25 cash with the order.
David Bradley Mfg. Co., 110 E. Broadway, Bradley, Ill.

DON'T Place Your Order For -ROOFING- Until You Have Seen CAREY'S Magnesia Flexible Cement ROOFING



It Can't Be Equalled For Durability, For Flat or Steep Roofs QUICKLY APPLIED.
Sample Cat. and full information mailed upon request, Free.
The Philip Carey Mfg. Co., 19 Wayne, Lockland, O.

NO HUMBUG. Three in One.



Swine V, Stock Marker and Calf Deborner. Stops swine from rooting. Makes 48 different ear marks. Extracts Horns. Price $1.50. Send $1 for trial. If it suits, send balance. Pat'd May 6, 1902. Hog and Calf Holder only 75c.
FARMER BRIGHTON, FAIRFIELD, IOWA.



The Distribution of Skim Milk.....

It is known that the just complaints of creamery patrons on account of unfair distribution of skim milk are the bane of the separator creamery business. Further disputes among patrons, annoyances to managers, hindrances to the best work of buttermakers, watering the skim milk, and many other ills in the same train are unnecessary, since the

Barber-Coleman Check Pump

has for more than five years been successfully solving the problem in many different creameries. When a patron has dropped in his check he can pump the amount of skim milk called for by his check, less the percentage taken out as cream, so in like proportion to all other checks. Its measuring apparatus is just an ordinary pump which everyone understands and knows how to operate.

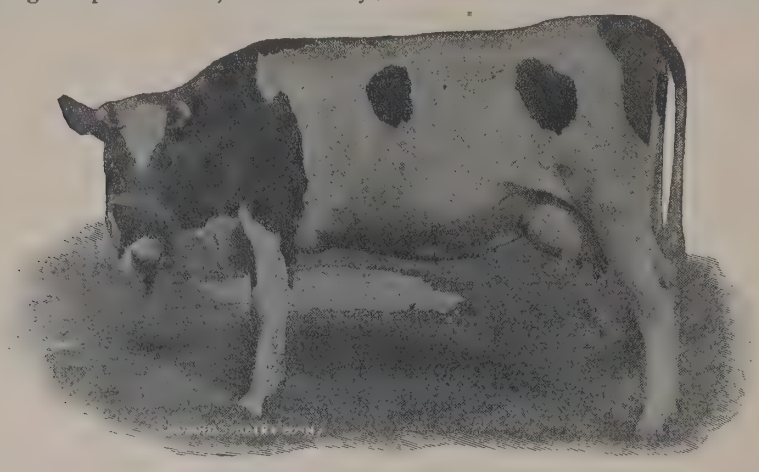
Cornish, Curtis & Greene Mfg. Co.,
General Sales Agents De Laval Alpha Separators,
FORT ATKINSON, WIS.

Public Sale of High-Class Holsteins.

In a personal letter to the DAIRYMAN, Mr. C. F. Hunt, whose sale is advertised to take place at Syracuse, N. Y., April 22, 1903, assures us not only that all the animals are strictly high-class both in breeding and performance, but that they are individually excellent types of the breed and the families they represent.

In confirmation of these statements, he refers to the Holstein-Friesian Advanced Registry Official, citing the record of each animal, from which it appears that 5 mature cows are credited with an average yield of 19 lbs. 2 3-5 oz.; 3 4-year-olds, 18 lbs. 2⅔ oz.; 6 3-year-olds, 16 lbs. 6 oz. and 10 2-year-olds, 12 lbs. 12 3-5 oz. This is an average for the 24 head, nearly half of them only two years old, of 16 lbs. 10 oz., or 1 lb. 10 oz. more than is required for mature cows.

In further assurance, Mr. Hunt sends us photographs of two of the animals, which we reproduce as object lessons of dairy type, well worthy close study by every dairyman who has an ambition to improve his herd and increase his profits. No matter what breed one may select, there is a pronounced similarity of form in all first-class dairy animals.



HOLSTEIN COW—JEEK QUEEN
21 lbs. 5 oz. butter in 7 days.



HOLSTEIN COW—AAGGIE DeKOL WAYNE 3d
2 years old, 12 lbs. 1 oz.
Property of CLARENCE F. HUNT, Delphi Falls, N. Y.

Handling Manure.

ED. HOARD'S DAIRYMAN:—I would like to ask the many writers who are advocating drawing out manure and spreading it in the snow on frozen ground, a few questions.

Why is the fertility washed out of a pile of manure by the small amount of water that falls on the few square yards covered by the pile, more than it is by the tons of water that fall on the two or three acres that they would spread the pile on? If the fertility will wash from the yard to the brook why not from the field to the brook? Why does it not settle down from the surface a little way into the pile and remain there just as they claim it does in the thin layer spread upon the field?

Of those who prove their theory by telling of the absence of any extra growth a short distance below manure spread on a side hill I would ask, What do they think will prevent the dissolved fertility running way to the foot of the hill when it has once started?

If there was an extra growth below the manure it would prove that it did not all run away. Do they think water will sink into a frozen soil? Water always stands in depressions until the frost is out beneath it. We are taught that much of the soil was made by being washed from other places. If the fertility does not wash also why are the hollows and low places where water accumulates and stands in the spring always richer and more productive than the surrounding soil?

If nothing but the coloring matter runs away, what is the grey powder-like substance that covers the grass in a dried out depression immediately after the water recedes and before the rain has washed it off? I think it is not quite all tannin. I would like very much to be convinced that I will gain by spreading manure on snow and frozen ground, but how the snow that usually goes off with a rain can run off of a field carrying one soluable substance and leave another, is more than I can comprehend.

Plattsburgh, N. Y. PAN DAY.

Fawn Color, Stubby Tail, Deficient Rudimentaries.

I purchased a bull calf, 18 months old, without examination, knowing his ancestors as prize winners for years of this section, and dam as a model dairy cow of great ability, but on arrival of calf find it of fawn color, rather of a stubby tail and scarcely no teats, but other ways consider it a model. Would like to know if it would pay to sell him and purchase another or try him and see his stock?

Kendallville, Indiana. A SUBSCRIBER.

We do not consider that the objections stated are fatal, especially when offset by a dam of such merit. It is not so much the size of the rudimentary teats that should govern as it is the manner in which they are placed. We like to have them well spread and squarely placed, indicating that the resulting heifers will have shapely udders and well placed teats.

A New Dairy Law In Wisconsin.

The following law relative to the taking of milk to creameries, and the action of the creamery operator in testing the same, has been recently enacted by the Wisconsin legislature and is now in full operation.

THE PEOPLE OF THE STATE OF WISCONSIN, REPRESENTED IN SENATE AND ASSEMBLY, DO ENACT AS FOLLOWS:

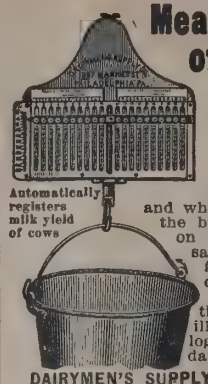
SECTION 1. In the use of the Babcock test, the standard milk measures or pipettes shall have a capacity of 17.6 cubic centimeters, and the standard test tubes or bottles for milk shall have a capacity of 2 cubic centimeters for each 10 per cent marked on the necks therof; the standard unit of cream for testing shall be 18 grams, and it is hereby made a misdemeanor to use any other standards of milk or cream measure where milk or cream is purchased by or furnished to creameries or cheese factories and where the value of said milk or cream is determined by the per cent of butter fat contained in the same, or wherever the value of milk or cream is determined by the per cent of butter fat contained in the same by the Babcock test.

Section 2. Any manufacturer, merchant, dealer or agent in this state who shall offer for sale or sell a milk pipette or measure, test tube or bottle which is not correctly marked or graduated as herein provided shall be guilty of a misdemeanor, and upon conviction thereof shall be punished as provided in section 4 of this act.

Section 3. It shall be unlawful for the owner, manager, agent or any employe of a cheese factory, creamery or condensed milk factory to manipulate or under-read or over-read the Babcock test or any other contrivance used for determining the quality or value of milk or cream or to make any false determination by said Babcock test or o herwise.

Section 4. Whoever shall violate any of the provisions of this act shall be guilty of a misdemeanor and upon conviction thereof shall be punished by fine of not less than twenty-five dollars nor more than one hundred dollars for each and every offense, and in default of payment thereof shall be imprisoned not less than thirty days nor more than sixty days.

Section 5. This act shall take effect and be in force from and after its passage and publication.



Measure the Milk of each Cow

With the **Automatic Milk Scale** you can keep an accurate record of the yield of each cow, and remove the unprofitable ones from the dairy. Each button on scale arm corresponds to number of cow, and when pail of milk is weighed the button registers the weight on score card. Big money saver and money maker for farmers and dairymen.

Send for testimonials and illustrated catalogue of **Bestov** dairy supplies.

TRADE MARK BESTOV

DAIRYMEN'S SUPPLY CO., Philadelphia, Pa.

NOW IS THE TIME TO SUBSCRIBE FOR Hoard's Dairyman.

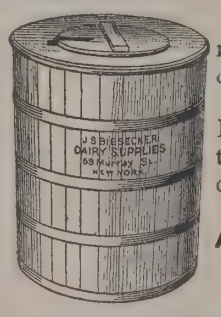
PURE OIL MEAL. USE FOR MILCH COWS AND FATTENING STOCK.

Superior to corn, oats and hay. Ton lots $24.00; half ton $12.50; 500 pounds $7.00; 100 pounds $1.50. Put up in 100-lb. sacks f. o. b. Minneapolis. Cash with order.

This Meal is Guaranteed Absolutely Pure. We also manufacture Strictly Pure Linseed Oil.

NORTHERN LINSEED OIL CO.,
MINNEAPOLIS, MINN.
When ordering mention this paper.

MILK CAN TUBS



Are used for icing up a can of milk. They are made of cedar; come either in clear or painted, with or without covers.

My make of these tubs is the best in the market. I have two styles of covers, one a hinge, as shown in the cut, the other a flat top, with the knob setting down in the hole of the larger cover.

You can have either style of cover.

A postal will bring you prices as well as my handsome illustrated catalog. Write today.

J. S. BIESECKER, 59 MURRY STREET, NEW YORK CITY.

30 DAYS FREE TRIAL

Our **Buggy Book** is now ready for 1903. It gives prices and description of our full line of **high-grade carriages and harness. The kind that are known as**

Kalamazoo Quality

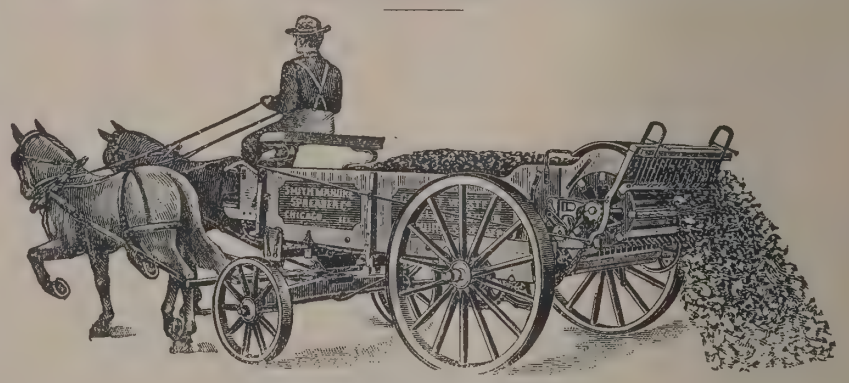
Not how cheap—but **how good.** You should send for this book at once, as it is **FREE.** All vehicles sold on

30 Days' Free Trial,

at less than wholesale prices.

KALAMAZOO CARRIAGE & HARNESS MFG. CO.,
148 Ransome St., Kalamazoo, Mich.

ILLUSTRATION.



THE GREAT WESTERN MANURE SPREADER.

In no line of machinery made to meet the various necessities of the farmer has there been such marked progress in late years as in the matter of mechanical spreading of manure. This thought is brought to mind by seeing the catalog of the Smith Manure Spreader Company of Chicago, upon their Great Western Endless Apron Spreader. For the reason that the spreading of manures by machinery is a matter of such great importance with farmers today, and for the additional reason that this spreader is in many respects typical of the best ideas employed in all spreaders, we desire to call the reader's special attention to it by illustrating it here. That manure may be made to cover more ground, that it is spread uniformly so that every particle may find its way into the soil instead of lying about in lumps and piles to waste away in rainy seasons, and that there is great saving of time and labor in the spreading by machinery, are matters which need no further discussion before intelligent farmers. It may be too early to say that the ideal machine has been produced, but in candor we must say that it is difficult to see how anything can more adequately serve the purpose than this Great Western Spreader. We gather from the catalogue, which we hope will find its way into the hands of many of our readers, that it not only spreads manure, but is equally at home in every kind of commercial fertilizer. It is regulated while in motion, to spread thick or thin as desired. It differs from all other spreaders in having an endless apron whereby it is always ready to load. Its combined hood and end gate serves the dual purpose of keeping manure from beater during loading process or in starting, and acts as hood and shield while spreading. What is designated as a non-bunchable rake serves to hold all chunks and hardened substances upon the beater until thoroughly pulverized and discharged as uniformly over the ground as the rest of the load. Its rated gauging is 3 to 25 loads per acre. All this and much more is set forth with proper detail in the Company's catalogue, to which we must refer the reader for further particulars. It is a book 10x27 inches in size, showing numerous large cuts. It is mailed free on application. Write for it and study the subject, whether you think of buying a spreader or not.

MR. STEPHEN HUG of Crystal City, Mo., is a great enthusiast on the subject of alfalfa says the *Farmer and Stock Grower*. He sows 30 pounds to the acre and attributes his success in dairying largely to the growing of this plant.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—Butter remained firm at 28½c on the Elgin Board of Trade today. No offerings were made and the market was quiet. The output for the week was 505,400 lbs. The New York market was reported firm at 29c. Former markets were:

March 30, 1903, no sales, price 28½c,
April 7, 1902, no sales, price 30c.
April 8, 1901, no sales, price 21c.
April 9, 1900, no sales, price 20c.

Elgin, Ill., April 6. H. C. B.

DAIRY MARKETS.

ELGIN, Ill., April 6—Butter—Sold at 28¼c on the Board of Trade to-day, the same price as last week. Sales for the district were 505,400 lbs.

CHICAGO, Ill., April 6—Butter—Firm; creameries, 18@28½c; dairies, 12@24c.
Cheese—Steady; Twins, 13@13¼c; Daisies, 13¼@13½c; Young Americas, 13½c.
Eggs—Firm at mark, cases included, 13½c.
Live poultry—Easy; turkeys, 12@13c; chickens, 13c.
Cattle—Prime beeves 1,200 to 1,400 lbs., 5.50@5.70; choice to extra beeves, 5.25@5.45; fair to good export and shipping steers, 4.70@5.15; medium beef steers, 4.25@4.65; plain to fancy beef steers, 3.80@4.00; common to rough, 1,000 to 1,250 lbs., 3.30@3.70; good to choice heifers, 3.90@4.60; good to choice feeders, 4.00@4.90; poor to plain stockers and feeders 2.75@3.00; fair to good cows and heifers 3.20@4.15; good cutting and fair beef cows, 2.65@3.15; common to good canning cows, 1.70@2.60; bulls, poor to choice, 2.25@4.25; veal calves, good to fancy, 6.00@7.00; calves, common to fair, 3.50@5.75; corn fed Western steers, 3.65@5.50; Texas bulls and grass steers, 2.75@3.20. Texas steers, fair to choice, 3.75@4.60.
Hogs—Good to prime heavy shipping, 7.35@7.50; good to choice heavy packing, 7.35@7.50; plain to choice heavy mixed, 7.20@7.35; selected butcher weights, 7.30@7.50; assorted light, 150 to 195 lbs., 7.00@7.25; common to good light mixed, 7.05@7.25; thin to choice, 50 to 130 lbs., 6.40@6.90; stags to rough lots, 4.00@6.25.

MILWAUKEE. Wis., April 6—Butter—Creamery—extras, 28½c; firsts, 22@23c; seconds, 17c; June creamery, 18@20c; process (renovated), 17@18c. Dairy, fancy, 19c; lines, fresh, 15@16c; roll, 15@16c; packing, 12½c: whey, 10c; grease, 5@6c. Receipts, 10,730 lbs.
Cheese—American full cream, Twins, 13@13¼c; Young Americas, 13@13¼c: Daisies, 13¼@14c; Longhorns, 12¼@13c; low grades, 10@12c. Brick, fancy, 13@13½c: low grades, 11@12c. Limburger, fancy, 12@12½c; low grades, 10@11c. Swiss, drum, choice, 14@15c; drum, No. 2, 12@13c; Block, choice, 12½@13c; do, No. 2, 10@11c.
Eggs—Strictly fresh laid, cases returned, 12½c; seconds, 8c. Receipts, 550 cases; Saturday, 740 cases.

SHEBOYGAN FALLS, Wis., April, 1—Cheese—21 factories offered 782 boxes of cheese on the Call Board today and all sold as follows: 42 Twins at 12c; 24 at 12¾c; 161 cases Young Americas at 12¼c; 202 Daisies at 13c½c; 353 cases of Longhorns, at 12¼c. Market active and demand good.

SHEBOYGAN, Wis., April 1—Cheese—Offerings and sales on the local cheese board were 8 boxes Twins, at 12½c; 268 Daisies, 13@13½c; 39 Young Americas, at 12¼c; and 160 Longhorns at 12¼@12¾c. The market was very active, the demand exceeding the supply. Dealers expect higher prices to rule this than last. The meetings of the board from now on will be held weekly on Wednesdays at 5 p. m. until further notice.

WASHINGTON, D. C. April, 6—Butter—Market very firm. Fancy Extras, 29½c.
PHILADELPHIA, Pa., Apr. 6—Butter—Market firm. Solids 30c. Nearby prints 33c. Western 31c.

NEW ORLEANS, La., April. 6—Butter—Creamery 29c. Renovated 19c. Ladles 14½c.
Eggs 13c.

CANTON, N. Y. April, 5—Butter—Offered 64 cheese and 343 tubs of butter. No sales of cheese. 27 tubs of butter sold.

KANSAS CITY, Apr. 6.—Eggs—higher; fresh Missouri and Kansas stock, 11½c. doz. cases returned; new No. 2 whitewood cases included, 12¼c. Butter—Creamery, 21@25; dairy, fancy 19c.

ST. LOUIS, Apr. 6.—Butter—Quiet; creamery, 21@29½c; dairy, 18@21½c.
Eggs—higher;; 12c for fresh.

NEW YORK, April 6—Butter—Receipts, 6,306 packages; market firm; state dairy, 17@27c; extra creamery, 29c; held creamery, 15@25c; creamery, common to choice, 19@28½c; factory, 13@16c. renovated, 12@18½c.
Cheese—Receipts, 1,541 packages; firm; new state full cream, fancy small colored, fall made, 15c; small white, fall made, 14¾c; large colored, fall made, 14½@14¾c; large white, fall made, 14¼@14¼c.
Eggs—Receipts, 22,191 packages; firm; state and Pennsylvania, 15@15¼c; western, storage packed, 15@15½c; western firsts, 14¾c; southern, firsts, 14¼c; Kentucky, 14¾c.

BOSTON, Mass., April 6.—Butter—Creamery western extra, 26½@27¼c; western firsts, 25½@26¼c, dairy, 24@25c; imitation creamery, 15@20c; ladle, 14@16c: box and print, 20@21c.
Cheese—Choice, 14½c; sage, 14½@15c; fair to good, 10@12½c.
Eggs—Near by, 17c; western selected, 15c; fair to good, 14½c; Illinois, 15c; western dirties, 13½c.

TOPEKA, KAN., Apr. 4—Creamery butter 27½ to 29c; dairy 17½ to 19c.
Cheese—Longhorns 13¾c; Twins 13½c; Daisies 13¾c.

LIVERPOOL, April 6—Butter—Good United States, steady, 78s.
Cheese—Strong, American finest white, 69s; colored, 69s
Latest quotation for fancy creamery: Baltimore, 29½@30c; Cincinnati, 30½c; Newark, N. J., 29c; Buffalo, 29c; St. Paul, 27c; Minneapolis, 27c.

NEW YORK MARKET.

NEW YORK, April 4th.—Butter—Receipts for the week, 35,652 packages. Exports for the week, 2,361 packages.
All the arrivals of fancy fresh creamery were quickly taken at 29c and firsts cleaned up at 27@28½c. At the close there are very light stocks of extra fresh goods and prices are steady. Selections of finest dairy from Delaware county sold at 27@28c, while poor to good qualities from all sections sold at 15@25c. The best business of the week was in June make creameries. Long lines of the best creameries, perfectly kept, sold early in the week at 24@24½c, with sales later of several hundred tubs at 25c; also sales of good sized parcels fair to good quality at 19@23c, but the demand was largely for best goods suitable for table use and anything showing old flavor was either rejected or prices knocked down 4 or 5c per pound. Renovated butter of fine quality was in good demand at 19@20c, while under grades were entirely neglected and prices nominal. Low grades of butter continue in full supply and prices favor buyers. We quote:
Creamery, fresh, extra, 29c; medium, 26@28c; poor, 15@25c Creamery, June, extra, 25c; medium, 20@23c; poor, 15@20c. Dairy, extra, 27@28c; medium, 22@25c; poor, 15@20c. Ladle, extra, 20c; medium, 15@17c; poor, 12@14c. Renovated butter, 19@20c; medium, 15@17c; poor, 12@14c.
Cheese—Receipts for the week, 10,503 boxes. Exports for the week, 3,879 boxes.
Trading is confined to a small retail business and sales at 15c are too few to make it a quotation. Home and out-of town trade are buying good useful full cream cheese at 13@14½c, while exporters are taking under grades full cream and skimmed cheese at 10@12½c, and they would probably pay 14@14¼c for finest full creams, but holders refuse to take these prices, feeling confident that higher prices will be made before the new make. We quote:
Full cream, extra, 14½@15c; medium, 13@13¼c; poor, 10@12½c.
Eggs—Receipts for the week, 130,895 cases.
There is a good healthy demand and although receipts are unusually heavy, the top price is freely paid for good standard marks; prices close firm at 14½@15½c. DAVID W. LEWIS & Co.
177 Chambers St.

NEW YORK FERTILIZER MARKET.

Nitrate of soda		2 05	@ 2 15
Blood, Dried red	₱ unit	2 65	@ 2 70
low grade		—	@ —
Concentrated tankage		15 00	@16 00
Fish guano, dried		27 00	@28 00
acidulated		14 00	@ —
Acid phosphate		60	@ 67½
Phosphate rock, f. o. b. Char'n		5 00	@ 7 00
Tenn		3 60	@ 3 75
Bones, rough	₱ ton	16 50	@17 50
ground		20 00	@21 00
Bone meal		18 50	@24 00
Bone black, refuse		18 00	@19 00
Potash, dbl. m're salt 48@53 per cent		1 12	@ 1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons		25 00	@30 00
sulph of basis, 90@98 per cent		2 11	@ 2 18
90@98 per cent less than 25 tons		38 00	@40 00
Potash muriate 100 lbs		1 83	@ 1 95
less than 25 tons		36 00	@40 00
Kainit 25% S. of P.	₱ ton	9 30	@ 9 50
less than 25 tons		9 50	@10 50
Sylvinit, 35@37% P.	₱ unit	41	@ 46

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Guernseys For Sale—Four choice grade heifers 2½ years old, to calve in May and June, and one grade bull 2 years old. SWITHIN SHORTTIDGE, Landenburg, Pa. 9-2

Cheesemaker wants to change position by May 1st. 6 years experience, married, sober and industrious. Can make butter. References. State wages in first letter. Address Postoffice Box 31, Eastman, Wis. 9-2

Experienced butter and cheese maker, graduate of Wis. Dairy School, wishes to change position. Have handled gasoline engines and ammonia machines. Good references. Prefer to go south, or to the Pacific coast. Address M. 66, care Hoard's Dairyman. 8-3

Farm Manager, capable and experienced in dairy farm work is desirous of securing a position. 39 years old and have had 20 years experience in the work. Have successfully managed registered herds of dairy cattle and am familiar with modern dairy machinery and methods. Well educated. Address R. E. N., care Hoard's Dairyman. 8-4

For Sale—A two horse Heebner's level tread power, on trucks, in good condition for $45. Address ALFRED MIRITZ, Kewaskum, Wis. 7-4

For Sale—The entire outfit for making American cheese; all in good order. Will be sold at a bargain. JAMES VIPOND, Shullsburg, Wis. 4-6

For Sale—Complete city dairy (no cows) and ice cream plant in thriving southern city. Output 500 gallons milk daily at profit of 9 and 10 cents. Daily expense less than $30.00. Price $7,000. Can furnish experienced dairyman and ice cream maker with $2,000 cash to invest in the business as a partner, or will sell as a whole. Best reason for sulling. Address "APRIL", care of Hoard's Dairyman, Fort Atkinson, Wis. 8-tf

Medium Red Clover Seed for sale, crop of 1901, in lots of 2½ bushels or more, $7.00 per bushel. sacks free. J. M. WAGNER, Hillsboro, Wis. 8-tf

For Sale Cheap—A No. A 1 Victor combined churn and worker and 100-gal. milk vat. B. B. PERKINS, Carson, Iowa.

Man Wanted at Once—Experienced in attending to boiler, separator and pasteurizer for a small city creamery. Prospects for advancement A No. 1. State in answer salary wanted. Address H. D., P. O. Box 1114, Hartford, Conn.

Homeseekers' Excursions to the Northwest, West and Southwest, and Colonist Low Rates West—Via the North-Western Line. Excursion tickets at greatly reduced rates are on sale to the territory indicated above. Standard and tourist sleeping cars, free reclining chair cars and "the best of everything." For full particulars apply to agents Chicago & North-Western R'y 5-8p

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 1901

SOME BIG USERS
OF BOTH FARM AND FACTORY
CREAM SEPARATORS

As everybody knows all the big and long experienced users of Cream Separators are patrons of the **DE LAVAL** machines. Many commenced with other makes and nearly all have tried various different kinds, but practical experience in the use of Cream Separators always means the eventual use of **DE LAVAL** machines exclusively.

The names below are those of a few of the big users of separators—all having from 20 to 200 Power or Factory machines and hundreds of Farm machines with their patrons as specified—all **DE LAVAL.**

Beatrice Creamery Co., Lincoln, Neb	5,000 machines
Continental Creamery Co., Topeka, Kas	3,000 machines
Franklin County Creamery Ass'n, St. Albans, Vt	1,000 machines
Fairmont Creamery Co., Fairmont, Neb	1,000 machines
Littleton Creamery Co., Denver, Colo	1,000 machines
Manning Creamery Co., Manning, Iowa	750 machines
Faust Creamery & Supply Co., Salt Lake City, Utah	500 machines
W. G. Merritt, Great Bend, Kas	500 machines
Frank Dunning, Bedford, Iowa	500 machines
Nebraska-Iowa Creamery Co., Omaha, Neb	300 machines
J. A. Danielson & Co., Lake Park, Minn	300 machines
E. G. Hammer, Goodhue, Minn	300 machines
W. C. Lubke, Kenyon, Minn	300 machines

These are just a few of the big users of **DE LAVAL** machines all of whom are now busily engaged in putting out hundreds more of Farm machines among their patrons as fast as the Shops can produce them.

A De Laval catalogue may be had for the asking.

The De Laval Separator Co.

Randolph & Canal Sts., **CHICAGO.**
1213 Filbert St., **PHILADELPHIA.**
217-221 Drumm St., **SAN FRANCISCO.**

GENERAL OFFICES:
74 Cortlandt St., **NEW YORK.**

121 Youville Square, **MONTREAL.**
75 & 77 York Street, **TORONTO.**
248 McDermot Avenue, **WINNIPEG.**

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

Wanted—Three married men, with or without families, to work on large dairy. Must be good milkers. Salary $25.00 per month, house rent and fuel furnished. Give experience and all particulars. RICHLAND FARMS, Greensboro, Ga. 6-4

For Sale—Pure bred Guernsey bulls and grade heifers. Also Early Black Soy Beans at $2.00 per bushel. A. H. HINMAN, Neenah, Wis. 6-4

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

Guernseys For Sale—Six cows and seven heifers. All registered. Send for circulars. EDW. SHARPLES, Landenberg Pa. 7-tf

For Sale—1 DeLaval cream separator, Alpha No. 1. WEXFORD EXCHANGE, LTD., Wexford, Pa. 6-tf

The 'Business Herd of Holstein Cattle For Sale or Exchange—Having fifteen more cows than we can procure nearby pasture for, we desire to sell at once at their cash value, or exchange for horses, draft blood and brood mares preferred. If you desire some first-class cows of this breeding, with official records and breeding second to none, let us hear from you at once. F. G. JOHNSTON & CO., Sta. B, Columbus, O. 8-2

For Sale—One fine registered yearling Guernsey bull. Address S. L. DIETZ, Hyde's P. O., Md. 8-4

For Sale—One tract of 511 acres of land in Nottoway County, Virginia, forty (40) miles from Richmond, Va., lying along the Southern Railway, fourteen (14) trains daily north and south. It can be made a good dairy farm. For further information apply to T. O. SANDY, Burkeville, Va.

Position Wanted—As cheese or butter maker 20 years experience. Sober, married, no children. 685 Arkwright St., St. Paul, Minnesota.

For Sale—To settle estate, dairy farm and milk route, one and one-half miles from Mauston, county seat of Juneau County, Wis. 35 cows. 200 or 280 acres as desired, with fixtures and stock. Basement barn. There is good tobacco land on this farm. Enquire of B. N. SOUTHER, Mauston, Wis. Box 336. 9-5

For Sale—One Reid separator, capacity 2000 lbs. per hour, good as new. Also gang cheese presses, never been used, curd mill and vats. ALEXANDRIA CREAMERY CO., Alexandria, Pa. 9-3

Ayrshire Bull For Sale—Three years old. Sold to avoid inbreeding. Fine animal. Write. J. H. HARTEN, Densmore, Wells Island, N. Y.

Clydesdale Oats—A large heavy early oat, from seed imported from Scotland two years ago. 65 cents per bushel, bags included. Dwarf Essex Rape. Cow Peas and pure Buff Wyandotte eggs $1.25 per 15. B. F. WYMAN & SON, Sycamore, Illinois.

For Sale—U. S. Separator No. 6, $65.00. Dairy farm of 101 acres $4,000. M. R. BUCHANAN. Columbia, Tenn. 8-2

For Sale—Three registered Holstein bulls one year old; also a few heifers. FRANK BREWSTER, Bowers, Wis. 8-2

Buff Jersey's latest book on Farm Stock and Dairy Work is full of practical things for practical people. The Silo, how to build and fill; ensilage, its value; soil, crops, variety and how to grow. Swine, poultry and many other subjects ably treated. Send 25c for copy. Monmouth, Ill. 47-tf

Wanted—Experienced farm hand, able to milk well. Give age and wages wanted. ST. IVES PARK FARM, Mont Clare Station, Chicago, Ill. 41-tf

Guernsey Cattle—Clover Knoll herd. Send for circular. M. SAGER, Orangeville, Pa. 50-12

Swiss Cattle For Sale—As I intend to quit farming after this year, and am not situated so I can milk many cows this season, I will sell several cows and heifers and a few young bulls at very low prices for the quality of the stock. Come and see the stock and get prices. T. H. INMAN Hanover, Wis. 6-4

Wanted—Situation by expert retail dairy manager. All branches of the business thoroughly understood. Have references second to none. Address J. O. G., care Hoard's Dairyman. 8-tf

For Sale—Yearling Jersey bull ready for service. Dam tests 17 lbs. 7 oz. in 7 days. Sire, pure St. Lambert service bull in herd of E. R. Hicks. Price $50.00. GEO. A. BUCKSTAFF, Oshkosh, Wis. 8-2

For Sale—Salem's King, 5362, A. G. C. C., 5 years old. A. PARKS, Pickett, Wis. 8-2

Very Low Rates to California and Return—Via the North-Western Line First-class round-trip tickets on sale May 3d and 12th to 18th, to Los Angeles and San Francisco. Favorable limits and stop over privileges and choice of routes. The overland limited, most luxurious train in the world, leaves Chicago daily 8:00 p. m. Less than three days en route. Drawing room and compartment sleeping cars, observation cars, dining cars, buffet-library cars, (barber and bath) electric lighted throughout. Three trains a day from Chicago to the coast through without change. Daily and personally conducted tourist car excursions to California, Washington or Oregon. For particulars apply to ticket agents Chicago & North-Western R'y. 8-7

Half-Rates to New Orleans, La.—Via the North-Western Line. Excursion tickets will be sold at one fare for round trip April 11, 12 and 13, limited to return by special extension until April 30, inclusive, on account of Annual Convention National Manufacturers' Association. Apply to agents Chicago & North-Western R'y. 8-2

Very Low Rates to Dedication Ceremonies of Louisiana Purchase Exposition, St. Louis, Mo.—Via the North-Western Line. Excursion tickets will be sold for the above occasion April 29, 30 and May 1, and on account of Good Roads Convention on April 26 and 27, all with return limit until May 4, inclusive. Apply to agents Chicago & North-Western R'y. 9-4

To Colorado in 1903—The passenger department of the Chicago & North-Western Railway has issued a very interesting folder, giving information as to reduced rates and sleeping car service, with a short description of the various points of interest in Colorado usually visited by tourists, these excursion rates applying on account of the Christian Endeavor meeting to be held at Denver, July 9th to 13th. Send 2 cent stamp for copy, to W. B. KNISKERN, Passenger Traffic Manager, Chicago. 9-6

The Feeding Value of Malted Grain.

ED. HOARD'S DAIRYMAN:—The following inquiry has been forwarded to me:

"Will Prof. Woll kindly give the writer his views or discuss them in the DAIRYMAN on the gains and losses to the practical feeder from sprouting the corn as proposed by the American Grain Growing Company which had tests of feeding stock on sprouted corn at the stock yards last fall. These were carried up to a development of considerable chlorophyl, I believe. F. E. E.

Bloomington, Ill.

The method of sprouting corn for feeding purposes was, so far as I know, first recommended last fall by an enterprising Chicago firm, who presumably expected to reap a fortune in selling the necessary apparatus. The method did not seem to take, however; no doubt because the agents could not point to any experiment station or authority on feeding problems to back up their extravagant claims. It is difficult to see how the public at the present time, can believe in any new food or method of preparation which has not been endorsed by some disinterested scientist or public research institution, on basis of actual trials made. This statement does not refer to condimental stock foods, which are not new aud which are apparently sold in as large quantities as ever, in spite of the testimony as to their general worthlessness which is accumulating, and in spite of the position which every authority on the subject of animal nutrition has taken, who has expressed an opinion as to their use.

The method of feeding sprouted corn is not to be classed among food frauds, however, except in so far as unwarranted claims were made for the method. The question is entirely parallel to that of the relative feeding value of unmalted and malted barley, and this was settled by Lawes and Gilbert in England more than forty years ago, in a number of experiments that are generally considered classic, and have rendered useless further experiments on this point. These scientists found that a decided loss in feeding value took place in the malting process; it was shown in feeding experiments with milch cows, steers and sheep, that "a given weight of barley is more productive, both of the milk of the cows and of the increase in the live weight of fattening animals, than the amount of malt and malt sprouts that can be produced from it." There being no advantage in point of gain in milk and flesh, there must be a loss in point of economy on account of the expense of the malting process; irrespective of economy, the report of the experiments concludes, malt is undoubtedly a very good food for stock; and common experience seems to show that a certain amount of it is beneficial when given in admixture, and in change with other food, to young or weakly animals, or in "making up" or "finishing" for exhibition or sale; that is, when the object is to produce a particular result irrespective of the economy required in ordinary feeding."

This also, to my mind, states the case so far as the method of feeding sprouted corn is concerned. Some advantage might be secured by feeding sprouted corn, from a resulting improvement in palatability or the digestibility of the food. In both these respects there is no great chance for improvement, however, since farm animals prefer grain to almost any other food, and the cereals furnish about 90 per cent of digestible components as ordinarily fed. Any slight advantage that may be gained is at any rate more than offset by the cost of sprouting the corn; both by the first cost of the germinating pans and the cost of the large amount of labor required for preparing the corn in this manner. I do not, therefore, believe that your correspondent will get his money back if he should invest in an outfit, and would advise him to leave the company alone.

***

DENMARK AS A MODEL.

Permit me to correct the reference in this week's DAIRYMAN to the paper on "Butter Contests in Foreign Countries," which I read at the Waukesha meeting of the Wisconsin Buttermakers, Association. You say that I quoted the adage, "Do as Denmark does and you are all right" to up-hold my lavish praise of the business of that country. Now, that is exactly what I did not do; the opinion has been frequently expressed in dairy papers during late years that since Denmark occupies a leading position in the dairy world, everything that comes from that country in the line of dairying must be all right and the best thing our dairymen and particularly, our butter makers, can do, is to try to go in the foot-steps of their Danish cousins. I showed in my paper that this is not sound advice; that conditions in this country and in Denmark differ greatly in many respects and it is necessary to take this fact into consideration before Danish dairy methods or appliances can be recommended to our dairymen; that is, the position taken was just the opposite of what you make it appear.

As to having bestowed any lavish praise on the business in that country, I plead not guilty, also to that charge. When a small country like Denmark has been able to increase her butter production four fold in the course of the last 15 years or less, and has reached a stage where an annual revenue of over $400,000,000 is obtained from the butter product alone, the facts speak for themselves and it is not necessary to resort to rhetoric.

F. W. WOLL.
Wisconsin Experiment Station.

Combined Conveniences on a Dairy Farm.

What has Been Accomplished by One Delaware County Farmer.

ED. HOARD'S DAIRYMAN:—The name of John T. McDonald (Delhi, Delaware county, N. Y.) is not an unfamiliar one to older readers of HOARD'S DAIRYMAN.

For his large and excellent dairy farm, located in the Elk Creek valley in the town of Meredith (Delhi P. O.) has been frequently referred to in your columns and a more or less extended description and outline of his farming methods given by your former contributor, the late J. D. Smith.

It is not however with a view to entering into a discussion or giving any details as to farm management by this successful farmer (for that he has been successful in this direction will be generally conceded) but rather to give briefly a sketch showing what he has accomplished in the line of securing a class of conveniences such as I believe can scarcely be found elsewhere in all the farming regions of Central New York at least, and certainly not upon any farm where the capital required to secure the same has been made upon the farm and from the legitimate proceeds of the dairy that has been kept thereon.

The farm known as "McDonald Dairy Farm" J. T. McDonald proprietor, was settled by the father of the present owner, and came into his possession about the year 1875.

It contains about 200 acres, in the home farm, part of the dry stock kept is pastured in the summer on a wood lot, on an adjacent farm, and at that time kept about a twenty-cow dairy besides a few sheep, while now the usual dairy kept by him here, comprises about 90 cows. A large proportion of what is now the best meadow land upon the farm, was then a swamp and covered with pine stumps and the reclamation of this land and converting it into meadow has had much to do with so greatly increasing the stock keeping capacity.

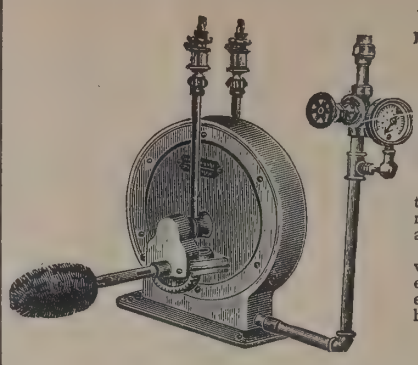
Mr. McDonald saw here an opportunity to take advantage of the benefits of the great natural fertility of such a soil by proper management and it is doubtless his aptitude to take advantage of the forces of nature placed at his hand and using the necessary means to bring them under control, combined with a natural mechanical genius, that more than anything else has contributed to his success.

A moderate sized stream of water running through the farm, is so utilized by holding the water in dams, that there is always sufficient water power for doing the work desired in the mill upon the place.

This mill is equipped for sawing and feed grinding, besides a complete outfit of box-making machinery, where are made all the boxes used in the shipment of butter, eggs and other products of the farm.

Connected with it is also a shop well fitted up with tools of all kinds necessary for the various kinds of work done here with planing machine, cider mill and press, etc, so that it is seldom necessary to leave the farm for any job of work such as is ordinarily taken away from home by the average farmer.

Adjoining the large and convenient dairy barn is a completely equipped



Very few milk depots are without a liberal supply of steam, although not many have power.

OUR IDEAL TURBINE BOTTLE WASHER

Enables those having steam plant only, to utilize this for bottle washing purposes. Very little steam is required. The Turbine wheel is good weight, acting as balance wheel.

The Washer is complete with steam inlet, piping, valve, steam gauge, siphon, sight feed oil cups, etc., etc., also new style brush spindle, and one each of our Gray, Bristle, and "Ideal" water-proofed handle bottle brushes, cut to fit machine.

Prices Quoted on Application.

Write for Milk Dealers' Price List.

Bottle Fillers, Bottle Washers, Milk Jars, Milk and Cream Tickets, Milk Dealers Stationery, Refrigerating Machines, &c., &c.

Creamery Package Manufacturing Co.,

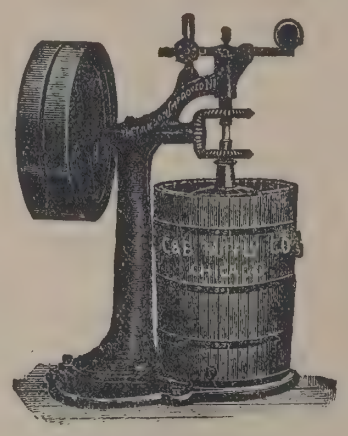
BRANCH HOUSES: Kansas City, Mo; Minneapolis, Minn.; Waterloo, Ia.; Omaha, Neb.; St. Louis, Mo.

1, 3 and 5, W. Washington St.
Chicago, Ill., U. S. A.

Canadian Branch: Cowansville, Quebec.

Confectioners and Bakers' Supply Co.

218 AND 220 EAST WASHINGTON ST.,
CHICAGO.



THE DICKSON IMPROVED 10 Gallon and 5 Gallon FREEZER.



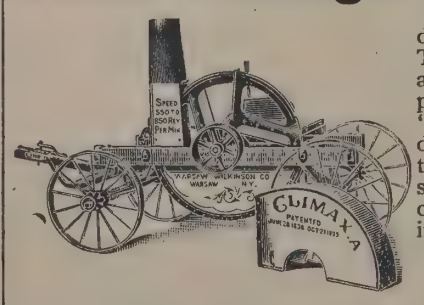
THE C AND B 10 Gallon FREEZER.

ICE CREAM Machinery, Tools and Supplies.

Packing Tubs, All Kinds of Ice Cream Packing Cans, Ice Crushers, Bricks, Ladles, Spoons, Dishers, Flavors, Colors, Gelatines, Etc.

WRITE FOR OUR CATALOGUE

Climax Ensilage and Fodder Cutters.



"THE COMPLETE MACHINE." Wind delivery. No more trouble with carriers. The "Climax" can be set up, ready for work, at a 35 foot silo, in 20 minutes. Takes less power to operate than any other made. The "Climax" is guaranteed to elevate **any** fodder in **any** conditions—we make no exceptions. Eight years of success bear out our statements. Don't put off getting your machine until the season is on. Write us for information and get our catalogue—it's free.

The Warsaw-Wilkinson Co.,
Warsaw, N. Y.

DON'T BREAK YOUR BACK washing clothes 52 times a year. Get a "1900" washer and save labor, time and money. You need not send a cent or pay freight. It is sent absolutely free, freight prepaid on 30 days trial. A word to the wise is sufficient. Write at once to "1900" Washer Co., 219A State St., Binghamton, N. Y.

WRINGING WET Clothes dry is the reason for using any wringer. Saving clothes, buttons and money is the reason for using **Horse-Shoe Brand Wringers.** They are made with rolls of the finest Para Rubber. Every wringer is warranted. **THE AMERICAN WRINGER CO., 99 Chambers Street, New York.**

creamery fitted up with all modern conveniencies for butter making. A twenty-five horse power boiler with a ten-horse power engine furnishes the motive power required here, and besides is used to boil sap in the season of maple sugar making (a considerable amount of sugar and syrup are made upon the place and furnished to their city customers in connection with the butter, eggs, etc., shipped from the farm) to steam feed in winter for the dairy and with a steam valve arranged in the dairy room, for scalding and cleaning the dairy apparatus used therein, is thus utilized in various ways.

Attached to the creamery is an ample cold storage room adjacent to the churn room, the ice house which extends over a part of this churn room, holding about 125 tons is refilled in August from the large one outside which has a capacity of from 300 to 400 tons.

This of course has a tendency to greatly modify the temperature in the churn room giving very nearly ideal conditions for best results in butter making.

The butter is put up in small prints and sent direct to families in different cities with express charges prepaid and this method has proved very practicable and satisfactory.

He also furnishes fresh eggs, poultry etc. to the same customers shipped in the same manner as the butter. From seven to ten men are employed upon the farm throughout the year.

The water supply for all the farm buildings—including besides the large and fine residence and out buildings, three well built new cottages erected during the past year for the accomodation of families of laborers employed upon the farm—is brought to the house in 4 inch cast iron pipe from a reservoir holding 1,000 bbls. or more. A number of living springs are conducted into this reservoir, which is situated at an elevation that gives 100 lbs. pressure.

The one thing, however, of all the rest that is perhaps most out of the ordinary, or unusual to be found upon a dairy farm is the complete system of electric lights recently put in here by Mr. McDonald.

Asked if he thought it would be found practicable for the average farmer who has water for the motive power, to light his home and farm buildings with electricity, and if it can be done at reasonable cost, he replied: "It has proven very practicable for me. I have been using it for three years, and there is no other investment I have ever made that pleased me as well.

"I put in a 50 light dynamo at a cost of $300 for the dynamo and the whole system of wiring all the buildings was completed for about $100 dollars additional, or $400 in all.

"And it is I can assure you a wonderful convenience; no one can appreciate its real value in this respect until he has tried it.

"We have it in our stables, about twenty jets or sixteen ligths in different parts of the stable, and thus furnish the most complete lighting arrangements conceivable.

"We have a voltage indicator in the kitchen by which we regulate the power of current, and all the care required is to watch the indicator and change the voltage to correspond with the number of lights that may have been either turned on or off, so as to give necessary voltage.

"With two wires drawn tightly on a sweep and so arranged with a gate that the gate, being very sensitive to the slightest change, may be easily managed, it is readily controlled without leaving the kitchen.

"By this arrangement we find the trouble of running our lightning system for the whole place is comparatively nothing.

"And so highly do I value it, that perhaps I am too much inclined to brag about it.

"I believe that any farmer who has a stream running through his farm, that by damming up and storing the water, he can secure the power with which to light his house and farm buildings by electricity, will find that it can be done, not only at a reasonable cost, but that it can be made a most economical method of furnishing the required light."

NEW YORK.

How a Creamery Pays for Cream.

This question is submitted by a reader in Chemung county, New York, who wants to have a co operative creamery in his neighborhood, which has hitherto taken only milk, receive his cream. We judge, from the general tone of his letter, that this creamery does not, as it should, use a Babcock test for determining the varying qualities of the milk. Where cream is supplied, a Babcock test is indispensable. By its use the amount of fat in the cream is ascertained, and by adding 18 per cent, the amount of butter. Deduct from the current price of butter, the proper charges for making, which will be from 2½ to 4 cents per pound, depending upon the amount of business done, and the net price to be paid the patron for each pound of butter, will be ascertained.

Indian Wheat.

ED. HOARD'S DAIRYMAN:—Please tell your New England subscribers they can obtain as good results to feed their cows Indian wheat meal with hulls sifted out, as they can with cotton seed meal. At least that is the experience my neighbors and myself have found this winter.

Windsor Co., Vt. C. N. COWEN.

List of Tests Accepted for Publication by the American Jersey Cattle Club.

Honesdale 147772—Sire Coomassie's Triple King 37939; dam, Capote 115608; fat, 12.305 lbs.; milk, 228.6 lbs. Test made from Feb. 19 to 25, 1903; age, 5 years; actual weight, 950 lbs.; fed corn ensilage, shredded corn stover, clover hay, corn and cob meal and cotton seed meal not weighed.

Pet of Suncook 137782—Sire Exile of Maine 36332; dam, Suncook Girl 137605; butter, 16 lbs., 1½ oz.; milk, 294.6 lbs.; test made from Jan. 26 to Feb. 1, 1903; age 6 years, 7 months; estimated weight 850 lbs.; fed 3 pounds dried distillers grains, 3½ pounds wheat bran, 3½ pounds cotton seed meal, 3½ pounds corn meal and 35 pounds roots daily hay and cured ensilage corn *ad lib.*

Rioter's Lorlie 135359—Sire Rioter of Macome 40448; dam Lorlie Vayne 2d 89187; butter 16 lbs., 1 oz.; milk, 268 lbs., 10 oz; test made from Mar. 25 to 31, 1902: 5 years, 7 months; estimated weight, 1,000 lbs.; fed 14 pounds linseed oil meal, 42 lbs. coarse middlings, 14 lbs. corn meal and 245 lbs. corn ensilage; hay *ad lib.*

Sokamria 140936—Sire Sozius 43555; dam Kamaretta 80479; butter, 16 lbs. 1 oz.; milk, 221 lbs., 10 oz.; test made from Nov. 25 to Dec. 1, 1902; age 4 years, 11 months; estimated weight, 950 lbs.; fed 69 lbs. corn and oats chop, 26⅔ lbs. oil meal, 30 lbs. wheat bran and 200 lbs. corn ensilage, hay.

Ulysses's Girl 154531—Sire Jupiter of Meridale 43177; dam Daisy of Ulysses 110126; butter, 16 lbs., 6 oz.; milk, 241 lbs.; test made from Mar. 12 to 18, 1903: age 4 years, 1 month; estimated weight, 750 lbs.; fed 40 lbs. wheat bran, 24 lbs. gluten feed, and 6 lbs. cotton seed meal, corn ensilage and alfalfa and clover hay *ad lib.*

Ulysses's Girl 154531—Sire Jupiter of Meridale 18177; dam Daisy of Ulysses 110126; butter, 14 lbs., 14 oz.; milk, 216 lbs., 12 oz.; test made from Feb. 28 to Mar. 6, 1903: age 4 years, 1 month; estimated weight, 750 lbs.; fed 29¾ lbs. wheat bran, 14 lbs. gluten feed and 3½ lbs. cotton seed meal, corn ensilage and alfalfa hay *ad lib.*

March 25, 1903.

DON'T PUT OFF

Seeing your freinds and having them join in for a good club of subscribers.

"ADVERTISEMENT".

PRIZES TO COOKS.

$7,500.00 in Cash to be Distributed.

Between now and July 1st, family cooks, whether employees or the mistress of the household, will be following the plan laid down for improvement in cooks in a contest for 735 cash prizes ranging from $200.00 to $5.00 offered by the Postum Cereal Co., Ltd.

The winners must show improvement in general cookery as clearly stated in the rules for the test.

No one has to buy or pay anything whatever. It is simply an earnest effort on the part of Mr. Post to stimulate the household cook to more careful and skillful cookery.

To have light, sweet bread and cakes instead of heavy, sour and indigestible things. To have no more greasy, burned or dried-out meats. To have properly made Coffee, Postum and Tea. To have delicate and digestible, toothsome deserts and a table, clean, tasty and a pleasure to look upon.

And so $7,500.00 in actual money will be spent to encourage the cooks of the country to better effort. And you housekeepers, please forever abandon the term "hired girl." Teach your cook the dignity of her profession, call her the cook.

If her duties include other service, well and good but don't detract from her professional title by calling her the "hired girl," That term don't fit a good cook. A certificate bearing the large seal of the Postum Cereal Co., Ltd., will go to each of the 735 winners in this contest. These certificates or diplomas will be as valuable to the holders, as a doctor's sheepskin is to him.

A postal card to the Cookery Dept. No. 388 of the big pure food factories of the Postum Cerial Co., Ltd., at Battle Creek, Mich., will bring a sheet of plainly printed rules for the contest.



The National

LOW DOWN CUT-UNDER

justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

THE NATIONAL WAGON COMPANY, Chillicothe, Ohio.

THE ONLY LOW-DOWN

Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the Market.



20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for catalogue, prices and terms Wagons for carrying Bottled Milk a specialty.

Shipman, Bradt & Co.,

Sole Manufacturers,

De KALB, - - Ill.



Send for Our Free Catalog.

It shows large pictures, full description and prices that are in your favor of first-class vehicles of all kinds. Everything in the vehicle line that runs on wheels. **A FEW** of our attractive lines are steel and rubber tired top Buggies, Surreys of all kinds and styles, Family Carriages, Driving Wagons, Runabouts, Phaetons, light and heavy Spring and Delivery Wagons, Milk, and Bakery Wagons, Buggy and Wagon Wheels in white and painted, Buggy Tops and Cushions, Shafts and Poles. **WE HAVE NO AGENTS** but sell direct to you at wholesale prices, and save you the middleman's profit. **Don't buy until you get our catalogue.**

NO MONEY. We ship any of our vehicles subject to examination without any money with order. We will furnish you a better vehicle and save you from $15 to $50. After you examine it, if we don't save you money and if you are not entirely pleased we will have it shipped back and pay freight both ways. So you won't be out one single cent. Every vehicle guaranteed 2 years. Cut this ad out and send to us and we will mail you catalog **Free.**

MARVIN SMITH COMPANY, 55-57-59 N. JEFFERSON STREET, CHICAGO, ILL.

30 YEARS SELLING DIRECT

We are the largest manufacturs of vehicles and harness in the world selling to consumers exclusively.

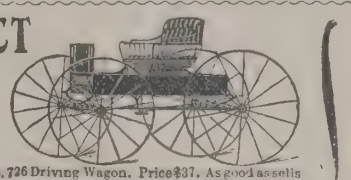
WE HAVE NO AGENTS.

but ship anywhere for examination, guaranteeing safe delivery. You are out nothing if not satisfied. We make 195 styles of vehicles and 65 styles of harness.

Large Catalogue FREE—Send for it

Visitors are always welcome at our factory.

ELKHART CARRIAGE & HARNESS MFG. Co., ELKHART, IND.



No. 726 Driving Wagon. Price $37. As good as sells for $25 more. Extra ¾ in. Kelly Rubber Tire $13

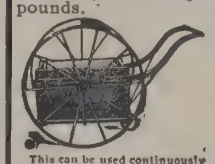
Butler Cart

Entirely New Departure. Indispensable to Farmer, Gardener, Dairyman or Merchant.

Steel wheels and frame; sideboards removable; carries 500 pounds.



Will hold four milk cans and is in great demand in the creamery and dairy.



This can be used continuously around the farm, garden or house. Box 26 ins. long, 25 ins. wide, 15 ins. deep inside. Capacity 11 cubic feet.

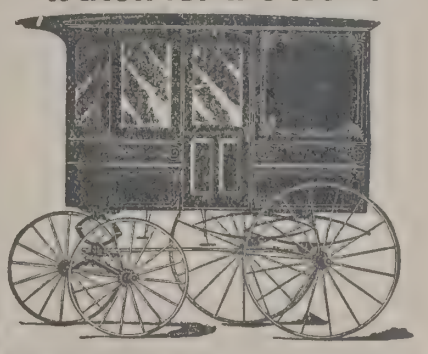
First orders from new territory secures agency if desired.

Roderick Lean Mfg. Co.

MANSFIELD, O.

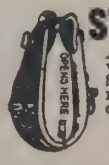
ANOTHER BEAUTY.

Watch for the Next.



We know it will interest you. Write for our Form E catalogue showing many other styles.

THE O ARMLEDER CO., Cincinatti, O.



STEEL HORSE COLLARS

Are better and cheaper; no hames; will not gall but **cure sore shoulders.** Sensible, practical, humane. Agents make big money. Write for descriptive catalog and **free territory.**

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that we're after. We propose to ship you a **Split Hickory Special** buggy and let you use it **Free 30 days** You keep it for **$47.50** FREE Catalogue of vehicles.



Ohio Carriage Mfg. Co., Station 154, Cincinnati, O.

The Dual-Purpose Cow.

ED. HOARD'S DAIRYMAN:— We seldom pick up a paper without seeing an article on the Dual-Purpose cow and the breed or combination of breeds best calculated to produce her. The dual-purpose cow confronts us in the agricultural and dairy papers, and in the agricultural columns of the weekly newspaper but seldom in the dairy. After reading the articles from the pen of Prof. Shaw and other writers of note, I hesitate to express my opinion in a paper so widely read as is the DAIRYMAN, but I feel that the working farmer has more at stake and more right to the real facts than any one else. I criticise no man, but desire information, as life is too short to go on a wild goose chase along dairy lines.

I am aware that it is very easy to warm one's self up in praising a breed or combination of breeds in which one is especially interested and to make a plausible showing of reasons for what will not stand the test of time or practical experiment. The course of events of the last few years has turned more attention to dairying than ever before.

No dairyman who has suitable land and fixtures for his business is called upon to give up the avocation he best understands to embark in beef raising.

The recent boom in the beef market has caused many dairymen to look around with a view of securing a cow that, when her term of usefulness in the dairy has expired, will dress half a ton of steer beef. They overlook the fact that a cow of the dairy type was never intended to make heavy beef, and is almost without exception thin meated. She may be made fat, but you can never get the lean to correspond with the fat, and the percentage of high priced cuts that the market demands. She can be worked off, however, and in a year like the one just past will command a fair price, for some people who cannot afford choice beef will want her. But it would be a losing game to raise her for beef.

No one will deny that that there are cows which perform well in the dairy and possess sufficient size for beef, but we have no assurance that her descendants will have the same traits. They are more apt to run to beef than to milk or butter. We are told that in breeding for any desired result we must rely upon that system or order of nature which produces checks or corrects against a preponderating ascendency of any one department or creation to the ruin of another.

Each one of the recognized dairy breeds is said to have proclivities not supposed to be possessed by the other and we read that there is nothing gained by crossing, but rather a loss. A farmer's cash income depends on his skill as a cultivator, success as a dairyman, fruit grower, wool grower or breeder, and the better he understands his special line, the greater will be his success. Dairying consists of butter making, cheese making and the production of milk for the trade and it would seem to be good business policy to select stock best suited to each particular line.

Though farmers as a rule are slow in the introduction of new ideas in their methods of business, it is gratifying to note a decided increase in the demand for the special-purpose cow. Personally, I champion no breed. I want the cow, not the breed. She must eat and respond to the rations laid down in the DAIRYMAN and leave me a good profit for my feed and labor. While I prefer her to be of medium size rather than small or over grown, if she is an economic producer and a persistent milker, I shall not question her size, color, nationality, religion or politics.

I confess I should like to own—if my finances would permit — a herd of thoroughbreds, and it would give me pleasure to have their pictures appear in the papers and packages of cigarettes, but blood or pedigree would not keep them from the block if they failed to connect. If dairymen must have beef, let them raise their steer calves. They can get beef from a dairy steer, but it will keep them guessing to get a dairy cow from a beef steer and very seldom one from his mother. J. HOWARD.

New York.

Feeding Before or After Milking—Carbolic Acid for Abortion.

ED. HOARD'S DAIRYMAN:—In the DAIRYMAN of March 13th, B. & B., of Dermott, Ark., wishes to make a change from feeding at milking time to either before or after milking, because he says it is quite a burden to feed each cow at time of milking. If it is the grain feed he has reference to, I wish to say that we have fed our grain ration at milking time for the last eleven years, and have milked as high as twenty-nine cows. Our method is to have a feed bucket for each milker and keep the feed near where we weigh and strain the milk. In this way, very little time is lost, and there is no trouble about the cow "giving down." A person soon gets on to the way of easily carrying milk bucket, stool, feed bucket and cloth with which to wipe udder. We milk in the barn the year round. When the weather is fine in the summer time, each cow is called into the barn and milked and turned out at once. Each cow knows her name as well as a person knows his and comes at once at call. They are alway milked in regular order and some of the cows will stand near the door and watch for their turn, and come in without being called, knowing when a certain cow is turned out that it is their turn. This we think is easier than running all over the corral to milk. When grass is good we only feed a very little bran, less than a pound, just enough to please them.

We have been having contagious abortion in our herd, and have found it very convenient to give the carbolic acid treatment in the grain fed (bran) at time of milking. Our plan for giving the acid is to take half as many pint milk bottles as we have cows to treat, and fill them about two-thirds full of warm water, using a medicine dropper to measure the acid. Twice full of the size we have makes a trifle over one-half dram; there is no danger in feeding this much. This we put into the bottle of water, and pour over the feed, but do not mix. We give the acid twice a day every other day, treating half of the cows one day, and the remainder the next day. We have great faith in the carbolic acid treatment, as with it we are having good success. We will give you our experience later on. We feed the acid from about the fifth month to within two or three weeks of calving. GEORGE W. DANA.

Deer Lodge, Mont.

What a Missouri Dairy Farmer Can do.

The Monroe City, Mo. *Democrat*, has the following to tell of what a plucky farmer, Mr. J. A. Bixler, near that city has done.

Saturday the pencil pusher got next to him and opened up on butter. There we found him at home and was surprised to learn the extent of his butter making. He uses a seperator. Last year was a drouth year, but in spite of

SOAP MAKING AT HOME

One can of *Banner Lye*—10 cents—will make ten pounds of the best hard soap—better than you can buy.

It takes less time to make soap with

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than to make bread, and it gives you the purest soap, with absolutely no danger to person or clothes. Not old-style lye, but *Banner Lye*.

It also makes twenty gallons of soft soap.

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Cleanliness is a new word since these days of *Banner Lye*. *Banner Lye* washes away the dirt that you see and the dirt that you can't see. This last is most dangerous. It spoils the milk and butter in your bottles and jars, and when hidden in your drains and cellar invites disease.



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Write for booklet "*Uses of Banner Lye*"

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BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. All our choice pigs of 1902 farrowing have been sold. We are now taking orders for 1903 farrowing.
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LARGE IMPROVED YORKSHIRES
The small York grown up; the best white hog, easy keeping and prolific. Young stock for sale.
E. E. STEVENS, R. F. D., No. Madison, Lake Co., O.

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Offers some splendid young cows and heifers bred to Recorder, the only living son of the famous **Brown Bessie**, winner of the 30 and 90 day butter test at the Columbian. Also a few sons of Recorder from daughters of Diploma and other tested cows are offered.
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AYRSHIRE CATTLE of both sexes, and some young ones from good business cows. Prices within reach of any dairyman. Also **Chester White Pigs,** March and April farrow—All from registered stock. F. TSCHUDY & SONS, Monroe, Wis.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality F. W. TRATT, Whitewater, Wis.

Rosendale Guernseys.
MATURE COWS YEARLY RECORDS range from 356 to 713.3 lbs. butter. This herd contains more officially tested cows than any other herd of the breed. All of the largest records are official ones. A particularly choice lot of tuburculin tested bulls for sale from high record dams.
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Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.
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Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.
Especially low prices, standing of herd considered. No catalogue. State what you want.
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Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.
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HADDON FARMS—Home of the noted GLENWOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

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One St. Lambert bull ten months old; also bull calf three months old, or will exchange for as well bred heifers. Registered Poland China pigs for sale at all times. Correspondence solicited. FRANK SHADBOLT, Caledonia, Minn.

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VALLEY FARM Is offering some good bargains in young bulls from 1 mo. to 2 yr. old. Also B. P. Rock Cockerels, $1.25 each. Write
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Young stock of both sexes. Some of them out of cows in Advanced Registry. 3 cows now in Advanced Registry, and others soon will be. Also 3 Heifers sold from the Herd the past year have been admitted. Service bull combines the breeding of Lord Stanford and Mary Marshall. Please note change of address.
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Offers young bulls fit for service, out of tested dams with good yearly records. Strong in Exile of St. L., King of St. L. and Stoke Pogis of Prospect. Reasonabe prices. JOS. T. HOOPES, Bynum, Md.

The Evergreen Farm Herd has for sale three or four A. J. C. C. heifers bred Also a few cows and some choice bull calves from two to six months old. Write for pedigrees and prices.
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We are offering a solid color yearling Jersey Bull, 56 per cent blood of five of greatest Jerseys that ever lived; out of a young cow scoring 360 lbs. butter within a year, second season. Sound and all right, well grown and thrifty. A bargain at $100. For particulars address
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that fact J. A. Bixler did not "lie down," nor did his ten cows go dry, for he made the best out of the situation, he could, and that means he made 2,400 pounds of fine good rich sweet butter, butter that is so that it does not go begging on the market, but is takan by regular customers—consumers—the year around at a stipulated price.

This year he will add two more cows to his herd and expects to make 3,000 pounds. Mr. Bixler also raises a large quantity of strawberries and other small fruit, which brings him several hundred dollars each year.

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Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams 25.1 lbs. butter in seven days. Herd numbers 125 head.
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Special prices on six or eight bulls of serviceable age. W. B. BARNEY & CO., Hampton, Ia.

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Chief service bull, Mercedes Julip's Pietertje Paul, dam Mercedes Julip's Pietertje, made 1901, world's official butter record, 29 lbs., 5.7 oz. in 7 days; sire Johanna Rue 2d's Paul De Kol, sire of Wit Duchess, 24.88 lbs., in 7 days. Sire's dam, Johanna Rue 2d. You can buy anything you want in registered Holsteins at Star Farm. You can save money by buying at Star Farm. You can order a Johanna Mercedes bull calf from Fall increase to head your herd. No catalogue. Write for just what you want. Horace L. Bronson, Cortland, N. Y.

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Quick buyers may obtain great bargains in heifer and bull calves from the above named great sires. JOHN C. GODFREY, Pennellville, N. Y.

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2 H. F. Bull Calves, 6 months old. Sired by Johanna Aaggie's Paul DeKol 23443, (160 A. R.) from good milkers and testers.
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and Bull Calves from A. R. O. dams and the best Advanced Registry sires. Cows all officially tested; I breed from no others. Correspondence from breeders and progressive ddirymen invited. Malcolm H. Gardner, Darien, Wis.

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High Class Advanced Registry Stock only. Best butter families. Stock for sale.
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100 HOLSTEIN-FRIESIANS 100
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Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz Frank B. Fargo, Lake Mills, Wis.

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H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address W. H. JONES, Watertown, Wis. Rural Route No. 2.

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Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.
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A few fine heifers and bulls for sale. Also some A. R. O. cows. IRVIN NOWLAN, Toulon, Ill.

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90 Holstein-Friesians 90
Stock for sale from A. R. O. cows. Herd headed by Gem Pietertje Paul De Kol, No. 27282, backed by eight official records, averaging 23.44 lbs. butter.
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Will make a special price on a few CHOICE YOUNG BULLS.
We offer females, any age, very cheap just now as we can winter more stock than have pasture for.
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Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for description and price to J. A. THORNTON, Manager, Simmonsville, Vt.

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OHIO'S FAMOUS HERD —OF— Holstein Cattle
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SOUTH SIDE FARM, WHITE BEAR, MINN.,
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No Yorkshires for sale at present. Orders booked for spring pigs.
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We now have some very fine HOLSTEIN BULLS FOR SALE; also some pure bred registered Victoria Hogs, all ages, at bargain prices. Write us for what you want.

Holstein-Friesian Bull Calves
Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

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THE MONONA FARM HERD.
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AUCTION SALE OF
70 Holstein-Friesian Cattle
from the herd of
ARTHUR N. McGEOCH
Sale to be held at
MILWAUKEE, WIS.,
Wednesday, May 6, '03
Sale to be held at McGeoch Farm, "Redbrae" opposite entrance to Soldiers' Home on National Avenue. Electric Cars, National Ave., run to farm every five minutes.
40 OFFICIALLY TESTED COWS AND HEIFERS 40
Among these will be found the great heifer **Duchess Ormsby 2d's Hengerveld DeKol** who holds the **World's Record** for heifer with first calf, having made at age of 2 years, 1 month, 29 days, 19.02 lbs. butter in seven days.
DAME MARJORY DE KOL, a half sister, with record at 2 years, 4 months and 24 days of 16.19 lbs. butter in seven and 65.08 lbs. in thirty days.
LISCOMB AAGGIE 3D at 3 years, 11 months and 26 days with record of 21.58 lbs. in seven and 86.69 lbs. in thirty days.
PIEBE QUEEN 2D'S PRINCESS at 4 years, 9 months, with record of 22.18 lbs. in seven days.
WIT DUCHESS at 5 years, 5 months, 5 days, with record of 24.88 lbs. in seven days.
A FINE LOT OF HEIFERS FROM OFFICIALLY TESTED DAMS. A few richly bred young bulls and the two great service bulls **De Kol 2d's Paul De Kol No. 2** and **Gem Pietertje Hengerveld Paul De Kol** will be included in the sale.
Altogether this is the most desirable lot of Holstein-Friesians, either from the standpoint of the breeder or dairyman, that has ever been offered at public auction. All are cordially invited to be present.
Catalogues ready early in April. Send for one. Address
H. B. DAGGETT, Mgr.,
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PLEASANT VALLEY STOCK FARMS
DELPHI FALLS, N. Y.
SECOND ANNUAL SALE 60 PURE BRED
HOLSTEIN-FRIESIAN CATTLE,
SYRACUSE, N. Y., APRIL 22ND, 1903
A FEW OF THE MANY GOOD ONES.
BERYL WAYNES SON—Dam, Beryl Wayne 27 lbs. 14 oz. butter 7 days, A. R. O. sire, Johanna Aaggies Sarcastic Lad.
DeKOL DeJONG SON—His 5 nearest female ancestors average 22 lbs. butter in 7 days. A. R. O.
MAY HARTOG PAULINE DeKOL'S DAUGHTER—Dam, May Hartog Pauline DeKol, 29 lbs. 4 oz. butter 7 days, 112 lbs. butter in 30 days, A. R. O. at 4 years. Sire, Beryl Waynes De Kol Paul.
AAGGIE De KOL WAYNE 3d—Sire, Paul De Kol 3d a son of Sadie Vale Concordia. Also her heifer calf, sire by Sadie Vale Concordia's Paul De Kol.
JOHANNA WIT DUCHESS—Dam, Wit Duchess 24 lbs. 14 oz. butter in 7 days, A. R. O. Sire Johanna Rue 2d's Paul De Kol, and her yearling heifer sired by Sir Johanna De Kol.
MAUD TWISK De KOL and JESSIE ANN De KOL—Sired by America Concordia De Paul a grandson of Sadie Vale Concordia and out of dams with large A. R. O. records.
25 A. R. O. tested females at an average age of 3½ years, average 16 lbs. 10 oz. butter in 7 days. THE BEST LOT EVER OFFERED IN PUBLIC.
B. V. KELLY, Syracuse, N. Y., Auctioneer. C. F. HUNT, Manlius, N. Y
CATALOGS READY

HOLSTEIN-FRIESIANS
FERMANACH HERD, ARCADIA, MO.
SPECIAL OFFER—Three Young Bulls. Prince Mercedes Pietertje 29325, born Oct. 20th, 1901, grandson Mercedes Julip Pietertje A. R. O., 29 lbs. 5.7-10 oz., sire Mercedes Mechthilde Pietertje 25795, dam Princess Pietertje Coeln, record 76 lbs. butter 60 days with first calf.
Geertje M. 3rd Johanna De Kol 30614, born Jan. 18th, 1902, sire Johanna Rue 2d Paul De Kol 21724, sire of nine A. R. O. cows of large records and by Paul Mutual De Kol, out of Mutual Friend 2d, dam Geertje M. 3 A. R. O., 18 lbs. 12.9-10 oz.
St. Louis DeKol 30613, born March 26th, 1902, sire Johanna Rue 2d Paul DeKol, dam Winnifred Pride Beauty 2d 53038, whose dam has A. R. O. record 18 lbs. 6.8 oz. Here is a splendid opportunity to procure a combination of the richest blood of the breed at very low price. THOS. CAINES, Supt.

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Notes from New York.

Farm Separators.—Farm Butter.

ED. HOARD'S DAIRYMAN:—So much is being said through the columns of the DAIRYMAN about the introduction of hand separators on the farm in creamery localities that I feel impelled to write something concerning them. We have been using our machine seven years and have not in that time milked over eight cows and some of the time only six. We have used the machine when we only had milk enough to pay to run it only every other day, then again once a day and finally twice each day as more of the cows freshened. All that is necessary is to keep the milk sweet and skim off the cream that has raised, then warm up the milk to the desired temperature and run it through. The agent who set up the machine said "we might as well run through the milk you already have on hand" set in shallow pans. So we took all the milk that was not already thick and skimmed it.

A separator will skim under almost all conditions and all kinds of milk, no matter whether it is from cows that have lately freshened or are quite advanced in lactation, depending of course on the judgment of the operator as to the closeness of skimming. We govern our cream screw by the slop of the cream in the churn and the ability to whip easily with a little age; as we sell considerable cream we have to supply a cream to our customers that will whip readily. One of the principal points in cream separators is ease in keeping them clean. Now we wash our machine every day, but during the fall, winter and cool spring weather we only wash it once a day.

The bowl empties at the end of each separation and we flush it out with milk, but as soon as warm weather sets in we wash it at night with the skim milk, that saves a fire for the women folks at night, and keeps the parts from rusting which they would do if washed in cold water. If the bowl remained full of milk or water, why I should certainly wash it after each separation.

I should select a separator that had few parts and intricate pieces and places to keep clean as they are at best a filthy, dirty machine inside and out, and requires close attention in order to insure their doing good work. Durability, one with few wearing parts, parts to get out of order, as a break down, necessitating sending the machine back to the works to be repaired would be a great loss as well as inconvenience and should be considered when buying a separator. I should certainly buy a machine with closed gears, no cog wheels where little fingers could possibly get into them. Small children like to play with machinery and I know of one little fellow that nearly lost two fingers in a cream separator. Fingers that were worth more than the difference in the price of the better machine ten times over.

CLEAN SKIMMING.

That is what you will buy the machine for. Insist on trying it, and if it doesn't do a good clean job, why don't buy it. Of course you must furnish good clean milk, milk that has no garget, or fever or pieces of that other stuff in it. A separator cannot possibly skim clean unless the milk is right, the impurities will soon close or partially close the tubes and the cream will be apt to go with the skim milk. In other words the separator will make you take better care of your cows, be more careful about your milk and better cows and better feed will incidentally follow,

Dairymen, look for a separator that combines the most essential points in their mechanism. Don't let a few dollars decide the machine you will buy. If you select a first-class one at the start it will last a long time. Simplicity, durability and one that skims closely, are the most essential points to be considered in farm separators.

The first thing that comes to our mind in thinking on this subject as founded on our own experience is making a gilt edge product, one that will command the best price. The anxiety we had when we purchased our separator and churn and took the first butter to market can never be forgotten. We expected to furnish table butter for a millionaire summer resident trade, people who have palatial homes on our beautiful St. Lawrence River, and we knew that nothing but the best would go.

Our experience had been along the line of shallow pans and the dash churn. Granulated butter, starters, etc., were as Latin to us. HOARD'S DAIRYMAN was not know to us, neither did we read any agricultural paper, yet we recognized the need of more knowledge quite acutely; but there seemed no way but to go ahead and keep trying until we reached the goal. We made a couple of jars for ourselves, in small churnings, watching everything minutely to see where we could make an improvement. At last we took a couple of small jars to the middle merchant, for his inspection and he pronounced it all right.

If I were going to instruct a beginner in buttermaking, I should make first point cleanliness. Cleanliness all the way from the feed of the cow to the consumer, and the place where they kept the butter until it was used up. My neighbors used to criticise me for carding my cows; they said they rather "sit by the stove and roast their shins than in the stable with their cows," so they roasted and I still continued to card, unheeding their comments. Clean feed, clean cows, clean water, clean utensils, clean salt.

Second point: Temperature—We lower our cream into the well through a trap door made for that purpose during the warm weather. We never mix the cream until it is cool with the rest. Somehow, I think it makes a butter with a better body than it did when we did not cool it immediately from the separator, and another thing, it will keep the cream from ripening until you want it ripe; then again, don't put in cream at least 24 hours before churning. We found that out with the scales. Temperature regulates the length of time it takes to churn. We calculate that twenty-five minutes is about the proper time it takes to recover practically all the butter from the cream with our (barrel) churn. A churn with some interior devices might agitate the cream more and churn quicker with equally as good results. But we selected a barrel because we wanted that granulated butter that we had heard about. Temperature gives body to the butter.

One of our customers yesterday said: "We find your butter cheaper than any other we can buy, it goes farther, is firmer, has a better body, contains less moisture." A little mixture of Jersey cows among the others helps out, and makes a better body to the butter, make less work at the churn.

Third point: Ripeness for Flavor—I don't think that we ripen our cream as much as many who write for the papers claim they do, as we never let it get very thick. Perhaps it is because we stir up the cream every time we add any to the pails. We used to be troubled with curd, casein, in little flat particles in the butter after it was churned, and we laid it to running a thin cream and letting it get over-ripe. We have not had any trouble from that source in a couple of years. Starters we do not use; we ripen our cream by setting it in a warm place. The man of the house don't smoke, and we eat sour-kraut raw, so that odors are unknown. Bitter cream is an unknown thing with us. We don't let it get age

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"In a very few days the dizziness and headaches that she had suffered with more or less, disappeared, and her nerves kept getting better and my dyspepsia left, now I can eat anything. I have noticed that in hard work in the harvest field the days when I used coffee I was not near so strong and vigorous as when I used Postum.

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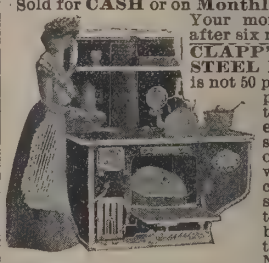
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enough to become bitter. We watch those cream pails as close as a poultryman watches his incubator. Eternal vigilance on the part of the dairyman is the price of butter!

One of the neighbors told Mrs. Plato last summer that naphtha soap was good to keep the dish cloth sweet and clean. It took us a week to ferrit out the trouble and sweeten up our dairy utensils. We washed, scoured and scrubbed, but that smell in the cream and in the butter makes us shudder yet.

We stop churning when the granules are the size of wheat kernels then add a couple handfuls of salt to make the buttermilk more buoyant, and make the butter rise on top so we can draw off the buttermilk. We next wash with three waters, if the second is clouded much.

I think that adding the salt will save washing with the third water, as we hardly ever use more than two. Then sprinkle the salt over the entire surface of the butter as evenly as possible, and put the cover on and revolve until it is thoroughly mixed. Then we let it stand in the churn 3 or 4 hours, before taking it out into the butter bowl to work. By that time the salt is all dissolved, and a very little working is all that is required to start the brine and remove the freckles.

Cleanliness, temperature, ripeness, first, last, and all the time, will put a man where he will be able to sometime "sit under his own vine and fig tree.

New York. JAMES M. PLATO.

A Successful Cement Silo.

Mr. Harry Smith, the Short-horn breeder, of Huron Co., Ont., gives us his experience with a round cement silo, built last year. The dimensions were 12 ×30 feet, walls about eight or nine inches thick at the bottom and six inches at the top. Portland cement, one to ten parts good gravel, was used, and plenty of stones bedded in. No. 9 wire was laid in also, with every raise of the wooden crib. It was finished about six weeks before being filled, and in about three or four weeks after the walls were constructed they were plastered both inside and out. The walls were made a little stronger at the bottom; great care was taken with the foundation. The ensilage kept perfectly, and there was no sign of give to the walls. If the above conditions are complied with, Mr. Smith has no fear about the permanence and superiority of cement silos. Previously he had a wooden silo for many years. He grows the Leaming corn for ensilage, and cuts it a day or so before filling, to wilt. Never heard of the juice of the ensilage softening the bottom of cement silo walls.—*The Farmers' Advocate.*

Arizona Dairying.

ED. HOARD'S DAIRYMAN:—I have been a reader of your excellent paper for the past six months and would not be without it for anything. Our valley is a great place for dairying.

I am milking twenty-five cows, grade Jerseys and Short-horns. I have made butter for the past four years, but at present am taking my milk to a private creamery, and am quite well satisfied. Our test runs from 4.6 to 5.4. I feed separator milk to calves and hogs.

I see by the DAIRYMAN that a great many people in the east are trying to raise alfalfa. It is the principal hay or grass raised here in Salt River Valley. Of late years we have been raising a great deal of sorghum for cow feed. I have been greatly interested in the silo question. There is not one in this valley. Our cows run on open pasture the year around, but from November to February feed is scarce. Bran is $25 per ton, but very little fed. Alfalfa hay and grass is the main ration.

I would like your opinion on a silo. Many people think it would not pay in a warm country, as we have only hard frosts in winter.

Do you think sorghum would be the best (or as good) to fill a silo with in a warm climate? Would brick answer for building, as it is our cheapest good building material, $6 per thousand. How would it do to put the silo six feet under ground?

I am a young dairyman and much interested in the dairy business and feeding. I have the pleasure of sending you five subscriptions for your valuable paper.

Phoenix, Ar. E. T. VANKIRK.

It is the opinion of the DAIRYMAN that the silo can be made of very great importance to those dairymen who are carrying on the business in the arid portion of the country. What is needed with the cow is a succulent feed. Where abundant pasturage is had the cows get it, and the next best thing is the silo which preserves whatever is put in it, in a succulent condition. We can see no reason why it would not be just the thing for you to put up a silo and preserve therein a part of your alfalfa or sorghum or any other forage which you would otherwise feed dry. If your cows could have a feed once a day of good sweet alfalfa silage it would help keep up the milk flow greatly.

Disposing of Manure.

ED. HOARD'S DAIRYMAN:—I will give my way of disposing of the manure problem: That is to draw direct from the stable and spread on the oat ground, which is fall plowed. By so doing I get a good crop of oats and a fine seeding of clover, which will produce a good crop of (protein) hay, and the following June have a fine crop of green manure to turn under for corn, and any one can raise corn for silage on a good clover sod. This also makes a complete rotation of crops, and leaves the soil better than in the beginning. R. E. B.

Candor, N. Y.

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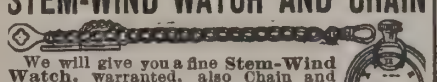
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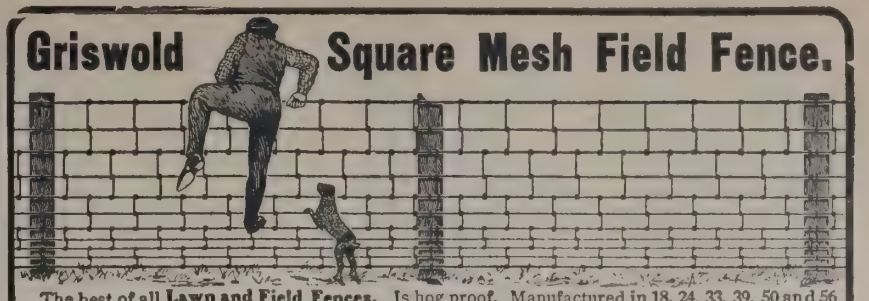
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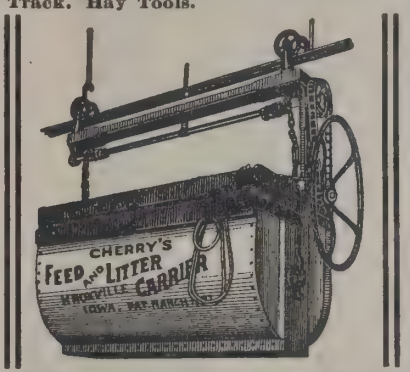


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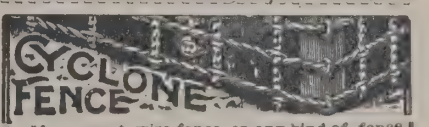
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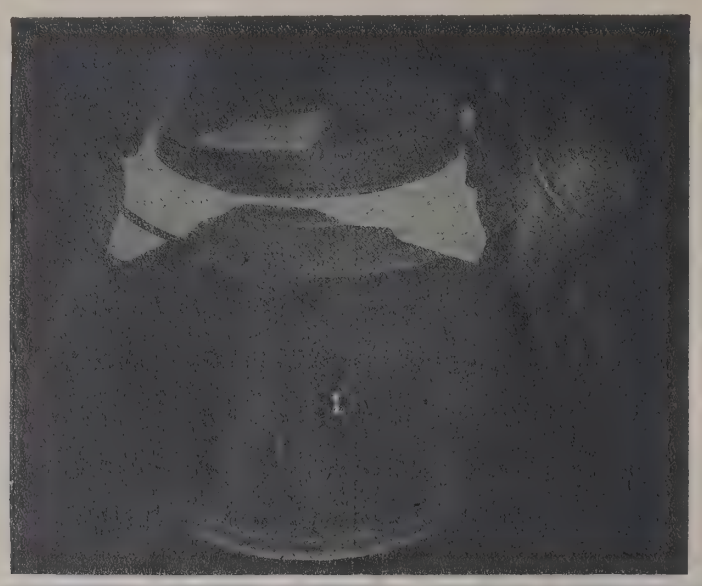


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ED. HOARD'S DAIRYMAN:—The consumers of milk are realizing more fully each succeeding year that they have been consuming an unnecessary amount of filth, and they are getting to rebel more and more against it; why should we not have our milk as clean as any other article of food that comes to our tables? When the producers of milk reach this condition, the consumption of milk will be very much increased, and with this increased consumption causing a larger demand, we shall be able to secure better prices for our product. It will always pay to produce a high quality of milk, especially after one has established a reputation for doing honest work; this must be demonstrated before the public should be expected to have confidence, which is the foundation of permanent success.



THE H. B. GURLER SANITARY MILK PAIL.

Devised by Mr. Gurler and used on his farm at De Kalb, Ill., where about 200 cows are milked daily. No. 1 is the pail complete as ready for milking—the streams strike the cloth at a slant, the cover checking any spatter. No. 2 is the pail as ready for washing. No. 3, the tin ring and part cover that holds cloth in place. No. 4, sheet of fine cheese cloth doubled over a layer of absorbent cotton. No. 5, cap for closing the spout (No. 6) while milking. The cloths are washed, sterilized, and used several times over. The cotton is thrown away at the finish of each milking. One pound of the cotton s sufficient to make fifty strainers.

I once made the statement to an audience of farmers that we consumed more filth in our milk than in any other article of food, and at the close of the session the Dean of an agricultural college said to me, that I might have safely said more than in all other articles of food. Is it any wonder that many delicate stomachs rebel against much of the milk that is put upon the markets of our cities and homes?

There is not any great expense attached to producing clean milk, as any one that will try can keep the cows clean; they must be kept well bedded with some material; let it be straw, cut corn stalks, sawdust, or shavings; if the cow becomes soiled, she must be cleansed, as this filth, if allowed to accumulate on the cow is sure to reach the milk pail in a greater or less degree. The best way to clean a soiled cow is to have a pail of water and a brush, cloth or sponge, and make a thorough job of it, before it has time to dry; this takes less time than it does to remove it after it has dried and does a more perfect job. The cows should be groomed a half hour before milking, so as to allow the dust, time to settle before milking is commenced. The udders should be washed before milking, even if they are apparently clean; they need it just as much as we need to wash our hands and faces before eating.

The milking should be done with dry hands; it is just as necessary to cleanse our hands before commencing to milk as it is for the cook to cleanse her hands after washing the dishes or other soiled articles before she goes to preparing food for us.

My practice is to have one man cleanse the udders for about 10 milkers and keep just a little in advance of the milkers, as the best results are obtained when this is done, as the manipulation of the udder in the cleansing process stimulates the secretion of milk, and to secure the best results we must work with nature. In case we do not meet nature's first effort, her second effort is not as strong as the first, and as good results are not obtained; if this is persisted in nature can be discouraged completely. I met this condition in my early experience in my certified milk enterprise when I had each milker cleanse the udders of the cows that he was to milk before he commeneed to milk. I soon found that when a cow was put into the certified stable there was a shrinkage in her milk, and the cause was a study for me and it required months for me to solve the problem, but it was at last solved through a hint from a woman (a mother), and I changed the order of cleansing the udders and stopped the shrinkage when the cows were changed into this stable.

For the small dairyman I think it is best for the milker to have a pail of water and sponge and cleanse the udder of each cow just before milking her. In this way he can keep both the udders and his hands clean, and there is equal need of each being clean.

The first few streams from each teat contain but little cream or butter fat, but remove many bacteria that have entered the mouth of the milk duct and should be rejected.

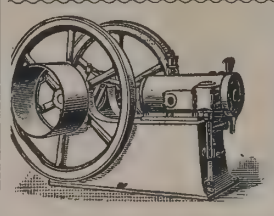
A milk pail arranged with a layer of



GASOLINE ENGINES

as power for the dairy have passed the experimental stage. Many dairymen now have them and all eventually must have them. The only questions to decide are the amount of power needed, and the most desirable make. With twenty-seven years of experience behind us, and a plant that has grown from 50 engines a year to 1500 a year capacity, we feel that we are equipped to build the best. There are other reasons why the **"OTTO"** is superior. We will tell them in this space from time to time. If in the meantime you need power, write us, mentioning this paper

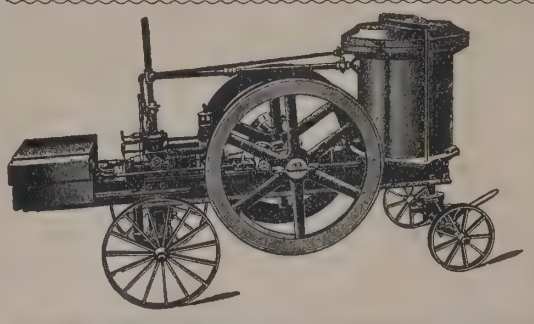
THE OTTO GAS ENGINE WORKS, Philadelphia, Pa.



THOMPSON-LEWIS GASOLINE ENGINES

furnish the greatest possible power at the lowest possible cost in time, labor, fuel and money. They are so simple that anybody can run them without expert training or experience. Our **Volume Governor** gives uniform speed. Our **Acme Mixer** is the most positive and economical on the market. Our **Hand Starting Lever** starts engine with least effort. All bearings of **Phosphor Bronze.** Best material and workmanship throughout. Many sizes from 4 (actual) h. p. up. Best for all farm work—cutting and grinding feed, sawing wood, pumping water, separating cream, churning, etc. Send for our free catalog before you buy. It may save you time, money and annoyance.

J. THOMPSON & SONS MFG. CO., 113 BRIDGE ST., BELOIT, WIS.



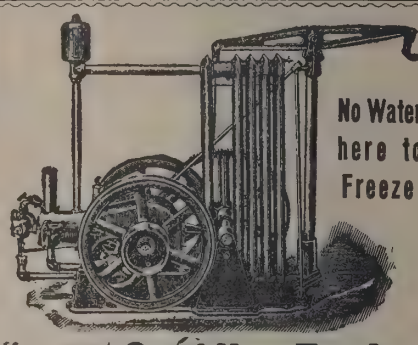
FLOUR CITY GASOLINE ENGINES

Portable and Stationary, 3 to 25 H. P.
Catalogue on Application.

KINNARD-HAINES CO.
MINNEAPOLIS, MINN.



ONLY BALL AND SOCKET CALF FEEDER on market. Nipple moves freely in any direction as in nature. Many other original features. Not an imitation but most improved feeder made. Result of years practical experience. Approved and used by experiment stations. Easiest to clean, strongest and most durable. Price..... **$1.50** or $1.75 prepaid. Free circular tells why this feeder is the best. Write the manufacturers today. **MAHLER BROS.**, 34 La Salle St., Chicago, Ill.



If you want a..... **Gasoline Engine**

that will be always ready to start, safe, reliable convenient, economical and durable, buy a **FULLER & JOHNSON Frost Proof.** No bother with water nor expense of broken cylinder, no waiting for wind or weather. All sizes, stationary and portable. Send for descriptive catalogue to the manufacturers.

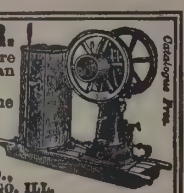
FULLER & JOHNSON MFG. CO., Madison, Wis.

$2000

The above amount will buy one of the most attractive farm homes in Maine, including everything named below: 1000 cords of wood; 60 acres of tillage, cuts 40 tons of hay; orchard of 500 apple trees and large number of cherry and plum trees; sap orchard of about 500 trees with a full outfit for making syrup, with camps, etc.; R. R. crosses the farm with loading siding convenient to all parts of farm, and flag station near house for passengers; 7 miles from one of the most prosperous cities in the state, and less than that from three large villages; one and one-half story house of 9 rooms, painted and blinded, also small house for use of help; 2 large barns, carriage house, ice house, manure, stock, and tool sheds. Buildings all in good repair; 2 wells and spring at building In addition to all this—double wagon, dump-cart, 2 mowing machines, plows, harrow, hay fork, and hand rake. Send for catalogue containing samples of other farms equally valuable.

POPE & NOWELL, Manchester, Maine.

3 HORSE POWER. You get it full measure at a cost of 3 cents an hour if you use the **WEBSTER** Vertical Gasoline Engine.

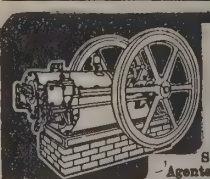


Strong and durable for pumping, sawing, grinding, churning, etc. Guaranteed. Full line vertical and horizontal engines.

WEBSTER M'F'G. CO., 1086 W. 15th Street, CHICAGO, ILL.

DAIRY FARM Near LYNCHBURG VIRGINIA.

completely stocked and equipped—established trade, 513 acres, blue grass pastures, smooth fertile limestone soil. Fine new dairy barn equipped with modern machinery, thoroughly fenced, two nice residences, abundant spring water, lots of fruit, everything good condition, paying place; butter 35c per lb., milk 8c per qt. $11,000 will buy it with cows and outfit. Easy terms. For details and photograph, Box 282, Lynchburg, Va.



LAMBERT
Gas or Gasoline

Is the reliable engine. No long shut-down for repairs. Simple, economical. Easy to regulate speed. Strong guarantee.

Agents wanted. Write for catalog.

G LAMBERT GAS & GASOLINE ENGINE CO., Anderson, Ind.

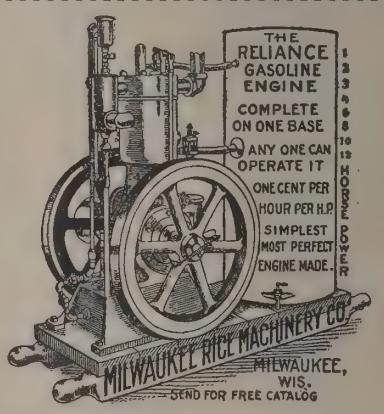
—TO—

BUTTER-MAKERS

Merchants, Etc.

A large firm of manufacturing confectioners in England using some 500 tons of butter per annum are open to buy a quantity at any time **IF A BARGAIN.**

The quality must be A 1—good sweet and solid and warranted pure butter. Any size of package. Price must be low, quality good or offers no use. Prompt payments, and would also consider buying 100 tons or more later in the year of June packing stock. Quotations in first instance to be addressed to **M. T.**, care of **T. B. BROWNE, Ltd., 163 Queen Victoria Street, London, England.**



NOW IS THE TIME TO SUBSCRIBE FOR **HOARD'S DAIRYMAN.**

MR. MILKMAN My Can Refrigerators take up no extra room in wagon and will prevent milk churning and souring. Booklet free.

S. C. SULLIVAN, 425 W. 4th., Erie, Pa.

DON'T BUY GASOLINE ENGINES UNTIL YOU HAVE INVESTIGATED "The Master Workman,"

a two-cylinder gasoline engine, superior to all one-cylinder engines. Costs less to buy and less to run. Quicker and easier started; has a wider sphere of usefulness. Has no vibration, can be mounted on any light wagon as a portable. Weighs less than one-half of one-cylinder engines. Give size of engine required. Pleas mention this paper Send for catalogue. **THE TEMPLE PUMP CO.**, ESTABLISHED 1853. Meagher and 15th St., CHICAGO.

absorbent cotton between two layers of cheese cloth is an excellent protection to the milk from the outside surroundings, and is not very expensive as the cheese cloth can be cleansed and used till worn out, though the cotton can be used but for one milking.

Remove the milk from the stable as soon as possible after milking the cow.

The stable should be ventilated. The King system of ventilation is the best that I know of. Have the stable as light as your dwelling house is. The cows need light as much as we do.

Be sure that the water the cows drink is pure, just as pure as the water is that the family use.

Do not allow silage, or other feed with an odor, about the stable at milking time; many more odors get into the milk after it is drawn from the cows than comes through the cows.

Make your wife or some other good housekeeper, Inspector General of this work and pay her a good salary.

De Kalb, Ill. H. B. GURLER.

CONCERNING OUR ADVERTISERS.

Farm lands in some sections of the country which are well settled are selling as high as $100 per acre without many improvements. The land is undoubtedly worth all it sells for, as on that basis, it will pay good interest on the investment. It is just as true, however, that an acre of this $100 land will not produce one cent's worth more crops than an acre of land in Carlton County, Minnesota, that can be bought for from $6 to $8 per acre. For farming purposes, the land here is worth fully as much as in Illinois or Iowa. The one and only reason why land there is selling at from ten to twenty times as much as our land is, is that it is more thickly settled. The day is near at hand when the country around Duluth and the head of Lake Superior will be as thickly settled as Iowa. Then our land will sell for $100 per acre and more. If the young farmers of the country only knew the actual facts concerning this part of Minnesota they would be tumbling over each other to get here to buy land. Many good practical farmers, both young and old, have already bought, and most of them have settled, or will settle in the spring, on this land, but there is room for many more. Prices, however, are steadily advancing and those who buy now will be the ones who will profit the most. For particulars address Guaranty Farm Land Co., Duluth, Minnesota, and mention HOARD'S DAIRYMAN.

BONA FIDE OFFER.

We wish to say that the offer of the Bluine Mfg. Co., Box 91, Concord Junction, Mass., to give a stem-wind, nickle plated watch, chain and charm to any person, man, woman or child, who sells nineteen packages of Bluine at 10 cents each and remits them the money thus received, is a genuine and bona fide offer. Their large premium list and the Bluine for you to sell are sent free on request to all who write.

Don't overlook the ad of the Polk County Land Co., Crookston, Minn. This firm have for sale some choice Red River Valley lands, and in their advertisement mention some good propositions of improved farms. It costs but a postal card to receive full information about these lands. Drop a card today and mention HOARD'S DAIRYMAN.

When making up the spring seed order, and particularly for potato planting, don't overlook that sterling seedsman, L. L. Olds, located in the great potato state of Wisconsin. Mr. Olds has his own ideas about seeds and planting which his customers invariably find it a great thing to put into practice. These ideas are drawn from a close study of varieties as adapted to different climates, and from keeping in close touch with the results produced by his customers. Mr. Olds never allows his business to get so big that his master hand is not present in every department, from the choice of the varieties to recommend, their description in the catalogue, etc., down to the details of filling and shipping of orders. That means much to the planter, for if there be error, negligence, substitution or indifference in filling your order, the evil is not discovered until it is too late to remedy. It is worth something to know in advance that you are planting just what you had counted upon, and that it is the freshest and purest to be had. A postal to Mr. Olds at Clinton, Wis., will bring you his catalogue.

DOMESTIC WATER SUPPLY.

There are few things so vitally important to the dweller in the country as a supply of water. This problem has been met in the past by various expedients, some of which have answered for the time, but have eventually had to be abandoned. The great importance of an ample and positively reliable water supply cannot be overestimated. It has been demonstrated too often to require argument that all zymotic diseases are due to an insufficient supply of water or a supply of water which was not fresh or pure. Windmills have been used to a great extent during the past on account of the great cheapness in first cost, but first cost should not enter into so important a question as this, as it is a question of placing a small amount of money against the lives or health of the people using the water. The Rider-Ericsson Hot Air Pumps offer the most reliable method for procuring water for stock or household use. The address of the Rider-Ericsson Engine Co. is 35 Warren street, New York; 239 and 241 Franklin street, Boston; 40 Dearborn street, Chicago; 40 North Seventh street, Philadelphia; 692 Craig street, Montreal, P. Q.; and a letter to any of these would bring a catalogue with any special information desired by any of our readers.

FKED GRINDER ENDORSED.

From the inquiries we receive we conclude it is a mistake to assume that all feeders have learned practically the great value to be derived from grinding feed. We are frequently asked to advise in regard to the benefits and to recommend a mill well suited to the purpose. As to the benefits, so much has appeared in this and other papers from time to time regarding the saving of feed, the rapid fattening of stock and all other phases of the subject, and the custom is so universally endorsed by experiment stations and adopted by experienced feeders, as to require no special comment here. As to the mill to use, we are constrained to say that no reader can go wrong who turns to our advertising columns and proceeds to interest himself in the Quaker City Grinding Mills manufactured by A. W. Straub & Co., of Philadelphia. We believe their continuance in high favor for a period of thirty years among feeders who would be expected to know what is best adapted to their uses, warrants us in giving them unreserved commendation. Of course, in the thirty years they have been improved. It is their mill of today of which we speak. A feature to be noted is the double hopper which suggests the ingenious means by which they crush and grind ear corn and grind and mix with it in desired proportions the smaller grains, all in one operation. Either may be used by itself if desired, and the mill is noted for the excellent quality of corn or oat meal for household use it turns out. Fitted with ball bearings it is a remarkably easy runner. We cannot here enlarge upon its special good qualities. The wise thing to do is to send to the manufacturers for their catalogue and get full information at first hand. It will be mailed free to any one writing for it and mentioning this paper.

AN IMPORTANT SALE OF JERSEY CATTLE.

We wish to call special attention to the advertisement of Messrs. Case & Walker, of Rushville, Ind., appearing on another page of this paper. This firm, breeders and importers of Jersey cattle, will sell at public auction on Tuesday and Wednesday, April 28 and 29, the entire herd of Jerseys on their Jersey Isle Stock Farm, consisting of over one hundred head. Every animal to be sold was born on the Island of Jersey, except the young stock dropped last year on the farm by cows imported during 1900 and 1901. There has never been on this farm a cow of any description except imported Jerseys and those out of imported parents; and since the original stock has all been subjected to the tuberculin test, and there has been no chance for disease to enter the herd from outside sources, the cattle are in perfect health. They have had the run of 160 acres of natural bluegrass pasture, the very best of feed and attention, and are in condition to do their best work.

A SIGNIFICANT COMMENT.

A Missouri subscriber writes as follows:

"I wonder some times if you realize the splendid education the DAIRYMAN is giving to those who read it steadily, right along, year after year; I started four years ago. I had had but little education, and I could not understand the scientific terms that writers and speakers used. So you see I was barred out from knowing what I ought to know. The DAIRYMAN took right hold of me and made me feel that I must arouse myself. I bought a dictionary and when I struck a word that I did not understand, I dug it out. The result is that I have gained immensely in my understanding. I am a good deal more of a man and a farmer than I was. A lot of my neighbors are just where they were, and they will die there. But their sons are beginning to get a little hungry. They will feel ashamed not to know what belongs to their dairy business; what every good farmer ought to know. Keep right on stirring us up. Never mind the kickers and the men who have more sensitiveness than sense. Don't cease firing. J. V. THOMPSON.
Missouri.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Will Fumes from a Smelter Affect Cattle?

Do you believe the smoke and fumes of the copper smelters, which we have here, would be liable to affect the lungs of cows to such an extent that the tuberculin test would react from this cause?
Butte, Mont.

ANSWER.

We are of the firm opinion that the fumes or smoke above mentioned cannot affect in any way to make them react to the tuberculin test, but would suggest that the animals reacting would be isolated for 60 days and kept away from the fumes and smoke, and then be re-tested, which will be a positive proof.

To Dehorn Cattle.

Will you please inform me which is preferable, to dehorn cattle by sawing, or using a clipper?
Kelso, Ore. B. N.

ANSWER.

Though both methods are applied with good results, the writer prefers the saw, believing it to make a smoother cut without cracking the horn.

Horse Owners! Use

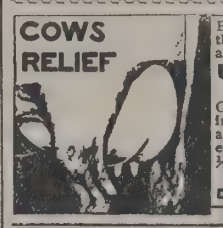


GOMBAULT'S
Caustic Balsam
A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish!*
Every bottle sold is warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O.

Hood Farm Remedies
Keep Stock of All Kinds
Healthy and Productive.

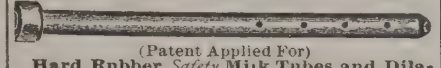
HOOD FARM MILK FEVER CURE, $2.50.* Have it on hand. Saves the best cows.
HOOD FARM CALF SCOUR CURE AND DIGESTIVE POWDER, $1 and $2.50 each. Promptly cure calf scours.
HOOD FARM BREEDING POWDER, $1 (by mail $1.15) and $2.50.* Makes cows breed.
HOOD FARM ABORTION CURE, $1 and $2.50.* Prevents abortion.
HOOD FARM GARGET CURE, $1 and $2.50.* Cures garget.
HOOD FARM CONDITION POWDERS, 25c., 50c. and $1.* Keep stock healthy.
HOOD FARM LINIMENT, 25c., 50c., $1 and $2.* Best wash for race horses.
HOOD FARM TONIC DRENCH, 50c. and $1.*
HOOD FARM COLIC CURE, $1.*
HOOD FARM HOG POWDERS, 25c. and $1.*
*Prepaid to any railroad express point in U. S. 25c. additional. Mention this paper.
Address C. I. HOOD CO., Lowell, Mass.



COWS RELIEF
Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.
Used Exclusively at Model Dairy
Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.
O. H. MFG. CO.,
Dept. H, Lyndon, Vt.

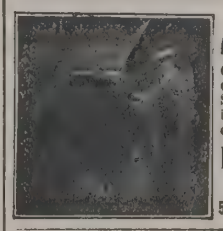
Hay Fever and Asthma
Completely cured—not just relieved. Attacks never return. Smokes and "Reliefs" can not cure. They are wrong in principal. Our treatment cures to stay cured. Restores health. Over 52,000 patients already. Book F 41 free.
DR. HAYES, Buffalo, N. Y.

ABORTION,
Failing to Breed and to bring Cows to Heat. Sure Cure. In use 20 Years.



(Patent Applied For)
Hard Rubber *Safety* Mik Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.
Dr. WM. HORNE, Janesville, Wis.

ABORTION,
Retention of Placenta and Failure to Breed.
KELLOGG'S CONDITION POWDER
is a positive cure for these diseases. Write for circular containing full information, references and price.
H. W. KELLOGG COMPANY, St. Paul, Minn



ABORTION
Can be successfully treated with Anti-Abortion Serum. Easily administered and permanently cures. Information free.
DR. ROBERTS
VETERINARY REMEDY CO.,
515 Grand Ave., Waukesha, Wis.

"SAVE-THE-HORSE"
TRADE MARK
SPAVIN CURE



POSITIVELY AND PERMANENTLY CURES bone and bog spavin, ringbone (except low ringbone), curb, thoroughpin, splint, capped hock, shoe boil, weak and sprained tendons and all lameness.

——FOOL TALK——

About 35 years ago a young mechanic called on old Commodore Vanderbilt, then head of the New York Central Railroad, in an effort to secure a trial on a New York Central train of a new device for stopping trains by compressed air.

"Air!" the Commodore is said to have exclaimed. "Air! Stop a train with air! I've not time to listen to such 'fool talk,' young man," and he didn't. Neither would anyone else for many a long day.

George Westinghouse, for he was the man of the "fool talk," believed in himself and the utility of his invention. He kept right on in spite of Commodore Vanderbilt and the others till he forced recognition. Would a man trust himself aboard a passenger train today if he knew that train was not fully equipped with Westinghouse's invention—the air brake? It is said that Vanderbilt's road had some difficulty in getting it when finally it was wanted.

Many a man says "fool talk" when he reads the claims made for "Save-the-Horse" spavin cure, but the dawn of enlightenment is as certain as the rising of the sun, and the man who says "fool-talk" after reading the facts so plain and convincing as given by us, reaffirmed by the letters published in these columns every week, and in our booklet, is repeating Commodore Vanderbilt's mistake. No man need be in doubt as to what "Save-the-Horse" spavin cure can, and cannot, do. If you have a case different from what are described in booklets and advertisements, send us full particulars as to the age, location, cause of the lameness or swelling, the horse's action, previous treatment, and also the veterinarian's diagnosis, if you know he is competent, and we will tell you frankly as to the possibilities of our remedy. Write for booklet and copy of guarantee and any information desired.

Heed this:—
Work horse continuously if desired.
"Save-the-Horse" cures without scar, blemish or loss of hair.
Contains no arsenic, corrosive sublimate or other form of mercury or any ingredient that can injure the horse. $5.00 PER BOTTLE.
Written guarantee with every bottle.
There is no condition or arrangement we can make more binding to protect you than our guarantee.
NEED OF SECOND BOTTLE IS ALMOST IMPROBABLE EXCEPT IN RAREST OF CASES.
$5.00 at all druggists' and dealers', or express prepaid.
TROY CHEMICAL CO., Troy, N. Y., manufacturers.
Also Veterinary Fixine, for grease heel, scratches, speed cracks, cases where ulcerations extend, with transverse cracks which open at every step and often bleed, no matter how complex, aggravated, deep seated or chronic; if treated according to directions, as given on circular with every box, positively cured.
KEEPS HOOFS HEALTHY, SOFT AND IN PERFECT FORM.
Heals collar and saddle galls, hopple chafes, abcessess and all skin diseases.
Two oz., 25c.; 8 oz., 50c.; 5 lb., $4; all druggists and dealers, or sent prepaid.

ANTITOXIN
For the Cure and Prevention of Milk Fever.
No quackish humbug but a scientific fact. Works on same principle as antitoxin injection in man for diphtheria, destroying poison in system. Out of 110 cases treated in Portland, Mich., 109 recovered last year. Easily administered with a syringe. Inexpensive. Write for particulars to DR. W. E. A. WYMAN, V. S., Prospect, Ohio

BLACKLEGOIDS
BEST PREVENTIVE OF BLACKLEG.



Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each **Blacklegoid** (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. **Blacklegoids** are sold by druggists; *ask for them.*
Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.
PARKE, DAVIS & CO. - DETROIT, MICH.
Branches: New York, Kansas City, Baltimore, New Orleans, Chicago; Walkerville, Ont.; Montreal, Que.; London, Eng.

BARREN COWS CURED.
Our treatment has been used successfully since 1878 in every state in America, Canada and Great Britian. Write for Pamphlet.
MOORE BROS., Veterinary Surgeons, Albany, N. Y.

CURE "THE" COW
NO CURE, NO PAY

WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address



DR. EATON J. GROSS,
153 Congress St., Troy, N. Y.

Barrenness in Cows.

ED. HOARD'S DAIRYMAN:—I have received a sample copy of HOARD'S DAIRYMAN in which I find a question of J. C. N., of Tacoma, Wash., relating to barrenness. Your answer is "See barrenness, this issue." That especially interested me, as I have a fine-grade Jersey heifer now past two years old, which I have not been able to get with calf. I have looked the issue through very thoroughly but do not find any article on "barrenness."

I would be glad to know of a remedy that would be successful and safe in the hands of a man of ordinary intelligence.

There are no veterinary doctors in this vicinity. M. M. E.

Sandy Creek, N. Y.

This is a feature of dairying that is exceedingly bothersome at times. Barrenness seems to be an accompaniment as a side feature of abortion. In cases where abortion prevails or has prevailed to any extent in a herd, more or less of the cows are hard to get with calf. The other day, while visiting the celebrated Jersey herd of Frank W. Hart, of Cleveland, Ohio, we found that the favorite remedy there was hemp seed fed to the barren cows at the rate of a half to a full pint a day. Mr. Hart says it is excellent. Several remedies are advertised in the DAIRYMAN; all are good, but they fail at times. We can only say: Do not get discouraged until you have to.

The East Tennessee Farmers' Convention.

The 28th annual meeting of the East Tennessee Farmers' Convention and Farmers' Institute will be held in Knoxville on May 21, 22 and 23. The railroads have granted a single fare for this meeting over a wide territory, embracing not only East and Middle Tennesse, but reaching out into the adjoining states. Tickets to this meeting will be good going May 20, 21 and 22 with a final limit to of May 24 for returning. Last year there were 1,500 tickets sold to the meeting and there is every reason to expect a much larger attendance this year.

An unusually strong program is being prepared. The very best agricultural experts of the United States, and of the South in particular, will occupy places on the program. The local interests have not been overlooked and the practical discussions of every topic by the leading farmers of East Tennessee will be a very interesting feature of the program which will be issued about the middle of April.

Every farmer should make his plans now to attend this meeting. It is the greatest gathering of its kind held anywhere in the south and for that matter in the United States. One can not come in contact with such a large body of progressive and enthusiastic citizens without being materially benefited thereby. Paste the dates in your hat so you will not forget them and tell your neighbors and friends about the convention.

Any person desiring further information about the meeting should apply to Prof. Andrew M. Soule, Secretary, Knoxville, Tenn., who will cheerfully answer all letters of inquiry.

Renovated Butter.

Rules and Regulations Prescribed in Regard to "Renovated Butter," in Accordance With the Act of Congress Approved May 9, 1902.

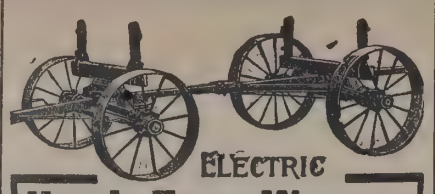
It is hereby ordered, That Rule No. 18 of the Rules and Regulations prescribed in regard to Renovated Butter, published from this office under date of November 1, 1902, be revised and amended, with the concurrent approval of the Secretary of the Treasury, by the insertion of a new sentence, as follows:

But manufacturers may pack prints, bricks, or rolls of one-half pound each in weight, under the conditions and requirements prescribed by this rule, and provided that such one-half pound prints shall be of shape and size to admit of the same marking and branding as is required in the case of prints weighing one pound or more.

The rule entire, as amended, will be as follows:

18. Manufacturers will be permitted to pack prints, bricks, or rolls of renovated butter, not less than one pound each in weight; but each print, brick, or roll must have stamped thereon the words "Renovated Butter," in two lines, the letters to be depressed, of gothic style, not less than three-eigths inch square and sunken not less than one-eighth inch. But manufacturers may pack prints, bricks, or rolls of one-half pound each in weight, under the conditions and requirements prescribed by this rule, and provided that such one-half pound prints shall be of shape and size to admit of the same marking and branding as is required in the case of prints weighing one pound or more. The contents of any package less than 10 pounds will be considered as a brick or roll.

Washington, D. C. JAMES WILSON, Secretary.



ELECTRIC

Handy Farm Wagons

make the work easier for both the man and team. The tires being wide they do not cut into the ground; the labor of loading is reduced many times, because of the short lift. They are equipped with our famous **Electric Steel Wheels**, either straight or stagger spokes. Wheels any height from 24 to 60 inches. White hickory axles, steel hounds. Guaranteed to carry 4000 lbs. Why not get started right by putting in one of these wagons. We make our steel wheels to fit any wagon. Write for the catalog. It is free.

ELECTRIC WHEEL CO., BOX 130, QUINCY, ILL.



Wilder's Stanchion

—being an improvement over Smith's. Lightest, strongest, quickest, safest swing stanchion made. Has steel latch and automatic lock. Becomes stationary when open. Animal cannot turn it in backing out. Made of best seasoned hard wood. Pins for fastening with every stanchion. Send for testimonials. Box 811

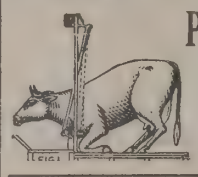
J. K. WILDER & SONS, Mearee, Mich.



The BEST Cattle Fastening.

SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated Circular free. GLENORA MFG. CO., Glenora, Yates Co., N. Y.

Infringements will be prosecuted.



Prescott's Swinging Swivel Stanchion

Keeps Cows Clean.

Swings forward while getting up or lying down. Locks back while standing Full particulars free.

E. PRESCOTT, Beverly St., Boston, Mass.



THE NEW PATENT

Cow Stall

AND FEED TROUGH.

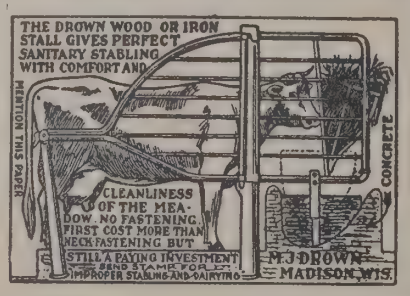
This is the only Cow Stal with a centering hinge Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars. **R. A McLERY & CO., Palmyra, Wis.**



CHAIN-HANGING CATTLE STANCHION

The Most Practical **CATTLE FASTENER** ever invented. Manufactured and For sale by

O. H. ROBERTSON, Forestville, Conn.



$28 FREE

FOR A TESTIMONIAL

You can have ripe tomatoes June 15th, ripe melons July 1st, new potatoes and cucumbers May 15th. All other vegetables or flowers as early by using Gold Mine Hot bed. It protects all kinds of plants from frost, cold raw winds and storms. Keeps off the bugs, insects, cutworms. Stimulates plant life in such a manner as to make them grow three times as fast. Indorsed and recommended by every agricultural paper in the United States, and by every farmer that has used them. There is not a Tool or implement that the farmer buys that will bring htm in as large returns each year as this. It will pay for itself forty times a year, with proper usage.

We have reduced the price from $1.50 per dozen to 85 cents, for immediate acceptance. Sold on the same guarantee to give satisfaction as plows, binders, and mowers are sold, or money refunded. When you find they are better than you expected them kindly send us a testimonial. Next year you will want more of them; we will reciprocate your kindness with a present.

We will give 200 Gold Mine Hot Beds to the person sending in the best report; 100 for second best; 50 for third; value $28, and pay all charges to destination. Premiums paid in November. Points considered—Earliness yield, amount of money made, with one dozen. Please do not delay your orders.

Reference by permission: Commercial Bank, Greentown.

W. M. WOODWORTH, Greentown, Ind.

The LAGUNA de TACHE GRANT

Laton, Fresno County, proves to be an Ideal Home for Farmers and

DAIRYMEN

60,000 ACRES OF IRRIGATED LAND IN THE

HEART OF CALIFORNIA

Alfalfa a specialty. Creameries on the Estate. Ample Railroad Facilities. Land Sold on Easy Terms in Small or Large Lots.

WRITE THE MANAGERS

404 GREAT NORTHERN BUILDING.....CHICAGO.

Buy You a Ticket to CROOKSTON, MINN., and call upon

The Polk County Land & Loan Company

For choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains

360 acre farm, 4½ miles from Crookston, Minn., (a city of 7,000 inhabitants), and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 ft. square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm in under a high state of cultivation, and is well drained by a slight ravine running through the farm, merely sufficient for self drainage. The soil is a rich deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50.

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired, Price $19.00 per acre.



200,000 ACRES TO SELECT FROM

We own 40,000 acres in Red River Valley, in Marshall and Kittson Co's, Minn. and in Walsh and Grand Forks in N. D. 15,000 acres in LaMoure, N.D. Fine stock ranches in Logan and Mercer Co's, N.D. 50,000 acres of Timber land in Aitkin Co. Minn., and Washburn Co., Wis. Also 15,000 acres in Southern Minn. in Lyon and Redwood Co's, near Marshall.

WRITE FOR OUR MAPS. We can give you a farm from $5.00 to $50.00.

BURCHARD-HULBURT INVESTMENT CO.

705-7 Manhattan Bldg. ST. PAUL, MINN.

OUT THEY GO

The crowds are going to **Morton County, North Dakota**; rich black soil, clay subsoil, producing heavy crops—where **corn grows.** Excellent water, 10 to 30 feet deep. **Coal is Free.** Stock feeding only about six weeks in the year. **Our Creamery** butter brings Elgin prices. We own 175,000 acres and sell farm lands for $7 to $12 per acre; grazing lands $4 to $7. **Free Homestead** lands adjoining. 9,000 people now in County. Healthiest climate. Write for facts and maps.

Wm. H. Brown & Co.

Mandan, N. Dakota, or 181 La Salle St., Chicago.

(Where did you see our Ad?)

GREEN **RAPE** costs 25 cents per TON!

Greatest, Cheapest Food on Earth for Sheep, Swine, Cattle, etc.

Will be worth $100 to you to read what Salzer's catalog says about rape.

Billion Dollar Grass

will positively make you rich; 12 tons of hay and lots of pasture per acre, so also Bromus, Pecoat, Speltz (400 bu. corn, 250 bu. oats per acre), etc., etc.

For this Notice and 10c.

we mail big catalog and 10 Farm Seed Novelties, fully worth $10 to get a start.

For **16c.** we mail **150** kinds of Flower and Vegetable Seeds and catalog.

JOHN A. SALZER SEED CO., LA CROSSE, WIS.

ECGS FOR HATCHING

I can serve you better than ever with eggs fo hatching. White, Barred and Buff Rocks, Cornish Indian Games, Dark Brahmas and many other varieties. Also Ducks and Geese. All prize winners. Write for prices. **J. P. Gonigam,** Ottawa, Ill.



160 ACRE FARMS IN WESTERN CANADA FREE

Western Canada Has Free Homes for Millions.

Upwards of 10,000 Americans have settled in Western Canada during the past five years. They are **Contented, Happy** and **Prosperous** and there is room still for **Millions.** Wonderful yields of wheat and other grains. The best grazing lands on the Continent. Magnificent climate, plenty of water and fuel. Good schools, excellent churches, splendid railway facilities.

FREE HOMESTEADS OF 160 ACRES

(the only charge being $10 for entry) in Manitoba, Assiniboia, Saskatchewan and Alberta. Send to the following for an Atlas and other literature as well as for certificate giving you reduced rates, etc. Superintendent of Immigration, Ottawa, Canada; or to the authorized agent of the Canadian Government—

T. O. CURRIE,
12 B. Callahan Bldg., Milwaukee, Wis.
J. M. MacLACHLAN,
307 Third Street, - Wausau, Wis.

ALL EYES ARE TURNED

toward Marathon County as being one of the finest agricultural and dairy sections in the state. The homeseeker can find an opportunity here : : : :

TO

buy lands at a moderate price. The lands we offer for sale are located in the northwestern part of : : : :

MARATHON COUNTY

in a section which is well settled, having good roads, railroad facilities, schools, etc. A splendid opportunity for the homeseeker. Terms reasonable. Write us now for further particulars : : :

RIETBROCK LAND & LUMBER CO.,
ATHENS, WIS.

CASH FOR YOUR



farm, home, business, or other property (no matter where located or how large or small) may be obtained through me. Send description, state price, and get full particulars free. Est'd 1896. Highest references. Offices in 14 cities, from Boston to San Francisco.

W. M. OSTRANDER
1519 N. A. Building, Philadelphia

FARM FOR SALE JACKSON CO., WIS.

120 acres. 95 acres under plow; clay loam soil; good house. barn, and other buildings. A bargain; price $6,000. Write **Hiles & Myers, C-100, Mack Block, Milwaukee, Wis.**

Fine Dairy Farm for Sale.

Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence, cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. **T. S. TOMPKINS,** Pasadena, Cal.

Official Records of Holstein-Friesian Cows, from Jan. 15 to Feb. 10, 1903.

Records of 60 cows have been approved during this period, of which 11 have records for thirty days, two for fourteen days and one a record for thirty-five days. All have seven day records, of which the averages are as follows:

Seventeen full-age cows—Milk 433.3 lbs., butter fat 14.808 lbs,; eleven four-year-olds, milk 399.1 lbs., butter fat 13.697 lbs.; thirteen three-year-olds, milk 340.1 lbs., butter fat 12.007 lbs.; nineteen two-year-olds, milk 283.5 lbs., butter fat 9.491 lbs.

The cows making 30 day records were as follows:

Paul DeKol Aaggie Queen 46899—milk 2,345.3 lbs., butter fat 75.939 lbs. Best seven days, milk 570.5 lbs., butter fat 18.296 lbs.

Shadeland Zora 2d 36219—Milk 2,160.3 lbs., butter fat 69.333 lbs. Best seven days, milk 501.9 lbs., butter fat 16.998 lbs.

DeKol Netherland Frazier 41292—Milk 1,734.8 lbs., butter fat 68.190 lbs. Best seven days, milk 422.4 lbs., butter fat 16.687 lbs. Owner Averill & Gregory, Syracuse, N. Y.

Pietertje DeHaan 40973—Milk 2,029.9 lbs., butter fat 67.677 lbs. Best seven days, milk 515 lbs., butter fat 16.404 lbs.

Altoana Pietertje A. 54656—Milk 1,967.8 lbs., butter fat 63.881 lbs. Best seven days, milk 472.3 lbs., butter fat 15.878 lbs. Owner, Averill & Gregory. Syracuse, N. Y.

Orpha Keyes 36223—Milk 1,576 lbs., butter fat 58.213 lbs. Best seven day, milk 391 9 lbs.; butter fat 14.556 lbs. Owner, Averill & Gregory, Syracuse, N. Y.

Aaggie 3d's Wayne Pauline 2d 47450—Milk 1,736.3 lbs., butter fat 57.162 lbs. Best seven days, milk 422.3 lbs., butter fat 13.902 lbs. Owner, Averill & Gregory, Syracuse, N Y.

Clothilde Artis Belle 2d 39861—Milk 1,642.5 lbs., butter fat 56.529 lbs. Best seven days, milk 414.4 lbs., butter fat 14.065 lbs. Owner, Averill & Gregory, Syracuse, N. Y.

Tina Pauline 34814—Milk 1,517.3 lbs., butter fat 56.230 lbs. Best seven days, milk 366.2 lbs., butter fat 15,050 lbs. Owner, Averill & Gregory, Syracuse, N. Y.

Helena Pietertje Burke DeKol 2d 56071—2 years; milk 1,758.8 lbs., butter fat 47 920 lbs. Best seven days, milk 418.9 lbs., butter fat 11.564 lbs.

Eva Blanco 56030—2 years; milk 1,461.8 lbs., butter fat 44.619 lbs. Best seven days, milk 338.7 lbs., butter fat 11.463 lbs.

The cows making the fourteen day records were as follows:

Jessie Fobes 2d's Maud 2d 44123—Milk 907.8 lbs., butter fat 31.415 lbs. Best seven days, milk 460.5 lbs., butter fat 16.903 lbs. Owner, W. H. Jones, Watertown, Wis.

Lily Castine 52576—3 years; milk 774 4 lbs., butter fat 27.356 lbs. Best seven days, milk 408.8 lbs., butter fat 13.968 lbs.

The seven day records, not above given, were as follows:

DeKol Koningen Pauline 44012—Milk 457.4 lbs.. butter fat 16.108 lbs.

Bertie Blanche 49663—Milk 442.1 lbs., butter fat 16.069 lbs. Owner, Frank B. Fargo, Lake Mills, Wis.

Nellie Hartog 35163—Milk 384.5 lbs., butter fat, 14 435 lbs. Owner, Averill & Gregory, Syracuse, N. Y.

Kittie Rouble 35854—Milk 424.5 lbs., butter fat 14.157 lbs. Owner, Averill & Gregory, Syracuse, N. Y.

Helena Pietertje Burke DeKol 42113—Milk 522.4 lbs. butter fat 13.759 lbs.

Rose Aaggie Liddisdale 1413 W.—Milk 388.3 lbs., butter fat 12.999 lbs,

Lady Alice —— —Milk 348.8 lbs., butter fat 12.662 lbs.

Susie Lamb DeKol 46181—Milk 495.2 lbs., butter fat, 12.577 lbs.

Corona Siempje 55503—Milk 358.3 lbs.. butter fat 12.421 lbs. Owner, Averill & Gregory, Syracuse, N. Y.

Mulvie 2d's Pauline DeKol 45122—Milk 425.2 lbs., butter fat 15.125 lbs.

Pauline DeKol Lilith 47419—Milk 425 lbs., butter fat 14.986 lbs.

Castine Witkop 47578—Milk 509 lbs., butter fat 15.636 lbs.

Mercedes Kiatta Antje 61553—Milk 364.4 lbs., butter fat 13.812 lbs.

Atla 3d 50172—Milk 368.9 lbs., butter fat 12,568 lbs.

Gewina Lulu Snowball 48169—Milk 276.8 lbs., butter fat 12.340.

Fannie Douglas 4th's Pet 48164—Milk 343.2 lbs., butter fat 11.593 lbs.

Vadora Mercedes 61558—Milk 359.5 lbs., butter fat 11.307 lbs.

Susie DeKol Keyes 2d 48814—Milk 325.8 lbs., butter fat 11.105 lbs. Owner, Averill & Gregory, Syracuse, N. Y.

Lucy Alexander DeKol 52410—3 years 10 months; milk 373.1 lbs., butter fat 13.765 lbs.

Skylark Mercedes DeKol 53644—3 years, 2 months; milk 365,3 lbs., butter fat, 13.622 lbs. Owner, Malcolm H. Gardner, Darien, Wis.

Aaggie Colanthus DeKol 50499—3 years, 11 months; milk 338.4 lbs., butter fat 13.450 lbs. Owner, Frank B. Fargo, Lake Mills, Wis.

Homestead Gem Pauline DeKol 49459—3 years, 8 months; milk, 387.5 lbs., butter fat 13.002.

Dolly VanBeers 51574—3 years 1 month; milk 329.6 lbs. butter fat 12.476 lbs. Owner, Frank B. Fargo, Lake Mills, Wis.

Ava Terzool of Lake Side 52917—3 years, 1 month; milk 323.9 lbs., butter fat 12.007 lbs. Owner, Frank B. Fargo, Lake Mills, Wis.

Lady Mercedes Melanie 61555—3 yeare, 9 months; milk, 305.8 lbs., butter fat 11 459 lbs,

Highlawn Belle 48817—3 years, 7 months; milk 337.6 lbs., butter fat 11.415 lbs.

Lady Jewell Hijlaard 49185—3 years, 11 months; milk 303.9 lbs., butter fat 10.751 lbs.

A. & G. DeKol Hengerveld Clothilde 52106—3 years, 3 months; milk 295.1 lbs., butter fat 10.436 lbs. Owner, Averill & Gregory, Syracuse, N. Y.

Calamity Jane Duchess 51307—3 years, 2 months; milk 344.3 lbs., butter fat 10.068 lbs.

Pledge 4th's Clothilde 51282—3 years, 3 months; milk 308.6 lbs., butter fat 9.660 lbs. Owner Averill & Gregory, Syracuse, N. Y.

Johanna Ruth 52256—2 years, 8 months, milk 335 lbs., butter fat 14.341 lbs.; food consumed, corn silage 350 lbs., clover hay 66.3 lbs., wheat bran 29.5 lbs., ground oats 29.5 lbs., gluten feed 29.5 lbs.

A. &. G. Inka DeKol Pietertje 52105—2 years, 10 months, milk 391.7 lbs., butter fat 13.196. Owner, Averill & Gregory, Syracuse, N. Y.

Paul DeKol Beauty 52301—2 years, 7 month, milk 263.8 lbs., butter fat 11.370 lbs. Owner, Averill & Gregory, Syracuse, N. Y.

Jarie Pauline De Kol 2d's Countess 56514—2 years, 1 month, milk 333.4 lbs., buttter fat 11.057 lbs.

Lucretia DeKol 57210—2 years, 3 months, milk 318.6 lbs., butter fat 10.041 lbs.

Princess Louisa DeKol 56031—2 years, milk 289.6 lbs., butter fat, 9.624 lbs.

Queen Cantrilla DeKol 57935—2 years, milk 276.2 lbs., butter fat, 9.158 lbs.

Zanca Wayne DeKol 2d 56513—2 years, 3months, milk 273.3 lbs., butter fat 8.627 lbs.

Gracie DeKol 57763—2 years, milk 287.4 lbs., butter fat 8.364 lbs. Owner, Malcolm H. Gardner, Darien, Wis.

A. & G. DeKol De Jong 55730—2 years, 3 months, milk 194.5 lbs., butter fat 8.026 lbs.. Owner, Averill & Gregory, Syracuse, N. Y.

Ruby Pietertje DeKol 56886—2 years, 2 months, milk 237.1 lbs., butter fat 8.015 lbs.

Pearl Inka Pietertje 57727—1 year, 11 months, milk 231.4 lbs., bufter fat 7.852 lbs. Owner, Frank B. Fargo Lake Mills, Wis.

Lilly Gewina 59176—1 year, 5 months, milk 234.5 lbs., butter fat 7.684 lbs.

Renie Neah Netherland 57142—1 year, 11 months, milk 207.9 lbs., butter fat 7.667 lbs.

Sue Vernon DeKol 57143- 2 years, milk 258.9 lbs., butter fat 7.550 lbs.

Lottie Lass 2d's Lady DeKol 58176—1 year, 11 month, milk 238.6 lbs., butter fat 7.404 lbs. Owner, W. H. Jones, Watertown, Wis.

Homestead Pauline Gem 56398—1 year, 11 months, milk, 237.7 lbs., butter fat 7.332 lbs.

S. Hoxie, Supt. of Advanced Registry.

Yorkville, N. Y., Feb. 10, '03.

Does it Pay to Make Second Grade Butter?

Ed. Hoard's Dairyman:—It has been stated within the past few months in many parts of Kansas that it does not pay the Kansas dairyman to spend time and labor to make first grade cream and butter. I wish to say most emphatically in the beginning of this article that under no consideration does it pay to make and market a second grade of butter, even if there is from one to three cents per pound saved in the hauling of cream and the making of butter. My personal experience in this matter of quality in butter has been my best teacher, and a short recital of these experiences I hope will help to save the Kansas dairyman from the mistake of thinking that it is well enough to be satisfied with second grade cream.

I started in the creamery business in Kansas nine years ago, and I have seen the time when the word, "Kansas" before the word "butter" made the butter absolutely unsalable. When I started in the creamery business in Beloit, Kansas, in the fall of 1893, I wrote a letter to a prominent commission firm in New York City requesting them to handle my acount in New York City on consignments

You all know what it means to consign goods. The consignee sells the goods at what ever he can get, deducts the freight, shrinkage, drayage and commission, and then sends the consignor check for the balance. You would hardly believe it at this time and day, but in answer to my letter requesting this prominent firm to handle my account, they wrote that Kansas butter was not desirable and that they did care to handle it under any conditions. That was the time when there was no reputation established on Kansas butter, when mostly second grade goods had been manufactured in this state, when most of the butter throughout the east, south and west, was sold under the name of Elgin creamery.

Farmers of Kansas, perhaps, can hardly realize the work that has been done by Kansas creameries in the past eight years to build up a market and gain a reputation for Kansas creamery butter, but we have it today so that Kansas butter is taken under its own name and is equal to the best butter made in this country.

In late years, the hand separator is coming into universal use and by reason of this, many farmers do not haul their cream as often as they should. There is but one criterion of fine quality of cream; it must be sweet and fresh so that it can be pasteurized and cooled. It

Spring Medicine

There is no other season when good medicine is so much needed as in the Spring.

The blood is impure, weak and impoverished—a condition indicated by pimples and other eruptions on the face and body, by deficient vitality, loss of appetite, lack of strength, and want of animation.

Hood's Sarsaparilla and Pills

Make the blood pure, vigorous and rich, create appetite, give vitality, strength and animation, and cure all eruptions. Have the whole family begin to take them today.

Hood's Sarsaparilla promises to cure and keeps the promise.

HALF ENOUGH WATER

Is quite enough for some people, but most people want water every day. If



RIDER or ERICSSON HOT AIR PUMPS

Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.

Rider - Ericsson Engine Co.,

35 Warren St., NEW YORK.
239 Franklin St., BOSTON.
692 Craig St., MONTREAL, P. Q.
40 Dearborn St., CHICAGO.
40 N. 7th St., PHILADELPHIA.
Teniente Rey, 71 HAVANA.
22 Pitt St., SIDNEY, N. S. W.

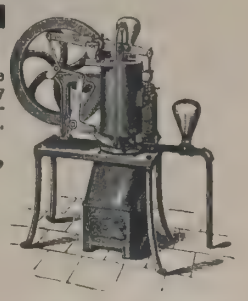
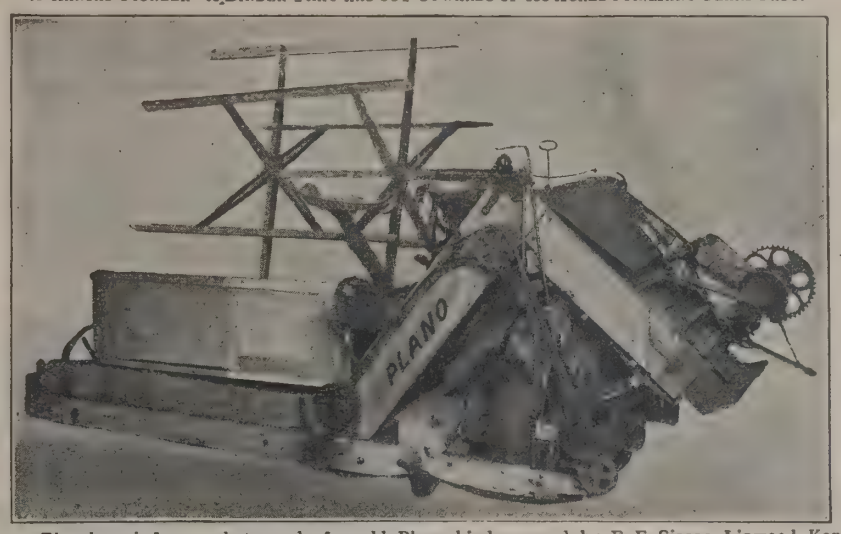


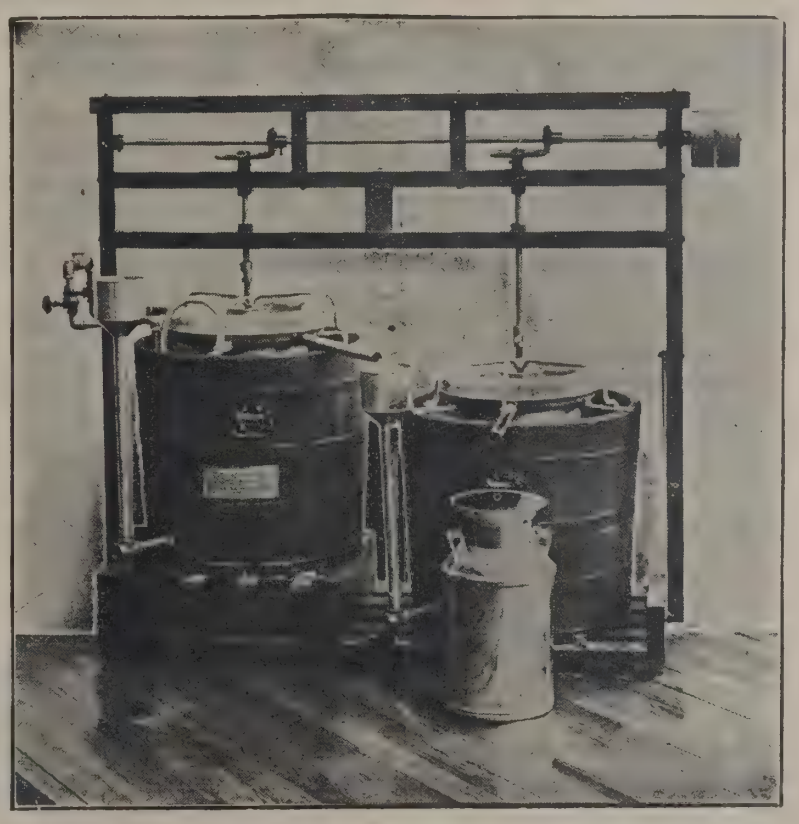
ILLUSTRATION.

A Kansas Pioneer—A Binder That has cut Upwards of 100 Acres for Many Years Past.



The above is from a photograph of an old Plano binder owned by E. F. Siscoe, Linwood, Kansas. This machine for seventeen or eighteen years past has cut a crop averaging from ninety to one hundred and forty acres each season. The expense for repairs during all that time was less than two dollars. This is the kind of testimonial that talks, and should certainly be very gratifying to the manufacturers of Plano machines. A concern which turns out a harvester so honestly built that it can hold its own against the Kansas winds and "rough it" through the early days of hard times on a western prairie, can certainly be trusted to produce money-saving implements for ordinary farm use. In fact, the superb binder, as well as other machines sent out by Plano Division, International Harvester Company of America, is a striking improvement over the old-time harvester shown above, but will be found to contain the same elements of durability and correct mechanical construction which have kept the old-timer doing business all these years. A handsome catalogue of Plano Binders, Headers, Reapers, Mowers, Rakes, Corn Binders, Huskers and Shredders, and Sickle Grinders can be had by addressing the company at Chicago or apply to any Plano branch house.

A GREAT SUCCESS.



The Miller Cream Pasteurizer has a capacity of from 450 to 600 lbs. per hour.

Price $150 in Tin. $200 in Copper.

THE MILLER PASTEURIZING MACHINE CO.

CANTON, OHIO.

should be hauled every day in the summer time and every other day in the winter time to the skimming or cream receiving station. There is butter made in Kansas today from hand separator cream which is sold under the reputation built up by Kansas butter during the last eight years; but this cannot be done forever and it must be the policy of every Kansas creamery patron to take a broad view of this subject, a patriotic view, and see that he brings to the skimming or cream receiving station, a first quality of sweet fresh cream.

Butter fat in hand separator cream is worth to-day 25½ cents, delivered to skimming and cream receiving stations. When the consumer buys a pound of butter and pays for same 29 to30 cents, what induces him to pay such a high price if it is not the pure flavor, the pure aroma and pure taste found in first-class creamery butter? If the customer wanted to buy a pound of grease, he could buy a pound of lard or a pound of oleomargarine or a pound of dairy butter, the wholesale price of which to-day is only 12 to 13 cents per pound. I maintain that when the consumer pays from 29 to 30 cents for first-class creamery butter, he pays 10 or 15 cents for a pound of fat and the balance of 15 to 20 cents he pays for the pure taste, pure aroma and the pure flavor in first-class creamery butter. It is the purity of this butter that increased the demand and consumption of same.

When any one argues that it pays the Kansas farmer to bring his cream once or twice weekly, to take a little less for his butter fat by reason of the cream not being first-class; when any one argues that this is a good proposition for the farmer, I say that it is the most dangerous proposition that has ever come up before the Kansas farmer engaged in dairying. There is an active demand for the very best kind of creamery butter only. This demand is steadily growing; the demand and consumption of same is increasing. This is what makes the market high, this is what gives the farmer more for his butter fat to-day than he has received for many years. If the market were flooded with second grade cream it would be lower, and when the question is argued that the farmers of Kansas can afford to bring their cream but once weekly, take one to two cents less for their butter fat and save hauling expenses, I say it does not pay, taking into consideration the present, next year and the year after.

To get a top price, to stimulate the demand and the consumption, we must make the best of everything, and that is the only permanent basis to work on. The finest creamery butter to-day is worth 28 cents per pound; dairy butter to-day is worth 12 cents per pound. This, in itself, is the best object lesson we need. It pays to make the best, the very best only, even if it should cost the farmer one or two cents per pound butter fat more to have it hauled. He should have it hauled every day in summer, every other day in the winter; this is the only pure, permanent basis on which creameries in Kansas and other places can operate and make money for themselves and for their patrons.

W. F. JENSEN.

Topeka, Kans.

Treatment of Abortion.

ED. HOARD'S DAIRYMAN:—As I look over the columns of the DAIRYMAN I find many inquiries for prevention and cure of abortion. It is not without a feeling of sympathy—I thought perhaps I might in a poor way, tell what helped me out.

Having been told I must tear out and burn my stable floors, plow up my pastures, stump lot and all, and many other things unnecessary—after reading and doing some hard thinking I tried the following: I procured a bottle of bichloride of mercury tablets, one hundred in a bottle, costing 25 cents, and four feet of half-inch, three-ply rubber hose, put one tablet in from eight to ten quarts of water from 100 to 105 degrees. This is sufficient for two cows. For cows with calf, round the end of hose, slowly work the hose in the vagina from 12 to 15 inches past the entrance to the bladder, slip the other end on a hand force pump, and force half the water in.

After the cows have been lying down, you will find a discharge, either on the tail or in the gutter. If it is stringy, bluish white, you need not fear. If it is thick, milky white or mixed with dark, murky pus, you may be sure there will be an abortion. Use one tablet in six or seven quarts of water on these cows, every other day, for four or five days, and once every three weeks, until within three weeks of the time the cow is due to drop her calf. I have used this treatment every day for ten days with good results.

Where the cords had slackened, and milk in the udder, should these cows abort, remove the placenta as soon as possible, if it can be done without injury to the cows, as the contraction is very rapid in case of abortion. Use the same solution every other day until all discharges have ceased. If the same bull is used on these cows again it will be necessary to go over.

When the cows are again with calf, use lime or ashes in the gutters and over the discharges. A slight swelling or smoothness of the vulva is indication of coming abortion, feed liberal as advised in the DAIRYMAN. More might be said on the subject, perhaps this will over tax the patience of the Editor.

C. R.

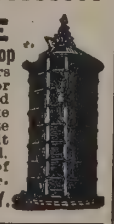
Clinton, N. Y.

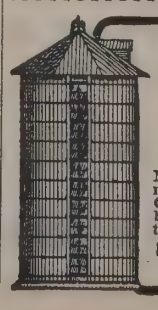
OUR readers have often been instructed by what Prof. Sanborn, of New Hampshire, has written in HOARD'S DAIRYMAN. The professor has been known for years as one of the leading investigators and teachers of Agriculture in the United States, but he is too modest to say what he is doing. A New Hampshire paper states that he is farming over 1,000 acres of land and managing very successfully a herd of 175 cows.

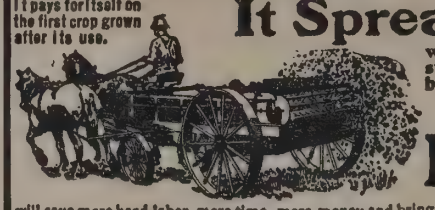
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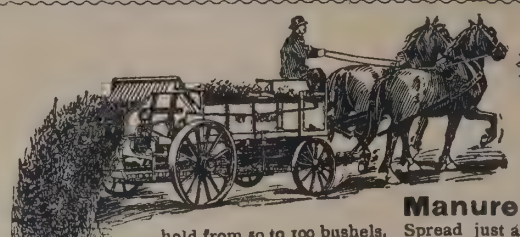

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hold from 50 to 100 bushels. Spread just as thin or thick, fine or coarse, as ground requires. Don't have to stop team to make change. Most substantial, largest capacity, lightest draft.
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COMMON SENSE Calf Feeder
awarded Gold Medal at Pan-American Exposition. The only Feeder adopted by experiment stations. It is the kind others try to imitate. Easiest to operate and clean.
Most Durable, Simple, Economical, Scientific and Practical.
Do not be deceived by imitators. Shams are never imitated. More Common Sense Feeders are in use than all others combined. Over 50,000 in use. No valves to get clogged or foul. Nipples reinforced and cannot collapse. The calf feeder is a perfect weaner. A substitute for nature.
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Worth $10.00.
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The Principle is Correct.
Purdue University Agricultural Experiment Station of Indiana, LaFayette, Ind.:—We have been using the Feeder to some extent and it is in constant use at this time and we believe it to be very satisfactory in its work. The principle of Your Feeder, I believe to be the correct one. C. PLUMB, Director.
Advise Stock Raisers to use it.
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Price $1.50 including two nipples, sent postpaid for $1.75. We guarantee satisfaction, but if you are in doubt about its value we will send one on approval for 50c to cover postage, remainder to be paid if satisfactory. Be Sure and send for our twenty-two reasons why you should use a feeder. It's free. Sold by one dealer in a town.
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DR. REA'S IMPROVED CALF FEEDER
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Galvanized castings. Will not rust. Seamless rubber nipples, reinforced, cannot split. Makes fat calves. Price,
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KEYSTONE CALF FEEDER
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Mr. M. T. Phillips, Dear Sir:—I write to say that the Calf Feeder is giving excellent satisfaction. We have found it to be all one could ask for in a feeder. It is easily cleaned and appears to be durable. Yours truly, E. A. JONES, Supt.
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is more largely used than all others by the dairymen and creamerymen of the country. This is so because after trial they have found it the best. They have found that it protects their butter and hence their reputation. It keeps out entirely all destructive germs and vile taints and odors and preserves the sweetness and flavor perfectly. We print your name, cut of dairy or creamery, trade mark or private brand upon each sheet. Send for sample sheets of the paper and booklets. **Be sure to ask specially for our booklet, "Better Butter."** We mail all these free. Address

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Impurities in Alfalfa and Clover Seeds. Alfalfa Dodders a Menace.

[Press Bulletin.]

By A. D. Selby.

Recently a number of samples of red, alsike and crimson clover and of alfalfa seeds have been examined at the Ohio Experiment Station under the direction of the botanist. These show no evidence of serious lack in respect to vitality, but in respect to weed seed impurities the outcome is a warning against employing seeds that have not been recleaned. Recleaned seeds show so much greater freedom from impurities than the seed as it comes from the clover huller, that recleaning becomes a necessity. To put it another way; the seed is free from impurities in proportion to the number of times recleaned. The farmer cannot afford to seed his land to plantains, to new weeds of any kind nor to infest his clover field with dodder.

During the season of 1902 attention was frequently called to something wrong in newly seeded alfalfa fields and incidentally to the fact that much more alfalfa is being sown each season. Patches in new alfalfa fields were often found where dodder had killed the stand over a circular area.

ALFALFA DODDERS IN THE SEED.

The alfalfa seed comes very largely from the irrigated region, especially from Colorado and Utah. Two kinds of dodder seeds are common in this western alfalfa seed: the kind more common, has seeds that will pass through a 20 mesh sieve, while the other is more nearly the size of the alfalfa seed. More than one half the samples of alfalfa seeds examined in Nevada two or three years ago contained the small seeded dodder, while more than one-fourth of them contained the larger dodder seed. Of fifteen samples of alfalfa seed, recently examined in Ohio, two contained seeds of the smaller seeded and two of the larger seeded dodder, but the number of seeds found of the small seeded dodder was many times that of the larger seeded.

The many cases of dodder-killed patches in alfalfa fields last season and these facts just stated show that no one should sow alfalfa seed without recleaning through a sieve of 20 meshes to the inch before sowing.

It is hoped this warning will reduce the number of dodder infested alfalfa fields the present season.

Fertilizer for Alfalfa.

Ed. Hoard's Dairyman:—Will you please advise me the best mixture of commercial fertilizer to top dress alfalfa. Something that will give it a good start in the spring. I sowed the seed last April and have a good set—thought top dressing would help it. S. K. H.
Carroll Co., Md.

A good fertilizer for alfalfa would be as follows:

Nitrate of soda	50 lbs.
Acid Phosphate	350 lbs.
Muriate of Potash	100 lbs.
Total	500 lbs.

Use the above quantity per acre.

If the alfalfa is well established, a top dressing of stable manure, well rotted and free from any large amount of straw can be used with great advantage. If stable manure is used on young alfalfa there is liability of weeds killing out the young plant.

Ensilage Milk.

Ed. Hoard's Dairyman:—To be at its best must be cared for in barn building. The cry against ensilage milk and any badness of ensilage milk, if bad it be, comes from bad usage of the ensilage.

The human being eats canned corn pudding with relish and benefit, but it is not frozen stuff or exposed to the air long before it is made up; and ensilage proper may be as beneficial to cattle, as are our canned corn, or canned peaches, or held apples on our own dinner and supper tables to ourselves.

These wart silos, tacked on to the outside of our barns, and delivering frozen ensilage, the top of which has been exposed 24 hours, are N. G. They never ought to be built, and some of us have got to tear them off and start over again with a pair of twin silos in the middle of our barns, which deliver ensilage free from frost, and being fed out singly expose the least possible surface between feedings. "He that hath ears to hear let him hear." "An Old Roadmaster."
Rockdale, N. Y.

ARMOUR'S BLOOD MEAL Cures Scours in Calves.

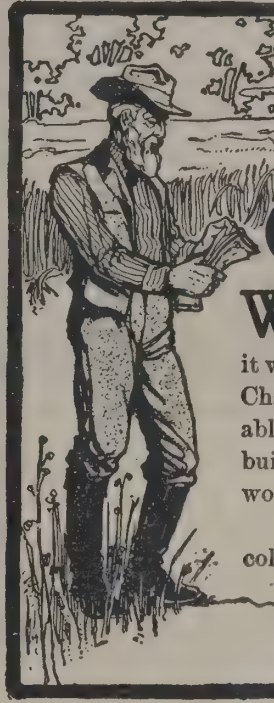
First proved by the Kansas Agricultural Experiment Station, and since corroborated by thousands of leading stockmen who have used it without a single failure. Equally effective for the diarrhea of all animals.

PREVENTS weak bones, paralysis of the hind legs and "thumps" in pigs; "big head" of foals; "rickets" of all young animals; abortion due to incomplete nutrition, and a host of other troubles.

A Potent Food for Work Horses, Dairy Cows, Poultry.

Write us for booklet giving valuable information about **Blood Meal** and our other feeding products. Consult us free of charge regarding stock diseases.

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A catalog describing them and a handsome colored calendar may be had for the asking.

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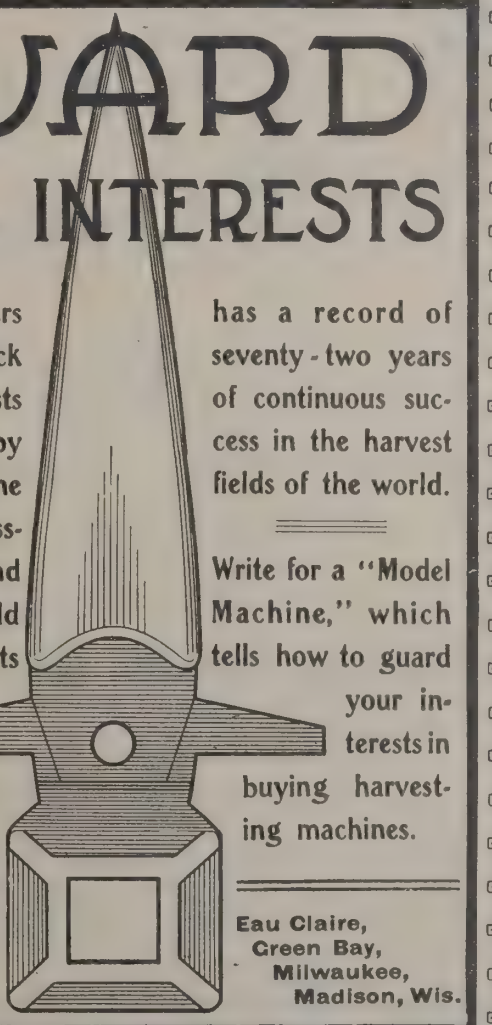
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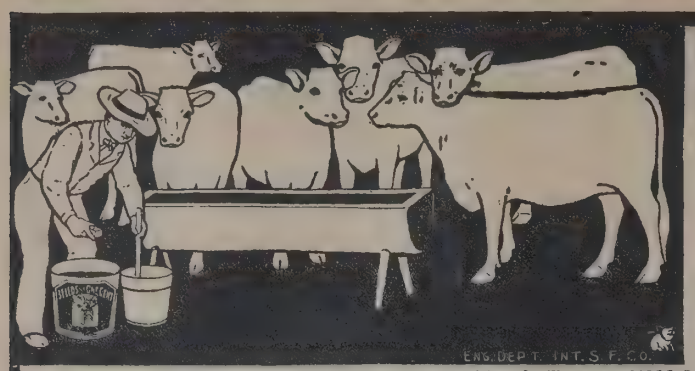
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WHAT PEOPLE SAY ABOUT THIS BOOK.

INTERNATIONAL STOCK FOOD CO., EAU CLAIRE, WIS.
Dear Sirs:—I received your "International Stock Book" and was more than pleased with it. It is worth more than $10.00 to me. Very truly yours, RICHARD J. MORRISSEY.

INTERNATIONAL STOCK FOOD CO., ODESSA, MO.
Dear Sirs:—Your "International Stock Book" duly received, and it is the best thing of its class that I have ever seen. There is a volume of useful articles in it from start to finish.
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A $3000.00 STOCK BOOK FREE

IT CONTAINS 183 LARGE ENGRAVINGS OF HORSES, CATTLE, SHEEP, POULTRY, ETC.

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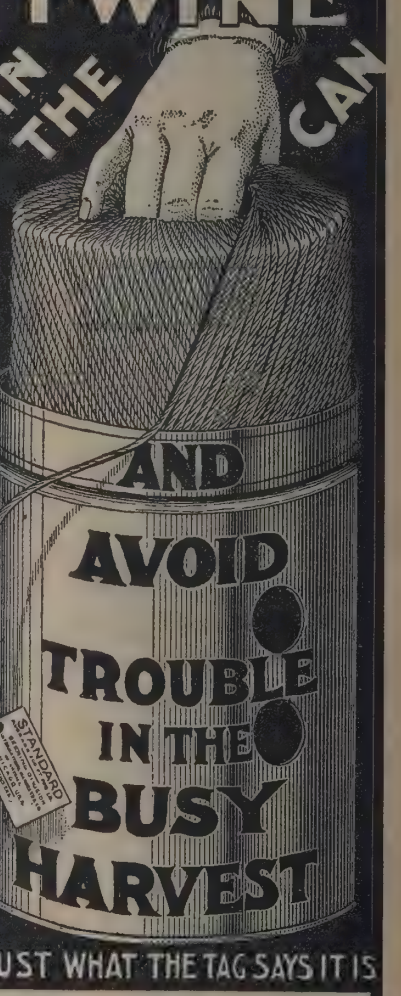
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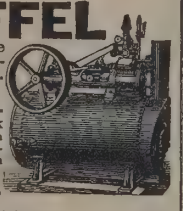
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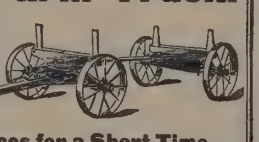
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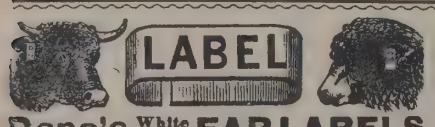
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Devoted to Dairying and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., APRIL 17, 1903. NUMBER 10

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CHR. HANSEN'S LACTIC FERMENT
To Ripen your cream, ensuring
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GENUINE
ELGIN BUTTER TUBS
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HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, BOSTON.**
Medals—Bronze 1878 Silver, 1887, World's Fair, 1893.

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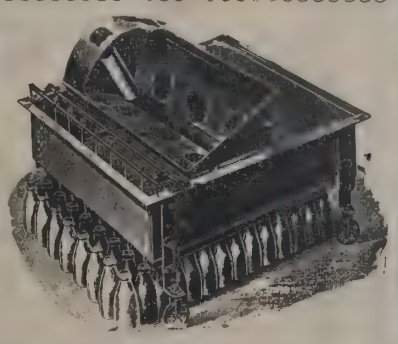


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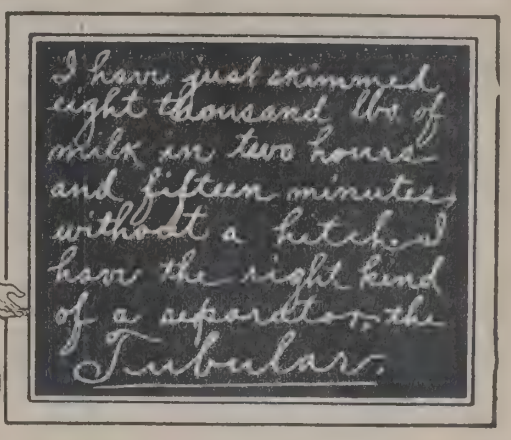
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We just have an unsolicited letter from H. M. Zook, the well known creameryman of Topeka, Ind., under date of April 2nd, 1903, reading in part as follows: **"The new machine will skim down to one one-hundredth right along through the entire run. It runs very nice all the time. It can't be beat in my opinion."** If you want further information from a disinterested party write to Mr. Zook. If you want to know the liberal proposition we are making on this machine write us to send you Catalogue No. 144. . . . . .

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in feeding for milk are obtained by adding some

BUFFALO Gluten Feed

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Sample and booklet

"Feed Your Stock for Best Results."

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The Cheapest Source of
DIGESTIBLE PROTEIN
on the Market.

ATLAS GLUTEN MEAL

ATLAS Gluten Meal,	36.5 protein
Cream Gluten Meal,	33.3 protein
Buffalo Gluten Feed,	24.2 protein
Chicago Gluten Meal,	33.7 protein
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Linseed Meal (old process)	28.8 protein
Linseed Meal new process)	27,9 protein

Experiment station reports, wherever this feed has been tested, pronounce it the greatest value in protein that the dairyman can buy.

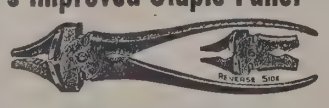
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THE MILK SUBSTITUTE
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For all domestic animals. It conditions, begets growth, fattens. 50c and $1.00 Packages. A Pail, 1200 feeds, for $3.50. Buy of dealers. Write us for free 68-page book.
Prussian Remedy Co. St. Paul, Minn

Cronk's Improved Staple Puller



is at the front. Ask your dealer to show it. Three wire cutters, two hammers, two splicing clamps—all in one tool. A staple puller that will pull staples when no other make will. A cutter that will reach wire when the button cutter will not. One day's use will save the cost of it. $1.00, postage paid.
CRONK & CARRIER MFG. CO, Elmira, N.Y.

Manure Question Again.

ED. HOARD'S DAIRYMAN:—It is really interesting to read the different views expressed by the farmers in your paper about this manure. I venture to say that the majority believe the better way is to spread it as fast as it is made, every day, right from the wagon. I think that Mr. R. L. Hinman is right, spread as it is made every day. As I said before, "40 loads that was put in one big heap in the winter, after laying, there were only 32 loads, a loss of 8 loads." I have been drawing all winter and spreading on a side hill meadow one rod from the fence, ground frozen, had plenty of rain, and I want to see if the grass is any larger from this liquid running away, as many think it will. At the New York State Dairymen's Convention, this manure question was being discussed and the question was asked about washing away. Mr. Fenner said: I "heard Prof. Roberts say that they had analyzed the coloring matter that is sometimes seen running away. It is of no value, it being tannin. There was no effect from it seen three feet from the pile of manure which they left in the field."

Very few farmers now draw in small heaps and then spread it in the spring, handling it twice. I make during the winter a wagon load every day that would be two heaps. Supposing I should make two heaps every day, that would be, say, from middle of October to 20th of May, some 420 large heaps. How long would it take a man in the spring to spread those heaps (I top dress meadows, do not plow any) at $1.50 per day? and besides where those 420 heaps were, the grass would all lodge down, and you could see the effects of those heaps for some time. The best, least trouble, is to draw it out every day and spread it, and most all the farmers that read your paper (including yourself) do it. This leaching and running away is not as bad as some think it is. T. F. KELLY.

N. Y.

The Manure Question Still.

ED. HOARD'S DAIRYMAN:—Will the "manure question" stand the experience and practice of another of your interested readers? If so, would like to say that for twelve years I have been hauling direct from the stables to the field at all seasons, and three hundred and thirteen days in the year and the longer I do it the more I want to. My rotation of crops is corn, oats and peas, and clover. I try to get there with the corn every fourth year.

As all the manure goes on top of the ground, we begin after the oats and peas are off (about Aug. 20) to top dress the new seeding, using about 12 loads per acre. After this the potato ground for next year is manured—25 loads to the acre. Next comes the corn ground, with 18 to 20 loads per acre. This takes us up to about May 1st.

A brother granger was asked in my hearing how long he top dressed his meadow in the spring? "Till the sled-beams knock the grass over," said he. So from May 1st "till the sled-beams knock the grass over" I top dress the orchard and the older meadows. Usually there will be—after the grass has become too large to spread the manure upon—three or four weeks before time to begin haying. During this time we go for the pasture field. With 25 cows and a span of horses, cows kept in the stable nights with tight gutters, in four weeks we can make as many acres of fine pasture for September and October, provided we have a good sod to start with.

The late Josiah Smith, of our county, once remarked in the DAIRYMAN: "That he liked to travel over a pasture that felt like a Brussels carpet under his feet." Top dressing, as above, will make that kind of a field. Our hired men have all thought it very odd, and some have said: "You are throwing your manure away to put it on the pasture." But after watching results, they have said: "If ever I have a farm I'll manure the pastures."

New York. J. Q. BARLOW.

What Kind of Salt for Stock

What kind of salt is best for stock? Is rock salt all right? PIERCE CO. FARMER.
Wisconsin.

Any salt is good, but for convenience and economy there is probably nothing better than the rock salt which comes in large lumps, and can be put out in boxes where cattle can have access to it at will.

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CONSUMERS should bear in mind that there are many brands of White Lead (so called) which are claimed to be "just as good" or better than Pure White Lead, which contain little, if any, White Lead, but are simply mixtures of Zinc, Whiting and Barytes, or other cheap, inferior materials.

Make sure that the brand is right. Those named in list are genuine.

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This Meal is Guaranteed Absolutely Pure. We also manufacture Strictly Pure Linseed Oil.

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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

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Entered at Fort Atkinson, Wisconsin, as second-class matter.

California Questions About Milking Machines and Stanchions.

ED. HOARD'S DAIRYMAN:—I am a renter and we are just starting in the dairy business. I have followed the business for seven years and I would like your advice on two or three subjects.

We are thinking of putting up a good cow barn, so I have been watching everything in that respect in your paper, but those eastern barns are different from what we need, as we do not have to fight against the cold. Just a plain board barn will answer here. I think of a barn 100 ft. long, an 18 ft. shed on either side, with stanchions, and a 6 ft. feed space in front of stanchions and a floor with gutter in for cows. I think of having the hay mow 30 ft. wide with 24 ft. posts and put hay in at both ends. We have alfalfa, but have to irrigate. I am arranging for my cows to come fresh in the fall and then let them rest in July and August, as these two months are very dry and hot with plenty of horn flies with us. We cut four and five crops of alfalfa per year and then pasture it in fall.

Now, as I do not wish to impose on your valuable time, I will proceed with my questions.

Milkers are a hard proposition with us. They will quit, or abuse your cows, or their horse, or do a hundred and one things to make it both unpleasant and unprofitable for you. I don't think it is altogether my fault as I have from 4 to 6 men all the time and have no trouble with the other men.

Well, question No. 1 is: What do you think of the Sharpless milking machine? Do you think they will give satisfaction? I will milk from 60 to 100 cows soon and have steam engine also a DeLaval Turbine. We ship our cream.

Question No. 2: In your judgment what is the best stanchion? I want something I can leave my cows in over night and not cripple them—that is, in stormy weather when it is blowing and raining. I hate very badly to turn them out in the storm, but if kept in the ordinary stanchion they stiffen so.

I would like very much to have a silo as we can grow corn for fodder very easily, but it will not ear, but we tenants have to be contented with what we can get, not what they think will pay.

Now, if you can find any items in this that you think would be of general interest, why you are welcome to use, if not why consign to waste basket, but please just sign CALIFORNIA.

The Sharpless Lactator promises well, but it has not yet encountered the crucial test of actual use among practical dairymen, and until it has passed this ordeal it cannot be unreservedly recommended, much less condemned.

For restraining cows while feeding and milking there can be no serious objection to the old-fashioned rigid stanchion. And for occasional use during stormy weather we do not consider they would be specially objectionable, but, of course, one or other of the patterns of swinging stanchions, or some style of tie or stall would be preferable. This correspondent appears to be a progressive sort of dairy farmer and we feel sure he would get much pleasure and no little profit from having a copy of King's Physics of Agriculture at hand for ready answer to innumerable questions that arise from time to time on the farm—among others matters pertaining to barns, stables, stalls and cow ties. The price of the book is only $1.75 from this office, postage paid.

The Hog House I Have Built, and the Hog House I Would Build.

ED. HOARD'S DAIRYMAN:—Replying to your request for plan of my hog house. I herewith hand you plans, both of my own house, and that of a much better one.

After my criticism of my own hog house, in a late number of the DAIRYMAN, I am surprised that anyone would want

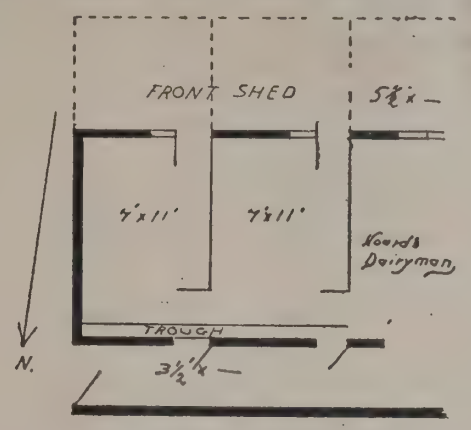


FIG. I—GROUND PLAN OF HOG HOUSE THAT I HAVE BUILT

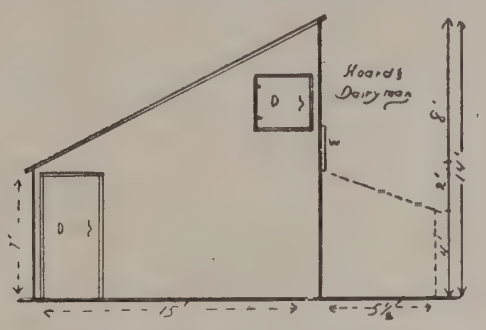


FIG. II—END VIEW OF ABOVE

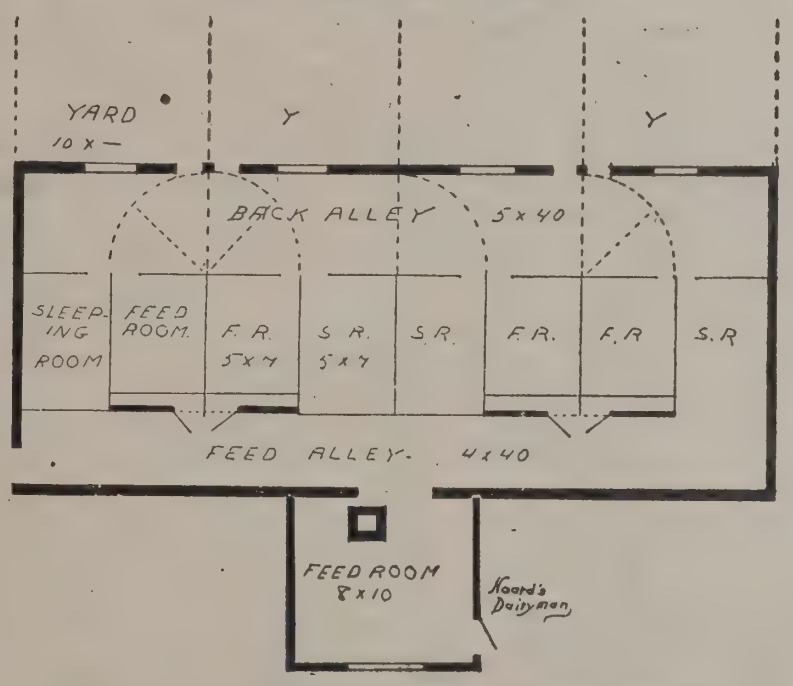


FIG. III—UP-TO-DATE HOG HOUSE AS I WOULD BUILD IT

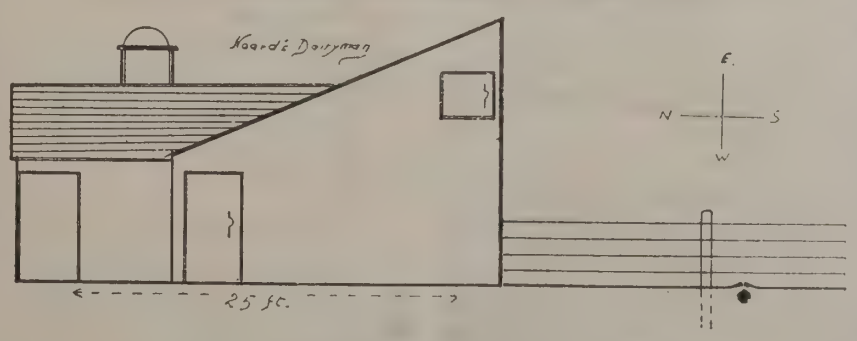


FIG. IV—END VIEW OF ABOVE HOG HOUSE

to build like it. I said that my hog house was built on the plans of Mr. Theodore Louis' hog house, of Dunn Co., Wis., and that I did not like it at all, and that I was considering adding improvements, as I thought, to the internal arrangement, which however proves only to be a make-shift. The best improvement in this house, is the low front shed, as shown in this plan.

Let the reader look over my letter, in the DAIRYMAN of Jan. 30, and he will understand much better about this shed arrangement. As I say, it is only a make-shift and I do not advise anybody to build after this plan. By comparing this plan, and the plans of Mr. Louis' house, so widely illustrated, it will be seen that mine is precisely the same. For why should it not, as I built exactly after his plans and as already said, am disappointed, and would advise no other to build like it. Therefore, see article in January 30th DAIRYMAN, which explains these things, and I do not want to reiterate.

Now, if anybody wants to build a hog house, I submit plans of up-to-date house which is sure to give comfort and satisfaction. The plans show a house 40 feet long. It may be only 10 feet and it may be 20, 30, 100 or any multiple of 10. It will be seen there are the indispensable departments in each pen, sleeping room 5x7, feed room 5x7 and brick alley 5x8, besides yard and feed alley. In order to come out of sleeping room, it will be seen, pigs have to pass out through back alley, where they are sure to leave their droppings, leaving the other rooms clean. Beginning at one end with a sleeping room the enclosures go in pairs as the plan shows. First nest, then a pair of feed rooms, then a pair of nests, and then a pair of feed rooms, etc. In fattening time the division planks between the pairs may be lifted out and the pairs made one enclosure 7×10. The nest room floor and feed alley floor are some two inches higher than feed room and back alley floors. This ensures dry nests and walks. The floor is best and warmest partly of cement. The front should face the south. On the central north side is the feed room. The one outlined in plan is 8×10. This is large enough for a 40 foot house; for an 80 foot house it should be twice as large, 5×7 will be found ample size for pens on this plan. A steam cooker, should be in this feed room to heat water, steam food for brood sows and young pigs, etc.

The roof is shed roof, which is the best for a hog house. There is a loft over head to be filled with straw for bedding and ventilation. J. A. M.

New York.

Farm Methods in Denmark.

ED. HOARD'S DAIRYMAN:—I am a Dane, and learned farming in Denmark, but it is now 30 years since I left that country, and both farming and dairying have changed and advanced since then. At that time the object of all farmers was to get manure and enrich the land. They sold nothing off the farm but wheat and fed all that they could raise to their stock, even the straw they took good care of Horses were seldom fed hay, but had oats and chopped straw (oat and wheat straw); barley straw was reserved for the cows and pea straw for the sheep. The manure was gathered in a heap outside the stables, where a pit from 4 to 5 feet deep had been made, and was hauled out on the summer fallow during the summer. The farmers had their land laid out in fields, the lowest was six fields and some had as high as 10 fields, and one field was manured once every year, so really the number of fields depended on the amount of manure a farmer could produce as it took more manure to cover one-sixth of the farm every year than one-tenth. They always used rotation of crops. The grass field was pastured over the first thing in spring by the sheep, then it was plowed shallow and the thin sod broken up with the cultivator and then harrowed with a spike-tooth harrow till all the dirt was shaken from the roots; after it was all wilted the manure was hauled on, and plowed in with a deep but narrow furrow. The idea was not to turn the top soil and manure to the bottom of the furrow, but have it so it would, by the leaning of the furrow, fall down a little on the side of the first plowed furrow, and in that way it was covered but not deep. After plowing in the manure it would lie a while, then it would be harrowed again and plowed again, no wider furrow, but from 6 to 8 inches.

Some farmers would plow it once or twice more before fall, for sowing the winter grain (wheat or rye). The next year, after the harvest in the fall, the stubble would be plowed and lie that way during the winter, to get the benefit from the frost, and in spring it would be sowed to barley. When that was harvested the stubble would be fall plowed, and in spring sowed to peas, mangel-beets and rutabagas; after that was taken off the land, it would again be fall-plowed and the following spring sowed to oats. After the oats were sowed and well harrowed in, 15 lbs. to 18 lbs. of red

clover, 15 lbs. of rye grass where the land was rather dry, and where wet, 15 lbs. of timothy would be sowed in place of rye grass.

The oats were cut that summer for grain, and before winter, the clover and grass would get a start and the next summer there would be a fine stand of clover; that clover was cut for hay and after it had gotten a good growth again, it was fed to the cows and horses. The next spring a good deal of the clover had been winter-killed, but the grass filled out their places, and that summer the cows and horses were tethered on it. This made 7 fields, but with most farmers this field was kept for another year and used for pasture for young stock and sheep, so that would make eight fields.

These fields were laid out permanently and there was no fencing, the land being too valuable for that. Barley and peas were used for the milk cows and for fattening pigs and sheep and cattle, mangels for the cow and the rutabagas for the sheep and for fattening cattle. The only thing bought in feeds, were oil cake, of rapeseed and flaxseed. The rapeseed cakes were broken up and fed to the cows and the flaxseed cakes for sheep and fattening of stock. Hogs were fattened on barley, peas, buttermilk and whey.

There was an expression used among the dairymen, which I never hear of here, it is, "some feeds are used in the milk making, and other feed forces or accelerates the production of milk," and rape-oil cakes were considered a milk forcer; it would increase the milk production, but would not in itself make milk. Oat-straw was considered to have the same virtue. It was known among the farmers, that when you started to feed a cow oat straw, when near calving, she would commence to make bag and throw the calf (abort.) It was claimed that the bag and the calf affected each other, that if by some cause the bag should develop and the milk start flowing, then the calf would be born, therefore, the oat straw forced milk production and the other organs were affected. There may be some relation in the feed in that way, which seems very natural, but might never be thought of and would be a new line for the Experiment Stations to work on. There are many such ideas, or perhaps facts, that are so well known among common people, that a fellow hardly hears it mentioned, but if known to students, might give light on something otherwise obscure.

There was another thing that surprised me some, and I thought when reading it, that it was an exploded notion. It was about "Sex in Breeding." First, the inquirer asked if there are some bulls that always breed heifers and some the reverse? I had some experience in that line this season. I have 5 cows but no bull (Jersey grade); my neighbor has 6 or 7 scrub cows, and a bull of his own raising. I keep my cows up, his roam about, and the bull with them. Had no chance last season to get my cows bred, I used his bull, so when any of my cows wanted the bull I had to hunt him up, so the cow was mostly far gone in heat, before they got served. I knew I would get bull calves, but as I didn't want to raise any heifer after that bull, I did not care. All the calves my cows got were bull calves, and my neighbor had all heifer calves, and that was the same bull. Then he asked: "Is there any way to influence the sex in breeding?" Before I came to this country I thought it was well understood that by breeding a cow right off when she comes in heat, she would then give a heifer calf, and that it was practiced in Switzerland, and known not to fail.

Another neighbor, 1½ miles below me, had for a time a Jersey bull and I brought my cows there, as I wanted to get heifers, I tried as near as I could to bring them in the first of the heat, and I did get some heifer calves I told my neighbor there about getting heifer calves in that way, and he said he knew that, but he did know the cause. The reason I had for it was when the egg drops into the womb, the animal comes in heat and desires the bull, and if she gets impregnated before she has gone a certain time, she will get a female offspring, but impregnated after that certain time she gets a male offspring. I always believed it to be a fact, and have not heard anything to the contrary, and I thought it was well known to science, and it seems to me so many things point that way as proof. It looks too as the way of nature to balance the sexes, where they are left to nature. Take the deer for instance, if there were many vigorous bucks in the band, the does would be quickly served and females in the majority born; on the other hand with few and poor bucks, many females would not be on time, and consequently the majority of the offspring would be males. And so the Czar of all Russia might get a boy if he was not so desperately anxious to get one.

Redding, Cal. GEORGE MEDING.

What Crops Shall the Hamilton Co. Farmers Raise?

(Extracts from an Address at a Farmers' Institute at Harrison, Hamilton Co., O., by P. CLAWSON.)

To the student of Agriculture it must appear plainly that there is something wrong with farming. Upon the whole it is probable few other occupations call for greater diligence and economy by the entire family than farming. And especially does this seem true of recent years. We are provided amply with improved machinery and transportation, yet we fail, especially in Hamilton County, to produce what we once did.

But is Hamilton county worse than others? We answer, the best is bad enough, but Hamilton county worst of all. Why? First, because it has more to lose than most others; bounded by the great Ohio River and traversed by several large tributaries, it possesses a rich, loamy soil, surpassed by none and equaled by few. Second, it contains within its boundaries one of the largest cities of the greatest country that God ever gave to man, and large cities, like large trees, are heavy feeders upon the surrounding soil. Why, there is a demand in Cincinnati for anything that can be produced upon the farm, from a stalwart lad of unquestionable integrity to a case of last summer's eggs of the most questionable character. And we have stripped our farms of their products and carted it off to the city, thereby robbing the land of its productiveness until the glistening sands of the valley and the rock ribbed hills bear a manuscript of lost fertility that it does not take a Daniel to interpret.

I say, gentlemen, that this is wrong, emphatically wrong, and that by a continuance of this system we will continue to be worse hampered by poverty and hard work. The remedy is: Raise feeding crops and not market crops, and feed them upon the farm. Were you aware that the corn belt, of which we are the center, is the greatest animal growing tract in the world? Yes, we state it without hesitation, the corn belt, which is also the blue grass and clover belt, beats the world in its ability to produce animals cheaply and at the same time retain its fertility, and the man that raises a market crop, is simply casting pearls before swine. And we repeat it without hesitation: "Raise a feeding crop by all means and of this, Corn is King."

This brings us to our subject for tomorrow:

CORN—BLUE GRASS — ALFALFA — SILOS.

We endeavored to say yesterday that the reason we did not receive a recompense for our labor, equivalent to other occupations, was because of the depleted condition of our soil, due to raising market crops, and that the remedy was to grow stock and raise feeding crops; and that the sun in his journey did not throw light on a single land that could compete with the corn belt in stock raising, and of all the feeding crops *Corn was King*, and that our acreage to corn should be limited only to the amount we could raise without loss of fertility, that it was our plan to silo the entire crop, and carefully save the fertility originating from feeding same, and return it to the field.

Blue grass: This probably is one of the worst abused blessings known to the corn belt. It comes without our bidding or sowing; it meets us at the curbstone and lies at our feet at the threshold begging for recognition. Our minds invariably picture an old, worn out, abandoned field as a blue grass pasture, but this is the greatest prodigality, it is worthy of our best treatment; dress it with coarse, unrotten manure occasionally and keep the stones and grubs out and it will pay you handsomely. The Iowa Station finds to disc it and sow 10 or 12 quarts clover seed to the acre, adds 65 per cent to its productiveness and lasts several years.

Alfalfa: For seven years we have been trying to learn the habits of alfalfa and have now about 15 acres of valley land along a small stream, as well set as we could desire. We mowed it four times last year, and estimated that we got full 6 tons cured hay to the acre. As a hay it is unequaled; fed to cattle with corn silage, we get a balanced ration without additional grain, and our stock does well. As a soiling crop it surely can not be equaled. We prepared our soil as thoroughly as if we were going to put it to onions, and sowed 27 lbs. good seed to the acre, covering with weeder and roller on April 10th, 1901.

SILOS.

Now gentlemen, I expect that your bristles are all up, because I know the feeling here about the silo system. But I will say they have come to stay. I have used three silos for seven years, and do not hesitate to say they offer a system of securing the corn crop, unequaled. It would have paid me to have built more room last fall, if I never used it but once. You all know the deplorable condition of our shock corn. I have siloed red clover with great satisfaction and expect to silo my first crop of alfalfa next year, especially if it is as wet as last year.

P. C.

In re Gurler's Method of Milking.

ED. HOARD'S DAIRYMAN:—In the DAIRYMAN of March 13th, on page 15, Charles S. Pope, of Manchester, Me., says we have adopted H. B. Gurler's method of milking through absorbent cotton.

Mr. Pope also says his cream will keep sweet two weeks in a temperature of fifty degrees.

Now Mr. Editor, please be kind enough to inform us through the DAIRYMAN, Mr. H. B. Gurler's method of milking through absorbent cotton.

We always strain the milk at the barn and again at the house before separating. Question, How would it do to put cotton in strainers at the barn and cover the cotton with two or three thickneses of cheese cloth, and as we always do, let each milker strain milk immediately after milking each cow.

Why is not this plan as good as milking through the cotton, placed some way on top of milk bucket.

Now if this is not asking too much, please let me hear from you at your convenience and oblige an old subscriber.

El Paso, Tex. R. WRIGHT.

See article by Mr. Gurler, on page 210, for information regarding the use of absorbent cotton.

Ringing a Bull.

ED. HOARD'S DAIRYMAN:—"G. S. W.," of Unity, Me., asks for method for ringing bull. I have found nothing so handy as a wad cutter, such as is used for cutting wads for reloading shells for the modern rifles. The .32 caliber is the right size, and 40 cents the price, to be had wherever fire arms are sold. Attach a handle to facilitate handling. Have a helper place the handle of a heavy hammer in one nostril, pressing it against the division cartilage. Insert wad cutter in opposite nostril and strike with hammer or mallet, and you have a clean cut hole just the proper size for your ring.

G. W. B.

Auburn 4 Corners, Pa.

DON'T PUT OFF

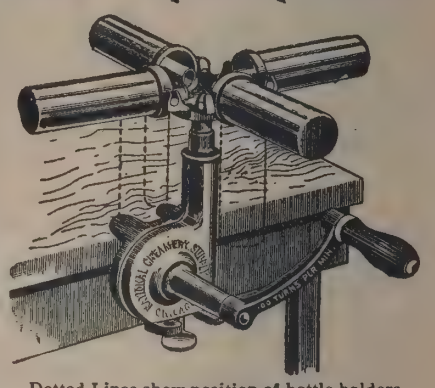
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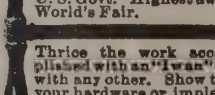


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Aconite a Fatal Drug in Milk Fever.

ED. HOARD'S DAIRYMAN:—Will you please give the reasons for your statement in reply headed, Milk Fever, on page 91, that "it is quite likely that your dose of aconite thus helped to shorten her life?" From your correspondent's description the case was apparently a sthenic one, accompanied by fever. Although the Schmidt treatment is a perfectly safe and most efficient method, and one which should be employed in all cases, your statement as to the use of aconite seems to me a very strong one as applied to the congestive cases of milk fever.

Granted that aconite decreases the force and frequency of the heart's action, it, at the same time, causes arterial relaxation, and allows the blood to flow away from congested areas. It is not as powerful as Veratrum Viride, as far as its depressant effect upon the heart is concerned, yet the latter drug is recommended as applicable to the conditions existing in sthenic milk fever by authorities like Winslow in Veterinary Theraputics, and Dr. Brain in Bovine Obstetrics. Prof. Law, in the special report on Diseases of Cattle, says: "In these congestive cases benefit is often derived from large and frequent doses of tincture of aconite."

Aconite is no doubt a dangerous drug, and one to be administrated only with full knowledge of its physiological action, and the existing conditions in the circulatory system; but in such a case as the one described by your correspondent apparently was, I do not see why the aconite should be held contributory to the cow's death. H. C. H.

Stockbridge, Mass.

While you appear to be well acquainted with the physiological action of aconite, you do not seem to understand the nature and pathology of the disease in question. We fully agree that the medicinal use of aconite is to antagonize the fever process, and that it is indicated in all affections characterized by a high resisting pulse, dry, hot, skin and elevated body temperature. Your authorities will also agree that aconite in large doses paralyzes the cardiac muscles and its contained ganglia, the respiratory centers, and the spinal cord in all its functions.

When a cow shows symptoms of milk fever and finally resumes the recumbent position, you will find that she has no fever whatever; on the contrary, her temperature is below normal, her skin cold and clammy, and as the disease advances, the entire body becomes paralyzed. There is no congestion, but the brain shows marked signs of anaemia, hence the comatose condition. In each and every one of the above conditions, aconite would be contra-indicated, and, if applied in these stages, a dead cow is sure to follow.

Our correspondent seems to have the wrong conception of what constitutes a fever, the same as some of our old authorities who first named this disease milk fever, when in reality there is no fever. The more appropriate name, which has been recently applied, is Parturient Paresis. When the lay-man tells you his cow had a fever, he does not, as a rule, mean that there is an elevation in the body temperature, which really constitutes a fever, but wishes to express that there are signs of uneasiness, of shivering, stiffness, coldness, etc, and so the name fever is misapplied, the same as in the stages of milk fever above mentioned. In view of the above facts, the writer is of the firm opinion that aconite has killed more cows affected with milk fever than all other drugs taken together, as it has been the custom to use it exclusively and has been recommended by almost all the old authorities in these cases, in the ages when milk fever was considered invariably fatal, which accounts for the great mortality.

A. H. HARTWIG.

Pasteurized vs. Clean Milk for City Trade.

ED. HOARD'S DAIRYMAN:—How many degrees can or do you heat milk to pasteurize it so it will not give it a cooked taste? Can I pasteurize it by heating it in a common 8 gallon milk can? A friend of mine had some he prepared in that way.

I began the milk delivery business in our town 8 years ago with 4 cows, and I had then 4 more cows than customers. I am now running 3 two-horse wagons, delivering an average (daily) of 120 gallons of milk. I have a herd of Jerseys. I am getting an average of 70 gallons of milk a day and raising 7 calves; feed calves fresh milk. My milk test is 5 per cent; herd test by Babcock. I get 6 cents a quart for milk; 37 cows in herd, 2 dry cows in herd. I feel that your paper made me money a hundred told. Greenfield, Ind. R. H.

When the inquirer has control of his own herd and consequently can regulate the quality of the milk produced, it would be much better from a business point of view to supply clean milk as a speciality rather than pasteurized milk, Clean milk produced under sanitary conditions, where stables are kept clean and free from dirt and where the cows are in like condition, has a distinct advantage in the market over milk that has not been kept clean and which requires pasteurization.

Undoubtedly milk can be pasteurized in the common 8-gallon milk can, but to accomplish this requires considerable time and very constant and careful attention. The milk must not be heated above 150° and must be held at this temperature for not less than 20 minutes, and be constantly stirred so as to maintain an even temperature throughout. It must then be cooled as rapidly as possible, with constant stirring as before, down to 50°. It follows that any lack of attention might result in serious loss, and, therefore, extra labor and expense considered, one might better provide himself with a modern pasteurizing outfit.

Corn and Pea Silage,

Will you please tell me through the columns of your paper the variety of peas that farmers generally plant with corn for corn and pea silage? Also what do you consider the best variety of corn to plant? Do you know whether alfalfa will grow and do well in Vermont? J. E. M.

East Brookfield, Vt.

We do not know of any variety of peas that can be successfully grown with corn in Vermont for silage. The cow pea, which is in fact a bean, is not at present acclimated in the north, but there is little doubt that like sorghum, it will sooner or later adapt itself to northern conditions and climate. It fact, it is now grown with considerable success in an experimental way. There would seem to be no good reason who alfalfa should not do well in many parts of Vermont. At all events, any Vermont farmer could well afford to experiment with it on a small scale, say not more than two acres at first.

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WISE HUSBAND.

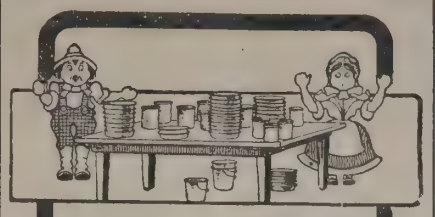
Suggested a Food Cure.

All of the medical skill in the world is powerless to cure certain diseases unless the patient is put upon pure, scientific food. Then the disease seems to cure itself in many cases, proving that nature was demanding proper food to build a healthy body from.

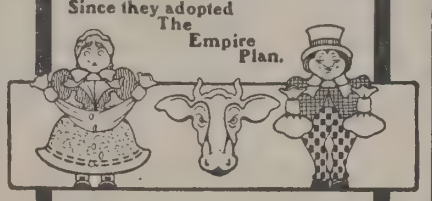
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"My last physician advised a sanitarium but my husband who had been reading one of your articles said, 'Not until we have tried the boasted virtues of Grape-Nuts.' So we got some and I have now used Grape-Nuts for 8 months. When I began its use I weighed 85 pounds, now I weigh 105½; my stomach has grown strong and normal, my bowels are so regular that I have thrown cathartic physic to the dogs, the vertigo has left me and my whole system has gained vigor and tone. I can now take a 25 mile ride on my bicycle and enjoy it.

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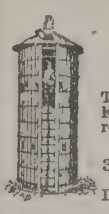
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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own ight who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

IGNORANT WORK.

Not long since we heard a young man declare that he did not propose "to stay on the farm and do *ignorant work all his life.*"

That was a new thought to us—"ignorant work." We wonder if there are not thousands more young men, just like him, who are running away with this same silly thought, that farm work is ignorant work. If so, how shallow, how superficial, how ignorant is the thought.

The fact is there can be nowhere on earth, any such thing as ignorant work. All work if rightly done is based on intelligence; all work has to deal with laws governing matter and these laws are as deep as matter itself.

It is true there are plenty of ignorant men engaged in all kinds of work, even the work of statesmanship, but their ignorance is a part of themselves, and not of the work.

We once employed an old Irishman by the name of O'Brien, to dig a ditch. Our young man no doubt would say that this was ignorant work. But Mr. O'Brien thought differently, and the ditch showed it. It was an exceedingly fine, well finished piece of work. We felt enthusiastic, and remarked: "O'Brien, that is a ditch fit for a king-" The old man made a polite bow, and said;"Sir, the O' Briens were kings once."

Ah! there was the royal spirit. He had not forgotten that he came of kingly blood, which was true, and he took a kingly pride in what ever work he did.

All work requires study, understanding, intelligence.

There is no such thing as menial or degrading labor. The work of the farm, takes hold on the most profound principles of science. How then can it be ignorant work?

What an ignoble, menial idea of work that young man had. The curse of such ideas is far reaching. They are making rascals of thousands of young men, and prostitutes of young women. They are born of ignorance, falsehood and deceit. The disgrace of American agriculture today, is not in the character of its work, but in the fact that there are so many farmers, who by their own ignorance, cause their children and others to think that farming is ignorance.

ENTERED into rest, Monday, April 6th, at Gananoque, Ontario, Eliza Maria (Mrs. E. M. Jones), wife of Chilion Jones, in the 66th year of her age. The funeral was held from her late residence, Belvedere, Brockville, Ontario, Thursday, April 9th.

Mrs. Jones was widely known as a most successful dairy woman and breeder of high class Jerseys. She has done much both by personal example and by precept to emancipate the dairy cow from the thraldom of neglect and abuse and to insure her the treatment and respect and consideration due to motherhood. She was a useful citizen, one of the kind that leave the world better than they found it. She exemplified in her daily life the dignity of labor and lost nothing of respect or social prestige by reason of her intimate association with cows. This came largely from the fact that the work of her hands was both intelligently conceived and intelligently executed.

Mrs. Jones was the author of that classic little booklet, "Dairying for Profit" which has had probably a wider circulation both in Canada and the United States, than any book of modern times, and the beneficient influence which it has exerted and will continue to exert for years to come is simply immeasurable.

AS YOU LOOK AT IT?

Whether a man sees the truth or not depends very much on the way he looks at it.

At the late meeting of the National Creamery Butter Makers' Association in Milwaukee, two creamery owners were conversing. One of the men whom we will call Mr. A. was an enterprising sort of man who took great interest in the growth of sound dairy knowledge among the farmers who were patrons of his creamery. The other, Mr. B., was a different style of a man. He owned a creamery, indeed several of them. They were talking about the convention when Mr. A. said:

"This is a splendid meeting. I wish every one of my patrons could be here and take it in for all it would be worth to them. Some of them would see things differently than they do now. I notice every time, that the patrons in my creamery who make the most money, who furnish the best milk and who are the most valuable to me, are the ones who attend the farm institutes and dairy conventions, read dairy literature and try to make themselves intelligent dairymen. I have been holding meetings among them every winter, and I try and get them to read on this dairy question all I can. It has done my business a great deal of good and they are doing a great deal better than they used to." Mr. B. replied somewhat as follows:

"Well, so far as I am concerned, the less my patrons know about the creamery business, the better it is for me. All I want them to do is to make the milk and I will take care of the rest.

When you try to stir them up and make them intelligent, as you say, you are only making trouble for yourself.

That's my experience. Not half of my patrons can read your dairy literature, as you call it, and understand it when they have read it. I don't care how ignorant they are if they will only make plenty of milk. It is not my business to help them make money."

Now, that conversation, which was reported to us by a third party, represents very closely two classes of creamery men. One is a live, public-spirited citizen who sees the breadth and depth of this great dairy industry. He realizes that the foundation of it all is the dairy farmer. He sees that he cannot build a fire for himself alone, and leave the farmer out in the cold, no matter if the farmer don't want to be warmed and benefitted, as is often the case. He sees also that the great foe to the prosperity of the men about him is their lack of knowledge. If he can get them to see things as they really are, they will be benefitted and it will benefit him too.

The other man is too selfish, too narrow to do the best for himself even. All he is looking for is the present penny. He had rather have the farmers about him ignorant of the Babcock test and many other things. He can more easily take advantage of that ignorance to his benefit. He is afraid that his patrons will become intelligent enough to hold him to a strict accountability.

Now, which of the two kinds of men is the best for the patrons to do business with? Which should they encourage the most?

This shows clearly the truth of what HOARD'S DAIRYMAN has always contended for: That it is to the highest interest of the patrons of every creamery and cheese factory to take hold of their own dairy education vigorously. They can not afford to be dull and indifferent on dairy questions.

This is invariably true. A set of wide-awake, well posted farmers will always have a bright, well posted creamery man. They will always be well and honestly served. But it does not follow that a well posted creamery man has an intelligent set of patrons. Sometimes he does not want them to be too intelligent.

SOME WISE IDEAS ABOUT COWS.

In the Journal of the British Dairy Farmers' Association for 1903, we find an address on "Breeding and Feeding for Milk," by Mr. John Evens of Burton, near Lincoln, Eng. Mr. Evens is one of the most noted of English dairymen and his address gives evidence that he has made an exhaustive study of his business, from the breeding and selecting of a bull, to the smallest detail in other departments. It is very interesting to follow the thought and speech of a man who has a right to know what he is talking about. We copy some of his ideas.

Rightly enough he places great stress upon the breeding of his sire. On this point he makes several good statements such as the following:

"I consider the bull more than half the herd when breeding for milking qualities. In other words, I consider the influence of the bull in handing down the milking characteristics is stronger than the cow. * * * This question of the bull I consider the very weakest link in our dairy breeding. Men will naturally keep their best cows, but very many are satisfied to either buy or get the service of any bull, provided the fee is low enough; * * * he may be from a short-necked, steer-headed cow without a bag, yet he is expected to get good dairy stock."

In confirmation of this theory, Mr. Evans cites the history of several bulls to prove how valuable they were because they had "something to give" to their heifers, which they had inherited from their mothers. The bull, "Beauty Bull" from the famous cow, Beauty, sired Burton Old Profit, a cow which averaged 11,000 pounds of milk a year for 7½ years. Also he was the sire of the following cows:

					Gals.
White Tail 2nd.,	yielding after	1st	calf	.....	795
"	"	2nd	"	.....	1338
"	"	3rd	"	.....	938
Stores H	"	1st	"	.....	380
"	"	2nd	"	.....	857
"	"	3rd	"	.....	1367
Little Robin	"	2nd	"	.....	603
"	"	3rd	"	.....	887

He says further:

"Some cows breed good heifers and moderate bulls, some *vice versa.* For instance the cow Beauty never bred me a female that was a patch on herself, yet her son sired a lot of good dairy cows."

He cites also the history of the bull Professor, bred from his best dairy cow. This bull sired 16 heifers, the poorest of which gave 558 gallons, or 5,580 lbs. of milk in her first year, and the highest 10,300 lbs. in her second year. Of these heifers, 8 gave in their first year an average of 7,590 lbs. of milk. In their second year the whole sixteen averaged 7,940 lbs. of milk each, for the year.

This is a remarkable record from one herd, for a sire. He quotes a Mr. Marshall, also a representative dairyman, who had a somewhat similar experience with a very prepotent sire and who says: "I am certain that the bull is more than half the herd as far as milking qualities go."

American dairy farmers will do well to heed these ideas, coming as they do from men who have worked the problem out to a demonstration.

Here is a bit of testimony from Mr. Evens which has the true dairy ring in it on the feeding question:

"A cow, of course, requires a large proportion of bulky food, but a milking cow has a great amount of work to perform; we must give her a digestible food, and the chief difference between feeding a beef and a milking cow is, that the latter milks better on and requires a *moist* food."

In that last sentence Mr. Evens has struck the key note to the silo question.

Every farmer knows how much better cows will do on plenty of succulent (moist) pasturage. Milk is 87 per cent water. The water in the well or creek is not an equivalent, in milk making, for the distilled water in the grass or ensilage. As the grass dries up the milk flow shrinks, while the cow may grow fat. Ensilage is a moist, succulent food. In providing it, the farmer is helping the cow to do her best for him.

CONNECTICUT DAIRYING.

Mr. John B. Noble, Dairy Commissioner of Connecticut, gives some quite interesting facts in his report.

There are 26,948 farms in that state a large portion of which are devoted to dairying. The total value of the annual dairy product is $7,090,188 or over 32 per cent of the total value of the whole farm product. The milk trade for the past year consumed 33,879,466 gallons; of cream 10,411,902 gallons. The total production of butter was 8,480,194 pounds. Of this the farm or private dairies produced 4,591,789 pounds; the creameries 3,858,405 pounds.

There has been a decrease of butter production owing to an increased demand for milk and cream. The Commissioner says: "Good healthy milk cannot be produced from cows kept in dark, ill ventilated stables."

A few years ago we visited a large number of dairy farms in Connecticut and Massachusetts where it was the practice to dump all the manure into cellars immediately beneath the cows. We had a good many arguments with the owners about this, to our way of thinking, very unsanitary way of stabling cows. This practice seemed to prevail mostly in the New England States. We have always believed that when the dairymen there come to think more thoroughly on this question, they would conclude to discontinue this practice and we are glad to know that a change is being very vigorously agitated, on that point.

Michigan Dairy Returns.

ED. HOARD'S DAIRYMAN:—I have seen a number of records of dairy herds in the DAIRYMAN during the past year and in

reading them I think it gives us all an impetus to try and make our own herds do better. I give you herewith the record of my herd for the past year. The year began April 1st, 1902, and ended March 31st, 1903. Number of cows milked during the year, 24, of which six were heifers with first calf. We made from these cows, 8067 lbs. of butter, which is 336 lbs. per cow, and sold it for $2077.31, making an average of $86.55 for each cow for butter sold. If we should add to this the value of the skim milk and calves, it would increase it materially. We started our present herd in 1892, and we feel that we have been quite successful in building up a profitable dairy herd and we give HOARD'S DAIRYMAN no small amount of credit for our success. We certainly have been greatly benefited time and again by reading it for the past few years and practicing what we have learned. JAMES H. LUTHER.

Mich.

Fall Freshening Cows.—Winter Cheese.—Barns.—Silos.

Views and Inquiries of an Ohio Dairyman.

HOARD'S DAIRYMAN:—There are quite frequently statements made in the DAIRYMAN that raise a question in my mind that I would like to ask, and occasionally I have an idea that it would seem I might have to answer some one's question myself.

In your answer to M. A. C., Vt., page 152, you say: "It is much to be regretted, of course, that cows are coming fresh in milk at this season of the year." Now is that true in every use to which the milk is put? Is it true from the cheddar cheese standpoint? Perhaps if winter cheese were made Jack Frost would solve the problem of cold storage for curing. The question that confronts me is this: Is it practical to make cheese through the winter, and keep the surplus for our summer trade, when the cows would be dry? Can as good cheese be made in the winter on dry feed as on grass through the summer? We get the top price for our cheese, but the winter price is usually one or two cents better than the summer, but our customers use more cheese in the summer.

Then about silos and barns: I was recently in one of the best dairy sections of Eastern Ohio, and looked over many of their large barns. Most of these barns have been, say 36×40 or 50 feet, and they have built what they call a "straw shed" along the back side and the whole length of the old barn, and 40 or 50 feet wide; making the new barn say 50×86 ft. and making 3 gable ends, the comb of the roof making a T. The back part of the barn is in some instances self supporting, by means of large rods, and is used for storage of straw, and the basement covers the manure, and the cattle are turned loose and fed (partly) and watered and don't see out doors till spring. They are usually fed grain and silage, and milked in stanchions under the main or old barn.

The silo that appealed to me was of the lath and plaster style. I was in the second one of that kind built in that neighborhood. It seemed to me a marvel. This was the second filling. The silage was all perfect so far as I could see.

As I have not seen this silo described in the DAIRYMAN, perhaps a few words about it will not be out of place. This one was built on a cobblestone bottom, carefully placed and then cemented over. Then there was brick work, two bricks wide and three or four high, then one brick wide and two high. Upon this, two by three (2×3) studding were placed. This was lathed with 2×⅝ lath on the inside. The upper studding were 2×4, and the upper siding (perpendicular) was an inch over the lower. This silo was plastered from the top by a scaffold held in place by ropes from the roof and lowered as the work was completed. In that way there were no holes left by or punched in by taking down the scaffold. The filling should commence in a day or two, as then the mortar will not dry too rapidly and crack. This silo was 16×35, was 18 inches from the barn, and the chute was in the corner between the silo and the barn, thus avoiding the "neck."

The creamery at that place has been running ten years or more, and by the barns and silos you can tell the patrons. It is said that the farmers were driven to take up the keeping of cows, as by their old plan of farming the fields had become unproductive. Even in that prosperous dairy community there are some who have never kept cows, and it would not take a blind man to pick them out in driving over the country. C. B. B.

Greenwich, O.

We must adhere to the statement that "it is much to be regretted" that all or the greater part of the cows in a dairy herd, are bred to freshen in the spring, even when the matter is considered from the "cheddar cheese standpoint," even considering that satisfactory cheese cannot be made in winter. If cheese cannot be profitably made it is a simple matter to make butter.

But it is not safe to assume that good cheese cannot be made in winter, if cows are properly fed and cared for. The dairy schools make good cheese in winter. Fodder cheese and frosted butter are misleading terms. Neither fodder nor frost, as such, is responsible for the objectionable flavors, which too frequently accompany winter butter and cheese. Unclean stables, dirty cows, filthy milkers, improper care of milk, are the main causes of the defects which are attributed to frost and fodder.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—On the Elgin Board of Trade to-day, the Quotation Committee reported the market firm at 27½ cents.

Hinckley offered 46 tubs and Union 47, but Newman's bid of 27½ cents was refused.

The weekly output was 508,300 lbs. The New York market is firm at 28 cents.

Former prices were:

April 6, '03, 85 tubs offered, no sales, price 28½c.
April 14, '02, 80 tubs offered, firm, price 30c.
April 15, '01, 45 tubs offered, no sales, price, 20½c.
April 16, '00, 152 tubs offered, no sales, price, 18c.

The wife of James McCredie, one of the state's popular butter men, died Sunday morning at her home in Earlville, Ill. The family had lived there but two years, Mr. McCredie being engaged in the creamery business with his brother William, of Elgin. He also has interests in creameries at Palatine and Youngsdale. H. C. B.

Elgin, Ill., April 13, '03.

Handling Manure.

ED. HOARD'S DAIRYMAN:—During the short period oftime since I have been reading your paper, much has been written on the manure question, which I have carefully followed up. I notice that most of our dairy farmers insist upon hauling and spreading their manure as quick as it is being made, to get all the moisture of it in the ground.

I don't understand how a farmer can for a moment think that he is getting all the benefit of this waste product after being exposed to frost and rain during the winter and spring season, while the ground is yet frozen a number of feet below the surface

In regard to the labor saving question, my opinion is, that it really does save labor all around, and gives plenty of room in the barns and granaries.

During the first warm spell in March, I happened to come across Nadeau Bros.' farm, where they had about 20 acres of corn field covered with manure. It was spread on snow. The water was running all over, all heading for the Cedar river, just as brown as could be. Now, where did this water get this color? It was the remainder of the manure which has not been drawn out by frost.

I am not farming at present, for I have taken up cheese making. But I will give you a method of handling manure, which is being practiced on my old home farm.

They have a shed a little way from the barn in which the manure was drawn with a horse and spread. This shed is large enough so that the manure is never piled higher than about three feet. The cattle are allowed to tramp over it and generally use it for a resting place when turned out of the barn.

The manure is hauled out and spread in spring and is in the very best condition, never get even a forkful of white burned manure in the pile.

I have made up my mind to run the once co-operative factory in Nadeau which did not run for a long while, but am having a hard time to get those farmers interested in dairying. They all got this one opinion, that it don't pay to keep cows; and to pay $50 or $75 for a good bull to improve their stock, that is not to be spoken about. I have made all efforts to get them interested in reading dairy papers, but all in vain. So am quite disappointed on the French-Canadian farmers. G. J. K.

Nadeau, Mich.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Dehorning and the Show Ring.

W. R. H., Middleville, Mich., asks whether dehorning registered stock will lessen chances for winning premiums in the show ring. The ways of judges in the show ring are past finding out, and a similar statement might be applied to all other judges, not excepting those who constitute the courts of last resort in the state and nation. It is impossible to eliminate the personal equation. Jurors often disagree, and in many cases where there is formal agreement, it is reached by compromise. A dehorned cow or bull would probably suffer no disparagement in the minds of the majority of judges, but it is quite possible that now and then some judge would consider the absence of horns so serious a blemish, that he would be unable to give proper considerations to other points in which the animal might excel.

Oats or Rye for Hay.

Which is the most profitable to sow in the spring for hay, oats or rye, and at what stage should they be cut to make best hay? Would rye sown this spring make fall pasture after a crop of hay was taken off? H. B. N.

Ariel, Pa.

We have had more experience with oats than with rye for hay, and such as we have had leads us to prefer the oats. Either crop should be cut when quite green in order to make good hay, soon after coming into full head and before the grain kernels are fully formed. If one waits until the grain is in the milk stage, the sap in the stalks will be drawn upon to mature the grain. We should not expect the rye to sprout up again from the roots after haying.

When to Cut Sorghum for Silage.

I wish to fill my silo this year with sorghum. Please advise me as to the best time to cut it for ensilage. T. A. Mc.D

Clarksville, Tenn.

What say those who have had experience?

An Ontario Ration for Fresh Cows.

I would like you to formulate for me a good ration for fresh cows, with feed stuffs at the following prices: Bran, $17.00 per ton; middlings, $19.00 per ton; wheat meal, $1.15 per cwt; barley, 45c per bushel; clover hay, $8.00 per ton; brewers grains, 5c per bushel; oat chop, $1.10 per cwt.; cottonseed meal, $1.75 per cwt; corn 54c per bushel. W. F. N.

Ontario.

There is considerable lattitude for choice here. The foundation for every ration is roughage-hay, silage or stover, etc Suppose, then, we start our formula 20 lbs. of that clover hay and add say, 4 lbs. of bran and 4 lbs. of barley. When tabulated we get the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. clover hay.....	16.94	1.36	7.16	.34
4 lbs. of bran.....	3.52	.50	1.54	.12
4 lbs. barley.....	3.56	.35	2.62	.06
Total	24.02	2.21	11.22	.52

Add salt daily and this ought to give good results. Brewers grains, if always strictly fresh and of good quality, with ground corn, may be substituted for the bran and barley—say, 20 lbs. wet grains and 3 lbs. ground corn. Again, middlings might be fed in place of barley.

Objections to Stone Silos.

What are the objections, if any, to a stone circular silo? It seems to me that a well made stone silo would be the ideal silo. I'm thinking of building one 20 feet in diameter, and about 30 feet in height. Please give me your opinions of such a silo. C. McC.

Hogansburg, N. Y.

There are no valid objections to a stone silo, if properly constructed and smoothly cemented on the inside. Of course the walls must be strong and we would make a continuous opening from top to bottom 2½ feet wide for taking out the silage, rather than bother with several small openings, two to four feet apart. Reinforce the walls on either side of this opening with a substantial buttress. Also insert in the wall on either side, irons, projecting about 3 inches, threaded to receive nuts, so as to fasten firmly and hold in place pieces of 2×6 set four inches back from the inner face of the wall, to hold the movable planks, which are to be used to fill the opening as filling progresses, and are removed as silage is fed out.

Cow Peas or Soy Beans for Northern New York.

Do you think I can raise cow peas or soy beans in this locality (northern New York), and if so, which do you think would be the best to try, and would be the best to sow with corn, or by itself, for silage, and where can I purchase the seed? H. C.

Beekmantown, N. Y.

We cannot advise trying either cow peas or soy beans except in an experimental way at first. Any of the large seed firms can supply the seed.

Peas and Oats for Summer Silage.

What can you tell me about oats and peas for silage for summer feed, as I thought of sowing some to put in the silo to feed in summer before corn can be fed? What kind of peas would be best to sow, and what part to sow together, and what time to cut it best to put in silo? Could I sow anything better than oats and peas, to be put in the silo to be fed before corn can be used?

Has silage any effect on cows losing calves and in getting with calf?

I feed silage mornings and nights, and feed clover hay between times, and cut corn stover noons. J. H.

Neenah, Wis.

Oats and peas make good silage both for summer and winter. Use the small Canada pea, one and one-half bushels to the acre, and same amount of oats. Sow peas first and cover three to four inches deep. When peas are well sprouted, sow the oats. Cut when the pods are well formed, but before the peas will shell out.

Silage is not conducive to abortion, nor does it prevent cows getting with calf.

We have omitted the inquiry about the cow that "eats well and milks good, but is getting a little poorer than she was," for the reason that if anything at all is the matter with the cow, the statements given are not sufficient to indicate what it may be.

Several Wisconsin Silo Questions.

1. Would you advise anybody to plant cow peas in this northern climate, drilled in with corn for ensilage? 2. What variety do you consider the best for this purpose, also do they plant the same time as corn? 3. What length of carrier will it take to fill a silo that is seventeen feet high? 4. Would you advise putting a small door under rafter plate on silo to fill from, silo to be built on Buff Jersey's plan, 2x4 stave, or do you think it best to fill from dormer window? How many tons of silage will a silo hold that is 14 ft. in diameter and 22 ft. deep? W. P. K.

Weyauwega Wis.

1. No.
2. The Whippoorwill variety is usually recommended as being the earliest and hardiest. Where cow peas and corn are raised together, they are planted at the same time.
3. Not less than 25 feet.
4. Fill from dormer window.
5. About 57 tons.

Several Michigan Queries.

I read on page 115 of the last issue of milking through absorbent cotton. Is this expensive and where can it be obtained?

Our cows are grades, we have two Jerseys, two Holsteins and Red Polls. What bull would you advise using to gain the best results?

We retail our milk and want to raise cattle that will give 4 per cent milk or better, and also a good quantity.

We intend to build a silo this summer. Is it necessary to line the inside of a round silo with tar paper on thin matching? Some people having them near us, line them.

Can a silo be filled with a McCormick corn husker and shredder and prove satisfactory? We have an interest in one and thought we could raise the husking rolls and use it.

Alfalfa is grown but very little in our localiy. Is it easily killed when one wishes to plow it under for some other crop?

As to the manure question we haul ours on the wheat, spreading it thin, by so doing we are assured of a good seeding and also a better wheat crop.

In closing I might say that we have cement floors in our stables, cement tanks, more light and air in stables and will build a silo this summer.

We give "HOARD'S DAIRYMAN" the credit for all these improvements while there are many others which I have not mentioned. M. D. W.

Marshall, Mich.

Absorbent cotton is kept at drug stores and when sold in limited amounts is quite expensive, but when bought in quantity material price concessions would probably be made. See Mr. Gurler's letter page 210.

It is not practicable to hazard an answer to the second inquiry with all its attendent conditions in regard to quality and quantity of milk. Perhaps a Jersey from some of the heavy milking families of that breed would answer the purpose; or a Holstein from a dam that gives 4 per cent milk.

Stave silos are not lined. We have had no experience with shredded corn in a silo, but some of our eastern correspondents have reported good success.

Alfalfa is like clover in this respect.

Minnesota Silo and Stable Queries.

1. I should like to know how to build a silo, and of what kind of timber. I can build inside of barn and have it 27 feet deep and 18 across, or would you advise me to have it 16 feet across, and dig down to have it 30 feet or more deep. The cheapest material would be to buy more 2x6 for the barn I am going to build and select out the best ones, and cut the 22 in two pieces and splice the 11 feet on one 16 feet long; the timber thus selected would be Norway pine.
2. What kind of ensilage cutter would you advise me to buy and how large size?
3. Would you advise to build inside or outside of barn?
4. What kind of cow stalls would you advise me to make; or would you use stanchions for milk cows?
5. What do you think of the Bidwell cow stall; and will you give me the address to the one who has the patent right on them?
6. What kind of stanchion is best for young stock?
7. Would you tell how to build a cement floor in a barn, and what cement to use and how to do the work?
8. Is cement floor good to stand on for cattle and horses, and is it not cold to lie on?

Stewartville, Minn. SUBSCRIBER.

1. This question has been answered so fully in recent issues that it is impracticable to go over the ground anew for every inquiry that comes in. We would make the bottom of silo 4 feet lower than the feeding floor of stable, building up a stone or grout wall at least one foot above the surface of the ground.

2. We cannot undertake to decide upon the relative merits of different styles of cutters. For a silo, of the size indicated, a cutter with a throat not less than 16 inches would be none too large.

3. If there is abundance of barn room to spare, build inside.

4. There are several makes of stalls, each possessing some merit peculiar to itself, and all good, but which is best is an open question. Avoid rigid stanchions.

5. We do not know the present address of the proprietor of the Bidwell stall.

6. As above.

7. Level and firm the ground; put down a 4-inch layer of concrete, one part Portland cement to five of clean gravel, crushed rock, or sand, in sections about 4 feet square; when fairly hard, but not yet dry, cover with cement mortar, one part cement to three parts sand, three-fourths inch thick, cut in squares to correspond with the underlying concrete.

8. We do not approve cement floors for cattle, horses or swine to stand or lie on.

When to Apply Manure.

Is it good practice to haul green manure and spread it on level pasture land from time to time or would you shelter and pile same, hauling and applying in the fall or early winter just previous to ploughing the land? J. R. Z.

Gilroy, Cal.

This manure question has been so fully discussed in recent issues, that it seems unnecessary to enlarge upon it here.

Babcock Test for Cheese Factories.

Is there any way of applying the Babcock (or any similar butter fat test for milk) to milk, for the purpose of ascertaining its value for making cheese? J. R. Z.

Gilroy, Cal.

The fat in milk is a very accurate measure of its cheese making value. While it is true that 4 per cent milk will not make one-third more cheese than 3 per cent milk, it is nevertheless true that it will make better cheese, so that what is lacking in quantity is fully made up in quality. So, too, when milks of different percentages of fat are mixed in a common vat the rich milk brings up the average yield and quality of the resulting cheese, and should receive a correspondingly increased price.

In apportioning dividends or payments for milk, divide the net proceeds from cheese by the number of pounds of fat entering into its make, to ascertain the net price per pound for butter fat. Thus, if the net proceeds from cheese for any month, after deducting cost of manufacturing and marketing, should be $1,000, and there were 5,000 lbs. of butter fat in the milk for that month, each pound of fat would be entitled to receive twenty cents. If Mr. A. contributed 100 lbs. of fat, he would be paid $20; if Mr. B. supplied 250 lbs. of fat, his share in the net proceeds would be $50; and so on for other amounts and prices.

Is it Safe to rely upon Cow Peas or Soja Beans in Wisconsin?

As it is getting toward spring and time to think of planting, I should like to know if it would be safe to plant cow peas or soja beans with corn to put in the silo, and save the expense of a feed bill. I got some western bran that looks as though it had straw ground up in it; screenings also, $18.00 per ton for dirt is too much. We must raise our own protein. We can't afford to give all of our hard earned money to those western mills.

Vernon Co., Wis. J. G. R.

Cow peas and soja beans have ripened in Wisconsin under favorable conditions, but from the evidence at hand, we do not feel justified in advising any one to plant either at the present time in expectation of securing a paying return. If one could get seed grown in Wisconsin, and it grown from seed raised as far north, the chances are that the crop would mature, but until seed of that character can be had, we would not advise planting either cow peas or soja beans except in limited amount and in an experimental way. Meantime try an acre or two of alfalfa.

Pennsylvania Feeding Inquiries.

We are at present feeding bran at $22 per ton; gluten, $26; mixed, one-half each; good ensilage, good corn fodder and timothy hay. Would you add any cotton seed meal to above ration, at $30 per ton, or would you leave out the gluten at above prices and use the cotton seed meal? Milking 23 cows and shipping 55 gallons per day. During summer we have to drive the cows one mile to pasture, making two miles a day.

We feed bran only during summer, but would like to know what you think best to feed, so they will stand the trip and still milk good and keep up in good condition?

Please give a balanced ration from above feeds or add anything you think lacking, also the feed when on pasture. T. R. F.

West Newton, Pa.

For the present we suggest the following as an average daily allowance:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	21
5 lbs. corn stover	2.98	.09	1.62	.04
3 lbs. bran	2.64	.38	1.16	.09
4 lbs. gluten feed	3.60	.93	2.03	.11
8 lbs. timothy hay	6.94	.22	3.47	.11
Totals	24.08	2.01	12.48	.56

When we say "average daily allowance" we mean that the feeder must exercise his judgment, founded upon daily observation of the several cows in the herd, and apportion the amount to be fed to the ability of each cow to make good use of it, giving some more and some less. See to it also that cows have salt every day and opportunity to drink clean, fresh water, without fear or favor.

Give the cows hay daily through the summer, and silage too if possible, and grain as may seem to be necessary. Bran and ground corn, equal parts, make good summer feed.

Effect of Forcing Cows for Largest Production.—Silage and Soiling for the Entire Year.

1. Will forcing a cow for a year or even less, for largest production, lessen her power of production for future years, and will her offspring be in any way affected by it; also will the offspring have the power to produce as large quantities, other features of the breeding being of first quality?

2. Why cannot a cow or herd of cows be maintained on a ration of whole corn and soy bean silage in equal parts, load for load, with dry forage in the winter, and the following series of soiling crops for summer? (List adapted from Jordan's "Feeding of Animals:") Winter rye, winter wheat, crimson clover, oats and peas, mixed grasses (perhaps), oats and peas, cow peas (or soy beans) corn, Jap millet, cow peas, corn, soy beans, Jap millet, corn, barley and peas. If alfalfa can

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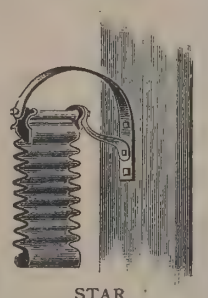
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raised there is no better feed for soiling, and no need of any other. M. B. B.

Haddonfield, N. J.

It is seldom that cows forced to extreme production for long periods are subsequently heard from as phenomenal producers. Whether this is wholly due to impaired power, or whether some, or all, of it results from the owner's disposition to rest upon the victories already won, is, perhaps, a mixed question, but analogies would indicate that the forcing process may be carried so far as to impair future usefulness. There are not facts enough at hand to justify the expression of opinion as to effects upon offspring.

2. Unquestionably cows can be "maintained" on silage and soiling crops as set forth, but probably not to best profit without the additfon of some grain. A cow of pronounced dairy temperament cannot eat and digest enough roughage to furnish sufficient raw material from which to elaborate milk up to her capacity. To expect a milch cow to do her best in the way of total or profitable production on a daily diet of roughage alone would be, in a way, like attempting to haul a train of cars with nothing but straw for fuel in the locomotive.

Why Face Cows Outward in Stable.

ED. HOARD'S DAIRYMAN:—I note in the DAIRYMAN of April 3rd, page 181 a communication from H. L. S. of Westerville, O., regarding building a cow barn. Your suggestions to him about building the barn longer, and having two rows of cattle facing outward is commendable, particularly if he aims at labor saving and cleanliness, and in these times of high priced labor these items must be taken into account. Would suggest to H. L. S. that he put in a manure carrier behind his cattle so as to handle the manure to best advantage and to put the same on the land daily, thus saving labor in handling, besides putting the fertilizer where it is most needed and at the time when the most benefits may be derived from it.

Why do you advise facing the cows outward? What advantage has this position over facing them toward a central feeding alley of good width, say not less than 10 ft, with manure carrier behind the cattle? I am greatly interested in the subject of stabling just at present, both for dairy and beef cattle. You must have some well considered reason for placing the cattle as you suggest and I hope you will give your readers the benefit of them. Where cattle are confined to the stables all the time they are usually fed three times a day while the cleaning is usually not done oftener than twice a day. Query, which way shall we face the cattle in order to save the most labor and at the same time keeping in mind the health and comfort of the cattle. I am free to say that most of the dairy barns, built along modern lines, have the cattle facing inward toward the main feeding alley. Will you kindly give us light on this question. E. F. B.

St. Paul, Minn.

We do not consider the matter of facing cows either one way or the other of sufficient importance to call for extended argument.. Personally we prefer to face them outward, just as others prefer to have them face a central feeding alley. We fancy our way is more economical of room and of labor, and gives one a better command of the whole situation. It is also more sanitary, we believe, as it puts the cows further apart from nose to nose.

The manure carrier and spreader are all right, but in the absence of a carrier when cows face outward, a wagon or sled can be drawn through and the droppings gathered.

Local Dairy Meetings in Ohio.

The Ohio Dairymen's Association is prepared to hold a few local dairy meetings this summer and to furnish experts at request of owners of cheese factories and creameries to aid butter and cheese makers to overcome faults in their product. The amount of money available for these purposes is limited, and the co-operation of communities, where meetings are held, and of owners of factories, in meeting expenses, is imperative. The most the association can do is to pay the instructors and lecturers for the time spent.

Persons or communities wishing assistance in their lines should correspond with the Secretary, D. A. Crowner, West Jefferson, Ohio.

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The girls are to compete in the preparation of good, every day dishes and in general cookery. Probably Grape-Nuts and Postum Coffee will come in for some attention incidentally, but the tests will be conducted under the daily direction of the housewife and 735 cooks will win varying cash prizes from $200.00 down to $5.00; no one is required to pay anything whatever to enter this contest and each winner will receive a large certificate or diploma with the big Postum seal in gilt, a badge of distinctfon much to be sought after. Particulars can be had by addressing Cookery Dept. No. 388, of Postum Cereal Co., Ltd., Battle Creek, Mich.

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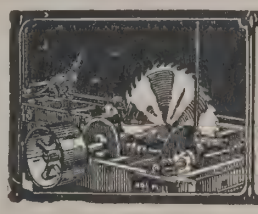


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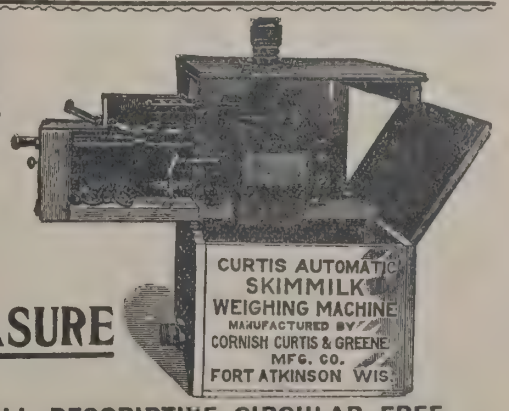
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ED. HOARD'S DAIRYMAN:—I notice an article in issue of DAIRYMAN March 27, from J. H. W., Casky, Ky., asking when to dehorn his heifers. Will give you my experience: About six years ago I had about 50 head dehorned with clippers. Since that time have dehorned my calves when from two to eight days old. I do it as follows: Get a can of potash or concentrated lye; put it in a glass fruit jar or other air tight place, so it will not evaporate. When the calf is from one to eight days old, put two or three pieces of potash the size of a large bean in a cup and add a teaspoonful of water, not enough to dissolve quite all of the potash, so I know it is strong as can be; let it stand an hour, and stir it once or twice; then with a small swab wet the horn buttons well, and the calf will have no horns and has not been injured.

Care must be exercised not to put the potash on the calf's ear or in his eye or on your fingers, for it will burn where it hits. My herd consists on an average of 100 head all dehorned in this way. It costs nothing, does no damage, and is a success in every way; and I am fully satisfied is the best way to dehorn cattle;

I am one of your short-time subscribers, and am much pleased with the paper; shall continue with you; am interested in the results obtained by different dairymen from their herds. They should open some people's eyes.

As I breed fine dairy stock for sale, the number of cows kept changes quite often. But as near as I can figure, it costs me $36, on an average, to keep a cow a year; and taking my creamery returns for the past year and allowing a fair amount for milk, cream and butter used, and 15 cents per 100 for skim milk fed to calves and pigs, am getting $1.50 for each $1.00 in feed. My herd is fast improving by use of the best bulls I can get, and raising the best heifer calves. So my courage is good.

West Burke, Vt. B. H. M.

DAIRY MARKETS.

ELGIN, Ill., April 13—Butter—Dropped 1c a pound on the Board of Trade today, selling at 27½c. Sales for the week in this district were 508,360 pounds.

CHICAGO, Ill., April 13—Butter—Easier; creameries, 18@28c; dairies, 14@24c.

Cheese—Steady; Twins, 12½@13c; Daisies, 13@13¼c; Young Americas, 13¼c.

Eggs—Easy at mark, cases included, 14c.

Live poultry—Weaker; turkeys, 12@13c; chickens, 12c.

Cattle—Prime beeves 1,200 to 1,400 lbs., 5.60@5.80; choice to extra beeves, 5.25@5.50; fair to good export and shipping steers, 4.75@6.20; medium beef steers, 4.25@4.70; plain to fancy beef steers, 3.95@4.20; common to rough, 1,000 to 1,250 lbs., 3.50@3.90; good to choice heifers, 3.90@4.60; good to choice feeders, 4.00@4.90; poor to plain stockers and feeders 2.75@3.00; fair to good cows and heifers 3.20@4.15; good cutting and fair beef cows, 2.65@3.15; common to good canning cows, 1.70@2.60; bulls, poor to choice, 2.50@4.40; veal calves, good to fancy, 5.75@7.00; calves, common to fair, 3.50@5.50; corn fed Western steers, 3.65@5.50; Texas bulls and grass steers, 2.75@3.20. Texas steers, fair to choice, 3.75@4.60.

Hogs—Good to prime heavy shipping, 7.40@7.55; good to choice heavy packing, 7.30@7.50; plain to choice heavy mixed, 7.20@7.35; selected butcher weights, 7.30@7.45; assorted light, 150 to 195 lbs., 7.00@7.25; common to good light mixed, 7.05@7.20; thin to choice, 50 to 130 lbs., 6.40@6.90; stags to rough lots, 4.00@6.25.

MILWAUKEE, Wis., April 13—Butter—Creamery—extras, 28½c; firsts, 22@23c; seconds, 17c; June creamery, 18@20c; process (renovated), 17@18c. Dairy, fancy, 19c; lines, fresh, 16@17c; roll, 16@17c; packing, 13c: whey, 10c; grease, 5@6c.

Cheese—American full cream, Twins, 13@13½c; Young Americas, 13@13½c: Daisies, 13¼@14c; Longhorns, 12⅝@13c; low grades, 10@12c. Brick, fancy, 13@13½c; low grades, 11@12c. Limburger, fancy, 12@12½c; low grades, 10@11c. Swiss, drum, choice, 14@15c; drum, No. 2, 12@13c; Block, choice, 12½@13c; do, No. 2, 10@11c.

Eggs—Strictly fresh laid, cases returned, 12½c; dirties, 11c; seconds, 10c. Market ½c lower; demand fair; offerings plentiful. Receipts, 460 cases.

SHEBOYGAN FALLS, Wis., April, 8—Cheese—25 factories offered 908 boxes of cheese on the Call Board today and all sold as follows: 61 Twins at 12¾c; 30 at 12⅝c; 22 cases Young Americas at 12⅞c; 240 at 12¾c: 195 Daisies at 12⅝c; 93 at 12½c; 131 cases of Longhorns, at 12⅞c. 170 at 12¾c; 6 at 12⅝c. Market active.

SHEBOYGAN, Wis., April 8—Cheese—Offerings on the call board today were 545 boxes of cheese. With the exception of five Twins sold as follows: 36 Daisies at 12⅝c, 253 at 12½c; 37 Young Americas, at 12⅞c; 12 at 12¾c; 107 Longhorns at 12⅞c; 74 at 12¾c; 21 boxes Twins, at 12⅝c.

PLYMOUTH, April 4—Cheese—Ten factories offered 290 boxes of cheese all of which sold as follows: 105 Daisies at 12½c; 53 at 12⅝c and 14 cases Young Americas at 12⅝c. Market active.

FOND DU LAC, Wis., April 13—Cheese—Sales at the Dairy Board today were 60 boxes of Twins at 12¼c and 98 Daisies at 12⅜c.

NEW YORK, April 13—Butter—Receipts, 1,967 packages; steady; state dairy, 18@27c; extra creamery, 28c; held creamery, 15@26c; creamery, common to choice, 20@27½c.

Cheese—Receipts, 578 packages; firm; state full cream, small colored, fall made, fancy, 15c; small white, fall made, fancy, 14¾c; large colored, fall made, fancy, 14½@14¾c; large white, fall made, fancy, 14¼@14⅜c.

Eggs—Receipts. 12,793 packages; firm; state and Pennsylvania, 15@15½c; western, storage packed, 13¾c; western firsts, 15c; southern, firsts, 14½c; Kentucky, 14¾@15c.

ST. LOUIS, Apr. 13—Butter—Quiet; creamery, 21@29c; dairy, 18@21½c.

Eggs—steady; 12c for fresh.

KANSAS CITY, Apr. 13.—Eggs—weak; fresh Missouri and Kansas stock, 11¾c. doz. cases returned; new No. 2 whitewood cases included, 12½c. Butter—Creamery, 21@25; dairy, 19c.

BALTIMORE, Apr. 13—Butter—Firm unchanged; fancy imitation, 21@23c; fancy creamery, 29@30c; fancy ladle, 18@19c; fancy roll, 17@18c; good roll, 16@17c; store packed, 15@17c.

Eggs—Firm, unchanged, fresh, 15c.

Cheese—Strong and lower; large, 14@14½c; medium, 14⅝@14¾c; small, 14@14½c.

PHILADELPHIA, Pa., April 13—Butter weak and lower; extra western creamery, 29c; do. near by prints, 32c.

Eggs—Steady, fair demand; fresh near by, 14½c at the mark; do western, 15c; do south western, 14¾@15c; do southern, 14c.

Cheese—Firm and in moderate demand; New York full creams, prime, small, 14¼@14½c; do fair to good, 13½@14c; do prime, large, 14@14¼c; do fair to good, 13¼@13¾c

WASHINGTON, D. C. April, 13—Butter—Market steady at 29½c.

NEW ORLEANS, La., April 13—Butter—Market dull. Extras weak at 29c. Ladles 14½c.

CANTON, N. Y. April, 11—Butter—Offered 174 cheese and 636 tubs of butter. No sales of cheese. 26 tubs of butter sold.

Latest quotations for fancy creamery: Cincinnati, 30½c; Buffalo, 29@29½c; Minneapolis, 27c.

LIVERPOOL—Butter—Good United States steady, 78s.

Cheese—Strong American finest, white 69s; colrred 69s.

BOSTON, April 13.—Butter — Creamery, western, extra, 26½@27c; western firsts, 25@26c; dairy, 23@23c; imitation creamery, 17@20c; ladle, 14@16c; box and print, 18@19c.

Cheese—Choice, 14½c; sage, 14; fair, to good, 10@12c.

Eggs—Near by, 17c; western selected, 15@15½c; fair to good, 14¾c; Illinois, 15¼@15½c; western dirties, 13½@14c.

BALTIMORE MARKET.

BALTIMORE Apr. 9—Butter—So far this week there has no preceptible increase in the general receipts. Extras continue in moderate supply, but are fully equal to the requirements; the price has restricted the demand to some extent. Firsts and good seconds have been meeting with prompt sale. There has been considerable inquiry for fancy held creamery, both from local and out of-town buyers. Imitation creamery—All choice to fancy makes are in quick demand while under grades favor the buyer. Choice fresh ladles are in very ligh receipt and find a ready outlet at quotationst Rolls continue in fair supply; all sweet stock arriving in good condition meets prompt sale. Store-packed has been in more liberal receipt; the demand for all desirable offerings is equal to the supply. Blocks and prints—There is a continued scarcity of choice to fancy stock, while the demand is brisk. The market rules steady and firm on all stock suitable for table purposes.

Creamery Separator, extras, 29½@30c; firsts, 28@29c; seconds, 24@26c. June Creamery, extras, 24c@25; firsts, 22@23c; seconds, 19@21c; Imitation Creamery, extras, 21@22c; firsts, 19@20c; sec-

$500 REWARD! FOR WOMEN

WHO CANNOT BE CURED.

Backed up by over a third of a century of remarkable and uniform cures, a record such as no other remedy for the diseases and weaknesses peculiar to women ever attained, the proprietors and makers of Dr. Pierce's Favorite Prescription now feel fully warranted in offering to pay $500 in legal money of the United States, for any case of Leucorrhea, Female Weakness, Prolapsus, or Falling of Womb which they can not cure. All they ask is a fair and reasonable trial of their means of cure.

Their financial responsibility is well known to every newspaper publisher and druggist in the United States, with most of whom they have done business for over a third of a century. From this fact it will readily be seen how utterly foolish it would be for them to make the above unprecedented and remarkable offer if they were not basing their offer on curative means having an unparalleled record. No other medicine than Dr. Pierce's Favorite Prescription could possibly "win out," as the saying goes, on such a proposition. But they know whereof they speak. They have the most remarkable record of cures made by this world-famed remedy ever placed to the credit of any preparation especially designed for the cure of woman's peculiar ailments. This wonderful remedy, therefore, stands absolutely alone as the only one possessed of such remarkable curative properties as would warrant its makers in publishing such a marvelous offer as is above made in the utmost good faith.

"I want to tell you of the great improvement in my health since taking your 'Favorite Prescription,'" says Mrs. H. S. Jones, of Forest, N. C. "When I began its use I was a physical wreck and had despaired of ever having any health again. Could not sit up all day. I noted a great improvement before the first bottle was used. Was suffering with almost every pain that a woman is subject to; had inflammation of ovaries, painful and suppressed periods, and other symptoms of female disease. After taking six bottles of 'Favorite Prescription,' I felt like a new person. Can ride horseback and take all kinds of exercise and not feel tired."

If you are led to the purchase of "Favorite Prescription" because of its remarkable cures, do not accept a substitute which has none of these cures to its credit.

If you are looking for a perfect laxative try Dr. Pierce's Pleasant Pellets.

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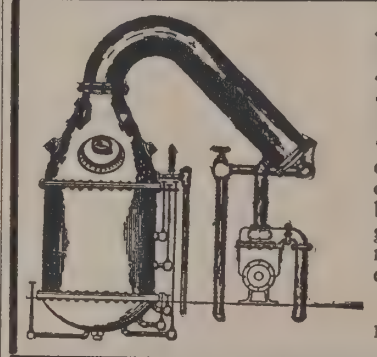
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Our Yellow Selected Seed Corn is unexcelled for strong, healthy growth and consequent big yield. Small cob and deep grain. In a word—strictly reliable seed. Shipped in twill bags of two bushels each. Price $1.25 per bushel f. o. b. cars here. Sacks 15 cents apiece. Prompt and careful attention to all orders.

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200 ACRE FARM FOR SALE

200 ACRES 2½ MILES WEST OF WHEATON, consisting of 160 acres black loam with clay subsoil, 110 acres ready for crop, balance fenced pasture, 2 acres shade trees around the place, some young apple trees and berry bushes, also some ornamental trees; 40 acres lying ¾ of a mile west on the shore of the great hunting and fishing resort Lake Traverse; 20 acres ready for crop, 10 or 15 acres more can be broke, balance heavy hay meadow extending out to the Lake, making about 70 acres in all, on which I make from 60 to 80 loads of hay every year.

THE HOUSE consists of two basement rooms, 3 rooms and pantry on first floor, 3 bedrooms and 2 closets upstairs all plastered and finished; cistern holding 75 barrels in the kitchen; barn 60x36, 8 foot stone wall, 6 foot posts on loft, 2 cupolas and horse hay carrier; round frame silo, 5 thicknesses ½ inch boards, 3 thicknesses tar paper, 20 feet high; 17 feet across, holding 78 tons. 50 foot galvanized steel windmill with plenty of good water; milk house and shed 36x12; ice house 14x16; granary 44x16, 12 foot posts, adjoining shed 44x14; hoghouse 40x14; henhouse for 50 or 60 hens, double walls and tar paper between; potato or cyclone cellar arched with stone 4 feet underground, 10x14 summer kitchen on top; blacksmith shop. A running creamery two miles from farm.

This farm can be bought with stock and machinery as it stands, if desired, or the farm alone. For further particulars, address,

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what live stock you deal in nor how many you are raising or feeding. If your specialty is hogs or horses, swine or sheep, range cattle or milch cows, it makes no difference, they will improve in flesh, health, appetite and profit to you if you dip or spray or wash them in

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This is the most noted preparation in the world for destroying *ALL* parasites and microbes on stock, not only without injury to stock, but with positive benefit to them. It improves the clip on sheep, prevents hog cholera. Spray your fowls and roosts to prevent and destroy lice.

Harmless Economical Convenient

Comes to you concentrated. Put a little in a lot of water. No heating, little bother. Guaranteed in every particular. Money back if you want it. We have testimonials from breeders and others of national reputation to send you with our book, FREE if you ask.

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Destributing Depots in all parts of the country.

Agents Wanted.

onds, 16@18c, Iowa & N. W. Ladle, extras, — firsts, 18c; seconds, 14@16c. Ohio & Indiana Ladle, extras, — firsts, 17@18c; seconds, 14@16c. Roll, Ohio, extras, — firsts 14; seconds, 11 @12c. Roll, W. Va., extras, — firsts, 13: seconds, 10@11c. Ohio Store packed, extras, —; firsts, 13c; seconds, 11@12c. West Va. Stored packed, extras,—; firsts,12@13c; seconds, 10@11c. Creamery blocks (2-lb.) extras, @31c; firsts, 28@ 29c; seconds, 25@27c; Creamery prints (¼-lb), extras,31@32c; firsts, 29@ 30c; seconds, 26@28c: Md. Va., & Penna. Prints, extras, 29@30c; firsts, 27@28c; seconds, 23@25c; Renovated Butter, extras, 19c; firsts, 17@18c; seconds, 15@16.

Eggs—Since our last report, the receipts have been liberal, but not at all excessive, as the demand has been very good and all receipts have been cleaned up from day to day the market closes firm and active at 14½c on all choice stock. Duck Eggs—All receipts have met prompt sale so far; what the outlook will be after Easter remains to be seen. Goose Eggs—After this week we look for much lower prices.

Cheese—Offerings and demand moderate; market firm on all choice to fancy stock.

N. Y. State—Cheddars, fine, 14¾@15c; choice, 14@14½c; fair, 13@13½c; Flats, fine, 14 @14¼c; choice, 13½@13¾c; fair, 12½@13c; Small, fine, 14¼@14½c; choice, 13½@14c: fair, 12½@13; Ohio Flats, fine, 13¾@13¾c; choice, 12¾@13c; fair, 12¼@12½c; O. Picnic, fine, 14@14½c; choice, 13¾@13½c; fair, 12½@12¾c; Skims, fine, 12@12½c; choice, 11@11¼c; fair, 8@10c; Swiss Cheese, fine, 15c; choice, 12½@13½c; fair, 11@12c.

301 Exchange Place. G. M. LAMB & BRO.

NEW YORK MARKET.

NEW YORK, April 14th.—Butter—Receipts for the week, 37,001 packages. Exports for the week, 1,392 packages.

Receipts are full for the time of the year, but trade has been steady and strong and all kinds of table butter were quick taken at full prices and the market closes firm on all top qualities. Extra fresh creamery sold at 29c, with occesional sales a fraction higher, for very high scoring goods. Under grades were in demand at prices ranging from 25 to 28c. New dairy make comes sparingly, a few selections of fancy Delaware tubs sold at 27 to 28c and entire lots 20 to 25c. Finest June make creamery found plenty of buyers, mostly from eastern trade at 25 to 26c, while good quality was taken at 22 to 24c. and poor stock at 16 to 20c. At the close there is little fine Refrigerator Creamery left and trade that has been using this style goods, will have to shift to fresh creameries or renovated butter before the month is out, and fair, steady prices may continue a few weeks longer. Ladles and low grades Western are having more demand at prices ranging from 13 to 18c. Finest renovated growing less plentiful, and in good demand. Other grades plentiful and neglected. We quote:

Creamery, fresh, extra, 29c; medium, 26@28c; poor, 20@25c. Creamery, June, extra, 24@ 26c; medium, 21@23c; poor, 15@20c. Dairy, extra, 27@ 28c; medium, 22@25c; poor, 15@20c. Ladle, extra 20@22c; medium, 16@18c; poor, 13@15c. Renovated, extra, 20c; medium, 18@19c; poor, 13@17c.

Cheese—Receipts for the week, 11,262 boxes. Exports for the week, 2,700 boxes.

Market is dull, only small peddling business doing and most sales are at less price than quotations. Skimmed cheese, unless very fine, are dull and lower. We quote:

Full cream, extra, 14½@15c; medium, 13@14c; poor, 10@12½c.

Eggs—Receipts for the week, 145,864 cases.

Speculation in storage packed eggs is general the country over, and are quoted and salable at about ½c doz. higher than average packings. Large lines are changing hands at 16c. Home trade is taking liberally at 15 to 15½c for best Northern and Western, and 13 to 15c for southern and ordinary marks. DAVID W. LEWIS & CO.

177 Chambers St.

NEW YORK FERTILIZER MARKET.

Acid phosphate	60	@	67½
Phosphate rock, f. o. b. Char'n	5 00	@	7 00
Tenn.	3 60	@	3 75
Bones, rough, ₱ ton	16 50	@	17 50
ground	20 00	@	21 00
Bone meal	18 50	@	24 00
Bone black, refuse	18 00	@	19 00
Potash, dbl. m're salt 48@53 per cent	1 12	@	1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons	25 00	@	30 00
sulph of basis, 90@98 per cent	2 11	@	2 18
90@98 per cent less than 25 tons	38 00	@	40 00
Potash muriate 100 lbs	1 83	@	1 95
less than 25 tons	36 00	@	40 00
Kainit 25% S. of P., ₱ ton	9 30	@	9 50
less than 25 tons	9 50	@	10 50
Sylvinit, 35@37% P., ₱ unit	41	@	46
Nitrate of soda	2 05	@	2 10
Blood, Dried red, ₱ unit	2 65	@	2 70
low grade	—	@	—
Concentrated tankage	15 00	@	16 00
Fish guano, dried	27 00	@	28 00
acidulated	14 00	@	—

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For Sale—In the Virden District, Manitoba, two adjoining 320 acre farms; soil, black prairie mold. No. 1 has 270 acres cultivated, bank barn 40x70 with geared windmill and waterworks in stable; 5000 bushel granary with elevator; large tool house, and 12 room dwelling, wind breaks, shade trees, 4 miles fencing; price $6,500. No. 2 has 260 acres cultivated, balance fenced pasture and hay; stable for 40 head; 5000 bushel granary, tool house, and 5 room dwelling; price $3,500. For terms and particulars address ROBERT TURNBELL, Two Creeks, Manitoba. 10-2

Cheesemaker Wanted—Experienced, capable and industrious. Address, for particulars, P. E. CRANSTON, Sabin, Wis. 10-3

Guernseys For Sale—Four choice grade heifers 2½ years old, to calve in May and June, and one grade bull 2 years old. SWITHIN SHORTTIDGE, Landenburg, Pa. 9-2

Cheesemaker wants to change position by May 1st. 6 years experience, married, sober and industrious. Can make butter. References. State wages in first letter. Address Postoffice Box 31, Eastman, Wis. 9-2

For Sale—Complete city dairy (no cows) and ice cream plant in thriving southern city. Output 500 gallons milk daily at profit of 9 and 10 cents. Daily expense less than $30.00. Price $7,000. Can furnish experienced dairyman and ice cream maker with $2,000 cash to invest in the business as a partner, or will sell as a whole. Best reason for sulling. Address "APRIL", care of Hoard's Dairyman, Fort Atkinson, Wis. 8-tf

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Wanted—Position as butter maker; 9 years experience. Can furnish best of reference from last place. Sober, industrious, good machinist. State wages in first letter. J. E. SWARZ, Reedsburg, Wis.

For Sale—One "Baby" De Laval separator, good as new. Write quick and get this bargain. JAMES M. ROGERS, Elsberry, Mo.

Wanted at Once—A first-class milker and good creamery man and butter maker. Wages $40.00 per month and board, if single, or $40.00 per month and nice cottage, garden spot, etc., if married. Address THE J. E. CRIDER CREAMERY CO., Fredonia, Ky.

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Wanted--Man who can furnish his own help to run 60-cow Jersey dairy (no farming). Contract one year. State experience. For details address J. D. ROSZELL, 223 So. Madison, Peoria, Ill. 10-2

For Sale—No. 7 W. S. Separator, capacity 350 lbs. with both hand and power attachments. Has been in use but three months. THOS. FASSETT & SONS, Sylmor, Md.

Experienced butter and cheese maker, graduate of Wis. Dairy School, wishes to change position. Have handled gasoline engines and ammonia machines. Good references. Prefer to go south, or to the Pacific coast. Address M. 66, care Hoard's Dairyman. 8-3

Farm Manager, capable and experienced in dairy farm work is desirous of securing a position. 39 years old and have had 20 years experience in the work. Have successfully managed registered herds of dairy cattle and am familiar with modern dairy machinery and methods. Well educated. Address R. E. N., care Hoard's Dairyman. 8-4

For Sale—A two horse Heebner's level tread power, on trucks, in good condition for $45. Address ALFRED MIRITZ, Kewaskum, Wis. 7-4

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For Sale—One Reid separator, capacity 2000 lbs. per hour, good as new. Also gang cheese presses, never been used, curd mill and vats. ALEXANDRIA CREAMERY CO., Alexandria, Pa. 9-3

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Wanted—Situation by expert retail dairy manager. All branches of the business thoroughly understood. Have references second to none. Address J. O. G., care Hoard's Dairyman. 8-tf

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For Sale—10 h. p. Leffel boiler with Moo e steam pump, fine condition. A bargain. Add ess BOX 54, Hastings, Ill. 10-2

Half Rates to New Orleans, La.—Via the North-Western Line. Excursion tickets will be sold at one fare for round trip May 1, 2, 3 and 4, limited for return by special extension until May 30, inclusive, on account of Annual Meeting American Medical Association. Apply to agents Chicago & North-Western R'y. 10-3

Very Low Rates to California and Return—Via the North-Western Line. First-class round-trip tickets on sale May 3d and 12th to 18th, to Los Angeles and San Francisco. Favorable limits and stop over privileges and choice of routes. The overland limited, most luxurious train in the world, leaves Chicago daily 8:00 p. m. Less than three days en route. Drawing room and compartment sleeping cars, observation cars, dining cars, buffet-library cars, (barber and bath) electric lighted throughout. Three trains a day from Chicago to the coast through without change. Daily and personally conducted tourist car excursions to California, Washington or Oregon. For particulars apply to ticket agents Chicago & North-Western R'y. 8-7

Very Low Rates to Dedication Ceremonies of Louisiana Purchase Exposition, St. Louis, Mo.—Via the North-Western Line. Excursion tickets will be sold for the above occasion April 29, 30 and May 1, and on account of Good Roads Convention on April 26 and 27, all with return limit until May 4, inclusive. Apply to agents Chicago & North-Western R'y. 9-4

To Colorado in 1903—The passenger department of the Chicago & North-Western Railway has issued a very interesting folder, giving information as to reduced rates and sleeping car service, with a short description of the various points of interest in Colorado usually visited by tourists, these excursion rates applying on account of the Christian Endeavor meeting to be held at Denver, July 9th to 13th. Send 2-cent stamp for copy, to W. B. KNISKERN, Passenger Traffic Manager, Chicago. 9-6

Notes from New York.

The Skim Milk Product.—Which Breed.

ED. HOARD'S DAIRYMAN: — It is an established rule at our corner grocery, that if a man tells a story twice alike, it removes all suspicion of exaggeration or fishiness, and establishes its truthfulness. And no one dares thereafter to raise a doubt, for fear of expulsion from the chairs and be obliged to stand up until he is voted back into grace.

This question of utilizing skim milk, suggested itself to me, and became my study from the first day we used a separator. At the time we purchased the separator, we had all the calves from our cows and were feeding them the milk right from the cows, intending to sell them as veals when they would weigh 140 lbs. or better.

How to still fatten as veals, and at the same time skim the cream off, became the all important question and the discouragements and failures connected with it, well nigh became unbearable at times, and if it had not been for a good butter market and good butter cows I should probably have gone back into the cheese factory. That was seven years ago, before I ever heard of HOARD'S DAIRYMAN or the station bulletins, making the question more difficult but none the less pertinent. We finally began making a jelly of linseed oil meal and giving a little in each calf's mess, increasing the quantity as the calf grew older. We put our calves in pens where they can be fed hay and sometimes we put in smooth bottomed troughs and let them lick dry corn meal after they get a little age. The one great trouble with separator milk is the liability of calves to scour caused by overfeeding. Too much care cannot be given in raising or fattening calves to have the milk at the right temperature, and where it comes from the creamery, it is liable to be off for the night feed. One can not feed sweet milk in the morning and sour at night with any success, and the temperature of the milk right from the separator during cold weather is generally a few degrees too cold and should be warmed.

How many times buckets or old pails that have not seen a brush or water for weeks at a time, are used to feed the calves in. I recently went with my father to settle with the tenant on his farm and they have a calf there about two weeks old that they were feeding from an old wooden pail. I thought that that was the case and I asked the man if they ever washed the pail and he said, "no, what's the use, the calf licks it out clean." Whether the calves wash the other milk utensils I didn't inquire. Last spring I received a good many letters from the readers of the DAIRYMAN about my method of feeding veals skim milk, but I have never heard a word from any of them about what success they have, or whether they ever tried it or not.

No, Mr. Parsons, there are no secrets concerning any of my methods, and I am ever ready to answer frankly any questions concerning them, their successes or their failures, and that free gratis. We know to a cent the receipts from every department of our farm, the poultry, the dairy and the hay and grain. The vegetables, the apples and everything is strictly accounted for; the quantity, the date and the price it brought. How else could a farmer do business successfully?

There seems to be a little misunderstanding between the farmers, the readers of the DAIRYMAN, as to what breed of dairy cows Mrs. R. R. B. really wants, but still just exactly which kind does not yet seem to be exactly settled by the disputants. There is always a little choice between what we own and what our neighbor owns. Ours is a little the best because it is ours, not really because it is a Jersey, or Guernsey, or a Short-horn, or Holstein, but just simply because we own it. Now, if I was going to advise Mrs. R. R. B. which breed, I should like to know something of her conditions and the methods under which she expects to keep her cows. If she is able to furnish Holstein conditions and cares to devote the time or expend the labor upon them to make them give that 80 lbs. of milk per day, why, they are the breed she wants. But if Mr. McKay ever really produced 80 lbs. per cow, why does he not tell Mrs. R. R. B. what she must do to get that 80 lbs., so that she may know what to expect and not be deceived. I will venture to say that nine-tenths of the big records that are made under official test, would not nor could not be carried over any great length of time. Again, these great records are misleading to the great mass of would-be purchasers, no matter what breed they come from. Why, I have got cattle in my barn that their pedigrees show red ink records that would make Mr. McKay shudder, and yet I never get nor expect to get such results, although when it comes to returns at the end of the year we don't have to go very far back to sit down.

I am not an advocate of any breed in particular, but will have good cows or none and I don't care whether they are black and white or red and white, whether they have the triple wedge shape or udders that conform to laid down rigid rules so long as they give a good mess of milk and make a good quantity of butter. We want cows that with a minimum amount of labor will also give us good returns. While we expect to work in the dairy we also have other things about the farm that will not allow us to milk our cows at noon and our hired men object to a cow at all. So what are you going to do in that case?

It was just this one thing that has driven the dairy farmers more and more into hay and grain in the east. Again, if Mr. Fred E. Harriman wishes to advise the lady, why does he not give us his actual experience instead of quoting us records that were made in some obscure corner, so that the rest of us can get back at him, not "mere opinions or assertions unless they are backed by the evidence," that's what we want. Now take care that some picked up dairy may not pop up somewhere and cast a shadow longer and darker than yours. What Mrs. R. R. B. wants is a dairy of cows adapted to the surrounding conditions and the purpose she expects to make use of them. If she just wants cattle to eat up a lot of coarse fodder why the Holsteins are as good as any kind and better as Mr. McKay says they "will come up to their feed three times a day without coaxing." They are like the landlord's hog that Charley Jennings used to tell about. He had a mammoth hog that he wanted Mr. Jennings to look at and a couple years later he was asked to see the same hog and

"ADVERTISEMENT"

QUIT AND EAT.

Some Coffee Tales.

Show a woman an easy, comfortable and healthful way to improve her complexion and she is naturally interested.

Coffee is the one greatest enemy of fair women, for in the most of cases it directly affects the stomach producing slight, and sometimes great congestion of the liver and therefore causing the bile to be absorbed into the system instead of going its natural way. The result is a sallow, muddy skin and a train of diseases of the different organs of the body which, in all too many cases, develop into chronic diseases.

A lady speaking of how coffee affected her says: "I was very fond of coffee but while drinking it was under the care of the doctor most of the time for liver trouble, and was compelled to take blue mass a great deal of the time. My complexion was bad and I had a pain in my side steadily, probably in the liver.

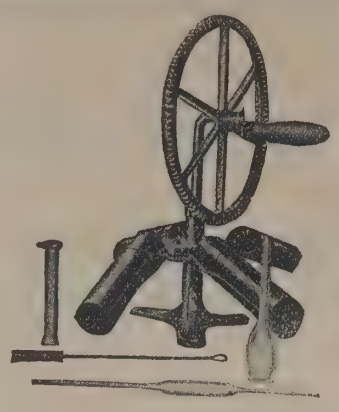
"When I concluded to quit coffee and take Postum Food Coffee I had it made carefully and from the very first cup we liked the taste of it better than any of the old coffee.

"In a short time the pain left my side and my friends began to comment on the change in my complexion and general looks. I have never seen anything equal to the good I got from making this change.

"A young lawyer in Philadelphia named ——, whose life was almost a burden from indigestion and its train of evils, quit coffee some months ago and began on Postum Food Coffee. He quickly recovered and is now well, strong and cheerful and naturally loud in his praises of Postum.

"Another friend, an old gentleman of seventy, named ——, who for years suffered all one could suffer and live, from dyspepsia, and who sometimes for weeks could eat no bread or solid food, only a little weak gruel or milk, quit coffee upon my recommendation and took up Postum. He began to get better at once. Now he can eat rich pastry or whatever he likes and is perfectly well."

Names given by Postum Co., Battle Creek, Mich.



ROBBER COWS.

Some cows rob the owner of the feed they eat, and of the profit of the rest of the herd. They have little or no butter fat in their milk. Find them out and send them to the block.

THE

"Sweepstakes"

Babcock Milk Tester

Will do it. Runs on ball bearings, 2 and 4-Bottle sizes with necessary glassware. Strong, convenient.

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We handle everything in the Dairy and Creamery line..

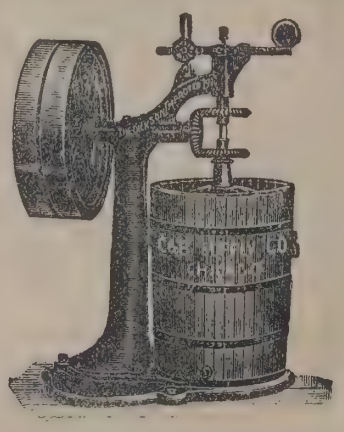
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218 AND 220 EAST WASHINGTON ST., CHICAGO.



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THE C AND B 10 Gallon FREEZER.

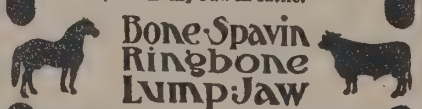
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WRITE FOR OUR CATALOGUE

Good News to Stock Owners

Just the information that you must have to successfully treat Fistula, Poll Evil, Sweeny, Knee-Sprung, Curb, Splint, Spavin, Ringbone and all blemishes hard or soft, also Lump Jaw in cattle.

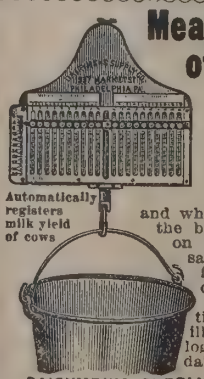


Bone Spavin Ringbone Lump Jaw

Certain and inexpensive methods fully described in our two big booklets, which we send free if you have a case to treat. Over 140,000 farmers rely upon these same methods. Write for the books.

FLEMING BROS., Chemists, 228 Union Stock Yards, Chicago, Ill.

Measure the Milk of each Cow



With the **Automatic Milk Scale** you can keep an accurate record of the yield of each cow, and remove the unprofitable ones from the dairy. Each button on scale arm corresponds to number of cow and when pail of milk is weighed the button registers the weight on score card. Big money saver and money maker for farmers and dairymen.

Send for testimonials and illustrated catalogue of **Bestov** dairy supplies.

TRADE MARK BESTOV

DAIRYMEN'S SUPPLY CO, Phi'adelphia, Pa.

NO MORE RUBBING, stooping or boiling of clothes. The "1900" Ball Bearing Washer will wash a large tubfull of clothes in 6 minutes. An hour's wash in 20 minutes. The washing is done sitting down. You can try it free of expense, freight prepaid, no advance payment. "1900" Washer Co., 219A State St., Binghamton, N. Y.

WRINGING WET Clothes dry is the reason for using any wringer. Saving clothes, buttons and money is the reason for using **Horse-Shoe Brand Wringers.** They are made with rolls of the finest Para Rubber. Every wringer is warranted. **THE AMERICAN WRINGER CO., 99 Chambers Street, New York.**

the landlord when asked why he did not kill that hog and buy another said, "why isn't that hog just as good to eat my swill as any?" He just kept the hog to get rid of his swill and have a big nice hog at the same time.

It is my opinion and experience that more depends on the man behind the cow than on the particular breed she belongs to. I would want to know beyond a shadow of doubt that there was performance behind pedigree, as I have seen good sires and dams bring forth some poor dairy stock. I have been greatly disappointed in some of the stock that came from animals that I personally knew were grand performers at the pail.

The man behind the cow, from the calf up, is the most important factor in dairyology, and the war of the breeds stands about even up so far with each claiming their superiority. JAS. M. PLATO.

Plessis, N. Y.

Alfalfa in Vermont.

ED. HOARD'S DAIRYMAN:—Have been reading every scrap of information that has been printed, or at least all that has come to my notice, for a long time in HOARD'S DAIRYMAN relative to alfalfa, its uses for silo and otherwise. I have not really made up my mind, or have I really got the information from what I have read as to whether it could be grown successfully in Northern Vermont or not. So I come to you for information. I do not know of any one in Vermont that is growing alfalfa, but it strikes me that if it can be grown successfully in Wisconsin and Minnesota, we can also grow it here. From the information that I get as to its feeding value, it would be a great help to the pocket book of the eastern farmer in the way of saving the wheat bran bills, providing we can grow it equally as well as the western farmers.

If there are any Vermont farmers growing alfalfa that read HOARD'S DAIRYMAN, I, for one, would be pleased to hear from them through the DAIRYMAN as to how long they have been growing it, as to how they prepare the ground, the sort of soil it does best on and also where best to get seed for this northern climate. I, for one, am going to try an acre, but want to get all the information as to getting it started and the proper seed so that I wont fail, due to not doing the work properly. G. R. R.

Sheldon Junction, Vt.

We are unable to make any definite statement as to the probable success of alfalfa in Vermont, but judging from its success in Wisconsin, where the winters are much more severe, and the summers hotter and drier, we see no reason why alfalfa cannot be grown successfully in Vermont.

Alfalfa seems to have been uniformly successful all over the United States where the necessary selection and preparation of the land has been made. We should advise a trial on a small scale, with thorough preparation of the land, before going into alfalfa extensively.

Do Jerseys Have Small, Weak Calves?

ED. HOARD'S DAIRYMAN:—I would like to hear Dr. Kitchen discuss the reason why Jerseys have such small weak calves? If you could induce him to do so, I believe it would help many Jersey dairymen. I wish I could tell you how much I have been benefited by reading your paper. In fact, it has made the difference between success and failure with me, for which, I most heartily thank you. L. R. P.

Plattsburg, N. Y.

In reply to L. R. P., all Jerseys do not have small weak calves. Most of Robinswood Farm calves are strong and vigorous. Occasionally one of our in-bred youngsters, will not be up to the mark. Among the many causes of weakness, we may mention, too long lactation, insufficient feed, and especially too little protein; indigestible feed, neglect and exposure, bad hygenic conditions, such as impure air and too little exercise. But the broad fact remains that all good cows that have a good ancestry having ability to make udder products ecconomically have rather small calves, being themselves moderate sized or small cows or have family tendency to small size, for the more the digested nutrients go to the udder, the less there will be for the calf in the uterus. Feeding the bull a broad ration, is apt to result in weak progeny, also over-use of the bull.

The devitalizing effects of over production development in the special-purpose cow are so apparent to the observer, that the time cannot be far off when there will be a general recognition of the fact that a decided limit must be made to productiveness, to get a satisfactory progeny. In the meantime some of my brother Jersey breeders consider me a very bad kill-business for holding such views; and are upholding a production of 6000 lbs. of rich milk, as an element of superiority in a two-year-old heifer. Pre-supposing that a two-year-old heifer is a small sized animal, I should like to see any such producer that has been proved to be a good breeder of strong, large calves.

There are good and poor strains of Jerseys. I have a neighbor whose calves mostly die. Mine do not. I have other blood and treat them differently. All good cows must be kept decently warm. The dual-purpose fellow may have the consolation of knowing that at best his calves are larger and stronger, than those of the special-purpose class. The fellow with an empty milk pail and a minus pocket-book, needs some consolation. J. M. W. KITCHEN, M. D.

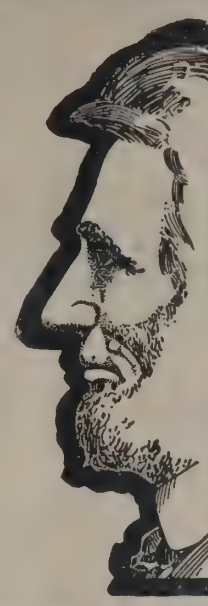
N. H.

Alfalfa a Medicine.

With every season's new additions to the growers of alfalfa come new accounts of the marvelous values of the plant. Here is a contribution to alfalfa lore from W. S. McAuley of Americus, Lyon Co., Kan.

"A few years ago, said he, farmers were almost afraid to raise hogs on account of the prevalence of cholera. Once that disease got a start in a herd it generally succeeded in practically destroying it. Not only the aged stock, but the pigs as well were affected. Hog cholera remedies were sometimes used to good advantage, then again they proved to be ineffectual in stopping the ravages of the plague. Since the farmers have taken to growing alfalfa extensively as a field forage plant for hogs, however, the situation is changed. Now hog cholera in our part of the state is rare and the loss of swine by disease has been reduced by more than 50 per cent. Farmers everywhere attribute the change to the wonderful plant, alfalfa, and I sincerely believe that is what worked the transformation.

"The difference in the health of hogs that have been pastured on alfalfa and those that have been kept in feed-lots and fed grain and dry feeds, is pronounced, and particularly so with regard to young pigs. Sucklings that have alfalfa-fed mothers, are far more rugged and healthy than are those that trace their ancestral dam to the pig sty. Sows that forage on alfalfa, raise lusty, hearty pigs that seldom fall victims to cholera, while mothers that are kept on other feeds and not permitted the freedom of the alfalfa fields, are generally inclined to be sickly. Kansas has made great strides in growing alfalfa the last two or three years and I think you will find those sections of the state that raise the greatest quantities of that plant are turning out the cleanest hogs and complain less of the prevalence of cholera."



Since Lincoln's Time,

more than 7,000,000 Jas. Boss Stiffened Gold Watch Cases have been sold. Many of the first ones are still giving satisfactory service, proving that the Jas. Boss Case will outwear the guarantee of 25 years. These cases are recognized as the standard by all jewelers, because they know from personal observation that they will perform as guaranteed and are the most serviceable of all watch cases.

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is made of angle steel lined with hard wood on side next the animal's neck. It is lighter, neater and stronger than any other stanchion made. Swings on chain at top and bottom and admits of greatest freedom of motion. Cattle can lay with head on side. Easiest opened and closed. Reliable Agents Wanted. Write for special terms, prices, etc.

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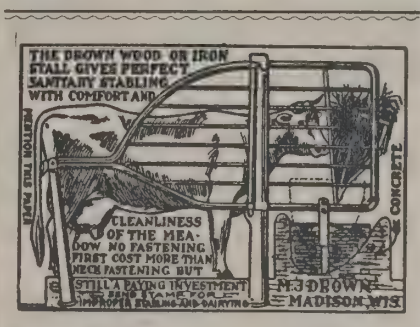


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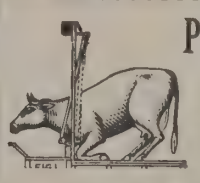




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Prescott's Swinging Swivel tanchion

Keeps Cows Clean.

Swings forward while getting up or lying down. Locks back while standing Full particulars free.

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THE NEW PATENT

Cow Stall

AND FEED TROUGH.

This is the only Cow Stall with a centering hinge Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars. R. A. McLERY & CO., Palmyra, Wis.



Scott's Perfect Swinging And Self Closing Cow Stanchion

Each cow shuts herself in place.

CIRCULARS FREE.

B. C. SCOTT, 211 Beach Street, Bridgeport, Conn.



A FENCE SECURE

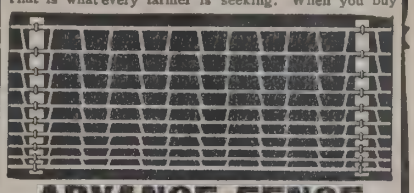
from within and without. It keeps its form in heat and cold. It does not unravel for all wires are continuous. Extra strong at top and bottom. A fence to meet all needs, handsome, strong, permanent, easily and quickly built. 18 to 64 inch heights. It is suited to every farm want—all kinds of stock. Catalogue free.

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That is what every farmer is seeking. When you buy



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you get a good fence at the price of a poor one. The hand fence machine can't compete in price and quality.

WE SELL DIRECT TO THE FARMER AT WHOLESALE.

That saves you the dealer's profit. It's all interwoven, no loose ends to unravel, ruining fence. Cross wires can't slip. Our prices are as low as can be made for a good fence. Your name and address on a postal card will bring circulars and special prices. Write at once.

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BB FENCE We'll tell you the cheapest and best way to build it. Of any kind of wire, for any requirement, with cheap labor, no machine and we'll tell you how to fix your old fences too. Write B. B. FENCE CO., 1345 Clark St. RACINE, WIS

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The Brown Fence & Wire Co. 292 Base St., Cleveland, O.

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If We Offered

PAGE Fence at the price of others, we'd have to use their kind of wire. We won't do that.

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HIGH CARBON COILED SPRING STEEL WIRE FENCE

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CYCLONE FENCE

FOR HOGS is made to hold chickens when wanted. One fence to keep hogs in and another to keep chickens out is poor economy. Let us price you wire.

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Hay Fever and Asthma

Completely cured—not just relieved. Attacks never return. Smokes and "Reliefs" can not cure. They are wrong in principal. Our treatment cures to stay cured. Restores health. Over 52,000 patients already. Book F 41 free.

DR. HAYES, Buffalo, N. Y.

More About Dr. Pearson's Method of Tuberculosis Inoculation.

Great interest has been felt by owners of dairy cattle, especially since the announcement by Dr. Leonard Pearson, of Pennsylvania, that he had successfully rendered cattle immune to tuberculosis by a system of inoculation.

The *Veterinary Magazine* recounts the following fact in further support of the theory, taken from experiments made by Dr. S. H. Gilliland who is associated with Dr. Pearson:

"To prove the efficacy of the treatment as a preventive of tuberculosis, Dr. Pearson secured four healthy young cattle sometime last March. Two of them were vaccinated and in July all four were inoculated by injecting into their windpipes a quantity of virulent tubercle bacilli culture. Each animal then received the same treatment until recently, when they were all killed.

"The two animals that had been vaccinated were found to be perfectly sound at the time of their death. There was not a trace of tubercular infection. On the other hand, the two unvaccinated animals were extensively tuberculous, showing alterations of the disease in the windpipes, lungs, throat and intestinal glands.

"Having proved that cattle may be made immune from the greatest scourge by which they are afflicted, Dr. Pearson states that he intends devoting his energies to perfecting the method used in vaccination. In conjunction with the State Live Stock Sanitary Board, of which he is the secretary, he intends continuing the experiments until the shortest and simplest practical method has been found.

How long the immunity will last and what the ultimate effect on the animals will be has not yet been discovered, but the few experiments already performed lead Dr. Pearson to believe that no unfavorable conditions will result."

Transfers of Guernsey Cattle.

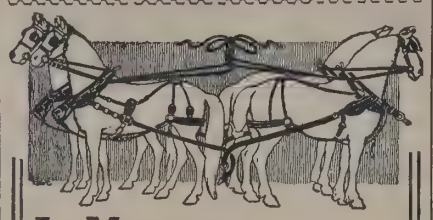
BULLS.

Almona's Wonder of Swatara 7627, James Boyd to A. W. Dunkle, Steelton, Pa.
Isaleign Roscoe 8522, J. N. Greenshields to Mrs. W. E. H. Massey, Coleman, Ont.
Laddie of Norwood 8186, Willard S. Atkinson to Stephen G. Williams, New Brunswick, N. J.
Laddie of Norwood 8186, Stephen G. Williams to Geo. W. Keiter, Rupert, Pa.
Pat Hugo 5799, Ezra Michener to George School, George School, Pa.
Pat's Boy of Hillside 8523, Jos. Evans to Walter Cliver, Birmingham, N. J.
Strathmore 8359, Ezra Michener to J. F. Hazard, Philadelphia, Pa.
Sonsie of Swatara 8525, James Boyd to A. W. Dunkle, Steelton, Pa.
Tokee 8516, John Henry Livingston to C. L. Sisson, Almond, N. Y.

cows.

Alphea of Fernwood 10336, S. J. DuBois to Mrs. E. W. Strawbridge, Moorestown, N. J.
Aletta Pearl of Fernwood 15487, Carena of Fernwood 14474, Fenella Fitzhugh 10983, Queen of Fernwood 14473, S. J. DuBois to E. T. Gill, Haddonfied, N. J.
Aletta of Fernwood 15651, Phyllida D. 4853, S. J. DuBois to Edgar Smith, Philadelphia, Pa.
Alequippa 12906, Kocono 10419, Onota 13463, John Henry Livingston to C. L. Sisson, Almond, N. Y.
Alceda of Elizabeth 13007, C. L. Richmond to Ezra Michener, Michener, Pa.
Alice Davis 14223, Enola of Auburn 15876, Ionita 14246, Fred B. Payne to Otto W. Post, Owasco Lake, N. Y.
Bertalda of Fernwood 14676, S. J. DuBois to W. C. Schulze, Philadelphia, Pa.
Belle of Hillcrest 15937, Eva C. 14802, Grace of Hill Crest 15936, Idalade Chase 14804, Louisa of Hill Crest 15938, Susan of Hill Crest 15935, A. C. Chase to Harry Yates, Buffalo, N. Y.
Coraleona of Fernwood 9824, Fernwood Girl 13164, S. J. DuBois to Percy R. Pyne, Bernardsville, N. J.
Chase's Kitty Clover 12395, Evelina A. 12396, Ida C. 12394, Lilly's Choice 12400, Valley Girl 12399, A. C. Chase to G. B. Tallman, Perry, N. Y.
Dorothy Young 15678, M. Alice Michener to Mrs. Flora S. Michener, Michener, Pa.
Evangeline of Fernwood 15765, S. J. DuBois to Mrs. Flora S. Michener, Michener, Pa.
Gipsey May of Elm Place 11724, Kate S. F. 10813, N. E. Smith to H. A. Bartholomew, Whitehall, N. Y.
Jennie Wren 15945, A. A. Oakes to Winslow Fuller, Livermore Falls, Me.
Leona C. 12376, and Orange Mabel 11544, Nelson Banning to J. L. Snyder, Lansing, Mich.
Lyman Duchess 4th of Andover 11519, A. H. Lyman to D. Webster, Berlin, Ct.
Lassie MeQueen 15944, David T. Brown to S. I. Murphy, Woodbine, Pa.
Mayflower of Fernwood 15860, Thomas E. Brooks to E. T. Gill, Haddonfield, N. J.
Myrtilla D. 8534, Myrtilla of Fernwood 14788, S. J. DuBois to C. R Myer, New Brunswick, N. J.
Megantic 15942, John H. Ripenburgh to S. L. Sisson, Almond, N. Y.
Naida 7197, S. J. DuBois to Ezra Michener, Michener, Pa.
Northland Queen 15947, Wm. Atkin to W. R. Harper, Middleville, Mich.
Princess of Pepacton 8245, Don P. Northrup to George J. Gould, Arkville, N. Y.
Ramona of Fernwood 13935, S. J. DuBois to Thomas Harrison, Chesterfield, N.
Viola C. 12398, A. C. Chase to K. E. Dingman, Fillmore, N. Y.
Young Althea 11281, Mrs. E. B. Patterson to F. E. Patterson, Germantown, Pa.

WM. H. CALDWELL, Sec'y.
Peterboro, N. H., April 6, 1903.



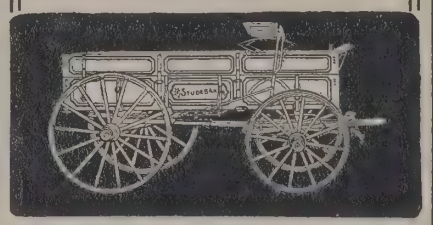
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BUTTER-MAKERS
Merchants, Etc.

A large firm of manufacturing confectioners in England using some 500 tons of butter per annum are open to buy a quantity at any time **IF A BARGAIN.**

The quality must be A 1—good sweet and solid and warranted pure butter. Any size of package. Price must be low, quality good or offers no use. Prompt payments, and would also consider buying 100 tons or more later in the year of June packing stock. Quotations in first instance to be addressed to **M. T.**, care of **T. B. BROWNE, Ltd., 163 Queen Victoria Street, London, England.**

BUY DIRECT FROM FACTORY, BEST
MIXED PAINTS
At WHOLESALE PRICES, delivered **FREE** for Houses, Barns, Roofs, all colors, and **SAVE** Dealers profits. In use **61 years.** Officially endorsed by the Grange. Low prices will surprise you. Write for samples. **O. W. INGERSOLL,** 258 Plymouth St., Brooklyn, N. Y.

YORKSHIRES A few choice imported Boars. September farrow. Also pigs from imported stock ready for delivery in 8 weeks. W. H. FISHER, Spahr Bldg, Columbus, O

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. All our choice pigs of 1902 farrowing have been sold. We are now taking orders for 1903 farrowing.
JOHN WHITE & SON, Adamstown, Md.

AYRSHIRES SCOTCH and.....AMERICAN
The Champions of America—any age—either sex. Riverside Stock Farm. **J. F. CONVERSE & CO.,**
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THE BROWN BESSIE HERD
Offers some splendid young cows and heifers bred to Recorder, the only living son of the famous **Brown Bessie,** winner of the 30 and 90 day butter test at the Columbian. Also a few sons of Recorder from daughters of Diploma and other tested cows are offered.
H C. TAYLOR, Orfordville, Wis

A CAREFULLY SELECTED IMPORTATION
OF
JERSEY CATTLE
TO BE SOLD BY AUCTION AT JERSEY ISLE STOCK FARM, RUSHVILLE, IND.,
Tuesday, April 28, '03
The property of Case & Walker, importers. Apply for catalogue, giving pedigrees and other information to Peter C. Kellogg, Auctioneer, 107 John St., New York, or The Jersey Bulletin, 124 So. Ills. St., Indianapolis, Ind.

NORTH OAKS FARM, MINN ST. PAUL,
(Jas. J. Hill, Proprietor.)
AYRSHIRE BULLS
Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address,
N. E. McKISSICK, Supt., Cardigan, Minn

AYRSHIRE CATTLE of both sexes, and some young ones from good business cows. Prices within reach of any dairyman. Also **Chester White Pigs,** March and April farrow—All from registered stock. **F. TSCHUDY & SONS, Monroe, Wis.**

GUERNSEYS
TWO COWS
in milk, two yearling heifers in calf, due May and September. Two heifers 8 months old, and bull calf 2 months old. All choicely bred and fine individuals. **F. E. PATTERSON,**
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GUERNSEYS.
HADDON FARMS—Home of the noted GLENWOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. **E. T. GILL,** Haddonfield, N. J.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality **F. W. TRATT, Whitewater, Wis.**

Rosendale Guernseys.
MATURE COWS YEARLY RECORDS range from 356 to 713.3 lbs. butter. This herd contains more officially tested cows than any other herd of the breed. All of the largest records are official ones. A particularly choice lot of tuburculin tested bulls for sale from high record dams.
GEO. C. HILL & SON, Rosendale, Wis.

GUERNSEYS FOR SALE.
Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.
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GUERNSEY Bull Calves Sired by O. K. Dams of equal merit.
FRED VOGEL, JR., 165 First Avenue, Milwaukee, Wis.

Old Homestead Guernseys.
Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.
Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL Perry, Lake Co., Ohio.

Wasteland Guernseys
Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.
M. M. & E. J. HOLLINGSWORTH,
Landenberg, Chester Co., Pa.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.
W. J. HUSSEY, Mt. Pleasant, O

FOR SALE AT FARMER'S PRICES.
One St. Lambert bull ten months old; also bull calf three months old, or will exchange for as well bred heifers. Registered Poland China pigs for sale at all times. Correspondence solicited. **FRANK SHADBOLT, Caledonia, Minn.**

FOR SALE.
JERSEY BULL, one year old. Good individual of the best breeding. Also 7 months bull from tested dam Herd headed by Fontaine's Owl, 60436. Prices on application. Address,
J. F. EGERTON, Footville, Rock Co., Wis.

MUST BE
SACRIFICED
Having concluded to retire from the dairy business, and having sold my farm, possession to be given in sixty days, I offer for sale my herd of cows at a price around half real value. I have
20 COWS AND A BULL
bought at H. G. McMillan sale at prices ranging from $70 to $150 each. I have five coming two-year-old heifers in calf by Trustee's Gold. These cattle have rich strain of **Diploma, Brown Bessie,** and **St. Lambert** blood. They are heavy milkers, and average annual test of the entire herd is nearly 6 per cent. In size, beauty, and performance at the pail there is nothing like them. **I will take $70 per head and give 12 months' time on a good note at 6 per cent.**
B. C. WELCH, Elsberry, Mo.

VALLEY FARM Is offering some good bargains in young bulls from 1 mo. to 2 yr. old. Also B. P. Rock Cockerels, $1.25 each. Write
FRED STUBLEY,
Black Earth, Wis.

PROSPECT HILL JERSEY HERD.
Mature cows yearly records are from 405 lbs. to 740 lbs. butter. **YOUNG STOCK FOR SALE.** Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

COTTAGE FARM GUERNSEYS
Young stock of both sexes. Some of them out of cows in Advanced Registry. 3 cows now in Advanced Registry, and others soon will be. Also 3 Heifers sold from the Herd the past year have been admitted. Service bull combines the breeding of Lord Stanford and Mary Marshall. Please note change of address.
EZRA MICHENER,
Michener, Bucks Co., Pa.

ST. OMER HERD
Offers young bulls fit for service, out of tested dams with good yearly records. Strong in Exile of St. L., King of St. L. and Stoke Pogis of Prospect. Reasonabe prices. **JOS. T. HOOPES, Bynum, Md.**

The Evergreen Farm Herd has for sale three or four A. J. C. C. heifers bred Also a few cow and some choice bull calves from two to six months old. Write for pedigrees and prices.
N. N. PALMER & SON, Brodhead, Wis.

READY FOR SERVICE
We are offering a solid color yearling Jersey Bull, 56 per cent blood of five of greatest Jerseys that ever lived; out of a young cow scoring 360 lbs. butter within a year, second season. Sound and all right, well grown and thrifty. A bargain at $100. For particulars address
E. E. STEVENS,
North Madison, Lake Co., Oh

FOR SALE. Grandsons of Pedro 3187, by his son **Pedro's Pretty Pogis 33660,** A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. **J. Q. EMERY & SON, Albion, Wis**

FOR SALE GOLDEN LAD BLOOD. sired by **Golden Blyth 3d,** 54569 A. J. C. C., a son of **Imported Golden Blyth and King's Nana;** butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. **R. C. GREEN, Albion, Wis.**

BILTMORE
JERSEYS
are great and persistant dairy workers and typical Jerseys. We ask comparison with any other herd for
YEARLY MILK & BUTTER YIELDS, SUBSTANCE AND FINISH.
The herd contains more prize winners at the leading exhibitions (including the Pan-American) than any other herd.
The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service as you cannot get it.
Also Headquarters for Large English Berkshires and Standard Poultry.
Apply to
BILTMORE FARMS,
BILTMORE, N. C.

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SILO

Write us for information.
THE A. T. STEARNS LUMBER CO.,
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OHIO'S



FAMOUS HERD
—OF—
Holstein Cattle
OWNED BY
W. B. Smith & Son
2488 W. Broad St.,
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CLYDE PAUL DE KOL.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

SHADY NOOK HERD Holstein Friesians offers three bulls one year old. O. I. C. White Pigs, both sexes. White Cap Yellow Dent Seed Corn, $1.50 per bushel.
W. R. GATES, Fort Atkinson, Wis.

HOME FARM HERD.

Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams 25.1 lbs. butter in seven days. Herd numbers 125 head.

BEST FAMILIES REPRESENTED.

Special prices on six or eight bulls of serviceable age. W. B. BARNEY & CO.,
Hampton, Ia.

Oak Grove Herd Headed by Mechthilde DeKol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

The Maples Herd offers H. F. A. R. O. Cows and Heifers of all the leading families in calf to Beryl Wayne De Kol Paul, dam Beryl Wayne, 27.87 lbs. butter A. R. O. Lelith Pauline De Kol's Count, dam Lelith Pauline De Kol 28.24 lbs. butter A. R. O.

Quick buyers may obtain great bargains in heifer and bull calves from the above named great sires. JOHN C. GODFREY,
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FOR SALE.

3 H. F. Bull Calves, 6 months old. Sired by Johanna Aaggie's Paul DeKol 23443, (160 A. R.) from good milkers and testers.
M. S. CAMPBELL, Genoa, DeKalk Co., Ill.

HIGH-CLASS HOLSTEIN-FRIESIAN BULLS

and Bull Calves from A. R. O. dams and the best Advanced Registry sires. Cows all officially tested; I breed from no others. Correspondence from breeders and progressive ddirymen invited. Malcolm H. Gardner, Darien, Wis.

HOLSTEINS

High Class Advanced Registry Stock only. Best butter families. Stock for sale.
Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.

HOLSTEIN BULL CALVES. | **Johanna Family.** (both sire and dams). ALSO BERKSHIRES.
Wright's Farm. Berlin, Wis.

TYRANENA HERD

100 HOLSTEIN-FRIESIANS 100

A. R. O. Stock For Sale.

Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz Frank B. Fargo, Lake Mills, Wis.

FOR SALE.

H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address W. H. JONES, Watertown, Wis. Rural Route No. 2.

CLOVERDALE HERD

HOLSTEINS.

Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.

A. J. DAUGHERITY Streator, Ill.

GLENVIEW HERD

A few fine heifers and bulls for sale. Also some A. R. O. cows. IRVIN NOWLAN, Toulon, Ill.

Star Farm Holsteins

I have just purchased of West Brothers of Syracuse, their magnificent herd of 53 Registered Holstein Cattle. This herd is rich in the blood of De Kol 2d, Pietertje 2d, and other leaders. Some of the best females living here. Can supply purchasers in car lots of any age, breeding or sex. 120 Head to select from. You can save money in buying at Star Farm.
HORACE L. BRONSON, Cortland, N. Y.

OAKLAND HERD

HOLSTEIN-FRIESIANS

Will make a special price on a few CHOICE YOUNG BULLS.

We offer females, any age, very cheap just now as we can winter more stock than have pasture for.
T. A. MITCHELL, Weedsport, N. Y.

Markham Manor Farms, Simonsville P. O. Andover, Vt.

Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Sovereign and Soldeme Clothilde. No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for description and price to J. A. THORNTON, Manager, Simmonsville, Vt.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS | 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148. Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.
WM. EVERSON & SONS, Lake Mills, Wis.

Holstein Friesian Bulls

SOUTH SIDE FARM, WHITE BEAR, MINN.,

offers a number of thrifty well grown calves from Officially Tested Dams at bargains for quick sale, ages three to seven months. Also two fine yearlings, and one two year old.

No Yorkshires for sale at present. Orders booked for spring pigs.

Correspondence solicited.

THE ONLY HOLSTEIN HERD

that can offer you grandsons nearly fit for service of the world's record Sadie Vale Concordia, 30 lbs. 10.2 oz. butter in 7 days, 115 lbs. 6.5 oz. butter in 28 days (official), sired by Sadie Vale Concordia's Paul De Kol, 27392, H. F. and grandsons of the still greater cow De Kol 2d, 4.308 lbs. butter in 1 day, 26 lbs. 9.2 oz. butter in 7 days (official), sired by De Kol 2d's Mutual Paul, 25700, H. F. and who has more officially tested granddaughters than any other cow of the breed. You are ambitious to reach the summit of success with your herd we surmise, or you would not be reading this paper, and want the very best that your money will procure, and if such are the facts, and you desire a youngster backed by the above records close up, and many others, we would be pleased to serve you at agreeable prices with bulls that contain not less than 25 per cent and from that up to 40 per cent of the blood of these two most noted cows.
GEO. F. CARTER, 126 North Salina St., Syracuse, N. Y.

Holstein-Friesian Bull Calves

Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

BROOKSIDE STOCK FARM

HOLSTEIN-FRIESIAN CATTLE

Henry Stevens & Son, Lacona, N. Y.

offer some great bargains, to quick buyers, in 1, 2, and 3 year old heifers; also young cows and bulls.

Stock First-Class. We Must Sell
Address as Above. P. O. Box 208.



WANTED. NO. 1 H. F. BULL
Send pedigree and official records of ancestors. For Sale A No. 1 H. F. Bull dropped Aug. 9, 1901. Dam and sire's dam bred by T. G. Yeomans.
Wm. O. Jackson & Sons, South Bend, Ind.

BROOKSIDE HERD

offers SPECIAL inducements to quick buyers. We must sell at once to reduce herd to stabling capacity. All ages, both sex. Correspondence solicited. Visitors welcome. Address,
STEVENS BROTHERS Lacona N.Y.

MONONA FARM Offers for sale a few well bred Holstein-Friesian Bull Calves. Also two Service Bulls at reasonable prices. The Monona Farm Herd is founded on the best stock of the De Kol, Netherland, and Clothilde families. Pense Johanna 29332 the head of the herd has 7 A. R. O. dams averaging 22 lbs. 3.7 oz. Junior sire Paul Calamity De Kol 31095.
MADISON, WIS.
THE MONONA FARM HERD.
Address, F. W. ALLIS, Madison, Wis.

FOR SALE. H.-F. Bulls, ready for service from A. R. O. Cows and sired by Sir Johanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis

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AUCTION SALE OF

70 Holstein-Friesian Cattle

from the herd of

ARTHUR N. McGEOCH

Sale to be held at

MILWAUKEE, WIS.,

Wednesday, May 6, '03

Sale to be held at McGeoch Farm, "Redbrae" opposite entrance to Soldiers' Home on National Avenue. Electric Cars, National Ave., run to farm every five minutes.

40 OFFICIALLY TESTED COWS AND HEIFERS 40

Among these will be found the great heifer **Duchess Ormsby 2d's Hengerveld DeKol** who holds the **World's Record** for heifer with first calf, having made at age of 2 years, 1 month, 29 days, 19.02 lbs. butter in seven days.

DAME MARJORY DE KOL, a half sister, with record at 2 years, 4 months and 24 days of 16.19 lbs. butter in seven and 65.08 lbs. in thirty days.

LISCOMB AAGGIE 3D at 3 years, 11 months and 26 days with record of 21.58 lbs. in seven and 86.69 lbs. in thirty days.

PIEBE QUEEN 2D'S PRINCESS at 4 years, 9 months, with record of 22.18 lbs. in seven days.

WIT DUCHESS at 5 years, 5 months, 5 days, with record of 24.88 lbs. in seven days.

A FINE LOT OF HEIFERS FROM OFFICIALLY TESTED DAMS. A few richly bred young bulls and the two great service bulls **De Kol 2d's Paul De Kol No. 2** and **Gem Pietertje Hengerveld Paul De Kol** will be included in the sale.

Altogether this is the most desirable lot of Holstein-Friesians, either from the standpoint of the breeder or dairyman, that has ever been offered at public auction. All are cordially invited to be present.

Catalogues ready early in April. Send for one. Address

H. B. DAGGETT, Mgr.,
STATION A. MILWAUKEE, WIS.

LAST CALL

PLEASANT VALLEY STOCK FARMS

DELPHI FALLS, N. Y.

2d Annual Sale

60 PURE BRED HOLSTEIN-FRIESIAN CATTLE,

SYRACUSE, N. Y., APRIL 22ND, 1903

The best lot ever sold under the hammer. Large A. R. O. Records. The most Fashionable Breeding. Great individuality. Tuberculin tested.

Dont fail to attend—your price will be my price.

B. V. KELLY, Auctioneer.
C. F. HUNT, Manlius, N. Y.

HOLSTEIN-FRIESIANS

FERMANACH HERD, ARCADIA, MO.

SPECIAL OFFER—Three Young Bulls. Prince Mercedes Pietertje 29325, born Oct. 20th, 1901, grandson Mercedes Julip Pietertje A. R. O., 29 lbs. 5.7-10 oz., sire Mercedes Mechthilde Pietertje 25795, dam Princess Pietertje Coeln, record 76 lbs. butter 60 days with first calf.

Geertje M. 3rd Johanna De Kol 30614, born Jan. 18th, 1902, sire Johanna Rue 2d Paul De Kol 21724, sire of nine A. R. O. cows of large records and by Paul Mutual De Kol, out of Mutual Friend 2d, dam Geertje M. 3 A. R. O., 18 lbs. 12.9-10 oz.

St. Louis DeKol 30613, born March 26th, 1902, sire Johanna Rue 2d Paul DeKol, dam Winnifred Pride Beauty 2d 53038, whose dam has A. R. O. record 18 lbs. 6.8 oz. Here is a splendid opportunity to procure a combination of the richest blood of the breed at very low price. THOS. CAINES, Supt.

A. & G. Herd Holstein-Friesians —Choice-Bred BULL CALVES for sale, from 1 to 18 months old, from dams with official records, and sired by sons of De Kol 2d and Netherland Hengerveld. Herd contains 5 sisters of Lilith Pauline DeKol (who holds the world's official butter record of 28 lbs. 3 oz) 25 granddaughters of DeKol 2d, 5 daughters and 7 granddaughters of DeKol 2d's Paul DeKol (the sire of Lilith Pauline De Kol) and granddaughters of Pauline Paul, Netherland Hengerveld, Mutual Friend, Princess of Wayne, Johanna, Etc., Etc.
AVERILL & GREGORY, The Yates, Syracuse, N. Y

.....YOU MAY.....

BEGIN AT THE HEAD

to improve your dairy herd with a bull whose dam has official record of 18 lbs. 6.3 oz., sires dam 20 lbs. 8.8 oz. Individual right. Price Right.
McKAY BROS., Buckingham, Iowa.

WOODLAKE HERD.

Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN Station D., R. 1, Minneapolis, Minn.

A Wisconsin Herd Record—Over Three Hundred Pounds of Butter per Cow—Building a Stone Silo.

ED. HOARD'S DAIRYMAN:— I have been very much interested, reading in your paper the reports of the Creamery Patron's Investigation and was surprised to see what a small amount of money the most of them got from a cow in a year.

Now as I have kept a record of my cows, all the time for one year beginning the 25th day of November 1901, and ending the 25th day of November 1902, I will send it to you

No. of cows, 10; lbs. of milk, 70,735; average test, 4%; returns from factory and creamery, $644.56; average lbs. of milk, per cow, 7,073; average amount received, per cow, $64.45; average price, per hundred lbs. of milk, 91c. Two of these cows were two-year-old heifers.

I have chosen these dates because in the summer I took my milk to a cheese factory and that was the date they closed and in the winter I sold my cream to the creamery.

As I have only been keeping cows 2½ years and had bought all the cows except the two heifers, so they are a mixed lot, I thought I had done fairly well. I have not counted the skim milk anything.

Now I intend to build a stone silo this summer and would like to ask you a few questions.

I have a barn built on the side hill with an 8 ft. stone wall under it.

I intend to make my silo on the up hill end of this barn digging down 6 ft. below stable floor making 14 ft. in the ground. How is that for depth in the ground? I intend to make it 16 ft. inside diameter and 30 ft. high.

Can I leave a space for the door 8 ft. from the bottom of the stable door to the top of the ground without weakening the building, to hurt any, as it would be easier getting it out.

I have good quarry rock and intend to build the wall 18 in. thick above ground. Will it be necessary to put a wooden jacket around this to keep if from freezing, if so how would you put it on?

How much will the ensilage settle and in a silo of that depth how close to the top will I need the upper door? Will it be necessary to bed iron rods in this wall to keep from spreading as I have nice flat rocks to make it out of? If so, how often will I put them in?

How do they keep them perfectly round when they are making them, what do they use seeing they can not use a line?

I have never seen a silo so all I know about them I have read and these questions I have not seen. W. H. G.

River Falls, Wis.

Evidently the "man behind these cows" was a dairyman in fact as well as in name. The trouble with too many cow keepers is that they are only nominal dairymen, do not make a study of their business, keep no records, are not sufficiently interested to read dairy literature and have no pride in the work. If W. H. G. can have cows that yield 7073 lbs. of milk in twelve months, containing fat enough to make 330 lbs. of standard commercial butter, why should not others do approximatly as well? Putting a very low estimate upon the value of the skim milk and whey, these cows earned their owner $75 each. Deducting the value of the feed eaten and the labor required to care for them the net income from each cow was not less than $25. Besides, they furnished a home market for hay and other coarse fodder and some grain and returned a lot of fertility to the land. Verily, *dairying* does pay.

As to that stone silo, we may say that more and more progressive farmers are coming to believe that the time has come when silos should be built for the future as well as for the present, and are constructing them of stone, or brick or concrete. The more or less freezing of the silage next to the wall is not found to be particularly objectionable in practice, provided the silage is not fed to the cows when frozen, but when fallen or broken off is allowed to lie on the surface of the warm silage near the center and thaw out.

We should prefer to have the bottom of the silo not more than four feet below the level of the feeding floor of the stable, as then one can walk up an inclined plank and carry a basket of silage. Two feet more depth would make this a good deal more difficult and in our judgment outweigh advantages. There is no trouble in having a continuous doorway from the top of the wall down to the level of the feeding floor, as we have demonstrated in our personal experience, but we would not have this opening more than three feet wide. You may set a 4×4 in the wall on either side of this opening, four inches back from the inner face of the wall, and spike a 2×4 ft. to these to serve as a jamb to hold plank for closing the opening as the filling progresses. Use clay at the ends of these planks and edges to seal them so as to exclude the air.

It is not possible to say how much the silage will settle, but an opening four feet from the top will be convenient enough. Probably the silage will not settle that much, but one can dig down to it. At the present time, however, silos with a continuous opening, as shown on page 174, appear to be preferred. We think a wall built as described will be sufficiently strong without bedding in rods or wire, but as it is a simple and inexpensive thing to do, one might put occasional strands of common barbed fence wire. To insure a perfect circle, set a small post or rod in the center, and measure from it with a pole of proper length; or, after the first course is laid, let the mason use a plumb.

Warming and Ventilating a Barn.

ED. HOARD'S DAIRYMAN:—Having been requested to explain my system of warming and ventilating barn and warming the water, I will give an outline of it, and should any one wish for more particulars with regard to it will be pleased to do so at any time. The stable is a stone basement, after plastering it on the inside to keep out the air, and putting in double doors to keep out the cold. Back from the barn a few feet dug a cellar (this could be under the barn as well) some 8 feet deep and stoned it up some 12 feet square, put a roof over it to keep it from the storms. In this put a small size hot air furnace, the same as used to warm a church or house; run up the side of the barn a smoke stack.

From the top of the furnace a 15-inch pipe runs slanting up in the barn, and comes in under the floor. Now the furnace is fed with the air from the outside, and as it is warmer it passes up in the barn; this brings new air in the stable, all the time. This warms the barn, and as you will see ventilates it as the pipe brings in pure air as fast as the cows consume it, and the foul air is carried off at the top by ventilators. This will keep the air pure. Should it be so warm that you need no fire, open the inside doors or let in air some other way. It does not require a hot fire, but enough to keep the air pure, and at a heat of about 70.

This will require about 3 tons of coal, that will cost about $15 here. The water is pumped with a wind mill up in a cistern a little above the barn, built of stone and cement under ground to keep it from the frost. From the bottom of this cistern is an iron pipe that carries the water down in the stable, across the stable, under the floor and down in the cellar in the furnace, and passes around in the furnace in a coil of pipe 3 or 4 times and then comes up in the stable and runs in an iron tank placed over where the hot air comes in the stable, some 6 inches above the floor.

The hot air strikes against the tank, then passes off into the barn. This keeps the water warm, and by putting a faucet on the end of the pipe in the stable, and letting a small stream run, you can keep the pipe full in the furnace until you raise it to any heat required. Some will say it costs too much.

The furnace, all put in, costs about $60, and the water is no more than every farmer should have, and any farmer knows 30 cows kept as I have described, will give nearly $60 more milk every month, with milk at nearly $2 per hundred as here.

The cows are let loose, 3 or 4 at a time, morning and night and go to this tank to drink. They should be watered at night, after they have eaten their dry hay, if you want a flow of milk.

New York. NORMAN BROWN.

For the land's sake—use Bowker's Fertilizers. They enrich the earth and the men who till it.



A Cream Separator is valuable according to the amount of money it makes for you.

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Is a Money Maker.

It does its work so well that we dare sell it on approval. The price is low enough to make it a big winner for you the first year. Write for free catalogue.

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250, 350, 450, 600, 750 POUNDS PER HOUR

Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.

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The best in the world, has no superior if you want a larger butter yield. It runs easily, skims clean, and is easy to wash. It is perfect in mechanical construction and magnificent in appearance. No outside gears to catch your hands and clothes. Only three parts in the bowl. Look at the low supply can. All parts absolutely interchangeable. Write for Catalogues and Prices.

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BALL BEARING
Cream Separator

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Big Profit in Cows

is but a question of getting *all* the cream (butter fat) out of the milk. With the old setting system your loss is over 80 per cent greater than with a



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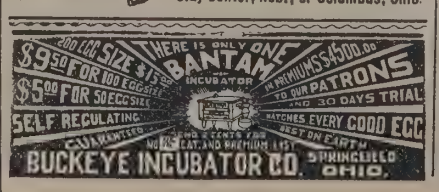


The New Regulator

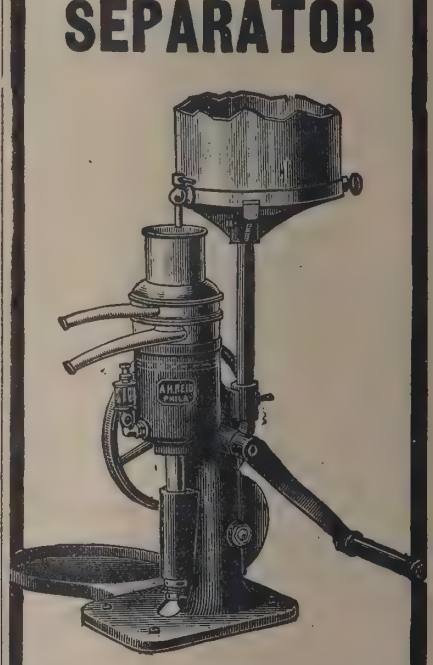
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30 Days FREE TRIAL

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First cost is a great point with a buyer, but ease of running, perfection of skimming and simplicity in washing are even greater considerations.

The **Reid Hand Separator** has but a single cylinder inside the bowl, and skims as closely as one-hundredth of one per cent. Indeed, some tests indicate "not a trace" of fat in the skim milk.

The Reid is perfectly planned and strongly built, and it literally "runs like a watch."

As to our guarantee of excellence, we make the strongest statement that can be expressed in words: **Money back (less freight) if the buyer is not satisfied.**

There is a new (free) booklet about the Reid Hand Separator.

Sizes run from 150 lbs. to 500 lbs. per hour.

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CREAMERY AND DAIRY SUPPLY CO.,
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RUPTURE CURED while you work. You pay $4 when cured. No cure, no pay ALEX. SPEIRS, Box 346, Westbrook, Me.

Is it Safe to Make Cows Go Dry?

ED. HOARD'S DAIRYMAN:—I have received a letter from one of your subscribers in Bucks county, Pennyslvania, who, referring to my herd record published in the DAIRYMAN of March 13th, says: "Is it safe to make cows go dry? I tried to force one of them to go dry and had a lot of trouble with her udder, I had not the courage for another start in that direction, but if I milk the cows up to calving, they don't give much more after than they did before. Will you tell me how you force your cows to go dry?"

As this is a subject of much importance and I was in the same situation a few years ago, I thought probably my experience might be beneficial to all the readers of your paper.

Seventy days before calving I cut off all grain from the cow and if in the winter, also the silage; after a week of this treatment I milk the cow once a day and another week I milk every other day, then stop short; you must stop some time for if you continue to milk, the cow is bound to respond. Sometimes, two or three days after I have stopped, if I find the udder caking, I milk out a little to ease it up, but in most cases this does not happen.

The cow should be thoroughly dry at least six weeks before calving. The trouble with most people is, that they continue to milk the cow irregularly up to within four weeks of calving; at that time the cow has begun to freshen, and if they stop then, trouble ensues from the new milk forming, and the udder is likely to be spoiled. If the cow is not dry four weeks before calving, better keep on milking the rest of the period. My experience in milking up to calving is the same as your subscriber's. I get no appreciable iucrease of milk.

Many people tell me that they do, but every time I have tried it I have regretted it. I am satisfied that I can get more pounds of milk from a cow by milking her ten months in a year than by milking her twelve. The great trouble with most people in drying up cows is that they are afraid to stop milking, but stop you must if you force them dry, and in 99 cases out of 100, nature will take care of the surplus milk, but avoid giving any food during the drying up process that will stimulate milk production. J. W. HELME.

Adrian, April 4.

The Value of Alfalfa In Hog Feeding.

An interesting experimeut in feeding pigs was recently carried out by the Nebraska Experiment Station. Twenty hogs, uniform in size, were divided into four lots of five each. One lot was fed exclusively on cornmeal, a second on corn meal with milk, a third on corn meal and shorts (80 per cent of the corn meal and 20 per cent of the shorts), and the fourth on cornmeal and alfalfa—80 per cent of the meal and 20 per cent of the alfalfa. The alfalfa was in the nature of chaff, and mostly leaves, consequently richer than the whole hay would have been, being valued at one-third more per ton than whole hay would be.

It was found that the hogs fed on corn alone ate nearly 7½ lbs. of feed to one pound of gain; those fed on corn and shorts required 5.8 lbs. of feed to one pound of gain, and those fed on corn and alfalfa gave the same result. The hogs fed on meal and milk made one pound of gain for 5.2 lbs. of feed. Corn and alfalfa gave as good results as the corn and shorts, and almost equaled corn and meal even in the amount of feed used. In point of economy of gain the corn-alfalfa ration came out ahead, as it was estimated that the hogs fed corn alone cost $4.48 for each 100 lbs. of gain, while the corn and alfalfa hogs made 100 lbs. for $3.40, corn and skim milk at $3.97, and corn and shorts at $3.53

It is not only in the economy of production that the alfalfa comes in. Hogs fed on this showed a greater development of internal organs and more health and vigor than those fed corn alone. A bone from one of the corn-alfalfa fed hogs required 520 lbs. pressure to break it, while a bone of a corn fed hog smashed at 330 lbs. pressure.

Alfalfa thus comes ahead of milk as an economical food, and equals it as one conducive to health and vigor to the stock to which it is fed. It is estimated by the station that $1,000,000 would be added to the annual output of the farms of Nebraska, if alfalfa was substituted for one-fifth of the corn fed to the hogs which are annually produced by the state.

Alfalfa Silage.

A bulletin of the Colorado Station thus summarizes the results of tests of alfalfa as a silage crop:

Some tests were carefully made on a small scale to see what losses might be expected in making silage of alfalfa. One test was made with the alfalfa put in whole as cut in the field, the other with the alfalfa cut the quarter-inch pieces as we cut our corn for silage. The whole alfalfa showed a spoiled layer 3 inches thick on the top and an inch layer around the side nearly all the way down. The silage of the bottom and middle was excellent and was greedily eaten by the cows and calves. Its loss in the total weight was 10.7 per cent, but its loss in feeding value was probably a little larger.

The other silo was filled with cut alfalfa. The next day the silo was covered with two thicknesses of building paper and one of boards and weighted with stone to about 55 pounds per square foot. When covered, the silage was hotter than the hand could bear. Two days later the temperature had fallen to 83°F. and in two days more it had fallen to that of the air. The silage shrank and settled a good deal. When put in it contained 33 per cent of dry matter. On opening, the silo showed 2 inches of spoiled silage on top and half an inch on the sides. The spoiled silage was 7.3 per cent of the total weight. The loss in dry matter was approximately 10 per cent.

It is fair to presume that with a good tight silo, well made silage from cut alfalfa should not make a larger loss than was here given in our small experimental silo, or about 10 per cent of its feeding value. To make good silage from whole alfalfa is a much harder proposition. It requires that the alfalfa be quite green; that the silo be both tight and deep; that the alfalfa be thrown into the silo in small forkfuls and carefully tramped, and that it be weighted by 4 to 6 feet of some heavy, tight packing material like cut-corn fodder. If the alfalfa is put up in the middle of summer, in clear, bright weather, it must be raked and loaded as fast as cut. One lot we tried was too dry for silage two hours after it was cut.

Moldy Silage—Planting Sunflowers.

ED. HOARD'S DAIRYMAN:—I thought I would help J. M. M. & S. out in regard to their moldy silage. We had the same trouble for two years, when we found we were treading it too hard, so hard that it did not heat up to the desired temperature.

We had three men in a silo 13×15×27. For the last two seasons we just had one man in silo, and the result was perfect ensilage. N. P., Springfield, Vt., says either he don't feed it out fast enough, or he put it in too ripe. Neither would cause green mold, certainly not the former, for it is all through from top to bottom.

Then again it makes no difference when you open a silo. It can be as well opened as soon as filled as in winter.

It is not necessary to put anything over it, or weight it down, as N. P. suggests. The corn is about as inexpensive a covering as we can get, and it will not spoil more than six inches from surface. After it has decayed about so far down it becomes hermetically sealed by a white mold and will remain perfect under it for years.

Can any one tell me how much sunflower seed one should use per acre mixed with corn for putting in silo? Also what is a good variety, and how much does it cost a pound? J. H. J.

Morristown, N. Y.

See answer to G. H. W. on page 199.

Returning Pedigree Charts.

ED. HOARD'S DAIRYMAN:—I wish you would write an article calling attention to the fact that pedigree charts should be promptly returned. Many of your subscribers complain of this, and I have out several now that I can't hear from.

Moberly, Mo. C. R.

It would seem that a simple request to return chart after insepection would secure prompt compliance. It is quite a job to make out these charts, and unless sales are made, it would be no more than common courtesy to oblige the owner by returning them.

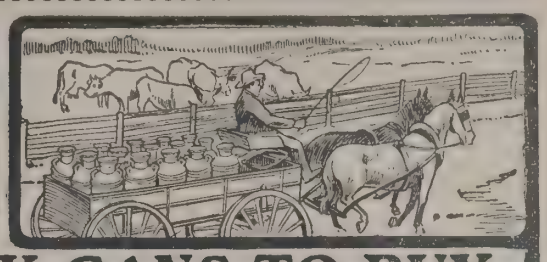
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not connected with any trust. In addition to a general line of creamery machinery and milk dealer's supplies, we manufacture such specialties as the **Dairy Queen Churn, Boyd Cream Ripener, Cream and Milk Vats, etc.** If you wish to build a combined butter factory on the co-operative and separator system, write us, and we will send a competent man to organize the company for you. We equip them on strictly sanitary lines, for which our improved appliances are noted. We publish a special appropriate catalog for every specialty and for every branch of our business. Write us for anything in the creamery supply line and we will mail free the proper catalogue.

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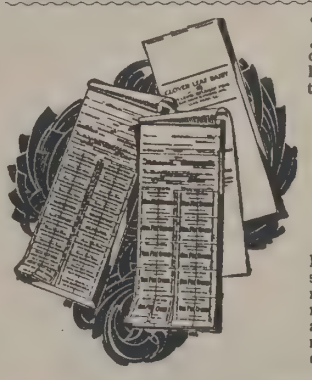


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represent the same maximum of superiority found in all cans bearing our famous Milk Can Trade Mark. They are made to be the **neatest, cleanest, strongest** and **most wear resisting** cans upon the market. It will pay you to know more about **Buhl Cans. Remember** the Buhl is the only can in the world that is made with the **Buhl "Victor" Can Breast** and the **Buhl "Victor" Round** handle that cannot cut the hands. We shall be pleased to mail you special circulars and other matter, which contain the helpful, money saving information you should have. When you read this you will know why there are more **Buhl Factory Cans** in use than of all other makes combined. Write us direct about cans and we will tell you where you can get them.

BUHL STAMPING CO.,
212 W. Larned St.,
DETROIT,
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IF you are still using the old-fashioned, square pasteboard milk tickets or checks, you are certainly way out of date. These dirty, sticky nuisances have been more prolific in spreading disease than any other one thing that goes into the family.

OUR COUPON SYSTEM OF.....

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Is complete from every standpoint. We make different size sheets with from 10 to 26 coupons, according to the selling price of milk. These sheets sell for $1.00 or 50c, depending on price of milk and number of coupons. They are well perforated for quarts and pints. The customer tears a coupon each day for amount of milk or cream wanted. It is used but once. This system furnishes a check on the driver, and is safe and convenient to use.

We shall be pleased to send samples and quote prices.

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Seed Corn is advertised by E. A. Clendenin & Bro., Colora, Maryland.

Do not buy a fence that may injure cattle, sheep, or hogs. There are such fences on the market. The Griswold Field Fence as a horse, cattle or hog fence is unequalled. It is also strong, durable and ornamental. The main features of a good fence lies in its construction and in this regard the Griswold Field Fence is scientifically correct. Its construction is such that it adapts itself to all inequality of the ground. Send for catalogue. The Dillon-Griswold Wire Co., Sterling, Illinois.

We wish to call the attention of our readers to the coming sale of Jersey Island stock to be held at Rushville, Ind., by Case & Walker, April 28th. Write for particulars of the stock offered as directed in the advertisement this issue. It's a grand offering and should be attended by many readers of HOARD'S DAIRYMAN

The following notice from Horace L. Bronson, Cortland, N. Y., regarding his recent purchase for the Star Farm Herd: "One of the important transfers of Holstein-Friesian cattle was made on Tuesday, April 7, 1903, when I purchased for Star Farm, of West Brothers, Syracuse, N. Y., their entire herd of 53 registered Holstein-Friesian cattle. Messrs. West Brothers purchased their foundation stock of these great breeders and importers, Dutcher & Son, of Pawling, N. Y., and other noted breeders. They obtained at the outset the very highest strains of blood possible for their foundation stock. They bought the best without reference to expense. They have used some of the best sires obtainable. There will be found in this herd sons and daughters of DeKol 2d's Alban, direct descendants of DeKol 2d, Pietertje 2d, Grace Posch's DeKol, Maple Kroft De Kol Posch, Daisy DeKol, Netherland Alban, Netherland Prince, Pietertje 2d, Koningen, Keyes Six, Clothilde 4th Imperial, Shadeland Consul, Neeta Paul's Son, Neeta Paul, (the sister of Pauline Paul) and other great cows and bulls of the breed. As a lot this herd is exceedingly handsome, large, beautifully marked and present a very pleasing appearance. There is combined in the herd, not only richness of breeding, but the highest individual excellence. My sales from Star Farm have been so heavy during the past six months that I found it necessary to replenish the stock. Not willing to accept anything but the best, I determined upon the purchase of the entire herd of West Brothers. I shall now be able to nick the blood of Pietertje 2d and 3d, DeKol 2d, Imported Shadeland Duke and Jessie, Grace Posch, Daisy DeKol and Clothilde 4th, with the blood of Johanna Rue 2d, Paul DeKol and Mercedes Julip's Pietertje. Am sparing neither trouble nor expense in improving Star Farm Herd, and cordially invite all interested in this breed of cattle, whether purchasers or not, to personally inspect the herd. Visitors are always welcome."

"We have used Zenoleum for a number of years with great satisfaction, and are still using it in large quantities. We consider it one of the very best disinfectants we have ever used, and in our judgment, it will do all that you claim for it." DUNHAM, FLETCHER & COLEMAN, Wayne, Ill.

In this day of labor saving machinery some sort of power has come to be well nigh indispensable on the farm. It is put to scores of profitable uses, such as pumping, sawing, grinding, churning, separating cream, etc. The varied line of engines running from 2½ up to 300 horse power, manufactured by the Weber Gas and Gasoline Engine Co., of Kansas City, Mo., and advertised in our columns, supplies what is admirably adapted to every possible need. These Gas and Gasoline engines are simple and perfectly safe, are most economical in the use of fuel for the power they furnish, and no experience or training is necessary to operate them successfully. Consult the advertisement and write the Weber Company for their free catalogue if you need anything in the power line.

The American Shorthorn Breeders' Association will Move Headquarters.

The business office of the American Shorthorn Breeders' Association will soon be removed from Springfield, Ill., where it has been located since January, 1894, to the new Live Stock Record Building, Union Stock Yards, Chicago, Illinois.

This move will be made as soon after May 1st as it is possible to pack and ship our effects, and we expect to be in our new quarters by Monday, May 11th, prepared to do business.

After May 5th patrons of the office will please send all communications to our new address as given above.

JOHN W. GROVES, Sec'y.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Heart Trouble.

I have a cow taken sick two months ago with a terrible grunting, and appeared short of breath, and in a few days she ceased making the grunting noise but refused to eat for a time. Then she began to eat good food such as middlings and corn meal with clover. In a week or two she began to eat less and now will eat scarce anything. She is now swollen very much from the under jaw, legs and brisket, and all she eats is a little skim milk and a bit of clover. G. A. D.
St. Paul, Minn.

ANSWER.

The cow has heart trouble for which the causes are very numerous. She will not recover, no matter what you may do for her but may live for several months; the time will depend upon her general strength and vitality.

Failure to Breed.

I have a registered Jersey heifer one year old that has come in heat and has been bred four times, coming in heat every 21 days. Is there any thing I can do to get her with calf? She is in good flesh. H. S. M.
Morrisville, Vt,

ANSWER.

If the heifer is in high flesh, this may be the cause. Reduce the flesh and change bulls.

Warbles.

Can you tell me of any remedy, or rather prevention, for gad fly grubs in the cows' back?
Heronsmere, B. C. O. A.

ANSWER.

See Warbles, page 134.

Warts.

Three cows have a small hard bunch under the skin about as large as a pea, on the lower part of teat. They show it causes pain when milking. It does not seem like a wart, but looks white.
Waterviet, Mich. E. A. S.

ANSWER.

The knife is the safest remedy, when she is dry.

Abortion.

Refer me to a copy of HOARD'S DAIRYMAN containing a description of treatment for abortion.
Cleveland, Ohio. C. T. B.

ANSWER.

See page 66 and 67 of the DAIRYMAN.

Milk Fever.

I notice you advise Schmidt treatment for milk fever in your issue March 6th. I am a new subscriber. Will you kindly advise me what this is?
Norwalk, Conn. M. O. C.

I have trouble with milk fever. Will you please give me the Schmidt treatment? J. S. W.
Clearfield Pa.

I see in your paper that you recommend Dr. Schmidts cure for milk fever and I see in January 2, page 978, column 4, that it is sterilized water or sterilized air. I wish you would explain what that treatment is and where I can obtain it.
California. D. W. G.

I am a new subscriber to the DAIRYMAN. Will you kindly print Schmidt treatment for milk fever in the paper? I have a cow that is dry and she has cut the end of one of her teats off, a piece about one-half inch long. She will be fresh in about two weeks. What treatment will she need? Please answer both questions in HOARD'S DAIRYMAN. A. F. STRONG.
Galena, O.

ANSWER

The Schmidt Treatment for milk fever as given by the DAIRYMAN'S Veterinarian is as follows:—

Dissolve 2½ drams of potassium iodide in a quart of water which has been previously boiled, and keep the solution as nearly as you can at the temperature of body blood. Then milk every drop of milk from the cow's udder, and clean with soap and water; when dry disinfect the udder and teats with a solution of Zenoleum or Chloro-Naptholeum (1 teaspoonful to a pint of water.)

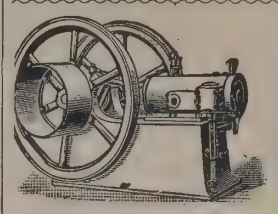
Then take a small glass funnel and attach to same a rubber hose about 4 or 5 feet long, affix to the end of this hose an ordinary milking tube, insert the milk ing tube into the teat and slowly pour in your solution, dividing it equally between the four teats; when this is done apply massage to the entire udder for 5 or 10 minutes every hour, until the cow comes to her feet. Do not allow the calf to suck while the cow is being treated. If the cow is costive, remove the contents of the rectum by hand. In case of a weak heart, small doses of aromatic spirits of ammonia may be given with water every hour; avoid large and bulky doses, or your patient may suffocate from same. If your patient is not on her feet in 8 or 10 hours, the above dose may be repeated, but it is rarely necessary. This is practi-



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as power for the dairy have passed the experimental stage. Many dairymen now have them and all eventually must have them. The only questions to decide are the amount of power needed, and the most desirable make. With twenty-seven years of experience behind us, and a plant that has grown from 50 engines a year to 1500 a year capacity, we feel that we are equipped to build the best. There are other reasons why the "OTTO" is superior. We will tell them in this space from time to time. If in the meantime you need power, write us, mentioning this paper

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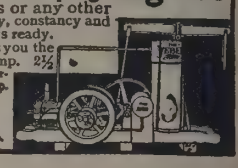


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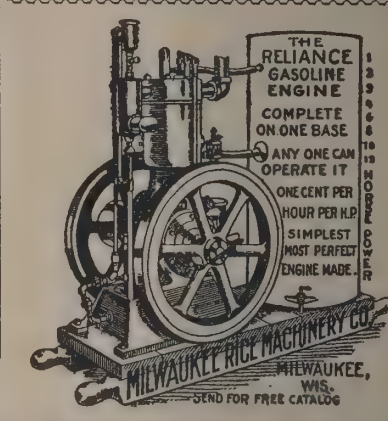




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ILLUSTRATION.



A special train of twenty-two large cars carrying nothing but Hapgood-Hancock Disc Plows left the Hapgood Plow Factory at Alton, Ill., on the Wabash, January 20 last, landing in Kansas City the afternoon of the 21st. This large train was profusely decorated with American flags and large banners proclaiming the contents of the cars, and at the rear of the train was placed a cannon, which boomed out salutes along the route. This is the largest single shipment of disc plows ever made, and shows the popularity of the Hapgood-Hancock line of disc plows among the farmers of the West. The farmers of Kansas will profit directly by this large shipment, as the entire $55,000 worth of plows in this train load are destined to Kansas points for spring demand in that state. The Hapgood Plow Company are exclusive manufacturers of the celebrated Hancock Disc Plow, and guarantee them to be the only absolutely successful disc plow on earth. Circulars and catalogues of this and all other desirable implements for farmers and ranchmen are sent free to our readers on request made direct to the makers.

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a two-cylinder gasoline engine, superior to all one-cylinder engines. Costs less to buy and less to run. Quicker and easier started; has a wider sphere of usefulness. Has no vibration, can be mounted on any light wagon as a portable. Weighs less than one-half of one-cylinder engines. Give size of engine required. Pleas mention this paper Send for catalogue. THE TEMPLE PUMP CO., ESTABLISHED 1853. Meagher and 15th St., CHICAGO.

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"It gives me much pleasure to state that we have used Zenoleum as a disinfectant in various ways about our live stock barns and stables, and have found it very satisfactory indeed for this purpose. We have used it as a sheep, cattle and swine dip, and have found it an excellent remedy for parasites of various kinds. I can recommend its use to stockmen generally for the purpose mentioned." PROF. W. L. CARLYLE, Madison, Wis.

Send for copies of "Zenoleum Veterinary Advisor" and "Piggie's Troubles" and see what others say about it. Books mailed free. Sample gallon of Zenoleum $1.50, express prepaid. "The Great Coal Tar Carbolic Dip." ZENNER DISINFECTANT CO., 34 BATES STREET, DETROIT, MICHIGAN. Five gallons $6.25, freight prepaid.

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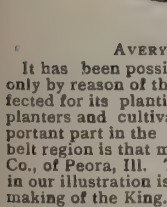
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Cures all species of *lameness, curbs, splints, contracted cord, thrush, etc.* in horses. Equally good for internal use in *colic, distemper, founder, pneumonia, etc.* Satisfaction guaranteed or money refunded. *Used and endorsed by Adams Express Company.*

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Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.

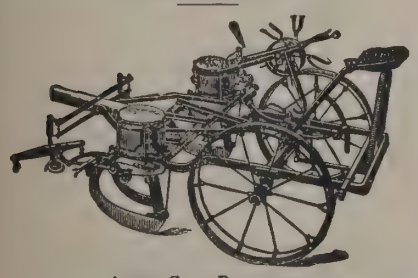
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Waukesha Co., Wis, 274 acres. 125 acres under plow; 104 acres oak timber; 40 acres hay land; a good orchard; fine buildings; good soil. A fine dairy farm and summer resort, ½ mile lake frontage. Price and particulars of **Hiles & Myers,** C-100 Matthews Bldg, Milwaukee, Wis.

ILLUSTRATION.



AVERY CORN PLANTERS.

It has been possible for corn to become King only by reason of the machinery that has been perfected for its planting and cultivation. A line of planters and cultivators which has played an important part in the development of the great corn belt region is that manufactured by the Avery Mfg. Co., of Peora, Ill. The Corn Queen Planter shown in our illustration is doing its full part toward the making of the King. It was happily named. It is the embodiment of those queenly qualities in highest form of usefulness which compel recognition and admiration from those who know what well adapted machinery at planting time means. Numerous features have singled it out for preference over other planters, prominent among which is the accurate and dependable drop. And on the matter of the drop depends, after all, the actual worth of the cultivator. The same device is employed both on the Corn King and Queen manufactured by the Avery Company. Drops on other cultivators are frequently changed in the hope of finding something to equal the Avery device which seems to be the type for many others to emulate. The Avery planters not only rest secure in their superior and exclusive droppers, but are highly valued on every point which goes to make the perfect planter. In making a selection of a planter, the Avery's should be among the first considered. No corn grower makes a mistake if he extends his investigations no further.

cally the Schmidt treatment, and is almost a specific.

The injured teat had better be kept clean with Castile soap and warm water daily until the sores are healed up. Make an occassional application of lard to keep the parts soft.

Ticks.

I have a horse which has, I think, wool ticks. They are gray color, small head, numerous legs and about as large as the end of my little finger and flat. They bury in the hair and seem to be filled with blood. What is their nature, and what must I do to get rid of them, and what is the cause, effect on the horse, and what are they called? X. Y. Z.

Fort Atkinson, Wis.

ANSWER.

We cannot tell without a personal examination.

Mud Fever—Stock Food.

What can I do for a horse whose legs below knees and gambrels have lately become somewhat swelled, feverish and tender to the touch, hair seems to loosen up in spots and scabs appear. Horse has been worked for several weeks in very deep mud. People here call it mud fever, but I can't find any such name in any doctor book or in any of the back numbers of the DAIRYMAN,

Will you give formula for a good medicinal stock food such as ——which sells for from 8 to 10 cents per pound, and which we are told and have reason to believe, is composed largely of charcoal, salt and oil meal. W. R. R. C.

Gilbertsville, N. Y.

ANSWER.

1. Mud fever is due to exposure to the mud and allowing the same to dry on the legs, which irritates the skin and causes it to crack and become inflamed. Wash the parts clean with castile soap and rain water twice daily and apply a warm linseed poultice over the sores after each washing for three or four days. After this you may apply an ordinary oxide of zinc salve once daily. Give one to two ounces of sulphate of soda in drinking water once daily.

2. There is no stock food better and healthier for your stock than that which grows on your farm, if it is pure and clean.

It is no more advisable to be constantly administering medicine to stock than it is for man to be doping himself continually. The time to give medicine is when an animal is sick, then you must apply the remedy that is indicated in its particular case in order to derive a benefit. In any other way medicine is of no use whatever, and in some cases harmful.

Is Garget Hereditary?

J. S. Martin, Tillamook, Ore., asks if garget can become a chronic disease, also is it hereditary. He has a cow whose ancestors he has traced back for 4 generations and he finds that this cow as well as her mothers, have been afflicted with it.

ANSWER.

As far as known to the present day, garget in itself is not hereditary, but the weakness and lack of resistance of these parts is very often inherited from the mother.

The Schmidt Treatment for Milk Fever.

The directions for administering the Schmidt treatment say, "let the solution remain in the udder about twenty minutes and milk out." Direction given at another time say nothing on this point. Please tell us through your columns whether the potash solution will do any harm if allowed to remain in the udder several hours.

CLOVERLAND DAIRY FARM.

St. Bernard Parish, La.

ANSWER.

You have never been directed in these columns to milk out the solution of iodide of potash at all. The solution remains in the udder until it is taken up by the circulation, and before it has so been taken up, you will see no results. What would be your object to inject it if you were to milk it out again? You must not forget the manipulation of the udder after the injection.

The Schmidt treatment as given by me will be found in answer to A. F. Strong, Galena, O. I cannot account for any other statements in this paper but my own, which I am ready to back.

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all liniaments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*

Every bottle sold is warranted to give satisfaction. Price **$1.50** per bottle. Sold by druggists, or sent by express, **charges paid,** with full directions for its use. Send for descriptive circulars.

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COWS RELIEF

Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.

Used Exclusively at Model Dairy

Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.

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is guaranteed, or Money Refunded, to cure Collar or Saddle Galls on horses under the harness while the horse is worked. Equally sure for all cases of **Chaps, Bruises, Cuts, Mud Scald, Scratches, Grease Heel, Rope Burn, etc.**

BE SURE AND WORK THE HORSE

The above trade mark is a guarantee to the public of **strength, purity and genuineness.** Beware of imitations. Substitutes yield the dealer more profit, but cost you the same. Sample by mail 10 cents. It's enough to cure one horse. Best thing known for **Chapped and Cracked Cow's Teats.** Write to-day.

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No quackish humbug but a scientific fact. Works on same principle as antitoxin injection in man for diphtheria, destroying poison in system. Out of 110 cases treated in Portland, Mich., 109 recovered last year. Easily administered with a syringe. Inexpensive. Write for particulars to **DR. W. E. A. WYMAN, V. S., Prospect, Ohio**

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Retention of Placenta and Failure to Breed.

KELLOGG'S CONDITION POWDER is a positive cure for these diseases. Write for circular containing full information, references and price.

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POSITIVELY AND PERMANENTLY CURES bone and bog spavin, ringbone (except low ringbone), curb, thoroughpin, splint, capped hock, shoe boil, weak and sprained tendons and all lameness.

——FOOL TALK——

About 35 years ago a young mechanic called on old Commodore Vanderbilt, then head of the New York Central Railroad, in an effort to secure a trial on a New York Central train of a new device for stopping trains by compressed air.

"Air!" the Commodore is said to have exclaimed. "Air! Stop a train with air! I've not time to listen to such 'fool talk,' young man," and he didn't. Neither would anyone else for many a long day

George Westinghouse, for he was the man of the "fool talk," believed in himself and the utility of his invention. He kept right on in spite of Commodore Vanderbilt and the others till he forced recognition. Would a man trust himself aboard a passenger train today if he knew that train was not fully equipped with Westinghouse's invention—the air brake? It is said that Vanderbilt's road had some difficulty in getting it when finally it was wanted.

Many a man says "fool talk" when he reads the claims made for "Save-the-Horse" spavin cure, but the dawn of enlightenment is as certain as the rising of the sun, and the man who says "fool-talk" after reading the facts so plain and convincing as given by us, reaffirmed by the letters published in these columns every week, and in our booklet, is repeating Commodore Vanderbilt's mistake. No man need be in doubt as to what "Save-the-Horse" spavin cure can, and cannot, do. If you have a case different from what are described in booklets and advertisements, send us full particulars as to the age, location, cause of the lameness or swelling, the horse's action, previous treatment, and also the veterinarian's diagnosis, if you know he is competent, and we will tell you frankly as to the possibilities of our remedy. Write for booklet and copy of guarantee and any information desired.

Heed this:—

Work horse continuously if desired.

"Save-the-Horse" cures without scar, blemish or loss of hair.

Contains no arsenic, corrosive sublimate or other form of mercury or any ingredient that can injure the horse. $5.00 PER BOTTLE.

Written guarantee with every bottle.

There is no condition or arrangement we can make more binding to protect you than our guarantee.

NEED OF SECOND BOTTLE IS ALMOST IMPROBABLE EXCEPT IN RAREST OF CASES.

$5.00 at all druggists' and dealers', or express prepaid.

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Also Veterinary Pixine, for grease heel, scratches, speed cracks, cases where ulcerations extend, with transverse cracks which open at every step and often bleed, no matter how complex, aggravated, deep seated or chronic; if treated according to directions, as given on circular with every box, positively cured.

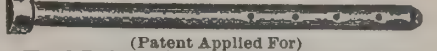
KEEPS HOOFS HEALTHY, SOFT AND IN PERFECT FORM.

Heals collar and saddle galls, hopple chafes, abcessess and all skin diseases.

Two oz., 25c.; 8 oz., 50c.; 5 lb., $4; all druggists and dealers, or sent prepaid.

ABORTION,

Failing to Breed and to bring Cows to Heat. Sure Cure. In use 20 Years.



(Patent Applied For)

Hard Rubber *Safety* **Milk Tubes and Dilating Plugs** to cure hard milkers and a teat **Bistoury.** Send for testimonials.

Dr. WM. HORNE, Janesville, Wis.

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Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each **Blacklegoid** (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. **Blacklegoids** are sold by druggists; *ask for them.*

Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.

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BARREN COWS CURED.

Our treatment has been used successfully since 1878 in every state in America, Canada and Great Britian. Write for Pamphlet.

MOORE BROS., Veterinary Surgeons, Albany, N. Y.

CURE "THE" COW

NO CURE, NO PAY



WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address

DR. EATON J. CROSS,

152 Congress St., Troy, N. Y.

Clarified Milk.

ED. HOARD'S DAIRYMAN:—In your paper for March 20, page 132, is an article by F. L. Marion, of Mass., with the above headline which I think deserves a reply. Mr. M's. assertion that clarified milk is not milk simply on account of the strong tearing apart force of centrifugal separation and following remixing of the cream and skim milk, is certainly unwarranted, as is also the idea that the small amount of solids removed in the slime, besides impurities, by the centrifugal force should deprive the milk of any particularly sanitary properties.

In a perfectly sweet milk the amount of slime is so small that it could not be of any importance. It is quite natural that Mr. Marion does not favor the idea of clarifying milk, because that very process in connection with pasteurization is making it possible for the City Dairy Co. Limited (as Mr. M. calls it) to successfully compete with those few dairymen, who, like Mr. M., are located near enough to the cities, and possessing modern sanitary facilities.

As I have said before, unfortunately such pure, sanitary raw milk, which can be honestly guaranteed as free from any disease germs or preservatives is so scarce and so expensive, that only very few people can get it or are able and willing to pay the high price. Certified milk, guaranteed by individual producers or by milk commissions certainly cuts no figure whatever in the milk supply of any city, though both health boards and medical societies have strained every effort to push it.

I would like to know what Mr. Gurler of DeKalb, Ill., and other prominent producers of certified milk, who are running all their milk through a separator for cleaning purposes, would answer to Mr. Marion's assertion.

Mr. Marion says, that the clarifying process is of less public benefit than pasteurization, and in this I agree with him. While centrifuging surely removes every particle of impurities which have found access to the milk, still it has been well proven that it has slight effect in removing bacteria, which in fact often are increased instead of lessened, because the milk is held at a favorable temperature for their growth and often exposed to impure air. Thus for city milk supply clarifying alone will rather shorten its keeping quality, if it is not followed by careful pasteurization.

Mr. Marion is perfectly correct when he says, "milk should not need clarifying" (as I sincerely hope his does not) and I have wondered somewhat that even H. B. Gurler clarifies his milk, which comes from a dairy as carefully kept, I am sure, as Mr. Marion's. But as long as millions of young children live in our cities, there is only one practical way to supply them with sanitary milk, and that is by clarifying and proper pasteurization. Mr. M. says: The thing to insist on is sanitary conditions in stables and scientific cleanliness in milking and——Sure! we all agree to that, but what has all that insisting accomplished?

Mr. Marion is entirely right when he suggests that "milk on each route should be milk from the same dairy each delivery," but the suggestion is absolutely impractical for a large business. Purity and uniformity are the two essentials required for an ideal milk supply, and such can only be gained by a thorough mixing of the milk from the various dairies every day, and by then clarifying and pasteurizing it and at once filling it in sterilized bottles for delivery. That this method is successful, as well as practical from a milk dealer's standpoint, also can be seen from the rapidly increasing introduction of pasteurization by one large milk supply firm after another.

A CREAMERY FOR 25 COWS.

On page 132, March 20, is an inquiry and reply under above headline. While otherwise your plan may be all right, I am sorry that you did not consider at all the advisability of pasteurizing in such a well arranged, private creamery. While I do not believe in a great future for private dairy creameries, still when shipping of the milk to creameries is impracticable, I believe that such small private buttermaking dairies should be arranged up-to-date.

If cold water can be had in any abundance, it certainly will pay well to adopt pasteurization of all cream for buttermaking. It will mean a great convenience and saving of time, because if the fresh cream from the separator is pasteurized at once and cooled to 55° or lower, it may be held in absolutely perfect condition for 3 or 4 days, then ripened and churned twice a week, and make the finest article of butter of the greatest keeping quality. I have tried it and know and advise your inquirer to think it over.

Canton, O. J. MOLDENHAWER.

Time for Dehorning.—Destroying White Clover in Alfalfa.

ED. HOARD'S DAIRYMAN:—Having read in a recent issue the inquiry of one J. H. W., Casky, Ky. "When to dehorn," it is getting rather late to dehorn this spring, but if his cattle are only 12 or 18 months old, there is time yet. If he is afraid of flies he can put on a little pine tar. Dehorn with a saw. Cut so there will be a fringe of hair all around the horn after it is off. It will heal quicker and there will be no stubs or scars. After a calf is 4 months old the horns are big enough to cut off, but be sure and cut close and there will be no stubs.

Mr. N. B., Faribault, Minnesota, wishes to know if alfalfa can be threshed with a common thresher. It can. Also what is an average crop? I don't think there is such a thing as an average crop. Here in Kansas, it runs all the way from 1½ to 10 bushels. If the weather is hot and dry, when the alfalfa is blooming the yield will be good. On the other hand, if it is wet and cloudy it will be a failure. He can harrow his alfalfa, it will do it good, but I don't think it will kill out the white clover. If the alfalfa is old enough I think he can disc the clover out by going over the ground both ways. I have some alfalfa that was sowed 3 years ago and also some that was sowed September 1901. I have disced all of it and am disking the old stand the second time. M. H.

Topeka, Kans.

Prof. Roberts' Book.

Please inform me where I can get Prof. Roberts' book, "The Farmer's Business Hand Book."

W. Webster, N. Y. D. M. W.

We are not informed as to the name or address of the publishers. Write to Prof. I. P. Roberts, Ithaca, N. Y.

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W. M. WOODWORTH, Greentown, Ind.

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360 acre farm, 4½ miles from Crookston, Minn., (a city of 7,000 inhabitants), and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 ft. square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x14. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm in under a high state of cultivation, and is well drained by a slight ravine running through the farm, merely sufficient for self drainage. The soil is a rich deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50.

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Note and Comment.

Eastern and Western Dairymen.—Beef vs. Dairying.—Rations and Standards.

ED. HOARD'S DAIRYMAN:—The winter's campaign of institutes is over and the "invaders, (horse, foot and dragoons)," have returned to their homes, and I suppose ready "to shoulder their crutches and tell how fields were won." For "yours truly," whose circuit reached from Albany, N. Y., east, to Fargo, west, he has only pleasant things to remember, indulgent crowds, friendly listeners who let him down easy, and at one institute even went so far as to invite him to come again.

There is a wide distinction between the eastern institute and the one in far west, though this last is a hard place now to exactly locate. The eastern dairyman is more "sot" in his ways, but fast coming to see that something has soon to be done to adjust himself to the rapidly changing economics of the farm industries. The western fellow is already in the stage of adjustment, and is rapidly changing to a diversified system of farming from the all wheat.

The eastern man is concentrating more and more about the cow as his best industry. The western fellow has so much land, waste feed and fresh air, that he is trying to make of himself a dairyman, beef maker, hog keeper, horse raiser, and wonders why he cannot keep sheep, have a poultry yard and ride in an auto. At the institutes he wants to hear about all of these things. To do so, they turn out by the 500 at an institute—sometimes a thousand—and listen with evident approval to whatever comes.

In Minnesota the dairy talks were always well received. The thought is that a dairy cow can be good in many ways. A dual-purpose cow is not quite enough. She in addition must be a rustler and go with the steers, and grub the stalk lots in all weathers, and still be a dairy cow. Of course, it is the pioneer dairyman out on the border who believes this, and others who imagine that any cow is as good as another if fed as much corn meal.

In the dairy counties are hundreds of the best of dairymen, and as far advanced as any in methods. One can tell the dairy counties at a glance, better buildings, finer barns, and a thrifty look about the farms that tell of fertility, rotation of crops, and progress. Still I want to commend some of the fellows out on the border for pushing on the dairy column. Many a creameryman out there is hanging on by his eye winkers, doing every way to promote the business and get farmers interested in dairying. I recall one man, a Mr. Shay—I think at Slayton—holding on through all discouragements, but stays and actually making 300 lbs. of butter a day this winter from the milk picked up on that wind-swept prairie, and the farmers now see that this means an income; and the dairy, care of cows, stables and the like, were the features of that institute.

There is a spirit rife on the border that beef should be the one, and one alone, great object sought, and any mention of a cow that is less than three feet wide on the back and weighing less than 1,600 pounds invokes a protest. Beef is a great commodity and good prices for it stimulate the thought that it is better to have a cow that gives some milk and makes lots of beef, than a dairy type that gives lots of milk and less beef. But the other half of the story is, that it is supposed to be less work to raise a steer than to milk a cow, and by the looks of thousands of steers I saw roaming the cold, wind-swept stalk fields without any seeming care, or hugging straw stacks, it looked as if the steer was neglected quite as much as his sister. The great lesson to be learned on the border is, it takes special cattle to secure special profits. It needs winter care of stock that makes their living something different from a feast and famine, a saving of fertility, and all of it a thing hardly known, and if known, not visibly practiced much, and as a dairyman, making a distinction between steers and cows as to care, feeding and environment. Along this line the institutes are doing a great work, and I look to see the creameries and the dairies doubled in the next ten years. It pleased me to see the strides already made, for there is a great future before the dairymen of Minnesota, and the quicker they separate the combined milk and beef idea, the sooner will both realize their cherished dream of best results.

My good critic of Ellicottville, N. Y., fails in his understanding of the case of feeding for profit. A balanced ration may cost so much that its profitable feeding is out of the question, and the margin can only be secured by feeding a home-grown or purchased wide open one, until prices again adjust themselves. It is not true that a balanced ration is always a profitable one. It is in adjusting one's self to conditions, and be as ready to re-adjust, that makes profits nowadays.

It is only three years ago that the experiments were inaugurated as to what use cows made of certain elements of their food, and what would result if certain elements were entirely removed. It was found that nature in some way made substitutions, and in others there was no answer as to where some portion of the elements went, in fact, was unaccounted for. Cows for long times performed exceedingly well on a one-sided ration, and in others it would seem that the succulent starches would for a while partially take the place of much protein. The idea at the great meetings I have attended this past winter has been that with the feed largely succulence, like silage, a much wider ration can be fed than could be with the same feeds fed in a dry state. The concensus, though possibly not expressed in Roosevelt's best United States, was that less protein could be fed milch cows and get good returns, and I may have hinted that the old German standard might have been a little strenuous. It was based on what might be called physiological reasonings, that certain elements of food went to support certain bodily functions, that fat in milk could not be made from the starches. Now Prof. Jordan says that fats in the tissues of the body and in the milk glands can be sustained by the carbon part of the ration. I hold that the young, growing animals must have protein to the full amount, but the mature animal may, under certain conditions and circumstances, give us good results on a more wide open ration, and the feeding of the past two years, the time of extreme prices for protein, has shown that the home grown ration may be profitably used to boycot the the commercial price of proteins.

One of the pleasant things I note in my travels is the inquiry made about the summer silo as a method of summer soiling in place of reliance on catch crops. The testimony in every case was most favorable and satisfactory. We have always found that summer silage took the place of grain, if not balanced, and the shrinkage of milk was very small, showing that it is not the season, but the ripening and drying of the pasture grasses that caused the shrinkage. This the silage prevented when fed in amounts of 30 to 35 pounds a day. I see in friend Baker's experience (page 106), a suggestion about clover silage that may be a great aid in the matter. When in the Puget Sound dairy section, I found the dairymen siloing their clover and the report was that the wetter it went into the silo the better it came out, and from my knowl-

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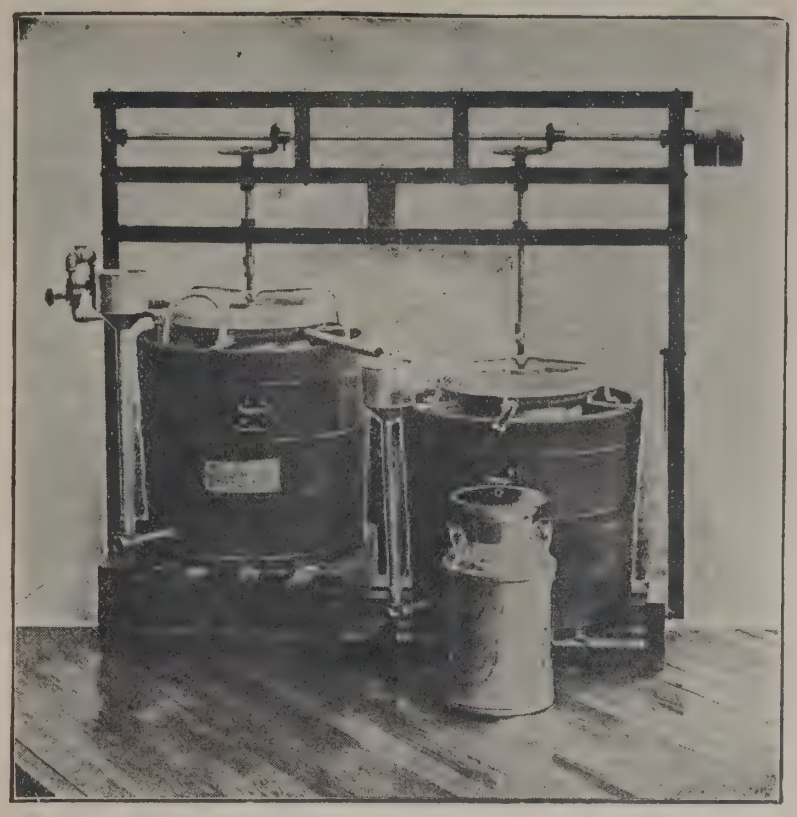
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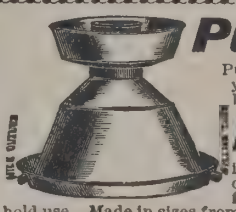
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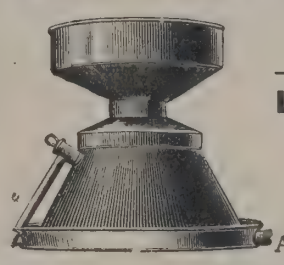
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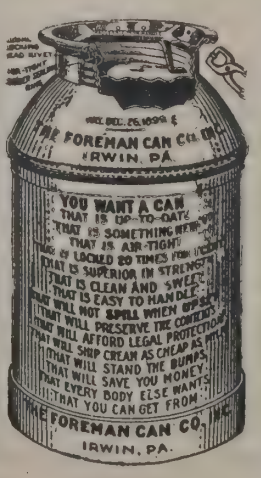
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edge clover should not be wilted, but go onto the wagons right from the cutter-bar, and a few gallons of water to each load would still prove a good preservative. I well remember Bushrod Conant selecting rainy days to fill his clover silo, and while some, like Baker's, spoiled, the greater part came out fine and was eaten with great relish by the cows. I am sure we are on the eve (?) of a great advance in summer silage and may Hoard's be the advance courier to proclaim its success. JOHN GOULD.

Ohio.

Expert Grass Management.

Four tons of hay per acre is the achievement of George D. Leavens of Grafton, Mass. Unlike the friends of the Clark system, Mr. Leavens lays even more stress upon top-dressing than upon cultivation. The trouble is, he says, that most farmers expect a single dressing to last four or five years. His methods, however, somewhat resemble those of Clark. The following extract from his paper read at Worcester, Feb. 28, gives an idea of the system followed:

In preparation of the soil the furrow should be deep. The turning over by the furrow-slice does not give as good results as to leave the furrow-slice standing erect where it can crumble away. The object of plowing is to pulverize, aerate and warm the land. A heavy, cutaway, wheel harrow is the best to use, and it should be kept going fifteen or eighteen times. Riding a harrow is as good for one as an ocean voyage and has about the same rolling effect. This harrowing puts the weeds where the sun will reach and kill them.

Persistent harrowing is necessary to produce a perfect seed bed, warm and mellow. I don't believe we can make the preparation of too much importance. If lime is used, it should be mixed in thoroughly with the harrow. All stones and litter should have been removed. After harrowing with the cutaway harrow is the best time to apply chemical fertilizers. Then a spike harrow should be used to level the ridges, make the soil even and mix in the fertilizer. Then comes the brush harrow or the weeder—I always use the latter.

Before undertaking the sowing of the seed it is well to calculate the size of the field. A field should always be cross-seeded. Care should be taken to sow the whole field or the bare spots will amount to considerable percentage. After another going over with a brush harrow or weeder, the roller presses the seeds down and starts the capillary action which puts the seeds in growth.

I prefer the last of August or the first of September as the time to sow. I wish to speak emphatically against the practice of sowing grass seed in standing corn or grain crops. The ground cannot serve two masters, no more than a man can. The best thing to sow with grass is plenty of grass. The next spring the crop should have a top-dressing of chemicals. A field treated in this way will be fresh and green when others are dry and frozen. Three formulas of fertilizers were given with their component parts and the results. The first was as follows:

Clark's formula per acre; Nitrate of soda, 160 pounds; muriate of potash, 160 pounds; fine ground bone, 480 pounds; total eight hundred pounds. Furnishing organic nitrogen, 14.4 pounds; nitrogen as nitrate, 25.6 pounds; total nitrogen, forty pounds; actual potash, eighty lbs.; available phosphoric acid, 28.8 pounds; free lime, none. Cost for nitrate of soda, $3.36; muriate of potash, $3.20; ground bone, $7.20; total, $13.76. Tons of hay per acre, five; cost of fertilizing per ton of hay, $2.75; selling price of hay per ton, $15 to $18; value of hay per ton over cost of fertilizer to produce it, $12.25 to $15.25

The second formula was that used by Dr. Wheeler of the Rhode Island Agricultural Station. Dr. Wheeler had had some very wonderful results in raising grass on land that was hardly able to raise anything before he fertilized it. His formula is as follows:

Nitrate of soda, 350 pounds, muriate of potash, three hundred pounds; acid phosphate, five hundred pounds; total, 1,150 pounds. Furnishing, nitrogen (all nitrates) fifty-six pounds; actual potash, 150 pounds; available phosphoric acid, sixty-five pounds; free lime, none. Cost, nitrate of soda, $7.35; muriate of potash, $6; acid phosphate, $3.50; total cost, $16.85. Tons of hay per acre, 4.5; selling price of hay per ton, $15 to $18; value of hay per ton over cost of fertilizer to produce it, $11.26 to $14.26.

The formula used by Mr. Leavens himself he called the Grafton formula. He called attention to his use of basic slag and to the large amount of free lime produced. The use of this mixture, he said, gave better results on his soil than either of the other formulas. He attributed it largely to the lime which was valuable in his heavy and damp soil. The formula he used in 1902 was Grafton formula, 1902, per acre: Nitrate of soda, 200 pounds; muriate of potash, 200 pounds; basic slag, 400 pounds. Total, 800 pounds. Furnishing nitrogen (all nitrates), 32 pounds; actual potash, 100 pounds; available phosphoric acid, 64 pounds; free lime, 183.2 pounds. Cost, nitrate of soda, $4.20; muriate of potash, $4; basic slag, $3; total, $11.20. Tons of hay per acre, four; selling price of hay per ton, $15 to $18; value of hay per ton over cost of fertilizer, $12.20 to $15.20.

A formula which Mr. Leavens said he was going to use is this: Grafton, 1903, per acre: Nitrate of soda, three hundred pounds; muriate of potash, 250 pounds; basic slag, four hundred pounds; total, 950 pounds. Furnishing nitrogen (all as nitrate), forty-eight pounds; actual potash, 125 pounds; available phosphoric acid, sixty-four pounds; free lime, 183.2 pounds; costing, nitrate of soda, $6.30; muriate of potash, $5; basic slag, $3; total $14.30.

If one dressing is to be made a year, he said, he would recommend Clark's formula; if more than one dressing, the formula he was using at present. (Grafton, 1903).

He spoke of the importance of lime to the soil. Many kinds of grass will not grow in acid soils. Wood ashes and quick lime are most commonly used. Wood ashes cost a little more, but it is easier to handle.

On a chart Mr. Leavens had a number of seeding mixtures which he said gave good results. They were as follows: Timothy, 22½ pounds; redtop, twenty pounds; red clover, six pounds; total, 48½ pounds. This he said was the heaviest mixture he ever used and required a good deal of top-dressing. Other mixtures: Timothy, sixteen pounds; redtop, sixteen pounds; red clover, eight pounds; total, forty pounds.

Timothy, fifteen pounds; redtop 7½ pounds; red clover, 7½ pounds; total, thirty pounds.

Timothy, 19.50 pounds; redtop, 15 75 pounds; red clover, 7.50 pounds; total, 42.75 pounds.

Timothy, 20 pounds; redtop, ten pounds; total, thirty pounds.

Italian rye-grass, eight pounds; orchard-grass, ten pounds; red clover four pounds; tall oat grass, eight pounds; tall fescue, ten pounds; total, forty pounds.

Redtop, thirteen pounds; orchard-grass, eighteen pounds; meadow fescue, nine pounds; red clover, four pounds; total, forty-four pounds.

American Cultivator.

American Short-horn Herd Book.

We have received Vol. 54 of the American Short-horn Herd Book. This volume contains the pedigrees of bulls numbered from 189533 to 194183 both inclusive, and also the pedigrees of 6806 cows. This volume is now ready for general distribution, the price of same being $3 at the office of the secretary, or $3.30 prepaid.

JOHN W. GROVES, Sec'y.

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George S. Bement, Victor, N. Y.:—I am very much pleased with the Feeder and would not be without it for $10. No trouble, no damning, no milk on your clothes, no trouble to teach the calves to take hold of it, no sucking the cows, and the best of all is that when they get about eight weeks old they don't stop for the nipple but just drink out of the pail.

The Principle is Correct.
Purdue University Agricultural Experiment Station of Indiana, LaFayette, Ind.:—We have been using the Feeder to some extent and it is in constant use at this time and we believe it to be very satisfactory in its work. The principle of **Your Feeder,** I believe to be the correct one. C. PLUMB, Director.

Advise Stock Raisers to use it.
Maryland Veterinary Hospital:—I am very much pleased with the Feeder and would advise stock raisers not to be without one.

Price $1.50 including two nipples, sent postpaid for $1.75. We guarantee satisfaction, but if you are in doubt about its value we will send one on approval for 50c to cover postage, remainder to be paid if satisfactory. **Be Sure** and send for our twenty-two reasons why you should use a feeder. It's free. Sold by one dealer in a town.

O. H. MANUFACTURING COMPANY, DEPT. H, LYNDON, VERMONT.

DR. REA'S IMPROVED **CALF FEEDER**
Established 1892.



Galvanized castings. Will not rust. Seamless rubber nipples, reinforced, cannot split. Makes fat calves. Price,

ONE DOLLAR.

Satisfaction guaranteed or money refunded. Booklet free.

Dr. CHAS. L. REA, 220 E. 32d St., New York



CLEARING LAND with JUMBO STUMP PULLER. Send for my catalog of JUMBO, CLIMAX & CHIEF Stump Pullers before buying. Can save you money. Also make DITCHERS, house-moving CAPSTANS & bog land Cutters. C. D. Edwards, Albert Lea, Minn



SENT out under positive guarantee. Money refunded if not satisfactory. No bolting food. Perfect digestion. All tinned—no rust.

KEYSTONE CALF FEEDER

Patented under No. 721,884. Used in about forty experiment stations. Mass. Ag'l College writes as follows: Mr. M. T. Phillips, Dear Sir:—I write to say that the Calf Feeder is giving excellent satisfaction. We have found it to be all one could ask for in a feeder. It is easily cleaned and appears to be durable. Yours truly, E. A. JONES, Supt. Complete with extra nipple, $1.50, express prepaid. Circulars free.

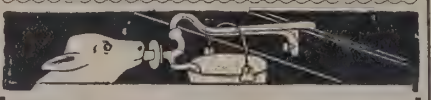
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Ensilage Cutters, with Blowers or Chain Carriers. Ensilage and Stalk Shredders. Tread Powers, all sizes from dog or sheep to 3 horse. Sweep Powers. Threshing Machines. Circular and Drag Saw Frames.

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ONLY BALL AND SOCKET CALF FEEDER

on market. Nipple moves freely in any direction as in nature. Many other original features. Not an imitation but most improved feeder made. Result of years practical experience. Approved and used by experiment stations. Easiest to clean, strongest and most durable. Price..... **$1.50**

or $1.75 prepaid. Free circular tells why this feeder is the best. Write the manufacturers today. **MAHLER BROS.,** 34 La Salle St., Chicago, Ill.

AN ACRE OF CORN

and its possibilities under the Silage system—being the theme of

"A BOOK ON SILAGE"

By Prof. F. W. WOLL

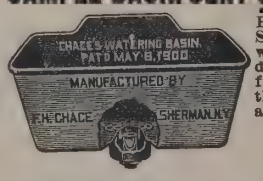
of the University of Wisconsin. Revised and up-to-date, neatly bound into a volume of 234 pages. It embraces full information from planting to feeding the crop, and includes working plans and specifications for building all silos. Also embraces:

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And illustrations and complete plans for round and rectangular silos, dairy barns, tables of compounded rations, etc. **Mailed for 10c.** coin or stamps.

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Basins are fitted with **Self Closing** Cover which prevents all dirt and sediment from getting into them. Send for catalogue and price list.

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Absolutely perfect. Water always fresh.
Soon pays the cost. Send for catalogue.
Cheapest because best. No disease where used.



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SELF CLOSING LID.

Pure white Porcelain. No rust, no filth, no splashing. **D. H. Bausman,** Bausman Lane Co., Pa. Iron, Pig, Chick, and Stock Troughs.



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A constant stream in your house, barn or garden without running expense by using the

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It never stops. Requires no attention. **Sold on 30 Days Trial.** Send for free book.

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Time Tells On Butter.

It tells a good deal faster if the company it keeps is not good. But butter goes through commission houses and stores, and associates with cheese and vegetables, absorbing flavors not its own. But you can preserve the purity of your butter if you wrap it in

PIONEER BRAND
Parchment Paper.

Without any smell or taste itself, it shuts out every foreign odor and keeps in its delicate, sweet flavor. A purely vegetable paper, made in any size or shape to suit your wants. We print your name or brand, as desired, on every sheet and guarantee it never to rub off or discolor its contents. Free samples which we are sending out never fail to interest dairy people in **Parchment Paper.** Write for them and ask for copy of our book, **"Better Butter."** Also free.

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No. 37 8th St., Passaic, N. J.

A woman has used a lamp chimney of mine for fourteen years.

What a jolly good time she has had!

My name on every one.

If you'll send your address, I'll send you the Index to Lamps and their Chimneys, to tell you what number to get for your lamp.

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Rider Agents Wanted

in each town to take orders for our new High Grade Guaranteed Bicycles.



Now 1903 Models

"Bellise," complete $8.75
"Cossack," Guaranteed High Grade $10.75
"Siberian," a beauty $12.75
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no better bicycle at any price.

Any other make or model you want at one-third usual price. Choice of any standard tires and best equipment on all our bicycles. *Strongest guarantee.*

We **SHIP ON APPROVAL** C. O. D. to any one *without a cent deposit* and allow **10 DAYS FREE TRIAL** before purchase is binding.

ESTABLISHED 12 YEARS

500 Good 2nd-hand Wheels $3 to $8.

DO NOT BUY a bicycle until you have written for our free catalog with large photographic engravings and full descriptions.

MEAD CYCLE CO. Dept. 216 Chicago.

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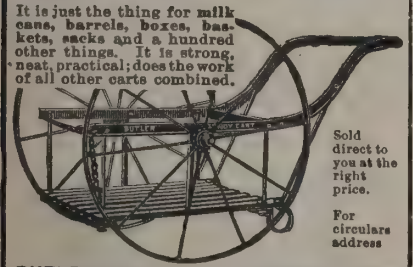
We will send any bicycle to any address with the understanding and agreement that you can give it **10 DAYS' FREE TRIAL** and if you do not find it easier running, handsomer, stronger, better finished and equipped, more up to date and higher grade than any bicycle you can buy elsewhere at $5.00 to $15.00 more money, you can return it to us at our expense and you will not be out one cent.

$10.95 Buys our new **HIGH GRADE 1903 NEWTON BICYCLE**, which we guarantee stronger, easier riding, better equipped; better frame, wheels, hubs and bearings than you can get in any other bicycle for less than $20.00.

OUR 1903 NAPOLEON BICYCLE is priced at about **ONE-HALF** the lowest price asked by others. For **Free Bicycle Catalogue**, hundreds of price surprises in bicycles and supplies, **our Free Trial and Guarantee Proposition and our Most Astonishing Offer**, cut this ad. out and mail to **SEARS, ROEBUCK & CO.,** CHICAGO

Butler's Cart

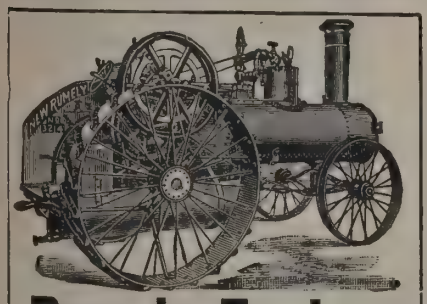
It is just the thing for milk cans, barrels, boxes, baskets, sacks and a hundred other things. It is strong, neat, practical; does the work of all other carts combined.



Sold direct to you at the right price.

For circulars address

BUTLER MFG. CO., Kensett, Iowa.



Rumely Engines

both as to traction and generating and supplying power, are typical of all that is best for threshermen. They are rear geared, gears are of steel, cross heads and slides are protected from dust, they are free from all trappy devices. Single or double cylinders, burn wood or coal, or direct flue for burning straw. Fit companions in the threshing field for the famous **New Rumely Separators.** Free catalogue describes all. Write for it.

M. RUMELY CO., La Porte, Indiana.

Something on Writing and Top-dressing.

ED. HOARD'S DAIRYMAN:—I write so scrawly that I don't mind when a compositor makes a few little errors like making me "cast" a load of hay from one field to another instead of cart it, but one of your compositors last week did worse than that. He made me say "damn." It is tradition in Connecticut that the old traveling tinker, when he struck a difficut job put a little dam of sand around the hole to keep the solder from running away, and when the work was done blew it away. It was worthless. If I thought the compositor mistook my writing, I shouldn't feel so bad, but I am suspicious that he thought I wanted to say "dam" and didn't know how to spell it.

Allow me to add a word to what I said as to top dressing.

Hon. T. S. Gold, for nearly forty years secretary of the Connecticut State Board of Agriculture, owns a farm that his father owned before him. He owns meadows, on ground sloping more or less but none level, that he does not know when were last plowed. As he tells the story "they have been foddered on and top dressed and occasionally Charles takes a bag of mixed grass seed on a horse, when there is snow on the ground and scatters a little over the meadow."

Mr. Gold says so far as he knows, those meadows never yielded more hay than they do now. If any one has succeeded in plowing in the manure made from feeding the crop grown on any piece of land and maintaining its fertility, I have yet to hear evidence of it, and I don't care whether the crop is used as a soiling crop, fed from a hay mow, or a silo.

I believe an acre of ground will keep a cow longer if a soiling crop or corn for a silo is grown on it, than if grass is grown, but I just as firmly believe that it is a case of buying fertilizers, or in few years' time, howl about the deterioriation of the soil. An acre of land that would pasture a cow left on it night and day indefinitely, could undoubtedly be made by thorough tillage to keep two cows for a brief period, and when it petered out, it would be just fit to abandon.

When brother Hale tells the orchardists that "tillage is a fertilizer," he is talking through his hat. Tillage enables the farmer to get out what is in the soil. It puts nothing back. R. S. HINMAN.

Stevenson, Conn.

The Manure Question.

ED HOARD'S DAIRYMAN:—I have been much interested in regard to the manure question. Farmers here in Vermont most of them have a manure cellar under their cows and shove the manure down through the scuttle into this basement and there it usually stays until spring when it is drawn out and spread where wanted and gives most excellent results, very much better then where piled in the field or spread on the ground as fast as made.

We have 42 cows tied over one of these basements and we can clean out for them in ten minutes and no cold draft let into the stable on a zero morning as there is when you take it out with a team.

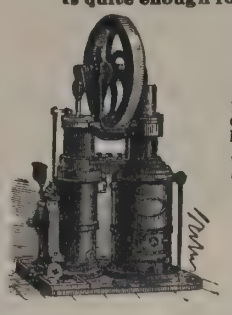
The practice of the best farmers is to clean out their manure cellars every fall and then draw in about a load of dry muck to each cow and spread on the cement under them. This holds all the liquids and when drawn out the muck is just as good manure as any part of it. It never heats and you cannot smell any more disagreeable smell in the stable then you could if the manure was not there. Here in Vermont it is not practicable to draw out the manure and spread it, as the snow has been four feet deep; now the snow is all gone but the mud is about as bad as the snow.

In those states where there is but little snow the drawing over the fields with heavy loads of manure when wet, must pack them and make it hard to get the soil fine and mellow again. I have heard farmers on Long Island say they should think it would kill cows to stand over such a mess of filth. I never knew of any injurious effects from it. Not long ago I saw a herd of 70 cows; standing over a cellar full of manure, that had made 347 pounds of butter to sell from each cow, and they are confined in the old fashioned rigid stanchion. Now brother farmers try a basement under your cows and be happy. R. S. D.

Williamstown, Vt.

HALF ENOUGH WATER

Is quite enough for some people, but most people want water every day. If

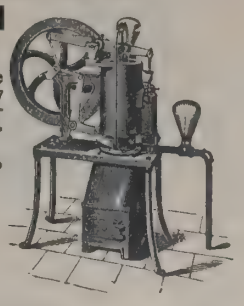


RIDER or ERICSSON HOT AIR PUMPS

Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.

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Preserve Your Fences

sills, planking and all other woodwork that is likely to rot, by treating with

Conservo Wood Preservative.

It will pay you to use it on every stick of timber. Costs but a few cents a stick, and saves dollars in repairs, by preventing decay. It also kills germs and insects, and foul smells. We have studied wood preservation for twenty-five years, and believe Conservo is the best preservative that can be made. We *know* it is the best now made.

Send for circular, it costs nothing, and may save much.

SAMUEL CABOT, Manufacturing Chemist, 80 Kilby St., Boston, Mass.

ILLUSTRATION.



THE 1903 KEMP MANURE SPREADER.

An implement of greatest value to the farmers is the modern manure spreader. We do not believe it is possible to urge too strongly its use. The value of the manure annually produced upon the farm is recognized, but too many farmers do not appreciate that a large part of its value escapes them by failure to spread aright. Manure may be made to go twice as far and secure better results from all the land when evenly distributed, than when thrown out in lumps and piles on limited areas to leach and wash away. We show here a type of what is best and secures the best results in manure spreaders. It is the original Kemp Spreader, manufactured by the Kemp & Burpee Mfg. Co., of Syracuse, N. Y., as it has been improved and appears on the market this year. This Kemp Spreader has for a number of years been the general favorite in many parts of the country. It has had much to do with showing the possibilities of spreading manure by machinery and securing the general introduction of the practice. In all kinds of manure, in whatever condition, as lumpy, coarse, fine, wet, filled with straw, corn stalks, etc., and in the spreading of lime, salt and every character of commercial fertilizer it has been accounted faultless at its work. With the latest improvements wrought out by the manufacturers in the machine of 1903 there is certainly nothing left to be desired. Not only is the manure torn apart, made fine and evenly distributed, and more immediate and better results secured, but the cost of spreading is materially reduced. From this consideration and taking into account the benefit to soil and crop, we believe it is no exaggeration to say that a Kemp Manure Spreader will pay for itself on the average well conducted farm in a single season. By its various attachments it is made to spread fast or slow as desired, to distribute broad cast or drill in single row or in two rows up to five and a half feet apart. the whole operation of spreading is controlled by the driver, from his seat, there being no occasion for dismounting from the time he leaves the stable until he returns for reloading. No adequate idea of the worth of this most useful machine can be given here. The Company's illustrated catalogue gives full and accurate information. We recommend to any one at all interested in manure spreaders to write for it. It will be gladly mailed free of charge.



Let Them Help Themselves.

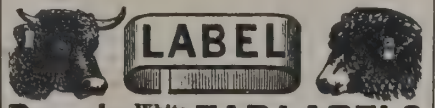
They'll not take too much, and they'll get it as they want it. Don't force animals to eat salt when they don't require it, by mixing with food.

COMPRESSED

Pure-Salt Bricks

are all salt, no impurities. Improve the quality and yield of milk. A modern convenience, always present, animals never neglected, and costs for each only about a nickle a month. See how they enjoy helping themselves when you place it within reach. For all stock. Buy of dealers or send for free booklet to

Belmont Stable Supply Co., Brooklyn, N.Y.



LABEL

Dana's White Metallic EAR LABELS

stamped with any name or address with consecutive numbers. I supply forty recording associations and housands of practical farmers, breeders and veterinarians. Samples free. **Agents Wanted.**

C. H. DANA, 55 Main St., West Lebanon, N. H.



KELLY'S SULKY AND GANG PLOWS

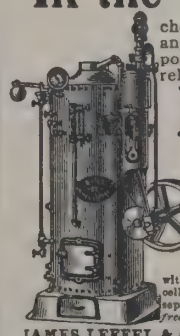
Light Draft, High Lift, Powerful Lifting Spring; Boy can handle it.

Patented Stop carries the plow and lightens draft. Shipped in crate, set up and sharpened ready for use. Spring Clevis eases draft and saves harness. Automatic Lock on rear wheel. Celebrated "Garden City Clipper" bottoms used.

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BRANCH HOUSES: DAVID BRADLEY & CO., Council Bluffs, Iowa. BRADLEY, CLARK & CO., Minneapolis, Minnesota. BRADLEY, ALDERSON & CO., Kansas City, Missouri.

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cheese factory, on the farm or anywhere else, and for all purposes there is no power so reliable as a

Leffel Engine.

Simplest in construction, makes them easiest to run and keep in order. Being easy steamers they require the minimum of fuel, and develop highest power.

Upright or Horizontal

with engine on boiler, or separate. Unexcelled for cutting, grinding, pumping, sawing, separating, churning, etc. *Book on Power free to intending buyers, stating wants.*

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NO HUMBUG. Three in One.

Swine V. Stock Marker and Calf Dehorner. Stops swine from rooting. Makes 48 different ear marks. Extracts Horns. Price $1.50. Send $1 for trial. If it suits, send balance. Pat'd May 6, 1902. Hog and Calf Holder only 75c.



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GOING TO THE CIRCUS

The grain is in shock and out of danger and the farmer and his family can now go to the circus.

Deering Ideal Light Draft Binders

never cause delays during harvest time. They can be depended upon to quickly get the harvest out of the way. The repair bills for users of Deering machines are light.

The DEERING IDEAL LINE embraces
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Made in a perfectly equipped plant by past masters in the art of wagon building. Made with a clever combination of brains, money and a determination to lead. You can't be disappointed in the purchase of a Koenig & Luhrs' wagon, because there's nothing in materials or workmanship to disappoint you. We have been making good wagons for nearly a quarter of a century and value our reputation enough to make it a positive guarantee against dissatisfaction.

We will mail catalog upon request and invite your inquiries.

Koenig & Luhrs Wagon Co.,
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30 YEARS SELLING DIRECT

We are the largest manufacturers of Vehicles and Harness in the world selling to consumers exclusively.

WE HAVE NO AGENTS

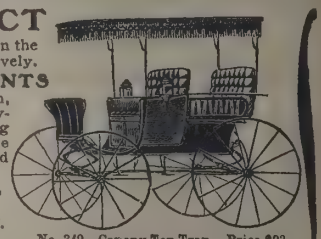
but ship anywhere for examination, guaranteeing safe delivery You are out nothing if not satisfied. We make 195 styles of vehicles and 65 styles of harness.

Visitors are always welcome at our factory.



No 719—Driving Wagon ¼ in. Kelly Rubber Tires. Price $55.50. As good as sells for $40 more.

Large Catalogue FREE. Send for it.



No. 349—Canopy Top Trap. Price $93. As good as sells for $50 more.

ELKHART CARRIAGE & HARNESS MFG. CO., Elkhart, Ind.

SAVES ITS COST ON THE FIRST CROP.

It spreads all kinds of manure, lime, salt, ashes, compost, etc., either broadcast or in rows. Does it better than it can possibly be done by hand.

Do you know of any other piece of machinery for use on the farm of which this can be truly said?



The Improved

Kemp Manure Spreader

not only makes easy work of getting out the manure, but by the way in which it breaks it up and makes it fine, it more than trebles the value of the same. It will break up and spread evenly, manure that cannot be handled with a fork. It doesn't matter how hard, lumpy, caked, strawy, or stalky the manure is, this machine will spread it. It makes fine, well rotted manure go a long ways in top dressing wheat in the spring, meadow lands, pasture, etc. Being mounted on broad faced wheels, it can be handled on any kind of ground without serious cutting in or rutting. Can spread back and forth, as front wheels turn entirely under. Can be turned on the ground it stands on. 1903 machine has our new **Beater-Freeing Device, Apron-Returning Device** and numerous other improvements. Send for latest catalogue (free) and read about these and other advantages and also about **"How to Grow Big Crops."** Remember that the only original and genuine Kemp Manure Spreader is made by us and the patents thereon have been fully sustained by a recent decision of the U. S. Circuit Court. **KEMP & BURPEE MFG. CO., BOX 46, SYRACUSE, N. Y.**



The National

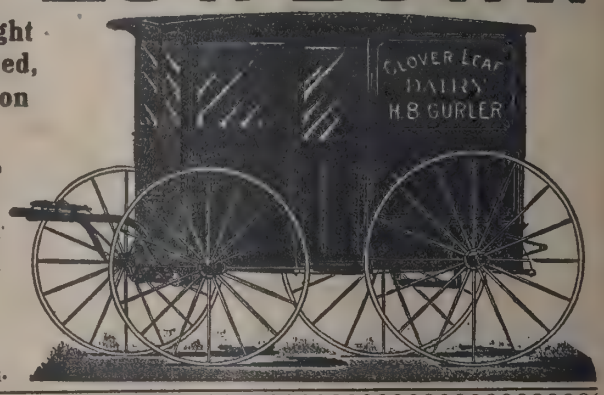
LOW DOWN CUT-UNDER

justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

THE NATIONAL WAGON COMPANY, Chillicothe, Ohio.

THE ONLY LOW-DOWN

Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the Market.



20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for catalogue, prices and terms Wagons for carrying Bottled Milk a specialty.

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Sole Manufacturers,

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Climax Ensilage and Fodder Cutters.



"THE COMPLETE MACHINE." Wind delivery. No more trouble with carriers. The "Climax" can be set up, ready for work, at a 35 foot silo, in 20 minutes. Takes less power to operate than any other made. The "Climax" is guaranteed to elevate **any** fodder in **any** conditions—we make no exceptions. Eight years of success bear out our statements. Don't put off getting your machine until the season is on. Write us for information and get our catalogue—it's free.

The Warsaw-Wilkinson Co.,
Warsaw, N. Y.



$62.75

BEST MILK WAGON ON EARTH.

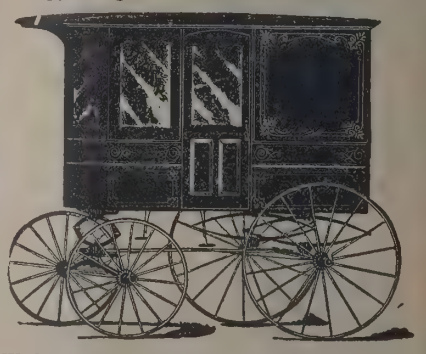
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DO YOUR OWN THRESHING.

The two horse power **Little Giant Thresher and Cleaner** enables the farmer to do his own threshing. Save expense and thresh when you have the time. No waiting for the job thresher. Thresh for yourself and your neighbors. Clean threshing, perfect cleaning. Grain ready for market. Capacity 200 to 500 bu. per day. Threshes all grains and grass seeds. Runs by steam or other power. Tread powers for 1, 2 or 3 horses. Can be used for sawing, shelling, pumping, feed cutting, etc. Send for catalog. Free.



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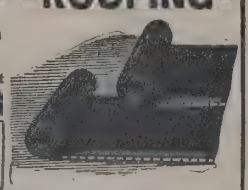
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CAREY'S

Magnesia Flexible Cement

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It Can't Be Equalled For Durability.
For Flat or Steep Roofs QUICKLY APPLIED.



Sample Cat. and full information mailed upon request, Free.
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One horse can operate it. Very easy for two.

NOT A COG NOR CHAIN ABOUT IT.

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Illustrated Catalogue describing them and our famous grinders, cutters, shellers, wood saws, huskers, horse powers, etc., **free.**

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Devoted to Dairying and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., APRIL 24, 1903. NUMBER 11

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs**

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CHR. HANSEN'S LACTIC FERMENT
To Ripen your cream, ensuring
Perfect Flavor, Uniformity and Keeping Qualities in your Butter.
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Medals—Bronze 1878 Silver, 1887, World's Fair, 1893.

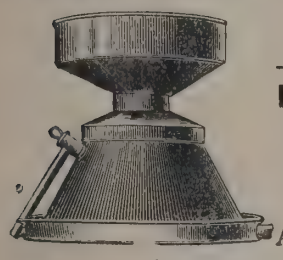


This is the Butter Tub that is used almost exclusively throughout the gilt edged Elgin Dairy District. Pretty strong proof of its superiority.

And this is the one—and only—factory in which the **Genuine Elgin Butter Tub** is made—the factory of the
ELGIN BUTTER TUB CO., ELGIN, ILL.

PERFECT FLAVOR IN BUTTER AND CHEESE
results from perfect milk. Perfect milk is that which has been properly handled from the moment it left the cow until it reaches the finished product.
THE PERFECTION MILK COOLER AND AERATOR
makes a perfect milk. It takes out all animal odors and those arising from stables or feed. It retards **loppering** and **souring;** prevents the **cowy odor** in butter and **deleterious gasses** in cheese. City boards of health are insisting on milk that is properly cooled and aerated. This machine is **simple, quick** and **effective.** Made in sizes from 1 to 200 cows. Send for free circulars.
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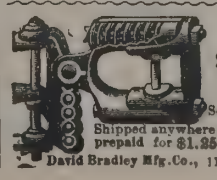
The Gem
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The border of this advertisement is a section of the **Package** cut in half. It shows just how the **Package** is made. Note the three thicknesses of fibre in the walls. Note how the sides and the inside bottom are pressed and dovetailed together. Note how the whole is reinforced by the extra bottom. It's lined throughout with parchment paper. Treated as it is, it **is impervious to moisture, mildew** or **mould.** It will not sweat in warm weather and is slow to freeze in cold weather. It's the ideal market package for anything but is specially desirable for butter. Made in numerous convenient sizes. Illustrated booklet and samples **mailed free.**
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With the **Automatic Milk Scale** you can keep an accurate record of the yield of each cow, and remove the unprofitable ones from the dairy. Each button on scale arm corresponds to number of cow, and when pail of milk is weighed the button registers the weight on score card. Big money saver and money maker for farmers and dairymen.
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MR. MILKMAN My Can Refrigerators take up no extra room in wagon and will prevent milk churning and souring. Booklet free.
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Watch the Blackboard

HAVE IT ALL YOUR OWN WAY.

The new style **Suspended Bowl Factory Tubular Separator** is so much better than any competing machine that we are safe in making the most liberal proposition ever known in connection with the separator business. We will let any responsible creameryman have one on trial with no obligation whatever to keep it, or buy it, or pay anything for its use; leaving it entirely with him to decide whether he wants it or not. We know it will prove so satisfactory that the user will want to keep it and we are glad to let our chance of making a sale lie entirely in the merits of the machine.

Our **Dairy Tubular Separators** are recognized as being far superior to any other dairy separator, and our **1903 Factory Tubular** is just as much superior to any competing factory separator. . . . . .

WRITE FOR CATALOGUE NO. 144.

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P. M. SHARPLES,
West Chester, Pa.
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Best Results

in feeding for milk are obtained by adding some

BUFFALO Gluten Feed

to balance the ration.

Sample and booklet

"Feed Your Stock for Best Results."

Sent free. Write to-day.

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Cheaper than Corn, Oats and Barley.

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The net profits to you from your cows depends largely on the expense of the digestible protein in the ration fed. There is no feed on the market today that gives you the protein at less cost than it can be secured in

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It will increase the flow of milk and keep the cows in better condition with less outlay in dollars and cents than any other feed. A trial will convince you.

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There's More Money
And readier money in hogs and cattle if there is mixed daily, with their feed a small amount of

Prussian Stock Food.
For all domestic animals. It conditions, begets growth, fattens. 50c and $1.00 Packages. A Pail, 1200 feeds, for $3.50. Buy of dealers. Write us for free 68-page book.

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THE MILK SUBSTITUTE

"There is nothing like it to raise thrifty Jersey Calves."
ASA B. GARDNER, Esq., GLENCOE, MD.

Address, BLATCHFORD'S CALF MEAL
WAUKEGAN, ILL.

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Sheep Dips, Tanks, Worm Cures, Ear Marks Punches, Tattoo Markers, Shearing Machines Shears, Sheep Marking Paint, Lamb Feeders Lice Paint, Poultry Supplies, Veterinary Remedies, etc. Write for Catalogue AE.

F. S. BURCH & CO., 144 Illinois St., CHICAGO

Do You Want to Own a Gold Mine; to Grow Five Tons of Wheat Bran Per Acre?

Years ago, when J. E. Wing was first a cowboy and then a ranchman, in Utah, he sent his father in Ohio about a pound of alfalfa seed. The father was a farmer. Joseph had succeeded finely in growing alfalfa where he was and found it a wonderfully good feed for animals. He wanted his father to try it on the old home farm, and sent glowing accounts of what it would do for them, if it could be made to thrive. The father sowed the seeds on a small piece of land. Some time afterwards the son came home. After seeing his mother and father and sweetheart he went out where the alfalfa seed had been sown. His father saw him going and followed along. They came to the patch. The plants were small and sickly looking, with scarcely any leaves on them. The father said: "You see, my son, that your wonderful plant is no good here. It won't grow in this soil and climate." "Joe" says he felt about the same way, too, and was greatly disappointed.

Just then some hens came along. They marched through the little, weak alfalfa plants and picked off every leaf that had grown since they were there before. The father saw nothing, but the son said to himself: "Ah, may be success isn't so far away as we thought. Hens are very fond of alfalfa, and they have kept these plants stripped so they could not thrive. Now let us see about this."

He got an old barrel without any heads and put over one plant. This to keep the hens away from it, only. Then he brought about a barrel of water and poured around it, as it was a very dry time. Nothing was said to the father. In three or four weeks that plant was above the top of barrel, strong and thrifty as one could ask for.

Joe called his father. "There; see. Tell me alfalfa won't grow in Ohio." "Boy," said the old gentleman, "do you suppose I want to grow a crop that I must put a barrel around every plant in order to make it thrive? Away with your nonsense?"

Joe is a thinker and a man with a determined will. He said quietly to himself, if I can make one plant thrive, I can cover the farm with fields of luxuriant alfalfa; it fs only a matter of making conditions right all over. In this way was the first success made with alfalfa, and as a result probably more than 100,000 acres have since been put out.

The next year Mr. Wing sowed perhaps one-third of an acre. It did well. Then he put out about three acres more. This happened to be on three different kinds of soil. There was a dry, rich, gravel knoll, and some poor clay soil, and then a low, wet place. On the dry, rich land the alfalfa succeeded finely. On the poor clay the plants were small and spindling and evidently never would amount to anything. On the wet land the crop was a failure. And here the wonderful will power of the man shown forth. He said to himself, "All right; I see. I am not going to get alfalfa growing all over as soon as I thought, but never mind. It is coming. I will tile drain the wet places. I will manure the poor land and make it rich enough to grow the crop. Alfalfa I will have, and big crops of it, all over. He went to buying and hauling manure. About that time Terry was called to an institute in the town where Mr. Wing lived. He told what clover had done for him. Mr. Wing and his "sweetheart" (they were married then) came in. This was some thirteen years ago. Well does the writer remember this meeting in the basement of a church. Wing drank in every word. He said to himself: "That is the thing; I can't haul manure enough to enrich all this run-down land. Red clover will help me to get the land fertile enough to grow alfalfa." So he deserted his first love, almost, and strained every nerve, and his credit, too, in draining the wet land and making red clover grow. It takes richer land to start alfalfa. Soon he got acre after acre all dry and rich, and then great fields of alfalfa growing as told of recently.

What has this done for friend Wing? Don't you see? As he puts it, it has crowded all the poor land off his farm. It has crowded the line fences back until his farm is much larger. He says it is better than a gold mine; and it is a gold mine most any farmer can have if he will work as hard for it. The farmers in Mr. W's section are short of hay. As a result,

(Continued on page 263.)

ARMOUR'S BLOOD MEAL Cures Scours in Calves.

First proved by the Kansas Agricultural Experiment Station, and since corroborated by thousands of leading stockmen who have used it without a single failure. Equally effective for the diarrhea of all animals.

PREVENTS weak bones, paralysis of the hind legs and "thumps" in pigs; "big head" of foals; "rickets" of all young animals; abortion due to incomplete nutrition, and a host of other troubles.

A Potent Food for Work Horses, Dairy Cows, Poultry.

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The day of the old fashioned hand shears is past. No owner of 10 sheep or more can afford to shear by hand, even though the work be done for nothing. Don't butcher your sheep Shear with this machine and get ONE POUND WOOL EXTRA PER HEAD. It will more than cover the cost of shearing Send today for valuable book, "Hints on Shearing." It is free and will save you money.

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PURE OIL MEAL. USE FOR MILCH COWS AND FATTENING STOCK.

Superior to corn, oats and hay. Ton lots $23.50; half ton $12.25; 500 pounds $6.75; 100 pounds $1.50. Put up in 100-lb. sacks f. o. b. Minneapolis. Cash with order.

This Meal is Guaranteed Absolutely Pure. We also manufacture Strictly Pure Linseed Oil.

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When ordering mention this paper.

E. S. WOODWORTH & COMPANY
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Grain and Millstuffs, Shipping and Commission

SEND US YOUR ORDERS FOR

Bran Middlings, Flour Middlings, Red Dog Flour, Snow's Cream Flour Middlings, Chicken Feed Wheat, Dairy Feed, Mixed Feed, Corn, Oats, and Ground Feed. Old process Oil Meal. Ask for prices, and mention this paper when writing us. **CAN LOAD MIXED CARS.**

CORRESPONDENCE SOLICITED.

SNOW'S CREAM FLOUR MIDDLINGS IN 100-LB. SACKS. The best seller in the market. We make a specialty of Screenings for Sheep Feed

QUALITY ELMCO MARK

Elmco Fancy White Middlings.

—ANALYSIS:—
Moisture 9.37 Crude Protein 18.96 Ether Extract 5.87
F. W. WOLL, Chemist, University of Wis., Agricultural Experiment Sta.

Especially adapted for stock feeding, and well calculated to enrich any lighter feed; being easily digested and assimilated it affords greater profit than any other feed. **Elmco Fancy White Middlings** make bone and muscle which turns into money quickly.

Manufactured only by LISTMAN MILL CO.,
La Crosse, Wis.

Hoard's Dairyman

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

Entered at Fort Atkinson, Wisconsin, as second-class matter.

The illustrations on this page are not only typical Holsteins but also examples of "dairy form" well worthy the critical study of every would-be successful dairyman. Further than this, and of considerable importance to all who contemplate investing in high-grade Holsteins, they are representative specimens of the animals to be included in the McGeoch sale at Milwaukee, May 6.

New York City Milk Supply.

Ed Hoard's Dairyman:—The problems relating to New York city milk supply are many and difficult. Greater New York, with its nearby cities, demands an immense amount of milk, and the supply must come from an extensive area. So great is the demand for milk that for several months every year very little butter is made in New York state, and similar statements may be made for each of the other four states from which comes the milk supply. The states are New York, Pennsylvania, New Jersey, Connecticut and Massachusetts. Of course there are many other large cities that draw their supply in part at least from the same states. Since the adoption of the Agricultural law in 1884 by the state of New York, other states have adopted similar laws, and the effect of their enforcement has been to secure for the cities a much purer article in the way of milk, cream, etc. Two or three other states antedated New York in the passage of laws tending to enforce a purer milk supply, notably New Hampshire and New Jersey.

It was shown in 1884 that of the thousands of cans of milk supplied to New York city, 20 to 40 per cent at least, was added water. Now watered milk is not in evidence to any extent, and the result is, that the consumption of milk per individual has increased to a wonderful degree. Add to this the increase due to increase of population, and the necessary supply becomes enormous.

When Gail Borden commenced the manufacture of condensed milk in 1856, after ten years of experimenting, he could have had no conception of the future magnitude of his enterprise. The condensed milk business is enormous, but in addition to that the Bordens control a very large share of the retail trade in "whole" milk in Greater New York and adjoining cities. It has been estimated as high as two-thirds, and the estimate appears to come from very good authority, but the writer of this article disclaims any personal knowledge of the matter. The Bordens have paid the farmers good prices and paid promptly. They have helped the farmers, by their rigid inspection, to improve their dairies and dairy buildings, and to improve their methods of handling milk and cows. They have been somewhat exacting, and some complaint has resulted. Perhaps an injustice may have been done some individual by an officious inspector, but the main result has been for the benefit of the dairymen.

At any rate, farmers have complained but little of the dealing of the Bordens with them, but have complained bitterly of some others with whom they have had occasion to deal. The question so far as their relations with the Bordens are concerned is, what will be the result when they control still more absolutely the milk and cream trade of Greater New York, as it is supposed they intend to do.

It is six years since the farmers undertook to organize by forming the Five States Milk Producers Association. They gained ground, so far as membership was concerned, for a time. Of late little active work has been done, but the members are not willing to admit that the spirit of the organization is in any way weakened. They gained by the experience they had, they learned something of the strength of their adversaries, and something of their own strength. They saw that they must have some means of caring for the milk besides forcing it upon the cities at an inopportune time. Largely, it is believed, because of this understanding, the farmers have been erecting co-operative creameries during the last three or four years, and now appear to own somewhere near one hundred and fifty within the territory from which comes Greater New York's supply.

A list of over one hundred of these has been compiled and now an effort is on foot to unite them into what is called the Co-operative Creameries Association. It was deemed advisable to complete that organization whenever properly accredited persons representing forty or more co-operative creameries, should sign the articles of agreement. A meeting has recently been held in Binghamton and the signatures secured up to the time of closing that meeting lacked only three of the requisite number. It is believed that the three, and others with them, will speedily be obtained.

This is but a continuation of the work undertaken by the Five States Milk Producers Association. There were present at the Binghamton meeting, delegates representing more than fifty co-operative concerns. The object of the formation of the association is set forth in the resolutions adopted: To increase the price of milk to the producer; to gain recognition; to organize co-operative creameries; to take care of the surplus milk.

The Bordens operate their own creameries, but buy some milk and cream of other concerns. The movement is not against them, though some think it may be wise to prepare for possible war in time of peace. The cause of the original movement was the oppression by the syndicate called the Milk Exchange, and by the railroads and other dealers. Of the wholesale price of milk, the farmer received considerably less than half, while the consumer was compelled to pay severel times more than the farmer received. Farmers believed they should get a larger share of the sum paid by consumers. Although better prices are now paid, it is not believed that the farmer yet receives his just share.

Six years ago it is not known that any other dealers paid as high as the Bordens. Last year the Milk Exchange price reached within one-eighth of their price, and many co-operative creameries paid more than the Bordens. It is claimed that the efforts toward organization have been largely instrumental in bringing about this improved condition. Right here appears to be a good place to suggest the ideas that Hoard's Dairyman has advocated so long. There is a demand for cream and butter that will, in many cases, prove remunerative, as has been shown already by many creamery concerns.

So long as New York milk trade does not make it an object to ship milk, and skim milk has so high a value on the farm, it would seem to be the part of wisdom for the co-operative creameries to handle the milk in such a way as to leave the skim milk on the farms. There can be few cases where skim milk should be sold at ten cents or even fifteen cents per can as is frequently done. The abuses and discriminations by the railroads may well be looked after by the Creameries Association, as is their avowed object.

Another object of theirs is certainly commendable. They will make an effort to have the Pure Food Laws enforced, and to prevent the partial skimming as they claim is now done with a large portion of the milk after it leaves the farmer's hands. If skimming could be prevented it is claimed that the demand for milk would at once increase, and ultimately there would result an increased consumption per capita, all of which would be of much benefit to the farmers.

New York. H. H. L.



HOLSTEIN COW—MINNIE SPAANZ 2d, H. F. H. B., 38388



HOLSTEIN COW—RIXA SILVA 3d's PIETERTJE, H. F. H. B. 37258

Property of A. N. McGeoch, Milwaukee, Wis.

Pennsylvania Pickings.

The Oleo Trade.

Ed. Hoard's Dairyman:—The editor of the *National Stockman and Farmer*, is responsible for the statement that large quantities of oleomargarine are being sold in Pittsburg, but not as butter. As a matter of fact, the state authorities have never been able to stop the selling of oleo in that city, and while as the editor says, much of it is being sold under the law, there is no doubt much more of it being sold as butter, "under the rose." The oleo is being sold at 20 cents per lb., while butter is selling at 33 cents, and it is safe to assume that those dealers who have defied the law, with the courts upholding them, as our Dairy and Food Commissoner found, are not losing the rich opportunity to substitute 20-cent oleo for 33-cent butter.

Prof. Hamilton has left our Department of Agriculture to accept the more congenial position of Farmers' Institute Specialist, under the national government. The appointment of Prof. Hamilton secures an experienced and well equipped officer for the new position.

Dairy and Food Commissioner Cope will step out Mar. 31, and go back to the peaceful Brandywine in Chester county, as a plain farmer. Cope and Hamilton have been strenuous administrators in their pure food work. Senator Critchfield succeeds Prof. Hamilton as Secretary of Agriculture, and at the time of the writing of this, the successor to Mr. Cope has not been named.

HAY SHORTAGE.

A Pennsylvania correspondent writes me that their clover and timothy in the wheat was completely burned out last summer, and he is much concerned as to feed to take the place of hay for next winter and wants my advice. This condition seems to prevail in almost all sections of this state, judging from the letters I have received; and I will ask indulgence in my reply by suggesting that such conditions should lead to a remarkable movement in the building of silos so that dependence on dry forage for home consumption would be reduced to a minimum. Were part of the land, that fails now in promise of a hay crop, put in corn for the silo, and the remainder of it sown to some of the numerous summer catch crops, the regulation hay will be scarcely missed from next winter's feed supply.

A large part of the hay produced in state is timothy, and when we consider the time in the life of the plant at which it is usually cut for hay, and the selling value of it on our markets, it becomes a pretty plain proposition in agricultural economics that it should not be fed on the farm, but sold as a money crop, and the other crops that can be so abundantly and cheaply grown and that have no actual commercial value, used instead.

CATCH CROPS.

As a catch crop, or as a crop of great value and one not occupying the land during the growing season proper, and as one acting as a conservator of soil fertility during the wasting periods of fall, winter and early spring, it seems to me rye is very much neglected by the farmer and dairyman. Instead of allowing such land as I have not sown to crimson clover—say, ensilage land, where the corn grows too thick for the clover to do well, I sow to rye, two bushels to the acre, after a stirring of the ground by simply running the double corn cultivator astride the row of corn stubbles, and following with the grain drill.

With the seed I usually apply a dressing of acid phosphate and potash, and give the rye a light dressing of manure during the winter, while the ground is frozen. We begin to cut the rye for soiling as soon as the first heads show and continue to use for this purpose for about ten days, when the remainder is cut for hay and cured in large cocks, being raked and cocked as soon as wilted. Cut thus early it makes a magnificient hay and being cured in the cock, the green color is retained, as are also the natural flavors. I think our friend, Mr. G. W. of Philadelphia, Pa.,—Dairyman, page 142, will

secure much better results from this treatment of his rye crop than he will by ensiloing it. This hay will be made in May and a crop of corn follow.

CRIMSON CLOVER.

I have over twenty acres of very fine crimson clover growing, principally in corn stubble, from which the corn was cut and husked for a grain crop.

At this writing, March 20, a mat of green growth about four inches thick covers the ground and has surely performed the kindly office of taking care of the land during the bare days of winter. Some of this clover will be cut for soiling and some made into hay, but most of it will be plowed down for potatoes, oats and corn. The seed for this crop cost me less than one dollar per acre and it saves much and adds much to the land.

CORN HAY.

After the rye hay is removed, the land may be plowed and should be manured, and the manure well worked in during the process of thorough tilling, and corn planted for hay. If the very finest corn hay possible to have is wanted, Stowell's Evergreen or other large fodder sugar corn seed should be used, but much more bulk will be secured by using ordinary field corn. Not less than a bushel per acre of seed should be used. The sugar corn seed this year will cost from six to eight times as much as ordinary corn.

Drill in rows three feet apart, or wider if preferred. The object is to have the growth so thick in the rows that no ears will form and all the food value remains in the stalk. The stalks being fine the horses and cattle will eat it completely. Cut before fodder ripens and cure in shock.

COW PEAS.

If a more nitrogenous hay than the corn can be wanted, the rye can be followed with cow peas, about 1½ bushels to the acre, and hay of feeding value equal to any hay, grown and harvested. The vining habit of the cow pea makes it somewhat more annoying to harvest and handle, but if cured in windrows or cocks so its good values are retained, the cows next winter will fully repay for a little pulling and hauling while making the hay.

Cowpeas keep green long. The harvesting of them need not be hurried. I think this plant especially is one that as it nears maturity increases the value of its protein. Cut too early, the proteids have not become elaborated into a condition for perfect animal assimilation. At any rate, the cow pea is not a rusher at harvest time. By its time for being cut, usually some threshing of wheat has been done, and if into the hay mow a layer of cow peas is alternated with one of clean wheat straw, all danger of the pea hay molding will be overcome, the straw, which has really a valuable food composition, will partake of the flavor of the hay, and the quantity of feed will be largely increased. A hay knife should be used in taking hay from mow, when the peas and straw will be nicely mixed and certain strong expressions will be expurgated from the language of the individual who has cut the vines instead of trying to pull them out.

HUNGARIAN GRASS.

As a quick growing summer crop for soiling or hay, Hungarian grass on good land is invaluable. Its season is short and its yield immense if given feed enough. Quick growers are heavy feeders.

Many farmers have been disappointed in feeding Hungarian hay because it was not cut soon enongh. Many harvest it in the seed instead of in the blossom.

I like to haul in my clover hay with the bumble-bees following the wagon. I have seen too much Hungarian hauled in with the birds following for the seeds. From a Storrs' bulletin I make the following extracts:

GREEN FODDERS.

	Proteiu	*Potential Energy*
Oats and peas	3.5	290
Oats and vetch	3.6	440
Red clover rowen	4.7	440
Scarlet clover	3.1	365
Hungarian	3.1	500

CHESTNUT FOR SILOS.

Page 130, C. I. H. asks about chestnut for silos. I have a square silo, with cut off corners, lined with two thicknesses of one-half inch chestnut boards, joints broken, painted with gas tar, that I have used for eight years with no signs of decay. I prefer it to pine. I had boards sawed thin so they would dry out quickly when silo was empty. It will do equally well for staves.

W. F. McSPARRAN.

Further Figures Showing the Relation of Feed to Milk Products—Net Nutriment Required for Milk of Varying Qualities—Valuable Tables for Present Study and Future Reference.

ED. HOARD'S DAIRYMAN:—In bulletin 79 from this Station, it is shown that when cows have been in milk some considerable time, the net nourishment used by certain cows in the production of a lb. of butter fat was approximately 6.25 lbs. At the time the bulletin was put to press, we were well along in our feeding experiments for the winter 1902-3, and naturally were very anxious as to the outcome of this winter's work, and so lost no time in keeping our calculations very close to the work of the herd as it was reported from week to week. I have just finished the tables which are to be studied more carefully before the result is published. Indeed, it may be deferred until one or two more winter's work of the herd is completed.

The conduct of the cows was about the same this year as last and I am more than ever puzzled as to why cows on a wide ration seem to require less nutriment to a given product than on a comparatively narrow one. There is no conflict in the results obtained this and last winter, except that it required more nutriment to a given product, but the cause seems quite plain. This year it required 6.74 pounds of nutriment, available for propuct, to a pound of butter fat, which is practically half a pound more than the amount stated in bulletin 79. While it was stated that more was required with cows giving milk containing a low per cent butter fat, the inference would naturally be that it required 6.25 pounds of net nutriment to a pound of butter fat with average milk. Such is really not the case, and the primary object of this communication is to make a little explanation.

The cows' records employed to make the illustration gave milk testing better than 5 per cent butter fat, and the nutriment required to a pound of butter fat had special reference to milk of that quality. In making further study in regard to the nutriment required in the production of a pound of butter fat with cows giving milk of different grades, it appears that the requirements are approximately as follows:

Milk testing	*Net nutriment to 1 lb. butter fat.*
2.5 per cent fat	8.5 lbs.
3.0 " " "	7.8 "
3.5 " " "	7.3 "
4.0 " " "	7.0 "
4.5 " " "	6.6 "
5.0 " " "	6.4 "
5.5 " " "	6.2 "

From this it is shown that for milk of medium quality—4 per cent butter fat—it requires about 7 pounds of net nutriment to a pound of butter fat yielded.

During the feeding experiment, this winter, a composite sample of each cow's milk, covering 14 milkings, was subjected to a complete chemical analysis, to enable a closer study of nutriment taken in and the character of product yielded. The composition of the various grades of milks as revealed by the chemist shows why it requires more nutriment to a pound of butter fat with the lower grades of milk.

Per cent fat in milk.	*Solids not fat to 1 lb. butter fat.*
2.68	2.85
3.19	2.35
4.09	2.07
4.10	2.02
4.22	1.97
4 57	1.86
4.59	1.86
4.61	1.90
5.28	1.87
5.33	1.64

From this it is seen that with 4 per cent milk, cows produce to each pound of butter fat, about two pounds of milk solids-not-fat, while in the milk testing 2.68 per cent fat there are 2.85 pounds of solids-not-fat, to each pound of butter fat, and in the milk testing 5.33 per cent fat there were only 1.64 pounds of solids-not-fat, to each pound of butter fat, and since it requires nutriment to produce the extra amount of solids-not-fat found in the lower grades of milk, which must of necessity be charged to the butter fat, it makes it more expensive as the quality of the milk decreases. When the total milk solids, however, are made the basis of calculation, it is produced cheaper in the milks carrying a low per cent butter fat.

Referring to a recent letter from the associate editor wherein the belief is expressed that cows should be fed according to the butter fat they yield, it will be seen, from what has already been submitted, that such a method would not meet the requirements, because cows differ as to nutriment required to a pound of butter fat, as has been shown, and the following table shows that they also differ as to protein required.

Table showing per cent fat and protein in milk of individual cows, and protein in the milk to a pound of butter fat:

In 100 lbs. of milk.		*Protein to 1 lb. Butter fat*
Fat.	Protein	
2.68	2.63	.982
3.19	2.44	.765
4.09	2.88	.704
4.10	2.69	.656
4.22	2.81	.668
4.57	2.94	.643
4.59	3.50	.762
4.61	3.10	.672
5.28	3.88	.734
5.33	3.42	.641

From this it is seen that while individual cows differ somewhat in regard to the relation between the fat and protein in their milk, there is a general decrease in protein to fat as the milks increase in quality. In the milk that contained 5.33 per cent fat there was only .641 of a pound of protein to a pound of butter fat, while that containing 2.68 per cent butter fat required .982 of a pound of protein to a pound of butter fat, being 50 per cent more than there was in the milk containing 5.33 per cent butter fat.

To show what generous provision is made for the increase in protein required as milk increases in quality, in table XXVI on page 104, bulletin 79, I submit a few illustrations showing the test to the nearest tenth of the foregoing table, the protein in the milk to one pound of butter fat, and the amount of protein provided in the table for milk of similar quality:

Per cent fat in milk	*Protein to 1 lb. fat in milk*	*Protein provided to 1 lb. fat in milk*
2.7	.982	1.392
3.2	.765	1.284
4.1	.704	1.156
4.2	.668	1.145
4.6	.643	1.106
5.3	.641	1.053

This shows that even the standard tentatively submitted provides net protein for milk production 62 per cent in excess of the protein found in the milk. This indicates that if there is any change to be made in the standard submitted it will certainly not be in an increased protein supply, nor is it practicable to make either yield of milk or butter fat only a basis.

It may be of interest to know the net protein in the ration fed to one of the groups of cows this winter and the protein found in the milk. The daily ration contained on an average 1.239 lbs. of digestible protein; the average weight of the ten cows was 825 lbs.; the protein for maintainance is calculated at .578 of a pound (.7 for 1000 lbs. live weight.) leaving .661 available for product; and in the daily product there was on an average .621 of a pound of protein—leaving only .04 of protein daily unaccounted for. The milk tested 4 per cent fat and there was .74 of a pound of protein in the milk to a pound of butter fat.

If a wide ration causes a depression in the digestibility of the protein, as has been suggested by some, how did these cows manage to account for all the protein in the food except the small amount of .04 of a pound? The only answer to this question is that either this was an exceptional case and, under the methods of feeding followed, there was no decrease in digestibility of protein in the wide ration, or that these particular cows required only .5 of a pound of protein daily for maintainance per 1000 pounds live weight. (.426 for a cow weighing 825 lbs.) This would leave daily .826 pounds of protein available for product, and since there was daily .621 of protein in the milk, .205 of a pound, or 24 per cent, of the protein was not accounted for. In either case does not the cow become entitled to the degree of Producteur Economique. Why not award degrees to the cows? They do the most imporant part of the work. What an encouragement to heifers if the old bossy grandees were decorated with appropriate titles; Sweet Briar; Ph.D., Houston, M. A., for instance. What has a cow an escutcheon for, anyhow, if not to have emblazoned thereon, the titles appropriate to her attainments.

T. L. HAECKER.

Minnesota Agr. College.

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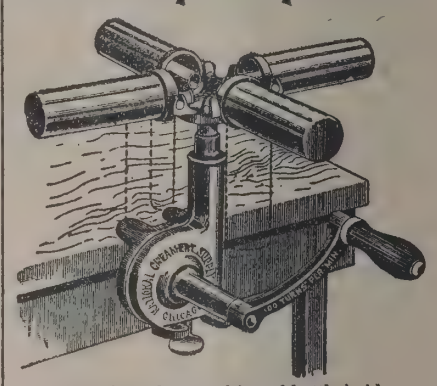
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The Lack of Equipment in Dairying.

ED. HOARD'S DAIRYMAN:—One of our western New York dairymen the other day preached a long sermon to me on the dairy situation as he conceived it to exist with him and his fellow farmers in their effort to make money out of milk. He did it in these few words: "We lack the equipment."

Of course he said more in explanation of the situation, but this phrase is enough to show his grasp of the difficulty. There are a good many reasons leading up to this confession. Some of them apply to this herd, some to another, while some are guilty of most of the drawbacks that have to do with poor success in dairying. I am not now living on a Western New York dairy farm, but I have done so long enough to appreciate the situation, and also to enable me to see that the difficulty in the main is made up in two ways. One is lack of sufficient faith in what one does to put energy and money enough into it to insure success. The other is a lack of what may be called alertness. Following the old line is easy. Taking up a new one is hard. Besides it does not always succeed, at least at first, and we are either not willing or not able to risk failure that we may profit by it.

It is not the man who seldom or never fails who is sure of the greatest progress. It is the man who knows how to profit by his experience and does it, whether he succeeds or fails to begin with. Western New York has in former days made money easily and fast out of grain and fruit. Now that this is no longer easy, the dairy has been set up as a helper, and as a rule it has not been thoroughly done. There is the milk dairy as a short cut, a very necessary industry in this vicinity of large cities, but one that can be made a very shiftless business if the "right" man gets hold of it.

For instance my friend tells me of a neighbor who is carrying a single can of milk a day to the railroad, several miles over roads that have been at their very worst since February and are not likely to be much better for a month yet. As this man works his land on halves he is getting not over 40 cents a day for his half of the milk he sells. Could anything be less inviting? Yet it is a reasonable certainty that he imagines he is the victim of circumstances and is spending the time that should be given to study and observation of his business to cursing his luck. Ask him if he reads agricultural or dairy papers, and he will say that he has no time for them. A farmer of long standing, who does not make a quarter of the money now that he did 25 years ago, said this very thing to me this week when I told him that I had so much interest in farm affairs and saw so many unsolved problems in them that I was reading about all the farm papers I could get.

Really, what is to be done to get the literature of the farm into the hands of the farmers? There is no greater problem in farm affairs than this and I am afraid there is none more hopeless. I firmly believe that half a dozen live papers, not merely in the house, but in the hands of any reasonable farmer would fire him up as though a match were set to tinder. The trouble is that he fights shy of them all and if he takes a single one he does so as a favor to some friend who is selling it, and seldom looks at it.

Not long ago I asked an old farmer if a certain change of method of raising a certain crop would not be likely to double it and he agreed that it might. I then make bold to ask why he did not adopt it and he replied that "we always did it this way." The reason was sufficient, and I said no more.

There is really nothing new on the dairy farm in this vicinity that I have been able to discover but the silo, and the spread of this has been due largely to the activity of agents, who differed from the lightning-rod man of old in having something worth buying. "Every farmer who did not have a silo last year is buying one now," was the report of a silo builder the other day. This is all well enough, but like almost everything else, it is only part of the case.

Dairy farming is a taxing business. It keeps us at home morning and evening every day, but it makes the farm and with prices such as they have been of late, it will make us if we attend to business intelligently. Let nobody forget the one word "equipment,"—good cows, proper feed (raised and not bought, as far as possible) good quarters, good handling, a fair amount of modern appliances. How many of us are covering this ground? If we do not why should we complain?

Erie Co., N.Y. JOHN CHAMBERLAIN.

Cow Peas and Soy Beans in Wyoming Co. New York.

ED. HOARD'S DAIRYMAN:—On page 153, J. N., Wyoming Co., New York, asks if any one in Western N. Y. has tried cow peas or soy beans and found them a success. As I spent forty years of my life in Wyoming Co. and have grown cow peas and soy beans for several years in Va., perhaps I can give some advice that will be useful to the farmers of Western N. Y. I am quite sure that both crops can be grown successfully in that part of the state but believe that the soy bean will give the better satisfaction and that the best use to put it to would be to put it into the silo along with corn, and that the best way to grow it, provided the harvesting can be done satisfactorily is to grow it in alternate rows with silage corn, making the rows about 32 inches apart. I have grown it in that way for two years with field corn and get half a crop of beans and nearly a full crop of corn, and with a riding cultivator can straddle the beans after the corn is tasseled out.

The corn being a surface feeder, has nearly the whole surface to itself, as the bean is a deep rooting plant and the corn being farther apart gets more benefit from the sun and air. I raise a tall growing, yellow variety of bean which can be cut with mower, reaper or binder, and if planted with silage corn will be ready for the silo at same time as the corn. If planted by itself it can be planted two or 2½ feet apart using one peck to one-half bu. of seed to the acre. It would make a splendid crop for sheep or horses, if cut with binder when grain is about mature and just before leaves begin to turn yellow.

It yields much heavier in grain than cow peas and no amount of bad weather will injure the grain when ripe, but very little will injure cow pea. But the bean must be thoroughly dry before storing in bulk either threshed or unthreshed. The bean can be planted as early as corn and will stand cold, wet weather that would ruin cow peas. It will also stand as much dry, hot weather as the cow pea. It never falls down or lodges from wind or rain. I believe the soy bean will solve the protein problem for the stock farmer.

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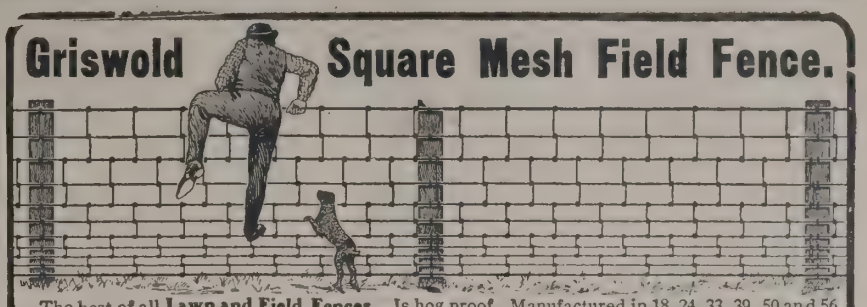
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"For five years I was a sufferer from a dreadful condition of the bowels; the trouble was most obscure." Here follows a detailed description and the condition certainly was distressing enough (details can be given by mail).

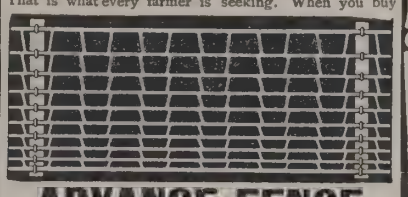
"Nothing in the way of treatment of drugs benefitted me in the least and an operation was seriously considered. In May, 1901, I commenced using Grape-Nnts as a food and with no idea that it would in any way help my condition. In two or three weeks time I noticed an improvement and there was a steady gain from that time on until now I am practically well. I don't know how to explain the healing value of the food but for some reason, although it has taken nearly a year, I have recovered my health and the change is entirely attributable to Grape-Nuts food, for I long ago quit medicine. I eat only Grape-Nuts for breakfast and luncheon, but at my night dinner I have an assorted meal." Name furnished by Postum Co., Battle Creek, Mich.

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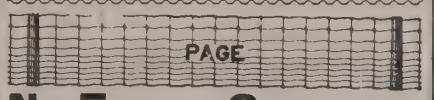
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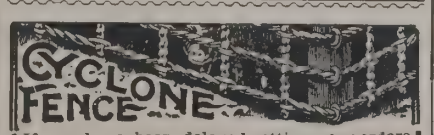
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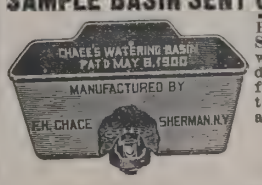
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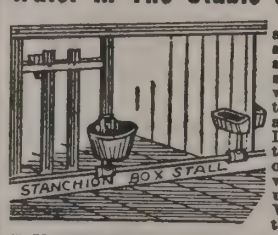
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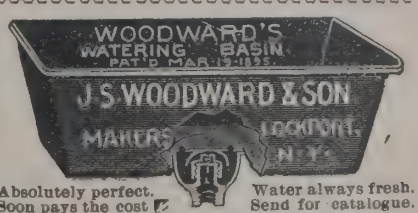


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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own ight who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

THE dairyman who thinks that the Oleo makers are going to stop coloring oleo without making a vigorous attempt to find a method that the law will not forbid, is very much mistaken. Ever since the law was passed all the skill of some of the best chemists in the country has been at work on the question of finding a natural color for oleo. At one time palm oil seemed to furnish what was wanted, and a color that the analyst could not identify. But what one chemist puts together another one can usually pull apart, and a method of identifying the palm oil color has been found, and the successful manufacture of colored, untaxed oleo is still in the distance.

THE Ninth Biennial Report of the Minnesota Dairy and Food Commissioner, Hon. W. W. P. McConnell, has been received at this office. It is a volume of 392 pages and is filled from beginning to end with interesting and instructive matter.

The people of Minnesota are dealing with the food swindler and adulterator of all kinds, without gloves. The Commission is given a large appropriation, if we remember correctly $18,000, and employs a dozen or more inspectors whose time is taken up in looking after parties who sell adulterated food of any kind, spices, vinegar, impure milk, butter, or oleomargarine colored to resemble butter.

The report gives the names of over 700 milk producers selling milk in cities whose stables and premises have been inspected. There is also a record of a host of cases, where the names of parties are given who have been prosecuted and fined for selling adulterated food.

Among other cases are the names of several creamery men and butter makers who have been fined for under reading the Babcock test. This is square justice and the DAIRYMAN believes it would be in the line of dairy progress if some such examples were made in other states.

LIQUID MANURE.

On page two of the current volume of the DAIRYMAN was published the following question:

Will you or some reader give me a little advice which I need in regard to liquid manure. I find that under the cow barns, on a farm purchased by myself last year, are two cisterns, 7 ft. wide, 50 ft. long and 5 or 6 ft. deep, filled to overflowing with full strength liquid manure. I know not how long it has been accumulating, but concluded, after my discovery, that although a good deposit, it had better be put out where I can realize something from it.

Which will be the best thing to do, retain these vaults or fill them and save the liquid by absorbents? A. B. C.

East Onondaga, N. Y.

In reply we stated that applying manure in the liquid form is too expensive to be practical and that it would be cheaper to use absorbents in the future.

Our correspondent also wrote to the Rhode Island Experiment Station and received the following reply:

I believe it is better economy to apply the liquid manure by itself than it is to use absorbents. In either case the object is the removal of the liquid manure and its application to the land in such form as to be most effective. If the liquid manure is applied alone there is no reason why as much of it as can be hauled by a team at once may not be drawn out, if a suitable conveyance is at hand in which to carry it. If absorbents are used they must be hauled to the stable, scattered about and then the absorbent material as well as the liquid manure must be hauled away again so that, according to the advice given by HOARD'S DAIRYMAN, there is a very great additional amount of hauling and consequent additional expense where absorbents are employed.

Of course there is no question here as to the value of liquid manure. Its value is too well known to admit of any question, and it resolves itself into one of expense and convenience. Of course a tank of the above size, filled with fermenting liquid, is not the sweetest thing to have in the neighborhood, where milk is produced, but the important question is the relative expense of absorbents vs. handling some 3,000 lbs. of liquid, per cow, with a tank. As in most cases the absorbents used are largely derived from horse manure and waste food, which must be handled and drawn out, this question is reduced to its lowest terms and is not an important consideration. Unless there are local conditions under which the use of liquid manure would give large returns, we still consider that it would be cheaper to use absorbents.

TWO GOOD DEFINITIONS.

One of the most important things in this world to secure is a right outline or definition of the things we wish to do. A hazy, indefinite idea or concept in the mind, is sure to end in an imperfect, botchy way of doing. This thought is not entertained by men as much as it should be. It really constitutes the foundation difference between skilled and unskilled labor; between efficiency and inefficiency; between men of value and of but little value. It is an old saying that "A first class hired man will make a successful farmer." In many instances have we heard a shiftless, worthless farmer spoken of as having been a poor hired man." A disorderly mind, a lazy shiftless habit of thinking, invariably precedes the same way of doing things.

We hear much said about the art, as well as the science of agriculture. It is well to have a clear definition of these two things in our minds.

In bulletin No. 104 entitled "Modern Dairy Science and Practice", edited by Prof. L. L. Van Slyke, and issused by the Agricultural Department of Pennsylvania, we find the following clear definitions of the Art and Science of Dairying:

"Dairying is both an art and a science, whether considered in its restricted or broad sense.

"*The art or practice of dairying* embraces certain practices and processes which have been gradually developed by experience and observation. The art of dairying, in its widest application, teaches how to cultivate the soil for the production of certain crops; how to make and use fertilizers; how to breed, feed and care for dairy animals for the production of milk; how to produce cream, butter, cheese etc., from milk."

This is an excellent definition as far as it goes. One more very important thing should have been added, that of the construction and management of dairy barns and stables,

He defines the Science of dairying as follows:

"*The science of dairying* embraces a collection of the general principles or leading truths arranged in a systematic order relating to the operations of dairying. Thus, among other things, the science of dairying *explains* the growth of animals, the relations of foods to milk production, the chemical composition and physical properties of milk and its products. It consists of an application of the truths of such sciences as physiology, chemistry, physics, botany etc., to the *practical* operations of dairying."

It will be well for every dairy farmer to get those two definitions well set in his mind. He may become somewhat conversant with the art of dairying without knowing much of its science. He may have learned how to do certain things without having learned any thing of the principles that underlie them. How much more effective will every man become in the work of dairying if he strives to know the *why* or the science of the thing, as well as the *how* or the art of doing it. To know *why* we do a thing is a constant guide in doing it, as well as a guard against costly mistakes.

MILK—ITS USE AS A FOOD.

In the *Chicago Record Herald* of Jan. 13th. appears a very interesti ng an instructive article on "The High Value of Milk As An Article of Diet" by Dr. W. R. Latson, Editor of the *Health Culture Magazine* of New York.

The article is much too long for reproduction in the colums of HOARD'S DAIRYMAN but it contains many ideas and statements which are of value in showing what are the latest conclusio ns of medical science concerning milk.

Dr. Latson commences by revie wing the opinions which have been advanced both for and against the use of milk as a food by adults and the facts he brings out are of value.

He states the chemical composition of milk as follows:

"The composition of cow's milk of fair average quality may be roughly represented by the following formula:

	Per Cent.
Fat	4.00
Sugar	5.00
Proteids	3.30
Mineral matters	0.70
Total solids	13.00
Water	87.00
Total	100.00

We quote farther as follows:

"The most important food elements, perhaps, in the milk are the albumins or proteid ingredients. The greater part of these elements are in the form of casein, or, as it is sometimes called, casinogen. Other albuminons matters found in milk are lacto-protein, fibrin, lact-albumin, and lacto-globulin. The two last named albumins are coagulated by cooking."

It is the custom of many house wives to cook many articles of diet in milk. The cooking of milk as the Doctor states coaguiates the albumins and renders them indigestible. The further effect of cooking on the mineral content is described as follows.

"The mineral matters of milk are also important — more important, many claim, than the proteids just named. The mineral matters consist of phosphates and chlorides of potassium, sodium, lime and magnesium and traces of iron and other metals. Many, if not all, of these important mineral elements are found in chemical combination with organic elements. For instance, the calcium probably exists only as a phosphate with the casein, and the magnesium in combination with citric and other organic acids. The effect of cooking upon these substances is to break up the combination between mineral and the organic elements, causing the mineral to become "free." This is a most important point, and will be referred to later.

The sugar present in milk, lactose, is peculiar to that substance, being found in no other connection. When treated beyond a certain temperature it undergoes radical chemical changes."

The butter fat he states is little affected by cooking.

In describing the instruments in use to determine the quality of milk, the author mentions the lactometer and the creamometer, the latter being nothing more than the old-fashioned cream test glass tube. Strangely enough he says nothing of the Babcock test, an instrument of the highest merit in determining the fat content of milk, whereas the creamometer is of but little real use. It hardly seems if true that Dr. Latson is not aware of the superior, practical value of the Babcock test over the ordinary test tube in determining the per cent of butter fat in milk.

The following statement showing how the food and the conditions surrounding the mother, whether human or bovine, affect the quality of the milk is of value:

"The variations in milk depend upon the food of the animal, upon its state of health, upon its activities, upon the time and manner of its milking and upon other conditions. If the food of the animal be improper or deficient the milk is necessarily affected. According to a well-known German chemist, a sample of milk derived from cows fed on distillery refuse yielded nearly 1 per cent of alcohol. Another case is still more striking. A certain infant, cared for by a wet nurse, was seized with alarming convulsions every Monday and Thursday. On other days the child seemed to be in good health. On investigation it was found that the wet nurse during her "days out," which were Sundays and Wednesdays, was in the habit of taking alcohol freely. The servant's drinking of alcoholic liquors was stopped and from that time the child had no more convulsions. Many physicians can testify to the appearance of symptoms in the nursing infant resulting from drugs given to the nursing mother. Indeed, physicians have at times administered drugs to the mother for the sake of their effect upon the nursing child. Many other instances might be cited of the effect of bodily states upon the milk, but enough has been written to show that the character of the milk is intimately affected by the physical state of the animal from which it is derived.

Not only, however, as to the health of the cow, but regarding the handling of the milk is there danger of the milk being so injured as to make it unfit for use, or even dangerous to health. All the necessities in this respect may be embraced in one word—cleanliness. The teats of the cow, the hands and person of the milker and the various utensils in which the milk is conveyed from the cow to the consumer—all these should be absolutely clean."

The doctor then takes up the sterilization and pasteurization of milk and states that they must of necessity make milk indigestible; that if milk is clean it is a great deal more wholesome and nutritious to both infants and adults in its raw state. His ideas are evidently in keeping with those of the most experienced physicians in all of our cities for the great effort now is to produce milk of the highest purity without pasteurization, as do the Walker Gordon people, H. B. Gurler of DeKalb, Ill., and many others. There is one phase of this question however that the Doctor does not discuss, that is how to

make certain dairymen understand what the word "cleanliness" means.

Take a farmer, for instance of dirty ideas, and although his cows are plastered with manure and his milk filled with manure, dust and filth, he will tell you "it is clean enough." How shall we get down through the ignorance and stupidity of such cow keepers, and make them see that they have nasty ideas about a business that calls for the very highest cleanliness?

Concerning the injurious effects of cooking milk he farther says:

"It will be remembered that in discussing in the earlier part of this paper the various food elements contained in milk, it was stated that all the salts, part of the proteids and the sugar of milk, when subjected to cooking, underwent certain radical changes. The salts became separated from their organic combinations, some of the proteids were coagulated and the milk sugar was decomposed. Now with regard to these changes, it may be said, without going into detail, that the coagulated proteids are entirely indigestible, and that the "free" mineral matters resulting from raising the temperature of the salts and the decomposed lactose are not only quite unassimilable, but are actually irritant substances in the body. So, in the effort to kill the microbes by cooking, the only result is to kill the milk. When we cook our milk we kill it."

He states that raw *clean* milk is of the highest value to adult men and women, and particularly to invalids and persons suffering from lack of nutrition.

It must be taken in its natural state.

"Then, milk should be taken only with other natural foods in a natural state. Milk may be combined with uncooked eggs or cereals or with raw fruits, nuts or salads. It should not, however, be taken with ordinary cooked foods, as in such case it is certain to ferment, producing auto-intoxication, popularily recognized as "biliousness," and other disagreeable symptoms.

One who is undeveloped, thin, emaciated, may by the free use of milk and eggs, with such other natural foods as mentioned above, restore his or her body to full contours, and will at the same time experience a sense of well being and capacity which is possible only when the body is in a high state of nutrition.

The secret of cure, whenever cure is within the bounds of the possible, may be expressed in two words—nutrition and elimination. Milk is a perfect nutrient, and at the same time, because of the water in it, a great aid to elimination. For those suffering from an acute condition, an absolute fast should be imperative. For the weakly, however, and for those whose bodies, while, perhaps, strong and active, are thin, undeveloped or under-nourished, a diet of milk with fruits, nuts, cereals, salads and eggs, all eaten in their natural state—such a diet will effect a change both radical and lasting.

The dairy farmer can learn much from the above if he will. He can learn why the consumer demands so imperatively that the milk be good and absolutely clean. He can learn why the state of public sentiment is crystalizing in law and every other way against the man who will not keep his cows in a healthful condition. If he will see through this and beyond, to his own pocket, he will see that all these demands of science will pay him if he will obey them.

THE DIFFERENCE IN MEN.

The other day a California man wrote us a most woeful letter about HOARD'S DAIRYMAN—said he could not make anything out of it. We felt sorry for him, but really we could not see how we could help a man that was that far gone. It is evident there is a difference in men in California, as well as in other states, and here is a letter to prove it:

ED. HOARD'S DAIRYMAN:—In regard to the DAIRYMAN allow me to say that I consider it the best paper published in the interests of dairymen. My experience as a dairyman is, I consider, very limited, considering the vast requirements of the business. I began with only two cows two years ago last November. I knew nothing of the business and was free to admit I was green. True, I could milk a cow, pitch hay to her and give her water, but that is only sufficient knowledge for the primary department.

I wanted instruction as to advancement and I wanted it from men of experience, men who had made a success of the business. I at once subscribed for several farm and agricultural papers. I found them to be very good, but they were for a "general purpose."

What I wanted was something more detailed for dairymen. About a year ago I was in G. G. Wickson's supply house in Los Angeles, and there I got a copy of HOARD'S DAIRYMAN. I can say after a year's trial that it is just what I want and what hundreds of others need. I am now milking 20 cows and expect to get more this coming summer. HOARD'S DAIRYMAN is my senior partner in the business. CHAS. M. KIGGENS.

Sawtelle, Cal.

The Annual Meeting of The American Guernsey Cattle Club.

ED HOARD'S DAIRYMAN:—The Annual Meeting of The American Guernsey Cattle Club will be held at the Fifth Avenue Hotel, New York on May 13th at 10:30 a. m.

The year just closing is the 25th since the establishment of the Register and organization of the Club, and has been a very successful one for Guernsey interests.

Wm. H. CALDWELL, Secr'y.

Peterboro, N. H.

Some Questions Concerning Alfalfa Answered.

The first is, when to commence cutting? Our own experience is that the largest gain is made when the alfalfa is cut as soon as the first blossoms appear. If we delay beyond that period, two things are sure; the stalks get coarse and woody, and the second crop is much lighter. On this point, Prof. P. Harcourt of the Guelph Ontario College has made some comparitive experiments. He says:

Because lucerne (alfalfa) has such a thick, juicy stem, it is a little hard to cure as hay. To get the best results, it must be cut earlier than clovers. The determinations which the writer made in 1897-8 (Bull. 111, O. A. C.), on the composition and digestibility of lucerne, showed clearly that the most nutriment was obtained when the blossom was just beginning to open. This is shown in the accompanying table:

SECOND CROP, 1897.	Dry matter Lbs.	Digestion co-efficient.	Digestible matter lbs.
First cutting, buds formed	3197	58.6	1873
Second cutting, blossom one-third out	3819	56.2	2146
Third cutting, a little past full bloom	3317	51.3	1701
FIRST CROP, 1898			
First cutting, buds formed	3045	58.6	1784
Second cutting, blossom one-third out	4201	56.2	2389
Third cutting, a little past full bloom	3894	51.3	1997
SECOND CROP, 1898.			
First cutting, buds formed	1899	58.6	1112
Second cutting, blossom one third out	2505	56.2	1407
Third cutting, a little past full bloom	3214	51.3	1135

I was told by an officer, who went through the whole of the late war in South Africa, that the best hay they got there was made in the Argentine from lucerne.

The second question is, How does alfalfa compare in feeding value with clover and timothy? We consider it, at least, four times as valuable for milk making purposes and more than double the value of red clover.

The following table of analyses will throw some light on this point:

PERCENTAGE COMPOSITION OF LUCERNE, RED CLOVER AND TIMOTHY HAY.

	Water	Dry matter	Protein	Fat	Nitrogen free extract	Fibre	Ash
Lucern	15.00	85.00	13.20	2.98	35.42	27.25	6.15
Red clover.	15.00	85.00	11.47	2.04	41.31	28.63	6.55
Timothy	15.00	85.00	6.03	1.70	45.22	28.31	3.75

AMOUNTS DIGESTED PER TON OF HAY FED.

	Dry matter	Protein	Fat	Nitrogen free extract	Fibre
Lucern	955.40	192.19	30.04	496.58	205.46
Red clover,	974.95	141.03	29.38	587.42	209.36
Timothy.	920.21	48.67	16.15	528.44	306.88

We spoke of the stalks growing coarse and woody. Right here comes in the importance of sowing from 25 to 30 pounds of seed to the acre. Alfalfa should be grown thickly in order to overcome the habit of making coarse stalks. The extra cost of ten or fifteen pounds of seed is small indeed in comparison with the extra value of the hay that results from it.

DON'T PUT OFF

Seeing your friends and having them oin in for a good club of subscribers.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

A New York Ration.

Please give me a balanced ration from the following feeds: Corn silage somewhat green, clover and timothy hay, wheat bran, $22; oil meal, $31; cotton seed meal, $31. Cows are grade Jerseys and fresh from 3 to 4 months. Is there any danger in feeding cotton seed meal, and if so, what is it? Will it cause abortion? J. H. J.

Linwood, N. Y.

Grade Jerseys that have been milking only three to four months, should be carried forward to pasture very liberally so as to prevent abnormal shrinkage. To this end, we recommend this inquirer to use a ration substantially as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
10 lbs. hay	8.53	.48	3 96	.16
5 lbs. bran	4.41	.63	1.93	.15
2 lbs. oil meal	1.82	.59	.65	.14
Totals	22.68	2.09	10.74	.66

If the cows will eat more of the silage or hay, let them have it up to the limit of their respective appetites, but not more than they will eat without waste.

We do not consider that there is any particular danger in feeding cotton seed meal in limited quantities, but there is a very universal opinion that it is better not to feed this meal during the later months of gestation, lest it might have a tendency to produce abortion. We are not as much afraid of this as a good many are, because it has been demonstrated in innumerable instances that cows fed cotton seed meal up to the time of freshening, have had no trouble. However, in deference to this almost universal sentiment, we hesitate to advise the use of cotton seed meal after five or six months of gestation. We have, therefore, specified oil meal in the above formula partly for this reason and partly for the further reason that this feed seems to have a dietetic value that the chemist cannot reach in his analysis nor the veterinarian fully explain. The fact remains, however, that, in some way and somehow, it serves a very excellent purpose.

Milk and Cream Yield.

I have a herd of Guernseys testing about 5.20. I propose to put in a separator and sell my cream. How much cream testing 22 per cent will my milk yield? For me it works out this way: 22:5.2 :: 100 lbs. : 23.6 lbs. cream. Allowing 2 lbs. to a quart of cream, would give 11.8 quarts cream from 100 lbs. milk. Is this right in theory? Does it work out that way in practice? W. W. H.

New Hope, Pa.

There will be a loss of 0.1 per cent of fat on the average in separating and handling the milk. This will make 5.1 pounds of butter fat available for cream? The yield under above conditions would be 23.2 lbs. of 22 per cent cream. A quart of 22 per cent cream will weigh 2.11 lbs. and the above amount of cream will make 10.9 quarts.

Alfalfa and Quack Grass

I have a field of rolling sandy loam. It has been cropped with beans two years with a good crop of rye plowed under last spring.

Owing to poor cultivation, there is considerable quack grass. Will this spoil the chance of getting a catch of alalfa. How can I tell if the soil needs lime? L. E. K.

N. Y.

Unless you are in a limestone country, it is more than probable that lime in some form will be necessary (wood ashes, marl, or unslacked lime). Manure the land well and give it good cultivation before sowing and the quack grass will not injure the alfalfa.

A Skim Milk Question.

At a certain factory in New York, equipped for making both butter and cheese, it is proposed to make partly-skim cheese this summer. The plan is to run a given percentage of milk through the separator and add the skim milk to the reserved whole milk. It transpires that some of the patrons of this factory, being better advised as to the feeding value of skim milk, have proposed to buy some of it, and the question submitted is: What can they afford to pay, and what can the factory or the other patrons afford to take for this skim milk?

Assuming that the mixed milk at this factory contains, as is most probable, from 8 to 9 per cent of solids not fat, of which not to exceed 3-7 is casein, the only element in skim milk that contributes to cheese making, 100 lbs. of the skim milk would make from 5 to 6 lbs. of full-skim cheese, worth in the New York market anywhere from 2 to 6 cents per pound. Deduct the cost of making and marketing, and there remains the value of this skim milk for cheese.

What can the farmer afford to pay for this skim milk? As above stated, in 100 lbs. there will be from 8 to 9 lbs. of solid dry matter, not less than 95 per cent of it digestible and worth at a moderate estimate, as other feed stuffs are selling from 2 to 2½ cents per pound.

Assuming the foregoing estimates to be approximately correct, the farmers can afford to pay 20 cents per hundred pounds for the skim milk, and this is quite as much as it is worth for cheese making purposes.

Cream Chart.

Do you have cream charts, and if not, where can we obtain them? There is a good number of hand separators coming into use here, and there is quite a demand for some means of ascertaining the quantity of butter contained in the cream. The most of us use Babcock testers, but heretofore have sent our milk to skimming stations.

Ellensburg, Wash. B. P.

The only one we know of is published on page 245 of Farrington's and Woll's Milk Testing, which can be obtained from this office for $1.00 post paid.

A Connecticut Ration.

Will you kindly give me a balanced ration to feed our Jersey cows, most of them have been milking all winter, and I have fed cotton seed meal and corn cob meal with ensilage and mangels with some corn stalks cut up. But now all our cob meal is gone, and we have only a few mangels left. Have ensilage and corn fodder enough to carry us through. Grain costs us as follows: cotton seed, $29; white flour middlings, $27; hominy, $20; ordinary middlings, $24; bran $23; corn meal, $24. What is the best way to feed corn fodder after it is cut up, dry or steamed? Do you advise putting grain on it before it is steamed, or after it is fed to the cows?

We make a specialty of butter, therefore have not fed any gluten. J. A. D.

Wallingford, Conn.

Unless these cows have been accustomed to heavy feed all winter, there would seem to be no sufficient reason why a ration substantially as follows, should not enable them to do about as well as could be expected:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.88	.39	4.20	.21
15 lbs. corn stover	8 93	.26	4.36	.11
2 lbs. cotton seed meal	1.84	.74	.36	.17
4 lbs. bran	3.52	.50	1.54	.12
Totals	22 17	1.89	10.44	.61

If for any reason it should seem to be expedient to add to this ration, we suggest that ground corn or corn meal be used and it can hardly be necessary to use more than two pounds. We would feed the concentrates, or grain part of the ration, in connection with the silage in order to secure its greater dilution, and add at least one teaspoonful of salt at each feeding.

Unless the corn stover is in such supply as not to make it expedient to feed it economically, we should never attempt to feed it dry, but instead of steaming it, we would cut enough to last a week, more or less. Dampen it somewhat and let it lie in a pile, where it will of its own accord heat up and soften and become, as it were, second or third rate silage. Steaming would operate in much the same way, but unless one has an abundance of steam for other purposes, we do not think it would pay to make steam especially for steaming fodder.

The objection to mixing grain with cut forage before steaming is that you have no opportunity to discriminate in feeding and it always is at least expedient to discriminate in feeding.

In regard to the postscript to the last inquiry, we feel it proper to say that we do not think there is any well founded objection to the use of gluten feed or gluten meal even where butter is the market product. It is probably true that these glutens tend to make a less firm butter than some other feeds but this would be, in our judgment, abundantly counteracted by the cotton seed meal.

Mixing Whitewash.

Will you please tell me the best way to mix whitewash to use with a spraying machine, and the name of the best spraying machine for whitewash on the market? A. H. B.
Roodhouse, Ill.

Ordinary whitewash is made by slaking lime in water. Put the lime in a pail or half barrel and pour on enough water so it will remain liquid and not dry out when the mixture slacks. Let the mixture stand until next day and when wanted, thin down with water so that it will spread easy with a brush. To prevent rubbing off when dry add an ounce of glue to a pail of whitewash. For use with a pump, the whitewash must be strained through a fine seive or cheese cloth as it would otherwise choke the pump and nozzel. For pumps and nozzels to use in whitewashing, write to Deming & Co., Salem, Ohio and see adv. on page 257.

The so-called "government" whitewash—the kind used at military posts, public buildings, etc., is said to be made and used in the following manner:

Slack half a bushel of good stone lime in boiling water, keeping it covered while slacking; strain and add half a peck of salt dissolved in warm water, three pounds of ground rice boiled to a thin paste, half a pound of powdered Spanish whiting, one pound of clear glue dissolved in warm water. Mix all together and stand for several days. Keep in a kettle and apply as hot as possible with a clean brush. Of course where such a large quantity is not needed, the mixture is to be reduced in proportion.

Alfalfa and Hard Pan.

Do you think alfalfa can be raised on clay soil where the subsoil is very hard? The surface drainage is good; no water standing on the top.
Oswego, N. Y. W. A. B.

If the subsoil is of the nature of a hard pan that can only be broken by blasting, the alfalfa roots cannot penetrate it and the plant will not do well. Between this and a soft subsoil are all stages, most of which the alfalfa roots can penetrate. Whether the roots can get through the hard pan above mentioned can only be told by trial. In any case it is best to start with alfalfa on a small scale the first year; an acre or two is sufficient.

Bloody Milk—Alfalfa.

I would like to ask you some questions concerning the raising of alfalfa. Part of our farm is situated along the creek, from eight to ten feet above the water line. It is composed of rather coarse gravel, but in most places is well covered with fine soil. Another part is five or six feet higher than the "flats," but has a subsoil of clay or hard pan. The remainder of the farm is side hill land, the soil being well mixed with red shale. Good crops of clover have been raised on all parts of the farm. Which do you think would be the best for alfalfa?

Have a three-year old heifer which dropped her first calf last May. During the fall she began giving bloody milk from one quarter of her udder. About every two weeks the milk would be affected for two or three milkings and then be all right again. P. R. S.
Windham, N. Y.

Land that will grow clover will grow alfalfa, but it should not be sown on land that is subject to overflow, or where the subsoil contains standing water. In the above case it will probably not do well on the coarse gravel unless there is a thick layer of good soil above the gravel, nor where the water is but a few feet below the surface, but it should be successful elsewhere on the red shale land. Where alfalfa is a new crop it is always well to begin on a small scale, an acre or two the first year, and increase the area as results warrant.

The cause of a cow giving bloody milk can, almost in every case, be traced to an injury of some kind to the udder. Uncomfortable stalls in which the cow is compelled to lie in such a manner as to squeeze the udder, are very often the cause. Your remedy is in ascertaining the cause and removing it.

Barley for Cows.

Is barley a good feed for milch cows? Also what is the feeding value of pigeon grass seed? If barley is good for milk, give us a balanced ration of barley, oats, corn and bran. J. R. W.
Elgin, Minn.

Barley is an excellent feed for milch cows, not only for stimulating milk production but for giving excellent flavor to milk products. It is, however, impossible to submit a formula, as requested, without information as to the kind and quality of roughage available. It makes a very material difference in the matter of selecting proper concentrates whether roughage consists of clover hay or timothy hay or corn stover and silage. Barley and bran would make a very good combination, so would oats and corn, but it would hardly be expedient or necessary to combine them all in one mixture.

Pigeon grass seed is similar to millet seed, but neither should be fed unground

Result from Feeds Not Satisfactory.

I am feeding cows 5 lbs. wheat bran, 2 lbs. cotton seed meal, 20 lbs cut corn stover, 10 lbs. timothy hay each, and the yield of milk is not satisfactory. I was feeding some gluten feed up to about a month ago, but gluten went so high I cut it out. Cows did well for a few days about two weeks and since then have been shrinking. Gluten feed, $28 a ton; cotton seed meal, $29; wheat bran, $23.

Please inform me if I can make any improvement in the mixture I am feeding and also please compound me a balanced ration of what I am feeding with gluten feed added. I also have some rye on hand which is very cheap. W.
West Webster, N. Y.

The ration as now fed, if the ingredients are of average quality, set out in tabular form, shows the following figures:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. corn stover	11.90	.34	6.48	.14
10 lbs. timothy hay	8.68	.28	4.34	.14
5 lbs. bran	4.41	.63	1.93	.15
2 lbs. cotton seed meal	1.84	.74	.34	.17
Total	26.83	1 99	13.09	.60

There is nothing in these figures to indicate that results should not be satisfactory, unless it is too large a proportion of roughage, especially if the cows are not above 1,200 lbs. in weight. Taking out 3 lbs. timothy hay and adding 1 lb. bran would be likely to improve the combination. A more important matter, perhaps, would be a careful examination of the bran and cotton seed meal to ascertain if both are free from adulteration and decay or damage of any kind.

To add gluten feed take out one pound each of cotton seed meal and bran and add 2 lbs. of gluten. And give the cows salt, a large teaspoonful with their feed night and morning. Boiled rye could be used in place of half of the bran.

A Balanced Ration, but Might be Improved.

Would you consider the following a balanced feed for cows:

Equal parts of gluten and cotton seed, two parts of bran, mixed. Seven pounds of the mixture fed once a day, with 12 pounds good hay and 30 pounds ensilage. Prices of the ingredients here as follows:

Gluten, $25.75 per ton; cotton seed, $27; bran, $20.50; hay, $18; ensilage, $5.

What changes, if any, would you suggest be made to obtain the best results for butter-making? F. E. H.
Fisher's Island, N. Y.

So far as mere digestible nutritive elements are concerned the ration above described, if the different feed-stuffs are of average quality, would contain 2.23 lbs. protein, 11.94 lbs. carbyhodrates and .68

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My remedy does that even in the most difficult, obstinate cases. It has cured the oldest cases that I ever met. And in all my experience—in all my 2000 tests—I never found another remedy that would cure one chronic case in ten.

Write me and I will send you the order. Try my remedy for a month, as it can't harm you any way. If it fails it is free.

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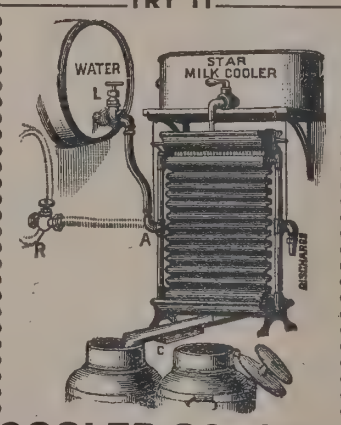
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The Champion is pre-eminently the easy Cooler—easy to buy, easy to take care of, easy to use.

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lbs. fat, or ether extract, sufficient, one might suppose, to enable any herd of cows to do their best. It is a question, however, whether the proportion of roughage to concentrates is not larger than is profitable, especially if the cows are not considerably above medium size. Moreover, for highest quality of butter, unless needed to give firmness to the product, it might be expedient to reduce the amount of cotton seed meal, if not to displace it altogether and substitute ground corn in its place. Take for illustration the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
10 lbs hay	3.68	.28	4.34	.14
4 lbs. bran	3.52	.50	1.54	.12
2 lbs. gluten feed	1.80	.47	1.01	.05
2 lbs. ground corn	1.78	.16	1.33	.09
Totals	23.70	1.80	12.42	.61

Assuming the hay to be timothy, this ration contains only 1.8 lbs. digestible protein, which is considerably less than was considered necessary a few years ago. It seems to be proven, however, by many carefully conducted feeding trials, carried on for several months, and in some cases for successive years, that this amount of protein is more than ample as an average for a herd.

A remaining consideration is the matter of cost. The feed-stuffs named are very high in price and it might pay to try the market for something equally as good but costing less.

Ensilage Freezing.

Will ensilage freeze? If so will that spoil it? I want to partly fill my silo as soon as I can get clover and sowed corn to feed at once. If I should not get the ensilage all fed out, can I fill in on top without spoiling? J. M. H.
Allen, Pa.

Of course, silage will freeze if given any opportunity, but freezing does not materially injure it, provided, it is not put before the cows in a frozen condition. In an ordinary silo, there is but very little freezing and that just about the sides, and sometimes the silage will cling to the sides for days at a time. Much of it can be pried off and all of it will fall sooner or later, and if the frozen silage is taken to the center of the silo, the heat from the balance of the silage will take the frost out and no serious damage will result.

It is within the limits of experience that silage has been kept in the bottom of silos for four or five years, the silo in the meantime having been filled and refilled repeatedly, and, when reached, the old silage is as good as it ever was. In putting new material above that which has been in the silo, care should be taken to remove all that is damaged to any extent.

Combined Corn and Cow Pea Planters.

Our good friend, W. H. Bruns, of Missouri, is still anxious to obtain a workable combined corn and cow pea planter. It would seem to us that the manufacturers might easily apply attachments to the ordinary corn planter that would solve this problem, but until they do so, there is probably no better way than to pursue the course followed by our Tennessee correspondent who uses a common corn planter with the cow peas in one receptacle and corn in the other and by going over the rows twice, succeeds in planting both at the same time. That is to say, in going across the field the first time, one row of corn and the other of peas is planted. In turning about, the receptacle containing the peas follows in the track where the corn was planted and this operation is repeated until the whole field is planted.

Co-operative Milk Depots in Cities.

The dairymen of this city wish to co-operate and put in a milk depot, and all take their milk to the depot and have it bottled and sent out at one place, and if there is any surplus milk left let it be made into butter. Is there anything like this being done at the present time, and is it a success?
Pasadena, Cal. A. McD.

Co-operative milk depots for cities are becoming reasonably common in recent years. These are sometimes located in the city itself, or frequently, in the case of large cities, perhaps 100 miles or more distant, and this is practically the only insurance the milk producers can have against frequent losses by overstocking the market. It goes without saying, that there must be some business capacity and business sagacity in the management of these depots, just as there must be business sagacity and capacity in the successful management of any other business.

For the land's sake—use Bowker's Fertilizers. They enrich the earth and the men who till it.

Nova Scotia Queries—Capacity of Hay Loft—Vent'lation.

Will the DAIRYMAN be kind enough to give me some information through its columns upon the following subjects,

How many tons of well cured timothy or mixed hay right from the field, can be stored in a barn loft the size of which is 34x24 feet inside and 7 feet from floor to plate with an ordinary pitched roof over; the hay will be pitched in from outside.

In using the King method of stable ventilation, how large an out-take flue will be required to carry off the bad air from five cows in a stable 34x17 feet and 8 feet ceiling and also size of intake flue? Will one of each be sufficient? Want to have the air and temperature just right. Stable is a semi basement and unavoidably on the north side, but will be made very warm and light; windows north and east. READER.
Nova Scotia.

It would be but a wild guess to attempt to estimate the capacity of a hay loft of the dimensions given, as so much would depend, first, upon the character of the hay, as to whether it was coarse or fine, and second, as to the manner in which it was stored away. We think it doubtful if more than five tons could be put away in such a loft at a single filling unless it was pretty thoroughly tramped down as the filling progresses.

Prof. King's formula for ventilating shafts is four square feet of cross section for twenty cows. This presupposes a fairly good draft and a flue without any artificial aid.

The flue should be practically air tight through out its entire length, the same as a chimney. In order to secure good draft, it must not have openings. It would follow from this rule that a ventilating shaft or tube a foot square would be ample for five cows. It is altogether probable that it would be practically impossible to make a stable so impervious to air that enough would not come in in various ways to supply all the fresh air needed by this number of animals; but if this should be doubtful, provide one or two small intake flues with an outer opening three or more feet below the ceiling of the stable and the inner opening just below the ceiling. Intake flues are constructed in this way, rather than having direct opening through the wall, in order to prevent the escape of the warm air.

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Seeing your friends and having them join in for a good club of subscribers.

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When the coffee toper, ill from coffee drinking, finally leaves off coffee the battle is only half won. Most people require some hot drink at meal time and they also need the rebuilding agent to build up what coffee has destroyed. Postum is the rebuilder, the other half of the battle.

Some people stop coffee and drink hot water, but find this a thin, unpalatable diet, with no rebuilding properties. It is much easier to break away from coffee by serving strong, hot, well boiled Postum in its place. A prominent wholesale grocer of Faribault, Minn., says: "For a long time I was nervous and could not digest my food. I went to a doctor who prescribed a tonic and told me to leave off coffee and drink hot water.

"I did so for a time and got some relief but did not get entirely well so I lost patience and said: 'Oh well, coffee isn't the cause of my troubles' and went back to drinking it. I became worse than ever. Then Postum was prescribed. It was not made right at first and for two mornings I could hardly drink it.

"Then I had it boiled full fifteen minutes and used good cream and I had a most charming beverage.

"I fairly got fat on the food drink and my friends asked me what had happened I was so well. I was set right and cured when Postum was made right.

"I know other men here who use Postum, among others the cashier of the Security Bank and a well known clergyman.

"My firm sells a lot of Postum and I am certainly at your service for Postum cured me of stomach trouble." Name given by Postum Co., Battle Creek, Mich.

The Cow Man

is pretty sure to be interested in the matter of milk cans. If you happen to be such a man we are favoring you by calling attention to our line of

STURGES Standard Approved Milk Cans

It is the best made line of milk cans in the world. Cans that are hedged against crushing and denting, seams soldered and tinned and retinned to shut out all chance of rust and secure perfect cleansing, and with perfect handles for convenience and security. The patterns include the famous **Iowa, Elgin, Chicago, Burn, Omaha, Wisconsin,** and other makes. Our Special Milk Can Catalogue will interest you if you want to buy the best.

We also manufacture and sell the now celebrated Dairy Queen Churn, the Boyd Cream Ripener, Success Skim Milk Weigher and a general line of Creamery and Dairy Machinery and Supplies, as well as building complete Butter and Cheese Factories equipped with the latest appliances. We handle only high grade goods and on the lowest possible margins of profit. We have separate catalogs covering the several branches of the Creamery and Dairy Supply business. Write us for anything you need and we'll mail you catalog.

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They are tinned to stay tinned, and put together to stand years of hard service. Other cans crack easily, become dented, and being lightly tinned soon rust and go to pieces. Not so with the "Buhl Factory," "Improved Elgin" and "Genuine Iowa." They will outlast any other cans on the market, and are thoroughly and quickly cleaned. **Remember,** the Buhl is the only can in the world that is made with the **Buhl "Victor" Can Breast** and the **Buhl "Victor" Round Handle.** As there are many inferior imitations of this can, we stamp all ours with the **Milk Can Trade Mark.** Look for it. Sold by all live dealers. Ask about them, or write us direct.

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has for more than five years been successfully solving the problem in many different creameries. When a patron has dropped in his check he can pump the amount of skim milk called for by his check, less the percentage taken out as cream, so in like proportion to all other checks. Its measuring apparatus is just an ordinary pump which everyone understands and knows how to operate.

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MILK TUBES Patent Coin Silver 1¾" 50c. 2¾" 80c. Improved Teat Opener 75c. Dilating plug 25c. Postpaid on receipt of price. G. P Pilling & Son, 2d and Arch Sts., Phil., Pa.

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Silo—Hilee, Hilo!

Schwertfeger Talks and Also Builds a Silo.

DEAR GUFFERNOR:—Dat's wat's de de song of efery Cherman Dutchman wat's got a silo. Poody gwick dat'll be de song wat will be blayed de most on dem machines wat dey haf on de back barr of de saloons, You'll see. Chust so gwick as more of dem Dutchmens find out wat a goot ting such a silo shebang iss, dey all goin to haf one.

May be you tink dem Chermans was poody shlow; well, may be so; aber dey was shure. Wen dey got a goot ting, my, how dey can hang on! Und dey aint goin to let go till dey find someting a lots bedder. You tink may be it was takin dem a awful long time to find out apout de benefitz of a silo; well, may be so again; aber dare iss goot reasons for dat. Wat fore you always dalk your lectures in Engelish? Wat fore you don't shpeak to dem in languages wat dey can undershtand? Wat fore you always brint your baper mit Engelish? Wy you don't write Cherman, wat iss more confincing, heh? I betch you anyting you want to bet, dat your lectures und your baper was reshponsible for one-half of de Yankee silos in de country und some odder too. Do you call dat a fair shake for *us* fellows? Nossir—ee, I don't; und nopody else wat's got some sense don't neidher.

You see dem Chermans was prought up und edchucated mit a different language und dey cant shpeak und read und write such fine Engelish as I, so as to been able to undershtand all your highfalutin words und stuff; und den we'se allways a little fraid of dem darn Yankee dricks; aber you oncet show us how it is in Cherman, und we catch on chust so gwick as anypody und a goot deal harder. Oder may be you tink we dont know so much as dem Yankee fellows? Dare's ware you gets fooled on yourself; chust look at me! Und deys all like me dat way, only some knows more.

Nossir, I dont care not wat exshcuse you try to makes, *you* was reshponsible dat dare iss more Yankee silos dan Cherman ones. Und if you dont like dat shtatement you can sue me. It's apout time somepody tole you de trudh.

Now *I'm* going to write to dem apout de benefitz of a silo, und I was shure dey will beliefe *me*—dey got to, because dey know no Cherman efer shpeaks a lie wen he can help it.

Aber fursht I must ashk your adwice. You remember dat cow wat I wrote you apout de ferry fursht time? Well, I guess she remembers you, because you called her a "Cherman" cow. Dat cow iss goin to play de same drick on me again as last year. De shtork wisited her on August fifdeendh und apout a week later she gif forty-four bounds of milk a day. November dwenty fursht she gafe dwenty-four bounds, und today when she was in milk 249 days, she was shtill milking dwenty-dwo bounds. Poody gwick she gits a fine bashture, und dare you got it again! How in blazes can I try her up! I could'nt do it last year, und de fellows wat had her before me couldn't, und she's had tree oder four calfs already. Yo see dat nefer worrid me before, because I tought it showed she was a goot cow; aber a fellow wrote in a baper de odder day dat it will shpoil a cow unless she is tried up efery year. How iss dat? Iss dat so? Und wat can I do apout it wen I can't try her up? She's as shlick und frisky as a shpring chicken, und she eats anyting you gif her—rodden abbles und tings wat de odder cows sthick up deir noses at she takes to, like my Peter does to lemonade bie; wy she eats like a hogg—yes, worser.

Oh, I must tell you someting: May be you was right after all wen you called her a Cherman cow. You see, de odder day my wife she shtarted mit de last char of souerkrout; it was fine too, und we had some for dinner mit dumplins und shpare ribbs und a nice grafy—we haf dat every Tursday; aber you know on de top, wen you fursht shtart a new char, dare is always some wat is shpoilt und shmells pad. Well my wife she took dat off in a pan und said she would gif it to de hoggs. I said you bedcer try dem fursht, may be dey wont eat it; und I went along mit her. Well, shure enuff! She trowed in a big handful und dey all come und shmell of it: Aber dey chust took one shniff und shtuck up deir noses und grunted kinder mad, oder for someting else, I don't know wich, may be it was bodh. Well, den I said trow it on de manure pile in de parnyard. Aber my wife said, "Nossir, I'm goin to try de cows on it fursht;" you see she tinks so much of souerkrout, she don't like to see none wasted. Aber dem cows was as bad as de hoggs until she come mit de pan to Brownie. My grashus, dat cow she difed into it as dough it was punkin puddin, und eat it all up. Gosh, I was surprished; und you see she likes souerkrout chust like me, und may be she was a Cherman cow after all. My, I tink lots off her now.

Well, now let's see, wat was I'goin to write apout again—you always git me off my subcheckt! Oh, yes, apout silos. Well how shall I tackle dem fellows wat don't beliefe in silos, oder dont know nodding apout dem, so as to confince dem of de errors of deir ways.

Allright, I will fursht shtart in mit a exshplanation of wat a silo iss, und you fellows wat don't got none you follow mit me. A silo is a ting wat to put fresh food into to keep it fresh. It is chenerally put in wen we got blenty, more as we need, und taken out und fed wen we aint got none. Dat's it exactly. The refricherater und cold shtorage mens dey do de same ting. Dey buys eggs und butter und lots of odder shtuff wen dare iss blenty und wen dey can git it cheap und put it in deir kind of silo, und take it out wen dare aint none, oder anyway wen its more shcarcer und costs more.

The silo gifs us de same as green food in de winter wen dare aint none out doors; it iss in nice, short shape, easy to git at und easy to handle; de caddle und horses und hoggs und chickens all like it like crazy; dey keep shlicker und healtier; de cows gif more milk; und you can git a bigger amount off de richest feed from efery acre, can harfest it gwicker, more easier und cheaper, und can shtore it more handier and in less shpace dan anyting wat you got. Yessir, dat's wat I said!

Now don't you been in a hurry mit saying dat aint so, because I rebeat it, *it is so;* und I'm going do brove it on you. Furst let me dell you wat kind of shaped ting a silo iss. Well, its all kinds, dat's wat iss. Some iss round, some iss shquare, some oxagon, und some is wider one way dan the odder; but deys all eidher deep oder high. I like it bodh ways some. But de shape und dat makes no differentz. It's according to de blace you got to put it ware its most handiest, oder may be its only according to your notion. Maybe you was a shquare man, und darefore want it shquare und mit the corners poody well off; perhaps you was an all round man like me, den you want it round—(dis is only a choke). Anyway de shape makes no differentz a tall, except dat, like mit a man, it's bedder if de sharp corners has been taken off, because in the corners iss ware deys likely to be sometings shpoiled.

Well, I'll tell you fursht how I built mine; dat's de way us farmers always do. I wanted only a liddle one so I could haf it in de corner of my hay parn und so I don't need to build no exshtra roof on it. So I took me a shtake for de tzentrum und shlipped a shtring mit a loop over it; from de shtake I made de shtring chust half de diameeter long und tied a charp shtick on de end to shcratch mit; den I walked around und shcratched a round tzircle all around. Den I had it digged out six foot deep und walled up mit shtone und tzemented. On de top I set a sixteen foot high shtave barrel as big around as de hole in de ground. Dat was made of matched six by dwo inch blanks und held togedder mit shtrong iron hoops.

Before de shtaves was put togedder I had dem bainted inside und outside und in de groofes und tounges mit dwo coats aferishus carbolinum. Dat's all dere was to it. I didn't efen fasten de barrel part onto de wall because I toughd it wouldn't git away anyway, und it didn't. Dat's wat we calls a silo und its about so cheap a one as can built. But I got some frients wats got goot deal better ones und wat cost more money; some are round und some shquare und some oxagon; some are shtave, some frame und some of wood und blaster und some of brick und so weiter. Makes no differentz how you build so long as you makes it as deep in de ground as your location allows und as high, too, und make it air tight eferywhere, except on top. So much as you git in de ground iss dead shure tight und will lasht anyway forefer, und costs chenerally only your own labors und de lime und shtone mason; darefore put all you mit confenience can below de ground. Aber iff you can't, put it on top off de ground—put it somewares anyway. Furst ting of all, iff you get de noshion its a goot ting finally a liddle shtarted in your head, go by some one wat can figger it out for you wat it costs. I'll betch your poots it'll be a good deal less dan you was shcared apout.

Den look around a liddle so as to make shure wat kind iss best for you, ware it'll be most confenientest, wat size you want, etc. Den go ahead und build it to oncet und let no one shcare you out of it.

De odder day I heerd a fellow say he knows of some farmers wat apandoned dier silos. Dat's so, may be; und I know of some fellows dat keeps cows wat don't give enuff milk to pay for deir feed, und who'd do bedder to sell de feed und safe de labor of caring for und milking de cows; und I know of fellows de creamery mens had lots of trubbel mit to git dem shtarted do keep cows a tall, wen dairyin was first dishcovered, and byme by dey did und made more money dan efer before; und also I know fellows wat dont like souerkrout und don't drink beer! Aber dat dont brove not a tall dat bodh aint goot; aint I right?

Now look here, Mr. Gufferner, dis artickel's goin to been too long for your baper, I mean if you put it in all to oncet; so I guess I do like wen dey write a goot shtory, make it "to been continued in our nexsht." Wat you tink? All right; aber in de nexsht baper I show dem fellows sometings apout silos wat will make dem laugh! Your frient,

AUGUST FRIEDERICH WILHELM SCHWERTFEGER.

CONCERNING OUR ADVERTISERS.

D. S. Stewart, Antigo, Wis., is offering, in an advertisement this issue, some good bargains in 160-acre farms. These lands are situated in Northern Wisconsin where is found some of as fine land, agriculturally, as will ever be found. Don't pass these by if interested, but get such information as you want about them by writing the advertiser.

A WORD ABOUT A WINDMILL.

There is a chain of Samson windmills all around the world. In every civilized country on the globe, Samson windmills are in use, and in nearly every country there are located agencies for the sale of these wind engines. In no country of the world are so many Samsons in use as in our own, where the very best of everything is appreciated and demanded. The reason for the universal popularity of this celebrated windmill is attributable to its strength, ease of running, efficiency, and long life. It is the only windmill made on scientific principles, using a double gear in place of the one-sided single gear affairs that have worn themselves out and worn out the patience of their owners in times past. The Samson is the windmill of the present and of the future, a revolution and a revelation in the possibilities of wind propelled machines. It is simple, strong, superior, and needs but to be seen in comparison with others to have its points appreciated. There is a book published about the Samson windmill at a cost of several thousand dollars, a copy of which will be sent to any of our readers who will take the trouble to send a postal card to the Stover Mfg. Co., Dept. P., Freeport, Ill. and request that it be sent them. It is well worth reading.

A separator cleaner has been placed on the market by M. H. Fairchild & Bro., of 199 Michigan St., Chicago, Ill. There is unquestionably a great deal of merit in this "Sepo Cleaner" as it is called, and we do not doubt the least but that hundreds of the readers of the DAIRYMAN will at once avail themselves of the opportunity and write for circulars investigating its merit. There is no article on the market that has been more satisfactory in the creamery trade as a cleanser of separators, vats and all apparatus and tinware like the preparation made by this firm. They have put up this "Sepo Cleaner" in small packages and a trial by any dairyman will prove very profitable. Write them for circulars. This cleansing powder has been endorsed by the best authorities every where, and creamery men and dairymen who are using it are its highest praisers.

NEW BUGGY BOOK.

The newest thing in buggies and pleasure vehicles of every description are illustrated and described in full in the new 1903 Buggy Book of the Kalamazoo Carriage & Harness Mfg. Co., 148 Ransome St., Kalamazoo Mich., which it is promised us will be sent prepaid and free of all cost to such of our readers as send their name and address to that company. Here is a chance to become informed on the best new and latest improved staple vehicles without any expenditure of money. The Kalamazoo Carriage & Harness Mfg. Co. were the very first to enter the field with a thirty-day free

YORKSHIRES A few choice imported Boars. September farrow. Also pigs from imported stock ready for delivery in 8 weeks. W. H. FISHER, Spahr Bldg, Columbus, O

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. All our choice pigs of 1902 farrowing have been sold. We are now taking orders for 1903 farrowing.
JOHN WHITE & SON, Adamstown, Md

10 DAYS FREE TRIAL



We will send any bicycle to any address with the understanding and agreement that you can give it 10 DAYS' FREE TRIAL and if you do not find it easier running, handsomer, stronger, better finished and equipped, more up to date and higher grade than any bicycle you can buy elsewhere at $5.00 to $15.00 more money, you can return it to us at our expense and you will not be out one cent.
$10.95 Buys our new HIGH GRADE 1903 NEWTON BICYCLE, which we guarantee stronger, easier riding, better equipped; better frame, wheels, hubs and bearings than you can get in any other bicycle for less than $20.00. OUR 1903 NAPOLEON BICYCLE is priced at about ONE-HALF the lowest price asked by others. For Free Bicycle Catalogue, hundreds of price surprises in bicycles and supplies, our Free Trial and Guarantee Proposition and our Most Astonishing Offer, cut this ad. out and mail to SEARS, ROEBUCK & CO., CHICAGO

SEED CORN

Our Yellow Selected Seed Corn is unexcelled for strong, healthy growth and consequent big yield. Small cob and deep grain. In a word—strictly reliable seed. Shipped in twill bags of two bushels each. Price $1.25 per bushel f. o. b. cars here. Sacks 15 cents apiece. Prompt and careful attention to all orders.
E. A. CLENDENIN & BRO.,
Colora, Maryland.

A CHANCE TO MAKE MONEY

I have berries, grapes and peaches a year old, fresh as when picked. I used the California Cold Process. Do not heat or seal the fruit, just put it up cold, keeps perfectly fresh, and costs almost nothing; can put up a bushel in 10 minutes. Last year I sold directions to over 120 families in one week; anyone will pay a dollar for directions when they see the beautiful samples of fruit. As there are many people poor like myself, I consider it my duty to give my experience to such and feel confident anyone can make one or two hundred dollars round home in a few days. I will mail sample of fruit and full directions to any of your readers for nineteen (19) 2-cent stamps, which is only the actual cost of the samples, postage, etc. FRANCIS CASEY, St. Louis, Mo.

WISCONSIN FARMS

in Dunn, St. Croix, Barron, and Price counties make the best homes on earth; because, 1st. soil heavy; 2d., some timber, fuel cheap; 3d., springs and streams numerous; 4th, no blizzards or drouths; 5th., no sand or pine stumps; 6th, near the best northern markets; 7th, best dairy section known; 8th., no crop failures; 9th., successful settlement and all prosperous; 10th., corn, oats, wheat, rye, potatoes, tobacco, hay, etc., unexcelled in the United States

If you want a Canadian home, we can, and will take you to the best locality in Manitoba or Assiniboia. Send for catalogue or come yourself. We sell on easy terms our own lands in Wisconsin and Canada. DUNN COUNTY LAND CO., Downing, Dunn County, Wisconsin, or 156 East 3d. Street, Rooms 5 and 6, St. Paul, Minnesota.

ASK STEWART ABOUT . . . THESE BARGAINS

160 ACRES LANGLADE COUNTY
Virgin Timber Land; good soil; no stone; well watered with lake and stream on border. Bass, Pickerel, and Muskelonge Fishing; good road 3½ miles from station.

160 acres Waupaca Co. Land; 80 acres ready for plow; river on north line, trout stream on south line. If you don't want either of these cheap, write me your wants, I have more.
D. S. STEWART, Antigo, Wis.

MRS. LEA'S MILK AND BUTTER PURIFIER.



Removes all Weed, Garlic, Vegetable and Animal odor and taint from the milk and in no way injures the cow to which it is fed.

WASHINGTON, D. C., May 27, 1901.
The trial of your "Purifier" made at my request, interests me very much and strengthens my conviction that this "Purifier" is an article which, if it continues to produce the results attained the present season, is destined to be of great importance and value in many dairying districts of this country.
[SIGNED] HENRY E. ALVORD,
Chief of Dairy Division, U. S Department of Agriculture

The use of our "MRS. LEA'S MILK AND BUTTER PURIFIER" is a necessity to producers of milk and butter when the pastures are at all infested with Garlic, Onions, Rye or Clover. It is a great saving, as the cows can be grazed, thereby saving largely in feed expenses. It always removes the taints when properly fed. The best dairies are using it largely and with profit. Try it and you will find it to your interest. For sale by The Dairymen's Supply Co., Philadelphia, Pa.; Farmers' Exchange Co, Belle Mead, N. J.; Cook & Brady, Middleton, Del; Filston Farm, Baltimore, Md.; Gardiner Dairy, Baltimore, Md.

Manufactured by VIRGINIA CATTLE FOOD COMPANY, Danville, Va.
Write Us for Prices and Further Information.

trial offer to the people, allowing anybody to use the buggy he thought of buying for this length of time before definitely deciding whether its merits would warrant him in keeping it or not. Being large makers of buggies and harness, and having years of successful dealing with the user direct to refer to, it is their proud boast that their product has become known as the standard by which other makes are judged, "Kalamazoo quality" being recognized as the very highest, while the prices are astonishingly low, owing to the elimination of all jobbers, retailers, and middlemen generally, all transactions being direct between maker and you. The Buggy Book is yours for a word. Say that word now.

As to Eggs and Other Things.

Somebody has said that there is no such thing as a tolerably good egg About so, isn't it? It's another way of saying that work poorly done can never be satisfactory. Take the matter of tanks and silos, in which so many of our readers are interested. The A. T. Stearns Lumber Company of Boston, builds but one quality and that the best. It would be possible to reduce the selling price by using fewer and lighter hoops, inferior lumber and hasty workmanship; but the Stearns Company prefers to build right—to last. There's nothing "tolerably good" about a Stearns-made tank or a Stearns-made silo. They are simply the best that can be produced.

Quotes From the Scriptures.

Ward & Andrus, proprietors of the creamery, at Randolph, Wis., have the following quotation from scripture, (interposing the word in parenthesis) printed on their butter wrappers: "Butter and honey shall he eat, that he may know to refuse the evil (oleo) and choose the good.—*Isaiah 7:15.*."

Our Special Elgin Letter.

Ed. Hoard's Dairyman:—On the Elgin Board of Trade today butter slumped to 25c. New York market is the same. The output for the week was 508,900 pounds. Receipts, 5,209 tubs. Former prices were:

	Sales.	*Price.*
April 13, '03	0 tubs	27½c.
April 21, '02	10 "	27c.
April 22, '01	20 "	20c.
April 20 '00	0 "	18c.

Elgin, Ill., Apr. 20, 1903. H. C. B.

DAIRY MARKETS.

ELGIN, Ill., April 20—Butter—Slumped in price today to 25c on the Board of Trade, 2½c lower than last week. The fall is due to excellent spring pasturage and the increasing milk product. Sales for the week were 508,900 pounds.

CHICAGO Ill., April 20—Butter—Weak; creameries, 18@24c; dairies, 15@22c.

Eggs—Steady at mark, cases included, 14¼@14½c.

Cheese-Steady; Twins, 12½@13c; Daisies, 13¼c. Young Americas, 12½@13c.

Live poultry—Easier; turkeys, 12@13c; chickens, 12½@13c.

Cattle—Prime beeves 1,200 to 1,400 lbs., 5.45@5.65; choice to extra beeves, 5.15@5.40; fair to good export and shipping steers, 4.65@5.10; medium beef steers, 4.20@4.60; plain to fancy beef steers, 3.95@4.20; common to rough, 1,000 to 1,200 lbs., 3.50@3.90; good to choice heifers, 3.90@4.60; good to choice feeders, 4.00@4.90; poor to plain stockers and feeders 2.75@3.00; fair to good cows and heifers 3.20@4.15; good cutting and fair beef cows, 2.60@3.15; common to good canning cows, 1.70@2.50; bulls, poor to choice, 2.50@4.40; veal calves, good to fancy, 5.25@6.25; calves, common to fair, 3.50@5.00; corn fed Western steers, 2.65@5.50; Texas bulls and grass steers, 2.75@3.20. Texas steers, fair to choice, 3.75@4.60.

Hogs—Good to prime heavy shipping, 7.35@7.50; good to choice heavy packing, 7.30@7.45; plain to choice heavy mixed, 7.15@7.35; selected butcher weights, 7.35@7.47½; assorted light, 150 to 195 lbs., 7.05@7.25; common to good light mixed, 7.00@7.20; thin to choice, 50 to 130 lbs., lots 6.50@6.90; stags to rough lots, 4.00@6.30.

MILWAUKEE, Wis., April 20—Butter—Creamery—extras, 27c; firsts, 22@23c; seconds, 1 7c; June creamery, 18@20c; process (renovated), 17@18c. Dairy, fancy, 19c; lines, fresh, 16@17c; roll, 16@17c; packing, 13c: whey, 10c; grease, 5@6c.

Cheese—American full cream, Twins, 13@13½c; Young Americas, 13@13¼c: Daisies, 13½@14c; Longhorns, 12½@13c; low grades, 10@12c. Brick, fancy, 13½@14c; low grades, 11@12c. Limburger, fancy, 12@12½c; low grades, 10@11c. Swiss, drum, choice, 14@15c; drum, No. 2, 12@13c; Block, choice, 12½@13c; block, No. 2, 10@11c.

Eggs—Strictly fresh laid, cases returned, 13½c; dirties, 11c; seconds, 10c.

FOND DU LAC, Wis., April 20—Cheese—Sales at the Dairy Board today were 140 daisies 12½c.

SHEBOYGAN FALLS, Wis,. April, 15- Cheese—23 factories offered 1,100 boxes of cheese on the Call Board today and all sold as follows: 59 Twins at 12¾c; 63 at 12⅝c; 260 cases Young Americas at 13c; 367 Daisies at 12¾c; 40 cases Longhorns, 13⅛c, 311 at 13c. Market active and strong.

SHEBOYGAN, Wis., April 15—Cheese—On the Call Board here today 823 boxes of cheese were offered and sold as follows: 29 boxes of Twins at 12⅝c; 10 cases Daisies at 12½c, 169 at 12⅝c, 251 at 12¾c; 116 cases Young Americas at 13c; 39 cases of Longhorns at 13c, 209 at 13⅛c. Market active.

ST. LOUIS, Apr. 20—Butter—Steady; creamery, 20@28c; dairy, 18@21c.

Eggs—higher; 14c for fresh.

KANSAS CITY, Apr. 20.—Eggs— steady; fresh Missouri and Kansas stock, 12½c. doz. cases returned; new No. 2 whitewood cases included, 13¼c. Butter—Creamery, 20@24; dairy, 19c.

NEW ORLEANS, La., April 20—Butter—Market irregular and declining rapidly. Free offerings at 25½c.

PHILADELPHIA, Pa., April 20—Butter—Steady; Solids 26c. Prints 27c.

TOPEKA, KAN., Apr. 17—Creamery butter, 26½ to 28c; dairy 17½ to 19c.

Cheese—Longhorns 13¾c; Twins 13¼c; Daisies, 13¾c.

LIVERPOOL, April 20—Butter—Finest United States nominal; good do, 78s.

Cheese—Steady American finest, white 69s; colored 69s.

CANTON, N. Y., April 18—Cheese—Offered 272 cheese, and 713 tubs of butter. Cheese 12½c offered, but no sales. Butter sold for 22¼c.

NEW YORK, April 20—Butter—Receipts, 5,219 packages; steady; state dairy, 17@24c; extra creamery, 25c; renovated 12@19c; creamery, common to choice, 18@24½c.

Cheese—Receipts, 1,933 packages; firm; state full cream, fancy, small colored, fall made, 15c; small white, fall made, 14¾c; large colored, fall made 14½@14¾c; large white fall made, 14¼@14½c,

Eggs—Recipts, 31,968 packages; strong; state and Pennsylvania, 15½c; western storage packed, 15@16c; Kentucky, 15@15½c, western firsts, 15½c; southern, 14½c..

NEW YORK MARKET.

NEW YORK, April 18th.—Butter—Receipts for the week, 31,430 packages. Exports for the week, 2,468 packages.

Full receipts of fresh creamery butter from this state and other eastern points caused a surplus of fair to good creamery, and easier and lower prices were accepted to make any considerable sales, but at the close there was more than could be sold and price for extra creamery dropped to 25c.

New York State dairy make comes sparingly and very irregular in quality, fancy tubs sold at 25c, and entire lots poor to good at 20 to 23c. June make creamery butter is about out of the market, and we drop quotations. Low grades butter continue plentiful and prices favor buyers. We quote:

Creamery, extra, 25c; medium, 23@24c; poor, 18@22c Dairy, extra, 23@25c; medium, 20@23c; poor, 15@18c.

Cheese—Receipts for the week, 11,883 boxes. Exports for the week, 3,843 boxes.

A little sprinkling of new cheese here this week sold at 13 to 13¼c, and showed good quality for the season. Old cheese are having a fair demand but at less price than quoted. Skims in full supply and under grades are neglected and prices nominal. We quote:

Full cream, old, extra, 14¼@14½c; medium, 13½@14c; poor, 10@12½c. full cream, new, extra, 13½@14c; medium, 12@13c; poor, 8@10c.

Eggs—Receipts for the week, 125,750 cases.

A good free trade is going on and receipts were quickly disposed of on arrival at full prices. We quote:

New York & Pennsylvania, finest marks, per doz. 15½@16c; Western & Storage packed, 15¾@16c; Northern & Western, regular pkgs, 14@15½c.

177 Chambers St. David W. Lewis & Co.

NEW YORK FERTILIZER MARKET.

Acid phosphate	60 @	67½
Phosphate rock, f. o. b. Char'n	5 00 @	7 00
Tenn	3 60 @	3 75
Bones, rough ₱ ton	16 50 @	17 50
ground	20 00 @	21 00
Bone meal	18 50 @	24 00
Bone black, refuse	18 00 @	19 00
Potash, dbl. m're salt 48@53 per cent	1 12 @	1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons	25 00 @	30 00
sulph of basis, 90@98 per cent	2 11 @	2 18
90@98 per cent less than 25 tons	38 00 @	40 00
Potash muriate 100 lbs	1 83 @	1 95
less than 25 tons	36 00 @	40 00
Kainit 25% S. of P. ₱ ton	9 30 @	9 50
less than 25 tons	9 50 @	10 50
Sylvinit, 35@37% P. ₱ unit	41 @	46
Nitrate of soda	2 00 @	2 05
Blood, Dried red ₱ unit	2 65 @	2 70
low grade	— @	—
Concentrated tankage	15 00 @	16 00
Fish guano, dried	27 00 @	28 00
acidulated	14 00 @	—

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—in the Virden District, Manitoba, two adjoining 320 acre farms; soil, black prairie mold. No. 1 has 270 acres cultivated, bank barn 40x70 with geared windmill and waterworks in stable; 5000 bushel granary with elevator; large tool house, and 12 room dwelling, wind breaks, shade trees, 4 miles fencing; price $6,500. No. 2 has 280 acres cultivated, balance fenced pasture and hay; stable for 40 head; 5000 bushel granary, tool house, and 5 room dwelling; price $3,500. For terms and particulars address ROBERT TURNBELL, Two Creeks, Manitoba. 10-2

For Sale—Jersey bull 9 mos. old. Solid color, black tongue and switch. Sire, Romp's Victor Pogis, No. 38514. Dam, Miss I. F., No. 144547. Inquire of J. H. FRYER, Whitewater, Wis.

Wanted—Two single men on dairy. Only good milkers and farm hands need apply. Wages $27 00 per month. Commence at once. C. H. CROOK, Ottawa, Ill. 11-2

For Sale—Four young registered Guernsey cows, all fresh. J. E. STORY, Stanley, Wis. 11-tf

Wanted—Man who can furnish his own help to run 60-cow Jersey dairy (no farming). Contract one year. State experience. For details address J. D. ROSZELL, 223 So. Madison, Peoria, Ill. 10-2

Farm Manager, capable and experienced in dairy farm work is desirous of securing a position. 39 years old and have had 20 years experience in the work. Have successfully managed registered herds of dairy cattle and am familiar with modern dairy machinery and methods. Well educated. Address R. E. N., care Hoard's Dairyman. 8-4

For Sale—Complete city dairy (no cows) and ice cream plant in thriving southern city. Output 500 gallons milk daily at profit of 9 and 10 cents. Daily expense less than $30.00. Price $7,000. Can furnish experienced dairyman and ice cream maker with $2,000 cash to invest in the business as a partner, or will sell as a whole. Best reason for sulling. Address "APRIL", care of Hoard's Dairyman, Fort Atkinson, Wis. 8-tf

Berkshire Boars ready for service, for sale. Also spring pigs. Quality high, price low. GEO. V. SAFFARRANS, Palmyra, Mo. 11-2

Wanted—A situation as cheese maker, by the month or the hundred, or will rent a factory. 29 years experience. Good references. A. VANBRUNT, 204 Coleman St., Olean, N. Y.

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 1901

NOW IS THE TIME

TO BUY SEPARATORS.

If you are a creameryman with an old "hollow-bowl" separator of any kind NOW is the time to scrap it and put an "Alpha-De Laval" in its stead. . . .

If you are a creameryman and thinking of putting out hand machines among your patrons for cream gathering NOW is the time to do it. . . . .

If you are a farmer and thinking of putting in a cream separator for home use NOW is the time to do it.

Conditions were never as favorable to the use of the best, and the best only, of cream separators as at this time. . . . . .

The De Laval Separator Co.

Randolph & Canal Sts., CHICAGO.
1213 Filbert St., PHILADELPHIA.
217-221 Drumm St., SAN FRANCISCO.

GENERAL OFFICES:
74 Cortlandt St., NEW YORK.

121 Youville Square, MONTREAL.
75 & 77 York Street, TORONTO.
248 McDermot Avenue, WINNIPEG.

For Sale—One Reid separator, capacity 2000 lbs. per hour, good as new. Also gang cheese presses, never been used, curd mill and vats. ALEXANDRIA CREAMERY CO., Alexandria, Pa. 9-3

Buff Jersey's latest book on Farm Stock and Dairy Work is full of practical things for practical people. The Silo, how to build and fill; ensilage, its value; soil, crops, variety and how to grow. Swine, poultry and many other subjects ably treated. Send 25c for copy. Monmouth, Ill. 47-tf

Wanted—Experienced farm hand, able to milk well. Give age and wages wanted. ST. IVES PARK FARM, Mont Clare Station, Chicago, Ill. 41-tf

Wanted—Situation by expert retail dairy manager. All branches of the business thoroughly understood. Have references second to none. Address J. O. G., care Hoard's Dairyman. 8-tf

The Business Herd of Holstein-Friesian cows are being closed out at a great sacrifice, and if you want one or more officially tested, good business cows write at once and secure first choice. State just what you want and save time and correspondence. F G. JOHNSTON & CO, Sta. B, Columbus, O. 11-tf

Wanted—A first-class manager with experience to take entire charge of my herd of one hundred cows. Write for particulars, stating experience, age and salary expected. BOX 529, San Antonio, Texas. 11-3

Holstein-Friesian Bulls from one to fourteen months old at prices that will surprise you. O. J. GODFREY, Pennellville, N. Y. 11-tf

Cheesemaker Wanted—Experienced, capable and industrious. Address, for particulars, P. E. CRANSTON, Sabin, Wis. 10-3

Wanted at Once—Man and wife to work on small dairy of 25 head. Must be good, clean milkers. Salary $35.00 per month. Free rent and fuel. Give experience, age and nationality. WM. J. HOFSOMMER, Breese, Ill.

Cheese Maker wanted at once. State wages expected. Address T. B. ROBERTS, Roberts P. O, Minn. 11-2

Wanted—Good man to represent leading jobbing house, salary or commission. Address RACINE MERCHANDISE CO., Racine, Wis.

Wanted—Position by cheese maker about May 1st. LOUIS SCHUASSE, Faribault, Minn.

Wanted—Farm hand from now until January 1. A good all around farm hand. No dairying. Every thing in good, first-class shape and nice farming. Give price and reference. Address BOX 51, Florida, Henry Co., Ohio.

Guernsey Bulls—Best blood, 2 Experiment Station tests. WM. BLACK, Mt. Vernon, Ind. 11-2

Barred Plymouth Rock eggs from a pen of choice hens and a fine Thompon cockerel. 15 fresh eggs for $1.00. J. BLACK, Bremen, Ohio.

Wanted—A good milker and dairy hand. Address ARTHUR EVANS, Vicksburg, Miss. 11-2

Position Wanted—Experienced creamery manager wishes position as manager or butter maker in up-to-date creamery. Makes all by-products of milk. Taken one course at Cornell Dairy School. A No. 1 references. B. E., care Hoard's Dairyman. 11-tf

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

For Sale—One fine registered yearling Guernsey bull. Address S. L. DIETZ, Hyde's P. O., Md. 8-4

For Sale—To settle estate, dairy farm and milk route, one and one-half miles from Mauston, county seat of Juneau County, Wis. 35 cows, 200 or 280 acres as desired, with fixtures and stock. Basement barn. There is good tobacco land on this farm. Enquire of B. N. SOUTHER, Mauston, Wis. Box 336. 9-5

For Sale—10 h. p. Leffel boiler with Moore steam pump, fine condition. A bargain. Address BOX 54, Hastings, Ill. 10-2

Half Rates to New Orleans, La.—Via the North Western Line. Excursion tickets will be sold at one fare for round trip May 1, 2, 3 and 4, limited for return by special extension until May 30, inclusive, on account of Annual Meeting American Medical Association. Apply to agents Chicago & North-Western R'y. 10-3

Very Low Rates to California and Return—Via the North-Western Line. First-class round-trip tickets on sale May 3d and 12th to 18th, to Los Angeles and San Francisco. Favorable limits and stop over privileges and choice of routes. The overland limited, most luxurious train in the world, leaves Chicago daily 8:00 p. m. Less than three days en route. Drawing room and compartment sleeping cars, observation cars, dining cars, buffet-library cars, (barber and bath) electric lighted throughout. Three trains a day from Chicago to the coast through without change. Daily and personally conducted tourist car excursions to California, Washington or Oregon. For particulars apply to ticket agents Chicago & North-Western R'y. 8-7

Very Low Rates to Dedication Ceremonies of Louisiana Purchase Exposition, St. Louis, Mo.—Via the North-Western Line. Excursion tickets will be sold for the above occasion April 29, 30 and May 1, and on account of Good Roads Convention on April 26 and 27, all with return limit until May 4, inclusive. Apply to agents Chicago & North-Western R'y. 9-4

To Colorado in 1903—The passenger department of the Chicago & North-Western Railway has issued a very interesting folder, giving information as to reduced rates and sleeping car service, with a short description of the various points of interest in Colorado usually visited by tourists, these excursion rates applying on account of the Christian Endeavor meeting to be held at Denver, July 9th to 13th. Send 2-cent stamp for copy, to W. B. KNISKERN, Passenger Traffic Manager, Chicago. 9-6

Homeseekers' Excursions to the Northwest, West and Southwest, and Colonist Low Rates West—Via the North-Western Line. Excursion tickets at greatly reduced rates are on sale to the territory indicated above. Standard and tourist sleeping cars, free reclining chair cars and "the best of everything." For full particulars apply to agents Chicago & North-Western R'y 5-8p

A Barn for Fifty Vermont Cows.

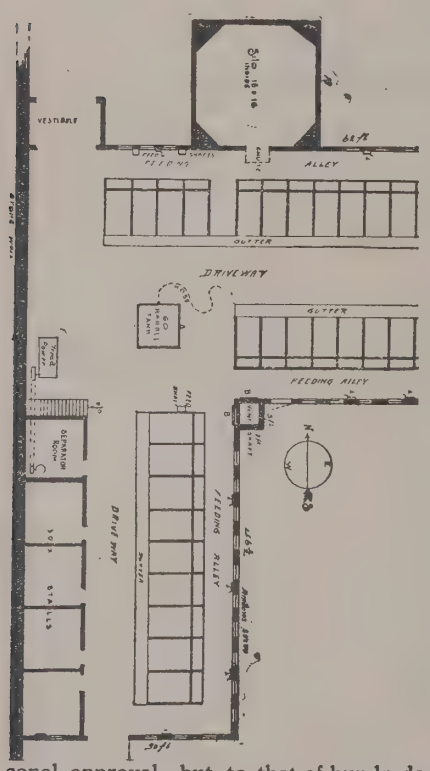
ED. HOARD'S DAIRYMAN:—Last November I had the misfortune to lose my barn by fire, together with 90 tons of hay and seven cows. I am planning to build another this spring. I wish to build large enough to accommodate 50 cows. Had thought that perhaps 44x90 would give me room enough, the first eight feet or basement for stable only, the next 20 feet for hay with a 12-foot drive, or barn floor, as it is sometimes called; barn to set east and west, with west end 20 feet from retaining wall, bridge from wall to barn. Stable to be on ground floor with no cellar under. Would like to have cows head out and have plenty of room for pens for calves, bull and hospital.

I cannot quite get a plan of stable to suit me. Can you or any of your readers of the DAIRYMAN help me out?

What is the cost of cement floors for stable, and what is the best system of ventilation for stable of that size?

Washington Co., Vt. SUBSCRIBER.

It is not good policy to crowd fifty cows into a barn 90′ long. It can be done, but at the expense of doing away with convenient passage ways. Neither would we build a barn more than 36′ wide, as such width will comfortably accommodate two rows of cows. Of course one can build wider and thereby obtain room for young stock and box stalls as indicated on page 260, in reply to T. K., of Montreal. Such a structure will cost less than to build after our favorite model, but the saving in cost is at the expense of greater ecomony and satisfaction in administration. This plan has been published several times, and has been tried by the Senior editor, not only to his personal approval, but to that of hundreds of visitors who have inspected it. The accompanying illustration shows the general plan of the stable, and not the least among its advantages is the facility with which it lends itself to indefinite expansion without disarrangement of the original plan, as either wing may be lengthened. In fact, since this cut was made, additions have been made in this way.



Note and Comment.

Some Ohio Weather.—Cows on March Grass.—Old Pastures.—Dairying vs. City Milk.—Summer Soiling Crops.—Summer Silos.—Agricultural Education.

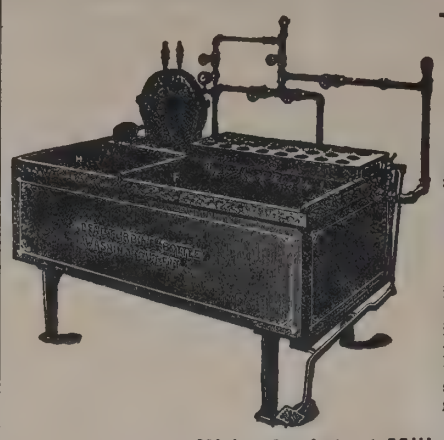
ED. HOARD'S DAIRYMAN:—These few lines are being written the 24th of March, at the close of the most remarkable two weeks weather ever known in Ohio, soft, warm, balmy weather, with twelve nights in succession of frogs singing, fields a-greening and buds a-swelling and mud a----ing, for never was the mud deeper, more clinging and disposed to go to greater lengths, than on, and in this "bannana belt" of northern Ohio this now, present spring. The pastures have a most decided green look and soft under foot to correspond. A trolley trip of some [seventy miles, a day or two, since, through a dense dairy district, showed a surprising thing. A great majority of the dairies were being allowed to roam the fields in search of this greenness, and was getting a "heap of walk" out of the endeavor. Nearly all of these farmers are winter dairymen, making milk for the Cleveland market.

Was this March grassing of cows profit, or loss? Is it any wonder that it now takes full five acres of pasture and all the grain a man can buy, to summer a cow? Is there any connection between all sorts of foul weeds, rush grass and brush on these natural blue grass pastures and this spring tramping and poaching of the fields by the cows and stock generally? A peculiarity of these pastures is that they have never been plowed since cleared 100 years ago, and the blue grass came in as a native with his patent of nobility, and despite lack of care, all forms of abuse, never a pound of applied fertility. "Some of him," this king of grasses, is here yet, but this present March assault looks like an attempt without excuse to exterminate this friend of the dairy, and by violence "punch" it in out of sight. Little wonder that the dairy farms of this section sell at such ridiculously low figures, compared with the farm lands of other states and localities. Tenant farming! No, that does not explain it! Tenants are not sinners above all others in the land. Their methods are not greatly different from land owners. If the latter do not set the example, what can be expected of the other class? What's the use of preaching alfalfa culture to men who "grass" their cows in March?

We suggest to J. P. S., (page 124) that instead of having big doors to his stable, so large that he can drive in a team and sled and have doors that soon refuse to shut any where near tight, that he put in a single track manure carrier, make the stable more compact and "to order," and if he would put in two board shafts 12×14 inches inside dimensions, commencing at the floor and going straight up and to be at least 30 feet in height, not costing more than $12 for the two, he will have as pure air as needs be for his little dairy, and it is some comfort to a cow to have fresh, pure air to breathe all of the time, even if fed grandfather's way.

What about the dairy situation and future prices? If the scrabble for city milk is any "sign" to go by, it will be a long time until milk again reaches its low point of three years ago. Cheese factory after factory, and that in Ohio means a butter annex, has shut its doors and the milk is going to both Pittsburg and Cleveland by the train load. No. 1 creamery butter at wholesale in Cleveland was 30½ cents this morning and the price of milk is $1.40.

With all our prosperity, I am convinced that the dairy industry is actually slipping back in Ohio. This for two reasons: the high prices of feeds, and the scarcity of hired help, and its sky high prices, when it can be had. The industrials are



THERE ARE PROBABLY MANY GOOD THINGS
THAT YOU NEED and ought to have, but don't know it.

Here is one of them:

OUR Ideal Turbine Bottle Washing Outfit

We have condensed a whole lot of good things into this outfit. Just packed them up from all around your milk depot and compressed them into one convenient piece of apparatus. Here you have washer, rinser, sprayer, and washing tanks all within easy reach. This is only one of several specialties we have in this line. Our information in this line is yours for the asking.

Write for latest Milk Dealers Price List.

Bottle Brushes, Milk Jars, Babcock Milk Testers, Milk Dealers' Tinware, Milk Jar Boxes, Cases, and Baskets, etc., etc.

Creamery Package Manufacturing Co.,

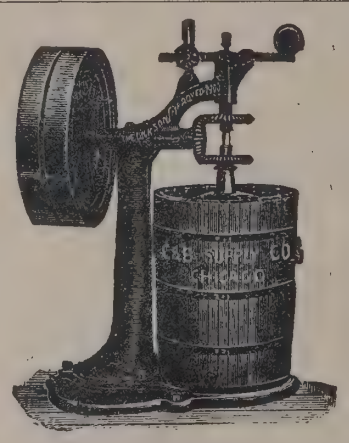
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The American Wringer Co.

99 CHAMBERS ST., NEW YORK CITY

We manufacture the Wringers that wring the Clothes of the World

"FEEDS and FEEDING" ....

A HANDBOOK FOR THE STUDENT AND STOCKMAN.

By W. A. HENRY, Dean, College of Agriculture, Madison, Wis.

This large octavo volume of 663 pages is the only book extant which summarizes all of the feeding investigations of all of the experiment stations of both the New and the Old world. It presents the latest discoveries of the scientist, and is replete with the practical experiences of the best stockmen. The information is arranged in the most helpful and readable manner possible.

PRICE $2.00 PER COPY POSTAGE PAID.

For Sale by HOARD'S DAIRYMAN.

sifting out the best of our help all of the time for their wants, and the eight and ten hour day, and high wages, leaves the farmer little option other than to stand by and see them go. Its no use to say that the dairy is growing as fast as the city demand, and that last is larger per capita each year. Practically we have no foreign demand that is as good as our own, and were it different, we have nothing to ship. I was in one of the few hold-on factories this morning, and there was less than 100 cheese on the shelves. Where are the rest? I asked. Gone to the market to fill orders, and these are all spoken for as soon as dry. I havn't another cheese in stock aside from these. A spring market bare of cheese is not a bad sign for a dairyman, and 4,000 new inhabitants pitching their tents daily in this country. Unless we have a financial head end collison, and the cheese eaters ditched, dairy produce must rule well as to price for many moons to come.

Some one, to whom the credit is lost, said "that twice the energy was required to keep out of Heaven, that was needed to secure a sure entrance." I am reminded this in looking over a file of exchanges recently and noticing the advice given as to the summer soiling of a dairy, the lists of what, when, and how to sow, to insure a series of crops to augment and piece out the summer pastures. There is an "if" more or less concealed, in the whole of the advice. "If the season is favorable, you will have an abundance for the stock." If it is not, you are left to do the best you can without advice. This is oldish advice but our suggestion is, why not build a silo for summer feeding and fill it with corn the fall before, and know that you are going to have a soiling crop.

The record is all in favor of this method. East and west its success is lauded by every one who has tried it.

Is it as much work to put a couple of acres or so of corn into a silo, and have an abundance of summer feed, as it is to put several acres of this and the other thing into plats and be tied to the crop all summer,— assuming that the season is good? Silage in our silo has kept splendidly for three years. It's no use to say it will not keep! We are convinced that this is to be the coming way of summer soiling of the dairy cow, because more certain, more economical, and concentrated.

One must know Willet M. Hayes of the Minnesota School of Agriculture to appreciate his wide open heart, genial well wish, and friendship that never is less. His best wish is for the boys and girls on the farm and that they may have the best education possible with which to meet the duties of life. Not long since he and I talked of the centralized school for the rural districts, and its great possibilities —wisely administered,—to make the farm supreme in claiming its rightful own. It was refreshing to hear him plan and prophecy for the farm education. In the last *Tribune Farmer*, of N. Y., Prof. Hayes goes a step beyond in rural education. He would have the township centralized school have its little farm of not less than ten acres, with the principal of the school residing upon it, in a nice cottage, and well versed in farm science, and the lady teacher to understand domestic science, and then in addition to the regular course, there should be a certain amount of farm teaching with practical demonstration on this little farm. It sounds too good to become true. The great public school in the city has been called "other peoples college." The boy and girl in the country has had to be content with a $500 school house without modern improvements and a plan of study that could not be tortured into being called a course in any thing, but must pass for an education, and suffice to fit one to engage in the most complex of industries and expect him to succeed. Somewhat like taking a boy who can barely name the notes on the staff, and expect him to play solos in Sousa's band in ten days. The Professor did not say, but no doubt when he gets his ideal school in operation, HOARD'S DAIRYMAN will be used as a serial text book, and here's hoping!. JOHN GOULD.

Ghio.

Concrete Silos—Good Results from Corn and Soy Bean Silage.

ED. HOARD'S DAIRYMAN:—A neighbor has been asking advice regarding silo erection. He has the best of gravel on his farm, and I have been suggesting that he investigate the matter of using cement to make his silo. Never having seen one so constructed and being informed that some are being erected with hoops, some without, I send this note to inquire what you judge would be best for him to do. If you care to give details in your answer, they will be welcome. My silo is a stave silo, and good now. You may be interested to learn that it was filled with corn and soy bean silage. We mixed a half bushel of the soy beans with the seed corn for about nine acres. The big drill sowed them with no trouble, the harvester cut the crop as readily as though no beans had been present. The bundles were a little heavier at the butts; this did not seem to inconvenience the men or the machinery. The cattle like the silage. Whatever the soy added, cost so little that it is most all gain.

If you send me a few sample copies, I will be pleased to hand them to dairymen. H. B. C.

Rochester, Mich.

We would rather undertake to superintend the erection of a half-dozen concrete silos than to write out directions for others to follow. This style of silo appears to be becoming quite popular in Canada, and there are builders there who make a specialty of erecting them. We have copied, from time to time, from the *Farmers Advocate* of Toronto instructions for building them, but in every case important particulars were omitted. We are told, also, that several concrete silo have been put up in eastern Michigan.

We thank H. B. C. for his encouraging report concerning corn and soy beans for silage.

Cement or Plank Floor, Which is Best for Cows ?—Building a Wooden Hoop Silo.—Absorbing Liquid Excrement.—Hauling Manure Direct From Stable to Field.

ED. HOARD'S DAIRYMAN:—I have been pleased and profited by your paper. Am engaged in dairying and stock raising. I put basement under barn last summer, which is 40x100 ft. with cement floor, but did not get slant enough under cows to carry water off readily into trench. Will have to raise it some. It can be done with cement or plank. Which is best for cows to stand upon ?

Am expecting to build a silo the coming summer, so have been much interested in the silo talk in your paper, especially Gould's wooden hoop silo, but the discription of same was too meager for me to get the idea in my head.

Barn is so arranged I can drive through horse stable, then back through cow stable, to take out manure. By so doing, horse manure absorbs all slop and liquids from cows.

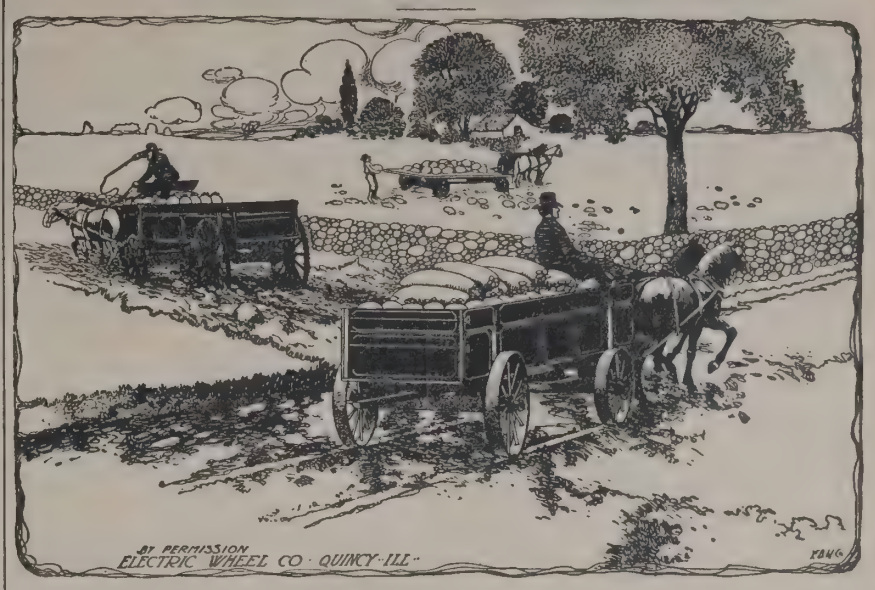
Have been the first in township to practice drawing manure direct to the field, but my neighbors tell me, I will soon stop that, for they see the fertilizing qualities going to the river. A. T.

Snover, Mich.

Contrary to what has been a somewhat popular notion in recent years, HOARD'S DAIRYMAN has never approved cement floors for any kind of stock to stand or lie on. They are durable and sanitary, but in our judgment, more or less cold and unhealthful. We however, have always held ourselves ready to give up personal opinions when in conflict with the facts of experience. Years ago, the United States Government built a very expensive stable at Fort Leavenworth for cavalry horses, and laid down the most approved cement floor, but, after a few years' experience, discarded them. Quite recently also it has come to our knowledge that one or more experiment stations and some private dairymen, who had put in cement floors for their cows, have thought it necessary to cover them with boards or plank, all of which confirms us in the opinion that while cement may be used for passage ways and mangers, yet on the platform where the cow stands, plank is much to be preferred.

We have given in a recent number of the DAIRYMAN, what appeared to us to be quite full instructions for building silos with wooden hoops, or more particularly for constructing these hoops. After the hoops are constructed, they should be placed one above the other, properly spaced and supported and firmly staylathed in place while the inner lining is being put on.

ILLUSTRATION.



FOR GOOD ROAD MAKING.

At the Auditorium in Chicago, February 20th, the National Good Roads Convention assembled for its opening session. The National Highway Commission appointed by the President, consists of such distinguished members as Gen. Nelson A. Miles, Col. John Jacob Astor and Col. Albert A. Pope. The Governors of most of the States in response to the invitation, appointed delegates, and representatives were also present from every local Good Roads Associations of any consequence in the United States. An assembly constituted as this one was should have been able to shape some policy to bring order out of a very chaotic but all important subject. A most healthy sign was the presence of the strong hand of the General Government, heartily seconded by the different States. We cannot conceive of any field in which State or Nation can direct or encourage the spending of money which will bring to the great body of rural people such a direct and permanent good as the improvement of its highways. We illustrate the elementary principles of road making, namely, drainage, raising centers of roads and rolling. As to the rolling and packing of the road bed, if the purchase of heavy engines for the purpose, such as are used in cities and towns, be too radical a preliminary step, the convention would have adopted at least one good practical measure if it had passed a resolution advocating the general use of broad tired vehicles on the road. The same benefits are to be derived from it that flow from the use of the steam roller. And in its use the cost would be nothing to the county or township authorities, the mere use of such wheels, instead of wearing out the roads, do constantly improve them. Where the narrow wheels rut and furrow and lead to washing, the broad tires roll and make compact and permanent. It is only necessary to behold the road districts in regions where the broad tired wheel is in general use to at once become an advocate of their general employment. The illustration herewith well illustrates our meaning. We reproduce it by courtesy of the Electric Wheel Company of Quincy, Ill., who, by the manufacture of a wheel admirably adapted to the purpose we are considering, is doing much to further the cause of good roads all over this country. It will be apparent that the draft must be much lighter for the broad tired wheel than the narrow one even for the first tracking over a given point. All subsequent passings must continue to pack and improve the bed and, still further lessen the draft, while exactly the reverse is true of the narrow tire. If the practical experience of every farmer did not unequivocally settle this fact, the experiments made by the Experiment Station at the University of Missouri would place the matter beyond cavil.



COMMON SENSE
Calf Feeder

awarded Gold Medal at Pan-American Exposition. The only Feeder adopted by experiment stations. It is the kind others try to imitate. Easiest to operate and clean.

Most Durable, Simple, Economical, Scientific and Practical.

Do not be deceived by imitators. Shams are never imitated. More Common Sense Feeders are in use than all others combined. Over 50,000 in use. No valves to get clogged or foul. Nipples reinforced and cannot collapse. The calf feeder is a perfect weaner. A substitute for nature.

Extra gain on one calf pays for two feeders.

Best Feeder Made.
Michigan State Board of Health:—I tried every Calf Feeder I could find, but liked yours best.

Worth $10.00.
George S. Bement, Victor, N. Y.:—I am very much pleased with the Feeder and would not be without it for $10. No trouble, no damning, no milk on your clothes, no trouble to teach the calves to take hold of it, no sucking the cows, and the best of all is that when they get about eight weeks old they don't stop for the nipple but just drink out of the pail.

The Principle is Correct.
Purdue University Agricultural Experiment Station of Indiana, LaFayette, Ind.:—We have been using the Feeder to some extent and it is in constant use at this time and we believe it to be very satisfactory in its work. The principle of Your Feeder, I believe to be the correct one. C. PLUMB, Director.

Advise Stock Raisers to use it.
Maryland Veterinary Hospital:—I am very much pleased with the Feeder and would advise stock raisers not to be without one.

Price $1.50 including two nipples, sent postpaid for $1.75. We guarantee satisfaction, but if you are in doubt about its value we will send one on approval for 50c to cover postage, remainder to be paid if satisfactory. Be Sure and send for our twenty-two reasons why you should use a feeder. It's free. Sold by one dealer in a town.

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Kills every fly it strikes: keeps off the rest. Harmless to man or beast.

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This cow was a terror to milk prior to using ½ cents worth of Shoo-Fly. Had it been used earlier, she would not have lost milk and flesh to the amount of $14.00. The other cow was protected early and continued to give 18 qts. of milk daily through fly-time

Shoo-Fly is the original stock protector used by the same dairy-men since 1885, after testing imitations. It prevents contagious abortion and other diseases, cures all sores, scratches, skin diseases, hoof ailments, etc. NO LICE in poultry house or any place it is sprayed. Beware of imitations that last only a few hours and make sores. If your dealer does not keep Shoo-Fly (made in Philadelphia, Pa.,) send us $1.00 for latest Improved Three Tube Sprayer and enough Shoo-Fly to protect 200 cows Cash returned if cows are not protected.

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EDITOR knows from experience Shoo-Fly is O. K.



SENT out under positive guarantee. Money refunded if not satisfactory. No bolting food. Perfect digestion. All tinned—no rust.

KEYSTONE CALF FEEDER

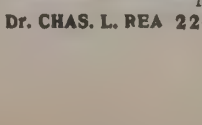
Patented under No. 721,384. Used in about forty experiment stations. Mass. Ag'l College writes as follows: Mr. M. T. Phillips, Dear Sir:—I write to say that the Calf Feeder is giving excellent satisfaction. We have found it to be all one could ask for in a feeder. It is easily cleaned and appears to be durable. Yours truly, E. A. JONES, Supt.

Complete with extra nipple, $1.50, express prepaid. Circulars free.

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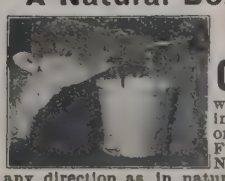
Galvanized castings. Will not rust. Seamless rubber nipples, reinforced, cannot split. Makes fat calves. Price,

ONE DOLLAR.

Satisfaction guaranteed or money refunded. Booklet free.

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TAKES TO THE WHITFORD Calf Feeder without any "breaking-in." This is the only Ball-and-Socket Feeder on the market. Niple moves freely in any direction as in nature. The latest and most improved. Price $1.50 or $1.75 prepaid. Prof. W. L. Carlyle, Wis. Exp. Sta., Madison, writes: "Have used your calf-feeder and find it very satisfactory. I prefer the ball-and-socket arrangement to the stiff junction on others." Write for free circulars.

MAHLER BROS., 34 LaSalle St., CHICAGO, ILL.

RUPTURE CURED while you work You pay $4 when cured. No cure, no pay ALEX. SPEIRS, Box 846, Westbrook, Me

Dairying in North Dakota.

Expense of Operating a Skimming Station—Delivering Cream a Distance of Eighteen Miles—Alfalfa in North Dakota.

ED. HOARD'S DAIRYMAN:—Interest in the cow as an asset of the farmer is developing in this state. This interest in the cow, dairy cow, is manifested in the large number of creameries being organized throughout the state. This is gratifying to note as it indicates that North Dakota has reached that stage in her development where her farmers realize that it is important to change their methods of farming, just as the farmers of Illinois, Iowa and Minnesota, in their time found that they could not go on forever raising small grains exclusively, and gave more attention to the cow. The results in these states show the wisdom in changing their methods of farming.

That dairying is a profitable branch of North Dakota farming is no longer a doubtful question, the success of the creameries now in operation plainly demonstrate. However we have much to learn in this line, in the selection of breed of cows best adapted to our conditions and the proper feeding and care of same to give best results.

We have organized a creamery at this point and expect to have same in operation sometime in April. We have about four hundred cows pledged.

I should like to ask the Editor's opinion on a question or two which have come to our attention if it would not presume too much on his good will.

About ten miles, possibly a lesser distance, there is a group of farmers who have among them about three hundred cows and who would like to patronize our creamery if they could. We have considered the advisability of establishing a skimming station among them.

What should be the cost of maintaining such a skimming station, and what conditions must prevail to insure the successful maintenance of such station?

Another question: Can cream be brought to the creamery in proper condition a distance of 18 miles over a country road? Cream to be brought every other day. There are four farmers (brothers) about that distance from here, who have between them about one hundred and twenty-five cows, and they are desirous of taking their cream to our creamery. These men are intelligent farmers and are aware of the importance of having the cream reach the factory in proper shape; in fact, one of them has been a dairy student at the North Dakota Agricultural College.

These farmers all have hand separators.

The undersigned esteems HOARD'S DAIRYMAN very highly, and if you will send a bunch of sample copies, shall be pleased to distribute same among the farmers. K. O. A.

Kathryn, No. Dak.

P. S. It just occurs to me that it might interest you to learn that alfalfa will grow in this part of the country.

In 1901 Mr. Louis Kjelland, of Green Township, Barnes County, North Dakota, sowed one acre of alfalfa as an experiment. That season he cut one crop from this, getting about one ton. During the season of 1902 he cut this patch twice, each cutting yielding a little better than one and a half tons, or three tons in all. The stand is good, and Mr. Kjelland expects to get a much better yield next year.

It is fortunate for the Dakotans that they are turning their attention to dairying and stock raising at an earlier relative date than did the farmers in Wisconsin, Illinois and Iowa. It is not alone that exclusive grain cropping renders the soil unproductive, but it appears to have a deteriorating influence upon the farmers, and this for reasons that might be explained but which it is unnecessary to enlarge upon in this connection. General farming is not only best for the soil, but for the tiller of the soil as well, and there is nothing that can compare with dairying in rounding out and completing the ideal general farmer. It is quite common to speak of the dairy farmer as a specialist, and in one way he is, because to secure the best results in dairying, he must have special skill and special adaptation, but the true dairymen is none the less a general farmer. He must plow and sow and plant and harvest and feed. He must keep a variety of stock—in fine, there is no branch of farming that does not come under his supervision to a greater or less extent.

The expense of maintaining and running a skimming station will, of course, depend very much upon local circumstances, such as the cost of fuel, the rate of wages to be paid and the expense of transporting the cream. Skimming stations in this vicinity are run at an expense of from $800 to $1,000 a year, exclusive, in most cases, of transporting the cream. Some stations are fitted up with a complete outfit,—boiler, engine, separators, churns and so forth—so that they can be operated as creameries in case of emergency. Others are simply furnished with a boiler and a turbine separator, doing away with the expense of installing and running an engine.

It is practicable with proper care to transport cream 18 miles over a country road and deliver it only every other day in fairly good condition, but this implies not only a high degree of cleanliness in caring for and milking the cows, a proper care of the milk and cream, but also especial care in transporting it. Not only should it be transported in jacketed cream carrier cans, but these also should be carefully protected from the heat of summer, and the cold of winter.

Returns From Whole Milk and Cream.

"A" can sell his whole milk for $1.25 per 100 lbs. He can also separate it and sell his cream for 20c per lb. butterfat; and skim milk for 15c per 100 lbs. His milk tests 3.6. Which will bring him in most money, whole milk or cream and skim milk? A.

Halton Co., Ont.

The cream at 20 cents per pound for butter fat would bring 70 cents per hundred pounds of milk; adding 15 cents for skim milk would be 85 cents, total returns. Selling the whole milk brings $1.25 per hundred pounds, which is a difference of 40 cents per hundred in favor of the whole milk. This is of course provided that there is no added cost in disposing of the whole milk above that given in the above statement.

Measuring and Weighing Cream for Testing.

ED. HOARD'S DAIRYMAN:—In the DAIRYMAN of April 3rd, 1903, page 175, in answer to inquiries you say: "Measuring cream for testing with a pipette is not an accurate method and the calculated results may be quite different from the creamery returns."

The "rules for a Babcock tester" makes no mention of any other way of measuring cream for testing than with a pipette. Please give in the DAIRYMAN your reasons why the pipette is not accurrate, and also give the details of the method that the creamery uses. L. B. A.

Vashon, Wash.

The pipette used in the Babcock test was never intended to measure anything but milk, skim milk and whey.

These products contain comparatively a small percentage of butter fat and consequently the pipette measures the fat very accurately. Cream being very rich in fat, also thick and heavy in body, cannot be measured accurately, owing to its containing air and also from sticking to the sides of the pipette. The error introduced this way amounts, in some cases, to over one per cent in thick cream. For these reasons it is always advisable to weigh the cream when it is to be tested with the Babcock. This is done by means of a pair of accurate scales that can be obtained from dairy supply houses. The cream bottle is balanced on the scales, 18 grams of cream is weighed into it and the testing continued as with milk.

BUY DIRECT FROM FACTORY, BEST
MIXED PAINTS
At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.

AYRSHIRES SCOTCH and..... .....AMERICAN
The Champions of America—any age—either sex. Riverside Stock Farm. J. F. CONVERSE & CO.,
P. O. Box 112. Woodville, N. Y.

THE BROWN BESSIE HERD
Offers some splendid young cows and heifers bred to Recorder, the only living son of the famous Brown Bessie, winner of the 30 and 90 day butter test at the Columbian. Also a few sons of Recorder from daughters of Diploma and other tested cows are offered.
H. C. TAYLOR, Orfordville, Wis

NORTH OAKS FARM, MINN ST. PAUL,
(Jas. J. Hill, Proprietor.)
AYRSHIRE BULLS
Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address,
N. E. McKISSICK, Supt., Cardigan, Minn

AYRSHIRE CATTLE of both sexes, and some young ones from good business cows. Prices within reach of any dairyman. Also Chester White Pigs, March and April farrow—All from registered stock. F. TSCHUDY & SONS, Monroe, Wis.

FOR SALE.
Two Registered Guernsey Bulls, 14 months old, sired by Sir Bonny No. 6084. Dams, two of my most promising young cows, good size and fine color. Prices reasonable.
O. KOOGLE, Ohio City Ohio.

GUERNSEYS.
HADDON FARMS—Home of the noted GLENWOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality F. W. TRATT, Whitewater, Wis.

Rosendale Guernseys.
MATURE COWS YEARLY RECORDS range from 356 to 713.3 lbs. butter. This herd contains more officially tested cows than any other herd of the breed. All of the largest records are official ones. A particularly choice lot of tuburculin tested bulls for sale from high record dams.
GEO. C. HILL & SON, Rosendale, Wis.

GUERNSEYS FOR SALE.
Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.
JAS. H. BEIRNE, Oakfield, Wis.

GUERNSEY Bull Calves Sired by O. K. Dams of equal merit.
FRED VOGEL, JR., 165 First Avenue, Milwaukee, Wis.

Old Homestead Guernseys.
Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.
Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL Perry, Lake Co., Ohio.

Wasteland Guernseys
Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.
M. M. & E. J. HOLLINGSWORTH, Landenberg, Chester Co., Pa.

FOR SALE.
JERSEY BULL, one year old. Good individual of the best breeding. Also 7 months bull from tested dam. Herd headed by Fontaine's Owl, 60436. Prices on application. Address,
J. F. EGERTON, Footville, Rock Co., Wis.

PETER C. KELLOGG, AUCTIONEER
is instructed by
MR. FRANK S. PEER, of Ithica, N. Y.
to Sell at Auction, commencing
TUESDAY, MAY 12, 1903,
in or near New York,
Upwards of ONE HUNDRED HEAD OF IMPORTED
JERSEY CATTLE
of Island and English Breeding
Selected by him for the American Market.

The English contingent was obtained from the very celebrated Chestall Herd of J. Reid Walker, Esq., Rugeley, England, in choosing which Mr. Peer had the valuable advice and assistance of Mr. Frank Sugden, Agent of the Chestall Estate.

Among several very valuable bulls in the importation are the world-famous GOLDEN FERN'S LAD and the very exceptionally bred BROOKHILL FOX, by Flying Fox out of Brookhill Rose 2d. Mr. John Thornton, of eminent authority, pronounced these the best two bulls in England. Many Island breeders regard the former as the greatest Jersey sire that ever lived. There are eight daughters of Golden Fern's Lad, and numerous get of such highly approved sires as Napoleon Bonaparte. Eminent 2d, Forfarshire, Hamley, Golden Lad 2d, Orlando, Flying Fox, Financial King, etc.

☞ The exact place of Sale and other particulars will be announced later.

PETER C. KELLOGG, 107 John St., New York.

MUST BE
SACRIFICED
Having concluded to retire from the dairy business, and having sold my farm, possession to be given in sixty days, I offer for sale my herd of cows at a price around half real value. I have
20 COWS AND A BULL
bought at H. G. McMillan sale at prices ranging from $70 to $150 each. I have five coming two-year-old heifers in calf by Trustee's Gold. These cattle have rich strain of Diploma, Brown Bessie, and St. Lambert blood. They are heavy milkers, and average annual test of the entire herd is nearly 6 per cent. In size, beauty, and performance at the pail there is nothing like them. I will take $70 per head and give 12 months' time on a good note at 6 per cent.
B. C. WELCH, Elsberry, Mo.

VALLEY FARM Is offering some good bargains in young bulls from 1 mo. to 2 yr. old. Also B. P. Rock Cockerels, $1.25 each. Write
FRED STUBLEY, Black Earth, Wis.

PROSPECT HILL JERSEY HERD.
Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

BROTHERTOWN
Stock Farms
DEANSBORO, N. Y.
THE LARGE OFFICIAL RECORDS, made by members of our herd, emphasize the fact very strongly, that our breeding and selection has been most correct. If you are looking for the highest production, combined with choice breeding and individual merit, it will benefit you to place orders for breeding stock of either sex with us. We will give your wants careful attention. Prices reasonable.
McADAM & VON HEYNE

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.
W. J. HUSSEY, Mt. Pleasant, O

FOR SALE AT FARMER'S PRICES.
One St. Lambert bull ten months old; also bull calf three months old, or will exchange for as well bred heifers. Registered Poland China pigs for sale at all times. Correspondence solicited. FRANK SHADBOLT Caledonia, Minn.

ST. OMER HERD
Offers young bulls fit for service, out of tested dams with good yearly records. Strong in Exile of St. L., King of St. L. and Stoke Pogis of Prospect. Reasonabe prices. JOS. T. HOOPES, Bynum, Md.

The Evergreen Farm Herd has for sale three or four A. J. C. C. heifers bred Also a few cows and some choice bull calves from two to six months old. Write for pedigrees and prices.
N. N. PALMER & SON, Brodhead, Wis.

READY FOR SERVICE
We are offering a solid color yearling Jersey Bull, 56 per cent blood of five of greatest Jerseys that ever lived; out of a young cow scoring 360 lbs. butter within a year, second season. Sound and all right, well grown and thrifty. A bargain at $100. For particulars address
E. E. STEVENS, North Madison, Lake Co., Oh

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

FOR SALE GOLDEN LAD BLOOD, sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

BILTMORE
JERSEYS
are great and presistant dairy workers and typical Jerseys. We ask comparison with any other herd for
YEARLY MILK & BUTTER YIELDS, SUBSTANCE AND FINISH.
The herd contains more prize winners at the leading exhibitions (including the Pan-American) than any other herd.
The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service as you cannot get it.
Also Headquarters for Large English Berkshires and Standard Poultry.
Apply to
BILTMORE FARMS, BILTMORE, N. C.

DRY CURD
WANTED

Will arrange with a few large creameries to manufacture dry curd and take their entire output. First to apply, first served. For particulars write to Raw Material Department, : : : : : : :

CASEIN CO. OF AMERICA
BELLOWS FALLS, VERMONT.

THE STEVENS HERD OFFERS ONE DOZEN YEARLING

HOLSTEIN HEIFERS

at greatly reduced prices, owing to lack of pasturage—choice individuals, and bred in popular lines; also a few special bargains in bull calves, while they last. Write us just what you want.

HENRY STEVENS & SON,
Brookside Stock Farm. Lacona, N. Y. (Box 208)



OHIO'S FAMOUS HERD —OF— Holstein Cattle

OWNED BY

W. B. Smith & Son

2488 W. Broad St.,
CLYDE PAUL DE KOL. Columbus, O.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

SHADY NOOK HERD Holstein Friesians offers three bulls one year old. O. I. C. White Pigs, both sexes. White Cap Yellow Dent Seed Corn, $1.50 per bushel.
W. R. GATES, Fort Atkinson, Wis.

HOME FARM HERD.

Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams 25.1 lbs. butter in seven days. Herd numbers 125 head.

BEST FAMILIES REPRESENTED.

Special prices on six or eight bulls of serviceable age. W. B. BARNEY & CO.,
Hampton, Ia.

Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

FOR SALE.

2 H. F. Bull Calves, 6 months old. Sired by Johanna Aaggie's Paul DeKol 23443, (160 A. R.) from good milkers and testers.
M. S. CAMPBELL, Genoa, DeKalk Co., Ill.

HIGH-CLASS HOLSTEIN-FRIESIAN BULLS

and Bull Calves from A. R. O. dams and the best Advanced Registry sires. Cows all officially tested; I breed from no others. Correspondence from breeders and progressive ddirymen invited. Malcolm H. Gardner, Darien, Wis.

HOLSTEINS

High Class Advanced Registry Stock only. Best butter families. Stock for sale.

Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.

HOLSTEIN BULL CALVES. | **Johanna Family.** (both sire and dams). ALSO BERKSHIRES.
Wright's Farm. Berlin, Wis.

TYRANENA HERD
100 HOLSTEIN-FRIESIANS 100

A. R. O. Stock For Sale.

Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz Frank B. Fargo, Lake Mills, Wis.

FOR SALE.

H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address W. H. JONES, Watertown, Wis. Rural Route No. 2.

CLOVERDALE HERD
HOLSTEINS.

Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.

A. J. DAUGHERITY Streator, Ill.

GLENVIEW HERD

A few fine heifers and bulls for sale. Also some A. R. O. cows. IRVIN NOWLAN, Toulon, Ill.

Star Farm Holsteins

I have just purchased of West Brothers of Syracuse, their magnificent herd of 53 Registered Holstein Cattle. This herd is rich in the blood of De Kol 2d, Pietertje 2d, and other leaders. Some of the best females living here. Can supply purchasers in car lots of any age, breeding or sex. 120 Head to select from. You can save money in buying at Star Farm.

HORACE L. BRONSON, Cortland, N. Y.

OAKLAND HERD
HOLSTEIN-FRIESIANS

Will make a special price on a few CHOICE YOUNG BULLS.

We offer females, any age, very cheap just now as we can winter more stock than have pasture for.

T. A. MITCHELL, Weedsport, N. Y.

Markham Manor Farms, Simonsville P. O. Andover, Vt.

Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for description and price to J. A. THORNTON, Manager, Simmonsville, Vt.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS | 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148. Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.
WM. EVERSON & SONS, Lake Mills, Wis.

Holstein Friesian Bulls

SOUTH SIDE FARM, WHITE BEAR, MINN.,

offers a number of thrifty well grown calves from Officially Tested Dams at bargains for quick sale, ages three to seven months. Also two fine yearlings, and one two year old.

No Yorkshires for sale at present. Orders booked for spring pigs.

Correspondence solicited.

THE MAPLE'S HERD

offers good young cows with A. R. O. records in calf to Beryl Wayne De Kol Paul, No. 28785, whose dam Beryl Wayne has an official record of 27.87 pounds of butter in 7 days. Also four yearling bulls ready for service. Special bargains in heifer and bull calves.

JOHN C. GODFREY,
PENNELLVILLE, N. Y.

YOUNG BULLS BY THE

POPULAR HOLSTEIN SIRES

IN A POPULAR HOLSTEIN HERD.

De Kol 2d's Mutual Paul, No. 25700 H. F., Dam De Kol 2d., Sadie Vale Concordia's Paul De Kol, No. 27392, H. F. Dam Sadie Vale Concordia. If you are familiar with the official work and records of these two pre-eminent cows, you are also familiar with the fact and the desire that one of their grandsons should head your herd to insure its success. Prices so reasonable too. That's all.

Geo. F. Carter, 126 North Salina St., Syracuse, N. Y.

Holstein-Friesian Bull Calves

Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.



T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.
Wm. O. Jackson & Sons, South Bend, Ind.

BROOKSIDE HERD

offers SPECIAL inducements to quick buyers. We must sell at once to reduce herd to stabling capacity. All ages, both sex. Correspondence solicited. Visitors welcome. Address,

STEVENS BROTHERS Lacona N.Y.

MONONA FARM Offers for sale a few well bred Holstein-Friesian Bull Calves. Also two Service Bulls at reasonable prices. The Monona Farm Herd is founded on the best stock of the De Kol, Netherland, and Clothilde families. Pense Johanna 29332 the head of the herd has 7 A. R. O. dams averaging 22 lbs. 3.7 oz. Junior sire Paul Calamity De Kol 31095.
MADISON, WIS.

THE MONONA FARM HERD.
Address, F. W. ALLIS, Madison, Wis.

FOR SALE. H.-F. Bulls, ready for service from A. R. O. Cows and sired by Sir Johanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis

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AUCTION SALE OF
70 Holstein-Friesian Cattle

from the herd of

ARTHUR N. McGEOCH

Sale to be held at

MILWAUKEE, WIS.,
Wednesday, May 6, '03

Sale to be held at McGeoch Farm, "Redbrae" opposite entrance to Soldiers' Home on National Avenue. Electric Cars, National Ave., run to farm every five minutes.

40 OFFICIALLY TESTED COWS AND HEIFERS 40

Among these will be found the great heifer **Duchess Ormsby 2d's Hengerveld DeKol** who holds the **World's Record** for heifer with first calf, having made at age of 2 years, 1 month, 29 days, 19.02 lbs. butter in seven days.

DAME MARJORY DE KOL, a half sister, with record at 2 years, 4 months and 24 days of 16.19 lbs. butter in seven and 65.08 lbs. in thirty days.

LISCOMB AAGGIE 3D at 3 years, 11 months and 26 days with record of 21.58 lbs. in seven and 86.69 lbs. in thirty days.

PIEBE QUEEN 2D'S PRINCESS at 4 years, 9 months, with record of 22.18 lbs. in seven days.

WIT DUCHESS at 5 years, 5 months, 5 days, with record of 24.88 lbs. in seven days.

A FINE LOT OF HEIFERS FROM OFFICIALLY TESTED DAMS. A few richly bred young bulls and the two great service bulls **De Kol 2d's Paul De Kol No. 2** and **Cem Pietertje Hengerveld Paul De Kol** will be included in the sale.

Altogether this is the most desirable lot of Holstein-Friesians, either from the standpoint of the breeder or dairyman, that has ever been offered at public auction. All are cordially invited to be present.

Catalogues ready early in April. Send for one. Address

H. B. DAGGETT, Mgr.,
STATION A. MILWAUKEE, WIS.

LAST CALL

PLEASANT VALLEY STOCK FARMS
DELPHI FALLS, N. Y.
2d Annual Sale
60 PURE BRED HOLSTEIN-FRIESIAN CATTLE,
SYRACUSE, N. Y., APRIL 22ND, 1903

The best lot ever sold under the hammer. Large A. R. O. Records. The most Fashionable Breeding. Great individuality. Tuberculin tested.

Dont fail to attend—your price will be my price.

B. V. KELLY, Auctioneer.
C. F. HUNT, Manlius, N. Y.

HOLSTEIN-FRIESIANS
FERMANACH HERD, ARCADIA, MO.

SPECIAL OFFER—Three Young Bulls. Prince Mercedes Pietertje 29325, born Oct. 20th, 1901, grandson Mercedes Julip Pietertje A. R. O., 29 lbs. 5 7-10 oz., sire Mercedes Mechthilde Pietertje 25795, dam Princess Pietertje Coeln, record 76 lbs. butter 60 days with first calf.

Geertje M. 3rd Johanna De Kol 30614, born Jan. 18th, 1902, sire Johanna Rue 2d Paul De Kol 21724, sire of nine A. R O. cows of large records and by Paul Mutual De Kol, out of Mutual Friend 2d, dam Geertje M. 3 A. R. O , 18 lbs. 12.9-10 oz.

Sir William Clothilde 2d, 29407, born Oct. 14th, 1900, sire Sir William Clothilde, 23782, dam Benordo Clothilde Pluera, 56924. Here is a splendid opportunity to procure a combination of the richest blood of the breed at very low price. THOS. CAINES, Supt.

A. & G. Herd Holstein-Friesians —Choice-Bred BULL CALVES for sale, from 1 to 18 months old. from dams with official records, and sired by sons of De Kol 2d and Netherland Hengerveld. Herd contains 5 sisters of Lilith Pauline DeKol (who holds the world's official butter record of 28 lbs. 3 oz) 25 granddaughters of DeKol 2d, 5 daughters and 7 granddaughters of DeKol 2d's Paul DeKol (the sire of Lilith Pauline De Kol) and granddaughters of Pauline Paul, Netherland Hengerveld, Mutual Friend, Princess of Wayne, Johanna, Etc., Etc.
AVERILL & GREGORY, The Yates, Syracuse, N. Y

.....YOU MAY.....

BEGIN AT THE HEAD

to improve your dairy herd with a bull whose dam has official record of 18 lbs. 6.3 oz., sires dam 20 lbs. 8.8 oz. Individual right. Price Right.
McKAY BROS., Buckingham, Iowa.

WOODLAKE HERD.

Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN Station D., R. 1, Minneapolis, Minn.

For Clean Milk and Healthful Milk Products.

A Wisconsin Law.

In order "to prevent the sale of unclean and unsanitary milk and the use thereof in the manufacture of food products, and to prohibit unclean and unsanitary conditions of creameries, cheese factories, and milk dealers' establishments or outfits," the Wisconsin Legislature has passed and a Wisconsin Governor has approved a law which reads as follows and is its own best commentary:

Section 1. Milk which shall be drawn from cows that are kept in barns or stables which are not well lighted and ventilated, or that are filthy from an accumulation of animal refuse, or from any other cause, or from cows that are themselves in a filthy condition; and milk in or from cans or other utensils that are not kept in a clean and sanitary condition, or milk to which has been added any unclean or unsanitary foreign substance, is hereby declared to be unclean and unsanitary milk; provided that nothing in this act shall be construed to prohibit the sale of pasteurized milk or cream to which viscogen or sucrate of lime has been added solely for the purpose of restoring the viscosity, if the same be distinctly labeled in such manner as to advise the purchaser of its true character.

Section 2. No person, firm, or corporation, shall knowingly offer or expose for sale, or sell, or deliver for sale or consumption, or to any creamery or cheese factory or milk condensing factory, or have in his possession with intent to sell any unclean or unsanitary milk.

Section 3. No person, firm, or corporation, shall knowingly manufacture for sale any article of food from unclean or unsanitary milk, or from cream from the same.

Section 4. All premises and utensils employed for the manufacture or sale or offering for sale of food products from milk, or cream from the same, which shall not be kept in clean and good sanitary condition are hereby declared to be unclean and unsanitary. Any city milk dealer, or any person, firm, or corporation furnishing milk or cream to such dealer, or the employee of such milk dealer, and any person, firm or corporation or the employee of such person, firm, or corporation, who operates a creamery, cheese factory or milk condensing factory, or manufactures, re-works or packs butter for sale as a food product, shall maintain his premises and utensils in a clean and sanitary condition.

Section 5. Any person, firm or corporation, who receives any milk or cream in cans, bottles or vessels, which has been transported over any railroad, or boat line, where such cans bottles or vessels are to be returned, shall cause the said cans, bottles or vessels to be emptied before the said milk or cream contained therein shall become sour, and shall cause said cans, bottles and vessels to be immediately washed and thoroughly cleansed and aired.

Section 6. Whoever violates any provision of this act shall, upon conviction thereof, be punished by fine of not less than twenty-five dollars nor more than one hundred dollars for each and every offense and, in default of payment thereof, shall be imprisoned not less than thirty days nor more than sixty days.

Good Record for a Small Michigan Herd. — Soiling Crops for Fall Months.—Raising Calves on Whey.

ED. HOARD'S DAIRYMAN:—I have been a reader of your paper the past two years and it has been a great help to me in caring for my small herd of six cows, which consisted, last year, of one pure bred Holstein, one grade Holstein and four grade Jerseys.

I commenced weighing the milk from each cow February 1, 1902, and to February 1, 1903, they gave me 38,552 pounds; the first mentioned giving 8,221, the second 10,827, and the others 6,672, 6,398, 3,162, 3,272. The last two were two-year-olds, which came fresh May 15th and June 11th. The pure bred Holstein had been milking a year when I commenced weighing her milk, and came new Sept. 24th. The grade Holstein came new February 8th and milked to December 10th. Their milk was tested, but not often enough to give a correct average, but would not be far from 3, 3.5, 3.9, 4.6, 4.8, 5.2, in the order above mentioned.

I fed a year ago a ration made up from clover hay, corn stover, ground oats, corn-and-cob meal, bran and oil meal. I fed no grain during summer and had but little pasture. Fed clover, oats and peas and corn in their season. The past winter it has been clover hay, corn "unhusked" but not much corn, oats, oil meal and bran.

My winter rations have been rather expensive having no silo, but I intend building one in the near future.

I would like some information as to soiling. What can I sow to feed during October and November? I got along nicely last year until frost came about October 1st. Corn is often cut by frost before this time in this locality.

I intend keeping several more cows another year if my present plans mature. A gentleman of some twenty years' experience in cheese making and myself are building a cheese factory. Will be ready for business in a few days. We have for competition a process butter factory which has a record that would not look well on paper.

We have the promise of a large portion of the milk and the encouragement of many of the best farmers. But few have ever sent milk to a cheese factory and are at a loss to know how they are going to raise their calves. Any information on this will be thankfully received.

We want every patron to read HOARD'S DAIRYMAN and wish you would send us a few sample copies occasionally, and we will do our best to have them read and get as many subscriptions as possible.

Vassar, Mich. W. T. L.

Evidently this correspondent has the dairy temperament, which may be otherwise expressed as the ability to absorb and assimilate sound dairy teachings and turn them to good account.

Barley and peas are probably the best frost resisting crops that can be grown. Sow from the 5th to 10th of August, 1½ bushels of each to the acre, and the crop will probably furnish feed through the month of October and, with extra favorable weather, for a part of November. A good silo, however, is the proper solution of this problem.

To raise calves satisfactorily on whey is not an easy matter. See the answer to an inquiry concerning the feeding values of skim milk and whey on page 201. If one should add 10 lbs. of linseed oil meal to 100 lbs. of whey, he would have an approximation to whole milk in chemical analysis, but it may be doubted whether such a combination would be satisfactory. We would advise commencing with much less oil meal and watch results and be governed by them. It would be well also to try a little of the new dried blood feed, which is rapidly making friends among calf raisers.

A Source of Danger.

At the recent meeting of the Wisconsin Dairymen's Association, Prof. Henry,

The New 1903 REID HAND SEPARATOR



The 1903 Reid Hand Separator is the most exact milk skimmer ever made—it is simplest, fastest, lightest running, and affords most butter-producing material under all conditions. It creates a new source of revenue and maintains the income—

WEARS LESS, LASTS LONGEST

Every Reid Hand Separator is sent out under a positive guarantee, and is sold on its own merits. If you want a separator we will send a Reid on approval—work it ten days and if it does not excel all others return at our expense. Send for new catalogue and revised price list, mailed free.

A. H. REID, 30th and Market Sts., Philadelphia, Pa.



THE Iowa Dairy Separator.

AN UP-TO-DATE MACHINE REPLETE WITH PRACTICAL IDEAS

It is built in the following sizes:

250, 350, 450, 600, 750 POUNDS PER HOUR

Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.

SEND FOR CATALOGUE NO. 60 AND PRINTED MATTER.

IOWA DAIRY SEPARATOR COMPANY, WATERLOO, IOWA.

From Cow To Cream

is but a short journey on the farm that runs the



AMERICAN Cream Separator,

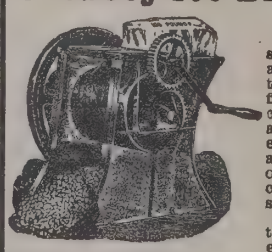


the one that gets the profits, and runs without an expert. We let you test it yourself and return if it is not a money maker for you. The price makes it easy to buy. Write now for free catalogue.

American Separator Co., Box 1028 Bainbridge, N. Y.

Awarded Medal at Paris Exposition.

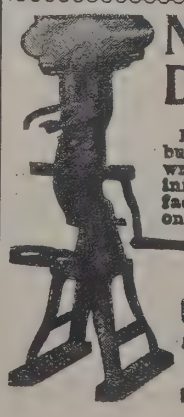
Creasey Ice Breakers



Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right. Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.

J. S. L. WHARTON, Mfr., 17th & Clearfield Sts. Philadelphia, Pa.

Notice to Dairymen



If you are thinking of buying a Cream Separator write us for Catalogue and information. We manufacture the best machine on the market.

Davis Cream Separator Co., 54 to 64 N. Clinton St. CHICAGO, ILL.

Cream Separators

THE Improved International



The best in the world, has no superior if you want a larger butter yield. It runs easily, skims clean, and is easy to wash. It is perfect in mechanical construction and magnificent in appearance. No outside gears to catch your hands and clothes. Only three parts in the bowl. Look at the low supply can. All parts absolutely interchangeable. Write for Catalogues and Prices.

Chicago Office, GEO. A. ELDER, Gen. Agent, Tacoma Blk., La Salle & Madison Sts., CHICAGO, ILL.

THE INTERNATIONAL CREAM SEPARATOR CO., LANCASTER, PA., U. S. A.

No farmer or dairyman can afford to be without one.

TEN DAYS FREE TRIAL

THE ECLIPSE Cream Separator



PRICE $30 UP.

Write for Booklet.

We want to send you an *Eclipse Cream Separator* to try. It is built double strength all through and will last and work perfectly for a life-time. It acts twice on the milk and skims it absolutely clean. Its interior device is simple, easy to wash and to operate. Its double process removes filth from the milk as well as separating the cream, and leaves both pure and sweet and fresh. It never gets out of order. It is guaranteed. It's a money maker and a money saver. It operates by hand, foot or motor power.

E. L. CHAPMAN CREAM SEPARATOR WORKS, ERIE, PA.

AUTOMATIC REGULATION VENTILATION AND MOISTURE

BUCKEYE INCUBATOR CO SPRINGFIELD, OHIO

50 EGG SIZE $5. CATALOG No. 112 BROODERS $3 UP

200 EGG SIZE $15.

IN PREMIUMS $4500.00 30 DAYS TRIAL

WORLD CREAM SEPARATOR CO

NEW OXFORD BALL BEARING Cream Separator

Sold on guarantee to be the best on the market. Catalog free.

WORLD CREAM SEPARATOR CO., 41 Main St., Council Bluffs, Ia.



30 Days Free Trial.

Don't Pay Double.

We'll sell you a better hatcher for the money than any other incubator concern on earth. New improved regulator, that can't get out of order. Big book—200 illustrations free.

SURE HATCH INCUBATOR CO., Clay Center, Neb. or Columbus, Ohio.

in an address on the Wisconsin feed stuffs laws presented some facts that were enough to alarm any man who cares for clean farming and a clean farm.

In speaking of the adulteration of wheat bran he said it often contained unground weed seeds to a harmful extent, and cited as an illustratian of the fact, a car of bran that was shipped into Wisconsin the past year, which the dealer held till he could send samples of it to the experiment station for examination. What that examination revealed was: A pound of that bran contained 28,000 pigeon-grass seeds, 16,000 wild buckwheat seeds, 3,800 flax seeds and 5,100 various other weed seeds, a total of 52,900 seeds per pound of bran. Think of feeding ten or twenty tons of such bran to the cows upon a farm and using the manure to enrich its fields!

Eternal vigilance is the price of clean farming—vigilance as to what we feed as well as vigilance in thoroughness in culture. If bran can not be bought without being adulterated with weed seeds, let them be ground so finely before the bran is bought by us that we cannot see them. Then, even though they do the cows no good (some of them have some feeding value) they will do the land no harm.

Look well to the purity of the bran you buy.

One Cow Better Than Three.—Feeding Skim Milk to Chickens.—A Question as to Inbreeding.

ED. HOARD'S DAIRYMAN:—When I bought my farm it had a bunch of poor cows. I replaced them with Guernseys and Guernsey grades. One of my Guernseys gives as much as three of the old, ordinary cows. She does not eat as much, take up as much room, or require the attention that the three did. She cost as much as the three did, and some of these fellows who don't read thought I was a fool to pay so much for a cow. HOARD'S DAIRYMAN is responsible for my getting good cows.

Feed skim milk to your chickens. Use it instead of water in making your mash for them and you will be surprised at the growth of the young chickens. It is worth at least 25 cents per 100 lbs.

Is it inbreeding too close to breed a heifer to her sire, if both animals are in good health? J. G. H.

Milwaukee, Wis.

The experience of this correspondent is not unlike that of innumerable others who write us. Other breeds in other hands will show similar results, one good cow not only giving more milk and butter than three poor ones, but doing it with a great saving both of feed and labor. The evidence is so conclusive that it is a marvel to us that so many would-be-dairymen continue to try to do business with poor cows. It cannot be said that all of them are ignorant, but some way they lack the courage to get out of the old ruts. There has been no time in past years when the outlook for profitable dairying was more promising than it is now; no time when it would pay better to dispose of the poor cows and substitute good ones.

Under the conditions named, we do not hesitate to breed heifers back to their sires. Indeed, many times this is the most desirable plan to pursue. With us the question of in-breeding is purely a question of the relative merits of the animals as such, and not at all a question of relationship. We would, therefore, breed to the best sire obtainable, unless there were special reasons for wanting to introduce some new blood elements.

The Contrast

ED. HOARD'S DAIRYMAN:—I have just taken notice that my subscription has expired. It has been sometime since I saw a wrapper and of course failed to see the date on the label. I am glad you did not stop the paper as I would not like to miss one issue. I will enclose money order for $1.00 to renew my subscription to the DAIRYMAN. Hoping I will look closer next time. JACOB M. HERR.

Allen, Pa.

The old saying, "It takes all kinds of people to make a world" is seen to be very true in the DAIRYMAN office. Today we received two letters from Pennsylvania, one blowing us up in great style for our ideas on dairying and declaring the paper was not worth five cents a year. As a contrast we append the above letter from an appreciative friend of the paper who evidently possesses the ability to get something out of it.

Dog or Sheep Power for Running Separators.

ED. HOARD'S DAIRYMAN:—Have any readers of the DAIRYMAN used a dog or sheep tread power in operating a churn and cream separator, and is a tread power a success? Will a person have to watch the sheep or dog to keep them at work? T. L. G.

Lenawee Co., Mich.

Reports indicate that they work well. As to watching the animals, that of course will depend somewhat on the nature of the one at work; the average dog will keep at work, but the exception will need watching.

Sweep Power for Separators.

Ear Markers—Information Wanted.

ED. HOARD'S DAIRYMAN:—In the past year the question was asked if a sweep power could be successfully used to run a separator. The Editor answered, no. In the following number a reader answered that he had used such a power for a long time successfully and offered to give information how it was used. I have watched the DAIRYMAN for this information but have never found it.

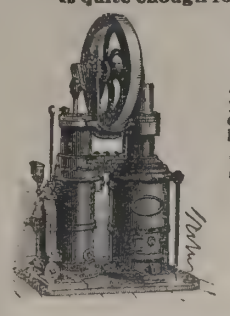
In a former number was also stated how animals could be marked by notches in the ear and it was stated that an instrument could be obtained from some address to make these notches. In looking through the index of last volume I cannot find anything in regard to it. Can you furnish me the information how to make these marks to keep a record and the address of the manufacturer who manufactures those instruments? C. H. G.

Mauston, Wis.

Wilcox and Harvey 196 Lake Street, Chicago and C. H. Dana West Lebanon, N. H. make instruments for ear markers.

HALF ENOUGH WATER

Is quite enough for some people, but most people want water every day. If

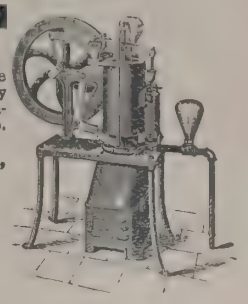


RIDER or ERICSSON HOT AIR PUMPS

Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.

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Whitewashing, Spraying and Painting Machine.

GUARANTEED to do AS REPRESENTED

Read Our 60 Days Special Offer Below.

This Machine will Whitewash Buildings, Walls, Barns, Poultry Houses, doing it far better, saving ¾ the time over the old method of using brush. Will Whitewash Buildings, or Spray Trees any height by using extra hose and extension rod to elevate Spray. Endorsed and used by hundreds of noted Breeders. It is used and endorsed by Sid Conger, Shelbyville, Ind.; U. R. Fishel, Hope, Ind.; Meadowbrook Poultry Farm, Dallas, Pa.; G. W. Brown, Camden, Ark.; A. G. Duston, Marlboro, Mass.; Texas State Fair Ass'n, Dallas, Texas. W. B. Dean, Secretary of State Board of Agriculture, Yankton, S. Dak., says: "We gave all State Fair Buildings two coats with your machine. It is a complete success and a great labor saver." In order to get them introduced in every locality, we will allow freight to your station, for the

NEXT SIXTY DAYS ONLY at the following net cash prices: No 6.—Eight Gallon Heavy Galvanized Steel, complete as shown in cut with 10 feet of ½ inch hose and one 8-foot bamboo extension rod and brass cylinder pump with agitator, **$12.00.** No. 7.—Sixteen Gallon size, **$15.00.** Terms cash with order, or we will ship C. O. D., if $3.00 accompanies order. Take advantage of our Special Offer. Send for our 100-page 1903 Catalog. Mail orders direct to

Rippley Hardware Co., Box 20, Grafton, Ills. Or Box 20, Watertown, So. Dak.

EASTERN AGENTS:—Excelsior Wire and Poultry Supply Co., New York, N. Y., Johnson & Stokes, Philadelphia, Pa. Chicago Agent, Vaughan's Seed Store, Chicago, Ill.



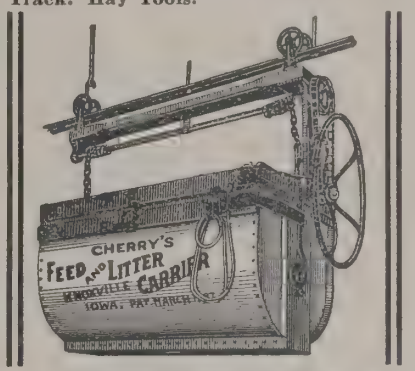
NEW DOORS AT $1.00 EACH

Bought at Sheriff's Sale of Sash and Door Factory. 10,000 NEW DOORS ranging in price from $1.00 up. ALL SIZES. Write for complete list. Our mammoth Catalogue No. 20 on Lumber, Roofing, Pipe, Machinery, etc., from Sheriff's and Receiver's Sales, mailed free of cost.

CHICAGO HOUSE WRECKING CO.,
WEST 35TH AND IRON STS., CHICAGO.

Cherry's Perfected Barn Equipments.

Operates on Curves and Switches. Manure Carrier, Feed Carrier, Grain Elevator and Track. Barn Door Fixtures and Track. Hay Tools.



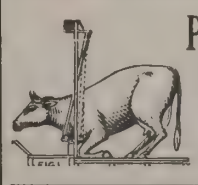
Send for Illustrated Catalogue and Price List to
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BAILEY'S HYDRAULIC RAM.

Now is the time to install a ram. Bailey's is always successful. He guarantees it. It is the most simple, durable, efficient and economical. If you want water at house or barn, send for catalogue No. 30 to

PRICE W. BAILEY, Seneca Falls N. Y.



Prescott's Swinging Swivel tanchion

Keeps Cows Clean.

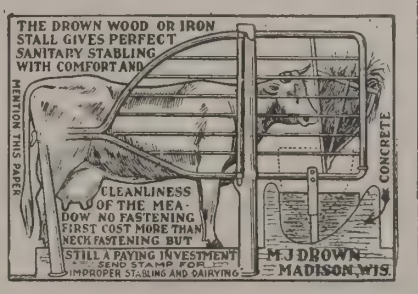
Swings forward while getting up or lying down. Locks back while standing Full particulars free.

E. PRESCOTT,
Beverly St., Boston, Mass.



THE DREW ELEVATED CARRIER

Is the cheapest and most practical device for taking away manure from stables, carrying ensilage, feed, grain, etc., etc. No trouble to put them up; no trick to work them; leaves barn yard free from posts; dump in yard or on wagon; turns curves and switches. An inexpensive money saver. Write for illustrated catalogue and full particulars.
DREW ELEVATED CARRIER COMPANY, : : : : WATERLOO, WIS.





CHAIN-HANGING
CATTLE STANCHION
The Most Practical
CATTLE FASTENER
ever invented.
Manufactured and For sale by
O. H. ROBERTSON,
Forestville, Conn.



Wilder's Stanchion

—being an improvement over Smith's. Lightest, strongest, quickest, safest swing stanchion made. Has steel latch and automatic lock. Becomes stationary when open. Animal cannot turn it in backing out. Made of best seasoned hard wood. Pins for fastening with every stanchion. Send for testimonials.

J. K. WILDER & SONS, Box 811 Monroe, Mich.



The BEST Cattle Fastening.

SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated Circular free. GLENORA MFG. CO., Glenora, Yates Co., N. Y.

Infringements will be prosecuted.



THE NEW PATENT
Cow Stall
AND FEED TROUGH.

This is the only Cow Stall with a centering hinge. Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars. R. A McLERY & CO., Palmyra, Wis.

Free to Horse and Cattle Owners

Our two large booklets telling how to cure Lump Jaw in cattle, Spavins and all kinds of blemishes upon horses, also Fistula, Poll Evil, Sweeny and Knee-Sprung. Inexpensive methods, easily employed by anybody, and that cannot fail to cure

Spavin
Ring-bone
Knee-Sprung
Fistula
Poll Evil
Lump Jaw

We know of over 140,000 farmers and stockmen who rely upon these same methods, and for whom we have saved hundreds of thousands of dollars. Books mailed free if you write stating what kind of a case you have to treat.

FLEMING BROS., Chemists,
228 Union Stock Yards, Chicago, Ill.

Cream SEPARATORS

All about them and other things for the dairy and creamery. A. H. REID, Philadelphia.

$28 FREE

FOR A TESTIMONIAL

You can have ripe tomatoes June 15th, ripe melons July 1st, new potatoes and cucumbers May 15th. All other vegetables or flowers as early by using Gold Mine Hot bed. It protects all kinds of plants from frost, cold raw winds and storms. Keeps off the bugs, insects, cutworms. Stimulates plant life in such a manner as to make them grow three times as fast. Indorsed and recommended by every agricultural paper in the United States, and by every farmer that has used them. There is not a Tool or implement that the farmer buys that will bring him in as large returns each year as this. It will pay for itself forty times a year, with proper usage.

We have reduced the price from $1.50 per dozen to 85 cents, for immediate acceptance. Sold on the same guarantee to give satisfaction as plows, binders, and mowers are sold, or money refunded. When you find they are better than you expected them kindly send us a testimonial. Next year you will want more of them; we will reciprocate your kindness with a present.

We will give 200 Gold Mine Hot Beds to the person sending in the best report; 100 for second best; 50 for third; value $28, and pay all charges to destination. Premiums paid in November. Points considered—Earliness yield, amount of money made, with one dozen. Please do not delay your orders.

Reference by permission: Commercial Bank, Greentown.

W. M. WOODWORTH, Greentown, Ind.

THE illustration on this page is of the imported cow, Rowena's Daisy, one of Case & Walker's Jersey Isle Stock Farm Herd, which is to be sold at auction, Rushville, Ind., April 28th. She was dropped June 8, 1896, and was known on the Island as Rowena's Daisy, P. 7414, H. C., which being interpreted means that she is descended from pedigree stock, and upon examination for admission to registry, she was highly commended by the expert judges. A reference to the illustration on page 198, giving "our ideas of the dairy form" as graphically set forth several years ago, is sufficient evidence that it is something more than mere compliment for HOARD'S DAIRYMAN to say that it "highly commends" the findings of those Island judges in the case of this cow. We purposely gave our ideal cow a somewhat ill-shaped udder, because it often happens that splendid dairy cows do not have perfect udders, and therefore for practical work in the dairy, a cow excellent in other respects should not be condemned for the reason that her udder is not of faultless contour. Otherwise there is a very marked similarity in the two illustrations, and it follows that whoever secures Rowena's Daisy will have what HOARD'S DAIRYMAN esteems a model cow.



ROWENA'S DAISY 161056, a Granddaughter of the World-famous Golden Lad.

Silo and Silage Queries from Washington.

ED. HOARD'S DAIRYMAN:—Will you be kind enough to give me dimensions of silo for about six cows or 10 head of cattle. I saw some time ago in HOARD'S DAIRYMAN a specification how to build a silo. I like to build it myself and can not very well build a stave silo. I like to round the corners, for I think it will be better. Will a single wall made out of flooring do? Would it be better to use cedar instead of fir flooring?

I remember a plan of a round corner silo, but forgot how long those wedges or ties in the corners will have to be, and how close together those 2x6 need to be. As I understand, I don't need any 2x4 uprights for studding, except to hold up the 2x6 hoops or frames, in place till wall is nailed on.

Can I put clover in silo when it is raining or wet with dew. I am only to put clover in silo, as I can not very well cure it in June when it by rights should be cut. Can I fill silo all alone by myself, that is, does it matter much how fast you fill a silo? Will cows do well on clover silage and clover hay without grain, as grain is very high here and roads in winter time not fit for travel? Do you advise to salt clover in silage, and how much salt? Do you think 18 feet high will do? I don't like to make it too high on account of filling, for it don't pay me to buy machinery for filling, nor cutting silage. I will have to put clover in whole. I intend to build silo in barn. J. N. N.

Jordan, Wash.

It is a pretty difficult matter to estimate the weight of clover silage, or to determine the necessary capacity of a silo for clover, especially where the clover is put in whole as is contemplated by our inquirer. It would be well, we think, to provide sufficient capacity to feed each animal from 30 to 40 pounds of silage per day, and this for ten animals would be from 30 to 40 tons for 200 days, and would require a silo, approximately 12x16 feet or 14x14 feet and 18 feet deep.

The ties or braces across the corners should be from 3 to 4 feet long and for uncut clover silage we should prefer the longer length. For a silo 18 feet in depth, we would place a second girt two feet above the lower one, the third, two and one-half feet above the second, the fourth, two and one-half feet above the third, then make the next interval three feet and the next four feet. Whether cedar or fir would make the better lining for the inside will depend upon which of these swells and shrinks the most, and this is a matter upon which we have no information. A single wall or lining made of matched flooring will suffice.

From reports received, it seems to be practicable to put clover in a silo when it is very wet, but for our own part, we should prefer that it be not soaking wet. A goodly number of people put salt on their silage and in their hay mow. We never have practiced it, and are somewhat prejudiced against it. We think that cows will do fairly well on clover silage and clover hay alone, but better and with more profit if they have some grain in connection.

Patrons Award Fund.

Creamery Package Manufactnring Company Adds $100.

Following is the record of subscriptions to date and conditions of the offer as regards the Patrons' Award Fund:

"Recognizing the importance of rousing an interest among the creamery patrons in delivering better milk, we, the undersigned, agree to pay towards a fund for "Patrons' Award" to be given as prizes to the patrons of the creamery whose buttermaker secures the highest average score in the National Creamery Buttermakers' Association yearly test for 1903 on the following conditions:

"At least $500 shall be subscribed and given as a premium to the patrons of the highest scoring creamery. If any more money is subscribed, it shall be given as a second and third premiums. Each buttermaker shall at once take steps to inform all his patrons, as soon as $500 is subscribed, and shall also decide whether the money, in case of winning, shall be divided equally among his patrons, or whether he will devide it only among those of his patrons who have delivered the best milk.

"In the latter case he shall, without notice to his patrons, make at least four fermentation tests of the patrons' milk during the balance of the year.

"We make this subscription without prejudice to the regular fund for the National Creamery Buttermakers' Association."

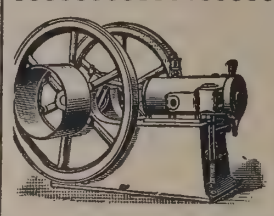
The De Laval Separator Company, N. Y.	$100
Creamery Package Mfg. Co., Chicago	100
M. H. Fairchild & Brother, Chicago	50
J. H. Monrad, New York	25
D. H. Burrell & Co., Little Falls, N. Y.	25
Chr. Hansen's Laboratory, Little Falls N. Y.	25
Total to date	$352.



GASOLINE ENGINES

as power for the dairy have passed the experimental stage. Many dairymen now have them and all eventually must have them. The only questions to decide are the amount of power needed, and the most desirable make. With twenty-seven years of experience behind us, and a plant that has grown from 50 engines a year to 1500 a year capacity, we feel that we are equipped to build the best. There are other reasons why the **"OTTO"** is superior. We will tell them in this space from time to time. If in the meantime you need power, write us, mentioning this paper

THE OTTO GAS ENGINE WORKS, Philadelphia, Pa.



THOMPSON-LEWIS GASOLINE ENGINES

furnish the greatest possible power at the lowest possible cost in time, labor, fuel and money. They are so simple that anybody can run them without expert training or experience. Our **Volume Governor** gives uniform speed. Our **Acme Mixer** is the most positive and economical on the market. Our **Hand Starting Lever** starts engine with least effort. All bearings of **Phosphor Bronze.** Best material and workmanship throughout. Many sizes from 4 (actual) h. p. up. Best for all farm work—cutting and grinding feed, sawing wood, pumping water, separating cream, churning, etc. Send for our free catalog before you buy. It may save you time, money and annoyance.

J. THOMPSON & SONS MFG. CO., 113 BRIDGE ST., BELOIT, WIS.



FLOUR CITY GASOLINE ENGINES

Portable and Stationary,
3 to 25 H. P.
Catalogue on Application.

KINNARD-HAINES CO.
MINNEAPOLIS, MINN.



If you want a.....

Gasoline Engine

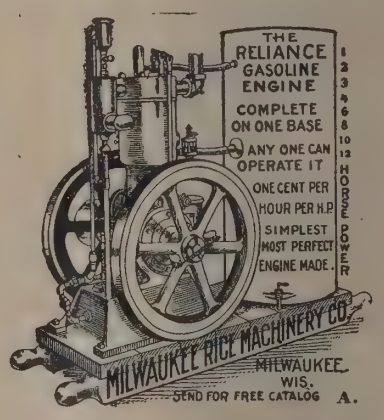
that will be always ready to start, safe, reliable convenient, economical and durable, buy a **FULLER & JOHNSON Frost Proof.** No bother with water nor expense of broken cylinder, no waiting for wind or weather. All sizes, stationary and portable. Send for descriptive catalogue to the manufacturers

FULLER & JOHNSON MFG. CO., Madison, Wis

VIRGINIA CHEAP LANDS near markets on railroad. 100 acres and house, $1,000. Come to the garden spot of the South to enjoy health and avoid the cold North-West. Delightful climate. Farms, 50 to 3000 acres; improved.
REAL ESTATE TRUST CO., Richmond, Virginia



LAMBERT
Gas or Gasoline
Is the reliable engine. No long shut-down for repairs. Simple, economical. Easy to regulate speed. Strong guarantee.
Agents wanted. Write for catalog.
LAMBERT GAS & GASOLINE ENGINE CO., Anderson, Ind.





This is
The Machine
THE "MILWAUKEE" BINDER

That harvests your grain with profit.

When buying a binder—come and look over the "Milwaukee."
It's simple in construction, thoroughly automatic, and accurate in action.
It's very light draft, easy on the horses, and strongly built.
It's easy on the driver as he operates entirely from the seat with only a few simple levers. It's a money saving machine

As it gets ALL the grain from the field.

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A full line of Binders, Mowers, Reapers, Corn Harvesters, Rakes, Sickle Grinders, Covers, Oil, and Twine.

Calf Scours Don't let your calves die from this disease. You can save them by using Hood Farm Calf Scour Treatment, which consists of Calf Scour Cure, a liquid preparation which checks the scours, and Digestive Powder, a preparation of pepsin, which aids digestion, creates an appetite and keeps the calf from becoming stunted in growth.

HOOD FARM

Calf Scour Treatment

SAVES THE CALVES.

At Hood Farm, Lowell, Mass., in one year, there were 83 cases of scours. Every calf was treated with these remedies and all but 3 were saved. Formerly we lost 75 per cent. of all calves affected.

Two sizes of each remedy, $1 and $2.50, large contains four times the quantity of the dollar size. Prepaid to any railroad express point in U. S., 25 cents additional.

Address C. I. Hood Co., Lowell, Mass.

Mention this paper.

BUGGY ON TRIAL



KALAMAZOO BUGGIES are sent from factory to you on 30 Days' Free Trial. KALAMAZOO QUALITY in every one. Costs nothing to try them. Get our new Buggy Book, free. Select your buggy. We do the rest. Kalamazoo Carriage & Harness Mfg. Co. 148 Ransome St., Kalamazoo, Mich.



Mr. Pig's PERSECUTORS

All disappear at once when the pig is dipped or sprayed with

Chloro-Naptholeum Dip

Lice, mange, itch and other pests that keep down vitality, strength and fat are cured and killed, and his feed goes to fat instead of to feeding bugs, so that he soon acquires the weight that counts at the scales. **Hog Cholera** is unknown where **Chloro-Naptholeum Dip** is used regularly Don't be fooled by imitations. Get the genuine, with trade mark. *1 Gal. $1.50 2 Gals. $3.00 5 Gals. $6.75* Freight prepaid. Larger lots at lower rates. Booklet and testimonial letters FREE. Special rates to customers on Dipping Tanks and Sprayers, **Agents wanted.** Steady and profitable employment.

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CUTTERS and BLOWERS. "They Throw and Blow"

They require less power than any other blower because the wheel containing the knives also contains paddles which throw and fans which blow. A two-horse tread power will cut and elevate 4 tons of ensilage per hour, and a 10 h. p. engine 20 tons per hour. No chains, belts or cogs to slip and waste power. Also silos, horse powers, engines, carriers, saw machines, etc.

HARDER MFG. CO., COBLESKILL, N. Y.



FOR SALE BY OWNER

STOCK FARM

near Hudson, St. Croix County, Wis. Good buildings and improvements. Easy terms. Address Box Q Hudson, Wis.

A Clear Saving



$10 to $45

On a Sewing Machine

"Young" TOLEDO O

Don't take our word for this—we *can prove* it. We ship from factory "*on approval*" at factory prices. We have no agents, pay no commissions, hence save you money. We publish the most comprehensive book ever written about Sewing Machines, handsomely printed in colors, with *cloth* Samples of ruffling, tucking, etc. done with attachments. This book tells you what constitutes a *really* high grade Machine—how to detect the weak points—the right price to pay, etc., and how to dispose of your old Machine.

Send for FREE Samples and Book No. B. 5904

THE HOMER YOUNG CO. Ltd. (Makers) Toledo, O

An Oregon Barn Plan.

ED. HOARD'S DAIRYMAN:—1. Have a barn 56×80 ft. Is nothing but a shell but want to fix it for thirty cows and three horses. The roof is sufficiently elevated to build a 28 ft. silo inside the barn if you think it better indoors than out.

Please submit plan for stalls, alleys, silo and milk house, also position of gasoline engine to be used to run separator and cut silage.

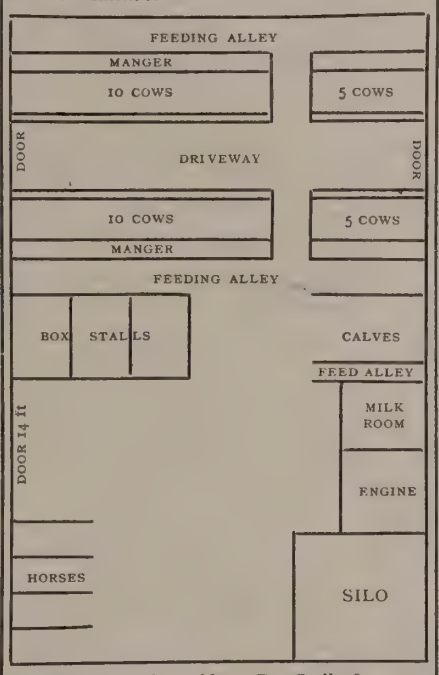
2. What is the value of skim milk when fed to cows, as compared with bran?

3. Is there any danger of cows forming the habit of sucking each other if they are fed skim milk?

4. Grain is not grown in this part of Oregon, consequently we have no bedding, and none is used except what hay the cows waste. As bare floors are not very comfortable, can you suggest a solution? Our winters are very rainy but not cold and I thought it might be practicable to have an enclosed yard or shed for the cows to stay in, allowing them in the barn only while being milked. R. G. W.

Marshfield, Ore.

The annexed diagram is the best we can do in the way of planning the division of such a structure. There ought to be some way to provide bedding for these cows. Shavings from planing mills are used in many places. Not only do the cows need bedding but the land needs it in the manure.



Feeding Alley,	4	feet	wide.	Box Stalls,	8x12.
Mangers,	2	"	"	Milk Room,	10x11.
Gutters,	1	"	"	Engine Room,	10x12.
Driveway,	8	"	"	Silo,	18x18.

2. We do not know that this question has ever been answered by carefully conducted experiment. Some dairymen consider skim milk very valuable for this purpose, but chemical analysis scarcely support their claims.

3. No.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Caked Udder.

I have a Jersey heifer with second calf, one of her teats seems to be drying up, that quarter is getting hard. We had trouble with it after her first calf, but she gave some milk from it; have been using lard and vaseline on it, but it does not seem to help any. L. G. C.

St. Paul, Minn.

ANSWER.

Take re-sublimed iodine, 1 ounce and lanolin 16 ounces. Mix and rub well into affected quarters for 5 or 10 minutes after each milking.

Horse Owners! Use



GOMBAULT'S

Caustic Balsam

A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.* Every bottle sold is warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland, O.

"SAVE-THE-HORSE" —TRADE MARK— **SPAVIN CURE.**

POSITIVELY AND PERMANENTLY CURES

Bone or Bog Spavin, Ringbone (except Low Ringbone) Curb, Thoroughpin, Splint, Capped Hock, Shoe Boil, Wind Puff, Weak or Strained Tendons or Lameness.

FROM A REPUTABLE AND NOTED TRAINER

GLENVILLE DRIVING PARK, CLEVELAND, OHIO.

For the enclosed $5.00 please send me one more bottle of "Save-the-Horse." It is doing great work. Respectfully, MILLARD F. SANDERS.

HARTLAND, LIVINGSTON CO., MICH.

Find enclosed money order for $5.00, for which send me another bottle of "Save-the-Horse" spavin cure as it has done all you claim for it for me With the bottle I bought of you I took off a curb, spavin and a side bone on a 3 year old mare that other spavin cures refused to help in the least. I consider your spavin cure the best on the market. E. M. PARSHALL.

HOWICK, QUEBEC.

I had a mare suffering from a bone spavin and very lame. I concluded to try a bottle of "Save-the-Horse" and at the expiration of six week's treatment she was free from all lameness and I consider it one of the greatest compounds made. DAVID BARRINGTON.

EDGEWATER, N. J.

Enclosed find check for $5.00 for which you will kindly send me by Wells-Fargo Express one bottle of "Save-the-Horse" as soon as possible. The horse I have been treating with "Save-the-Horse" went sound and I sold him. The last I heard from this horse he was still going sound and working every day, and I think he will stay sound. The bottle I am ordering now I will use on another horse that has a pair of spavins and a curb; he does not go very lame, but walks on his toes and I think "Save-the-Horse" will bring him around so that he will walk all right. Very truly. OTTO MEYER.

The fire iron is uncertain and invariably only aggravates the disease or injury; blistering is less effective than the fire iron, and both necessitates laying up the horse from four weeks to two months. Arsenic, mercurial and poisonous compounds produce irreparable injury

"Save-the-Horse" eliminates all these factors. Horse can be worked continuously. Cures without scars, blemish, or loss of hair.

It can be applied at any time, anywhere, any place, and in all conditions and extremes of weather—hot or cold And no matter what the age, condition or development of the case or previous failures in treating, the concentrated penetrating, absorbing power of this remedy is unfailing.

$5.00 PER BOTTLE.

Written guarantee with every bottle constructed solely to satisfy and protect you fully. Need of second bottle is almost improbable, except in rarest of cases. Copy of guarantee sent upon application.

IF YOU HAVE A CASE DIFFERENT FROM INSERTED IN OUR BOOKLET OR ADVERTISING WRITE US.

We will advise you frankly as to the possibility of the remedy effecting a cure. Give explicit particulars, give the veterinary's diagnosis, if he is competent—inform us fully as to the age, development, location of swellings, lameness, action and previous treatment.

$5.00, all druggists and dealers, or sent express prepaid.

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BLACKLEGOIDS



BEST PREVENTIVE OF BLACKLEG.

Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each **Blacklegoid** (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. **Blacklegoids** are sold by druggists; *ask for them.*

Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.

PARKE, DAVIS & CO. - DETROIT, MICH.

Branches: New York, Kansas City, Baltimore, New Orleans, Chicago; Walkerville, Ont.; Montreal, Que.; London, Eng.

BARREN COWS CURED.

Our treatment has been used successfully since 1878 in every state in America, Canada and Great Britian. Write for Pamphlet.

MOORE BROS., Veterinary Surgeons, Albany, N. Y.

CURE "THE" COW

NO CURE, NO PAY

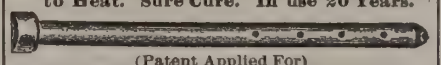
WRITE, giving symptoms of animal sick, and will ship you sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address



DR. EATON J. GROSS,
152 Congress St., Troy, N. Y.

ABORTION,

Failing to Breed and to bring Cows to Heat. Sure Cure. In use 20 Years.



(Patent Applied For)

Hard Rubber *Safety* Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.

Dr. WM. HORNE, Janesville, Wis.

ABORTION,

Retention of Placenta and Failure to Breed.

KELLOGG'S CONDITION POWDER is a positive cure for these diseases. Write for circular containing full information, references and price.

H. W. KELLOGG COMPANY, St. Paul, Minn.

ANTITOXIN

For the Cure and Prevention of Milk Fever.

No quackish humbug but a scientific fact. Works on same principle as antitoxin injection in man for diphtheria, destroying poison in system. Four doses $2.00, 12 dozes $5 00. No less than 4 doses sold. Easily administered with syringe. For particulars address

DR. W. E. A. WYMAN, V. S., Prospect, Ohio.



ABORTION

Can be successfully treated with Anti-Abortion Serum. Easily administered and permanently cures. Information free.

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WROUGHT IRON PIPE

Good condition, used short time only; new threads and couplings; for Steam, Gas or Water; sizes from ½ to 12 inch diameter. Our price per foot on ¾ inch is 3c; on 1 inch 3½c. Write for free catalogue No. 20

CHICAGO HOUSE WRECKING CO.,
W. 35th and Iron Sts., CHICAGO.



Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.

Used Exclusively at Model Dairy

Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.

O. H. MFG. CO., Dept. H, Lyndon, Vt.

A New York Herd Report.

ED. HOARD'S DAIRYMAN:—Having read a number of herd reports in your valuable paper, I will give you the report of my herd for 1902, consisting of eight thoroughbred Holstein cows, seven heifers and one full age cow.

I make butter and put it up in pound prints, wrapped in parchment paper, and have regular customers by the year at 25 cents per pound.

Cash received for butter	$571.00
Two calves sold	75.00
Six calves raised, valued when dropped	150.00
Skim milk and buttermilk at 20 cents per 100 lbs	110.00
Total amount	$906.00
Average per cow	$113.25

The value of calves raised may seem rather high to a good many of your readers, but I would not take three times the above named amount for some of them. Three and four years ago I sent the milk from nine "scrub" cows to a cheese factory, and from the cash received from factory, calves vealed and raised and butter and milk consumed in family, they did not pay only about $400 for the year, or $44.44 per cow.

About that time I commenced reading the DAIRYMAN and resolved to do better. If I was to milk cows all my life, I would have something that would pay their board and mine, too. So I disposed of the "star boarders" and invested the proceeds in some registered Holstein-Friesian cows, and when I look over the yearly report, I find there is a great difference on the good side.

I think, as J. M. G., Alderley, Wis., does, let there be more herd reports.

I can't see why more dairymen do not take the DAIRYMAN and learn more about their business. I think a great many of them are afraid they will find out how they are situated.

I am feeding my fresh cows a ration of 35 lbs. corn ensilage, 15 lbs. alfalfa hay, 5 lbs. corn meal. Can you suggest any grain that will improve the ration?

Portageville, N. Y. A. R. M.

The ration reported seems quite large to us, but possibly it is none too large for growing heifers of this large breed. Otherwise we have no suggestion for improving it.

Cow Peas or Soy Beans With Corn for Silage.

ED. HOARD'S DAIRYMAN:—Several of our local dairymen, including myself, are anxious to raise crops on our farms that will make a balanced ration for dairy cattle. Some of them are going to try southern cow peas, some soy beans, and some alfalfa. The peas and beans are to be planted with the corn, harvested with the corn binder and put into the silo. The alfalfa is to be cut and cured as hay. We fear the cow peas will lie too close to the ground to be taken up by the corn binder. We think the soy beans will answer our purpose better. Taking our latitude into consideration, which will be the best for us to try, cow peas or soy beans? If we could silo the common corn field beans that grow so plentiful in our latitude, we would surely have the feed problem solved.

If cow peas or soy beans are planted with the corn, will they mature with it?

Liberty, Ind. T. C B.

There are not facts enough known as yet to determine which is to be preferred, soy beans or cow peas. Concerning the latter see the communication from J. N. M. on page 77, and concerning the former see the communication in this issue from H. B. C., Rochester, Mich.

Suggestions for Remodeling a Quebec Stable.

ED. HOARD'S DAIRYMAN:—I am enclosing you a plan for a stable that I have on a farm recently purchased. The floor of this stable is made of hemlock plank. I have to renew it and am going to put in cement the coming summer. I want stabling for fifty cows and thirty head of young stock. The manure at present is thrown behind the cattle and drawn out when convenient. I have been thinking of building an addition for a manure tank or shed. I have also to build a hog pen. Would you be kind enough to give me some ideas as to the best method of arranging the cattle stalls, also the care of the manure and would it be better to build the hog pen separate from the stable, as I want to arrange for a boiler in the hog pen to cook feed for hogs.

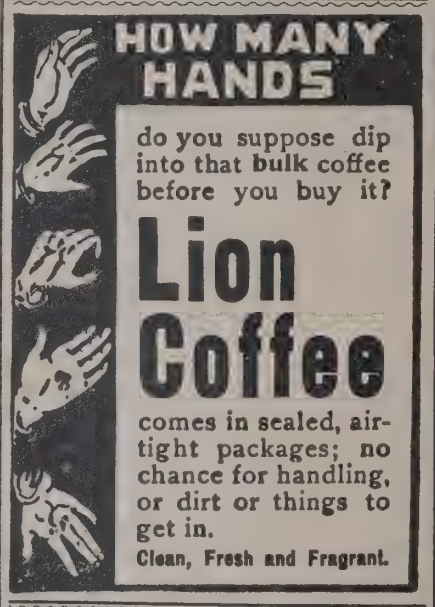
I am a poor man, but would like an up-to-date stable. Any suggestions that you may be able to give me in regard to the above, will be greatly appreciated.

Montreal, Que. T. K.

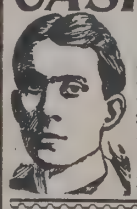
The plan sent us shows a stable 48x98 feet, inside measurement, with a row of double stalls on either side of a central feeding alley 12 feet wide, which leaves a space 12 feet wide behind each row of cows. In remodeling this stable, we suggest a feeding alley 5 feet wide on one side then 6 feet for manger and standing platform for 25 cows, then a drop or gutter from 1 foot to 1 foot 6 inches wide, then a driveway 8 feet wide, then another drop or gutter, then 6 feet for platform and manger for 25 cows. We have now appropriated 28 feet in width and have provided for the 50 cows, allowing 3 feet 6 inches for each cow, and passage ways same width at either end and in the center. The remaining 20 feet will afford a feeding alley 7 feet wide, allow 5 feet for manger and standing platform for young stock, and leave 8 feet for driveway. Probably not more than half the full length of the stable will be required for young stock and there will remain a space 49 feet long and 13 feet wide for box stalls and feed bins.

As will be observed, all the space has been appropriated for cattle, which necessitates a separate structure for the swine, and this is desirable from every point of view.

In remodeling the stable, we cannot urge too strenuously that ample provision be made for light. There should be at least one window, containing six lights, 8x10 or larger, for every two cows. Also, it is important as well as profitable to secure effective ventilation. Possibly the the winter snows in the vicinity of Montreal will preclude hauling the manure to the fields direct from the stable, and if so, a shed for storing it will be a good investment, and a litter carrier, suspended from an overhead track, will be found an almost indispensable addition to the plant.



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farm, home, business, or other property (no matter where located or how large or small) may be obtained through me. Send description, state price, and get full particulars free. Est'd 1896. Highest references. Offices in 14 cities, from Boston to San Francisco.

W. M. OSTRANDER
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Fine Dairy Farm for Sale.

Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence, cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling.

T. S. TOMPKINS,
Pasadena, Cal.

DAIRY FARM Near LYNCHBURG VIRGINIA.

completely stocked and equipped—established trade, 513 acres, blue grass pastures, smooth fertile limestone soil. Fine new dairy barn equipped with modern machinery, thoroughly fenced, two nice residences, abundant spring water, lots of fruit, everything good condition, paying place; butter 35c per lb., milk 8c per qt. $11,000 will buy it with cows and outfit. Easy terms. For details and photograph, Box 282, Lynchburg, Va.

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Laton, Fresno County, proves to be an Ideal Home for Farmers and

DAIRYMEN

60,000 ACRES OF IRRIGATED LAND IN THE

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Alfalfa a specialty. Creameries on the Estate. Ample Railroad Facilities. Land Sold on Easy Terms in Small or Large Lots.

WRITE THE MANAGERS

404 GREAT NORTHERN BUILDING.....CHICAGO.

200 ACRE FARM FOR SALE

200 ACRES 2½ MILES WEST OF WHEATON, consisting of 160 acres black loam with clay subsoil, 110 acres ready for crop, balance fenced pasture, 2 acres shade trees around the place, some young apple trees and berry bushes, also some ornamental trees; 40 acres lying ¾ of a mile west on the shore of the great hunting and fishing resort Lake Traverse; 20 acres ready for crop, 10 or 15 acres more can be broke, balance heavy hay meadow extending out to the Lake, making about 70 acres in all, on which I make from 60 to 80 loads of hay every year.

THE HOUSE consists of two basement rooms, 3 rooms and pantry on first floor, 3 bedrooms and 2 closets upstairs all plastered and finished; cistern holding 75 barrels in the kitchen; barn 60x36, 8 foot stone wall, 6 foot posts on loft, 2 cupolas and horse hay carrier; round frame silo, 5 thicknesses ½ inch boards, 3 thicknesses tar paper, 20 feet high; 17 feet across, holding 78 tons. 50 foot galvanized steel windmill with plenty of good water; milk house and shed 36x12; ice house 14x16; granary 44x16, 12 foot posts, adjoining shed 44x14; hoghouse 40x14; henhouse for 50 or 60 hens, double walls and tar paper between; potato or cyclone cellar arched with stone 4 feet underground, 10x14 summer kitchen on top; blacksmith shop. A running creamery two miles from farm.

This farm can be bought with stock and machinery as it stands, if desired, or the farm alone. For further particulars, address,

ALFRED SCHEDIN, Wheaton, Minn.

Buy You a Ticket to CROOKSTON, MINN., and call upon

The Polk County Land & Loan Company

For choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains

360 acre farm, 4½ miles from Crookston, Minn., (a city of 7,000 inhabitants), and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 ft. square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm in under a high state of cultivation, and is well drained by a slight ravine running through the farm, merely sufficient for self drainage. The soil is a rich deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a 320 acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50,

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired, Price $19.00 per acre.

200,000 ACRES TO SELECT FROM

We own 40,000 acres in Red River Valley, in Marshall and Kittson Co's, Minn. and in Walsh and Grand Forks in N. D. 15,000 acres in LaMoure, N.D. Fine stock ranches in Logan and Mercer Co's, N.D. 50,000 acres of Timber land in Aitkin Co. Minn., and Washburn Co., Wis. Also 15,000 acres in Southern Minn. in Lyon and Redwood Co's, near Marshall.

WRITE FOR OUR MAPS. We can give you a farm from $5.00 to $50.00.

BURCHARD-HULBURT INVESTMENT CO.
705-7 Manhattan Bldg. ST. PAUL, MINN.

OUT THEY GO

The crowds are going to Morton County, North Dakota; rich black soil, clay subsoil, producing heavy crops—where corn grows. Excellent water, 10 to 30 feet deep. Coal is Free. Stock feeding only about six weeks in the year. Our Creamery butter brings Elgin prices. We own 175,000 acres and sell farm lands for $7 to $12 per acre; grazing lands $4 to $7. Free Homestead lands adjoining. 9,000 people now in County. Healthiest climate. Write for facts and maps.

Wm. H. Brown & Co.

Mandan, N. Dakota, or 181 La Salle St., Chicago.
(Where did you see our Ad?)

FARM FOR SALE JUNEAU CO., WIS.

120 acres; 100 acres under cultivation, 20 acres meadow. Rich soil, good house, barn and other buildings. A tobacco farm. Price and particulars of HILES & MYERS, C-100 MATTHEWS BLDG., MILWAUKEE, WIS.

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toward Marathon County as being one of the finest agricultural and dairy sections in the state. The homeseeker can find an opportunity here : : : :

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buy lands at a moderate price. The lands we offer for sale are located in the northwestern part of : : : :

MARATHON COUNTY,

in a section which is well settled, having good roads, railroad facilities, schools, etc. A splendid opportunity for the homeseeker. Terms reasonable. Write us now for further particulars. : : :

RIETBROCK LAND & LUMBER CO.,
ATHENS WIS.

160 ACRE FARMS IN WESTERN CANADA FREE

Western Canada

The Vast Areas of this Remarkable Agricultural Country

are attracting more attention than any other District in the World.



"The Granary of the World."
"The Land of Sunshine."
The Natural Feeding Grounds for Stock.
Area Under Crop in 1902—1,987,330 Acres.
Yield 1902—117,922,754 Bu.

Abundance of water. Fuel plentiful. Building material cheap. Good grass for pastures and hay. A fertile soil, a sufficient rainfall and a climate giving an assured and adequate season of growth.

Homestead Lands of 160 Acres FREE.

The only charge being $10 for entry. Close to Churches, Schools, etc. Railways tap all settled districts. Send for Atlas and other literature to Superintendent of Immigration, Ottawa, Canada; or to the authorized Canadian Government Agent—

T. O. CURRIE,
12 B. Callahan Bldg., Milwaukee, Wis.
J. M. MacLACHLAN,
307 Third Street, Wausau, Wis.

NOW IS THE TIME TO SUBSCRIBE FOR

HOARD'S DAIRYMAN.

Practical Dairying.

Address of Mr. L. S. Dorsey, of Moro, Ill., before the Madison County Farmers' Institute?]

Few words are abused as much as the word "practical." To be practical is to be capable of turning a thing to good and profitable use. So many people, especially farmers and dairymen, "know it all," and unless one's experience is identical with theirs, it does not count for much with them.

It is amusing to discover that the very people who "know it all from experience" are the easiest taken in by agents for "one-minute churns," "tree agents," and the like. This address, however, is not a criticism of other people, and the remark that it is not possible for anyone of us to "know it all" is not a personal one.

To be a practical dairyman; to be "up-to-date;" to be able to turn new ideas to good use; to produce and use the most economical and at the same time the most profitable foods; to have the best of cows, which receive the best of care; to secure the best markets for dairy products, are each of them subjects of wide range, and must all be met and mastered before one is a practical dairyman.

I have always been a lover of sheep, and when the dairy was becoming the leader with me I had little thought that I would ever part with the little flock of sheep; but I had determined to be practical; if the farm was to be a practical dairy farm, everything that was in the way of making the most out of the cows must go. The sheep were such close grazers that the pastures were not in the best shape for the cattle, and somehow cows do not like to graze after many sheep, and the sheep had to go. This has always been considered as doing something that was practical.

Dairying is an art, and I consider that art consists in the ability to see and do. The mischief with us who are engaged in the dairying business is, that we have a great number of what may be called blind farmers amongst us who do not see the end from the beginning.

On the farm and in the dairy there are too many who seem to be contented if they do "as good as the average."

The average anywhere is not a safe place to be. In the store, farm, school, or wherever you may go in the trades or professions, or any line of business, you will find that the average don't pay; that the average is not a success.

A dairy editor sent a man to Iowa to examine and find out what 100 herds of dairy cattle were doing, and he found that over 60 of the herds did not pay for their keep.

The dairy section of the Illinois Agricultural College has a man at work in this state taking herd records of dairy cattle, and his records will show that the average dairy herd does not pay.

In my county there is a condensing factory which has 160 patrons, and of these, 83 make a clear profit while 77 lose or just pay expenses.

No; I say, don't be contented to be an average dairyman. Aim high and exert every effort to make a success of the business. Study the business; if you are working with cows, steers, hogs, horses or grain, be on the lookout for better methods; don't satisfy yourself with the idea that you know it all.

I want to tell you that the dairy business was not a matter of choice with me. It was a case of have to do something or bust. I was not over fond of work, and the farm was one of those poor, hilly ones, and to do something to build it up and at the same time bring in a revenue that could meet current expenses was the all-important issue to be met and settled.

A few cows were purchased and a start made in the dairy. We sell milk by the quantity and prefer the Holsteins; but our market objects to an all-Holstein dairy; so there is some Shorthorn and Jersey blood in the herd.

To secure and keep a dairy herd is one of the practical things that must be learned before success is attained.

Now let us look for a moment at the dairy cow. She should not have a short, broad head nor a thick neck, but the contrary; her head should be long and thin, and broad between the eyes, and her eyes should be bright and clear; she should have a thin neck and large nostrils.

The hips of a dairy cow should be broad. She should have thin thighs, well apart, giving plenty of room for a good udder. The udder should be well developed, and I like to see plenty of veins on the outside of the udder, indicating that the udder is not fleshy.

Some cows will have two milk veins; others will have four or five branching out. The more veins she has the larger they are, and the more crooked the better. The veins do not carry milk to the udder, but return the blood from the udder to the lungs. If large and full, they indicate a good deal of blood passing through, and blood is a producer of milk. Where they enter the body you will find udder holes, called milk wells. The larger and the more there are the better, five or six of them, especially in Holstein cows.

I claim this is the best point to a good cow. When you get the udder, get the milk veins and the milk well, and you have got the dairy cow. These are the only safe and sure signs to go by.

Having a good herd of cows, breed them up to your ideal. Select the breed you want, and buy the best bull or bull calf of your breed that you can afford, or get a neighbor to go into partnership with you in buying a bull.

There is no class of farmers who work together so good as dairymen, and with me this partnership-bull idea works O. K. Raise the heifer calves from your best cows. With a good herd of cows much remains before all the practical work is done.

The cows should have the best of care; kind and gentle treatment.

One of our cows has just dropped her second calf. She is a daughter of our best cow and possesses some of her mother's good points, and has been a favorite since she was born. This heifer was a persistent sucker, and so thoroughly was she attached to the sucking habit that at two years old, just after she had dropped her first calf, I noticed one day that while her calf was sucking her, she was sucking another cow. We have never known any other name for her but "Sucker," although she now seems to be completely weaned.

Sucker and I are close friends. She seems to understand that I love her, and there is an unwritten agreement between us that we will be good to each other; and when I throw my arm around her neck and tell her I will be kind to her, and pass a nubbin or apple to her, she seems to understand it all and at the milk pail she reciprocates.

All farmers are not cut out for dairymen, and many are in the business who should not be. I do not consider it practical for any one to mistreat their cows in any way. It is a shame for any one to turn their cows into a stalk field in cold, driz-

NO MAN IS STRONGER THAN HIS STOMACH

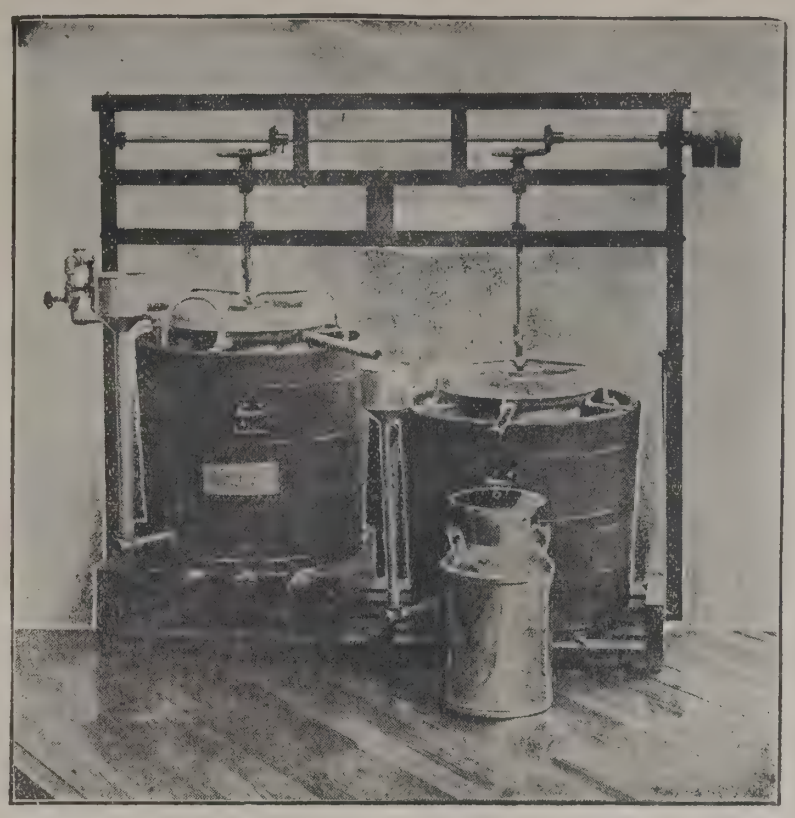
When Sandow poses and the muscles ridge his back and knot his arms, we think we have before us the very secret of strength in those magnificent muscles. But we haven't. Starve Sandow, or, what is practically the same thing, let him be dyspeptic, and his muscle would soon fail. Strength is made from food properly digested and assimilated, and no man is stronger than his stomach, because when the stomach is diseased digestion and assimilation are imperfect.

Dr. Pierce's Golden Medical Discovery cures diseases of the stomach and other organs of digestion and nutrition. It enables the perfect digestion and assimilation of food so that the body is nourished into perfect health and strength.

"I had what my physician called indigestion. He gave me medicine for the trouble but it did me no good," writes Mr. W. H. Wells, of Willard, N. C. "I wrote to Dr. Pierce and stated my case. He sent me a descriptive list and hygienic rules. I carried out these as best I could, bought six bottles of his 'Golden Medical Discovery' and commenced taking it. A few days later I noticed a great change. Felt like a new man. Before I began the use of the 'Golden Medical Discovery' I suffered greatly with pain in stomach, my nerves seemed all 'run-down,' I was very thin in flesh, but now can eat heartly and sleep good at night."

Dr. Pierce's Common Sense Medical Adviser is sent *free* on receipt of stamps to pay expense of mailing *only*. Send twenty-one one-cent stamps for the paper-covered book, or thirty-one stamps for the cloth-bound volume. Address Dr. R. V. Pierce, Buffalo, N. Y.

A GREAT SUCCESS.

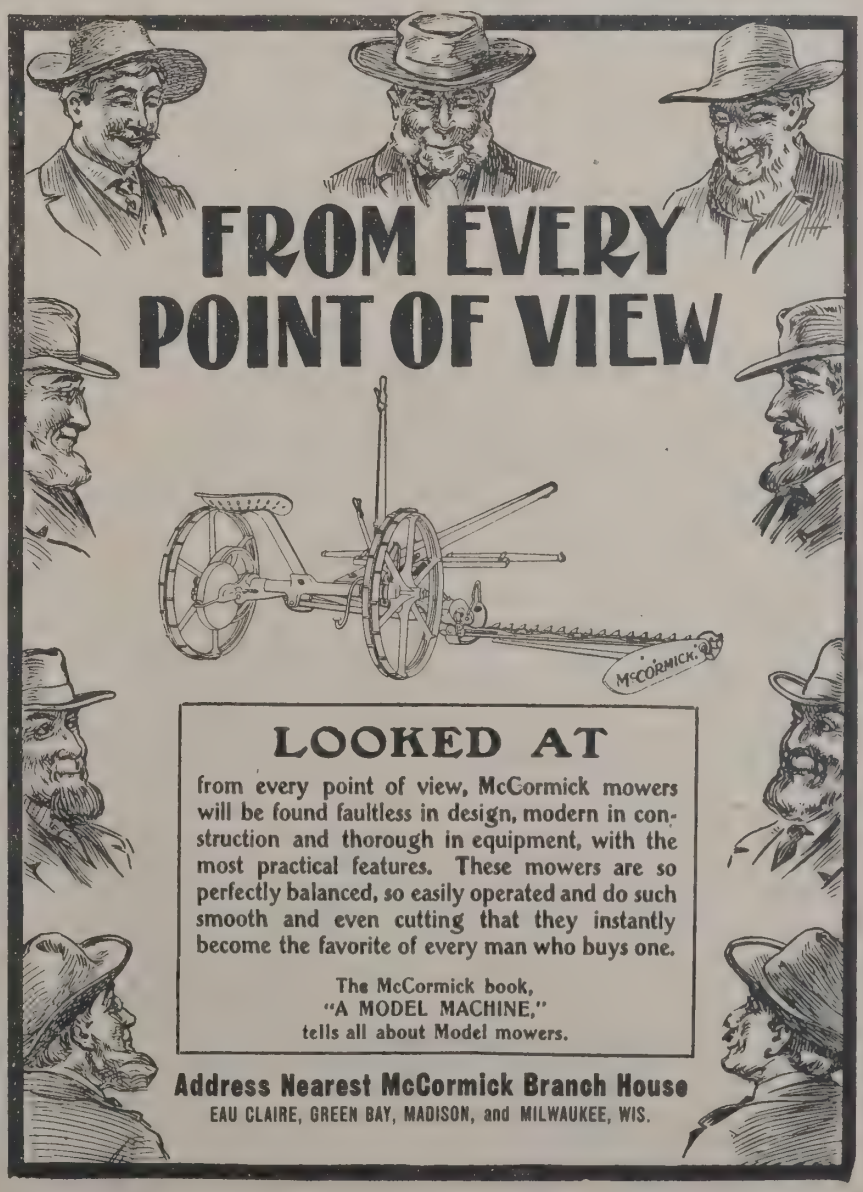


The Miller Cream Pasteurizer has a capacity of from 450 to 600 lbs. per hour.

Price $150 in Tin. $200 in Copper.

THE MILLER PASTEURIZING MACHINE CO.

CANTON, OHIO.



zling weather, or force them to drink ice water all the winter; or, in the summer, for man, boy, or dog, to bring them in from the pasture on the run, or to make them stand around in the cold or mud at any time. These are not practical things for dairymen to do.

Make them as comfortable as possible at all times. It is far more profitable to sell off a part of the herd and take the best of care of what you have left.

The stable should be the best you can afford, and have plenty of light, be ventilated, warm and clean.

As to feed.—As the cows become fresh, feed lightly at first and gradually work them up. As the feed is increased the milk flow increases. As the milk flow increases the appetite increases, and so you work them up to their capacity. They can be held to a full flow of milk only by the best of care and feeding.

A balanced ration is what we should aim to get. I know of no one feed that comes so near being just what is right as oats, cut green and fed in the sheaf, or threshed and ground. I believe in a variety of feeds and think one-third each by weight of ground corn and cob, ground oats and wheat bran is a model feed.

When I eat I want a variety and I must judge the cow's desires by my own.

As to cotton seed meal, gluten meal, oat dust, etc., what I have fed of them does not warrant me to recommend them to be equal to the corn, oats and bran. Others, however, may have obtained better results.

Clover hay I think the best of all hay for cows, if cut at the right time and properly cured. With me, clover is so uncertain that I had to resort to cow peas and soja beans for hay. Either, I think is most as good as clover; but I prefer the Mammoth, or late soja beans. I sowed 20 acres this year (1902), after the rye pasture had headed out, plowing under the rye, and, taking a Superior drill, the beans were sown one-half bushel to the acre in rows 20 inches apart. They were cultivated twice and cut and bound with the grain-binder, October 15. The bundles were stood up in rows six or eight together to dry. November 15 they were hauled into the barn and in as good a condition as I ever had clover or cow peas. They averaged one ton to the acre. They grew about four feet high.

I feed corn fodder in the stable, in the shed and outside. I prefer shredded fodder, as it can always be kept in a dry place. It is poor policy to have to go to the field through the winter, through all kinds of weather, for fodder; and again if the fodder is always nice and dry and clean the cows eat it with a desire for more.

I use a rack for feeding fodder, 16 feet long, 2½ feet high and 4 feet wide. It is bottomless and very cheaply made and easily cleaned. Four posts are used for the corners; the sides are 2-inch pine, and ends 1-inch pine. It is nailed securely together; feed in it till half full of stalks, then turn it over, and it is cleaned. No fodder gets out into the mud, and it is high enough so the hogs cannot get into it.

The dairy business has much against it, compared with other lines of farm work. It is said to be too confining, and that there is so much drudgery; but I notice that in any other business, aside from farming, those who apply themselves the closest to their business are usually the ones who are the most successful, and it is also true that the farmer who sticks close by his herd of cows comes out in the end with a much better improved farm and is more of a practical and financial success than his neighbor who is not a dairyman for fear of the drudgery and the confinement to business he must endure.

Good Silage from Frosted and Dry Corn.

How It was Done.

ED. HOARD'S DAIRYMAN:—I put up a Kalamazoo silo, 16x27, last season, but didn't get it completed so as to fill it before the frost cut the corn. I had to cut and shock the corn in order to save the feed. Well, my power didn't get here in time, so the corn set in the field six weeks before I got to filling. I finished about the fifth day of November, and I have splendid silage. The cows don't leave a bit of it. There was some spoiled at the doors.

The way I filled was this: We had our cutter, which was a No. 3 Belle City with a 35-feet carrier, and run it with a 5 H. P. Weber gasoline engine. The cutter set up on a platform just the heighth of the rack on trucks, then I took a large oil barrel and sat it on a bench by the side of cutter, put a nipple in the barrel with faucet and a nozzle of a sprinkling pot on the end of it; then I used a long rubber hose and connected it on the pipe at the water tank, then set the wind mill to pumping and that kept the barrel full of water. Then when we were cutting we would open the faucet and let water in the barrel. This wet it in good shape. My neighbors all said I was crazy and that it would all spoil and I would have lots of manure to haul out, but, to their surprise, I have got good feed.

Vernon Co., Wis. J. G. REINE.

DON'T PUT OFF

Seeing your freinds and having them join in for a good club of subscribers.

Cream and Butter Churned.

I weighed up 100 lbs. of cream and it tested 26%, but churned out 33 lbs. of butter. What per cent overrun do you claim that to be? What price per pound for butter fat should I receive to equal 22 cents a pound for butter, and what size pipette should be used for testing cream? My pipette is 17.6 c. c. F. E. O.

Council Bluffs, Iowa.

The above figures indicate an overrun of 27.6 per cent. This is decidedly larger than is obtained in practical work, and we are inclined to think there is a mistake in the testing or figures given. The usual overrun is from 18 to 20 per cent which applied to the above 26 lbs. of fat would show 30 to 31 pounds of butter.

With 18% overrun and butter at 22 cents per pound, the butter fat should be worth 25.96 cents per pound. For testing cream weigh out the cream and take 18 grams for a test. Sometimes ½ of the usual amount (18 grams) 9 grams is taken for a test. A pipette should not be used, as it gives inaccurate results.

How Much Cream.

Will you please tell me how much cream 8 lbs. of good milk contains? R. L. R.

Clarksville, Ga.

Cream varies all the way from 16 per cent fat to 40 per cent fat. As ordinarily sold in cities it is expected to contain about 22 per cent. Milk containing 4 per cent fat is accounted good milk and 8 lbs. of such milk will yield 1½ lbs. of 22 per cent cream.

Tranfers of Guernsey Cattle.

BULLL.

Cedric of Beechwood 8510, G. W. Koser to C. L Longadorf, Flora Dale, Pa.
John Storm 8506, J. Arthur Jones to Frank R. Bennett, Mast Yard, N. H.
Main Sheet of Pinehurst 6525, A. C. Loring to Indian Industrial School, Morris, Minn.
Ortive's Francis Jewel 8514, G. B. Tallman to E. B. Hewes, Ripely, N. Y.
Piebald of Homestead 8508, William H. Furbee to L. V. Axtell, Perry, O.
Piebald of Homestead 8508, L V. Axtell to Sanford H. Wilbur Jr., Wayne, Mich.
Pride of Chautauqua 8513, Joseph Cooper to E. B. Hewes, Ripley, N. Y.
Prince Albert of Aldine 8054, Thomas E. Brooks to F. H. Fraz er , Deerfield, N. J.
Roberval of Hilltown 8361, Ira W. Grass to Wm. H. Slotter, Doylestown, Pa.
Sullivan Boy 8511, Lyman Blair to H. O. Johnson, East Sullivan, Me.
Sir Robert B. 8407, M. M. & E. J. Hollingsworth to William H. Coleman, Gage, N. Y.
Vernon's Chief 8515, Geo. C. Thomas to H. C. Baldwin, West Chester, Pa.
Winner of Homestead 8507, L. V. Axtell to S. R. Bradley, Nyack, N. Y.

COWS.

Imp. Dentonia's Image 14929, Mrs. W. E. H. Massey to Henry D. Mott, St. John, N. B.
Finola 13661, James M. Codman to Sherman I. Whipple, Brookline, Mass.
Lady Clare of Fernwood 15929 and Lucretia of Fernwood 15930, S. J. DuBois to Wm. T. Gillespie, Rising Sun, Md.
Louisa Taylor 15934, W. H. Havens to C. R. Havens, Cream Ridge, N. J.
Naoma of Fernwood 15861, Thomas E. Brooks to Normon T. Robison, Daretown, N. J.
Phyllis Adele 13165, S. J. DuBois to S. I. Murphy, Woodbine, Pa.
Pearl's Viola 12725, Henry Winke to R. Tratt, Whitewater, Wis.
Sarnia's Beauty 7220, A. C. Loring to A. R. Taylor, Minneapolis, Minn.

WM. H. CALDWELL, Sec'y.

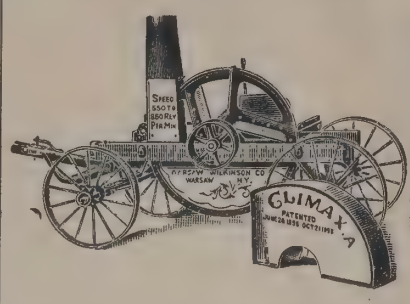
Peterboro, N. H., March 30, 1903.



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Weight

Salt that makes weight makes money for the butter maker. DIAMOND CRYSTAL SALT—"*the Salt that's ALL Salt*," made weight for one creamery at the rate of $8,000 a year in additional profit. The secret is simply this: Whatever weight you add in DIAMOND CRYSTAL SALT, *you obtain in increased weight of butter*. Its pure, dry flakes dissolve completely and become a part of the butter, instead of being washed out, or adhering to the worker rolls, like common, gritty, flinty salt. Our illustrated booklet "Just Salt" is just the thing for dairymen. Free on request.

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The largest Creamery in the world uses WORCESTER SALT, and—this telegram tells the rest:

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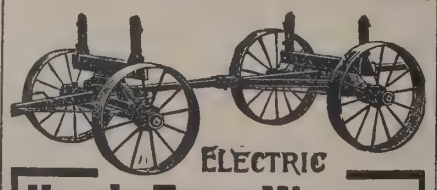
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G. A. MCEDWARDS."

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Handy Farm Wagons
make the work easier for both the man and team. The tires being wide they do not cut into the ground; the labor of loading is reduced many times, because of the short lift. They are equipped with our famous Electric Steel Wheels, either straight or stagger spokes. Wheels any height from 24 to 60 inches. White hickory axles, steel hounds. Guaranteed to carry 4000 lbs. Why not get started right by putting in one of these wagons. We make our steel wheels to fit any wagon. Write for the catalog. It is free.
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LIGHTNING WELL MACHY
IS THE STANDARD
STEAM PUMPS, AIR LIFTS, GASOLINE ENGINES
WRITE FOR CIRCULAR
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CLEARING LAND with JUMBO STUMP PULLER. Send for my catalog of JUMBO, CLIMAX & CHIEF Stump Pullers before buying. Can save you money. Also make DITCHERS, house-moving CAPSTANS & bog land Cutters. O. D. Edwards, Albert Lea, Minn.

Hay Fever and Asthma
Completely cured—not just relieved. Attacks never return. Smokes and "Reliefs" can not cure. They are wrong in principal. Our treatment cures to stay cured. Restores health. Over 52,000 patients already. Book F 41 free.
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$3 a Day Sure
Send us your address and we will show you how to make $3 a day absolutely sure, we furnish the work and teach you free, you work in the locality where you live. Send us your address and we will explain the business fully, remember we guarantee a clear profit of $3 for every day's work, absolutely sure. Write at once.
ROYAL MANUFACTURING CO., Box 855, Detroit, Mich.

Who makes the lamp chimneys?

Macbeth makes the good ones.

His name on every one.

If you'll send your address, I'll send you the Index to Lamps and their Chimneys, to tell you what number to get for your lamp

MACBETH, Pittsburgh.

SOAP MAKING AT HOME

One can of *Banner Lye*—10 cents—will make ten pounds of the best hard soap—better than you can buy.

It takes less time to make soap with

BANNER LYE

than to make bread, and it gives you the purest soap, with absolutely no danger to person or clothes. Not old-style lye, but *Banner Lye*.

It also makes twenty gallons of soft soap.

EASY CLEANING

Cleanliness is a new word since these days of *Banner Lye*. *Banner Lye* washes away the dirt that you see and the dirt that you can't see. This last is most dangerous. It spoils the milk and butter in your bottles and jars, and when hidden in your drains and cellar invites disease.



Banner Lye cleans out all this dirt and the disease germs therein contained. You will be surprised at the difference it makes. It is odorless and colorless.

Get it of your grocer or druggist He can easily get it of his wholesaler, if he hasn't it already.

Write for booklet "*Uses of Banner Lye*"

THE PENN CHEMICAL WORKS, PHILADELPHIA, U. S. A.



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may be, butter will be preserved through commission houses and markets as well as in the household, if it is wrapped in our

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Outside smells and odors never penetrate through it, and it shuts in all the delicious flavor. Preserves butter better and longer than by any other means. If you make good butter you may get the name of so doing by letting us print your name, dairy or brand on every sheet. It never rubs off or discolors butter, and you can have no more effective advertisement. Parchment paper samples will quickly convince you of their value. Send for them. Sent free. Ask also for copy of our free book, entitled "Better Butter."

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NO HUMBUG. Three in One.

Swine V, Stock Marker and Calf Dehorner. Stops swine from rooting. Makes 48 different ear marks. Extracts Horns. Price $1.50. Send $1 for trial. If it suits, send balance. Pat'd May 6, 1902. Hog and Calf Holder only 75c.

FARMER BRIGHTON, FAIRFIELD, IOWA.

Do You Want to Own a Gold Mine; to Grow Five Tons of Wheat Bran Per Acre?

(Continued from page 242)

their stock has done very poorly. Some of them have lost money. On Mr. W's farm all animals are thriving wonderfully. He has no end of hay. Lately he sold a carload for $15 a ton, alfalfa hay. What does this mean in the way of profit? Seventy dollars an acre clear net profit, he says. Remember they cut some 350 tons of this hay last year. Mr. Wing tells of paying the miller $600 for wheat bran one year, a while ago, and how he thought, if he could only have that money, instead of paying it out for feed.

He has it now, and far more, and his beef animals, lambs, pigs, etc., just all do just as well. The alfalfa hay is so rich in protein that it is just about as good as wheat bran, ton for ton. Fed with corn, stock scarcely want anything else. This crop is not a new one by any means. In fact, it is almost as old as the hills. They had alfalfa in the time of Christ. Now let us compare it with timothy. Over much of the country timothy is the main hay crop. In Central Ohio, where Mr. Wing lives, the first crop of alfalfa is already to cut about June 1. It starts very early. The first crop will usually be a large one, because there is not likely to be any scarcity of water then. About July 4, the timothy will be ready for the mower, and at the same time there will be the second crop of alfalfa. This may not be so heavy, if weather is dry, but should be cut just the same. In 35 days the third crop will be ready to cut. Meantime the timothy field, which has given but one crop, will usually be all dry and brown. Still again, in latitude of Central Ohio, will the alfalfa need mowing and then some fall pasture after that; four crops instead of one. From two to three times as many tons of hay per acre. The hay contains almost exactly the same amount of carbohydrates and four times as much protein as timothy, ton for ton. Yes I mean it, four times as much. From eight to twelve times as much protein per acre Think of it. And point out anything in this report, or these figures, that is overdrawn or not accurate, if you can. Verily Mr. W. has a gold mine on his farm. You say: "But if I must make my land rich for alfalfa, why bother with it then? I can grow other crops then," Surely; but you have to make land rich once to start alfalfa. Then it will bring you these large crops of such valuable feed for a dozen or more years, perhaps, and when you plow it it will be still richer than before you began growing the crop. It enriches the soil the same as growing the red clover, perhaps still more. Whereas, the other crops would exhaust the fertility soon, unless you put manure back. The alfalfa does not. It can take care of itself when once started. And in most sections will not, say, 5 tons of such hay per acre (5 tons of wheat bran, practically) be worth more than any other crop you can grow? This is no theory. Our Experiment Stations have analyzed the crop and given the figures. Mr. Wing, and some others, have grown the crop and proven the figures correct in actual practice. The object of this article is to awaken an interest in this wonderful crop; to encourage the opening of a gold mine on every reader's farm. Go slow. Put out but little at first. Be sure you get seed that will be hardy with you. One more precaution; don't sow until danger of hard freezing is over, May 1st. in Central Ohio.—T. B. TERRY in *Practical Farmer*.

Pasteurized Milk for City Trade.

ED. HOARD'S DAIRYMAN:--Can I pasteurize milk and cream for retail trade without apparatus for that purpose? To what degree of heat should it be heated and how long should it be held at that heat? Have steam power and DeLaval belt separator. B B. P.

Carson, Ia.

Pasteurizing milk without the proper apparatus is a very uncertain process and not liable to give satisfactory results. See answer to R. H. this issue.

Dietz Lanterns—

make the way plain in night work or travel. Always shed a strong, clear, white light, with no choking, sooting or smoking.

Over Sixty Years the Favorite.

Made in many styles and sizes for all purposes, as hand lanterns, driving lamps, post lamps for streets, for front of country residences, church doors, etc. CATALOGUE SENT FREE.

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Established 1840



The National

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justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

THE NATIONAL WAGON COMPANY, Chillicothe, Ohio.

THE ONLY LOW-DOWN

Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the Market.

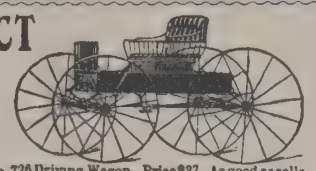


20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for catalogue, prices and terms Wagons for carrying Bottled Milk a specialty.

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but ship anywhere for examination, guaranteeing safe delivery. You are out nothing if not satisfied. We make 195 styles of vehicles and 65 styles of harness.
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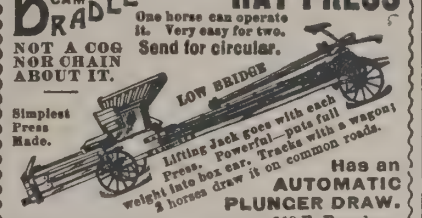


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One horse can operate it. Very easy for two. Send for circular.

NOT A COG NOR CHAIN ABOUT IT.



Simplest Press Made.

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FREIGHT CHARGES PAID BY US



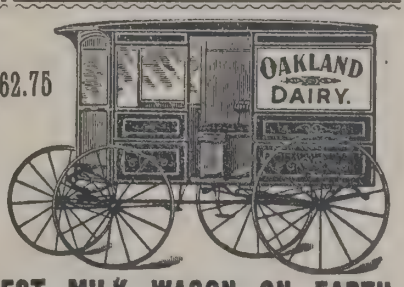
Strictly new, perfect, Semi-Hardened Steel Sheets, 2 feet wide, 6 feet long. The best Roofing, Siding or Ceiling you can use. No experience necessary to lay it. An ordinary hammer or hatchet the only tools you need. We furnish nails free and paint roofing two sides. Comes either flat, corrugated or "V" crimped. Delivered free of all charges to all points in the U. S., east of the Mississippi River and North of the Ohio River

AT $2.25 PER SQUARE

Prices to other points on application. A square means 100 square feet. Write for free Catalogue No. 20.

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$62.75



BEST MILK WAGON ON EARTH.

SOLD DIRECT TO CONSUMER ONLY.
Highest Grades—Lowest Prices—Guaranteed. Shipped on Approval. Full line Buggies and Harness. Write for Catalogue and Prices.

SAVE DEALERS' PROFITS.

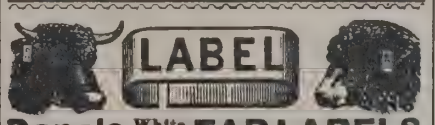
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It Can't Be Equalled for Durability. For Flat or Steep Roofs QUICKLY APPLIED.

Sample Cut and full information mailed upon request, Free. The Philip Carey Mfg. Co., 19 Wayne, Lockland, O.

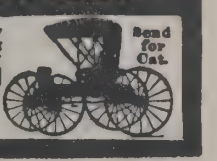


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A buggy that anyone may be proud of It is as strong as the best Split Hickory can make any vehicle Only $47.50 Free 30 Days' Trial. Send for Cat.

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your live stock of whatever kind with the thoroughly reliable, rust proof, non-corroding, easily read....

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YOU CANNOT DENY ACTUAL FACTS

A Wonderful Growth of 360 pounds in 160 Days By a "Runt" That Had Been Badly Stunted for Nearly 2 Years and Only Weighed 60 Lbs.

DOW CITY, IOWA.

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DEAR SIRS:—I have a runt 2 years old which only weighs 60 pounds. It stands 18 inches high, 42 inches long, and 4 inches wide on widest part of the back. I would like to try "International Stock Food" and see if it will make this runt grow. Four of my neighbors owned it before I got it, and none of them could make it grow. I enclose a photograph which shows this hog is too weak to stand alone, and it will not eat.

F. C. HOWORTH.

DEAR SIRS:—I enclose a photograph of the "runt" taken five months after our commencing to feed "International Stock Food". It weighs 420 lbs. and has developed into a fine looking hog. "International Stock Food" is a remarkable preparation for making hogs grow, and the two photographs I mail are positive proof. Yours truly, F. C. HOWORTH.

We will Pay you $1,000 CASH to Prove that our Testimonials are not Genuine.

"INTERNATIONAL STOCK FOOD" ☞3 FEEDS FOR ONE CENT☜ is Prepared from Roots, Herbs, Seeds and Barks and won the Highest Medal at Paris Exposition in 1900 as a high-class vegetable, medicinal preparation to be fed to stock in small amounts as an addition to the regular feed. It is a Great Aid in Growing or Fattening stock because it increases the appetite and Aids Digestion and Assimilation so that each animal obtains more nutrition from the grain eaten. We positively guarantee that its use will make you extra money over the usual Plan of Growing and Fattening stock. "International Stock Food" can be fed in perfect safety to Horses, Cattle, Sheep, Hogs, Colts, Calves, Lambs or Pigs. It is Absolutely Harmless even if taken into the Human System. You insist on eating medicinal ingredients with your Own food at every meal. Salt is a stomach tonic and worm medicine, Pepper is a powerful stimulating tonic, Mustard is a remedy for dyspepsia, Vinegar is a diuretic. You eat these medicinal ingredients almost with every mouthful of your food, and it is proven that these condiments promote health and strength for people and improve their digestion. "International Stock Food" contains pure vegetable medicinal ingredients that are just as safe and as necessary an addition to the regular feed of your stock if you desire to keep them in the best possible condition. "International Stock Food" is endorsed by every High Class Farm Paper. It purifies the blood, stimulates and permanently strengthens the entire system so that disease is prevented or cured. "International Stock Food" is sold on a "Spot Cash Guarantee" by Forty Thousand Dealers throughout the World. ☞Your Money will be Promptly Refunded in Any case of failure. It will make your Pigs or Hogs grow Amazingly and has the largest sale in the World for curing or preventing Hog Disease. ☞Beware of the many Cheap and Inferior Imitations! No Chemist can separate all the Different powdered Roots, Herbs, Barks and Seeds that we use. Any One claiming to do so Must be an Ignoramus or Falsifier.

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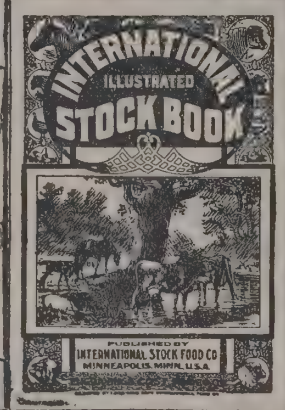
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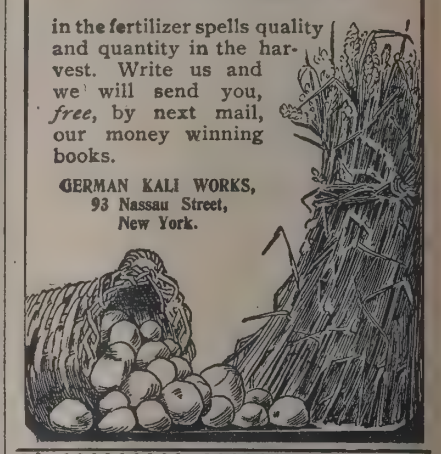
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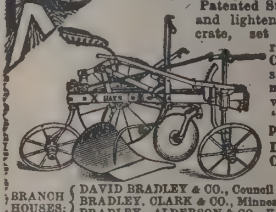
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in the evening or come in the morning. when you're looked for or come without warning"—

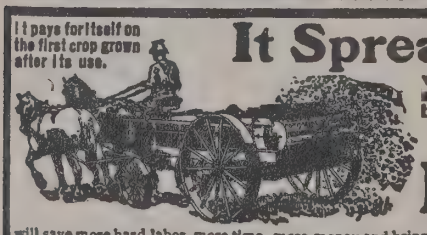


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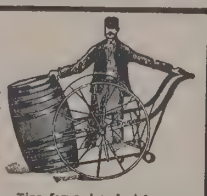
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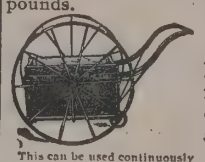
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☞Steel wheels and frame; sideboards removable; carries 500 pounds.



Tips forward and picks up a barrel or heavy article same as a warehouse truck. No heavy lifting.

This can be used continuously around the farm, garden or house. Box 26 ins. long, 25 ins. wide, 15 ins. deep inside. Capacity 11 cubic feet.

First orders from new territory secures agency if desired.

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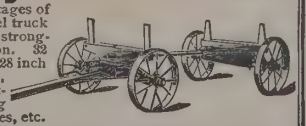
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Appleton Handy Farm Truck.

All the advantages of any steel wheel truck made and a far stronger construction. 32 inch rear and 28 inch front wheels, wide tires, extra strong skeins and axles, etc.



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Let Them Help Themselves.

They'll not take too much, and they'll get it as they want it. Don't force animals to eat salt when they don't require it, by mixing with food.

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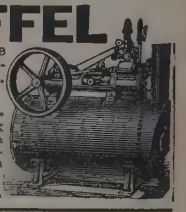
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are all salt, no impurities. Improve the quality and yield of milk. A modern convenience, always present, animals never neglected, and costs for each only about a nickle a month. See how they enjoy helping themselves when you place it within reach. For all stock. Buy of dealers or send for free booklet to

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VOLUME XXXIV. FORT ATKINSON, WIS., MAY 1, 1903. NUMBER 12

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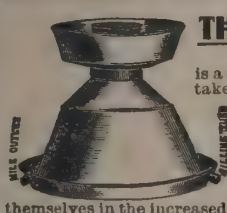
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Medals—Bronze 1878 Silver, 1887, World's Fair, 1893.



This is the Butter Tub that is used almost exclusively throughout the gilt edged Elgin Dairy District. Pretty strong proof of its superiority.

And this is the one—and only—factory in which the **Genuine Elgin Butter Tub** is made—the factory of the
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THIS PERFECTION MILK COOLER AND AERATOR
is a simple device for cooling and aerating milk. It quickly and effectually takes out all animal heat, and with it all **animal odors, odors** arising from **stables, feed, etc.** This method of treatment makes the milk keep sweet much longer. It is better for making **butter, cheese,** etc., and will stand shipment much better.
Cost But Little and Last Indefinitely.
They are made in sizes from 1 to 200 cows and will quickly pay for themselves in the increased reputation they give your product. They come very nearly taking the place of ice in warm weather. Send for illustrated circulars and prices
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Inany tester except one built on up-to-date, scientific principles, and one that you know will do your work easily and accurately.

The Twentieth Century Noiseless Hand Tester

Has no equal on the market in grace of deign, ease of operation and accuracy of result.

Constructed on the same general line asour Turbine machine. Pockets made in pairs and of seamless brass. A large Dairy or Creamery not supplied with steam can secure just as accurate testsas can be made with with a Tu rbine machine.

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Today's Record
10350 lbs. of milk.
Time 3 hrs. and 10 min.
Steam pressure 30 lbs
Composit steam
milk test .02 of 1%

Watch the Blackboard

THE GREATEST SKIMMER EVER BUILT

Little power required. Little attention required in operating. Skims better than any separator previously built. Wonderfully simple and durable. Examine it and see. Try it and convince yourself. You can try the 1903 SUSPENDED BOWL TUBULAR without obligating yourself in any way to buy it. . . . . .

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P. M. SHARPLES,
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Best Results

in feeding for milk are obtained by adding some

BUFFALO Gluten Feed

to balance the ration.

Sample and booklet

"Feed Your Stock for Best Results."

Sent free. Write to-day.

Address Department B

THE GLUCOSE SUGAR REFINING CO.,
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Cheaper than Corn, Oats and Barley.

ATLAS GLUTEN MEAL

Protein for Less Money Than It can be Purchased in Any Other Feed.

Any dairyman that will give this feed a fair trial will not only find it better than other gluten meals but as well the most economical feed that can be purchased.

IT WILL INCREASE

the flow of milk 25 per cent and keep the cows in excellent condition.

All we ask is a trial, if your dealer does not keep it, write us.

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'There is nothing like it to raise thrifty Jersey Calves."

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There's More Money

And readier money in hogs and cattle if there is mixed daily, with their feed a small amount of

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For all domestic animals. It conditions, begets growth, fattens. **50c and $1.00 Packages. A Pail, 1200 feeds, for $3.50.** Buy of dealers. Write us for free 68-page book.

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Sheep Dips, Tanks, Worm Cures, Ear Marks Punches, Tattoo Markers, Shearing Machines Shears, Sheep Marking Paint, Lamb Feeders Lice Paint, Poultry Supplies, Veterinary Remedies, etc. Write for Catalogue AE.

F. S. BURCH & CO., 144 Illinois St., CHICAGO

Official Records of Holstein-Friesian Cows.

From Feb. 10 to March 14, 1903.

This class of records are made under the supervision of agricultural colleges and state experiment stations. In every case a representative of such an institution, paid by the institution, oversees the entire work. The samples of milk are tested by him in duplicate and a composite sample is forwarded by him to the station or college to be tested there. In cases of phenomenal production retests are also made during which the cows are constantly watched that by no possibility the contents of their udders can be affected by the injection of milk or fat.

During this period reports of tests of sixty cows have been received,—the seven-day records being sixty, the thirty-day records ten, one for fourteen days, one for twenty-four days, one for twenty-eight days and one for sixty days as follows:

Sadie Vale Concordia 32259, age 10 years—Record for twenty-eight days, days after calving 5; milk 2,565.6 lbs., butter fat 92.327 lbs., best seven consecutive days, days after calving, 14, milk 694.3 lbs., butter fat 24.508 lbs. This cow was retested twice,—the first time showing a product of less than a half ounce of the average of the previous seven days, the second a product of eight one-hundredths of an ounce less than the average of the best seven days. This record is undoubtedly the largest strictly official record ever reported. Owners, Mc Adam & Heyne, Deansbaro, N. Y.

May Hartog Pauline DeKol 45124, age 4 years, 11 months. Record for thirty days, days after calving 14, milk 2,552.5 lbs., butter fat 89.637 lbs., best seven consecutive days, days after calving 20, milk 633.2 lbs., butter fat 23.417 lbs. Food consumed: ensilage 56 lbs., hay 99 lbs., turnips 315 lbs., hominy chop 51.5 lbs., gluten feed 48 lbs., oats 24.5 lbs., bran 45.3 lbs. and oil meal 22.7 lbs. Owner, H. D. Roe, Augusta, N. J.

Armyn's An 4th, 50398—4 years. Record for 30 days, days after calving 8; milk 2,311 lbs., butter fat 71.780 lbs., best seven consecutive days, days after calving 27, milk 450.3 lbs, butter fat 17.822 lbs. Owner H. D. Roe, Augusta, N. J.

Lady Oak Fern-44126 5 years 11 months. Record for thirty days, days after calving 13, milk 1,875.4 lbs., butter fat 70.311 lbs., best seven consecutive days, days after calving 27, milk 450.3 lbs., butter fat 17.416 lbs. Owner W. H. Jones, Watertown, Wis.

Paladin 4th's Lady DeKol 49806—4 years. Record for sixty days, days after calving 12: milk 3,976 lbs. butter fat 126.192 lbs., best thirty consecutive days, days after calving 29, milk 2,088.7 lbs., butter fat 66.272 lbs., best seven consecutive days, days after calving 48, milk 402.3 lbs., butter fat 16.553 lbs.

Almeda Luecke 2d 49520—4 years. Record for thirty days, days after calving 15; milk 1,918.8 lbs., butter fat 64.426 lbs., best seven consecutive days, days after calving 37, milk 450 lbs., butter fat 15.855 lbs. Owner W. A. Matteson, Utica, N. Y.

Jessie Fobes 2d's Maud 44123—5 years, 8 months Record for thirty days, days after calving 42; milk 1,978.9 lbs., butter fat 63 371 lbs., best seven consecutive days, days after calving, 53, milk 467 lbs., butter fat 15.170 lbs. Owner W. H. Jones, Watertown, Wis.

May Rector 1457 W.—8 years, 7 months. Record for thirty days, days after calving 9; milk 2,437.7 lbs., butter fat 62.604 lbs., best seven consecutive days, days aftea calving 11, milk 572.6 lbs., butter fat 15.617 lbs. Owner A. J. Daugherity, Streater, Ill.

Aaltje Salo Reka 49337—4 years. Record for thirty days, days after calving, 29: milk 1,880.3 lbs., butter fat 61.193 lbs. Best seven consecutive days, days after calving, 40: milk 438 lbs., butter fat 15.328 lbs. Owner, W. H. Jones, Watertown, Wis.

Clara J. 54525—4 years, 11 months. Record for thirty days, days after calving, 18: milk 1,851.7 lbs., butter fat 59.519 lbs. Best seven consecutive days, days after calving 24: milk 469.2 lbs., butter fat 15.654 lbs. Owner, McAdam & Von Heyne, Deansboro, N. Y.

Piebe Gem DeKol 52350—2 years, 8 months. Record for thirty days, days after calving 10: milk 1,819.7lbs., butter fat 45.111 lbs. Best seven consecutive days, days after calving 32: milk 439.4 lbs., butter fat 10 914 lbs.

Maud Piebe Pauline 58515—1 year, 11 months, 26 days. Record for twenty-four days, days after calving 2: milk 844.2 lbs., butter fat 27 936 lbs. Best seven consecutive days, days after calving 16: milk 254.5 lbs. butter fat 8.725 lbs. Owner, W. H. Jones, Watertown Wis.

May Pietertje Mechthilde 47440—4 years, 7 months. Record for fourteen days, days after calving 6: milk 922.9 lbs., butter fat 25.414 lbs. Best seven consecutive days, days after calving 8: milk 464.5 lbs., butter fat 12.930 lbs. Owner, Henry Stevens & Sons, Lacona, N. Y.

Aaggie Cornucopia 3d 34026—10 years; days after calving 20: milk 580.5 lbs., butter fat 19.612 lbs. Owner, H. D. Roe, Augusta, N. J.

Empress of Home Farm 45967—6 years; days after calving 24: milk 475.1 lbs., butter fat 15.720 lbs. Owner, W. B. Barney & Co., Hampton, Ia.

Arcula 2d 33431—10 years; days after calving 21: milk 402.7 lbs., butter fat 15.641 lbs Owner, E. J. Fargo, Lake Mills, Wis.

Inka Hartog 2d 40507—6 years; days after calving 11: milk 516.9 lbs., butter fat 15.576 lbs.

Jesse's Netherland Charm 23035—12 years; days after calving 26: milk 562.9 lbs., butter fat 15.412 lbs.

Jeek Queen 46024—6 years; days after calving 19: milk 489 lbs., butter fat 15.259 lbs. Second record, days after calving 42: milk 536 lbs., butter fat 17.108 lbs. Owner, C. F. Hunt, Manlius, N. Y.

Queen Blythe 37938—8 years; days after calving 21: milk 418.1 lbs., butter fat 15.039 lbs.

Aaggie Belle Ellice 52610—9 years; days after calving 14: milk 443.4 lbs., butter fat 14.739 lbs.

The Duchess Welsrijp 50919—5 years, 10 months; days after calving 19: milk 433.2 lbs., butter fat 14 488 lbs.

Julia Pauline 43952—6 years; days after calving 7: milk 335.3 lbs., butter fat 14.079 lbs. Owner, A. N. McGeoch, Lake Mills, Wis.

Aaggie Lily 3d's Netherland 34799—10 years; days after calving 12: milk 395.4 lbs., butter fat 13.911 lbs.

Lustend's Belle Jeek 998 W—9 years; days after calving 20: milk 386.2 lbs., butter fat 13.613 lbs. Owner, W. B. Barney & Co., Hampton, Iowa.

Beppo Jewel 746 W—9 years; days after calving 20: milk 393.6 lbs., butter fat 13,492 lbs. Owner, W. B. Barney & Co., Hampton, Iowa.

Cleopatra Fox 2d 46070—5 years; days after calving 10; milk 513.5 lbs., butter fat 13.399 lbs. Owner, C. F. Hunt, Manlius, N. Y.

College Houwtje D 47983—5 years; days after calving 15: milk 332.9 lbs., butter fat 13.185 lbs, Owner, Michigan Agl. College, Agl. College P. O., Mich.

Bug Horn 3d 52736—7 years; days after calving 28: milk 322.9 lbs., butter fat 12.475 lbs. Owner, E. F. Fargo, Lake Mills, Wis.

Akkrummer Aagje Beck 44677—5 years, 25 days; days after calving 23: milk 336.5 lbs., butter fat

(Continued on page 287.)



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Hoard's Dairyman

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Rosa Bonheur 5th' Colantha Lad.

Ed. Hoard's Dairyman:—The breeding of Rosa Bonheur 5th's Colantha Lad No. 28025, here given tells its own story. His dam, Rosa Bonheur 5th has an official record as follows:

Days.	*Lbs. milk.*	*Lbs. butter 80% fat.*
1	106.75	4.025
7	726.25	25.5875
30	2989.50	102.7
314	17043.45	586 89

making an average per day for the 314 days of 54¼ lbs. of milk and 1.869 lbs. 80% butter, being 193 days in calf at the close of the above record. His sire's dam, Colantha 4th took first prize in Association's 7-day butter test of 1899 and 1900. She also took first prize in food test same year with 7-day test of 24 lbs. 7.8 oz. 80% butter with a net profit of $4.338; producing butter at 5.3 cents per lb. His sire's sire, Paul Mutual De Kol 18726, is a son of the great bull Paul De Kol 14634 and the cow Mutual Friend 2nd, whose official test is 25.75 lbs. 80% butter. Paul De Kol 14634 was sired by De Kol 2nd's Prince 2767, and his dam was the great Pauline Paul, the dam of De Kol 2nd's Prince. De Kol 2nd's official 80% butter record is 26 lbs. 9.21 oz. This bull's get are large and growthy, showing great dairy form with strong and vigorous constitution. His daughters give promise of making extra large producers and we are in hopes that they will surpass their ancestors and think they have very good chances for so doing with present prospects. F. G. Johnston & Co.

Columbus, O.

Records in the Dairy.

Ed. Hoard's Dairyman:—As to the necessity of recording various items in connection with the dairy, too much cannot be said; more especially on the most important point of all, viz, the daily record of each individual cow that is kept in the herd; this, I am sorry to say is very often neglected altogether. In paying the various dairy farms a visit, one finds very few indeed, where the farmer can relate to you the actual records of each cow, which he has on paper. Generally speaking, nearly every dairyman can, of course, give a more or less satisfactory reply to any question as to the yields and performances of his cattle, but on the other hand, there is hardly one in a hundred who can produce his books to prove his statements. The great majority of dairymen in this country are carrying on their business without the actual knowledge of the profit they are making or losing, as the case may be, by each cow they have in their herds. No doubt they have a pretty fair idea of how they are progressing from year to year, but from the particular animals they are making most profit or loss, they know but very little, and certainly not half so much as they should know. If one animal is deceptive, it clearly proves that a number is still far more puzzling.

There is no man that can actually tell what a cow can do, or is doing, until he tests her yield on the scales daily; but then again, a record of her milk yield is of great value in other ways besides the immediate fact of knowing whether she is profitable or unprofitable, more particularly in showing whether her offspring are worth keeping.

The advantages of keeping records are numerous; and to mention a few before I proceede further, may not be altogether out of place. In the first place, when a dairyman looks over his records at the end of each week, any difference in the yield of any cow from one day to another, will at once be noticed. Perhaps in some instances, a very large decrease is noticed; this will be the means of causing the farmer to investigate the matter. Probably it may prove to be bad milking, or some sickness of one kind or another. This could, under the record system, be immediately looked to, and probably rectified. Then again, increase or decrease of the yield may be caused, owing to the change on different pastures, so that in this case it will be easily seen by the records, which feeds give the best yield. Careless milking is also a point worthy of consideration, for this not only ruins the pocket, but also ruins the cows.

The owner should always supervise this branch of the business, and the daily weighing of the milk is a splendid check for careless milkers. When any shortage occurs, it can immediately be looked into, and most probably stopped before any great damage is done. Cows are spoilt far more than they should be in regard to their milk producing powers by careless milking, thus allowing their udders to go out not thoroughly dried; irregularity in the time of milking and feeding also helps to spoil cows. In a great measure, daily records help to counterbalance these bad effects.

Of course, taking records similar to that taken in a show yard would be quite impossible on a large dairy farm, but the idea should be followed as closely as possible in regard to quantity and weight of milk produced each day. Of course it is not at all necessary to test a cow's milk every day; once every three months is ample for all practical purposes. A very good plan is to weigh each cow's milk after she has been milked. Some I may state only measure it, but this plan is not altogether accurate, owing to the head of froth that often collects on the top, more especially with fast milkers; hence, weighing I think is the better plan of the two. Some use the ordinary weighing machine, one bucket being kept always on the machine, so that there is no bother in deducting the weight every time.

As each milker finishes the animal, the contents of his bucket is emptied into the one on the scales, remembering each time to deduct the weight of the bucket; the record is then booked. There are other machines that are a great improvement on the ordinary scales. These can be hung up in any convenient place, or even stood on the floor by using a stand so that the machine can be attached. I have frequently heard dairyman say that keeping records is a process involving too much trouble and labor. However, if those who condemned the process were only to try it, I think they would altogether alter their opinions. Once a man gets into the way of keeping records he will never go back into the old, slipshod system again. There is not the slightest doubt but that this system is far and away the best, and every progressive dairyman should adopt it. It not only helps one in the fact of knowing the actual profit he is making, but it also helps him in breeding. It is not a fair test of an animal's production to judge her when she is fresh, or when the pastures are at their best. However, weighing the milk for a whole twelve months, clearly shows the performance of each animal, and the keep of a good animal costs no more than the keep of a poor one.

Then again, in working up a herd of good milkers, the actual results of each cow must always be retained. For in the majority of cases, like produces like; hence, when a mother is a proved milker, the heifers from that cow invariably turn out good milkers also.

By keeping these actual results, the unprofitable animals can always be culled, thus leaving those who are sure to produce a profit. It is not altogether an easy matter to fix a standard. This greatly depends on certain circumstances, and in some cases it may prove higher than in others, but I think any cow yielding less than from 400 to 500 gallons yearly is not good enough for a dairyman to keep. Although this may be the standard fixed, yet I fear there are many herds, in this country at any rate, that are yielding very much less, but by careful management a vast difference in the earnings of the dairymen would surely take place.



HOLSTEIN BULL, ROSA BONHEUR 5th's COLANTHA LAD.
Property of F. G. Johnston & Co., Columbus, Ohio.

TILED WALLS AND FLOORS FOR FACTORIES.

The question of how to combine permanency with thorough cleanliness has been a great source of trouble to many of our factory managers, and the problem has been a very great puzzle to many of those connected in this line of business. It has also been a great necessity, too, for the want of some material for the lining of the walls of factories, to procure cleanliness in the walls, as well as the floors. It is ever a well known fact that wooden floors and walls soon become so thoroughly saturated with moisture that no matter how often they may be cleaned and scrubbed, the effects of this cleansing does not reach further than the surface. After the lapse of a few years the soddened timber not only commences to rot, but also provides a natural home where millions of germs find a place to collect, and to entirely remove them is quite an impossibility. This has been the experience in connection with wooden floors in the leading dairying centres of this country.

It is a very evident fact that the peculiar, stale smelling atmosphere, always impossible to remove from decaying timber that is full of moisture, furnishes most objectionable surroundings for such delicate products as milk, cream and butter. If the truth were only really known it would be seen that a large percentage of the troubles that beset factories and creameries in the conversion of the raw material into butter, originates from the germs that lurk in the decaying walls and floors that exist in a great many of our factories and creameries.

One has only to look at the filth and dirt that is discovered when the floor of an old factory is being taken up to be replaced by a new one. What is really needed is a remedy for this state of affairs, and this can certainly be best provided by resorting to the use of tiles for floor and for the linings of the walls. There is no need, I think, of saying that the tiles would prove both germ proof and water proof. But tiles like all other material, vary very much in quality, therefore it is absolutely necessary to be very careful in the selection of tiles for butter factory use, otherwise if any inferior article is used, they are sure to absorb the moisture almost as readily as a sponge and prove just as unsatisfactory and undesirable as wood. I know of a few factories that have made use of cheap tiles, half an inch thick, but the result was anything but satisfactory. However, there are some firms that are making a speciality of the manufacture of tiles, most suitable for the walls and floors of butter factories. Flooring tiles should be an inch thick, and being thoroughly vitrified, are quite proof against moisture. When the wall tiles are nicely finished their surface gives them an attractive appearance. Australia.

Ill-advised and Antiquated Rules for City Milk Supply by Health Boards.

Ed. Hoard's Dairyman:—Before me is an "Application for Inspection of Milk" by the "Inspector of Food and Milk," for the Health Board of a certain small city, the name of which, for obvious reasons, is not given. It is a great pity that matters of such importance are left in the hands of interested parties (as in this case a veterinarian) who either don't know or don't want to know anything about late progressive improvements adopted for milk supply. I should prefer these rules printed in full in Hoard's Dairyman, but as space is scarce I shall pick a few, especially objectionable points.

Thus, no milk shall be delivered "from cows within 60 days before calving;" "fed partially on ensilage;" "in summer, milk before 5 p. m," "milk which in any way differs from fresh, etc.," "from cows not inspected by Board of Health Inspector," "no milk drawn from the cow more than 15 hours, etc."

Of course the "Application" also contains all those well known rules adopted with slight variations by the various "milk commissions" for the production of so-called certified milk, which are all very good as far as they go, but never can become popular and generally adopted by milk producers, unless they also can secure some guaranty as to receiving extra pay for extra care and expense, which they never will.

I shall try to show how unreasonable and impracticable some of these rules are: Why shall "no milk from cows sixty days before calving" not be used for human food? While an exclusive diet on milk from cows thus late in lactation would not be desirable, it is ridiculous that milk from long milking cows as Jerseys and Guernseys and others should not be used for food, provided it is mixed with the milk from the whole herd.

By condemning all feeding of ensilage, the author surely proves how little he is posted as to what is approved of by such well known authorities on feeding for special sanitary milk as H. B. Gurler, the Walker-Gordon Laboratories, and all the milk commissions for certified milk supply, which now all heartily recommend moderate feeding of silage.

The last mentioned four rules plainly show that the author is trying to make such restrictions in the manner of supplying milk, which would make it impossible for any milk producer located at a further distance to sell any milk in said town. Personally, I most emphatically believe that the dairymen of the immediate neighborhood of any town always should be encouraged in every fair and practical manner to supply all milk needed for family use in said town; but I do not consider it wise for a health board to

adopt any measures by which it would be practically impossible for any milk producer to ship milk in by railroad. Regulations of such kind would make many of the near-by dairymen feel safe against all outside competition, and would rather tend to encourage carelessness than otherwise; while the chance for some outside competition always must act as an incentive to the near by milk producers to do their very best to produce the cleanest and purest milk possible.

Rather than such preventive measures against "milking in summer before 5 p. m., or drawn from the cows more than 15 hours," the health board should make it a law that no milk should be peddled about town at a temperature above 50°. That "only milk from cows inspected by health board inspector" should be sold, sounds very nice, but would also cut off railroad shipments, and a really thorough and effective inspection of nearby herds and dairies can never be carried out with the average available funds.

But one rule seems to be especially aimed against the sale of all pasteurized milk based upon an antiquated prejudice, which looks so much more curious, as it is a very common custom to-day among physicians to advise mothers to *boil* the milk for the baby, unless it comes from an absolutely safe source; proper pasteurization hardly changes the natural character of the milk, except as far as it kills all possible disease germs as well as such which cause souring; while boiling certainly may be quite objectionable. Still an ordinance preventing the sale of "any milk in any way different from fresh," would prevent the distribution of even the purest, cleanest milk, which had been heated in any manner. All efforts to supply pure, raw milk for all people, even the poorest, at reasonable prices, have failed, and pasteurization has already been proven in many cities as the only practical method by which the all important problem may be solved.

When may we hope for such ordinances by health boards, which will encourage proper pasteurization? It must happen soon; which health board will be the one which dares to be progressive and consider the welfare of all the people? J. MOLDENHAWER.

Canton, Ohio.

Notes from New York.

Farm Values Compared.

ED. HOARD'S DAIRYMAN:—By some of the writers in HOARD'S DAIRYMAN, there is this same question taken up and it has occurred to me that the difference in value of farm lands in different sections where different staple crops are raised, is accounted for by various reasons. Good, strong producing land is worth, or should be worth, in one section of old settled country, as much as it is in another equally thickly settled section, regardless of the staple crop raised. Preference for one mode of farming over that of another mode, carried on extensively in one section more than it is in another, is largely to blame for the difference in price.

There is no reason that equally as good land in the dairy sections of Wisconsin and Illinois, should not be worth as much per acre as the land situated in the wheat or corn belt of Iowa and Minnesota. When such a state of affairs exist, that the people or a large majority of them want to take up the raising of any one staple crop, then a boom in farm values in the most favored sections where that crop can be raised, is the result, until the business is overdone and some other product that has been neglected, is paying better returns and a boom is started in that direction. So the thing sways back and forth as a pendulum.

I do not see why there is not as much to be made from a given area devoted to dairying, with milk selling around $1.04 per hundred, as it would to be devoted to raising any cereal crop. It all depends on the men. Some men make failures in raising corn, others in raising wheat, and others in keeping cows. Failure stares a man in the face in any line of business unless business principles are studied and put in operation. Many prefer to raise wheat, because they can cover a larger area of land, have a bigger farm, which makes them feel bigger.

They can do with less hired labor on the same area than as though it was devoted to dairying. The work is not so confining, does not require the attention each day of the year as the dairy does, there is a long interval between the sowing and reaping time; but with the well conducted dairy, with cows capable of making a nice profit over and above their cost of keeping, in short such dairy Holsteins as we read of, I believe the man, and the farm devoted to dairying will win first money at the end of the year or perish. Dairymen, if your business just now does not seem to give you the returns or look quite so promising as does the wheat growing, or your lands do not advance in price quite so rapidly as theirs, don't get discouraged. All you have got to do is to wait. It will be your turn next; wait, and while waiting get cheaper rations, better cows, and machinery to take the place of high priced labor. The dairy business has many advantages over most any other, but the most permanent one is this, quick returns. It allows those who are engaged in it to pay as they go.

Now again, where the land is all land, what is the reason that a cow cannot be kept on the products grown from 1½ acres—well, we will make it two acres. Certainly that is area enough and she ought to bring in to the dairyman $50 to $100 according to the man, her owner. Where is there land devoted to wheat or corn in the west, that will bring 25 to 50 dollars per acre, each year? We do not wish to challenge the corn raisers to an extended argument over the advantages of that business *vs.* that of dairying, but we would like to know why old Jersey during the wet or dry, the hot or cold, no matter what, with the silo full, cannot be depended upon to feed and clothe the little fellows crowded around the farmer's table. The Chicago wheat pit does not create uneasiness in his mind.

Stick to dairying, to the best dairy literature, to HOARD'S DAIRYMAN, and no matter whether your acres will bring as many dollars as those of some other section, as long as your income is as large as the other fellow's. You don't care to speculate or change your business and dispose of those highly prized cattle, rip up your fields and draw them to market load by load.

Thirty years ago wheat raising in our section was also the staple crop and the money maker, as it was worth $2.50 per bu. but gradually the yield and the price changed the attention of the farmers towards something else and today one scarcely can find a field of wheat. Again I say, stick to dairying. Put your dairy on a paying basis, make your home grown products when sold to your cows bring you a profit of 25 per cent at least, and have the manure thrown in.

Mr. B. H. M. of Vermont, on page 226 in the DAIRYMAN, says, "am getting $1.50 for each $1.00 in feed. My herd is improving, so my courage is good." He is contented, prosperous, and no matter what his acres are worth so long as his profits and income is assured. Take courage, gather in the inspiration of such men as B. H. M. Follow their examples and soon you won't care about the price of land in the wheat, corn or sugar beet sections.

Now as for me—Why, I wouldn't take the best farm in the state of Iowa as a gift and be obliged to make it my home. The old Empire State is good enough for me. I presume there are any quantity of men in Iowa who think the same of New York. Accept the conditions which surround you and make the best of them, is my idea. JAS. M. PLATO.

New York.

Creamery on Flat Land.

In Such Cases the Drainage Problem is a Very Serious One—Would Pay to Build New on Higher Ground.

The *Farmer*, St. Paul, prints a letter and reply to same by A. W. Trow as follows:

O. A. Ulland, Lansing, Minn., writes: "The question of successful drainage presses us. This country is quite level, our creamery has run eleven years and we have got along in a way with cess-pools, open ditches along the road and such like, but now the ground seems of late to be so filled up with the foul stuff that it will not disappear, and at certain times in summer it is almost unbearable for nearby residents. Sometime ago we had a slush well drilled and led the refuse into that, but that soon soiled the well in the creamery and had to be discarded. I have heard that creameries have been ordered to cement their cess-pools. Is there a way to destroy the foul stuff cheaply and successfully with chemicals? Or how do those people do it if there is any such way?"

ANSWER.—Our advice would be to move onto higher ground. The results of bad drainage will bring losses to an extent that will in time pay for a new creamery. Many devices for surface drainage have been recommended for flat land, but we know of none that have stood the test. If a covered cess-pool is used it must be in a locality where there are no wells, and we would recommend that it be at least twenty rods from the creamery well. A large covered cess-pool in most soils will not last to exceed one year.

We tried the cistern with a skim station, which did very nicely, and had no serious objection, excepting the expense of hauling away the slop. A cistern for holding the slop may be built by cementing onto the clay, or by using brick with the cement on sandy soils. We doubt if this kind of a cistern would be practicable for a creamery, on account of the great expense that might be incurred in hauling away the slop. This expense might be as much as the interest on the cost of a new creamery. Lime is the best cheap disinfectant that we know of but it would require the continuous application of a very large quantity to disinfect or deodorize the large amount of slop that comes from a creamery.

This difficulty, and the trouble that scores of other creameries are having as a result of building on low, flat ground, should be a warning to those who are about to build new creameries.

Good drainage is the first essential to the making of good butter and the creamery that stands on such ground is well nigh worthless for creamery purposes.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Small Corn Huskers Wanted.

ED. HOARD'S DAIRYMAN:—I am going to add to your efforts in behalf of a good many small farmers, myself included, a request for information about a corn husker, which will husk five or ten acres of corn, either by hand power or three-horse power engine. I wrote to the Harvester people who replied that it took an eight horse power engine and numerous dollars to boot. This is nonsense—ten acres of corn will not carry the interest. But the time spent comes in the very season most valuable to the small New England farmer far full work.

Can you start up some information?

Conn. FANNY M. SMITH.

We suppose it is with the manufacturers of corn huskers, as it was a few years ago with the manufacturers of cream separators, a seeming unwillingness to respond to the wants of the small farmer. The separator people, however, were wise enough to see their error and now the farm separator is no small part of their business. It will be the same with these manufacturers of corn huskers. Sooner or later, they must make machines adapted for use of people who raise but a few acres of corn, and those men who first respond to this demand with a successful machine will not want for orders.

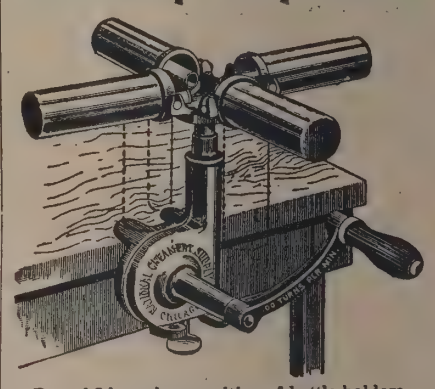
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THE KEYSTONE WATCH CASE CO., Philadelphia.

NATIONAL Babcock Milk Tester



Dotted Lines show position of bottle holders when not in motion.

Has enclosed cut gears.
Swinging bottle-holders.
Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

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Some Thoughts Suggested by Reading the April 10th Number of Hoard's Dairyman.

ED. HOARD'S DAIRYMAN:—While reading the paper of the above date I looked up and saw hanging on my wall pictures of Uncle Jerry Rusk and W. D. Hoard, two men who have been governors of Wisconsin, and two men who were as well posted in the needs and as much interested in the success of the yeomanry of our state as any governors we ever had.

On page 194 Old Roadmaster visits Washington, and after nearly six months' sojourn there I am prepared to endorse all he says and add that with the 600 or 700 acres of groves, parks, street trees, flower gardens and lawns, it is one of the most beautiful places I ever saw.

Page 195 shows that you have a Cherman student who has not been reading your baper in vain. I will not try to repeat his name, for to me it is as horrible as the Holstein cow he speaks of. Will only say that when Jacob's dodder fell in love with the Guernseys she did not miss it much, and if Peter falls in love with Miss Chenny he won't miss it eider.

Page 198 contains several items. I can only speak of a few. First, Prof. Carlyle's statement about heifers. Extended observation has taught me that it would be as impossible to feed every heifer so she would make 300 lbs. of butter per year, as it would be to feed and bring up every boy born in the state so good that we would not need jails or reform schools; the poor and bad ones ye will always have with you.

If any reader passed over the item from the Oklahoma Station carelessly please look up your files and re-read it, for it applies to the family, as well as to the herd. For I candidly believe the better we know or acquaint ourselves with what we eat and feed, the better results we will have in health and profits. When I read, or am reliably informed, that food and drink for sale to the family is prepared inside of closed doors, and only those who know about the ingredients are allowed there, and that hundreds of tons of corn cobs are bought annually for some purpose, and that feeds are mixed and sold to farmers who are ignorant of the ingredients, we must expect that starvation, swindling, ill health, or some other bad result, will follow.

I desire to back up the statement said to be made by Schlosser Bros., of Indiana, that it is possible to make dairying more profitable. About twenty years ago in the town where I live, as they say, farmers kept from 3 to 7 or 8 cows, and butter was sold at the stores, and not a copy of HOARD'S DAIRYMAN was taken in the town. In 1885 farmers' institutes started, and some of the farmers began taking the DAIRYMAN. Some of the seed sown fell in favorable places and produced fruit and awakened inquiry. A creamery was built which made a few hundred lbs. of butter the first year. Cows began to increase so that now there are from 5 to 50 on all the farms, and last year there was over $170,000 paid for cream, which made over 800,000 lbs. of butter in this creamery. This ought to convince the most skeptical that these men are right in their conclusions.

I cannot take time or space to comment on all I read in this issue, but do want to say to Vermonter on page 199 that he is right in asking questions. He is also right in buying a Babcock test and weighing his milk, but on the bull business he is wrong. I tried for ten years to wipe out a $3,000 mortgage with scrub cows and a grade bull. The result was I paid the interest, but the mortgage increased to $3,250. Then I tried a full blood bull and heifer and by keeping my females and buying a first class full blood bull as often as a change was necessary, I succeeded in wiping out the mortgage in the next ten years. To wipe out your mortgage you need the best of help and a first-class animal is better than a grade, though the expense is a little more. I know whereof I speak.

I also want to answer the inquires from North Carolina. I can do it with more freedom than a man working for different breeds can, as I have tried four dairy breeds and now have none to sell as I sold out. I will say to him as the veteran dairymen, Sam Houston, said to me in answer to that same question. Start with the best common cows you can find and buy, always selecting those of the dairy type, then buy the best bred Guernsey bull you can and be sure he descended from a good producing dam, then follow in one line, changing bulls when necessary, and instead of buying calves or yearlings, buy matured sires when you can and you will in a few years be well satisfied with your results. Try it.

The short article from the Energetic Pencil Pusher of Missouri, on page 206, shows what a plucky farmer can do with butter and berries. That sounds different from an item I read years ago of a Missouri farmer after the war. When his guest asked for cream in his coffee, he said he had 75 cows but it was too much trouble to milk them. Would say to the Arizona dairyman you need nothing better than a brick inside wall for your silo, then 2 coats of cement will make it tight as a fruit jar. I have stone on the out side and brick inside.

I have been to Mr. Gurler's and seen how his work is done; and I always like to read his articles published unselfishly to benefit others, and I often wish I could take some dual-purpose fellows we have here (who think these details are all useless, who won't read dairy literature, who think they are a good dairymen, and think a cow is a cow, and that a man is a fool who will pay $100 for a bull, etc., etc.) to his place, or others I could mention, and let them see the results of good work in the dairy.

I read in "reading notices" that Mr. A. Parks, of Pickets, Wis., is offering the bull, Salem's King A. G. C. C. No. 5362 for sale. This bull I bred, his dam was Queen Vashti No. 6051. She was the Dam of Yeksa Queen 6631, who made 599 lbs. of butter in 12 months. She was also the dam of Queen Deette 9794, who made 18.90 lbs. butter in 7 days, official test, and was the first cow to go into the Guernsey advanced register, on a 7 days' test. This bull, Salem's King, if he has been carefully used should be a good one to improve a herd of cows, for some man, for he is well bred in butter lines.

I close with reading Mr. Jensen's earnest article, page 213, wherein he asks does it pay to make second grade butter. I say, yes, sometimes, when you can not do better; circumstances control it. Our creamery has ten teams gathering cream; we have had for four weeks the worst roads ever known here, haulers sometimes were stuck with four good horses; some farms had to be missed for four, five or perhaps six days, and as a result many cans were consigned by the nose of the butter maker to the stink vat from which they are made up and sold without brand on the market on their merits—the price averaging through the year two cents less than the regular price. The average price paid for butter fat here last year was 24 5-12 cents; creamery butter is selling here now April 13th at 25 cents per pound, and good dairy butter at 20 cents. Our cream haulers, all put up ice, which they carry with them in summer to keep cream cool; they gather three times a week. Farmers all put up ice too, which brings cream in good shape.

A. J. PHILIPS.

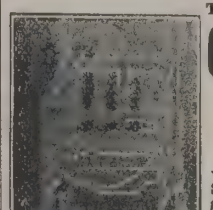
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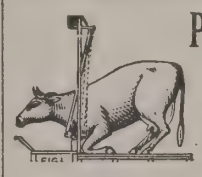


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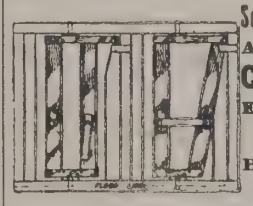
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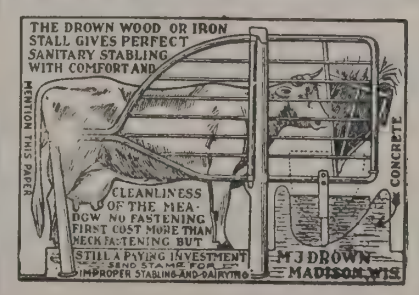
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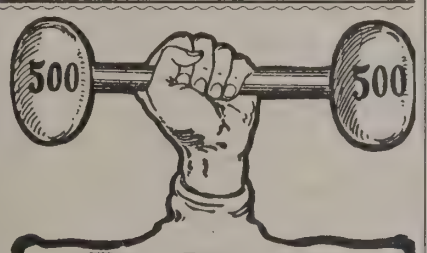


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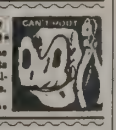
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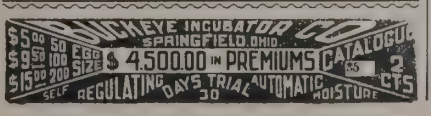


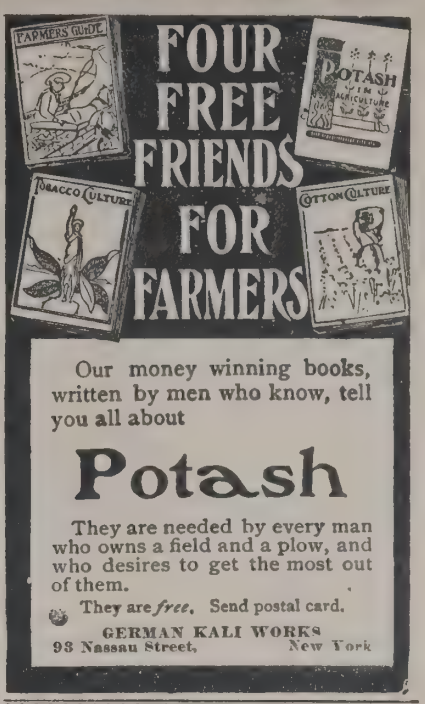


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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

A SUCCESSFUL SALE.

Mr. C. F. Hunt's sale of Holstein-Friesian cattle at Syracuse, N. Y., April 22nd, was very successful, particularly when the inclement weather is considered. The stock, as offered, was not in show-ring form but in good working condition, Prices ranged from $30 for some of the bull calves, to $500 for a heifer calf four months old. Stevens Bros. of Lacona, N. Y., bought the two-year-old bull, Beryl Wayne's Son, for $455. Mr. L. J. Fitsgerald of Courtland, N. Y., bought an extra good individual, Aaggie De Kol Wayne, for $300.

Good stock well advertised bring good prices.

KANSAS IDEAS.

W. F. Jensen, of the Continental Creamery Co., Topeka, Kansas, tells the New York *Produce Review* of the butter prospects in Kansas the coming year. He estimates the increased output to be 30 to 40 per cent. The high prices of beef have fallen off 50 per cent, while the cow is doing business at the old stand the same as ever. His company has sold 2,500 hand separators since Jan. 1st; have put in 48 new receiving stations, and the new central churning station will turn out 60,000 pounds of butter a day.

Their system is this: The cream is taken from farmers at the receiving stations where it is weighed, tested, pasteurized and cooled down. It is then shipped in refrigerator express cars to the central station. Cream is thus received from stations 300 to 320 miles distant.

Mr. Jensen is very decided in the statement that with hand separator cream it must be delivered every day in summer and every other day in winter. He is of the opinion that the use of the hand separator will create a desire in farmers to make better posted dairymen of themselves.

A COMPARISON OF STATES AND COWS.

In a communication to the *Produce Review*, President Newman, of the Illinois Dairymen's Association, cites the following facts from the late United States census, showing the number of cows and the value of their yearly product in several states:

"The number of farms reporting dairy cattle in Illinois, 230,625; number of cows, 1,007,664; value of their yearly product, $29,638,619, or about $29 per cow.

Illinois cows average only 454 gallons of milk, or 3,850 lbs. for each cow per year.

I find that the ideal cow gives 2,754 lbs. of milk in 30 days.

I find Kansas cows averaged less than $20 per cow, also Nebraska and South Dakota."

Mr. Newman then appends the following census statistics:

STATE.	Cows.	Products.	Av. per cow.
Iowa	1,423,648	27,516,870	$19.30
Minnesota	753,632	16,623,460	23.00
Vermont	270,194	9,321,389	36.00
New York	1,501,600	55,474,155	37.00
New Hampshire	115,036	71,172	55.00

I find in our own state the three principal counties are:

COUNTY.	Farms.	Cows.	Value Products.	Average per cow.
McHenry	2,598	52,593	$2,243,974	$43.00
Cook	4,491	35,030	1,585,252	44.00
Kane	2,163	42,744	2,177,289	50.00

It is generally accepted that it costs $30 and over to feed an ordinary cow one year.

Note the above figures and see what application they have to the everlasting dual-purpose question.

The cows of Iowa and Minnesota are very largely dual-purpose because the farmers will have it so, they tell us. They can make so much more money feeding their very abundant fodder and grain to a cow that returns them $19 as in Iowa, and $23 as in Minnesota, than $55, as is the case in New Hampshire, where the special-purpose cows more generally prevails.

It will be noted also that in McHenry, Cook and Kane, the three great milk shipping counties of Illinois, where the prevailing breed of cows is Holstein, that the returns are only moderate. This is due to the unwise ideas the farmers in those counties have of buying their cows mostly, milking them a year and then selling them for beef.

There can be no real dairy progress or improvement in the quality of cattle where such a loose and unprogressive practice is in vogue.

Wherever the mixed beef or dual-purpose idea governs the farmer in the breeding of cows, there will be found the lowest average returns per cow.

A NEBRASKA DAIRY BULLETIN.

There has been lying on our table for some weeks, awaiting an opportunity for more extended comment, a bulletin from the Agricultural Experiment Station of Nebraska, detailing experiments with the dairy herd at that station. It is divided into three parts, treating respectively of the herd results, ration tests for dairy cows, and the best week in a cow's lactation period, and gives the results of experiments and observations by the Professor of Dairy Husbandry, Mr. A. L. Haecker, son of Prof. Haecker of Minnesota.

This bulletin is of exceptional interest and value to the dairy farmer because it deals with the plain facts as they developed from time to time and year to year.

The herd was established in the fall of 1896 by the purchase of ten grade Jersey heifers about two years old, due to calve in the late fall and early winter. These heifers cost, delivered in Lincoln, $32 each. Two other animals were obtained from local parties, of different breeding, one being a full-blooded Jersey and the other a cross bred with Jersey dam and Short-horn sire. During the five years covered by the records, considerable changes were made in the herd, both by purchase of new animals and sale and death of others. Following is the total and average production of this herd for five years, the amount of butter being estimated by adding one-sixth to the amount of fat in the milk:

YEAR.	No. of cows in herd.	Total butter fat produced.	Total butter produced.	Average butter per cow.
		Lbs.	Lbs.	Lbs.
1897	10	2927.73	3409.82	340.98
1898	11	3478.14	4087.85	368.89
1899	14	2964.45	3458.46	247.03
1900	7	1676.71	1956.03	279.35
1901	10	3029.38	3534.29	353.43
Average of 52 yearly records		270.70	315.82	

Prof. Haecker's comment on this showing is that the results obtained from this herd are not abnormal and can be equalled, if not surpassed, by any farmer or dairyman in Nebraska. No effort was made to crowd or force any animal to a high record. Young stock were principally disposed of in the form of veal, but exceptional heifers from some of the best cows were saved. Including all the animals in the herd, which contained both good and poor producers, the average yearly yield of milk per cow was 5,833.17 pounds containing 270.71 pounds of butter fat equivalent to 315.82 pounds of commercial butter.

Under the head of ration tests for dairy cows, a report is made of a feed experiment with alfalfa against prairie hay, the conclusion of which is that normally cured alfalfa hay is better for both milk and butter production than wild or prairie hay. Corn silage and sugar beets were tried against each other. The conclusion is that corn silage can be produced much cheaper than sugar beets, will keep fresh much longer and give slightly better results when fed to dairy cows, but the difference is so small that they may be said to be approximately of equal feeding value.

In order to form a judgment as to the best week in a cow's lactation period, 239 yearly records were studied, with the result that nine-tenths of the cows made their best records during the first ten weeks of lactation and that over one-half made their best records during the first month. It is to be remembered that these were not forced, short-time records, but were deductions from the yearly records of cows that were not forced to make special short-term records. The conclusion is, commencing four days after freshening for the first week, it was found that the second and third week of the cow's lactation are the best, and there is not much difference between the two, but a cow reaches her highest production of butter fat at an earlier period than she does her greatest milk flow.

Nebraska dairymen, and especially those who have too much of an inclination to despise the special-purpose dairy cow, should have a copy of this bulletin and study its every page very carefully.

WHEN SHOULD THE FARMER COMMENCE HAYING?

The feeding value of hay depends upon its composition and rate of digestibility. There is a very prevalent opinion that the longer grass is permitted to stand before harvesting, the greater will be the yield, and that this increased yield will compensate, in a large degree, for the decreased rate of digestibility. The average farmer seems to be of the opinion that if his cows will eat any fodder without much waste, there is no necessity for him to make further inquiry as to the value of that fodder. The figures which follow, refute this contention very successfully. They are derived from actual experiments conducted at the Maine Experiment Station a few years ago. Two acres, as nearly alike in amount of standing grass as could be determined, were set apart for trial. The grass was cut, the hay made and stored under exactly similar conditions, except that on one acre the timothy was cut when in early bloom and that on the other acre, ten days past bloom. The hay was put in the barn in good condition where it was allowed to dry until Nov. 28th, when it was taken out of the mow and re-weighed. There was only a difference of 65 pounds in the weight of the dry hay and this was in favor of the hay cut in early bloom, but when we come to the digestible nutrients per acre, we see a very marked difference in favor of the early cut hay, to wit: 66 pounds of protein, 172 pounds of carbohydrates and 13 pounds of fat (ether extract).

PECENTAGES OF DIGESTIBLE NUTRIENTS.

	Cut in early bloom.	Cut ten days past bloom.	Difference in favor of early cut hay.
Protein	4.89	3.29	1.60
Carbohydrates	48.73	45.30	3.43
Fat	2.08	1.70	.38

POUNDS OF DIGESTIBLE NUTRIENTS PER ACRE.

Protein	170 lbs.	104 lbs.	66 lbs.
Carbohydrates	1575 "	1403 "	172 "
Fat	67 "	54 "	13 "

With these figures of actual trial before him, why should the farmer hesitate to commence his haying in season? There used to be a proverb among farmers that late cut hay "spent" better than early cut hay. This meant, of course, that the cattle ate less of the late cut hay and still managed to live, although, as a rule, some of them had to be "tailed up" in the spring. Nowadays, the practical farmer who keeps stock for profit, is anxious to have his stock eat all the feed that can be digested and turned to good account, because he realizes that all his profit comes from the amount of feed consumed, over and above that required for maintenance.

THE ST. LOUIS BREED TEST.

The preliminary draft of the rules and regulations governing the proposed Dairy Test of various breeds of cows at the St. Louis Exposition has been issued by Chief Coburn of the Live Stock Section.

Comment and criticism of the rules is invited by Mr. Coburn. The proposed rules are in short as follows:

A superintendent is to be appointed by the Chief, who will be paid by the Exposition and who will have entire control of the feeding, care and management of the contesting cows.

Said chief shall be governed by the rules and regulations approved by the Louisiana Purchase Exposition and as formulated by an advisory committee consisting of one representative of each of the associations furnishing cows for the dairy test, a representative of the Dairy Division of the United States Department of Agriculture, and two representatives of the National Association of Agricultural Colleges and Experiment Stations.

Each association participating in the dairy test shall recommend to the chief of the live stock department the name of the party selected to superintend the feeding, care and milking of the cows furnished by the respective associations, and such person will be appointed by the chief of the live stock department for the supervision of said work, and continue in office during the pleasure of said Chief Their salary will be paid by the exposition company.

Each association intending to furnish cows for the dairy test shall notify the chief of the Live Stock Department of the World's Fair of such intention, on or before May 5, 1903. A statement giving the names and pedigrees of all such cows must be furnished not later than April 1, 1904; also the number of calves each cow has produced, the date of birth of the last calf, and the date of last service of bull since the last calf was dropped.

A statement must be submitted giving the method and character of feeding that has been followed with each cow one year previous to entry in the dairy test.

Classes: The cows shall be divided into three classes: Class "A," class

"B," and class "C." In class "A" herds shall consist of twenty-five cows, in class "B" herds shall consist of fifteen cows, and in class "C" herds shall consist of ten cows. Only cows of the Devon, Brown-Swiss, Red-Polled and Dutch-Belted breeds shall be eligible to entry in class "C."

The commercial valuations of all food used in the test shall be fixed by the chief of the live stock department, upon the basis of quotations on April 1, 1904.

The milk from each cow shall be weighed immediately after each milking, and a correct sample taken, and the amount of fat determined, under the supervision of the chief of the Department of Agriculture of the Exposition, by the Babcock method. On Monday and Thursday of each week a test shall be made by the lactometer of the milk from each cow. From these and other tests the amount of fat, total solids and solids not fat, etc., shall be computed, and their value determined for each individual cow and herd as specified below.

The milk produced each day from each herd of cows shall be weighed without unnecessary delay and taken in charge immediately by the chief of the Department of Agriculture of the Exposition, to be churned, tested and otherwise manipulated under such rules as will be formulated for carrying to completion the purposes for which the entire test is designed, and for determining the various products of each cow.

Sample prints of butter, free from *artificial coloring matter*, and broken to show grain, together with samples of whole milk shall be on exhibition in the Dairy section of the Department of Agriculture of the Exposition.

The products of the milk will be valued as follows:

The value of the butter made shall be the average of the highest quotations at St. Louis on April 1st, 1904, as determined by the Chief of the Department of Agriculture.

The value of solids not fat shall be based on the highest quotations for New York State factory Cheddar cheese in New York City on April 1st, 1904, as determined by the Chief of the Department of Agriculture.

Prizes shall be awarded as follows:

In class "A, B and C": A prize shall be awarded for the herd showing the greatest net profit, butter fat alone considered.

For the herd showing the greatest net profit, butter alone considered.

For the herd showing the greatest net profit in solids not fat.

For the herd showing the greatest net profit in total solids.

Awards and Records: The Chief of the Department of Agriculture shall provide uniform packages for all butter produced by each breed as may be determined by the Advisory Committee on Tests, and the score on such butter shall be kept daily and submitted each week to the Jury appointed by the Chief of the Department of Agriculture to determine the quality. Said jury will judge butter upon the following scale of points at the values indicated, viz:

Flavor	55
Grain	25
Solidity	10
Color	10
Total	100

A certified record of the report of said jury shall be made to the Chief of the Department of Agriculture and thereupon there will be credited to each breed the value of the butter produced by such breed in the following manner, viz:

Butter scaling from 75 to 80 points shall be credited at 25 cents per pound.

From 80 to 85 points at 30 cents per pound.
From 85 to 90 points at 35 cents per pound.
From 90 to 95 points at 40 cents per pound.
From 95 to 100 points at 45 cents per pound.

The sum to be credited daily to each breed for buttermilk and skim milk produced from the milk of such breed will be ascertained from the determination of the solids other than fat in such buttermilk or skim milk. Such solids other than fat to be credited to each breed daily at two cents per pound.

The increase or decrease in live weight will be credited or debited at four cents per pound.

The foregoing rules appear accurate enough to insure a fair contest, except in two particulars. (1) There is no sense in going any farther than to determine the amount of butter fat and solids not fat produced by each cow. This is to be a contest of cows, not butter makers. It should be confined absolutely to the products of the cow. Butter is not primarily a cow product any more than is cheese. Both require an after manipulation by men. Therefore if the contest is to throw a clear ray of light on the producing power of breeds of cows the determination should stop where the cow stops, butter fat and solids not fat.

(2) We notice that the matter of the increase or decrease of live weight, while the cows are in the contest, is to be credited or debited at 4 cents a pound. In the opinion of the DAIRYMAN this is all nonsense. If the beef breeds wish to come into the contest well and good, but flesh making has nothing to do with this matter. Suppose draft and trotting horses enter into a breed contest for speed. Would it not be deemed ridiculous to provide that any increase or decrease of live weight, should be taken into consideration by the judges?

We object most earnestly to this provision of the rules. Let it be a dairy test pure and simple, and let the cow win that can produce the largest amount of milk, butter fat and other solids in a given time in proportion to the cost of feed consumed.

Building a Round Barn.—The Best Style of Cow Stall Wanted.

ED. HOARD'S DAIRYMAN:—I am manager of a farm containing 700 acres and am building a round barn 85 feet in diameter with a 20 foot silo in center 60 feet deep. This barn is to have a self supporting roof and not a timber in it between the silo and out side. The cows will head to the silo and the barn will tie 75 cows in one row. The manure will be run out of the stable in a car on an overhead track into a manure house and dumped into wagons and drawn to the field, every day. Shall use some of the cow stalls so as to give cows best accomodations possible. Would like you to recommend the best one.

Grand Isle, Vt. E. J. PARKER.

Not having tried all the different styles of stalls we are in no position to advise as to which may be the best. We have several reports from those who have used the stalls advertised in the DAIRYMAN, expressing entire satisfaction with them, and some going so far as to say they cannot be improved upon.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Cheese Making Value of Milk.

Is there as much difference in the value of the milk between the Holstein and Jersey in the cheese factory as there is in the creamery.

Chittenango, N. Y. W. H. L.

The fat in milk is a very accurate measure of its cheese making value. In saying this, we do not mean to be understood to say that 4 per cent milk will make one-third more cheese than three per cent milk, but it will make more cheese and cheese of better quality, so that when quantity and quality are both considered, the four per cent milk is worth fully one-third more than three per cent milk for cheese making purposes.

There is in cheese, approximately, half as much water as fat and casein combined. In other words, cheese as it is sent to market is about one-third water, a little more than one-third fat and something less than one-third casein. The fat in the milk carries with it its due proportion of water into the cheese, the same as the casein does. In one hundred pounds of four per cent milk there is one pound more fat than in one hundred pounds of three per cent milk. If the fat carried no water with it into the cheese, then one hundred pounds of four per cent milk would make one pound more cheese than three per cent milk and would be worth that much more; but inasmuch as the fat carries with it one-half of its weight in water, we should expect one-hundred pounds of four per cent milk to make at least one and one-half pounds more cheese than one hundred pounds of three per cent milk.

In order to verify or disprove this reasoning, some years ago, Mr. Decker, then connected with the Wisconsin Dairy School and now connected with the Ohio Agricultural College, made up some 3.3 per cent milk into cheese, some 4 per cent milk and some 5 per cent milk, using one hundred pounds of each variety of milk. When the cheese came from the press, it was found that one-hundred pounds of 3.3 per cent milk had made 10.1 pounds of cheese, one hundred pounds of 4 per cent milk had made 11.4 pounds of cheese and one hundred pounds of 5 per cent milk had made 13.1 pounds of cheese. Set out in tabular form, these results show as follows:

100 lbs. 3.3% milk yields	10.1 lbs.	cheese
100 lbs. 4 % " "	11.4	"
Therefore:—		
0.7 lbs. fat yields	1.3	"
Again:		
100 lbs. 4% milk yields	11.4 lbs	cheese
100 lbs. 5% " "	13.1	"
Therefore:—		
1 lb. fat yields	1.7	"

The above figures show that actual practice fully confirms the theoretical deductions. If it should be said that the cheese market does not discriminate between the quality of cheese made from four per cent milk and three and one-half per cent milk, we may say that the addition of four per cent milk to three per cent milk brings the average quality up, so that the cheese from the mixed milk will bring a higher price than cheese from a lower quality of milk. Hence, our original proposition is justified, and the fat in the milk becomes the measure of its cheese producing value.

As to the Overrun.

Our creamery received for the month of March, 138,937 lbs. of milk, out of this was churned 6,365 lbs. of butter, and 5,298 lbs. butter fat according to test, making an overrun of 1,067 lbs. Now will you please tell me whether this is right or not. Would you divide by six in the amount of pounds of butter fat or butter to find the overrun.

Minnesota. SUBSCRIBER.

We have never known the over-run to be figured on anything but the fat, and in the case mentioned, there was an overrun, or an apparent overrun, of a trifle more than twenty per cent. This is practically impossible if the butter is of standard commercial quality, and indicates either that there was some fault with the glass-ware connected with the test or that the tests were read a trifle too low. An overrun of 16 2–3 per cent is all that can be expected when every proceeding is of the highest quality—separators run to leave practically no fat in the skim milk and the churning very exhaustive. It is very seldom indeed that creameries, even large creameries, can do as well as this, and an overrun of one-eighth, or twelve and one-half per cent, should be considered as first-class average work.

Inbreeding.

In your answer to inquiry of J. F., in issue of April 3rd, you speak of a mature bull purchased by you, his owner "having a prejudice against inbreeding." Is there no objection to inbreeding?

I have a mixed dairy herd of common cows, the Jersey blood rather predominating. I have a good registered Jersey bull nearly five years old. Can I breed him to his own daughters with advantage? If so, can I breed him to his grand-daughters with advantage? L. T. T.

Seattle, Wash.

How Far is it Safe to Inbreed.

I would like to know how far it is advisable to inbreed with a Jersey bull on a herd of cows ¾-Jersey, but no relation to the bull above mentioned. Also how often it would be wise to use a bull for service at 14 months old. A. R. G.

Merced, Calif.

As we have said more than once, and quite recently, in our opinion, it is not so much a question of relationship as it is a question of quality which should govern in this matter of breeding. In our registered herds, we do not hesitate to breed a sire back to his daughters and, sometimes, even to his grand-daughters. We would not do this if we thought that we could conveniently get better sires; neither would we do it unless well satisfied that there was no taint of disease about the sire, or any objectionable qualities of disposition or conformation.

Inbreeding intensifies defects, perhaps even with greater certainty, than it will intensify good qualities.

In our own herd, it most usually happens that we have a youngster, one or two years old, from a favorite cow, which we use for the grand-daughters of the head of the herd.

No general rule can be given as to the amount of service that it would be wise to require of a fourteen months' old bull, so much depends upon varying circumstances.

Figuring Fractional Percentages.

A Wisconsin butter maker is having some misunderstanding with one of his patrons in regard to the fractional percentages in skim milk and buttermilk and asks us to explain, if we can, the difference between .05 of one per cent and .13 of one per cent. Possibly, the most satisfactory way to explain this is to write it out in full, in words, thus, .05 of one per cent is read five one-hundredths of one per cent, and .13 of one per cent is read thirteen one-hundredths of one per cent. It should be easy to understand that thirteen one-hundredths is more than five one-hundredths just as thirteen is more than five. Therefore a thousand pounds of skim milk testing .05 of one per cent of fat would contain .5 of a pound of fat. If it tested .13 of one per cent, it would contain 1.3 pounds.

Plan for Small Barn and Stable

Please give me plans for cow and horse stable. I would like to have six cow stalls and two horse stalls, also a box stall for a horse and one box stall for a cow. Would like to have a cement floor for both horses and cows. Cows to have gutter behind them to catch the droppings. I will not want a very large entry. I would like a small bin down stairs for feed. Up stairs to be used to keep forage in. Please give me length, width, number of windows and number of ventilators. Give a good system of ventilation. Will want only one entry for horses and cows. S. L. D.

Hydes, Md.

We would advise this inquirer to build a barn or stable not less than 34 feet wide and 36 feet long giving an inside measurement of 32×34 feet. Make the entry way, so called, 8 feet wide and in the center of one end. In entering here, on one side will be first a stairway three feet wide leading to the loft; adjoining this, a feed bin three feet wide; then a passage way three and one-half feet wide; next to that standing room for six cows (21 feet) and at the far end another passage way three and one-half feet wide. Commencing at the entrance on the opposite side will come, first, a harness and tool room four ft. wide, two horse stalls ten feet, a box stall 12×12 for horses and another 8×12 for cows. For ventilation, put in a flue at the end of the barn opposite the entry, about 18 inches square with an opening out near the floor that can be closed at will and another one just below the ceiling that can also be opened and closed at will. The former will be used in winter time to draw off the cold and vitiated air and the upper flue in summer time to let out the heated air. Provision should also be made on opposite sides of the stable for the ingress of fresh air, as has been described in these columns almost times without number. A common window does not suffice for this, because when open, it lets out the warm air which is particularly needed in winter time. Therefore, the outer opening of the intake flue should be at least three feet below the inner or discharge opening in the stable. This will let in the cold pure air where it will mix with the warm air at the top of the stable and quietly descend as the main ventilating flue draws off the cold and impure air near the floor.

Weight of Milk and Cream.

What is the standard weight of whole milk, skim milk and cream? In other words if I sell whole milk by the gallon, what weight should I allow? W. H. S.

Barnesville, Oh.

The average weights are as follows:

Milk, 8.6 pounds per gallon; cream, 25% fat, 8.4 pounds; skim milk, 8.7 pounds.

The weight of cream will vary according to the amount of fat contained as follows:

Cream 20 % fat		8.46	lbs.	per	gallon
" 25% "		8.40	"	"	"
" 30% "		8.34	"	"	"
" 40% "		8.22	"	"	"
" 50% "		8.10	"	"	"

How Much can a Creamery Afford to Pay for Cream.

A party is putting in a skimming station about 30 miles from Port Huron, and he wants to sell us the cream and he expects to buy the cream by the Babcock test. Now, could you tell us what per cent I would have to give him for the cream so we could get a small profit by churning it and also make him a fair profit for his investment?

Port Huron, Mich. C. C. C.

Cream containing 30% fat will make 18% more standard commercial butter than there is fat in the cream. That is to say, 100 pounds of fat in 30% cream will make 118 pounds of butter. Our inquirer can estimate for himself from these data how much he can afford to pay for cream. It costs more and is therefore worth more to make butter in some localities than in others. The amount of milk or cream handled also is a factor in determining the expense. If we assume that 3 cents per pound for making butter affords a fair margin of profit to the creamery man, he can afford to pay 20 cents per pound for fat in cream when butter sells at 20 cents and when butter sells at 25 cents per pound, fat in 30% cream is worth 26 cents per pound, provided cost of manufacture does not exceed 3 cents per pound of butter.

Silo—Hilee, Hilo!

(It Vas Continued.)

DEAR GUFFERNER:—Well, I bromished, so I got to do it. Lem me see, ware I leafe off—oh, yes, I knows: I was telling dat I knows some mens wat dont like souerkrout oder beer, und dat dont brove nodding. Nossiree. Shall I tell you wy a few have quit using deir silo —und deys mighty few you bet. All right, iff you want to know, chust listen: Do you tink you would like to drink sour beer? Well, I guess aber nit! De brewer oder de saloon man wat would set you before dat you'd go back on gwick, wouldn't you? Well, its chust so mit a cow. Gif her sour silo, und she dont want it; und if you make her eat it she's going back on you. Fursht she gifs you bad milk und byme by her shstomack gifs out und your cow is shpoiled. Sour is all right in some tings, like bickles oder herrings oder bigsfeet, und such, aber not in silo. Den de fellow wat fed his cows sour shtuff he blames de silo. I subbose its human natur to shove de blame off of oneself. But dat man's failure dont brove dat silos is no goot no more dan it would brove dat beer is no goot because a fellow oncet give you some wat was sour. Nossir. Iff de silo—oder I guess de brobber name is silage—if de silage iss not shweet, und chuicy, mit a light brown color, und a shmell so fine dat you feel like takin a moutful yourself efery time you go in to take some out, den its de fault of de man wat put it in dare. Now dats a shure ting—you can take boison on dat! Iff you will foller a liddle more mit me I will show you more blainer wy some off dem early silo mens gif it up for a wile, und I will also show you wy all dose wat use dem now und use dem right is so crazy for dem.

You see wen de idea fursht came out about silos, all tought one should put in green shtuff, und de greener de bedder. Wy, I remember well yet wen I seen fellows cut whole acres of corn so green as Chune grass, mit no ears a tall on yet, und fill up deir silos mit. Dat used to be de idea in dem days—dey wanted green fodder for winter; und wat dey git: A lot of sour shtuff worser for cows dan goot souerkrout. De more greener it was put in de more sourer it got; und wen dey gafe de cows a little too much, well dey got sick, in several reshpects. Wen dey gafe dem blenty of hay und cornshtocks mit, und lots of grain, it done poody goot. Well, some shtuck to it und learned; und odders gif it up undill dey had learned; und may be some will nefer learn.

Aber wat is de teory now? greenfodder? Nixy, nix kummeraus! Its fres suckerlent shtuff de silo man wants for filling, aber *ripe* mit corn deviluppt, und leafes und all full of wat you call it, pro—protine, dat's wat makes muskel und milk, iff you give mit it as much water as dey want to drink. He dont want corn dat is mostly shtocks eidher; nossir, its got to have lots of rich, ripe, golden corn on it, so dat wen it's cut into a silo it will come down like a shower of green backs und gold neggets. Yessir. Cut it fine, gwarter of an inch iss long enuff, und it will seddle solid und gif you a silage wat will dempt youself to eat it und make de cows shmile, und all kinds of life shtock und de hens und hoggs lick deir chops wen dey only chust oncet tink of how good it tastes. Talk apout such shtuff making a cow sick! Well, if you say dat you dont know wat you're talking apout. I gafe my cows last winter wen I fursht started on silage *one hundred bounds a day*, by shcale weight, chust to see how it worked; und it worked fursht trate. Oh, you needn't laugh; I dont mean mit "worked" wat you mean. Nossir, it had no effect on dem except dat dey gafe more milk. I gafe dat for a week; aber when I commenced to figger I found my silo would not hold out, so I cut it down to fifty bounds a day und gafe each cow tree bounds of bran mit oderwise dey got nodding but cornshtocks und water. Afterward I found I had to cut down shtill more, und den I gafe und now gife dem dwenty-five bounds a day, aber more cornshtocks. I got chust fife cows und one of dem, as I have already said, freshened way back in August; aber I tell you wat dem cows did during de tree monts wen I gife dem lots of silage. In Detzember, Chanuary und February, I got for my milk at de creamery $152.90, und I sold 53 quarts for $2.65, und used in my family 345 quarts, (dats a lots, I know, aber you seed de rest of my family dont drink no beer, only Peter) wich iff sold would have been wort $17.25 more, und dat makes a total of $172.80. Und dey're doing ferry goot now yet, only I cant gife dem enuff silage no more. Now dont tink because I got my silo a liddle too schmall you ought to build a great big one. Dont you do it. Iff one aint big enuff bedder you make dwo und feed out one at a time. Dare aint so much surface exshposed, on top, in a little one, und wat you haf to feed off efery day is in bedder conditions.

Now one more ting den you got to shut up mit your obchecktions. Furst, you know by dis time dat fifty bounds of *goot* silage, ten oder dwelfe bounds of hay or bright oat shtraw, und some cornshtocks mit goot water, will keep a cow in goot milk und goot condition, don't you? Well, second, you know, und iff you dont, you can find it out, dat one acre of goot corn will cut from ten to dwelfe tons, und oftener more dan less, of goot silage, and dat, wid a liddle hay or shtraw und cornshtocks, will give tree cows a heavy nuff ration for nearly six monts, und a fine ration if you give a liddle bran oder ground oats mit. Dird, you can cut and house for keeps a whole fife-acre dract of corn so as to keep it fresh und in de finest conditions for winter, in a single day, und you got no bodder mit husking oder shocking oder taking care of de shtocks oder grinding up de corn, und your field is right away reaty for de plow. Off course you got to haf some corn for de hoggs und dat'll gif you some cornshtocks for de cows wen you let dem out in winter for exercise. Dey's got to haf exercise und de cornshtocks helps it along; aber you dont want more dan wat iss necessary. Watch you say? You chust so soon "feed eferyting in de goot old way?" Shucks, you makes me dired. On you all hops und maltz is ferloost. May be you like dat to go out und dig dem shtocks out of de shnow, heh? Oder may be you like to haul dat kind of manure, dat cornshtock manure I mean? Now you poody near makes me laugh! By Chimmney how mad I used to git efery time I had to load dat shtuff—only half rotten, und tuff und hanging togedder und shticking to de fork; my, it makes me uneasy wen I tink of it.

Yes, one ting more I want to tell you. May be you got a lot of shtuff wat ditn't get ripe, oder got a little catched by frost. Well, cut it und let it wilt in shock for a week oder dwo, den cut it in your silo if you got room, aber put on blenty of water wile you cut it in oder it will not mould. Oder may be you got more cornshtocks left dan you need, oder want. Cut dem in too, if you got room, aber dont forgit, *blenty* of water. Dat all makes nice silage wen done right, und it's out of de way. Aber, of course, it's not a balanxed ration; und wen you feed dat kind of silage you got to gif some grain along mit, oder someting. Such shtuff iss not wat we talk apout wen we

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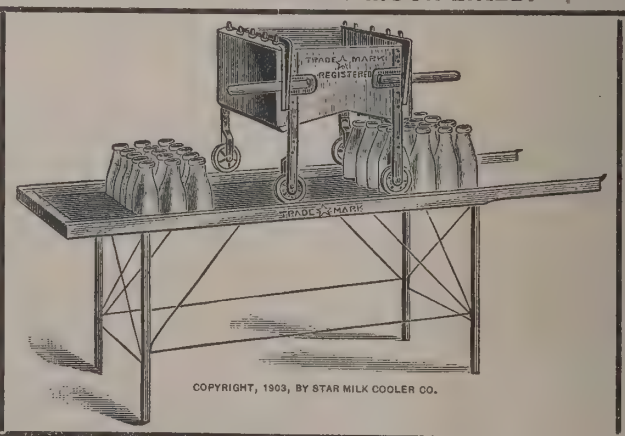
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Dare now, Mr. Gufferner, be you satisfied? Didn't I tell you I could make it blain to dem fellows on wich side of deir bread was de tickest butter? Aber anyway I wont write any more to-day—my fedder shcratches on de baper like sixty, und I got to git me a new one before I can write some more. Oh say, I goin to send you some names of some farmers wat dont take de DAIRYMAN yet und dont got no silo. You send dem a sample copy, und iff dey refuse to pay for it, I will. Fery truly yours,

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Milk Production.

Dry Teat Milking.

ED. HOARD'S DAIRYMAN:—After being engaged in the production of milk for just 30 years, and 15 of these years being engaged in producing sweet cream and milk for wholesale and retail purposes, it has stood me in hand to study best methods of caring for the product. My opportunities for testing different methods have been very good. Have studied the problem in Texas and Tennessee, where in former state we had artificial ice, but in latter no ice at all. Climatic conditions in Tennessee were such that my method was thoroughly tested. Shipped cream in eight and twelve-gallon cans 185 miles during the entire summer successfully, also at same time shipped both cream and whole milk a distance of 45 miles, where the whole milk was inspected by United States Government experts as to condition.

Here at Cedar Hill, have shipped cream 30 miles during summer months for a retail milk route, for past four years, and sold bottled cream in our own city. This bottled cream we sold on a guaranty to keep sweet three and one-half days, or no pay, and to date one ½-quart bottle has been reported sour within the limit. How do you do this? you may inquire. Not by any red tape, white suit, covered pail, or dry teat milking. We conduct too large an establishment to waste time or money in gingerbread extras. When a dairyman tells me he practices dry teat milking, I know he either does not milk cows himself or does not state facts. It is physically impossible to milk any herd of cows and keep their teats dry. There are a few cows in every herd that can be milked with dry teats, but they are the exceptions. I visited a dairy herd some time ago that advertised in a neat booklet that they milk with dry hands. The proprietor of this herd is a stickler in his methods, but all the same I saw his men wipe their hands on their overall legs repeatedly to keep them dry when milking short teated cows. This same dairyman used cotton cover milk buckets, and in the bottle washing room I saw the boys take up a nest of bottles on their fingers and plunge them in what they called scalding water, their hands being snbmerged in the water.

My method of milking will insure a strictly clean milk that I am willing to place beside any milk in the country as to pure keeping qualities, and this method will appeal to over worked dairymen who are not blessed with a large force of men. First, the stables must be so constructed that cows keep clean and dry, plenty of windows to admit sunshine, then the milking done properly. It is admitted by all that bacteria getting in pails at time of milking is greatest source of contamination, hence covered pails, dry teats, etc.

If we can devise a method just as good requiring much less work and expense, have we not reached some results in a more common sense manner? We think so. Granting a sponge and pail of water cleans udder, our method not only avoids this washing but at same time eliminates at once bacteria dropping into the milk, and also keeps cows teats sound and free from chaps, warts and cow pox and in case of hard milkers or one with short teats, the milker does not get his hands wet. We take a small amount of vaseline on fingers of right hand, sit down to cow and with left hand brush off flanks and udder, then anoint teats, and after teats are lubricated rub both teats and udder with palm of hand.

This fixes any dust or bacteria that might drop off during milking and the ease of milking will astonish any one who has not tried this method and the most surprised party will be the cow herself if she chances to belong to a dry teat advocate. BUFF JERSEY.

Mommouth, Ill.

The Cost of Ensilage.

Making a careful estimate and taking into consideration every expense, as use of horses, board of men, and twine used, the total expense of putting up a ton of silage this year has not cost us on an average over 75 cents. If we estimate the use of our tub silo which has stood five years, and is still in a state of perfect preservation, at $25 per year, we are getting silage from standing corn to silo at a cost of less than one dollar per ton. The cost of growing corn for silo does not exceed 50 cents per ton, hence silage all ready for the stock need not cost to exceed $1.50 per ton. Perhaps the beginner could not grow and put up silage at this low figure; however, we believe that Yankee ingenuity will sooner or later bring the cost of putting up silage to even a lower figure than this.—A. W. TROW—in *Farmer*.

For the land's sake—use Bowker's Fertilizers. They enrich the earth and the men who till it.



Let Them Help Themselves.

They'll not take too much, and they'll get it as they want it. Don't force animals to eat salt when they don't require it, by mixing with food.

COMPRESSED

Pure-Salt Bricks

are all salt, no impurities. Improve the quality and yield of milk. A modern convenience, always present, animals never neglected, and costs for each only about a nickle a month. See how they enjoy helping themselves when you place it within reach. For all stock. Buy of dealers or send for free booklet to

Belmont Stable Supply Co., Brooklyn, N.Y.

Take all the pains in the world to make your butter good—salt it with common salt and you'll have common butter that brings common prices. Salt it with

DIAMOND CRYSTAL SALT

"The Salt that's ALL Salt."

and you'll raise its standard to the highest prices. Write for book—"Just Salt"—it's free.

DIAMOND CRYSTAL SALT COMPANY, St. Clair, Mich.

Dietz Lanterns—

make the way plain in night work or travel. Always shed a strong, clear, white light, with no choking, sooting or smoking.

Over Sixty Years the Favorite.

Made in many styles and sizes for all purposes, as hand lanterns, driving lamps, post lamps for streets, for front of country residences, church doors, etc. CATALOGUE SENT FREE.

R. E. DIETZ COMPANY, 94 Leight Street, New York. Established 1840



BAILEY'S HYDRAULIC RAM.

Now is the time to install a ram. Bailey's is always successful. He guarantees it. It is the most simple, durable, efficient and economical. If you want water at house or barn, send for catalogue No. 30 to

PRICE W. BAILEY, Seneca Falls N. Y.



SAVE 20 CENTS PER SHEEP on every sheep you shear with **STEWART'S PATENT**

SHEEP SHEARING MACHINE

The day of the old fashioned hand shears is past. No owner of 10 sheep or more can afford to shear by hand, even though the work be done for nothing. Don't butcher your sheep. Shear with this machine and get **ONE POUND WOOL EXTRA PER HEAD.** It will more than cover the cost of shearing. Send today for valuable book, "Hints on Shearing." It is free and will save you money.

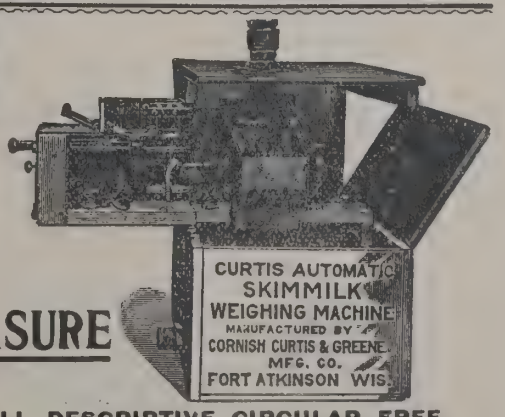
CHICAGO FLEXIBLE SHAFT CO., 194 Ontario St., CHICAGO.

Skim Milk

Often goes to the wrong man for the simple reason that the patrons have no standard of

WEIGHT or MEASURE

and the last man suffers.



FULL DESCRIPTIVE CIRCULAR FREE.

Cornish, Curtis & Greene Mfg. Co.,

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for.... DE LAVAL ALPHA SEPARATORS.

Fort Atkinson, Wis.

CONCERNING OUR ADVERTISERS.

Those who are in the market for profitable dairy cattle—milk cows of pure Jersey blood, as well as grades of that breed—should not fail to attend the closing out of the Polk dairy herds at Greenwood, Indiana, on May 20 and 21, as advertised in another column. "Polk's Best" is a trade mark consistently applied to the products of the J. T. Polk dairy and canning establishment, whether one has in mind the milk, cream, ice cream, tomatoes, corn or Jersey cattle. Catalogues containing full and accurate pedigrees and descriptions of these Jerseys will be mailed free on application to the Jersey Bulletin, Indianapolis, Ind., or to J. T. Polk, Greenwood, Ind.

There could hardly anything be offered for sale that evidently goes out on better guarantee than the "1900" Family Washer. They have an advertisement in this issue that proposes to send this washer free on 30 days' trial, a proposition that should establish the confidence that the machine is what the advertisers claim for it. The company, in making a proposition like this, certainly show their confidence in the public as well as their goods. Show this advertisement to the wife.

Split Hickory Buggies.

The opportunity to buy the celebrated Split Hickory Buggies direct from the factory is open to our readers. The season is here for using pleasure vehicles, and the longer their purchase is postponed the less opportunity one has for getting the full benefit of the season's enjoyment out of them. The Split Hickory line of vehicles is sold only direct to the user at the wholesale price, not being on sale at any store, nor is it handled by any jobber or dealer. The Ohio Carriage Mfg. Co., of Cincinnati, Ohio, sole makers of Split Hickory vehicles, is a highly reputable firm with a record of years of honesty and success as makers and sellers of high class vehicles at moderate prices. Their offer to sell their jobs on thirty days' free trial is bona fide and certainly very liberal. It enables the intending purchaser to see and try just what he intends to buy. A postal card or letter addressed to them at Cincinnati will secure their valuable new catalogue, containing all the latest things on four wheels, for people who like stylish, long-wearing and well-built buggies and vehicles. Send for it before you forget it.

Harvesting with Profit.

The "Milwaukee" Binder has several distinct points of merit, chief of which is the fact that it gets all the grain from the field. Farmers who are considering the purchase of a binder and who want that binder to "pick up" cleanly and thoroughly, at the same time combining the essential advantages of simple construction, accurate action, ease of operation and light draft, should send for the "Milwaukee" catalogue. It will be sent cheerfully upon request to Milwaukee Division, International Harvester Company of America, Milwaukee, Wis.

Our readers will notice the appearance this issue of the advertisement of the Studebaker Bros Mfg. Co., of South Bend, Ind. This great concern, we believe the largest of its kind in the world, is so well known as to require no introduction. Studebaker general repositories for the proper and convenient distribution of their products are found in most large cities while there is scarcely a hamlet in the country where the local Studebaker dealer is not found. There is nothing questionable about the character of Studebaker goods. The wagons and vehicles of every character, and harness for all purposes, are standard everywhere. Whoever is willing to pay a fair price for assured high quality is not disappointed in Studebakers. We unreservedly commend the advertisement to the favorable attention of our subscribers.

We have in this issue the advertisement of Stromberg-Carlson Telephone Co., Chicago, Ill., very extensive manufacturers of telephones, and

Cherry's Perfected Barn Equipments.

Operates on Curves and Switches. Manure Carrier, Feed Carrier, Grain Elevator and Track. Barn Door Fixtures and Track. Hay Tools.



Send for Illustrated Catalogue and Price List to
D. B. CHERRY & CO., Knoxville, Iowa.



THE DREW ELEVATED CARRIER
is the cheapest and most practical device for taking away manure from stables, carrying ensilage, feed, grain, etc., etc. No trouble to put them up; no trick to work them; leaves barn yard free from posts; dump in yard or on wagon; turns curves and switches. An inexpensive money saver. Write for illustrated catalogue and full particulars.
DREW ELEVATED CARRIER COMPANY, WATERLOO, WIS.

"COME in the evening or come in the morning, when you're looked for or come without warning"—



You'll always find your Tread Power ready for business. OF WHAT OTHER FARM MOTOR—Wind Steam or Gasoline—can this be said? A PERFECT GOVERNOR ensures absolutely even speed. Send for free catalogue.
St. Albans Foundry & Implement Co., St. Albans, Vt.

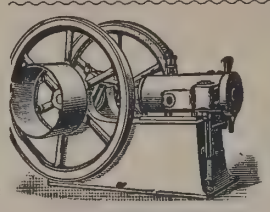
Hay Fever and Asthma

Completely cured—not just relieved. Attacks never return. Smokes and "Reliefs" can not cure. They are wrong in principal. Our treatment cures to stay cured. Restores health. Over 52,000 patients already. Book F 41 free.
DR. HAYES, Buffalo, N. Y.



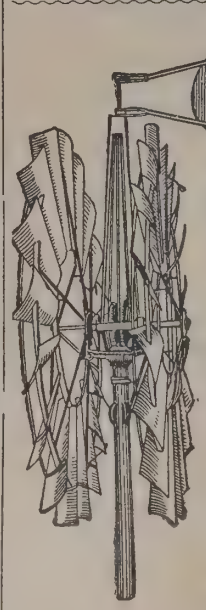
GASOLINE ENGINES

as power for the dairy have passed the experimental stage. Many dairymen now have them and all eventually must have them. The only questions to decide are the amount of power needed, and the most desirable make. With twenty-seven years of experience behind us, and a plant that has grown from 50 engines a year to 1500 a year capacity, we feel that we are equipped to build the best. There are other reasons why the "OTTO" is superior. We will tell them in this space from time to time. If in the meantime you need power, write us, mentioning this paper
THE OTTO GAS ENGINE WORKS, Philadelphia, Pa.



THOMPSON-LEWIS GASOLINE ENGINES

furnish the greatest possible power at the lowest possible cost in time, labor, fuel and money. They are so simple that anybody can run them without expert training or experience. Our Volume Governor gives uniform speed. Our Acme Mixer is the most positive and economical on the market. Our Hand Starting Lever starts engine with least effort. All bearings of Phosphor Bronze. Best material and workmanship throughout. Many sizes from 4 (actual) h. p. up. Best for all farm work—cutting and grinding feed, sawing wood, pumping water, separating cream, churning, etc. Send for our free catalog before you buy. It may save you time, money and annoyance.
J. THOMPSON & SONS MFG. CO., 113 BRIDGE ST., BELOIT, WIS.



WIND MILL
$1000 Reward
REVOLUTIONIZES WIND POWER.
2-14 ft. Wheels.
10 horse power
All the power you need for $1.00 per MONTH.
Address
Double Power Mill Co.,
Appleton, Wisconsin



If you want a..... **Gasoline Engine**
that will be always ready to start, safe, reliable convenient, economical and durable, buy a FULLER & JOHNSON Frost Proof. No bother with water nor expense of broken cylinder, no waiting for wind or weather. All sizes, stationary and portable. Send for descriptive catalogue to the manufacturers.
FULLER & JOHNSON MFG. CO., Madison, Wis.

DRY CURD WANTED

Will arrange with a few large creameries to manufacture dry curd and take their entire output. First to apply, first served. For particulars write to Raw Material Department, : : : : : : :
CASEIN CO. OF AMERICA
BELLOWS FALLS, VERMONT.



GOV'T REVOLVERS, GUNS, SWORDS, Military Goods, NEW and old, auctioned to F. BANNERMAN, 579 Broadway, N. Y. 15c Catalogue mailed, 6c.

YORKSHIRES A few choice imported Boars. September farrow. Also pigs from imported stock ready for delivery in 8 weeks. W. H. FISHER, Spahr Bldg, Columbus, O

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. All our choice pigs of 1902 farrowing have been sold. We are now taking orders for 1903 farrowing.
JOHN WHITE & SON, Adamstown, Md

CASH FOR YOUR FARM
We can sell your farm, home, or business quickly for cash, no matter where located. Send description and we will show you how. Offices in 16 cities Established 1893. A. A. ROTTNER & CO., 739 Real Estate Trust Building, Philadelphia, Pa.

VIRGINIA CHEAP LANDS near markets on railroad. 100 acres and house, $1,000. Come to the garden spot of the South to enjoy health and avoid the cold North-West. Delightful climate. Farms, 50 to 3000 acres; improved.
REAL ESTATE TRUST CO., Richmond, Virginia

Creasey Ice Breakers



Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right. Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.
J. S. L. WHARTON, Mfr.,
17th & Clearfield Sts. Philadelphia, Pa.

Big Bargains in Farm Supplies
First Class Material, Merchandise and Machinery at Sacrifice Prices.



Plumbing Supplies For Bath Room
Porcelain Bowl, Hardwood Seat and Tank, Nickel Plated flush and supply pipes, complete, each $10.00.
Cast Iron Bath Tubs.
Length 5 ft. Complete with full set nickel plated fittings, each $11.00. They are new goods, ask for free catalogue of our full line of plumbing supplies.

Barbed and Smooth Wire Write for our prices on 2 and 4 point Barbed Wire, painted and galvanized; also, 65,000 pounds SMOOTH GALVANIZED WIRE SHORTS
Gauges: 10, 11, 12, 13 and 14. Price $1.40 per hundred lbs. We also handle other kinds, write us your wants.

Poultry Netting A special lot of new galvanized No. 19 poultry netting while the supply lasts, at these prices. 150 running feet to bale.

12 inch	$0.48 per bale.
18 inch	0.65 per bale.
30 inch	1.10 per bale.
36 inch	1.35 per bale.
42 inch	1.50 per bale.

Other grades at correspondingly low prices.

Gasoline Engine $70

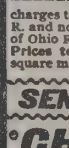


2 HORSE POWER
Absolutely new; most modern type. Guaranteed pumping jack & fixtures & fittings for $75. Without pumping jack $70.
Headquarters for Machinery
Our line of machinery supplies is almost unlimited. Complete stock of Saw Mills, Pumps, Sugar Machinery, etc.
And in fact everything in that line.



Telephones at $5.00 Each one is guaranteed to be in perfect order before leaving our plant. We are able to offer you an instrument for $5.00 that would cost you twice as much elsewhere. We carry a full stock of supplies. Send for Phone Catalogue.

Wrought Iron Pipe
Steam, Gas or Water; sizes ⅛ to 12 in. diam. We have in stock 2,000,000 feet of Standard black wrought iron pipe, second hand. It is in good condition, complete with threads and couplings at following prices.
⅛ inch at 1½ cents per foot.
¾ inch at 2½ cents per foot.
1 inch at 3½ cents per foot.
1¼ inch at 4½ cents per foot.



Steel Roofing
Strictly new, perfect, Semi-Hardened Steel Sheets, 2 feet wide, 6 feet long. The best Roofing, Siding or Ceiling you can use. We furnish nails free and paint roofing red two sides. Comes either flat, corrugated or V-crimped. Delivered free of all charges to all points in U. S. east of Mississippi R. and north of Ohio R. at **$2.25 PER SQUARE**
Prices to other points on application. A square means 100 square feet.

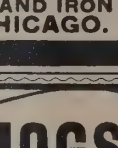
Cold Water or Ready Mixed Paints
Paints We bought at Receiver's Sale from a leading paint house, a very large quantity of Cold Water Paints and Ready Mixed Paints. Equal in grade to any on the market.
Here is a Genuine Paint Bargain. Before placing your order, write us for our special prices. You can surely save money, without sacrificing quality.

Farm Forges $8.00



We bought several car loads of new Portable Forges at a low price. We have also for sale horseshoes, horseshoe nails, blacksmith tools of all kinds.
Hardware 500 doz. single bitted axes @ 35c. 175 doz. double bitted axes, 2d qual. @ 40c. 6,000 Dietz Lanterns, few slightly affected by water. Write for prices.

Building Material



LUMBER, SASH, DOORS, ETC. We carry a complete stock of first class Building Material of all kinds. Send us your bill for estimate.
10 CARLOADS OF NEW DOORS AT **$1.00 each**
HARDWARE SUPPLIES
Write for our catalogue of builder's hardware. The per cent of the dealers profit we can save you will prove a revelation.

SEND FOR CATALOGUE NO. 20
We issue a complete illustrated catalogue containing prices of which the above are only a few samples. You ought to have a copy of this book in your home or office and we will send it upon request.
CHICAGO HOUSE WRECKING CO.
WEST 35TH AND IRON STREETS, CHICAGO.



PRICES OF CATTLE AND HOGS GO HIGHER

If you have a Stromberg-Carlson Telephone in the house you learn of any rise in prices, know every day what crops and stock are worth, get weather reports regularly and are in touch with all the world. With a telephone in operation you can call the doctor in case of accident or sudden illness, alarm the neighborhood if fire breaks out or any other emergency occurs. The Stromberg-Carlson Telephones have every modern improvement, are of great efficiency, cheap and durable, all parts guaranteed five years. Send for our free book F-15 on rural telephones. It gives illustrations showing styles, prices, etc.
STROMBERG-CARLSON TELEPHONE MFG. CO., CHICAGO, ILL.



there is no denying the fact that those of our readers who are not having the benefit of a telephone system ought at least to interest themselves sufficiently to send for catalogues and prices. These people have issued a new catalogue which they call F-15, and it is free for the asking. There is no way in which the investment of so small an amount of money can bring you more satisfaction, comfort and profit. The progressive men of every community are the ones who interest their friends and neighbors in improvements like this and shortly a system is installed. Now, good reader, what are you? Don't say you don't want it, because you know you do. Just write a card to these people, mentioning HOARD'S DAIRYMAN, and say you want catalogue F-15 and first know the cost of a telephone system in your neighborhood.

On Wednesday, May 6th, the sale of Holstein-Friesian cattle from the herd of Mr. Arthur N. McGeoch will be held at Milwaukee, Wisconsin. At this time seventy head of this popular breed of cattle will be disposed of to the highest bidder, and the opportunity to secure some of these fine animals should be taken advantage of by all who are in need of such stock.

In making the selections for the sale, it has been our aim to include only such as we know have actual merit and the few that have not been officially tested, is not from any lack of capacity but from some other cause, the principal one being their freshening at a time when we were too busy with other work, to permit of our testing them. By far the greater part of the cows and heifers in milk have been so tested and the records made are an evidence of the value of the animal for dairy purposes.

For all who are already breeding Holsteins, this should prove a fine opportunity to add a few of the best to your herds, and for those who as yet have no pure breds, it will be a chance that should not be missed, as it is your price, not ours, that places the value on the animals.

Catalogues are ready and will be sent to all who may wish them and I would be pleased to have those who have received one, to look it over carefully and note the exceptionally high class of stock that is offered. The advertisement appears in this issue and all are invited to look it up. A hearty welcome is extended to all and will be pleased to have you with us at the sale. I am

Yours truly,
H. B. DAGGETT, Mgr.

"Station A," Milwaukee Wis.

DON'T PUT OFF

Seeing your friends and having them oin in for a good club of subscribers.

DAIRY MARKETS.

ELGIN, Ill., April 27—Butter—Dropped in price to 22½ cents a pound on the Board of Trade today. Sales of the week for the district were 549,000 pounds.

CHICAGO, Ill., April 27—Butter—Easier; creameries, 18@23c; dairies, 15@22c.

Eggs—Easier at mark, cases included, 14½c.

Cheese—New, firm: Twins, 13@14c; Daisies, 13@13¾c; Young Americas, 13½c.

Live poultry—Weaker; turkeys, 12@13c; chickens, 12c.

Cattle—Prime beeves 1,200 to 1,400 lbs., 5.50@5.60; choice to extra beeves, 5.10@5.40; fair to good export and shipping steers, 4.70@5.10; medium beef steers, 4.25@4.60; plain to fancy beef steers, 3.95@4.20; common to rough, 1,000 to 1,200 lbs., 3.50@3.90; good to choice heifers, 3.90@4.60; good to choice feeders, 4.00@4.85; poor to plain stockers and feeders 2.75@3.00; fair to good cows and heifers 3.20@4.20; good cutting and fair beef cows, 2.60@3.15; common to good canning cows, 1.70@2.55; oulls, poor to choice, 2.50@4.40; veal calves, good to fancy, 5.25@6.40; calves, common to fair, 3.50@5.00; corn fed Western steers, 3.65@5.50; Texas bulls and grass steers, 2.75@3.20; Texas steers, fair to common, 3.75@4.60.

Hogs—Good to prime heavy shipping 7.15@7.30; good to choice heavy packing, 7.00@7.20; plain to choice heavy mixed, 6.95@7.10; selected butcher weights, 7.15@7.30; assorted light, 150 to 195 lbs., 6.80@7.10; common to good light mixed, 6.75@6.95; thin to choice, 50 to 130 lb. lots 6.50@6.85; stags to rough lots, 4.25@6.10.

MILWAUKEE, Wis., April 27—Butter—Creamery—extras, 24c; firsts, 19@20c; seconds, 16c; process (renovated), 17@18c; whey, 10c. Dairy, fancy, 19c; lines, fresh, 16@17c; roll, 16@17c; packing, 13c; grease, 5@6c.

Cheese—American full cream, Twins, 13@13½c; Young Americas, 13½@14c: Daisies, 13½@14c; Longhorns, 12½@13c; low grades, 10@12c. Brick, fancy, 13@13¾c; low grades, 11@12c. Limburger, fancy, 12@12½c; low grades, 10@11c. Swiss, drum, choice, 14@15c; drum, No. 2, 12@13c; Block, choice, 12½@13c; block, No. 2, 10@11c.

Eggs—Strictly fresh laid, cases returned, 14c; dirties, 12c; seconds, 11c.

FOND DU LAC, Wis., April 27—Cheese—Sale of cheese today at the Dairy Board was 75c, daisies at 13¾c. Meeting next week at 4 p. m.

SHEBOYGAN, Wis., April 22—Cheese—On the Call Board here today 715 boxes of cheese were offered and sold as follows: 12 Twins at 12⅝c, 9 at 12½c; 68 Daisies at 13⅛c, 194 at 13c, 39 cases Young Americas at 13c; 81 at 12⅞c; 163 cases of Longhorns at 12½c, 149 at 13⅝c. Demand exceedingly strong and prices the highest of the season.

SHEBOYGAN FALLS, Wis., April, 22—Cheese—23 factories offered 1,154 boxes of cheese on the Call Board today and all sold as follows: 87 Twins at 12⅝c; 201 cases Young Americas at 12⅞c; 93 at 12¾c; 225 Daisies at 13c; 310 cases Longhorns, 13⅜c, 238 at 13c¼. Market active and strong.

PLYMOUTH, April 21—Cheese—Seventeen factories were represented on the Plymouth Board today and offered 697 boxes of cheese, 121 of which were passed on. The balance sold as follows: Thirty Longhorns, 13⅛c; 92 Longhorns, 13¼c; 84 Daisies, 13c; 243 Twins, 12⅝c; 69 Twins, 12¾c; 46 Young Americas, 12⅞c; 12 Young Americas, 12¾c. Market very active.

BOSTON, Mass., April 27—Butter—Demand for butter was a little improved today, but the prices went off ¼c on all grades. This was due largely to weakear advices from other markets and an unsettled condition. Other country produce was unchanged. Quotations: Butter—Creamery, western, extra, 23½c; western firsts, 22@22½c; dairy, 16@22½c; imitation creamery, 17@19c; ladle, 14@16c; box and print, 16@24c.

Cheese—Choice, 14½c; sage, 14; Wisconsin new, 13@13½c; fair, to good, 10@12c.

Eggs—Near by, 18c; western selected, 15¾@16c; fair to good, 15@15½c; Illinois, 16@16½c; western dirties, 13½@14c.

NEW YORK, April 27—Butter—Receipts, 7,529 packages; steady; state dairy, 17@22c; extra creamery, 23c; creamery, common to choice, 18@22c.

Cheese—Receipts, 1,579 pkgs.; maket steady; state full cream, fancy, small colored, fall made, 15c; small white, fall made, 14¾c; large colored, fall made 14½@14¾c; large white fall made, 14¼@14½c.

Eggs—Recipts, 23,695 packages; steady; state and Pennsylvania, 16@16½c; western storage, 16c½; western firsts, 16c; southern, 15¼@15½c; Kentucky, 16c.

CANTON, N. Y. April, 27—Butter—Offered 415 boxes of cheese and 788 tubs of butter. Cheese large sold at 12c; Twins at 12⅜c; butter, 22¾c.

Latest quotations for fancy creamery: New Orleans, 25½c; Baltimore, 26c; St. Louis, 25@25½c; Cincinnati, 27c; Buffalo, 26c; St. Paul, 23½c: Minneapolls, 23½c.

WASHINGTON, D. C. April, 27—Butter—Market firm. Fancy extras at 25c. Fancy renovated 19c.

PHILADELPHIA, Pa., April 27—Butter—Market steady. Solids 26c. Near by prints 27c. Western 26c.

NEWARK, N. J., Apr. 27—Butter—Market steady at 23c.

Eggs—Storage packed 16½c; western firsts 16c.

TOPEKA, KAN., Apr. 25—Creamery butter, 24 to 25½c; dairy 17½ to 19c.

Cheese—Longhorns 13¾c; Twins 12½c; Daisies, 13¾c to 14c.

BALTIMORE MARKET.

BALTIMORE, April 23—Butter—Though the increase in the receipts have been small, the supply has been fully equal to the requirements. The movements of stock of all kinds, particularly creamery, has been very light, as the trade would only take what they needed from day to day, fearing a still further decline; hence, trading has been very conservative, and little, if any, improvement is looked for until prices reach rock bottom. Held creamery, unless strictly fancy, is neglected. Imitation creamery of choice to fancy quality is in brisk demand. Fresh sweet ladles are also in good request; but faulty stock is hard to move above the price of packing stock. Rolls—Sweet stock, arriving in good condition, meets ready sale; off stock is slighted. Storepacked continues in moderate supply and demand. Blocks and prints—The supply is about equal to the demand. The general market closes quiet and barely steady.

Creamery Separator, extras, 26c; firsts, 24@25c; seconds, 22@24c. June Creamery, extras, 23@23½; firsts, 21@22c; seconds, 19@20c; Imitation Creamery, extras, 20c; firsts, 18@19c; seconds, 15@17c. Iowa & N. W. Ladle, extras, — firsts, 17c; seconds, 14@16c. Ohio & Indiana Ladle, extras, — firsts, 16@17c; seconds, 14@15c. Roll, Ohio, extras, — firsts 14; seconds, 11@12c. Roll, W. Va., extras, — firsts, 13; seconds, 10@11c. Ohio Store packed, extras, —; firsts, 13c; seconds, 10@12c. West Va. Stored packed, extras, —; firsts, 12@13c; seconds, 10@11c. Creamery blocks (2-lb.) extras, 28½@29c; firsts, 26½@27½c; seconds, 24@25c; Creamery prints extras, 29@29½c, firsts, 27@28c; seconds, 24@25c: Md. Va., & Penna. Prints, extras, 27@28c; firsts, 25@26c; seconds, 21@23c; Renovated Butter, extras, 19c; firsts, 17@18c; seconds, 14@16.

Eggs—The receipts, so far this week, while not quite as heavy as last, have been fairly liberal, while the demand is active, and there has been a close clearance from day to day of all attractive offerings. The market closes firm and active at 15 cents. Duck Eggs—The supply is fully equal to the demand; our quotations for to-day's sales; the feeling is easy and prices likely to go lower at any time. Goose Eggs—The wide range in prices is owing to the irregularity of the stock arriving; it is only a matter of a short while that they will not be wanted at all.

Cheese—Offerings light; demand good; market firm. Some few winter made flats and small cheese are arriving and selling at ½ to ¾ cents under these prices.

N. Y. State—Cheddars, fine, 14¾@15c; choice, 14@14½c; fair, 13@13½c; Flats, fine, 14@14¼c; choice, 13½@13¾c; fair, 12½@13c; Small, fine, 14¼@14½c; choice, 13½@14c: fair, 12½@13; Ohio Flats, fine, 13½@13¾c; choice, 12¾@13c; fair, 12¼@12½c; O. Picnic, fine, 14@14½c; choice, 13¼@13½c; fair, 12½@12¾c; Swiss Cheese, fine, 15c; choice, 12½@13½c; fair, 10@12c.

301 Exchange Place. G. M. LAMB & BRO.

LIVERPOOL, April 27—Butter—Good United States steady 75s.

Cheese—Steady American finest, white 69s; colored 69s.

NEW YORK FERTILIZER MARKET.

Nitrate of soda		2 00	@ 2 05
Blood, Dried red	₩ unit	2 65	@ 2 70
low grade		—	@ —
Concentrated tankage		15 00	@16 00
Fish guano, dried		27 00	@28 00
acidulated		14 00	@ —
Acid phosphate		60	@ 67½
Phosphate rock, f. o. b. Char'n		5 00	@ 7 00
Tenn		3 60	@ 3 75
Bones, rough	₩ ton	16 50	@17 50
ground		20 00	@21 00
Bone meal		18 50	@24 00
Bone black, refuse		18 00	@19 00
Potash, dbl. m're salt 48@53 per cent		1 12	@ 1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons		25 00	@30 00
sulph of basis, 90@98 per cent		2 11	@ 2 18
90@98 per cent less than 25 tons		38 00	@40 00
Potash muriate 100 lbs		1 83	@ 1 95
less than 25 tons		36 00	@40 00
Kainit 25% S. of P	₩ ton	9 30	@ 9 50
less than 25 tons		9 50	@10 50
Sylvinit, 35@37% P	₩ unit	41	@ 46

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Young Guernseys For Sale—Some out of cows in advanced registry. EZRA MICHENER, Michener, Pa.

A Registered Guernsey Bull 15 months old for sale. A very fine animal. Inquire of J. S. HUNTER, Pickett, Wis. 12-tf

For Sale—Four young registered Guernsey cows, all fresh. J. E. STORY, Stanley, Wis. 11-tf

For Sale—Carload grade heifers 2 and 3 years. HENRY AMES, New Paynsville, Minn.

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 1901

SOME BIG USERS
OF BOTH FARM AND FACTORY
CREAM SEPARATORS

As everybody knows all the big and long experienced users of Cream Separators are patrons of the **DE LAVAL** machines. Many commenced with other makes and nearly all have tried various different kinds but practical experience in the use of Cream Separators always means the eventual use of **DE LAVAL** machines exclusively.

The names below are those of a few of the big users of separators—all having from 20 to 200 Power or Factory machines and hundreds of Farm machines with their patrons as specified—all **DE LAVAL.**

Beatrice Creamery Co., Lincoln, Neb	5,000 machines
Continental Creamery Co., Topeka, Kas	3,000 machines
Franklin County Creamery Ass'n, St. Albans, Vt.	1,000 machines
Fairmont Creamery Co., Fairmount, Neb	1,000 machines
Littléton Creamery Co., Denver, Colo	1,000 machines
Manning Creamery Co., Manning, Iowa	750 machines
Faust Creamery & Supply Co., Salt Lake City, Utah	500 machines
W. G. Merritt, Great Bend, Kas	500 machines
Frank Dunning, Bedford Iowa	500 machines
Nebraska-Iowa Creamery Co., Omaha, Neb	300 machines
J. A. Danielson & Co., Lake Park, Minn	300 machines
E. G. Hammer, Goodhue, Minn	300 machines
W. C. Lubke, Kenyon, Minn	300 machines

These are just a few of the big users of **DE LAVAL** machines all of whom are now busily engaged in putting out hundreds more of Farm machines among their patrons as fast as the Shops can produce them.

A De Laval catalogue for the asking.

The De Laval Separator Co.

Randolph & Canal Sts., CHICAGO.
1213 Filbert St., PHILADELPHIA.
217-221 Drumm St., SAN FRANCISCO.

GENERAL OFFICES:
74 Cortlandt St., NEW YORK.

121 Youville Square, MONTREAL.
75 & 77 York Street, TORONTO.
248 McDermot Avenue, WINNIPEG.

Buff Jersey's latest book on Farm Stock and Dairy Work is full of practical things for practical people. The Silo, how to build and fill; ensilage, its value; soil, crops, variety and how to grow. Swine, poultry and many other subjects ably treated. Send 25c for copy. Monmouth, Ill. 47-tf

Wanted—Experienced farm hand, able to milk well. Give age and wages wanted. ST. IVES. PARK FARM, Mont Clare Station, Chicago, Ill. 41-tf

Wanted—Situation by expert retail dairy manager. All branches of the business thoroughly understood. Have references second to none. Address J. O. G., care Hoard's Dairyman. 8-tf

The Business Herd of Holstein-Friesian cows are being closed out at a great sacrifice, and if you want one or more officially tested, good business cows write at once and secure first choice. State just what you want and save time and correspondence. F G. JOHNSTON & CO., Sta. B, Columbus, O. 11-tf

Wanted—A first-class manager with experience to take entire charge of my herd of one hundred cows. Write for particulars, stating experience, age and salary expected. BOX 529, San Antonio, Texas. 11-3

Holstein-Friesian Bulls from one to fourteen months old at prices that will surprise you. O. J. GODFREY, Pennellville, N. Y. 11-tf

Cheesemaker Wanted—Experienced, capable and industrious. Address, for particulars, P. E. CRANSTON, Sabin, Wis. 10-3

Berkshire Boars ready for service, for sale. Also spring pigs. Quality high, price low. GEO. V. SAFFARRANS, Palmyra, Mo. 11-2

For Sale—Tamworth boars, all ages. Write what you want. NOAH GRAY, Viola, Wis. 12-2

Position Wanted—By a young man, age 30, desires position in cheese factory to learn trade. No wages required at beginning. JOHN PORTEU, 700 Hudson Ave., St. Paul, Minn.

Wanted—Position. First-class butter and cheese maker. Understands creamery business thoroughly. Desires position as first man or manager. JOHN VON HOORN, Belle Meade, Somerset Co., N. J.

Wanted—First-class butter maker at once. Address W. A. BANTELLE, Camo, Wis.

Barred Plymouth Rock eggs from a pen of choice hens and a fine Thompon cockerel. 15 fresh eggs for $1.00. J. BLACK, Bremen, Ohio. 11-2

Two choice young Guernsey bulls for sale. MRS. A. W. LEHMANN, Neosha, Dodge Co., Wis. 12-sp

For Sale at a Bargain—A few complete separator station outfits with Alphas No. 1 and 2 belt, also 20th Century steam separators at $300 to $500 each. Also a few belt separators, No. 1 Alpahs, Springer, Sharples and De Lavals standards at $30.00 to $150 each. W. A. CARPENTER, York, Neb. 12 2

For Sale—De Laval separator, Alpha No. 1, good as new. C. V. CRY. CO., Mechanicsburg, Pa. 12-2

Wanted—Two single men on dairy. Only good milkers and farm hands need apply. Wages $27 00 per month. Commence at once. C. H. CROOK, Ottawa, Ill. 11-2

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

For Sale—To settle estate, dairy farm and milk route, one and one-half miles from Mauston, county seat of Juneau County, Wis. 35 cows, 200 or 280 acres as desired, with fixtures and stock. Basement barn. There is good tobacco land on this farm. Enquire of B. N. SOUTHER, Mauston, Wis. Box 336. 9-5

Cheese Maker wanted at once. State wages expected. Address T. B. ROBERTS, Roberts P. O., Minn. 11-2

Guernsey Bulls—Best blood, 2 Experiment Station tests. WM. BLACK, Mt. Vernon, Ind. 11-2

Wanted—A good milker and dairy hand. Address ARTHUR EVANS, Vicksburg, Miss. 11-2

Position Wanted—Experienced creamery manager wishes position as manager or butter maker in up-to-date creamery. Makes all by-products of milk. Taken one course at Cornell Dairy School. A No. 1 references. B. E., care Hoard's Dairyman. 11-tf

Half Rates to New Orleans, La.—Via the North Western Line. Excursion tickets will be sold at one fare for round trip May 1, 2, 3 and 4, limited for return by special extension until May 30, inclusive, on account of Annual Meeting American Medical Association. Apply to agents Chicago & North-Western R'y. 10-3

Very Low Rates to California and Return—Via the North-Western Line. First-class round-trip tickets on sale May 3d and 12th to 18th, to Los Angeles and San Francisco. Favorable limits and stop over privileges and choice of routes. The overland limited, most luxurious train in the world, leaves Chicago daily 8:00 p. m. Less than three days en route. Drawing room and compartment sleeping cars, observation cars, dining cars, buffet-library cars, (barber and bath) electric lighted throughout. Three trains a day from Chicago to the coast through without change. Daily and personally conducted tourist car excursions to California, Washington or Oregon. For particulars apply to ticket agents Chicago & North-Western R'y. 8-7

Very Low Rates to Dedication Ceremonies of Louisiana Purchase Exposition, St. Louis, Mo.—Via the North-Western Line. Excursion tickets will be sold for the above occasion April 29, 30 and May 1, and on account of Good Roads Convention on April 26 and 27, all with return limit until May 4, inclusive. Apply to agents Chicago & North-Western R'y. 9-4

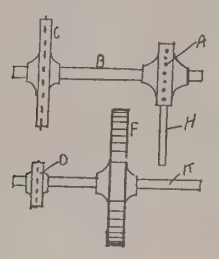
To Colorado in 1903—The passenger department of the Chicago & North-Western Railway has issued a very interesting folder, giving information as to reduced rates and sleeping car service, with a short description of the various points of interest in Colorado usually visited by tourists, these excursion rates applying on account of the Christian Endeavor meeting to be held at Denver, July 9th to 13th. Send 2-cent stamp for copy, to W. B. KNISKERN, Passenger Traffic Manager, Chicago. 9-6

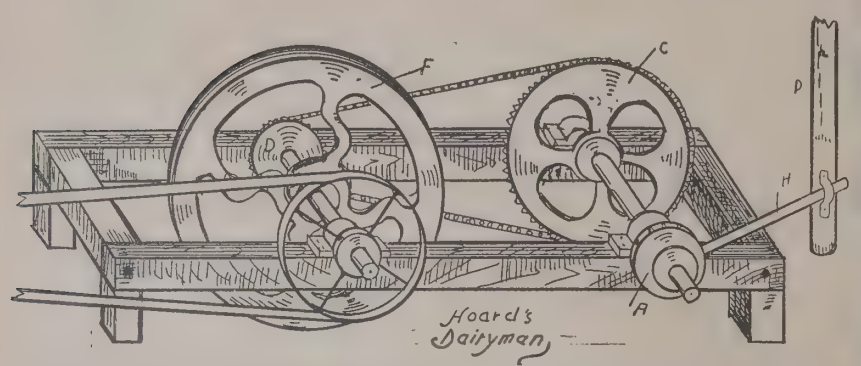
Churning with Windmill Power.

ED. HOARD'S DAIRYMAN:—I am a subscriber to HOARD'S DAIRYMAN, and find many things in it that help me out. We are milking 14 cows at present and for the last two months they have returned us over $2 in creamery checks for each $1 worth of feed. Their feed consists of bran and corn and cob meal, equal parts by weight, and clover hay for roughage, (only charge $5 a ton to them for their clover hay). This is my first experience with clover and I find it is a big help. My cows come in from September to January.

I see F. A. of Deerfield, wants to know how to make his pumping wind mill turn a churn. I enclose a rough sketch and description of a machine that will do the work. C. A. WHIPPLE.

Nowthen, Minn.





Take an old mower drive wheel and break all of the rim off and all of the spokes but one, as A. Remove the other drive wheel and put A back on its shaft B with the clogs in drive wheel hub. Now make some bearings for the shaft B, on well platform, so point H comes as near in direct line with the pumping rod as possible. Connect point H with pumping rod, so that when the P rod goes up, it will raise H, turning the shaft B by means of the clogs in drive wheel hub, and as the pump rod descends, H will descend with it and the cogs will take a new hold, and you can get about ¼ turn of shaft B for each stroke of pump. Now put the sprocket wheel C on B, keying it fast; run a sprocket chain from C to pinion D on shaft K and heavy balance wheel F, keyed to shaft K-D, should make 8 to 12 revolutions to 1 of C. The thing should work like this: as the pump rod goes up, it gives ¼ of a revolution to C, if C is 8 times as big as D. F will turn twice around, while the pump rod goes up and then F should make nearly two more revolutions by its own momentum, while the pump rod is coming down. So for each up and and down stroke of pump rod you get 4 revolutions of F. Now put a belt wheel on K and connect with churn, and if you have got a fair breeze and a good steel windmill, the churn will go all right. Cog wheels will work just as well as a sprocket chain.

Mr. Wheaton's Canadian Dairy Notes.

Dairy Instruction Work for the Summer.—Cost of Instruction.—Water Content in Butter.—A Large Dairy Farm in Winnipeg.—The Dairy Outlook.—Mrs. E. M. Jones.

ED. HOARD'S DAIRYMAN:—Arrangements are now completed for dairy instruction work in Ontario this season. It will be remembered that last year two trial syndicates were operated, one in Eastern Ontario, and one in Western Ontario. During the present season twenty-five of these syndicates will be operated with an instructor over each one.

These syndicate instructors will be under the direction and control of two superintendents of instruction, Mr. G. G. Publow, in Eastern Ontario and Mr. G. H. Barr, in Western Ontario. Messrs. Publow and Barr are in the employ of the Government, and consequently the work of instruction this year will be more under the direct control of the Ontario Department of Agriculture than ever before.

In this syndicate work, Eastern Ontario leads, having secured twenty-one out of the twenty-four, thus covering nearly all the factories in that part of the province. Each syndicate will comprise about 25 factories, each one of which will contribute $15 towards the expenses of an instructor, the balance to be made up by a government grant through the dairymen's association. A total of $9,900 will be contributed by the factories in Eastern Ontario towards instruction work.

In addition to the four syndicates in Western Ontario two instructors for creameries, and one extra cheese instructor will be employed, making seven in all, besides Mr. Barr who will have charge of all the work. The syndicate factories in the West will each pay $10 towards the instructor's services and will receive at least five visits and more if possible, during the season. Factories outside of the syndicates will pay $3 for one visit and for two or more visits $2 per visit. The creameries will pay $5 each and will receive four or five visits each. It is hoped by this plan to reach every factory in the West, at least, once during the season.

Preparatory to beginning work, the instructors received a special two weeks' course of instruction at the dairy schools, those in the east attending at Kingston and those in the west at Guelph. By this plan greater uniformity in methods and practice should result. In the past there have been as many different methods followed as there were instructors, and the instruction lacked uniformity throughout any wide section.

This special course should help to obviate this and bring about more uniformity in the quality of the product. Besides, a superintendent of instruction will still further tend towards a uniformity of method.

An important part of the instructor's work, this season, will be to reach as many of the patrons as possible and aid them in the care of the milk. A great deal was accomplished last year by the two syndicates in this direction, and this side of the work will be further emphasized this season.

An increase of from two to twenty-five syndicates in one year is a pretty good indication that the dairymen of Ontario are desirous of keeping right to the front in the quality of their dairy products. The same rate of progress another year should see all the factories in this province grouped and under the control of competent instructors.

There has been some concern here as to the effect the bill, recently passed by the British House of Commons, making all butter sold in Great Britain, containing over 16 per cent of water, adulterated butter, will have upon our export trade. But Canadians need have little fear on that score. Last summer Mr. Frank T. Shutt, Chemist Dominion Experimental Farms, made a close examination of 105 samples of butter received from creameries in all parts of the Dominion. Out of these 105 samples only two showed more than 15 per cent of water and only one exceeded 16 per cent and it was made under such unusual conditions as to temperature,

That Tired Feeling

Is a Common Spring Trouble.

It's a sign that the blood is deficient in vitality, just as pimples and other eruptions are signs that the blood is impure.

It's a warning, too, which only the hazardous fail to heed.

Hood's Sarsaparilla and Pills

Remove it, give new life, new courage, strength and animation.

They cleanse the blood and clear the complexion.

Accept no substitute.

Hood's Sarsaparilla promises to cure and keeps the promise.

THE MILK SHIPPER

of all people is best fitted to judge of the merits of a milk can. He knows just what extreme hard wear a can is subjected to, not only in the milk car, but in the city delivery wagon as well. He knows what economy there is in toughness and smoothness, which mean wear, resistance and ease of cleaning. Because of this knowledge he

Has Set the Seal of His Approval

on the **Buhl Cans.** This is witnessed by the large number he has bought in the past and by his **repeated and ever increasing orders.** He never makes a mistake, because he has learned that any milk can stamped with the Milk Can Trade Mark is the best milk can for the money. **Remember** the Buhl is the only can in the world that is made with the BUHL "VICTOR" CAN BREAST and the BUHL "VICTOR" ROUND HANDLE. All dealers sell them. Ask for the **Buhl.** Look for the Milk Can Trade Mark. No other Can so good.

Buhl Stamping Co.,
212 West Larned Street, Detroit, Michigan.

Getting the Milk Profit.

If you are interested in the milk business, either as dairyman or dealer, or are converting milk into any of its varied products, you should be interested in our magnificent line of

Dairy and Creamery Supplies.

Ours is the most extensive house of its kind in the West. Our line includes such standard articles as Milk Cans, Areators and Heaters, Milk Tickets and Stationery; Pails, Strainers and Dairy Tinware of all kinds, in fact a complete line of Milk Dealers' supplies. We also handle extensively Boilers, Engines, Churns, Butterworkers, Vats, etc. Amongst our specialties, manufactured solely by us, are Dairy Queen Churn, Boyd Cream Ripener, Success Skim Milk Weigher, Sturges Pasteurizer, Milk Heaters, Seamless Steel Cheese Hoops, Perfection Milk Coolers and 20 styles of Milk Cans. We are not a part of any trust, but an independent house furnishing high class supplies at a low margin of profit. The stock we carry is so varied that we publish a special appropriate catalogue for each department. Write us for anything you need in any way connected with the milk business, and we will mail you free the proper illustrated catalogue. We are sure to meet your every want and we guarantee to save you money.

STURGES & BURN MFG. CO.,

Kansas City, Mo. Chicago, Ills. St. Paul, Minn.

Confectioners and Bakers' Supply Co.

218 AND 220 EAST WASHINGTON ST., CHICAGO.



THE DICKSON IMPROVED 10 Gallon and 5 Gallon FREEZER.



THE C AND B 10 Gallon FREEZER.

ICE CREAM Machinery, Tools and Supplies.

Packing Tubs, All Kinds of Ice Cream Packing Cans, Ice Crushers, Bricks, Ladles, Spoons, Dishers, Flavors, Colors, Gelatines, Etc.

WRITE FOR OUR CATALOGUE

Out of the 105, 92 fell below 14 per cent, and the average for the lot was 12.31 per cent of water. This is strong evidence that Canadian butter will not suffer, whatever other butters may do, when this bill is in operation.

A company has been formed at Winnipeg to conduct, so it is said, what will be one of the largest dairy farms in America. 1750 acres of land near the city, have been secured, on which the company propose to keep 600 cows, a large percentage of which will be Holsteins. This seems like a big undertaking for a new country like our Canadian west. But all new countries with large territories have big ideas, and we wish them every success.

The outlook for the present season has never been brighter for the Canadian dairyman, especially that for cheese. Old stocks are very light, prices are unusually high and the demand for new goods was never better. On April 1st., there were only 987 boxes of cheese in store at Montreal as compared with 53,034 boxes on the same date a year ago. Early fodder cheese has sold at from 13c to 13½c per pound, as compared with 10½c to 10¾c, for the same class of goods last year. Many contracts for April cheese have been made at 12½c to 12¾c, though the make of early goods is larger than it has ever been for years. Even if prices drop a couple of cents, as they are likely to do later on, there is big money in it for the dairyman.

What about butter? Well the outlook is not so rosy, though brighter than a year ago at this time. On April 1st the stocks on hand at Montreal were 4,608 pkgs., as compared with 5,142 pkgs. on the same date of last year.

Fresh creamery sold during the early part of April at 24c to 24½c at Montreal as compared with 21½c and 22c a year ago at this time. This shows an advance in price over last year and should help to extend butter making this season. These prices, however, are for the home trade. They are a little high for profitable export, and as soon as the make increases, and there is a surplus to export the price will have to come down to an export basis. But still the out-look is hopeful and there shoud be a large increase in our make of butter this season.

Many readers of DAIRYMAN, will regret to learn ot the death of Mrs. E. M. Jones of Brockville Ont., who passed away on April 7th last. Mrs. Jones was one of America's great breeders of Jerseys and had won a name for advanced thought and skill along dairy lines both in Canada and the United States. She had some of the most noted milkers of her day, such as Massena, who gave 650 lbs. of butter in her 16th year. Mrs. Jones was best known, perhaps, by her book, published in 1892 on "Dairying for Profit or the Poor Man's Cow." This book had a large sale and did much to stimulate better methods and more zeal in good dairying a decade ago.

Toronto, Canada. J. W. WHEATON.

Opening for American Dairy Products in South Africa.

Mr. G. M. Odlum, Special Agent, of the Rhodesia, South Africa, Department of Agriculture, is now in this country making a study of American methods of agriculture. Mr. Odlum is an American who has undertaken the management of a 13,000 acre tract of land in Rhodesia, and is endeavoring to place it on a paying basis by the application of American systems of farming. The dairy interests are very backward at the present time, but Mr. Odlum sees a great opportunity for dairymen to engage in business in that country. In speaking of Rhodesia and its opportunities for investment, he says:

"There is probably no country in the world where the dairy interests are so undeveloped, which, at the same time, promises such returns as Rhodesia. To start with, milk sells from ten to twenty-five cents per quart, butter at from fifty to seventy-five cents per pound, and yet nine-tenths of all these products used in the country are imported in the condensed or canned form, not because people prefer the imported article, but because the fresh article cannot be obtained. Some men have taken up both forms of the dairy business and have become wealthy, but they do not begin to occupy the field.

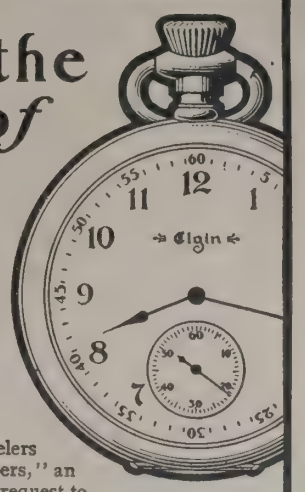
There are several reasons for this neglect of so important an industry, and the chief one is, that the Boers who make up the bulk of the farming population of the country know not even the elements of dairying and are too lazy to carry on the business if they did; then, most of the English farmers in the country were not farmers before they came, and dairying is not a business that can be picked up by instinct; and lastly, the cows of the country are not as a rule, good milkers, most of them containing a large proportion of native blood, or else are of Holstein blood greatly deteriorated by a hundred years of mis-breeding and non-selection. To most South Africans, a cow is a cow, if it has four legs. The fact of the case really is, that while the country was sparsely settled and before the recent development of cities there was really no demand for dairy products, and all that a man had too look out for was something that would give him a little beef and haul his wagon. And now when the country awakens to the importance of dairying, they find no animals, or, at the best, few, adapted to the purpose, and this brings about the necessity for importations of better blood. But importations mean money and risk, and thus most men are discouraged at the very beginning.

But some men like the Hon. Joseph Bains, of Nels Rust, Natal, balk at nothing. Mr. Bains has a fine, well-watered farm on which he has 20,000 head of cattle largely imported from Australia, an ideal dairy equipped with the best machinery, and a side-track of his own where the train stops every day to carry his butter down to Durban where it brings seventy-five cents per pound. Mr. Bains is making money hand over fist for himself, and is at the same time developing the country and pointing the way for others.

Large, well-watered farms may be obtained in any of the Colonies of South Africa and especially in Natal, the Transvaal, and Rhodesia. In the latter country 3,000 acres are given to every settler.

However, while South Africa is capable of producing all her own milk, butter, and cheese, still it will take years before it reaches that state of development, and in the meantime the people will have to depend upon imported articles, and it seems that there would be a splendid opportunity for American dairymen to dispose of their surplus. Of course some American condensed milk and canned butter are used there now, but there is too much that comes in from Europe and Australia for an American to be satisfied. And then more than this, why could not the fresh butter be shipped directly to South Africa? There is now a direct line of boats from New York to Cape Town, and it should not be difficult to get butter there in good condition; and in Africa we have cold storage and refrigerator cars so that it could easily be carried to such interior cities as Johannesburg. The people there are always sighing for fresh butter, and it would be genuine missionary work to send it to them. It would be necessary to have a good hustling American on the spot to push the business. The better American cheese might also take well, although the South African taste is educated to the European makes, as Cheshire, Stilton, Roquefort, and the Dutch Cannon Balls. Oh, yes, and eggs! South Africa imports most of its eggs, and there is no reason why they should not come from New York as well from Maderia."

Always on the right side of a question of time—the ELGIN WATCH



Every Elgin Watch is fully guaranteed. All jewelers have Elgin Watches. "Timemakers and Timekeepers," an illustrated history of the watch, sent free upon request to ELGIN NATIONAL WATCH CO., ELGIN, ILLINOIS.

Cronk's Improved Staple Puller

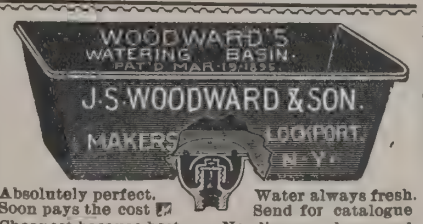


is at the front. Ask your dealer to show it. Three wire cutters, two hammers, two splicing clamps—all in one tool. A staple puller that will pull staples when no other make will. A cutter that will reach wire when the button cutter will not. One day's use will save the cost of it. $1.00, postage paid.
CRONK & CARRIER MFG. CO, Elmira, N.Y.

Water In The Stable a Necessity.

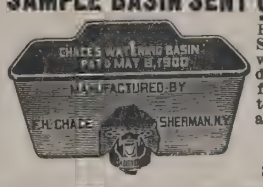


It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. Why not use the Best? Write for descriptive circular.
C. E. BUCKLEY & CO., Poughkeepsie, N. Y



Absolutely perfect. Soon pays the cost. Cheapest because best. Water always fresh. Send for catalogue No disease where used.

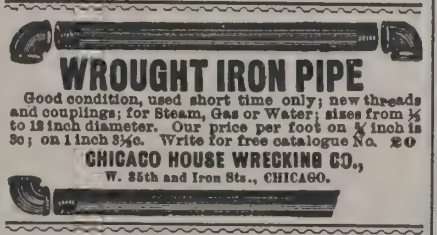
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Basins are fitted with Self Closing Cover which prevents all dirt and sediment from getting into them. Send for catalogue and price list.
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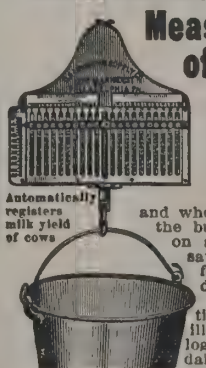


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Pure white Porcelain. No rust, no filth, no splashing.
D. H. Bausman, Bausman Lane Co., Pa. Iron, Pig, Chick, and Stock Troughs.



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Good condition, used short time only; new threads and couplings; for Steam, Gas or Water; sizes from ⅛ to 12 inch diameter. Our price per foot on ¼ inch is 3c; on 1 inch 3½c. Write for free catalogue No. 20
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Measure the Milk of each Cow



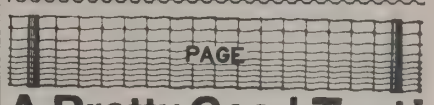
With the Automatic Milk Scale you can keep an accurate record of the yield of each cow, and remove the unprofitable ones from the dairy. Each button on scale arm corresponds to number of cow, and when pail of milk is weighed the button registers the weight on score card. Big money saver and money maker for farmers and dairymen. Send for testimonials and illustrated catalogue of Bestov dairy supplies.
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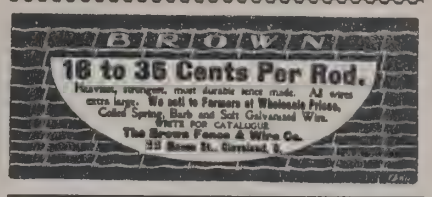


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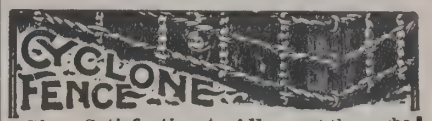
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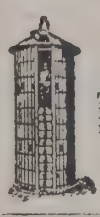
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"PHILADELPHIA"
The only Perfect, Continuous Open Front Silo made. See open top patent roof. Ask for catalogue.
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The Champions of America—any age—either sex. Riverside Stock Farm. **J. F. CONVERSE & CO.,** P. O. Box 112. Woodville, N. Y.

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Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.

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MATURE COWS YEARLY RECORDS range from 356 to 713.3 lbs. butter. This herd contains more officially tested cows than any other herd of the breed. All of the largest records are official ones. A particularly choice lot of tuburculin tested bulls for sale from high record dams.

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Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.

Especially low prices, standing of herd considered. No catalogue. State what you want.

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HADDON FARMS—Home of the noted GLENWOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. **E. T. GILL,** Haddonfield, N. J.

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Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.

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JERSEY BULL, one year old. Good individual of the best breeding. Also 7 months bull from tested dam. Herd headed by Fontaine's Owl, 60436. Prices on application. Address,

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SACRIFICED

Having concluded to retire from the dairy business, and having sold my farm, possession to be given in sixty days, I offer for sale my herd of cows at a price around half real value. I have

20 COWS AND A BULL

bought at H. G. McMillan sale at prices ranging from $70 to $150 each. I have five coming two-year-old heifers in calf by Trustee's Gold. These cattle have rich strain of **Diploma, Brown Bessie,** and **St. Lambert** blood. They are heavy milkers, and average annual test of the entire herd is nearly 6 per cent. In size, beauty, and performance at the pail there is nothing like them. **I will take $70 per head and give 12 months' time on a good note at 6 per cent.**

Also have a Sharples Hand Separator, 700 lbs. capacity, cost $150,00, used very little and will sell for $50.00; a Fodder Cutter, mounted, cost $220.00, capacity 12 tons per hour, used only five days, sell for $100 00; one Gasolene Engine, "Jack of All Trades," 1½ horse power, one year old, cost $128, price $65.00. **B. C. WELCH, Elsberry, Mo.**

HAZEL FERN HERD. A. J. C. C. Jerseys, blood of St. Lambert, Melia Ann, Combination, Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. **Estate W. S. Ladd, Portland, Oregon.**

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One St. Lambert bull ten months old; also bull calf three months old or will exchange for as well bred heifers. Registered Poland China pigs for sale at all times. Correspondence solicited. **FRANK SHADBOLT Caledonia, Minn.**

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The Evergreen Farm Herd has for sale three or four A. J. C. C. heifers bred Also a few cows and some choice bull calves from two to six months old. Write for pedigrees and prices.

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FOR SALE GOLDEN LAD BLOOD sired by **Golden Blyth 3d,** 54569 A. J. C. C., a son of **Imported Golden Blyth and King's Nana;** butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. **R. C. GREEN, Albion, Wis.**

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are great and presistant dairy workers and typical Jerseys. We ask comparison with any other herd for

YEARLY MILK & BUTTER YIELDS, SUBSTANCE AND FINISH.

The herd contains more prize winners at the leading exhibitions (including the Pan-American) than any other herd.

The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service as you cannot get it.

Also Headquarters for Large English Berkshires and Standard Poultry.

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MRS. LEA'S MILK AND BUTTER PURIFIER.



Removes all Weed, Garlic, Vegetable and Animal odor and taint from the milk and in no way injures the cow to which it is fed.

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The trial of your "Purifier" made at my request, interests me very much and strengthens my conviction that this "Purifier" is an article which, if it continues to produce the results attained the present season, is destined to be of great importance and value in many dairying districts of this country.

[SIGNED] HENRY E. ALVORD,
Chief of Dairy Division, U. S. Department of Agriculture.

The use of our "MRS. LEA'S MILK AND BUTTER PURIFIER" is a necessity to producers of milk and butter when the pastures are at all infested with Garlic, Onions, Rye or Clover. It is a great saving, as the cows can be grazed, thereby saving largely in feed expenses. It always removes the taints when properly fed. The best dairies are using it largely and with profit. Try it and you will find it to your interest. For sale by The Dairymen's Supply Co., Philadelphia, Pa.; Farmers' Exchange Co, Belle Mead, N. J.; Cook & Brady, Middleton, Del; Filston Farm, Baltimore, Md.; Gardiner Dairy, Balimore, Md.

Manufactured by VIRGINIA CATTLE FOOD COMPANY, Danville, Va.
Write Us for Prices and Further Information.

THE BROWN BESSIE HERD

Offers some splendid young cows and heifers bred to Recorder, the only living son of the famous **Brown Bessie,** winner of the 30 and 90 day butter test at the Columbian. Also a few sons of Recorder from daughters of Diploma and other tested cows are offered.

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PUBLIC SALE OF THE

J. T. POLK JERSEY DAIRY COWS

AT

GREENWOOD, IND., MAY 20-21, '03.

FOR CATALOGUE, READY MAY 5, ADDRESS

THE JERSEY BULLETIN, INDIANAPOLIS, IND.

PETER C. KELLOGG, AUCTIONEER
is instructed by
MR. FRANK S. PEER, of Ithaca, N. Y.
to Sell at Auction,

TUESDAY, MAY 12, 1903,
at 10 o'clock at HEXAMER'S HOBOKEN RIDING ACADEMY, 219 Hudson St., Hoboken, N J.,

Upwards of EIGHTY-FIVE IMPORTED

JERSEY CATTLE

of Island and English Breeding

Selected and imported by him for the American Market, and entered in the Herd Register of the American Jersey Cattle Club.

The English contingent was obtained from the very celebrated Chestall Herd of J. Reid Walker, Esq., Rugeley, Staffs, England, in choosing which Mr. Peer had the valuable advice and assistance of Mr. Frank Sugden, Agent of the Chestall Estate, one of the foremost judges and breeders of Jerseys in England.

Among several very valuable bulls in the importation are the world-famous GOLDEN FERN'S LAD and the very exceptionally bred BROOKHILL FOX, by Flying Fox out of Brookhill Rose 2d. Mr. John Thornton, of eminent authority, pronounced these the best two bulls in England. Many Island breeders regard the former as the greatest Jersey sire that ever lived. There are eight daughters of Golden Fern's Lad, and numerous get of such highly approved sires as Napoleon Bonaparte, Eminent 2d, Forfarshire, Hamley, Golden Lad 2d, Orlando, Flying Fox, Financial King, etc. Many of the females are bred to Golden Fern's Lad and Brookhill Fox. The cattle, now in the United States Quarantine Station at Athenia, N J., will be removed thense, with clean bill of health, directly to the place of sale on or before Monday, May 11, on which date they may be inspected by the public. Hexamer's Riding Academy is but three minutes walk in Hoboken from ferry and twenty minutes or less from New York City via ferries at Christopher and Barclay Sts.

For catalogues, ready May 5, address
PETER C. KELLOGG, 107 John St., New York.

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We are offering a solid color yearling Jersey Bull, 56 per cent blood of five of greatest Jerseys that ever lived; out of a young cow scoring 360 lbs. butter within a year, second season. Sound and all right, well grown and thrifty. A bargain at $100. For particulars address

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VALLEY FARM

Is offering some good bargains in young bulls from 1 mo. to 2 yr. old. Also B. P. Rock Cockerels, $1.25 each. Write

FRED STUBLEY, Black Earth, Wis,

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Stock Farms

DEANSBORO, N. Y.

THE LARGE OFFICIAL RECORDS, made by members of our herd, emphasize the fact very strongly, that our breeding and selection has been most correct. If you are looking for the highest production, combined with choice breeding and individual merit, it will benefit you to place orders for breeding stock of either sex with us. We will give your wants careful attention. Prices reasonable. . . . . .

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ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.

W. J. HUSSEY, Mt. Pleasant, O

FOR SALE.

Two Registered Guernsey Bulls, 14 months old, sired by Sir Bonny No. 6084. Dams, two of my most promising young cows, good size and fine color. Prices reasonable.

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Offers young bulls fit for service, out of tested dams with good yearly records. Strong in Exile of St. L., King of St. L. and Stoke Pogis of Prospect. Reasonabe prices. JOS. T. HOOPES, Bynum, Md.



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Don't have to be sterilized. Sterilizing won't make them hold any more or any less milk. It will, however, insure the perfect purification of your jars which are to be refilled. It is absolutely necessary that this should be done if jars are to be perfectly safe for constant use.

OUR IDEAL STERILIZING OVEN

Is conveniently and substantially made. It is constructed of heavy galvanized iron throughout, with either wooden or galvanized iron shelves. The doors are packed with cork and close with special compression levers that always produce a perfectly tight joint.

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We have Milk Jars, Pulp Caps, Brushes, Pasteurizers, Bottle Washing Outfits, Filters, etc., etc,

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ICE CREAM, per Gallon,.....$1.50 **BUTTERMILK, per Gallon,.....12½c**
FRESH MILK, per Gallon,.....25c **FRESH CREAM, per Gallon,....$1.50**
BUTTER, per Pound,.....30c.

F. O. B. Station adjoining farm. For particulars address

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Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Solderne Clothilde. No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for description and price to **J. A. THORNTON,** Manager, **Simmonsville, Vt.**

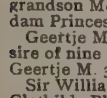
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WM. EVERSON & SONS, Lake Mills, Wis.

BROOKSIDE HERD

offers SPECIAL inducements to quick buyers. We must sell at once to reduce herd to stabling capacity. All ages, both sex. Correspondence solicited. Visitors welcome. Address,
STEVENS BROTHERS Lacona N.Y.

MONONA FARM Offers for sale a few well bred Holstein-Friesian Bull Calves. Also two Service Bulls at reasonable prices. The Monona Farm Herd is founded on the best stock of the De Kol, Netherland, and Clothilde families. Pense Johanna 29332 the head of the herd has 7 A. R. O. dams averaging 22 lbs. 3.7 oz. Junior sire Paul Calamity De Kol 31095.
MADISON, WIS.
THE MONONA FARM HERD
Address, **F. W. ALLIS, Madison, Wis.**

.....YOU MAY.....
BEGIN AT THE HEAD
to improve your dairy herd with a bull whose dam has official record of 18 lbs. 6.3 oz., sires dam 20 lbs. 8.8 oz. Individual right. Price Right.
McKAY BROS., Buckingham, Iowa.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

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Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. **JOHN B. IRWIN** Station D., R. 1, Minneapolis, Minn.

THE STEVENS HERD OFFERS ONE DOZEN YEARLING
HOLSTEIN HEIFERS
at greatly reduced prices, owing to lack of pasturage—choice individuals, and bred in popular lines; also a few special bargains in bull calves, while they last. Write us just what you want.
HENRY STEVENS & SON,
Brookside Stock Farm. Lacona, N Y. (Box 208)

SHADY NOOK HERD Holstein Friesians offers three bulls one year old. O. I. C. White Pigs, both sexes. White Cap Yellow Dent Seed Corn, $1.50 per bushel.
W. R. GATES, Fort Atkinson, Wis.

HOME FARM HERD.
Headed by **COLANTHA 4TH'S LAD.** Official test of three nearest dams 25.1 lbs. butter in seven days. Herd numbers 125 head.
BEST FAMILIES REPRESENTED.
Special prices on six or eight bulls of serviceable age. **W. B. BARNEY & CO.,**
Hampton, Ia.

Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. **C. H. STEVENS, Jefferson, Wis.**

FOR SALE.
H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address **W. H. JONES, Watertown, Wis.** Rural Route No. 2.

CLOVERDALE HERD

HOLSTEINS.

Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.
A. J DAUGHERITY Streator, Ill.

GLENVIEW HERD

A few fine heifers and bulls for sale. Also some A. R. O. cows. **IRVIN NOWLAN, Toulon, Ill.**

Star Farm Holsteins

I have just purchased of **West Brothers** of Syracuse, their magnificent herd of **53 Registered Holstein Cattle.** This herd is rich in the blood of De Kol 2d, Pietertje 2d, and other leaders. Some of the best females living here. Can supply purchasers in car lots of any age, breeding or sex. **120 Head to select from.** You can save money in buying at Star Farm.
HORACE L. BRONSON, Cortland, N. Y.

OAKLAND HERD

HOLSTEIN-FRIESIANS
Will make a special price on a few **CHOICE YOUNG BULLS.**
We offer females, any age, very cheap just now as we can winter more stock than have pasture for.
T. A. MITCHELL, Weedsport, N. Y.

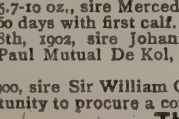
Holstein Friesian Bulls

SOUTH SIDE FARM, WHITE BEAR, MINN.,
offers a number of thrifty well grown calves from Officially Tested Dams at bargains for quick sale, ages three to seven months. Also two fine yearlings, and one two year old.
No Yorkshires for sale at present. Orders booked for spring pigs.
Correspondence solicited.

THE MAPLE'S HERD

offers good young cows with A. R. O. records in calf to Beryl Wayne De Kol Paul, No. 28785, whose dam Beryl Wayne has an official record of 27.87 pounds of butter in 7 days. Also four yearling bulls ready for service. Special bargains in heifer and bull calves.
JOHN C. GODFREY,
PENNELLVILLE, N. Y.

Holstein-Friesian Bull Calves
Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.



T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia, Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.
Wm. O. Jackson & Sons, South Bend, Ind.

FOR SALE. H.-F. Bulls, ready for service from A. R. O. Cows and sired by Sir Johanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis

OHIO'S

FAMOUS HERD
—OF—
Holstein Cattle
OWNED BY
W. B. Smith & Son
2488 W. Broad St., Columbus, O.
CLYDE PAUL DE KOL.

HIGH-CLASS HOLSTEIN-FRIESIAN BULLS
and **Bull Calves** from A. R. O. dams and the best Advanced Registry sires. Cows all officially tested, I breed from no others. Correspondence from breeders and progressive ddirymen invited. **Malcolm H. Gardner, Darien, Wis.**

HOLSTEINS
High Class Advanced Registry Stock only. Best butter families. Stock for sale.
Woodside Farm, Princeton, Worcester Co., Mass. **JOHN B. MARCOU.**

HOLSTEIN BULL CALVES. | **Johanna Family.** (both sire and dams). ALSO BERKSHIRES.
Wright's Farm. Berlin, Wis.

TYRANENA HERD
100 HOLSTEIN-FRIESIANS 100
A. R. O. Stock For Sale.
Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz **Frank B. Fargo, Lake Mills, Wis.**

FOR SALE.

2 H. F. Bull Calves, 6 months old. Sired by Johanna Aaggie's Paul DeKol 23443, (160 A. R.) from good milkers and testers.
M. S. CAMPBELL, Genoa, DeKalk Co., Ill.

AUCTION SALE OF
70 Holstein-Friesian Cattle
from the herd of
ARTHUR N. McGEOCH
Sale to be held at
MILWAUKEE, WIS.,
Wednesday, May 6, '03

Sale to be held at McGeoch Farm, "Redbrae" opposite entrance to Soldiers' Home on National Avenue. Electric Cars, National Ave., run to farm every five minutes.

40 OFFICIALLY TESTED COWS AND HEIFERS 40

Among these will be found the great heifer **Duchess Ormsby 2d's Hengerveld DeKol** who holds the **World's Record** for heifer with first calf, having made at age of 2 years, 1 month, 29 days, 19.02 lbs. butter in seven days.

DAME MARJORY DE KOL, a half sister, with record at 2 years, 4 months and 24 days of 16.19 lbs. butter in seven and 65.08 lbs. in thirty days.

LISCOMB AAGGIE 3D at 3 years, 11 months and 26 days with record of 21.58 lbs. in seven and 86.69 lbs. in thirty days.

PIEBE QUEEN 2D'S PRINCESS at 4 years, 9 months, with record of 22.18 lbs. in seven days.

WIT DUCHESS at 5 years, 5 months, 5 days, with record of 24.88 lbs. in seven days.

A FINE LOT OF HEIFERS FROM OFFICIALLY TESTED DAMS. A few richly bred young bulls and the two great service bulls **De Kol 2d's Paul De Kol No. 2** and **Gem Pietertje Hengerveld Paul De Kol** will be included in the sale.

Altogether this is the most desirable lot of Holstein-Friesians, either from the standpoint of the breeder or dairyman, that has ever been offered at public auction. All are cordially invited to be present.

Catalogues ready early in April. Send for one. Address

H. B. DAGGETT, Mgr.,
STATION A. **MILWAUKEE, WIS.**

Owing to our large hotel interests in Syracuse, Saratoga, and New York, we find we cannot give our time to the cattle business and have therefore decided to dispose of our farm and the celebrated

A. & G. HERD OF
HOLSTEIN-FRIESIAN CATTLE

Some 200 Head, Male and Female, at Auction on

JUNE 4th.,

the day following the annual meeting of the Holstein-Friesian Association of America at the Yates Hotel, Syracuse, N. Y.

This herd is one of the largest in the U. S. and contains the **largest number of officially tested cows in the world.** There will be no culling out nor any private sales made before day of sale, the **entire herd will be sold without reserve,** the offer will contain males and females of all ages.

This is the largest and choicest herd of Holstein Cattle ever offered to the public and are too well known to offer any comment on same.

Among the noted sires to be sold are **A & G. Butter King, De Kol Burke, Prince Pietertje De Kol, Almeda, Luecke 2nd Pietertje De Kol, A. & G. Netherland Piebe De Kol and sons and daughters of their get,** and a number of choice bred young bulls fit for service and from dams with large official records.

The sale will be held at the Yates Hotel Farm at Fairmount, only 15 minutes from the city. Catalogues will be ready May 15, and can be had by addressing Yates Hotel, Syracuse, or the Gregorian Hotel, New York.

AVERILL & GREGORY.

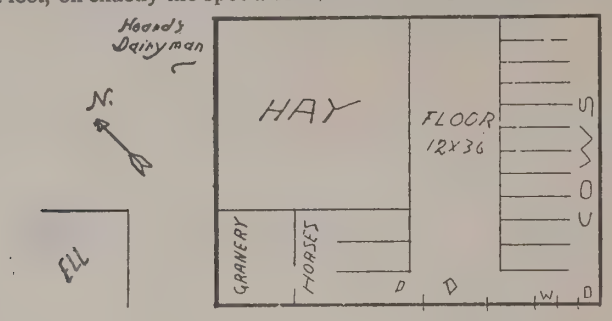
HOLSTEIN-FRIESIANS
FERMANACH HERD, ARCADIA, MO.

SPECIAL OFFER—Three Young Bulls. Prince Mercedes Pietertje 29325, born Oct. 20th, 1901, grandson Mercedes Julip Pietertje A. R. O., 29 lbs. 5.7-10 oz., sire Mercedes Mechthilde Pietertje 25795, dam Princess Pietertje Coeln, record 76 lbs. butter 60 days with first calf.
Geertje M. 3rd Johanna De Kol 30614, born Jan. 18th, 1902, sire Johanna Rue 2d Paul De Kol 21724, sire of nine A. R O. cows of large records and by Paul Mutual De Kol, out of Mutual Friend 2d, dam Geertje M. 3 A. R. O , 18 lbs. 12.9-10 oz.
Sir William Clothilde 2d, 29407, born Oct. 14th, 1900, sire Sir William Clothilde, 23782, dam Benordo Clothilde Pluera, 56924. Here is a splendid opportunity to procure a combination of the richest blood of the breed at very low price.
THOS. CAINES, Supt.

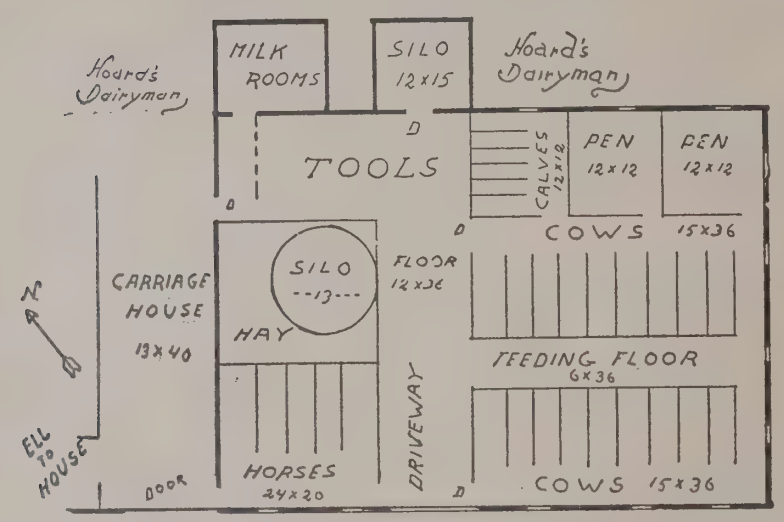
Remodeling a Dairy Barn.

ED. HOARD'S DAIRYMAN:—The proper stabling of animals, and the securing of sufficient room for their winter's fodder, are questions of vital importance to all dairymen in our northern climate, and they are questions that, in the main, lie at the foundation of successful cattle feeding. If the dairyman is to begin new, and design his own building, the task should be comparatively easy. When one has to take an old barn and refit it for a larger and a different line of stock feeding, the task is difficult.

When we resolved to extend the work at the Pines, and to make the place a dairy farm, the question of a proper barn for the purpose, was the first one to settle. There was an old barn thirty-six by forty-eight feet, on exactly the spot where we desired a barn and the timbers were sound, the roof was well covered, so we set to studying and drawing plans, with the old barn as a foundation. A silo was needed so much that one was erected as a separate building, twelve feet from the north side of the barn.



PLAN OF FIRST FLOOR OF OLD BARN.



PLAN OF FIRST FLOOR OF REMODELED BARN 36×83 WITH LEAN-TO ON NORTH SIDE, 12 FEET WIDE. W. WINDOWS. D. DOORS.

The Pines, and to make the place a dairy farm, the question of a proper barn for the purpose, was the first one to settle. There was an old barn thirty-six by forty-eight feet, on exactly the spot where we desired a barn and the timbers were sound, the roof was well covered, so we set to studying and drawing plans, with the old barn as a foundation. A silo was needed so much that one was erected as a separate building, twelve feet from the north side of the barn.

Then from the plans we had drawn, we began our work, and gradually brought it to completion. One end of the barn was thirteen feet from the ell of the house, and the first move was to put a joint thirteen feet wide and four feet longer on the north end than the width of the barn, in that space. The first floor is a carriage house, the second floor is a work shop and grain room, the third floor is a corn chamber. The carriage house opens on one side into the stable, on the other side into the ell of the house.

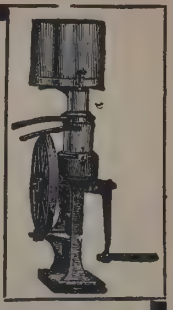
Next, we put two joints, of twelve feet each, on the other end of the barn, the first floor of these being designed for cows, the second, as the storage for hay. This, in addition to the twelve feet we already had on that side of the main floor, gave us a room thirty-six feet square. Through the center of this room from the main floor to end of barn, we made a feeding floor six feet wide, and on each side of this floor a tie-up for cows. This gives seventy-two feet of room for tying the animals, and makes each tie-up fifteen feet wide and the cows stand in a double row with heads toward the feeding floor.

A lean-to was then run from the four feet extension of the first addition the whole length of the north side of the barn, filling the space between the barn and the silo. The thirty-six feet of tie up space on that side was left without boarding, and the lean-to was divided into three pens, each twelve feet square. One of these pens was taken for calves, one is used for a cow hospital, and one for a bull pen.

In this way we keep our bulls kind, because they are not isolated, our cows are turned to calve where the temperature is the same as where they have stood in their stalls, and where they are not lonesome, and our calves are where they can be easily tended and where they become acquainted with their feeders, and the older cattle.

Taking these three pens, the two cow tie-ups, and feeding floor between them and we have a space thirty-six by forty-eight in one room. This room is eight feet high, and in it, we have 13,824 cubic feet of space, or 5,529 cubic feet per animal, with the stalls all full, four calves in the calf pen, and one bull. This room is shut off from the main floor of barn, by the use of three slide doors, one in end of feeding floor and one in the end of each tie-up. It is well supplied with windows, and receives, in some part of it, the direct rays of the sun during the entire day. At this writing, the thermometer registers zero at ten a. m. The wind is blowing a gale, and as I stood behind our cows, so comfortably lying in their stalls, where no frost ever reaches them and where the air is pure and the sun is pouring in its germ killing rays, I wondered how many more times the exercise theory would have to be exposed and exploded before all dairymen who study their own welfare, will see with the senior editor of this paper, that a cow should be kept where she is the most

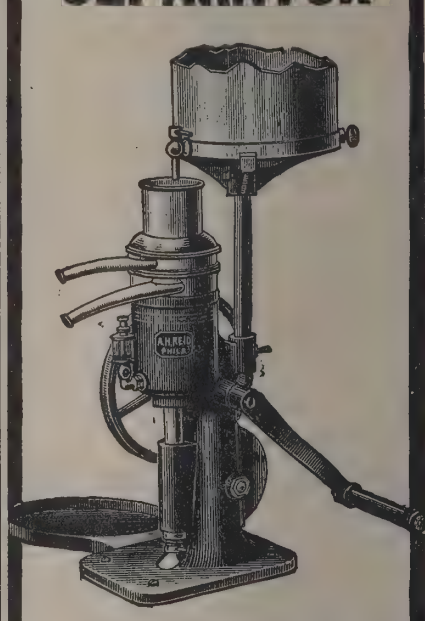
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of your being satisfied, and glad you bought the cream separator that makes money for you.
THE AMERICAN
Is Sold On Trial.
The price makes it easy for every cow owner to buy. Run this separator and make money. The catalogue is free and we want you to have one. Write to-day.
American Separator Company,
Medal Winner at Paris Exposition. Box 1023 Bainbridge, N. Y.




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Iowa Dairy Separator.
AN UP-TO-DATE MACHINE
REPLETE WITH PRACTICAL IDEAS
It is built in the following sizes:
250, 350, 450, 600, 750 POUNDS PER HOUR
Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.
SEND FOR CATALOGUE NO. 60 AND PRINTED MATTER.
IOWA DAIRY SEPARATOR COMPANY, WATERLOO, IOWA.

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THE
Improved International
The best in the world, has no superior if you want a larger butter yield. It runs easily, skims clean, and is easy to wash. It is perfect in mechanical construction and magnificent in appearance. No outside gears to catch your hands and clothes. Only three parts in the bowl. Look at the low supply can. All parts absolutely interchangeable. Write for Catalogues and Prices.
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Tacoma Blk, La Salle & Madison Sts.,
CHICAGO, ILL.
THE INTERNATIONAL CREAM SEPARATOR CO.,
LANCASTER, PA., U. S. A.

Reid's Hand SEPARATOR

The "best" separator is that one which does its work most thoroughly and easily, that is built of strongest material, and that is most easily washed and kept in order.
First cost is a great point with a buyer, but ease of running, perfection of skimming and simplicity in washing are even greater considerations.
The **Reid Hand Separator** has but a single cylinder inside the bowl, and skims as closely as one-hundredth of one per cent. Indeed, some tests indicate "not a trace" of fat in the skim milk.
The Reid is perfectly planned and strongly built, and it literally "runs like a watch."
As to our guarantee of excellence, we make the strongest statement that can be expressed in words: **Money back (less freight) if the buyer is not satisfied.**
There is a new (free) booklet about the Reid Hand Separator.
Sizes run from 150 lbs. to 500 lbs. per hour.
A. H. REID
CREAMERY AND DAIRY SUPPLY CO.,
PHILADELPHIA, PA.


Sore Shoulders
sore neck, sore back, &c., resulting from collar, saddle or harness gall and chafing, and all forms of canker, callous, &c., are instantly relived and cured with
Tuttle's Elixir.
Used and endorsed by Adams Express Company.
Dr. S. A. Tuttle. Wolcott, Vt., July 15, 1899.
Dear Sir:—I had a horse that had two bunches on his shoulder, caused by wearing a new collar. Less than one bottle of your Elixir cured it after six months' standing. L. W. FISHER.
Cures also **curb, splint, contracted cord,** all forms of lameness and **colic, distemper, founder, pneumonia,** &c.
TUTTLE'S FAMILY ELIXIR cures rheumatism, sprains, bruises, etc. Kills pain instantly. Our 100-page book, "Veterinary Experience," FREE.
Dr. S. A. TUTTLE, 62 Beverly St., Boston, Mass.
Beware of so-called Elixirs—none genuine but Tuttle's.
Avoid all blisters; they offer only temporary relief if any

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with a **National Hand Separator** and make more and better butter from same quantity of milk. The National will do it easier, quicker and pay its cost in a very short time. We don't ask you to take our word—we send the machine for
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and let it prove its worth right in your own dairy. *You take no risk*—we assume it *all*. If it does not meet your expectations, send it back—we pay the costs. Our catalogue tells more—write for it, it's free.

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BALL BEARING
Cream Separator
Sold on guarantee to be the best on the market. Catalog free.
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is used to bring water to your house, barn or lawn by the
RIFE HYDRAULIC ENGINE.
The supply is constant, it needs no attention and runs at no expense. Lifts to any height, carries to any distance. Gives city advantages in country homes. Sold on 30 days trial. Catalogue free.

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RUPTURE CURED while you work You pay $4 when cured. No cure, no pay ALEX. SPEIRS, Box 846, Westbrook, M

comfortable. Any plan of tying, any method of feeding, any arrangement of stable that adds to the comfort of the cow, adds to her health, increases her capacity and usefulness, and lengthens her life.

We use the Model system of tying. This gives each cow a stall by herself, and with the feeding rack for hay and the heel piece on the floor, the cows are kept perfectly clean. The deep drop is avoided. The heel pieces form a protection for cows heavy in calf when lying down, and help to keep the bedding under them.

The horse stable, with five stalls, is on the opposite side of the main floor. There are two windows in this room, and the sun, shining in during the short winter days, raises the temperature and dries the air.

In 1901, a round silo was built in section of large bay, and now we have storage capacity for 100 tons of silage. A track runs the entire length of barn, and hay is drawn into both ends with a horse fork. There is a basement under the barn which is warm and dry, affording excellent space for the storage of manure. Milk rooms have been built on north side of lean-to,and eight feet from them is the ice house, with covered driveway between. With running water conveniently located in these buildings, there is no necessity for stepping out of doors to do any of the work connected with caring for the stock, or loading the milk.

This, in brief, is an outline of the remodeled barn, which serves its purpose well, and which was secured at far less expense than a new one of nearly the same capacity could have been.

The rough drafts accompanying, may give a better idea of the changes and of the new barn, than one can get by reading the description.

I want to say a word in commendation of the narrow feeding floor with cows on each side. It is very convenient for feeding, as one feeds two animals without moving.

It affords a means for shutting the room without shutting a door in the cows' faces, and as it is devoted entirely to feeding, is never cumbered with any other material than the fodders for the animals. There may be others so situated that they can get helpful hints from these plans. B. W. McK.

Fryebrug, Me.

Clarified Milk.

ED. HOARD'S DAIRYMAN:—In your issue of April 17th, Mr. J. Moldenhawer, under the head of clarified milk, tells your readers, or at least conveys the impression, that I run my milk through the separator for the purpose of cleaning it; the fact is that the only thought in my mind when I conceived the idea of putting my milk through the separator was to standardize it. I hold my milk all the time at 4% fat and by the use of the separator am able to do this very accurately, making today's Babcock test the guide for tomorrow's work. We do this by catching out a portion of the skim milk as it runs from the separator, when the test is below four per cent fat, and when it is above four per cent fat we catch out some of the cream as it runs from the cream spout of the separator.

This is accomplished very simply by having a conductor with a partition in the head so that the cream may run into one side and the skim milk into the other side, and in the bottom of one of the compartments put a small valve that can be controlled to allow as much of the cream or skim milk to pass through it as is found necessary to make the standard of fat what you wish it to be. The valve is needed in but one side, as the spouts can be moved so as to have either the cream or the skim milk run into the compartment that has the valve attached.

I do not believe that milk is injured as a food product by being run through a separator; the cream does not rise as well as it does when it has not been through the separator, but this is no disadvantage, in fact it is an advantage to have the cream retained in the milk when it is needed there. If we wish to use skim or partly skimmed milk, it is all right of course to have the cream separated from the milk. In my work the milk is put through the separator in a few minutes after it comes from the cows and is run immediately back together, being separated but a few seconds. There is much theoretical talk about the action of the separator on the food value of milk but I have never learned that there was any injurious effect on the milk and I do not believe there is.

I am sorry that Mr. Moldenhawer got the idea that I use the separator as a clarifier in place of a standardizer. Of course the milk receives the centrifugal action when we employ this means to standardize it. H. B. GURLER.

DaKalb, Ill.

Success with a Shallow Silo.

ED HOARD'S DAIRYMAN:—We are using silage from the silo put up last summer. It is in fine shape. we feed about 30 lbs. per day to each cow in connection with corn and oats, meal and bran. My cows look good and are doing quite well. But the silo is what I wish to speak of. The plan was taken from HOARD'S DAIRYMAN. It is a wooden hoop structure lined with narrow southern pine flooring. The size is 14 feet in diameter, and height about 33 feet. On account of the wet season we had corn enough to fill one-third only of this silo, and only one man to place and tread down at the time of filling. Some of the corn was frost bitten and many weeds were in it. However, we thoroughly wet the whole mass after the filling, which no doubt saved the silage and proves the ability of keeping silage in a structure even 12 feet deep.

E. Onondaga, N. Y. A. B. C.



Plano Machines are easy workers because each part is sensibly and scientifically planned to serve its purpose with strict economy of power and wear. Designed by men who know the field conditions and the farmer's needs, built of right materials and stripped of needless complications, they save work and worry, time and cash.

With its patent Fly Wheel, simple, accurate Knotter and famous Lever Device, the Plano Binder handles the heaviest crops with ease.

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Most Durable, Simple, Economical, Scientific and Practical.

Do not be deceived by imitators. Shams are never imitated. **More Common Sense Feeders are in use than all others combined.** Over 50,000 in use. No valves to get clogged or foul. Nipples reinforced and cannot collapse. The calf feeder is a perfect weaner. A substitute for nature.

Extra gain on one calf pays for two feeders.

Best Feeder Made.
Michigan State Board of Health:—I tried every Calf Feeder I could find, but liked yours best.

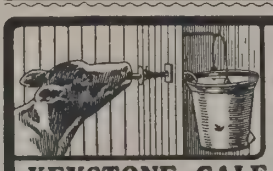
Worth $10.00.
George S. Bement, Victor, N. Y.:—I am very much pleased with the Feeder and would not be without it for $10. No trouble, no damning, no milk on your clothes, no trouble to teach the calves to take hold of it, no sucking the cows, and the best of all is that when they get about eight weeks old they don't stop for the nipple but just drink out of the pail.

The Principle is Correct.
Purdue University Agricultural Experiment Station of Indiana, LaFayette, Ind.:—We have been using the Feeder to some extent and it is in constant use at this time and we believe it to be very satisfactory in its work. The principle of **Your Feeder**, I believe to be the correct one. C. PLUMB, Director.

Advise Stock Raisers to use it.
Maryland Veterinary Hospital:—I am very much pleased with the Feeder and would advise stock raisers not to be without one.

Price $1.50 including two nipples, sent postpaid for $1.75. We guarantee satisfaction, but if you are in doubt about its value we will send one on approval for 50c to cover postage, remainder to be paid if satisfactory. **Be Sure** and send for our twenty-two reasons why you should use a feeder. It's free. Sold by one dealer in a town.

O. H. MANUFACTURING COMPANY, DEPT. H, LYNDON, VERMONT.



SENT out under positive guarantee. Money refunded if not satisfactory. No boiling food. Perfect digestion. All tinned—no rust.

KEYSTONE CALF FEEDER

Patented under No. 721,384. Used in about forty experiment stations. Mass. Ag'l College writes as follows: Mr. M. T. Phillips, Dear Sir:—I write to say that the Calf Feeder is giving excellent satisfaction. We have found it to be all one could ask for in a feeder. It is easily cleaned and appears to be durable. Yours truly, E. A. JONES, Supt.
Complete with extra nipple, $1.50, express prepaid. Circulars free.
M. T. PHILLIPS, POMEROY, PA.

DOUBLE CAM BRADLEY STEEL HAY PRESS

One horse can operate it. Very easy for two.
NOT A COG NOR CHAIN ABOUT IT.
Send for circular.



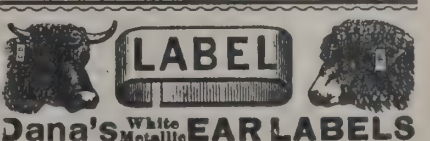
Has an AUTOMATIC PLUNGER DRAW.

DAVID BRADLEY MFG. CO., 110 E. Broadway BRADLEY, ILL.

DR. REA'S IMPROVED CALF FEEDER
Established 1892. Galvanized castings. Will not rust. Seamless rubber nipples, reinforced, cannot split. Makes fat calves. Price,



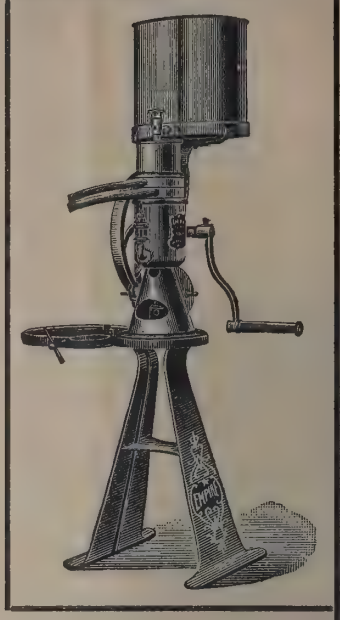
ONE DOLLAR.
Satisfaction guaranteed or money refunded. Booklet free.
Dr. CHAS. L. REA 220 E. 32d St., New York



Dana's White Metallic EAR LABELS
stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Samples free. Agents Wanted.
C. M. DANA, 55 Main St., West Lebanon, N. H.

EMPIRE

EASY RUNNING..... Cream Separators



It's a broad claim we make but **We Deliver the Goods**

More up-to-date creamerymen are pushing the Empire Cream Separator today than any other separator on the market. Why?

More up to-date dairymen delivering cream to creameries are buying the Empire Cream Separator today than any other separator on the market. Why?

More farmers are perfectly satisfied with the Empire Cream Separator today than with any other separator on the market. Why?

It's Altogether a Question of Merit.

We do not expect to sell a separator to every farmer in the land. We do not expect every creamery to take up the sale of the Empire. We could not accommodate all of them either with territory or machines. We know some of them are tied up with other manufacturers and cannot break loose, no matter how much they want to.

We do not bull-dose creamerymen. We do not threaten "to ruin them" if they sell another machine. We do not appeal for patronage on any grounds other than simple merit. We can take that position because the

Empire Cream Separator

Does the Business.

We have never yet known a live creameryman who has thoroughly investigated the merits of the several hand cream separators on the market, to undertake the sale of another machine if he could get an agency for the Empire. Here are a few of the wide-awake fellows who are selling the Empire:

Hygeia Creamery Company, Omaha, Neb.	Blue Valley Creamery Co., St. Joseph, Mo.	Ernest Karow, De Forest, Wis.
Geyer Creamery Co., Storm Lake, Ia.	Central Michigan Produce Co., Alma, Mich.	C. J. Dodge, Lodi, Wis.
Tri-State Creamery Co., Chicago.	The Dodge Creameries of Wisconsin and Illinois.	Osseo Creamery Co., Osseo, Wis.
J. D. Bickel Produce Co., McGregor, Ia.	Des Moines Creamery Co., Des Moines, Ia.	Comfort Produce Co., Bad Axe, Mich.
Jahnke Creamery Co., Watertown, Wis.	Longmont Creamery Company, Denver, Col.	A. Nolting & Sons, Elgin, Ill.
J. P. Baden Produce Co., Winfield, Kan.	Cedar Valley Creamery Co., Cedar Rapids, Ia.	Oakdale Dairy, Fort Dodge, Ia.
Townsend Creamery Company, Portland, Ore.	Mason City Cream Co., Mason City, Ia.	

Many of the above institutions were users of other makes of power machines—all of them were most vigorously canvassed by other manufacturers—all of them have heard the stereotyped story of "ten times as many machines in use as all other makes combined," and about "protecting patents" which have expired and which no one wants to use. They have been bull-dozed and have listened to threats that "another creamery would be started across the road;" they have been offered antiquated, complicated, "patent protected" separators at as low and lower prices than they are now paying for the Empire, but they chose the Empire on a merit basis alone after a thorough investigation. Look up these companies who handle the Empire. They are clean, reputable business men. Many of them are selling from 200 to 400 separators per month. In the state of Kansas alone more than two thousand Empires were placed during the past year. The volume of business done by creameries using the Empire separators is double that of the aggregate business done by any competing machine through like channels. Investigate this statement. The Empire Separators are now being manufactured at the rate of 100 per day and still the demand is not being fully supplied. The reason is simply this:



When an Empire Separator is placed in a community, a dozen always follow it.

It is a machine that sells itself. It is so much simpler in construction, so much more easily operated; so much more easily cleaned; and gives so much less trouble that most farmers say it is worth twice as much as any other separator they ever saw. Don't be misled. Investigate for yourself. Examine the Empire, its work and its record, and then if you don't decide that it's the best separator in existence we'll not have another word to say. We want you to satisfy yourself **before you buy.** We'll guarantee the Empire will keep you satisfied after you buy. : : : : : : : : : :

EMPIRE CREAM SEPARATOR COMPANY,

Bloomfield, New Jersey. **Chicago, Illinois.**

The Empire has more late improvements and labor saving conveniences, covered by late patents, than any other separator made. That's why it keeps so far in the lead.

HOOD FARM
Abortion Treatment

Hood Farm Abortion Cure is proving the most successful remedy for this very prevalent trouble that we have yet seen.

After Abortion cows should be injected with Hood Farm Antiseptic Breeding Powder, which thoroughly disinfects, kills all germs and **makes cows breed.** Also successful where cows fail to clean and where they do not come in season regularly.

Hood Farm Abortion Cure, dollar size, prepaid to any railroad express point in the U. S., $1.25; $2.50 size, containing four times this quantity, $2.75.

Dollar size Breeding Powder, by mail $1.15; $2.50 size prepaid for $2.75.

Hood Farm Flexible Injection Tube, for administering the Powder, 75 cents; by mail, 90 cents. Address

C. I. HOOD CO., Lowell, Mass.

Mention this paper in ordering.



Above trade mark on every box.

THE SPRING WORK

is sure to bring sore shoulders. You need not lay your horse off a day if you use

BICKMORE'S GALL CURE.

It's the sovereign remedy for all **Galls, Scratches, Wire Cuts, Grease Heel,** etc. in horses. **Torn** or **Cracked Teats,** etc. in cows. Sold by local dealers everywhere, who are directed to refund money if it fails. Enclose us 10 cents for testing sample.

BICKMORE GALL CURE COMPANY, Box 515, Old Town, Me.



The Books are Free



Spavin LumpJaw

You can cure Bone Spavin, Bog or Blood Spavin, Ringbone, Curb, Splint or any blemish hard or soft, Fistula, Poll Evil, Sweeny or Knee-Sprung, also Lump Jaw in cattle, with very little trouble or cost. Our two booklets tell you how and prove that you can do it, and we will guarantee you success in every case. Over 140,000 farmers and stockmen are doing it our way. If you have a case to cure write us and we will send you the books free.

FLEMING BROS., Chemists,
228 Union Stock Yards, Chicago, Ill.



COWS RELIEF

Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.

Used Exclusively at Model Dairy

Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.

O. H. MFG. CO.,
Dept. H, Lyndon, Vt.

SEED CORN

Our Yellow Selected Seed Corn is unexcelled for strong, healthy growth and consequent big yield. Small cob and deep grain. In a word—strictly reliable seed. Shipped in twill bags of two bushels each. Price $1.25 per bushel f. o. b. cars here. Sacks 15 cents apiece. Prompt and careful attention to all orders.

E. A. CLENDENIN & BRO.,
Colora, Maryland.



A Clear Saving $10 to $45

On a Sewing Machine "Young" TOLEDO, O

Don't take our word for this—we *can prove* it. We ship from factory *"on approval"* at factory prices. We have no agents, pay no commissions, hence save you money. We publish the most comprehensive book ever written about Sewing Machines, handsomely printed in colors, with *cloth* Samples of ruffling, tucking, etc. done with attachments. This book tells you what constitutes a *really* high grade Machine—how to detect the weak points—the right price to pay, etc., and how to dispose of your old Machine.

Send for FREE Samples and Book No. B- 5905

THE HOMER YOUNG CO. Ltd. (Makers) Toledo, O

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Cow Pox.

I have a cow that is troubled considerably with sore teats and udder. Almost daily her teats and lower part of udder break out with little white pimples and the following day make sores.

Oakwoods, Tex. J. F. B.

Wash the teats clean with soap and water after each milking and when dry apply unguentum iodum until relieved.

Abscess.

I have a cow that became lame in front; legs are very lame and one is swollen and on top of shoulder blades there are two large swellings, large as my wrist, oblong shape and soft as if there was matter in them; one of her hind legs is lame now too.

Waddington, N. Y. J. A.

The swellings appear to be abscesses, the cause of which are unknown to us. They must be opened freely with a sharp knife and the cavity washed with tincture of iodine, full strength. After this keep clean with castile soap and warm water daily until entirely closed up.

Is the Heifer with Calf?

I have a heifer, two years old next September, that was served last December, and to all appearances was with calf, as she did not come in heat for about 3 months. In February she came in heat again and has been regularly since. In March she was again served, but is again in heat now. Is the heifer with calf from the first service, or is there something wrong? J. O.

Montague, Mich.

It is possible that your heifer is with calf and is still coming in heat, but we believe it more likely that she has been with calf and has aborted, and is now failing to conceive because of the unnatural conditions attending abortion. We would advise you not to breed her for several months, when a change of bulls may prove beneficial.



Warranted to give satisfaction.

GOMBAULT'S CAUSTIC BALSAM

A safe, speedy and positive cure for

Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a **HUMAN REMEDY** for **Rheumatism, Sprains, Sore Throat,** etc., it is invaluable.

Every bottle of **Caustic Balsam** sold is Warranted to give satisfaction. Price **$1.50** per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

THE LAWRENCE-WILLIAMS COMPANY, Cleveland, Ohio.

10 DAYS FREE TRIAL



We will send any bicycle to any address with the understanding and agreement that you can give it **10 DAYS' FREE TRIAL** and if you do not find it easier running, handsomer, stronger, better finished and equipped, more up to date and higher grade than any bicycle you can buy elsewhere at $5.00 to $15.00 **more money, you can return it to us at our expense and you will not be out one cent.**

$10.95 Buys our new **HIGH GRADE 1903 NEWTON BICYCLE,** which we guarantee stronger, easier riding, better equipped; better frame, wheels, hubs and bearings than you can get in any other bicycle for less than $20.00. **OUR 1903 NAPOLEON BICYCLE** is priced at about **ONE-HALF** the lowest price asked by others. For **Free Bicycle Catalogue,** hundreds of price surprises in bicycles and supplies, **our Free Trial and Guarantee Proposition and our Most Astonishing Offer,** cut this ad. out and mail to **SEARS, ROEBUCK & CO.,** CHICAGO

"SAVE-THE-HORSE"

— TRADE MARK —

SPAVIN CURE.

POSITIVELY AND PERMANENTLY CURES

Bone or Bog Spavin, Ringbone (except Low Ringbone) Curb, Thoroughpin, Splint, Capped Hock, Shoe Boil, Wind Puff, Weak or Strained Tendons or Lameness.

FROM A REPUTABLE AND NOTED TRAINER

GLENVILLE DRIVING PARK, CLEVELAND, OHIO.

For the enclosed $5.00 please send me one more bottle of "Save-the-Horse." **It is doing great work.** Respectfully, MILLARD F. SANDERS.

HARTLAND, LIVINGSTON CO., MICH.

Find enclosed money order for $5.00, for which send me another bottle of "Save-the-Horse" spavin cure as it has done all you claim for it for me With the bottle I bought of you I took off a curb, spavin, and a side bone on a 3 year old mare that other spavin cures refused to help in the least. I consider your spavin cure the best on the market. E. M. PARSHALL.

HOWICK, QUEBEC.

I had a mare suffering from a bone spavin and very lame. I concluded to try a bottle of "Save-the-Horse" and at the expiration of six week's treatment she was free from all lameness and I consider it one of the greatest compounds made. DAVID BARRINGTON.

EDGEWATER, N. J.

Enclosed find check for $5.00 for which you will kindly send me by Wells-Fargo Express one bottle of "Save-the-Horse" as soon as possible. The horse I have been treating with "Save-the-Horse" went sound and I sold him. The last I heard from this horse he was still going sound and working every day, and I think he will stay sound. The bottle I am ordering now I will use on another horse that has a pair of spavins and a curb; he does not go very lame, but walks on his toes and I think "Save-the-Horse" will bring him around so that he will walk all right. Very truly, OTTO MEYER.

The fire iron is uncertain and invariably only aggravates the disease or injury; blistering is less effective than the fire iron, and both necessitates laying up the horse from four weeks to two months. Arsenic, mercurial and poisonous compounds produce irreparable injury

"Save-the-Horse" eliminates all these factors. Horse can be worked continuously. Cures without scars, blemish, or loss of hair.

It can be applied at any time, anywhere, any place, and in all conditions and extremes of weather—hot or cold. And no matter what the age, condition or development of the case or previous failures in treating, the concentrated penetrating, absorbing power of this remedy is unfailing.

$5.00 PER BOTTLE.

Written guarantee with every bottle constructed solely to satisfy and protect you fully. Need of second bottle is almost improbable, except in rarest of cases. Copy of guarantee sent upon application.

IF YOU HAVE A CASE DIFFERENT FROM INSERTED IN OUR BOOKLET OR ADVERTISING WRITE US.

We will advise you frankly as to the possibility of the remedy effecting a cure. Give explicit particulars, give the veterinary's diagnosis, if he is competent—inform us fully as to the age, development, location of swellings, lameness, action and previous treatment.

$5.00, all druggists and dealers, or sent express prepaid.

TROY CHEMICAL CO., TROY, N. Y.

BLACKLEGOIDS

BEST PREVENTIVE OF BLACKLEG.



Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each **Blacklegoid** (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. **Blacklegoids** are sold by druggists; *ask for them.*

Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.

PARKE, DAVIS & CO. - DETROIT, MICH.

Branches: New York, Kansas City, Baltimore, New Orleans, Chicago; Walkerville, Ont.; Montreal, Que.; London, Eng.

BARREN COWS CURED.

Our treatment has been used successfully since 1878 in every state in America, Canada and Great Britian. Write for Pamphlet.

MOORE BROS., Veterinary Surgeons, Albany, N. Y.

CURE "THE" COW

NO CURE, NO PAY

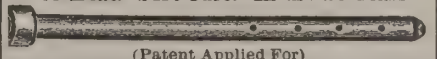


WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address

DR. EATON J. GROSS,
152 Congress St., Troy, N. Y.

ABORTION,

Failing to Breed and to bring Cows to Heat. Sure Cure. In use 20 Years.



(Patent Applied For)

Hard Rubber *Safety* Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.

Dr. WM. HORNE, Janesville, Wis.

ABORTION,

Retention of Placenta and Failure to Breed.

KELLOGG'S CONDITION POWDER is a positive cure for these diseases. Write for circular containing full information, references and price.

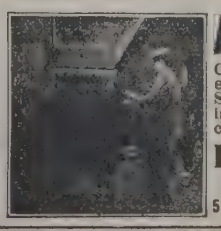
H. W. KELLOGG COMPANY, St. Paul, Minn.

ANTITOXIN

For the Cure and Prevention of Milk Fever.

No quackish humbug but a scientific fact. Works on same principle as antitoxin injection in man for diphtheria, destroying poison in system. Four doses $2.00, 12 dozes $5 00. No less than 4 doses sold. Easily administered with syringe. For particulars address

DR. W. E. A. WYMAN, V. S., Prospect, Ohio.



ABORTION

Can be successfully treated with **Anti-Abortion Serum.** Easily administered and permanently cures. Information free.

DR. ROBERTS VETERINARY REMEDY CO.,
518 Grand Ave., Waukesha, Wis.

What Prof. Carlyle, University of Wisconsin, Says About Zenoleum Dip:

"It gives me much pleasure to state that we have used Zenoleum as a disinfectant in various ways about our live stock barns and stables, and have found it very satisfactory indeed for this purpose. We have used it as a sheep, cattle and swine dip, and have found it an excellent remedy for parasites of various kinds. I can recommend its use to stockmen generally for the purpose mentioned." PROF. W. L. CARLYLE, Madison, Wis.

Send for copies of **"Zenoleum Veterinary Advisor"** and **"Piggie's Troubles"** and see what others say about it. Books mailed free. Sample gallon of Zenoleum $1.50, express prepaid. Five gallons $6.25, freight prepaid.

"The Great Coal Tar Carbolic Dip." **ZENNER DISINFECTANT CO., 34 BATES STREET, DETROIT, MICHIGAN.**

Butter for the United States Navy.

The Continental Creamery Company Gets a Big Navy Contract.

The Continental Creamery Company of Topeka, Kansas, has again landed an immense contract for butter to be furnished to the Navy Department this summer.

This contract is for 400,000 pounds at a price of 28 cents per pound, aggregating the value of $112,000. When the Continental Creamery Company received the order last summer for 250,000 pounds, it was the largest order ever filled by any concern in the country from its own product, and was the first time any such contract had ever been considered by any Kansas firm. The order for the Brooklyn Navy Yard, this year however, is 150,000 pounds greater than the order filled last year and must be delivered by July 15th.

The specifications which are to be filled on this butter are interesting. It is to be packed in tins of three pounds weight, hermetically sealed. The tins are then wrapped in blue paper, packed in sawdust, thirty in a box of special make and iron bound. Special machinery has been installed to handle the packing, every pound of which will be made and packed at the Topeka plant. The butter will be under refrigeration at all times and will be sent in two train loads of ten cars each to the Brooklyn Navy Yard, where it will be used in the Commissary Department of the Navy to supply all Atlantic vessels. The Continental Creamery Company must fill this order by the 15th of July and yet keep up the supply for their regular business.

A separate contract is required for furnishing the Pacific vessels of the Navy and this will be filled by a separate contract to be delivered at the San Francisco Navy Yard. This contract has not as yet been let.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Transfers of Guernsey Cows.

BULLS.

Buttercup Nell's Topsham 8536, Lyman Blair to John O. Meserve, Topsham, Me.
Buffalo Rooney 7780, S. M. Shoemaker to J. Walter Englar, Wakefield, Md.
Commodore Dewey 5552, Edward Sharpless to S. I. Murphy, Woodbine, Pa.
Economy of Pinehurst 8532, Lady's Glenwood 8533, Est. E. R. Strawbridge to Chas. L. Hill, Rosendale, Wis.
General Rosebrook 8547, L. L. Davis to P. O. Estenson, Climax, Minn.
Hercules of Paulsdale 8534, Est. E, R. Strawbridge to Tacie M. Paul, Moorsetown, N. J.
Hemlock of Montour 8546, Sylvester Kitchen to Asa Deily, Bloomsburg, Pa.
Judy of Fairview 8509, McCormick & Edgerly to G. L, Breese, Lima, O.
Major of Rural Glade 8537, Est. A. C. Brosius to J. E. Sellers, Cochranville, Pa.
Prince of Maulton 6705, Harry E. Moore to Wm. Sharpless, Loughkenamon, Pa.
Sir Judge 8527, Canterbury Shakers to Ansel B. Sawyer, Gilford, N. H.
St. George of Primrose 8540, H. E. Fries to J. R. Fairey, Fort Motte, S. C.
Si of Edgewood 8642, S. A. Ogburn to H. W. Johnson, Winston, N. C.
Scarlet Duke 8394, M. M. & E. J. Hollingsworth to Penrose Larkin, Lyndell, Pa.
Zelaya 8535, Est. L. Hinman to Chas. Nelson, Antigo, Wis.

COWS.

Bessie Chamette 11543, Ionia Queen 11576, A. M. Welch to J. L. Snyder, Lansing, Mich.
Bonnie Barbara 14554, Charity of Mapleton 13769, Crocus Blossom 14555, Dawn's Ruby of Mapleton 15276, Esther C. of Mapleton 13772, May Queen of Mapleton 13768, Pattie of Mapleton 12516, Princess Prosperous 15099, Roxanna of Mapleton 14557, C. J. Tyson to A. J. Snyder, Plumsteadville, Pa.
Blue Sky 9483, George H. Elmer to John Tyler, Salem, N. J.
Breta B. 14507, Natalie's Beauty 13496, Peggotty 14508, Edward Sharples to Penrose Larkin, Lyndell, Pa.
Betty of Long Creek 15093, D. W. Clark to J. H. Wellman, Chelsea, Me.
Buttercup Alice of Fernwood 15969, S. J. DuBois to N. W. Lippincott, Swedesboro, N. J.
Bessie Chamette 2d 15970, Mary Queen 15971, A. M. Welch to J. L. Snyder, Lansing, Mich.
Commodore's Fairy 15968, Squire's Cuba 2d 15884, Tangray 2d 15883, Edward Sharpless to S. I. Murphy, Woodbine, Pa.
Eulalie of Elm Place 14398, Mentor Maid 13261, Ollie of Belle Vernon 10775, G. B. Tallman to Arthur H. Sagendorph, Spencer, Mass.
Harriet Trink 15956, Isabelle Trink 12758, John W. Sherman to J. F. Welch, Bloomsburg, Pa.
Honeymoon 2d's Lena's Bess 15488, J. Paul Weixler to E. E. Fiske, Worcester, Mass.
Little Sis of Riverside 15931, James Forsyth to Dr. R. D. L. Evans, Bainbridge, N. Y.
North's Beatrice 15962, H. E. Fries to H. W. Johnson, Winston, N. C.
Picture of White Manse 15966, Irwin P. McCurdy to Albert Jones, Mount Airy, Md.
Star of Bethlehem 15388, Francis E. Bond to Miss Anne Thompson, Merion, Pa.
Tess 2d 15959, Mrs. Grace H. C. Cammann to Henry M. Low, Greenwich, Conn.
Violet of Brush Creek 15961, W. S. Stevenson to C. A. Freshcorn, Zelienople, Pa.
Van Doren's Maud 15972, Chas. J. Mangeot to Van Doren Bros., Lysander, N. Y.

WM. H. CALDWELL, Sec'y.
Peterboro, N. H., April 14, 1903.



Why don't you get a
Horseshoe Brand Wringer?

It will lighten your day's work

Every wringer is warranted from one to five years. The rolls are made of Para Rubber. They wring dry, last long, and will not break buttons. Our name and trade-mark is on every wringer and roll.

The American Wringer Co.
99 CHAMBERS ST., NEW YORK CITY
We manufacture the Wringers that wring the Clothes of the World

THE "1900" FAMILY WASHER FREE.

Greatest Invention of the Age. Labor and Expense of Washing Clothes Cut in Two.

No More Stooping, Rubbing or Boiling of Clothes.

Every Household Needs One.



THE "1900" BALL-BEARING FAMILY WASHER SENT FREE

to anyone answering this advertisement, without deposit or advance payment of any kind, freight paid, on 30 days trial. The 1900 Ball-Bearing Washer is unquestionably the greatest labor saving machine ever invented for family use. **Entirely new principal.** It is simplicity itself. There are no wheels, paddles, rockers, cranks or complicated machinery. It revolves on **bicycle ball-bearings,** making it by far the easiest running washer on the market. No strength required, a child can operate it.

No more stooping, rubbing, boiling of clothes. Hot water and soap all that is needed. It will wash **large quantities of clothes** (no matter how soiled) **perfectly clean in 6 minutes.** Impossible to injure the most delicate fabrics. As the Sup't. of the Savannah Yacht Club says:

"It is a wonder. Our washing is very large and "we have always had two women on Monday and one "on Tuesday. Our cook and the yard boy **now do** *"the washing in 4 hours much better than before."*

NEWMAN, Ills, July 5, 1900.

I can testify that the 1900 is the best washer and the easiest running machine. It will **absolutely clean** the clothes, cuffs, and bottoms of ladies white skirts better than can be done by hand. The washings that took my wife from 5 to 7 hours to put out by hand, can easily be done in two hours. R. A. SKINNER.

KENSEE, Ky., March 21, 1900.

I did a double washing for myself yesterday and made 65 cts. from my boarders, besides all my cooking, milking and housework. It takes less soap with your machine than in the old way. I have no need of the washboard any more. Mrs. L. A. BARTON.

ONALASKA, WIS., Jan. 4, 1901.

We are a family of 5 and as I had a 3 weeks wash it was an immense one. Had it all out in 3 hours and never had nicer looking cloths. I did not even put my hands into the water. I cannot too strongly recommend the "1900" washer.

Mrs. J. M. WILSON.

Write at once for catalogue and full particulars to

"1900 WASHER CO.,
219 K. STATE ST., BINGHAMPTON, N. Y.

Wanted Farms, Ranches, Timber Land, Town and City Property, Mills, Dry Goods, Grocery, Boot and Shoe, Hardware, and other stores for Cash Customers. **If you want to sell your Real Estate or Business,** no matter where located, send description and price at once. **If you want to Buy** any kind of Real Estate or Business anywhere, write me today, Tell me what you want, I can save you time and money. Bank references. Established 1881. **FRANK P. CLEVELAND, Real Estate Expert,**
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Laton, Fresno County, proves to be an Ideal Home for Farmers and

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60,000 ACRES OF IRRIGATED LAND IN THE

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Alfalfa a specialty. Creameries on the Estate. Ample Railroad Facilities.
Land Sold on Easy Terms in Small or Large Lots.

WRITE THE MANAGERS

404 GREAT NORTHERN BUILDING.....CHICAGO.

A Red River Valley SNAP!

1356 acres on banks of the Red River, east of Grafton, Walsh Co., the banner county of N. Dak. Fine land, 1100 acres cultivated, 50 acres timber, balance pasture. Good buildings—2 houses, barns, work shop and out buildings. Granary for 27,000 bushels. This cannot be beaten at the price, $28. per acre. Reasonable terms. Improved and unimproved, large and small tracts for sale in Grand Forks, Walsh and La Moure Co. N. Dak.; Marshall, Kittson, Lyon Cos., Minn. and Washburn Co., Wis.

BURCHARD-HULBURT INVESTMENT CO., Manhattan Bldg., ST. PAUL, MINN.

Buy You a Ticket to CROOKSTON, MINN., and call upon
The Polk County Land & Loan Company

For choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains

360 acre farm, 4½ miles from Crookston, Minn., (a city of 7,000 inhabitants), and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 ft. square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm in under a high state of cultivation, and is well drained by a slight ravine running through the farm, merely sufficient for self drainage. The soil is a rich deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2¼ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50.

160, acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired, Price $19.00 per acre.

OUT THEY GO

The crowds are going to **Morton County, North Dak.** ota; rich black soil, clay subsoil, producing heavy crops—where **corn grows.** Excellent water, 10 to 30 feet deep. **Coal is Free.** Stock feeding only about six weeks in the year. **Our Creamery** butter brings Elgin prices. We own 175,000 acres and sell farm lands for $7 to $12 per acre; grazing lands $4 to $7. **Free Homestead** lands adjoining. 9,000 people now in County. Healthiest climate. **Write for facts and maps.**

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(Where did you see our Ad?)

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Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence, cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling.

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Pasadena, Cal.

DAIRY FARM Near LYNCHBURG VIRGINIA.

completely stocked and equipped—established trade, 513 acres, blue grass pastures, smooth fertile limestone soil. Fine new dairy barn equipped with modern machinery, thoroughly fenced, two nice residences, abundant spring water, lots of fruit, everything good condition, paying place; butter 35c per lb., milk 8c per qt. $11,000 will buy it with cows and outfit. Easy terms. For details and photograph, Box 282, Lynchburg, Va.

FARM FOR SALE JUNEAU CO., WIS.

120 acres; 100 acres under cultivation, 20 acres meadow. Rich soil, good house, barn and other buildings. A tobacco farm. Price and particulars of **HILES & MYERS, C-100 MATTHEWS BLDG., MILWAUKEE, WIS.**

FOR SALE BY OWNER

STOCK FARM

near Hudson, St. Croix County, Wis. Good buildings and improvements. Easy terms. Address Box Q, Hudson, Wis.

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toward Marathon County as being one of the finest agricultural and dairy sections in the state. The homeseeker can find an opportunity here : : : :

TO

buy lands at a moderate price. The lands we offer for sale are located in the northwestern part of : : : :

MARATHON COUNTY

in a section which is well settled, having good roads, railroad facilities, schools, etc. A splendid opportunity for the homeseeker. Terms reasonable. Write us now for further particulars. : : :

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160 ACRE FARMS IN WESTERN CANADA FREE

Western Canada
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Upwards of 10,000 Americans have settled in Western Canada during the past five years. They are **Contented, Happy** and **Prosperous** and there is room still for **Millions.** Wonderful yields of wheat and other grains. The best grazing lands on the Continent. Magnificent climate, plenty of water and fuel. Good schools, excellent churches, splendid railway facilities.

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(the only charge being $10 for entry) in Manitoba, Assiniboia, Saskatchewan and Alberta. Send to the following for an Atlas and other literature as well as for certificate giving you reduced rates, etc. Superintendent of Immigration, Ottawa, Canada; or to the authorized agent of the Canadian Government—

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in Dunn, St. Croix, Barron, and Price counties make the best homes on earth; because, 1st., soil heavy; 2d., some timber, fuel cheap; 3d., springs and streams numerous; 4th, no blizzards or drouths; 5th., no sand or pine stumps; 6th, near the best northern markets; 7th. best dairy section known; 8th., no crop failures; 9th., successful settlement and all prosperous; 10th., corn, oats, wheat, rye, potatoes, tobacco, hay, etc., unexcelled in the United States.

If you want a Canadian home, we can, and will take you to the best locality in Manitoba or Assiniboia. Send for catalogue or come yourself. We sell on easy terms our own lands in Wisconsin and Canada. **DUNN COUNTY LAND CO.,** Downing, Dunn County, Wisconsin, or 156 East 3d Street, Rooms 5 and 6, St. Paul, Minnesota.

Directions for the Treatment of an Aborting Herd.

1. Burn aborted foetuses and membranes: This material carries the gems of abortion in abundance and burning or deep burial furnish the only means of getting rid of it in a safe way.

2. Isolate discharging cows: The vaginal discharge from cows that have aborted is very virulent and may furnish the means of infecting other cows. Hence, discharging cows should be kept apart from the herd.

3. Disinfect the premises: This procedure should be executed with the most exacting care. Partial or inefficient disinfection is practically useless. To disinfect, where fumigating with the vapor of formaldehyde cannot be employed, the spray pump furnishes the best means. It should be born in mind that disinfectants do not destroy germs that they do not come in contact with. So, all large accumulations of bedding, forage and manure should be removed and every place that may harbor a germ should be reached with the disinfectant. Especial care should be used to drive it into every crack, knothole, behind every loose board, on top of every beam and into every partly concealed hole, as well as upon every exposed surface.

A 5 per cent of good (not crude) carbolic acid may be used for this purpose.

Following the disinfection by spraying and the cleaning of the stable, it may be whitewashed with lime, wash containing one pound of fresh chloride of lime to each 3 gallons of water. This may be applied with a brush or, better, with a spray pump.

The barn yard should be well cleaned out, the manure being spread in some field that the cattle do not have access to. The bottom of the yard should be well scraped and the earth stained with leachings from manure should be removed. Then the surface of the yard may be flushed with a saturated solution of sulphate of iron or thickly spread with lime. The outer wall of the barn, facing on the yard, and the adjoining fences, should be disinfected or whitewashed.

4. Irrigate the genital passages of the cows that have aborted: The purpose of this procedure is to disinfect the genital passages. A convenient method is as follows: Hang a bucket containing the antiseptic solution back of the cow. To a spigot on the side of this bucket attach a rubber hose ⅝ inch in diameter and about 6 feet long. Insert the hose into the vagina and, if possible into the uterus of the cow. Allow from 2 to 3 quarts of the warm solution to flow into the cow and out. Take a fresh hose and irrigate the next cow, allowing the first hose used to soak in an antiseptic solution in the meantime.

This treatmeut should be repeated every second or third day so long as there is any discharge from the cow. Afterwards it may be used once or twice a week. As appropriate solutions, the following are recommended: Lysol, 1%; creolin, 2%; bichloride of mercury, 1-3000; carbolic acid, 1½%; boracic acid, 3%; permanganate of potash 1%; alum, 1%; chloride of zinc, 2%. The last injection, two days before service, should be bicarbonate of soda, 2%.

5. Irrigate the sheath of the bull. The purpose of flushing out and disinfecting the sheath and the outside of the penis of the bull, is to prevent him from carrying the germs of abortion from one cow to another. This procedure should be enforced *before and after each* service. This is very important. The sheath may be flushed out by using a small rubber hose and funnel. The end of this hose is to be inserted into the sheath beside the penis, the fore-skin is held together with the fingers and the antiseptic is poured into the funnel. A 1% solution of lysol is good for this purpose.

6. The long hair at the end of the bull's sheath should be cut off: Moreover, it is well to clip the hair from under the belly over a circle one foot in diameter surrounding the opening of the sheath. Then, by washing with a sponge this area can easily be cleaned before each service.

7. Wash off the external genitals of each cow every day: For this purpose use any of the antiseptics recommended above. They can be applied with a clean sponge. The parts washed should comprise the root of the tail, the anus, the vulva and the surrounding skin for a distance of several inches, and the corresponding portion of the tail. A separate bucket and sponge should be used for the cows that are pregnant and those that have recently aborted.

8. Do not breed a cow for ten weeks after she has aborted: About ten weeks are required for the thorough treatment of a cow that has aborted and she should not be bred before the expiration of this period. If she shows any discharge or other indication of vaginal catarrh she should not be bred for a longer period, or until the parts are in entire normal condition.

9. A solution of carbolic acid may be administered subcutaneously to each pregnant cow: For this purpose use a a 3% solution of carbolic acid and of this inject two drachms every ten days. Should this cause swelling in some individuals, for these use a smaller amount.

10. Remove cows from the herd before they abort, if possible: The purpose of this is to prevent the re-infection of the premises. Of course, this cannot always be done and when a cow aborts in the cow stable, thorough disinfection is again required.

11. Repeat the disinfection of the stable from time to time and pay particular attention to the cleansing and disinfecting the gutters. For frequent flushing of the gutters use a saturated solution of sulphate of iron.

12. Treat the cows according to their individual needs. If a laxative or tonic is needed give Epsom salts, or iron or arsenic according to the indications.

13. Whenever possible it is well to use a separate bull for the cows that have aborted and another for the sound cows. But even in this case it is important to observe the precautions cited under heading No. 5—using a separate apparatus for each bull.

PENNSYLVANIA LIVE STOCK SANITARY BOARD.

That List of Questions Regarding Abortion.

ED. HOARD'S DAIRYMAN:—If one of my neighbors knew everything, I would like to consult him frequently. Having no such neighbor, I printed 1,000 lists of the questions you published in regard to abortion and by gathering the facts known by each farmer who answered, I hoped to learn much more than I could learn from any one man.

Some farmers think abortion is usually contagious. Others think it is not, but

If Stands Alone.

Doctor Pierce's Favorite Prescription stands alone, as the one and only remedy for leucorrhea, female weakness, prolapsus, or falling of the womb, so absolutely specific and sure in curing these common ailments of women, as to warrant its makers in offering to pay, as they hereby do, the sum of $500 reward for a case of the above maladies which they can not cure. This is a remarkable offer. No other medicine for the cure of woman's peculiar ailments is backed by such a remarkable guarantee. No other medicine for woman's ills is possessed of the unparalleled curative properties that would warrant its makers in publishing such an offer; no other remedy has such a record of a third of a century of cures on which to base such a remarkable offer.

Miss Emma Weller, who is Secretary of the Young People's Christian Association, at 1818 Madison Avenue, New York City, says: "Your 'Favorite Prescription' is a boon to sick and tired women, for it cures them when other medicines fail. I know whereof I speak, for I have had experience with it. For fourteen months I had constant headaches; seemed too weak to perform my daily duties, and when the day was over I was too tired to sleep well. I suffered from nervousness and indigestion, and everything I ate distressed me. Doctored with different physicians but received no relief. After reading one of your books I decided to give your 'Favorite Prescription' a trial. Am very glad I did, for I found it was just what I wanted. I commenced to improve at once and kept getting better until, after seven weeks, I was entirely cured. I have remained in perfect health ever since, and remain a firm friend of your 'Favorite Prescription.'"

The dealer who offers a substitute for "Favorite Prescription" is only seeking to make the little more profit afforded by a less meritorious medicine. His profit is your loss. Therefore, turn your back on him as unworthy of your patronage.

If constipated use Dr. Pierce's Pleasant Pellets. They cure constipation, biliousness and sick headache. They do not produce the "pill habit."

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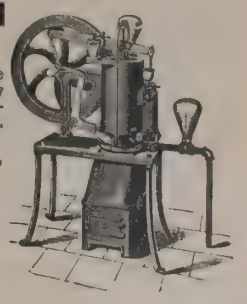
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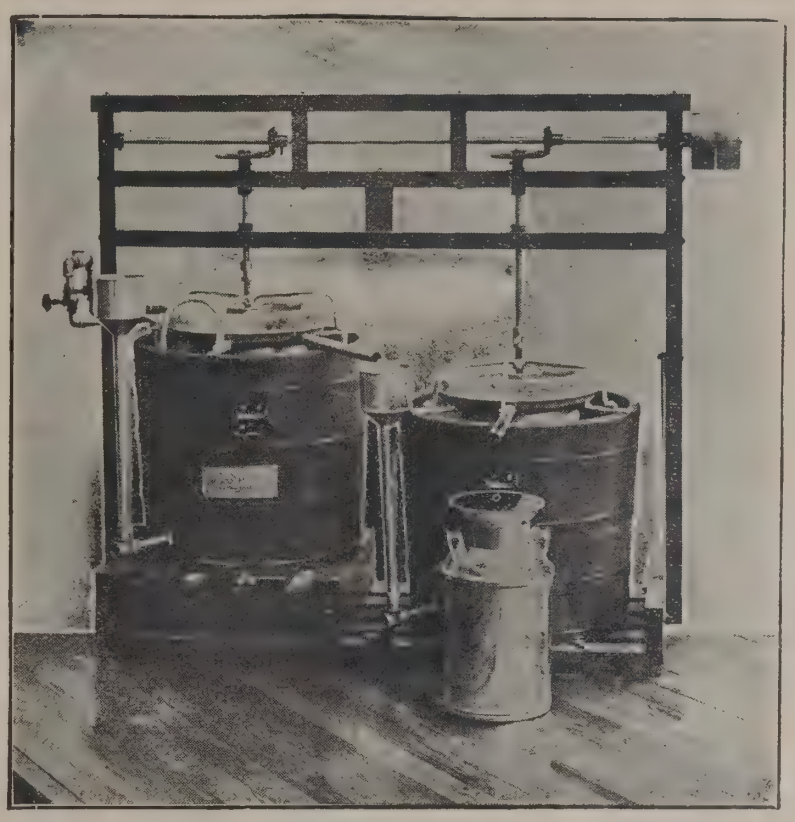
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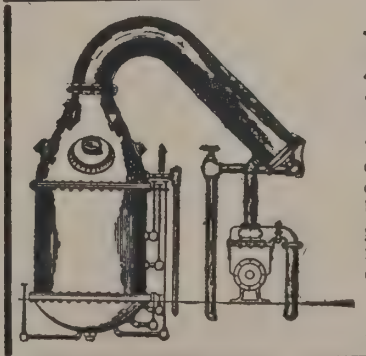


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Milk Condensing Machine

I supply the most improved machinery and most successful processes for manufacturing all classes of condensed milk and evaporated cream. Factories built complete, put in operation and results guaranteed. If you are interested write for my new illustrated and descriptive catalogue. The only catalogue ever published on the subject.

R. R. ROGERS, Detroit, Mich.

I am not associated with any person, firm or company.

Careful Farmers

—careless ones will not be interested—should keep a barrel of Conserve on hand all the time. It will prolong the life of every stick of lumber on the place, and save dollars for every penny that it costs. Two cents' worth will make a fence post last years longer; five cents' worth will protect a sill, etc. It sinks into the wood, and prevents wet or dry rot. A scientific money saver. Send for our circular; it will pay you to investigate

Conservo Wood Preservative.

SAMUEL CABOT, Manufacturing Chemist, 80 Kilby Street, Boston, Mass.

we must look for a cause with which infection has nothing to do. I belong to the latter class. There are undoubtedly localities where it is contagious and one herd may take the disease from another, but from the answers received from all parts of the United States, I can safely express the opinion that not more than one herd in ten from those reported, has contagious abortion, but there is another cause the same as there is a cause for a cows retaining the after-birth. If one cow every week for eight weeks retains the placenta, nobody thinks it occurs on account of a contagious disease in the herd, but the first cow was improperly fed and the other seven were fed the same way.

I spent twenty-five years on a farm in Vermont and during that time I never heard of a single case of abortion. I have now spent fifteen years inquiring: "In what respects do the conditions at the present time differ from those upon our old farm?" If we put two barrels of apples of the same kind in different cellars and in three months, we find the apples in one barrel sound and the apples in the other barrel half decayed, we at once begin to inquire the cause of decay. If we find the first barrel was kept near the freezing point while the other was in a temperature of 60°, we will hereafter keep our apples in a cool cellar. So in the case of abortion, if we can ascertain the cause, or the different causes, if there is more than one, we can hope to avoid the causes and avoid the disease.

Five years ago I published six causes of abortion as I had found them, while taking care of my own herd. That I was not beating the air nor following a phantom, is proved by the fact that after learning those causes, there was not a single case of abortion in my herd for eight years, excepting one that had formed the the habit of dropping her calf prematurely, and then I saw a cow put her horns under the belly of another cow in front of the bag. That same cow has since carried two calves full time.

While I have been looking for light, I do not put that light under a bushel, but proceed to give a few more causes:

1. One man reports that his herd was nearly ruined by abortion and one of his neighbors told him the trouble was caused by small worms. He would not believe it, but finally killed a cow, and found the worms, but said the mischief was caused by the worm's cutting off the navel cord and killing the calf. He used carbolic acid without effect, but afterwards found something which he injected and cured his cows and he had no trouble for several years.

2. From Australia comes the report of killing cows that had aborted, and finding the ovaries diseased.

2. Cotton seed meal seems to be the cause of much of the trouble in the southern states. This is a cheap feed where it is raised and often fed to excess. I would not feed it during the last six months of pregnancy nor to a cow constantly coming in heat.

4. Pressure upon the calf. In almost every pasture in Vermont is a running stream of water. In many pastures of the west, this is not the case, and if cows are not watered at noon, they will drink a large quantity when driven home at night. Some cows fill themselves very full of grass, and the water, which is often followed by a liberal feed of meal, must make an intense pressure in all directions. Keeping up this pressure day after day must weaken and may finally kill the calf.

A quantity of bedding may be rolled up in such a way that half the weight of the cow will rest upon the calf all night. In Vermont, we raised little grain and used little bedding. The stable door should be six feet wide, or two cows may be jammed into a narrow door in such a way as to injure the calf.

5. Allowing a cow in heat to run in the pasture. Certain cows may follow her all day.

6. Going back once more to Vermont, I will state that we never had a drop of more than two inches behind the cows. Many of the farmers report a drop of six or eight inches. Who knows but that the cow or calf may be injured by the cow's frequent slipping with both hind feet into the gutter.

7. Several cases of abortion have been reported when cows were running on marsh pasture. Feed a calf a pint of milk a day and he will soon starve. A calf may die from starvation before birth as well as after. The cause of abortion may be insufficient nourishment of the foetus, or it may be some weed. One man reports that aborting cows sold to his neighbors were all right afterwards. Possibly they had no marsh in the new pasture. N. B. WHITE.

Oconomowoc, Wis.

He Succeeded in Getting the Milk.

ED. HOARD'S DAIRYMAN:—As I wrote you a few months ago for a balanced ration for my cows, as I told you in my last letter I was a young farmer, commenced farming only last April, 1902, now I want to tell you what that picked-up herd of nine cows has done since April 17, 1902, to April 18, 1903. Now, I have never weighed any of their milk or had any tested for butter fat, which I know is wrong, but intend to as soon as circumstances will permit. I have churned from my nine cows 3,109 lbs. butter, not butter fat, but actual churned butter; now I think that is pretty good for a green hand.

Now as I said I was no farmer, but an experienced butter maker, having run a creamery four years prior to last April, so I think I know how to get all the butter out of the cream, and now I will tell you how I got all the milk out of the cows. I subscribed for HOARD'S DAIRYMAN, and I not only read it, but I studied it, so I knew it almost by heart; so with the knowledge I had of getting the butter, your valuable paper taught me how to get the milk.

Lots of people can make a better record than this, yet there are people that don't do half as well right in my own neighborhood, and have kept cows and lived on a farm all their life. I have tried my best to get some of my neighbors to subscribe for your paper, but they say they don't believe in balanced rations and book farming, but there are lots that do, and by reading your paper prove it.

I am going to try and improve this year. I am building me a new barn 32×44 feet, with all the light I can possibly get in it; basement arranged for twenty-six head of cattle; will have three box stalls, cement floors and gutters, the King system for ventilating, water in barn, and a round silo 16×30 feet; so I think I will do better this year than last. Will write you again next April and give you my success or failure, whichever the case may be. EDWARD BOUGHM.

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There is not a crack, blister, blemish or imperfection of any kind in the paint. Makers of mixtures, beat this record if you can!

Be sure the brand is right. Those in margin are genuine, and made by "old Dutch process."

If interested in paint or painting, address

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DE LOACH SAW MILLS ARE BEST. The Price is Right Too. Known the World Over.
FARMERS' $125 SAW MILL
Cuts 2000 Feet Lumber a day with only 4 h. p. DeLoach Variable Feed Saw Mills, 4 to 100 h. p., any price. DeLoach Mill Machinery, Planers, Shingle, Lath and Corn Mills, Water Wheels, etc.
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Handsome Catalogue Free if you cut this out and give name of paper.



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Superior to corn, oats and hay. Ton lots $23.50; half ton $12.25; 500 pounds $6.75; 100 pounds $1.50. Put up in 100-lb. sacks f. o. b. Minneapolis. Cash with order.

This Meal is Guaranteed Absolutely Pure. We also manufacture Strictly Pure Linseed Oil.

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Impartial Time bestows none in passing on vehicles. Each is judged by its fitness and the service rendered. It is through more than half a century's duty that

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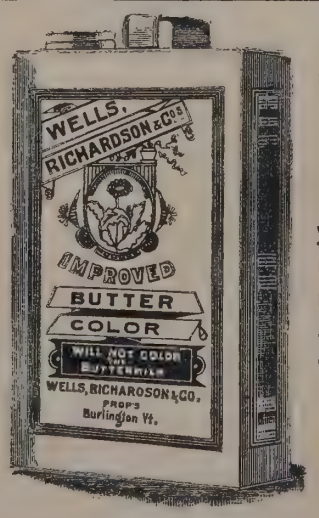
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Official Records of Holstein-Friesian Cows.

(Continued from page 266)

12.305 lbs. Owner, A. N. McGeoch, Lake Mills, Wis.

Gerben 2d's Lady Josephine 45254—7 years; days after calving 26: milk 372.8 lbs., butter fat 12.241 lbs. Owner, W. B. Barney & Co., Hampton, Iowa.

Aaggie Wing DeKol 58103—4 years, 11 months; days after calving 14: milk 484.8 lbs., butter fat 19.714 lbs.

Jetske Artis DeKol 46572—4 years, 9 months; days after calving 10: milk 530.9 lbs., butter fat 17.417 lbs. Owner, H. D. Roe, Augusta, N. J.

DeKol DeJong 47052—4 years; days after calving 12: milk 465.1 lbs., butter fat 16.253 lbs. Owner, C. F. Hunt, Manlius, N. Y.

Nelly Arkel Mercedes 49127—4 years; days after calving 15: milk 375 lbs., butter fat 13.725 lbs. Owner, John B. Irwin, Richfield, Minn.

Pense Jewel 48811—4 years; days after calving 9: milk 352.9 lbs., butter fat 13 671 lbs. Owner, A. N. McGeoch, Lake Mills, Wis.

Clothilde Aaggie Castine 52656—4 years; days after calving 51: milk 440.2 lbs., butter fat 13.411 lbs.

Segis Aaggie Grace 2d 47677—4 years; days after calving 29: milk 368 lbs., butter fat 12.744 lbs.

Aaggie DeKol of Oak Grove 50497—4 years; days after calving 17: milk 365.1 lbs., butter fat 12.620 lbs. Owner, F. B. Fargo, Lake Mills, Wis.

Creamelle 2d's Lady Pietertje 47436—4 years; days after calving 9: milk 400.8 lbs., butter fat 11.557 lbs. Owner, Henry Stevens & Sons, Lacona, N. Y.

Aurora's DeKol 52168—4 years; days after calving 43: milk 345 lbs., butter fat 11.507 lbs. Owner, E. J. Fargo, Lake Mills, Wis.

Aaggie Cornucopia 3d's DeKol 49987—3 years; days after calving 20: milk 536 1 lbs., butter fat 16.112 lbs. Owner, H. D. Roe, Augusta, N. J.

Countess Jarie DeKol 32530—3 years, days after calving 10: milk 379.7 lbs, butter fat, 14.206 lbs. Owner, H. D. Roe, Augusta, N. J.

Madrigal of Belmont 61975—3 years, days after calving 16: milk 375.9 lbs., butter fat 13.760 lbs. Owner, John B. Irwin, Richfield, Minn.

Small Hopes A. DeKol Beets 52070—3 years, days af er calving 18: milk 342.4 lbs., butter fat 12.596 lbs.

Aaggie Mercedes Maid of Ranney 59297—3 years, days after calving 17: milk 419.9 lbs., butter fat 12.501 lbs.

College Colantha Queen 49248—3 years, 8 months, days after calving 56, milk 343.7 lbs., butter fat 11.644 lbs.

Rosa Bonheur 5th's Lady 49252—3 years, 10 months, days after calving 67: milk 311.6 lbs., butter fat 11.109 lbs.

Tidy Abbekerk DeKol 60965—3 years 7 months, days after calving 96: milk 381 lbs.. butter fat, 10.994 lbs.

Susie DeKol Paulett 50722—3 years, days after calving 21: milk 328.1 lbs., butter fat 10.840 lbs.

Mutual Friend Colanthus 52369—3 years, days after calving 22; milk 307.4 lbs., butter fat 9.876 lbs. Owner, E. J. Fargo, Lake Mills, Wis.

Clothilde Corrine 54758—2 years, 10 months, days after calving 26; milk 346.5 lbs., butter fat 10.664 lbs.

Aaggie Lily Pieterje DeKol 54790—1 year, 11 months, days after calving 67: milk 291.4 lbs., butter fat 9.744 lbs.

Belle Pauline 54589—2 years, 8 months, days after calving 99: milk 266.2 lbs., butter fat, 8.537 lbs.

Queen Lucille Rooker 55425—2 years, days after calving 30: milk 245 lbs., butter fat 8.407 lbs. Owner, C. L. Hunt, Manlius, N. Y.

Pauline DeKol Pauline 62294—2 years, days after calving 14: milk 253.6 lbs., butter fat 8.167 lbs. Owner, E. J. Fargo, Lake Mills, Wis.

NewCoeln Pride DeKol 57042—2 years, days after calving 17: milk 254.8 lbs., butter fat 7.998 lbs. Owner, F. B. Fargo, Lake Mills, Wis.

Maplecroft DeKol 56507—2 years, days after calving 42: milk 241.6 lbs., butter fat 7.609 lbs. Owners, McAdam & VonHeyne, Deansboro, N. Y.

Buttercup Korndyke 57952—1 year, 10 months, days after calving, 14: milk 225.3 lbs., butter fat 7.208 lbs.

S. Hoxie,
Supt. of Advanced Registry.

Yorkville, N. Y., March 14, 1903.

Official Guernsey Records.

The work of the Advanced Register of Guernsey cattle has been most successful. It is based on yearly records of milk and butter fat and is the first Register of the kind to adopt that basis. It was authorized less than two years ago and has been well established only a little over a year. During this brief time the records of over one hundred animals have been or are being followed. Of these 37 have been admitted with official records, varying as follows:—Milk from 5471 lbs (by a 2-year-old) to 12187 lbs. Butter fat from 296.9 lbs. (by a 2-year-old) to 602.4 lbs., (equivalent to 346 and 702.8 lbs. butter.)

Only three 7 day records have been made. They are 11.80 lbs. butterfat by a two-year-old and 16.22 lbs. butter fat (equivalent to 13.77 lbs. and 18.67 lbs. and 18.92 lbs butter.) Four bulls have been admitted by having two or more daughters in the Register. Eight of these records have just been completed and are:

Ella Elvira of Perry 14595, owned by Stephen Walker of Buffalo, N. Y. 5471 lbs. milk, 296.99 lbs. butter fat. (2-year-old)

Camissa 11437, owned by Jas. Logan Fisher, Philadelphia, 7625.76, lbs. milk, 298.91 lbs. butfat.

Fernwod of Chantilly 11886, owned by Mr S. M. Shoemaker, Stevenson, Md., 7782.66 lbs. milk, 327.08 lbs. butter fat.

Zelma 13051, owned by Mr. G. B. Tallsman, Perry, N. Y. 6068.2 lbs. milk, 340.34lbs. butter fat.

Lofty's Isabella 7922, owned by Mr. G. B. Tallman, Perry, N. Y. 8537.5 lbs milk, 368.57 lbs. butter fat.

Yolande W. 14374, owned by Mr. G. B. Tallman, Perry, N. Y., 8200.2 lbs. milk, 369.17 lbs., butter fat.

Cecchina 11694, owned by Mr. F Lothrop Ames, Boston, Mass., 7576 71 lbs. milk, 398.58 lbs. butter fat.

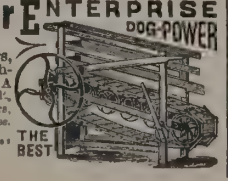
Lady Blanch of Ashland 12664, owned by Mr. G. B. Tallman, Perry, N. Y. 9317.7 lbs. milk, 407.5 lbs. butter fat

Lofty's Margaret 7924, owned by M. G. B. Tallman, Perry, N. Y. 7567 lbs. milk, 416.82 lbs. butter fat.

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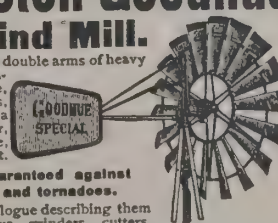


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Set this trap outside your kitchen door or dairy and you will have no more trouble. One in the stable will afford your cattle relief.

Catches 60,000 flies a day

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Half cent's worth saves 3 quarts milk and much flesh. Kills every fly it strikes; keeps off the rest. Harmless to man or beast **NO LICE** in poultry house or any place it is sprayed. If your dealer does not keep it, send **$1.00** for Improved Three Tube Sprayer and enough **Shoo-Fly** to protect 200 cows. Cash returned if cows are not protected.

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In modern days men sow and reap the grain, and

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Help to make their gain.



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May be kept ever so clean, your cattle may be pedigree stock and you may feed them in the most approved manner, but your patrons will never suspect these things if you deliver milk from a ramshackle wagon. An attractive milk wagon attracts trade; it's not a luxury, but a practical necessity.

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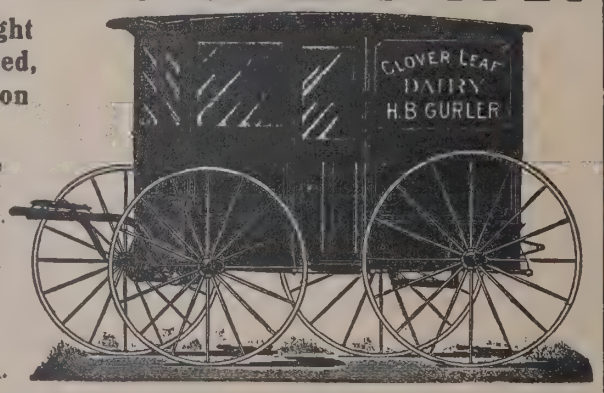
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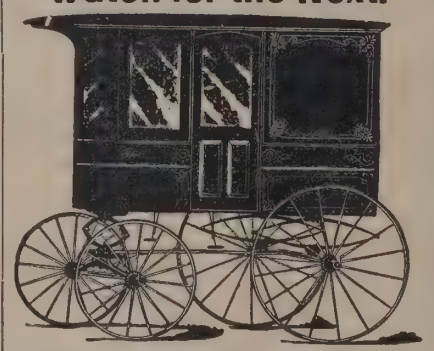




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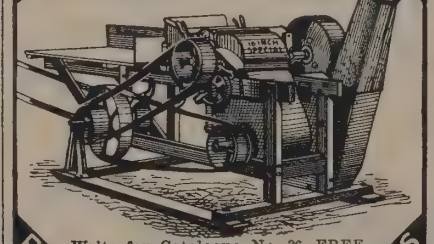
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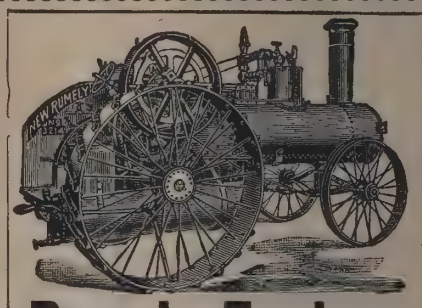
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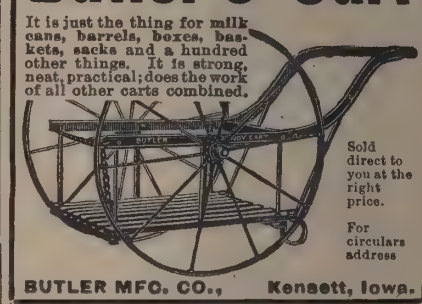
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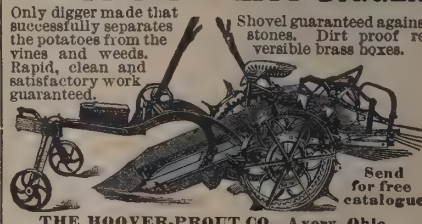
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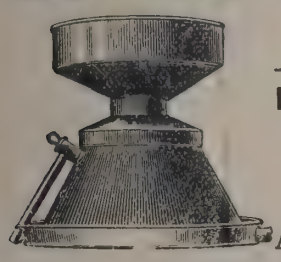
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Get the Best Milk Cooler AND AERATOR.

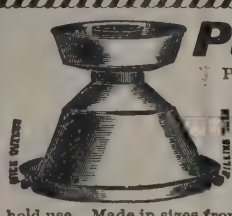


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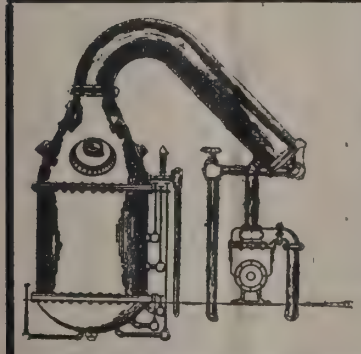
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Pull the lid off a can of milk at any shipping or delivery station and put your nose over it. Smells badly doesn't it? Do you know why? It is because the milk was not properly treated. If it had passed through a

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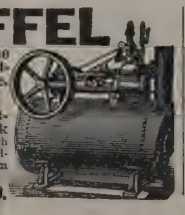
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STEAM PUMPS, AIR LIFTS,
GASOLINE ENGINES
WRITE FOR CIRCULAR L9
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The Dairy Bred Steer.

ED. HOARD'S DAIRYMAN:—The question of raising calves has, to a large extent, been settled by the work of our experiment stations and the general use of hand separators, but what are we to do with the dairy-bred steer after we have raised him is still an open question, which is being answered on our dairy farms in a great number of ways. Some say, kill them at birth and you will save money, and although this is a greatly exaggerated statement, still it shows at what value the dairy steer is held by many.

The idea which is very generally prevalent, that the dairy steer is of little or no value, has been a strong factor in keeping men from entering the dairy business and has greatly increased the demand for the so-called dual-purpose cattle. Not speaking from my own experience, but from the experience of others, I believe that with proper handling and feeding and a little skill in marketing, the dairy steer may be turned into a profitable piece of property.

It might be well in the first place to state some of the objections which buyers offer. The packers and butchers argue that the meat is of an inferior quality. This is true to a certain extent, as it has less of the intermixing of fat and lean, or in other words, the meat is not so well "marbled." Granting that this is true, still the difference between the two classes of meat is greatly exaggerated. Prof. T. L. Haecker of the Minnesota Experiment Station says that for the production of baby beef there is little difference, if any, between the dairy steer and the beef steer, and his statement is backed up by numerous block tests and years of experimenting with dairy cattle.

The feeder says he don't want a steer that has dairy blood in him because he is slow maturing and expensive to feed. Every experiment has shown that there is no difference in the early maturity of the different classes of steers and that it cost but little more, if any, to put a pound of meat on the back of the dairy steer than on the back of the beef steer. This statement is rather hard for many to believe, especially the beef raisers, but it is nevertheless the result of a great many experiments along this line.

With these facts in mind, can one help but believe that the real difference between these two classes of steers is in the mind of the predjudiced buyer and not in the steers. With this the case the question arises, how can we market them profitably. The Nebraska Experiment Station is producing steers which promise to market well, by crossing their dairy cows on an Aberdeen-Angus bull. This, however, would be profitable only in a few cases, as both steers and heifers would have to be disposed of for beef.

The good dairy cow is a scarce article and must be made to produce good dairy cows even if one-half of the offspring are valueless. The other one-half, if superior dairy animals, will more than pay for what is lacking in the steers. But there is no reason why these steers can not be made profitable. They make good baby beef and if fitted for the market young a good profit should be realized. Of course it must be understood that the successful production of baby beef requires a thorough knowedge of the art of feeding and the fact that one has failed once or twice should not cause him to give up.

The greatest difficulty comes when you take them to the stock yards to sell. The price offered in nearly every case is far below the real value of the animal and this very often knocks off all the profits and makes one feel disgusted with the business. A far better way of disposing of them would be to contract with local butchers to furnish them with baby beef for their trade. This would not be practical in all cases, but where practical it could no doubt be managed so as to be profitable for both parties.

The experiments that are being carried on by some of the experiment stations, are doing much toward redeeming the dairy steer, and it is hoped more stations will take up the work. Meanwhile a discussion on this subject in the HOARD'S DAIRYMAN would be of great value to its readers, especially the young readers. What are the successful dairymen doing with their steer calves? Let us hear from them.

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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Odds and Ends.

It would seem, considering the number of experimenters that have been prying into the internal arrangements of the cow during the past 50 years, that most of the why's and wherefore's of her being ought by this time to be reduced to figures and put on record. But when one begins to figure up things, we find to our surprise that there is a constantly increasing mass of facts and figures being poured into the assimilating mill to be ground fine and digested. We know many things regarding the cow; many things that she has done in the past, from which we might reasonably expect that she would do the same or like things in the future. But as the poet says:

"When she will, she will and you may depend on't,
And when she won't, she won't and there's an end on't,"

which wasn't written concerning the cow primarily, but is none the less pertinent and applicable in spite of protein, carbohydrates and professors.

When we ask the question, What does the cow do with her food? we find that we are wandering around on the outskirts of knowledge, in association with a few practical facts that have been produced by a "tripartate agreement" between the cow, the practical man and the professor, and we have as a result that some cows produce more milk than other cows on the same amount of food; that some cows produce more butter fat than other cows on the same amount of food, and the same is true of her maintenance food, the water she drinks, the calf she produces, and many other things in connection with her cowship.

There may come a time when the scientist will be able to cut a trap door of some kind through which he can view the workings of her machinery and tell us when, where, why and how it goes on, but at present what knowledge we do get is obtained by the hardest kind of cutting and fitting and the subject of it all placidly stands, chewing her cud and swishing her tail, and to all questions is as uncommunicative as an "allegory on the banks of the Nile."

The great question at present is: How much protein does a cow need and what does she do with it. For the past ten years the amount of protein needed by an animal of 1,000 pounds weight has been steadily decreased. It was 2.5 pounds; now,according to Prof. Haecker, it is in the neighborhood of 1.5 pounds for a 1,000 pound cow, and it may be lower. Wherein does the modern cow differ from the one that established the standard years ago? Is she a better machine? Do the wheels go around with less friction? Does it take less fuel to supply power? All of which questions are easy to ask, but difficult to answer. At all events it seems evident that there is a saving of nearly a pound of protein a day, and as protein is expensive the fact is of material value to the dairyman, even if the fact and the reason for it are not associates at present.

The smooth talker is still a power in the land and it is strange how little of actual value can be joined to a glib tongue to make the combination into a money maker. The above is suggested by the following letter: "I bought the following recipe from an agent, to keep cream sweet for three to five days, and I take the liberty to ask you if this recipe is right or against the law.

Sal Natro Hydrate	1 oz
Common salt	1 oz
Carbogen gas (solution)	
Filtered water	1 pint

Can you give me a better preservative Perhaps the purchaser of the above is not to blame for thinking the above is valuable and worth its price, whatever that may be. He is not the only man who has put his faith in a thing because it was expressed in words somewhat out of the common. So let us translate it as follows:

Bicarbonate of soda(saleratus)	1 oz
Common salt	1 oz

Dissolve in a pint of water and use *ad lib.*

It is safe to assume that if his neighbor had attempted to sell him a mixture of saleratus and salt, at a good price, for preserving cream, he would have wanted to "swat" him, but the combination of a well dressed stranger, a smooth talker, and unknown words did the business. Well, he is not the only sinner in this respect. The M. D.'s do most of us in the same way, and we don't even kick.

But coming back to the "preservative." The action of the salt is "nil;" there is not enough of it to be of any value. The saleratus unites with the lactic acid as fast as formed and so keeps the milk "sweet," but the bacteria keep on growing faster than they would if the soda were not present, and consequently the milk spoils with increased rapidity. As regards preservatives, the Dairyman has been against their use consistently and continuously, believing that their use is always for the worst. They merely enable the dairyman to keep up his dirty habits, to substitute antiseptics for cleanliness, and enable him to block all attempts towards producing milk of a better quality. "We're agin it."

How long should churning take? is always an interesting question to the dairyman who is turning the handle. And yet no one can say exactly, because so much depends on the churn, the cream and the cow, as well as ripening, temperature, feed and speed. But if the various conditions, as per above are average, and the churning is done between 56–58 degrees in summer and 60–62° in winter, the butter should gather in about 35 minutes and the time will swing on either side of this "according." If, however, the time runs over 40 to 45 minutes, the quality of the butter will suffer in proportion to the extra time.

Then there is usually a hit-and-miss, happy-go-lucky method in salting animals; usually because there is no sharp indication of neglect in this matter. Of course the anti-salt people will tell you that salt is not necessary; that such and such animals get along without it and the cow can do likewise. All of which may be so, but the cow is a creature of habit and when she has become accustomed to have salt in her ration, salt she must have, if she is expected to do her best work. Prof. A. P. Aitkins gives the following reasons why salt should be given to farm stock:

1. In the blood of animals there is six or seven times more sodium than potassium; therefore, in order to keep animals in good health a definite amount of common salt must be assimilated.

2. The addition of salt to animal food increases the appetite, promotes the repair of tissue by its searching diffusion through the body, and stimulates the rapid using up of its waste products. Boussingault's experiments showed that salt increases muscular vigor and activity, and improves their general appearance and condition.

Therefore give your stock salt regularly and in sufficient quantity. F. G. S.



GUERNSEY BULL, HEDWIG'S NONPAREIL, A. G. C. C., No. 6746,
Property of Hillside Farm, Greenville, Me.

A Pasture-al-Idyl.

"Yes," said he, looking across a broad acreage, "there is a pasture that was cleared 100 years ago. That is the original sod, for it, in all these years, has never been plowed, or a pound of applied fertility put upon it. The blue grass grows spontaneously upon it."

It was a pretty sight to look across the field to the woods. Not a bush, or foul weed was to be seen. Here and there a small symetrical elm for grateful shade, and a herd of cows, some grazing, some lying on the grass sward, and overhead the lazy October sun was throwing its mellowed rays over all.

"Yes," continued the farmer, "that's a grand pasture. Beyond the woods it is not near so good, but the fact is, I can winter these cows cheaper than I can summer them. An acre of good silage corn will give two cows winter pasture. Here on the average, my cows require four acres of summer pasture, and I have to both feed and soil to keep up the milk flow. Fine as that pasture is, I cannot depend upon it more than six weeks to keep up the milk yield, and then it is grain and something else to make the dairy profitable. Yes, a fine blue grass pasture is a fine thing; some feed, and lots of sentiment with it; but its got to be helped, if one is looking for a big milk record."

There was more than sentiment in his talk. It brought up the pasture question, and with it the problem of "what shall we feed the summer dairy."

What is the record in the matter? What about dairying anyway since 1850—the year the old white cow kicked me across the yard, for trying to trace with my finger the outlines of her escutcheon map. And, by the way, I have never believed in the theory since. Has the dairy industry as an art, and a commercial factor stood still? No, but the pasture has retrograded until the acres in the cow ranges will not carry one half of the stock they would fifty years ago. The pasture mentioned is a rare exception. The old pastures of the dairy farms are a neglected quantity, and the man told a great truth when he said that his summer pasture was more expensive than his winter one.

The inquiry to-day is, nine times out of ten, what can I best summer soil with; how about summer silos; and the tenth one is, how can I make my pasture as good as formerly. And why! Simply because the decline has been going on so slowly it has hardly been apparent until far apart years are compared, and then the falling off is noticed. And so gradual has the summer feeding of grain and other crops been introduced, it has come to be regarded as an inheritance and always a part of the dairy scheme.

It is not hard to see why this has come about in the process of the years. The hill pastures and vast amounts of the balance, have never been plowed, cultivated, or even fertilized in any way for three, four, and even five generations of owners. Year after year, the cows and young stock have roamed from April 1st to any time before Christmas over the pastures, and with a belief that sod land can, and does, exhibit a conservation of energy that is not looked for in any other farm crop, and that where the cattle run, the compensation is ample to maintain its fertility.

It may be that it is true, that on every acre there may be train loads of plant food in the soil, but years of cropping the grass, has in some way, taken up part, at least, of this store, and the amount of mineral matter taken away in the milk, and the growth of the stock, makes a vast sum in the years that are told, and each year makes the work of food collection by the grasses, so much more difficult, and at the same time invites in other guests—the weeds and the briers, those goats among plants—to occupy and crowd out the tame grasses. True, rain falls, and brings some nitrates, and the winter frosts, and the hoofs of the cattle break up the roots some, and the decay of old roots adds some humus, but a good, active, hungry cow will remove faster than the disintegrating forces of nature can supply. Then the drouths come, and the fierce, blazing sun burns out and dries out the grasses, and on these thin, semi-barren spots, the frost heaves out the few live grass roots as well as the dead ones, and the ready weeds come in to cover the nakedness of mother earth, with unsightly patches. The farmer says "the grass will crowd back in, in time," but the creeping vines, the moonshine, the poverty grass, the daisies and the big weeds galore, come in among the blue grass and the white clover, and one spear of grass now grows where two grew before. The farmer man sets down and writes to the editor man, "What shall I do? My pastures are undone, my hired man has struck for higher wages, and my son has gone to the city to carry a corn salve sign! How can I restore the pasture?"

This is true in the central west! A pasture once broken can never be made permanent again with a blue grass sod, like unto the old one. Once broken up, that land must go into rotation, and thus enlarges by so much the labor on the farm, that now is deplorably scarce, and and so adds to the dairyman's troubles. The solution is not easy. We attend conventions, and institutes, and talk about cows that must be made to give 15,000 pounds of milk per annum, and 600 lbs. of butter; of silos and the corn crop; of al-

falfa and the cold storage of cheese; and ask for laws that will make the feed sellers honest; and why the heathen rage. Little is said about the pasture, and how to maintain its fertility.

It may be that the summer silo is cheaper than pasture land, but so far the silo seems to be a make-shift to avoid resodding the thin grassed pasture. Can the pasture be ignored in the plan of dairying? Must it not be, and be an important factor in the economy of the dairy? An acre of silage may be cheaper than the grass on four acres, but in that event what will be the fate of the three acres of pasture yet remaining? A friend suggests that the solution is to plow up the pasture, fertilize it highly, and sow to alfalfa, and, when this is established, divide the pasture into fields, and rotate the cows every three weeks, and when they are turned into a fresh range mow the vacated lot, so as to make the alfalfa sucker, and send up fresh foliage instead of the stalks seeding, when the alfalfa will prove four times as abundant, will feed better than any blue grass sod possibly can, and the old, renovated pasture will be a very gold mine, where now only briers, daisies, and tall iron weeds grow.

This is hopeful, if we can only find this Mr. Productive Prosperity, at home, when we get there. Not a doubt exists but that the plow, added fertility, and other grasses than blue grass must be the solution of this pasture problem. On the hill lands, where it is difficult to plow, the problem is more complex, and no wonder some of those hill farms are selling very low. Why? Because paint-brush, brakes, and laurel, have crowded out the grass, and who shall or can rehabilitate these hills again with the rich abundant grasses? We do not write this from any pessimistic point of view that the day of doom has come, but to inquire how, and by what means can the old pasture be made to grow its old time luxuriant grasses? Who will answer? JOHN GOULD.

Ohio.

Elderbrook Dairy Notes.

An Ohio Herd Record.

ED. HOARD'S DAIRYMAN:—As some have sent yearly records of their dairies, I will send mine, beginning April 1st, 1902, and ending April 1st 1903.

Number.	Age 1902.	Lbs. Milk.	Value.	REMARKS. Calved.
1	9	6,065	$51.66	April 27, '02. Sold November '02
2	8	5,087	44 61	March 17, '02. Sold January '03
3	7	7,806	83.14	March 9, '02 and January 15, '03.
4	6	9,307	95.75	April 1, '02 and February 10, '03
5	8	5.633	49.10	March 24, '02. Sold January' 03
6	4	6,124	63.51	April 27, '02, due April 30, '03
7	3	6,372	76.87	July 7, '02, due October 1, '03.
8	2	4,822	64.76	September 1, '02, due Sept. 2, '03
9	2	6,237	62.67	April 7, '02, due August 18, '03
10	2	4.273	44.61	April 26, '02, due April 20, '03
		61,726	636.68	

As No. 2 and 5 would have been fresh in a few days, and No. 1 and 8 were milked only about 7 months, the average number of cows was not over nine. Milk was sent to the cheese factory from April 1st to December 1st, and the balance to Cleveland. City price was $1.65 per cwt. and factory price 80 cents to $1.20.

We have recently purchased a registered Holstein bull, whose sire's dam was America 2d's Pauline DeKol, the cow that won first prize at the Pan-American cattle show, for the most milk and butter in a seven day test. All the dairy ideas that I have, have been obtained by careful study of HOARD'S DAIRYMAN: Such as weighing each cow's milk twice daily, year around milk, grooming cows, spraying for flies, training heifers to be persistent milkers, feeding a balanced ration as near as possible, providing early soiling crops, feeding a little grain in the summer.

"An elastic standard", *i. e.*, we set 5,000 lbs. per cow, and beat it a little the first year, then changed to 6,000 lbs. and then beat it the year past.

We have dreams of an 8,000-lb. dairy some time, but expect that is a long time ahead. If a heifer does not give 4,000 lbs. the first year, some one else can board her. Have paid $172 for gluten feed and bran for the year. No other grain was fed except the corn in the silo. I think cows can be wintered for $2 per month, besides grain, by feeding silage and corn stover or straw, and pasture at $1.50 per month. This makes the cost of keeping $38.20.

Say, Mr. Editor, if every cow keeper had done as I have, what would be the price of gluten and bran? G. P.

Ohio.

WHY WE MENTION THESE THINGS.

Occasionally we get a letter from some subscriber in a distant state who can get no good out of the DAIRYMAN, and he will write us to stop it and will give as a reason, "your paper is not adapted to our section of the United States." Maybe the same mail will contain a letter from another subscriber from the same state who feels altogether different.

Here is the way a state of Washington man feels about it:

ED. HOARD'S DAIRYMAN:—Enclosed find P. O. money order to renew my subscription for your valuable paper. I only wish I had known of it 10 years ago. I would not like to lose a single copy.

R. C. MUELLER.

North Bend, Wash.

Now, this is not a selfish question with us. It is not one or one hundred subscribers more or less, that we speak of it.

It is because we believe, mind and soul, in the work we are trying to do. It is because we believe that the great reason why so many farmers do not do better than they do with cows, is because they allow their minds, their thinking powers, their power of understanding, to get rusty. To keep their thought and judgment up to grade, they absolutely need constant reading on the dairy question. Progressive men think so. Are those men right; are they doing justice by themselves who don't think so? That is the real question at issue. That's the reason we speak of these things.

And here is a hard question to answer, one we have been puzzling over these many years. It is asked by an old reader of the DAIRYMAN and it is as follows:

Enclosed find $1.00 for which renew my subscription another year. Why don't more farmers try to read and take advice from such papers as HOARD'S DAIRYMAN? There would be better satisfaction and bigger profits at the cheese factory and creamery if they would do so. I have been a cheese maker, but am a farmer now. A. A. FOCHS.

Hilbert, Wis.

Here are two bits of testimony from German-American farmers, each living in states far distant from each other.

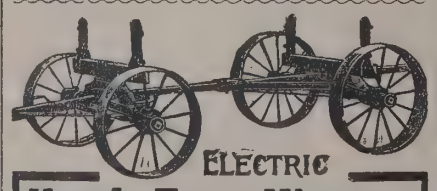
A GOOD WAY OF PUTTING IT.

In reply to a dual-purpose advocate who thinks farmers should go into the dairy business with this kind of cattle, Mr. N. A. Chisholm, of Jacinto, Calif., puts the question in the following shape in *Dairy* and *Produce Review*:

Well, G. L. P. does not understand the position of the "special-purpose advocates." They are not trying to put a stop to beef production, but only ask the creamery patron to place the special-purpose dairy cow and the dual-purpose cow side by side, feed both all they will consume of a milk producing ration, keep an individual record of pounds of milk and the percentage of butter fat of each cow, and amount of feed consumed, and inside of a year we will have another "special-purpose cow advocate." All of the scrub dairymen—most of the dual-purpose ones—and fully 75 per cent of the special-purpose dairymen will say: "I haven't got the time to fool around weighing and testing a cow's milk." Well, if they are rich enough to be able not to keep individual records of their cows, they have money enough to retire and go into the Unite d States Senate.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.



ELECTRIC

Handy Farm Wagons

make the work easier for both the man and team. The tires being wide they do not cut into the ground; the labor of loading is reduced many times, because of the short lift. They are equipped with our famous Electric Steel Wheels, either straight or stagger spokes. Wheels any height from 24 to 60 inches. White hickory axles, steel hounds. Guaranteed to carry 4000 lbs. Why not get started right by putting in one of these wagons. We make our steel wheels to fit any wagon. Write for the catalog. It is free.

ELECTRIC WHEEL CO., BOX 130, QUINCY, ILL.

Spring Medicine

There is no other season when good medicine is so much needed as in the Spring.

The blood is impure, weak and impoverished—a condition indicated by pimples and other eruptions on the face and body, by deficient vitality, loss of appetite, lack of strength, and want of animation.

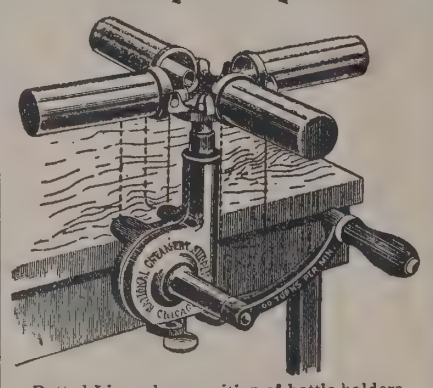
Hood's Sarsaparilla and Pills

Make the blood pure, vigorous and rich, create appetite, give vitality, strength and animation, and cure all eruptions. Have the whole family begin to take them today.

Hood's Sarsaparilla promises to cure and keeps the promise.

NATIONAL

Babcock Milk Tester



Dotted Lines show position of bottle holders when not in motion.

Has enclosed cut gears.
Swinging bottle-holders.
Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

DOES YOUR DAIRY PAY?

It costs no more to feed a profitable than an unprofitable cow.

NET PRICES:

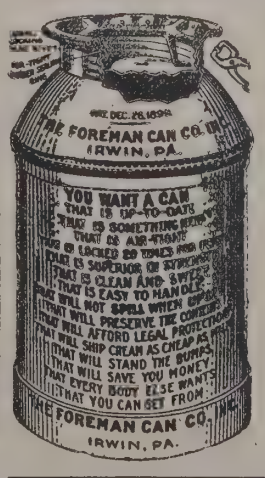
No. 1,—2 bottle, complete for testing milk.... each $4 00
No. 2,—4 bottle, complete for testing milk.... each 5 00
No. 3,—2 bottle, complete for testing cream and milk, each..... 4 50
No. 4,—4 bottle, complete for testing cream and milk, each..... 5 50

Prices include full directions for making test, bottle of acid, test bottle brush, acid measure, dipette and test bottles.

We are the great Dairy Supply House of the West. We carry an immense stock of all kinds of Butter and Cheese Making Apparatus and Supplies. Write for catalogues and circulars.

National Creamery Supply Co.,

450-458 Illinois St., CHICAGO, U. S. A.



We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity—1000 cans daily, which should enable us to fill all orders promptly.

Every can sold on a guarantee. Write for Circular H.

CREAMERYMEN, DAIRYMEN and MILK DEALERS

Can be Promptly Furnished with anything they want at reasonable prices, if they will write me. My CHILDS' PATENT MILK BOTTLE FILLER is the best on the market. Send for free catalog.

J. S. BIESECKER,
59 Murray St., New York City.



Pioneer—

One who goes before; a leader —Webster.

We are pioneers. Pioneers in the manufacture of pure vegetable parchmen paper. Like all pioneers, we have been followed by others. Most of them claim to make as good parchment paper as the "Paterson." We think that about the highest compliment that could be paid our

Pioneer Brand Parchment Paper.

Ours is the kind that taints nothing by contact. It is stronger when wet than when dry. It's absolutely unequaled for packing print dairy or creamery butter. It shuts out all destructive germs and vile odors and shuts in all the natural sweetness and flavor. It keeps butter longer and better than can be done by any other convenient means. It preserves the butter and your reputation as a butter maker at the same time. We print your name, dairy, creamery or private trade-mark and brand on every sheet. Write for sample sheets and booklets. Be sure to get our booklet, **"Better Butter."** We send it free.

The Paterson Parchment Paper Company,
No. 87 8th Street, Passaic, N. J.

THE PATERSON PARCHMENT PAPER CO. PASSAIC, N.J. PIONEER

Your Butter

is all right when it leaves your hands, but how about it when it has stood around the market or grocery a few days absorbing all kinds of odors? The only safeguard to your reputation is a perfect package.

Our New Gem Fibre Box

is the one perfect butter package. The border of this ad, which is a section of the box, shows how well it is made. Double and triple walls of impervious fibre; dovetailed walls and inner bottom; reinforced with extra bottom and lined throughout with parchment paper. Impervious to **moisture, holds the brine and will neither sweat, rust nor mildew.** Send to-day for free booklet and sample.

THE GEM FIBRE PACKAGE CO.,
Dept. E, Gem Building, Detroit, Mich.



Shepherd's Aerator

is most simple, most effective, least trouble. While you go on milking millions of air globules from the charged tank are passing up through the milk, driving out all animal heat and foreign odors. Works in shipping can. No other vessel to clean. **King among Aerators.** All dairymen prize it. Write for descriptive circular.

F. P. SHEPHERD & CO., Elgin, Ill.

A Powell County, Montana, Dairy Record.

ED. HOARD'S DAIRYMAN:—The following is our dairy record for 1902, as taken from our books. The average number of cows milked was 26; the amount of milk produced being 182,295 pounds. This makes an average of 7,011 pounds per cow. The largest amount given by any one cow—a three-fourths Holstein—was 10,715 pounds. Six other cows averaged over 9,000 pounds each. The cash sales of the dairy product, together with that used on the farm, follow:

2,920 pounds butter sold retail	$826 60
2,597 pounds butter sold wholesale	653.64
339 pounds butter used on farm	84.75
5,856 Total number pounds made.	
Bottled cream sold at wholesale	$144.90
Bottled cream so'd at retail	95.70
Bulk cream sold at wholesale	54.80
Butter milk sold	30.40
Whole milk sold	16.05
Skim milk sold	2.05
17 veal calves sold	145.41
4 calves raised valued at $5	20.00
168,779 pounds skim milk fed on farm at 15 cents per 100 pounds	253.16
547 gallons whole milk used on farm	109.40
Cream used on farm	22.75
Total	$2458.81

The average price received for butter was a fraction over 25 cents per pound wholesale and a fraction over 28 cents per pound retail. The milk from each cow is weighed at time of milking on milk scales that give the net weight and is recorded on milk record blanks. Each blank contains the record for one week for 14 cows. The skim milk credited in the foregoing was nearly all fed to pigs, along with green alfalfa in season; out of season, bran was used instead. We know there are larger dairy records and it would not be hard to beat this one, yet this shows an average of $94.57 for each cow. I regret that we did not keep an accurate account of the feed consumed. It did not, however, exceed $30 for each cow, which would leave a net profit of $64.57 per cow. GEO. W. DANA.

Deer Lodge, Mont.

Clarified Milk.

ED. HOARD'S DAIRYMAN:—My few lines regarding clarified milk seem to have greatly excited people who are putting milk through different processes with the idea of bettering the product. Mr. Moldenhawer on page 236, in criticism of a former article, most certainly shows he hasn't made a scientific study of the milk question. It was a noted New York physician who has made a more exhaustive study of infant feeding than anybody I know of, who said, of milk run through the separator, "It may be clarified, or modified milk, but it can never be milk" A microscopical examination of clarified milk, will prove that physical changes have been wrought; so also will a comparison of a jar of raw untreated milk and of clarified milk that have been carried around a delivery route. Anybody that wants to know the truth regarding milk that will make these two tests, will find my statement *is warranted*.

As to what properties have been removed by the centrifuge, as I said then, we haven't determined with enough accuracy yet to report. Research work takes considerable time even when there is nothing else to do, and as I have a dairy to superintend, it means research work goes very slow, but if these critics who are content with their present attainments and methods, will be patient, we will tell them what physical changes have been wrought.

In Dr. L. Fischer's work on Infant Feeding, they will find the hospital record of many cases where changing the diet from milk that had been through the centrifuge to milk that has not, cured the patient. An interview with most of the good pediatrics to this end will furnish more proof that raw, untreated milk is better than any other. If the DAIRYMAN desires it, we can give the data along this line.

I didn't write because of the competition of clarified—pasteurized milk, but to indicate more profitable and desirable lines in dairying, and as a pointer to those readers of the DAIRYMAN who want to not only do the most profitable thing, but also the right way, not turning aside to the by-paths of clarification and pasteurization.

I will say for their benefit, Mr. Moldenhawer to the contrary, that they do not and cannot compete with pure clean milk. I don't think because "insisting on sanitary conditions and scientific cleanliness" hasn't converted the masses is any reason to give up insisting on it, or instructing beginners in the right way, or reforming the breakers of all sanitary laws when possible. It is certain clarification isn't even a reformatory; pasteurization may be in a limited sense as now practised. If pasteurization was done at the milk producing centres within a few hours of milking, and handled rightly afterward, it would be of vastly more importance than as now conducted. After investigating many pasteurization plants I'm forced to confess that most places nullify the pasteurization by methods of bottling afterward.

That my suggestion regarding the distribution of the same milk on the same route daily isn't "absolutely impractible," I know because one very large contractor does it with all he retails and says he could do it with all the milk he handles. "It would require a little systematic work; I don't bother with for others because I don't have too; for myself, it is advertising," he says. The city milk supply ranks next to the public water supply and sewage disposal questions as related to the public health, and we cannot afford to stop short of the truth however it may affect existing systems or interests.

The men who keep in touch with the truth and adopt her teachings will have nothing to fear, but rather will be accounted wise above some of the past generation, and by enough of the present to make it profitable. F. L. MARION.

North Woburn, Mass.

Alfalfa in New Hampshire.

ED. HOARD'S DAIRYMAN:—I see in a recent issue of your valuable paper a man asks if any one is trying alfalfa in Vermont. Although I live in New Hampshire near Keene, I presume it will be of interest to read an account of my experiment last year. I send a root dug last week from a plot sowed in May, 1902, on land not fertilized for 8 years except by a crop of rye plowed under the last of April, 1902.

We found from a lot of different trial plots that the best way was to take a piece of dry, open land, plow under the old sod in last of April, harrow in 500 to 600 lbs. grass phosphate and 50 bushels hard wood ashes, seed 20 lbs. of good alfalfa seed and not cut till the alfalfa is in bloom, and only when in bloom unless weeds are ready to go to seed.

Our land needs lime, and alfalfa will not do well unless it has it.

I do not like manure, as it contains too much weed seed. My alfalfa did not winter kill at all and took well.

Keene, N. H. F. W. GUNN.

The alfalfa root sent was 28 inches long, a good illustration of the manner in which the alfalfa plant goes deep into the soil for food and moisture.

DON'T PUT OFF

Seeing your friends and having them oin in for a good club of subscribers.

"ADVERTISEMENT."

PRETTY CHEEKS.

A Food That Makes Girls Sweet to Look Upon.

The right food for young ladies is of the greatest importance to their looks, to say nothing of the health. Thin, sallow girls don't get the right food you may be absolutely certain. A Brooklyn girl says: "For a long time in spite of all I could do I was thin, skinny and nervous. My cheeks were so sunken my friends used to remark on how bad I looked. I couldn't seem to get strength from my food—meat, potatoes, bread, etc. So I tried various medicines without help.

"I often read about Grape-Nuts, but never tried the food until one day something impressed me that perhaps if I would eat Grape-Nuts for my nerves and brain I could digest and get the good of my food. So I started in. The food with cream was fascinating to my taste. and I went in for it regularly twice a day.

"Well I began to improve and now while on my third package I have changed so my friends congratulate me warmly, ask me what in the world I have taken, etc., etc. My cheeks are plump and rosy and I feel so strong and well. I sleep sound and it seems as though I couldn't get enough to eat. Thank you sincerely for making Grape-Nuts." Name given by Postum Co., Battle Creek, Mich.

There's a reason for Grape-Nuts.

Empire Empire

Eight Years Fifteen Cows



1895 1896 1897 1898 1899 1900 1901 1902

The Empire Way Makes Cows Pay.



How's This For a Record?

Emporia, Kans., Jan. 2nd, 1903,
Empire Cream Separator Co.,
Bloomfield, N. J.

Dear Sirs: Have used one of your **Empire** Cream Separators for the past eight years, during which time I have been milking at all times from twelve to fifteen cows. The cost for repairs in the eight years has been only seventy-five cents. I have had experience with other separators but consider the **Empire** superior to any other, as it never caused me any bother. It is easy to clean and has proven very durable. It does good work at all times.

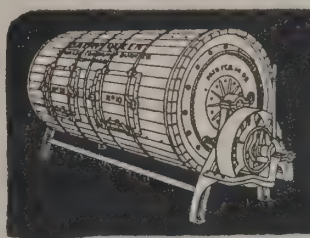
L. H. VAHSHOLTZ,
Rural Route No. 4.

The Empire Cream Separator turns more easily, is more easily cleaned, does better work, and costs less for repairs than any other, because it is the **simplest separator made.** Don't buy a separator until you have investigated the merits of the Empire.

Send for our new book on Making Milch Cows Pay.

Empire Cream Separator Company,
Bloomfield, N. J.
Western Office—FISHER BUILDING, CHICAGO.

Eight Years 75 cents for Repairs Fifteen Cows





THE DAIRY QUEEN

Combined Churn and Butterworker.

This piece of machinery suggests better things for the creameryman. It does not require a multiplicity of castings, gears and chains to operate; two gears and clutch pulley, that's all. The iron roll covered with corrugated wood is suspended in the churn upon a hinged lever, is operated by the movement of the churn and the butter and is held to its work by its own weight. It is at once

A MODEL OF SIMPLICITY AND USEFULNESS.

It saves time and labor, does not impair grain or texture of butter, thoroughly works out and facilitates drainage of buttermilk and secures perfect mixing of salt. For full description of this perfect working machine, write for free catalogue No. 13. We are manufacturers and dealers in Creamery Machinery, the Boyd Cream Ripener, Milk Cans, Cheese Apparatus, Milk Dealers' Supplies, etc. with separate catalogues for the several departments. Write us of your wants and we will send appropriate book.

REMEMBER we are not connected with any trust, but are an independent Company, furnishing high grade supplies at reasonable prices.

STURGES & BURN MFG. COMPANY,
Kansas City, Mo. Chicago, Ill. St. Paul, Minn.

BUHL CANS ARE NOT Like Other Milk Cans Because They Are Better

This is equally true of the **Buhl Factory, "Improved Elgin" and Genuine Iowa Cans**; superior material, design, workmanship, and smooth finish combine to produce those **long wear** qualities for which the **Buhl Cans** are so renowned. **Remember** the Buhl is the only can in the world that is made with the BUHL "VICTOR" CAN BREAST and the BUHL "VICTOR" ROUND HANDLE. They may cost a little more than common cans—we do not know, for we cannot tell how badly "the trust" and others are beating you. We know that the small added cost of the **Buhl Cans** will prove the best can investment you ever made. Every can that is stamped with our famous Milk Can Trade Mark, as shown here is a genuine **Buhl Can.** The mark is a guarantee of all around excellence. Ask your local dealer for **Buhl Cans.** If he does not have them he can get them for you. Write us about it. We will see that you are supplied.



Buhl Stamping Company, 212 W. Larned Street, Detroit, Mich.

"COME in the evening or come in the morning, when you're looked for or come without warning"—You'll always find your Tread Power ready for business. OF WHAT OTHER FARM MOTOR—Wind Steam or Gasoline—can this be said? A PERFECT GOVERNOR ensures absolutely even speed. Send for free catalogue.



St. Albans Foundry & Implement Co., St. Albans, Vt.

WRINGING WET Clothes dry is the reason for using any wringer. Saving clothes, buttons and money is the reason for using **Horse-Shoe Brand Wringers.** They are made with rolls of the finest Para Rubber. Every wringer is warranted. **THE AMERICAN WRINGER CO., 99 Chambers Street, New York.**

"1900" BALL BEARING WASHER sent free, without advance payment, freight prepaid both ways on 30 days trial. Mr. Geo. N. Burnet, Ashtabula, O., says, "Have done 1200 washings and is good for 1200 more. Beats them all, and have tried 8 different machines." Write at once to "1900" Washer Co., 219A State St., Binghamton, N. Y.

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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own ight who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

BEGINNING early in May, Purdue University will operate the creamery equipment of its dairy department on a commercial basis, securing milk regularly from the farmers in the vicinity.

This step was prompted by the difficulty experienced in securing a temporary supply of milk at such times as it was needed for use of the students.

The equipment includes the latest styles of separators, combined churns, vats and cream ripeners. This equipment, with a supply of milk regularly, will make possible the study of many questions not heretofore touched on by the work of the Indiana Experiment Station.

Prof. H. E. Van Norman has secured H. N. Slater, of Fairmount, Minn., as assistant in the creamery work of his department. Mr. Slater is a creamey butter maker of wide experience, a graduate of the Minnesota Dairy School. and has served as instructor in the Starter and Cream Ripening Work at Minnesota. He was also an instructor in the Creamery Course at Purdue this past winter.

Indiana creamery men, butter makers and dairymen should take advantage of the establishment of a well equipped dairy department at Purdue by calling upon them for such information and assistance as they can render, feeling sure it will be cheerfully given.

CONSTITUTION IN DAIRY CATTLE.

Everybody is looking for some sign or external indication of vitality or staying power in their cows. We want cows that will stand to their work year after year, resist disease and do good service. We all value what we call "constitution" in our cattle, but we have some very queer and mixed notions of determining it. On this point, Prof. Haecker in one of his addresses says:

"An animal deep in brisket, with broad shoulders and fore legs far apart has no more stamina or endurance than one with a narrow, sharp shoulder and ewe neck. In fact, the latter as a rule, has more nerve force and endures longer. So far as my observation goes, an animal with a good middle and carrying little surplus tissue is fitted for much work and a maximum period."

We thoroughly agree with Prof. Haecker in the above estimate. How often we hear men say that a deep brisket and much width between the fore legs indicates great lung and heart power, when indeed it does nothing of the kind. That is an old beef cattle notion and is without foundation in fact. If anyone wishes to prove the truth of our utterance, let them compare the heart and lungs of a 1,000 pound dairy cow with those of a 1,500 pound beef animal of the most approved build between the fore legs. They will find in most instances that both heart and lungs of the dairy cow are larger than those of the beef animal. Indeed, there is reason for this. The dairy cow secretes a large amount of milk daily. This is a great draft on the blood circulation. The blood is vitalized by the lungs and she requires strong breathing power. This fact should compel us to provide an abundance of pure air for our stables, for we are beating ourselves if we do not.

Compare the build of the race horse between the fore legs with that of the draft horse. Yet will any man claim that the race horse is deficient in lung and heart power. It is very evident that the facts in these two cases do not justify the judgment of those who have reasoned in favor of the deep, wide brisket as indicating increased heart and lung action.

The best and truest indication of constitution in man and animals is the construction of the walls of the abdomen. A large, strong frame with a weak belly will not endure. On the contrary, a deficient muscular build with a strong muscular abdomen will often show surprising endurance. This principle is established by the structure of the umbilicus. A weak, spindling umbilicus indicates that the mother has very imperfectly nourished the foetus and the walls of the abdomen will be thin and weak and the power of endurance correspondingly reduced. It is the animal, as Prof. Haecker says, "with a good middle" not unduly large or pot gutted, but a belly with very strong muscular walls that will go to the end of the course and endure best.

This is constitution. It is well to remember, always, that large size in both men and animals is no indication of constitution or staying power.

THE PURPOSE OF THE COW CENSUS.

Many people have questioned the purpose of HOARD'S DAIRYMAN in subjecting itself to the serious expense of taking the various Cow Censuses which have appeared in its columns. This question can be simply answered. It is done for the purpose of getting at the bottom facts as they exist with the average cow farmers. It has proved impossible to arouse them to a sense of their condition and the losses they are sustaining by any ordinary talk in the paper, in the farm institute or anywhere else.

Because they keep no records they simply do not believe what is told them in the ordinary manner. So we resorted to something out of the ordinary. Nothing was ever before attempted which comes as close to the truth as do these cow census investigations. Some of the farmers who have been investigated declare the report is all a lie, but they forget that they helped the census taker to make up the farm end of the report and so far as the creamery end of it is concerned that is solid truth.

F. W. Lighty, of Adams County, Pa., in writing the *National Stockman and Farmer* says:

Some time ago I took a little private "cow census" in this part of Pennsylvania and the results were something like this: Visited 69 patrons of creameries who owned altogether 693 cows. Seven kept special dairy cows numbering 84 cows. The average gross income of these cows was $57. The 62 patrons who were possessed of 609 of those "go-between," "general purpose," "dual purpose" cows gave an average gross income per year (creamery figures) of $24.40. All the figures given by the patrons as to the cost of feeding the cows averaged $36.90 per cow.

This idea of taking local "cow census" is not original with me, but I found it extremely instructive. The same kind of work was done by different individuals in Northern Pennsylvania, in New York and in Wisconsin, but the results, as published in HOARD'S DAIRYMAN, showed practically the same state of affairs, viz., that the great mass of farmers keep cows to make manure, and that the manure cost them too awfully much. To induce these people to get away from these cows and get profitable ones, cows bred for a purpose, is one of the great reasons why I write these weekly letters, and unless some actual, tangible, ocular evidence in favor of those "general-purpose" cows is forthcoming I will promise to continue enthusiastically along the same line.

Mr. Lighty's purpose of trying to get the farmers away from unprofitable cows is our purpose in taking these census reports. Men must be convinced first of the facts in the case, before they will change. We want to get them to produce better cows, follow better methods and make more money in the business. We cannot bear to see them so stolid and contented in doing the right thing the wrong way and with wrong ideas of it generally. We understand perfectly well that many of these farmers do not thank us for taking off the cover and letting in the daylight, but we can't help that. We have only a few more years in which to labor in this field and our work is not yet done. This is the purpose we have in view in taking these reports. We are going to take 1,000 farmers, their herds and their methods before we quit. That will give us broad ground for securing a sound judgment of the average dairy farmer.

We wish he would average better, do better, think better, read more, and be a better dairyman, for his own sake. But the facts concerning him as he is, must come out.

EXPENSE AND PROFIT.

W. H. and A. W. Holley, of West Farmington, Me., have a herd of what is known as the Maine Jerseys, which they have bred and developed for plain, straight, creamery work. They are patrons of the Turner Centre Creamery. Is there anything to this business of good breeding and careful selection? Will it help the plain, ordinary farmer who patronizes a creamery and very naturally would like as much money from his cows as possible? The records show that the Holley Bros. get six dollars per month for each cow, at the creamery. So much for the use of good dairy sense in breeding, feeding and selecting. What can we learn from this incident? What can the man learn that thinks general-purpose cattle are more profitable to use in creamery work? Do any of the general-purpose patrons of creameries show such results? And ten to one, they spend more money for feed. The patron of a creamery is a special-purpose man, subjecting himself all the year to special-purpose expense. He ought to have the good sense to use a class of cows that will bring him the largest net returns for all this expense. When he plows he ought to use a special-purpose plow, not a dual-purpose plow and harrow. All of the combined reapers and mowers have gone out of use, because they were not as profitable.

Some day the farmers of the United States, who are doing dairy work, will study better than they have done the economic relation of expense to profit, and when they do that, they will very soon set about doing a dairy business with a special-purpose dairy cow.

SOME OF THE CAUSES FOR THE LOW PRICES OF EASTERN FARM LANDS.

Jas. M. Plato, on page 268 of this volume, touches upon the high prices of lands in some states and low prices in others. He does not see exactly why such a disparity exists, especially if the returns from the lands are anywhere near equal. There is one phase of this question we wish to speak of. Forty years ago we saw farms in New York, for instance, selling at $100 an acre that today we can buy at from $30 to $50 per acre. To a certain extent there has come a loss of fertility. The old men who handled those farms were good farmers. They took good care of the fertility of their lands. Their places have been filled by a different class of men. Farming has grown unfashionable. All the brighter young men have left for the cities or the west. As a result there has been a crowding of farms on the market; more farms for sale than there are farmers to buy them. As the old American stock of farmers died off there has not come new farmers to take their places. This has been the chief cause of depreciation. The system of education, even in the country district schools, has not helped make farmers. On the contrary, it has educated farmers' boys away from the farm. When the supply of farmers goes down, the prices of farm lands go down also. When there are plenty of men who want to buy farms, then the prices go up. Under this condition of things, depreciation of fertility to a certain extent and a reduction in the number of men who want farms, prices for farm lands can not help rule low.

In Wisconsin and its sister states the situation is different. Here there has been a steady increase of value in farm lands because, largely, immigration from foreign countries has constantly brought us a supply of farmers who wished to purchase our farms as fast as the old Yankee owners relinquishd them. In addition, these German, Scandinavian and Polish farmers have big families, the same as the old American farmers did back east 50 years ago. Nearly all of the sons want farms. That creates a constant demand for farm lands. Then again, these foreign farmers have been thoroughly trained to care for the fertility of the soil. They keep large numbers of cows, young cattle and hogs on their farms, the same as the old New York farmers did. That helps to keep up fertility and fertility helps to keep up prices.

The eastern farmers must take hold of their system of country schools and make them of use in educating their sons so they will have a taste for the farm. Then, besides, they should do something to turn the tide of emigration their way. When these things are done we will see much higher values attached to eastern farm lands.

A CHANGE OF FRONT.

Commenting on the new regulations regarding testing cattle imported from Great Britain to America, the *Scottish Farmer* concludes:

"The policy of the United States with reference to Channel Island cattle is peculiar. Many things in the United States are peculiar, and one more or less need not put us out. It appears that Mr. Salmon and his Bureau are convinced that Channel Island cattle bred in the Channel Islands, are so absolutely free of tuberculosis that they, and they alone of all cattle, may now be entered at any port in the United States without undergoing the tuberculin test. This indicates a very astonishing change of front on the part of official persons. We do not understand it. The reasoning is faulty. If Channel Island cattle are so healthy, the test will not do them any harm, and it is too much to ask us to believe that their freedom from the disease is the cause of the new ordinance. According to every accepted theory, Channel Island cattle ought to be healthier in Great

Britain than on the coast of France. Their alleged healthfulness does not demonstrate that human and bovine tuberculosis is not the same disease. The logic of the situation now created is the abolition of the tuberculin test in the United States. If dairy cattle of the deepest milking propensity are absolutely free of tuberculosis, there is no such disease as tuberculosis. The action of Mr. Salmon's Bureau is definable as humbug.

The *Scottish Farmer*, as the strong phrase goes, "is all off" in its conclusions. The reason for the action taken by the Bureau of Animal Industry, concerning Channel Island cattle is based on the fact that every tuberculin test thus far fails to reveal the presence of the disease in Jersey and Guernsey. On the contrary, the tests of cattle coming from England, show an alarming percentage of tuberculosis in all breeds. It is hard to beat facts as a basis for judgment. If the English farmers desire to market their cattle with profitable freedom, let them take hold of the tuberculosis question with fearless vigor.

Which is Better, to Purchase or Raise Ones' Cows?

A Massachusetts Inquiry.

ED. HOARD'S DAIRYMAN:—Having become a subscriber (as I have intended for some time) through one of your patrons, Mr. J. J. Packard, I would like to inquire through the columns of your valuable paper from some one that knows what he is talking about from experience, if there is any better way to run a herd of cows for profit for milk, than the way I am running mine. I have no pasture, but keep 80 to 90 cows of grade Holsteins, Ayrshires, Guernseys and Durhams. I do not breed any of them. Buy them in lots of 5 to 25 at a time, average cost about $50 per head. They bring on an average about $38 per head for beef. They average better than 10 quarts of milk per cow per day. When they get below 8 quarts per day, I let them go if the beef market is good; if not, I hold them for a while, if there is any prospect of a better market in a short time. I keep them in the barn the year round tied with chains; water in front of them of which the chill is taken off by the use of steam in winter. Their feed consist of about 30 lbs. of ensilage, about 6 lbs. of clover hay and 12 lbs. of grain of the following mixture: 3-5 winter bran, 2-5 cotton seed meal, fed dry.

My milk trade is retail, mostly at 7 cents per quart; some wholesale at 45 cents per can of 8½ quarts. The question is this: Would it pay any better to breed my cows and keep them over, or use thoroughbred cows and breed them? I raise everything but hay and grain. Buy my hay at $12.50 per ton. M. C. S.

Brocton, Mass.

The conditions named in this inquiry forbid its answer by the editors, as they have not had the experience called for. The question—a very important one, it may be added—is therefore referred to our readers for reply. Meantime we may say that the plan pursued by our correspondent, is, in most respects, similar to the prevalent practice of many dairymen in northern Illinois, but it has never commended itself to our personal judgment. Moreover, several successful Wisconsin dairymen, intimate personal friends of the editors, who at one time followed this system, later abandoned it and, putting full blood dairy sires at the head of their herds, found it more profitable to raise cows than to buy them. It is but fair to say, however, that these men made up their milk into butter, or were patrons of creameries, and, therefore, had plenty of skim milk for feeding to calves.

Let us have this question discussed, as our correspondent requests, from the standpoint of experience.

Pasture for Hogs.

(Press Bulletin.)

The Kansas Experiment Station has realized $11.90 per acre from rape pasture and $24.10 from alfalfa pasture in ninety-eight days. These results were obtained from the following experiments, which were begun July 25 and concluded October 31, 1902:

Thirty shoats, averaging 52 pounds in weight, were divided as nearly equally as possible into three lots of ten each. Lot 1 was fed on a grain mixture of shorts one-half, corn-meal one-fourth, and Kafir corn meal one-fourth, in a dry lot. The other two lots were fed the same grain ration, but one received rape pasture and the other alfalfa pasture in addition. Each lot was given what grain the hogs would eat up clean, and each had access to water and ashes. The weights of grain consumed and gains made are as follows:

	Grain consumed in pounds.	Total gain, in pounds.	Grain consumed per 100 lbs. gain in pounds.
I. No pasture	3801	1023	371
II. Rape pasture	3244	1076	301
III. Alfalfa pasture	3244	1078	300

The gains of the three lots are very nearly equal. The dry lot consumed 557 pounds, or 70 pounds for every 100 pounds of gain, more grain than the pasture lots. The lot on rape required one acre of pasture while the alfalfa lot used a trifle less than one-half acre.

The lot without pasture required 3.71 pounds of grain, to produce one pound of gain. Assigning the same value to the grain fed the hogs on rape pasture, we have 877 pounds of pork credited to the grain and 199 pounds credited to the rape. At six cents per pound, the price at which hogs were selling at the close of the experiment, this would be a credit of $11.90 per acre for the rape. In a similar manner the alfalfa is credited with 201 pounds of pork, equal to $12.05, and as there was only a half acre of alfalfa this makes a rate of $24.10 per acre.

The cost of preparing the seed-bed and seeding the rape was $1.80 per acre. It was seeded in the feed lots on soil that would otherwise have remained idle, or would have grown up to weeds.

The shoats on pasture enjoyed their diet and seemed satisfied. Those in the dry lots seemed to be hankering after something green, and their appetites seemed unsatisfied without some kind of roughness. They would even nibble at straw in a vain attempt to satisfy their craving.

The experiment emphasizes the superior value of alfalfa pasture. Where alfalfa is not available, or where variety is wanted or it is desired to utilize otherwise waste land, Dwarf Essex rape, seeded at the rate of six to eight pounds per acre any time from early spring to late summer, will furnish an excellent diet that is greatly relished by the hog. Succulence and variety will make healthier hogs that will return increased profits.

Manhattan, Kan. D. H. OTIS.

Silo Constuction.

ED. HOARD'S DAIRYMAN:—I want to help our good German friend in his earnest effort to interest the DAIRYMAN'S readers in the silo. While I am a native Tennessean, yet on my mother's side I am as Dutch as a keg of sour-krout, but on my father's side I am as Irish as a bag of potatoes. With this mixed blood runs mixed ideas and perhaps I may be able to touch some sympathetic chord among your multitude of mixed readers.

I see in your creamery investigations a great majority of the patrons milk only ten or fifteen cows, and a very small percentage of these small dairyman use silage. This I can account for only in two ways. They either do not know the real value and cheapness of silage as a dairy ration, or they are afraid of the cost of building a silo. I have traveled both of these paths and can speak from personal experience. I have let the fear of expense of building a silo keep me for years paying out nearly all the profits of the dairy for mill feeds, but not so now.

Nine years ago I built my first silo and I consider it the best investment I ever made. I was not dairying for fun, but for the living there was in it, and had no money to throw away, so studied economy, and built the first combined earth and stave silo ever built in this state. I found it cheap and nine years' trial has proved entirely satisfactory. I will outline my plan for the benefit of small dairymen who, like myself, feared the expense.

First lay off a circle and dig a round cistern in the ground eight or ten feet deep. Lay around the top of this a foundation two brick thick, with cement mortar. Buy good, square-edged 2×4 pine studding, such as is used by carpenters in building good frame houses. Take it just as it comes from the saw; do not bevel or dress. If this cistern is eight feet deep, and fourteen-foot studding is used, twelve feet in diameter, the silo will hold about fifty tons. Sixteen or eighteen-ft. length can be bought of lumber dealers in the cities. Do not build less than twenty-two feet, and a few feet added height is better. When ready to set up the tub have a scaffold ready so that one can work at the top and one at the bottom. Set up the first stave, get it perpendicular and nail to scaffold at the top. Then nail across this piece an old barrel stave on the inside near top and bottom. Set up the next piece and confine in place by driving small nails through the old barrel stave. The natural curve of the old staves is about right for the circle you want. Use more old staves as needed until when the tub is finished it is standing straight around the brick foundation and held in place by the two inside hoops of old barrel staves and there is nothing in the way outside to hinder putting on the iron hoops. These are best made of ⅝ round iron, in sections, with threads and nuts on each end. For a silo 12 feet in diameter each hoop will consist of three rods of the iron about thirteen feet long. For a fourteen-foot tub I use eight hoops, putting them closer together at the bottom where most pressure is; buy cast iron lugs to pass the rod ends through to make the connection. Hard wood blocks will do, but iron lugs are better, less trouble, and cheaper in the end. Place the hoops so as to allow for two or three doors; I think two is enough; one about sixteen inches from the ground, with two hoops below it, and one about eight feet from the ground. Mark off the doors six or seven staves wide and about twenty-eight inches high, trim battens to fit the circle and nail securely on outside. Best to have three strong battens to each door. After all is drawn up tight and snug, one hoop with another, saw out the doors. Cut these with a bevel larger on the inside, so that when put in place, in filling, the pressure of the silage will hold in place. When filling, tack a square of tarred roofing paper over these doors to make perfectly air tight. In feeding out, begin at the top and take out the doors as they are reached. I feed with large open mouth baskets, holding a feed for three or four cows; use two baskets and handle with rope and windlass, very easy; let down on light truck to take to the mangers with but little lifting. The best tool to handle the silage in filling the baskets is a good six-tined manure fork.

These silos are cheap, easily built and entirely satisfactory. If any one fears their drying out and falling down when empty, tack one or two outside hoops on, made of common plaster laths, or take a turn on the nuts with monkey wrench, when drying out. Any kind of open shed board roof can be put on to keep out rain and snow. Cement the joint where the wooden tub sets on the brick to make air tight, and about eighteen inches down on the clay to keep out surface water.

Darks Mill, Tenn. J. N. MERONEY.

Cotton Seed Meal and Abortion.

ED. HOARD'S DAIRYMAN:—In your issue of April 24, under Inquiries and Answers, you seem to be in doubt about the effect of cotton seed meal on abortion and hesitate to recommend it as a feed during the later months of gestation. Our experience has been in favor of cotton seed meal as a food during the gestation period and will cite the following:

For several years previous to two years ago we had had a very great deal of trouble with abortion in our herd of fifteen cows, so much that we lost fully two thirds of the calves. About two years ago we began feeding cotton seed meal with dried brewers grains and a very little corn and cob meal, and have not had an abortion since. They were the same cows, kept in the same yard, and the same stables, and nothing was done to disinfect them in any way. We have always attributed the change to the feeding of the cotton seed meal.

We have also made inquiries of careful, observing dairymen in this section who have been troubled with abortion, and they seem to have had the same results after feeding cotton seed meal, and our opinion is that where abortion still exists where cotton seed meal is being fed it is due entirely to other causes and not to any effect of the meal in question.

Pottsgrove, Pa. C. H. MCMAHAN.

We are much obliged to Mr. McMahan for this report of his experience with cotton seed meal. If it should be questioned whether the cotton seed meal was the cause of the abatement of abortion in his herd, on the theory that the experience is not wide enough to justify the conclusion, or that perhaps other causes intervened, or that, as quite frequently happens, the cows became immune, it remains quite evident that the feeding of cotton seed meal did not have the effect so often attributed to it.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Overrun of Butter.

Please state through the DAIRYMAN how the calculation is made to find number of pounds butter from 16 lbs. milk that tests 7% or if 5% milk gives 1 lb. butter from 16 per day, what amount of butter will 7% give from 16 lbs. per day? T. R. DES.

Lanford Station, S. C.

Sixteen pounds of milk containing 5% fat will contain .80 pound of butter fat. If we add ⅛ overrun to the above, the 16 pounds of milk will make .9 pounds of butter, or 11.4 ounces. In the same way 16 pounds of 7% milk will contain 1.12 pounds of butter fat, adding ⅛ for overrun will make 1.26 pounds of butter, or 1 pound, 4¼ ounces of butter. The calculation in full would be as follows:

16	16—Lbs. of milk.
.07	.05—Per cent of fat.
8)1.12	8).80—Amount of fat in milk.
.14	.10—Amount of overrun.
1.12	.80
1.26	.90—Total weight of butter in lbs.

Indian Wheat Inquiry.

Will Mr Cowen of Vermont, tell a southern subscriber what kind of a plant Indian wheat is? How it is cultivated and where the seed can be obtained? We would like to find a substitute for cottonseed meal. WM. B. TURNER.

Virginia.

Clover, Silage

There seems to be a conflict of opinion on the subject of preserving clover in the silo. What is your opinion and experience? Can clear red clover be used for silage? Is it safe to put it into a good stave silo? Can we do so and have a reasonable expectation of its coming out good feed?

We keep twenty-five cows and depend on corn silage but think if we could have clover to help out, it would increase the cream yield and reduce the grain bill. This grain bill is what is troubling us here in the east. F. E. M.

Greenfield, Mass.

The editors of HOARD'S DAIRYMAN have had no personal experience in siloing clover. They have however, at different times, had opportunity to inspect clover silage and found it in very excellent condition. They have also received and published frequent communications from readers in different parts of the country reporting most excellent success with clover silage. They are therefore convinced that it is entirely practicable to preserve clover in the silo, either uncut as it comes from the field, or by running it through a cutting box the same as corn. In their judgment, the latter practice is the better one.

As stated above, the editors are without personal experience with clover silage, their practice being to fill the silos with corn and use the clover for hay, both in connection with silage and in connection with summer pasturage. One who has never tried it, will be surprised at the amount of hay cows will eat when on very best pasture, and the fact that they have such an appetite for hay at such times is to us conclusive evidence that it is a very important, if not an indispensable, item in their feed. Hence, we prefer to make the clover into hay and use it as dry forage rather than attempt to cure it in the silo.

It is the same with alfalfa, but we do not consider that either alfalfa or clover hay with silage makes a complete or satisfactory ration. although it takes less grain with alfalfa than with clover. The cow, even in moderate flow of milk, must have a reasonably liberal amount of feed, and experience seems to lead to the conclusion that neither her storage nor digestive capacity suffices to get the required nutriment from coarse feeds alone. Hence, some concentrates should be used. With clover hay and silage, we think at least one-fourth of the dry matter should be in the form of concentrates. With alfalfa and silage less suffices, and, what is perhaps still more to the purpose, the expensive protein feeds can be largely dispensed with.

A Wisconsin Ration.

Please give me the cheapest balanced ration from field corn silage, corn fodder, timothy hay for roughage, and ground oats, $20; ground corn, $12; bran, $16; oil meal, $28. I like the DAIRYMAN very much. W. A. D.
Footville, Wis.

Without any information as to the size of the cows, their condition as to lactation, whether fresh or strippers, it is a pretty wild guess to suggest a formula. However, assuming that these cows are of average size, that they are of average quality, that some are fresh or nearly so, and some are already beginning to shrink perceptibly, we might submit the following as a fair average daily allowance for an ordinary herd of cows.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
8 lbs. corn stover	4.76	.14	2.59	.06
5 lbs. timothy hay	4.34	.14	2.17	.07
8 lbs. bran	7.05	1.00	3.09	.24
Total	24.07	1.67	12.05	.58

It would quite materially improve this ration to add one pound of oil meal. Oil meal contains a little more than twice as much digestible protein as bran, and with silage, corn stover and timothy hay for roughage, the peculiar demand is for protein. This is one of the reasons that we have omitted oats and the ground corn, which, at the price named, we suspect to be corn and cob meal.

Elevating Silage.

I have used the chains and slat carrier for elevating ensilage, but have a good deal of trouble, wind blowing leaves out, although mostly covered, and scattering. Do you know of anyone using belt and cups like grain elevators and with what success, use large sized cutter? W. F. W.
Benson, Minn.

We have never heard of anybody using the belt and cups like grain elevators with silage and have very serious doubt as to whether they would work, and if they did work, whether they would prevent the scattering of the finer portions of the silage when the wind blows. We have had very good success in preventing this scattering by covering the elevator throughout its entire extent. The probabilities are also, that sooner or later, the attachments, for elevating silage with a blower, will be provided for all sorts of cutters.

What to Breed to Jerseys?—How Much Should Heifer With First Calf Yield.

I have a few full Jersey heifers and I also have a few grade heifers (Jersey) Will you please tell me which will be the best to buy, a Jersey or a Guernsey bull to breed to them, to build up as fast as possible. I personally prefer Guernsey, but am told that Jerseys are better; as my heifers are Jersey, please tell, were you in my place, which you would buy.

I have a young cow 2 years old, that dropped a calf in February. She gives about 16 lbs. milk; at first gave 20 lbs. Would you consider her worth keeping to milk as a profit? What would you consider an average quantity and quality of milk for a young cow with first calf to give to indicate a good prospect for a dairy cow. W. H. A.
North Carolina.

Jerseys and Guernseys represent qualities so nearly alike that cross-breeding between them results in many happy nicks, but we do not think it advisable, as a rule, to cross-breed full-blood and registered animals. No doubt but what the progeny may be equally valuable as dairy animals, but not being eligible to registry anywhere, they are not as valuable for breeding purposes. If our friend personally prefers Guernseys, we should advise him to exchange his full-blood Jerseys for Guernseys, or otherwise provide a full-blood Jersey sire for the Jerseys and use a Guernsey sire for the grades.

A two year old heifer, now two months in milk and giving sixteen pounds daily, we should consider a very promising animal. It is a very difficult matter to specify the daily quality and quantity of milk a heifer should give to indicate a good prospect for a dairy cow. It is not so much what a heifer can do in one day, one week or one month, as it is what she can do in twelve months. We think we may say with a great degree of safety, that the large yearly producers of milk and butter have not been noted for the largest daily or weekly yields. "Keeping everlastingly at it" is what tells with a dairy cow.

A Ration Based Upon Cotton Seed Products.

Please tell me how to proportion feed for cows. Some fresh to pail and balance strippers; getting a small allowance of grass, with feed stuffs at following prices: Cotton seed meal, $23 per ton; cotton seed hulls, $5 per ton; wheat bran, $26 per ton; corn meal, 70 cents per bushel; hay, $22 per ton. J. L. G.
Dublin, Ga.

The prices quoted for bran and hay and apparently for the corn meal are practically prohibitive. A bushel of corn meal weighs only about forty-seven pounds and if this costs seventy cents, it is at the rate of $30 per ton. If the price given is for the meal per bushel of corn rather than a measured bushel of the meal, then we would advise using the corn meal quite liberally.

Left with only cotton seed meal and cotton seed hulls from which to construct a suitable ration formula for milch cows, we give up in despair. From our point of view, it cannot be done. We are, however, perfectly well aware that a great many cow keepers in the South feed their cows exclusively upon these cotton seed products and with what appears to be fair results.

The wonder to us is, that with soil and climate so well adapted to raising the very best varieties of fodder and grain for milch cows, that so many southern dairymen still depend upon cotton seed meal and cotton seed hulls as their main reliance for cow feed. Alfalfa, clover, cow peas and soja beans are nowhere so much at home as in the southern states, nowhere do they yield so remunerative crops, nowhere are they more needed for bringing up the fertility of the land. J. L. G. should certainly devote as many acres to cow-peas as he has cows in his herd and do this, not next year or at some future period, but this present season.

In saying this, we must not be understood as even so much as intimating that cotton seed meal and cotton seed hulls have not appropriate places in a ration formula for cows, but simply that an exclusive diet of these products is seriously objectionable.

A Practical Impossibility.

Please give me a balanced ration for 16 cows. I feed cotton seed meal, wheat bran and cotton seed hulls. I don't think the cows are giving as much milk as they ought to. J. C. T,
Eufaula, Ala.

See answer to J. L. G., this issue, where practically the same question is submitted. In the present case, if the price of bran is materially less than that quoted by J. L. G., we should say "use at least a pound of wheat bran with every pound of the cotton seed meal," and feed not to exceed six pounds of the mixture daily. From our point of view, it is neither safe, and if safe, it would not be prudent, to feed more than three pounds of cotton seed meal daily.

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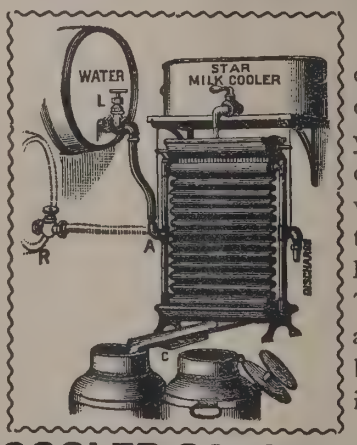
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Weight of a Gallon of Milk.

Will you please give me the weight per gallon of milk testing about 4 per cent.

I am selling milk at 15 cents per gallon wholesale, and the party says that one gallon will weigh 8.6 lbs., and I contend that 8.1 is correct.

Chattanooga, Tenn. W. S. B.

A gallon of milk weighs 8.6 pounds. There would have to be 50% fat present to make a gallon weigh 8.1 pounds.

Skim Milk Returned.

Will you kindly state in your next issue, how much skim milk in pounds, should be returned to me from a creamery, if milk were 3%, or if it were 3½%, or 4%, or 4½%. F. P.

Saugerties, N. Y.

It will depend somewhat on how thick a cream is being run, but as a rule from 15 to 20% is removed from the whole milk as cream. This would make 80 to 85 lbs. returnable as skim milk from every 100 lbs. of milk delivered.

Mustard Greens for Swine.

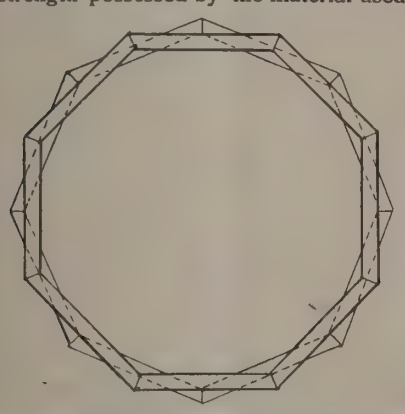
Will mustard greens (cooked) hurt hogs?

Alabama. J. C. T.

As mustard greens frequently constitute a much relished addition to our own dinners, we conclude they cannot be harmful when fed to swine.

An Improved Octagonal Silo.

There seems to be no end to the different styles or forms in which silos may be constructed, and each one possessing some merits peculiarly its own. We present herewith a diagram showing a longitudinal section of an improved octagonal silo. It might well be called a double octagon or a sixteen sided silo. The diagram shows two eight-sided rims or girts imposed one upon the other in such a way as to give the maximum amount of strength possessed by the material used.



To ascertain the length of one side for a silo of any dimension, multiply the extreme diameter from one corner to its opposite corner of the proposed silo by three and divide this product by eight. For example, if the extreme outer dimensions of the proposed silo are twenty feet, we multiply this sum by three, giving us sixty for a product, and divide this by eight, giving seven and five-tenths or seven feet and six inches as the extreme outside length of one of the sides. With an extreme diameter of sixteen feet, each side would be six feet. These figures are not absolutely accurate, but sufficiently so for all practical purposes. For example, in a sixteen-foot silo, the exact length of a side would be six feet, one and one-half inches.

Having ascertained the length of one of the eight sides, make a pattern of the proper length with the ends shaped to the proper angle and use this for marking off all the pieces required for girts. The proper angle or bevel for the ends can be obtained in various ways. For one not expert in such matters, perhaps the simplest plan would be to lay the proposed pattern on some clear and level place, and then with a pole or string half the length of the proposed diameter, find a point which shall be exactly equi-distant from the two ends of the proposed girt. A line drawn from this point to the end of the girt, will give the proper angle or bevel.

With such short sides, and so firmly tied at all points, very light lumber may be used. One of the girts might be made of 2×6 lumber and one superposed upon it could be made of 1×6 lumber. If preferred, instead of using a full octagon for the upper part of the girt, ties or braces can be nailed across.

For a silo thirty feet in depth, there will be required eight of these longitudinal girts; the 5 lower ones may be spaced three feet apart and then increased as may be necessary to reach the top. These girts will be in effect hoops, more easily constructed in many places than the proposed round hoops because of the difficulty of getting suitable material to bend into the round form.

Any sort of lining suitable for any other style of silo may be used in a silo built after this manner. Probably the most effective and the most durable lining would be, first, a sheeting of common lumber, over this a layer of the P & B Giant Paper and this covered with another lining of boards. The inner lining should be sound lumber, but it need not necessarily be matched. Experience has shown that the ordinary building paper is not durable, as it will not withstand the acid in the silage. Hence, we recommend the special brand of paper made by the Standard Paint Company of New York.

Dutch Belted Cattle Association.

ED. HOARD'S DAIRYMAN:—The Annual Meeting of the Dutch Belted Cattle Association of America will be held on Thursday, May 21, 1903, at 12 o'clock noon, at the Fifth Avenue Hotel, New York City.

A full attendance of members is desired.

The closing and publishing of Vol. VII will be considered at this meeting.

H. B. RICHARDS, Secretary.

Easton, Pa.



Measure the Milk of each Cow

With the **Automatic Milk Scale** you can keep an accurate record of the yield of each cow, and remove the unprofitable ones from the dairy. Each button on scale arm corresponds to number of cow, and when pail of milk is weighed the button registers the weight on score card. Big money saver and money maker for farmers and dairymen.

Send for testimonials and illustrated catalogue of **Bestov** dairy supplies.

TRADE MARK BESTOV

DAIRYMEN'S SUPPLY CO, Phi'adelphia, Pa.

STOCKMENS SUPPLIES

Sheep Dips, Tanks, Worm Cures, Ear Marks Punches, Tattoo Markers, Shearing Machines Shears, Sheep Marking Paint, Lamb Feeders Lice Paint, Poultry Supplies, Veterinary Remedies, etc. Write for Catalogue AE.

F. S. BURCH & CO., 144 Illinois St., CHICAGO

PUNCTURE PROOF

Tires

Sterling Puncture Proof Tires $3.98 Per Pair are the best made. Constructed on puncture proof lines. No solution in them. **Guaranteed for One Year.** Complete catalog of tires from $2.00 per pair up, sent FREE. **Delaware Rubber Co.** 649 Market Street, Philadelphia, Pa. Send for big Catalog.

Cream Separators



THE

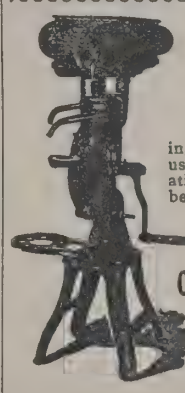
Improved International

The best in the world, has no superior if you want a larger butter yield. It runs easily, skims clean, and is easy to wash It is perfect in mechanical construction and magnificent in appearance. No outside gears to catch your hands and clothes. Only three parts in the bowl. Can supply can. All parts absolutely interchangeable. Write for Catalogues and Prices.

Chicago Office,

GEO. A. ELDER, Gen. Agent,
Tacoma Blk, La Salle & Madison Sts.,
CHICAGO, ILL.

THE INTERNATIONAL CREAM SEPARATOR CO.,
LANCASTER, PA., U. S. A.



Notice to Dairymen

If you are thinking of buying a Cream Separator write us for Catalogue and information. We manufacture the best machine on the market.

Davis
Cream Separator Co.,
54 to 64 N. Clinton St.
CHICAGO, ILL.



The Distribution of Skim Milk.....

It is known that the just complaints of creamery patrons on account of unfair distribution of skim milk are the bane of the separator creamery business. Further disputes among patrons, annoyances to managers, hindrances to the best work of buttermakers, watering the skim milk, and many other ills in the same train are unnecessary, since the

Barber-Coleman Check Pump

has for more than five years been successfully solving the problem in many different creameries. When a patron has dropped in his check he can pump the amount of skim milk called for by his check, less the percentage taken out as cream, so in like proportion to all other checks. Its measuring apparatus is just an ordinary pump which everyone understands and knows how to operate.

Cornish, Curtis & Greene Mfg. Co.,

General Sales Agents De Laval Alpha Separators,
FORT ATKINSON, WIS.

Feeding Whey to Calves—Stricture in Teat.

ED. HOARD'S DAIRYMAN:—Noticing W. T. L's. inquiry from Vassar, Mich., regarding feeding whey to calves, I would like to tell him of the way I have used it for some years. Commence by feeding it with ½ warm water and have water warm enough to make the whey of the temperature of new milk, adding a small quantity of oil meal. Gradually add more whey and in 10 or 15 days work them on to clear, cold whey. It is a good calf feed if used with care, and oil meal, and aside from the color, it seems as good to me as factory separator milk.

What is the cause of strictures in teats; milk tube produces more fever. Have more trouble with this than anything else in my dairy. W. A. J.

Orwell, Vt.

The real cause of this trouble is not known. The remedy is the teat bistoury. A milking tube does little or no good in these cases.

Prof. Haecker on Milk Production.

Henry Wallace, in his *Farmer*, boils down and makes plain the conclusions of Bulletin No. 79 of the Minnesota Experiment Station as follows:

The scope of inquiry embraces four points: The food of maintenance, or the food required to keep a dairy cow in present condition, neither gaining nor losing; the nutrient requirements, or the amount of food and the kind of it required during the milking period; the protein requirement, that is, the amount of flesh-forming matter necessary for dairy cows of different capacity; and, lastly, the influence of the stage of lactation, or the time she has been giving milk, on the nutrient or food requirements.

This is a bulletin of special value to the thoroughly up-to-date dairyman, but the man who has not put his mind to it will receive very little benefit from it. It is meat for strong men and not milk for babies. We will try to stew the meat down so that any farmer who can milk cows, can get some little out of it.

In all our talk about rations we have been dependent on what is known as the Wolff standard, or conclusions from a series of experiments made in Germany many years ago. There has been for some time a feeling that these were not correct and that a less amount of protein was required than prescribed by these standards, which are the basis of nearly all our calculations of feeding rations. It has been suspected for some time that these were not correct, that they required more flesh-formers than the animal required, and it is to solve this problem that Professor Haecker has been laboring with such zeal and ability for many years.

On the first point he concludes that the factors for the food of maintenance in the Wolff standard are in excess of the requirements, and that a daily allowance of 11.38 pounds of dry matter containing .63 of a pound of protein, 5.75 pounds of carbohydrates, and .12 of a pound of fat, per thousand pounds of cow, was all that a cow requires, and a little more, and that the addition of about a tenth more protein, a fourth more carbohydates, and eight times as much fat, is all that is required for a cow in full flow of milk.

On the second point he concludes that the Wolff-Lehman standard, or modified Wolff standard, makes the same mistake and does not recognize the fact that quality of milk should be considered as well as quantity.

On the third point he concludes that a nutritive ratio of 1 to 7.7 and 1 to 9.7 would be quite as effective as that of 1 to 6.3, which last is above the Wolff standard.

On the last point of inquiry he finds that cows in the early period of lactation lose rapidly in bodily weight, that the milk given for the first eleven weeks is in excess of the amount provided by the food consumed; therefore, the cow takes it from her own body. After that the amount of food given when a balanced ration is furnished is in proportion to the amount of milk produced.

We have made this as plain and simple as we can, and it is likely that all we have done is to satisfy farmers who have not given attention to this subject, that if they would get the best results from their cows, they will have to go to studying and find out how to get the very most out of their cows and out of their feed. They cannot do this without feeding approximately a balanced ration. It may be some satisfaction to them to know that in order to get a balanced ration they do not have to feed as much protein or flesh-formers as they have been told is necessary to do. There is, however, no danger of their feeding too much. To get there they will not have to go as far as it was supposed they would. There is a whole lot about cows that nobody has found out. Professor Haecker comes probably as near it as any man.



Farrowing time is a dangerous period to both sow and pigs. The mother will get along better and the pigs be more certain to live, if she is fed

PRUSSIAN STOCK FOOD.

It conditions the stomach and bowels, allays all fevers, and produces a large flow of rich milk for the suckling pigs. Sows conditioned on this food will not eat their pigs. Then, too, it insures both mother and pigs against cholera, swine plague, etc.

Prussian Stock Food is guaranteed to give satisfaction when used according to directions. If no dealer at your place write us. Tell us how many head of stock you have and where you saw this ad and we will send you our 68 page **Farmer's** and **Stockman's Hand Book Free.**

We also make **Heave Powders, Worm Powders, Lice Powders, Spavin Cure, Poultry Food, etc.**

PRUSSIAN REMEDY COMPANY, ST. PAUL, MINN.

Gentlemen:—Please send me two 25lb. pails of your Prussian Stock Food, as I ordered one pail and used it on a bunch of twenty hogs. I think it is the food for hogs as it keeps them healthy and makes them grow fast; and it is a cheap food and should be fed to pigs that are being weaned.—M. B. Graham, breeder, Remington, Ind.

Butter Tests Accepted for Record by the American Jersey Cattle Club.

Biltmore's Rose 150717—Sire, Trevarth 39280; dam, Woodland Rose 3d 119913; butter, 17 lbs., 5 oz.; milk, 281 lbs., 8 oz. Test made from March 1 to 7, 1903; age, 4 yrs., 11 mos.; estimated weight, 880 lbs.; fed 17 lbs. bran, 17 lbs. cotton seed meal, 10 lbs. gluten meal, 17 lbs. brewer's grains, 10 lbs. dairy feed, 7 lbs. linseed meal and 7 lbs. corn meal, corn ensilage and timothy hay. Property of Biltmore Farms, Biltmore, N. C.

Kate of Biltmore 131014—Sire, Tormentor's Harry 29920; dam, Kate Winslow 28055; butter, 16 lbs., 6⅛ oz.; milk, 178 lbs. Test made from April 5 to 11, 1903; age, 5 yrs., 8 mos.; actual weight, 1040 lbs.; fed 45 lbs. bran, 17½ lbs. cotton seed meal, 17½ lbs. distillers grains, 8¾ lbs. gluten, 8¾ lbs. dairy feed, 7 lbs. corn and cob meal and 7 lbs. linseed meal, ensilage and corn stover. Property of Biltmore Farms, Biltmore, N. C.

Harrowgate of Biltmore 127233—Sire, Joseph P. S. 2008, C., J. H. B.; dam, Harrowgate F. S. 5047 C. J. H. B.; butter, 18 lbs., 13¾ oz.; milk, 330 lbs., 12 oz. Test made from December 24 to 30, 1902; age, 7 yrs., 7 mos.; estimated weight, 850 lbs.; fed 20 lbs. bran, 20 lbs. cotton seed meal, 35 lbs. brewers grains, 9 lbs. gluten meal, 9 lbs. linseed meal, 22 lbs. hay, 70 lbs. roots and 140 lbs. ensilage. Property of Biltmore Farms, Biltmore, N. C.

Very Much More 140733—Sire, J. J. Signal 40512; dam, Very Much 41599; butter, 24 lbs., 2 oz.; milk, 260 lbs., 2 oz. Test made from March 7 to 13, 1903; age, 5 yrs., 3 mos.; estimated weight, 950 lbs.; fed 25 lbs. wheat bran, 24½ lbs. crushed oats 34½ lbs. corn and cob meal, 12 lbs. oil meal, 25½ lbs. proto-grain and 202 lbs. corn ensilage and hay.

Friar's Duke's Ethel 136852—Sire, Friar's Duke 36416 dam, Ethel Albertine 70654; butter, 19 lbs., 14 oz.; milk, 269 lbs., 12 oz. Test made from March 25 to 31, 1903; age, 6 yrs., 1 mo.; estimated weight, 800 lbs.; fed 64 lbs. bran, 17 lbs. corn meal, 17 lbs. cotton seed meal and 20 lbs. hay, vetch and Johnson grass pasture.

Merry Maid of Millbrook 159369—Sire, Diploma of Millbrook 46123; dam, Cream of Millbrook 139828; butter, 15 lbs., 7½ oz.; milk, 229 lbs., 14 oz. Test made from January 26 to February 1, 1903; age, 3 yrs., 6 mos.; estimated weight, 740 lbs.; fed 56 lbs. bran, 21 lbs. corn meal, 28 lbs. cotton seed meal, 14 lbs. linseed meal and 42 lbs. alfalfa hay.

CONCERNING OUR ADVERTISERS.

THE SHEPHERD AERATOR.

Dairymen who have a care as to the condition of their milk when it starts to market, must be interested in the Shepherd Compressed Air Aerator advertised elsewhere. It has come to be an immensely popular appliance with good milk producers. It is most simple in operation, no other vessel than the milk can is required, which saves cleaning, and it works while the milking is going on, and cans are ready for the wagon almost on the minute the milking is done. Or the aerating may be continued as long as desired without lifting or changing the position of the milk. Only a few strokes of the pump are required to start it going and the air bubbles passing up from the bottom of the can surely do good and perfect work in purifying. The advertisement with excellent cut elsewhere, should not be overlooked.

THE "THINGINESS" OF THINGS.

Before one can accomplish much in any field of endeavor, he must understand his particular line of business "from the ground up"—he must be able to go to the core of his work and get at the "thinginess" of the thing, as it were. Precision in statement, for example, is a very essential accomplishment, and yet how few ever attain it. Were you requested to define the simple word "thing", would you not be embarrassed? Webster defines "thing" thus: "Whatever exists or is conceived to exist, as a separate being, whether animal or inanimate." Simple enough, isn't it—and yet not one person in a thousand could clearly define the word. When it comes to harvesting machines, however, accurate information seems to have been more generally disseminated. The majority of agriculturists have a favorite binder to harvest their crops, and they can explain why they prefer that particular machine. Among the many exclusive features of the McCormick binder, there are two things that specially appeal to every practical farmer—the improved needle and the simple knotter—and these two features materially assist in making the McCormick the favorite machine of the farmer.

There is no advice we could give a reader of HOARD'S DAIRYMAN on which we would be more certain of being right, or more certain that if accepted would prove highly satisfactory and profitable to the reader, than to advise the purchase of a Northern Wisconsin farm if you want a farm. The same money that buys a small truck farm in the settled communities will start one out with a good big farm. In going into Northern Wisconsin you are not going away from civilization. Schools and churches are near and the market conditions are really the best, having the mining interests of Northern Michigan, the growing cities on Lake Superior, St. Paul and Minneapolis on the west, and Milwaukee and Chicago to the south. If you want a larger farm than you now own or can comfortably own in your present surroundings, look into the propositions advertised in our columns. These lands are rapidly raising in value and the time to buy is now. Those who are advertising want to tell you about them; the information costs you nothing and you may make it worth thousands to you.

CARRIAGE BOOK FREE.

Every man or woman who is thinking of buying a carriage, a buggy, a set of harness or other horse accessories, should write to the Columbus Carriage and Harness Company, Columbus, Ohio, for their new illustrated booklet. This book which will be mailed free to any address, shows the advantages of buying direct from the manufacturers and doing away with the dealer's profits, thus resulting in the saving of thonsands of dollars to customers. Nothing could be fairer than the way the Columbus Carriage Company sell their goods. That they have all the confidence possible in what they manufacture is shown in the liberal way they treat their customers. If the buyer finds the carriage not as represented and unsatisfactory, he can return it to the factory, the purchase money is returned and the freight paid both ways. Whether the dealer or manufacturer is patronized, this book should be in the possession of all who are interested in the carriage question, as it will help the prospective buyer to make a choice. It not only illustrates all high grade vehicles, but shows the cost of them at the factory. Address a postal card to the Columbus Carriage Company, Columbus, Ohio, or, if you are located in some western state, address it to their St. Louis office, with a request for one.

YOU CAN SAVE MONEY.

One of the most reliable paint houses in America is O. W. Ingersoll, 258 Plymouth St., Brooklyn, N. Y. This firm has been in business for over 61 years and their paints are officially endorsed by the State Granges of Wisconsin and various other states throughout the Union. They have held this endorsement exclusively for the past 27 years. Their prices are exceedingly reasonable and they claim to save you 40 cents on every gallon of paint ordered and to furnish a paint that is twice as durable as you can get elsewhere for the money. They will be pleased to furnish you with sample cards containing 52 colors and their book entitled "Every Man His Own Painter" which tells all about paints, what to use, how to use it, etc. They will mail this to you free on request.

Farmers and stock owners who are having trouble this spring from calf scours, will be interested in the experience of Mr. C. E. Andrews of Lawrenceville, Pa., who writes as follows: "I had a valuable Durham calf taken with scours when two days old. I expected to lose him as I had many others A neighbor told me about Hood Farm Calf Scour Treatment and offered me some of the medicine until I could send for more to C. I. Hood Co., Lowell, Mass. Although I thought the calf past help, yet a few doses of Hood Farm Calf Scour Cure brought him out all right." This remedy is advertised in our columns, and put up in two sizes at $1 and $2.50. It is the most successful remedy for scours that has ever been placed on the market and is saving stock owners a great deal of money. Every cattle raiser should write to C. I. Hood Co., Lowell, Mass., for information.

In directing the attention of readers to the advertisement of the John M. Cannon Land Agency, Cresco, Iowa, we hope to put some anxious seekers in touch with some of the good farms still to be had in various parts of the country. This agency has an "improved farm" list at what seems very attractive prices. It is not by any means limited to the state of Iowa, but makes a specialty of long range sales, wherever desirable farms are on the market. A reliable man in the land business furnishes the only satisfactory means of locating desirable farms these days. The Cannon Agency is a reliable one and very thoroughly covers the territory. Farm hunters will profit by giving the ad. attention. It is headed 'Iowa Farms for Sale."

On Wednesday evening, the twenty-second instant, The Standard Paint Company, manufacturers of the well-known Ruberoid Roofing and P. & B. products, tendered to its employees a "house-warming" in celebration of the completion of their new factory at Bound Brook, N. J. There were present some six hundred people, including the employees of the company and their friends. They danced until the small hours, being in the meantime regaled with plentiful refreshments, in an immense room some three hundred and fifty to three hundred and seventy-five feet long on the third floor of the new building. The visitors from New York and neighboring New Jersey towns were very numerous, and all departed expressing an ardent wish that The Standard Paint Company might soon again enlarge its plant that they might enjoy another "house-warming." The Standard Paint Company was organized in 1886 The first factory was erected at Bound Brook, N. J., on a part of the sight of the present works. The Standard Paint Company were the first to place upon the market Ready Roofing (Ruberoid) which was odorless, weather-proof and elastic. In view of the unapproachable quality of these manufactures it was but natural that the demand should be enormous. This demand has so steadily increased as to grow beyond the capacity of the works, and extensions of the plant and purchases of additional land have

Absolute Range Perfection



Sold for Cash or on Monthly Payments.

$10 to $20 Saved

Freight paid east of the Mississippi River and north of the Tennessee Line; equalized beyond. Your money refunded after six months' trial if

CLAPP'S IDEAL STEEL RANGE

is not 50 per cent better than others. My superior location on Lake Erie, where iron, steel, coal, freights and skilled labor are cheaper and best, enables me to furnish a TOP NOTCH Steel Range at a clean saving of $10 to $20. Send for free catalogues of all styles and sizes, with or without reservoir, for city, town or country use.

CHESTER D. CLAPP, 682 Summit St., Toledo, Ohio.
(PRACTICAL STOVE AND RANGE MAN)

ILLUSTRATION.



RIGHT VEHICLES AT RIGHT PRICES.

Time was when to afford one's self a neat, comfortable and serviceable conveyance meant an expenditure of from $125 to $250. The family carriage or the young man's buggy was then a luxury to be enjoyed by but few. But times have changed in this regard. If one but gets into the proper buying channels so that he avoids payment of cumulative profits to jobber, dealer and agent, in other words, buys from a well established, reputable concern which makes shipments direct from the factory to the user, a first-class vehicle is within easy reach of every one who can lay any claim to being well to do. Old time exorbitant prices are still prevalent in many quarters. They are a necessity where goods pass through so many people's hands and must be made to pay so many profits. But happily now purchasers are not compelled to pay them. There are other places to buy, getting the same quality of goods at great reduction in price. A vehicle concern such as we have in mind is the Marvin Smith Company of Chicago. It is doing much to popularize the prices of all classes of good vehicles and buggies, phaetons, surreys, carriages, etc. The illustration shows a standard, well made, serviceable, stylish buggy which they are selling for $58.20. Local dealers everywhere would claim to be making a rare bargain on this same vehicle at $100. This is but one of a long line of vehicles, comprehending every purpose and style which this house is selling at such prices as readers have doubtless noted from their advertisements regularly seen in our columns. Dealers agree that by patronizing them you have the opportunity to examine and make choice before buying. This does not compensate for the high prices charged. The fact is, that the company named ships anything you may select from their complete vehicle catalogue showing many times over the varieties and styles the local dealer carries, without any payment in advance, and permits full and free examination without obligation to purchase if not satisfactory. The house is perfectly reliable. Dealing with them is as safe and practically as prompt as with local dealers. They make it possible for everyone to own a good conveyance by paying only reasonable prices. There is no necessity at this day of paying more than their prices. It does not bring better quality. We commend the house heartily to readers who have under consideration the purchase of a conveyance of any sort

READ OUR LATEST OFFER

TO PRIZE WINNERS ON BUTTER AND CHEESE.

First and Second Prize Winners on Butter and Cheese at the Six Months' Educational Contest held by the Government will receive the Culture free for one year if users of THE O. DOUGLASS IMPROVED BOSTON BUTTER & CHEESE CULTURES. Samples and instructions free. NO SUCCESSOR. Send all orders to O. DOUGLASS, 25 John Street, Boston, Mass.

NOW IS THE TIME TO SUBSCRIBE FOR

Hoard's Dairyman.

been continuously necessary from the beginnning. Within the last two years the pressure upon the manufacturing facilities has been so extraordinarily great, gathering force with every month, that the Company was obliged to double its capacity.

Two forces of men have been kept working night and day, with engines working twenty-three hours out of every twenty-four and still it has been found impossible to meet demands as promptly as desired. The steady growth of the business, as above indicated, is public evidence of the place which the Company holds as manufacturers of the leading prepared Roofing and Insulating Papers.

DAIRY MARKETS.

ELGIN, Ill., May 4—Butter—Sold at 20c a lb. on the Board of Trade this afternoon, a drop of 2c from last week. Sales for this district during the week were 600,000 pounds.

CHICAGO, Ill., May 4—Butter—Easy; creameries, 17@20c; dairies, 15@19c.

Eggs—Firmer at mark, cases included, 13¾@14¼c.

Cheese—New, firm: Twins, 13@13¼c; Daisies, 13@13¼c; Young Americas, 13½c.

Cattle—Prime beeves 1,200 to 1,400 lbs., 5.50@5.53; choice to extra beeves, 5.10@5.40; fair to good export and shipping steers, 4.60@5.00; medium beef steers, 4.40@4.60; plain beef steers, 4.00@4.50; common to rough, 1,000 to 1,200 lbs., 3.50@3.90; good to choice heifers, 3.90@4.60; good to choice feeders, 4.10@5.2c; poor to plain stockers and feeders, 2.75@4.00; fair to good cows and heifers 3.20@4.20; good cutting and fair beef cows, 2.60@3.15; common to good canning cows, 1.50@2.50; oulls, poor to choice, 2.50@4.40; veal calves, good to fancy, 5.25@6.50; calves, common to fancy, 3.50@5.00; corn fed Western steers, 3.65@5.40; Texas bulls and grass steers, 2.75@3.20; Texas steers, fair to common, 3.75@4.60.

Hogs—Good to prime heavy shipping, 6.95@7.12½; good to choice heavy packing, 6.85@7.05; plain to choice heavy mixed, 6.80@6.95; selected butcher weights, 6.95@7.10; assorted light, 150 to 195 lbs., 6.65@6.90; common to good light mixed, 6.60@6.80; thin to choice, 50 to 130 lb. lots 6.30@6.70; stags to rough lots, 4.00@6.40.

MILWAUKEE, Wis., May 4.—Butter—Creamery—extras, 22c; firsts, 18@19c; seconds, 16c; process (renovated), 17@18c; whey, 10c. Dairy, fancy, 18c; lines, fresh, 15@16c; roll, 15@16c; packing, 13c; grease, 5@6c.

Cheese—American full cream, Twins, 13½@14c; Young Americas, old, 13½@14½c: Young Americas, new, 13¾@14c; Daisies, 14@14½c; Longhorns, 13½@14c; low grades, 10@12c. Brick, fancy, 13½@14c; low grades, 11@12c. Limburger, fancy, 11½@12c; low grades, 8@9c. Swiss, drum, choice, 15½@16c; drum, No. 2, 13@14c; Block, choice, 14½@14½c; block, No. 2, 12@13c.

Eggs—Strictly fresh laid, cases returned, 13½c; dirties, 12c; seconds, 11c.

PLYMOUTH, Wis. April 28-Cheese-Seventeen factories offered 890 boxes and all but 75 sold as follows 238 cases Longhorns, 14c; 206 daisies at 14c; 242 Twins, at 13½c; 129 cases Young Americas at 13¾c. Market very active and firm.

BRILLION, Wis., Apr. 23—Cheese—The sales today were as follows: 253 Daisies at 13c; 30 Twins at 12¼c; 100 cases Young Americas at 12½c. Meetings will be held every Thursday at 5:30 p. m.

MUSCODA, Wis., Apr. 27—Cheese—On the call board today 60 Twins were offered. Thirty-five sold at 12¾ and 25 were withdrawn.

SHEBOYGAN FALLS, Wis., April, 29 -Cheese—21 factories offered 1,126 boxes of cheese on the Call Board today and all except seven cases Young Americas sold as follows: 79 Twins at 13⅝c; 81 Young Americas at 13⅝c; 252 at 13½c; 153 Daisies at 14⅜c; 400 Longhorns, horns, 13¾c, 147 at 13⅝c. Market generally steady· Daisies strong; nineteen buyers present.

SHEBOYGAN, Wis., April 29—Cheese—On the Call Board here today 907 boxes of cheese were offered and sold as follows: 9 Twins at 13⅜c, 76 Young Americas at 13½c; 50 at 13⅜c, 450 Loung horns at 13½c; 264 Daisies at 14¼c; 50 at 14⅝c; prices of Daisies advanced 1¼c, Twins ⅝c, Youug Americas ½@¾c per pound over last week; bidding brisk.

FOND DU LAC, Wis., May 4—Cheese—Sales at at the Dairy Board today, 55 Twins at 13c and 200 Daisies at 13⅞c. Market active.

Latest quotations for fancy creamery: Baltimore, 23@23¼c; Buffalo, 22@22½c; St. Paul, 20½c; Minneapolis, 20½c; Cincinnati, 24½c.

NEW YORK, May 4—Butter—Receipts, 4,024 packages; steady; state dairy, 17@21c; extra creamery, 22c; creamery, common to choice, 17@21½c.

Cheese—Receipts, 1,368 pkgs. ; steady; state full cream, fancy, small colored, new, 12¼c; fancy small white, new, 12¼c; large colored, old, 13@14¼c; new, 12¼c; large white old, 13¼c; new, 12¼c.

Eggs—Recipts, 18,376 packages; firm; state and Pennsylvania, 16c; western storage packed, 16½c; Kentucky, 15½c; western firsts, 15½@16c; southern, 15c.

ST. LOUIS, May 4 —Butter—Quiet; creamery, 18@24c; dairy, 14@18c.

Eggs—Steady; 13c for fresh.

KANSAS CITY, May 4.—Eggs— steady; fresh Missouri and Kansas stock, 12½c. doz. cases returned; new No. 2 whitewood cases included, 13¼c. Butter—Creamery, 17@20; dairy, 17c.

BOSTON, Mass., May 4—The country produce markets were dull and practically unchanged today. Quotations: Butter—Creamery, Western extra, 22c; western firsts, 21c; dairy. 14@19c; imitation creamery, 16@19c; ladle, 14@16c: box and print, 14@23c.

Cheese—Choice, 14½c; sage, 14c; Wisconsin new, 13@13½c; fair to good, 10@11½c.

Eggs—Near by, 19c; Western selected, 15¾c; fair to good, 15½@15¾c; Illinois, 16c; western dirties, 13½@14½c.

PHILADELPHIA, May 4.—Butter—Steady, moderate demand; extra western creamery, 22½c; near by prints, 23c.

Eggs—Firm, good demand fresh near by 16c at the mark; western, 16@16¼c; southwestern, 16c; southern, 19@19¼c.

Cheese—Scarce and firm; old New York full creams, choice, small, 14@15c; fair to good, small, 14@14½c; choice large 14¾c; fair to good large, 14@14½c; best here, 13@13¼c; fair to good 12@12½c.

NEW ORLEANS, La., May 4.—Butter—Market easy at 22 for extras. Renovated, 18c; ladles, 15c.

NEWARK, N. J., May 4.—Butter-Market steady at 22c.

Eggs—Firm at 16 for northerly section firsts. Storage packed 16¼c.

TOPEKA, Kan., May 2— Butter— Creamery butter 22@23½c; dairy, 17½@19c.

Cheese — Longhorns 13¾c; Twins 13½c; Daisies 13¾c.

LIVERPOOL —Butter — Good United States steady, 75s.

Cheese— Steady; American finest white and colored, 68s. Stocks: Butter, 3,900 cwts.; cheese, 16,000 boxes.

CANTON, N. Y. May 2—Butter—Offered 331 and 734 tubs butter sold at 20c.

Cheese—Large cheese, 346 Twin cheese and large cheese sold at 11¼c; Twins, 11⅞c.

NEW YORK MARKET

NEW YORK, May 1st.—Butter—Receipts for the week, 36,092 packages. Exports for the week, 544 packages.

The price on extra creamery butter was dropped to 23c early in the week; on Wednesday another ½c was taken off, and today, Saturday, 22c is the top quotation. Strictly extra goods are not over plentiful, but there was more than enough of poor to good creameries which were freely offered at 1 to 2c under the top price, and there is a fair stock of this style goods going over unsold. A large proportion of the creamery butter coming from this state was quite ordinary, showing a lack of fine flavor, irregular in make and mixed in color.

New York state dairy was in light supply, we note sales of few parcels fancy Delaware tubs at 21 to 22c, and under grades at 15 to 20c. Ladle & Renovated butter quite plentiful and prices favor buyers. We quote:

Creamery, extra, 22c; medium, 20@21c; poor, 15@18c Dairy, extra, 20@21c; medium, 16@19c; poor, 12@15c.

Cheese—Receipts for the week, 21,864 boxes. Exports for the week, 8,284 boxes.

Old cheese selling in small lots at 14 to 14½c for best and 12 to 13¾c for middling qualities. Home trade bought liberally of finest, new, small cheese at 12½ to 12¾c, and exporters took all the large sizes at 12 to 12¾c, and stock is well cleaned up at the close. Skimmed cheese had a hard time this week and prices were much lower and about nominal. We quote:

Old cheese, extra, 14@14½c; medium, 12@13; poor, 10@11c. New cheese, extra, 12½@13c; medium, 11@12c; poor, 8@10c.

DAVID W. LEWIS & Co.

BALTIMORE MARKET.

BALTIMORE, April 30—Butter—The receipts are gradually on the increase, and the advices from the principal dairy sections indicate a further increase in the near future, with the exception of a few creameries; there is very little improvement to note in the quality; the majority of the receipts are running very irregular in quality, many lots showing unmistakable signs of stale milk, which fact renders them very undesirable. The recent softening of values has not only made buyers cautious in their purchases, but very exacting as regards quality, and this has had the tendency to widen the range of values. Held creamery is very slow sale, unless the quality is bang up. Choice imitation creamery continues rather scarce. Fresh sweet ladles are also in light supply and quotations on all desirable offerings are well sustained. Rolls, owing to the warm weather, have been coming in in bad condition; we suggest that from now on you pack them solid. Blocks and prints—The supply is fully equal to the requirements. The market closes quiet and feverish.

Creamery Separator, extras, 23½@24c; firsts, 22@23c; seconds, 20@21c. June Creamery, extras, 23c; firsts, 21@22c; seconds, 18@20c; Imitation Creamery, extras, 20c; firsts, 18@19c; seconds, 15@17c, Iowa & N. W. Ladle, extras, — firsts, 17c; seconds, 14@16c. Ohio & Indiana Ladle, extras, — firsts, 16@17c; seconds, 14@15c. Roll, Ohio, extras, — firsts, 14; seconds, 11@12c. Roll, W. Va., extras, — firsts, 13; seconds, 11@12c. Ohio Store packed, extras, —; firsts, 13c; seconds, 12c. West Va. Store-packed, extras,—; firsts, 12@13c; seconds, 11@12c. Creamery blocks (2-lb.) extras, 25@26c; firsts, 24@24½c; seconds, 22@23c; Creamery prints (½ lb) extras, 26c, firsts, 24@25c; seconds, 22@23c: Md. Va., & Penna. Prints, extras, 24@25c; firsts, 22@23c; seconds, 19@21c; Renovated Butter, extras, 19@20c; firsts, 17@18c; seconds, 14@16c.

Cheese—Old cheese pretty well gone; quotations on new cheese, with exception of Cheddars, which are still quoted old price.

N. Y. State—Cheddars, fine, 14¾@15c; choice, 14@14½c; fair, 13@13½c; Flats, fine, 13½@13¾c; choice, 12½@13c; fair, 11¾@12c; Small, fine, 13¾@14c; choice, 13@13¼c: fair, 12@12½; Ohio Flats, fine, 13½@13¾c; choice, 12¾@13c; fair, 12¼@12½c; O. Picnic, fine, 14@14½c; choice, 13¼@13½c; fair, 12½@12¾c; Swiss Cheese, fine, 15c; choice, 12½@13½c; fair, 10@12c.

Eggs—After our issue of last week, a much firmer feeling developed and prices were advanced a ½ cent. So far this week, though the demand has been good, there has not been that activity that characterized the market towards the close of last; the receipts continue fairly liberal and all desirable stock has met prompt sale at 15½c. Duck eggs—While the receipts have been quite liberal, there has been no surplus, as the demand so far has been equal to the supply. Goose eggs—Dull and prices irregular.

301 Exchange Place. G. M. LAMB & BRO.

READING NOTICES.

All Reading Notices under this head are at the rate of $5 cents per line.

First-class practical dairyman, butter making, milk testing, dairy machinist, good all round man, excellent references, factory experience. age 23, wants situation. G. HUMPHREY, 2166 Fifth Ave., New York City.

For Sale Cheap--Second-hand and new engines and boilers for power in creameries or for operating corn huskers, feed grinders, etc. Address A. ZWIEBEL, JR., Burlington, Wis.

For Sale—Pure bred Guernsey bulls and grade heifers. Also Early Black Soy Beans at $2.00 per bushel. A. H. HINMAN, Neenah, Wis.

A Registered Guernsey Bull 15 months old for sale. A very fine animal. Inquire of J. S. HUNTER, Pickett, Wis. 12-tf

For Sale—Four young registered Guernsey cows, all fresh. J. E. STORY, Stanley, Wis. 11 tf

For Sale—Carload of grade Holstein springers. C. BOTTMA STOCK YARDS, Indianapolis, Ind. 13-2

For Sale—Or will trade for a Jersey bull from 18 months to 2 years old, a Rider engine for pumping water. This engine is in first class condition and is sold for no fault. We have a steam pump and have no use for it. For full particulars write E. T. SHAFFER, Polk City, Ia. 13-2

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 1901

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SEPARATORS

Now's the time for separators---big or little, farm or factory.

20,000 DE LAVAL machines have been sold during the month of April---going to every country in the world.

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248 McDermot Avenue, WINNIPEG.

Buff Jersey's latest book on Farm Stock and Dairy Work is full of practical things for practical people. The Silo, how to build and fill; ensilage, its value; soil, crops, variety and how to grow. Swine, poultry and many other subjects ably treated. Send 25c for copy. Monmouth, Ill. 47-tf

Wanted—Experienced farm hand, able to milk well. Give age and wages wanted. ST. IVES PARK FARM, Mont Clare Station, Chicago, Ill. 41-tf

The Business Herd of Holstein-Friesian cows are being closed out at a great sacrifice, and if you want one or more officially tested, good business cows write at once and secure first choice. State just what you want and save time and correspondence. F G. JOHNSTON & CO., Sta. B, Columbus, O. 11-tf

Wanted—A first-class manager with experience to take entire charge of my herd of one hundred cows. Write for particulars, stating experience, age and salary expected. BOX 529, San Antonio, Texas. 11-3

Holstein-Friesian Bulls from one to fourteen months old at prices that will surprise you. O. J. GODFREY, Pennellville, N. Y. 11-tf

Berkshire Boars ready for service, for sale. Also spring pigs. Quality high, price low. GEO. V. SAFFARRANS, Palmyra, Mo. 11-2

For Sale—Tamworth boars, all ages. Write what you want. NOAH GRAY, Viola, Wis. 12-2

Barred Plymouth Rock eggs from a pen of choice hens and a fine Thompson cockerel. 15 fresh eggs for $1.00. J. BLACK, Bremen, Ohio. 11-2

For Sale at a Bargain--A few complete separator station outfits with Alphas No. 1 and 2 belt, also 20th Century steam separators at $300 to $500 each. Also a few belt separators, No. 1 Alphas, Springer, Sharples and De Lavals standards at $30.00 to $150 each. W. A. CARPENTER, York, Neb. 12 2

For Sale—De Laval separator, Alpha No 1, good as new. C. V. CRY, CO., Mechanicsburg, Pa. 12-2

Wanted—Buyer for Victor combined churn No 2, 100-gal. cream vat, 60-gal. weigh can. All the above are in A No. 1 condition, used less than 1 year. We have no use for them and will price them low to a quick buyer. For full particulars inquire of E. T. SHAFFER, Polk City, Ia. 13-2

Dairy Cows For Sale—At a bargain. Administrators will close out one of the finest herds in the state, of thoroughbred Holsteins and Jerseys, and grades, noted for milk and butter qualities Your choice of fifty head. KEWANEE DAIRY FARM, Lock Box 115, Kewanee, Ill. 13-2

Wanted—At once, a first-class herdsman and milker to take charge of a herd of 30 cows. Married man without children preferred. State price wanted and give experience when writing. Address JOHN M. ENGLAND, Callao, Mo.

For Sale—At a bargain, a large dairy farm with up-to-date and first-class improvements. Large house, 2 large barns, large silo, fully equipped creamery plant and several outbuildings. Home market for all product at prices above top of Elgin market. Would sell either with or without stock. For particulars address C. O., care Hoard's Dairyman. 13-2

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

For Sale—To settle estate, dairy farm and milk route, one and one-half miles from Manston, county seat of Juneau County, Wis. 35 cows, 200 or 280 acres as desired, with fixtures and stock. Basement barn. There is good tobacco land on this farm. Enquire of B. N. SOUTHER, Manston, Wis. Box 336. 9-5

Position Wanted — Experienced creamery manager wishes position as manager or butter maker in up-to-date creamery. Makes all by-products of milk. Taken one course at Cornell Dairy School. A No. 1 references. B. E., care Hoard's Dairyman. 11-tf

Wanted—Position as farm manager by a competent and energetic Agil College man. Married aged 30. Good references as to honesty and ability. Address 666, care of HOARD'S DAIRYMAN.

Wanted—Married man, competent to care for a dairy and work on small farm. A German with some help to milk preferred. House, garden, milk, etc. Addres BOX 46, Delafield, Wis. 13-2

Wanted—At once, expert condenser for partner. Prefer man able and willing to supply one half necessary capital. I have the raw milk at creamery and market for product in city. Address J. D. ROSZELL, 223 So. Mad., Peoria, Ill. 13-3

Wanted—Situation as foreman of creamery. Six years practical experience pasteurizing and general creamery work in model creamery of southern New York. Perfectly temperate. Address J. I. HARING, Box 36, Port Dickinson, N. Y.

For Sale—De Laval "Dairy Steam-Turbine" separator, capacity 1000 lbs. per hour, used very little, in good condition. Going out of business. Address B. F. BRUNDRED, Oil City, Pa. 13-tf

Very Low Rates to California and Return—Via the North-Western Line. First-class round-trip tickets on sale May 3d and 12th to 18th, to Los Angeles and San Francisco. Favorable limits and stop over privileges and choice of routes. The overland limited, most luxurious train in the world, leaves Chicago daily 8:00 p. m. Less than three days en route. Drawing room and compartment sleeping cars, observation cars, dining cars, buffet-library cars, (barber and bath) electric lighted throughout. Three trains a day from Chicago to the coast through without change. Daily and personally conducted tourist car excursions to California, Washington or Oregon. For particulars apply to ticket agents Chicago & North-Western R'y. 8-7

To Colorado in 1903—The passenger department of the Chicago & North-Western Railway has issued a very interesting folder, giving information as to reduced rates and sleeping car service, with a short description of the various points of interest in Colorado usually visited by tourists, these excursion rates applying on account of the Christian Endeavor meeting to be held at Denver, July 9th to 13th. Send 2-cent stamp for copy, to W. B. KNISKERN, Passenger Traffic Manager, Chicago. 9-6

A Wisconsin Herd Report.

ED. HOARD'S DAIRYMAN:—The following is the record of my herd for the year 1902:

1902	Lbs. milk.	Test.	Lbs. butter fat.	Price cents	Amount.	Butter used	Cash.
January	7619	4.9	373	24	$89.52	$1.44	$88.08
February	6502	4.8	312	26½	82.68	1.62	81.06
March	6358	4.8	305	26	79.30	2.86	76.44
April	5330	4.8	256	24	61.44	3.19	58.25
May	5672	4.7	266	20⅓	54.53	1.89	52.64
June	4919	4.7	231	20	46.20	2.94	43.26
July	3661	4.7	172	19	32.68	3.40	29.28
August	3245	4.6	149	18	26.82	3.61	23.21
September	7308	4.6	336	20½	68 38	2 52	65.86
October	6735	4.6	310	22½	69.75	3.64	66.11
November	6261	4.6	288	26	74 88	3.90	70.98
December	5955	4.6	274	28	76.72	.84	75.88
Total	69565	4.7	3272	22 11-12	$762.90	$31.85	$731.05

Per one hundred lbs. milk $1.09 6⅘ mills.
There were 14 cows in milk, per cow, cash $54.49⅓.
Each cow gave 4969 lbs. of milk.
Our average per lb. of butter fat, 23⅓ cents.

Mayville, Wis. H. W. SCHELLPFEFFER.

Selections from the New York Farmer's Institutes.

ED. HOARD'S DAIRYMAN:—Following are some selections from the New York institutes.

Address by the Hon. D. P. Witter, of Berkshire, N. Y., on Feeding the Soil: He said feeding the soil is the foundation of agriculture. The soil is decomposed rock and vegetable matter. The best muck soils contain about 50 per cent vegetable matter. The vegetable matter comes by the growing of plants in it, which by decaying supply it with humus. We have exhausted a part of the humus by growing crops, and we have to consider the question of renewing the supply. The process of cultivation in growing crops exhausts this humus in the soil. We need to learn from nature the way to supply the soil with humus, which holds the plant food, and the water which is the vehicle which carries the food through its structure. First we can supply humus and plant food by feeding the crops we can grow to animals on the farm, and saving and applying all the manure without loss. Then we can supply humus by growing and plowing under green crops. Always try to keep something growing on the soil. Grow such catch crops as you can, clover, if you can grow it—or rye, and keep the soil covered during the winter months. Try to follow nature in keeping the soil fertile. Our last resort, in feeding the soil, should be commercial fertilizers. The best way is to feed the plant through the animal. Sometimes commercial fertilizers are desirable as a starter for plants, or to supplement the manure we are unable to get.

Geo. W. Cavanaugh of Cornell University, gave an address on the "Composition of Feeds." He spoke of the adulteration of cattle foods, such as are made by mixing oat hulls with corn meal and selling the feed for corn and oats; also by mixing ground corn cob with wheat bran. You now have a right to demand of the dealer in feed a guaranteed analysis of what the feed contains, excepting the whole ground grains. The word protein in the analysis means that portion of the food that makes the blood and muscles in the body, and the casein in the milk. The most of the feeds on the farm are lacking in protein, which is the most costly element. It is the carbohydrates in the food that make heat and fat in the body. Carbohydrates include sugar and starch. This part will not make any blood, muscle, or bone. Then we need in the food, the parts which make the bone. This is the ash, or mineral part. Speaking of some of the stock foods put up in small packages, he said: The basis of all of them is linseed meal or wheat feed, cheyene, common salt, charcoal, fenugreek, saltpetre, etc. These may be good, but they cost too much. They cost 12 cents or more per pound and they can be made for 2 to 4 cents per pound. The balanced ration is that which contains for each pound of protein 5½ to 6½ pounds of carbohydrates, or starch and sugar. The animal can use protein to an extent, to take the place of carbohydrates, but it can not use carbohydrates in the place of protein, so it is more economical to put the right amount of them in the rations.

Dr. P. Witter spoke on the "Practice of Feeding Animals." He said the cow in milk needs 2½ pounds of digestible protein and 13 4-10 pounds of carbohydrates in 24 hours. All the experiments which have been made, have verified these figures. This makes a ration with a ratio of 1 part protein to 5½ of the carbohydrates. Economical feeding is to make up the ration by obtaining these elements in their cheapest form. We take what is grown on the farm as a basis, then buy what we need to make up the balanced ration. One thing we must take into consideration is the succulence of the ration. This succulence we get in corn ensilage, which is the cheapest form in which we can supply the starch portion of the ration. Bulletins giving the analysis of different foods, and directions for making up rations, can be obtained from the New York Experiment Station at Geneva, or Cornell University.

The following questions were asked and answered at this meeting:

Is a watering trough in the barn a good investment?

Mr. Cook—I think so. I know that I have increased the quantity of milk per cow by being able to water cows in the barn during cold weather. Once when the water supply failed on a cold day, and we turned the cows out of doors, there was a considerable decrease on the quantity of milk.

What grain is best to feed a one-year-old colt?

Mr. Witter—Wheat bran is excellent, also a little linseed meal, to feed with timothy hay. I would feed a little corn meal with clover hay.

What is the value of sorghum?

Mr. Witter—Not equal to corn to grow for the cows.

Shall we dehorn the cows?

Mr. Witter—Yes, the cows will do better with them off, and there is no danger from injury. It can be done quite humanely. The best way is to stop them growing on the young calves by rubbing caustic potash on the buttons where the horns start.

Can butter fat be fed into milk?

Mr. Witter—No; when you get it up to the normal amount the cow is bred to put in her milk.

What are the best varieties of early and late strawberries?

Mr. Jenkins—Marshall, Wm. Belt and Gandy.

What is the best green food for hens?

Green clover cut, is about the best in summer for hens kept in yards. Cabbages are good for winter, also carrots and other vegetables.

What methods can you suggest to keep the young men on the farm?

Mr. Witter—Help the boy to study nature and farming as a science, and get him interested. Make the home life more attractive.

Which is the best for fowls, a ground or wood floor?

Mr. Cook—The wood floor, but better than either is the cement floor, but keep it well littered in the winter.

If hens have plenty of oyster shells, do they need bone?

Mr. Cook—No.

What is the best kind of grit for hens in winter?

Mr. Cook—For me it is cheaper to buy the commercial or prepared grit; oyster shells do not take its place.

How does rough handling affect the dairy cow?

Mr. Witter—The nervous type of cows, like the Jerseys, are very sensitive to rough handling and the amount of butter fat is affected by the way she is treated.

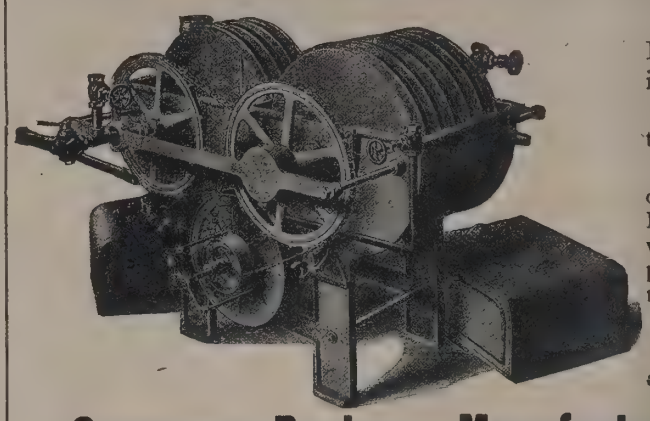
Is fall plowing the best?

Mr. Witter—It depends on one's location and the crop.

Shall we try to grow alfalfa in this country?

Mr. Witter—Yes, I would experiment with it. It is the best forage plant we have. If you can grow it, you can save a large part of your grain bills. It needs a

IT'S ALL IN THE DISCS



The Farrington Duplex Pasteurizer.

Butter must score top notch nowadays.

Butter made from cream pasteurized in a FARRINGTON DUPLEX will score from 6 to 8 points higher than that made from raw cream.

Prove it for yourself.

Write for circulars and prices.

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THE DICKSON IMPROVED 10 Gallon and 5 Gallon FREEZER.



THE C AND B 10 Gallon FREEZER.

ICE CREAM Machinery, Tools and Supplies.

Packing Tubs, All Kinds of Ice Cream Packing Cans, Ice Crushers, Bricks, Ladles, Spoons, Dishers, Flavors, Colors, Gelatines, Etc.

WRITE FOR OUR CATALOGUE

MRS. LEA'S MILK AND BUTTER PURIFIER.



Removes all Weed, Garlic, Vegetable and Animal odor and taint from the milk and in no way injures the cow to which it is fed.

WASHINGTON, D. C., May 27, 1901.

The trial of your "Purifier" made at my request, interests me very much and strengthens my conviction that this "Purifier" is an article which, if it continues to produce the results attained the present season, is destined to be of great importance and value in many dairying districts of this country.

[SIGNED] HENRY E. ALVORD,
Chief of Dairy Division, U. S. Department of Agriculture.

The use of our "MRS. LEA'S MILK AND BUTTER PURIFIER" is a necessity to producers of milk and butter when the pastures are at all infested with Garlic, Onions, Rye or Clover. It is a great saving, as the cows can be grazed, thereby saving largely in feed expenses. It always removes the taints when properly fed. The best dairies are using it largely and with profit. Try it and you will find it to your interest. For sale by The Dairymen's Supply Co., Philadelphia, Pa.; Farmers' Exchange Co, Belle Mead, N. J.; Cook & Brady, Middleton, Del; Filston Farm, Baltimore, Md.; Gardiner Dairy, Balimore, Md.

Manufactured by VIRGINIA CATTLE FOOD COMPANY, Danville, Va.
Write Us for Prices and Further Information.

deep, rich and well drained soil. Lime or ashes make the soil more congenial to alfalfa, which belongs to the clover family.

What is the best home made condition powder?

Mr. Cook advised the following formula: 100 lbs. linseed meal, 5 lbs. charcoal pulverized, 5 lbs. saltpetre, 5 lbs. Epsom salts, 3 lbs. fenugreek, 5 lbs. salt. This is as good as any you can buy and will cost about 4 cents a pound.

What is the best green crop to plow under for fertilizer?

Mr. Witter—Clover will best fertilize the soil, but I do not think we can afford to plow it under. Better feed it out to animals on the farm.

What breed of hogs is the best for the dairy farm?

Mr. Cook—The Berkshire are good, so are the Chester White and Poland China. Rape is good to grow for hogs. You can make more pork with less other food.

Will it pay to sow clover on ground that is to be plowed up the following year?

Mr. Witter—I would sow something on it, if it will grow well on your soil I would sow it, if not, I sow some other catch crop.

Which is the most profitable fowl, the brown or white Leghorns?

Mr. Cook—The value of any breed depends on the qualities that have been bred into it. I believe the White Leghorns have received the most attention as they are a larger fowl and lay larger eggs.

What about alfalfa, is it a profitable crop?

Mr. Witter—One ton of alfalfa hay contains about twice as much protein as one ton of timothy hay, and if we can grow it, it is the best forage crop we have, for 1 to 5 tons per acre is not a large yield of alfalfa. First you should have a deep, and well drained soil and it should have some lime in it. The seed bed for all alfalfa should be made very fine and about 30 pounds of seed to the acre alone with no nurse crop. Begin to mow when the plants are only a few inches high, and then after always mow before they blossom. W. H. JENKINS.

Sidney Center, N. Y.

Flooding Alfalfa Land.

ED. HOARD'S DAIRYMAN:—Last spring I sowed three or four acres of alfalfa upon land subject to overflow from the river. I have been told since, that if it is covered by water for only one day it will die. The river this year was lower than it has been for several years and failed to overflow this field, so I am without personal experience upon this point. Can you tell me if this is correct, and what effect this overflow would have if it came early, before the alfalfa had commenced putting out fresh buds or leaves?

Nashville, Tenn. J. L. C.

Those who have had experience state that water standing on alfalfa for 48 hours or over will kill the plant whether dormant or growing. Alfalfa should never be sown on land that is subject to overflow.

An Argument for Disarming Horned Cattle.

ED. HOARD'S DAIRYMAN: — At the Dublin Dairy we have come to believe in your paper. In fact we do not see why anyone who is interested in dairying should be without the DAIRYMAN. Of course, if a man knows enough already he will not need any paper, but the others do all need the DAIRYMAN, and can learn something from it.

I am glad to see that so many are becoming converts to the idea of dehorning their cattle. The man who has once tried dehorned cattle will never again be satisfied to have his cattle going around with two daggers for each cow.

Dehorned cattle are so much more easily handled, that the dairyman who has once seen a herd of dehorned cows will be sure to become a convert, unless he is so determined to stick to the old way, that new ways find no favor with him at all.

The reasons for dehorning have all been so frequently discussed that nothing need be said on this ground. To state them is to state the only conclusion.

But we have come to the conclusion that to dehorn the entire herd and not to allow any of the cattle to come into contact with armed cattle, makes a radical difference in the dispositions of the cattle of the entire herd. The difference is more marked when there are no armed cattle at all. In time, the breed of cattle so treated, would show marked characteristics. The disposition to fight, would be almost eliminated.

We have no wounded or bruised cattle. We have three bulls which run together in the same small pasture. Two of them are very gentle, and can be caught and handled and petted anywhere. The other is a little skittish, but they do not injure each other, and unless a cow happens to get near them there is entire peace among them. They stay together and take exercise day and night in the same small enclosure.

In our barn the cows are like a flock of sheep, are as gentle and as easily handled. But the dehorned cow has no place among a lot of armed cattle, and unless the dairyman is going to disarm all his cattle, it is unjust to disarm a few of them. LEE YOUNG.

Stephenville, Texas.

Without entering into the argument either for or against removing horns from dairy animals, we feel called upon to enter our most emphatic protest against handling and petting those very gentle bulls. A bull without horns, is in some respects a more dangerous animal than one with horns, and there is no telling when the most gentle of bulls will turn into the most furious and ungovernable animal.

Alfalfa in the Silo.

Two cases of silaged alfalfa have come to my notice where results have apparently been satisfactory. Cows seem to relish the food, and when fed in connection with corn silage most excellent results follow. I have not tried it. Red clover has not, in our experience, given quite the satisfactory results one would anticipate. I am, however, greatly interested in silaging alfalfa. Its merit is known as a forage and hay fodder. If we may covert it into silage the great difficulty of curing in our humid atmosphere will be avoided. I learn that the heat developed may need some attention by way of adding water freely at time of filling. I am satisfied that we are slowly gaining ground in New York and will ultimately grow it upon most farms in larger or smaller areas, according to the location, subsoil, mechanical condition, and readily available plant food in the soil, learning in the more northerly portions to give adequate winter protection, and so adding one more forage plant to save a portion of our tremendous outgo for concentrated cattle food.—H. E. COOK, in *Rural New Yorker*.

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Seeing your friends and having them join in for a good club of subscribers.

"ADVERTISEMENT"

IN CONVENTION.

Teachers Learn Something Not in The Class Book.

A number of young women attending a teachers' convention at Oklahoma City some time ago learned a valuable lesson in hygiene through a sister teacher who says: "About a year ago I had my first attack of poor health and it seemed a terrible thing to me for I had always been so well and strong. My stomach distressed me terribly; it seemed like it was raw, especially after breakfast, and it would burn and hurt me so I could not rest. I was soon convinced that it was caused by coffee drinking and at the request of a friend I gave up coffee and began to use Postum Coffee.

"The change in my condition was something marvelous. I had actually given up teaching because doctors were unable to help my stomach trouble but since I quit coffee and used Postum my troubles have disappeared and I have gone to teaching again.

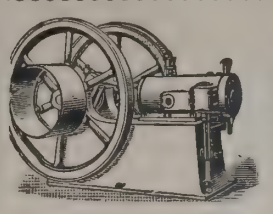
"Some time ago I attended a convention at Oklahoma City and determined to have Postum at my boarding-house where there were eight other teachers, four of them suffering from coffee sickness. My landlady did not make the Postum right but I showed her how and we all found it delicious. We all drank it the rest of the time we were there and the young ladies in question felt much better and declared that their heads were much clearer for study and their general health much improved. I have their names if you care for them." Names furnished by Postum Co., Battle Creek, Mich.



GASOLINE ENGINES

as power for the dairy have passed the experimental stage. Many dairymen now have them and all eventually must have them. The only questions to decide are the amount of power needed, and the most desirable make. With twenty-seven years of experience behind us, and a plant that has grown from 50 engines a year to 1500 a year capacity, we feel that we are equipped to build the best. There are other reasons why the "OTTO" is superior. We will tell them in this space from time to time. If in the meantime you need power, write us, mentioning this paper

THE OTTO GAS ENGINE WORKS, Philadelphia, Pa.



THOMPSON-LEWIS GASOLINE ENGINES

furnish the greatest possible power at the lowest possible cost in time, labor, fuel and money. They are so simple that anybody can run them without expert training or experience. Our Volume Governor gives uniform speed. Our Aome Mixer is the most positive and economical on the market. Our Hand Starting Lever starts engine with least effort. All bearings of Phosphor Bronze. Best material and workmanship throughout. Many sizes from 4 (actual) h. p. up. Best for all farm work—cutting and grinding feed, sawing wood, pumping water, separating cream, churning, etc. Send for our free catalog before you buy. It may save you time, money and annoyance.

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Portable and Stationary, 3 to 25 H. P.
Catalogue on Application.

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MINNEAPOLIS, MINN.

Water In The Stable a Necessity.



It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. Why not use the Best? Write for descriptive circular.

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CHAIN-HANGING
CATTLE STANCHION
The Most Practical
CATTLE FASTENER
ever invented.
Manufactured and For sale by
O. H. ROBERTSON
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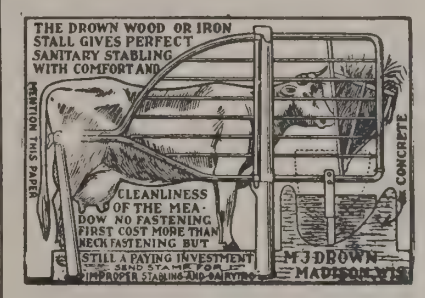


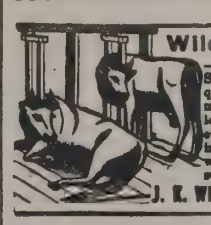


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Wilder's Stanchion

—being an improvement over Smith's. Lightest, strongest, quickest, safest swing stanchion made. Has steel latch and automatic lock. Becomes stationary when open. Animal cannot turn it in backing out. Made of best seasoned hard wood. Pins for fastening with every stanchion. Send for testimonials.

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THE NEW PATENT
Cow Stall
AND FEED TROUGH.

This is the only Cow Stall with a centering hinge Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars. R. A McLERY & CO., Palmyra, Wis.



The BEST Cattle Fastening.

SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated Circular free. GLENORA MFG. CO., Glenora, Yates Co., N. Y.

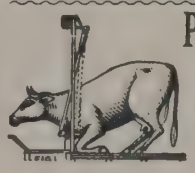
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Prescott's Swinging Swivel Stanchion

Keeps Cows Clean.

Swings forward while getting up or lying down. Locks back while standing Full particulars free.

E. PRESCOTT,
Beverly St., Boston, Mass

Criticisms Criticised.

Farm Separators and Cream Quality.

ED. HOARD'S DAIRYMAN:—In your issue of March 20th, I note an article under the heading, "Vicious Hand Separator Advertising," in which an Indiana writer, who hides his identity under the *nom de plume* "G. S.," attacks the hand separator manufacturers on the ground that their advertising misrepresents the facts about the delivery of hand separator cream to the creamery.

The simple fact is, G. S. does not know what he is writing about. He appears to have a theory of operating an old-style creamery, and that is about as far along as he has gone in the butter manufacturing business. His theory is based on what he has heard about the delivery of milk at the creamery, with the washcloth or a bar of soap, or something worse, in the bottom of the can, or an odor of the pig pen, and can slime (ropy milk) when the milk is turned out. From this theory of handling milk G. S. has jumped to the conclusion that cream from a farm separator cannot be handled so as to be in good condition for butter making, if delivery is made only twice each week.

The theory propounded by G. S. appears so absurd in the face of our three years' experience in making butter from hand separator cream that we are more than surprised that such "hog wash" should slip into print past the usually watchful eye of the editor of HOARD'S DAIRYMAN.

In the first place, the article is manifestly unjust to the booklet, "The Hole in the Bucket," and to the Empire Cream Separator Company, who issued this booklet. The attempt seems to be made in the article to fasten on the booklet the advocacy of washing a separator but once a day, when in truth, cleanliness, absolute cleanliness, is one of the strongest points of the Empire advertisements and the Empire agent's talk. The Empire company has always taken the position that good cream can be produced only by a machine with a simple bowl, capable of easy washing. This has been one of their strongest arguments in favor of their machine, and in their advertisements, they have at all times contrasted their easily washed bowl with the complicated bowl of other types, which the Empire company claims is impossible to keep clean.

In regard to the special sentence of criticism, involving the frequency of delivery of cream to the creamery, I can say that in the past three years my creamery has been in receipt of from 100 to 500 cans of hand separator cream daily, which has been made into butter under my own supervision. And I challenge any old style creamery to show a better average of WesternExtras than stand to the credit of the Hygeia Creamery Company of Omaha. I have personally inspected thousands of cans of cream which have to come to my creamery from the surrounding country, some of it having travelled over 300 miles by rail to reach the creamery, and at every season of the year, and I must say the average fitness of that cream for butter making is fully equal to the average milk furnished the old style creamery and infinitely better than the cream we used to get in the old time gathered cream creamery with which I was connected for several years.

If "G. S." will investigate the situation, he will find that if a creameryman is receiving a poor quality of cream from hand separator patrons, it is entirely the creameryman's fault. He is either supplying his patrons with a poor separator, or he has not properly instructed them in its use. If he does this, a semi-weekly delivery is all that is really necessary a greater portion of the year. Every patron of the Hygeia Creamery Company, for example, is instructed to cool his cream to the temperature of well water before he sets it away. He is instructed to keep his separator clean, and to cool each new skimming before adding it to the can; to thoroughly stir the old and new cream together when they are mixed; to cover the cream can with a proper cloth cover to exclude insects and dust, only while holding the cream for shipment, instead of covering it tightly with the can cover; he is instructed how to keep the cream cool even in the hottest weather by the simple method of surrounding it with plenty of cold water.

I am bound to say in behalf of the hundreds of Nebraska and Iowa farmers from whom we buy hand separator cream that the known result of their work proves that they follow out our instructions remarkably well. The condition of the hand separator cream as it reaches this factory on twice-a-week deliveries averages remarkably good.

I attribute the high quality of the cream received largely to another factor, however; "G. S." and all the out-of-date dairymen forget that the hand separator so reduces the drudgery of dairying and increases the profits that those who buy the separators, experience an enthusiasm for their work that they never felt before. This gives them zeal in carrying out details of the work that has not heretofore been reached by any system. Add to this the fact that the small bulk of cream, where it is skimmed to 40 per cent fat, is easy to care for properly as compared with whole milk handled by any system, and the good condition of hand separator cream is fairly accounted for.

From our point of view, and we look directly from the dollars-and-cents-hilltop, it is sound dairy wisdom to point out the "hole in the bucket when the dairyman makes a trip to the creamery every day instead of twice a week."

It is true, as we may infer from "Green Shucks" letter, that separator manufacturers are hustling for business. That is not, however, from "over-anxiety" of any sort, but merely from the fact that the wide-awake separator manufacturers are young pushers in business. "Hasbeens" of the "G. S." sort cannot understand such people. And speaking for the Empire Separator people of Bloomfield, N. J., at least,—of whose affairs I know something—they have no "over-anxiety" of any sort, except to build machines fast enough to meet the demand. I do know, however, and I believe every one who is at all familiar with the separator proposition will admit, that in the past three years the Empire Cream Separator Company has done more to advance the cause of better dairying than all other separator companies combined. Their newspaper advertising has been free from mud-slinging. Their booklets and circulars have been conservative in statement and educational in tone. They have consistently labored with advanced dairymen to elevate the standard of dairy excellency, and in this work they have been a notable exception to the average run of separator manufacturers. They deserve the thanks of every man concerned in the best interest of the industry.

"G. S." cannot stay the hand of dairy progress by his little dash of cold water flung at separator manufacturers. We predict that it will only be a very little time till there will be as many hand separators as mowing machines in use, and the length of time seems now limited only by the factory's capacity.

"G. S." and the rest may well cease to exert "constant effort" toward "educating the farmers to produce a first-class article in the way of milk or cream" by old methods. I worked at that a dozen years. It has failed, generally. The old method has in it so much hard work, and is so unprofitable to the farmer that it does not enlist his enthusiam. These buttermakers might better spend a little time "educating" themselves. Let them welcome the incoming of the hand separator by buying the cream at a fair valuation of its butter fat content. Then get a pasteurizing plant and with modern machinery throughout in the creamery,

BUY DIRECT FROM FACTORY, BEST
MIXED PAINTS
At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.

YORKSHIRES A few choice imported Boars. September farrow. Also pigs from imported stock ready for delivery in 8 weeks. W. H. FISHER, Spahr Bldg, Columbus, O

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. All our choice pigs of 1902 farrowing have been sold. We are now taking orders for 1903 farrowing.
JOHN WHITE & SON, Adamstown, Md

AYRSHIRE CATTLE of the BEST of BREEDING. Also Chester White Pigs, ready to book for season's trade. Young stock of both sexes. Prices reasonable. Come and see us.
F. TSCHUDY & SONS, Monroe, Wis.

AYRSHIRES SCOTCH and.....AMERICAN
The Champions of America—any age—either sex. Riverside Stock Farm. J. F. CONVERSE & CO.,
P. O. Box 112. Woodville, N. Y.

THE BROWN BESSIE HERD
Offers some splendid young cows and heifers bred to Recorder, the only living son of the famous Brown Bessie, winner of the 30 and 90 day butter test at the Columbian. Also a few sons of Recorder from daughters of Diploma and other tested cows are offered.
H. C. TAYLOR, Orfordville, Wis

PUBLIC SALE OF THE
J. T. POLK JERSEY DAIRY COWS
AT
GREENWOOD, IND., MAY 20-21, '03.
FOR CATALOGUE, READY MAY 5, ADDRESS
THE JERSEY BULLETIN, INDIANAPOLIS, IND.

20 IMPORTED AND HOME BRED AYRSHIRES 20
The best lot ever offered for sale in the United States. Both sexes. G. H. BELL, Rome, N. Y.

NORTH OAKS FARM, MINN ST. PAUL,
(Jas. J. Hill, Proprietor.)
AYRSHIRE BULLS
Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address,
N. E. McKISSICK, Supt., Cardigan, Minn

FOR SALE
GUERNSEY BULL
Old enough for service. Also calves of both sexes, and a few older females.
WRITE FOR PRICES.
N. E. SMITH, Harford Mills, N. Y.

GUERNSEYS.
HADDON FARMS—Home of the noted GLENWOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

Wasteland Guernseys
Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.
M. M. & E. J. HOLLINGSWORTH,
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GUERNSEYS FOR SALE.
Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.
JAS. H. BEIRNE, Oakfield, Wis.

Rosendale Guernseys.
MATURE COWS YEARLY RECORDS range from 356 to 713.3 lbs. butter. This herd contains more officially tested cows than any other herd of the breed. All of the largest records are official ones. A particularly choice lot of tuburculin tested bulls for sale from high record dams.
GEO. C. HILL & SON, Rosendale, Wis.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality F. W. TRATT, Whitewater, Wis.

GUERNSEY Bull Calves Sired by O. K. Dams of equal merit.
FRED VOGEL, JR., 165 First Avenue, Milwaukee, Wis.

Old Homestead Guernseys.
Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.
Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL Perry, Lake Co., Ohio.

ROBINSWOOD JERSEY DAIRY is offering a few Reg. Jersey Bulls ready for service at from $25 to $50, sired by a grandson of Recorder, the only living son of Brown Bessie, out of good cows. Write, stating your wants, to
N. H. ROBINSON, Prop., Centralia, Wis.

FOR SALE.
JERSEY BULL, one year old. Good individual of the best breeding. Also 9 months bull from tested dam. Herd headed by Fontaine's Owl, 60436. Prices on application. Address,
J. F. EGERTON, Footville, Rock Co. Wis.

The Evergreen Farm Herd has for sale three or four A. J. C. C. heifers bred Also a few cows and some choice bull calves from two to six months old. Write for pedigrees and prices.
N. N. PALMER & SON, Brodhead, Wis.

VALLEY FARM Is offering some good bargains in young bulls from 1 mo. to 2 yr. old. Also B. P. Rock Cockerels, $1.25 each. Write
FRED STUBLEY,
Black Earth, Wis.

PROSPECT HILL JERSEY HERD.
Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.
W. J. HUSSEY, Mt. Pleasant, O

READY FOR SERVICE
We are offering a solid color yearling Jersey Bull, 56 per cent blood of five of greatest Jerseys that ever lived; out of a young cow scoring 360 lbs. butter within a year, second season. Sound and all right, well grown and thrifty. A bargain at $100. For particulars address
E. E. STEVENS,
North Madison, Lake Co., Oh

ST. OMER HERD
Offers young bulls fit for service, out of tested dams with good yearly records. Strong in Exile of St. L., King of St. L. and Stoke Pogis of Prospect. Reasonabe prices. JOS. T. HOOPES, Bynum, Md.

FOR SALE GOLDEN LAD BLOOD. sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

BILTMORE
JERSEYS
are great and presistant dairy workers and typical Jerseys. We ask comparison with any other herd for
YEARLY MILK & BUTTER YIELDS, SUBSTANCE AND FINISH.
The herd contains more prize winners at the leading exhibitions (including the Pan-American) than any other herd.
The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service as you cannot get it.
Also Headquarters for Large English Berkshires and Standard Poultry.
Apply to
BILTMORE FARMS,
BILTMORE, N. C.

MUST BE
SACRIFICED
Having concluded to retire from the dairy business, and having sold my farm, possession to be given in sixty days, I offer for sale my herd of cows at a price around half real value. I have
20 COWS AND A BULL
bought at H. G. McMillan sale at prices ranging from $70 to $150 each. I have five coming two-year-old heifers in calf by Trustee's Gold. These cattle have rich strain of Diploma, Brown Bessie, and St. Lambert blood. They are heavy milkers, and average annual test of the entire herd is nearly 6 per cent. In size, beauty, and performance at the pail there is nothing like them. I will take $70 per head and give 12 months' time on a good note at 6 per cent.
Also have a Sharples Hand Separator, 700 lbs. capacity, cost $150.00, used very little and will sell for $50.00; a Fodder Cutter, mounted, cost $220.00, capacity 12 tons per hour, used only five days, sell for $100 00; one Gasolene Engine, "Jack of All Trades," 1½ horse power, one year old, cost $128, price $65.00. B. C. WELCH, Elsberry, Mo.

HAZEL FERN HERD. A. J. C. C. Jerseys, blood of St. Lambert, Melia Ann, Combination, Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

FOR SALE AT FARMER'S PRICES.
One St. Lambert bull ten months old; also bull calf three months old or will exchange for as well bred heifers. Registered Poland China pigs for sale at all times. Correspondence solicited. FRANK SHADBOLT Caledonia, Minn.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

and a butter maker who knows how to handle bacterial cultures and manipulate the product of the churn, no anxiety need be felt about the "edge" whether it shall be "gilt" or otherwise. This is our method, and we grade above "Western Extras" often enough to make us believe our hand separator butter from twice-a-week, delivery hand-separator cream, has a good deal of gilt quality, "G. S." and other croakers to the contrary notwithstanding.

Omaha, Neb. CHAS. HARDING.

Type in Dairy Cows.

I would like to heartily endorse the sentiments of the article in your March 2nd issue, page 207, "Form as an indication of dairy propensities." We hear the trash argument that type has not anything to do with performance, coming from the beef breeders, and very seldom from a dairyman.

My experience is, that type is all we have to go by, and I firmly believe that I can take Jerseys and in twenty-five years' selection for beef points, breed them to the perfect beef form of the Durham, and in the same time can breed the Durham to the perfect dairy type of the Jersey, simply by selection and nicking.

If we cannot judge from type, we have nothing to go by. I have had fifteen years' experience in dairying, and I find that every time we try to couple the beef qualities with the dairy we lose in the production, and when the beef men breed their cattle to dairy production they lose their perfect beef type.

I am also confident that a man is just as big a fool to waste good feed on a dairy animal to make beef as he is to waste good feed on a beef animal to make dairy products, and the only person that needs a general-purpose cow is a general-purpose man.—EDGAR SILCOX, in *Farmers' Advocate.*

GOOD ADVICE.

Here is the advice that President Newman of the Illinois Dairymen's Association sends out. Note the facts he bases his advice on:

"In Mr. Glover's work of testing and and keeping records for one year of over 300 cows he finds the extremes to be: One cow charged $2.07 to make 100 lbs. of milk, 52 cents for 1 lb. of butter fat. The best cow 29 cents for 100 lbs. of milk or 6 and 6 tenths cents per pound of butter fat. H. B. Gurler's herd averaged a net profit of $26 per head, over and above cost of feed.

Dairymen study these figures and then weed out the poor, unprofitable cows and take better care and feed a more *balanced* ration to those that pay a profit."

AN old subscriber, Mr. D. J. Griffith, Sauquoit, N. Y., writes us to renew his subscription and says:

"Our farmers are very slow about getting out of the old ruts, which their grandfathers made for them. I have found your paper to be of great value to me. From reading the balanced rations as given in its columns, I have been able to fix one that seems to exactly fit my case."

SHADY NOOK HERD Holstein Friesians
Offers three bulls one year old. O. I. C. White Pigs, both sexes.
W. R. GATES, Fort Atkinson, Wis.

BROTHERTOWN Stock Farms
DEANSBORO, N. Y.
THE LARGE OFFICIAL RECORDS, made by members of our herd, emphasize the fact very strongly, that our breeding and selection has been most correct. If you are looking for the highest production, combined with choice breeding and individual merit, it will benefit you to place orders for breeding stock of either sex with us. We will give your wants careful attention. Prices reasonable. ABSOLUTELY BEST HERD OF HOLSTEIN-FRIESIAN CATTLE.
McADAM & VON HEYNE


HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

FOR SALE. H.-F. Bulls, ready for service from A. R. O. Cows and sired by Sir Johanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis.

GLENVIEW HERD
A few fine heifers and bulls for sale. Also some A. R. O. cows. IRVIN NOWLAN, Toulon, Ill.

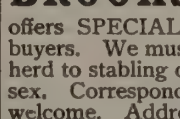
Star Farm Holsteins
I have just purchased of West Brothers of Syracuse, their magnificent herd of 53 Registered Holstein Cattle. This herd is rich in the blood of De Kol 2d, Pietertje 2d, and other leaders. Some of the best females living here. Can supply purchasers in car lots of any age, breeding or sex. 120 Head to select from. You can save money in buying at Star Farm.
HORACE L. BRONSON, Cortland, N. Y.

OAKLAND HERD
HOLSTEIN-FRIESIANS
Will make a special price on a few CHOICE YOUNG BULLS.
We offer females, any age, very cheap just now as we can winter more stock than have pasture for.
T. A. MITCHELL, Weedsport, N. Y.

Holstein Friesian Bulls
SOUTH SIDE FARM, WHITE BEAR, MINN.,
offers a number of thrifty well grown calves from Officially Tested Dams at bargains for quick sale, ages three to seven months. Also two fine yearlings, and one two year old.
No Yorkshires for sale at present. Orders booked for spring pigs.
Correspondence solicited.

THE MAPLE'S HERD
offers good young cows with A. R. O. records in calf to Beryl Wayne De Kol Paul, No. 28785, whose dam Beryl Wayne has an official record of 27.87 pounds of butter in 7 days. Also four yearling bulls ready for service. Special bargains in heifer and bull calves.
JOHN C. GODFREY,
PENNELLVILLE, N. Y.

Holstein-Friesian Bull Calves
Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.


T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.
Wm. O. Jackson & Sons, South Bend, Ind.

Markham Manor Farms, Simonsville P. O. Andover, Vt.
Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Solderne Clothilde. No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for description and price to J. A. THORNTON, Manager, Simmonsville, Vt.

HOME FARM HERD.
Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams' 25.1 lbs. butter in seven days. Herd numbers 125 head.
BEST FAMILIES REPRESENTED.
Special prices on six or eight bulls of serviceable age. W. B. BARNEY & CO., Hampton, Ia.

Oak Grove Herd Headed by Mechthilde DeKol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

FOR SALE.
H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address W. H. JONES, Watertown, Wis. Rural Route No. 2.

CLOVERDALE HERD
HOLSTEINS.
Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.
A. J. DAUGHERITY Streator, Ill.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148. Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.
WM. EVERSON & SONS, Lake Mills, Wis.

BROOKSIDE HERD
offers SPECIAL inducements to quick buyers. We must sell at once to reduce herd to stabling capacity. All ages, both sex. Correspondence solicited. Visitors welcome. Address,
STEVENS BROTHERS Lacona N.Y.

Owing to our large hotel interests in Syracuse, Saratoga, and New York, we find we cannot give our time to the cattle business and have therefore decided to dispose of our farm and the celebrated

A. & G. HERD OF
HOLSTEIN-FRIESIAN CATTLE

Some 200 Head, Male and Female, at Auction on
JUNE 4th.,

the day following the annual meeting of the Holstein-Friesian Association of America at the Yates Hotel, Syracuse, N. Y.

This herd is one of the largest in the U. S. and contains the **largest number of officially tested cows in the world.** There will be no culling out nor any private sales made before day of sale, the **entire herd will be sold without reserve,** the offer will contain males and females of all ages.

This is the largest and choicest herd of Holstein Cattle ever offered to the public and are too well known to offer any comment on same.

Among the noted sires to be sold are **A. & G. Butter King, De Kol Burke, Prince Pietertje De Kol, Almeda, Luecke 2nd Pietertje De Kol, A. & G. Netherland Piebe De Kol and sons and daughters of their get,** and a number of choice bred young bulls fit for service and from dams with large official records.

The sale will be held at the Yates Hotel Farm at Fairmount, only 15 minutes from the city. Catalogues will be ready May 15, and can be had by addressing Yates Hotel, Syracuse, or the Gregorian Hotel, New York.

AVERILL & GREGORY.

YOUNG BULLS BY THE
POPULAR HOLSTEIN SIRES
IN A POPULAR HOLSTEIN HERD.
De Kol 2d's Mutual Paul, No. 25700 H. F., Dam De Kol 2d., Sadie Vale Concordia's Paul De Kol, No. 27392, H. F. Dam Sadie Vale Concordia. If you are familiar with the official work and records of these two pre-eminent cows, you are also familiar with the fact and the desire that one of their grandsons should head your herd to insure its success. Prices so reasonable too. That's all.
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LOOK HERE.
34 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by Gem Pietertje Hengerveld Paul DeKol, or Sir Ormsby DeKol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days, average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd? McGEOCH HERD is located at Lake Mills, Wis., 56 miles west of Milwaukee. For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis. Residence: National Ave. near 40th. Phone, South 1601.

OHIO'S
FAMOUS HERD
—OF—
Holstein Cattle
OWNED BY
W. B. Smith & Son
2488 W. Broad St., Columbus, O.
CLYDE'S PAUL DE KOL.

HIGH-CLASS HOLSTEIN-FRIESIAN BULLS
and Bull Calves from A. R. O. dams and the best Advanced Registry sires. Cows all officially tested; I breed from no others. Correspondence from breeders and progressive ddirymen invited. Malcolm H. Gardner, Darien, Wis.

HOLSTEINS
High Class Advanced Registry Stock only. Best butter families. Stock for sale.
Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.

HOLSTEIN BULL CALVES. | **Johanna Family.** (both sire and dams). ALSO BERKSHIRES.
Wright's Farm. Berlin, Wis.

TYRANENA HERD
100 HOLSTEIN-FRIESIANS 100
A. R. O. Stock For Sale.
Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz Frank B. Fargo, Lake Mills, Wis.

FOR SALE.
2 H. F. Bull Calves, 6 months old. Sired by Johanna Aaggie's Paul DeKol 23443, (160 A. R.) from good milkers and testers.
M. S. CAMPBELL, Genoa. DeKalk Co., Ill.

MONONA FARM Offers for sale a few well bred Holstein-Friesian Bull Calves. Also two Service Bulls at reasonable prices. The Monona Farm Herd is founded on the best stock of the De Kol, Netherland, and Clothilde families. Pense Johanna 29332 the head of the herd has 7 A. R. O. dams averaging 22 lbs. 3.7 oz. Junior sire Paul Calamity De Kol 31095.
MADISON, WIS.
THE MONONA FARM HERD.
Address, F. W. ALLIS, Madison, Wis.

.....YOU MAY.....
BEGIN AT THE HEAD
to improve your dairy herd with a bull whose dam has official record of 18 lbs. 6.3 oz., sires dam 20 lbs. 8.8 oz. Individual right. Price Right.
McKAY BROS., Buckingham, Iowa.

WOODLAKE HERD.
Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN Station D., R. 1, Minneapolis, Minn.

THE STEVENS HERD OFFERS ONE DOZEN YEARLING
HOLSTEIN HEIFERS
at greatly reduced prices, owing to lack of pasturage—choice individuals, and bred in popular lines; also a few special bargains in bull calves, while they last. Write us just what you want.
HENRY STEVENS & SON,
Brookside Stock Farm. Lacona, N. Y. (Box 208)

Patrons' Investigation at a Co-Operative Creamery in Maine.

ED. HOARD'S DAIRYMAN:—Following is the conclusion of my report:

No. 72—Farm consists of tillage, 40; pasture, 75; woodland, 15 acres; no regular orchard; about 15 scattered apple trees; sweet corn, potatoes and mixed grain are principal crops; pasture is permanent. Herd consists of 8 cows on average, one bull and a few growing heifers; none registered; average milk period is 10 months; never has kept a milk record, or made tests of quality, and has no silo. (There are revelations ahead of this patron in these lines, and he writes like one who will investigate and know for himself when he has an incentive for doing so.—F. E. E.)

Cows receive mixed grain on full feed. Corn costs $1.40 per cwt; uses cotton seed meal in mixtures; is too conservative to venture an estimate on cost of food or income from cream when no records have been made to base them on; has fed some grain on pasture; this was bran or mixed grain; turns cows to pasture May 20 to June 1st, and sometimes grazes fields after crops are harvested.

Never has tried soiling, and keeps up the herd by raising calves; tries to improve herd by raising heifers from good cows. Evidently has not yet come to the perplexing problem of just how much, or what to use to make the ration "balance." Feeds only two or three spring pigs a year, and sells skim milk for cooking, at two cents per quart. (If cost to retail is not too great, this is a good price to realize for skim milk, and is put to good use.—F. E. E.)

No. 73—Farm consists of tillage, 50; pasture, 15; woodland, 10 acres; an orchard of 5 acres contains 225 trees; principal crops are corn, grain, hay, potatoes and onions; rotation is corn, grain, potatoes and grass; pasture is permanent. Herd consists of 8 cows, 1 bull, 3 heifers, all unregistered Jerseys; milking period is 11 months; records of yield of milk from each cow are kept; tests are made to learn which cows do or do not pay for feed.

No silo has been added to this patron's buildings yet. Cows receive a grain ration made up of the following in proportions given by weight: Corn, cob and oat meal, 100 lbs.; wheat bran, 25 lbs.; cotton seed meal, 50 lbs. On full feed 12 lbs. per day are allowed each cow. Present prices are: Wheat bran, $1.10, and cotton seed meal, $1.50 per cwt.; oats, 45 cents, and corn, 55 cents per bushel.

Income from cream per cow is estimated at $75 per cow per year. As high as 5 lbs. cotton seed meal and bran are fed on pasture at times. Cows are on pasture from May 15th to November 1st. Mowing fields are not pastured. Soiling is practiced. Oats and peas, corn fodder and late-sown barley are used. The herd is increasing and improving by raising calves from "producing" cows and good bulls, and by records and testing, culling out the herd. As to balanced rations, this patron says he uses no fixed rule, but tries to feed so as to give them (the cows) all the nutrients needed for milk production.

Skim milk is fed to calves and pigs, and it is valued at 15 cents per 100 lbs. for such use. About six Berskshire and O. I C. pigs are fed each year. This patron has had a year's training in an agricultural college, and at least one other represents the short course in the State University.

Reports are probably all received, as some time has elapsed since the last one came to hand. The number received is about 30 per cent of the active patrons of

NUMBER OF COWS, BREED OF COWS, MONTHS IN MILK, CREAM FURNISHED WITH APPROXIMATE AND ESTIMATED INCOME FROM CREAM BY REPORTING PATRONS.

No. of Patron	No. of Cows	BREED OF COWS	Length of Milking Period, months	Estimated Annual Cost of Feeding a Cow	Pounds Cream Furnished	Per Cent Fat in Cream	Pounds of Fat Furnished	Cents Paid Per Lb. Average	Monthly Cash Received for Cream	Average Estimated Income Per Cow	Reporter's Estimated Income Per Cow Per Year
1	6	Grade Jersey			358.8	21.3	76.5	24½	$18.755	$37.51	
2	8	Grade Jersey	10		447.8	20.15	96.5		23.08	34.62	
3	5	Grade Jersey			298.4	17.65	53.5		12.80	30.71	
4	9	Durham and Jersey	10½		423	20.05	84.8		20.51	27.35	
5	5	Hereford and Jersey	7		429	19 95	85.6		20.98	50.35	$35.00
6	11	Common	9								
7	9	Grade Jersey	14	$38.00	418.5	17.95	73.9		18.18	24.23	
8	6	Durham and Jersey	10		299.3	22	66.3		15.90	31.79	
9	7	Jersey	10½	35.00	504 8	20.8	104 9		25.42	43.58	70.00
10	10	Hereford and Jersey	10		605.6	18.05	113.8		26.30	31.55	45.00
11	10	Short-horn and Jersey	10½	30.00	995.4	20.08	201.1		48.63	58.35	56.00
12	7	Durham, Hereford, Jersey	10		481.8	19.	91.6		21.85	37.47	
13	6	Jersey, Guernsey, Durham	10		361.1	21.8	78.6		18.96	37.91	
16	4	Jersey			268.7	18.9	51.0		12.42	37.26	
17	6	Jersey and Durham	7	30.00	372.1	19.75	74.7		18.37	36.73	48.00
18	9										
19	5	Grade Jersey	10		305	16.73	51.0		11.62	27.90	
20	7	Registered Jersey	10		470.6	21.35	101.1		25.63	43.97	
21	5	Grade Jersey	11	32.50	460	18.90	87.2		21.40	51 37	50.00
22	14	Grade Jersey	10		760.2	25.33	191.7		47.63	40.83	
23	5	Grade Jersey	10	30.00	236.5	19.68	47.2		11 92	37.97	
24	8	Do. and 2 registered Jersesy	10	20.00	648.2	24.98	146.7		38.98	58.48	47.50
25	6	Grade Jersey	10	30.00	312.5	16.95	53.5		13.44	26.88	
26	7	Grade Jersey			164.6	23.7	39.6		9.37	16.07	
27	5	Grade Jersey	11		644.3	13.5	87 2		21.09	50.62	
28	6	Grade Jersey	10½		301 4	17.2	52.5		12.77	25.56	
29	10	Grades	10	10.00	918.3	16.1	147 6		36.27	43.52	50.00
30	4-9	Grade Jersey		30.00	790.4	18.9	101.5		24.91		50.00
31	16	Grade Jersey and Durham	10	32.00	794.6	23	177.9		43.46½	32.60	39.00
32	22	Ayrsh. grade, Jer. grade Ayrsh.	11	35.00	940.7	18.55	176.3		43.46	23.7	
33	10	Grade Jersey	9		484.1	22.1	108.2		26.42	31.71	
34	7	Jersey and grade Durham	10	40.00	477.6	15.4	74.53		17.97	30.81	
35	6	Guernsey and Jersey	10	30.00	385.3	18.4	72.25		17.56	35.12	50.00
36	6	Jersey and Hereford	10	25.00	194	18.7	36.4		8.94	17.87	
37	9	Jersey and Short-horn grades	10								
38	10	Grades	9		430.2	19.5	83.8	24½	20.13	24.15	
39	6-10	Do. Jersey and Durham	10		426.4	17.9	76.6		18.52		
40	6	Do. Jersey and Durham	7		284.1	21.98	62.1		14.99	29.98	
41	6	Grades	10		276.6	18.85	52.1		12.64½	25.29	
42	7	Grades	8-10	30.00	340.7	18.83	63.7		15.34	26.30	
43	10-12	Grades	10	35.00							35.00
44	12	Grades	9		758.1	16 95	132.6		31.00	31.00	
45	13	Jersey 3, Jersey g'd 2, others 10	10	37.50	112.5	21.58	24.5		6.89		45.00
46	9	Jersey 1, Jersey grades 8	10	38.00	875.3	19.18	168.6		42.00	56.00	55.00
47	8	Jersey grade 6, Jersey 2	10	35.00	568.7	21 5	122.4		29.39	44.08	52.50
48	7	Grade Jersey	9	30.00							
49	12	Grade Jersey	10	40.00	258.6	20.07	51.8		12.72	12 72	60.00
50	11	Grade Jersey 7, common 4	10		633.8	14.18	92.6		21.99	23.99	23.00*
51	7	Jersey and Durham	10	25.00	368.1	17.25	66.5		15.77	27.04	40.00
52	3	Jersey	10	36.00	120.5	15.98	24.2		6.11	24.43	
53	6	Registered Jersey	10		241.5	15.55	38.7		9.30	18.60	50.00
54	5	Common	10		406.5	18.85	77.2		19.14	45.92	
55	10-12	Durham		37.50	337.8	18.3	58.3		14.02		
56											
57	4	Jersey and Hereford	7	40.00	364.0	16.2	58.4		14.11	42.34	55.00
58											
59	20	Grade Jersey	10								
60	8	Jersey and Durham	10		539.2	16.93	88.13		20.90	31.35	
61	14	Grade Durham	10	30.00	1220 3	21.03	256.2		62.15	53.27	40.00
62	5	Common	10		297.4	22.625	67.4		16.20	38.89	35.00
63	7	Jersey	10	40.00							
64	6	Jersey	10		350.5	17.4	61.5		15.20	30.40	
65	11	Jersey	10		751.4	17.1	129.8		30.64	33.43	
66	5	Jersey	9⅓		319.8	18.625	61.4		15.45	37.07	
67	7	Grade Ayrshire	10	46.60							
68	6	Jersey	10	35.00	537.3	16.75	90.0		22.18	44.53	40.00
69	6-8	Jersey	10	25.00	465.5	14.95	70.3		16.99	36.98	40.00
70	8-12	Jersey and Durham	10	35 00	372.5	17.00	64.6		15.21	22 82	42.50
71	12-15	Grade Jersey	10	30.00							40.00
72	8	Grades	10		257.7	19.65	50.3		11.91	17.87	
73	8	Jersey									
74					528.9	17.9	94.3		22.31		

*Net



The New 1903 REID HAND SEPARATOR

The 1903 Reid Hand Separator is the most exact milk skimmer ever made—it is simplest, fastest, lightest running, and affords most butter-producing material under all conditions. It creates a new source of revenue and maintains the income—

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Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.

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because it will save over 80 per cent. of the loss resulting from the old method of setting. It will separate warm or cold milk, light or heavy cream, and skim *clean*. We send the National and let it prove its worth right in your own home dairy.

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E. L. CHAPMAN CREAM SEPARATOR WORKS, ERIE, PA.

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I have berries, grapes and peaches a year old, fresh as when picked. I used the California Cold Process. Do not heat or seal the fruit, just put it up cold, keeps perfectly fresh, and costs almost nothing; can put up a bushel in 10 minutes. Last year I sold directions to over 120 families in one week; anyone will pay a dollar for directions when they see the beautiful samples of fruit. As there are many people poor like myself, I consider it my duty to give my experience to such and feel confident anyone can make one or two hundred dollars round home in a few days. I will mail sample of fruit and full directions to any of your readers for nineteen (19) 2-cent stamps, which is only the actual cost of the samples, postage, etc. FRANCIS CASEY, St. Louis, Mo.

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ICE MILK CAN Jackets are the thing. Handy, cheap, and require little ice. Please everybody. Are patented. Booklet free.

S. C. SULLIVAN, 425 W. 4th., Erie, Pa.

the creamery. Several reports are from patrons of former years who do not seem to have furnished any cream for the year 1902 as evidenced by the records for March, June, September and December, which have been placed at our disposal, and from which have been drawn the figures for "cream furnished," "per cent of fat," "pounds of fat," "cents paid per pound" and "monthly cash received," also the "average estimated income per cow."

The estimated income per cow has been calculated from the average income for the four months named above. In several cases this average has been so high that it makes the income appear larger than is quite probable. It is, however, the closest estimate we can get to facts.

In case of the following patrons the records show quite too small an income to be accepted as nearly complete. These are Nos. 3, 7, 9, 10, 11, 17, 19, 20, 23, 25, 28, 33, 34, 35, 36, 40, 44, 45, 47, 49, 51, 53, 55, 58, 59, 60, 65 and 66. It is probable from a study of the data that during one or more of the record months several cows were dry and the records were reduced, which would act to make the yearly estimated yield too low, but there are evidences that some of these patrons were also selling milk or engaged in farm butter making, which side issues were not asked or reported. We would look to these sources for explanation of the low estimates for patrons Nos. 45, 49, 51, 53 and 55, and perhaps some others listed above. The patron's estimate of income per year from each cow is high enough in some of these cases to support the view that only surplus milk is creamed for the factory.

If these views are in error some of these patrons should at once set about raising the standard of production as suggested in former papers. Most of them can find improvement in keeping records of milk and testing individual cows and a study of feeding cows.

In a few cases our estimate probably exceeds the real production from all the cows having been milking during the month used as a base for the estimate, and none at a low point of production. These show even and rather large records. Nos. 5, 11, 24 and 61 may be cited as those most likely to have been overestimated thus.

In other cases it is gratifying to see the patrons' estimates so nearly substantiated by the estimates drawn from the records; also to find there can be a fair margin above cost of feeding the cows. In no case is this too high, and in few cases so high as it can be made by careful feeding, tests, records and culling the cows in accordance with the results found from these farm records.

FRANK E. EMERY.

Raise Your Own Cow Feed

For the last few years commercial cow feeds, such as bran, gluten feed, cotton seed meal, oil meal and middlings have been very high in price. Last year they were particularly so. This has discouraged many dairymen from buying them. A few years ago almost every dairyman in southern Wisconsin was buying some of these feeds. Bran used to come into Ft. Atkinson, Wis., by the train load, and dairymen bought it by the carload. The consequence was that the cows produced bountifully. According to a "cow census" of the creamery patrons, the cows of Jefferson county averaged 240 pounds of butter each; but now the returns from the creameries show a great falling off per cow. Not one-half of the dairymen of the county bought any of these feeds last year. They say they cannot afford to buy feed; that it takes all the profit to do so, and so they feed what they raise on the farm and take what they can get out of it.

In my opinion a good dairyman with good cows can still afford to buy commercial protein feeds and by so doing largely increase his profits. But if he can raise the proper feeds on his farm at a less expense than he can buy them, then he surely should do so. In my opinion the farmer can raise these protein feeds. In many parts of Wisconsin, and the West, Canada field peas do finely, and these, sown with oats, one and a half bushels of each to the acre, and cut for hay when the peas are about fit for table use, make a hay with about 9 per cent protein, which, with corn and oats, will make an excellent ration. Cow peas have been tried to a limited extent and in some cases have done well. They will furnish protein.

Clover hay, if cut early and well cured, makes splendid feed, and if fed with oats for the grain part of the ration makes a well balanced ration for milk cows. But when oats are as high as they were last year, a man could sell them and buy bran even at the high price it was then, and make money by the exchange. Wherever alfalfa can be raised with success this question of raising protein feeds on the farm is solved. Alfalfa hay, if cut at the proper stage, contains 11 per cent of digestible protein. If fed with corn ensilage it makes a perfectly balanced ration, one that is very palatable and nutritious. Nothing can beat it for milk production. In addition to the needed protein it has succulence, which is indispensable for greatest production. A little corn meal can be fed with it if there is not sufficient grain in the ensilage.

Alfalfa has been grown for many years in the semi-arid parts of the western states, but within the last few years has been tried on many farms in Wisconsin, Illinois, Iowa and other states where it was not formerly grown. Of late it seems to be proving a success. It seems to be rather a tender and delicate plant at start and needs special care to get it once started. But after it is well set, it appears to be very hardy and can stand almost anything except tramping on. Therefore, it will not bear pasturing much with heavy stock. Bruising the crown of the root seems to be death to it. It will stand drought better than any plant I know of. The summer of 1901 was the driest ever known in southern Wisconsin. There were several small fields of alfalfa near where I live which I watched daily. For several weeks in July and August, about the only green thing to be seen was these fields of alfalfa. Some of them were cut four times and others three times, and produced from four to six tons of the finest kind of hay to the acre, during the season. Ex-Governor Hoard has now about forty acres in alfalfa. Last winter his cows were fed on alfalfa hay and ensilage with a very little bran, and there is no herd of cows in this part of the country that produced as well as his. A catch of the alfalfa can be had when the season is so dry that a catch of clover cannot be obtained. This was proved in 1901. It is best to sow it by itself on good, well-prepared land as early as possible in the spring. Sow thirty pounds to the acre. In July it will need clipping to cut off the weeds. Last summer about the first of September those who did this way cut it again and got from one to one and a half tons to the acre.—C. P. GOODRICH in *Prairie Farmer*.

Litter and Manure Carriers Approved.

ED. HOARD'S DAIRYMAN:—Please find enclosed $1.00, for which renew my subscription to your paper. I have taken HOARD'S DAIRYMAN for four years, and I also take three other farm papers, but I can safely say I glean more knowledge from your paper than from all the other three. Having derived so much benefit from notes written by subscribers, for the benefit of readers I wish to tell you of the labor I am saving myself since investing in a litter carrier, which is advertised in your paper. I would not be without it for twice its cost. H. C. SHEPHARD.

Trempealeau Co., Wis.



COMMON SENSE Calf Feeder

awarded Gold Medal at Pan-American Exposition. The only Feeder adopted by experiment stations. It is the kind others try to imitate. Easiest to operate and clean.

Most Durable, Simple, Economical, Scientific and Practical.

Do not be deceived by imitators. Shams are never imitated. **More Common Sense Feeders are in use than all others combined.** Over 50,000 in use. No valves to get clogged or foul. Nipples reinforced and cannot collapse. The calf feeder is a perfect weaner. A substitute for nature.

Extra gain on one calf pays for two feeders.

Best Feeder Made.
Michigan State Board of Health:—I tried every Calf Feeder I could find, but liked yours best.

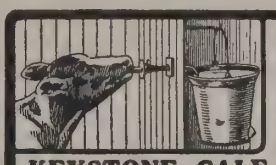
Worth $10.00.
George S. Bement, Victor, N. Y.:—I am very much pleased with the Feeder and would not be without it for $10. No trouble, no damning, no milk on your clothes, no trouble to teach the calves to take hold of it, no sucking the cows, and the best of all is that when they get about eight weeks old they don't stop for the nipple but just drink out of the pail.

The Principle is Correct.
Purdue University Agricultural Experiment Station of Indiana, LaFayette, Ind.:—We have been using the Feeder to some extent and it is in constant use at this time and we believe it to be very satisfactory in its work. The principle of **Your Feeder,** I believe to be the correct one. C. PLUMB, Director.

Advise Stock Raisers to use it.
Maryland Veterinary Hospital:—I am very much pleased with the Feeder and would advise stock raisers not to be without one.

Price $1.50 including two nipples, sent postpaid for $1.75. We guarantee satisfaction, but if you are in doubt about its value we will send one on approval for 50c to cover postage, remainder to be paid if satisfactory. **Be Sure** and send for our twenty-two reasons why you should use a feeder. It's free. Sold by one dealer in a town.

O. H. MANUFACTURING COMPANY, DEPT. H, LYNDON, VERMONT.



SENT out under positive guarantee. Money refunded if not satisfactory. No bolting food. Perfect digestion. All tinned—no rust.

KEYSTONE CALF FEEDER

Patented under No. 721,384. Used in about forty experiment stations. Mass. Ag'l College writes as follows: Mr. M. T. Phillips, Dear Sir:—I write to say that the Calf Feeder is giving excellent satisfaction. We have found it to be all we could ask for in a feeder. It is easily cleaned and appears to be durable. Yours truly, E. A. JONES, Supt.
Complete with extra nipple, $1.50, express prepaid. Circulars free.

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Creasey Ice Breakers



Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right.

Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.

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Cure Them All

You can cure all these diseases and blemishes easily, thoroughly and inexpensively. You can also cure Curb, Splint, Sweeny and soft enlargements of every description. If you have any such cases to treat, write us. We will send you two big booklets giving you all the information you need. No matter how old the case or what has failed, we will guarantee a cure by the methods the books tell of—methods now employed by over 140,000 farmers and stockmen. Write today.

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All about them and other things for the dairy and creamery. A. H. REID, Philadelphia.

SEEDS THE ALBERT DICKINSON CO.

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Big Bargains in Farm Supplies

First Class Material, Merchandise and Machinery at Sacrifice Prices.

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Porcelain Bowl, Hardwood Seat and Tank, Nickel Plated flush and supply pipes, complete, each $10.00.

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Length 5 ft. Complete with full set nickel plated fittings, each $11.00. They are new goods, ask for free catalogue of our full line of plumbing supplies.

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Strictly new, perfect, Semi-Hardened Steel Sheets, 2 feet wide, 6 feet long. The best Roofing, Siding or Ceiling you can use. We furnish nails free and paint roofing red two sides. Comes either flat, corrugated or V-crimped. Delivered free of all charges to all points in U. S. east of Mississippi R. and north of Ohio R. at $2.25 PER SQUARE. Prices to other points on application. A square means 100 square feet.

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Write for our prices on 2 and 4 point Barbed Wire, painted and galvanized; also, 65,000 pounds SMOOTH GALVANIZED WIRE SHORTS Gauges: 10, 11, 12, 13 and 14. Price $1.40 per hundred lbs. We also handle other kinds, write us your wants.

Telephones at $5.00 Each one is guaranteed to be in perfect order before leaving our plant. We are able to offer you an instrument for $5.00 that would cost you twice as much elsewhere. We carry a full stock of supplies. Send for Phone Catalogue.

Cold Water or Ready Mixed Paints

Paints We bought at Receiver's Sale from a leading paint house a very large quantity of Cold Water Paints and Ready Mixed Paints. Equal in grade to any on the market.

Here is a Genuine Paint Bargain. Before placing your order, write us for our special prices. You can surely save money, without sacrificing quality.

Poultry Netting

A special lot of new galvanized No. 19 poultry netting while the supply lasts, at these prices. 150 running feet to bale.

12 inch	$0.45 per bale.
18 inch	0.65 per bale.
30 inch	1.10 per bale.
36 inch	1.35 per bale.
42 inch	1.50 per bale

Other grades at correspondingly low prices

Wrought Iron Pipe

Steam, Gas or Water: sizes ⅛ to 12 in. diam We have in stock 2,000,000 feet of Standard black wrought iron pipe, second hand. It is in good condition, complete with threads and couplings at following prices

⅛ inch at 1½ cents per foot.
¼ inch at 2½ cents per foot.
⅜ inch at 3½ cents per foot.
½ inch at 4½ cents per foot.

Farm Forges $8.00

We bought several car loads of new Portable Forges at a low price. We have also for sale horseshoes, horseshoe nails, blacksmith tools of all kinds.

Hardware 500 doz. single bitted axes @ 38c. 175 doz. double bitted axes, 3d qual. @ 40c. 6,000 Dietz Lanterns, few slightly affected by water. Write for prices.

Gasoline Engine $70

2 HORSE POWER

Absolutely new; most modern type. Guaranteed, pumping jack & fixtures & fittings for $75. Without pumping jack $70.

Headquarters for Machinery

Our line of machinery supplies is almost unlimited. Complete stock of Saw Mills, Pumps, Sugar Machinery, etc.

And in fact everything in that line.

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LUMBER, SASH, DOORS, ETC.

We carry a complete stock of first class Building Material of all kinds. Send us your bill for estimate.

10 CARLOADS OF NEW DOORS AT **$1.00 each**

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Write for our catalogue of builder's hardware. The per cent of the dealers profit we can save you will prove a revelation.

SEND FOR CATALOGUE NO. 20 We issue a complete illustrated catalogue containing prices of which the above are only a few samples. You ought to have a copy of this book in your home or office and we will send it upon request.

CHICAGO HOUSE WRECKING CO. WEST 35TH AND IRON STREETS, CHICAGO.

Rural Improvement in Canada.

Sir William McDonald and Prof. J. W. Robertson's Work.

ED. HOARD'S DAIRYMAN:—James W. Robertson, Dominion Commissioner of Agriculture and Dairying, is the moving force in one of the greatest educational projects of the day. Professor Robertson received from Sir William Macdonald, the big tobacco manufacturer of Montreal, and, proud, to say, a thirty-first cousin of the writer, and whose fathers, as mine, emigrated to Prince Edward Island, from the Western Highlands of Scotland more than a century ago.

The professor received from Sir William in 1889, the Macdonald Manual Training fund for the establishment of manual training in a number of public schools in all the provinces of Canada, and its maintenance in them as an experiment and object lesson for a period of three years. These manual training schools were opened in twenty cities, towns and villages. Forty manual training instructors were employed, and over 7,000 boys and several hundred teachers received instructions and training annually.

The manual training proved so valuable and acceptable that the Macdonald Manual Training Schools are to be continued by the provincial and local authorities in every place; and already manual training centers have been opened in twenty other towns by the regularly constituted educational authorities themselves, without any assistance from the Macdonald fund So great and salutary have been the fruits of the object lessons afforded by these training schools.

In 1899 the Canadian Professor inaugurated a plan for the improvement of crops by the systematic selection of seed grain on farms throughout the Dominion. A competition extending over three years was carried on by over 500 boys and girls. Ten thousand dollars of the MacDonald fund were devoted to prizes. The new feature of having a special plot on the farm for the growing of seed grain from seed systematically bred up by selection from the most vigorous and productive plants in each year's crop, bids fair to become a permanent feature of Canadian farming.

A further organization of means and agencies for advancing that movement is "the next big thing" on the programme.

In 1902 Prof. Robertson was entrusted by Sir William MacDonald with the MacDonald rural school fund for the improvement of education at rural schools through object lessons in the consolidation of such schools, the conveyance of children in school vans, the providing of school gardens for educational uses and the making of nature study, manual training and household science, integral parts of the course of education at elementary schools.

The MacDonald Institute and the Women's residence at the Ontario Agricultural College are being provided from that fund. These are but a few of the things Professor Robertson, in collaboration with the millionaire Montreal tobacconist, has been busy with lately.

His work as Commissioner of Agiculture and Dairying has done much to place Canada in the fore front in the production of food stuffs. His work along dairy lines, in the past year, has been mostly in the direction of the improvement of cheese curing rooms affording constant, equable, low temperature.

Ontario, Can. J. A. M.

What Certain Business Herds of Jerseys have Done in the Year 1902.

In presenting a report of the past year, concerning what had been done in testing Jersey cows, the *Jersey Bulletin* gives the following interesting report of a number of business herds of that breed.

Among the year's herd yields reported this year, one New York dairy of eight cows and four heifers yielded 4,150 lbs. bntter sold during 1901, besides furnishing a family of five. This would make an average close to, if not over, 350 lbs. per cow. Another New York herd averaged 350 lbs. butter "for everything in milk—half of them two-year-olds." A Missouri herd of 19 made 7,800 lbs. butter, an average of 410 lbs. per cow; of this, 7,589½ lbs. was sold, the price being 25 cents the year round, except in August, when it was 30 cents. An Ohio herd of fifty cows (one-third heifers) gave 262,635 lbs. milk in 1901, with an average test of 5.35 lbs. equivalent to 16,392 lbs. butter; average 327 lbs. estimated butter per cow. The milk was sold as cream and returned $5,198.50.

A Vermont herd of 20 cows (three-two-year-olds) averaged 351 lbs. butter per cow for 1901, besides supplying table of a family of six and milk for calf feeding. An Indiana herd of 35 averaged 345 lbs. butter in 1901, which was sold at 25 cents. A Georgia herd of 25 head (eight of them young heifers), gave 125,823 lbs. milk, which made 7,928 pounds butter.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Disease Among Calves.

My calves come apparently all right, and remain so for about 3 days to a week and then become droopish and refuse to suck, gradually getting weaker until they die. Sometimes will have scours, usually not. I have noticed bloody streaks in the excrements. R. L. R.
Spokane Bridge, Wash.

ANSWER

We are not able to form an opinion from the brief descrption you have given and would suggest that you describe the trouble in every detail so that we will not be compelled to guess at it, as we are liable to guess wrong if we lack the proper information and in this way will do you no good.

A Good Alterative.

What is best to give a cow to cleanse her blood?
Compton, Cal. G. Y.

ANSWER.

Give a full dose of physic and follow this with equal parts of resublimed sulphur, nitrate of potash and powdered gentian root. Mix and give a tablespoonful in food night and morning.

Off the Feed—Caked Udder.

I have a heifer calf dropped April 8th, and has been doing well until a few days ago, when it refused to eat one morning or drink milk, and has not drunk milk now for four mornings, but will drink about 5 lbs. at night. It appears healthy in every way, but froths at the mouth.

I also have a cow, one-quarter of her udder will cake about every 21 days, but I bathe it with warm lard, and it all leaves her for about 21 days, then it appears again. M. F. DEJ.
Sedalia, Mo.

ANSWER.

No. 1. Frothing at the mouth in a young calf would indicate tongue or throat trouble. Examine the mouth and you will discover the cause which must be removed.

No. 2. If this appears as regularly as you state, give the alterative recommended in the veterinary columns of this issue.



NOW IS THE TIME TO SUBSCRIBE FOR HOARD'S DAIRYMAN.

HOME-MADE SOAP

Ten pounds of the best hard soap or twenty gallons of soft soap costs just this, nothing more:

Ten minutes, almost no trouble at all, the grease or fat that you often pour down your kitchen sink (stopping up the pipes) and a can of

Banner Lye

obtainable at your grocer's for ten cents.

It is pure soap—not soap adulterated with rosin, lime clay, or other things that turn your clothes yellow or wear them out.

The New Cleanliness

Soap will take away the dirt that you see, but not the dirt that you can't see. Nothing is sure to take away this dirt but *Banner Lye*. Use it in your



☐ *Milk-pans* *Butter-tubs*
Milk-pails *Dairy*
Sink *Drains*
Cellar *Toilets*
Garbage-Pails

wherever dirt and germs collect—and your house will not only look clean, but be clean and in the best possible condition to resist disease.

Banner Lye also is a great help in washing dishes and clothes and everything else. It is odorless and colorless, easy to use, safe and cheap.

Write for book "*Uses of Banner Lye*," and give us your grocer's or druggist's name, should he not have it.

THE PENN CHEMICAL WORKS, PHILADELPHIA, U. S. A.

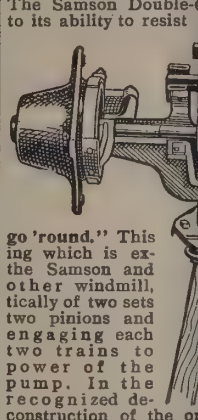
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THE SAMSON WINDMILL.

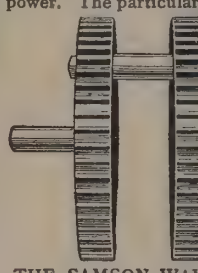
At the mammoth windmill plant of the Stover Manufacturing Co., Freeport, Ill., the largest factory of its kind in the world, are made the appropriately named "Samson" windmills, strong, powerful, and storm-resisting.

While to the casual observer all windmills look alike, there is in fact a vast difference in the service rendered by and in the length of life of different makes of windmills.

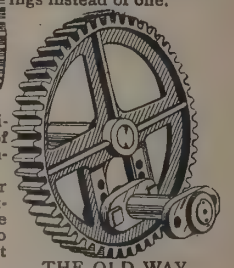
The Samson Double-Gear Windmill, in addition to its ability to resist violent gales by its construction, is the one scientific wind machine built on a plan that appeals to any person whoever saw any "wheels go 'round." This double gear-ing which is exclusive with the Samson and found in no other windmill, consists practically of two sets of gearing or two spur gears two pinions and other, making engaging each transmit the two trains to wheel to the power of the light of the pump. In the effects in the recognized de-construction of the ordinary back geared windmill, the advantages attendant upon this new prinsiple employed in the Samson are manifest. The cequel shown in actual service proves the double gearing to be one of the most valuable features in the entire theory of the transmission of wind power. The particular points gained by it are:



1. More than four times the strength of any other windmill using like amount of material.
2. Distribution of burden and diminution of wear by use of four bearings instead of one.



THE SAMSON WAY



THE OLD WAY

3. The lasting qualities are double those of any other mode of construction.
4. Its center crank, or both ends of the crank-pin driven instead of one as in other makes. No chance for pin to get out or work loose.
5. The pitman and plunger operate centrally between bearings, dispensing entirely with all over-hanging and torsional strain.

There is lots more of interest to be told about the Samson, and it is told in detail in a handsome illustrated book which The Stover Mfg. Co. will be glad to send to such of our readers as are interested and will write for it.

IOWA FARMS For Sale $45 to $65 Per Acre.

We offer improved Iowa farms close to church, school and town, with local telephone and rural mail delivery, soil rich, black loam, and level, at $45 to $65 per acre. We also have special bargains in North and South Dakota and Canada. If you wish to buy or sell land or city property anywhere, write to us for confidential terms. We make a specialty of long range sales, so no matter how far away you live, if interested, write us. We refund railway fare to parties who buy of us. Send for price list with pictures of farms.
THE JOHN M. CANNON LAND AGENCY, CRESCO, IOWA.

FINE STOCK FARM near pretty village on large lake in Waukesha Co. 181 acres, Excellent soil. Well appointed house, tenant house, good out-buildings, water excellent and plentiful.
HILES & MYERS, C-100 Matthews Building, Milwaukee, Wis.

CALIFORNIA LANDS

Located in the center of the best agricultural, fruit growing and dairying district in California. Rich soil and abundant water. You can raise the same crops raised in the East, and all semi-tropical fruits besides. Prices and terms are right. Ask us questions.
STEVINSON COLONY CO.,
226 Rialto Bldg., San Francisco, Cal.



IF STOCK COULD TALK



They'd tell you that

Chloro-Naptholeum Dip

will make them healthy, free from parasites of all kinds and much more profitable to you. This applies to your hogs, sheep, cattle, horses and poultry and all the rest. The use of this dip will prevent hog cholera, will cure mange and itch and **positively kill all lice, ticks, fleas** and other stock destroying parasites on any animal. **Chloro-Naptholeum Dip** is perfectly safe to use, being harmless to stock and to man, cannot injure eyes nor poison if licked or swallowed. It is **concentrated** and **convenient** to use. Just put it into a little water—a little dip to a lot of water. PRICES, all charges prepaid: 1 gal. $1.50; 5 gals. $6.75; 10 gals. $12.50. Larger quantities still lower. Guarantee and money refunded if not satisfactory. **Dipping Tanks** at special low prices to customers. Booklet and testimonials free. **Agents wanted.**
Distributing depots in all parts of the country **West Disinfecting Co. Inc., 8 E. 59th St., N. Y.**

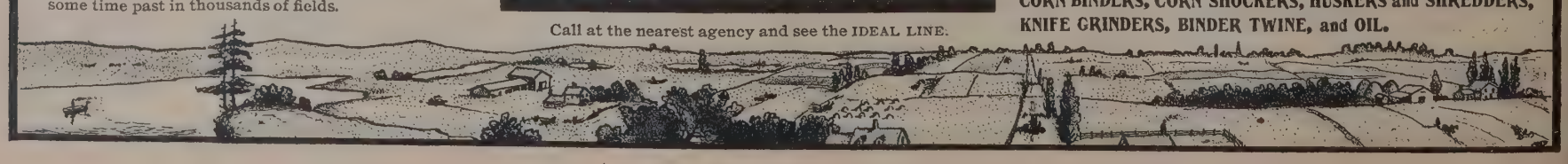
ALL OVER THE COUNTRY
THEY ARE USING DEERING HARVESTERS

In the **SOUTH** Deering Binders are already cutting grain; in the **EAST, WEST,** and **NORTH** Deering Mowers and Hay Rakes have been making hay for some time past in thousands of fields.

DEERING MACHINES

Call at the nearest agency and see the IDEAL LINE.

Fifteen thousand agents are showing Deering
BINDERS, HEADERS, HEADER-BINDERS, MOWERS, REAPERS, CORN BINDERS, CORN SHOCKERS, HUSKERS and SHREDDERS, KNIFE GRINDERS, BINDER TWINE, and OIL.



Purgation.

I have a young mare which had a severe attack of colic, about three weeks ago. After I got the colic under control I gave her a dose of raw linseed oil, then scouring set in and continued for almost a week, reducing her to a mere skeleton. Since then she has eaten very little. Coat dry and staring. W.
Riverside, Calif.

ANSWER.

You have evidently administered your purgatives to an excess during the attack of colic, which accounts for the scouring. Take the following: Quinine sulphate, ½ oz., dried sulphate of iron, 2 ozs.; powdered gentain root, 2 ozs.; potassium nitrate, 1½ oz mix Give a teaspoonful in food three times daily.

Nail Prick.

My horse stepped on a nail; blacksmith could not find it. He says it is in his frog. The frog is hot and the fetlock is swelled some. The horse is now very lame, and in the stable keeps the sore foot off the floor. A. P.
Brooklyn, Wis.

ANSWER

It is very imporiant to find the nail hole and follow it up, cutting it out nicely to allow the pus to escape, which will relieve the soreness. Then pour a little creolin into the opening and apply a warm linseed poultice to the entire foot. If the foot is neglected, the horse is liable to die with lock-jaw or blood poisoning.

Atrophy.

I have a small Jersey cow that dropped her second calf three weeks ago and has not been able to use her right hind leg since. No swelling. Left hip is sinking. L. E. V.
Amenia, N. D.

ANSWER.

There appears to be either a complete or partial atrophy of the main nerve trunks in this region. Have a competent veterinarian inject her with strychnine.

Emesis.

I have a heifer that throws up her feed once or twice a week. I am feeding 5 lbs. shorts per day and what clover hay and oat straw that she will eat, and what salt she cares for. L. K.
Pearson, Wash.

ANSWER.

It is advisable to change your food ration which will remove the cause.

Wart and Fibrous Tumor.

I have a cow that received a hurt on side of jaw. Place swelled up and finally broke; there is some kind of a growth that protrudes through the skin, flat on the head and about the size of the top of a tumbler. Also have a horse with some kind of swelling on elbow joint, which I think is made by shoe when she lies down. Swells up at times, breaks, and then is about the size of a base ball.
Carlisle, Pa. W. B. G.

ANSWER.

No. 1. The growth on the jaw appears to be a wart, which can be dissected out.
No. 2. The growth on elbow is a fibrous tumor, which must also be removed surgically. Employ a qualified veterinarian, who will be more able to judge by personal observation than we are.

Leucorrhoea.

I have a cow that has been in heat for two weeks. She has a whitish discharge. J. F. B.
Britt, Iowa.

ANSWER.

If the cow is with calf if is best to let her alone until she drops the calf, when the trouble will subside on its own accord.

Bloating.

Some of my cows are bloating. I lay it to the grain I feed. It consists of distillers grains, kiln-dried 5%, 35% bran, 15% corn and oats, equal parts, and am feeding about 9 lbs. daily to each cow.
Philadelphia, N. Y. W. S. K.

ANSWER.

It is possible that your kiln-dried distillers food has become mouldy in some way which would cause the bloating, or they may be eating too fast or too much at a time. Soaking or steaming it would prevent the trouble. It makes no difference whether a cow is indoors or out, when she is bloated, as long as she is not exposed to the extreme changes of weather or hot sun. Two or three ounces of hyposulphite of soda and an ounce of the tincture of ginger in a quart of warm water given as a drench will relieve the bloat.

Lameness.

One of my cows has become lame within three or four days with what is termed here blind fouls. The swelling is on the backside just above the hoof of the right hind leg. It evidently is quite painful. There is scarely any sore visible, no discharge, but is hard and feverish. E. N. R.
Franklinville, N. Y.

ANSWER.

Judging from your brief description, we conclude that your cows are suffering from foot-rot; if this is the case, you will find a slight discharge with very offensive odor between the claws. This is best remedied by applying calomel to all the moist parts at least once daily; if the swelling is not reduced in a short time, you may apply a warm linseed poultice to the parts, renewing it twice daily.

Lump Jaw.

I have a cow with a festering partroid duct About a year ago I cut it out; it seemed to heal up, but about a month ago it commenced to swell again. I cut it open; took out all the pus, but above the pus it was black flesh, like a honey comb. I cut most of the diseased parts.
Edgerton, Wis. J. G. S.

ANSWER.

Have a qualified vetrinarian dissect it out completely.

Paresis.

My neighbor has trouble with his hogs. They first get weak in hind legs, then get so they can't stand up; drop over behind, then seem to breathe hard. N. T.
Berryville, Wis.

ANSWER.

This trouble usually follows overfeeding on a continued corn diet for a long time. Remove the cause, and the trouble will be remedied.

Brain Affection.

We had a cow which we considered had some brain disease, for she would walk around in a circle and occasionally fall, for it seemed as if she could not tell where she was going. We killed her, expecting to find her brain in bad shape, but it seemed to be all right or nearly so. F. W. S.
Belleville, Mich.

ANSWER.

This trouble was caused by the presence of a parasite in the brain known as *Coenurus Cerebralis*, which has evidently escaped your eye on examination. The disease is incurable.

Mastitis.

My cow's udder is hot and badly swollen. She does not give scarcely any milk. J. H.
Medina, Ohio.

ANSWER.

Bathe the udder with hot water twice or three times daily and apply hand rubbing after each bathing until dry, then rub with equal parts of alcohol and water. Give an ounce of poke root and two ounces of potassium acetate, in a quart of water, three times daily as a drench until relieved. Usually the cause of this trouble is squeezing or bruising the udder.

Barrenness.

I had a cow freshen Nov. 7; bred her Dec. 21; she bas been in heat almost every day since; she seems to be all right every other way; good appetite. W. A. D.
Footville, Wis.

ANSWER.

There is an abnormal condition of the genitals, have her examined by a qualified veterinarian.

Hernia.

I have a nice Jersey heifer that is now about eight months old; she has an enlargement or knot beside her udder, just between the udder and her leg; it feels soft and when you press on it, it seems to disappear; as soon as I take my hand off, it appears again. Can it be rupture or what, and if it is a rupture, will that render her worthless? N. H. A.
North Carolina.

ANSWER.

Your description answers that of hernia, which may bother when she gives birth to a calf, otherwise it would not be considered dangerous. An operation is the safest remedy.

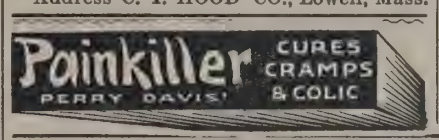
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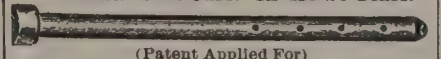
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Fiddler 8568, W. D. Hoard to R. N. Wright & Son, El Paso, Texas.
Golden Seal 8569, & Prince Benjamin 8570, C. W. Wilcox to Geo. C. Hill & Son, Rosendale, Wis.
Isaleigh Perfection 8549, J. N. Greenshields to Peter A. McDougall, Maxville, Ont.
Irwile 8560, I, R. Scott to J. Horace Broomall, Cheyney, Pa.
King Stanford of Fernwood 6648, S. J. DeBois & T. E. Brooks to Ezra Michener, Michener, Pa.
Mahto 8554, John H. Rippenburgh to Claude Moore, Madalin, N. Y.
Makefield of Mapleton 8050, C. J. Tyson to L. M. Snyder, Carlisle, Pa.
Mark H. 8026, C. W. Wilcox to F. M. Buck, Valley Junction, Ia.
Perfection of Haddon 6582, R. H. Cushman to Herbert Merriam, Weston, Mass.
Pride of Amadore 8564, John C. Chalmers to William T. Simmons, Amadore, Mich.
Bob Roy of Kirkside 8504, J. P. Jackson to Rufus E Fleming, New London, Pa.
Sir Launclet 8153, J. P. Welsh to Lucien Robinson, Horseheads, N. Y.
Sure Winner of Haddon 8563, E. T. Gill to C. S. Powell, Philadelphia, Pa.
Viscount's Duplicate 8517 Northern Wis. Live Stock Co., to A. R. Bean, Hansen, Wis.
White Oak of Melsore 8562, H. C. Bughman to W. C. Jutte, Pit sburgh, Pa.
Comet 8498, W. J. Dawson to Theodore Houser, Onalaska, Wis.
Gen. Seymore Rose Bud 7741, L. L. Davis to J. P. Martin, Lake City, Minn.
Gen. Thomas Rose Bud 7427, L. L. Davis to Emil H. Ek, Cokato, Minn.
George Washington of Haddon 8499, E. T. Gill to Wm. C. Lamont, Cobleskill, N. Y.
Glen Chieftain 8502, H. D. Griswold to J. H. Moran, West Salem, Wis.
Horatio of Maple Glen 8057, Corydon Peck to A. S. Haight, New York City.
Jolly Boy of Haddon 8475, S. I. Murphy to George Wood, Philadelphia, Pa.
Lawrence of Poplar Grove 8500, J. Lawrence McCormick to W. W. Preston, Bell Air, Md.
King of Orange 8353, F. B. Buckley to Rice Bros., Benningtou, Vt.
Mugwump 8055, Corydon Peck to G. N. Proctor, Fitchburg, Mass.
Prince of Oaklawn 8503, Jas. H. Beirne to F. W. Kimball, Austin, Minn.
Pong 8398, H. McK. Twombly to H. C. Bughman, Greensburg, Pa.
Prince of Elkhart 7713, Est. M. Gottfried to Theodore Voigt, Kiel, Wis.
Schuyler of Westwood 8501, W. J. & C. G. Morton to W. H. Burnett, Glenwood, N. Y.

COWS.

Ada P, 15981, C. L. Richmond to Ezra Michener Michener, Pa.
Beatrice of Orange 15273, Deputy's Lady 15360, Eleanor Thorn 14608, Gertrude of Orange 15272, Leona of Orange 15271, Winifred of Orange 15428, J. P. Welsh to Lucien Robinson, Horseheads, N. Y.
Chamette 2nd's Winifred 15941, Lady Lansing 15986, Voleta 2nd 15940, Nelson Banning to J. L. Snyder, Lansing, Mich.
Dairymaid of Elm Place 14197, G. B. Tallman to Mrs. E. W. Strawbridge, Moorestown. N. J.
Dione 11279, Ezra Michener to H. A. Pickering, Carversville, Pa.
Dorothy Que of Mapleton 13773, Hope of Mapleton 12495, Janet of Poplar Grove 12490 Pauline of Norwood 12496, Princess of Ivyhurst 13255, Violet of Mapleton 13770, C. J. Tyson to A. J. Snyder, Plumsteadville, Pa.
Dorothy June 13913, Fred B. Payne to Otto W Post, Owasco Lake, N. Y.
Fernwood's Delight 13530, C. L. Richmond to Mrs. E. W. Strawbridge, Moorestown, N. J.
Isaleigh Empress 15974, Isaleigh Fuchsia 15976, Isaleigh Mae 11464, Isaleigh Peach 15973, Isaleigh Princess Maid 13919, Imp. Isaleigh Rita 11461, Imp. Lillia 13th 10797, Princes of Isaleigh 15975, Imp. Roseland 3rd 10795, Sarah of Isaleigh Grange 8145, J. N. Greenshields to Mrs. W. E. H. Massey, Coleman, Ont.
Imp. Isaleigh Grace 11462, Isaleigh Mabel 11459, Est. Barclay Stevens to S. G. Laviolette, St. Jerome, Que.
Kenosha's Beauty 5293, C. W. Wilcox to Geo. C. Hill & Son, Rosendale, Wis.
Miriam of Riverside 10641, Sallie of Walnut Grove 15979, Theresa of Riverside 10643, W. T. Spangler to John W. Little, Hanover, Pa.
Nectarine of Paxtang 14618, Ecstasy of Paxtang 12294, Isabel S. Wilhelm to J. P. Welsh Bloomsburg, Pa.
Priscilla H. 3rd 15354, G. B. Tallman to J. M. Herring & Son, Moscow, N. Y.
Princess Fidelity 2nd 15978, Mrs. E. B. Patterson to The Ferris Industrial School, Wilmington, Del.
Young Althea 2nd 15977, F. E. Patterson to The Ferris Industrial School, Wilmington, Del.
Annie McQueen 15035, David T. Brown to S. I. Murphy, Woodbine, Pa.
Golden Rod of Clayton 13997, Frank B. Ridgway to Samuel G. Borton, Mullica Hill, N. J.
Helena's Helen 14004, Jas. H. Beirne to John F. Bloom, Stockbridge, Wis.
Primrosedale 2nd. 14360, Primrosedale 3rd. 14823, Christ. Muth to M. L. Welles, Rosendale, Wis.
Winnie of Poplar Grove 14847, J. L. McCormick to Mrs. Amanda S. Calwell, Bel Air, Md.

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If you want a Canadian home, we can, and will take you to the best locality in Manitoba or Assiniboia. Send for catalogue or come yourself. We sell on easy terms our own lands in Wisconsin and Canada. DUNN COUNTY LAND CO., Downing, Dunn County, Wisconsin, or 156 East 3d Street, Rooms 5 and 6, St. Paul, Minnesota.

What Shall be Done with the Calves?

A Farmer's Plea for the All-Purpose Cow.

ED. HOARD'S DAIRYMAN:—I would like to ask what you do with calves in the dairy districts of Wisconsin. In this county you can't sell the calves for veal, you can't sell the steers for feeders, and it is just as hard to get rid of the extra heifers and cows of the dairy breed. Therefore we have to keep cows that will do fairly well in the dairy and that will raise a calf that will sell as a feeder, or there will be no profit in the dairy business here. W. R. ADAMS.

Kirkman, Iowa.

The dairy districts of Wisconsin have no difficulty whatever in selling their calves for veal. In some localities, and notably in the country tributary to Fort Atkinson, calf buyers are very much in evidence. It is a matter of course that very young and very small calves do not bring very large prices, but there is nothing so inferior that it will not bring from $2 to $3. The dairymen here have no difficulty in disposing of heifers that turn out poorly and cows that have outlived their usefulness, at moderately fair prices. Our dairymen feed practically all the hay and grain and coarse fodder they can raise, to their dairy cows, young stock and swine. In this way, they market on the farm and return to the soil a large proportion of the fertilizing elements which contributed to the growth of the farm products. In addition, they probably purchase enough feed for their cows to more than make up for the difference between the crops raised and the manure therefrom returned to the land.

This, in a way, answers our correspondent's direct question, but we apprehend that it will not satisfy him nor any other of our readers who are wedded to the all-purpose idea.

Mr. Adams offers himself as an expert witness. He speaks as one having had experience, and, therefore, with more or less authority. If, however, he is like the average all-purpose man, he is not a competent witness. He has not had sufficient experience or observation to qualify him to speak with any authority on these subjects. He does not know what profit can be made from a dairy cow and, what is still worse, presumably he does not know what loss there usually is in feeding steers, even in Iowa, the land of cheap feeds.

It chanced as we received Mr. Adams' letter, that there was lying upon our table a copy of the "Iowa *Homestead*," issued Jan. 8, 1903, and containing a comment or criticism on the dairy steer for beef purposes. This criticism was instigated by the fact that a dairy-bred steer won honors at the late International Stock Show in Chicago. The "*Homestead*" is not a dairy paper; all its inclinations are against the special dairy cow for the Iowa dairyman, although, like Prof. Shaw and Prof. Carlyle and some others, it can not help admitting that the special dairy cow has ability to produce milk at a lower cost than the beef animal. We cite these facts simply to show that the "*Homestead*" cannot be charged with any attempt to misinterpret the beef situation, or discourage its readers from engaging in beef production. Its argument is that there is more profit in feeding the beef steer than in feeding the dairy steer, hence, if any steers at all are kept, they should be steers of the beef type.

We quote from the "*Homestead's*" article as follows:

"Many experiments performed during the last few years indicate that at best the profits of feeding cattle are comparatively small, when the food consumed is reckoned at market prices. In some cases, even good feeders claim that a loss has been incurred, while few have been able to make more than $10 or $15 per head, over and above the cost of food, on their two-year-old steers. Clearly, then, if this be true, it is the last 100 or 200 lbs. that an animal puts on that makes the profit, and herein lies the great difference between the steer of the dairy type and the large, broad-backed, thick, low-down beef-maker."

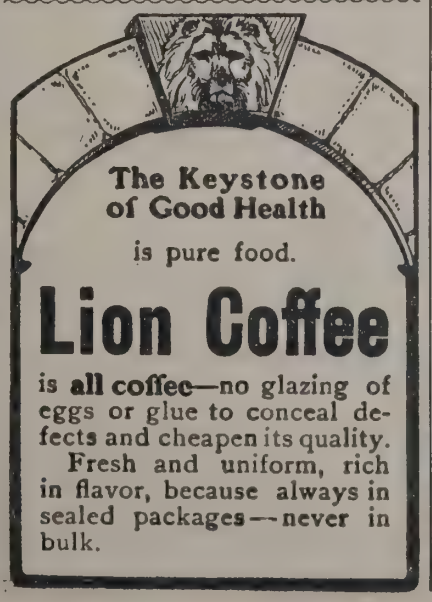
There our Iowa friend has an opinion of an expert who has canvassed the situation carefully. "At best, the profits on feeding cattle are comparatively small." "In some cases, even good breeders claim that a loss has been incurred." "Few have been able to make more than $10 or $15 per head over and above the cost of feed on their two-year-old steers."

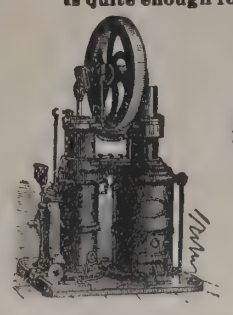
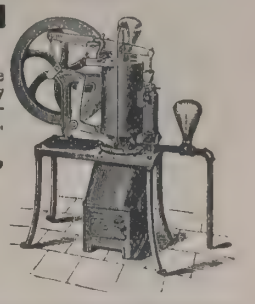
What encouragement can Iowa farmers have from such an outlook as this! Keep a steer until he is two years old, crowd him with feed from the day of birth, then clean up a paltry profit of $10 or $15.

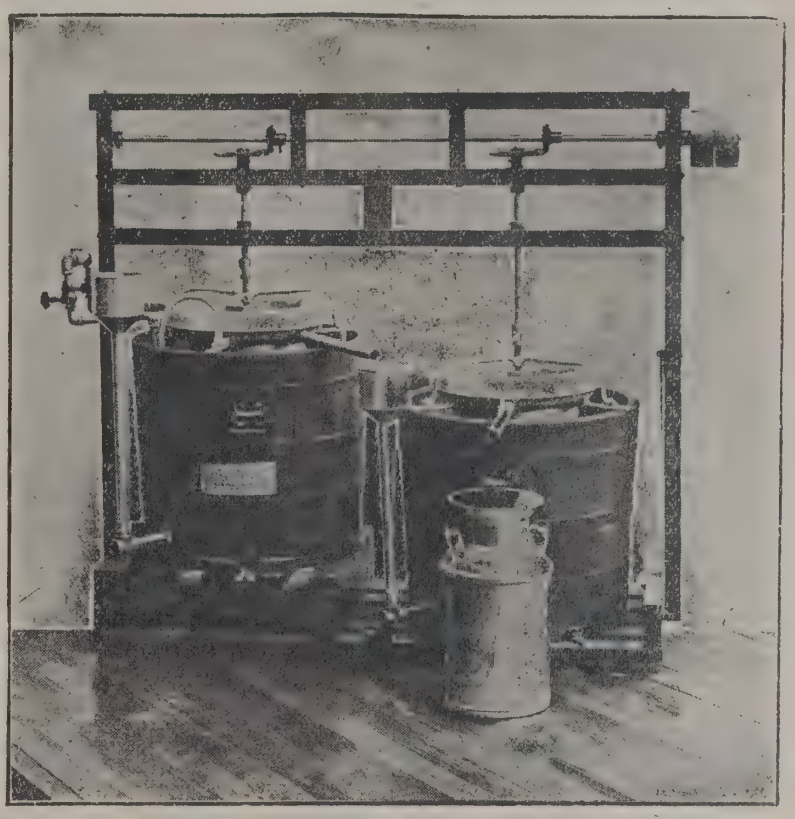
This is one side of the question. The other side is: what if no profit can be made by the dairyman? To this question many answers could be returned. First, it must be conceded that altogether too many dairymen make no profit at all, just as too many feeders of steers make no profit. But there are plenty of dairymen who are making not only $10 or $15 at an expense for feed not greater than the cost of raising these two-year-old steers, but are doubling, and in many instances, quadrupling that amount in net profit from their cows every year, and still have the cow for further use. In the issue of this paper for April 17, there appeared two reports from dairymen, one from Michigan and the other from Wisconsin. The Michigan dairyman milked 24 cows, of which six were heifers with first calves. These cows made 8,067 pounds of butter, or 336 pounds per cow. The total sum received for this butter was $2,077.31, an average of $86.55 for each cow in the herd. No account was taken of the value of the skim milk or the calves or for the milk and butter used in the family. On page 232, the Wisconsin dairyman reports the average amount received per cow at $64.45. This man had been keeping cows only two and one-half years and did not have either a well selected or a well bred herd, but bought as he could find them, a mixed lot. Unfortunately, he does not state and probably would not tell how much it cost him to feed these cows, but it is a very safe estimate to say that it cost less than $40 per cow, leaving him thus, at least, $25 profit for each cow, and the cow left, and no account taken as stated before of skim milk, calves or milk and butter consumed in the family.

If it be claimed that these are exceptional cases, as they probably are to a degree, let us turn to the cow census taken last fall for the Wisconsin Dairymen's Association, in a part of Fond du Lac county, Wis. This census covered 48 creamery patrons with 637 cows. The average cost of feeding per cow for the year was $29.88. The average returns for butter from creamery per cow were $35.82, the average value of butter for one-dollar's worth of feed, $1.20; average net profit from butter per cow, over cost of feed, $5.94. If to this is added the value of the skim milk at 20 cents per 100 pounds, and it was worth more than that last year because of the high price of feeds, this would add $8.40 more, making an average profit per cow of $14.34, exclusive of the calf, milk and butter used in the family.

It should not be forgotten that this was the average for 48 different herds; that among these 48 creamery patrons, there


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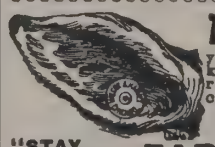
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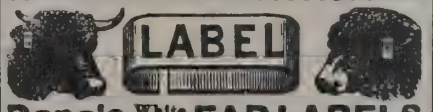
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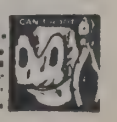

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were ten who did not get enough money from the cream to pay for the feed consumed by their cows, reckoned at current home market prices. Of these ten farmers who kept cows at a loss, about one-half kept more or less grade Short-horns, the typical all-purpose cow. The largest profit per cow returned by any herd was $29.18 from grade Guernseys and grade Jerseys. The next largest profit per cow was returned by a herd of Holsteins, $29.-79 per cow.

Here then, among these 48 dairymen, taken without selection, but as one came to them along the road, there was a net profit per cow of $14.34, almost as much average profit as the best Iowa feeders get from steers and considerably more than the next best feeders received, and at the end of the year, the cow was living and ready to repeat this performance the coming year, or possibly, do much better. If our Iowa friend cannot do as well as this average, we must conclude fault is not with the special-purpose cow.

Sorghum Silage.

ED. HOARD'S DAIRYMAN:-In reply to Mr. T. A.McD's inquiry about the best time to cut cane for the silo, I would say don't cut it for the silo at all. Summer before last I was little short of corn, and used some cane to finish filling my second silo. My objection to the silage is that the cattle would not eat it. Even when I mixed it with corn silage most of the cane would be left in the mangers, and I have had the same experience with volunteer cane mixed with the corn.

On the other hand they do eat it with good relish in the form of hay or fodder. I raise a patch every year for hay. I sow it broadcast, the latter part of June or the first of July, aiming to have it get well ripened in time to cut just before the frost catches it. I cut with a mowing machine, and then rake and pile it up in shocks of from one to two tons. Two men can shock about as fast as one man can draw it up with a rake. At this time of year in this climate, it may be shocked green, right after the mower. It keeps perfectly, goes to the feed lot fine in flavor and color, and is eaten up clean. In shocks of this size, cut late in the year, the loss from weathering is very slight, and the amount rejected by the stock is trifling up to, say, March, when alternate freezing and thawing may be expected here.

There may be some stage short of ripeness at which cane will be made palatable silage. I am very dubious about immature feed of any kind, and my limited experience indicates that corn is so much better than cane in the silo, and cane is so good outside the silo that one makes a mistake to plan deliberately for cane silage. H. B. COWLES.

Topeka, Kansas.

Time to cut Sorghum for Silage.

ED. HOARD'S DAIRYMAN:—The best time to cut sorghum is when the seed is about half ripe. Plant your sorghum in same row with corn, about half and half. When your big corn is ready, the sorghum will be ripe enough. You can also plant cow peas in same row. I put up 300 tons last year and it is very fine.

Dalton, Ga. R. W. W.

Johnson Grass.

Farmers who are thinking of sowing Johnson grass should consider the following California opinion before they introduce a grass that may turn out to be an expensive weed. The same properties that make it a valuable grass under some conditions also make it very difficult to destroy.

"And now poor old Johnson grass is an outlaw and liable to get all who harbor it into trouble. A law has been approved by the Governor which makes it a misdemeanor, punishable by a fine of not more than $100 or three months' imprisonment in the county jail, or by both, for any person owning, controlling, leasing or possessing land in the state, to permit Johnson grass to mature and disseminate its seed on such land. It is also the same offense for any person knowingly to sow or disseminate, or cause to be sown or disseminated, any Johnson grass seed upon any land owned or possessed by another, or over or along any roadway, highway, or right of way for ditch purposes, adjacent to premises owned or possessed by him. This is pretty stiff. Evidently the only safe way will be for every one to get rid of Johnson grass—if he can.—*Pacific Rural Press.*

As it Appears in Georgia.

ED. HOARD'S DAIRYMAN:—This is one of the finest countries in the United States. We are 60 miles below Macon, Georgia, which I believe is as far south as Gov. Hoard came two years ago when he visited Georgia, and all we need is HOARD'S DAIRYMAN and some practical dairymen to put the ball in motion. I am advising every farmer I talk with to take HOARD'S DAIRYMAN and commence with a few cows on a small scale.

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Land is cheap and productive here and very few dairies through this section. We are on the Southern R R., 130 miles from Brunswick, Ga. If you so desire, will let you hear further from us on the dairy question as we advance by the help of your paper, for there is no intelligent dairying without it. I shall be glad to answer any inquiries about this section.

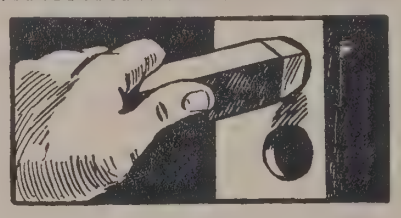
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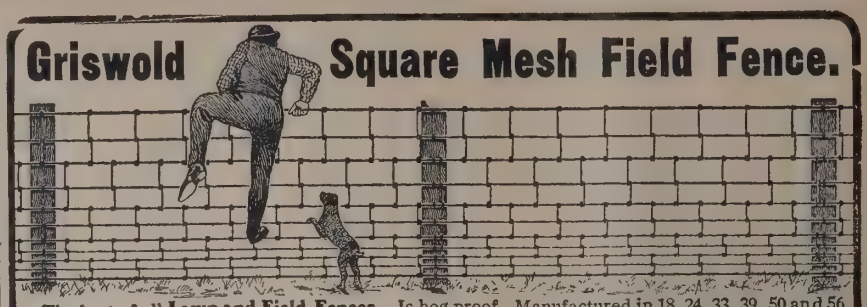
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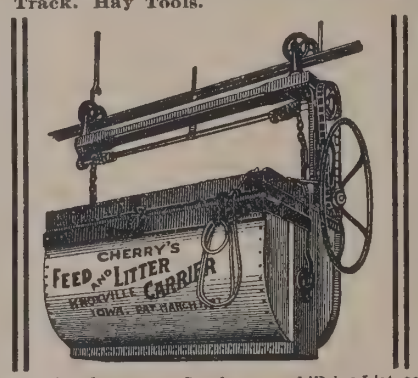


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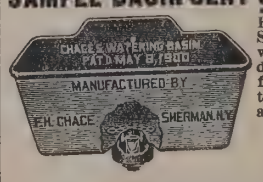
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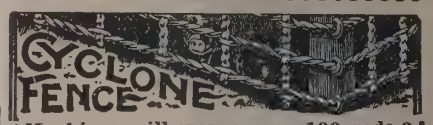


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Our Yellow Selected Seed Corn is unexcelled for strong, healthy growth and consequent big yield. Small cob and deep grain. In a word—strictly reliable seed. Shipped in twill bags of two bushels each. Price $1.25 per bushel f. o. b. cars here. Sacks 15 cents apiece. Prompt and careful attention to all orders.
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Shoo-Fly THE ANIMALS' FRIEND



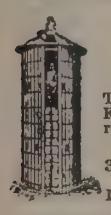
Kills every fly It strikes: keeps off the rest. Harmless to man or beast.

This cow was a terror to milk prior to using ½ cents worth of Shoo-Fly. Had it been used earlier, she would not have lost milk and flesh to the amount of $14.00. The other cow was protected early and continued to give 18 qts. of milk daily through fly-time

Shoo-Fly is the original stock protector used by the same dairy-men since 1885, after testing imitations. It prevents contagious abortion and other diseases, cures all sores, scratches, skin diseases, hoof ailments, etc. **NO LICE** in poultry house or any place it is sprayed. Beware of imitations that last only a few hours and make sores. If your dealer does not keep **Shoo-Fly** (made in Philadelphia, Pa.,) send us $1.00 for latest Improved Three Tube Sprayer and enough **Shoo-Fly** to protect 200 cows Cash returned if cows are not protected.
SHOO-FLY MF'G. CO. 1005 Fairmount Ave., Phila., Pa.
EDITOR knows from experience **Shoo-Fly** is O. K.



SILO SENSE
presumes the use of the modern round silo. They are the cheapest and best, and preserve the silage better than all others. There are no angles or corners to admit the air and cause the silage to mold or rot. We make them in four styles and 200 sizes. Made of Cypress, White Pine and White Hemlock. Anybody can set them up. We also make a full line of Ensilage and Fodder Cutters, Tread Powers, Wood Saws, Threshers, Engines, etc. Send for Book on Silos and Ensilage. Mailed free.
HARDER MFG. CO., Cobleskill, N. Y.



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...THE...
"PHILADELPHIA"
The only Perfect, Continuous Open Front Silo made. See open top patent roof. Ask for catalogue.
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Also made in the West by
DUPLEX MFG. CO., So. Superior, Wis.

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ROOFING
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ENSURES CLEAN, DRY ENSILAGE.
...THE...
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THE PLAIN TRUTH ABOUT SHREDDED CORN FODDER.

Dr. Smead, the noted veterinarian, in answering a subscriber of the *National Stockmen* why his ewes and lambs die when they were fed on shredded corn fodder, wheat and oat straw, a little hay and a quart of oats a day, tells him plainly that it is because the food does not afford sufficient nutrition for the strain the ewes are undergoing. The Doctor pays his respects to shredded corn fodder in effect as follows: As a rule the stalks have passed so far beyond the right stage for good fodder that they are "about as digestible as basswood bark."

It does not help poor corn stalks any to shred them. After such a stage in its growth—when the ear begins to glaze—the stalk grows poorer in feeding value every day until it is cut. Then it is left out of doors to the elements and grows worse. Then the farmer shreds it when it is worth a little more than so much brush and seems to think the act of shredding will make it more digestible.

The wise thing to do is to build a silo; cut the corn when it is at the prinnacle of nutriment and digestibility, put it in the silo and thus get the most that can be got out of the corn plant.

Is it not a little queer that nine out of ten men who oppose the silo and talk against it have never tried it? Occasionally a man is found who has given up the use of the silo. He had bad results from it because he did not understand it, but he never tells that side of the story.

To another inquirer whose cow had died from gastric derangement consequent on feeding shredded corn fodder, Dr. Smead says:

I suspect that shredded fodder is mighty poor in quality and produced gastric inflammation or inflammation of the mucous membranes of the digestive tract. Change to some better food and next year build you a silo and put your corn where it should be. Shredded fodder is all right for dry food when it is right, but a whole lot of it is either so dried out before being shredded as to be but little better than wood pulp, or if shredded green it moulds and is sour and not fit to feed. The shredder and husker are all right to husk corn as a labor saver, and make the stalks handle easily, but the silo is the place to keep the corn plant in to make good cow feed. This I say without fear of contradiction.

Washing Separators.

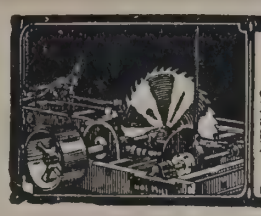
ED. HOARD'S DAIRYMAN:—In looking over, or rather reading, the DAIRYMAN of April 10th, I notice an article written by James Plato where he says that in cold weather he only washes his separator once a day. Now I want to say through the DAIRYMAN that James Plato is making a mistake. A great many young dairymen are reading this paper for profit. It's a bad, very bad, idea to give to them. We are, as a rule, all of us too dirty to make good butter. I always have to watch closely to know that my dairy utensils are perfectly sweet and clean and I would consider it one of the dirtiest tricks to run my milk through a dirty separator. The self-emptying bowl is just as dirty as any other—at least I find mine so, and our cows are all young and healthy cows.

Now let me say for the benefit of young dairymen, and especially the one that takes care of the washing of the utensils, you cannot be too clean, and always use boiling water to rinse with, and under no consideration run your new milk through a dirty separator.

If Mr. Plato wants to lighten the women's work, which I honor him for, let him wash the separator himself once a day; I am quite sure he will save some cream by it too.

Yours for cleanliness and profit.
MRS. F. T. HALL.
Hillsdale, Wis.

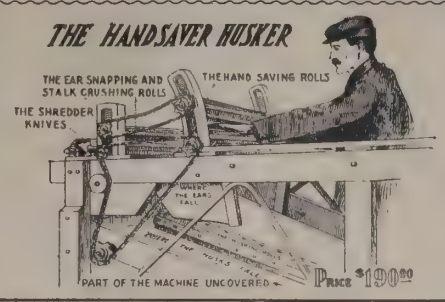
Mrs. Hall repeats the constant contention of HOARD'S DAIRYMAN that not separators alone, but every milk utensil should be thoroughly cleansed every time it is used, for one can never be quite certain that there may not have been some lurking contamination in the milk which would develop very markedly from one milking to another.



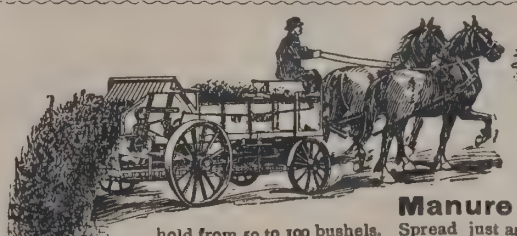
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FARMERS' $125 SAW MILL
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ALL IRON WOOD SAW
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New American Manure Spreaders
hold from 50 to 100 bushels. Spread just as thin or thick, fine or coarse, as ground requires. Don't have to stop team to make change. Most substantial, largest capacity, lightest draft.
Send today for Booklet B.
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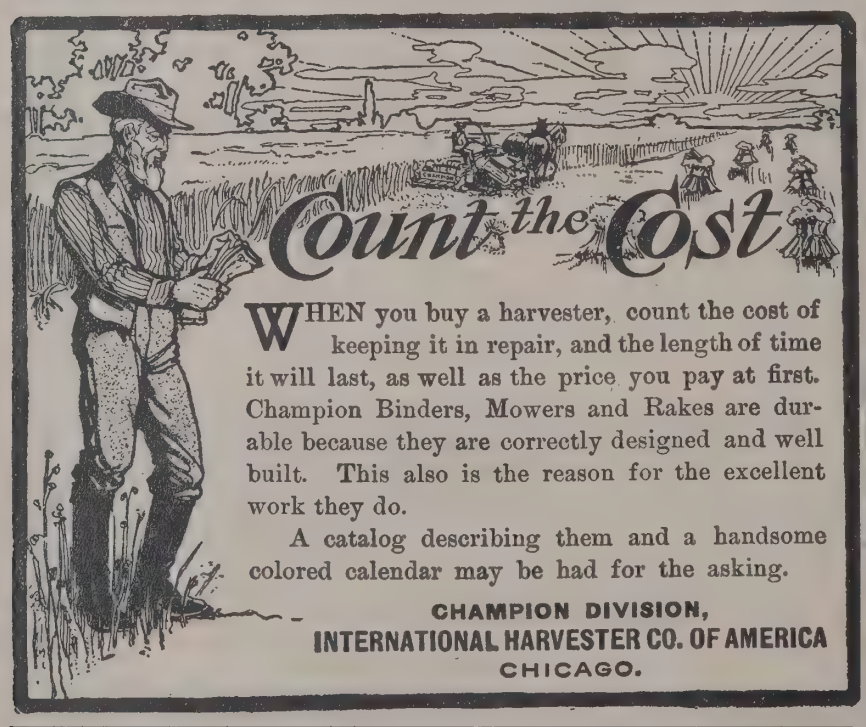
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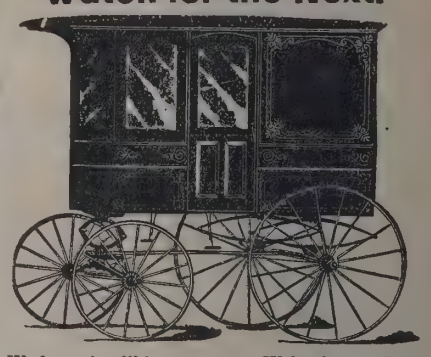
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that we're after. We propose to ship you a **Split Hickory Special** buggy and let you use it **Free 30 days.** You keep it for **$47.50**
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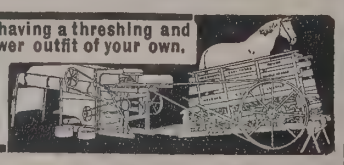


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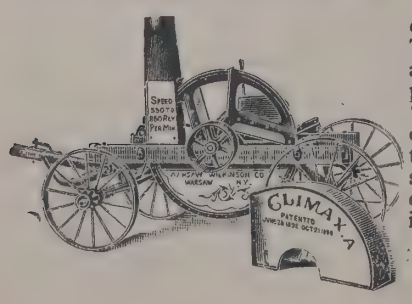
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Climax Ensilage and Fodder Cutters.



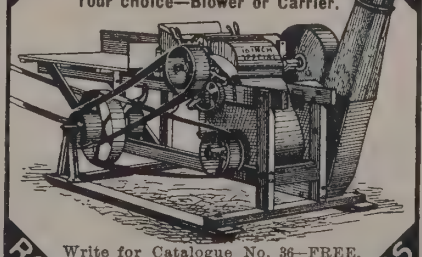
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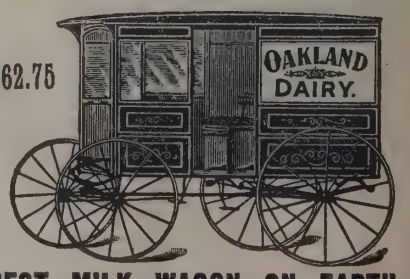
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VOLUME XXXIV. FORT ATKINSON, WIS., MAY 15, 1903. NUMBER 14

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To Ripen your cream, ensuring
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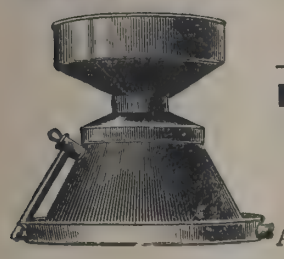
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make the way plain in night work or travel. Always shed a strong, clear, white light, with no choking, sooting or smoking.
Over Sixty Years the Favorite.
Made in many styles and sizes for all purposes, as hand lanterns, driving lamps, post lamps for streets, for front of country residences, church doors, etc. CATALOGUE SENT FREE.
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Established 1840



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Watch the Blackboard

There is no need to pay good money for a mechanic's services when buying a separator. The **1903 Factory Tubular** is so simple in construction and so perfect mechanically that any one with ordinary intelligence can set up and start one of them with entire satisfaction. We give our customers the benefit of this saving in expense, and under our new plan we take all the risk since we place these new style **1903 Factory Tubular Separators** with responsible creamerymen on trial with absolutely no obligation whatever to buy or keep them, and are willing to let our chances of selling depend wholly upon the **Tubular** proving itself better in every essential particular than the best competitive separator on the market. **Read this again** and remember that we mean just what we say; then bear in mind how much we can and will save you on the first cost of the machine. Write for particulars regarding our new plan and our attractive prices. Ask for catalogue No. 144.

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Best Results

in feeding for milk are obtained by adding some

BUFFALO Gluten Feed

to balance the ration.

Sample and booklet

"Feed Your Stock for Best Results."

Sent free. .Write to-day.

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Cheaper than Corn, Oats and Barley.

Attention Dairymen

The net profits to you from your cows depends largely on the expense of the digestible protein in the ration fed. There is no feed on the market today that gives you the protein at less cost than it can be secured in

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It will increase the flow of milk and keep the cows in better condition with less outlay in dollars and cents than any other feed. A trial will convince you.

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And readier money in hogs and cattle if there is mixed daily, with their feed a small amount of
Prussian Stock Food.
For all domestic animals. It conditions, begets growth, fattens. 50c and $1.00 Packages. A Pail, 1200 feeds, for $3.50. Buy of dealers. Write us for free 68-page book.
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These machines cut and elevate with the same wheel at the same time. This wheel has paddles which throw and fans which blow. Without the fans the paddles would throw the ensilage 15 feet high. A light blast of air in addition will blow it to any height. No chains, belts or cogs to slip and waste power. A two-horse tread power will cut and elevate 4 tons per hour, a 10 h. p. engine 20 tons per hour. The easiest running and safest cutters and blowers made. Also cutters and carriers, shredders, silos, engines, horse powers, saw machines, etc. Send for catalogues.
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RUPTURE CURED while you work You pay $4 when cured. No cure, no pay ALEX. SPEIRS, Box 846, Westbrook, M

The Covered Milk Pail.

Experiments at Storrs, Conn., Indicate That Its Use Would Greatly Advance Quality of Dairy Products.

The Storrs, Conn., experiment station has just issued a report (Bulletin 25) on the experiments that were conducted there, comparing the use of a covered pail in milking with the ordinary open pail. The covered pail in this case is one modeled on lines somewhat similar to the H. B. Gurler sanitary milk pail illustrated in the Creamery Patron's Hand Book. It is an ordinary milk pail with a tight cover, leaving a funnel shaped opening four inches in diameter, over which several layers of cheese cloth are loosely held by a tin ring that is slipped inside. The cover is easily removable to allow washing the pail inside.

The results had briefly summarized as follows:

1. Two sets of tests were made. In one case, milk drawn into an open pail was compared with milk drawn into a pail with a cover devised for excluding dirt during milking. In the other case, milk drawn into an open pail compared with the same milk strained immediately after the milking.

2. The amount of dirt in the milk from the covered pail was only 37 per cent of that in the open pail, while the amount of dirt in the strained milk was 53.4 per cent of that in the milk not strained. In other words the cover excluded 63 per cent, while the strainer removed less than 47 per cent. The differences in the two samples varied more widely in the latter test than in the former. In the strained milk the amount of the dirt removed depended largely upon the nature of the dirt.

3. By the use of the covered pail an average of 29 per cent of the total number of bacteria and 41 per cent of the acid producing bacteria were excluded from the fresh milk. By straining the milk as soon as drawn into the ordinary open pail, an average of but 11 per cent of the total number of bacteria and 17 per cent of the acid producing species were removed.

4. After the milk had stood for fifty hours at a constant temperature of 70° F. the samples from the covered pail contained a smaller number of bacteria in the majority of the tests, than did the samples from the open pail, yet the covered pail sample frequently contained the larger number. In each test the number of acid producing bacteria was smaller in the sample from the covered pail. In the strained milk, both the total number of bacteria and the number of acid producing bacteria was larger than in the milk not strained. While the data at hand will not warrant any positive conclusions, yet it is probable that the larger numbers in the strained milk are due to the rapid growth of certain species not removed by straining, which are able to develop more rapidly because of the removal of certain other species which if present would antagonize their growth.

5. The milk from the covered pail usually curdled somewhat sooner than that from the open pail, the average difference being about seven hours; likewise the strained milk in most cases curdled sooner than the milk not strained, the average difference being also about seven hours.

6. The fact that the keeping properties of the milk were not increased is of a little practical value, since the milk used in these tests kept on the average nearly two and one-half days at a constant temperature of 70 degrees before curdling. This means that it would have kept for about five days had it been kept at the usual temperature for handling and marketing milk. This is considerably longer than milk is ordinarily required to keep.

7. The demand of the public at the present time is not for milk which will keep for a greater length of time, but for that which can be used as food without danger to health. It is an acknowledged fact that large numbers of children, especially in our cities, die each year of cholera infantum, or of other intestinal troubles, which are caused by certain species of bacteria taken into the system in the cow's milk. The species of organisms which cause these troubles naturally inhabit the filth of the stable and it is highly probable that the exclusion

(Continued on page 335.)



WHITE: Just as soon as cold weather sets in, my hands roughen and crack. I buy the best and most expensive soap my druggist has, but the result is just the same—sore hands every winter.

BROWN: I had just the same experience until I read one of the Ivory Soap advertisements about too much alkali in some soaps, which draws the natural oil from the skin, and leaves it dry and liable to crack, so I sent out and got a cake of Ivory Soap, and since then my hands have been soft and smooth the year round.

MILK TUBES Patent Coin Silver 1¾" 50c. 2¾" 80c. Improved Teat Opener 75c. Dilating plug 25c. Postpaid on receipt of price. G. P Pilling & Son, 2d and Arch Sts., Phil., Pa.

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I can serve you better than ever with eggs fo hatching. White, Barred, and Buff Rocks, Cornish Indian Games, Dark Brahmas and many other varieties. Also Ducks and Geese. All prize winners. Write for prices. J. P. Gonigam, Ottawa, Il

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Elmco Feed Leads.

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(L)et any enterprising feed dealer show by test that the product he sells is ALWAYS uniform and of superior quality and his trade will continue to grow.
(M)ore money will come to him on account of larger trade.
(C)areful, systematic feeders find increased profits through getting more CREAM and FAT per ton of superior quality pure feed.
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Hoard's Dairyman

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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453.86 lbs. Butter Fat in One Year.

The Largest Official Butter Fat Record of a Two-Year-Old Heifer in the World.

The Guernsey heifer, Dolly Bloom, No. 12770, A. G. C. C., Adv. R., No. 40, has just completed a most wonderful year's milk and butter fat record. This record has been made under the rules and conditions for the Advanced Register of Guernsey Cattle which requires the supervision of an Agricultural Experiment Station. In this instance a representative of the Massachusetts State Station, saw and sampled the milk of this cow each month, and reported the results thus obtained. The inspector also reported various weighings of milk as check weights. The owner reported the detailed weights of milk for each day and statement of feed and care.

Dolly Bloom calved March 22d, and started her record March 26, 1902 when 23 months old and completed it March 25, 1903. During this time she gave:

1902.	*Lbs. milk.*	*% butter fat.*	*Lbs. butter fat.*
March 26 to 30.....	149.00	4.25	6.33
April.	795.50	4.25	33.81
May.....	869.63	4.56	39.66
June.....	909.81	4.40	40.03
July.....	846.69	5.23	44.28
August	795.25	5.17	41.11
September.	703.19	5.60	39.38
October.....	688.50	5.30	36.49
November	691.44	5.55	38.37
December	694.50	5 60	38.89
January.....	641.63	5.80	37.21
February.....	543.69	5.73	30.61
March 1 to 25.....	512.75	5.40	27.69
Total....	8841.58	5.13 av.	453.86

The requirement for the admission of this cow to The Advanced Register was 6,000 lbs. milk and 250 5 lbs. butter fat. Her production greatly exceeded this requirement. The record made is the largest record of a year's production of butter fat by any two-year-old heifer in the world, that can be found recorded and at the same time supervised by any representatives of a public institution or an organization.

The following statement from the owner as to the daily feeding of this cow during her record will be of interest:

March, 1902. After calving, her feed for the rest of the month was gradually increased until it reached 5 lbs. shorts, 15 lbs. ensilage and clover hay *ad libitum*.

April. 6 lbs. shorts. 1¾ lbs.old process oil meal, 1¾ lbs. gluten, 20 lbs. ensilage and clover hay *ad libitum*.

May. Same grain as in April with the addition of 1 lb. corn meal, clover hay until the 15th, when she was turned to pasture and fed peas and oats in the barn.

June. Same as in May except green clover in place of the peas and oats,

July. August and September. Same grain, with the omission of the corn meal. Pasture and green clover continued.

October. Same grain. For coarse food, in addition to the pasture, millet and a little clover hay was given.

November to March. Same grain, 20 lbs. ensilage, 40 lbs. roots (mixture of 1 lb. carrots to every 2 lbs. mangles) and clover hay *ad libitum*.

During the summer she was turned out in pasture until heat of day,and at noon was fed green stuff in the stable. If weather was hot she was turned out at night and stabled in day time. She had the same care and feed as the other cows of her age in the herd with regard to general way of handling. She was milked only twice a day and stood in a standing stall.

Dolly Bloom was bred by Mr. Ezra Michener, of Michener, Pa., and dropped April 14, 1900. Her sire was Divan 5846, and her dam Questa 11385. Their breeding goes back to such noted animals as Bonny Boy, Fernwood Lily and Imp. Pacific.

Dolly Bloom is owned by Mr. F. Lathrop Ames, of Boston. Mr. Ames takes great pride in his small but choice herd of Guernseys at his beautiful estate, "Langwater" in North Easton, Mass., and the work of this cow is a great pleasure to him.

This heifer bears unquestionable testimony to the capabilities of a Guernsey cow. She is one of forty Guernsey cows that have made official yearly records of butter fat and has been admitted to the Advanced Register—the records varying from 296 lbs, to 602 lbs. (equivalent to 346 and 702 lbs. butter.)

WM. H. CALDWELL, Sec'y.
Peterboro, N. H.



GUERNSEY HEIFER, DOLLY BLOOM, A. G. C. C., 12770.
Property of F. Lathrop Ames, Boston, Mass.

Note and Comment.

Factory Co-operation in Canada.—A Warm March in Ohio.—Manure Under Cow Stables.—The Dual-Purpose Cow.

ED. HOARD'S DAIRYMAN:—When one wants to encounter the most advanced and unique thought, they must needs go to Brockville, Ont. The illustration? the group or syndicate plan of factory co-operation, with Dan Derbyshire as its exclamation point! There may be Wittens and Murphys and Eagles, but easily Daniel towers above them all. Not only is he tall, but he is at the same time far reaching. Witness, how he was the first to reach into the public treasury, and his hand was not staid, and monitory help came to the Eastern Association,to better the cheese making of the province by grouping factories, and having a trained instructor to visit these factories and tone up things; and now this same Daniel is lifting up his voice and crying aloud that the factories in the eastern section, more than 200 of them, shall be grouped into some ten, or more syndicates, and the plan of making in each, shall be made as uniform as one Superintendent can devise, the scale of competence raised, the effort made to so better the conditions that the cheese in the Canadian sections shall become so fine, that the people will want to consume them at home, and thus find a better market than abroad.

True, this would be a close imitation of the cheese situation in the states. Once we sold all our cheese abroad and millions of pounds of butter annually, but when the new ideas of manufacture were put into practice, and better produce was made, Uncle Sam's people quickly drank up a great share of the milk and consumed the whole of the butter and cheese, and are actually now importing millions of dollars worth of fine goods to make up the demand from our own people. True, we have no one anywhere a near approach to Derbyshire as a leader in the States, but we have in some way managed to raise the standard of excellence of our dairy produce to a point where it is now virtually all consumed here, and a shortage so great that the demand for butter and cheese from the local trade, is up to the chnrn, and not a month away from the hoop,

Seriously, that plan of grouping the factories of Ontario, and having a uniformity of rules, regulations and high attainment in manufacture in each locality, and a directing instructor, is a fine thing. In a way that is attained in the states by proprietary ownership. Like the dozen Hoard creameries in Wisconsin, the Eldridge 20-factory ownership in Ohio, and four or five other concerns as large, and the syndicate holding of large systems of factories in New York and other places. Whether we are pleased or not, the facts are that the era of centralizing dairy operations in some form is here, and more "a-comin." Of course the Canadian plan will be to act as a unit in sales, and all that appertains to the running of a group, and we prophesy to the increased profit of all concerned and reflect great credit upon its originator, Mr. Derbyshire.

***

The warmest March "in the memory of the oldest inhabitant," a March without snows, and few freezing nights, made the fields the first April days as green as mid-May, and feed in them quite a picking." It was wonderful to notice the knowledge or instinct displayed by the older cows. The sight of the green fields tantilized them, as they looked pastureward through the meshes of the wire fence of the yard. Now and then a cow would life up her voice with that intonation peculiar to breaking-into-your-neighbor's-cornfield, and every cow would point her nose to the southeast and tell *me* that the pasture lay in that direction. Then they went on a starvation strike. The hay they would not eat, and the silage gingerly at best. Some of the ring-leaders demanded what silage they did eat should be half meal. Then we arbitrated. They might go into the little four acre night pasture if they would eat their silage good, night and morning, and no more back talk. This carried. The next night it grew cold, and in the morning it was snowing and blowing a gale and below freezing. Did these cows want to go out? No, they ate their silage with a vim, and then lay down as if green grass and summer skies had faded from their memories. Yes, cows do know a whole lot, and have their ways of making it known; and the next cow census you have taken, Mr. Editor, please get the cow's opinion of her owner; to go with the rest of the "guess."

***

One of the things that I cannot understand is the tenacity with which the New Englander sticks to the inherent plan of a manure basement under his cow stables, and having hogs work over this accumulating mass of manure. Under what processes can there be any additions to its value as a fertilizer? The claim is made that the snow is too deep in the winter to draw direct from stable to field, and yet in Wisconsin, Michigan, and Northern New York, the snow is as deep and lies on the ground as many months, and there, the plan of daily drawing manure is the most largely practiced.

While there are a few exceptions, the general finding is that the smell in the stables over the manure basements, and the working hogs is very pronounced, and in some cases monumental; and cows living in such an atmosphere of escaping odors can hardly be expected to give milk of the most healthy character, if all we are being taught about germs, bacteria, ferments, bacilli, with all their relatives, near and distant, is, the half of it, an actuality.

That storing manure is the *best* way, makes one to doubt the long and painstaking experiments of Roberts, Voorhees, Hunt and others, who show in figures, that the loss of stored manure is from 10 to 60 per cent, which is greater than can take place in the field, by direct drawing from the stables. What puzzles me is this: If manure does wash away in the winter fields, then at what time of year can it be applied when there will be less loss, and when is Dame Nature least extravagant in her wastes?

***

I notice that Prof. Plumb, our new Ohio Professor of Animal Industry, is discussing the problem of the dairy *vs.* the dual-purpose cow, and thinks in some sections the latter is gaining favor, but "beef is being promoted at the expense of milk," which is true. I am convinced that there is a class of cows, a sort of between and betwixt the two classes mentioned,that are neither one nor the other, while being classed as duals. They are duals to the extent that they eat a man out of house and home, and give neither milk nor beef enough to pay their board. This leaves their owner a specialist, as he has only milk to sell, for the beef made on the cow cannot be appropriated without killing her,and so this owner keeps her on, and the only dual-purpose in sight is to sell what little milk she gives and borrow the money with which to buy her feed.

The leaning towards beef-making in the dairy sections is explainable, and that on the ground of the growing scarcity of getting help, which has actually in the dairy sections attained to the proportions of a famine. Help who will work on a dairy farm and be compelled to milk are about unobtainable, and when they can be had the wages they demand are about prohibitory. Many dairies in Ohio are being sold off the farm for no other reason. On the great plains of the far west and the great corn states I doubt if the dairy is to be made popular to the extent of dairying with the distinctive dairy breeds. The only contention is, that in the Herefords, the Short-horns, the Aberdeens, and the like, so called beef breeds, the cows giving some milk and the purpose to make beef,and not say we are dairymen, but farmers, and dairy breeds are not suited to our purpose. There is no instance where dairying has attained far fame where beef and some milk has been the desire. There is too much dust by far being thrown by certain parties, their object being to so obscure the vision that a man will class cow ownership as dairying, and thinks he is securing the best of dairy profit whether he was milking a mountain of flesh into a pint cup, or a bony, fleshless cow into a 14-quart pail. It is an attempt to prove a proposition by comparing unlike things.

***

There was a great shifting in position among the dairymen about here the 1st of April, and there was a great withdrawal of city patronage, and going to the factory instead. The local factory offered $1.15 per hundred for milk and it about broke up shipping. The city buyers paying about $1.40, out of which the railway gets 17 cents per hundred for shipping. The factory takes all of the milk and the city takes it all, if they send

back the cans every time. Some of the trolley roads have advanced rates to two cents a gallon for carrying, and they have lost most of the business. The market here is bare of both cheese and butter, and the books are filled with orders that the makers are unable to fill. This is a bad condition of things surely (?)

Ohio. JOHN GOULD.

Testing Dairy Cows in Illinois.

[By Prof. A. J. GLOVER of the Illinois Agricultural College.]

ED. HOARD'S DAIRYMAN:—The cow census work which has been carried on by HOARD'S DAIRYMAN for the past few years, in the different states, has suggested the importance of showing the dairymen the great difference in individual cows.

For over a year the Department of Dairy Husbandry of the University of Illinois has been conducting field work among the dairymen of the state. A number of them were persuaded to weigh and sample each mess of milk a sufficient number of times during the year, so that the performance of every cow could be estimated. It has been demonstrated by a number of our experiment stations that many cows are kept in the dairy at a very small profit, and some at an actual loss. In order to have the dairymen realize this fact, a man was sent into the field to secure a number of them to keep a record of every cow in their herds. The records which have been collected, bring the farmers face to face with the facts that exist upon their own farms. It shows them that some herds are kept at a good profit, some at a small profit, and others at an actual loss.

HOW THE FARM TEST WAS MADE.

The farmers who took up this work, were required to weigh and sample the milk from each cow in the herd, every seventh week, for fourteen consecutive milkings. After each cow was milked the milk was poured into a weighing pail, weighed, and the weight recorded on a milk sheet directly under the cow's name. A small sample of milk was then taken with a small sample dipper, or a milk thief, and put into the sample bottles. Corrosive sublimate tablets were used to preserve the samples of milk. Instructions were given to each man to shake the composite samples each day so as to mix the fresh samples with the rest of the milk and keep the cream from becoming dry or hard on the sides of the bottle. The jars that were used for keeping the composite samples were one pint, tin top, covered bottles. When the period of weighing and sampling was completed, the samples were tested on the farm, or taken to the creamery to be tested.

MILK SHEET.—ARRANGING APPARATUS.

A considerable amount of time can be saved by arranging scales, sample bottles and milk sheet in such a way that the weighing, recording the weight of milk, and sampling of the milk can be done with few steps and motions. After the most desirable place in the barn has been chosen for weighing and sampling, the scales can be suspended from the ceiling so as to hang very near the milk sheet, which can be tacked to a board and hung on the wall or fixed on an inclined shelf projecting from the wall. The sample bottles can be arranged on either side of the milk sheet, or if convenient, above it. If there are two or more milkers, the sample bottles can be arranged so that each milker will have his bottles together and arranged in the same order that the cows are milked. This method saves time in finding the right sample bottle.

TIME CONSUMED IN WEIGHING AND SAMPLING.

The length of time required in weighing and sampling the milk depends entirely upon the quickness of the man who is doing it. Some men will say that it takes but little time to weigh and sample each cow's milk, while others complain of the length of time necessary to do the work. On the whole, it will take about 1 minute to each cow, 2 minutes a day, 14 minutes a week, or for the seven weeks that it is done during the year, about 1 hour and 38 minutes. With this amount of time expended, the farmer can have a complete record of every cow in his herd. He will know at the end of the year whether she has been a profit or a loss to him, and furthermore, he will know from what cows to select his heifers for his dairy. Considering the time that is consumed to do this work, it seems strange that more dairymen do not have their herds tested in some way. Many of them can weigh and sample each cow's milk every seventh week, and then have the buttermaker test the samples for them at the creamery. Together with the per cent fat and the weights of milk, they can estimate for themselves the performance of every cow in their herds. The importance of doing this work will be shown in the following articles.

CALCULATING THE AMOUNT OF MILK AND BUTTER FAT.

The milk was weighed and sampled during the 4th week of the 7-week period. With the total amount of milk that each cow gives during this time, and the per cent of fat, is calculated the amount of butter fat produced in the week. From these results were estimated the amount of milk and butter fat each cow produced three weeks before, and would produce three weeks following the test. The cow's yearly record was made up from these tests and in this way the total amount of butter fat each cow produced during the week. From these results were estimated the amount of milk and butter fat each cow produced, three weeks before and three weeks following the test.

The Dairy Department of the Wisconsin Experiment Station had their patrons weigh and sample one day each week during the whole year. From the different weights and tests they estimate the amount of milk and butter fat that each cow produced in the entire year. The testing of the milk each week is too much for the average farmer to do, but taking composite samples of milk of several milkings gives a very good average of the per cent of fat contained in the milk, and can be done by any one if he chooses. Fairly accurate results can be obtained by weighing and sampling the milk every 13th week and calculating the results the same as when the weighing and sampling were done every 7th week.

The method of weighing and sampling each cow's milk every 7th week, for 7 consecutive milkings or 3½ days, gives very good results. The results can be multiplied by 2, which would equal the amount of milk and butter fat produced for one week, then estimated the same as if weighing and sampling were done the entire week. The composite samples that are but 3½ days old are usually in better condition for testing than samples that are a week old. It was found also that farmers will take more pains with the work if it does not become tedious to them. The accuracy of records obtained by weighing and sampling each cow's milk at regular times during the year, may be doubted. In comparing the amount of milk and butter fat sold from two farms to a creamery, with the amount of milk and butter fat that was determined from the weighing and sampling of each cow's milk every 7th week for 14 consecutive milkings during the year, it was found in one case a difference of 2.2 per cent of butter fat, and .0015 per cent in milk, or making a difference of 4.67 lbs. of butter fat and 8.09 lbs. of milk per cow; in the other case a difference of .038 per cent fat and 1.98 per cent in milk or, .27 lbs. of butter fat and 120.3 lbs. of milk per cow. I am fully convinced that by taking pains in weighing and sampling, valuable records of the dairy herd can be obtained by weighing and sampling each cow's milk every 7th week during her period of lactation.

SAMPLE OF MILK SHEET FOR KEEPING WEEKLY RECORD.

MILK RECORD FROM JULY 30 P. M. TO AUGUST 6 A. M.

NO. OF MILKINGS.	Spotty No. I.	Black No. I.	Black No. II.	Bottle.	Milly.	Little Lamie.	Alice.	Belle.	Sleepy Eye.	Roamey.	Pet.
1	20.5	14.1	11.3	15.0	15.4	10.9	6.9	7 4	7.5	5.5	15.1
2	13.5	6.8	6.5	10.2	13.2	8.3	5.2	3.9	5.1	3.9	10.3
3	22.2	16.8	11.7	15.0	17.0	11.0	6.7	7.9	7.7	5.2	15.8
4	14.2	5.2	8.2	10.7	14.2	8.5	5.2	4.9	4.6	3.9	10.9
5	20 3	15.7	6.0	13.7	16.3	10.7	6.8	6.5	7.3	4.9	15.7
6	16.7	7.0	9.2	11.9	15.6	9.5	5.1	5.1	6.1	4.6	12.2
7	18.5	15.5	4.7	14.1	16.7	9 6	7.0	6.0	6.6	5.0	14.5
8	16.0	7.8	7.3	11.2	14.4	8.7	5.0	4 9	6.2	3.9	14.7
9	22.0	14.5	13.5	16 4	18.5	10.7	6.9	7.2	6.9	5.3	15.8
10	14.0	9.5	6.9	10.5	15.0	8.3	4.8	4.6	5.3	3.6	11.4
11	19.9	9.8	4.0	12.9	17.5	11.0	6.7	6.1	7.0	5.2	14.9
12	14.5	13.0	6.8	11.5	14.5	8.1	4.4	4.6	5.8	3.9	11.3
13	22.6	13.2	6.7	16.1	18.4	11.6	8.6	7.4	7.3	7.8	16.1
14	15.4	7.1	8.8	11.3	14.7	8.6	4.3	5.2	5.9	4.2	11.7
Milk	250.3	156.0	111.6	180.5	221.4	135.5	83.6	81.7	89.3	66.9	190.4
Per cent fat	3.2	2.8	3.2	3.5	3.2	3.4	4.6	4.0	4.6	4.4	3 0
Butter fat	8.00	4.36	3.57	6.31	7.08	4.60	3.84	3.26	4.10	2.94	5.71

APPARATUS.

The things which were necessary for carrying on the work were: a spring scale for weighing the milk; a small dipper or milk thief for taking the samples; bottles for holding the composite samples; corrosive sublimate for preserving them, and milk sheets; all of these were furnished by the experiment station. Each cow was given a name or a number which was placed at the top of the milk sheet so that the weights of milk could be put directly under it; her name or number was placed on the side of the composite sample jar, which was used for holding her sample of milk. The following milk sheet shows the arrangement of the cow's name, and the weights of milk placed below it, together with the per cent fat in the milk and the total amount of fat produced by each cow in one week.

THE DIFFERENT METHODS THAT MAY BE USED IN WEIGHING AND SAMPLING.

There are several ways that records from each cow in the dairy can be obtained The method used in obtaining the records which will be given in future letters were as follows: The farmer every 7th week, weighed and sampled each cow's milk for 14 consecutive milkings. The amount of milk yielded each day was added together and from the per cent of butter fat which the milk contained, milk and butter fat that she produced during the year was determined. In many cases the dairymen kept an approximate account of all the grain and roughage that each cow consumed during the year. Where this is done, the records are more valuable, for they clearly show the profit or loss of every cow kept in the dairy.

OBJECT OF THE WORK.

There is no better way of finding out the merits of a dairy animal when giving milk than to use the scales and the Babcock Test. With the weights of milk produced, the per cent of butter fat in it, and the length of her milking season, together with the food consumed, the value of a cow for the dairy can be determined. The object in getting the dairymen to do this work is to determine which of the individual cows in their herds is the most profitable, so that the owner may cull out his poor cows and keep only his profitable ones; to show them the importance of better feeding and caring for their stock, and the importance of selecting better sires for their herds. A dairy animal should be selected for the amount of milk and butter fat which she yields during the year, rather than on points of fancy or form. It is a pretty safe rule in selecting dairy cows to go upon the results obtained from the scales and Babcock Test. The



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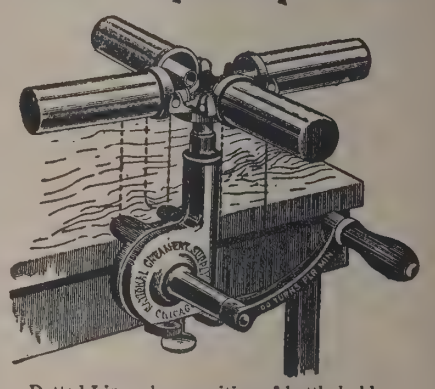
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THE KEYSTONE WATCH CASE CO.
Philadelphia.

NATIONAL!
Babcock Milk Tester



Dotted Lines show position of bottle holders when not in motion.

Has enclosed cut gears.
Swinging bottle-holders.
Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

DOES YOUR DAIRY PAY?

It costs no more to feed a profitable than an unprofitable cow.

NET PRICES:

No. 1,—2 bottle, complete for testing milk.... each $4 00
No. 2,—4 bottle, complete for testing milk.... each 5 00
No. 3,—2 bottle, complete for testing cream and milk, each..... 4 50
No. 4,—4 bottle, complete for testing cream and milk, each..... 5 50

Prices include full directions for making test, bottle of acid, test bottle brush, acid measure, dipette and test bottles.

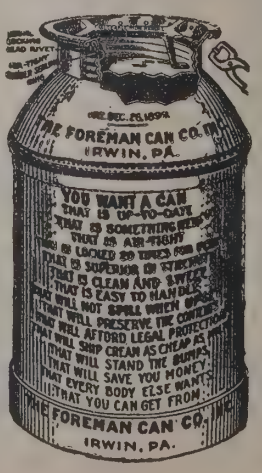
We are the great Dairy Supply House of the West. We carry an immense stock of all kinds of Butter and Cheese Making Apparatus and Supplies. Write for catalogues and circulars.

National Creamery Supply Co.,
450-458 Illinois St.,
CHICAGO, U. S. A.

CREAMERYMEN, DAIRYMEN and MILK DEALERS

Can be Promptly Furnished with anything they want at reasonable prices, if they will write me. My CHILDS' PATENT MILK BOTTLE FILLER is the best on the market. Send for free catalog.

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59 Murray St., New York City.



We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity—1000 cans daily, which should enable us to fill all orders promptly.

Every can sold on a guarantee.
Write for Circular H.

safe way to know the true merits of a dairy cow is to have a record of the products she yields in one year. If she is a good breeder, that also should be taken into consideration. If the performance of each cow in the herd is known, the heifers can be selected from the best cows and when these heifers become fresh the test can be applied to them and the inferior ones culled out. This can only be done when we have an intelligent understanding of each cow and her capability of producing milk and butter fat.

ELEMENTS OF DANGER IN THE USE OF SCALES AND BABCOCK TEST.

While the scales and Babcock test can be of great service in the selection of our dairy animals, they must, however, be used with judgment. Dairy cows will have their "off years," and this must be considered when the herd is being culled. If we do not bear this fact in mind, we are apt to sell some of our best cows from our herds. The writer has in mind the cow "Sweet Briar," of the Minnesota Experiment Station, that produced for ten years an average 358.07 lbs. of butter a year, while, in 1898 she produced only 206.62 lbs. of butter, but in 1899 she made 306.53 lbs. of butter, and in 1901 she yielded 370.53 lbs. of butter. If the merits of "Sweet Briar" had been wholly based upon the work she did in 1898, she would have been classed a very ordinary cow, and perhaps sold. The great value of scales and Babcock test lies in their continued use in the dairy herd, and not in one year's test. Good heifers usually come from the best cows, but it happens that a promising heifer may do very poorly the first year. In such cases the heifer's individuality, together with her breeding should be considered before she is sold. The testing of cows should, however, be carried on in every dairy, if a systematic selection of the dairy is to be made. A good cow seldom has two "off years" in succession.

THE VARIATION IN FLOW AND PER CENT OF FAT IN MILK.

It has often been asked why it is necessary to weigh and sample each mess of milk for a week. By weighing and testing each milking separately, we usually find considerable variation in milk yields and fat content. The following table shows to what extent a cow will vary in milk yield and per cent of fat from one milking to another.

TABLE SHOWING THE YIELD OF MILK AND PER CENT BUTTER FAT OF EACH MILKING FOR ONE WEEK.

MAID CLOVERDALE'S RECORD.

1901.	Lbs milk.	Per cent fat.	Total fat for each milking.	Total lbs. milk.	Total lbs. fat.
Sept. 23rd, Morning	18.1	2 8	.506		
Noon	11.5	3.0	.471		
Evening	15.7	3.0	.471	45.3	1.322
Sept. 24th, Morning	18.4	4.2	.772		
Noon	13.0	3.1	.403		
Evening	15 6	2.6	.405	47.0	1.580
Sept. 25th, Morning	16.7	2.0	.334		
Noon	16.4	3.3	.541		
Evening	13.4	2.8	.375	46.5	1.250
Sept. 26th, Morning	20.4	2.6	.449		
Noon	18.0	4 5	.810		
Evening	11.9	2.4	.285	47.2	1.544
Sept. 27th, Morning	20.4	2.7	.550		
Noon	14.5	2.9	.420		
Evening	15.2	2 8	.425	50.1	1.395
Sept. 28th, Morning	18.5	3.8	.703		
Noon	14.5	2 8	.406		
Evening	14.5	2.3	.333	47.5	1.442
Sept. 29th, Morning	20.9	3.2	.668		
Noon	14.3	2.4	.343		
Evening	15.9	3 0	.477	51.1	1.489

The above table readily shows the importance of weighing and sampling the milk for more than one milking, if the average test of the cows is to be obtained. It will be observed that Maid Cloverdale tested on the morning of September 25th, 2 per cent, and at noon, September 26th, 4.5 per cent. If at either time a test had been made for the purpose of obtaining her actual per cent fat it would have been entirely wrong, for her average test for that particular week was 2.99 per cent.

THE BASIS UPON WHICH THE PROFIT OR LOSS OF THE COW IS COMPUTED.

It is very difficult to express the true value of the dairy cow in dollars and cents. But since the profit or loss of most of the cows tested has been given, it is perhaps well to state the basis upon which the profit or loss was calculated. The value of the product that the cow yielded was based upon the amount of butter fat that she made, and the market price of butter fat at the time.

The value of the skim milk, the value of the calf, and the value of the manure produced by the cow were not credited to her, while on the other hand the cow was not debited with the amount of labor expended in her care nor the amount of feed consumed when dry. The cow was simply credited with the amount of butter fat she produced, and charged for feed consumed when she was giving milk. The calf will usually pay for the cow's board when dry, and the skim milk for the labor it takes to care for her. This method of calculation is perhaps a little unjust to some cows, for it is possible to have two cows yield the same amount of butter fat and one give a profit and the other a loss. If, for example, one milks ten months and the other milks but six months in the year, to yield equal amounts of butter fat, which sometimes happens, one cow is charged with ten month's feed and the other with only six months.

"Red Bird" in Herd "B" and "Duchess" in Herd "C", (whose records will be reported later) are examples of this kind. "Red Bird" milked ten months and charged a loss of $1.28 for her board, and "Duchess" milked six months and gave a profit of $9.16, and each yielded the same amount of butter fat.

The average prices for butter fat from Sept. 1st, 1901, to Sept. 1st. 1902, when sold to creameries, were as follows:

September	19 cents.
October	19 "
November	20 "
December	22 "
January	24 "
February	28 "
March	25 "
April	26 "
May	22 "
June	21 "
July	20 "
August	19 "

The average prices of grain and roughage from Sept. 1st, 1901, to Sept. 1st, 1902, were about as follows:

GRAIN.

	Per Ton.
Bran	$18.00
Shorts	18.00
Corn meal	20.00
Corn cob meal	20.00
Grano gluten	18.00
Gluten meal	28.00
Gluten feed	22.00
Oil meal	28.00

ROUGHAGE.

Clover hay	10.00
Timothy hay	10.00
Millet hay	10.00
Corn stover	4.00
Corn silage	2.00

Pasture, $1.00 per month.

The price of grain is based upon purchase price in the city market and the price of roughage is based upon the purchase price at the farm. When the cow is charged the above prices for farm products the farmer receives a profit on his land, and the profit which the cow gives him is over and above what he could have received for his products if he had sold them upon the market, and moreover, he has retained most of his soil fertility in the form of manure.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

"ADVERTISEMENT."

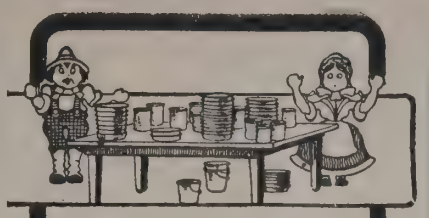
A LAST RESORT.

Pure Food Should Be the First.

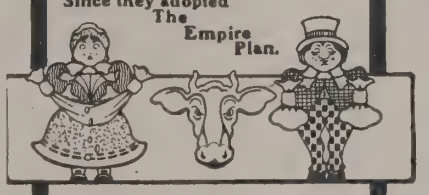
When the human machine goes wrong it's ten to one that the trouble began with the stomach and can therefore be removed by the use of proper food. A lady well known in Bristol, Ontario County, N. Y., tells of the experience she had curing her only child by the use of scientific food: "My little daughter, the only child and for that reason doubly dear, inherited nervous dyspepsia. We tried all kinds of remedies and soft foods. At last, when patience was about exhausted and the child's condition had grown so bad the whole family was aroused, we tried Grape-Nuts.

"A friend recommended the food as one which her own delicate children had grown strong upon so I purchased a box—as a last resort. In a very short time a marked change in both health and disposition was seen. What made our case easy was that she liked it at once and its crisp, nutty flavor has made it an immediate favorite with the most fastidious in our family.

"It's use seems to be thoroughly established in western New York where many friends use it regularly. I have noticed its fine effects upon the intellects as well as the bodies of those who use it. We owe it much." Name given by Postum Co., Battle Creek, Mich.



A long time ago, when they first began
To keep milch cows, poor Dairy Dan
And Milkmaid Molly had troubles galore,
And always seemed to be getting more.
They'd work and worry and stew and fret
And always would end the year in debt.
But by and by they found a way
To lessen their work and get more pay.
They bought an Empire, and every cow
Is yielding a handsome profit now.
They're Jolly Molly and Dandy Dan
Since they adopted The Empire Plan.



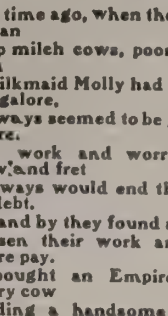
The Easy Way

is not always the best way, but it so happens in the case of the

Empire Cream Separator

that it is both the **easiest** and the **best.** The Empire runs more lightly than any other separator of the same capacity; it is more easily cleaned, because it has few parts; it lasts longer and costs less for repairs, because it is better built and freer from intricate mechanism. In short, it is the simplest, most efficient hand power cream separator made. We guarantee that it will do better work with less labor and trouble, than any other separator, and all we ask is a chance to let you prove our claims to your own satisfaction. What do you say?

Let us send you our good book on "Making the Dairy Pay." It's free for the asking.



Empire Cream Separator Company,
Bloomfield, New Jersey.
Western Office, Fisher Building, Chicago.

Creasey Ice Breakers



Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right.

Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.

J. S. L. WHARTON, Mfr.,
17th & Clearfield Sts. Philadelphia, Pa.

NOW IS THE TIME TO SUBSCRIBE FOR

Hoard's Dairyman.



WILDER'S
PATENT SWING STANCHIONS
Chain or Pin Fastened.

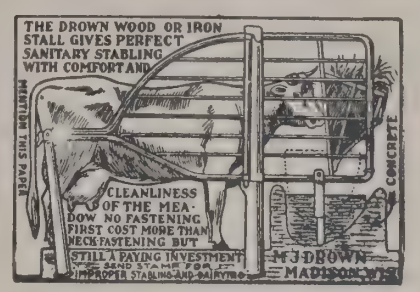
Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.

Safest, Strongest, Most Convenient fastening made. Cheapest to put in and save room in barn. Send for Stanchion Catalog to

J. K. WILDER & SONS, BOX 11, MONROE, MICHIGAN.



CHAIN-HANGING
CATTLE STANCHION
The Most Practical
CATTLE FASTENER
ever invented.
Manufactured and For sale by
O. H. ROBERTSON
Forestville, Conn.

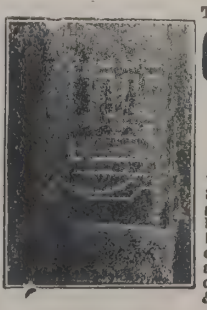




Scott's Perfect Swinging And Self Closing Cow Stanchion
Each cow shuts herself in place.
CIRCULARS FREE.
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211 Beach Street,
Bridgeport, Conn.



Prescott's Swinging Swivel tanchion
Keeps Cows Clean.
Swings forward while getting up or lying down. Locks back while standing Full particulars free.
E. PRESCOTT,
Beverly St., Boston, Mass



THE NEW PATENT
Cow Stall
AND FEED TROUGH.

This is the only Cow Stall with a centering hinge. Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars. **R. A McLERY & CO., Palmyra, Wis.**



The BEST Cattle Fastening.

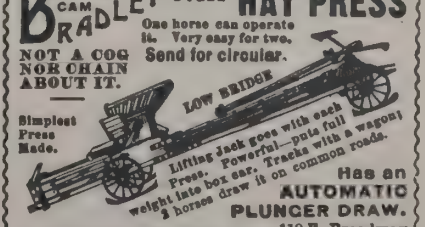
SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated Circular free. GLENORA MFG. CO., Glenora, Yates Co., N. Y.

Infringements will be prosecuted.

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NOT A COG NOR CHAIN ABOUT IT.

One horse can operate it. Very easy for two. Send for circular.



Has an AUTOMATIC PLUNGER DRAW.

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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own ight who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

THE *Nebraska Farmer*, in answer to an inquiry as to which family of Shorthorn cattle are the best milkers, answers very justly that the milking faculty with Short-horns is an individual, and not a family, trait. Here and there are good milking Short-horns but they are as a rule sports, and do not posess the power of breeding in the milking line. And even if they did there are no Short-horn bulls but what have been bred for generations for beef, and the beefier they are, the more certain they are to suit the Short-horn idea, so it seems the prospect of getting good dairy cattle from the Short-horn must be confined to the female side of the house, and that is very uncertain. Considering that the bull is more than half the herd, the prospect is very dubious.

WORTH READING.

HOARD'S DAIRYMAN has arranged with Prof. A. J. Glover, of Illinois Agricultural College, for a series of letters that will be worth reading by every dairy farmer who cares to establish in his mind and judgment, an intelligent idea of the relation of the cow to the profit or loss of the business, as well as the value of having an intelligent system of doing business with the cow.

Mr. Glover has been in the employ of the Illinois College of Agriculture for three years. His work has been mainly with the dairy farmers of that state in testing their cows and in instructing them in the ways and methods of such work.

Consequently what he says will come from the most practical relation to the actual conditions of the average cow keeper of the middle west.

What HOARD'S DAIRYMAN is after, is a full supply of hard facts. It does not care a fig for theories unless they are forced into existence by undoubted facts. For this reason it goes to any necessary expense to learn what the facts are concerning the men who keep cows; how much brains they put into their business; what is the cash value of brains, and what is the serious cost of ignorance; what is the value of dairy blood and wise breeding for dairy work; what is the best food, and how to feed it and how to grow it, and so on through a long list of things that ought to be better known than they are.

We invite a careful reading of the series of articles which will appear from the pen of Mr. Glover, who is himself a thoroughly trained dairyman in both a practical and scientific sense. His first communication will be found in this issue under the caption, "Testing Dairy Cows in Illinois."

AS MR. TROW LOOKS AT IT.

There is a very encouraging discussion going on all over the country on this question of profit and loss in dairying—what leads to profit and what leads to loss. We are glad the farmers are waking up. There is such a host of them that have been content to go along without thinking or discussing or looking into the matter. Mr. A.W. Trow,the able editor of the Dairy Department of the St. Paul *Farmer*, writes out the subject as follows, under the head of "Annual Gross Returns From Twenty-Two Cows:"

"We are asked to state what it costs us to produce a pound of butter. Our reply is that it costs us all that we get for it. We figure our feed, wear and tear of equipments, use of cows, labor, and the interest on investment, and then we are egotistical enough to appropriate the little that is left to the credit of the gray matter that is capable of making a cow give two pounds of butter while some other fellow's cows are giving a great deal less.

If a man can produce 20-cent butter with an outlay of 15 cents, the balance or five-cent margin belongs to the head that guides the operation. However, we will give this much of our personal experience.

Our cows brought us last year an average of $52.28 for the butter fat sold at the creamery. This, of course, does not include the whole milk fed to the young calves, the milk used in a family of four or five, nor the five cents per hundred taken out after deducting all other expenses of manufacture, to pay for a new creamery. One-half of the calves from these cows were recently sold while at an average age of four months, for $140. This would make the total value of the calves $280. Assuming that the skim milk fed to swine during the year would pay for the grain and hay fed to the calves, we have a total income per cow of about $65, or if the calves were figured at $5 at birth and the skim milk at ten cents per cwt., the total income would amount to about the same. These cows were fed no grain while on summer pasture. Each cow consumed during the feeding season about one ton of hay, and four tons of silage, with about 30 bushels of ground mixed wheat and oats, about one part of the former to two of the latter. A fair estimate of value of feed would be as follows:

Four tons silage	$8.00
One ton clover and timothy hay	6.00
Pasture, per cow	5.00
Thirty bushels ground wheat and oats	9.00
A total cost of	$28.00

This makes a cost of about 9 cents per pound of butter produced, for feed alone. The balance of $37 after deducting feed expense, is by no means all profit, for practically all the work was done by hired labor. The milking, hauling the milk to the creamery and feeding the calves were no small items. We do not believe a dairyman is making a very great profit nor good pay for his labor until he is getting twice as much from his cows as the value of the food consumed."

Note the closing sentence of the above most excellent showing and take it as a tape line to measure, in most any creamery in the land, the opinions and practice of the farmers who patronize it. How many belive as Mr. Trow does? Not one in a hundred. How do we know? Because their talk, their methods, their ideas, and what they get from their cows all show that they don't believe it. Fifty out of every hundred solidly believe that all they should expect is but little more than the cost of the feed, while a large number believe they ought to be content with from 50 to 80 cents less than every dollar they spend in feed. The investigations into their actual conditions show what they believe and as they believe so do they act. Let us get these landmarks of belief and practice established, so that we can make up our minds what an intelligent dairyman thinks he ought to have and works for, and what the other kind are sweetly content not to have.

PUBLIC SALES OF HIGH QUALITY DAIRY CATTLE.

Advertisements in this and recent issues of the DAIRYMAN bear witness to fact that never before have there been such opportunities offered for the professional breeder or the every-day, up-to-date dairyman to secure the choicest specimens of high quality dairy cattle, at prices fixed by themselves. The records of the sales thus far held indicate unmistakably that, while some animals bring what may be termed fancy prices, when professional breeders compete for the possession of bulls or cows of phenomenal notoriety, the great majority are sold at prices well within the means of any progressive dairyman, and some go very far below actual value when measured by dairy ability only. We are much gratified to note in this connection also that more and more dairymen are taking advantage of these sales to introduce new and better blood into their herds.

Among the sales yet to be held, is that of Averill and Gregory at Syracuse, N. Y., June 4th, when their entire herd of some two hundred Holstein-Friesians, of both sexes and all ages, will be sold without reserve. Those who have read the "Official Records of Holstein-Friesian Cows" as published by us from time to time, cannot have failed to note that the name of Averill and Gregory has appeared so often, as owner of cows admitted to the Official Advanced Registry of that breed, as to justify their claim that their herd contains the largest number of officially tested cows in the world.

This is therefore an opportunity which neither breeders nor dairymen can afford to neglect. We realize how difficult it is for the practical dairyman to attend these sales in person, but it is a simple matter and an entirely safe practice to authorize some person to represent them, and submit bids for them under specific instructions, as to price, quality, ect. Send for a catalogue to Yates Hotel, Syracuse, N. Y., or Gregorian Hotel, N. Y.

LAWS WON'T MAKE BUTTER.

In commenting on the clamor of many creamery butter makers for more rigid laws relative to the delivery of good milk to the creamery, Mr. A. W. Trow, of Minnesota, in the St. Paul *Farmer* says:

"It may seem an advantage to some buttermakers to shirk the responsibility of refusing bad milk or cream, and have this responsibility carried by the state, but laws have not the required elasticity nor exceptions. They cannot discriminate on quality. Laws can never step in to take the place of the tact and judgment of a buttermaker. If good milk, good cream, and many other good things could be gotten by making laws, we would now be subsisting on the angelic diet of the millenium, instead of milking cows to make butter. It is as difficult to legislate cleanliness as Godliness into us farmers. Better results will be obtained by politely, kindly but firmly, refusing all unwholesome milk or cream, be it one day or a week old. The greatest requisite to creamery success is co-operation among patrons, directors and butter makers; and the enforcement of drastic laws without great discretion is the quickest way of destroying co-operation.

Three years ago we heard the head man of a new creamery say that the easiest way to get along with a crowd of farmers, was to lay down a set of iron clad rules with severe penalties attached, draw a distinct line and whenever one of them failed to toe the scratch in complying with the rules, to unceremoniously annihilate him. With the aid of this policy it took this man but two years to completely annihilate the creamery.

The farmer will stand coaxing and reasoning but no bluff."

It is almost universally true that those creameries are the most successful that possess butter makers that have a kindly, patient tact and the disposition to get out among their patrons and convince them of the great value of better methods.

MUCH IN LITTLE.

Many things in few words are conveyed in the following conclusions from a hog feeding experiment by the Nebraska Station. Corn, shorts, skim milk and alfalfa were used as foods.

Four lots of hogs of five each, were fed twelve weeks. Lot 1 fed on corn meal alone consumed 587 lbs. each and made a gain of 78.6 lbs. each; taking 7.4 lbs. food for one lb. gain. Lot 2 consumed 585.4 lbs. corn and 117 lbs. skim milk, making a total gain of 132.6 lbs. each and requiring 5.2 lbs. dry matter for one pound gain. Lot 3 were fed corn meal and shorts in proportion of four of corn meal to one of shorts. The hogs of this lot consumed 592.3 lbs. and each gained 101.6 lbs. requiring 5.8 lbs. of dry matter for 1 lb. gain. Lot 4 were fed four pounds of corn meal to one of alfalfa. They consumed 593.5 lbs. each, and made a gain of 161.6 lbs.; 5.8 lbs. of dry matter to 1 lb. of grain. The conclusions of the report are as follows:

Reckoning alfalfa at $7 per ton, shorts at $12.50 per ton, corn meal at $12.00 per ton and skim milk at 15 cents per hundred, the cost of making 100 pounds of gain from corn alone was $4.48; from corn and skim milk $3.97; from corn and shorts $3.53: corn and alfalfa $3.40. The skim milk hogs are reported to have been more hearty feeders, and although they made much the heaviest gains, yet the increased price of the protein when fed in the form of skim milk, considerably increased the cost of making a pound of gain over and above that of shorts or alfalfa. An examination of the carcasses after slaughtering revealed the fact that the alfalfa fed hogs showed much thicker streaks of lean and much thiner layers of fat meat than did the corn fed hogs. The bones of the corn fed and alfalfa fed hogs were tested for strength. One bone from a corn fed hog broke under a pressure of 320 pounds and the other at a pressure of 330 pounds. The same bones from the alfalfa fed hogs supported a pressure of 500 pounds and 520 pounds, respectively, before they gave away.

The hogs weighed 128 lbs. each at commencement of trial.

SOME DUAL-PURPOSE FACTS.

The foundation objection to the dual-purpose idea for dairy purposes is that such cattle are not prepotent in the transmission of dairy capacity to their progeny. The instances of such cows as are so often cited to us as convincing proof of the soundness of the idea, are in fact no proof at all that it is a practicable thing to breed such cattle to a profitable average from the dairy standpoint.

Mr. Frank D. Ward, of Batavia, N. Y., is writing some very instructive articles to the *Tribune Farmer* on "Types in Breeding." We take the following extract from the issue of April 16 to show his experience, and we may say that of thousands of others, in this vain desire to secure a cow that shall bring the largest profit both for milk and beef and still breed true to such mixed purpose.

Mr. Ward says:

"But how does the general or dual-purpose animal compare with those bred for a special-purpose, and which will return the greatest profit during their life on the farm? I well remember some animals I have owned whose merit impressed me forcibly. One of them was a pure bred Short-horn cow, Hope VI, which was bred on the farm and was kept there until she was sold at about ten years of age. She was one of the most perfect types of a beef cow we ever owned, weighing over sixteen hundred pounds, low down and broad, with a back like a

table, and at the same time she was a most extraordinary milker. Some idea of her merit as a beef cow may be gained from the fact that she won first prize as aged cow in the Short-horn class at one of the largest fairs in the state, and at the same fair the next day she won sweepstakes prize as best dairy cow of any age or breed, in both instances having a large class of competitors. But Hope VI never bred a calf that was even an ordinary milker; and as to her dairy qualities, she was simply a "sport," without any power of reproducing the dairy qualities she possessed. In the spring of 1873 I bought two heifers which were typical specimens of dual-purpose cows; they were high grade Short-horns and were the choice from two good herds in Livingston county. I have owned a good many cows, and some good ones, but I never owned two cows that would give as many pounds of milk or butter in a year as they did. They were in my herd eleven years, but during that time I was able to breed only one heifer from either of those cows that was even up to the average as a milk cow, but that was one of the very best cows I ever owned, and she was sired by a pure Short-horn bull.

She was kept in my herd until she failed to breed at sixteen years old, but she never bred a calf that was of any value in the dairy. If I am asked to explain as to these cows, I must say they were other instances of "sports"—cows in which abnormal characteristics were developed, but they had no power to transmit these characteristics to their offspring. It is true that, as individuals, I made money on these cows, and lots of it; but I suppose that in the years I milked them the three cows dropped about thirty-two calves, of which probably fifteen were heifers, and in my desire to secure more cows like the old ones I kept on growing up heifers which were a failure in the dairy, and were sold as second-class beef. Thus they robbed me of all the profit I made on the phenomenal cows that bred them. After balancing some books and doing some hard thinking, I sold all the dual-purpose cows and bought Jerseys for the dairy."

The true purpose of a dairy cow is twofold. (1) To produce milk to the best possible profit. (2) To contain within her the elements of procreation that shall perpetuate and if possible increase dairy quality in her daughter. The dairy sire must have within him the same and indeed more dairy prepotency than the cow or else he is a costly failure.

Dairy prepotency and beef prepotency are qualities which move in diametrically opposite directions. No man ever developed dairy qualities in the coming offspring by breeding to strong beef heredity, nor *vice versa*. Yet, there is not a so-called dual-purpose Short-horn or Red Poll bull in existence which does not show clear and unmistakable beef heredity in both form and pedigree. If he begets a good milker she is a sport, and in four cases out of five as a rule she will not in turn produce profitable milkers. But even if the cow would breed towards dairy quality, if well mated, where will we go to find a dual-purpose sire with sufficient dairy heredity in him to reinforce the desired tendency in the cow? Looked at either as a matter of breeding science or for profitable dairy results, the breeding for dual-purpose is, we believe, a myth, which no well posted dairy farmer can afford to indulge in for reasons that he can spend his money and time to much larger purpose and profit.

The Latest Silo Suggestion.

ED. HOARD'S DAIRYMAN:—Do you think the plan for a silo submitted herewith to be practical? We would like your opinion and also that of the subscribers to your most valuable paper. Silo to be 14×30, built in barn, of fir timber, well seasoned and well tarred 1×3 strips dressed to a bevel, so when nailed together flatwise, they will make a 14-foot circle and the wall will be 3 inches thick, and nailed with 8d. nails, each nail penetrating the third strip, and hooped with ⅝ round iron, a good foundation, and floored with Portland cement.

Sumas, Wash. W. H. R. & SON.

A silo built as suggested would probably be all right, but certainly no better than one built of thicker lumber or one built of ordinary 2×4's. We question very much whether the beveling suggested would be of any benefit whatever. Indeed, we think the chances are that it would be a detriment because of the impossibility of securing a uniform bevel. The amount to be taken off of each strip would be only one-thirtieth of an inch and it would be very difficult, not to say impossible, to run the pieces through any machine so as to secure just this amount of cut, and no more, throughout the entire length of the strip. As indicated above, we do not consider the three-inch wall any advantage. Indeed, the silo on the farm of the present writer, standing out without any protection whatever from the weather, in a climate quite as severe as any that can be found in the state of Washington, has walls only a scant inch and one-half thick and we have yet to observe any indication that this thickness of wall is not as satisfactory as any other, provided the lumber is of proper quality. In our own case we used selected cypress lumber, primarily, because we could not get, at the time, in our local lumber yards, any pine or hemlock that was reasonably free from shakes and sap. Although the cypress cost us us $40 per thousand, we are inclined to believe that it was a more economic purchase, all things considered, than it would have been to pay $15 or $20 for either pine or hemlock.

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INQUIRIES AND ANSWERS.

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Feeding Value of Alfalfa Hay.

Will you kindly give me some information regarding alfala hay. I find I can buy it delivered at my place for $18.60 per ton. It comes from the far west. I am short of pasturing and have to depend on soiling crops. Can I afford to feed alfalfa at the above price, and would it enable me to cut my grain ration any, either summer or winter? When good, clover mixed hay is worth $16 here, would alfalfa be more profitable to buy at $18.60? Grain costs us about as follows:

Gluten, $32 per ton; bran, $23; corn meal, $24; oats, $47. We send our milk to Boston; average price for six months, 26½c per 8½ qt. can.

Warren, Mass. H. M. C.

Very much will depend on the quality of the alfalfa hay shipped in from the far west. Perhaps as good a way to judge of quality, in the absence of chemical analysis, would be to observe whether the leaves are still adherent to the stem or whether a goodly portion of them have been lost. In the latter case, the probabilities are, either that the alfalfa was too ripe when cut, or that it was more or less damaged in curing, and in either event, is of inferior quality.

The following table gives the percentages of digestible nutrients in the several feedstuffs mentioned, when of average quality:

Alfalfa hay	52.8
Clover hay	46.4
Mixed clover and timothy	48.0
Ground corn	84.3
Gluten feed	80.1
Gluten meal	78.9
Oats	66.0
Bran	58.0

From this table it will appear that one pound of ground corn contains as much digestible nutriment as one and one-half pounds of bran, and five per cent more than gluten feed. Corn is therefore much the cheapest of the grain feeds mentioned and it is also the most natural complement to alfalfa hay. The only difficulty is that it is seldom profitable to feed ground corn alone as it is so concentrated that much of it is apt to be undigested. It should therefore be diluted with chopped feed of some kind, or with bran, or oats. On the mere basis of contained nutriment, a mixed clover and timothy hay at $16 per ton is a trifle cheaper than alfalfa at $18.60, but the alfalfa hay carries so much more protein that it would probably be a cheaper feed to go with soiling crops than the mixed hay, and this more especially, if the alfalfa is of good quality.

Variation in Cream Test.

Will you please tell me if the test of cream for April should be about the same as for March, where the conditions are as near the same as it is possible to make them? The same cows, same feed, milked by same persons, same separator run in same manner, no change in cream screw. Also should cream shipped every day test less than when shipped twice per week? My cream tested 12 points less in April than in March.

Longford, Kas. A. D. A.

There is no regularity in the quality of cream from month to month. The amount of fat present may be higher or lower than the preceding month, and no reason can be given for the same, nor any indication as to how much change there would be. Moreover, it is impossible to keep the conditions the same from month to month. If nothing else is changed the cow is always a varying factor, both in amount and quality of milk produced. A dairyman who sells milk or cream should always have the apparatus to test his products. He would gain much important knowledge that would be useful in his business. Cream should test the same whether shipped every day or once in several days.

A New York Ration.

Please give me a balanced ration from the following feeds:

XXXX distiller s dried grains at $24 a ton; bran, $17; Buffalo gluten feed, $21; good corn silage, well eared, with good hay, half clover and half timothy. Cows largely in full flow of milk. Would it be advisable to feed entirely of distiller s grains? H. A.

Williamson, N. Y.

There is not much to choose between the dried grains mentioned and gluten feed at the prices stated in the above communication. The dried grains carry approximately ninety per cent of digestible nutrients and gluten feed eighty per cent. We consider either of these feeds cheaper than bran at $17. It is our judgment that a daily allowance of four pounds of gluten feed and two pounds of the dried grains, fed half at night and half in the morning, with a teaspoonful of salt at each feeding, with what silage and hay the cows will care to eat, will furnish a very satisfactory ration. We do not specify the precise amount of silage and the precise amount of hay as these must be regulated very largely by the amounts available. If there is silage enough to make it profitable to carry something over for summer feeding, we should feed the silage quite sparingly. On the other hand, if there is but little silage left, we should feed more liberally, and in any event, feed all the hay the cows will eat without waste.

Time for Seeding Mangles—Oats—Corn for Silo.

I want to plant 2 acres of mangles or cow beets. When is the best time to plant and how far apart should the rows be and the best way to keep them for winter?

About how late in the season will it do to seed oats to harvest and thresh?

About when shall I plant corn for silo?

Racine, Wis. G. S. K.

It has been demonstrated over and over again, that the best way to raise mangles is to plant the field to corn. More feed and better feed can be raised in this way than by growing root crops. However, if this correspondent is disposed to grow the beets, let him plant the seed whenever the ground can be put in good condition. The rows should be far enough apart so that they can be cultivated by machinery. It is not an easy matter to store a large amount of beets for winter use. They must be kept away from the frost, but must not be kept in too warm a cellar, and must be provided with proper ventilation; which are additional reasons why Wisconsin farmers should prefer to raise corn for silage rather than roots of any kind.

It is already so late in the season that the present writer has concluded not to sow any more oats but rather devote the land to corn. It is quite possible that oats sown at this time, or even later, might ripen, but the chances are that the severe heat and drought would cut the yield down very materially.

We should expect to get a good crop of corn for silage planted in this latitude as late as the 10th of June, provided, the ground was in proper condition at time of planting. We should, of course, prefer to plant earlier, if conditions warranted it.

What Grain With Pasture.

I am interested in dairyIng and would like your advice on the feeding question. I have a dairy of ten cows, and send the milk to a company creamery where the milk is tested and I am paid according to the amount of butter fat. I have never fed grain. Would it pay me to buy oil meal at $23.50 per ton and other grain to balance the ration and feed my cows during the summer? If so, what grains would you advise me to buy and what ration to feed twice a day? I am a reader of your DAIRYMAN and am well pleased with it.

Otter Lake, Mich. H. S. W,

When pastures are at their best, it is doubtful whether feeding of grain is especially profitable, but unfortunately, they are not at their best except for a very few weeks, and then, in our judgment, it does pay to feed more or less grain, the amount to be determined largely by the kind of cows kept and their condition as to lactation. Enough grain or other material should be fed to prevent any undue shrinkage, for when shrinkage is once established, it is difficult, if not impossible, to again bring up the milk flow.

It is perhaps an open question whether good hay in connection with good pasturage is not equally as efficient as grain. We consider a mixture of bran and ground corn or ground corn and oats a very satisfactory feed to supplement the pastures.

A Plastered Silo

I want to build a silo by setting up studs and lath and plaster with cement. How will I manage with the hoops? Won't those hoops break lath and cement if put them on top? How much will I save by putting up one like this, or concrete silo, and which do you think best? P. W. B.

Naumburg, N. Y.

In answer to the above inquiry and for the information of others who may not have read it last year, we republish in this issue, Mr. Gurler's description of the manner of building a silo, with inner surface of cement plaster. Not only Mr. Gurler, but others who have had experience with silos, are of the opinion that this form of silo is not only the cheapest, where durability is considered, but is also the most effective in providing an air-proof structure.

What Grain to Feed with Soiling Crops—Corn or Sorghum—Saving Alfalfa Seed.

In order to get best results from cows, what kind of grain ration would you advise feeding while soiling this summer? Bran, $16; oats, $20, and corn, $21.40 or possibly more. Won't clear bran be the most profitable?

Do you consider sugar cane an improvement over corn in any respect for fodder or soiling? Can it be drilled with an ordinary corn planter, or will it be too thick?

I am trying to get a stand of alfalfa. I got 20 lbs. of seed from the Department of Agriculture at Washington, furnished free with the understanding that I am to save the seed and sell back to them. I sowed it over two acres with a thin nurse crop on high clay soil. If I get a stand I will report results. Does alfalfa ever bear seed in this section, and if so, what crop? Would you advise sowing alone or with a nurse crop?

Oshkosh, Wis. R. F. M.

See the answer to H. M. C., of Warren, Mass., in this issue, for a statement as to the relative feeding values of bran, oats and corn. The kind of grain to be selected to feed with soiling crops will depend very largely upon the kind of soiling crops available. With clover, or alfalfa, or oats and peas, a mixture of one-third bran and two-thirds corn would be perhaps about right. If the soiling crops consisted of rye, or green corn, or other highly carbonaceous foods, a mixture of bran and oats, or bran and gluten feed, would be more appropriate. We do not consider sorghum an improvement over corn in any respect for fodder or soiling except that it has a reputation of standing the drought much better than corn; but these are questions that have been so frequently considered in these columns, in recent issues, that it does not seem profitable to go over the ground again.

Reasoning from analogy, we should expect the third crop of alfalfa to furnish the most and the best seed, but what amount can be expected to the acre in this climate has not been as yet determined by experience.

What to Feed Dairy Cows?

Would you please advise me through your valuable paper what feed to feed to dairy cows to obtain best results, and also give me a balanced ration for same? I am a new subscriber and like your paper very much.

Dayton, Ohio.

It is one of the fortunate things connected with dairying, that one is not limited, even for best results, to any particular line or class of feeds, but can use very largely whatever he can best produce on his farm, or can exchange at good profit farm-grown products for different kinds of commercial feeds. When there is such a wide latitude for choice, it is impracticable for us to even suggest to this inquirer what would be the best feeds for him either to raise or to buy, but if he will tell us what kinds of feeds he has on hand or can procure, we shall be very glad to offer such suggestions as the situation may seem to make most opportune.

Moldy Silage.

What is the cause of moldy spots in otherwise perfect silage? Round silo, new. Spots in the center, mostly six inches in diameter, tapering to nothing up and down, perfect all around above and below. M. B. D.

Such spots of mold in center of silage usually come from the corn being too dry when put in silo. The trouble can be obviated by a thorough wetting of the silage after the silo is filled.

Butter Fat in Milk.

ED. HOARD'S DAIRYMAN:—How much butter fat is there in 647 pounds of milk testing 4.10 and 447 pounds testing 3.80, and how much butter would it churn? What would be the average?

A READER.

Marshfield, Wis.

In the 647 lbs. of 4.10 milk, there will be 26.5 pounds of fat, which with ⅛ overrun, will make 29.8 pounds of butter. In the 447 pounds of 3.8% milk, there will be 16.98 pounds of fat, making 19 1 pounds of butter. The above butter yield is theoretical, the actual creamery returns may be a little above or below these figures.

The Minimum Amount of Protein in a Ration.

ED. HOARD'S DAIRYMAN:—In studying the results of last winter's work in our experiments on nutrient requirements in milk production, I find almost identical results as reported in Bulletin 79 when similar methods of making comparisons are employed, but by making total digestible matter consumed daily, a basis instead of net nutriment, as was done in Bulletin 79, it appears that the ration containing a low per cent of protein was not as effective as was the one containing more protein. The same results are obtained with the work of the herd for the winter of 1901-2, if similar methods of comparison are employed.

To illustrate, let us take the total digestible matter consumed daily and butter fat yielded daily by the two groups of cows receiving the most and least protein each year as a basis:

YEAR.	*Protein.*	*Total Digestible matter daily.*	*Butter fat daily.*	*Digestible matter to 1 lb. butter fat.*
1901-2	2.04	14.36	1.260	11.40
1901-2	1.32	13.58	1.182	11.48
1902-3	2.02	14.18	1 050	13.50
1902-3	1.24	12.27	.900	13.62

From this it will be seen that by disregarding the food of maintenance the group of cows receiving the most protein, both winters, returned a pound of butter fat for a trifle less nutriment than did the group receiving less protein.

This gives the results exactly as they are obtained without attempting to account for the nutriment used for product and that converted to maintenance. The fact that the group receiving 2.04 pounds of protein and 14.36 pounds of total nutriment daily maintained 890 pounds of body weight and returned a pound of butter fat to 11.40 pounds of nutriment, while the group receiving 1.32 pounds protein and 13 58 pounds of total nutriment daily maintained 846 pounds of body weight and returned a pound of butter fat to 11.48 pounds of nutriment, gives evidence that the former ration was the more effective.

The same is the case with the work done last winter when the group receiving 2.02 pounds of protein and 14.18 lbs. of total nutriment daily, maintained a body weight of 878 pounds and returned a pound of butter fat to 13.50 pounds of nutriment consumed, while the group receiving 1.24 pounds of protein and 12.27 pounds of total nutriment daily maintained 825 pounds of body weight and returned a pound of butter fat to 13.62 lbs. of nutriment consumed. While the difference in nutriment required to a pound of butter fat is small, the testimony is quite strong, because of the large number of cows employed, and because when the least amount of protein was fed, the difference in the nutriment required to a pound of butter fat was the greatest.

The small amount of nutriment required to a pound of butter fat by both groups in 1901-2 is accounted for by the fact that both groups lost in body weight during the winter, while during the winter 1902-3 their normal body weight was maintained.

The group of cows that received 1.32 pounds of protein daily, weighed 846 lbs. and had therefore at the rate of 1.56 lbs. of protein per 1,000 pounds live weight, and those that received 1.24 pounds of protein in the winter following, weighed 825 pounds and had at the rate of 1.50 pounds of protein daily. The minimum amount of protein for normal work is therefore above 1.50 pounds per 1,000 pounds live weight.

It seems quite likely that the table submitted on page 104 in bulletin 79, is very close to the actual requirements, when vigorous vitality is to be maintained, foetal growth to be provided for and a maximum yield secured. This practically called for a ration containing a nutritive ratio of from 1:6.5 to 1:7.5, dependent upon the flow of milk and weight of cow. At least for the time being, a wider ration is not recommended.

It will be seen that each year the group of cows that received the larger protein supply maintained greater weight of body and produced butter fat with less nutriment.

T. L. HAECKER.

Minnesota Experiment Station.

Saving and Using Liquid Manure.

ED. HOARD'S DAIRYMAN:—I have noted the questions asked by A. B. C. in your issue for Feb. 15 in relation to liquid manure and what to do with it, also what you have to say in reply.

Will you permit me to add a little to what has been said? There is a farm a few miles away on which the urine from the stable has been used for several years with excellent results. There is a large new barn with basement stables—all above ground, having cement floors so constructed as to discharge the urine in the center underneath, where there is a capacious cistern. In applying this liquid, a large tank made for the purpose is placed on a wagon or sled, and filled directly from the cistern with a good-sized pump, and is so arranged as to discharge it evenly on the land where wanted. It is mostly put on grass land. This has to be done when there is snow on the ground to prevent injury to the grass. A light snow is all that is needed. It can be put on plowed land at any time when not occupied with crops.

The effects thus far have been very satisfactory, causing a large production of grass and hay. Last year where this liquid and manure from a hog pen having a cement floor were used side by side on grass, the difference between the two was plainly visible, so much so as to excite remarks from the neighbors. Where the liquid was applied, the results were decidedly the best. This certainly shows that there was considerable virtue in this kind of fertilizer, and in such available form as to produce quick and good results. It is possible that the effects from stable manure might be more lasting than the liquid.

It is possible, if there could be sufficient absorbents used to retain all of the liquids, that this would be the better way to dispose of them, but I am satisfied that this would require a water-tight floor and a large amount of material to be used as absorbents.

Previous to the present winter, plank floors have been used in the stables of the writer. The cows have been bedded

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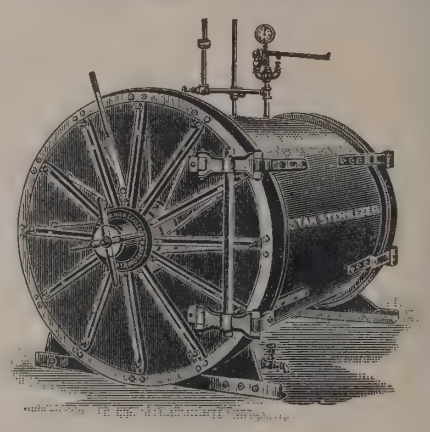
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twice a day with cut straw, which should add to its efficiency in absorbing liquids, yet despite this a considerable portion of the liquid passed through the floor between the planks and was practically lost.

Last season a cement floor was put in, along with two cisterns, to catch the liquids, if these were not all absorbed with the cut straw. Although the straw has been used as freely as before, yet there is a large portion of the liquid that passes into the cistern.

As this is our first experience with this kind of fertilizer used alone, will have to wait until after harvest to judge more particularly of its effects upon the grass-land, to which it is being applied. Shall expect a favorable response however. There is some satisfaction to us eastern farmers in being able to save and utilize the entire amount of the manure product, whether solid or liquid.

I wish here to say a word in favor of running the straw or other coarse material to be used for bedding, through a fodder cutter.

Where there is the necessary machinery on the farm for the purpose, the expense of cutting will be very small, and it will be found that the cut straw is much better for bedding, as it can be applied more evenly, goes farther, absorbs more of the liquid and adds to the ease and convenience in handling.

We feed no straw, but all is used for bedding, and a large amount is required for the horses, cows, pigs and other young animals.

But there is much satisfaction in finding that the supply of manure is being materially "extended" from the practice, and that the land is growing richer and the crops more abundant, and this is the doctrine the DAIRYMAN is persistently trying to inculcate into the minds and methods of its readers. E. R. TOWLE.

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Progressive Education at the Prince Edward Island Dairy School.

Butter Making Discussions.—Some Pointers About Furnishing Clean Milk.

ED. HOARD'S DAIRYMAN:—The Dairy School opened at Charlottetown last week with a large attendance of students, principally Island cheese and butter makers. The school is in charge of Prof. Zufelt of Ontario and Provincial Inspector Morrow. There are over one hundred and fifty cheese makers in the Island. Only about one-third of them have however attended the course.

Following are notes on one of the lectures delivered by the professor, who in the words of Prof. Robertson, presented hitching posts for the thoughts of his hearers.

MILK FOR CHEESE FACTORIES AND CREAMERIES.

The cheese or butter maker's success will largely depend on his ability to get milk free of all injurious germs. The character of the milk determines the character of the cheese or butter; therefore the absolute necessity of having a first-class quality of raw material. The quality of the milk is influenced by:

1. The individuality and health of the cow.
2. The food, water, soil, etc.
3. Bacterial infection.

Milk is a product manufactured directly from the blood. Anything which affects the blood affects the milk.

Milk from diseased cows or cows in poor health should always be rejected.

Flavors produced by food, etc., are distinguished from bacterial flavors by the fact that food flavors are always most pronounced at the time of milking, while, on the other hand, the flavors produced by bacteria may not be perceptible at first, but gradually grow worse. Bacterial influences are the hardest to counteract and most to be feared. The milk from a healthy cow fed on good, wholesome food, is comparatively free from all germ life.

The first source of infection is at the time of milking, either from the cow's body or from the surroundings. Use, therefore, precautionary measures rather than curative. Cleanliness, sunlight and pure air are our most effective weapons in fighting bacterial taints.

PRECAUTIONARY MEANS.

All utensils should be thoroughly washed and scalded and kept in the open air in direct sunlight, in a place free from all dust and bad odors.

Have the cow's body, especially the udder and flanks, thoroughly brushed and cleaned and wiped off with a clean, damp cloth before milking. The milking should be done in a clean place, free of dust, and with clean hands. If the milking is done in the stable or barn yard, have it removed as quickly as possible.

Bacteria develop fastest at a temperature from 80° to 100° F., and are almost entirely dormant at 50° F. One single germ under favorable conditions will produce in 24 hours, 16 million. Milk may also be contaminated by keeping it too near the barn yards, stables, pig pens, under trees, by the road side, or any place where dust or bad odors abound. Old, leaky milk cans, filthy strainer cloths, and general uncleanliness are prolific sources of contamination.

Milk may also be affected by the condition of the factories, such as dirty whey tanks, bad drainage, bad water, bad floors, and flies, which act as a medium of conveying the filth germs to the vats.

1. Cleanliness is absolutely essential.
2. Do the milking in as cleanly a manner as possible, in a clean place, free of dust and bad odors.
3. Use a strainer more as a precaution than a necessity.
4. Wash all pails, strainers, etc., thoroughly and then scald.
5. Cool the milk, especially in warm weather, to below 60°.
6. Keep the milk in a clean place, free of all contaminating influences.

P. E. I. J. A. M.

The General-Purpose.

ED. HOARD'S DAIRYMAN:—I have been reading so much lately about general-purpose cows, general-purpose barns, general-purpose horses, general-purpose men and etc., that I am anxious to learn more about this general-purpose, and, if possible, get into the seed of it, if it does not come too high. Now, the first thing is a general-purpose barn. We are having a new railroad built near us, and there is much trouble about us getting a depot, and I would like a barn to keep my cows and feed in and at the same time use it for a waiting room and depot and possibly run a small hotel in it too. Please give instruction how to build a general-purpose barn.

Next, we have been out of a trusty driving horse for some time and the last one smashed up the buggy, and as my mower is getting old, I thought I would get a general-purpose mower, and as it was in use only a few days in the year, we could use it for an automobile.

We have a DeLaval separator that has given us splendid satisfaction as a skimmer for the last five years, but our sewing machine is played out. If I could trade this separator for a general-purpose one and then use it for a sewing machine, it surely would be a great saving. I don't see why these general-purpose manufacturers do not advertise more. I have seen some general-purpose barn plans, but upon examination I found they were intended expressly for diversified farming and were as especially built for that, as a cow barn or depot. There is a lot more of these general-purpose articles I want but will not mention them now but wait until I find those named. R. CLAWSON.

Butler Co., O.

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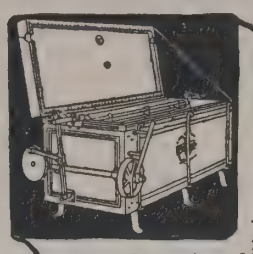
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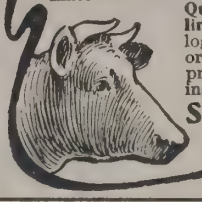


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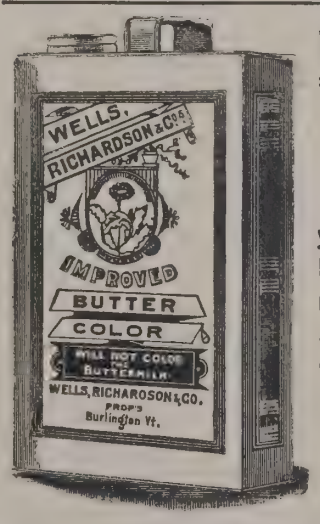
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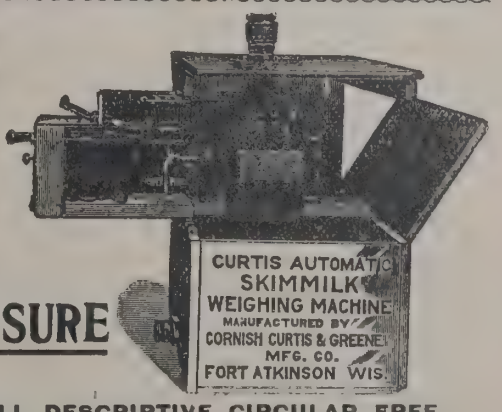
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As to the Overrun.

Conversion Factor for Estimating the Yield of Butter from the Amount of Fat in Milk—Sensible Conclusions by the Holstein-Friesian Register.

In its issue for May, 1903, the *Holstein-Friesian Register*, discusses the relation of butter fat in the milk to standard commercial butter, as follows:

The Associated Experiment Stations, through Prof. F. W. Woll, of the Wisconsin Station, have called the attention of our Association to what they consider as defects in our rules for official tests. As given by Mr. Hoxie, the changes which they suggest are three in number; the most important of which relates to the per cent of fat which shall be considered equivalent to a pound of butter. The original rule adopted by the Holstein-Friesian Association made 83⅓ per cent of one pound of butter fat, as found in the milk by the Babcock test, equivalent to one pound of finished butter; and this rule stood till the Annual Meeting of '94. By this rule one-fifth was added to the amount of butter fat produced by the cow to determine the amount of butter with which she should be credited.

At that time the rule was perfectly fair, butter being more heavily salted and not worked so dry as at present; butter containing 82½ per cent fat being considered of high grade.

There has been much dispute as to whether or not the rule of 80 per cent of a pound of fat equivalent to a pound of butter really was established at the World's Fair in Chicago in '93, those denying it claiming that Chief Buchanan changed the rules in the heifer test in the interests of economy, and for that reason only. But that plea is rather technical than correct; for while the rules did require that all comparisons of cows should be made on the basis of 80 per cent of a pound of fat in the churned butter equivalent to one pound of estimated butter, in test No. 4, or the heifer test, the rule was set aside, and 80 per cent of one pound of butter fat in the milk taken as the equivalent of one pound of butter.

Also, in making his report to the Exposition Committee and the Jersey Cattle Club, Mr. Valancey E. Fuller, superintendent of the Jersey Herd, in all instances where the butter was not actually churned, and where he wishes to make comparisons, uses the formula of 80 per cent of a pound of butter fat in the milk equivalent to a pound of butter.

Again, as the losses of butter fat with good work are slight, it may well be claimed that there is no very great difference between taking 80 per cent of a lb. of fat in the churned butter, or 80 per cent of a pound of fat in the original milk, as a basis to work from.

In order to put our records in harmony with those of other breeds, as thus established at the World's Fair in Chicago, so as to make comparisons possible, at the annual meeting of '94 our standard was changed to the 80 per cent rule, and has so remained since; something like 2,000 records having been made under the rule. By the 80 per cent rule, ¼ is added to the amount of fat given by the cow to determine the amount of butter with which she shall be credited.

During the ten years since the World's Fair of '93 there has been a wonderful growth of the dairy industry; innumerable creameries have been established, and there has been a corresponding growth in our dairy schools. The establishment of the thousands of creameries has made it possible to make millions of pounds of high grade butter of uniform quality; the dairy schools are teaching how to make it; while the creamery supply houses vie with one another in furnishing the most improved machinery to make it with; and all this makes it possible to turn out immense quantities of the best quality of butter which shall grade practically alike. Numberless analyses have shown that such high grade butter contains very close to 85 per cent fat; whereas at Chicago the churned butter was turned into estimated butter on a basis of 80 per cent fat.

It has also been learned, and is now well known to every posted man, that with the best work and the best machinery the loss of butter fat in butter making is small, and that 85.7 per cent of a pound of butter fat will make about one pound of butter 85 per cent pure fat. This is called the 85.7 standard; by which one-sixth is added to the amount of butter fat given by the cow to determine the amount of butter with which she shall be credited.

The criticism of the Holstein-Friesian standard of 80 per cent fat began many years ago, and has been a sore point with many of us, as something we could not defend. Our honored Superintendent of Advanced Registry, always on guard to protect Holstein-Friesian interests, noting this criticism, at the annual meeting at Buffalo in 1899, asked and obtained permission from the Board of Officers to make his computations of butter for the Advanced Registry both by the 80 per cent and by the 87.5 per cent rules; and for the last four years the Holstein Friesian Association has had virtually a double standard. But, while all records have been given officially to the press under the double standard, within the association, and unofficially writing for the press, we have recognized only the 80 per cent rule, and the criticism is growing more vigorous. An article is just now going through the dairy press credited to the *New York Farmer*, concerning Sadie Vale Concordia, our greatest cow. It starts off, "The thirty-pounds-of-butter-a-week cow has arrived. And further down it states that, "The record will be accepted the world over, because it is not a private record, but is made under the vigilant supervision of a representative of Cornell University." Thus, coupling the two things together, from the standpoint of the Experiment Stations it makes them vouch for the alleged fact of the great cow having made over thirty lbs. butter; whereas they will not admit that she made any such amount. In fact, it has got to the point where a great dairy paper, published in Wisconsin, virtually holds the Experiment Stations as *particeps criminis* in deceiving the public; and the stations are becoming restive.

The Holstein-Friesian breeders wish to deceive no one, and would spurn any intimation that they have any use for false pretenses of any kind. The great desire of the association is to make its system of official testing perfect; and we cannot think it will be found backward in taking any advance step required.

To those of us who have hundreds of records, as now computed, on our tongue's end, it will be a task to learn them all over again; but if this must be done, and the records already made scaled down, the sooner the change is made, the better. A matter of this kind cannot be settled for good till it is settled right; and the right in this case evidently is the computing of 85.7 per cent of one pound of butter fat in the milk as equivalent to one pound of finished butter.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

The Combined Corn and Cow Pea Planter Invented.—What Crop to Follow Rye.

ED. HOARD'S DAIRYMAN:—Will you please advise me what to plant or sow on land, after the rye has been harvested for grain, to produce winter forage for dairy cows? I thought of planting an early variety of sweet corn, and if cow peas would mature, or get of any size, it would improve the forage. Any suggestion will be appreciated.

Since seeing your article in DAIRYMAN of April 24th, page 249, in regard to a combined corn and cow pea planter, I have invented a machine that will drill or plant in hills as wanted, both corn and peas in the same row and at the one operation.

The expense of manufacturing will be but little more than ordinary planters as it consists of only two extra hoppers and plates and two small sprockets attached to common corn planters.

I intend trying to interest the manufacturers of planters to put this on the market so that it can be used for the season of 1904, and believe if there is a demand sufficient to justify, they will do so.

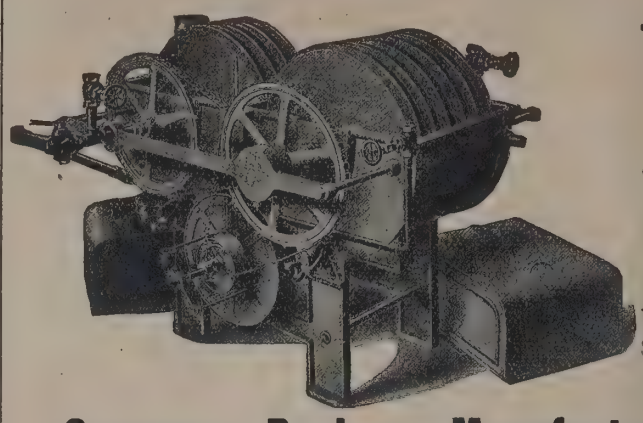
Wishing the DAIRYMAN and all concerned, success. E. B. P.

Moorhead, Iowa.

Depending somewhat upon the time the rye is cut off, we see no reason why our correspondent may not raise a very fair crop of corn and cow peas. In this vicinity, corn planted quite late in June, frequently comes forward and makes a very good crop, and cow peas should come to maturity in about ninety days.

In the matter of a combined corn and cow pea planter, our correspondent seems to have worked along lines identical with those which have suggested themselves to us. There would seem to be no reason in the world why the addi-

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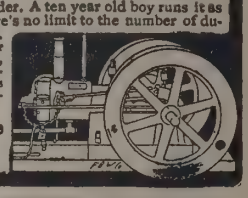
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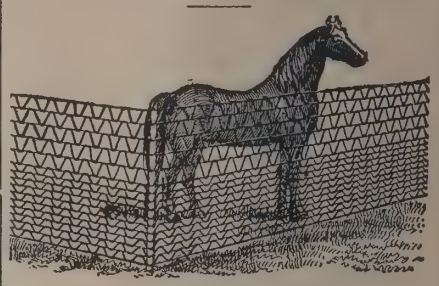
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ILLUSTRATION.



THE "HARTMAN" FENCE.

We are presenting herewith a cut of the standard and well known Hartman Stockade Farm Fencing. This fence, which was formerly manufactured by the Hartman Mfg. Co., of Elwood City, Pa., is now being made by the Cuyahoga Wire and Fence Co., Cuyahoga Falls, Ohio. We feel that this fence has been so favorably known to our readers for so long a time that we need to say little in commendation of it at this time This fence is made in four different styles and of various heights and is suited to all special and general farm uses for fencing against hogs, sheep, cattle and horses. A slight examination of the cut will show how thoroughly well the fence is made and how unusually strong it must be. The "Hartman" is an entirely interwoven fence and has no loose ends at top and bottom to unravel or to injure stock from projecting loose ends. The very manner of the weaving is such as to insure perfect expansion and contraction and even adjustment to all weather conditions. The price is very reasonable also, when the extra good qualities of the fence are considered. It is doubtful, indeed, if the same amount of money can be expended in any way by the farmer or land owner that will make such a desirable showing or so much improve and add to the value of property as in the purchase of good fencing. Those who seek all the desired qualities of a good and permanent fence and one which will at the same time add to the neatless and beauty of every enclosure, should correspond with the manufacturers of the "Hartman" fence. Ask them for a catalogue and other information about their goods and kindly mention that you saw this in HOARD'S DAIRYMAN.

YORKSHIRES A few choice imported Boars. September farrow. Also pigs from imported stock ready for delivery in 8 weeks. W. H. FISHER, Spahr Bldg, Columbus, O

tional hoppers could not be added to the planter and so geared with the other machinery as to plant alternately corn and peas.

DAIRY MARKETS.

ELGIN, Ill., May 11—Butter rulled firm on the board of trade to-day, selling at 21c. The sales for the week were 670,000 lbs.

CHICAGO, Ill., May 11—Butter—Firm; creameries, 17@21c; dairies, 14½@18c.

Eggs—Firmer; at mark, cases included, 14½@14¾c.

Cheese—New steady; Twins, 13@13¼c; Daisies, 13@13⅛c; Young Americas, 13⅛c.

Cattle—Prime beeves, 1,200 to 1,400 pounds, 5.40@5.65; choice to extra beeves, 5.10@5.40; fair to good export and shipping steers, 4.60@5.00; medium beef steers, 4.40@4.60; plain beef steers, 4.00@4.50; common to rough, 1,000 to 1,200 lbs. 3.50@3.90; good to choice feeders, 4.10@5.10; good to choice heifers, 3.90@4.60; poor to plain stockers and feeders, 2.75@4.00; fair to good cows and heifers, 3.20@4.20; good cutting and fair beef cows, 2.60@3.15; common to good canning cows 1.50@2.50; bulls, poor to choice, 2.50@4.40; veal calves, good to fancy, 5.25@6.25; calves, common to fancy, 3.50@5.00; corn-fed western steers, 3.65@5.40; Texas bulls and grass steers, 2.75@3.20; Texas steers, fair to common, 3.75@4.60.

Hogs—Good to prime heavy shipping 6.75@6.85; good to choice heavy packing 6.65@6.80; plain to choice heavy mixed 6.60@6.75; selected butcher weights 6.70@6.85; assorted light, 150 to 195 lbs. 6.45@6.65; common to good light mixed, 6.35@6.55; thin to choice, 50 to 130 lbs., lots 6.05@6.40; stags to rough lots, 3.75@6.05.

MILWAUKEE, Wis., May 11—Butter—Creamery—extras, 20c; firsts, 18c; seconds, 16c; process (renovated), 16@17c; whey, 10c. Dairy, fancy, 18c; lines, fresh, 15@16c; roll, 15@16c; packing, 13c; grease, 5@6c.

Cheese—American, new, full cream, Twins, 13@13½c; Young Americas, 13@13½c: Daisies, 14@14½c; Longhorns, 13@13½c; low grades, 10@12c. Brick, fancy, new, 13@13½c; low grades, 11@12c. Limburger, fancy, new, 11½@12c; low grades, 8@9c. Swiss, drum, old, choice, 15½@16c; drum, No. 2, 13@14c; Block, choice, 14@14½c; block, No. 2, 12@13c.

Eggs—Strictly fresh laid, cases returned, 13½c; dirties, 12c; seconds, 11c.

PLYMOUTH, May 5—Cheese — Eighteen factories offered 1,067 boxes cheese and all sold as follows: 263 Longhorns, 13¾c; 433 Daisies, 14½c; 258 Twins, 13½c; 86 Americas, 13¼; 27 Americas, 13⅜c. Market active and firm.

BRILLION, Wis., Apr. 30—Cheese—The sales were: 206 Daisies; 39 Twins and 5 cases Young Americas all at 13c.

HORTONVILLE, Wis., April 30—Cheese—The offerings all sold as follows: 116 Twins at 12¾c; 33 Twins at 14c.

APPLETON, Wis., April 30—Cheese—Eight factories offered 190 boxes of Twins and all sold at 12¾c. Next meeting May 14 at 2 p. m.

SHEBOYGAN FALLS, Wis., May 6—Cheese—24 factories offered 1,357 boxes of cheese on the Call Board today and all sold as follows: 70 Twins at 13⅜c; 127 cases Young Americas at 13⅜c; 95 at 13¼c; 24 at 13½c; 220 Daisies at 14¼c; 54 cases Longhorns, at 13⅜c; 726 at 13⅜c; 43 at 13½c. Market active and firm.

SHEBOYGAN, Wis., May 6—Cheese—On the Sheboygan Call Board today the offerings and sales comprised 1,061 boxes of cheese. Sales were as follows: 10 boxes Twins at 13c; 10 Daisies at 14c; 467 at 14¼c; 50 at 14⅜c; 64 cases Young Americas at 13c; 50 at 13¼c; 291 cases Longhorns at 13¾c; 110 at 13⅜c. Market slightly weaker.

FOND DU LAC, Wis., May 11—Cheese—Sales at the Dairy Board today were 145 Daisies at 14¼c; 70 at 14⅜c, and 35 Twins at 12¾c; 32 Twins withdrawn. Market active.

BOSTON, Mass., May 11 — Butter — Western creamery, 22@22½c: western firsts, 21½c; dairy, 16@20c; imitation creamery, 16@19c; ladle, 14@15c; box and print, 15@23c.

Cheese—Choice, 14½c; sage, 14c; Wisconsin new, 12½@12¾c; fair to good, 9@10¼c.

Eggs—Near by, 20c; Western selected, 16½c; 16½c; fair to good, 15@16c.

UTICA, N. Y., May 11—Market active, but holders sell freely. Sales, 9,500; small 11¼c, large 11c, curb ¼c higher.

NEW YORK, May 11—Butter—Receipts, 4,642 lbs.; market firm; creamery, extra, 22c; creamery, common to choice, 18@21½c; state dairy, 17@21c.

Cheese—Receipts, 1,028 lbs.; market steady; state full cream, fancy, small, colored and white, old, 13@15c; large, colored and white, old, 13@14¾c; small, colored and white, new, 12c; large, colored and white, new, 11¾c.

Eggs—Receipts, 16,012 packages; weak; state and Pennsylvania, 17c; Kentucky, 16½c; western storage packed, 17c; western firsts, 16½@17c; southern, 15½@16c.

KANSAS CITY, May 11.—Butter—Creamery, 17@20; dairy, 17c.

Eggs—Steady; fresh Missouri and Kansas stock, 12½c doz. cases returned; new No. 2 white wood cases included, 13c.

WASHINGTON, D. C. May 11—Butter—Market very firm and bare. Extras, 22c. Fancy renovated, 18c.

NEW ORLEANS, La., May 11—Butter—Market firm; extras, 22; ladles, 15c; renovated, 18c.

Eggs—15c.

NEWARK, N. J., May 11—Butter-Market steady at 22c.

Eggs—Firm at 17c.

LIVERPOOL, May 11—Butter—Good United States steady, 75s.

Cheese—Steady; American finest, white and colored 68s. Stocks: Butter, 3,900 cwts.; cheese, 16,000 boxes.

CANTON, N. Y., May 9—Offered 190 boxes of large cheese; 1,125 Twins and 756 tubs of butter. Butter sold at 21c. Large cheese, 10⅞c; Twins at 11 13-16. Ruling price, 11¾c.

PHILADELPHIA, Pa., May 11—Butter steady, fair demand; extra western creamery, 22½c; do. near by prints, 23c.

Eggs—Firm, good demand; fresh near by, 16c at the mark; do western, 16¼@16½c; do south western, 16c; do southern, 15@15½c.

Cheese—Firm but quiet; old New York full creams, choice, small, 14¾@15c; do fair to good, 14@14½c; do choice, large, 14¾c; do fair to good, 14c; new New York full creams, best here 12¾c; fair to good, 12@12½.

ST. LOUIS, May 11—Butter—Slow; creamery, 16@21c; dairy, 13@16c.

Eggs—Higher, 13c fresh near by.

BALTIMORE MARKET.

BALTIMORE, May 7—Butter—Although there has been a decided increase in the general supply, there has been no accumulation of desirable stock. The decline in values has proven quite attractive to both the local and out-of-town buyers; hence, there has been a close clearance, from day to day, of all attractive offerings. Held creamery is meeting with little or no favor, and many instances large concessions have been made in order to effect sales. Good to choice imitation creamery meets prompt sale. All fresh sweet ladles find ready sale at steady prices. Roll—Owing to the approaching warm weather, we advise you to pack all rolls solid from now-on. Packing stock, when fresh and sweet, is in fair demand; old and rancid is slighted Blocks and prints continue in ample supply for the demand. The impression seems to prevail that prices have touched bottom for a while, and at the close the market presented a steady appearanecc

Creamery Separator, extras, 22@22½c; firsts, 20@21c; seconds, 18@20c. June Creamery, extras, 21@22c; firsts, 19@20c; seconds, 18c; Imitation Creamery, extras, 19@20c; firsts, 18c; seconds, 15@17c, Iowa & N. W. Ladle, extras, — firsts, 17c; seconds, 14@16c. Ohio & Indiana Ladle, extras, — firsts, 16@17c; seconds, 14@15c. Roll, Ohio, extras, — firsts, 13; seconds, 11@12c. Roll, W. Va., extras, — firsts, 13; seconds, 11@12c. Ohio Store packed, extras,— firsts, 13c; seconds, 12c. West Va. Store-packed, extras,—; firsts, 12@13c; seconds, 11@12c. Creamery blocks (2-lb.) extras, 23@24c; firsts, 21@22c; seconds, 20c; Creamery prints (½ lb) extras, 25c, firsts, 23@24c; seconds, 21@22c: Md. Va., & Penna. Prints, extras, 23c; firsts, 21@22c; seconds, 18@20c.

Eggs—The receipts continue fairly liberal; there has been so far a very good demand, both for local consumption and for the storage purposes: the Market today closes steady at 15 cents. We omit extra quotations on duck eggs as they will not command any more than hen eggs, and it is only a matter of a short time that they will not be wanted at all.

Cheese—The stock of old cheese is pretty well exhaused. Quotations given below with the exception of Cheddars, are for new cheese.

N. Y. State—Cheddars, fine, 15@15½c; choice, 14½@14¾c; fair, 13@13¾c; Flats, fine, 12@13c; choice, 11½@12c; fair, 10@11c; Small, fine, 13@13½c; choice, 12@12½c; fair, 11@11½; Ohio Flats, fine, 12½@13c; choice, 11½@12c; fair, 10@11c; O. Picnic, fine, 13@14c; choice, 12@12½c; fair, 11@11½c; Swiss Cheese, fine, 15c; choice, 12½@13½c; fair, 10@12c.

301 Exchange Place. G. M. LAMB & BRO.

NEW YORK MARKET

NEW YORK, May 9th.—Butter—Receipts for the week, 32,666 packages. Exports for the week, 35 packages.

Receipts were less than the trade anticipated and with increased demand, owing to the lower prices, stock was quick taken on arrival and at the close all grades table butter was wanted and prices are firm with every indication of a slight advance next week unless receipts are largely increased. Extra fresh creamery sold at 22c with small premium added for high scoring goods. Firsts sold at 21½ to 21¾c and under grades at 20 to 21c.

New York state dairy in demand and sells at 21c if fancy, and 18 to 20c for good lines. Ladle and all under grades Western selling quick and prices are unchanged. We quote:

Creamery, extra, 22c; medium, 21@21¾c; poor, 16@20c Dairy, extra, 21c; medium, 18@20c; poor, 15@17c. Ladle, creamery, extra, 18@20c: medium, 15@17c; poor, 12@14c.

Cheese—Receipts for the week, 21,259 boxes. Exports for the week, 12,199 boxes.

Increasing receipts, weak and declining prices were the features of the market. Exporters were free buyers of large cheese at 11¾ to 12¼c, and home trade took small sizes at a fraction more. We quote:

Full cream, old extra, 14¼@14½c; medium, 13@14c poor, 10@12½c. Full cream, new extra, 12@12¾c; medium, 11@11½c; poor, 10@10½c.

Eggs—Receipts for the week, 95,518 cases.

Favorable weather and good steady trading caused a strong market and all desirable parcels were taken at advanced prices. We quote:

New York & Penn., fancy, per doz., 17c; Northern & Western, fancy, per doz., 16½@17c; All Sections, poor to good, per doz., 13@16c.

DAVID W. LEWIS & CO.

177 Chambers St.

NEW YORK FERTILIZER MARKET.

Nitrate of soda		2 00	@ 2 05
Blood, Dried red	₩ unit	2 65	@ 2 70
low grade		—	@ —
Concentrated tankage		15 00	@16 00
Fish guano, dried		27 00	@28 00
acidulated		14 00	@ —
Acid phosphate		60	@ 67½
Phosphate rock, f. o. b. Char'n		5 00	@ 7 00
Tenn		3 00	@ 4 00
Bones, rough	₩ ton	16 50	@17 50
ground		20 00	@21 00
Bone meal		18 50	@24 00
Bone black, refuse		18 00	@19 00
Potash, dbl. m're salt 48@53 per cent		1 12	@ 1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons		25 00	@30 00
sulph of basis, 90@98 per cent		2 11	@ 2 18
90@98 per cent less than 25 tons		38 00	@40 00
Potash muriate 100 lbs		1 83	@ 1 95
less than 25 tons		36 00	@40 00
Kainit 25% S. of P	₩ ton	9 30	@ 9 50
less than 25 tons		9 50	@10 50
Sylvinit, 35@37% P	₩ unit	41	@ 46

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—To manage a farm of 500 or more acres. Am an experienced man in handling and feeding stock for profit. Thoroughly understanding all machinery to run an up-to-date farm. Wages $50.00 per month. Wife is a gilt-edge butter maker. Moving expenses to be paid. Address for further particulrs J. B., Box 125. Peoria, Ill.

For Sale at Reasonable Prices the Following Articles—Two 20th Century Alphas, belt machines, good as new; one five horse power portable engine and boiler in elegant shape; one 40 bottle Turbine tester, used only a few times; two rotary milk pumps and one shallow well pump. Address LOCK BOX 6, Wales, Wis. 14-2

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The De Laval Cream Separators laid the foundation for the prosperity of modern dairying as an industry twenty years ago and

DAIRY PROSPERITY AND DE LAVAL SEPARATORS

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Wanted—Experienced farm hand, able to milk well. Give age and wages wanted. ST. IVES PARK FARM, Mont Clare Station, Chicago, Ill. 41-tf

The Business Herd of Holstein-Friesian cows are being closed out at a great sacrifice, and if you want one or more officially tested, good business cows write at once and secure first choice. State just what you want and save time and correspondence. F G. JOHNSTON & CO., Sta. B, Columbus, O. 11-tf

Holstein-Friesian Bulls from one to fourteen months old at prices that will surprise you. O. J. GODFREY, Pennellville, N. Y. 11-tf

Wanted—Buyer for Victor combined churn No 2, 100-gal. cream vat, 60-gal. weigh can. All the above are in A No. 1 condition, used less than 1 year. We have no use for them and will price them low to a quick buyer. For full particulars inquire of E. T. SHAFFER, Polk City, Ia. 13-2

Dairy Cows For Sale—At a bargain. Administrators will close out one of the finest herds in the state, of thoroughbred Holsteins and Jerseys, and grades, noted for milk and butter qualities Your choice of fifty head. KEWANEE DAIRY FARM, Lock Box 115. Kewanee, Ill. 13-2

For Sale—At a bargain, a large dairy farm with up-to-date and first-class improvements. Large house, 2 large barns, large silo, fully equipped creamery plant and several outbuildings. Home market for all product at prices above top of Elgin market. Would sell either with or without stock. For particulars address C. O., care Hoard's Dairyman. 13-2

For Sale—Pure bred Guernsey bulls and grade heifers. Also Early Black Soy Beans at $2.00 per bushel. A. H. HINMAN, Neenah, Wis. 13-2

A Registered Guernsey Bull 15 months old for sale. A very fine animal. Inquire of J. S. HUNTER, Pickett, Wis. 12-tf

For Sale—Four young registered Guernsey cows, all fresh. J. E. STORY, Stanley, Wis. 11-tf

For Sale—Carload of grade Holstein springers C. BOTTMEA, Stock Yards, Indianapolis, Ind. 13-2

For Sale—Or will trade for a Jersey bull from 18 months to 2 years old, a Rider engine for pumping water. This engine is in first class condition and is sold for no fault. We have a steam pump and have no use for it. For full particulars write E. T. SHAFFER, Polk City, Ia. 13-2

Two choice young Guernsey bulls for sale. MRS. A. W. LEHMANN, Neosha, Dodge Co., Wis. 12-sp

Holsteins—Owing to pressure of other business I will sell 20 head of high class registered cows and heifers. All milking or heavy in calf. No culls. Prices very reasonable. Come and pick them out. Address HENRY C. GLISSMANN, Sta. B., Omaha, Neb. 14-2

Wanted—Position by cheese maker in up-to-date factory. Dairy School experience. Also can give reference. Address L. L. H., care of Hoard's Dairyman. 14-2

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

Position Wanted—Experienced creamery manager wishes position as manager or butter maker in up-to-date creamery. Makes all by-products of milk. Taken one course at Cornell Dairy School. A No. 1 references. B. E., care Hoard's Dairyman. 11-tf

Wanted—Married man, competent to care for a dairy and work on small farm. A German with some help to milk preferred. House, garden, milk, etc. Addres BOX 46, Delafield, Wis. 13-2

Wanted—At once, expert condenser for partner. Prefer man able and willing to supply one half necessary capital. I have the raw milk at creamery and market for product in city. Address J. D. ROSZELL, 223 So. Mad., Peoria, Ill. 13-3

For Sale—De Laval "Dairy Steam-Turbine" separator, capacity 1000 lbs. per hour, used very little, in good condition. Going out of business. Address B. F. BRUNDRED, Oil City, Pa. 13-tf

Wanted—A first class butter-maker for town of 25,000 inhabitants in Mexico. Healthy climate. German-American speaking German preferred. State age, experience, and salary wanted. Should understand cheese-making and how to care for hogs. Will have house at factory and take meals free with superintendent. Address G. R., care of Hoard's Dairyman. 14-2

Wanted—Engineer and helper for butter-maker with some knowledge of butter making. Z. W. THOMAS, Ft. Dodge, Ia. 14-2

Wanted—A good sober and industrious man to take charge of a small dairy herd. Must be a good butter maker and good milker and be well recommended. State wages wanted in first letter. Address D. T. HILLMAN, Big Horn, Wyo. 14 3

Very Low Rates to California and Return—Via the North-Western Line. First-class round-trip tickets on sale May 3d and 12th to 18th, to Los Angeles and San Francisco. Favorable limits and stop over privileges and choice of routes. The overland limited, most luxurious train in the world, leaves Chicago daily 8:00 p. m. Less than three days en route. Drawing room and compartment sleeping cars, observation cars, dining cars, buffet-library cars, (barber and bath) electric lighted throughout. Three trains a day from Chicago to the coast through without change. Daily and personally conducted tourist car excursions to California, Washington or Oregon. For particulars apply to ticket agents Chicago & North-Western R'y. 8-7

To Colorado in 1903—The passenger department of the Chicago & North-Western Railway has issued a very interesting folder, giving information as to reduced rates and sleeping car service, with a short description of the various points of interest in Colorado usually visited by tourists, these excursion rates applying on account of the Christian Endeavor meeting to be held at Denver, July 9th to 13th. Send 2-centl stamp for copy, to W. B. KNISKERN, Passenger Traffic Manager Chicago. 9-6

Alfalfa for the Dairy.

[Paper prepared and read before Nebraska Dairymen's Association by J. H. C. BEEMER of York, Neb.]

In entering upon any line of work or business the object in view is the net returns that we may obtain from that work or business. It is in vain that the farmers organize clubs or institutes, it is in vain to expect to receive help from any legislature or corporation so long as he does not know that he must help himself through a sensible and practical management of his own occupation. As a farmer in Nebraska my idea from the first has been to depend mainly on stock, and not upon the marketing of grain, as a source of income, as we have worlds of summer feeds, and an abundance of native as well as cultivated grasses for summer pasture of the most nutritious kinds. But we always lacked suitable forage during our long and cold winters. Our cattle as a whole always do very well through the summer season, but, oh, how pitiful do the most of our Nebraska cattle look in the spring! Many of them lose about all of their summer gain during the winter season.

In my opinion the general raising of alfalfa, on the suitable soils, will satisfactorily settle the question of how best to provide an abundance of the very best nutritious winter food for our cattle, and keep them growing through the winter as well as through the summer. I do not intend to assert that alfalfa is adapted to, nor that it will succeed in, all sections of Nebraska. But certainly in each county there are localities of considerable extent where the soil conditions are such that the growth of it will be found to be a great success. The alfalfa root has been know to penetrate to the depth of more than thirty feet in search of moisture and plant food. It, therefore, may live and thrive where all other cultivated plants will wither and die.

The yield of alfalfa on suitable soil and under proper conditions has been with me more than twice as much dry forage per acre as I have been able to obtain from any other plant. On my farm in York county it is from sixty to seventy-five feet to water. In an average year the yield of alfalfa is from one to two tons per cutting, or from four to six tons per acre in the season.

The feeding qualities of alfalfa are unexcelled when the hay is cut at the right time and properly cured and housed or stacked. Cattle or any other stock prefer it to any other food. Our agricultural professors have been telling us that we must feed a balanced ration, as corn and other grains contain too much carbonaceous food and not enough protein. They advise us to buy and feed bran and linseed meal. Well, I have followed their advice and have bought and have fed tons of bran and linseed meal. But since I have raised alfalfa, I grow the protein, all I need of it, on my farm. A ton of good alfalfa hay contains, according to HOARD'S DAIRYMAN, 11 per cent of protein, or about the same as a ton of bran, for which I have been paying as much as $20 per ton. These professors may not figure it out that way, but after several years' experience, I do.

For the past eight or ten years I have been running a little experiment of my own, on my farm in York county. Most of my experiments have been along the line of testing the various grasses and forage plants and their adaptability to our locality and their feeding value for our stock. And I have found that alfalfa is the king of all forage plants. Last winter I fed a bunch of calves. The feeding period was two hundred days—from November 2, 1901 to May 20th, 1902. I fed them ten pounds of corn meal per head each day, feeding them twice a day. They had free access to alfalfa hay. I found at the end of the two hundred days that they had consumed thirty-six bushels of corn, and just about one ton of alfalfa hay per head. The average gain for the whole bunch was 450 lbs. per head. On May 20, I sold them at home for $5.40 per 100. When these calves were put into the feed lot on November 2, their average weight was 357 pounds. Figuring these 375 pounds at 4 cents per pound which was a fair price at that time, they paid me fifty cents for every bushel of corn they ate—what it was worth on the market—and $12.10 for every ton of alfalfa hay they ate. I was so well pleased with the result of the experiment that I want to raise more alfalfa and more calves to be fed on my farm.

The present winter I am feeding my last year's calf crop again, sixty head, and on account of our soft corn, which could not be shelled or ground, I have been feeding thus far the corn in the ear, cut in about one-inch pieces, ten pounds per head per day. I am feeding them twice a day. with free access to alfalfa. On December 11th, 1902, the whole bunch weighed 28,810 pounds. On January 17th, 1903, the bunch weighed 32,760 pounds. There was a gain in thirty-seven days of 3,950 pounds. Figuring their gain at 5 cents per pound, it makes $197.50. They ate, in these thirty-seven days, 300 bushels of corn and about eleven tons of alfalfa hay. The corn at market price was worth $75. This leaves $122.50 for the eleven tons of hay, or $11.13 per ton.

The yield of the alfalfa hay crop, last year, was at least six tons per acre, and six times $11.13 makes $66.78, the income per acre of alfalfa when fed to calves as I am doing. Surely this ought to be a good enough profit for anybody. This income from the hay crop is more than an average acre of lands sells for.

I will close by saying again that alfalfa is the king of all the forage crops or any other crops. Blessed is he who owns land where alfalfa grows, for the homes surrounded by fields of alfalfa have transformed the so-called "Nebraska desert" into a Garden of Eden.

If one-fourth of the cultivated area of Nebraska was sown to alfalfa, our people would enjoy an income from their lands far greater than that which could possibly be obtained from any other crop known to agriculture. It makes the contented cow give pails full of creamy milk, and the feeding steer will bawl for the alfalfa feed rack.

Mid-Summer Feed and the Silo.

Alfalfa in Minnesota.

ED. HOARD'S DAIRYMAN:—Although I have been a close student of the DAIRYMAN for some years past—in fact, longer than I have been dairying—I have never come to your columns to ask questions or offer suggestions, but the last few numbers of your most excellent paper have been so brim full of good things that I cannot resist the desire to voice my appreciation of them. Especially am I interested in the articles and questions bearing on the silo and silage.

After a number of years experience in feeding silage, I am fully persuaded that the silo will do more to reduce the cost and labor than any other method of storage known.

All well informed dairymen realize the necessity of providing a variety of soiling crops to supplement the short pasture of July and August. When the mid-summer sun and wind robs the pasture of much of its succulence and food value, we must provide our cows some additional ration if we would not see the milk

"ADVERTISEMENT".

POOR DOMINIE

Between the Devil and the Deep Sea.

A clergyman of Gresham, Neb., who drank coffee for many years suffered from chronic insomnia and from terrific headaches when he quit coffee. He says: "I have been a very heavy user of coffee for so long and have seen its effects so clearly that there is now no doubt in my mind concerning its injurious effects upon the nervous system.

"While a coffee user I was unable to sleep for hours after retiring at night and on the other hand terrific headaches resulted if the regular hour for drinking coffee passed and I did not get it so I was in a miserable position.

"But I found a firm friend in Postum Cereal Coffee and from the very time that I adopted Postum all these evil effects vanished. I now enjoy sound sleep and improved appetite and a decidedly clearer complexion and I am convinced that better health and a longer life would be the result of its general use. I have a friend who has been a user of Postum for several years and the story of her recovery from neuralgia of the stomach simply by using Postum in place of coffee seems almost too wonderful to be true. Many times she was near Death's door and the doctors had frequently given her case up as hopeless but she was entirely healed by leaving off coffee and using Postum. It is a pleasure to say these good things about Postum." Name given by Postum Co., Battle Creek, Mich.

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as power for the dairy have passed the experimental stage. Many dairymen now have them and all eventually must have them. The only questions to decide are the amount of power needed, and the most desirable make. With twenty-seven years of experience behind us, and a plant that has grown from 50 engines a year to 1500 a year capacity, we feel that we are equipped to build the best. There are other reasons why the "OTTO" is superior. We will tell them in this space from time to time. If in the meantime you need power, write us, mentioning this paper

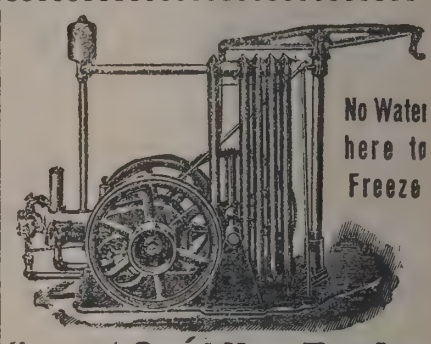
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furnish the greatest possible power at the lowest possible cost in time, labor, fuel and money. They are so simple that anybody can run them without expert training or experience. Our Volume Governor gives uniform speed. Our Acme Mixer is the most positive and economical on the market. Our Hand Starting Lever starts engine with least effort. All bearings of Phosphor Bronze. Best material and workmanship throughout. Many sizes from 4 (actual) h. p. up. Best for all farm work—cutting and grinding feed, sawing wood, pumping water, separating cream, churning, etc. Send for our free catalog before you buy. It may save you time, money and annoyance.

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If you want a..... Gasoline Engine that will be always ready to start, safe, reliable convenient, economical and durable, buy a FULLER & JOHNSON Frost Proof. No bother with water nor expense of broken cylinder, no waiting for wind or weather. All sizes, stationary and portable. Send for descriptive catalogue to the manufacturers.

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You'll always find your Tread Power ready for business. OF WHAT OTHER FARM MOTOR—Wind Steam or Gasoline—can this be said? A PERFECT GOVERNOR ensures absolutely even speed. Send for free catalogue.

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Half cent's worth saves 3 quarts milk and much flesh. Kills every fly it strikes; keeps off the rest. Harmless to man or beast NO LICE in poultry house or any place it is sprayed. If your dealer does not keep it, send $1.00 for Improved Three Tube Sprayer and enough Shoo-Fly to protect 200 cows. Cash returned if cows are not protected.

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EDITOR knows from experience Shoo-Fly is O. K.

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WRITE FOR OUR CATALOGUE

product rapidly diminish and profits go with the wind.

Those who have had experience will not deny but that it is possible to maintain a fairly satisfactory flow of milk through July and August, if a liberal amount of soiling is provided the cows, and also they will not deny that the amount of labor required to prepare a soiling crop, cut it, haul it, and get it before the cows is a very considerable item.

Without doubt—and I speak from experience—the cheapest supplementary feed to the pasture is corn silage. A man can throw the amount of feed needed from a silo in less time than he can hitch up a team to cut it or haul it from the field, and no matter what the weather may be, or how pressing the field work, there can always be found time to attend to this very important chore.

In this age of push it is very important that we take advantage of every available means of economizing labor. "Time is money," and if we so plan and systematize our work that we can accomplish as much in twelve hours as in former years required fifteen, the much mooted question of hired help will be quickly disposed of.

But, I am digressing. In addition to providing us with mid-summer feed, is it not possible to employ the silo to a greater extent? Is it not entirely practical to keep our cows in a large yard until a crop of hay is stored, and then give them the use of the meadow. This method of course is not practical on farms where a meadow is used for years, but the number is fast increasing, who look upon the permanent pasture, and the sod bound meadow as a delusion and snare. Until turned to grass, feed plentifully of good silage, alfalfa or clover hay, and the necessary grain ration. In this way, that 20-, 30-, or 40-acre field that would otherwise be devoted to pasture can be made to produce a profitable market crop. If clover seed is sown with all small grain, fall feed will be abundant, and the fertility of our farms will be protected.

Having had the pleasure of meeting T. B. Terry, of Ohio, the article on page 242, of the current volume of the DAIRYMAN, written by that gentleman, is especially interesting to me.

Some years ago we became convinced, if we would derive satisfactory profit from our dairy, two things were absolutely necessary; viz: cheaper feed and better cows. Accordingly we began a search for a forage plant richer in protein than anything we were then growing.

Upon inquiry we found that in our county, at least two men were having good success with alfalfa. By good success, I mean they were obtaining about five tons of cured hay per acre, each season. This encouraged us to try it on our farms, so last year we sowed sixty-five pounds of seed on three acres of land. It was mowed once—about one ton to the acre—and at the present time seems very promising.

We shall sow 175 pounds of seed on seven acres of well fitted clover sod about May 15th, and instead of mowing once in the season for a crop of hay, shall mow sufficiently often that the growth may be left as a mulch.

We believe that the repeated pruning of the top will tend to strengthen the root.

If we can obtain four to five tons of alfalfa hay per acre and twelve to twenty tons of corn silage, then the problem of cheap feed is solved. Combine with these feeds clover hay and corn meal in the proper proportion and the ration is all that it need be. But important as it is to have good feed, this is of little avail, except that we have good cows to consume it.

Careful breeding and close selection, aided by the scale and the Babcock test, will surely tend to improve our dairies until they shall have reached a point far in advance of that which they occupy at the present time.

I may be classed an optimist by many, but I believe it entirely within reason, to set as a goal an average of 300 to 325 pounds of butter annually from each cow, and her food produced on approximately a single acre of ground.

When we have accomplished this, we will be entitled to the distinction of having caused at least two blades of grass to grow where before there was but one.

St. Charles, Minn. A. W. MOBRAY.

Transfers of Guernsey Cattle

BULLS.

Imp. Admiral Dewey from the Isle 6121, Henry F. Sears to Wm. C. Endicott, Danvers, Mass.
Count Gwendoline 8418, Geo. C. Hill & Son to M. R. Pritchett, Wilson, Wis.
Capt. Robbie 2nd 8466, Geo. C. Hill & Son to S. J. Wright, Mauston, Wis.
Clermont 7912, Claude Moore to Baltice Meed, Delmar, N. Y.
Duffer Boy 8391, Robert Bradley to Levi Burt, Westhampton, Mass.
David Harum 7170, Fred Rietbrock to H A. Hobbs, Eau Claire, Wis.
Duke S. of Fernwood 8550, Thomas E. Brooks to John Tyler, Salem, N. J.
Grand Duke's First 8582, August Krumheuer to W. D. Hoard, Fort Atkinson, Wis.
Independence of W. 8575, Wills A. Seward to J. F. Porter, Denton, Md.
Joe Grimes 8589, D. W. Clark to Joseph S. Gray, South Windsor, Me.
Imp. Landsman of Spotswood 8515, Edward T. Price to Charles M. Seltzer, Hatboro, Pa.
Noah of W. 8573, Wills A. Seward to H. D. Cooke, Dry Brook, N. J.
Naac of W. 8578, Wills A. Seward to Darius Weed, New Canaan, Ct.
Prince Albert of Aldine 8054, Thomas E. Brooks to F. N. Frazier, Deerfield, N. I.
Ristow of W. 8576, Sirron of W. 8574, Wills A. Seward to F. A. Poth, Norristown, Pa.
Roydur of W. 8577, Wills A. Seward to B. B. Brumbaugh, Denton, Md.
Reiber's Duke 8584, Howard Reiber to H. C. Cook, Rosston, Pa.
Rozalette's Deputy 8545, Sylvester Kitchen to M. J. Bowman, Millville, Pa.
Sir Guy of Brookside 8491, Mrs. G. M. Slipp to N. W. Eveleigh, Sussex, N. B.
Saitapharnes 8583, C. Morten Smith to Dr. C. C. Morrison, Bar Harbor, Me.
Shongo of Lawton 8462, Clayton C. Taylor to Geo. P. Gardner, Brookport, N. Y.
Imp. Spotswood Cock of the Walk 8325, Edward T. Price to J. I. & P. H. McCormick, Bel Air, Md.
Tony West 8579, Nels Martenson to H. O. Holte, Shelly, Minn.
Tradition's Transit 8581, William Black to R. L. Patterson, Butler, Pa.

COWS.

Alice Roosevelt 16032, Miranda O'Day 16031, Charles J. Mangeo to Will W. Fisher, Watervliet, Mich.
Beauty of Lemon 16011 and Daphne of Lemon 16013, Andrew B. Sill to Mrs. Sarah C. Lester, Excello, Ohio
Blee 12567, Robin 13549, Lady Hunt 11941, Miss Ada Harrington 11984, Oneida R. 10292, Polly of Topsfield 13546, Queen Bountiful 12424, Rosa Raban 11544, Standard Rosie 10291, Henry F. Sears to Wm. C. Endicott, Danvers, Mass.
Bolton Queen 16028, A. H. Lyman to Daniel Webster, Berlin, Conn.
Cledo of Homestead 16019, I. V. Axtell to S. J. Conner, Kingsville, Pa.
Charity of Mapleton 13769, Dorothy Que of Mapleton 13773, Esther C. of Mapleton 13772, Hirondelle T. 12982, Hope of Mapleton 12495, Janet of Popular Grove 12490, May Queen of Mapleton 13768, Pattie of Mapleton 12506, Pauline of Norwood 12496, Princess of Ivyhurst 13255, Roxanna of Mapleton 14557, Violet of Mapleton 13770, A. J. Snyder to J. W, Paul Jr., Radnor, Pa.
Flora of Brookside 15890, Maud of Brookside 15801, Mrs. G. M. Slipp to N. W. Eveleigh, Sussex, N. B.
Fenella of Fernwood 16030, S. J. DuBois to W. H. Borden, Swedesboro, N. J.
Grandes Maizie 16025, Jessie Grandes May 15801, McMillan & Dawson to G. C. Reid, Oxford, N. S.
Lolita of Riverside 15990, Mollie Bawn of Riverside 15089, James Forsyth to Edwin Moyer, Fort Plain, N. Y.
Lady Norwood of Spotswood, 15996, P. H. McCormick to Edward Trotter Price, Broad Axe, Pa.
Martha Marshall of Lemon 16012, Andrew B. Sill to Willard Marsh, Middletown, O.
Miss Suke 14538, Chas. L. Hill to S. J. Wright, Mauston, Wis.
Mentor Maid 2nd 15616, Mentor Maid 3rd 15863, Mentor Maid's Sister 15601, G. B. Tallman to C. J. Tyson, Flora Dale, Pa.
Nancy of Lemon 15595, A. B. Sill to Clarence Childs, Middletown, O.
Natalie T. 2nd 10767, Edward Sharpless to F. M. Smith Jr., Ivy Depot, Va.
Princess Evelyn 9503, Est. J. B. Snyder to J. W. Paul, Jr., Radnor, Pa.
Paducah 14984, J. H. Livingston to G. B Tallman, Perry, N. Y.
Shafter's Fairy 15292, C. D. Fogg to C. I. Richmond, Daretown, N. J.

Peterboro, N. H. WM. H. CALDWELL, Sec'y.

History of the Holstein-Friesian Cattle.

Where can I get a history of the Holstein cattle and their various families? P. F. H.

Metz, O.

A "History of the Holstein-Friesian Cattle" by F. L. Houghton can be obtained by addressing F. L. Houghton, Putney. Vt.

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Silo Construction.

For the benefit of those of our readers who intend to build a cement lined silo, we publish plans and description of the form of silo used by H. B. Gurler, of De Kalb, Ill.:

I built my first circular, cemented silos in 1897, building three that season; the next season I built one large circular one 38 feet in diameter. By the way, I shall not build any more so large, as when I open this one I am compelled to feed the whole herd in order to keep in advance of decay. This is no inconvenience so long as I have but the one of this size as I plan to open it when the whole herd (250) are being fed on silage. Since building my first cemented silos, my old wood ones went to the bad with decay and I put circular cemented ones in their places.

With five seasons' experience I am confident that the cemented silo is the most durable of any that I know anything of. I fully believe mine will last as long as I do—if I do not live past 100 years. The cement not only preserves the contents of the silo by its air tight wall but it also preserves the wood of which the silo is built, by preventing any moisture reaching it. In case the cement cracks, and I have had very little trouble in this line, the cracks we fill by using a wash made of cement, putting it on with a whitewash brush, just the same as one would stop the cracks in a leaky cistern.

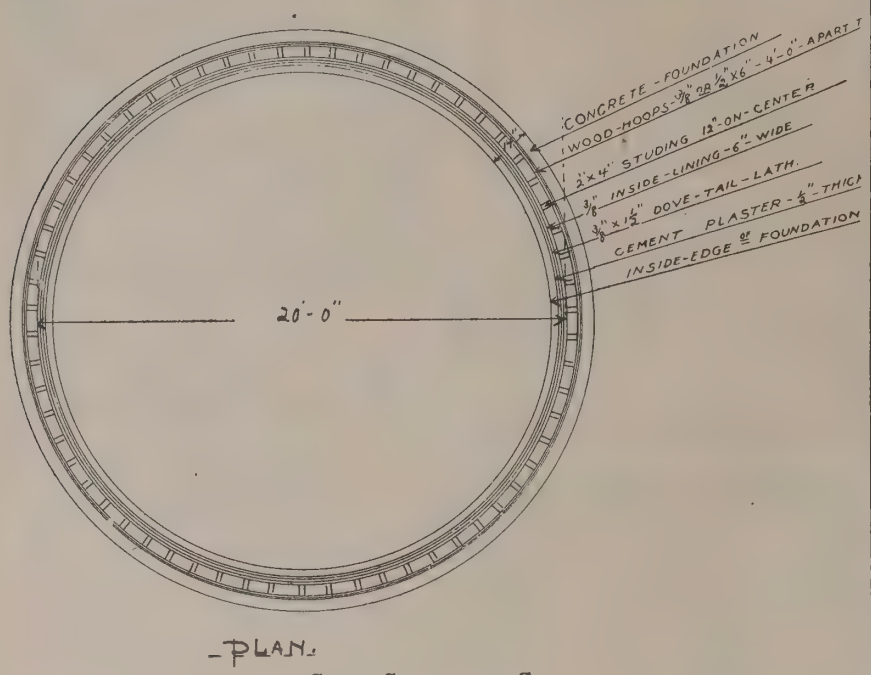
We find that this makes the cement as good as new; in fact, we cannot tell that there have been cracks.

The cost is some greater than the wooden silo, I think. The one that I built in 1898, on which I put no roof, cost me 12½ cents per square foot of surface wall. To illustrate: A silo, 20 feet in diameter, is 63 feet in circumference, and if 38 feet high, it has 2,400 surface feet which, at 12½ cents per foot, would cost $300, and it would contain 250 tons. This does not include the cost of a roof which I believe to be a superfluity, after using the roofless one four years. My silos all have clay floors which I find all right, except when there is need of guarding against vermin.

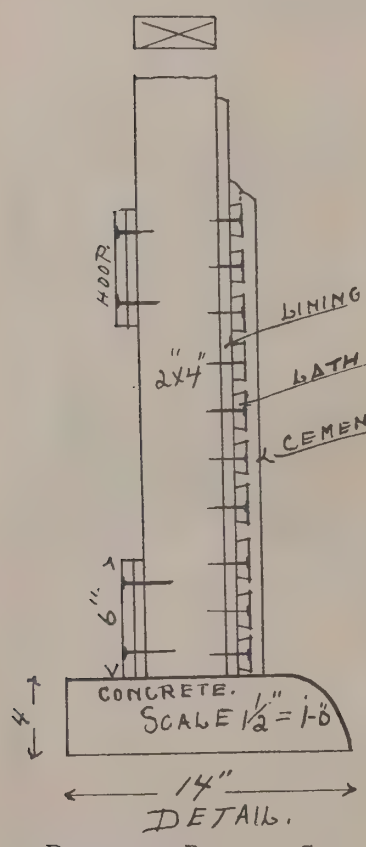
The foundation may be of stone, brick, or grout, to the proper distance above the ground. I used 2×4 studding, 12 in. centres, but I think they might be put 15 or 16 in. centres as they simply hold the material together. The inside sheeting was secured by taking six inch fencing and having it resawed, making the material a little less than ½ inch thick. On this was put lath made from the same material, the lath being sawed with beveled edges so that when nailed onto the sheeting horizontally, the same as the sheeting is put on, we have a dovetailed joint between each lath which causes the cement to hold to the surface.

The patent grooved lath might be used if they could be sprung to the circle, but I found that I could not spring them to a less than 26 foot circle without their breaking. The first three circular silos that I built were placed in a row and inclosed with a frame building like a barn. These were not sheeted outside the studding. Not being certain that I had sufficient resistance to the lateral pressure in the inside sheeting lath and cement, I put wooden hoops outside the studding, using the same material that was used for sheeting the inside, putting it on double and breaking joints. I found I could get more resistance for the money in wooden hoops than I could in any form of iron hoops. For outside sheeting I believe it would be all right to use the same material that is used inside, in which case it acts as weather boarding and as hoops to resist the lateral pressure.

A Mr. Campbell, of my county, built last year a silo after my pattern and used the common lath by first putting lath onto the sheeting perpendicular on which he nailed the common lath horizontally. I believe this plan is all right though it will not give as solid a wall as when the lath are nailed to the sheeting, as we then secure a solid wall of lumber and cement one and a half inches thick. Use the best cement and be careful to secure a clean sand and you will have a good job if your mason understands his business, and you must be sure that he does before you employ him. For this work use one part cement and two parts of sand.



Cross Section of Silo.



Details of Base and Side, Showing Hoops, Lath and Cement.

A Small Corn Husker.

Ed. Hoard's Dairyman:—In reply to Fannie M. Smith's inquiry about small corn huskers, in Hoard's Dairyman of May 1, 1903, will say that if she will write to Alfonso Walrath, Fort Plain, Montgomery Co., N. Y., she will find just the thing—a small corn husker easily run by a two horse power. L. S. St. J.

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The Evergreen Farm Herd has for sale three or four A. J. C. C. heifers bred Also a few cows and some choice bull calves from two to six months old. Write for pedigrees and prices.
N. N. PALMER & SON, Brodhead, Wis.

Some Comments on a Holstein Record.

The Food not Disproportionate to the Reported Yield of Butter Fat.

ED. HOARD'S DAIRYMAN:—I see in the official records of Holstein-Friesians in this week's issue, that of May Hartog Pauline DeKol it states that the food consumed was as follows:

Ensilage	56	lbs.
Hay	99	"
Turnips	315	"
Hominy chop	51.5	"
Gluten feed	48	"
Oats	24.5	"
Bran	45.3	"
Oil meal	22.7	"

Will you kindly give the amount of dry matter, protein, carbohydrates and ether extract in a table, and compare a daily average of it with a daily balanced ration? S. C. BROWN.

Clifford, N. Y.

We are very much indebted to Mr. Brown for calling our attention to this specific record of May Hartog Pauline DeKol, as it is more than likely that, under the pressure of other duties, it would have escaped the attention which it really deserves. As requested, we set out in tabular form below the amount of dry matter and digestible nutrients reported to have been fed this cow during a period of seven days:

	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
56 lbs. lbs. silage	14.78	.73	7.84	.34
99 lbs. hay	78.12	1.62	39.06	1.26
315 lbs. turnips	29.92	3.15	22.68	.63
51¼ lbs. hominy chop	45.78	4.43	33.37	3.45
48 lbs. gluten feed	43.20	11.18	24.33	1.30
24½ lbs. oats	21.80	2.25	11.59	1.03
45.3 lbs. bran	39.91	5.71	17.48	1.36
22.7 lbs. oil meal	20.61	6.65	7.42	1.59
Total for 7 days	294.12	35.72	163.77	11.01
Average per day	42.02	5.10	23.39	1.57

It seems almost incredible that a cow could be induced to eat such an amount of food, and still more incredible, that if eaten, it could be digested and assimilated. We are all accustomed to think that thirty pounds of dry matter containing two and one-half pounds of digestible protein, sixteen pounds of digestible carbohydrates and one pound of digestible fat is about the limit. Reducing the fat to its equivalent carbohydrates will give twenty-one pounds of digestible nutrients in such a ration, whereas, this Holstein cow consumed thirty-two pounds of digestible nutrients, or fifty per cent more than we have been accustomed to consider the limit.

But there is an important element in this record, not mentioned by our correspondent, and that is, that during the seven days when she was eating this larger amount of feed, this cow produced 23.417 pounds of butter fat—over three pounds per day, which is nearly twice as much as we should expect from a cow receiving our maximum ration as above. Stated in another way, this cow used only nine pounds of digestible matter out of which to make one pound of butter fat, whereas, it is an extra good cow that does not use at least thirteen to fourteen pounds of digestible matter for this purpose.

Taking the yield into consideration, the amount of feed eaten is not only reasonable but remarkably moderate.

These figures bring into bold relief the fact, which we have often mentioned but which receive too little consideration, and that is, that the profit from the milk product of a cow comes wholly from the amount of feed consumed in excess of that demanded for maintenance. It cost no more feed to maintain this cow than it would to have maintained any other cow of same weight, yielding perhaps less than a quarter as much. Assuming, as not far out of the way, that it required 11 lbs. of digestible nutrients daily to maintain May Hartog Pauline De Kol, there remained 19 lbs. applicable to the production of milk. In other words, only about 36 per cent of what she ate was used for mainteinance and 64 per cent was devoted to profit, whereas, as we ordinarily feed cows, these figures are at least reversed, and more frequently than otherwise the food of mainteinance is 75 per cent.



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HOLSTEINS.

Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.

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THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 23128. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148. Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.

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offers SPECIAL inducements to quick buyers. We must sell at once to reduce herd to stabling capacity. All ages, both sex. Correspondence solicited. Visitors welcome. Address,

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Do not fail to attend the Auction Sale of the Famous A. & G. Herd of 200 head. 80 head of young stock in the sale from the very choicest breeding lines. Sale at Syracuse, N. Y., June 4th and 5th, next. Catalogue ready May 25th. Address

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THE LARGE OFFICIAL RECORDS, made by members of our herd, emphasize the fact very strongly, that our breeding and selection has been most correct. If you are looking for the highest production, combined with choice breeding and individual merit, it will benefit you to place orders for breeding stock of either sex with us. We will give your wants careful attention. Prices reasonable. ABSOLUTELY BEST HERD OF HOLSTEIN-FRIESIAN CATTLE.

McADAM & VON HEYNE

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PREMIER SIRE **Mutual Friend 3d's Paul** A son of Paul De Kol & Mutual Friend 3d, 21.84 lbs. butter, milk averaged 4.7% at 3 years. She has two A. R. O. daughters; 1 made over 20lbs. Must reduce herd at some price. State just what you want T. A. MITCHELL, Weedsport, N. Y.

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HOLSTEINS THAT PAY

The kind we sell. Backed by the largest official butter records ever made. All ages, both sexes. Over 100 head to choose from.

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HENRY STEVENS & SON,
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Do not bury your money in out-of-date Holsteins, because they are cheap. Buy only best strains. Start right. It costs a trifle more, but your stock is always good for the money. The Johanna's and Mercedes' are at the front. Then buy a Johanna Mercedes bull or female. Mercedes Julip's Pietertje Paul is son of Johanna Rue 2d's Paul de Kol, and dam, Mercedes Julip's Pietertje, 29 lbs., 5.7 oz., 1901 world's butter record. He is king of sires.

HORACE L. BRONSON, Cortland, N. Y.

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offers a number of thrifty well grown calves from Officially Tested Dams at bargains for quick sale, ages three to seven months. Also two fine yearlings, and one two year old.

No Yorkshires for sale at present. Orders booked for spring pigs.

Correspondence solicited.

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offers good young cows with A. R. O. records in calf to Beryl Wayne De Kol Paul, No. 28785, whose dam Beryl Wayne has an official record of 27.87 pounds of butter in 7 days. Also four yearling bulls ready for service. Special bargains in heifer and bull calves.

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Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

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Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams, 25.1 lbs. butter in seven days. Herd numbers 125 head.

BEST FAMILIES REPRESENTED.

Special prices on six or eight bulls of serviceable age. W. B. BARNEY & CO., Hampton, Ia.

Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

HOLSTEIN BULL CALVES. **Johanna Family.** (both sire and dams). ALSO BERKSHIRES. Wright's Farm. Berlin, Wis.

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100 HOLSTEIN-FRIESIANS 100

A. R. O. Stock For Sale.

Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz Frank B. Fargo, Lake Mills, Wis.

FOR SALE.

2 H. F. Bull Calves, 6 months old. Sired by Johanna Aaggie's Paul DeKol 23443, (180 A. R.) from good milkers and testers.

M. S. CAMPBELL, Genoa, DeKalk Co., Ill.

MONONA FARM MADISON, WIS. Offers for sale a few well bred Holstein-Friesian Bull Calves. Also two Service Bulls at reasonable prices. The Monona Farm Herd is founded on the best stock of the De Kol, Netherland, and Clothilde families. Pense Johanna 29332 the head of the herd has 7 A. R. O. dams averaging 22 lbs. 3.7 oz. Junior sire Paul Calamity De Kol 31095.

THE MONONA FARM HERD.
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to improve your dairy herd with a bull whose dam has official record of 18 lbs. 6.3 oz., sires dam 20 lbs. 8.8 oz. Individual right. Price Right.

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Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN Station D., R. 1, Minneapolis, Minn.

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—OF—

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34 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by Gem Pietertje Hengerveld Paul DeKol, or Sir Ormsby DeKol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days, average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd? McGEOCH HERD is located at Lake Mills, Wis., 56 miles west of Milwaukee. For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis. Residence: National Ave. near 40th. Phone, South 1601.

HIGH-CLASS HOLSTEIN-FRIESIAN BULLS

and Bull Calves from A. R. O. dams and the best Advanced Registry sires. Cows all officially tested; I breed from no others. Correspondence from breeders and progressive ddirymen invited. Malcolm H. Gardner, Darien, Wis.

HOLSTEINS

High Class Advanced Registry Stock only. Best butter families. Stock for sale.

Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.



T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.

Wm. O. Jackson & Sons, South Bend, Ind.

Renting Out Cows.

W. B. C. asks through the *Ohio Farmer* what would be a fair rent for a herd of grade Jersey milch cows, all to be fresh soon, with a test of 4.8 per cent when fresh; remaining time, 5 per cent butter fat. Wants to keep the cows till fresh and veal the calves, then turn them over to a young farmer who feeds, pastures and cares for them for one year. The milk goes to a creamery that paid last year 18 to 29 cents for butter. What portion of the money should he receive for the use of his cows, all in good condition?

This is a singular phase of dairy work and would receive as many answers as there were persons asked. In replying to this query let the writer review some facts coming under his observation among 30 dairymen who were patrons of the same creamery. It cost them $28 on an average to keep a cow, with an average of a little over $14 net profit. The highest got $32.86 net profit and the lowest fellow lost $9.12 with a cost of $40 per cow.

Figuring from the highest gross receipts for the year, $60.56, with 5,544 lbs. of milk and 80 per cent skim milk returnable, worth 20 cents per 100 lbs. for young calves and pigs, or $8.87, then each ton is worth $2 in fertility, or better than 2 tons per cow, worth $4, and $3 after fed, to return to the soil. This makes a total of $72.43, the output of the best herd of the 30 herds.

The average of these 30 dairies in milk was 4,200 lbs. If W. B. C.'s cows will do this well with 4.8 per cent fat test, there will be 235 lbs. of butter to sell at creamery. A range of 18 to 29 cents will average 23 cents for the year, or $54, gross receipts to divide, or $27 net proceeds in the hands of the renter. To this $54 plus $6.72 plus $2.50 for skim milk at 20 cents per 100, the renter has $63.22 besides the 70 per cent of the fertility of the feed consumed in producing milk. The latter is possibly worth most of the care of the cow, as a cow is estimated to leave close to $17 worth of manure per year, if carefully saved.

Either at the beginning or the end of the year the owner would have a crop of calves to add to his credit, worth $5 each. I should want the renter to indemnify me to return the same number of cows and as good, aside from one year's wear out of them, and give me 10 per cent of the gross income from the creamery. This is an untried theory because it is out of the usual way, and I only give these figures by way of starting other opinions.

The question of renting dairy farms is one of the perplexing problems that is making not a few dairymen spend sleepless nights. To find a careful man who can be trusted to take hold of a good and carefully selected herd of cows, and go right along with them without interruption, is a difficult matter. We believe it to be difficult for an absolute stranger to step in and take up the work and pursue it properly without some little jar to the regular routine.

It doubtless would be better that the applicant spend one year as an employe of such a dairy, and if at the end of the year all things went right, pleasant and profitable, then it would certainly be safe to rent out on the thirds or halves as the case might be.

A letter from a prominent dairyman asks a question along that line. He says: "I have a good man with me by the year, and would like to release myself from the constant confinement of the dairy and the farm. What would you advise? Well, just what we note above is what we would advise, and as this dairyman is in a position to know what his man can do, and understands his methods and tactics, he can take him in or reject his proffer. No owner of cows can afford to release the control of his herd or his business, until the man who rents has been well tried and tested. A renter who means business and wants to make a living and some money, will not object to be "run," as some would term it. If he persisted in "taking the reins" it would be safe in dropping that fellow.

This applies more closely to strangers than acquaintances. Some very good men have been secured through advertising, but cannot be relied on very often. I would consider it a much safer plan to see and know my man at the farm. Some fellows are good letter writers, and too often the scrawl will be overlooked. I bring to mind one case where a man highly educated wrote me a long, well written letter, full of high sounding phrases. He was in need of a gardener and wanted me to recommend a man. I sent him a nice, moral, intelligent man. The former turned out to be a very highly educated man, but immoral, drinking and corrupt, with whom no self-respecting man would stay. I would certainly know my man, where he came from, what the circumstances were that put him in the market for renting, etc.

I can cite two cases. A neighbor who had lived 4 years adjoining our farm, was a renter. His landlord died and the farm was sold. When it was known that he was in need of a farm to rent, a dozen landlords fell over each other to get him. Another who couldn't stay where he was, hunted over parts of two counties before he found a farm, and then neither he nor his landlord were suited.

Dairy work is hard, confining labor, and the tenant who does it should have a good chance. I believe that chance should come to him in a way that would encourage him. For the tenant who furnishes team and farm outfit, I should have the dairy furnished to start him, with the understanding that the increase from the herd should eventually form a partnership herd—landlord and tenant sharing equally in the proceeds of the farm, each furnishing half of the seed, the tenant doing all the work and furnishing half of purchased feed and all expense of repairs, half of fertilizers, transportation, etc.

If the tenant be a "thirds" man he should have team and farm outfit furnished along with a herd and dairy outfit for whatever character of dairy work he may engage in, a house, garden and truck patch free, and in return he should engage to do all work pertaining to the farm and dairy and give the landlord two-thirds of the proceeds in either products or cash as the landlord may demand.

I am not writing altogether from the landlord's side, as I have been a tenant and worked this very farm on the shares, and think I know just what is right as between capital and labor. I think the tenant should have every consideration shown him.

There is one thing that demands forcible mention. A landlord has the right to demand of his tenant his constant attention to business, to see that work is done properly and in season. In one sense a tenant is an employe who is expected to put his labor against capital, to make that capital pay the highest dividend, from which said tenant expects to reap his reward. If by neglect of duty that tenant robs his employer out of a good return, he is surely a bad investment and deserves to be discharged. Sometimes landlords fail to do their part in furnishing teams, outfit and good seed and utterly fail to encourage the tenant, who starves out and quits if he has money enought to get away. Landlordism and tenantism should be brought up to a higher standard than it has been in the past. Both factors have great need to study the situation and conditions that surround them as men of business, and step above the little things that so often



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of your being satisfied, and glad you bought the cream separator that makes money for you.
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Is Sold On Trial.
The price makes it easy for every cow owner to buy. Run this separator and make money. The catalogue is free and we want you to have one. Write to-day.

American Separator Company,
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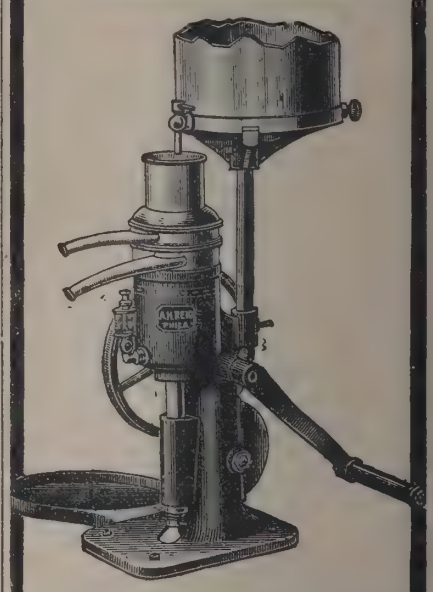
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"The Salt that's ALL Salt."
Quickly dissolves, becoming a part of the butter. Not washed out in the working like common salt. Send for free book—"Just Salt."
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It will lighten your day's work
Every wringer is warranted from one to five years. The rolls are made of Para Rubber. They wring dry, last long, and will not break buttons. Our name and trade-mark is on every wringer and roll.
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Measure the Milk of each Cow
With the Automatic Milk Scale you can keep an accurate record of the yield of each cow, and remove the unprofitable ones from the dairy. Each button on scale arm corresponds to number of cow, and when pail of milk is weighed the button registers the weight on score card. Big money saver and money maker for farmers and dairymen.
Send for testimonials and illustrated catalogue of Bestov dairy supplies.
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Reid's Hand SEPARATOR

The "best" separator is that one which does its work most thoroughly and easily, that is built of strongest material, and that is most easily washed and kept in order.
First cost is a great point with a buyer, but ease of running, perfection of skimming and simplicity in washing are even greater considerations.
The **Reid Hand Separator** has but a single cylinder inside the bowl, and skims as closely as one-hundredth of one per cent. Indeed, some tests indicate "not a trace" of fat in the skim milk.
The Reid is perfectly planned and strongly built, and it literally "runs like a watch."
As to our guarantee of excellence, we make the strongest statement that can be expressed in words: **Money back (less freight) if the buyer is not satisfied.**
There is a new (free) booklet about the Reid Hand Separator.
Sizes run from 150 lbs. to 500 lbs. per hour.
A. H. REID
CREAMERY AND DAIRY SUPPLY CO.,
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ICE MILK CAN Jackets are the thing. Handy, cheap, and require little ice. Please everybody. Are patented. Booklet free.
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make trouble. A written contract is all right, but honor, high minded integrity and industry, with a love for right doing is worth a hundred iron clad agreement.—GEO. E. SCOTT *in Ohio Farmer.*

Does it Pay to Feed Cattle at the Present Prices of Grain?

ED. HOARD'S DAIRYMAN:—We hear so much said by a class of people, not necessarily restricted to farmers, who sit around a grocery store on boxes and barrels and tell you all about your business and other people's business, how they should do, what they should eat, wear, etc., where to go, when to go and where not to go, and, in fact, do the business for the whole community, when the facts are shown they have been drudging along from 20 to 40 years in the same old rut, with the only ambition of making a living and hardly that, and when a person who is trying to work along a different line, if he paid any attention to what was said, would get discouraged and never try, but having a little determination and from studying the ways of breeders and advanced dairymen from such papers as HOARD'S DAIRYMAN, I was led to believe that caring for cattle in a way that they should be taken care of, would pay a much better per cent than by starving and neglecting one's stock to save the cost of feed.

While I am a very ardent Guernsey man, I have all the different milk strains of cattle to look after on our farms, and I think that any breed of the dairy type cattle that best suits your taste and circumstances, can be made to pay a larger revenue if more attention was paid to the milking strains than to go by the straight back, heavy cows without any regard to ancestry or milking points. Is it not a fact that too many farmers buy cows for the going price, giving more preference to size and a large calf to sell for veal than anything else? Why is it that they pay so little attention to milking records when they depend almost entirely on the amount of milk which they deliver at the cheese factory to make their living?

It is a fact that one can start at Belmont, N. Y., follow the main road to Hornellsville, a distance of about 25 miles, which is entirely a dairy section, and if the cows that did not give 5,000 lbs. milk per year were thrown out, there would be very few left.

And still the cow that does not give 5,000 pounds of milk per year, runs her owner in debt every year he keeps her, for she will certainly not pay for her keeping, figuring what you can sell the produce she consumes during the winter, at the market value, time and labor caring for said stock thrown in.

Now, if the said people are contented with their way of doing business, depriving themselves of all luxuries, and sometimes of the necessaries of life that go to make up this little life of ours, which is made a success or a failure by one's own efforts, they are entirely welcome to their opinions. I think it is better, instead of having cows look just so in regard to size, spots, color, straight backs and all other nonsense that does not conform to the milk in the pail, to pay more attention to the milking points, if it is milk you are after, for the cow that gives the largest quantity and quality is the best and most profitable cow in every instance, where milk is the main product.

In my barn the cows have all feed weighed and charged to them; milk weighed every milking, and cow given credit for the same; milk tested every month, thereby finding out my best cows; I have fed well all winter with high-priced feed; have not a cow in the barn which has not paid her way all winter. Butter sold on contract for 25 cents the year around. No cows died, all look well, feel well; no disease, and all of them pay for their keeping and most of them give good profit besides.

Daisy, a 3-year-old heifer dropped fine heifer calf, Feb. 16th; milk record for March, 1,097 lbs.; test, 4.9 per cent; No. lbs. butter fat 53.75 at 25 cents per pound $13.44. She was fed 12 lbs. grain, per day, or for the month 372 lbs. at $1.20 per hundred is $4.46; 20 lbs. hay per day at $10 per ton is $3.10; total $7.56, leaving balance in favor of heifer of $5.88 not allowing anything for skim milk, which was fed to hogs that on the 27th day of January weighed on an average of 31½ pounds each, and on May 1st weight, 150 pounds, so you can figure what skim milk is worth per hundred. Darling of the Highlands 13373, 3-year-old-heifer, dropped calf Jan. 30; milk record February, 926½ pounds; test 5%; March 1060 pounds, test 4.8%; April, 941 pounds, test 5%; total amount butter fat in three months, 144.26 pounds. The 22 months-old heifer, Madge of the Highlands, has also made a nice showing. She is a very handsome, dairy type heifer, has taken 1st premium everywhere she has been shown, milked as high as 24 lbs. 5% milk per day in March.

So I might go on and enumerate all through my herd. These facts and figures convince me that it is good policy to have good cattle and then take good care of them and get paid for your feed, time and trouble.

B. W. P.

Phillips Creek, N. Y.

Holstein-Friesian Association Meeting.

The Eighteenth Annual Meeting of the Holstein-Friesian Association of America will be held at the Yates Hotel, Syracuse, New York, on Wednesday, June 3, 1903, at 10 o'clock a. m., for the election of officers and the transaction of any other business which may leagally come before it.

The following propositions will be offered:

By Mr. Geo. Rice, to reduce the registration fee on bulls.

To appropriate money and authorize the Board of Officers to offer to award special prizes of duplicate premiums, where won by animals recorded in this herd-book, in public competitions for yields of milk or butter or both, and for quality of butter, at such exhibitions as the Board of Officers may select; and to authorize special prizes at fairs where no competitive tests are held, or to establish competitive test under such conditions as they may deem best; and to offer prizes for the exhibition of cattle at such fairs and expositions as may be deemed best.

To appropriate money therefor, and to authorize the Board of Officers to continue the system of prizes for officially authenticated butter records and for economic tests substantially as last year.

To appropriate money therefor, and to authorize the Literary Committee to carry on such work as it may deem proper for the interests of the breed.

FREDERICK L. HOUGHTON, Sec'y.

Putney, Vt.

I put my name on my lamp-chimneys. I'm not ashamed of them.

MACBETH.

If you'll send your address, I'll send you the Index to Lamps and their Chimneys, to tell you what number to get for your lamp

MACBETH, Pittsburgh.

Cream SEPARATORS All about them and other things for the dairy and creamery A. H. REID, Philadelphia.

HALF ENOUGH WATER

Is quite enough for some people, but most people want water every day. If

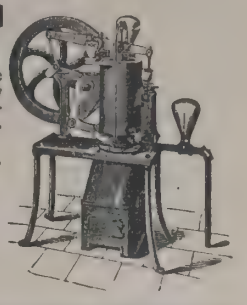


RIDER or ERICSSON HOT AIR PUMPS

Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.

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35 Warren St., NEW YORK.
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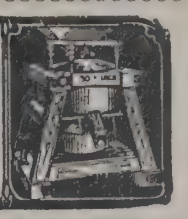


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FARMERS' $125 SAW MILL

Cuts 2000 Feet Lumber a day with only 4 h. p. DeLoach Variable Feed Saw Mills, 4 to 100 h. p., any price. DeLoach Mill Machinery, Planers, Shingle, Lath and Corn Mills, Water Wheels, etc. DeLoach Mill Mfg. Co., Box 801 Atlanta, Ga.

Handsome Catalogue Free if you cut this out and give name of paper.





COMMON SENSE Calf Feeder

awarded Gold Medal at Pan-American Exposition. The only Feeder adopted by experiment stations. It is the kind others try to imitate. Easiest to operate and clean.

Most Durable, Simple, Economical, Scientific and Practical.

Do not be deceived by imitators. Shams are never imitated. **More Common Sense Feeders are in use than all others combined.** Over 50,000 in use. No valves to get clogged or foul. Nipples reinforced and cannot collapse. The calf feeder is a perfect weaner. A substitute for nature.

Extra gain on one calf pays for two feeders.

Best Feeder Made.
Michigan State Board of Health:—I tried every Calf Feeder I could find, but liked yours best.

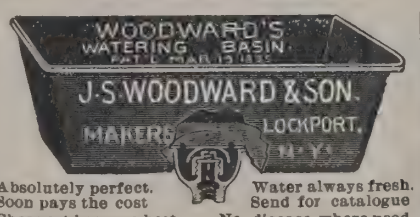
Worth $10.00.
George S. Bement, Victor, N. Y.:—I am very much pleased with the Feeder and would not be without it for $10. No trouble, no damning, no milk on your clothes, no trouble to teach the calves to take hold of it, no sucking the cows, and the best of all is that when they get about eight weeks old they don't stop for the nipple but just drink out of the pail.

The Principle is Correct.
Purdue University Agricultural Experiment Station of Indiana, LaFayette, Ind.:—We have been using the Feeder to some extent and it is in constant use at this time and we believe it to be very satisfactory in its work. The principle of **Your Feeder,** I believe to be the correct one. C. PLUMB, Director.

Advise Stock Raisers to use it.
Maryland Veterinary Hospital:—I am very much pleased with the Feeder and would advise stock raisers not to be without one.

Price $1.50 including two nipples, sent postpaid for $1.75. We guarantee satisfaction, but if you are in doubt about its value we will send one on approval for 50c to cover postage, remainder to be paid if satisfactory. **Be Sure** and send for our twenty-two reasons why you should use a feeder. It's free. Sold by one dealer in a town.

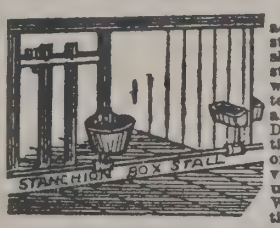
D. H. MANUFACTURING COMPANY, DEPT. H, LYNDON, VERMONT.



Absolutely perfect. Soon pays the cost Cheapest because best.

Water always fresh. Send for catalogue No disease where used.

Water In The Stable a Necessity.



It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. Why not use the Best? Write for descriptive circular.

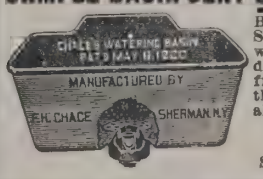
C. E. BUCKLEY & CO., Poughkeepsie, N. Y.



COW BASIN
SELF CLOSING LID.

Pure white Porcelain. No rust, no filth, no splashing. D. H. Bausman, Bausman Lane Co., Pa. Iron, Pig, Chick, and Stock Troughs.

SAMPLE BASIN SENT ON APPROVAL.



Basins are fitted with Self Closing Cover which prevents all dirt and sediment from getting into them. Send for catalogue and price list.

F. H. CHACE, Sherman, N. Y.

Big Bargains in Farm Supplies

First Class Material, Merchandise and Machinery at Sacrifice Prices.

Plumbing Supplies For Bath Room

Porcelain Bowl, Hardwood Seat and Tank, Nickel Plated flush and supply pipes, complete, each $10.00.

Cast Iron Bath Tube.



Length 5 ft. Complete with full set nickel plated fittings, each $11.00. They are new goods, ask for free catalogue of our full line of plumbing supplies.

Barbed and Smooth Wire Write for our prices on 2 and 4 point Barbed Wire, painted and galvanized; also, 65,000 pounds SMOOTH GALVANIZED WIRE SHORTS Gauges: 10, 11, 12, 13 and 14. Price $1.40 per hundred lbs. We also handle other kinds, write us your wants.

Poultry Netting A special lot of new galvanized No. 19 poultry netting while the supply lasts, at these prices. 150 running feet to bale.

12 inch	$0.45 per bale.
18 inch	0.65 per bale.
30 inch	1.10 per bale.
36 inch	1.35 per bale.
42 inch	1.80 per bale.

Other grades at correspondingly low prices.

Gasoline Engine $70

2 HORSE POWER

Absolutely new; most modern type. Guaranteed, pumping jack & fixtures & fittings for $75. Without pumping jack $70.

Headquarters for Machinery

Our line of machinery supplies is almost unlimited. Complete stock of Saw Mills, Pumps, Sugar Machinery, etc.

And in fact everything in that line.



Telephones at $5.00 Each one is guaranteed to be in perfect order before leaving our plant. We are able to offer you an instrument for $3.00 that would cost you twice as much elsewhere. We carry a full stock of supplies. Send for Phone Catalogue.



Wrought Iron Pipe

Steam, Gas or Water; sizes ¼ to 12 in. diam. We have in stock 2,000,000 feet of Standard black wrought iron pipe, second hand. It is in good condition, complete with threads and couplings at following prices.

¼ inch at 1½ cents per foot.
⅜ inch at 2½ cents per foot.
½ inch at 3½ cents per foot.
1¼ inch at 4½ cents per foot.

Steel Roofing



Strictly new, perfect, Semi-Hardened Steel Sheets, 2 feet wide, 6 feet long. The best Roofing, Siding or Ceiling you can use. We furnish nails free and paint roofing red two sides. Comes either flat, corrugated or V-crimped. Delivered free of all charges to all points in U.S. east of Mississippi R. and north of Ohio R. at **$2.25 PER SQUARE** Prices to other points on application. A square means 100 square feet.

Cold Water or Ready Mixed Paints

Paints We bought at Receiver's Sale from a leading paint house a very large quantity of Cold Water Paints and Ready Mixed Paints. Equal in grade to any on the market.

Here is a Genuine Paint Bargain. Before placing your order, write us for our special prices. You can surely save money, without sacrificing quality.

Farm Forges $8.00

We bought several car loads of new Portable Forges at a low price. We have also for sale horseshoes, horseshoe nails, blacksmith tools of all kinds.

Hardware 500 doz. single bitted axes @ 35c. 175 doz. double bitted axes, 2d qual. @ 40c. 6,000 Dietz Lanterns, few slightly affected by water. Write for prices.

Building Material



LUMBER, SASH, DOORS, ETC. We carry a complete stock of first class Building Material of all kinds. Send us your bill for estimate.

10 CARLOADS OF NEW DOORS AT **$1.00 each**

HARDWARE SUPPLIES

Write for our catalogue of builder's hardware. The per cent of the dealers profit we can save you will prove a revelation.

SEND FOR CATALOGUE NO. 20 We issue a complete illustrated catalogue containing prices of which the above are only a few samples. You ought to have a copy of this book in your home or office and we will send it upon request.

CHICAGO HOUSE WRECKING CO. WEST 35TH AND IRON STREETS, CHICAGO.

The McGeoch Sale.

ED. HOARD'S DAIRYMAN:—On Wednesday May 6th the sale of Holstein-Friesian cattle from the McGeoch herd was held at Red Brae, the old McGeoch homestead, just out of the city of Milwaukee.

The cattle were an exceedingly attractive lot barring a few quite old cows. Some few animals that were catalogued, were not sold and others were substituted, sixty seven in all passing under the hammer and the average price received was $213.00, this being the highest average that has been reached at a Holstein sale in the past fifteen years.

Among those present were Mr. W. J. Gillett, of Wisconsin and Mr. F. L. Houghton, of Vermont, President and Secretary of the Holstein-Friesian Ass'n.; W. A. Matteson and Dr. Dewing of Utica, N. Y.; Mr. H. A. Moyer, of Syracuse, N. Y.; Mr. J. H. D. Whitcomb, of Littleton, Mass.; Mr. Albert Fields, of Maryland; Mr. Jas. A. Graham, of Patterson, N. J.; Mr. R. M. Hotaling and Mr. Chas. D. Pierce of San Francisco. Cal. In addition to these, about all of the prominent breeders of the middle West were in attendance.

The greatest enthusiasm prevailed throughout the sale and at times the bidding was so rapid that it was hard for the auctioneer to locate it.

The center of attraction centered in the great breeding bull, Gem Pietertje Hengerveld Paul DeKol, and his daughters, the bull himself being knocked down to Mr. F. A. W. Kieckhefer of Milwaukee, at $900.00, while Messrs. Frank B. and E. J. Fargo of Lake Mills, secured the most of his daughters, so that they will be returned to within a mile of where they were bred and born.

The heifer, Duchess Ormsby 2d Hengerveld DeKol, a daughter of the above bull, proved to be the highest priced animal sold. The first bid was made by Mr. Carpenter, of Michigan, at $500.00, this was jumped at $100.00 bids until $1,200.00 was reached. Here the bidding hung for a moment, then went on at raises of $25.00 until $1,400.00 was reached, where she was knocked down to the Messrs. Fargo, at what proved to be the longest price of the day.

Many other Wisconsin breeders were among the best bidders at the sale, especially noticeable among these being Messrs. S. B. Jones & Son and W. H. Jones, of Watertown, Mr. F. A. W. Kieckhefer, of Milwaukee, and Mr. L. T. Gay, of Madison, while Dr. Rounseville and Mr. Geo. Hooper, of Milladore, although they managed to secure only two head, were among the most persistent bidders.

Take it all in all, the sale was a decided success, and it is with much pleasure that we are able to state that Wisconsin bred cattle have sold at auction and reached the highest average that has been made for years, for this breed of cattle. H.

An Iowa Herd Record and Skim Milk Value.

ED. HOARD'S DAIRYMAN:—In renewing my subscription, I will send the results of my herd of Holstein cows, 16 head. Three of them were 2 years old, 4 were 3 years old.

FROM JAN. 1ST TO DEC. 31ST, 1902.

Pounds of milk produced	109,997
Pounds of butter fat sold, 3,944 91-100	$876.07
Pounds of butter fat used at home, 251 88-100	56.71
Pounds of whole milk sold, 664	5.97
Skimmed milk at 25c per 100 97,652	244.13
Total	$1,182.88

Seven years last Dec., I commenced dairying. My first month's milk check was 90 cents; last December over $90. I am now past 53 years of age. I commenced taking HOARD'S DAIRYMAN about four years ago, and I learned more from it in three months about the feeding and management of cows than I ever knew before, so whatever success I have I owe it to HOARD'S DAIRYMAN, and it is hard to get farmers to see their need of it. I use a separator. Nine of these cows are grades, 6 of them full bloods, 1 a Short-horn. She is doing duty for another man now. To satisfy myself of the value of the separator milk for pig feeding, I bought 10 shoats the 18th of February. They weighed 1,330 pounds. I paid $6.75 per 100 pounds. I sold them at the end of 62 days feeding. They weighed 2,610 pounds, or a gain of 128 pounds per head. I sold for $6.80. I fed them 62½ bushels of corn and 7,000 pounds of milk; allowing 10½ pounds per bushel of corn would leave nearly 9 pounds per 100 for milk, or in other words, 71 cents per bushel for corn and 60 cents per 100 for milk. R. R.

Conway, Iowa.

Spreading vs. Piling Manure on Land.

ED. HOARD'S DAIRYMAN:—May I call your attention to an experiment being conducted by Prof. W. P. Brooks of the Hatch Experiment Station, Amherst, Mass., and called to my notice by a letter that appeared in the DAIRYMAN of March 13th?

Prof. Brooks took a field that had been divided into five plots. On the north half of each plot he spread manure in the winter and at the same time upon the south half of each plot he piled an equal amount of manure to be spread in the spring. In every case there was an increase in yield on the half plots where the manure was piled, averaging 13.7% in 1900 and 44.1% in 1901. The total yield of the field was much smaller the second year, due probably to an unfavorable season.

While he cautions against attaching undue importance to these results, Prof. Brooks says (Hatch Exp. Sta. Report, Jan. 1902, p. 51), "This experiment will be continued, but * * * the results certainly indicate that there is grave reason to doubt whether application of fresh manure during the winter and allowing it



WE LEAD THE WORLD

We are the largest manufacturers of Grooved and Plain Tire Steel Farm Wagon Wheels in America. We guarantee our patent Grooved Tire Wheels to be the best made by anybody anywhere. Write us.

HAVANA METAL WHEEL CO.
HAVANA, ILL.

SOY BEANS, EARLY YELLOW—Northern Grown, clean and good, $2.50 per bu. SORGHUM, Orange, best variety for fodder, $1.00 per bu. (50 lbs.) Bags free on 2 bu. lots.
L. C. BROWN, La Grange, Ill.

Wood's Farm Seeds.

Cow Peas and Soja Beans

Two of the most important crops for farmers everywhere. Write for leaflets entitled "Soja Beans vs. Corn" and "Cow Peas—The Clover of The South," giving special information about these crops. We carry large stocks of all SEASONABLE FARM SEEDS, Seed Corn, Millet, Sorghums, Teosinte, Late Seed Potatoes, Crimson Clover, Buckwheat, etc.

Wood's Seed Book and Special Circulars giving prices and seasonable information, mailed free.

T. W. Wood & Sons, Seedsmen,
RICHMOND, - VIRGINIA.

Hay Fever and Asthma

Completely cured—not just relieved. Attacks never return. Smokes and "Reliefs" can not cure. They are wrong in principal. Our treatment cures to stay cured. Restores health. Over 52,000 patients already. Book 41 F free.
DR. HAYES, Buffalo, N. Y.

Gold in Sight

THE CHICAGO BIRD'S NEST MINING COMPANY has a thousand feet of it straight down. Dividends to all stock holders this year. An income for life to share holders. You can buy stock now for 35 cents—ground floor price. It will soon advance to $1.00. ACT NOW. As the mine is developed and results obtained shares will increase in value and your opportunity will be gone. It costs nothing to investigate. Write at once for particulars to

R. I. EVANS,
1105 Old Colony Bldg. CHICAGO, ILL.

We Get Highest Prices For Fine Hand Separator Butter.

Our trade relations enable us to get the top of the market for good hand separator dairy. Trial shipment convinces. We will keep you posted on the market. Write us.
C. H. WEAVER & CO., 128 S. Water St., Chicago.

Special Offer of Fine Dairy Farm
ADJOINING RED WING, MINNESOTA.

174 ACRES—140 under high cultivation, balance good pasture and woodland. Has complete machinery for Dairy, with power, etc., and all machinery for cutting corn. Two large silos, sufficient to hold feed for 50 cows, and large barn to tie up 70 head. One new house—could not be built for less than $2,500; another good house for help. Large horse barn and granary. Improvements could not be duplicated for less than $7,500. Monthly receipts over $600. All for sale at $12,000.
H. A. CAMPBELL, 107 E. 4th St., St. Paul, Minn.

THE "1900" FAMILY WASHER FREE.

Greatest Invention of the Age. Labor and Expense of Washing Clothes Cut in Two.

No More Stooping, Rubbing or Boiling of Clothes.

Every Household Needs One.



THE "1900" BALL-BEARING FAMILY WASHER SENT FREE

to anyone answering this advertisement, without deposit or advance payment of any kind, freight paid, on 30 days trial. The 1900 Ball-Bearing Washer is unquestionably the greatest labor saving machine ever invented for family use. Entirely new principle. It is simplicity itself. There are no wheels, paddles, rockers, cranks or complicated machinery. It revolves on bicycle ball-bearings, making it by far the easiest running washer on the market. No strength required, a child can operate it.

No more stooping, rubbing, boiling of clothes. Hot water and soap all that is needed. It will wash large quantities of clothes (no matter how soiled) perfectly clean in 6 minutes. Impossible to injure the most delicate fabrics.

AN ENTHUSIASTIC ADMIRER.



CHICAGO, July 17, 1901.
Nineteen Hundred Washer Co.,
Binghamton, N. Y.

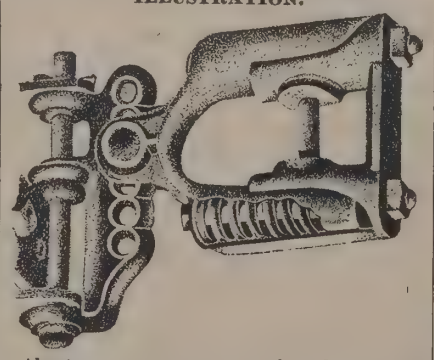
I started to wash with your "1900 Ball-Bearing Washer" at 10:30 a. m. and in half an hour the contents of two machines were washed clean, rinsed and hung on the line. A neighbor called as I started to wash my little boy's waists (which were terribly dirty), and in ten minutes I wrung them out and we were very much surprised to see that there was not a spot left. On Monday we did a big wash of fifteen machinefuls of clothes in four hours. The lady living upstairs saw that we turned out so much work in such a short time that she asked us to loan her the washer for Tuesday, which we did. She has a Western Washer, which she could never use, as it took a man to turn the machine. The "1900" is by far the best machine I ever saw. It works so easily that my little boy can run it. You are at liberty to refer anybody to me for further proof.

MRS. A. H. CENTNER, 636 Diversey Boulevard.

Write at once for catalogue and full particulars to

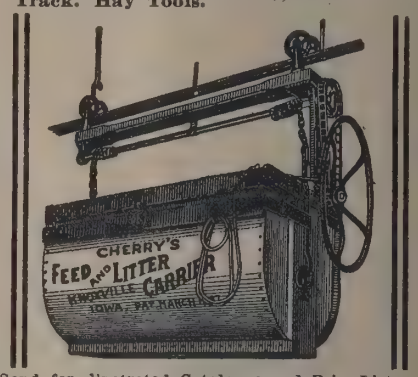
"1900 WASHER CO.,
219 L. STATE ST., BINGHAMPTON, N. Y.

ILLUSTRATION.



About a year ago we were pleased to call the attention of our patrons to the merits of a Spring Clevis which has been advertised in our columns almost constantly for two years or more. The makers—David Bradley Mfg. Co.,—tell us that orders for them are steadily increasing in number, and that the sale of one is sure to bring other orders from the locality to which it is sent. It is a great boon to farmers who have land in which a plow is liable to strike stumps, roots or other obstructions, as it contains a large amount of stored-up elasticity, which prevents or absorbs the jar, that would, without it, be spent upon the team, harness and plow. At points where dealers do not carry them, the manufacturers will send them, charges prepaid, for $1.25, cash with the order. You might save twice that amount in broken plows and harness in one season, besides it saves the team many a jolt and jerk and finds them less tired at the close of the day's work. Descriptive circulars to any one who will ask for them by addressing David Bradley Mfg. Co., Bradley, Ills.

Cherry's Perfected Barn Equipments.
Operates on Curves and Switches. Manure Carrier, Feed Carrier, Grain Elevator and Track. Barn Door Fixtures and Track. Hay Tools.



Send for Illustrated Catalogue and Price List to
D. B. CHERRY & CO., Knoxville, Iowa.

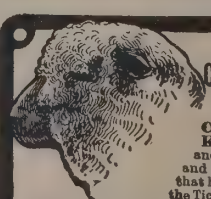


THE DREW ELEVATED CARRIER
is the cheapest and most practical device for taking away manure from stables, carrying ensilage, feed, grain, etc., etc. No trouble to put them up; no trick to work them; leaves barn yard free from posts; dump in yard or on wagon; turns curves and switches. An inexpensive money saver. Write for illustrated catalogue and full particulars.
DREW ELEVATED CARRIER COMPANY, : : : WATERLOO, WIS.

USE GOODWIN'S FLY KILLER this season on your cows and horses and be rid of the fly pest. Cows give 25 per cent. more milk and horses are relieved. Gallon 75c, 5 gallons $3.00, 10 gallons $5.50. Sprayers 50c, or send $1.00 for sprayer and enough Fly Killer to protect 150 cows.

AGENTS WANTED.
T. D. GOODWIN & COMPANY,
Columbia Station, Ohio.

CARBORINE
FOR MAN OR BEAST
HEALS
OLD SORES, CUTS WOUNDS, BURNS SCALDS, HARNESS SORES, COLLAR GALLS BARBED-WIRE CUTS, ETC. · ·
SAFE · SURE · RELIABLE
FULLY GUARANTEED
PRICE, 25C. POSTPAID.
ADDRESS DEPT. C
SPRINGFIELD DRUG CO.
SPRINGFIELD OHIO



Dip your sheep with **Chloro-Naptholeum Dip**

Cures Mange and Itch. Kills Ticks, Lice, Scab and Heals Sores, Scratches and Cuts. The only remedy that has succeeded in curing the Tick and thus enabling sheep breeders of Southern States to get their herds through quarantine into the North.

Harmless, Convenient, Economical

Concentrated, ready to put in water. No heating or bother. Guaranteed—money back if you want it. Ask us for testimonials from big breeders. We pay charges to you. Prices: 1 gal. $1.50; 5 gals. $6.75; 10 gals. $12.50. Larger lots at lower rates. We make and sell Dipping Tanks and Sprayers cheaply. Get our price list. Agents make money with our goods.

WEST DISINFECTING CO., Inc.,
8 East 59th Street, New York.

to lie upon the surface till spring, is wise."

I have spread manure upon this farm winter after winter, for years. The farm has grown steadily richer, and I might say therefore the winter application of manure is justified. But may not the large amount of manure used have made the farm rich in spite of winter spreading, not because of it? C, I. B.

Blue Mounds, Wis.

CONCERNING OUR ADVERTISERS.

"Creston, Ill., January, 1903.
We have used quite a bit of your Zenoleum and we are well pleased with it as a disinfectant.
Yours truly, STANLEY R. PIERCE.

A WIDE SWATH

And a clean one is cut by the "Milwaukee" Mower. It is a simple, substantial, chain driven machine—no lost motion or delay in doing its work. It cuts from the word "go," and keeps on cutting as quickly and as long as the wheels revolve. It adapts itself to smooth prairie meadows or rocky and rolling hilly stretches. Their local agents will cheerfully impart further information concerning this sturdy machine, or furnish catalog. This machine is manufactured by the Milwaukee Division, International Harvester Co., Milwaukee, Wis.

There are land companies and land companies, but when any land company has shown that the land it handles is of a high grade and that the men who handle the business are thoroughly reliable, that company is a good one to deal with. The Polk County Land and Loan Company has been in business in Crookston for a year and the people for whom they have handled land, and the incomers and settlers to whom they have sold land are satisfied with the deals that have been made. This is the kind of a testimonial that counts. Where business is conducted with dispatch, with ability and with honesty, men like to deal, and this is why the Polk County Land and Loan Company's business is increasing as it is. They have for sale as fine a lot of land—improved or unimproved—as there is to be found and the prices are reasonable. The Polk County Land Company of Crookston, Minn., handle very largely the Red River Valley lands and any buyer of farm lands is certainly making a mistake that does not try to know the propositions they offer. Look up their ad in Hoard's Dairyman and write.

HE WAS PLEASED WITH THEM.

New Preston, Ct., May 1, 1903. Mr. J. S. Biesecker, 59 Murray St., N. Y. Dear Sir:—The 40 quart milk cans I ordered of you came yesterday. I am more than pleased with them. They seem to be so strongly put together, and so nicely stamped and marked, I shall surely order of you again when I need more cans. I shall give you and your cans a good word whenever I can. Yours truly, E. E. MEEKER.

A GOOD DIP.

There is no question about the advisability of dipping or spraying stock and poultry. A germicide and insecticide that will relieve cattle, horses, sheep, swine and fowls of the numerous pests that make their life a burden and destroy their useful ness and value to the owner is a recognized necessity for every grower of stock for profit. Among the many dips and stock remedies that are offered Chloro-Naptholeum has easily secured a leading position, by reason of the severity and thoroughness of the tests to which it has been repeatedly put by both the most extensive breeders themselves and the various experiment stations. It has the merit of safety as well as efficiency, being harmless to stock and handlers, and also is convenient in use, requiring no heating or other preparations, being a concentration of extra strength, diluted by the uses with many times its bulk of water. This makes it more economicial in use than the cheaper dips—dips that are cheaper to buy per gallon, but lacking in efficiency and in the end more expensive. The West Disinfecting Co., 26 East 59th St., New York, the makers of Chloro-Naptholeum, desire to place their book and unbiased testimonials from users in the hands of our readers who are interested. A postal card requesting this information will receive prompt attention at their hands.

The Havana Metal Wheel Co., Havana, Ill., invite attention to their business in our columns. This firm will be remembered by many of our readers as conducting the largest metal wheel factory in the country. They make a specialty of broad grooved tired wheels, but make almost any sort of broad tired wheels that is desired. In recent years many farmers and teamsters have been thinking of getting these great labor savers. It is a good idea to write these people for directions for measuring your skein, and then order the wheels made to fit exactly. This will enable one to utilize a wagon he may have to good advantage. They also manufacture low truck wagons in metal entirely, also with wood frame work and metal wheels. Our readers who require low broad tired wheels, or the wagons complete, should not fail to write this firm about their latest improved wagons and wheels.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Scours in Young Pigs.

What is the remedy for young pigs having scours? E. D. T.
Tillsonburg, Ont.

ANSWER.

Scours in young pigs, as well as in other young animals, is mostly due to errors in feeding the mother. Remove the cause and nature will do the rest.

Mastitis.

I have fine Guernsey heifer due to freshen Aug. 3rd for the first time. One quarter of bag is badly caked and feverish. She seems to be in pain, have milked on that quarter, and there is thick, ropy, bloody milk comes from it. T. H. McC.
Whitewater, Wis.

ANSWER.

It is rather early to milk her at all and expect the contents of the udder to be milk. Bathe the udder with hot water twice or three times daily, about ½ hour at a time. After each bathing apply an ammoniacal liniment and rub well.

Cow's Milk for Colts.—Plethora.

I have a mare due to foal in a few weeks. In case she goes dry when she foals what can I feed the colt?

I have a draft mare when working very hard she trembles and gets played out very easy. I feed her good oats, corn, a little oil meal, some scalded rye and good hay. She is in fair condition and has been fed well all winter.
Racine Co., Wis. SUBSCRIBER.

ANSWER.

You may give the colt cow's milk, but it must be diluted by adding about ⅓ warm water and also slightly sweetened with sugar. Keep this up for at least a month, then you may gradually begin to give the milk undiluted. Let him eat grain and grass as soon as he will in addition to the milk.

The mare appears to be suffering with plethora which is a hypernutritious condition of the blood. Cut out all the grain in your ration when the mare is not working and feed light.

Horse Owners! Use

GOMBAULT'S



Caustic Balsam

A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle, SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.* Every bottle sold is warranted to give satisfaction. Price $1.50 per bottle, Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O

Ten Dollars a Day

or more may be lost by the idleness of a horse from sore neck, shoulders or like trouble, just when his services are most needed.

Bickmore's Gall Cure



is guaranteed to cure the most stubborn case of Harness or Collar Gall, Scratches, Grease Heel, Speed Crack, etc., while you work the horse. For sale at all dealers who are authorized to refund your money if it does not do just as we say. Sample sent for 10 cents. Write while you have it in mind.
BE SURE AND WORK THE HORSE
BICKMORE GALL CURE CO., Box 515, Old Town, Me.

Leg and Body Wash.



When it comes to stiffness and soreness of muscles, tendons, etc., nothing equals

Tuttle's Elixir

for restoring normal conditions. Apply to the body as a mild sponge bath and put on light blanket. Sponge the legs and put on light bandages.
Used and Endorsed by Adams Express Company.

Tuttle's American Condition Powders
—A specific for impure blood and all diseases arising therefrom.
TUTTLE'S FAMILY ELIXIR cures rheumatism, sprains, bruises, etc. Kills pain instantly. Our 100-page book, "Veterinary Experience," FREE.
Dr. S. A. TUTTLE, 62 Beverly St., Boston, Mass.
Beware of so-called Elixirs—none genuine but Tuttle's. Avoid all blisters; they offer only temporary relief, if any.

Your Horse can work without pain while his sore breast is healing if you use MOORE BROTHERS'

GALL POWDER

the most effective cure ever known for healing sore shoulders, backs and other skin abrasions; at druggists, or by mail $1.00. MOORE BROTHERS, Veterinary Surgeons, Albany, N.Y. "Facts for Farmers and Breeders," sent free.

ANTITOXIN

For the Cure and Prevention of Milk Fever.

No quackish humbug but a scientific fact. Works on same principle as antitoxin injection in man for diphtheria, destroying poison in system. Four doses $2.00, 12 doses $5.00. No less than 4 doses sold. Easily administered with syringe. For particulars address
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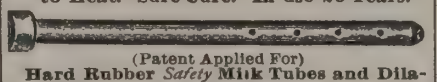
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Number Cows.	Estimated Consumption of Silage Tons.	Size of Silo Needed.	Average Acres Corn Needed.
6	20	9 x 20 10 x 16	1 to 2
9	30	10 x 22 11 x 20	2 to 3
13	45	10 x 29 11 x 25 12 x 22 13 x 20	3 to 4
21	74	11 x 37 12 x 32 13 x 29 15 x 24 16 x 22	5 to 6
25	90	12 x 38 13 x 33 14 x 30 15 x 27 16 x 25	6 to 7
30	108	13 x 38 14 x 34 15 x 30 16 x 28 17 x 26	8 to 9
35	126	15 x 35 16 x 31 17 x 29	9 to 10
40	144	16 x 35 17 x 31 18 x 29	10 to 11
45	162	18 x 32 19 x 29	11 to 12
50	180	17 x 38 18 x 34	12 to 13

—*The Farmer.*

The Price of Dairy Products as Influencing the Abundance of Some Insects.

The economic entomologist sometimes meets with curious and far-reaching relationships in the matter of influences of certain factors that it would at first seem preposterous to associate with insects at all. The threadbare story involving the maiden of uncertain age, cats, mice, bumble-bees and red clover seed, however, sometimes finds a parallel.

That the price of dairy products could have any influence on chinch bugs, or any other species not an animal parasite, at first seems improbable, yet such appears to be the case, so closely are insects connected with some of our industries; and as a seeming accentuation of this fact, we have a similar combination of interests in a different part of the country, involving another insect in precisely the same manner and with the same result.

The dairyman cultivates comparatively little land; prefers permanent pastures and meadows to crop rotation, for the reason that the additional labor required to change his crop from grass to grain and back to grass again increases the expense of his business, without materially adding to his profits. In the northern portion of the country, timothy is the favorite, and, in fact, almost universal meadow grass. In previous numbers of this Journal, I have called attention to the two forms or races of chinch bugs, and pointed out the partiality of the eastern or short-winged form for roots of timothy as a food plant, while the western or long-winged race seldom attacks this grass, and never if it can procure other food.

The short-winged race, once it becomes established in a timothy meadow, does not leave it, but continues to increase and lives by extracting the juices form bulbous root, with the result that the plant discolors and dies. Timothy meadows, within the areas inhabited by this short-winged race of chinch bugs, if left for a long series of years without rotation with cultivated crops, get overpopulated with chinch bugs and the whole meadow is destroyed, whereas a rotation not only destroys a large number of the bugs but serves to keep them reduced over large areas of country. In Jefferson and Essex counties, New York, there is at present a serious outbreak of these chinch bugs in timothy meadows, and this has occured in Ohio in other years. It has been demonstrated that if a crop rotation is generally carried out in a community, this trouble will be prevented.

In Illinois and some portions of Ohio, the long-winged race of chinch bug is the only one present and the timothy meadows, even of long standing, do not suffer from their ravages. But over such areas, the long standing meadows of the dairyman are attacked by other insects, and, though these are in no manner related to the chinch bug, the results are the same. After a couple of years the insects become so abundant as to kill out the timothy entirely, and not only this, but where corn is planted on these grounds, if plowed in spring, the young corn plants are frequently entirely destroyed by the pests that have developed in the field the previous summer. In this case the insect causing the destruction is a snout beetle, which deposits its eggs in the bulbous roots of the timothy and the larvae hatching from these eat out the interior of the roots, killing the grass. In some parts of Ohio I have found this insect very destructive to timothy meadows of several years standing, besides frequently destroying the young corn the following spring, if this was planted. There are some indications that the insect is becoming more numerous and menacing the corn crop over considerable areas. Dr. Forbes has found that in some sections of Illinois, in meadows of two years' standing, from ten to twenty per cent of the roots were affected, and in those that have stood three or four years, from fifty to seventy-five per cent, are affected, but in any case, if land be fall plowed, the beetles will leave the field and not attack the crop that follows the next year.

Thus, lucrative prices for dairy products stimulates dairying; this increases the area of timothy meadows and tends to their continuance for a series of consecutive years. This increases the abundance of these insects and consequently the magnitude of their ravages.—F. M. WEBSTER in *Journal of N. Y Entomological Soc.*



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Comments and Queries from Robinswood Farm.

Breeding Principles Versus Breeders Business Methods.—Power to Judge of Possible Prepotency Must be Based on Individual and Ancestral History.— Line Environmental Influences for the Most Part Determine Prepotency in the Individual.

ED. HOARD'S DAIRYMAN: — The editorial on page 1074, issue of Jan. 30th, 1903, entitled "Thoughts on Breeding," was sufficiently suggestive to furnish subject matter for a great deal of comment. The editor was entirely right as to the "broken and chaotic state" of the breeding question, with the exception that reservation shall be made to the effect that there is light ahead, and to be gained, if a sufficient number of breeders will come forward and honestly take an energetic part in collecting and formulating what can be shown to be scientific facts relating to the matter.

We have got far enough ahead with our breeding experimentation at Robinswood Farm, to believe that we know about what can be practically done and what cannot be done, in the way of creating profitable dairy animals.

The possession of the right kind of a dairy cow is the first essential to successful dairying; but it is utterly without a proper understanding of possibilities in the line of breeding effort to believe that there is no limit to the economic productiveness of the cow. I hold that it has been of enormous injury to dairy interests in the aggregate, that for purposes of personal gain, individuals and associations have held up as lures to the dairy farmer, beliefs and ideals that are false and impractical in respect to productive possibilities. As I have gained experience and knowledge as to the business side of the profession of breeding, I have become tremendously disgusted with the situation as I have found it.

The business for the most part and in its most advanced activeness seems in my eyes to be too much based on a foundation of ignorance, or deception, or both. So discouraging has the situation seemed to me, that rather than attempt to contend with a competition hampered by such conditions, I have been tempted to throw up entirely the work that we have been doing through many years, and at a large financial outlay; for there seems to be little chance of a fair recognition by the general public for any honest breeder who knows his business and is really trying to create a best product. However, while there is life, there is hope, and when an outspoken article appears publicly, such as this editorial to which I refer, the despondent soul is somewhat cheered.

I consider that under the present general system of conducting the business side of breeding operations, little, but ultimate disappointment and financial failure for most breeders can be reasonably expected. How many breeders are there who will, or who can give their patrons full information in regard to what ought to be known of an animal in order that it can be used with intelligence for breeding purposes?

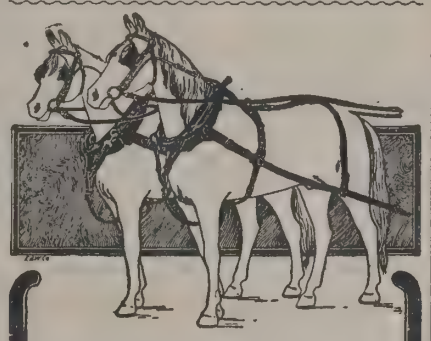
Perhaps to the average farmer any cow is only a cow, and no discrimination is made as to her individual powers, or as to the type to which she belongs. Yet there is a tremendous difference in the nature of cows. Some persons even seem to think that a cow with a half mammary development can be fed so as to be made fully productive.

It is the plain duty of the breeder and the seller to inform the buyer just what kind of an individual he proposes to sell, and as to just what the tendencies are in the blood he sells. How many are there who do this? There is no likelihood of its being done unless there is a general demand on the part of the buyers that it shall be done. The policy of holding up freak individuals that have sported away from the average of the type from which they have sprung, as being a type from which equal phenomenal and unusual characteristics can be bred, if done by an intelligent person, is a fraud on those who swallow the bait. I have had my share of experience in this line of being fished for, and feel quite strongly on the subject. I don't think that anyone can catch me with that kind of bait again; but I have not been taken in nearly as badly as multitudes of others have been. It is no wonder that "farmers' prices prevail" and that the millions of dairy farmers in this country are not bidding high for blooded stock; for their interests in such deals have not been sufficiently safeguarded. Yet, if they were in a position to buy intelligently there is no other investment they could make that would return so large a profit to them, even at high prices.

There is no known way in which one can judge that a bull has right prepotencies by a mere visual examination. The individual intensity of being, which can be quite readily recognized by the eye, but which is probably impossible to describe, and which indicates power to impress itself on progeny, may be a prepotency for evil, or for good, or for mediocracy. The possession of a full line history of the animal and its ancestors, and which must be descriptive of weaknesses and deficiencies as well as of merits, is the only basis on which any approach to a correct judgment in the matter can be made. The treatment that the individual animal has received during its life may be of some help in arriving at a determination, especially so far as to probable general vigor in the animal's get is concerned; but those structural and functional peculiarities which are usually reproduced in posterity are those inherited peculiarities and tendencies which have existed in a comparatively long line of ancestors.

In the editorial under comment, the following question, asked at the New York Breeders' Association, was quoted: "Will a cow with a big record be weakened so that her offspring will not be equal to her?" The answer was: "Not unless injured by excessive feeding. Usually the sire is not her equal." The answer is not full enough to cover the question and is misleading. The figures of the record and the strength of digestive power must be considered. The matter of feeding has little to do with the matter.

High feeding does not weaken the progeny unless the cow's health is entirely upset by digestive disorders. Under feeding would be more likely to be injurious in these instances. The trouble in these cases of over-developed mammary powers is usually that the digestive apparatus is not able to furnish enough nutrients for the calf in utero, and for the great out drain through the udder as well. But in most cases of poorer progeny being produced from great producers, the reason is because the tendencies of the back ancestry are lacking in force. The influen-



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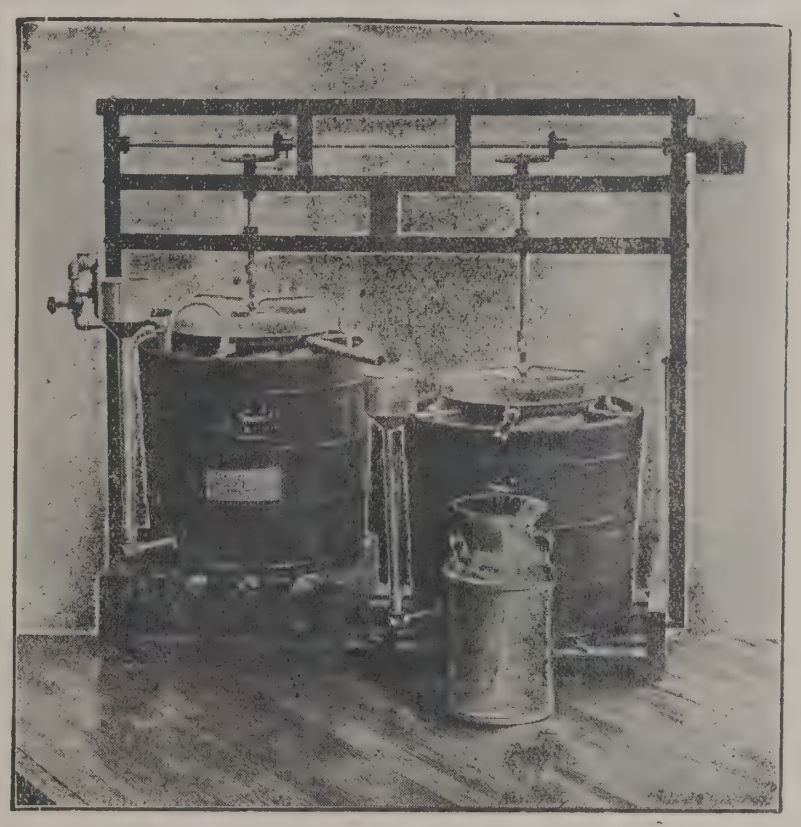
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"We have used Zenoleum on the College Farm here during the past two years, and have found it to give excellent satisfaction along all lines. We have used it for both sheep and hog dipping purposes. Also as a disinfectant in our judging pavilion. Every farmer should keep a supply of some disinfectant on hand. This is especially important on those farms where stock is being purchased and sold from time to time. On the College Farm we never think of bringing any animals from outside farms on to the same without fully disinfecting them. By so doing we have little or no trouble from disease."

W. J. KENNEDY, Ames, Iowa.

Send for copies of "Zenoleum Veterinary Advisor" and "Piggie's Troubles" and see what others say about it. Books mailed free. Sample gallon of Zenoleum $1.50, express prepaid. Five gallons $6.25, freight prepaid.

"The Great Coal Tar Carbolic Dip." ZENNER DISINFECTANT CO., 34 BATES STREET, DETROIT, MICHIGAN.

ces of the bull must of course always be taken in account. I am inclined to think, though, that in most cases the inherited and prepotent tendencies of all of the ancestors of the bulls used to mate with these freak cows are better than those of the cows themselves.

If we could only propagate these great cows by grafting or division, they could be continued for several generations at least, as is the case with plants that have sported; but in the case of cows, reproduction is a process of new seed formation each time, and in every case the average prepotency of all of the ancestors on both sides fixes the result, while the external influences which have acted on all of these ancestors are the basic influences which determine the nature of the progeny.

I claim that there is not a single case on record of a cow that has sported away from the general average productiveness of her ancestry that has ever thrown a calf her equal, or her better, that has not been mated with a bull that was more than her equal. One might sooner expect lightning to strike twice in one place, than to see an abnormally productive freak cow's progeny sport again to a still greater productiveness. I do not believe that it would be physically possible for a cow's digestive apparatus, by variation in the progeny, to also follow phenomenal development of the mammary apparatus. Such all around developments require that all around evolutionary influences be brought to bear for a long time.

One cannot create something out of nothing. Inasmuch as the causes which produce dairy power in the cow are the influences of her individual environment and those of her ancestors, no large departure from the average effect of such influences can be expected; and inasmuch as there is a limit to the potency of the influences with which we can surround the cow, there is a limit to the productiveness which we may hope for in our progeny.

Really, the starting base, from which we may expect to estimate the limit to profitable productiveness in the cow, is the art and science of growing cow feeds, both as to growing them cheaply, in increasing their digestibility, as well as in securing concentration of form. There is nothing gained in greatly evolving a cow beyond a capacity that is in harmony with the nature of the food she is to utilize. Over evolution has its attendant disadvantages, including the fact that a cow may give so much milk as not only to unfit her from producing the most healthy progeny, but also to absolutely shorten her life materially. The same laws of nature, which pertain to a plant, to a tree, or to a human being, in regard to production, also pertain to the cow.

A certain amount of selfishness of action is necessary in this world, but there is such a thing as losing by attempting to grasp too much, and this general proposition ought to be applied to the cow business. We should be satisfied to accept the product that naturally will be given by a good cow that has a good breed tendency, that has a good family ancestral tendency, and that is given correct treatment in the matter of feeding, protection and general care.

When the various associations have gotten right down to the work of collecting the life statistics of a sufficient number of the good examples of each breed, I think it will be found that cows which weigh 1,000 lbs. at maturity and produce 400 lbs. or less of butter during the best year of their existence, will give birth to much better progeny than those that give larger yields. Every phenomenal cow that I ever heard of, has come out of a well balanced cow of moderate productive powers. I think that one of the underlying, important breeding principles should be, that not too great a product should be expected of the best breeding animals. But as everyone knows, this belief is in direct opposition to the accepted views and practices of many breeders of the present and of the past. Nevertheless, I believe it to be true, and that the make-up of a really great cow comprises points other than the ability to make a big seven day test under forced feeding and exceptional handling. J. M. W. KITCHEN, M. D.

New Hampshire.

Oleo Disappearing.

It is not uncommon to find in the daily papers, items telling with much glee, how the dairymen over-reached themselves in the passage of the oleo bill, as the consumer is becoming accustomed to colorless oleo and the production is increasing rapidly. We notice that when the production was increasing rapidly a few years since, the oleo men like "brerrer rabbit" "lay low" and said nothing. In opposition to these optimistic reports of increased production and consumption the following is interesting:

The anti-oleo legislation has had the effect its promoters desired, which was to drive that product out of use, very largely, if not entirely. It was believed that if oleo were not made in imitation of butter it would not sell, and that belief is justified by fact. During the first eight months of the new law, only 6,000,000 lbs. were made, while for the corresponding period of the previous year the out-put was 74,000,000. The removal of 68,000,000 lbs. of butter substitute from the market has doubtless had much to do with the sustained price of real butter, in the meantime, which has advantaged dairymen, of course; and let us hope that it has not disadvantaged consumers; that that they have lost in paying more for butter, has been made up in satisfaction and better health by eating the real thing instead of a substitute.—*Farm Stock and Home.*

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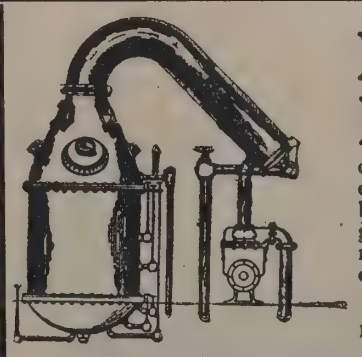
The trial of your "Purifier" made at my request, interests me very much and strengthens my conviction that this "Purifier" is an article which, if it continues to produce the results attained the present season, is destined to be of great importance and value in many dairying districts of this country.

[SIGNED] HENRY E. ALVORD,
Chief of Dairy Division, U. S. Department of Agriculture.

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I am not associated with any person, firm or company.

The Covered Milk Pail.

(Continued from page 314)

of this filth from the milk supply of our cities would result in greatly reducing sickness and death from this class of diseases.

8. The results of these tests indicate that the covered pail is much more efficient for the production of pure milk than is the straining of milk drawn into an open pail. It is quite evident also, that to keep the dirt out of the milk in the first place is much better than to strain it out after the milking. A considerable portion of the dirt dissolves quickly in the warm milk, and thus introduces a contamination that cannot be strained out.

9. These tests were made in a dairy where the conditions of cleanliness are good, as is shown by the small quantities of dirt found even in milk from the open pail. The use of the covered pail would doubtless prove to be more efficient where the conditions were not so good.

This bulletin is to be regarded as a report of progress rather than a complete treatment of the questions discussed, and the station hopes to give more light upon some of the still unsettled problems, in a later bulletin.

Concerning Wood Hoops for Silos.

A Kansas Inquiry.

ED. HOARD'S DAIRYMAN:—I have been a subscriber of your paper for five years. I have found it a mine of information and encouragement. I usually find all questions I wish answered, asked by someone else, so I get my answer in theirs. I have been talking and reading up on the silo. In the last 15 years, there have been between 10 and 20 silos built in this neighborhood and all abandoned.

I have lived here a year and know nothing of it except what have read in HOARD'S DAIRYMAN. Am planting and planning to build one this summer; planting cow peas and corn.

Question 1. In what respect is a wooden hoop superior to iron hoops?

Question 2. Are wooden hoops all right for stave silos without matching, or grooving the 2 inch staves? My plan for wood hoops is to use 2x4 staves, spiking them together as fast as set up, with spikes right through each 2x4, into the one previously set up.

The trouble I see is in not being able to tighten the hoops when required.

I have "A Book on Silage, by Woll, and Buff Jersey's "Hand Book" and the Government Agricultural Report on silos, but none of them mention wooden hoops, but in recent issues of your good paper, I see them spoken of as better than iron.

An early reply will be greatfully received as I wish to get material and have it dry. F. L. HILL.

Olathe, Kansas.

1. The answer to Question 1 is that the wood hoops are supposed to cost less than iron hoops.

2. We should hesitate to use the wood hoops under the conditions named, and for the reasons stated. With wood hoops we should either tongue and grove the staves or use double thickness of boards with the acid proof, P & B paper between them.

Kicking Cows.

ED. HOARD'S DAIRYMAN:—I have seen a number of articles in your paper on different methods of handling kicking cows, but none I think which is so easily applied so simple and so effective as the following: Take a quarter inch rope and tie a slipping noose in one end, put it around the cow just in front of the udder and over the points of the hips, draw moderately tight and tie. The cow can't kick the milker because when the lower part of the leg moves forward the point of the hip moves back drawing the rope still tighter. The rope should not be drawn very tight, as if it is, the cow in attempting to move is liable to fall upon the milker. SUBSCRIBER.

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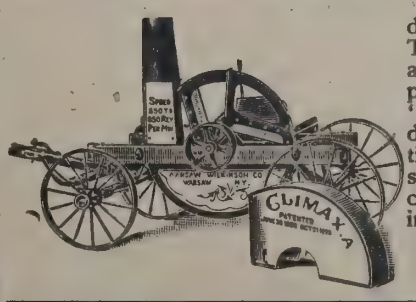
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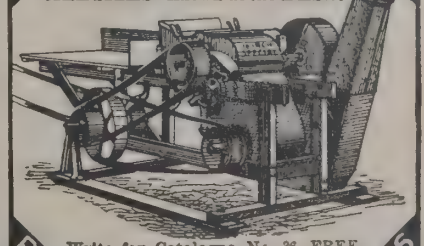


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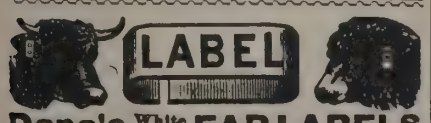
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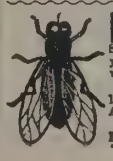
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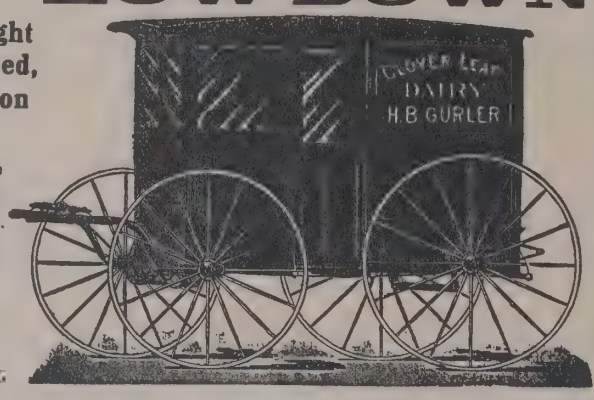
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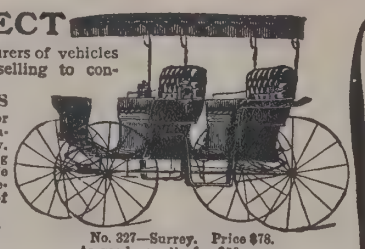
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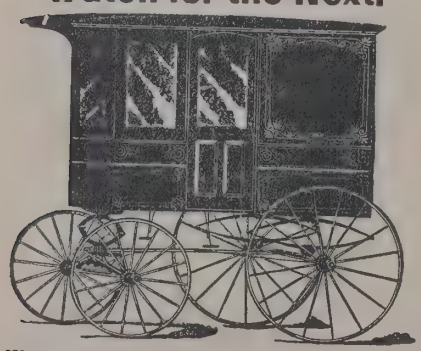


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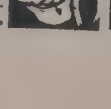


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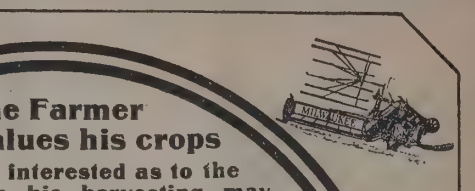
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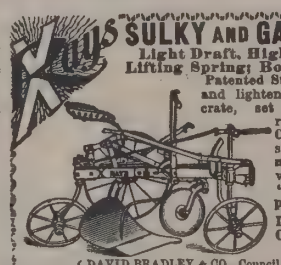
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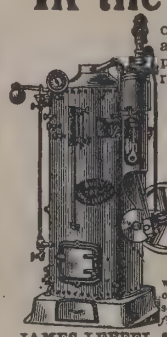
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It Can't Be Equalled For Durability. For Flat or Steep Roofs QUICKLY APPLIED.

Sample Cat. and full information mailed upon request, Free.
The Philip Carey Mfg. Co., 19 Wayne, Lockland, O.

In the Creamery,



cheese factory, on the farm or anywhere else, and for all purposes there is no power so reliable as a

Leffel Engine.

Simplest in construction, makes them easiest to run and keep in order. Being easy steamers they require the minimum of fuel, and develop highest power.

Upright or Horizontal

with engine on boiler, or separate. Unexcelled for cutting, grinding, pumping, sawing, separating, churning, etc. *Book on Power free to intending buyers, stating wants.*

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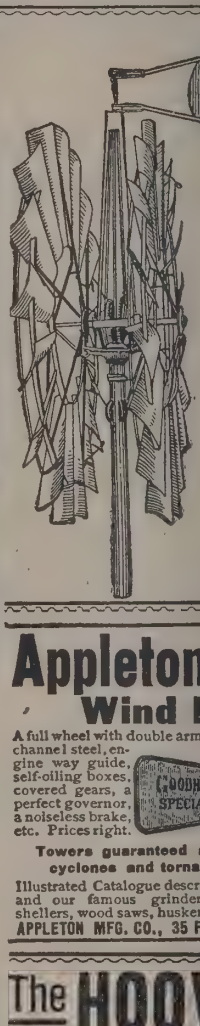
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We will send any bicycle to any address with the understanding and agreement that you can give it **10 DAYS' FREE TRIAL** and if you do not find it easier running, handsomer, stronger, better finished and equipped, more up to date and higher grade than any bicycle you can buy elsewhere at $5.00 to $15.00 more money, you can return it to us at our expense and you will not be out one cent.

$10.95 Buys our new HIGH GRADE 1903 NEWTON BICYCLE, which we guarantee stronger, easier riding, better equipped; better frame, wheels, hubs and bearings than you can get in any other bicycle for less than $20.00. OUR 1903 NAPOLEON BICYCLE is priced at about ONE-HALF the lowest price asked by others. For Free Bicycle Catalogue, hundreds of price surprises in bicycles and supplies, our Free Trial and Guarantee Proposition and our Most Astonishing Offer, cut this ad. out and mail to **SEARS, ROEBUCK & CO.,** CHICAGO



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$1000 Reward

REVOLUTIONIZES WIND POWER.

2-14 ft. Wheels.
10 horse power

All the power you need for $1.00 per MONTH.

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Double Power Mill Co.,
Appleton, Wisconsin

Appleton-Goodhue Wind Mill.

A full wheel with double arms of heavy channel steel, engine way guide, self-oiling boxes, covered gears, a perfect governor, a noiseless brake, etc. Prices right.



Towers guaranteed against cyclones and tornadoes.

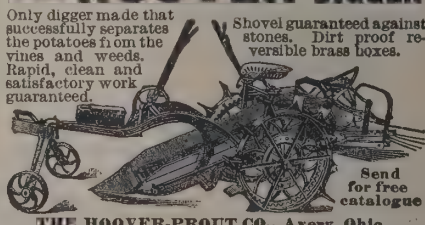
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Shovel guaranteed against stones. Dirt proof reversible brass boxes.



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THE HOOVER-PROUT CO., Avery, Ohio.

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We ship C. O. D. on approval to anyone *without a cent deposit.*

New 1903 Models

"Bellise,"	complete	$8.75
"Cossack,"	Guaranteed High Grade	$10.75
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no better bicycles at any price.

Any other make or model you want at one-third usual price. Choice of any standard tires and best equipment on all our bicycles. *Strongest guarantee.*

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HOARD'S DAIRYMAN.

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Devoted to Dairying and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., MAY 22, 1903. NUMBER 15

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs**
Liberal Advancements Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, New York



ASK YOUR DEALER IN DAIRY SUPPLIES FOR
CHR. HANSEN'S LACTIC FERMENT
To Ripen your cream, ensuring
Perfect Flavor, Uniformity and Keeping Qualities in your Butter.
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HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, BOSTON.**
Medals—Bronze 1878 Silver, 1887, World's Fair, 1893.



This is the Butter Tub that is used almost exclusively throughout the gilt edged Elgin Dairy District. Pretty strong proof of its superiority.

And this is the one—and only—factory in which the **Genuine Elgin Butter Tub** is made—the factory of the
ELGIN BUTTER TUB CO., ELGIN, ILL.

Get the Best Milk Cooler AND AERATOR.



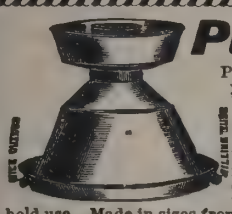
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WRITE US FOR PRICES.

Ask for our new Thirtieth Annual Catalogue of Dairy Apparatus and Supplies.

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Put Your Nose Over It.

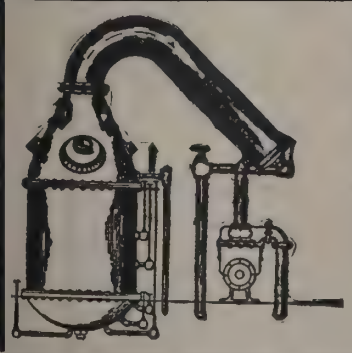


Pull the lid off a can of milk at any shipping or delivery station and put your nose over it. Smells badly doesn't it? Do you know why? It is because the milk was not properly treated. If it had passed through a

PERFECTION MILK COOLER AND AERATOR

it would **smell sweet, be sweet** and **remain sweet.** It takes out all animal heat and with it all bad odors of **animal, stable or food.** Milk so treated makes perfect butter and is perfect for household use. Made in sizes from 1 to 200 cows. Send for free illustrated circulars and prices

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Milk Condensing Machine I supply the most improved machinery and most successful processes for manufacturing all classes of condensed milk and evaporated cream. Factories built complete, put in operation and results guaranteed. If you are interested write for my new illustrated and descriptive catalogue. The only catalogue ever published on the subject.

R. R. ROGERS, Detroit, Mich.

I am not associated with any person, firm or company.



IF YOU ONLY KNEW

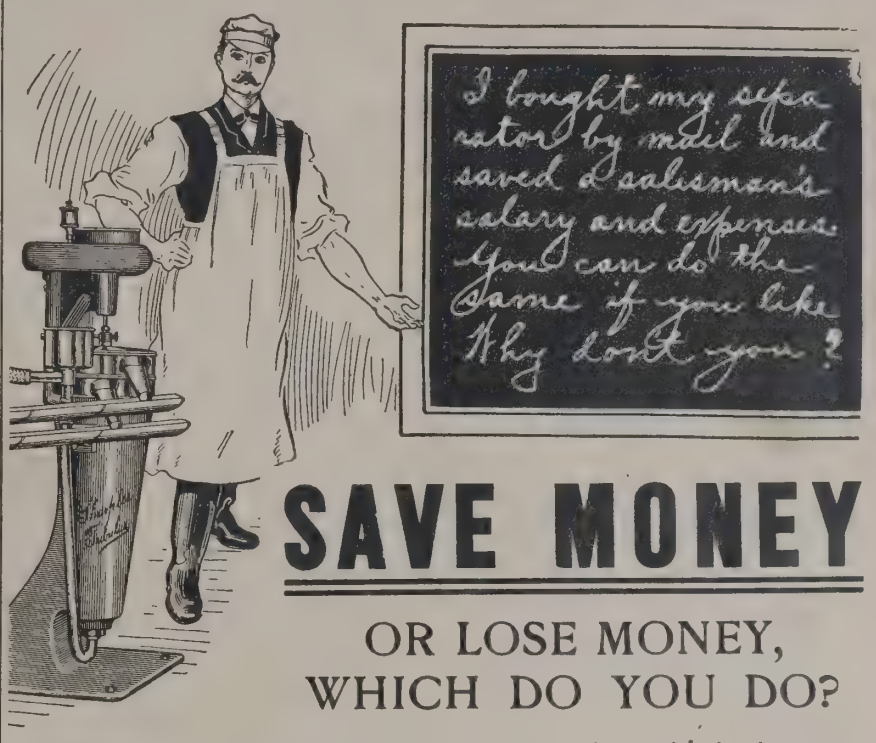
how much money you can save and how much better stove or range you can get, you'd send to-day for full particulars about the

KALAMAZOO Steel Stoves & Ranges

Sold direct from our factory on **360 Days Approval Test,** backed by a $20,000 bank bond. We guarantee perfect satisfaction or ask no pay. We pay the freight. Ask for catalogue No. 163.

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All our Cook Stoves and Ranges have patent oven thermometers.



SAVE MONEY

OR LOSE MONEY, WHICH DO YOU DO?

Some people save money because they think, because they have brains and use them. Others lose money because they don't think, because they let some other fellow tell them what to do. Many people have looked into our new plan of selling the **1903 Suspended Bowl Factory Tubular Separator** and have saved a nice sum of money by doing so. Others are losing money by listening to the "fairy stories" of competitors who are doing their utmost to prevent creamerymen from trying the **Tubular**—the fellows who don't think. A trial of the **Tubular** means that the creameryman will want to keep it, and since any responsible creamery operator in America can have one of these new style separators on trial, without the slightest obligation to buy or keep it, what possible reason can there be for not finding out whether or not they are better than other separators? Can you tell? Would you like to hear from some of the people who think, and who have tried the **1903 Tubular?** Write us and we will give you their names. Wouldn't you like to know more about this new separator and our new plan?

WRITE FOR CATALOGUE NO. 144.

The Sharples Co.,
28, 30 & 32 So. Canal St.
CHICAGO, ILL.

P. M. SHARPLES,
West Chester, Pa
U. S. A.

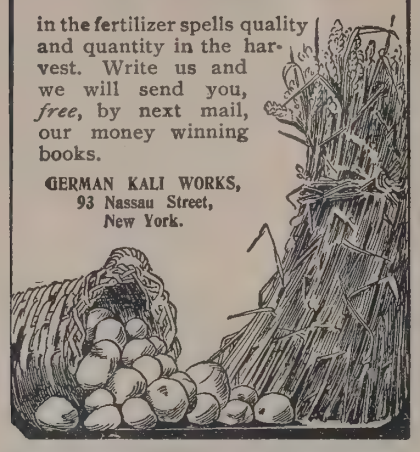
A Golden Rule of Agriculture:

Be good to your land and your crop will be good. Plenty of

Potash

in the fertilizer spells quality and quantity in the harvest. Write us and we will send you, *free*, by next mail, our money winning books.

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Best Results

in feeding for milk are obtained by adding some

BUFFALO Gluten Feed

to balance the ration.

Sample and booklet

"Feed Your Stock for Best Results."

Sent free. Write to-day.

Address Department B

THE GLUCOSE SUGAR REFINING CO.,
The Rookery, Chicago, Ill.

Cheaper than Corn, Oats and Barley.

ATLAS GLUTEN MEAL

Protein for Less Money Than It can be Purchased in Any Other Feed.

Any dairyman that will give this feed a fair trial will not only find it better than other gluten meals but as well the most economical feed that can be purchased.

IT WILL INCREASE

the flow of milk 25 per cent and keep the cows in excellent condition.

All we ask is a trial, if your dealer does not keep it, write us.

ATLAS FEED & MILLING CO.,
Box 164, PEORIA, ILL.

A Problem in Ventilation.

ED. HOARD'S DAIRYMAN:—I have a problem in ventilation that is bothering me, and as I know of no better authority on all matters connected with dairying, than HOARD'S DAIRYMAN, I come to you to help me out of my dilemma. I have been raising up an old barn and putting a stable under it. New sills are put on the wall, and posts put on them to the old sills. There will be an air space of ten inches between the outer and inner covering. I want to put my ventilators in this air space but cannot see how I am going to get around the old sill. My stable will be but 28 feet in the clear, so I cannot afford the room to put them on the inside in the alleys. Can you help me out? I want proper ventilation and would be grateful for any suggestions you may make in the matter. I am going to put in your Model Stall. How long do you make them, from front to gutter? Do you think it necessary to put in a gutter? The stable will be 28×120, 8 feet high. I should be pleased to have your idea as to the proper arrangement of the interior. I want stalls for 50 cows and three or more box stalls. Will you kindly give me an early reply as I want to finish my work before haying. B. C. T.
Boonville, N. Y.

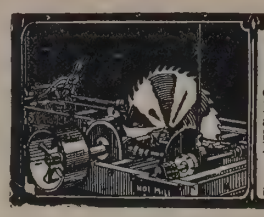
The above problem in ventilation gives us much less concern than the limited width of the stable. So far as ventilators for taking off the cold and foul air are concerned, they can very readily be placed outside the building, and the ten-inch space between the outer and inner coverings is just what is needed to provide ingress of fresh air. These intake flues in this space should open outwardly from three to six feet lower than the ceiling of the stable and inwardly just below the ceiling, and be provided there with a slide to regulate the amount of inflow. We would prefer to have several of these intake flues on both sides of the stable, rather than to depend upon a few larger ones, because in that way the fresh cold air is better distributed throughout the stable, than where it enters at only one or two or three places. For the ventilating shaft proper, provision should be made for a sectional area of four square feet for each twenty cows, which is ten square feet for fifty cows. Build on the outside of the barn, a flue or chimney two feet by five feet on the inside, and let this extend up past the eaves a little higher than the ridge of the barn. Preferably, this should be located as near as possible to the center of the building, and it might be well to provide such a flue on either side so as to take advantage of the shifting winds. Let there be an opening at the bottom, level with the floor of the stable, and another one just below the ceiling of the stable to let off the hot air in summer, both of them provided with slides to regulate the outgo of the air according to circumstances.

Now as to width of that stable, would it not be practicable to build on an addition, say five feet wide, the entire length of the barn, and thus make the stable about 33 feet wide on the inside? Without this addition, our correspondent will always be troubled for room; but with it, he can arrange his stable so as to have the cows face either outward or inward, and have just sufficient room to carry on all stable operations comfortably and economically.

Method of Raising Vetches.

An Oregon Farmer gives the following method of raising vetches:

"I first plowed seven inches deep. In February, sowed 80 pounds of vetches, 60 pounds of oats and 10 pounds of clover to the acre, harrowing three times after sowing. Planting was done in 1901, and since then I have received two crops a year. Off the first cutting enough vetches were obtained from a seven-acre field to make 10 tons of hay and fill a silo containing 100 tons of ensilage. On the second cut the first year, 15 tons of hay were obtained. Last year 25 milch cows were fed on the crop from June 1 to August 15. This year the crop will average two tons to the acre. Last year and year before last 50 pounds of land plaster to the acre were used."



DELOACH SAW MILLS ARE BEST. The Price is Right Too. Known the World Over.

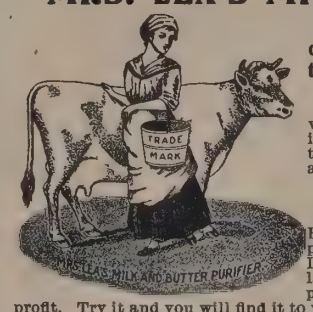
FARMERS' $125 SAW MILL

Cuts 2000 Feet Lumber a day with only 4 h. p. DeLoach Variable Feed Saw Mills, 4 to 100 h. p., any price. DeLoach Mill Machinery, Planers, Shingle, Lath and Corn Mills, Water Wheels, etc. DeLoach Mill Mfg. Co., Box 861 Atlanta, Ga.

Handsome Catalogue Free if you cut this out and give name of paper.



MRS. LEA'S MILK AND BUTTER PURIFIER.



Removes all Weed, Garlic, Vegetable and Animal odor and taint from the milk and in no way injures the cow to which it is fed.

WASHINGTON, D. C., May 27, 1901.

The trial of your "Purifier" made at my request, interests me very much and strengthens my conviction that this "Purifier" is an article which, if it continues to produce the results attained the present season, is destined to be of great importance and value in many dairying districts of this country.

[SIGNED] HENRY E. ALVORD,
Chief of Dairy Division, U. S. Department of Agriculture.

The use of our "MRS. LEA'S MILK AND BUTTER PURIFIER" is a necessity to producers of milk and butter when the pastures are at all infested with Garlic, Onions, Rye or Clover. It is a great saving, as the cows can be grazed, thereby saving largely in feed expenses. It always removes the taints when properly fed. The best dairies are using it largely and with profit. Try it and you will find it to your interest. For sale by The Dairymen's Supply Co., Philadelphia, Pa.; Farmers' Exchange Co, Belle Mead, N. J.; Cook & Brady, Middleton, Del; Filston Farm, Baltimore, Md.; Gardiner Dairy, Balimore, Md.

Manufactured by VIRGINIA CATTLE FOOD COMPANY, Danville, Va.
Write Us for Prices and Further Information.

PURE OIL MEAL. USE FOR MILCH COWS AND FATTENING STOCK.

Superior to corn, oats and hay. Ton lots $23.50; half ton $12.25; 500 pounds $6.75; 100 pounds $1.50. Put up in 100-lb. sacks f. o. b. Minneapolis. Cash with order.

This Meal is Guaranteed Absolutely Pure. We also manufacture Strictly Pure Linseed Oil.

NORTHERN LINSEED OIL CO.,
MINNEAPOLIS, MINN.
When ordering mention this paper.

E. S. WOODWORTH & COMPANY
MINNEAPOLIS, MINN.

Grain and Millstuffs, Shipping and Commission

SEND US YOUR ORDERS FOR

Bran Middlings, Flour Middlings, Red Dog Flour, Snow's Cream Flour Middlings, Chicken Feed Wheat, Dairy Feed, Mixed Feed, Corn, Oats, and Ground Feed. Old process Oil Meal. Ask for prices, and mention this paper when writing us. CAN LOAD MIXED CARS.

CORRESPONDENCE SOLICITED.

SNOW'S CREAM FLOUR MIDDLINGS IN 100-LB. SACKS. The best seller in the market. We make a specialty of Screenings for Sheep Feed.

QUALITY ELMCO MARK

Elmco Mixed Feed

—ANALYSIS:—

Moisture 10.23 Crude Protein 17.90 Ether Extract 5.13

F. W. WOLL, Chemist, University of Wis., Agricultural Experiment Sta.

Blended in uniform and exact proportions for stock and dairy use; consists of pure Bran, coarse Shorts and Red Dog Flour, blended so perfectly that the full benefit of each grade of feed in just the right proportion is obtained, and better than is possible if mixed by hand. Elmco Mixed Feed produces rich milk.

Manufactured only by LISTMAN MILL CO.,
La Crosse, Wis.

Hoard's Dairyman

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Remit by draft on Chicago or New York, or Post Office or Express Order (never by personal check), addressing Hoard's Dairyman, Fort Atkinson, Wis.

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Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

Entered at Fort Atkinson, Wisconsin, as second-class matter.

Notes from Wisconsin Experiment Station.

Boric Acid in Dairy Salt—Condensed Milk.

Ed Hoard's Dairyman:—The following letter was received from a large Wisconsin creamery company a short time ago, accompanied by a sample box of salt (so-called), as stated in the letter:

"One of our customers in the South has sent us a barrel of salt which, they claim, has been treated by a secret process of theirs, but that it is absolutely pure and there is nothing added to it. The claim for this process is that the butter will keep fresh and sweet for an indefinite period. They state that a test made by them sometime ago of a sample quantity of butter salted with this salt, the butter was placed in an incubator and held at a temperature of 80° for a period of 90 days, and that at the end of that time it was fresh and sweet and free from any rancidity whatever. They further state that their experiments have covered a long period of time and that they have used in the many different tests over 400 tons of salt before they obtained the present results. They write that they would like to have us experiment with this salt, and also that they would like to have our Experiment Station analyze it and experiment with it. If you are inclined to give this a test, advise us. We are sending you by freight, charges prepaid, a sample box of this salt. We would like to know if there is anything in it that conflicts with our state laws before giving it a trial or experimenting with it at our creamery here."

The salt was subjected to qualitative tests for boric acid and this was found present therein in appreciable quantities. The statement of the manufacturers that the salt is absolutely pure and that there is nothing added to it is, therefore, not in accordance with the facts of the case.

Anyone who is at all familiar with the action of salt upon butter might also know before hand that it is not true that butter can be kept "fresh and sweet and free from any rancidity whatever" for ninety days at a temperature of 80 degrees by the use of absolutely pure salt. The best grades of butter salt are pretty near chemically pure salt, and the small amounts of impurities found in these, do not, so far as is known, affect the keeping quality of the butter salted therewith to any appreciable degree.

A small admixture of boric acid to the butter or to the salt does, however, check the growth of the bacteria which cause butter to turn rancid and if it was not for the probable injurious effect of this preservative on the health of persons eating food so dosed, its use would be an advantage. But in view of the position of the best authorities among medical men and physiological chemists in regard to this subject, boracic acid cannot be safely used as a preservative for food materials and the laws of a number of the states in the Union prohibit its use for this purpose. The Wisconsin statutes of 1898 thus provide that

"Any person who shall sell or offer for sale, consign or have in his possession with intent to sell any milk, cream, butter, cheese or other dairy products, or who shall deliver to any creamery or cheese factory, milk or cream to be manufactured into butter or cheese to which milk, cream, butter, cheese or other dairy products, boracic acid, salicylic acid or compounds containing them, or other antiseptics injurious to health have been added, shall be punished by fine, not exceeding one hundred dollars nor less than twenty-five dollars."

I wish to bring this matter before the creamery men among the readers of your valuable paper so that they will not be taken in by this or similar schemes and thus unknowingly come into conflict with the laws of the state.

Condensed Milk.

A sample of condensed milk labled "The Gail Borden Eagle Brand" manufactured by Borden Condensed Milk Co., New York, U. S. A., was recently submitted to us for analysis by parties in this state who are considering the question of starting a milk-condensing factory and who wished to know just what is the composition of one of the leading brands of condensed milk at the present time. The sample analyzed was bought in the local market. Its chemical composition was found to be as shown below; to forestall criticism I may say that the methods of analysis followed were those adopted by the Association of Official Agricultural Chemists, and that all possible precautions were taken in the analysis of the sample so as not to permit of doubts as to the correctness of the results obtained.

Specific gravity	1.3002	
Water	20.20	per cent
Total solids	70.80	" "
Fat	6.25	" "
Casein and albumen	7.69	" "
Milk sugar	25.95	" "
Cane sugar	28.91	" "
Ash	2.00	" "

A calculation shows that the milk had been condensed to very nearly one-fifth its original volume and the fat content of the original milk must, therefore, have been about 1.52 per cent, on the supposition that this contained 9 per cent, of solids-not fat, which is quite certain not to be much out of the way. If the milk bought by the manufacturers was of average composition and contained toward 4 per cent of fat, nearly two-thirds of the fat contained therein has, therefore, been skimmed off prior to the condensation of the milk.

There cannot be much said against such a practice if the public buying and using the milk are acquainted with the fact. Nothing is said on the label on the can, however, about the milk used in the manufacture of the condensed milk being largely skimmed. On the contrary, we are informed that "this preserved milk is condensed milk, combined with best refined sugar, and is the same article as that sold forty years prior to 1899 by the New York Condensed Milk Co."

This last statement is not born out by former analyses of this brand. For instance, analyses made by the Canadian Inland Revenue Department in 1897 and 1900; nine samples analyzed in 1897 contained 5.92 per cent fat on the average and as this milk was condensed to about one-third its original volume, the fat content of the milk was 2.42 per cent. In the same way the average fat content of 23 samples analyzed in 1900 by the Department mentioned came at 8.78 per cent, with 3.50 per cent in original milk. Analyses of the Eagle Brand, made by the Massachusetts Board of Health in 1900, show a fat content of 9.75 per cent in the condensed milk and 4.24 per cent in the original milk, and according to an analysis published in the report of 1901 of the Board, this brand had a fat content of 7.38 per cent. In no case has, therefore, such a low per cent of fat been found in the original milk as in case of the sample analyzed by us, nor has the condensation been carried so far in samples previously analyzed, as far as we are able to judge from the reports published.

The composition of the condensed milk is not a matter of great importance to a healthy adult, from the point of food value, only he is not getting what he thinks he is, but the matter stands entirely different when the condensed milk is used for the feeding of infants. The directions on the can say that for infants, 14 to 16 parts water is to be added to one part of condensed milk during the first month and the amount of water added is decreased gradually as the child grows older until at the age of 10 to 12 months 6 to 7 parts water to one part of condensed milk may be used. Medical men would say without hesitation that it would be to put infants on a starvation diet to feed them on condensed milk of the kind in the tin analyzed diluted 14 to 16 times its volume with water, as given on the directions. The unfortunate infant would not be able to take up enough food materials in such diluted solutions to cover the absolute needs of the body, to say nothing of gaining in weight.

The brand of condensed milk analyzed by us is considered one of the leading brands now on the market; our results certainly show the need of looking into the composition of the other brands on the market as well as, in justice to the manufacturers of this sample, of analyzing a number of different cans of this brand. As the subject of human foods lies outside of the proper sphere of activities of our department, I have called the attention of the State Food and Dairy Commission to the matter and am pleased to state that they are preparing to take up this work in the near future. The influence of the publication of the results of such an investigation can only be healthy and will be likely to make the use of cream separators less popular in milk-condensing factories. I hope that the day is not far distant when we may have a National pure-food law on the U. S. Statutes and this, among other things, will provide for a standard of at least 12 per cent solids in milk used for the manufacture of condensed milk, of which one-fourth shall be butter fat.

F. W. Woll
Wisconsin Experiment Station.

The Dual-Purpose Cow.

While so much is being said about the general-purpose cow, why is not more said about a scale of points by which she in perfection may be known? Why don't our state fairs have a general-purpose class in which this general-purpose cow can appear, that the people may know what she looks like? The believers in this cow should certainly do more toward making known to the public just what she is. Should not the agricultural experiment stations make this a subject of experiment and investigation?

The general-purpose cow has been the cause of much heated discussion. Prominent agricultural authorities have been arrayed against one another in discussing the pros and cons of this general-purpose proposition. It is time that we have something more tangible. One side has claimed that she does not and never would exist, while the other was as positive in claiming that she was here in great numbers, and that she could be bred to a certainty. Although this controversy has been going on for many years, we did not know, until recently, of a single instance in this country where a breeder claimed to be a breeder of dual-purpose cattle, and manifested by practice that he was sincere. We have repeatedly seen herds advertised for both milk and beef, but have later found the calves running



Why the Butter Don't Come.

We have been frequently asked to give reasons why the butter don't come. For the most part we have confined our replies to suggestions as to the ripeness of cream, period of lactation and temperature of churning. The above, copied from the *Inland Printer*, shows a reason why the butter does not come, that we have failed heretofore to take into account. It seems to be a valid reason.

with the cows, and no attention whatever paid to the milk side of the question. The time has come when this matter should be put on a more definite basis.

We do not wish to be understood as taking sides on this question, for with all the eminent authority on both sides, we can plainly see that the problem has not yet met with a thorough solution. Nevertheless, we believe that it is time that something be done towards solving this problem. Farmers want general-purpose breeding stock, and if such exist they should have a chance to know what they look like, and the breeders should have an idea of what to breed for. Until such an idea is better known the breeding of general-purpose stock is liable to be very much of a haphazard undertaking.

Of all the Short-horn breeders in Minnesota, Blackmer & Nelson, of Albert Lea, and James Stewart, of Montevideo, are the only breeders that we know of who are paying special attention to the milking side of their full-blooded Short-horn herd. Their animals are chiefly of Bates breeding. Their calves are not allowed to suck, the cows are milked, and the annual production of each cow is approximately known, and the calves, after the first few weeks, are reared on skim milk and grain. There may be others who are following this practice. However, if such is the case they have not made their presence known. We hope in the future to hear what the dual-purpose cow is doing at the pail as well as at the block. We have asked R. C. Blackmer, who is making a specialty of breeding general-purpose stock, to give us a descriptton of the general-purpose Short-horn cow that he is aiming to produce in his Short-horn breeding. As he is one of the first to set up a standard of excellence, we herewith give his description of what he considers the ideal conformation of the dual-purpose Short-horn cow.

He says: "She should carry the straight, beefy back, and straight meaty hindquarters. The rear quarters should be set wide apart, to allow room for a capacious udder, which should be large and square, with well placed teats. She should have large milk veins, and large milk wells. She should have somewhat more of the open organization than the straight beef type, in other words, she should not be as compactly built as the special-purpose beef cow And there should be an exceptionally long distance from point of hip to first rib, and the ribs, especially the last two, should not be set very close together. Her head should be spare, with that feminine, motherly appearance so much admired in the dairy breeds. She should have the live, velvety touch peculiar to all stock that are economical feeders, and she should weigh not less than thirteen hundred at maturity."

In the above description there seems to be but little to interfere with the laying on of high priced flesh, and the milking functions are not seriously hampered. This is the beginning, on the part of Mr. Blackmer, of establishing a dual-purpose type in his own herd, and the dual-purpose advocates will be doing the breeding interests a great service by uniting with him in fixing on a definite standard for both males and females.—A. W. TROW in *St. Paul Farmer.*

The Necessity of Farm Accounts.

[Paper Read Before the Salem Co., N. J., Board of Agriculture by MISS JESSIE COLSON.]

We have listened to numerous discourses on various farm topics, but we have never listened to one on the necessity of farm accounts, and yet they are the foundation upon which most of the discussions are based. When Prof. Vorhees talks to us about cows, and Prof. Smith about insects, do they not speak from the financial standpoint—Will it pay? Just as they keep an account to know whether their experiments are practical, so should every farmer keep an account to know whether his methods are sufficiently remunerative.

Every business man is supposed to have his own methods of keeping his accounts and, of course, they are for private information. While those engaged in mercantile and other pursuits usually keep accounts, is it not true that farmers, as a rule, do not keep accounts? Whenever they enter into a transaction the other party usually keeps the account, and when settlement day comes there are often misunderstandings and difficulties. Every farmer, in justice to himself, his family and his estate, needs to keep an account; to carefully file away every year receipted bills, tie them in bundles and mark the year on the outside.

Also, preserve the account you keep with your help, so that where there is no bill there is an account showing date and amount paid. Servants have been known to hand in bills for unpaid wages after a death, when such an account has proved their claim to be false.

There is no reason why a farm account can not be kept as easily as accounts in other occupations. What seems difficult at first will become easy with a little practice, care and patience. The result will amply repay the time and trouble expended. It will be a valuable reference from time to time, a revealer of little leaks and a basis to plan future expansion along special lines.

It is decidedly best for the farmer to keep his account, but if he does not wish to do so, rather than not have an account, let his wife or some other member of his family keep it. When kept by the wife it enables her to see how the money comes and where it goes; it leads her mind more in thought with her husband, thus making it possible for them to work together in greater harmony toward a given object.

An account kept with each child would reveal unthought of truths and make the children more careful of their clothing and other financial demands. There would be a business basis established in the household. Figures and facts would stand in the place of imaginary extravagances and excessive home expenses. There would be a basis upon which to figure for reducing expense and increasing income. An account makes possible a company or family trust with the division of labor, the accompanying responsibility and remuneration.

A farm account has a moral and intellectual effect upon the farmer's family. Its moral effect consists in trying to be accurate, upright and honest; its intellectual value is in the mental efforts in keeping the account and in solving the various problems involved.

To keep an account with each child, each animal, each crop, and every employe, would be quite an extensive system of book-keeping. While it is possible, and I believe practical, to keep an account with the various crops of corn, wheat, potatoes, tomatoes, horses, cows, sheep, chickens, etc., I do not think it advisable to undertake so much the first year; but it is advisable to keep an account. Make a beginning! Let your bank book be your model.

On one page write all expenses, with date and item; on the opposite page write receipts with name of article sold, date, price, quantity, etc. At the end of each month, balance the account and carry the balance to the next month; at the end of the year you will know how many dollars you have received and spent and what for. Try to pay and try to collect every bill possible during the month. Whenever you buy an article and do not pay for it, be sure and take a bill for it and when you do pay have it receipted, to be carefully filed away with the other bills of the year. In case of a store account, have a book and take care to keep it accurate.

The first of April is a very good time to take an account of stock, because it is the beginning of the farming year. Make an appraisement of your belongings just as though you were doing it for some deceased friend. This record, with the year's account of expense and income, will give a very fair estimate of your year's success and your financial standing. From the day book you can check off and enter in another book any class of articles you may wish to sum up for the year, such as living expenses, wages, fertilizers, feed, incidentals, etc. Such accounts are interesting to compare from year to year. They are valuable for reference and an incentive to try to do better another year.

Book-farming has often been spoken of in a slighting way, but the time is fast approaching when accurate business methods must be practiced by every farmer who wishes to be successful and maintain a position of equality, socially and financially with his brothers in other professions and occupations.

Probably the numerous failures of book-farming have been due to the omission of a book account and the lack of good judgment. It is possible at the present price of feeding stuffs to buy feed for cows, with the idea of increasing the milk flow and, therefore, the income, and be running in debt by the transaction. An account before and after would surely be worth the trouble and a sure cure. Do you remember Ditrich saying "the cows ought to keep the farm and the farm the cows?" If they cannot do that much, they had better be sent to the block.

Every year farming becomes more intensive. Greater care and more concentrated thoughts are demanded. As the successful farmer of the past combined mental arithmetic, good judgment and careful execution, so likewise must the successful farmer of the present and the future, but he must transform his mental arithmetic into book-keeping, his personal experience and observation must extend beyond his narrow fields into the broader fields of creation, and his execution must be guided by the fairy hand of science.

The Overrun From Cream.

What Should It Be?

Quite a few creamery patrons here are putting in DeLaval hand separators and I among others. Ours is a Baby No. 2. It is doing excellent work. We find it very much better to get our skim milk at regular hours twice a day, to feed sweet and fresh from separator, than to get it returned about noon from the creamery in a sour condition. Our cream can is placed in a spring branch where it quickly cools and reaches the creamery sweet.

Our creamery does not buy our milk, but we pay them a stipulated price per pound for manufacturing and marketing the butter. The cream is tested by Babcock machine. The sample of cream for testing is weighed, 18 grams being the amount taken. Now we refer the question to you as to what the practiced overrun should be as between creamery man and patron. For example: 153 pounds cream, test 37 per cent fat, and 189 pounds testing 33 per cent fat.

The creamery man and patrons are trying to arrive at a just determination of this question of overrun from a practical standpoint. A. M. STEVENS.

Ellensburg, Wash.

The amount of overrun to be expected from fat in cream will depend very much upon the character of the butter produced. As is well known, commercial butter is not wholly pure fat, but contains more or less water, salt and curd. The curd and salt may be considered as fairly constant, but the water content of butter varies quite widely. In eight hundred samples taken from four hundred creameries in eighteen different states of the United States in 1902, the amount of water varied from 7.2 per cent to 17.62 per cent, the average being 11.78 per cent. If we allow 12 per cent for water, 3 per cent for ash (principally salt), and 1 per cent for curd,—16 per cent in all,—there will remain 84 per cent of pure fat in the butter. On this basis of fat, making allowance for a minimum loss in churning, say two-tenths of one per cent, the increase for 37 per cent cream would be 19 per cent. If the butter contained only 82½ per cent of butter fat, the overrun would be 20 per cent. If the butter contained 85 per cent fat, the overrun would be about 16¾ per cent. In view of all these figures, we have considered 18 per cent overrun as quite within possibilities for any modern creamery equipped with up-to-date machinery and presided over by a competent butter maker.

On this basis, 153 pounds of cream, testing 37 per cent fat, should yield 66.8 pounds of standard commercial butter; and 189 pounds of cream, testing 33 per cent fat, should yield 73.6 pounds of butter.

Alfalfa Don'ts.

Don't sow alfalfa on poor soil.

Don't sow alfalfa on wet soil.

Don't forget to clip it three times the first year.

Don't turn any stock on it till the next May.

Don't let alfalfa hay get dry before raking.

Don't fail to cut your hay in time. That means to be ready to cut by June first.

Don't ever let stock on your alfalfa meadows in cold weather.

Don't sow alfalfa seed on unprepared soil, as you do clover.

If it fails with you, manure the land and try again.—JOSEPH E. WING, in *National Stockman and Farmer.*

All Humors

Are impure matters which the skin, liver, kidneys and other organs can not take care of without help, there is such an accumulation of them.

They litter the whole system.

Pimples, boils, eczema and other eruptions, loss of appetite, that tired feeling, bilious turns, fits of indigestion, dull headaches and many other troubles are due to them.

Hood's Sarsaparilla and Pills

Remove all humors, overcome all their effects, strengthen, tone and invigorate the whole system.

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Parchment Paper.

It preserves for long periods the purity of the butter, keeping in all its natural sweetness and flavor, and shutting out everything that would taint or cause it to become rancid. It is purely a vegetable paper, without smell or taste. Your name, trade mark, or dairy may be printed on every package, and it will never rub off or discolor the butter. While it protects your good butter it makes and preserves for you a good name. Send for samples and ask for copy of our booklet, "Better Butter." All sent free.

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The Gem

FIBRE PACKAGE.

The border of this advertisement is a section of the **Package** cut in half. It shows just how the **Package** is made. Note the three thicknesses of fibre in the walls. Note how the sides and the inside bottom are pressed and dovetailed together. Note how the whole is reinforced by the extra bottom. It's lined throughout with parchment paper. Treated as it is, it **is impervious to moisture, mildew** or **mould.** It will not sweat in warm weather and is slow to freeze in cold weather. It's the ideal market package for anything but is specially desirable for butter. Made in numerous convenient sizes. Illustrated booklet and samples **mailed free.**

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Dept. E, Gem Building, Detroit, Mich.

My Experience in Feeding Alfalfa to Hogs.

[Extract from paper read before the Interstate Swine Breeders' Association at Lincoln, Neb., by G. H. PAYNE of Omaha.]

Alfalfa is a great subject. The more you see of alfalfa, the more you hear about alfalfa, the more you want to talk about alfalfa. It is one of the handsomest field plants that grows, being the first thing to show green in the spring and the last to lose its beautiful color in the fall. The sheep love it, the cattle live on it, the chickens grow fat on it, the pig will run for it. It is claimed (?) the Mormon makes tea of it and the Indian smokes it—but perhaps you can take the last two statements with a few grains of salt.

My experience in feeding alfalfa to hogs is not extensive, although I have studied the subject very carefully for the last few years, being interested for some time in a small ranch at Sidney, Neb., where we run about 2,000 cattle and put up from 1,000 to 1,200 tons of alfalfa per year; and also being interested in several farms at North Platte and Lexington, in the heart of the alfalfa belt.

Wishing to satify ourselves more fully on the subject, we determined, a year ago, on our farms at North Platte and Lexington, to make a thorough test of the value of alfalfa for hogs. I can describe our progress no better than by quoting from a report we issued on Nov. 23, 1902, as follows:

HOGS ON ALFALFA—EXPERIMENTS CONDUCTED ON THE SUMMER RANCH

NORTH PLATTE, NEB.

On the above farm there is a small tract of land, 21 acres old alfalfa, and 5 acres new alfalfa, sown in 1902; total, 26 acres.

The first crop of alfalfa was cut June 1, and from that time up to date has been pastured with an average of about 160 head of hogs, all ages.

In addition to running 160 head of hogs on this 26 acres of land, the hay was cut three times, making a total of 88½ tons of hay. This was sold to a cattle company and fed out on the property, we doing the feeding, at $5.00 per ton, netting the owners of the property over $13.50 per acre for the alfalfa, in addition to pasturing, as above stated, 160 head of hogs. The hogs were weighed on the 14th day of each month, with this result.

EXPERIMENT WITH 59 STOCK HOGS.

June 14, weighed an average of 108 pounds each.

August 14, weighed an average of 144 pounds each.

This was a gain of 36 pounds each in 60 days, or .6 of a pound per day. These hogs were fed, as near as could be measured, one-half pound of shelled corn per day, the gain in weight per day being greater than the grain fed. A very satisfactory showing, the gain costing less than one cent per pound for grain fed.

EXPERIMENT WITH 30 SHOATS.

August 14, weighed an average of 131 lbs. each. They were put in separate pastures and fed about 4 lbs. of ground wheat and rye per day, with all the alfalfa they wanted to eat.

Oct. 14th, weighed an average of 190 lbs. each. This was a gain of 59 lbs. in 60 days, or practically 1 lb. each per day. This experiment showed an unsatisfactory gain in comparison with the large increase in grain fed, but the only solution we can give is that the ground wheat and rye, fed with the alfalfa, was not as good a balanced ration as corn fed with alfalfa, and that where the grain was increased they ate that much less alfalfa.

EXPERIMENT WITH 22 THOROUGHBRED DUROC JERSEY GILTS.

Sept. 14th, weighed an average of 100.1 lbs. each.

Nov. 14th, weighed an average of 151.3 lbs. each. This was a gain of 51.2 lbs. each in 60 days, or .8 of a pound a day. These hogs were fed one pound of ground wheat and corn each per day, and alfalfa pasture.

This is considered the best gain of all the experiments, .8 of a pound per day being considered a very large gain with such a small grain ration and the grain being wheat and corn. These hogs were in excellent flesh and took very heartily to the alfalfa pasture. The small ration of grain named went direct to gain, almost pound for pound.

It is generally conceded that it takes from four and one-half to six pounds of grain to make one pound of pork. The experiments above prove, beyond all question of a doubt, that a gain of one pound of pork can be made with from one to two pounds of grain and such alfalfa pasture as a hog will eat.

IN CONCLUSION.

First, we do not believe hogs will thrive on alfalfa hay alone, nor do we think it pays to expect young pigs are going to do well on alfalfa pasture only.

Second, we do believe that you can turn shoats on an alfalfa pasture in the spring, and with one pound of corn per head per day make a gain of one-half to three-quarters pound per day, or from 125 to 150 pounds during the six months grazing season, which is making pork at a low cost.

Third, we also believe from experiments we have made, that by chopping alfalfa hay (this must be good hay where the leaves have been preserved) and mixing this with ground corn, at the rate of about one pound of corn to five or six pounds of alfalfa, that it will make a ration that will carry stock hogs over the winter as satisfactorily to the owner as the ordinary ration, mostly of corn, at one-third the cost, and the animal will be in better condition to ward off disease.

Alfalfa, particularly the Turkestan, is gaining small footholds all over the Dakotas, and its possibilities are of growing interest.

Siloing Alfalfa. Getting a Profitable Herd.

I am a subscriber but a short time, but I read every number with great interest and derive much benefit from it.

The silo question is very interesting to me and wish very much to build one as soon as I can.

I have about 50 acres of alfalfa. Would it not be the best way to feed it from a silo. It, in the dry form, is the only feed excepting grass, that I depend upon, to produce milk.

I have 20 cows of variable breeds—none of the special dairy kind. Do you think it would be practicable to sell off those I have and buy good grade Jerseys and breed up from them? S. S. Gill, Kans.

Various of our correspondents in California, and other sections where alfalfa has been raised for some years, write us that they have met with great success in putting alfalfa in the silo, and we are so persuaded of the practicability of doing this, that we shall ourselves try it this season, if the weather at the time when the first crop should be cut is not favorable for curing it. We would not advise our correspondent to think of making the entire crop from his fifty acres into silage, but would reserve two or more of the cuttings for hay.

We would not advise the selling off of the present herd of cows as a whole and substitute grades of any description, but we do unhesitatingly advise the adoption of a thorough system of bookkeeping in connection with the cows now in the herd. Weigh the milk of each cow at every milking and have it tested for quality once or twice a month and thus determine which of the cows in the present herd are profitable and which are not profitable. Dispose of the unprofitable cows and keep the others. Secure a first-class bull to head the herd and thus raise a new herd which, in all human probability, will exceed in quality, as an average, anything that he can purchase.

"ADVERTISEMENT".

FROM THE BENCH.

A Judge Commends Pure Food,

A Judge of a Colorado Court said: "Nearly one year ago I began the use of Grape-Nuts as a food. Constant confinement indoors and the monotonous grind of office duties had so weakened and impaired my mental powers that I felt the imperative need of something which neither doctors nor food specialists seemed able to supply.

"A week's use of Grape-Nuts twice each day convinced me that some unusual and marvelous virtue was contained therein. My mental vigor returned with astonishing rapidity; brain weariness (from which I had constantly suffered) quickly disappeared; clearness of thought and intellectual health and activity which I had never previously known were to me the plain results of a few months' use of this food.

"Unhesitatingly I commend Grape-Nuts as the most remarkable food preparation which science has ever produced so far as my knowledge and experience extends." Name and address furnished by Postum Co., Battle Creek, Mich.

The judge is right. Grape-Nuts food is a certain and remarkable brain builder and can be relied upon. There's a reason.



The heavy old milk cans are covered with dust,
All piled up in grim array.
Their mission is ended—on the shelf let 'em rust,
We work in the EMPIRE WAY.

The Cat is Watching.

Tabby, of course, does not understand why it is so. Perhaps she remembers the days when Molly thought it was a day's work to wash the cans and pans they kept the milk in. Molly knows though that it is the

Empire Cream Separator

that lessens the work and keeps all the profits of the dairy right at home. The sweet milk is left for feeding your stock. There is money in most separators, but the most money in an **Empire.** It is the simplest in construction, the lightest running, the easiest to clean—the most profitable in every way. We have a book that tells you why. Get it.



Empire Cream Separator Co.,
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Western Office, FISHER BUILDING, CHICAGO.



Notice to Dairymen

If you are thinking of buying a Cream Separator write us for Catalogue and information. We manufacture the best machine on the market.

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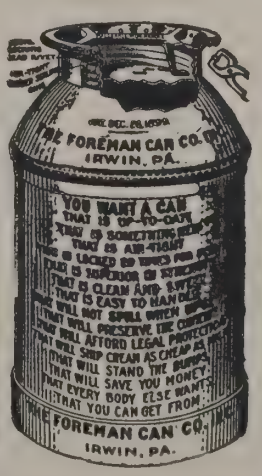
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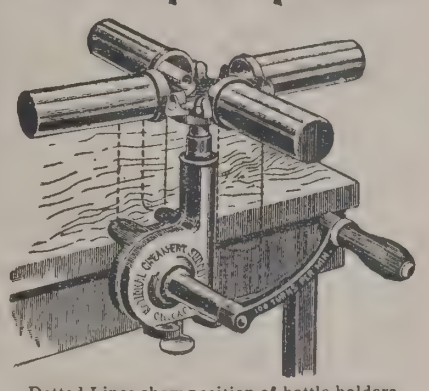


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Dotted Lines show position of bottle holders when not in motion.

Has enclosed cut gears.
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Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

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It costs no more to feed a profitable than an unprofitable cow.

NET PRICES:

No. 1,—2 bottle, complete for testing milk.... each ..	$4 00
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Prices include full directions for making test, bottle of acid, test bottle brush, acid measure, dipette and test bottles.

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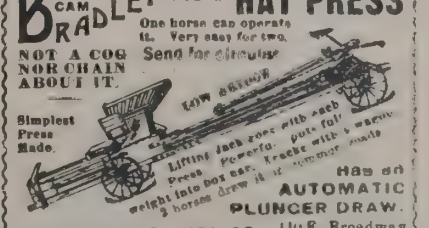
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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

MILK RECORD BLANKS.

In compliance with numerous requests, HOARD'S DAIRYMAN has prepared two kinds of Milk Record blanks. Each blank has spaces for entering the morning and evening yield of milk for thirty-one days, and differ only in that the larger blank suffices for ten cows, while the smaller one is intended for only one cow, but has a column for the per cent of fat and a wide space for remarks. These blanks are printed on heavy manilla paper, are furnished at only a slight advance on bare cost, and should be faithfully used in every stable, for in no other way can the dairyman know with any degree of certainty which of his cows return him a profit and its amount, and which are kept at a loss and its amount.

See the Business Department's advertisement of these blanks in another column, and order at least enough to give a fair trial of their usefulness.

THAT is a rare compliment Mr. Geo. Hail pays the DAIRYMAN in his silo inquiry in another column, when he says: "It so completely covers the whole business that a man only has to read it carefully a short while and he gets all the information wanted."

PROF. HAECKER requests us to announce that copies of bulletins 67 and 79 can be obtained free by applying to the Minnesota Experiment Station, St. Anthony's Park, Minn.

SINCE 1884 the amount of milk shipped into New York City has increased three-hundred per cent. We are certain that neither the increase of population nor of cows, is within two-hundred and fifty per cent of that figure. What is true of New York, is true also, of all other cities and villages of the country, to a certain extent. These facts ought to convince the dairy farmers of the land, that there is a good busines ahead of them in raising dairy cows from specifically bred dairy sires.

THE name of T. S. Cooper is so indellibly linked with American Jersey interests that it seems almost a work of supererogation to call attention to his forthcoming sale of imported Jerseys at Linden Grove, May 30th. It is entirely safe to predict a large and enthusiastic attendance of Jersey breeders on that occasion, and that there will be spirited contests for the possession of some of the specially fashionable animals, but if this sale follows the precedents established at previous Cooper sales, much the larger proportion of the animals will sell well within the limits of actual value to breeders who are not millionaires or the sons of millionaires, and have no money to invest simply to gratify personal ambition or pride. The Case and Walker Sale, to which reference is made elsewhere amply justifies this forecast, and should be an encouragement, not alone for professional breeders, but for progressive dairymen to attend this sale. Indeed it will be time and money well spent to attend, even though no purchase be made or contemplated. It will be a liberal education in animal husbandry just to see such a collection of the best animals the Island of Jersey can turn out.

There are two kinds of value in dairy cows. One is ability to produce profitably at the pail, and in this respect the dairy cow occasionally has a not unworthy rival among general-purpose animals, and even among the strictly beef breeds. Although this is a value not to be lightly considered, it is of vastly less importance than the ability to transmit dairy capacity to her offspring, whether in the strictly dairy herd or in the herds of professional breeders. Not all dairy-bred cows have this ability, and so far as the records show none of the general-purpose or beef animals have exhibited ability of this character. This ability is very properly termed prepotency (overpotency) because the sire or dam possessing it appears to have a preponderating influence upon the offspring. It is also a transmissible quality.

It is because of these facts that we urge breeders and dairymen to attend such sales as, for example, that of Averill & Gregory at Syracuse, June 4th and 5th, where such animals as A. & G. Butter King (whose first three daughters are going into the Holstein Advanced Registry), and Segis Inka (with a record of over 20 lbs. butter in seven days and a daughter better than herself), are to be offered. These are but samples of the meritorious animals in the justly celebrated A. & G. Herd.

CANNED CHEESE CURD.

Prof. Pernut, of the Oregon Experiment Station, has made some very interesting experiments in taking fresh cheese curd ready for the press and sealing it hermetically in tin cans. In this condition the curd goes through the curing process in good shape. The cans holding about five pounds were first paraffined, the curd was then packed in the tins under pressure remaining in the press over night. They were then soldered and laid away. The loss of the rind and a large per cent of the usual shrinkage was thus avoided. Who can tell but what this may open the door to a new method of putting up cheese for market?

WHY BREEDERS DO NOT EXHIBIT THEIR CATTLE MORE.

Secretary Caldwell in the last Guernsey Herd Register discusses briefly the reason why so many Guernsey Breeders do not exhibit their cattle at fairs. There are two reasons which he does not state: Dairy cattle are much more sensitive to change than beef cattle. To make a good impression a dairy cow must be in full flow of milk. If she is in that condition to take her to a fair is almost always sure to injure her for that season at least. Then again with bulls, the foolish demand of the show ring is that the animal must be in a show condition. He must be fat and in a condition which is diametrically opposed to his usefulness as a breeding animal. Mr. Wallace, one of the leading breeders of Ayrshires, in Scotland, refuses to exhibit his cattle at fairs.

A few years ago he wrote us that his reasons for this action were that the judges demanded that show animals be fitted for exhibition in a manner and condition which utterly unfitted them for their chosen work. He could not exhibit his animals, and have them judged on their merits as dairy cattle. Therefore he chose not to exhibit. We have frequently seen a Shropshire buck so fitted for exhibition that the owner would confess that he was worth nothing as a breeder. While animal judging is kept on this senseless line, owners of fine dairy cattle will feel loth to place them on exhibition, even if such showing would prove of great advertising value.

ODDS AND ENDS.

Judging from letters received, there is a very large amount of "want to know" concerning the amount of fat in milk and cream, among dairymen. This is no new condition, only it seems to be more widespread than formerly and the want to know is much more decided in its character. It also seems that the average dairyman is always a "bull" on the richness of his products. So long as the per cent stays up there is no complaint, but let it go down and there is at once a want to know feeling, which is expressed to the buttermaker, the neighbors and in some cases to the DAIRYMAN. The question is usually expressed about as follows: My test in milk, or cream, last month was ——; this month it is so much lower. Why should it be thus? My cows are the same, no change in feed, care, separator, cream screw, wind, water, or distance to factory.

It is difficult to educate dairymen into the fact that both milk and cream vary widely in fat content, and that for no reasons that can be given as satisfactory. No cow can be kept in such regular conditions as to food, drink and surroundings, that the composition of the milk will not change from day to day and from hour to hour. The action of the nervous system of the cow is beyond measurement by any instrument possessed by the Experiment Station and until such an instrument is invented, the reason why a cow gives 4.5 per cent milk Monday and 3.5 per cent milk Tuesday, will be beyond explanation. The men who buy sugar beets trust nothing to the theory of averages, they sample and analyze every load of beets; the man who mines gold also samples and analyses, but the man who produces milk trusts to averages and only kicks when he finds his returns sometimes below the point that he considers proper.

If the milk is a variable quantity, the cream must necessarily follow. The separator, although a powerful machine, is limited in its action. It will remove all the fat, but the amount of skim milk that comes along with the fat varies. It may be more or less according to the different conditions that affect the separation—the rapidity with which the milk is fed, the temperature of the same, the amount of fat it contains, etc. No dairyman can make these conditions so uniform and unvarying that the per cent of fat in the cream will not change with every mess of milk separated. The change may be but slight, or it may be considerable in amount and the butter maker is not to blame if your cream tests 20% fat this week against 25% the last week in March. If you don't believe it, make a few experiments with separator and Babcock test, and you may be convinced even against your own will.

There are many things connected with the dairy that cannot be brought down to exact figures and one of them is the exact or approximate value of a cow. What is a cow worth, is a never ending question because of the unknown qualities which enter into her make up. In the first place, the cow is a machine and as such she always has a certain value. Her foundation price may be anywhere from $25 to $50, according to her weight and the price of old cow for canning or bologna. The question is as to how much value must be added to the above to obtain her actual value. It is safe to assume that the yearly net profit enters into this question. If the cow returns to her owner a net profit of $10 over and above all expenses, the cow is worth to him $10 over her value as a beef producing animal. So if we want to put the above in a formula, we can say that the average cow is worth her beef value plus her yearly net profit, or she is worth her own live weight plus her owner's ability as a dairyman as shown in net profits. The best Jersey or Holstein that ever lived would be worth but their live weight in the hands of some men, while a scrub would be worth twice the value of the pure bred dairy cow if it was in the hands of a skilled feeder and dairyman.

So it seems to be a question of what is the cow value of a dairyman as well as the cash value of a cow.

Some time since the scientists informed us that the keeping of silage depended on the intramolecular respiration of the cut cells of the corn, which used up the oxygen of the air, caused a decided increase of temperature with consequent conditions for producing silage of good quality. But once in so often the practical silo man comes along and "wants to know" why his silage don't keep, has spots of mold around the sides or in the center. It is of not much use to tell him that the intramolecular respiration is insufficient for the proper formation of the silage, and we have to fall back on results from practical work which indicate that corn, as is frequently the case, when left to mature much beyond the glazing state of the kernel, contains a much smaller amount of water than when it is cut at the proper time. The result is that there is enough water left in the corn to grow mold and not enough to soften the cut corn so that it will pack solid and keep out the air. The remedy for such conditions is to add water during cutting. This softens the hard, partly dry corn and the mass packs better, with much less liability of mold.

When the universal tendency is toward simplifying weights and measures it seems like advancing backwards to make any change in our present system unless it be towards simplicity. The Minnesota Legislature, for reasons best known to itself, passed a law last winter providing that milk measures should be based on a gallon of 282 cubic inches. There is at present the dry measure gallon of 268.8 cubic inches; the liquid measure gallon of 231 cubic inches, and to make confusion worse confounded, Minnesota now has one of 282 cubic inches. It would be interesting to know the reasoning and facts on which this new gallon was established. There must have been something else besides the fact that Queen Elizabeth constructed a standard gallon of 282 cubic inches, for that does not seem sufficient to tip over the present standard, and modern Minnesota is a long distance from Queen Elizabeth. If it had been attempted to establish a metric gallon of 244 cubic inches there would have been some reason in the change, but we can see no rhyme or reason for the change in the size of the Minnesota gallon. F. G. S.

Sorghum Silage.—Milk Fever.

ED. HOARD'S DAIRYMAN:—On page 310 I saw an article on sorghum silage from H. B. Cowles. Last year I planted a few acres of sorghum seed with corn, half and half. When corn was right for silage the sorghum was all headed out. I was delighted with the big yield. I cut it with binder and let it wilt for two days. Having two silos it came so that each silo had its share of same, having all corn below and also on top of it.

As soon as I came to the mixed silage the cows did not like it near as well, although it looked perfect, only smelling more sour. I had quite a shrinkage of milk which lasted till I came to the full corn silage again. It turned out just the same in my second silo.

Now, it may have been all my fault, but reading Mr. Cowles' experience I think I had better leave sorghum alone for silage.

Those articles on the manure question were very interesting, but today I am more than ever pleased to have all the manure away in the pasture and field, drawing it away every day except Sundays. I think those men who are afraid for a rain on their manure had better never distribute same on the ground as those rains will come any time. We are having a terrible rain here today which takes away more of my manure in the pasture than it did all winter. Had I all manure in the yard there would be no chance to haul it now. We have a Drew elevated carrier running over a 120-feet long wire, dumping the manure on the wagon box. It works very easy, but the manufacturers should provide a seat so a fellow could ride back into the barn as it runs much faster than a man can walk.

I have lost four cows now in three years' time from what you call *Parturient Paresis* (milk fever). With my two last ones have applied the Schmidt treatment, following the directions. They both got up again, but died in spite of it. They both kept up a constant moaning and drumming sound on their lungs. By removing the contents of the rectum found with both these cows much blood, which our veterinary said is a fatal sign. Examining the cows inside after death found the upper parts of the lungs dark and bloody, and by opening the small round stomach the linings peeled off with little food in same, could find nothing wrong on anything else. Now, if the Schmidt treatment got those cows on their feet so they could walk easily, why did those cows die? D. J. DEH.

Boyden, Ia.

Since your cows came to their feet, as would be expected with the Schmidt treatment, it was your duty to watch the heart action, which is very much affected during and after an attack of this disease. When the heart becomes feeble it must be stimulated with an occasional dose of aromatic spirits of ammonia, say ½ to 1 ounce at a dose, or you may choose some of the other heart stimulants.

The condition of the lungs after death was such as are usually found on post mortem examinations and have nothing to do with this case. Bleeding from the rectum is caused by introducing the hand into the organ and rupturing blood-vessels.

Changes in Cream Quality.

ED. HOARD'S DAIRYMAN: — Will you tell me if milk from green grass or milk from fresh cows has any influence on the hand separator. The cream test this spring is much lower than it was in the winter and fall months. The patrons say they have not changed their separators.

I have two patrons whose cream test was twenty-nine and thirty when their cows were nearly dry; now they have some thirty fresh cows and now their test is twenty and twenty-two. Can you tell why it should vary so?

I use M. Preserveline to keep my sample. Is there anything better?

I use the Babcock test. Weigh 18 grams cream for the test; run the machine nine hundred to a thousand revolutions per minute. The fat column is clear. Is my test correct? E. A. T.

Elizabeth, Colo.

It is not surprising that the cream test varies; the surprise would be if it did not vary. Milk is not a constant body. It is subject to changes in composition, quality and physical condition and as the milk varies and the conditions of separation also vary it is not possible to obtain cream that does not fluctuate in the per cent of butter fat. The only proper method is to test each batch of cream, do it properly and accept the test as being correct. The fable that cream is cream and that so many inches will make a pound of butter has ruined many creamerymen.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Thick Shoulders.

I purchased a Holstein bull calf 2 years ago that has all good dairy signs except so wide across the shoulders. Do you think it will spoil him as a breeder? His heifer calves are all the same over the shoulders.

HOARD'S DAIRYMAN has done me stacks of good in dairying. My neighbors begin to notice it as you see by the names on the subscription blank herewith. F. J. S.

Saginaw, Mich.

Animals perfect in every respect are not very abundant, and more frequently than otherwise perhaps, we have to balance the good points against the defective ones. We should much prefer, at the head of our herd, a sire with comparatively sharp withers but should not peremptorily discard one for this defect alone, if his pedigree, and especially the performances of his ancestors were satisfactory. The present writer, disagreeing in this respect with a good many excellent judges of dairy cattle, places most emphasis upon the build and contour of the hind quarters. Given a large deep middle piece for the storage and digestion of raw material, we like to have thin, incurving hind quarters as these are conditions precedent for affording room for a capacious udder. As a rule, nature does not provide these thin incurving thighs unless there is to be a milk vessel to fit the place. It will not be very long now before these heifers will be coming in milk and then, and not until then, can it be determined with any degree of certainly whether the sire is what he should be or not.

Thanks for the list of new subscribers.

Information about Beans as Food for Stock Wanted.

Can you furnish us with any book or pamphlet that will give the analysis of beans and their value as feed for all kinds of stock and poultry as compared with other kinds of feed?

We are interested in feeds and feeding as we expect to put a special brand of feed on the market soon. We also intend putting out a stock food, which we are now working up and perfecting. If you have anything to offer that will assist us, please let us hear from you. R. & Co.

Nunda, N. Y.

We do not know of any book or pamphlet which treats of the relative feeding value of beans as a feed for stock. We have a memorandum, but without reference to the source from which it was obtained, to the effect that beans contain 85.5 per cent dry matter, including 23 per cent of digestible protein, 50.2 digestible carbohydrates and 1.4 ether extract. We do not think that beans have been much used as a feed for stock in this country and there is some question as to whether they would make a really palatable food.

Compressed Air Sprayers.—Best Grain on Pasture.—Selling Milk or Making Butter.

Please let me know if there is a compressed air sprayer on the market that will spray the oils used on cattle to exterminate flies. If there is, please to give me the manufacturers name and address. What do they use in the large dairies, where they have 100 cows or more, both for liquid and sprayer to apply it with. I have 20 cows and find it quite a job to spray that many and do it thoroughly every morning.

What is the best grain to feed cows on pastures, at the following prices: Bran, $1.25 per cwt.; Daisy flour, $1.40; Biles XXXX distillery grain, $1.50, 33 per cent protein; corn meal, $1.15; cotton seed meal, $1.65, 43 per cent protein; linseed meal, $1.60; oats, 50 cents a bushel?

Which would you consider the most profit in, selling milk at 3 cents a quart, wholesale, 2 miles to take it to station, or make butter where it sells for 20 cents?

Would you think it any use to try alfalfa here in Eastern Maine, on a small scale?

Do you think that the 2 and 4 bottle Babcock testers will do as good work as the larger ones? I am about to buy one and a 4 bottle will do me if it is of practicable size. J. T. M.

La Grange, Me.

We do not know that there is any sprayer working with compressed air that would answer the purposes of our correspondent. There are several such sprayers for white-washing interiors and exteriors of buildings, but we should think them perhaps too cumbersome for use in spraying cattle. However, this is a proposition that appeals to the manufacturers of these machines and indicates that they might profitably use our advertising columns.

For a discussion of the most appropriate grain to feed to cows when on pasture, see the answer to H. S. W., of Otter Lake, Michigan, on page 319, ante.

Whether it would be more profitable to sell milk at three cents a quart or make butter at 20 cents per pound, would depend upon the quality of the milk sold. One hundred pounds of milk is equivalent to forty-six and one-half quarts which at 3 cents a quart would come to $1 39½. If this milk tested 4.3 per cent fat, one hundred pounds of it would make five lbs. of standard commercial butter, which at 20 cents a pound would come to $1.00. In addition, one would have the skim milk, worth at least twenty-five cents for feeding purposes alone, and from seven to twelve cents additional for fertilizing properties.

This matter of available fertility in different feed stuffs is not as much considered as it should be by the practical farmer and dairyman. At the last winter's convention of the Dairymen's Association of Eastern Ontario, Mr. J. W. Hart, Superintendent of the Kingston Dairy School, read a paper on butter making, in which he included a table showing the fertilizing ingredients removed from the soil in selling milk, as compared with the sale of cheese and butter. Nitrogen was valued at sixteen and one-half cents, phosphoric acid at 5 cents and potash at 5 cents per pound. We copy that table as follows:

PRODUCT	*Nitrogen lb.*	*Phosphoric acid lb.*	*Potash lb.*	*Value*
25 tons milk	265	95	90	$52.97
2½ tons cheese	196.5	30	6	24.22
1 ton butter	2 4	0.8	0.8	.47

It appears from this table that when one sells butter, he is conserving the fertility of his soil (if he takes proper care of the manure) but when he sells milk or cheese, he is drawing heavily on the soil fertility needed for succeeding crops. We are of the opinion, therefore, that in the long run, it would be decidedly more profitable to make butter at 20 cents per pound than to sell milk, testing over four per cent, at three cents a quart.

There is no reason why a small Babcock test should not do just as good work as a larger size if operated according to directions.

It is well worth while to try alfalfa, but at first on a limited area, say one acre.

Condensing Factory Offers Large Price for Milk.

There is a movement on foot here to open a condensed milk factory, the price they offer (35 cents per lb. for butter fat) being about 40 per cent higher than the cheese factories, and 45 per cent higher than the creameries have paid during the past two years. They offer to contract at the above price for five years. Would you advise the dairymen of this locality to enter into such a contract and allow the co-operative cheese factories and creameries, of which there are four, to discontinue making?

Thirty five cents is certainly a fancy price for butter fat, but it may be the death of competition in which case we may in a few years have to accept a great deal less. D. F.

Tillamook, Ore.

An increase of forty per cent over present prices is, of course, a very tempting propositon and one which in some respects should occasion some suspicion. It would seem to be hardly necessary for a new concern to go into a neighborhood and offer that much advance. However, if the company is responsible and can offer proper assurance that they will carry out their contract in good faith for five years and do not ask any bonus or other contribution towards the establishment of their plant, one could hardly blame milk producers for entertaining the proposition with considerable favor. However, questions of this character are not altogether proper ones to submit to others. Business propositions should be decided by each man for himself and the people in this community are quite as competent as we, or others, can be, to foretell what course this condensing factory would be liable to take at the expiration of their five years' contract. In the nature of things, they could not be expected to pay more for milk than could be conveniently obtained for it elsewhere or for other purposes.

Time to Plant Silo Corn.

A. B., of Lancaster Co., Pa., asks whether May 20th would be a good time to plant silo corn, how much seed he should use per acre and how many acres he should plant for twenty-five cows?

As stated in last week's issue, we should expect to get a good yield of corn in this climate from properly prepared soil if planted as late as the 10th of June, but should much prefer, of course, to plant a month earlier if the season permitted. We are writing this answer on the 15th of May and, as far as we are advised, not an acre of corn has been planted as yet in this vicinity. The amount of seed to use per acre will depend somewhat upon circumstances. We usually plant from one-quarter to one-third more seed for silo corn than we would for a crop to be harvested for grain. It is usually a safe estimate to expect from ten to twelve tons of silage per acre, and, for winter purposes alone, we like to provide about three tons for each cow.

The Alderney Cow.

Mr. Walter R. Cuthbert, of Philadelphia, is anxious for some information on the Alderney cow. Why there are none to be seen catalogued at fairs? Whether there are any in this country? What the laws of the island of Alderney are in regard to exportation and so forth?

Formerly, both in England and America, all Channel Island cattle were called Alderneys, but why so called has never been satisfactorily explained, as the island of Alderney is much smaller than either Jersey or Guernsey. There is much similarity in the cattle on all these islands, but those on Alderney more closely resemble Guernseys than Jerseys, in color and markings. Following the English precedent, the first importations of Channel Island cattle into America were termed Alderneys, but upon the organization of Herd Register for these animals in 1868 the name Jersey was substituted. Later, when the importation of animals from the Island of Guernsey became more frequent the Guernsey Cattle Club was organized, and between the two not only has the name Alderney disappeared, but also, so far as we are advised, no importations have been made from the smaller island.

Locust Seeds.

Please inform me where I can get the seed of the yellow locust, the kind used for fence posts. Some say it is black locust. P. H. F.

Richland Center, Wis.

We do not know that locust seed has anywhere become an article of commerce. Probably the only way at present to obtain seed would be to visit places where locust trees are growing and gather them personally, or to advertise for them.

It would undoubtedly pay farmers a good profit, at present and prospective prices for fence posts, to devote a corner somewhere to grow locust trees for posts, and according to information furnished by the cyclopedia, it does not much matter what variety is selected, although the apparent preference is given to the so-called black locust.

Two Silos for Forty Cows.

I wish to build two silos ten or twelve feet in diameter for forty cows, how deep should they be? I usually find all I want to know answered in the DAIRYMAN by watching for a month or two, without bothering you with questions; but this time I have overlooked it. This is the second time I have had to ask a question during the twelve years I have been taking the paper. It so completely covers the whole business that a man only has to read it carefully a short while and he gets all the information wanted. GEO. HAIL.

Chepultepec, Ala.

The amount of silage required by forty cows will depend upon the amount fed per day, and the number of days it is to be fed. In this latitude, the careful dairyman estimates for feeding 200 days at least, and at the rate of not less than an average of 30 lbs, per day to each animal. More and more, also, is he beginning to provide some extra for use during the summer drouth, and does not consider four tons per cow any too much for a year's supply.

We would advise our friend not to build any thing less than 12 feet in diameter and 20 feet in depth. Such a silo will hold approximately 37 tons, or if filled a second time after settling a few days, say 40 tons. If he gives his silo 25 feet depth, its capacity will be increased fully 30 per cent, or to 51 and 56 tons. A silo 12 feet in diameter and 30 feet deep will have a capacity, if filled the second time, of about 75 tons.

If at all practicable, the bottom of the silo should be about 4 feet below the level of the feeding floor in the stable.

Herd Records in Illinois.

Report of Herd "A".

ED. HOARD'S DAIRYMAN:—Herd "A" was composed of natives, grade Shorthorns, grade Jerseys and grade Holsteins. The average weight of each cow was about 1,000 lbs. The herd on the whole was not bred for dairy purposes, moreover, they neither showed dairy form nor capabilities of giving large flows of milk, or producing large amount of butter fat. Nearly every cow showed some signs of disorder. They were not in thrifty condition. A number of them aborted during the year, while others failed to get with calf, and were sold. Some of them were disposed of so early in the test that their records are not calculated with the rest of the herd.

There were also ten other cows kept in the herd whose milk was not weighed or tested. I am sorry that the owner could not see the importance of weighing and testing each one of these cows, but the average amount of milk and butter fat that each of the untested cows produced for the year will be given; for a record of the amount of milk and butter fat that was sold from all the cows was kept. The herd did not yield the amount of milk and butter fat that it should for the amount of grain and roughage each cow ate, to be reported upon. He fed, however, a ration to his cows that was largely made up of corn and other foods rich in carbohydrates and containing a small per cent of protein. The cows received a small allowance of bran with the corn meal from October 1st, to January 1st, During the months of January and February, to the cows giving the largest flows of milk was given the following ration:

FOOD STUFFS.	Lbs.	Dry Matter.	Protein.	Carbo-hydrates.	Fat.	Cost.
						Cents
Corn meal.....	10	8.91	.790	6.670	4.30	10
Silage.....	35	7.31	.315	3.955	245	3.5
Timothy hay.....	10	8.68	.280	4.34	.140	5
Total nutrients		24.90	1.385	14.965	.815	18.5

This ration is altogether too rich in carbohydrates and contains a very low per cent of protein. If this farmer had sold more of his corn and bought some mill feed, he would, with less expense, have improved the ration. For example, a ton of corn meal at this time would have paid for more than a ton of grano gluten. If a ration is made from 5 lbs. of grano gluten and 3 lbs. of corn meal with the same amount and kind of roughage as contained in the above ration, we will have a far better and cheaper one. This ration would contain the following nutrients:

FOOD STUFFS.	Lbs.	Dry Matter.	Protein.	Carbo-hydrates.	Fat.	Cost.
						Cents
Grano gluten...	5	4.71	1.335	1.94	.610	5
Corn meal.....	3	2.67	.237	2.001	.129	3
Silage.....	35	7.31	.315	3.955	.245	3.5
Timothy hay....	10	8.68	.280	4.340	.140	5
Total nutrients		23.38	2.167	12.236	1.124	16.5

A number of the cows' udders became feverish and hard during the time that they were being fed so much corn. Four of them were giving milk from only three teats. It seems as though that excessive corn feeding must have had something to do with the general unsatisfactory condition of the herd, especially in the months of January and February, and perhaps the cause of four of them losing the use of one-quarter of their udders. The first of March, rye was added to the ration. The rye and corn meal were mixed equal parts by weight, and about eight pounds of the mixture, together with timothy hay and corn silage, was the ration they received until May 1st, when ground oats was substituted in the place of rye. The cows were turned out to pasture about the 25th of May, but were given a small allowance of silage to July 1st. From this time on to the completion of the year's work, they received nothing but grass.

The ration which the cows received from March 1st to May 1st, was somewhat better than the ration fed in January and February, but it could have been much improved with mill feed. The ration for fresh cows was about as follows:

FOOD STUFS.	Lbs.	Dry Matter.	Protein.	Carbo-hydrates.	Fat.	Cost.
Rye.....	4	3.54	.396	2.704	.044	4 c
Crushed corn and cob meal..	4	3.40	.176	2 400	.116	4 c
Silage.....	35	7.31	.315	3 955	245	3.5c
Timothy hay....	7	6.08	.196	3.038	098	3 5c
Total Nutrients		20.33	1.083	12 097	.503	15 c

It will be noticed that this ration which contains but 1.083 lbs. of protein costs nearly as much as the above ration which contains 2.167 lbs. of protein. It readily shows that by exchanging some of the home grown grain for mill stuff the ration can be made better and will cost no more, and often less. It can be said that the cows in this herd did a very ordinary year's work, but, considering the individuality of each animal in the herd, the general condition of their health together with unskillful feeding, it is not at all surprising that the results are no better.

The best cow in the herd produced 6145 lbs. of milk, 3.63 per cent fat, 233 lbs. of butter fat, and 260 lbs. of butter, while the lowest produced only 1482.6 lbs. of milk, 3 97 per cent fat, 58 lbs. of butter fat, and 68 lbs. of butter.

The average amount of product yielded by each cow tested, was 3,970 lbs. of milk, 3.55 per cent fat, 141 lbs. of butter fat, and 164 lbs. of butter.

The average production for the entire herd was 3,361 lbs. of milk, 3.55 per cent fat, 119 lbs. of butter fat, and 139 lbs. of butter.

It was found that a cow last year had to produce about 140 lbs. of butter fat to pay her board, and that the average price for butter fat when sold to the creameries was 22 cents. Calculating the results upon that basis, the cows that were tested yielded a profit of 23.1 c. To ascertain the amount of product yielded by each of the untested cows in the herd for the year, it was necessary to subtract the amount of milk and butter fat yielded by the 18 cows that were tested, from the total amount of milk and butter fat that was sold from this dairy. In this calculation a liberal amount of milk was esti-

"ADVERTISEMENT."

Dr. Shoop's
Rheumatic Cure
Costs Nothing If It Fails.

Any honest person who suffers from Rheumatism is welcome to this offer.

I am a specialist in Rheumatism, and have treated more cases than any other physician, I think. For 16 years I made 2000 experiments with different drugs, testing all known remedies while searching the world for something better. Nine years ago I found a costly chemical in Germany which, with my previous discoveries, gives me a certain cure.

I don't mean that it can turn bony joints into flesh again; but it can cure the disease at any stage, completely and forever. I have done it fully 100,000 times.

I know this so well that I will furnish my remedy on trial. Simply write me a postal for my book on Rheumatism, and I will mail you an order on your druggist for six bottles Dr. Shoop's Rheumatic Cure. Take it for a month at my risk. If it succeeds, the cost is only $5.50. If it fails, I will pay the druggist myself—and your mere word shall decide it.

I mean that exactly. If you say the results are not what I claim, I don't expect a penny from you.

I have no samples. Any mere sample that can affect chronic Rheumatism must be drugged to the verge of danger. I use no such drugs, and it is folly to take them. You must get the disease out of the blood.

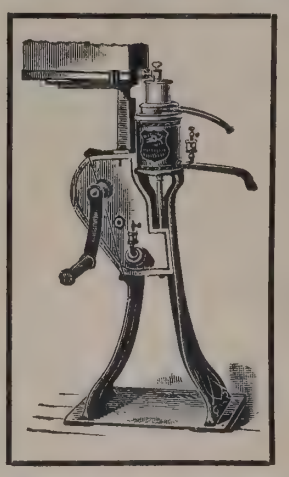
My remedy does that even in the most difficult, obstinate cases. It has cured the oldest cases that I ever met. And in all my experience—in all my 2000 tests—I never found another remedy that would cure one chronic case in ten.

Write me and I will send you the order. Try my remedy for a month, as it can't harm you any way. If it fails it is free.

Address Dr. Shoop, Box 934, Racine, Wis.

Mild cases, not chronic, are often cured by one or two bottles. At all druggists.

IS THE BUTTER YOU EAT
MADE FROM CREAM SEPARATED BY A
U. S. SEPARATOR?



IF NOT, YOU SHOULD SEE THAT IT IS.

In buying butter or cream, always ask if the milk was run through an Improved U. S. Cream Separator. If it was not, you may be sure the product is not as good as it might be, for it

Takes the Best to Make the Best.

and it has been proved many times that

THE U. S. SEPARATOR EXCELS ALL OTHERS.

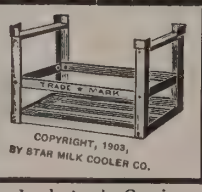
At the Pan-American Model Dairy it
Won WORLD'S RECORD for Clean Skimming.

For further particulars write for illustrated catalogues.

For Western customers, we transfer our separators from Chicago, LaCrosse, Minneapolis, Sioux City and Omaha. Address all letters to Bellows Falls, Vt.

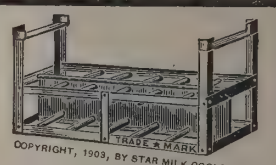
Vermont Farm Machine Co.,
BELLOWS FALLS, VT.

WHEN YOU SEND IN YOUR RENEWAL, SPEAK TO A FEW OF YOUR NEIGHBORS AND HAVE THEM JOIN YOU. CLUB RATES: 2 Subscriptions, $1.50; 3 Subscriptions, $2.00; 4 Subscriptions, $2.50; 5 Subscriptions, $3.00.

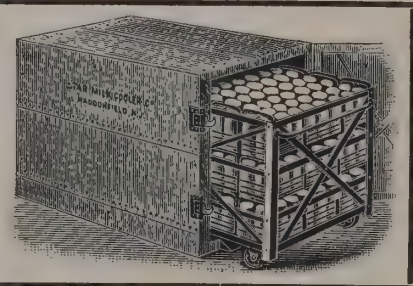


Lock Angle Carrier.

Star Sterilizing Apparatus



Will assist the keeping conditions of milk by thoroughly cleansing Utensils, Bottles, Cans, Etc. This is the Star Carrier showing Spacer, an absolute necessity in Dairies making any pretentions towards supplying milk hygienically. Write for STERILIZER BOOKLET which will give you full information in regard to Sterilizing Apparatus.





Star Spacer.

STAR MILK COOLER CO., Haddonfield, N. J.



EASY. It is easy to go on losing money by taking care of milk in the old way, that is, by not taking care of it: But it is easy, too, to take proper care of your milk with a

Champion Milk Cooler-Aerator

The Champion is pre-eminently the easy Cooler—easy to buy, easy to take care of, easy to use.

A Booklet for the asking.

Champion Milk Cooler Co.
67 Main Street, CORTLAND, N. Y.

mated for house use and for the feeding of calves.

Total amount of milk sold from Farm "A"	97721.0 lbs.
Total amount of milk yielded by tested cows	76060.9 "
Total amount of milk yielded by the 10 untested cows	21660.1 "
Average amount of milk yielded by each untested cow	2166.01 "
Total amount of butter fat sold from Farm "A"	3554.43 "
Total amount of butter yielded by tested cows	2751.47 "
Total amount of butter yielded by 10 untested cows	803.01 "
Average amount of butter fat yielded by each cow untested	80.30 "

Calculating the whole herd together, and estimating that it takes 140 lbs. of butter fat to pay for a cow's board, there is a loss of $4.54 per cow, or each cow should have produced 20.64 lbs. more butter fat to have paid for her keeping.

The best cow in this herd gave a profit of $18.40, and the poorest one charged $17.83 for her board.

Table giving the list of cows in herd "A" with age, breed, date of calving and days in milk together with the amount of milk, the per cent fat, the amount of butter fat and butter produced by each cow in the herd, beginning Sept. 24th, 1901, and ending Sept. 24th, 1902.

GROUP I.

COWS YIELDING LESS THAN 100 LBS. OF BUTTER FAT.

BREED.	No. of cow	Age	Date of Calving.	Days in milk.	Lbs. of milk.	Per cent fat.	Lbs. of fat.	Lbs. of butter.
Gr. Jersey	37	12 years.	Nov. 8 '01	147	1482	3 97	58	68
Native	6	3 years.	April 29 '02	210	1838	4.43	81	95
Native	25	8 years.	Feb. 13 '02	210	2470	3.87	95	111

GROUP II.

COWS YIELDING LESS THAN 140 LBS. OF BUTTER FAT.

BREED.	No. of cow	Age	Date of Calving.	Days in milk.	Lbs. of milk.	Per cent fat.	Lbs. of fat.	Lbs. of butter.
Gr. S. H.	1	4 years.	Oct. 25 '02	196	3176	3.45	109	128
Gr. S. H.	31	10 "	Jan. 17 '02	245	3535	3.18	112	131
Native	8	3 "	Sept. 6 '01	259	2740	4.16	114	133
Native	10	4 "	Mar. 4 '02	245	3833	3.37	129	150
Gr. S. H.	34	10 "	Dec. 5 '01	294	4474	2.97	133	155
Native	46	3 "	Jan. 8 '02	259	3766	3.67	138	161

GROUP III.

COWS YIELDING LESS THAN 175 LBS. OF BUTTER FAT.

BREED.	No. of cow	Age	Date of Calving.	Days in milk.	Lbs. of milk.	Per cent fat.	Lbs. of fat.	Lbs. of butter.
Gr. Holst	33	12 years.	Apr. 9 '02 Abr. 9 29, '02	210	3550	3.94	140	163
Native	30	9 years.	C. 12 18 '01	299	4306	3.55	153	178
"	29		Abr. 3,21 '02	210	3916	4.00	156	183
"	4	3 years.	Apr. 13 '02	365	3651	4.31	157	183
"	44	4 years.	Nov. 16 '01	294	5082	3.15	160	186

GROUP IV.

COWS YIELDING LESS THAN 225 LBS. OF BUTTER FAT.

BREED.	No. of cow	Age	Date of Calving.	Days in milk.	Lbs. of milk.	Per cent fat.	Lbs. of fat.	Lbs. of butter.
Gr. Holst	13	4 years.	Feb. 25 '02	290	4895	3 87	189	221
Gr. Holst	2	4 years.	Oct. 30 '01	303	6824	2.80	191	223
Gr. Holst	16	9 years.	Jan. 4 '01	308	5776	3.33	192	224
Poll S. H.	15	9 years.	Nov. 4 '01	294	6145	3.63	223	260

Elgin, Ill. A. J. GLOVER.

Ravages of the Alfalfa Cutworm.

The insect doing so much injury to growing crops of all kinds, particularly to alfalfa and spring grain is a true cutworm. Because of its habit of appearing in enormous numbers on occasional years and taking on the army-worm habit of migrating into fields it has been called the army cut-worm The insect is a native of Colorado, its natural food-plants being chiefly the wild grasses. The worst injuries I have seen have been to crops growing next to the land that has never been cultivated, or to crops on new ground that was plowed for the first time this spring. I have just returned from a field of barley on virgin soil recently plowed and where the barley was making a good showing a week ago. Now every blade is eaten down to a depth of an inch or more beneath the surface of the ground.

These worms may be expected to continue their depredations until about the middle of May or a little latter. They will then change to dark colored chrysalids in the ground and about the first of June will change to dark-colored moths, or millers which will fly into our houses and become a nuisance upon the windows and about the lights in the evenings, as they did last June. These moths deposit eggs in the fields that produce another crop of worms in August and a second brood of moths in September. The September moths lay eggs again which soon hatch into little cut-worms that become only partly grown in the fall and which hibernate in the ground until vegetation starts in the spring when they come to the surface very hungry from their long fast and then attract attention, if very numerous, because of serious damage to young growing plants.

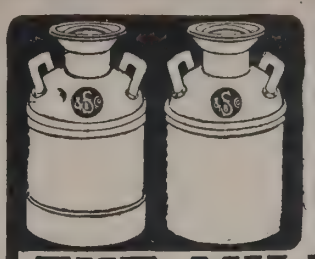
When the worms are found marching into a field along the border, a ditch of water that has a good current and that is eighteen inches across will make a fairly effectual barrier. Better than the ditch is to thoroughly poison the crop upon which the worms are feeding just in front of the line of march and along the line wherever they are found feeding. Use the arsenites such as Paris green or London purple, in the proportion of a pound to 100 gallons of water or mix one of these poisions with common flour in the proportion of one to twenty by weight and dust the mixture on the food-plants in the early morning where there is dew enough to make it stick. If the ditch of water is used, the poison should also be placed on the side of the ditch next the worms. When the worms occur over an entire field, there is little to do but to wait for them to mature, probably about May 20th, and then put in some crop that can be raised after that date.—F. C. GILLETTE in *Field and Farm.*

Wants a Good Holstein Bull.

I have a herd of 23 cows; am wholesaling my milk, ship to Joplin, Mo. Commenced keeping record of herd Oct 20th, last year. Will report when year is up. Have a mixed lot of cows but about all of them are the best that can be bought here. I want to buy a thorough bred Holstein bull. Would you advise a man with limited means who wants a good bull to buy a calf or an old one? I know of none close to me. A. Mc. K

Varck, Kans.

If at all practicable by correspondence or personal investigation to secure a satisfactory bull of mature age, we do not hesitate to say that we would consider this a better investiment than to purchase a calf. There are several first-class herds of Holsteins in Missouri, in Kansas and Nebraska. Some of them advertise in the DAIRYMAN, and in our judgment, it would pay others to advertise so that people situated as Mr. Mc. K. is, may know to whom to apply for animals suited to their interests.





THE MILK CANS TO BUY.

You do not need to be told that there is a vast difference in milk cans. You can make no possible mistake if you select any one of our universally approved **Iowa, Elgin, Chicago, Burn, Omaha** or **Wisconsin** patterns. Made of steel with strong protecting bands, they are the best guarded against denting, and their loaded or soldered inside seams, with heavy tinning and retinning, make them easy to clean and leave no chance for rust to start. In the superior shapes of their non-pull-off handles, they are not approached by any other make. Ours is

A CREAMERY SUPPLY HOUSE

not connected with any trust. In addition to a general line of creamery machinery and milk dealer's supplies, we manufacture such specialties as the **Dairy Queen Churn, Boyd Cream Ripener, Cream and Milk Vats, etc.** If you wish to build a combined butter factory on the co-operative and separator system, write us, and we will send a competent man to organize the company for you. We equip them on strictly sanitary lines, for which our improved appliances are noted. We publish a special appropriate catalog for every specialty and for every branch of our business. Write us for anything in the creamery supply line and we will mail free the proper catalogue.

STURGES & BURN MFG. COMPANY,
Kansas City, Mo. Chicago, Ill. St. Paul, Minn.



Truth to Tell

There are no other milk cans made that can equal in wearing qualities the genuine

BUHL CANS

They are tinned to stay tinned, and put together to stand years of hard service. Other cans crack easily, become dented, and being lightly tinned soon rust and go to pieces. Not so with the "Buhl Factory," "Improved Elgin" and "Genuine Iowa." They will outlast any other cans on the market, and are thoroughly and quickly cleaned, **Remember,** the Buhl is the only can in the world that is made with the **Buhl "Victor" Can Breast** and the **Buhl "Victor" Round Handle.** As there are many inferior imitations of this can, we stamp all ours with the **Milk Can Trade Mark.** Look for it. Sold by all live dealers. Ask about them, or write us direct.



BUHL STAMPING COMPANY,
212 W. Larned St., Detroit, Michigan.

GOOD BUTTER
Brings Good Prices,

if it gets in the right market channel. We have superior facilities for getting best figures on **fine hand separator butter.** Trial shipment asked. We post you on market.
C. H. WEAVER & CO., 128 S. Water Street, Chicago.
REFERENCE:—Any bank or wholesale house.

Creasey Ice Breakers



Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right. Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.

J. S. L. WHARTON, Mfr.,
17th & Clearfield Sts. Philadelphia, Pa.





The Distribution of Skim Milk.....

It is known that the just complaints of creamery patrons on account of unfair distribution of skim milk are the bane of the separator creamery business. Further disputes among patrons, annoyances to managers, hindrances to the best work of buttermakers, watering the skim milk, and many other ills in the same train are unnecessary, since the

Barber-Coleman Check Pump

has for more than five years been successfully solving the problem in many different creameries. When a patron has dropped in his check he can pump the amount of skim milk called for by his check, less the percentage taken out as cream, so in like proportion to all other checks. Its measuring apparatus is just an ordinary pump which everyone understands and knows how to operate.

Cornish, Curtis & Greene Mfg. Co.,

General Sales Agents De Laval Alpha Separators,
FORT ATKINSON, WIS.

Notes from New York.

Seeding—Preparing the Seed Bed—Sowing the Grain—Turning the Cows to Pasture —Washing the Separator.

ED. HOARD'S DAIRYMAN:—So many important questions come to us at this season, the first week in May, we hardly can determine which to write of first. The question of seeding and preparing the seed bed is one that we hardly ever hear discussed through the columns of the DAIRYMAN. It is generally supposed that every farmer knows how, but a little discussion on this point may be of general interest to all. We begin the preparation of the soil the fall before by ploughing the furrows so that they overlap each other like clapboards on the house, making the lands each five paces wide with a good clean dead furrow between.

We also make cross furrows where needed so that no water can stand in depressions anywhere. This all tends to let the frost loosen and mellow and at the same time giving the harrows a chance to dig and cut on those upturned projecting edges of the furrows.

Then in the spring, we go over the land again to see that those furrows are clear, that they haven't become filled, as soon as the snow is gone. We consider this the most important part of soil preparation on our heavy clay lands, for where the water is allowed to stand through the winter and dry up with the sun it becomes baked over on the surface and sticky underneath, so that a perfect seed bed cannot be prepared.

Now when the soil has become ready for the harrow, we begin, first, by going lengthwise of the lands, then crossways, over lapping or not as required. We prefer the disk harrow for this, but sometimes we use a spading harrow when the disk does not take hold rank enough. We then finish by going lengthways with a spring tooth harrow. How deep do you work the soil? We work until we have it plenty and mellow. We let the spring tooth run on old land as deep as it will and not jump and on sod, or first ploughing, as deep as we can and not tear up the sod.

We prefer to sow our grain with a drill, as it puts the seed down to damp soil and insures a uniform germination. Then again, we can regulate the quantity of seed per acre; we sow only two bushels of oats to the acre. Where we put on grass seed, we don't like a too heavy stand of oats where we expect to cut hay another year, as the oats rob the young clover and timothy of moisture and many times kill it. Many dairy farmers cut their oats when in the milk stage and cure it for hay. I think it is a good plan, yet we do not follow it, as we generally have more hay that gets damaged more or less and injures it for shipping, that we have to feed to our cows and horses, so we let the oats ripen and sell them after they are threshed.

Have you turned your cows out to pasture yet? We like to wait until the feed gets a good start, the weather warms up and the rains insure a plentiful supply of pasture grass for a long time to come, before we open the bars to the pasture. By present indications our cows will have to go into a short pasture this spring as we are experiencing a long period of cold, dry weather. Cows turned out early generally get the start of the feed and keep it through the summer, causing a loss the whole season through. One better buy feed on the start and keep the cows yarded a little longer than to turn them out too soon. I believe the coming pasture will be a summer silo on the larger dairy farms, rather than rely on the uncertain pasture as most of us are doing to-day.

The tramping and the soiling of the grass where the cows roam over the fields can not help but be a considerable item in the aggregate which would be entirely done away with, with the summer silo. What about the cows? Would they thrive and be healthy under that continuous method of feeding? Why not? Of course one would give them a field to exercise in. Here in New York nearly everyone has some rough land where cultivation is impossible, or would be unprofitable, that could be devoted to that purpose, while in the west where everyone has fertile fields "to burn" a reasonable range could be set aside and not missed.

Many times in writing for the papers we neglect to put in what are to us minor things, causing our writings to be misunderstood and together with the misprint and misapplication makes sorry mistakes all around. One sometimes relies too much on the ability of the readers and all the rest way down through and becomes careless about details connected with the subject he is writing up.

Of course we thought that the readers of the DAIRYMAN were familiar with bacterial growth in milk and in writing about our butter making, we tried only to give a brief outline of the work rather than submit the reasons and minute details, which we see was a mistake from the letter printed in the DAIRYMAN, page 311 of the present volume.

We stated that we washed our separator only once a day during the cold weather, assuming that the separator should be kept in a cold place where bacterial growth would not develop. We understand by our text books, cold checks such growth and only sufficient heat destroys it. Again, a separator should be washed after it has been run an hour. Whether the milk is all through or not, it should be stopped and cleaned at the end of that period to insure good results. Now then, suppose that you only have milk enough to run your separator a quarter of an hour, or a half an hour, why can not the bowl be flushed with milk at the end of that period and the rest of the run be continued in the morning.

In the meantime the machine remaining in cold storage, or, if not the whole machine, take the bowl out and put it in a cold place. Bacterial growth has been stopped and there is no more liklihood of a poor skim than as though the machine had been run a full hour at one time. I know I am right. The chemist says I am right. I know I am right. My customers say the butter is right, and it competes with, and we receive the highest retail price, in our market town where one of the best creameries in New York State is right in the corporation. We have made no little study of bacterial growth and the discovery of Pasteur, and we don't have to live in the "wild and wooly" to know when we do know a thing. We are satisfied to live in the old Empire state even if the Scandinavian pass us by.

I am reminded of the gentleman who was riding by a place and saw an Irishman beating his wife. He went in and interposed, whereupon they both set upon him and the woman, when remonstrated with, replied: "We want no interference from you, this is our fight, sor." When I again read the complaints of the dairymen from Illinois or Wisconsin, bewailing their lot because their lands don't raise in value as fast as those in the wheat and corn belt of Iowa, I shall consider it their fight. I shall ride right along and not slop ink in trying to encourage them. JAS. M. PLATO.

New York.

Dry Teat Milking.

ED. HOARD'S DAIRYMAN:—On page 273 Buff Jersey says: "When a dairyman tells me he practices dry teat milking I know he either does not milk cows or does not state facts." That is nonsense. It may or may not be possible to milk Jerseys dry handed. I don't know anything about that, but if Buff Jersey can't milk Holsteins with dry hands he is not a dairyman. We milk our cows dry handed and it's no trick at all, in fact, we can't see any advantage in wetting the teats.

I don't mean to say that the use of a little vaseline on the teats isn't good. On the contrary, I think it is a commendable way of doing, especially when the teats are chapped or sore, but to say that it is downright impossible to milk cows dry handed is a statement that I can't swallow.

And I can't believe that a little vaseline rubbed on the udder is going to keep all dirt out of the milk pail. My own experience contradicts it. A READER.

Bern, Kans.

Ear Markers.

ED. HOARD'S DAIRYMAN:—After using several different kinds of ear markers without very satisfactory results owing to their getting torn out and the difficulty of reading small figures with old eyes, Beaver Meadow Farm has adopted the following plan for numbering stock which so far proves very satisfactory. Three different shaped cuts easily distinguishable are made in the edge of the ear, the shape of the cut and its position determining its number.

For instance, using the right ear for units a small slit on top stands for one, the same mark at the end of ear stands for two and on under side for three. A v shaped mark on upper side of ear stands for four, at the end for five and on under side for six, while a half circle in these positions takes the 7, 8, and 9. This provides for the units. For the tens we use the same marks in the left ear. In this way we can number to ten and the even tens to one hundred by making a single cut in one ear and all other numbers to one hundred by a single cut in each ear. After reaching one hundred make a small hole in left ear with a shoe punch or something of that sort and proceed as before.

To illustrate, a half circle in upper edge of left ear and a slit in end of right ear would read 72. A slit in top of left ear and a v in under side of right would be 16. These cuts are best made by having a punch or die which any blacksmith or ordinary mechanic can easily make, hold the ear on a block of wood and strike the punch with a hammer. This code can be varied almost indefinitely, the plan being to have three different shaped cuts that are easily distinguishable and three different positions for each. Although this was mostly all written before seeing the communication of C. H. G., Mauston, Wis., in the DAIRYMAN of April 24th, perhaps this may be of some help to him.

Mass. BEAVER MEADOW FARM.

Will Never Miss the Money.

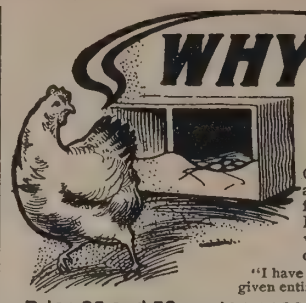
ED. HOARD'S DAIRYMAN:—Enclosed please find $1, to renew my subscription to HOARD'S DAIRYMAN. I am a poor man, but I shall never miss the money. Your last copy is the most interesting one I have ever read. If there is any manhood in a man, the reading of HOARD'S DAIRYMAN ought to bring it out. I wish you abundant success and hope the DAIRYMAN will continue to shine on and on and on.

A. D. RUNNELLS.

South Newbury, Vt.

Disking Alfalfa.

Several experiment stations have studied the effects of cultivating the soil of a field in alfalfa. The New Jersey station has made a careful study of alfalfa culture, and in a recent publication reports



WHY SITTING HENS LEAVE THE NESTS

In nearly all cases it is because they are so pestered with lice. Of course the hen does not know that the eggs may have cost you $5 a setting—she leaves just the same. **Prussian Lice Powder** dusted freely on the nest and eggs once each ten days does the business. Does not injure the eggs, and the little chicks will be free from lice when they come out. Should you like the liquid better, don't forget our **Prussian Lice Killer.**

"I have used Prussian Lice Killer for chickens and also for horses, and same has given entire satisfaction.—RIMOND LENTZ, Jericho, Wis.

Price 25 and 50 cents per can. Remember also our famous **Prussian Poultry Food.** If your dealer does not keep any of these, write us. We will supply you and send you our **68 page book free.**

PRUSSIAN STOCK FOOD & REMEDY COMPANY, St. Paul, Minn.

Did You Ever Keep a Record Of Your Cows?

IF SO, you have felt the need of a convenient, simple and handy Record Sheet. We have had so many requests for these Record Sheets that we concluded to get up one that would "fill the long felt want." We have a very simple and complete Record Sheet for 10 cows, one month, that is printed on heavy Manilla Paper, we can send postpaid at following prices:

Price 5c Each	6 for 20c	12 for 30c	25 for 50c

SIZE 10x16 INCHES

We also have a one cow Record Sheet, heavy Manilla paper (one month) that we will mail postpaid

Single Copy 5c	5 for 15c	10 for 25c	25 for 40c

SIZE 6x15 INCHES

HOARD'S DAIRYMAN.

FORT ATKINSON, WIS.



WEBER JR. Gasoline Engines

are the outgrowth of 19 years of engine building. Not approached for strength, safety, simplicity or width of duty. Valuable for a score of farm duties. Any boy can run them. 2½ full horse power at less than 5 cts per hour. Tested and ready for action upon arrival. Made to fit farmers' needs. Other sizes up to 800 h. p. Write for free catalogue.

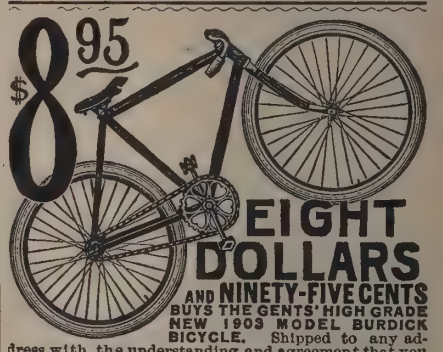
WEBER GAS & GASOLINE ENGINE COMPANY, Box 176, Kansas City, Mo.



Shepherd's Aerator

is most simple, most effective, least trouble. While you go on milking millions of air globules from the charged tank are passing up through the milk, driving out all animal heat and foreign odors. Works in shipping can. No other vessel to clean. **King among Aerators.** All dairymen prize it. Write for descriptive circular.

F. P. SHEPHERD & CO., Elgin, Ill.



$8.95 EIGHT DOLLARS AND NINETY-FIVE CENTS

BUYS THE GENTS' HIGH GRADE NEW 1903 MODEL BURDICK BICYCLE. Shipped to any address with the understanding and agreement that you can give it ten days' free trial, put it to every test, and if you do not find it handsomer, stronger, easier riding, better equipped, better tires, hubs, hangers, bearings, and in every way higher grade than any bicycle you can buy from any other house in Chicago, at home or elsewhere for less than $20.00, you can return the bicycle to us at our expense, and you will not be out one cent.

FOR OUR FREE SPECIAL BICYCLE CATALOGUE showing the most complete line of new 1903 model gents', ladies' and children's bicycles at prices so low as to be really startling, for everything in bicycle sundries and supplies, for the most astonishingly liberal offer ever heard of, cut this advertisement out and mail to

SEARS, ROEBUCK & CO., Chicago Ill.

H.&R. REVOLVERS Always Reliable

SHOOTS STRAIGHT. Catalogue Free

Harrington & Richardson Arms Co.,

Dept. 22. WORCESTER, MASS.

BINDER TWINE FARMERS wanted as agents. AUGUST POST, Moulton, Iowa.

as follows on the advantages of cultivating the field with disk cultivators:

By disking alfalfa, is meant the going over it in the spring, before growth starts, or in the summer, immediately after cutting, with a disk harrow. It is customary to set the disks at a slight angle. This cuts the crown roots and stirs the soil. Both our old alfalfa field and the one seeded last year were disked in August, this season, immediately after cutting the crop. The disking appeared to be beneficial to both fields as it was followed by a vigorous growth and a general branching of the crown roots. Seed was sown where the alfalfa was thin, which, while it sprouted, was soon shaded and choked out by the growth of the old plants, except where the ground was nearly bare.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—On the Elgin Board of Trade today, the price of butter was made firm at 21c. New York was reported steady at 22c., receipts 5,659 lbs.

Winslow offered 43 tubs at 22c, but no sale was made. Potter purchased 17 tubs of Kirkland at 21c.

The output for the week was 729,000 pounds.

Former prices were:

	Tubs Sold	Price,
May 11, '03,	0	21 cents
" 19, '02,	75	22 "
" 20, '01,	0	18½ "
" 21, '00,	0	19½ "

Elgin, Ill., May 19. H. C. B.

DAIRY MARKETS.

ELGIN, Ill., May 18—Butter rulled firm on the board of trade to-day, selling at 21c. The sales for the week were 729,000 lbs.

CHICAGO, Ill., May 18—Butter—Steady; creameries, 16@21½c; dairies, 15@18c.

Eggs—Steady; at mark, cases included, 14½@14¾c.

Cheese—Weak; Twins, 12¼@12½c; Daisies, 13@14c; Young Americas, 13¼@13¾c.

Live Poultry—Firm; turkeys, 10@12c; chickens, 12½c.

Cattle—Prime beeves, 1,250 to 1,500 pounds, 5.15@5.40; choice to extra beeves, 4.85@5.10; fair to good export and shipping steers, 4.55@4.80; medium beef steers, 4.20@4.50; plain beef steers, 3.90@4.15; common to rough, 1,000 to 1,200 lbs. 3.50@3.80; good to choice feeders, 4.00@5.00; good to choice heifers, 3.90@4.60; poor to plain stockers and feeders, 2.75@3.90; fair to good stockers and heifers, 3.10@4.00; good cutting and fair beef cows, 2.50@3.00; common to good canning cows 1.40@2.40; bulls, poor to choice, 2.40@4.25; veal calves, good to fancy, 5.25@6.50; calves, common to fair, 3.50@5.00; corn-fed western steers, 3.65@5 40; Texas bulls and grass steers, 2.75@3.30; Texas steers, fair to common, 3.85@4.70.

Hogs—Good to prime heavy shipping 6 65@6.80; good to choice heavy packing 6.45@6.60; plain to choice heavy mixed 6.40@6.70; selected butcher weights 6.30@6.70; assorted light, 150 to 195 lbs. 6.15@6.40; common to good light mixed, 6.20@6.40; thin to choice, 50 to 130 lbs., lots 5.80@6.20; stags and rough lots, 3.65@5.80

MILWAUKEE, Wis., May 18—Butter—Creamery—extras, 21c; firsts, 18@19c; seconds, 16c; (renovated) 16@17c; whey, 10c. Dairy, fancy, 18c; lines, fresh, 15@16c; rol, 15@16c; packing, 13c; grease, 5@6c.

Cheese—American, new, full cream, Twins, 12½@13c; Young Americas, 13@13½c: Daisies, 14@14½c; Longhorns, 13@13½c; low grades, 10@12c. Brick, fancy, new, 13@13½c; low grades, 11@12c. Limburger, fancy, new, 11½@12c; low grades, 8@9c. Swiss, drum, old, choice, 15½@16c; drum, No. 2, 13@14c; Block, choice, 14@14½c; block, No. 2, 12@13c.

Eggs—Strictly fresh laid, cases returned, 13½c; dirties, 12c; seconds, 11c.

MANITOWOC, Wis., May 13 — Cheese — The sales reported on the Dairy Board today were: Twins, 12¼c; Young Americas, 12½c, and Daisies, 12¼c.

PLYMOUTH, May 12— Cheese — Nineteen factories offered 1,182 boxes of cheese today and all but 18 sold as follows: 174 cases Longhorns, 12⅞c; 714 Daisies, 13¾c; 148 Twins, 12⅝c; 40 Twins, 12¼c; 58 Americas, 13½c. Market active.

FOND DU LAC, Wis., May 18—Cheese—Sales of cheese on the Call Board today were: Thirty Twins, 10⅝c; 77 do, 10¾c; 83 Daisies, 13c; 220 do, 13½c. Market active.

BRILLION, Wis., May 7. —Cheese—The sales were: 81 Twins 12¾c; 110 cases Young Americas at 12¼c. 208 Daisies 14⅜c; 192 daisies 14¼c.

MUSCODA, Wis., May 11—Cheese—Offerings were 155 Twins. Sales 118 at 12⅞: 37 withdrawn.

SEYMOUR, Wis., May 12—Cheese—The sales were 189 double Daisies at 12¼c; 111 Twins at 12¼c; 120 Twins were withdrawn.

SHEBOYGAN FALLS, Wis., May 13—Cheese—Twenty-three factories offered 1,660 boxes of cheese on the Call Board today and all except four Twins sold as follows: Forth seven Twins at 12⅝c; 11 do at 12⅜c; 5 do at 12¼c; 358 cases Young Americas at 13c, 255 Daisies at 13⅞c; 97 do at 13¾c, 233 cases Long-horns at 12½c, 688 do at 12c, Market active, though prices were ⅜@1¼c lower than last week.

SHEBOYGAN, Wis., May 13—Cheese—On the Call Board here today 1,272 boxes cheese were offered and sold as follows: Twenty-seven Twins at 12¼c; 609 Daisies at 13⅞c, 111 Young Americas at 12⅝c, 50 do at 12¾c, 463 Long-horns at 11¾c, 12 do at 11⅝c. Prices lower, but market active.

Latest quotations for fancy creamery, St. Louis, 21@22c; Cincinnati, 23c; Buffalo, 22c; St. Paul, 21c; Minneapolis, 21c.

LIVERPOOL, May 18— Butter—Good United States steady, 75s.

Cheese—Steady; American finest, white and colored 64s. Stocks: Butter, 3,900 cwts.; cheese, 16,000 boxes.

NEW ORLEANS, La., May 18—Butter - Extras, 22½c; firsts, 21c; ladles, 15c.

PHILADELPHIA, Pa., May 18—Butter—Market firm. Solids, 22½c; nearby prints, 24c; western, 23c.

NEWARK, N. J., May 18—Butter-Market steady at 22c.

Eggs—16½c.

BOSTON, Mass., May 18 — Butter —Creamery, western extra, 22¼c; western firsts, 21½c; dairy. 16@21c; imitation creamery, 16@19c; ladle, 14@15c; box and print, 15@23c.

Cheese—Choice, old, 14½c; new, 12¼@12½c: Wisconsin 12@12½c.

Eggs—Near by, 20c; Western selected, 16@16½c; fair to good, 15@15½c. Illinois, 16½c; western dirties, 12½@14c.

UTICA, N. Y., May 18—Cheese—Large, 1,800, 11¼c; small, 2,000 11½c. New York advices being firm; this market has stiffened.

CANTON, N. Y., May 18—Offered 210 boxes of large cheese; 1,392 Twins and 841 tubs of butter. at 21½c. 10¾ bid for large cheese; Twins at 11½.

NEW YORK, May 18—Butter—Receipts, 5,659; lbs.; firm; extra creamery, 22c; creamery, common to choice, 18@21½c; state dairy, 17@21c.

Eggs—Recipts, 15,900; state and Pennsylvania, 16½@17c; western storage, packed, 16½c; western firsts, 16¾c; Kentucky, best, 15@15½c; southern, best. 14½c.

Cheese—Receipts, 1,335 pkgs; steady; state full cream, fancy, small, colored and white, new, 12¾c; new large, colored, 11⅞c; new, large, white, 11¾c.

NEW YORK MARKET

NEW YORK, May 16th.—Butter—Receipts for the week, 36,746 packages. Exports for the week, 57 packages.

Market has been active and strong all the week, and closes with a scarcity of Extra Creamery, and prices exceeding our quotations for highest scoring butter. Good creameries were in demand at 21 to 21½c, and middling to poor ones sold at 18 to 20c.

New York state dairy, when strictly fancy, sold at 21 to 21½c, while odds and ends of all styles, quality and packages sold at 18 to 20c. All under grades Western are in light stocks and prices firm with advancing tendencies. Renovated neglected and prices nominal. We quote:

Creamery, extra, 21@22½c medium, 21@21½c; poor, 16@20c Dairy, extra, 21@21½c; medium, 18@20c; poor, 15@17c. Ladle, creamery, extra, 18@19c: medium, 16@17c; poor, 14@15c. Renovated, extra, 18c; medium, —poor, 12 to 15c.

Cheese—Receipts for the week, 26,744 boxes. Exports for the week, 14,733 boxes.

Arrivals of new cheese were quickly taken and prices slightly advanced over last week, and firm at the close. Old Cheese are being peddled out in the smallest kind of way at 13@14c.

Skimmed Cheese is more plentiful and sold freely for export at 4 to 6c. We quote:

Full cream, new extra, 12¼@12½c; medium, 11½@12c; poor, 8@11c.

Eggs—Receipts for the week, 112,931 cases.

Continued heavy receipts are having a depressing effect on prices; stocks are accumulating, and to make sales lower prices have to be accepted. We quote:

New York & Penn., fancy, per doz., 16½@17c; Northern & Western, fancy, per doz,, 16@16½c; All Sections, poor to good, per doz., 13@15c.

DAVID W. LEWIS & CO.

177 Chambers St.

NEW YORK FERTILIZER MARKET.

Acid phosphate		60 @	67½
Phosphate rock, f. o. b. Char'n		5 00 @	7 00
	Tenn	3 00 @	4 00
Bones, rough	₱ ton	16 50 @	17 50
ground		20 00 @	21 00
Bone meal		18 50 @	24 00
Bone black, refuse		18 00 @	19 00
Potash, dbl. m're salt 48@53 per cent		1 12 @	1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons		25 00 @	30 00
sulph of basis, 90@98 per cent		2 11 @	2 18
90@98 per cent less than 25 tons		38 00 @	40 00
Potash muriate 100 lbs		1 83 @	1 95
less than 25 tons		36 00 @	40 00
Kainit 25% S. of P	₱ ton	9 30 @	9 50
less than 25 tons		9 50 @	10 50
Sylvinit, 35@37% P	₱ unit	41 @	46
Nitrate of soda		2 05 @	2 1¼
Blood, Dried red	₱ unit	2 55 @	2 60
low grade		— @	—
Concentrated tankage		15 00 @	16 00
Fish guano, dried		27 00 @	28 00
acidulated		14 00 @	—

BALTIMORE MARKET.

BALTIMORE, May 14—Butter — While the receipts of creamery, since our last issue, have been gradually on the increase, and advices from the dairy sections report that the conditions are favorable for a much larger increase in the make in the near future, the steady feeling, noted in last issue, continues to prevail, and the recent advance in Elgin has had the tendency to strengthen the belief that the bottom on fancy stock has been reached. Although the order trade has been rather light, and absolutely no speculative buying worthy of mention, the local consumptive demand has been very good and all attractive offerings have met ready sale. Fancy makes of imitation creamery are in active demand. Fresh sweet ladles are in light supply and good request. Rolls—After this week we will discontinue quotations. Choice sweet packing stock is wanted. Blocks and prints continue in full supply; there is a vast difference in quality. The market generally rules firm on all desirable offerings.

Creamery Separator, extras, 22½@23c; firsts, 21@22c; seconds, 19@20c. June Creamery, extras, —@—; firsts, —@—; seconds, —@— Imitation Creamery, extras, 19@20c; firsts, 17@18c; seconds, 15@16c, Iowa & N. W. Ladle, extras, — firsts, 16c; seconds, 14c. Ohio & Indiana Ladle, extras, — firsts, 15½c; seconds, 13@14c. Roll, Ohio, extras, — firsts, 13@14; seconds, 12c. Roll, W. Va., extras, — firsts, 13@14c: seconds, 12c. Ohio Store packed, extras,— firsts, 13@14c; seconds, 12c. West Va. Store-packed, extras, —; firsts, 13@14c; seconds, 12c. Creamery blocks (2-lb.) extras, 23@24c; firsts, 21@22c; seconds, 20c. Creamery prints (½ lb) extras, 24@25c, firsts, 22@23c; seconds, 20@21c. Md. Va., & Penna. Prints, extras, 22@23c; firsts, 20@21c; seconds, 15@16c. Renovated Butter, extras, 19c; firsts, 17@18c; seconds, 15@16c.

Cheese—The stock of old cheese is pretty well exhausted. Quotations given are for new.

N. Y. State—Cheddars, fine, 12@12¼c; choice, 11¾@11¾c; fair, 10@11c; Flats, fine, 12@12¼c; choice, 11½@11¾c; fair, 10½@11c; Small, fine, 12¼@12½c; choice, 11¾@12c: fair, 11@11½; Ohio Flats, fine, 11@11¼c; choice, 10@10¼c; fair, 9¼@9½c; O. Picnic, fine, 11½@11¾c; choice, 10½@11c; fair, 9½@10c; Swiss Cheese, fine, 15c; choice, 12½@13½c; fair, 10@12c.

Eggs—So far this week the receipts have been fairly liberal; the demand continues quite active, both for local consumption and storage purposes; hence, there is a close clearance of all desirable offerings; the market holds firm at 15½ cents.

301 Exchange Place. G. M. LAMB & BRO.

NOTICE
TO SEPARATOR INFRINGERS.

Several concerns have of late been trespassing upon some of the DE LAVAL patents and a few months since suits were brought in the United States Courts against the American Creamery Supply Company of Waterloo, Iowa, and others. An injunction has now been issued, as follows, **of which all infringers are warned to take notice.**

THE PRESIDENT OF THE UNITED STATES
TO

AMERICAN CREAMERY SUPPLY COMPANY, its associates, officers, attorneys, solicitors, clerks, servants, agents, workmen, employes; GREETING:

WHEREAS, it has been represented to us in our Circuit Court of the United States for the Eighth Circuit and Northern District of Iowa, Eastern Division, that Letters Patent of the United States were issued to John Joseph Berrigan, assignor of the De Laval Separator Company, in due form of law, on the 2nd day of January, 1900, No. 640,358 for Improvements in Centrifugal Cream Separators, and that you, the said American Creamery Supply Company, have infringed the same;

NOW, THEREFORE, we strictly command and enjoin you, the said American Creamery Supply Company, and your associates, officers, attorneys, solicitors, clerks, agents, servants, workmen and employes, under the penalties that may fall on you in case of disobedience, that you forthwith and forever disist from, directly or indirectly, making or causing to be made, using or causing to be used, or vending to others to be used, in any manner, any centrifugal cream separators, devises, or apparatus containing, embodying or employing the said inventions and improvements granted by said Letters Patent, or from infringing upon or violating the said Letters Patent in any way whatsoever.

WITNESS THE HON. MELVILLE W. FULLER, Chief Justice of the United States, at the City of Dubuque, State of Iowa, on the 4th day of May, 1903.

(SEAL) A. J. VANDUZEE, Clerk U. S. Circuit Court, Northern District of Iowa.

MARSHAL'S RETURN:

This writ came into my hands for service on the 4th day of May, 1903, and I certify and return that I personally served the same upon the American Creamery Supply Co., by service upon Warren Cranston, President of said Company, by offering to read the same to him, the reading thereof he waived, and by delivering to him a duplicate original of said writ, at Waterloo, Blackhawk County, Iowa, on the 5th day of May, 1903

EDWARD KNOTT, U. S Marshal, By J. W. Philpot, Deputy.

UNITED STATES CIRCUIT COURT IN AND FOR THE NORTHERN DISTRICT OF IOWA:

I, A. J. VANDUZEE, Clerk of United States Circuit Court in and for the Northern District of Iowa, do hereby certify that the foregoing transcript contains a full, true and complete copy of the Injunction issued under seal of said Court dated May 4, 1903, in the case entitled "The De Laval Separator Company vs. American Creamery Supply Company, No. 230 Equity" together with the Marshal's return for Service endorsed thereof, as full, true and complete as the Original of said Injunction duly served, remains on file in my office in Dubuque, Iowa, under date of May 8, 1903

IN TESTIMONY WHEREOF, I hereunto subscribe my name and affix the seal of said

(SEAL) U. S. Circuit Court at my office in Dubuque, Iowa, this 8th day of May, 1903.

A. J. VANDUZEE, Clerk U. S. Circuit Court, Northern District of Iowa.

The De Laval Separator Co.

Randolph & Canal Sts.,
CHICAGO.

1213 Filbert St.,
PHILADELPHIA.

217-221 Drumm St.,
SAN FRANCISCO.

GENERAL OFFICES:
74 Cortlandt St.,
NEW YORK.

121 Youville Square,
MONTREAL.

75 & 77 York Street,
TORONTO.

248 McDermot Avenue,
WINNIPEG.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Dairy Farm and Cows, etc., at a bargain, one mile from Danville, Va., 20 000 population and a growing city. Selling 130 gallons per day at 25 cts. per gallon. Established milk routes for 25 years. Good dwelling, barns, silo, etc. Highly improved land for sale. Cheap to a quick buyer to wind up estate. RICHARD COATES, Executor for Jos. Coates' estate.

Fine Dairy Farm for Sale—Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. T. S. TOMPKINS, Pasadena, Cal. 15-tf

Position Wanted—In creamery; 21 years old; have worked in the best creameries in Germany. Prefer position where I can learn the English language to one of high wages. SIMUN KERGL, 815 Winnebago St., Milwaukee, Wis.

Position Wanted—Experienced butter maker wishes to change position. Have taken Dairy Course at Ames, Iowa. Good references. Address T, care Hoard's Dairyman. 15-5

For Sale at Reasonable Prices the Following Articles—Two 20th Century Alphas, belt machines, good as new; one five horse power portable engine and boiler in elegant shape; one 40 bottle Turbine tester, used only a few times; two rotary milk pumps and one shallow well pump. Address LOCK BOX 6, Wales, Wis. 14-2

Are You Color Blind?—If not, you will appreciate the natural golden colored product of the Guernseys. Pure bred bulls and grade heifers for sale. A. H. HINMAN, Allenville, Wis. 15-2

Wanted at Once—Reliable married man to work place of 14 acres. Must be sober and honest. Wages $25 per month, house and garden free. Steady place to the right party. C. A. RUSS, Delavan, Wis.

Wanted—Married man, competent to care for a dairy and work on small farm. A German with some help to milk preferred. House, garden, milk, etc. Address BOX 46, Delafield, Wis. 15-tf

For Sale Cheap—One 125-gallon Cheese Vat. F. C. CURTIS CREAMERY. Rocky Run, Wis.

Wanted—Good first-class butter for retail route. Address EDWARDS SANITARY MILK DEPOT, Greensburg, Ind. 15-2.

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

Wanted—At once, expert condenser for partner. Prefer man able and willing to supply one half necessary capital. I have the raw milk at creamery and market for product in city. Address J. D. ROSZELL, 223 So. Mad., Peoria, Ill. 13-3

For Sale—De Laval "Dairy Steam-Turbine" separator, capacity 1000 lbs. per hour, used very little, in good condition. Going out of business. Address B. F. BRUNDRED, Oil City, Pa. 13-tf

Wanted—A first class butter-maker for town of 25,000 inhabitants in Mexico. Healthy climate. German-American speaking German preferred. State age, experience, and salary wanted. Should understand cheese-making and how to care for hogs. Will have house at factory and take meals free with superintendent. Address G. R., care of Hoard's Dairyman. 14-2

Wanted—Engineer and helper for butter-maker with some knowledge of butter making. Z. W. THOMAS, Ft. Dodge, Ia. 14-2

Wanted—A good sober and industrious man to take charge of a small dairy herd. Must be a good butter maker and good milker and be well recommended. State wages wanted in first letter. Address D. T. HILLMAN, Big Horn, Wyo. 14 3

Buff Jersey's latest book on Farm Stock and Dairy Work is full of practical things for practical people. The Silo, how to build and fill; ensilage, its value; soil, crops, variety and how to grow. Swine, poultry and many other subjects ably treated. Send 25c for copy. Monmouth, Ill. 47-tf

Wanted—Experienced farm hand, able to milk well. Give age and wages wanted. ST. IVES PARK FARM, Mont Clare Station, Chicago, Ill. 41-tf

The Business Herd of Holstein-Friesian cows are being closed out at a great sacrifice, and if you want one or more officially tested, good business cows write at once and secure first choice. State just what you want and save time and correspondence. F G. JOHNSTON & CO., Sta. B, Columbus, O. 11-tf

Holstein-Friesian Bulls from one to fourteen months old at prices that will surprise you. O. J. GODFREY, Pennellville, N. Y. 11-tf

A Registered Guernsey Bull 15 months old for sale. A very fine animal. Inquire of J. S. HUNTER, Pickett, Wis. 12-tf

For Sale—Four young registered Guernsey cows, all fresh. J. E. STORY, Stanley, Wis. 11-tf

Holsteins—Owing to pressure of other business I will sell 20 head of high class registered cows and heifers. All milking or heavy in calf. No culls. Prices very reasonable. Come and pick them out. Address HENRY C. GLISSMANN, Sta. B., Omaha, Neb. 14-2

Wanted—Position by cheese maker in up-to-date factory. Dairy School experience. Also can give reference. Address L. L. H., care of Hoard's Dairyman. 14-2

Mr. Grote Takes Liberty to ask a few Questions. Some Pertinent, Others Less Important.

ED. HOARD'S DAIRYMAN:—I have frequently read the statement that the DAIRYMAN is issued for the purpose of answering questions. I take therefore the liberty to ask a few questions for you to answer whenever you do not know how to kill time.

1. What is the reason that almost all women are afraid of a mouse?
2. Is this fear based on prejudice?
3. What is prejudice?
4. Is it not a pre-judgment of a case on which you have no evidence, or not sufficient to make a judgment valid?
5. The common farmer pre-judges his cases on evidence furnished by tradition based on the experience of former generations.
6. Does the DAIRYMAN do the same thing?
7. Has the DAIRYMAN no prejudices based on customs and traditions and for which it has no valid proof?

In a former issue the DAIRYMAN says: "A cow of pronounced dairy temperament can not eat and digest enough roughage to furnish sufficient raw material from which to elaborate milk up to her capacity."

As this is a point of great interest for all dairymen will the DAIRYMAN kindly publish the proof for this broad assertion?

In last paper the Editor says: "We think that cows will do fairly well on clover silage and clover hay alone, but better and with more profit, if they have some grain in connection," page 258. As this assertion is also of importance to all dairymen will the DAIRYMAN kindly publish the experiments and figures by which this assertion is proved?

I do believe that both of these assertions are a pre-judgment on insufficient evidence. At least I have tried to find valid proof for them and so far I have failed.

It has been said that the more a man learns, the more he comes to the conclusion that he knows nothing. All human knowledge is relative. We find that when we do certain things under certain conditions, we obtain certain results, and we reason that if we repeat this action under the same conditions, we get the same results. Our knowledge is, therefore, relative to these experiments, and that is the only knowledge humanity has.

If the conditions are not exactly like the conditions in the first experiment, the results may be quite different. As the foregoing is the only method, is the only one by which certain facts can be established, it is of great importance for all dairymen to know how the above facts given by the editor of the DAIRYMAN have been so far established as to convince the editor that they are true, and full explanation will be therefore appreciated.

It must be self-evident to any man fully acquainted with the condition in which the majority of our farmers live, that the purchasing of feed and the exchange of feed raised on the farm for by-products of our factories, is in most cases impracticable and unprofitable. A farmer or dairyman should always figure to make his business independent of every other business. He should farm his farm in such a manner as to raise all the feed necessary to keep all his stock of whatever kind, profitably. It does not pay him to raise grain to exchange for other grain and get nothing for handling and hauling the grain. He should keep the necessary number of the right kind of stock to eat up all the grain he raises. The assertions that he can profit by exchange of grain for feeding purposes are illusions. When he sows the grain, he should sow the kind he needs and keep the kind of stock fit to eat this grain at a profit, etc.

Please send me address of your correspondent who used a sweep power successfully for milk skimming.

Mauston, Wis. C. W. GROTE.

Our correspondent's first inquiry does not appear to be particularly important except by way of illustration and comparison, and in this respect, it falls under the fatal objection that comparisons between things which differ materially are often, if not always, misleading. Moreover, it may be questioned whether "Almost all women are afraid of a mouse," *per se*. Women's attire offers such a convenient refuge for a frightened mouse that it is no wonder she seeks a chair or some other elevation until the little animal has found safety elsewhere. This is not prejudice on the part of the woman, as we understand the meaning of that term, but a very sensible conclusion from premises that cannot be successfully controverted.

Our correspondent unconsciously betrays an early education in the so-called classics, especially in Latin, from which so many of our words are derived, and not unlike a good many other classical scholars, he permits etymology to outweigh common every-day experience. Prejudice is literally pre-judgment, but by use and *metastasis*, the word has lost its literal significance largely, and now in common speech, it is used mostly to represent a state of mind and judgment which refuses to accept the evidence which to others may be conclusive. Emerson well says, "Difference from me is the measure of absurdity," and it is not at all uncommon for two men to be in possession of the same facts and yet come to widely differing conclusions, each thinking that the other is the victim of prejudice, but not necessarily due to pre-judgment. Why is it that juries so often fail to agree, or why is it that political parties divide so sharply on such questions as tariff? Is it because of prejudice or pre-judgment? It may be sometimes, but certainly not in the great majority of cases.

Or, to draw illustration at closer range, why is it that our correspondent claims that "it must be self-evident that the purchasing of feed and the exchange of feed raised on the farm for by-products of our factories is, in most cases, impracticable and unprofitable." It would seem that the simple fact that thousands upon thousands of successful dairymen do purchase feed and do exchange feed raised on the farm for by-products, would suggest to Mr. Grote that his statement in this behalf indicates a condition of mind not far removed from prejudice. Likewise, his calling upon us to submit proof or evidence of the correctness of the two propositions he quotes, seems to us to savor more of the dialectician than the experienced cow-keeper. We will, however, endeavor to submit a few facts in corroboration of these statements for our correspondent's further consideration.

Experience has demonstaated over and over again that the average good cow cannot dispose of more than about twenty-five pounds of dry matter in her feed

"ADVERTISEMENT."

BE INDEPENDENT.

It's Easy to Shake Off the Coffee Habit.

There are many people who make the humiliating acknowledgment that they are dependent upon Coffee to "brace them up" every little while. These have never learned the truth about Postum Cereal Coffee which makes leaving off coffee a simple matter and brings health and strength in place of coffee ills. A lady of Davenport, Iowa, who has used Postum Food Coffee for five years is competent to talk upon the subject. She says:

"I am a school teacher and during extra work when I thought I needed to be braced up I used to indulge in rich, strong coffee of which I was very fond and upon which I thought I was dependent.

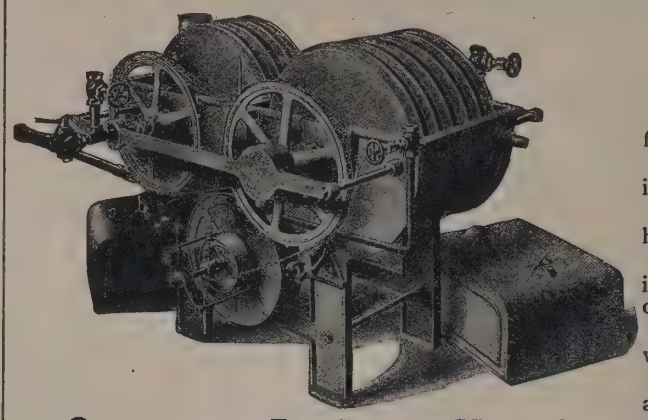
"I began to have serious heart palpitation and at times had sharp pains around the heart and more or less stomach trouble. I read about Postum and got some to try. I dropped coffee, took up the Postum and it worked such wonders for me that many of my friends took it up.

"In a short time I was well again, even able to attend evening socials. And I did not miss my coffee at all. Now I can truthfully say that I have been repaid fully for the change I made. I have no indications of heart disease and not once in the past four years have I had a sick headache or bilious spell.

"My father, 78 years old is a Postum enthusiast and feels that his good health in a large measure is due to the 6 cups of good Postum which he enjoys each day." Name furnished by Postum Co., Battle Creek, Mich.

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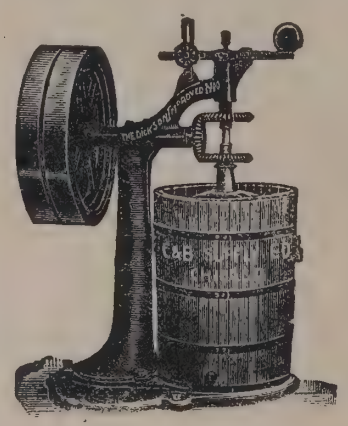
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WRITE FOR OUR CATALOGUE

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I have berries, grapes and peaches a year old, fresh as when picked. I used the California Cold Process. Do not heat or seal the fruit, just put it up cold, keeps perfectly fresh, and costs almost nothing; can put up a bushel in 10 minutes. Last year I sold directions to over 120 families in one week; anyone will pay a dollar for directions when they see the beautiful samples of fruit. As there are many people poor like myself, I consider it my duty to give my experience to such and feel confident anyone can make one or two hundred dollars round home in a few days. I will mail sample of fruit and full directions to any of your readers for nineteen (19) 2-cent stamps, which is only the actual cost of the samples, postage, etc. FRANCIS CASEY, St. Louis, Mo.

EGGS FOR HATCHING

I can serve you better than ever with eggs for hatching. White, Barred and Buff Rocks, Cornish Indian Games, Dark Brahmas and many other varieties. Also Ducks and Geese. All prize winners. Write for prices. J. P. Gonigam, Ottawa, Ill.

MILK TUBES Patent Coin Silver 1¾" 50c. 2¾" 80c. Improved Teat Opener 75c. Dilating plug 25c. Postpaid on receipt of price. G. P Pilling & Son, 2d and Arch Sts., Phil., Pa.

Creamerymen:

Talk to your patrons and get them to subscribe for . . .

HOARD'S DAIRYMAN

The BEST Dairy Educator in the world.

during the twenty-four hours. Thirty pounds of timothy hay contains 25.69 pounds of dry matter, in which there is .84 pounds of digestible protein, 13.02 pounds of carbohydrates and .42 pounds of ether extract or fat. These amounts of digestible nutrients are more than enough to maintain the cow, but there is not enough protein to enable the cow to make very much milk after supplying the needs of her body. The statement of this fact, as it seems to us, is sufficient to justify the conclusion that a cow of pronounced dairy temperament cannot eat and digest enough roughage to furnish sufficient raw material from which to elaborate milk up to her capacity.

The second proposition for which our friend demands the proof, is that the cows will do fairly well on clover hay and clover silage alone, but better, and with more profit, if they have some grain in connection. Remembering that the cow's capacity for feed is as a rule, not much above 25 pounds of dry matter, we will suppose that she is fed thirty pounds of clover silage and twenty pounds of clover hay. These, if of average quality, will contain 25.34 pounds of dry matter, 1.96 pounds of digestible protein. 12.21 pounds of digestible carbohydrates and .64 pounds of digestible ether extract or fat. The digestible nutrients in a ration of this character would be quite sufficient to enable a cow to do quite well, were it not for the circumstance that a goodly proportion of the nutriment in such a ration is required to enable the cow to digest so much coarse fodder.

Every vital function is carried forward at the expense of energy, and nutriment is the only source of vital energy. In timothy hay only 45 per cent of the protein is digestible. In clover hay 55 per cent is digestible; in bran and oats about 79 per cent is digestible; in gluten feed, 86 per cent; in linseed oil meal, 89 per cent. It is plain, therefore, that it requires the expenditure of more energy to extract a pound of digestible protein from timothy hay or clover hay than it does from bran, or oats, or gluten feed, or oil meal. Hence, although our ration of clover silage and clover hay shows 1.96 pounds of digestible protein, no inconsiderable part of this protein has been used up in separating the digestible part from the indigestible part, and there remains, therefore, so much less that can be used as raw material for the manufacture of milk.

We presume that our friend will not contend that wheat straw, for example, is a good feed for milch cows as clover hay, and he will not demur to the assertion that the reason for this is that clover hay contains more digestible nutriment than does wheat straw and does not tax the capacity and energy of the cow to the same extent. For precisely similar reasons, it is advisable not to limit a cow exclusively to so good feed as clover silage and clover hay alone when grain can be had at reasonable prices.

The illustration on page 276 will probably prove a sufficient answer to proposition 8 in our correspondent's communication.

A New Cure For Milk Fever.

M. Emile Thierry has contributed to the *Journal d'Agriculture Pratique* an account of the new treatment of milk fever (parturient apoplexy) discovered and practiced with success by M. Knusel, a veterinary sugeon at Lucerne. The treatmemt consists of the injection of pure oxygen into the udder. M. Knusel had previously practiced the comparatively new treatment with iodide of potassium, administered sometimes through the mouth and at other times by injection into the udder; but he had found it to fail in the most serious cases, and he reckons that about 40 per cent of the cows treated with it were lost.

This insufficient success led him to try the oxygen treatment, which he had applied in twenty-two cases, when he wrote his memoir of the method. Some of the cows were in an extremely dangerous condition, prostrated, insensible, and with labored respiration, accelerated pulse and paralized tongue. Yet in thirty to sixty minutes after the injection they had so far recovered as to seek for food. Not one of them died. From six to ten litres of oxygen were injected, the gas being compressed to twenty-five atmospheres in an apparatus obtained from a firm of Hauptner of Berlin, which contains a valve for regulating the pressure.

After washing and disinfecting a teat he introduced the teat probe, and slowly opened the tap to release the oxygen. When two quarters had been filled an assistant compressed the two teats, and by massage the gas was distributed through the glandular tissues. This operation having been completed, it was repeated with the other two quarters, the whole work occuping only about ten minutes. Gradually the treated cow showed signs of recovery, first raising her head, next shifting into a comfortable position, and soon getting onto her feet.

In two instances a relapse occured. through the cows having been milked too soon; but a fresh insufflation if oxygen quickly restored them. These were the only accidents in the twenty-two cases. M. Knusel believes that of his treatment be applied soon enough, it will be successful in all cases. He suggests, as the explanation of the effectiveness of oxygen, that the poison formed in the udder and passed into the general circulation of the animal is produced by micro organisms, which may be anaerobic, and therefore unable to live in the presence of oxygen.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

To Bring up a Run-Down Farm.

ED. HOARD'S DAIRYMAN:—Two years ago we got in possession of a 100 acre farm here which has been run pretty hard for a number of years, and has almost no grass on it. Our seeding the first year failed, the weather was too dry in fall and spring. Last year we tried cow peas, but did no good. Recently we got one of John A. Salzer's Seed Co., La Crosse, Wis, catalogue. In it they have many wonderful things. One of them is the "Billion Dollar grass." They claim it would grow up in six weeks ready to cut a big crop. Do you know anything about it, either seen it or heard of it? Please let me know, either through the paper or privately, or what would you advise sowing for hay, to be fed to milk cows and horses in conjunction with corn fodder for roughage?

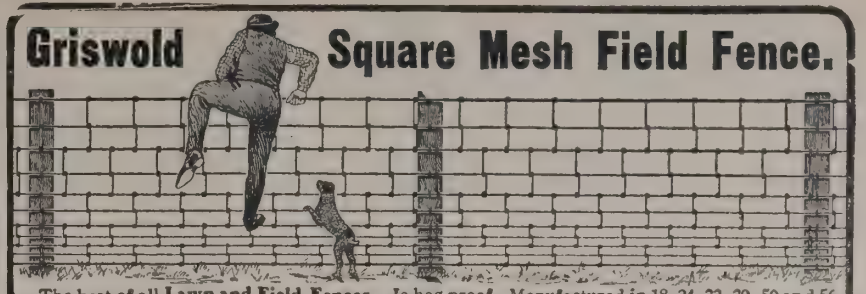
We have just finished sowing a six-acre field in alfalfa, but cannot expect much hay from it this summer. Any information on these questions would be thankfully received. J. J. S.

Bedford, Pa.

It is a very hazardous undertaking indeed to advise, at such a long range, just what to do to bring up a run-down farm, or what sort of a crop to sow to furnish hay for the coming winter. We have no personal knowledge concerning the Billion Dollar grass advertised by the Salzer Seed Company. We do know, however, that it is a reputable firm, that the statements in its advertisements and catalogues are fairly reliable, but we cannot advise any one to rush headlong into experiments with new varieties of seeds. A grass that may be well adapted for some localities, might prove practically worthless in other localities. Take the question of alfalfa for an example. The editors of HOARD'S DAIRYMAN have had very gratifying success with it, but they commenced in a moderate way at first, and have learned by practical experience some of the conditions which are indispensable to success with this plant, and their advice to others, notwithstanding their personal success with alfalfa, is to commence in a moderate way.

If nothing better offers, our inquirer can raise a crop of fodder corn by planting some very thick in drills on well-prepared ground about the last of June, cutting and curing it as for hay. It is too late now perhaps, but in ordinary seasons, oats and Canada peas sowed at the rate of a bushel and one-half each to the acre, usually make a very fine crop of hay. Possibly, common millet or Hungarian grass offers a very satisfactory solution of the present problem, and when the present year's crops are removed, nothing perhaps will tend to bring up this run-down land better than to sow crimson clover early this fall for plowing under next spring.

Griswold Square Mesh Field Fence.



The best of all **Lawn and Field Fences.** Is hog proof. Manufactured in 18, 24, 33, 39, 50 and 56 inch heights; in 20 and 40 rod rolls. The narrow widths can be supplemented to any height desired by Barbed or Plain wire, or two strand twisted Cable wire. Manufacturers of **Diamond Mesh Fence. Plain, Galvanized, Barbed or Telephone Wire. Wire Nails and Hay Bale Ties.** Write for illustrated catalogues and price lists. **Dillon-Griswold Wire Co., Sterling, Ill.**



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Cow Stall
AND FEED TROUGH.
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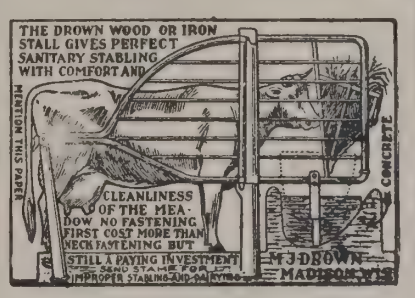
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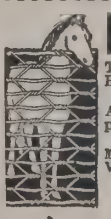


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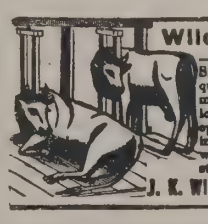
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Keeps Cows Clean.
Swings forward while getting up or lying down. Locks back while standing Full particulars free.
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Dana's White Metallic EAR LABELS
Stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Samples free. **Agents Wanted.**
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Iron Troughs
First Lot at Wholesale. Can't break or rot, nice round rim, any size or shape. Write for circular of **Cow Basin,** Poultry and Stock Troughs. Who will be first.
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your live stock of whatever kind with the thoroughly reliable, rust proof, non-corroding, easily read....
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Can't pull out, rust out or tear out. Name, address and consecutive numbers on each tag. Free sample, catalog etc. **WILCOX & HARVEY MFG. CO. 196 Lake St. CHICAGO, ILL.**

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Note and Comment.

Roads.—Concrete Silos.—Land in Dunn Co., Wis.—Cement Floors for Cow Stables.—Farm Lands in Northern Ohio.

ED. HOARD'S DAIRYMAN:—In the April 24th number of HOARD'S DAIRYMAN, there is an illustration in regard to good roads, wherein one man is shown trotting his team with heavy wagon attached, loaded with 4,000 lbs. of wheat, and another teamster, not four rods away, stuck in the mud, his team not being able to draw an empty wagon. The remedy is shown, but not made either the text, or sermon. The road fence, is a four foot high, stone wall! Why is not this wall put into the road, and pounded down smooth and thus enable the one man to draw the same load easily with one horse; and the second man get home in time for supper.

While in Central New York, we were guests of Hon. F. E. Dawley, the Supt. of Institutes, and a horrible road, for 175 years near his home, had been made into a fine boulevard by putting the stone walls from either side of the road into the path, and rolling and crushing them down smooth with a steam roller, and had settled one question, what to make roads of,and how,in a stone wall country. True it did not take the "steep" out of the big hill up to his house; but it did enable him and his neighbors, to haul big loads down the hill, at any season of the year, and not have their farms sold by the county for the building of the miles of fine road in that section.

The real road problem to be solved, is in localities where there is nothing but more mud to build a road of, and every farmer kicking about the cost. We know of one man who kicked about the cost, when told that the streets of heaven were paved with gold, and said "that that seemed an awful foolish and unnecessary expense. If they had worked out their taxes on the road as they should, they could have saved bonding the town."

* * * *

There seems to be a revival of the idea, or plan of concrete silos, in some sections, though for a time they were wholly discarded. The great weakness in them to be overcome is cracking and springing by the pressure of the silage, and to remedy this, some have hooped them and some build them inside of a tub—a wooden hooped silo. Lately we came across one that while it had iron-rod hoops, they were built into the interior of the walls as the concrete was added. Half inch steel rod hoops were put into the wall, each 18 inches, and bedded in the cement. This would add great strength to the structure, and it would not be necessary to make the walls to exceed 15 inches in thickness. We cannot see why good elm hoops, about 3×3 inches, made of about five layers of wood, would not be quite as well and quite as strong, and the cost of them would not be a fourth as much as the 18, or more iron rod stay hoops.

In the last DAIRYMAN is a notice of Dunn Co. Wis. farms for sale, which is a great surprise to me, that any one should want to sell out and leave a locality where soil is of the best, no crop failures, no drouths, sand, or pine stumps, near the best market, best dairy section on earth, all prosperous, and water every where! This seems to me to be an ideal place. This accounts no doubt for the great success of our old friend Theo. Louis, one of the greatest institute lecturers the west has produced. It does seem to us that we have seen some sand, and that drifting, in that Dunn Co., locality. We remember seeing a farmer there after a big wind digging out a board fence that had been submerged by the drifting sand to find the farm lines and it is reported that this same Theodore Louis, had an old fashioned stoned up well, some twenty feet in depth, and after a big wind storm, discovered that the sand had all been blown away from about the well nearly to the water. With the quick perception for which this man is noted, he propped up the walls to prevent their toppling over, and waited for another storm, which blew the sand back, and he now has the original well in good condition and daily use. That Dnnn Co. is only a short distance from the "Elysian fields" was generally understood, but that it was quite so near, is an unexpected bit of information.

I notice that HOARD'S is officially a little "fornist" the cement bed room floor for cows, and would prefer plank whereon this cow stands. I wonder if it is not somewhat in the construction of the cement platform that causes this dissent. The writer of this was recently in a $10,000 barn wherein a dairy was "Waldorf-Astoria-ed", and the cement floor was faultless except in this. The surface was troweled off with a steel facer, and it was as smooth as glass, and we saw two of the $300 cows slip and go down as they were being tied. The bedding was on the move toward the gutter all the time, from this very cause. Had the mason, when he put on the finishing coat, smoothed it down with a stub broom and left it rough, all objection would have been removed, as on this rough surface, the cow would have a good foot hold, and slipping would be out of the question, and on such a platform the bedding stays where it will do the most good.

It is almost impossible to so bed plank in cement,but that the liquids will not get under them, and then trouble commences with the sanitation, while with the other plan, and plenty of bedding, we cannot see any valid objection to a cement platform, either on account of supposed coldness, or liability of the cows bruising or injuring their legs in such a way as to produce stiffness of joints, or unnatural swellings. One who has ever taken up the planks of a stable floor, which has been in use to the point of wearing out, will have a recollection of a somewhat pungent odor, which will in no wise remind him of the "odors wafted from Araby the blest". With the present price of lumber, I am convinced the first lay of the cement is the cheapest, and if well constructed, will last until somewhere near 1950.

Something like 18 months ago, I wrote an item for HOARD'S about the cheapness of farm lands in northern Ohio, as compared with prices in other parts of the state. It showed what a good dual-purpose paper the DAIRYMAN is, for it brought me scores of letters from all parts of the United States east of Omaha, showing that the paper is both a good dairy, and advertising, medium. What was true then, is a fact no longer. The building of over 600 miles of trolley roads and 300 more building,on the "Reserve," mostly through sections remote from the steam roads, the building of rural telephone lines to the extent that 50 per cent of the farmers now have phones, rural delivery about complete, and 30 townships already with centralized schools, has had its great influence, and lands have gone up with a bound, and while prices are not so high, as in some other sections of the state, they are no longer given away, and a chromo thrown in.

There has been a great movement of the city men in country farm buying, and along the trolleys one now sees hundreds of these country seats, with their improvements costing from the tens to a hundred thousand dollars each, and all these combined, with what is known as the commuter influence, i. e., the great army who work, and professionals in the city, days, and live out from ten to thirty miles from the city along side the steam and trolley roads, has boomed the rural northern Ohio, as never before, and cheap lands are now scarce even at sheriff and administrator sales. I have closed my real estate office, and shall engage in other business for the present.

Ohio. JOHN GOULD.

The Great Value of a Good Milker.

L. O. Jackson a southern dairyman, writes the *Jersey Bulletin* and gives the following from his own experience to show how much more a good milker is worth than even an ordinary one. He says:

Over and above all else, we want educated men to handle these cattle from calfhood to maturity,whose reliabillity will insure the proper raising and development of their capability. One might say that he could not afford to pay the salary that an educated herdsman would command. You can't afford not to do it, if you would make a success of the business.We that dairy for a living with hired help,must have better help or quit.

To illustrate, for I want to tell you about a good milker, and then a better one: Last year I had a $25-per-month milker, getting from 16 cows 23 gallons per day. I thought he was doing pretty well—above the average. But he had to take a rest, so I employed an intelligent milker on the 13th of February, and from the 17th of February to the 17th of March, the cows went up to 32 gallons per day, with the same surroundings, quantity and quality of feed, and they sustained the increase, doing

COOPER SALE MAY 30
AT COOPERSBURG, PA.

A PLEASED BUYER IS THE BEST ADVERTISEMENT.

The Cattle sold at our May, 1902, Auction Sale have given universal satisfaction. My most sanguine expectations have been more than realized. How could it be otherwise? Individually they were strictly FIRST-CLASS

BEST OF ALL, they were bred on both dam and sire's side from animals that have made the Island cattle so famous—the blood that wins at the churn and in the show-ring.

☞Catalogues ready for distribution APRIL 20th. Owing to great cost publishing same, they will only be sent on application. Address T. S. COOPER, 'Linden Grove," Coopersburg, Pa.

AT DAIRYMEN PRICE One Grandson of Brown Bessie fit for service at Dairymen price on account of being broken color. Sire **Recorder,** the only living son of **Brown Bessie.** Dam **Bosnia,** 87508, record 20 lbs. 2 oz., a daughter of **Diploma.** Sire and dam solid color. Combines the blood of the winners close up.
H. C. TAYLOR, Orfordville, Wis.

THE BOSS CREAM RAISER



Does not mix water with the milk. Raises all the cream in from 3 to 6 hours, leaving the skim milk pure and sweet, and undiluted for house use and to feed to pigs and calves. It takes care of the cream and keeps it in proper condition to make the best butter at all times. Sweet milk can be drawn off at any time without disturbing the cream. Guaranteed to give entire satisfaction. Write at once for circulars and special introductory prices to Bluffton Cream Separator Co., Bluffton, O.

GUERNSEYS.
HADDON FARMS—Home of the noted GLENWOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. **E. T. GILL,** Haddonfield, N. J.

VALLEY FARM Is offering some good bargains in young bulls from 1 mo. to 2 yr. old. Also B. P. Rock Cockerels, $1.25 each. Write
FRED STUBLEY, Black Earth, Wis.

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Mature cows yearly records are from 405 lbs. to 740 lbs. butter. **YOUNG STOCK FOR SALE.** Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.
W. J. HUSSEY, Mt. Pleasant, O

$100 FOR THIS
REGISTERED JERSEY BULL CALF, 10 months old. Over 30% blood of Combination; nearly 30% blood of Brown Bessie. Traces from Eurotas (778 lbs. butter, 1 yr) and Mary Anne of St. Lambert (836 lbs butter, 1 yr.) Dam showed over 15 lbs. indicated butter in 1 week with first calf, and died of milk fever with this (3d) calf. One of best calves we ever raised. Solid color.
E. E. STEVENS, North Madison, Ohio.

BUY DIRECT FROM FACTORY, BEST MIXED PAINTS
At WHOLESALE PRICES, delivered **FREE** for Houses, Barns, Roofs, all colors, and **SAVE** Dealers profits. In use **61 years.** Officially endorsed by the Grange. Low prices will surprise you. Write for samples. **O. W. INGERSOLL,** 258 Plymouth St., Brooklyn, N Y.

AYRSHIRE CATTLE of the BEST of BREEDING. Also **Chester White Pigs,** ready to book for season's trade. Young stock of both sexes. Prices reasonable. Come and see us.
F. TSCHUDY & SONS, Monroe, Wis.

AYRSHIRES SCOTCH and.....AMERICAN The Champions of America—any age—either sex. Riverside Stock Farm. **J. F. CONVERSE & CO.,**
P. O. Box 112. Woodville, N. Y.

NORTH OAKS FARM, MINN ST. PAUL,
(Jas. J. Hill, Proprietor.)
AYRSHIRE BULLS
Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address,
N. E. McKISSICK, Supt., Cardigan, Minn

Wasteland Guernseys
Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.
M. M. & E. J. HOLLINGSWORTH, Landenberg, Chester Co., Pa.

GUERNSEYS FOR SALE.
Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.
JAS. H. BEIRNE, Oakfield, Wis.

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MATURE COWS YEARLY RECORDS range from 356 to 713.3 lbs. butter. This herd contains more officially tested cows than any other herd of the breed. All of the largest records are official ones. A particularly choice lot of tuburculin tested bulls for sale from high record dams.
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GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality **F. W. TRATT, Whitewater, Wis.**

GUERNSEY Bull Calves Sired by O. K. Dams of equal merit.
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Old Homestead Guernseys.
Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.
Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL Perry, Lake Co., Ohio.

ST. OMER HERD
Offers young bulls fit for service, out of tested dams with good yearly records. Strong in Exile of St. L., King of St. L. and Stoke Pogis of Prospect. Reasonabe prices. **JOS. T. HOOPES, Bynum, Md.**

FOR SALE GOLDEN LAD BLOOD. sired by **Golden Blyth 3d,** 54569 A. J. C. C., a son of **Imported Golden Blyth and King's Nana;** butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. **R. C. GREEN, Albion, Wis.**

BILTMORE JERSEYS
are great and presistant dairy workers and typical Jerseys. We ask comparison with any other herd for
YEARLY MILK & BUTTER YIELDS, SUBSTANCE AND FINISH.
The herd contains more prize winners at the leading exhibitions (including the Pan-American) than any other herd.
The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service as you cannot get it.
Also Headquarters for Large English Berkshires and Standard Poultry.
Apply to
BILTMORE FARMS, BILTMORE, N. C.

HAZEL FERN HERD. A. J. C. C. Jerseys, blood of St. Lambert, Melia Ann, Combination, Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. **Estate W. S. Ladd, Portland, Oregon.**

FOR SALE. Grandsons of Pedro 3187, by his son **Pedro's Pretty Pogis 33660,** A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. **J. Q. EMERY & SON, Albion, Wis**

ROBINSWOOD JERSEY DAIRY is offering a few Reg. Jersey Bulls ready for service at from $25 to $50, sired by a grandson of Recorder, the only living son of Brown Bessie, out of good cows. Write, stating your wants, to
N. H. ROBINSON, Prop., Centralia, Wis.

FOR SALE.
JERSEY BULL, one year old. Good individual of the best breeding. Also 7 months bull from tested dam. Herd headed by Fontaine's Owl, 60436. Prices on application. Address,
J. F. EGERTON, Footville, Rock Co. Wis.

The Evergreen Farm Herd has for sale three or four A. J. C. C. heifers bred Also a few cows and some choice bull calves from two to six months old. Write for pedigrees and prices.
N. N. PALMER & SON, Brodhead, Wis

even better. This gain of nine gallons stood for $2.25 per day, as I sell pure Jersey milk for 25 cents per gallon the year round. I consider that if the first man was worth $25 per month, the second was easily worth $65, although he did not cost me near so much.

Let's get rid of the poor dairyman by substituting a scale of points for better ones, basing his salary upon his efficiency To say: Skillful reliability in—

	Points
Feeding dairy herds	20
Milking	20
Calf raising	20
Cleanliness in all things	10
Patient kindness	10
Doctoring	10
Emergencies	10
Thus we have	100

HOARD'S DAIRYMAN would suggest several points that would help educate good milkers very much. 1. Let every dairy farmer exercise kindly patience and good treatment towards his cows. Suppress all boisterousness in the stable. Give the men plenty of time to do the milking. It is the most important work of the day.

2. Take pains to teach hired men what constitutes good milking. Do the teaching in a kindly way, not in a fault-finding manner.

3. Let every hired man act as though he was willing to be taught and shown.

Use of Lime in Butter Factories.

The Danish Dairy Instructor, B. Boggeld, in a recent lecture, dwelt at length on the use of lime in butter factories.

He said that there is often occasion to emphasize that it may be necessary to distinguish between cleaning and distinfecting. It must be conceded that the cleanliness with which we—for practical reasons—must be satisfied with in our factories, in no way satisfies the strict demand of the hygienism which must be applied in fighting contagious diseases in a herd; but on the other side it is generally acknowledged that the best possible cleanliness is equally desirable on account of the health of the cows and the development of their disease resisting powers, as it is of great importance in securing of fine and uniform dairy products.

Ten or twenty years ago heat was used in the fight against bacteria. Steam was employed liberally, and the result was the warping of churns and cream barrels. The floors were scrubbed with boiling water, and it was even proposed to scald the drains, which increased instead of decreasing the smell. At present it is an exception when a churn is steamed. All wooden utensils are rinsed and scrubbed, first with cold or luke-warm water to remove the milk, and then they are covered with a coat or thick mush of slacked lime. After ten or twenty minutes or later, the churns (or other utensils) are scrubbed with the lime and cold water, after which they are rinsed twice in warm water and at last with water hot enough to make the wood dry quickly.

Lime is used for cleaning in nearly all Danish factories, not only for woodenware, but also for tinware, and for scrubbing the floors. It took some time to introduce it, as the butter makers, to begin with, had their hands affected by the lime, but when they once learned to use it, they had no trouble, and the use of steam as well as of soda has been reduced. Lime is now also used more and more in place of oil-paint, which is often ruined by the dampness or heat in the factories, and as porcelain tiles are, as a rule, expensive, whereas lime is cheap and easily applied. It is often objected that the lime will peel off, but the lecturer did not deem that a drawback in the factories or cowsheds, because it was so much easier to clean. To wash a painted wall is no easier than to brush off a white washed one with a stiff brush and give it a new coat, and it is certainly cheaper to start with.

Some Comments from New Hampshire.

ED. HOARD'S DAIRYMAN:—I will try to get a few subscribers for the DAIRYMAN. Will you please send me a few sample copies, and I will leave them with my neighbors, and tell them "what is what."

I planted a plot of alfalfa in 1901, but not understanding the plant's needs, I let the weeds grow. There are today plants growing (in witch grass), that are ten inches high and as large around as a two-quart measure. I shall try a lot next spring.

M. C. S., Brocton, Mass., I have only farmed for about five years, but I will say that the cows that I started in with were discarded for those that I raised, with one exception.

Save the calves from your best cows and the best bull that you can secure, saving those calves that have a good milk mirror or escutcheon and well placed teats. Your cows having been bred will give more milk for two or three months at least.

Bulletin 58 New Hampshire Agricultural Experiment Station gives the cost of raising calves up to 16 months, as about $28.00, and she should weigh from 600 to 700 pounds.

Massachusetts Experiment Station report for 1893 gives the cost of raising calves up to 12 weeks as $5.07, average cost of whole milk, skim milk and grain. H. A. T.

Concord, N. H.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

YORKSHIRES A few choice imported Boars. September farrow. Also pigs from imported stock ready for delivery in 8 weeks. W. H. FISHER, Spahr Bldg, Columbus, O

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. All our choice pigs of 1902 farrowing have been sold. We are now taking orders for 1903 farrowing.
JOHN WHITE & SON, Adamstown, Md

YOUNG BULLS BY THE
POPULAR HOLSTEIN SIRES
IN A POPULAR HOLSTEIN HERD.
De Kol 2d's Mutual Paul, No. 25700 H. F., Dam De Kol 2d.. Sadie Vale Concordia's Paul De Kol, No. 27392, H. F. Dam Sadie Vale Concordia. If you are familiar with the official work and records of these two pre eminent cows, you are also familiar with the fact and the desire that one of their grandsons should head your herd to insure its success. Prices so reasonable too. That's all.
Geo. F. Carter, 126 North Salina St., Syracuse, N. Y.

FOR SALE. H.-F. Bulls, ready for service from A. R. O. Cows and sired by Sir Jonanna DeKol, 25467 A. R. O. Butter record of dam, 21.03 lbs. at 4 years. Also Improved Large Yorksh re Pigs. C. A. SCHROEDER, West Bend, Wis.

GLENVIEW HERD
A few fine heifers and bulls for sale. Also some A. R. O. cows. IRVIN NOWLAN, Toulon, Ill.

Markham Manor Farms, Simonsville P. O. Andover, Vt.
Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for description and price to J. A. THORNTON, Manager, Simmonsville, Vt.

FOR SALE.
H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address W. H. JONES, Watertown, Wis. Rural Route No. 2.

CLOVERDALE HERD
HOLSTEINS.
Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.
A. J. DAUGHERITY Streator, Ill.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22123. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs , butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148 Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.
WM. EVERSON & SONS, Lake Mills, Wis.


HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

OHIO'S

FAMOUS HERD
—OF—
Holstein Cattle
OWNED BY
W. B. Smith & Son
2488 W. Broad St., Columbus, O.
CLYDE PAUL DE KOL.

LARGE AUCTION SALE
OF REGISTERED HOLSTEIN CATTLE
Do not fail to attend the Auction Sale of the Famous A. & G. Herd of 200 head. 80 head of young stock in the sale from the very choicest breeding lines. Sale at Syracuse, N. Y., June 4th and 5th, next. Catalogue ready May 25th. Address
AVERILL & GREGORY, The Yates, Syracuse, N. Y.

SHADY NOOK HERD Holstein Friesians
Offers three bulls one year old. O. I. C. White Pigs, both sexes.
W. R. GATES, Fort Atkinson, Wis.

BROTHERTOWN Stock Farms
DEANSBORO, N. Y.
THE LARGE OFFICIAL RECORDS, made by members of our herd, emphasize the fact very strongly, that our breeding and selection has been most correct. If you are looking for the highest production, combined with choice breeding and individual merit, it will benefit you to place orders for breeding stock of either sex with us. We will give your wants careful attention. Prices reasonable. ABSOLUTELY BEST HERD OF HOLSTEIN-FRIESIAN CATTLE.
McADAM & VON HEYNE

OAKLAND HERD HOLSTEINS
PREMIER SIRE
Mutual Friend 3d's Paul
A son of Paul De Kol & Mutual Friend 3d, 21.84 lbs butter, milk averaged 4.7% at 3 years. She has two A. R. O. daughters; 1 made over 20lbs, Must reduce herd at some price. State just what you want T. A. MITCHELL, Weedsport, N. Y.

Holsteins That Produce Are The
HOLSTEINS THAT PAY
The kind we sell. Backed by the largest official butter records ever made. All ages, both sexes. Over 100 head to choose from.
BROOKSIDE STOCK FARM,
HENRY STEVENS & SON,
Box 208, Lacona, Oswego County, N Y.

STAR FARM HOLSTEINS--140 HEAD
Do not bury your money in out-of-date Holsteins, because they are cheap. Buy only best strains. Start right. It costs a trifle more, but your stock is always good for the money. The Johanna's and Mercedes' are at the front. Then buy a Johanna Mercedes bull or female. Mercedes Julip's Pietertje Paul is son of Johanna Rue 2d's Paul de Kol, and dam, Mercedes Julip's Pietertje, 29 lbs., 5.7 oz., 1901 world's butter record. He is king of sires.
HORACE L. BRONSON, Cortland, N. Y.

BROOKSIDE HERD
HOLSTEIN-FRIESIANS
To reduce herd to capacity of pasture, will sell a limited number of A No. 1 young cows of high breeding and individually right, large producers, at $150 each; also 15 bull calves at bargain prices.
STEVENS BROTHERS, Lacona, N.Y.

THE MAPLE'S HERD
offers good young cows with A. R. O. records in calf to Beryl Wayne De Kol Paul, No. 28785, whose dam Beryl Wayne has an official record of 27.87 pounds of butter in 7 days. Also four yearling bulls ready for service. Special bargains in heifer and bull calves.
JOHN C. GODFREY,
PENNELLVILLE, N. Y.

Holstein-Friesian Bull Calves
Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

HOME FARM HERD.
Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams 25.1 lbs. butter in seven days. Herd numbers 125 head.
BEST FAMILIES REPRESENTED.
Special prices on six or eight bulls of serviceable age. W. B. BARNEY & CO.,
Hampton, Ia.

Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

HOLSTEIN BULL CALVES. | **Johanna Family.** (both sire and dams). ALSO BERKSHIRES.
Wright's Farm. Berlin, Wis.

TYRANENA HERD
100 HOLSTEIN-FRIESIANS 100
A. R. O. Stock For Sale.
Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz Frank B. Fargo, Lake Mills, Wis.

FOR SALE.
2 H. F. Bull Calves, 6 months old. Sired by Johanna Aaggie's Paul DeKol 23443, (160 A. R.) from good milkers and testers.
M. S. CAMPBELL, Genoa. DeKalk Co., Ill.

MONONA FARM Offers for sale a few well bred Holstein-Friesian Bull Calves. Also two Service Bulls at reasonable prices. The Monona Farm Herd is founded on the best stock of the De Kol, Netherland, and Clothilde families. Pense Johanna 29332 the head of the herd has 7 A. R. O. dams averaging 22 lbs. 3.7 oz. Junior sire Paul Calamity De Kol 31095.
MADISON, WIS.
THE MONONA FARM HERD
Address. F. W. ALLIS, Madison, Wis.

.....YOU MAY.....
BEGIN AT THE HEAD
to improve your dairy herd with a bull whose dam has official record of 18 lbs. 6.3 oz., sires dam 20 lbs. 8.8 oz. Individual right. Price Right.
McKAY BROS., Buckingham, Iowa.

WOODLAKE HERD.
Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN Station D., R. 1. Minneapolis, Minn.

LOOK HERE.
34 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows. and sired by Gem Pietertje Hengerveld Paul DeKol, or Sir Ormsby DeKol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days, average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd? McGEOCH HERD is located at Lake Mills, Wis., 56 miles west of Milwaukee. For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis Residence: National Ave. near 40th. Phone, South 1601.

HIGH-CLASS HOLSTEIN-FRIESIAN BULLS
and Bull Calves from A. R. O. dams and the best Advanced Registry sires. Cows all officially tested; I breed from no others. Correspondence from breeders and progressive ddirymen invited. Malcolm H. Gardner, Darien, Wis.

HOLSTEINS
High Class Advanced Registry Stock only. Best butter families. Stock for sale.
Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.


T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.
Wm. O. Jackson & Sons, South Bend, Ind.

SOUTH SIDE FARM, WHITE BEAR LAKE, MINN.
Holstein-Friesians.
Bulls in service, Prince Inka Pietertje De Kol 2d, A. R. O., 144, sire of 10 A. R. O. cows, and Daisy Van Beer's Pauline De Kol. 27610, whose dam has official record of over 22 lbs. in 7 days. Special prices on young bulls from A R. O. cows. Also Yorkshire pigs of most approved breeding now fit to ship.

Calf Raising.

This question, important as it is to every farmer, is very lightly thought of and valued. A large proportion of farmers will stuff a hog to the verge of cholera and treat a calf as though it was a nuisance and burden. A look at the calves on a vast number of farms run by men who think they are dairymen, is sufficient to prove that they really do not know the first principles of calf raising. Our contemporary, the New York *Produce Review*, has presented the following summary of thought and quoted authority on this question. It is worth reading and studying:

This is one of the greatest problems which confronts the patrons of the separator creamery and yet more those of the cheese factory.

In some districts—Elgin, as for instance—many of the farmers solve the problem by not raising any and buy general-purpose cows from Iowa, selling them for beef when dry.

While this system may sometimes pay the individual, it has the great drawback that it destroys the good heifer calves which should have been raised and thus is a detriment to the industry as a whole. *To kill the heifer calf, from a good cow, is a crime.*

And, as a rule, it does not pay. The individual who sells his skim milk for a song (10 to 15c per 100 lbs.) for casein throws away not only the best market for it—the calf—but loses the manurial value and devastates his farm.

W. D. Hoard never propounded a better text and never preached a better dairy sermon than those preached on that text. It is indeed the keynote to successful calf raising. Remember the calf is a baby.

On this question opinions differ greatly and while our experience is in favor of never letting the calf suck, Prof. Haecker lets them suck once, and Major Alvord says:

"The separation may be delayed until the dam's milk assumes the normal condition, but, as a rule, the earlier the calf is taken in hand and its feedings regulated the better for the calf."

It depends somewhat on the disposition of the cow; if she is very nervous, it may be best to let the calf suck once or twice—always milking the cow dry afterward—but we found it sufficient to tie up the calf in front of the stanchion where the mother could lick it while the milking was done, and after a few times the cow seemed to "adopt" the milker.

The general impression is that skim milk from separator creameries is not worth as much within 25 per cent as that from a hand separator. We shall not deny that in some cases it may be so. If the creamery accepts dirty and half sour milk from the farmers and then runs the skim milk into a tank (underground or above ground) which is never emptied, never cleaned or only cleaned two or three times a year, then we may be inclined to accept the claim.

But if the creamery operator accepts only good milk, if he heats the skim milk to 180° or more, if he runs it into a tank which is emptied and cleaned every day as carefully as the receiving tank, and if this hot milk is run into the milk cans so as to heat the little rest of new milk in them to at least 160°, then that milk, when arriving at the farm, will have a feeding value equal (or at least within two or three per cent) to the hand separator skim milk. And it will have the further advantage that if one or two cows in a herd should suffer from tuberculosis, there will be no danger of transmitting it through the milk.

Some prominent dairy experts practice and advocate feeding only twice a day. Thus Prof. T. L. Haecker in describing how he fed the calf Omaha's Potty says:

"She had her mother's milk one week—sucked once—then in 24 hours received 4 lbs. fed twice a day, making 8 lbs. per day. The 2d week 4½ lbs. new milk and 4½ lbs. skim milk (sep); 3d week 7o lbs. skim milk and ¼ lb. flax meal; 4th and 5th weeks 77 lbs. skim milk and ¼ lb. flax meal, hay, 3 lbs.; 6th to 10th weeks 91 lbs. skim milk and ¼ lb. flax meal, hay 5 lbs., and balance of time during 6 months, 13 lbs. skim milk, and prairie hay."

In spite of this, we believe, from watching the calves who run with their mothers, that it is a better plan to feed three or even four times a day for the first two or three weeks. Nor are we alone in this opinion. Thus Major H. E. Alvord says "feed three times, preferably four" and W. D. Hoard says:

"Nature when left to herself' turns the baby calf out with his mother and he will take his food from ten to twenty times a day. If you will follow that law and give the calf his food as often as possible, give it in small quantities and give it as the mother gives it, sweet and warm, you will come as close to nature as you can."

While we prefer not to let the calf suck we deem it important the first two three days to give each calf not only colostrum but that of its own mother. We believe nature provided in each case the proper composition of the milk for the calf, and hence it should be safest to use it instead of taking the milk indiscriminately from any fresh cow. To give a new born calf milk from a cow that has been milked six or seven months is at least to tempt Providence.

While we believe some dairymen go too far in the direction of half starving the calves, there is no doubt that many more give too much. No rules can be laid down and the quantity should be in proportion to the size of the calf. In feeding Omaha's Potty, Prof. Haecker gave only 8 lbs. per day the first week, but this is surely the lowest limit, and if fed three times a day 10 or even 12 pounds may not be too much. Often the ill effect of *quality* (dirty and too cold) is blamed on the *quantity* given.

While we prefer to give a calf new milk for 2 weeks, it may be enough to give it for one and then commence gradually to put in more and more skim milk so that it gets all skim milk at the beginning of the third week.

THE MILK SHOULD BE WARM.

Of utmost importance is the temperature of the milk when given, and it should be within a few degrees of blood-heat—98°—in cold weather say 100 to 104 and in warm weather 90 to 94. Of course, as the calf grows older, this is not so important though we should always beware of having it too cold—or too hot.

Regular feeding hours are essential and the custom of feeding the calves—or any other animal—at any old time when other work is done, should be abolished. All kinds of work are much easier when it is done at regular hours, and the effect of regular meals on calves as on men is certainly beneficial.

Having deprived the milk of its fat, we must restore it and for this purpose a small amount of flaxseed jelly, oilmeal, oatmeal or oilmeal and corn meal as recommended by various authorities; but flaxseed jelly containing all the oil in the seed seems to us the best substitute for the butter fat—and we want to add that the more this is emulsified with the milk, the better it is.

Prof. Henry recommends adding a tablespoonful of oilmeal boiled to a jelly, and Prof. Haecker gave the before mentioned calf 70 lbs. of skim milk and ¼ lb. flax meal during the third week. It seems to us, however, that we may safely go further and give at the rate of 2 lbs. of meal and more to 100 lbs. of skim milk,, but the all important part is to watch the excrements and feed accordingly.

Prof. Henry in his valuable work on feeds and feeding recommends to give a pinch of whole oats after the milk when two weeks old, and while the calf may first spit them out he will soon learn to chew them. At first a couple of tablespoons but when 12 weeks old and getting 20 lbs of skim milk daily, he will eat one to two pounds.

A pinch of hay should be given, first to amuse the calf, and later as part of the feed.

While thus no hard and fast rules can be laid down, the feeding must be regulated according to the purpose. If a heifer calf, it should be kept in good growing condition, without getting fat, but if baby beef or a steer is to be developed, it is well to keep it fat all the time. For this reason oatmeal may be preferable for the former and corn meal for the latter purpose.

Major H. E. Alvord says: "When pasturage is good after the calf is six months old, there can be no better food. At other times let the food be mainly the coarser and more bulky kind of forage; the digestive appetite needs to be developed and become accustomed to working up large quantities of food. A big belly may result but no matter."

Hay tea, which is best from early cut hay, is improved by boiling it down so as to concentrate it somewhat. Prof. Stewart had success in feeding two gallons with ¼ lb. flaxseed and ¼ lb. wheat middlings boiled in it, to calves 36 days old, increasing the middlings to 1 lb. per day.

Mr. H. E. Cook says, anent feeding whey, which he considers worth from 7 to 10c per 100 lbs. "Whey should be kept sweet and clean. Start with new milk for one or two weeks, then change



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The 1903 Reid Hand Separator is the most exact milk skimmer ever made—it is simplest, fastest, lightest running, and affords most butter-producing material under all conditions. It creates a new source of revenue and maintains the income—

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the one that gets the profits, and runs without an expert. We let you test it yourself and return if it is not a money maker for you. The price makes it easy to buy. Write now for free catalogue.

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Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.

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by the old method of skimming milk is rank folly. With a National Cream Separator you can save 80 per cent. of the butter-fat you are now throwing away. It separates both warm and cold milk, light or heavy cream and skims practically *clean*. We send it

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THE ECLIPSE Cream Separator



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We want to send you an *Eclipse Cream Separator* to try. It is built double strength all through and will last and work perfectly for a life-time. It acts twice on the milk and skims it absolutely clean. Its interior device is simple, easy to wash and to operate. Its double process removes filth from the milk as well as separating the cream, and leaves both pure and sweet and fresh. It never gets out of order. It is guaranteed.

It's a money maker and a money saver. It operates by hand, foot or motor power.

E. L. CHAPMAN CREAM SEPARATOR WORKS, ERIE, PA.

DON'T Place Your Order For -ROOFING- Until You Have Seen CAREY'S Magnesia Flexible Cement ROOFING



It Can't Be Equalled For Durability. For Flat or Steep Roofs QUICKLY APPLIED.

Sample Cat. and full information mailed upon request, Free. The Philip Carey Mfg. Co., 19 Wayne, Lockland, O.

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NEW OXFORD BALL BEARING Cream Separator

Sold on guarantee to be the best on the market. Catalog free.

WORLD CREAM SEPARATOR CO. 41 Main St., Council Bluffs, Ia.

ICE MILK CAN Jackets are the thing. Handy, cheap, and require little ice. Please everybody. Are patented. Booklet free.

S. C. SULLIVAN, 425 W. 4th., Erie, Pa.

gradually to skim milk for two weeks and then gradually to whey, having meanwhile taught the calf to take dry, coarse food. Ground oats are good immediately after the milk or whey." Personally we have had no experience with feeding whey to calves, but it seems to us that it would be well to make a gruel of the whey and oatmeal, corn meal or flax meal.

This is sometimes a test of a good philosopher. A good way is to get astride the calf and backing it up against a fence having the milk in rather a shallow pail or basin, holding it up high, then wetting two fingers of one hand and putting them in the calf's mouth, taking care not to let the milk get into its nostrils. When the calf once has learned to drink, a bucket may be placed on the ground.

When several calves are to be fed and they have learned the trick, stanchions are a great help.

We shall only state that nine out of ten cases of disease are due to (1) dirty pails, (2) feeding too cold and too much, (3) changing from sweet to sour milk or *vice versa*, and (4) neglecting to keep the calf clean, dry and warm.

When feeding separator skim milk a few drops of rennet extract is a good preventive, and lime water is a good cure, for scours.

HOARD'S DAIRYMAN desires to add a word more to the above. It is upon taking the calf away from the mother. It is our belief and practice, that it is best to leave the calf with the mother, letting it suck in a natural way, for four days, in order to allay nervous excitement and reduce the chances of milk fever. If, in addition, the udder is not fully emptied during this time it will prove an additional preventive. After four days the danger of milk fever has passed, in most cases.

Cedar Hill Jersey Farm Notes.

Milk Fever—Milking Suits—Sowing Rape.

ED. HOARD'S DAIRYMAN:—My recent article on methods of milking at Cedar Hill College has brought several letters of both commendation and otherwise. One otherwise takes my system to task, because he uses white suits and covered pails and sells his milk beyond the price usually obtained by milk producers. That is all right if he can get a profit on the white suits and other extra work necessary to create an interest among milk consumers, who will pay an enhanced price for milk produced under such conditions, well and good. His milk is as good as we produce but no better. Some years ago the pasteurizing of milk was the fad.

Many dairymen spent large sums for outfits, and to-day most of these plants are idle. In our own case our faculty pasteurized one season, and our outfit cost us $3.00 and did the work just as well as the machines that cost several hundred. I only speak of this to show that practical results can be obtained with not much outlay of money.

The DAIRYMAN readers no doubt recollect of my asking, some years ago, for a receipt for milk fever so my boys could see a case. Three years ago, while attending our State Jersey Cattle Club banquet at Springfield, I made the statement that I never owned a cow that had the milk fever. The members of the Club told me that I would not be able to say the same thing at the next annual meeting. We have had two annuals since that time and not a cow has had the disease, and we have from 35 to 45 freshen every year. One Jersey breeder referred to me as a would-be dairyman who never had a cow good enough to have the fever. Well, if having the disease is a symptom of a good cow, we have a mighty poor herd, but my boys and girls still persist in having two pails when they milk some of our cows, and they are three-gallon pails at that. Twenty and twenty-three lbs. of milk at a milking should bring on an attack, I should think, and we have got 'em.

I am amused at some of the advertisements used by Jersey breeders in one of the leading journals that comes to my desk. One of them reads, "out of 25 cows, 5 of them have had milk fever." Another commenting on his bull, states that 50 per cent of his daughters die with the milk fever. Now who wants to buy either such cows or a bull with such a record among his daughters. I am sure I do not. I do not believe there is any more use for a herd of cows having milk fever than there is of their having seven year itch, lice or any other disease. Last week the *Jersey Bulletin* had a picture of a cow that had been cured of the fever, so it was stated. Our Professor of Dairy Husbandry made the remark that she looked as if she had just recovered from a severe attack of starvation.

One letter of inquiry asks me, "if you do not wear white suits, what do your milkers wear, blue bib overalls and white and checkered jumpers?—Um, Um,—the most of us do. I find that while we use the covered pail, white suits or other methods, a great amount of good or bad can be traced direct to those who have the cows and the barns in charge." In my own case, no one outside of my family has either the care of the cows, their milking or care of product. Three of my daughters assist in drawing the milk, follow it to the creamery and do not leave it till it is delivered by them either at express office or at door of consumer. These girls have been reared to know that perfect cleanliness, both in stables and creamery, is the only way to produce fine goods and the boys have been just as apt in the lessons.

Today, May 4, finds us yet with two weeks feed of silage on hand and cows on pasture, nights. We trust we may turn them on the day pasture without very much of a shrinkage. Last year our cows dropped over 100 pounds in milk yield when tapered off from silage to grass. In as careful a manner as we could, we weaned them to blue grass of as fine growth as we ever turned on, but the result was a shrinkage of one-sixth of their yield.

The faculty have just finished sowing 25 acres of rape for pasturing out young Jerseys and some 90 to 100 Berkshire pigs. With this acreage, we have the same feeling a man does who shoves back from an exceptionally good dinner, or finds he has a good balance in the bank, or has, after a long summer's work, finished filling his barns and silos. We feel we have an abundance of feed for everything, drouths or what not. There are no supplementary pastures I have ever seen that can compare to this.

Monmouth, Ill. BUFF JERSEY.

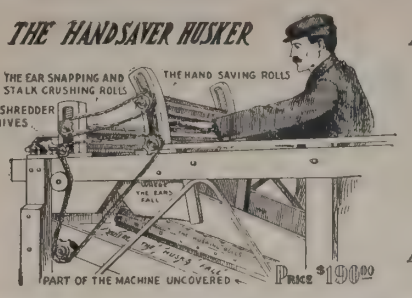
Butter for the Navy.

Messrs. Schulz, Niggle & Co., of San Francisco, who own and manage a line of creameries in California, advise us that they have been awarded the contract to furnish one-hundred thousand pounds of butter from pasteurized cream, to be delivered at the Mare Island Navy Yard in California. They expect to put up the entire quantity at their Diamond Crystal Creamery, located at Arcata, in Humboldt county, at the rate of about two tons a day.

Cream SEPARATORS All about them and other things for the dairy and creamery. A. H. REID, Philadelphia.

SOY BEANS, EARLY YELLOW—Northern Grown, clean and good, $2.50 per bu. SORGHUM, Orange, best variety for fodder, $1.00 per bu. (50 lbs.) Bags free on 2 bu. lots.
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THE HANDSAVER HUSKER



YOU CAN'T GET HURT
HUSKS 50 BUSHELS PER HOUR
SNOW WON'T BOTHER
ASK ABOUT OUR 2 WHEEL WIND MILL AND ALL IRON WOOD SAW
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DOUBLE POWER MILL CO.
APPLETON, WIS.

DO YOUR OWN THRESHING. The two horse power Little Giant Thresher and Cleaner enables the farmer to do his own threshing. Save expense and thresh when you have the time. No waiting for the job thresher. Thresh for yourself and your neighbors. Clean threshing, perfect cleaning. Grain ready for market. Capacity 200 to 500 bu. per day. Threshes all grains and grass seeds. Runs by steam or other power. Tread powers for 1, 2 or 3 horses. Can be used for sawing, shelling, pumping, feed cutting, etc. Send for catalog. Free.
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COMMON SENSE Calf Feeder

awarded Gold Medal at Pan-American Exposition. The only Feeder adopted by experiment stations. It is the kind others try to imitate. Easiest to operate and clean.

Most Durable, Simple, Economical, Scientific and Practical.

Do not be deceived by imitators. Shams are never imitated. More Common Sense Feeders are in use than all others combined. Over 50,000 in use. No valves to get clogged or foul. Nipples reinforced and cannot collapse. The calf feeder is a perfect weaner. A substitute for nature.

Extra gain on one calf pays for two feeders.

Best Feeder Made.
Michigan State Board of Health:—I tried every Calf Feeder I could find, but liked yours best.

Worth $10.00.
George S. Bement, Victor, N. Y.:—I am very much pleased with the Feeder and would not be without it for $10. No trouble, no damning, no milk on your clothes, no trouble to teach the calves to take hold of it, no sucking the cows, and the best of all is that when they get about eight weeks old they don't stop for the nipple but just drink out of the pail.

The Principle is Correct.
Purdue University Agricultural Experiment Station of Indiana, LaFayette, Ind.:—We have been using the Feeder to some extent and it is in constant use at this time and we believe it to be very satisfactory in its work. The principle of Your Feeder, I believe to be the correct one. C. PLUMB, Director.

Advise Stock Raisers to use it.
Maryland Veterinary Hospital:—I am very much pleased with the Feeder and would advise stock raisers not to be without one.

Price $1.50 including two nipples, sent postpaid for $1.75. We guarantee satisfaction, but if you are in doubt about its value we will send one on approval for 50c to cover postage, remainder to be paid if satisfactory. Be Sure and send for our twenty-two reasons why you should use a feeder. It's free. Sold by one dealer in a town.
O. H. MANUFACTURING COMPANY, DEPT. H, LYNDON, VERMONT.

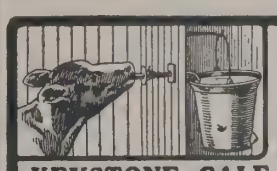
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SENT out under positive guarantee. Money refunded if not satisfactory. No bolting food. Perfect digestion. All tinned—no rust.

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Patented under No. 721,334. Used in about forty experiment stations. Mass. Ag'l College writes as follows: Mr. M. T. Phillips, Dear Sir:—I write to say that the Calf Feeder is giving excellent satisfaction. We have found it to be all we could ask for in a feeder. It is easily cleaned and appears to be durable. Yours truly, E. A. JONES, Supt.
Complete with extra nipple, $1.50, express prepaid. Circulars free.
M. T. PHILLIPS, POMEROY, PA.



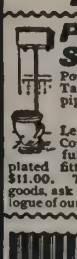
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Big Bargains in Farm Supplies

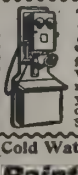
First Class Material, Merchandise and Machinery at Sacrifice Prices.



Plumbing Supplies For Bath Room
Porcelain Bowl, Hardwood Seat and Tank, Nickel Plated flush and supply pipes, complete each $10.00.
Cast Iron Bath Tubs,
Length 5 ft., Complete with full set nickel plated fittings, each $11.00. They are new goods, ask for free catalogue of our full line of plumbing supplies.

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Strictly new, perfect, Semi-Hardened Steel Sheets, 2 feet wide, 6 feet long. The best Roofing, Siding or Ceiling you can use. We furnish nails free and paint roofing red two sides. Comes either flat, corrugated or V crimped. Delivered free of all charges to all points in U. S. east of Mississippi R. and north of Ohio R. at $2.25 PER SQUARE. Prices to other points on application. A square means 100 square feet.

Barbed and Smooth Wire Write for our prices on 2 and 4 point Barbed Wire, painted and galvanized; also, 65,000 pounds
SMOOTH GALVANIZED WIRE SHORTS
Gauges: 10, 11, 12, 13 and 14. Price $1.40 per hundred lbs. We also handle other kinds, write us your wants.



Telephones at $5.00 Each one is guaranteed to be in perfect order before leaving our plant. We are able to offer you an instrument for $5.00 that would cost you twice as much elsewhere. We carry a full stock of supplies. Send for Phone Catalogue.

Cold Water or Ready Mixed Paints
Paints We bought at Receiver's Sale from a leading paint house, a very large quantity of Cold Water Paints and Ready Mixed Paints. Equal in grade to any on the market.
Here is a Genuine Paint Bargain. Before placing your order, write us for our special prices. You can surely save money, without sacrificing quality.

Poultry Netting A special lot of new galvanized No. 19 poultry netting while the supply lasts, at these prices. 150 running feet to bale.
12 inch..... $0.45 per bale.
18 inch..... 0.65 per bale.
30 inch..... 1.10 per bale.
36 inch..... 1.35 per bale.
42 inch..... 1.50 per bale
Other grades at correspondingly low prices.

Wrought Iron Pipe
Steam, Gas or Water; sizes ¼ to 12 in. diam
We have in stock 2,000,000 feet of Standard black wrought iron pipe, second hand. It is in good condition, complete with threads and couplings at following prices
¼ inch at 1½ cents per foot.
¾ inch at 2½ cents per foot.
1 inch at 3½ cents per foot.
1¼ inch at 4½ cents per foot.

Farm Forges $8.00
We bought several car loads of new Portable Forges at a low price. We have also for sale horseshoes, horseshoe nails, blacksmith tools of all kinds.



Hardware 500 doz. single bitted axes @ 35c. 175 doz. double bitted axes, 2d qual. @ 40c. 6,000 Dietz Lanterns, few slightly affected by water. Write for prices.

Gasoline Engine $70
2 HORSE POWER
Absolutely new; most modern type. Guaranteed, pumping jack & fixtures & fittings for $75. Without pumping jack $70.
Headquarters for Machinery
Our line of machinery supplies is almost unlimited. Complete stock of Saw Mills, Pumps, Sugar Machinery, etc.
And in fact everything in that line.



Building Material
LUMBER, SASH, DOORS, ETC.
We carry a complete stock of first class Building Material of all kinds. Send us your bill for estimate.
10 CARLOADS OF NEW DOORS AT $1,00 each
HARDWARE SUPPLIES
Write for our catalogue of builder's hardware. The per cent of the dealers profit we can save you will prove a revelation.



SEND FOR CATALOGUE NO. 20 We issue a complete illustrated catalogue containing prices of which the above are only a few samples. You ought to have a copy of this book in your home or office and we will send it upon request.

CHICAGO HOUSE WRECKING CO. WEST 35TH AND IRON STREETS, CHICAGO.

CONCERNING OUR ADVERTISERS.

Heebner Threshers and Powers.

Two machines which go hand in hand upon the farm, allowing the owner to do for himself what would cost him a considerable sum if he had to hire, are the Heebner Threshers and Cleaners, and the Level Tread Powers. Both represent high types of usefulness, as well they might, for they have been manufactured by one concern, the Heebners, father and sons, at Lansdale, Pa. for upwards of sixty years. They are the product of a region where people were taught that the surest way to get on in the world was to do for themselves. These machines make that possible. The powers can be put to dozens of different uses on the farm besides threshing. The threshers have a capacity of from 200 to 500 bushels per day. The owner of one easily does his own threshing, and may quickly recover the entire cost by threshing for his neighbors. All grains and grasses are within their compass, and they come from the machine ready for the bin. An advertisement will be found elsewhere in these columns. It should suggest to readers that it is as good a plan to do for one's self, to be independent of the coming of the thresherman and to save where savings can so easily be made.

A Blessing to Dairymen.

Childs' So-Bos So Kilfly proves a most profitable invention. There are numbers of things invented and placed upon the market which although they may have the elements of novelty and possibly prove of some value among certain lines, yet fail to be of really intrinsic value to those for whom they were originally designed. The exception, however, proves the rule, and this has been most prominently shown in the case of Childs' So-Bos-So Kilfly, a preparation for killing flies and insects upon cattle. Ever since its first introduction it has been steadily growing in favor among dairymen and farmers, who have found that under its benign influence, cows protected from the annoyance of flies have actually given about 20% more milk than before. Nor is this all. The comfort of those employed in milking and the saving of time thus affected are prominent among the virtues of So-Bos So. Its perfect antiseptic qualities and absolute harmlessness have commended it for general use in stables, chicken-houses and pig-pens, while for scours in calves, hog cholera or foul in calves' feet, it has been found to be an unequaled preventive. The ease and rapidity with which it may be applied, and the generous terms upon which it is sold, have also proved important factors in establishing its popularity. Many and hearty have been the endorsements given So-Bos-So by leading dairymen all over the country, and Messrs. Chas. H. Childs & Co., of Utica, N. Y., who are the sole manufacturers, are to be congratulated upon having given the dairy industry such a valuable product. They gladly mail full particulars upon request.

Stevens Bros., of Lacona N. Y, write us as follows: "One of the most important of our recent sales of Holsteins was four head to Messrs. Brown Bros., of Lyn, Ont. After spending considerable time in Canada and the leading herds of York State, they made a second visit to Brookside Herd and made their selections. To head their already famous herd they secured the young bull Beryl Wayne's Paul Concordia, and as his name indicates, he combines the blood of the most popular families of today. They also selected the bull calf Sir Mutual Butter Boy to eventually take the place of the above mentioned bull. This youngster was out of Pauline Mutual De Kol and sired by De Kol 2nd's Butter Boy 3d, his dam, De Kol 2d and his sire Manor De Kol, was out of Netherland Hengerveld, official record 26 lbs. 10.6 ozs. butter in 7 days. The females selected by Messrs. Brown were two 2-year-old heifers, Pauline De Kol Bergsma and Sara Jewel Hengerveld, the former due in August by Beryl Wayne's Paul De Kol, the latter dropped a beautiful heifer calf before shipping. She made a tremendous udder and was giving 40 lbs. per day at the time of shipment. She has all indications of equaling her dam, Sara Jewel A. R. O. 21 lbs. 7.9 ozs. butter in 7 days. They are richly bred heifers and are of the right type, and we believe they will be heard from in their new home. Much could be said of their parentage but space will not permit."

Winning Points.

The merits of a thing are usually determined by the number of winning points it may have. The winning points of an oration, for instance, are sound reasoning, good diction and forceful delivery; the winning points of an applicant for a position are ability to work, honesty and faithfulness; and the winning points of a binder are correct principles in construction, durability and ease of operation. One make of machines may have many more winning points than another, just as one man may excel another in mental or physical strength. The vast majority of agriculturists know that the pre-eminence of the McCormick binder is due to the large number of winning points the machine has, among which are its stanch main frame, strong gears, roller clutch, elevator rollers, deck rollers, folding dividers, improved needle and roller twine tension—winning points that have made the McCormick world-renowned.

The many friends of Robert B. Ogilvie, of Wis. will be pleased to know of his election as Vice President of the Zenner Disinfectant Company, the makers of Zenoleum Dip and Disinfectant. Mr. Ogilvie has charge of the Chicago office of that company and is located at 39 Exchange Ave., Union Stock Yards, and will be pleased to see his old friends at any time they are in that vicinity. Any letters addressed to him will also have prompt attention.

Horace L. Bronson of Cortland, N. Y., writes as follows: The demands on the Star Farm Herd, during the past spring, have been so heavy that I have been compelled to replenish my stock and have just purchased from Riverside Stock farms in New Jersey, a carload of the finest heifers that I have been able to find anywhere. These females are bred second to none in the country, and are the finest individuals that I have ever seen. Some of the heifers have been bred and others will be to Mercedes Julip's Pietertje Paul. Believing that the best is the cheapest, I have spared neither pains nor expense to place at the head of Star Farm herd, the son of the 1901 world's champion butter cow, Mercedes Julip's Pietertje and Johanna Rue 2d's Paul De Kol, sire of 10 A. R. daughters with large official butter records, including Witt Duchess with an official 7 day butter record of 24.88 lbs. Some of my recent sales are as follows: To Mr. H. C. Gazlay, of Accord, Ulster County, some elegantly bred cows; in this consignment were Hope Crumhorn 2d, Queen Mechthilde Colantha, Paragon Elez De Kol 2d, Mona Pietertje and two heifer calves, also the splendid yearling bull, Aratsia Koningen. This stock was selected with great care by the purchaser for a foundation herd for his beautiful summer home near the village of Accord.

To Helen M. Westphall, M. D. three elegently bred two-year-old heifers in Paul DeKol Clothilde; Hengerveld Clothilde DeKol; Madge Pauline DeKol; and to head the herd she selected a magnificent young bull, Daisy Pauline Paul Butter King. A sister of this bull recently made in her two year old form an official butter record of 12 lbs. in a week, and her milk averged 4% butter fat during the test. Mr. Charles A. Shults of Freeville, N. Y.; visited Star Farm in April in search of a bull to head his herd. After considering the merits of other animals offered, he settled on Anzaletta Paul DeKol, and I shipped him about four weeks since. This bull is out of Anzaletta Pauline Paul. In her two-year-old form she gave 59 lbs. of milk in 1 day, and some weeks afterwards passed into advanced registry in a butter test conducted by Observer West of Cornell.

One of the finest individual bulls ever shipped from Star Farm herd was Zaverne Paul DeKol, dam Zaverne 3d, and sire Guess Not Paul De Kol. He now heads the herd of Mr. S. H. Cornell. West Haverstraw, N. Y On Tuesday, May 12, 1903, Mr. H. A. Moyer, of Syracuse, N. Y., visited Star Farm. Mr. Moyer wants nothing without it is backed by a dam with an official 7-day butter record of 20 lbs. or better. In the purchase of A. & G. Inka McKinley in Star Farm herd, he has secured a two-year-old heifer whose dam, Segis Inka has an official 7-day butter record at 4 years, 6 months, 12 days of 476⅝ lbs. of milk and 18 lbs. 8.1 oz. butter. In 1901 this famous cow was given another official 7-day butter record test and raised her former 7-day butter record to 23 lbs. 4.4 oz.

Another sale made from Star Farm was to State Hospital at Morganton, North Carolina. They purchased Saladina Pauline, a son of Pauline Paul Sir Mechthilde the fashionably bred cow, Madge P., and the promising cow, Daisy H. Paula; Mr. William Sweetland, of Dryden, purchased the elegantly bred cow, Tena. I should not fail to mention that the enterprising Poultry Fancier and Expert, Mr. Fred H. Rivenburgh of Oneida, N. Y., has determined to enter the Holstein field. I have just shipped to him, four of the best females from the Star Farm herd. Mr. Rivenburgh personally selected the stock with apparently but one consideration in mind, and that was to get the best, regardless of expense. On Wednesday of last week, I shipped to Mr. H. T. Field of Oneida, N. Y., the four months' old bull calf Zo Zo Butter King, dam Lady Zo Zo Pauline, sire Guess Not Paul DeKol.

The Case & Walker Sale of Jerseys.

The Case & Walker sale of Jerseys at Rushville, Indiana, April 28th, was an occasion of more than ordinary interest and importance to the dairy interests of the United States. All told, there were ninety-three head sold, practically all of them imported or immediate descendants of imported stock. There were no record-breaking prices obtained, but the average of $210 per head shows a very even lot of cattle and a discriminating attendance of buyers. The highest price realized was for the cow, Golden Fern's Rose Fern, which sold for $700 to Henry West of Scappoose, Oregon. Mr. West was also one of the highest bidders for bulls, paying $400 for Fern's Prize. Mr. A. T. Dempsey, of Ohio, paid the same price for the bull calf, Fern's Sweet Eyes, only fifteen days old. Mr. C. E. Parfet of Golden, Colorado, was one of the heaviest purchasers and was the second highest bidder, paying $670 for the cow, Fabulous Interest.

The detailed report of the sale shows that these cattle were distributed among thirty-nine different buyers in fourteen states. The prices for bulls ranged from $400 down to $60 an average of $177; for bull calves from $400 down to $20, an average of $100. Thirty-six cows ranged in price from $700 to $60, average $297. Heifers brought from $370 to $60, average $176, and heifer calves, any age from eleven months down to two months, sold for from $270 to $55, an average of $145.

It is claimed that these prices did not bring Case & Walker any profit because so many of the animals sold for much less than they cost on the Island, which, whether true or not, is a decided encouragement for breeders and dairymen to attend sales of this character, or to be represented at such sales, where there is always opportunity to buy the highest class stock at reasonable prices, notwithstanding that particular animals may sell for fancy prices.

East Tennessee Farmers' Convention.

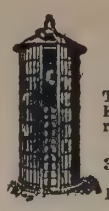
The East Tennessee Farmers' Convention, which will meet at Knoxville May 21, 22 and 23, will not only be a notable gathering of the progressive farmers of the state, but will be of unusual value in several unique particulars. At the coming meeting, a new and very valuable feature will be introduced in the demonstration lectures. Professor Shaw of the University of Minnesota, will use a herd of cattle in teaching the farmers the value of conformation as a means of judging stock. Illustrative material will also be used by members of the staff of the Experiment Station in their adresses.

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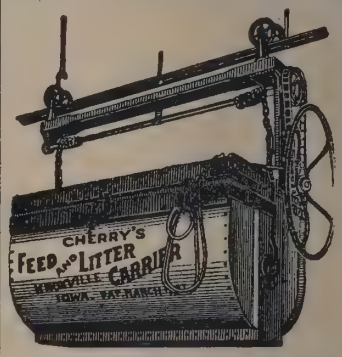
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Use Goodwin's Fly Killer this season on your cows and horses and be rid of the fly pest, Cows give 25 per cent more milk and horses are relieved. Gallon 75c, 5 gallons $3.00, 10 gallons $5.50. Sprayers 50c, or send $1.00 for sprayer and enough Fly Killer to protect 150 cows.
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BARGAINS in purebred Scotch Collie Pups Present price from $5 to $10 each. Apply promptly to
W. W. CHENEY, Manlius, N. Y.

ILLUSTRATION.



New Factory Building Just Purchased by International Stock Food Co., Minneapolis, Minn.

It is the famous Exposition Building built by the city of Minneapolis on the bank of the Mississippi river and overlooking St. Anthony Falls. It is now to be used for the manufacturing of their celebrated "International Stock Food." The building is 300 by 300 feet and has an addition 75 by 150. It is the largest manufacturing building in the entire Northwest and contains over 600,000 feet of space. It cost the city over $400,000.

The railroads have granted a single fare for the meeting, the program is the best offered by the Convention, and it only remains for the farmers themselves, by their presence, to make this the record gathering of this Association.

JUDSON M. SOULE, Sec.

Transfers of Guernsey Cattle.

BULLS.

Alessendro of Los Angeles 8593, W. M. March to N. I. Wilson, Pescadero, Cal.
Allison of Eastview 8608, E. Rigg Brow to J. N. Greenshields, Danville, Que.
Baron of Schleswig 8591, Christ Muth to F. F. Thielke, Schleswig, Wis.
Brinsaba's Standard 8601, C. Morton Smith to S. W. Evans, Frankford, Pa.
Bud Brown 8386, Ezra Michener to Edward Harmer, Moorestown, N. J.
Don Cameron 7634, John G. Mobley to Wm. F. Claussen, Claussen, S. C.
Gilder of Homestead 8596, L. V. Axtell to W. C. Stoops, Butler, Pa.
Hindoostan 8408, H. McK. Twombly to N. B. Ream, Thompson, Conn.
Herbert H. of LaGrange 8607, John G. Mobley to Thomas B. West, Mason, Ga.
Knight of Stonecrest 8595, A. S. Apgar to A. S. Hurd, Stepney Depot, Ct.
LeGrand Duke 6193, J. A Beidler to J. L. Snyder, Lansing, Mich.
Miss March's Erwin 8597, H. W. Comfort to John S. Sutphin, Trenton, N. J.
North Star of Prospect 8603, W. D. Hoard to W. C. Sullivan, San Antonio, Tex.
Ollie's Le Grand Duke 8455, G. B. Tallman to C. C. Worden, Hampstead, Md.
Paddy of Penns Manor 8599, H. W. Comfort to E. Ivins, Penns Manor, Pa
Sir Coral 2nd 6819, Emma C. Kent to Maurice T. Phillips, Pomeroy, Pa.
Zella's Emperor 2nd 8063, W. D. Hoard to A. L. Tubbs, Whitewater, Wis.

cows.

Blue Sky 9483, John Tyler to E. T. Gill, Haddonfield, N. J.
Beauty of Orange 12891, Florence of Maplewood 14597, Golden Rod of Norway 7732, Rose Bud's Trudy 7570, J. P. Welsh to T. E. Hyde, Bloomsburg, Pa.
Cora Etelka 9773, Est. Alex Scott to I. R. Scott, Ward, Pa.
Bess of Bendbrook 10003, Cassie Woodburn 14159, Cyprus' Lassie 9431; Fenella Fitzhugh 10983, Jewel of Haddon 11259, Mildred D. 5036, Pinta 6310, Richiuda 11267, Sonsie's Pauline 13570, Victorine of Fernwood 10966, E. T. Gill to Geo. Wood, Philadelphia, Pa.
Elizabeth of Upper Freehold 16068, R. T. Woodward to E. T. Gill, Haddonfield, N. J.
Inez of La Grange 15436, Mary B., of LaGrange 16057, John G. Mobley to Thomas B. West, Mason, Ga.
Isaleigh Cecilia 16069, Isaleigh Florodora 16071, Sis Hopkins 16070, J. N. Greenshields to Mrs. W. E. H. Massey, Coleman, Ont.
Mildred of Maulton 15640, E. Maule & Co., to Maurice T. Phillips, Pomeroy, Pa.
Manulla 2nd 16066, Tillie Prude 2nd, 16067, James Ramsay to Mark Hughes, West Grove, Pa.
Mary McFarland 13226, R. T. Ridgway to E. T. Gill, Haddonfield, N. J.
Nina of Willow Bank 14890, Rose Select 14888, Est. John Stebbins to Edith P. Morgan, Aurora, N. Y.
Schleswig Beauty 16034, Wm. Morgan to L. F. Voigt, Kiel, Wis. WM. H. CALDWELL, Sec'y. Peterboro, N. H.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Eating of Placenta.

I would like to know if it is well to allow a sow or a cow to eat her afterbirth. K. A. H.
Maple Valley, Wis.

ANSWER.

There is no danger in allowing the sow to eat her afterbirth as far as the sow is concerned. But it may create an inclination for her to eat the pigs also.

Milk Fever.

I had a cow die of milk fever. She took sick about twenty four hours after calving. She became unable to stay on her feet and fell; she only got up once after falling. I gave her the Schmidt treatment, waited eight hours and gave it again, gave her medicine for her bowels (Epsom salts 1½ lbs.) and also injections, drew her urine, but all to no effect. She died within 38 hours. She had milk fever most assuredly, but what seemed strange hereyes were sensitive to the touch and they should not be that way. R. F. G.
Tulare, Cal.

ANSWER.

You should never attempt to give a physic to a cow with milk fever, as you are sure to kill her if you do. If you will look up the Schmidt treatment as given in the veterinary columns of the DAIRYMAN, you will find that you are especially warned not to give physic.

Bladder Trouble.

I have a mule about 14 years old that bites first one side and then the other and kicks the wall all night with first one foot and then the other, he has beat the hair off one side his hip with his tail. Has frequent actions of urine, 6 or 8 times a day, high color, ropy and offensive odor. His belly is a little large for size of mule. C. C. P.
LaCrosse, Fla.

ANSWER.

It is possible that your mule has one or more stones (calculi) in the bladder, which cause urinary passage to be obstructed to such an extent that he can only pass a small quantity of urine at a time and may also account for the high colored and ropy urine and the intense pain exhibited. This will require a personal examination and treatment by a qualified veterinarian.

Leucorrhoea.

I have a Guernsey cow in high condition, with bowels rather constipated. Calf delivered naturally, afterbirth soon expelled; noticed in a few days a copious discharge; after a time a quantity of pus would slowly come from the vagina "supposed;" used creolin injections in passage; no improvement. By inserting hand found a bloody mucus flow from womb, supposed, and if allowed to remain in passage forms a thick white mucus which may be removed by the hand, or if left alone will be discharged by the cow. H. D. M.
St. Johns, N. B.

ANSWER.

Your cow has leucorrhoea, which may be due to an ulceration of the mucous membrane of either the vagina or the uterus. Flush out these organs with tepid water and ascertain the cause. If the ulcerated surfaces have been located have your veterinarian dust the parts with dry powdered borax once daily, and give iron, arsenic and vegetable bitters internally.

Eruptions on Neck.

Have a cow that is troubled with some eruption, only on neck, multitudinous, minute pimples.
Memphis, Tenn. T. H. W.

ANSWER.

Your description of the case is not sufficient to warrant an intelligent conclusion. Please describe more definitely and we will try to help you out.

Horse Owners! Use

GOMBAULT'S



Caustic Balsam

A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action Removes all Bunches or Blemishes from Horses and Cattle, SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish* **Every bottle sold is warranted to give satisfaction Price $1.50 per bottle, Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.**

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If you have a horse that is lamed or blemished by any kind of a growth or enlargement, that is Knee Sprung or has Fistula, Poll Evil or Sweeny, or if there is a case of Lump Jaw among your cattle, write us at once. We will send you two big booklets. One tells you just how to cure these diseases and blemishes. The other proves that you can cure them, and we guarantee you success besides. Same methods employed by over 140,000 farmers and stock owners. Write for the books and tell us what kind of a case you have to treat.

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For the Cure and Prevention of Milk Fever.

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Can be successfully treated with **Anti-Abortion Serum.** Easily administered and permanently cures. Information free.

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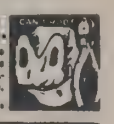
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For the enclosed $5.00 please send me one more bottle of "Save-the-Horse." It is doing great work. Respectfully, MILLARD F. SANDERS.

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Find enclosed money order for $5.00, for which send me another bottle of "Save-the-Horse" spavin cure as it has done all you claim for it for me With the bottle I bought of you I took off a curb, spavin, and a side bone on a 3 year old mare that other spavin cures refused to help in the least. I consider your spavin cure the best on the market. E. M. PARSHALL.

HOWICK, QUEBEC.

I had a mare suffering from a bone spavin and very lame. I concluded to try a bottle of "Save-the-Horse" and at the expiration of six week's treatment she was free from all lameness and I consider it one of the greatest compounds made. DAVID BARRINGTON.

EDGEWATER, N. J.

Enclosed find check for $5.00 for which you will kindly send me by Wells-Fargo Express one bottle of "Save-the-Horse" as soon as possible. The horse I have been treating with "Save-the-Horse" went sound and I sold him. The last I heard from this horse he was still going sound and working every day, and I think he will stay sound. The bottle I am ordering now I will use on another horse that has a pair of spavins and a curb; he does not go very lame, but walks on his toes and I think "Save-the-Horse" will bring him around so that he will walk all right. Very truly. OTTO MEYER.

The fire iron is uncertain and invariably only aggravates the disease or injury; blistering is less effective than the fire iron, and both necessitates laying up the horse from four weeks to two months Arsenic, mercurial and poisonous compounds produce irreparable injury

"Save-the-Horse" eliminates all these factors. Horse can be worked continuously. Cures without scars, blemish, or loss of hair.

It can be applied at any time, anywhere, any place, and in all conditions and extremes of weather—hot or cold. And no matter what the age, condition or development of the case or previous failures in treating, the concentrated penetrating, absorbing power of this remedy is unfailing.

$5.00 PER BOTTLE.

Written guarantee with every bottle constructed solely to satisfy and protect you fully. Need of second bottle is almost improbable, except in rarest of cases. Copy of guarantee sent upon application.

IF YOU HAVE A CASE DIFFERENT FROM INSERTED IN OUR BOOKLET OR ADVERTISING WRITE US.

We will advise you frankly as to the possibility of the remedy effecting a cure. Give explicit particulars, give the veterinary's diagnosis, if he is competent—inform us fully as to the age, development, location of swellings, lameness, action and previous treatment.

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Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.

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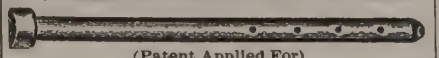


WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address

DR. EATON J. CROSS,
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ABORTION,

Failing to Breed and to bring Cows to Heat. Sure Cure. In use 20 Years.



(Patent Applied For)

Hard Rubber *Safety* **Milk Tubes and Dilating Plugs** to cure hard milkers and a teat **Bistoury.** Send for testimonials.

Dr. WM. HORNE, Janesville, Wis.

ABORTION,

Retention of Placenta and Failure to Breed.

KELLOGG'S CONDITION POWDER

Is a positive cure for these diseases. Write for circular containing full information, references and price.

H. W. KELLOGG COMPANY, St. Paul, Minn.

Relative Values of Fat in Cream and Milk.

A California Inquiry.

ED. HOARD'S DAIRYMAN:— Enclosed please find money order for two dollars, which will pay my subscription for 1902-3. Your valuable dairy paper has given me knowledge that I believe could not have been gained through any other channel. It certainly has helped to feed and understand how to breed for dairy purposes. I have been dairying with about 20 cows the past two years, and have started. Expect to improve my herd and profits through your paper, and the knowledge I get in reading the experiences of others until I can do much better.

I am now putting in a new DeLaval hand cream separator, so I may have the warm skim milk for the calves. I have delivered the milk the past two years to a creamery about three miles distant. We have no complaint to make of the creamery people, but think the separator will pay anyway. We expect to sell the cream to the same creamery, and, by the way, one question in regard to selling cream. We get 90 cents per hundred for 4% milk when butter is 25 cents per pound, as a basic price. Now if we sell the cream to the same creamery and expect to get the same amount of returns at the end of the month, how should we be paid? If the cream tests 25%, what would each per cent of butter fat be worth per pound or 100 pounds, to bring the same price as the milk does. There is no cream sold to the creamery at present. I have many questions to ask, but will wait till some future time, as I think this is asking too much already. I will send you a record of my herd soon for 1902.

Chino, Cal. A. C. S.

When one receives ninety cents per one-hundred pounds for four per cent milk, he is paid at the rate of twenty-two and one-half cents per pound for the fat; and when he delivers cream, he should be paid on the same basis, or perhaps a little better, if there is enough cream received to make it any object to the factory in reducing their running expenses. The editors of this paper for some years have been delivering cream to the local creamery and they receive the same price per pound of fat as others who deliver whole milk. In a creamery where a large proportion of the patrons delivered cream, the factory would be able to get along with less machinery, they would not be at any loss in separating, and could therefore afford something more for fat in cream than for fat in milk. In other words, while the overrun from the fat in the milk is between 12 and 16 per cent, it is from 16 to 20 per cent from the fat in cream.

Did Corn Silage Cause a Shrinkage in Milk?

North Carolina Inquiries.

ED. HOARD'S DAIRYMAN:—Will you kindly tell me through the columns of your valuable paper what was the trouble with our feeding ensilage? Last summer we built the first and only silo in this immediate section. It is a round, wooden-hoop silo, fourteen feet in diameter and thirty feet deep. We filled it with well eared southern ensilage corn, cut in half-inch lengths. It kept very well, and we began feeding it about Nov. 1st.

Our herd of sixty cows, consisting of thoroughbred Jerseys, grade Jerseys and a few Holsteins, all in different stages of lactation, were then averaging sixteen pounds milk per cow per day. We fed them as follows: Six a. m., 10 lbs. cotton seed hulls, mixed with 3½ lbs. wheat bran and 1½ lbs. cotton seed meal; at 8 a. m., were turned out in lot for exercise and water, and given 8 lbs. pea-vine hay. At 5:30 p. m. were put back in stable and fed 3½ lbs. wheat bran, 1½ lbs. cotton seed meal mixed with all ensilage they would eat through night. Each cow received a spoonful of salt with every feed. These cows steadily decreased in milk until last month they averaged only 11 lbs. per day. Although they look pretty and sleek and possibly a little too fat, they must have suffered some from indigestion, as they wanted to eat sand, rotten wood, etc. We then gave them with each feed of ensilage a spoonful of soda.

Now that our ensilage has been exhausted, we are feeding in its stead only 10 lbs. cotton seed hulls, making daily ration 20 lbs. hulls, 8 lbs. pea-vines, 7 lbs. wheat bran and 3 lbs. cotton seed meal, and although we have been feeding this ration only 7 days, the herd has increased over 25 per cent and is still improving. Of course the above rations were averaged, as fresh cows receive more, and those giving small quantities of milk received very little grain.

In about two weeks we will begin to cut oats and Canada peas and feed green, and at proper time will fill the silo with same. We will have enough of this oat and pea forage to give cows one full feed per day and would thank you to formulate a balanced ration from any or all of the following feed stuffs: Cotton seed hulls, $5 per ton; pea-vine hay, $15; wheat bran, $20; wheat middlings, $21; cotton seed meal, $24; corn meal, $25; corn chops, $20; corn bran, $15; cow peas (ground), $23.

Would like to use as many cotton seed hulls as can profitably, as can get them near-by. A. O. McE.

Wilmington, N. C.

This correspondent makes an apparently strong case against silage, and all the stronger, because when silage was omitted and cotton seed hulls substituted, there was a marked increase in the amount of milk. But this may be only one more of those very numerous cases wherein the real cause is far removed from the apparent cause. The testimony in favor of silage, as a part of the ration for milch cows, is of too long standing and too voluminous to be over-borne by here and there a case where there was a decrease in milk production while silage formed a part of the ration. We are, therefore, unable to conclude that silage as such had any influence whatever in lessening the milk flow as reported above. We are equally at a loss to suggest any probable cause for the falling off in milk other than possibly, the intermediate indigestion. This, however, was itself a result and not a primary cause, and the subsequent increase in milk flow must have been due, in our opinion, not to the substitution of cotton seed hulls for silage, but to an improved condition in the digestive apparatus of the cows.

Assuming that the cows ate twenty pounds of silage, which is a very moderate estimate, appearances indicate that the cows were over-fed when receiving silage.

Our suggestion for a ration when the oat and pea forage becomes available, is as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
30 lbs. oat and pea fodder	4.80	.54	2.13	.06
8 lbs. cow pea hay	7.14	.86	3.09	.09
4 lbs. corn bran	3.64	.30	2.39	.18
2 lbs. cotton seed meal	1.84	.74	.34	.17
10 lbs. cotton seed hulls	8.89	.03	3.35	.17
Totals	26.31	2.47	11.26	.67

FINE STOCK FARM near pretty village on large lake in Waukesha Co. 181 acres, Excellent soil. Well appointed house, tenant house, good out-buildings, water excellent and plentiful. HILES & MYERS, C-100 Matthews Building, Milwaukee, Wis.

Buy You a Ticket to CROOKSTON, MINN., and call upon
The Polk County Land & Loan Company
For choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains

360 acre farm, 4½ miles from Crookston, Minn., (a city of 7,000 inhabitants), and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 ft. square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm in under a high state of cultivation, and is well drained by a slight ravine running through the farm, merely sufficient for self drainage. The soil is a rich deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50,

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired, Price $19.00 per acre.

The LAGUNA de TACHE GRANT
Laton, Fresno County, proves to be an Ideal Home for Farmers and
DAIRYMEN
60,000 ACRES OF IRRIGATED LAND IN THE
HEART OF CALIFORNIA
Alfalfa a specialty. Creameries on the Estate. Ample Railroad Facilities. Land Sold on Easy Terms in Small or Large Lots.
WRITE THE MANAGERS
504 GREAT NORTHERN BUILDING.....CHICAGO.

Special Offer of Fine Dairy Farm
ADJOINING RED WING, MINNESOTA.
174 ACRES—140 under high cultivation, balance good pasture and woodland. Has complete machinery for Dairy, with power, etc., and all machinery for cutting corn. Two large silos, sufficient to hold feed for 50 cows, and large barn to tie up 70 head. One new house—could not be built for less than $2,500; another good house for help. Large horse barn and granary. Improvements could not be duplicated for less than $7,500 Monthly receipts over $600. All for sale at $12,000.
H. A. CAMPBELL, 107 E. 4th St., St. Paul, Minn.

DO YOU WANT A HOME
in Central Wisconsin? We offer very desirable lands to actual settlers. Our lands are in Marathon County and are some of the very best hardwood, agricultural and dairy lands in the state. Deep clay loam soil. Good water easily obtainable at but little depth. Country opened with good roads and well populated.
Schools, both public and parochial, churches, general stores, bank, creamery, etc., within easy reach. Ready market for farm and forest products.
Terms reasonable. If you desire to improve your condition write for further particulars to
RIETBROCK LAND & LUMBER CO., ATHENS, WIS.

CASH FOR YOUR FARM We can sell your farm, home, or business quickly for cash, no matter where located. Send description and we will show you how. Offices in 16 cities. Established 1893. A. A. ROTTNER & CO., 739 Real Estate Trust Building, Philadelphia, Pa.

16000 ...ACRES...
Of the Best Hardwood Lands in Northern Wisconsin.
They are located in Lincoln, Langlade, and Oneida counties, and only 240 miles from Milwaukee on main line of C. & N. W. R. R., Ashland Division.
These lands are especially selected and are very fine lands for dairying. The land is level, free from stone, and no soil ever produced better crops of hay, grain, and vegetables. Good roads, schools, and churches. Excellent water, both in running streams and lakes, where fishing and game abound. These lands have never before been offered on the market. Are for sale at a low price and on easy terms.
INTERIOR LAND CO.,
or THE JEFFRIS CO.,
JANESVILLE, - - WISCONSIN.

FOR SALE MY DAIRY FARM 198 acres, 1½ miles west of University of Virginia. Would sell stock and outfit with farm. Write for detail description Possession Sept. 1st., 1903.
G. B. M., P. O. Bo 144, Charlottesville, Va.

DAIRY FARM 88⅝ ACRES 30 Milch Cows, and all necessary equipment for operating same. Exclusive trade. Will be sold at a bargain if sold soon. In Montgomery County, Iowa.
B. F. COWGILL, Villisca, Iowa.

WISCONSIN FARMS
in Dunn, St Croix, Barron, and Price counties make the best homes on earth; because, 1st., soil heavy; 2d., some timber, fuel cheap; 3d., springs and streams numerous; 4th, no blizzards or drouths; 5th., no sand or pine stumps; 6th, near the best northern markets; 7th., best dairy section known; 8th., no crop failures; 9th., successful settlement and all prosperous; 10th., corn, oats, wheat, rye, potatoes, tobacco, hay, etc., unexcelled in the United States
If you want a Canadian home, we can, and will take you to the best locality in Manitoba or Assiniboia. Send for catalogue or come yourself. We sell on easy terms our own lands in Wisconsin and Canada. DUNN COUNTY LAND CO., Downing, Dunn County, Wisconsin, or 156 East 3d Street. Rooms 5 and 6, St. Paul, Minnesota.

EMIGRANTS BY THE THOUSAND
Are pouring into the Northwest from every country in Europe. If you have any desire to make money by land investment, you must hurry. We have excellent dropositions. Write us what you want, where you want it. We own all kinds of land in Minnesota, Wisconsin and N. Dakota, and can please you. Maps sent on application. Agts wanted
BURCHARD-HULBURT INVESTMENT CO.
Manhattan Bldg., St. Paul, Minn.

IOWA FARMS For Sale $45 to $65 Per Acre.
We offer improved Iowa farms close to church, school and town, with local telephone and rural mail delivery, soil rich, black loam, and level, at $45 to $65 per acre. We also have special bargains in North and South Dakota and Canada. If you wish to buy or sell land or city property anywhere, write to us for confidential terms. We make a specialty of long range sales, so no matter how far away you live, if interested, write us. We refund railway fare to parties who buy of us. Send for price list with pictures of farms.
THE JOHN M. CANNON LAND AGENCY, CRESCO, IOWA.

CASH FOR YOUR

farm, home, business, or other property (no matter where located or how large or small) may be obtained through me. Send description, state price, and get full particulars free. Est'd 1896. Highest references. Offices in 14 cities, from Boston to San Francisco
W. M. OSTRANDER
1519 N. A. Building, Philadelphia

CALIFORNIA LANDS
Located in the center of the best agricultural fruit growing and dairying district in California. Rich soil and abundant water. You can raise the same crops raised in the East, and all semi-tropical fruits besides. Prices and terms are right. Ask us questions.
STEVINSON COLONY CO.,
226 Rialto Bldg., San Francisco, Cal.

Fine Dairy Farm for Sale.
Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence, cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. T. S. TOMPKINS, Pasadena, Cal.

Official Records of Holstein-Friesian Cows from March 14 to April 18, 1903.

This class of records are made under the supervision of agricultural colleges and state experiment stations. In every case a representative of such an institution, paid by the institution, oversees the entire work. The samples of milk are tested by him in duplicate and a composite sample is forwarded by him to the station or college to be tested there. In cases of phenomenal production re-tests are also made during which the cows are constantly watched that by no possibility the contents of their udders can be affected by the injection of milk or fat.

During this period reports of 95 cows have been received:—one has a sixty-day record, six have thirty-day records, four have twenty one day records, five have fourteen-day records, and all but one have seven-day records;

Sadie Vale Concordia 32258—in 60 days, milk 5063.6 lbs., fat 176.420 lbs.: in 30 days, milk 2752.6 lbs., fat 98.937 lbs. Owner, McAdam & VonHeyne, Deansboro, N. Y.

Pleasant Valley Kate 37486—in 30 days, milk 2514.7 lbs., fat 80.090 lbs., best seven days, milk 600.8 lbs., fat 19.452 lbs.

Rowena Maid 2d's B. 50163—in 30 days, milk 2,333.8 lbs., fat 73.188 lbs.; best seven days, milk 577.7 lbs., fat 18.404 lbs. Owner W. C. Hunt, Liverpool, N. Y.

Pleasant Valley Kate 2d 48432—In 30 days: Milk 2,181.1 lbs., fat 69 790 lbs. Best seven days—Milk 522.6 lbs., fat 17.130 lbs. Owner, W. C. Hunt, Liverpool, N. Y.

Manor Star's Josephine 50978—In 30 days: Milk 1,863 8 lbs., fat 67.421 lbs. Best seven days—Milk 447.8 lbs., fat 16 723 lbs.

Riverside DeKol 47680—In 30 days: Milk 1,861.5 lbs., fat 62.984 lbs. Best seven days—Milk 509.5 lbs., fat 15.646 lbs. Owner, W. C. Hunt, Liverpool, N. Y.

Sylva Netherland 4th 60206, at 2 years—In 28 days: Milk 1.172.5 lbs., fat 35.836 lbs. Best seven days—Milk 328.1 lbs., fat 10.058 lbs. Owner, Mc Adam & VonHeyne, Deansboro, N. Y.

Inka Clothilde 50278—In 21 days: Milk 1,500.6 lbs., fat 52.010 lbs. Best seven days—Milk 526,6 lbs., fat 20.213 lbs. Food consumed: 273 lbs. ensilage, 87 lbs. alfalfa hay, 78 lbs. dried distillers grains, 33 lbs. bran, 14 lbs. gluten meal, 14 lbs. corn meal, 14 lbs. oat meal and 7 lbs. oil meal. Owner, McAdam & VonHeyne, Deansboro, N. Y.

Clothilde Eva 56277—In 21 days: Milk 1,481.2 lbs, fat 47.091 lbs. Best seven days—Milk 506.5 lbs, fat 16.911 lbs. Owner, Stevens Bros., Lacona, N. Y.

Susie Josephine 50979—In 21 days: milk 1,234 8 lbs., fat 44.210 lbs.; best seven days: milk 445.2 lbs., fat 16.579 lbs.

Mechthilde Heng.rveld DeKol 60635—1 year, 9 months: In 21 days: milk 852.4 lbs., fat 27 643 lbs.; best seven days: milk 293 2 lbs., fat 10.106 Owner, Stevens Bros., Lacona, N. Y.

Manor DeKol Queen, 46596—In 14 days: milk 789.7 lbs., fat 28.396 lbs.; best seven days: milk 419 7 lbs., fat 14.830 lbs.

Manor Josephine Lady 47321—In 14 days: milk 854.5 lbs., fat 27.930 lbs.; best seven days: milk 452.3 lbs., fat 15.053 lbs.

Mercedes Rijanet Mechthilde 53282-In 14 days: milk 816.1 lbs., fat 27.356 lbs.; best seven days: milk 394.6 lbs., fat 14.143 lbs. Owner, C. F. Hunt, Manlius, N. Y.

Dora Dean Mondamin 50984—In 14 days: milk 806.5 lbs., fat 25 945 lbs.; best seven days: milk 416.5., fat 13.932 lbs.

Sylva Netherland 3d 60205—2 years: In 14 days: milk 595.1 lbs., fat 17.733 lbs.; best seven days: milk 304.9 lbs., fat 9.605 lbs. Owner, McAdam & Von Heyne, Deansboro, N. Y.

Grace Fayne 2d 44124—Milk 482.9 lbs, fat 17.079 lbs. Owner, S. B. Jones & Son, Watertown, Wis.

De Jong's Netherland 2d 44015—Milk 459 4 lbs., fat 17.647. Owner, C. F. Hunt, Manlius, N. Y.

Theresa Van Beers 43954—Milk 485.4 lbs., fat 15.702 lbs. Owner, C. F. Hunt, Manlius, N. Y.

Leland Pride 44965—Milk 418.9 lbs., fat 15.712 lbs.

Inka Josie 14059—Milk 413.7 lbs., fat 15.005 lbs.

Lilly Wickfield 47953—Milk 430.3 lbs., fat 14.250 lbs.

Blanche Frisby 44132—6 years: Milk 351.1 lbs., fat 14.174 lbs. Owner, S. B. Jones & Son, Watertown, Wis.

Myra Netherland 49519—Milk 397.8 lbs., fat 14.116 lbs. Owner, S. B. Jones & Son, Watertown, Wis.

Fyke Mechthilde 43855- Milk 415.5 lbs., fat 13.934 lbs. Owner, Frank B. Fargo, Lake Mills, Wis.

Wisconsin Bess—45146—Milk 399.8 lbs., fat 13.895 lbs.

White Narka 49665—Milk 400 lbs., fat 13.593 lbs. Owner, Frank B. Fargo, Lake Mills, Wis,

Linda Wit 20072—Milk 397.6 lbs., fat 13.320 lbs. Owner, C. A. Schroeder, West Bend, Wis.

Netta Netherland Van Beers 31401—Milk 421.7 lbs., fat 12.977 lbs. Owner, C. A. Schroeder, West Bend, Wis.

Anna Clothilde 4th 40951—Milk 404.3 lbs., fat 12.774 lbs. Owner, F. G. Johnston & Co., Columbus, Ohio.

Wilhelmina DeKol 43939—Milk 384.3 lbsfat 12.573 lbs. Owner, F. G. Johnston & Co., Columbus, Ohio.

Lucy Wit 2d 44231—Milk 352.1 lbs., fat 12.540 lbs. Owner, C. A. Schroeder, West Bend, Wis.

Maggie of Wild Rose 2d 44974—Milk 347.9 lbs., fat 12.496 lbs.

Ruth Aaggie Belle 45449—Milk 396.6 lbs., fat 12.293 lbs.

Esther Cleveland 39949—Milk 365.1 lbs, fat 12.285 lbs. Owner, S. B. Jones & Son, Watertown, Wis.

Mercedes Siam Pietertje 49031—Milk 354.7 lbs., fat 12.201 lbs.

Homestead Girl DeKol 48423—Milk 499.3 lbs., fat 18.114 lbs. Owner, H. D. Roe, Augusta, N. J.

Minnewawa Louise 47285—Milk 510.7 lbs., fat 18.074 lbs.

Grace Greenwood 3d 50664—Milk 437.7 lbs., fat 16.204 lbs.

Alcartra Polkadot 50798—Milk 370.8 lbs., fat 14.702 lbs.

Cornelia Pauline 2d 54464—Milk 385.7 lbs., fat 14.689 lbs. Owner, C F. Hunt, Manlius, N. Y.

DeKol Hengerveld Belle 50776—Milk 347.2 lbs., fat 13 857 lbs. Owner, J. B. Marcou, Princeton, Mass.

Mercedes Netherland Roeltje 49434 — Milk 379 lbs., fat 12.837 lbs.

Koningen Pauline 3d 47053—Milk 356.4 lbs., fat 12.181 lbs. Owner, C. F. Hunt, Manlius, N. Y.

Pietertje Mechthilde of Midland 2d 47437—Milk 361.2 lbs., fat 12.069 lbs. Owner, Stevens Bros., Lacona, N. Y.

Aaggie Cornucopia Pauline 48426—3 years, 11 months: Milk 559.2 lbs., fat 21.953 lbs. Owner, H. D. Roe, Augusta, N. J.

DeKol Grace Clothilde 2d 51325—Milk 457.9 lbs., fat 16.600 lbs.

Ybma 3d's Pledge Clothilde 51890—Milk 457.6 lbs., fat 16.205 lbs.

DeKol Douglas 50667—Milk 333.4 lbs., fat 16.101 lbs.

Almeda Luecke 3d 49521-Milk 358.1 lbs., fat 14.089 lbs. Owner, S. B. Jones & Son, Watertown, Wis.

Orrice 5th's DeKol Clothilde 53974—Milk 373.3 lbs., fat 13.254 lbs. Owner, F. G. Johnston & Co., Columbus, Ohio.

Manor Beet's Lady 50975—Milk 359.1 lbs., fat 13.125 lbs.

Netherland Pauline DeKol 3d 50701—Milk 431.2 lbs., fat 12.966 lbs.

Princes Spofford DeKol 53116—Milk 357.7 lbs., fat 12.872 lbs.

Nannette DeKol Hengerveld 52902—Milk 339.2 lbs., fat 12.408 lbs.

Beppo Mechthilde Dowager 53284—Milk 375.4 lbs., fat 12.297 lbs.

Netherland Pledge 51893—Milk 378.3 lbs., fat 12.057 lbs.

Melva Parthenea 50025—Milk 323.8 lbs., fat 11.817 lbs.

Christine Henry 53660—Milk 321 8 lbs., fat 11.813 lbs.

Katie Jewel Mercedes 53252—Milk 296.9 lbs., fat 11 130 lbs.

Wilhelma DeKol 51400—Milk 293.4 lbs., fat 11.035 lbs.

Netta Pauline DeKol 53850—Milk 385.1 lbs, fat 10.721 lbs. Owner, C. A. Schroeder, West Bend, Wis.

Susie Lamb DeKol Veeman 54649—Milk 370.3 lbs., fat 10.528 lbs.

Pietertje Lass DeKol 51399—Milk 312.9 lbs., fat 10.519 lbs.

Maid Henry 54878—Milk 330.8 lbs., fat 10.433 lbs.

Nora Lamb DeKol 54653—Milk 325.7 lbs., fat 10.329 lbs.

Urica Von 53681—Milk 293.4 lbs., fat 9.986 lbs.

Pauline Wayne DeKol 55698—Milk 327.9 lbs., fat 9.718 lbs.

Larky DeKol 63007—Milk 307.4 lbs., fat 9 387 lbs.

Fannie Lamb DeKol 54651—Milk 332.2 lbs., fat 9.006 lbs.

DeKol DeJong 2d. 54251—Milk 325.3 lbs, fat 12.824 lbs. Owner, C. F. Hunt, Manlius, N. Y.

Lucy Wit 2d's Johanna 54779—Milk 380 lbs., fat 12.309 lbs.

Tryntje C. DeKol 54252—Milk 317.8 lbs., fat 11.681 lbs.

Susie DeKol Paul 56446—2 years; Milk 316.3 lbs., fat 11.475 lbs.

Johanna Rue DeKol 58549—1 year, 10 months; milk 333.8 lbs., fat 11.466 lbs.

Josie Glenice Beauty Pietertje 56256—2 years 6 months; milk 331.2 lbs., fat 11.431 lbs.

Pearl Gewina 55019—2 years, 9 months: milk 316.6 lbs., fat 11.312 lbs.

Kepura Maid 53683—2 years, 11 months: milk 263.8 lbs., fat 10.443 lbs.

Jondine Pride 60247—1 year, 9 months: milk 358.7 lbs., fat 9.905 lbs. Food consumed, 196 lbs. ensilage, 60 lbs. alfalfa hay, 46 lbs. distillers' grains, 21 lbs. ground corn, 14 lbs. ground oats, and 3.5 lbs. oil meal. Owner, McAdam & Von Heyne, Deansboro, N. Y.

Barbara Lady 54740—2 years 11 months; milk 241.1 lbs, fat 9.252. lbs.

Fyra Pietertje May Clothilde 57041—2 years; milk 315.4 lbs., fat 9.234 lbs., Owner, Frank B. Fargo, Lake Mills, Wis.

Mechthilde Clothilde 55542—2 years; milk 278.9 lbs., fat 9.180 lbs. Owner, Frank B. Fargo, Lake Mills, Wis.

Buckeye Grace DeKol 55886—2 years 5 months; milk 257 lbs., fat 9.157 lbs. Owner, F. G. Johnston & Co., Columbus, Ohio.

Thelma DeKol 56241,—2 years 10 months; milk 269.8 lbs., fat 8,859 lbs.

DeKol 2d. Queen's Pauline 56662—2 years; milk 337.1 lbs., fat 8.807 lbs.

New Coeln Pride DeKol 57042—2 years; milk 248.1 lbs., fat 8.524 lbs. Owner, Frank B. Fargo, Lake Mills, Wis.

Aaggie Wit Pauline DeKol 56862—2 years; milk 309.3 lbs., fat 8.481 lbs, Owner, C. F. Hunt, Manlius. N. Y.

Manor DeKol Esther 58707—1 year 10 months; milk; 246.7 lbs., fat 8.247 lbs.

Creamelle 2d's Hengerveld DeKol 56929 -2 years; milk 277.8 lbs., fat 8.135 lbs. Owner, Stevens Bros., Lacona, N. Y.

Orrice 5th's DeKol Pauline 58074—2 years; milk 223.1 lbs., fat 8.136 Owner, F. G. Johnston & Co., Columbus, Ohio,

Maplecroft DeKol Princess 56911—2 years 6 months; milk 271.7 lbs., fat 8.122 lbs.

Jessie Veeman Dione 56506—1 year 10 months; milk 304.3 lbs., fat 8.100 lbs. Owner, Stevens Bro., Lacona, N. Y.

Oakland Lily Paul 56363—2 years; milk 264 9 lbs., fat 8.033 lbs. Owner, T. A. Mitchell, Weedsport, N. Y.

Lorna Clothilde 56885—2 years; milk 264 lbs., fat 7.751 lbs.

Nebraska Dora 59304—1 year 11 months; milk 229.3 lbs., fat 7. 558 lbs.

S. HOXIE,
Yorkville, N.Y. Supt. of Advanced Registry.

Soy Beans as a Forage and Seed Producing Crop.

The soy bean is a native of China, where it is said to yet grow wild and forms an essential part of the food for the inhabitants. It was early introduced into Japan, where it derived its name and is used there principally as a human food.

Professor Georgeson, of the Kansas Station, was largely instrumental in securing seed and getting the plant established in the United States at an early date. The United States Department of Agriculture has in recent years secured choice samples of seed from Japan and sent them to various stations to be tested.

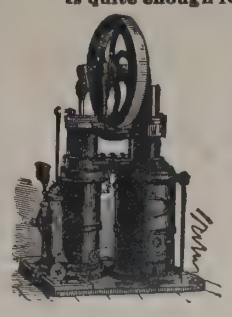
The writer received his first supply from the United States Department of Agriculture in 1899 and grew them on the station farm successfully the season of 1900. No extended effort has been made to grow soy beans in the north until quite recently, many farmers thinking it impossible to grow the plant except in the extreme south, where it had become acclimated.

At the Wisconsin Station during the past season, experiments were carried on with eight different varieties, all of which did well and gave yields ranging from fourteen to thirty-eight bushels of dry beans per acre.

The different varieties of soy beans

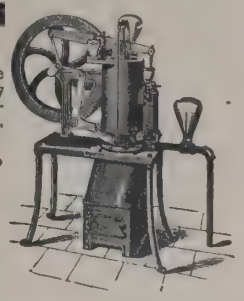
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Is quite enough for some people, but most people want water every day. If



RIDER or ERICSSON HOT AIR PUMPS

Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.



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35 Warren St., NEW YORK.
239 Franklin St., BOSTON.
692 Craig St., MONTREAL, P.Q.
40 Dearborn St., CHICAGO.
40 N. 7th St., PHILADELPHIA.
Teniente Rey, 71 HAVANA.
22 Pitt St., SIDNEY, N. S. W.



New American Manure Spreaders

hold from 50 to 100 bushels. Spread just as thin or thick, fine or coarse, as ground requires. Don't have to stop team to make change. Most substantial, largest capacity, lightest draft.

Send today for Booklet B.

American Harrow Co
Detroit, Mich.

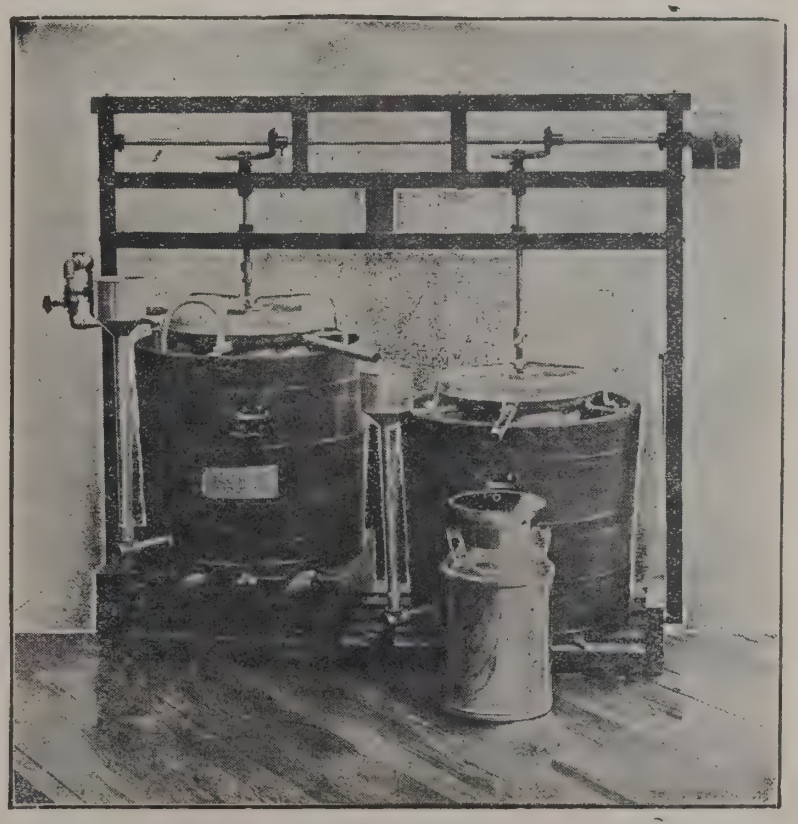


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STEWART'S PATENT
SHEEP SHEARING MACHINE

The day of the old fashioned hand shears is past. No owner of 10 sheep or more can afford to shear by hand, even though the work be done for nothing. Don't butcher your sheep. Shear with this machine and get ONE POUND WOOL EXTRA PER HEAD. It will more than cover the cost of shearing Send today for valuable book, "Hints on Shearing." It is free and will save you money.

CHICAGO FLEXIBLE SHAFT CO., 194 Ontario St., CHICAGO.

A GREAT SUCCESS.



The Miller Cream Pasteurizer has a capacity of from 450 to 600 lbs. per hour.

Price $150 in Tin. $200 in Copper.

THE MILLER PASTEURIZING MACHINE CO.

CANTON, OHIO.

tested on the experimental plots, with yield of dry beans per acre and other data, is given in the following table:

NAME OF VARIETY.	Growing Period.	Yield per acre in bu.	Weight per measured bushel.
Ito San	136 days	33.7	56
Early Brown	136 days	16.5	56
Med. Early Black	133 days	14.3	54.5
Med. Early Green	155 days	22.3	56
Med. Early Yellow	136 days	39	54
Michigan Green	162 days	26.7	58
Wisconsin Black	122 days	23	54.5
Early Black	133 days	17.3	52

The soy bean belongs to the great family of plants known as leguminosae and, through the action of certain micro-organisms which grow in nodules on the roots of the plant, has the power of taking free nitrogen from the air which is stored in the plant and gradually enriches the soil on which it is grown.

It is also a great drought resisting plant and seems to flourish during the dry, hot summer months, when other plants are suffering exceedingly for moisture.

The soy bean is not used extensively as a human food in the United States, its chief use being that of a forage plant and a soil renovator. More should be known of this plant, as the protein content is so high compared with other feeds that it commends itself readily to dairymen and stockmen who desire protein feeds to use in balancing the ration fed to farm animals.

METHOD OF GROWING.

If the desire is to grow the soy bean for seed, plant in drills about thirty inches between the rows, dropping the beans about four or fine inches apart in the rows. About one and one-half or two pecks of seed per acre will be neccessary when so planted. A common grain drill can be used, stopping the intermediate holes so as to have the beans the proper distance apart. A corn planter can also be used, but as a rule the rows are a little too far apart and the yield of beans will not be so great per acre, although the quality will be better. The time for planting is the same as that for corn and the ground can be prepared in the same way. The beans will not stand dragging after above ground, as they break off readily, therefore they should be cultivated between the rows instead. Two or three cultivations are all that is necessary, as the broad flat leaves cover the ground so completely that weeds are soon smothered.

The light, well drained soils seem best adapted for the growth of soy beans and it is said to grow on sandy land too poor to grown corn. On all soils it will not readily develop nodules on the roots which contain the bacteria that aid in appropriating nitrogen from the air.

In some instances where nodules do not develop the first season, if the same plot of land is planted the second season to soy beans, the nodules readily develop. In other sections the ground must be inoculated with soy bean bacteria before the nodules develop. This can be done by securing ground from a plot that had previously grown soy beans on which the nodules developed readily, and scattering it previous to planting on the plot of ground which is desired to grow the crops. Where this is done the plot should be harrowed after scattering the bacteria laden ground.

From the experience of Professors Emery and Kilgore, of the North Carolina Experiment Station, soy beans make a high grade ensilage for dairy cows, which was fed with entire satisfaction For dairymen that have silos, it seems that high grade silage could be obtained by planting the soy beans with the corn, using in the planter about one-fourth soy beans to three-fourths corn and planting in drills. The Medium Green variety would be best suited to the so-called corn belt and the Ito San, which is an earlier variety, in that portion north of the corn belt proper.

Soy beans and corn were grown by members of the Wisconsin Experimental Association during the past season in accordance with the method described above, and no difficulty was experienced in cutting and binding with the corn harvester.

Soy beans make a good hog pasture, and pigs take to the beans quite readily after becoming accustomed to them. The pigs should be turned in at the time the beans are fully developed and will harvest them to advantage, converting the soy beans into pork.

A plot was sown to soy beans and rape at the Experiment Farm the past season for the purpose of producing a hog pasture, but the rape matured much earlier than the beans and was past the feeding stage when the beans matured sufficiently to pasture. This experience leads the writer to believe a good hog pasture could be secured by planting soy beans, with corn planter in drills three and one-half feet between the rows and sowing rape between the rows at the time of the last cultivation. The rape would make considerable growth by the time the beans were sufficiently matured, thus affording an ideal hog pasture.

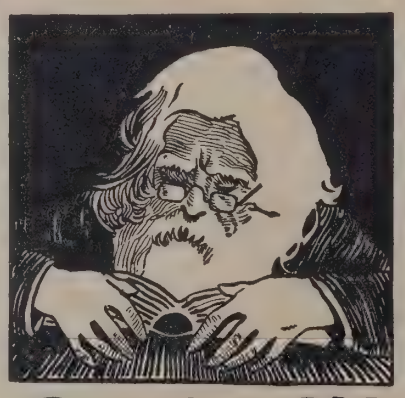
Growing soy beans is yet in the experimental stage in Wisconsin and we have much to learn in the way of securing proper varieties, adapting them to our varied conditions, in methods of planting, harvesting, threshing and converting them into the most valuable stock food. We have thus far demonstrated that they can be grown for hay, a soiling crop and for seed in Wisconsin, and we trust from the experience of the many members of the Wisconsin Experimental Association, who will grow soy beans this year to be able another year to clear up many things that are now somewhat uncertain regarding soy bean culture.—R. A. MOORE, in *Farm Economy*.

Quality of Alfalfa Seed.

ED. HOARD'S DAIRYMAN:—Permit me to call the attention of your readers to the fact that it is known that some of the recent importations of alfalfa seed from Europe are of very poor quality. It seems that some seedsmen are mixing this poor seed with a better grade of seed. In view of these facts, I wish to suggest to your readers that in case they purchase alfalfa seed, they send a sample of a few ounces to the Seed Laboratory of the Department of Agriculture and have it tested. This will cost them nothing and may result in saving them from financial loss.

It is very unfortunate that just at the time when alfalfa is beginning to be appreciated by the farmers of the eastern half of the United States that a bad lot of seed should be imported and thus give this crop a bad name amongst those who are not familiar with it.

W. J. SPILLMAN, Agrostologist.
U. S. Department of Agriculture.



Growing Old

Ought not to mean growing weak and feeble. It does not mean weakness or feebleness for those who eat with good appetite and sound digestion. It is of the utmost importance that old people should retain the power to digest and assimilate food which is the sole source of physical strength. When age brings feebleness it is generally because of the failure to assimilate the nutrition contained in food.

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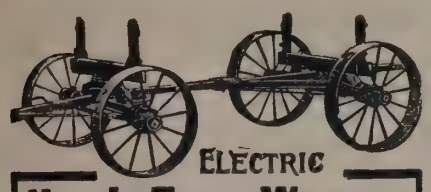
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EDITOR knows from experience **Shoo-Fly** is O. K.

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MORE MILK MORE MONEY! Cows will give 15 to 20 per cent more milk if protected from the torture of flies with

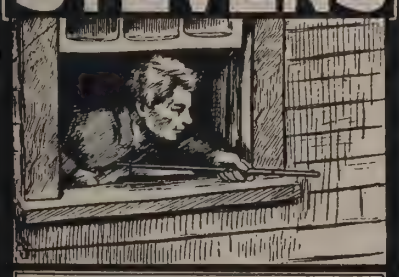
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Economy in the Use of Fertilizers for Tobacco.

That different soils require different fertilizers is very forcibly illustrated by the experience of Mr. K. H. Teisberg, of Nora, Wis.; and goes to prove that we should study our soil to know its requirements quite as much as we study our crops, if we would produce these crops with the greatest economy.

Mr. Teisberg's land is rather poor, ordinary prairie land, and last year he made some interesting experiments to test the needs of his soil for tobacco, and the results reached were as follows:

"On plot No. 1, where no fertilizers was used, the yield was 1,065 lbs. per acre. Plot No. 2 was fertilized with 600 lbs. acid phosphate, 180 lbs. nitrate of soda and 120 lbs. of sulphate of potash. The yield was 1,494 lbs. per acre—a gain of 429 lbs. over the unfertilized plot. On plot No. 3 600 lbs. acid phosphate and 180 lbs. of nitrate of soda were applied; the yield was 1,191 lbs.—a gain of only 126 lbs. over the unfertilized plot.

From the above we note that the application of 120 lbs. of sulphate of potash made a clear gain of 303 lbs. of tobacco per acre. This shows conclusively that land similar to Mr. Teisberg's is very deficient in potash, and also that an abundant supply of this element is necessary for the production of tobacco.

With regard to his experiments, Mr. Teisberg says: "The ground was plowed in the fall of 1901, and the fertilizer was applied April 24th, 1902, and worked in with a pulverizer. I worked the ground every week until planting time. The tobacco was set June 9th, all the same day. On June 28th, Plot No. 3 was getting ahead, and on July 15th, the tobacco on Plot No. 3 began to bud out, but was somewhat uneven on account of too much rain. Plot No. 2 did not do as well as No. 3 at the start, but did better later on, and the tobacco on plot No. 2 became leafier. The tobacco on plot No. 3 was spindling and the leaves were far between and the fertilizer applied to that plot did not seem to last as long or make the tobacco grow very much except at the very beginning. On plot No. 1 the tobacco lived, but did not seem to grow any for four weeks, and at the end of that time the difference between this and the other two plots was very marked; there being over eight inches difference between it and the fertilized tobacco. On August 6th, I had it photographed, and at that time the two plots of fertilized tobacco were in full bloom, and on that which was not fertilized there was not a sign of bud even.

"On the same date I topped the two fertilized plots. At that time the tobacco on plot No. 3 was just as high but there were fewer leaves and the leaves were narrower than those on plot No. 2. There were more leaves to the stalk on the latter plot, and the tobacco looked splendid. August 20th the tobacco on plots No. 2 and 3 was sheded. The tobacco on plot No. 1, which was not fertilized, was topped on August 25th and sheded September 12th.

"The weather was splendid for curing purposes last fall. The quality of the tobacco from plot No. 3 was good and of medium size, but rather thick, From plot No. 2, quality was splendid in color, large sized and thin, and was by far the best tobacco of the two. In style of quality it was ahead of all the tobacco I grew. The tobacco from plot No. 1 was very small, dark color, and not fit for anything else than fillers. This was a bad year for experiments, as we had too much rain, but the fertilizer shows splendid effects on the tobacco."

From Mr. Teisberg's experience we can see what loss to our crops the absence of any one of the principal elements of plant food may bring about; especially when the soil is already deficient in that element. Ammonia, phosphoric acid and potash are required by all crops, and they can never do their best unless these elements are present in the right proportions. Is it not the part of wisdom for the farmer to find out what his soil and crops require and then see that it is supplied? F. J. MERRIAM.



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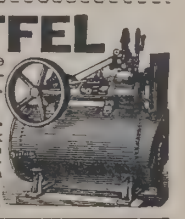
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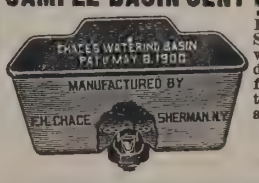
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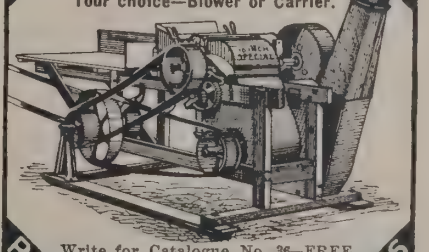
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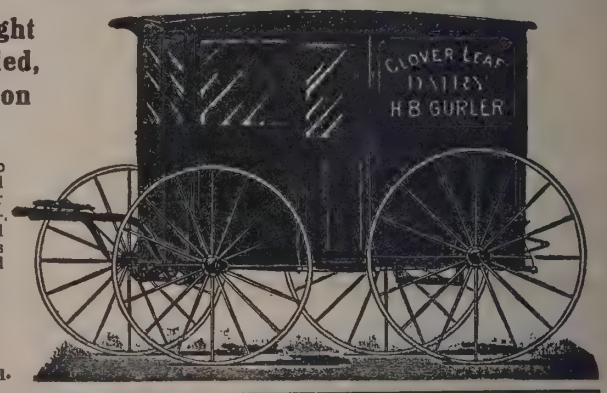
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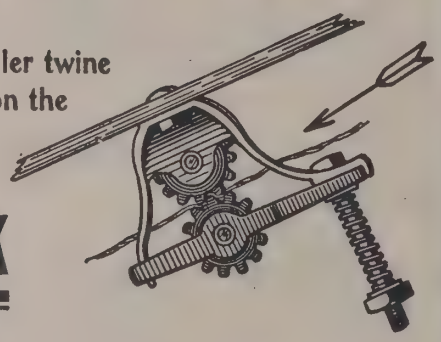
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VOLUME XXXIV. FORT ATKINSON, WIS., MAY 29, 1903. NUMBER 16

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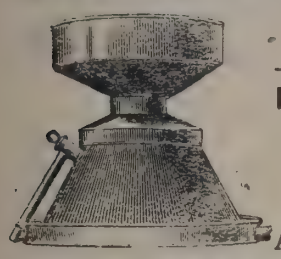
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Quality of Cheese Influenced by Climate.

ED. HOARD'S DAIRYMAN:—Skill and care has a good deal to do with the quality of cheese; likewise its content of fat, but there are some other causes for the frequent variation in quality. Soil and climate have an important bearing, as they control to a large extent the quality of the herbage, and give the conditions for the making and curing of the cheese. Dry, hot climates are not conducive to the making of first-class cheese. The best cheese in the world are made in cool, moist climates, as Scotland, Northern New York, Quebec, a portion of Wisconsin and Eastern Canada, facts which tell very plainly the part played by climate in the quality of the cheese. Another point is that moist, cool climates and sweet succulent herbage, go together, as is shown by the superior quality of the herbage in the countries named.

The character of the herbage has also an important bearing on the flavor of its products. It is well known that the flesh of animals acquires certain characteristics from the feed. The Southdown mutton is fed upon the rich herbage of the hilly, seaside pastures of southern England, and the tender, high flavored meat of the Welch mountain sheep is due more to climate and feed than to breed; the hams of Westphalia, fed upon the mast of the forest, have an agreeable flavor all their own, and the rich, highly flavored animal products fed on the sweet, aromatic grasses of Switzerland, are examples of this fact. Consistently with these analagous facts, it cannot be doubted that the pasture, which is affected by soil and climate, has some effect upon the character of the dairy products. While we grant that the expert and experienced dairyman may make up very largely for all defects in these respects by good culture, fertilizing, and the growth of such crops as will afford every necessary element in the food for production of good milk, still we feel assured, that with cheese, to produce these wholly artificial conditions, will hardly pay. With butter the case is different.

It is wholly artificial, from the fact that, to be at its best, consumption cannot take place soon enough after its manufacture, while with cheese it is not at its best for consumption for several months after it is made, and, during this time, has to run the gauntlet of many extremes of climatic and bacteriological conditions. The very fact that, at the recent National Butter and Cheese Makers meeting, the medal hung between Kansas and Minnesota—two extremes of climate—goes to show, very forcibly, that a good butter is a habitant of no particular latitude or climate.

Fine Cheddar cheese is, therefore, a special product of a favorable locality, soil and pasturage where the climate is both cool and moist. Occasionally we see fine specimens of Cheddar cheese made under wholly different conditions, but these are the exceptions to the rule. These excellent results are only possible at a large cost, which means the creation of a wholy artificial temperature, and, even then, the natural flavored herbage, so desirable, if not indispensable, cannot be obtained artificially, all which goes to show that to make good Cheddar cheese, under unfavorable conditions of climate, calls for a higher price for a product that, after all, would not be as fine as that under more naturally favored auspices.

The fact, further, that we see American Limburger, Edam, Neufchatel, Switzer, Brie, and other special makes of French, Swiss and German cheese, made in various widely distant localities, and in many respects equal to those made in the localities which became famous for these cheeses, proves nothing; the question is, can these various kinds of cheese be made under ordinary conditions and compete with those countries in the open markets.

To manufacture these cheese profitably an artificial market would be required in which the products of these other countries would not compete. Like the corn belt, the cheese belt of North America occupies a geographical and isothermal position all its own. The largest crop of corn ever recorded was not grown in the so-called corn belt, but that does not go to show that localities outside this belt can grow corn as profitably. So with cheese, the fact that even a better cheese

(Continued on page 383.)



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A New York Dairy Barn.

Ed. Hoard's Dairyman:—Some time ago I wrote the description of the dairy farm owned by J. Q. Barlow, Rockrift, N. Y., for the readers of Hoard's Dairyman and promised then I would some time furnish a photo and description of his barn, but have not been able to do so until now. For the comfort of the animals and convenience in caring for them, Mr. Barlow has one of the best barns in the state. All the work of the dairy can be done in this building, for there is a dairy room attached in which there is good spring water, separator, and other equipment for working up the milk. The stable is furnished with the modern stalls, and accommodates, I think, about sixty cows. All the animals on the farm can be kept in this barn, and the arrangement is such that they can be cared for with the greatest economy of labor.

The stable is built with double walls and is very warm. It is also well ventilated. There are driveways between the rows of stalls for hauling out the manure daily, and for drawing in green food for the cows during the summer or fall, as Mr. Barlow practices partial soiling. There are doors at the ends of the four driveways, as shown in the photo, that are made to raise up like a window sash by the use of weights and pulleys. There are two large silos which are filled from the upper floor, and the ensilage is taken out on a truck and run along by the stalls. Chutes, as shown by the cut, deliver hay, straw and coarse feed to either the second or first floor, as is desired. The grain bins are on the second floor along the sides of the bays, where a carload of grain can be unloaded very easily, or grain can be delivered into the bins by chutes from the threshing floor above. Chutes conveniently arranged carry the grain from the bins to the stable below, when it is wanted for the live stock.

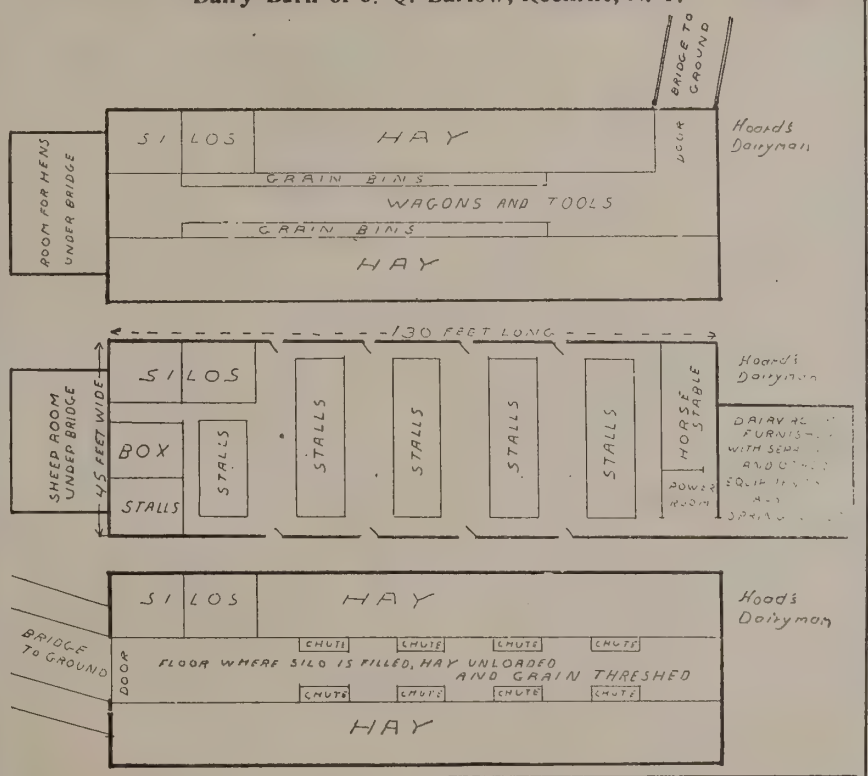
The barn is built in the best way throughout, good pine lumber being used. A part of the sides are shingled and the roof is slate. Some of the rooms are ceiled on the inside. Adjoining, or over the dairy room, there are toilet or wash rooms, and rooms which can be used for bed rooms for the hired men, if they are wanted for this purpose. The dairy room is heated in the winter and all the milk work, as washing cans and other utensils, is all done in it, so all the operations connected with the dairy are carried on here. All the work can be done with the greatest comfort possible, and when it is done the dairyman can take off his overalls and blouse, wash up and go to the house, and carry with him nothing connected with his business, the same as a workman goes home from the factory and leaves his work, and do no part of it in the house. The barn, built in the way Mr. Barlow has built it, cost about $6,000.

W. H. Jenkins.

Sidney Center, N. Y.



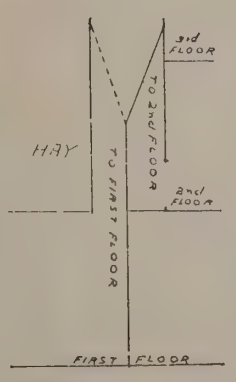
Dairy Barn of J. Q. Barlow, Rockrift, N. Y.



Report on the Third Educational Butter Test at Chicago.

Mr. E. Sudendorf sends the following report of the butter export:

The scoring of butter at the third test was completed last Thursday, the 7th, and I am glad to report that there has been a gradual improvement in the quality so far as workmanship is concerned, and I believe as soon as conditions are more favorable most of those who are in the tests will make a good quality of butter.



Only a few were scored off on workmanship at the last scoring, while at the May scoring last year, I believe about twenty-five per cent of the exhibits were defective in either grain, color or salt; hence, the progress has been rapid and proves the value of such tests. However, I realize one thing, that only the best butter makers take part in such an educational test, at least that was true at the twelve month's contest conducted in this state last year, and at the last six month's test conducted by the National Creamery Buttermakers' Association. A large number of participants in the present test are first-class butter makers and as a rule know whether their butter will score high or low, and also know the cause of the defects: so from an educational standpoint they do not derive as much benefit as those with less experience would, were they in the test. How to induce those with a limited knowledge of the creamery business to take part in such tests which are conducted for their special benefit, is a problem which I would like to have some one solve.

There were some defects in the butter at the last test which were very common. The flavor of old milk was quite pronounced in most all exhibits, and may only be overcome by having the milk delivered every day. The old cream flavor was very much in evidence, and butter makers receiving cream, scored lower than those who had whole milk to work with. There is only one thing I can suggest to those who have to contend with cream, that it shall be delivered as often as milk is, every day from the first of May until the first of October, and every other day from that time until the first of May, besides properly aerating and cooling of same.

There were not quite as many packages of pasteurized cream butter as at the March scoring, when several attempted to pasteurize in a common vat and did rather a poor job, but there were two tubs of purported pasteurized cream butter, which did not show the effects of pasteurization at all, and if heated to the pasteurizing temperatures at all, the heating was not uniform.

Bacteriologists tell us that a temperature of 140 to 145° F., is sufficient for buttermaking, but I believe that a temperature of 185° will give better results, providing the pasteurizing is done by a machine that will not give the cream a burnt flavor at that high temperature. I understand that in Denmark the cream is heated from 185 to 190°.

Some of the tubs were unclean, finger marks and daubs of butter color were visible, and in most cases such tubs contained poor butter. It may be said that a person can tell the kind of a butter maker who made the butter by the looks of the tub; at any rate the appearance of the tub has its effect on the judge.

The surface of the butter in a tub may be kept smooth by cutting the butter with a wire, a thread or a stick and set away until the butter becomes firm before putting on the cloth and salt. If the cloth is put on before the butter becomes firm, the impression of the cloth will make a rough surface.

I believe there were less over-ripe starters used in the butter at this than at any previous test, but there were indications of off flavored starters, and butter makers should carry two or three starters. Some may be propagated day after day in one-gallon jars the same as the large starter. By having two or more starters a butter maker can always make comparisons, and will soon be able to judge or score the starters and know whether or not they are good, and why. There were quite a number who did not use any starter, and only two of those, as near as I can recollect, scored fairly well, again proving that a good starter is necessary, and every butter maker should strive to use a good one, and use it right. The quality of a starter largely depends upon the care it is given by the butter maker.

A large per cent of the butter had a burnt or curdy flavor, part of which I believe was due to the burnt odor left in the cans from heated skim milk.

Some of the butter had a woody flavor, which in some cases I believe was due to the tubs not being soaked, or not properly soaked.

There was less rancid and less overworked butter than at former tests. Overworked butter usually becomes rancid in a short time. A butter maker wrote me after the February test, when his butter was worked too dry, that he was under the impression that the less water in butter the better. From the analyses made of butter at the Minnesota twelve months' contest, it appears that the samples which contained about twelve per cent water kept the longest, and that which was overworked and only contained eight per cent water became rancid.

The butter at this, the same as at all former tests, which was mild, clean and sweet, scored the highest. What I mean by mild, is the aroma or sometimes called nose flavor, was not high on account of the low per cent of acidity in the cream. About all the high scoring butter was made from cream ripened from 31 to 34 c. c. acidity Mann's acid test, or less than six tenths of one per cent of acidity.

The butter makers may congratulate themselves upon having such a competent judge as W. D Collyer to do the scoring at these tests; he prefers the mild, sweet, clean flavored butter, not because that is a hobby of his, but because of his long experience and study of these questions he has found that kind of butter will keep its flavor longer than that made from cream ripened to a high degree of acidity which will have a high aroma, but will soon lose both aroma and flavor, while the butter made from cream ripened to a low degree of acidity will not change much for several weeks, if made right otherwise.

Butter for cold storage should be made just the reverse. It should be made from cream ripened high, the more acidity the better; a sour starter such as buttermilk will make good butter for cold storage. Sour butter will come out of the freezers sweet, and sweet butter when put into storage will come out fishy. I have no theory to offer at this time why this is true, but know it to be a fact, and would like to see some professors carry on experiments to ascertain to what extent this is true, and why.

The price depends on the quality, and butter makers who expect to get fancy prices for their butter, must make an article that will reach the consumers in good condition. A few of the things to be guarded against, the next few weeks, are soft, slushy butter, un-uniform color, and over-ripe cream, as well as over-ripe starters.

B. D. White.

Chicago, Ill.

Note and Comment.

Conformation, Milk and Beef.

Ed. Hoard's Dairyman:—For several years I have been a reader of Hoard's Dairyman, and know not a few of its staff and contributors as well, and had supposed that I was quite well rooted

and grounded in dairy doctrine, and in fact had rather accepted the Senior Editor as being authority on special dairy law and practice, and have even quoted him in confirmation of some passing remarks I have made in public. I am now in great perplexity! At times I am fearful that some of the things I have hoarded up will not stand the X-ray search light of some of our later-day dairy teachers, or rather enlighteners.

In reading a late farm paper, a special dairy number, I soon came across several things that I desire the Senior Editor to harmonize with the "apparent spirit of the present age." The first thing that "struck the eye," was this, fornenst the dairy form:

"For a number of years we have heard considerable about the "dairy form" in cows. Men have deluded themselves into thinking that they can tell what a cow will do at the pail by looking on the outside. This belief doubtless arose from the fact that it is possible by outside appearances to tell quite closely what the carcass of an animal is likely to be. In the case of the dairy cow, however, we have a much more complicated problem, as the secretion of milk is a hidden process."

If this is so, then after this, when I want cows, I will send the hired man to purchase them, and believe the western authority who is recently reported to have said, that "any heifer calf, if rightly grown and fed as a cow should be, will make 300 lbs. of butter in a year."

The next item was altogether more so, as it shifted a good deal of responsibility upon the cow, and refutes all the talk the editor and myself recently heard, that dairy quality is largely the influence of the sire. This paragraph laid it down as settled that for the production of milk through breeding to:

"Select a bull of good Short-horn character, and of good beef type, whose maternal ancestors have proven themselves good milkers, and success is very easy. I would select a bull from a cow with a decidedly feminine appearance in preference to one of more masculine type, and expect better results in the dairy, and I would do the very same if I had beef in view as the most important object."

The concluding pause seems to convey the idea that you make sure of the rabbit as "you get him going or coming." Of course this puts out of controversy any farther mention of the Ayrshires, Holsteins, Jerseys, Red Polls, Guernseys, Herefords, and Black Polls as dairy cattle, and simplifies dairying a good deal, by this our only breed that gets milk with a beef type, and beef with a milk type parentage.

Another item may possibly provoke a little surprise and shows at the same time the absurdity of striving after rich milk, as this excess of fat is worthless so far as adding value to the milk, as this clipping shows:

"The fact is that the nutritive value of milk is largely derived from its solids not fat, and that a milk abnormally rich in butter fat is not the best for general use. Milk testing from 3 5 to 4 per cent fat is, I believe, a better all round milk than one showing a higher percentage of fat."

Still another paragraph that had to do with the kind of milk cheese makers needed to get the largest amount of cheese from was a withering blow to Dr. Van Slyke and the Wisconsin Dairy School, and knocks to smithereens their statements that the amount of fat milk carries determines the amount of cheese it will make. Before me is the report of the Geneva Dairy School expert who shows that 100 lbs. of 3 per cent milk made 8.67 lbs. cheese, and 100 lbs. of 4 per cent milk made 10.80 lbs., and 100 lbs. of 5 per cent milk made 12.60 lbs., each cheese carrying 37 per cent of water, and this in the face of the fact that this dairy special writer in good sized type says that:

"The richer milk is no better for cheese making, as cheese makers are unable to extract all the fat from milk testing over 4 per cent fat."

This will be a surprise to Geo. A. Smith, who asserts that he can incorporate all of the fat of 5 per cent milk into cheese and hold it into .25 of 1 per cent. It would be pertinent to inquire what these experts are incorporating in their cheese in place of the fat they cannot extract from the over 4 per cent milk.

We hardly know whether the writer of another paragraph really intended to make this assertion as broad as it reads or not, but on the face of it, it looks as if breed registration would have to go, and Sol. Hoxie would need to drop color and pedigree, and confine his registry to wash tub measurement, as instance this excerpt:

"A man who has common stock wishes to improve them and purchases a registered animal, or possibly several. He expects great results. He compares them with his common cows and finds that in many cases they are inferior in milk or butter production. The only remedy for this is to base the registration of dairy cattle upon performance, and not upon form and pedigree, as we understand it at present."

Of course dairying as practiced in different sections is somewhat varied, and the Iowa plan is guaged on different lines from the Ft. Atkinson policy, and each of these sections has its organ that tells with no uncertain sound, what kind of a cow is the most profitable and on what lines she is to be built, perform and what to look for in the way of profits, so we reprint the following, which should put the question of finding the cow the farmer needs, out of the controversy as, "She are found," as the clipping will show.

"For the general farmer, or milk shipping dairyman, there certainly is room for a dual purpose cow, one of a cross between the large framed, strong-constituted beef breed and the more highly developed milk producers; a cow that will weigh ten to twelve hundred pounds, with capacity to assimilate food enough to give 5½ to 6 gallons of 4 per cent milk per day and that will drop a calf weighing from 150 to 175 pounds at four weeks of age. A cow of that description, if she does take on too much flesh for the dairy, can go to the block with profit at any time, and her sons will make profitable feeders, and a quality of steak fit for the gods."

All that is lacking in this brief description to the path of dairy prosperity is a few minor details, which might be designated as the key to success. For instance what "large-framed beef-constituted breed" is to be crossed with, and what breed again, are these developed milk producers. It is, or would be highly profitable to have the progenitors of this cross located, so we all can breed large cows that weigh 1,200 lbs. and give 6 gallons, 51 lbs. a day of milk, 10 months in the year, 15,810 lbs. of 4 per cent milk, 722 lbs. of market butter, and drop a 175 pound calf "four weeks old."

Why is this "if" put into this cow's probabilities, if she can do these things and her breeding is easy? Why will she have to take on flesh if she gives the butter fat for 722 lbs. of butter in a year? Why need to go to the block and take her sons with her to "make steak for the gods?"

Will the Senior Editor of the DAIRYMAN please take his "nervous theory, strong developed spine, high pelvic arch, and incurving thighs" and make a bonfire of them, and from its light give us some 20th Century dairying that conforms to every man's belief and notion, and at the same time make the distinctions so clear, that a man could tell whether he was dairying with cows or steers!

JOHN GOULD.

Ohio.

Milk Received at Cheese Factories, As it Is, and as it Should be.

[From Report of Cheese Instructor, G. H. Barr to the Dairymen's Association of Western Ontario.

As it is. There is being delivered at our cheese factories during the summer months very large quantities of gassy, tainted and over-ripe milk. Just what the loss is from this kind of milk is difficult to estimate. It looks as if we might lose our reputation in the English market from this cause, which would be a serious thing, and something we must guard very carefully. But when we consider the actual loss the patrons of cheese factories are sustaining by delivering such milk, and having it manufactured into cheese, it is a serious matter, and one which patrons would do well to look into. In October last, one of the factories I visited was getting about 5,600 lbs. of milk, one vat, daily. On the 8th there were made seven full-sized cheese, and one about 50 lbs. On the

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Milk-pails *Dairy*
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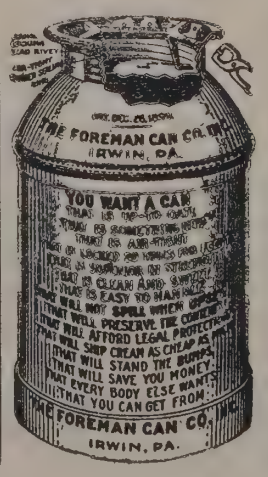
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9th, one of the milk wagons was about 1 hour late, and the whole vat of milk got over-ripe; there were only seven cheese made from this milk. The day following there were seven full-sized cheese and a 50 lb. one. The loss from 5,600 lbs. of milk was about 50 lbs. of cheese, which would mean a loss of about $5.50, or about 550 lbs. of milk, about the quantity 22 cows would give—22 cows milked for nothing. In nearly every factory in Ontario there are such losses day after day during the hot weather. The loss from gassy milk is equally as great as from over-ripe. On July 30th one of the factories received 11,234 lbs., equally divided in two vats. One of the vats of milk made a good curd, without any gas. The other was very gassy, nearly a floater. When the two curds were put to press there was about 60 lbs. of curd less from the gassy curd than from the one without gas.

The cheese made from either gassy or over-ripe milk, cannot be fine. They may be made so they will pass inspection in the curing room, but some time later on they will develop an undesirable condition.

Milk may be tainted and not gassy, but the loss in manufacturing is considerable, and it is impossible to make a fine-flavored cheese from tainted milk, and no matter how well a cheese is made, if the flavor is wrong, it is a cull, and must be sold at cull prices. What are the causes of gassy, tainted and over-ripe milk? By the use of curd test and visiting the farms during the past season I was able to get some information on this point. I will give notes taken on a few visits to the farms.

Sample No. 11 made a floating curd in the test. At the farm where the milk was sent from, I found the pails and cans as bright and clean as new. The milk had been strained into the milk can on the stand and thoroughly stirred and aerated there.

The stand was only about twenty feet from the barnyard, a swill barrel was close beside the stand. The buildings around the stand were in such a position that there was very little circulation of air, and of course the more the milk was exposed to such an atmosphere, the more gas germs it would get into it, as the air surrounding such places is full of gas germs.

Sample No 15. A floater, can clean, milk strained, aerated and cooled in water, on grassy plot near the house, but only about twenty feet from where hogs were running. We found even worse conditions than these two cases, but at every farm visited where gassy milk came from, the surroundings were very much the same. The milk kept very close to the hog pen, swill barrel, barnyards, chicken coops or milk yard, and when the milk was removed, it came to the factory in first class condition.

Sample No. 1. Tainted, goosey flavor, no gas; milk not aerated immediately after milking; can very rusty and not clean; surroundings good. Patron got a new can and aerated the milk and it was never found wrong afterwards.

No. 2. Same taint; surroundings good. Whey had been left in the can all day, and the can not washed very clean.

No. 8. Badly tainted and gassy; milk strained and aerated on the milk stand, which was about fifteen feet from a hog trough; can rusty. An old rusty can for whey stood close beside the stand. In this case the conditions are the same as those producing gas, along with rusty can, causing taint.

No. 3. Very bad, goosey taint; can and surroundings clean; milk strained into a can and never touched.

A few taints were found where the food eaten by the cows was the only cause to be seen—rank clover, rape and rag weed. The clover taint did not appear in the cheese to any great extent.

It would appear that taints without gas, come largely from rusty and unclean cans, unclean milking and lack of aeration, and gassy milk is largely caused by the surroundings.

Over-ripe milk, due to the leaving or keeping it at too high a temperature, putting warm morning's milk into the evening's milking.

As it Should Be—It should be from healthy cows, receiving good, wholesome food, pure water; the flanks, udders and teats wiped off clean before milking is commenced; milking with dry hands into clean bright tin pails, never into wooden or galvanized pails, strained (don't forget that) immediately after milking, aerated and cooled at the same time to a temperature of 60°. This must be done in a pure atmosphere, and should be all finished in half an hour after the milking is done. Keep the stable clean or if milking has been done in the same yard for ten years, better change it this year. Keep the pails and cans clean by washing them with a fibre brush and warm water, in which a little sal soda has been dissolved. Scald them thoroughly; remember scalding means using boiling water. This is absolutely necessary to prevent taints. Place the the can on its side in the sun. Scour the cans with salt once a week. Never put milk in a rusty can.

There is a lot of hard labor about milking cows. The profits are none too large. Do not make them less by carelessness and lack of cleanliness. It is a simple matter to produce good milk by doing the work in the right way, at the right time, and in the right place. I trust that every patron who hears this or reads it will examine closely their own farms to see if any of the conditions mentioned are present, and if they are that you will remedy them for your own sake, your neighbor's, your cheesemaker's and for the good reputation of our Canadian cheese.

Comments on the Feeding of the Heifer, Dolly Bloom.

ED. HOARD'S DAIRYMAN: — Noting the record of the Guernsey heifer, Dolly Bloom, also the statement regarding the feeding during the test, it is pleasing to note that the heavy grain ration, usually fed during such tests, was so conspicuous by its absence. The results show conclusively a view always held and practiced by the writer, that the expensive mill feeds are not always condusive to best results, especially to the average dairyman as regards cost of production.

One of the greatest drawbacks to raise the average production per cow is the enormous loss of the very best dairy cows by milk fever, garget and other maladies caused by over feeding too soon after parturition, with the view in mind of getting a good start. And for this reason I would call the attention of every reader of the DAIRYMAN to the cautious feeding during the first month of lactation, by Mr. Lathrop.

Also, another all important question to the dairyman is decided in this record, and that is, practically all the feed used was raised on the farm, thereby eliminating the high price mill stuff.

Mr. Editor, what a factor would alfalfa have been, along with the corn silage!

Lincoln, Neb. J. FRED SCHLEPPI.

"Praise From Sir Rupert."

Hon. A. J. Thynne, of Brisbane, Queensland, Australia in writing a friendly letter to the editor of this paper says:

"There is no dairy farm in Queensland that I know of where the HOARD'S DAIRYMAN has reached without producing useful results in practice, and I wish that more of our people would seek the enlightenment awaiting them in its columns."

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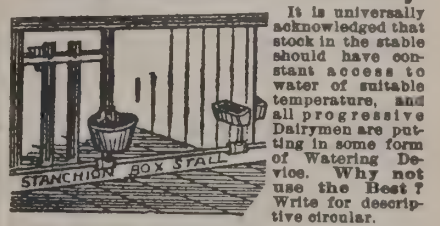
"As a food it is pleasant and agreeable, very nutritious and is digested and assimilated with very little effort on the part of the digestive organs. As a nerve food and restorer it has no equal and as such is especially adapted to students and other brain workers. It contains the elements necessary for the building of nerve tissue and by so doing maintains an equilibrium of waste and repair.

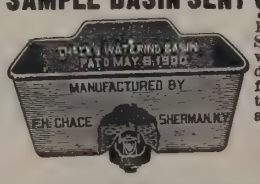
"It also enriches the blood by giving an increased number of red blood corpuscles and in this way strengthens all the organs, providing a vital fluid made more nearly perfect. I take great pleasure in recommending its use to my patients for I value it as a food and know it will benefit all who use it." Name furnished by Postum Co., Battle Creek, Mich.

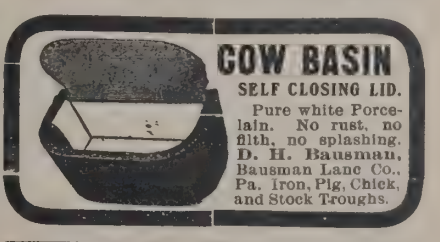


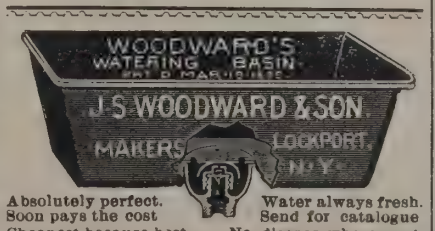














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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of them read dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

MUCH IN LITTLE.

In forwarding the subscription of a neighbor, Mr. D. N. Hills, the noted breeder of the Improved Yorkshire hogs, Gambier, Ohio, says:

"It is a great work you are doing, and as one of your readers I feel every week a sense of real obligation to you."

HOARD'S DAIRYMAN started out several years ago with the idea that there was a great deal to be found out and learned in this business of dairying. The paper has been hailed as a friend and helper by nearly 40,000 earnest, studious dairy farmers scattered all over this continent and in Europe. While there is a vast host of farmers who keep cows, and who think they could not make a penny by learning any more than they know now, still the first class is growing bigger every day, and their brave, good words, like those given by Mr. Hills, bring us much cheer and encouragement.

Fortunate is the lot of the dairy cow that is bred and cared for by men who realize her worth and goodness and understand, the great governing fact that she is a mother, for only by understanding and obeying the laws of motherhood can men hope to make the best profit out of her.

Fortunate, indeed, is the farmer who comes to this business of dairying in an earnest, studious spirit, for unto him will the cow yield most abundantly of the best there is in her motherhood.

SHORT NOTES.

A wise old dairyman was asked how he came to succeed so well with his cows. His answer is worth studying by every man who keeps cows:

"I don't think," he said, "that I had any more wit to begin with than my neighbors. But they stood stock still, and I tried to improve. They would not spend a cent to improve their knowledge of the business or their cows, or their farm or their stables. They thought that was money thrown away. I thought different. They are where they were 30 years ago; no better ideas or cows than they had then. Some men die before their time."

The man who said that, was the late Hiram Smith of Wisconsin. When he said it, his 200-acre farm carried 100 cows, and was producing more milk and cash than any 1,200 acres lying next to him.

Yet his success did not teach those men about him. They were even a good deal more anxious to pick flaws in what he did, and discount it all they could, than they were to learn from him. Wasn't he right in saying, "Some men die before their time?" The great Teacher said: "Unto him that hath shall be given; but from him that hath not shall be taken even that which he has." Good dairy farming demands that the farmer shall keep from mental decay and death.

A PROTEIN TALK.

Bulletin No. 4, Vol. XV, Agricultural Experiment Station of the University of Tennessee, is a record of a co-operative experiment between Prof. Andrew E. Soule, of the Tennessee Station, and S. E. Barnes, of the Bureau of Animal Industry of the United States Department of Agriculture, at Washington.

This bulletin treats upon the following subject: "The Relative Value of Protein in Cotton Seed Meal, Cow Pea Hay and Wheat Bran."

We have not the room to give all that is said on this intensely interesting question, and so will only enumerate the conclusions of the experiment:

1. Cotton seed meal is one of the richest of protein feeds, but it must be fed sparingly, as it has a tendency to produce nervous derangement of the cow's system.

2. Only about half as much food is consumed in making a gallon of milk as in making a pound of butter.

3. The smallest amount of roughage consumed in making a pound of butter was 43.8 pounds, in which 13 pounds of cow pea hay was substituted for four pounds of cotton seed meal.

This was with group 3 of cows. The highest amount of concentrates consumed for a pound of butter was by group 1, which took 9.2 pounds or 3.2 pounds more than group 3, and 5.2 pounds more than in group 2.

This shows that the substitution of pea hay for wheat bran in group 2, and for cotton seed meal in group 3 greatly reduced the cost of concentrates.

4. It was proved by this experiment that one and a quarter pounds of chopped cow pea hay was equal to one pound of bran, and three pounds of the chopped pea hay was equal to one pound of cotton seed meal.

5. Two and a half tons of cow pea hay can be produced on an acre of average southern farm land, at a cost of $12.50. Put in the market baled, it would be worth $25.60. A ton of bran costs $16 or $1.50 less than the farm selling price of two and a half tons of cow pea hay. The cow pea hay would have twice the feeding value of the wheat bran.

6. Measuring by the yield at the Tennessee Station, it would take 1.2 acres of land to produce in cow pea hay the feeding equivalent of a ton of cotton seed meal. The cost of the hay from that amount of ground would be $16, its farm value $21, and its market value $30. But the pea crop would store in the soil 40 pounds of nitrogen worth say $4.00. The only difficulty in the way of making the pea hay a perfect and profitable substitute for the wheat bran and cotton seed meal was in getting the cows to consume enough of it.

This would suggest the use of a small daily ration of the bran or cotton seed meal, and an increased use of the pea hay as far as is possible to induce the cows to consume it.

7. The cheapest gallon of milk was made by a combination of the pea hay and the cotton seed meal. All this is from the southern standpoint. For the northern farmer the nearest we can approach the cow pea is in the production and use of alfalfa.

CARE OF YOUNG STOCK.

One of the most serious faults of the average American farmer is his lack of knowledge and determined purpose in the care of young stock. We judge of a man's understanding of any question, by the way he does his work. Look over the calves at three, six, or twelve months of age in nine out of ten of our American farms. Note their unthrifty, scrawny, ill-fed looks, and then judge what must be the real knowledge of calf raising, possessed by their owners. Some will say that the owners of these calves do not do half as well as they know. In our opinion that is not the fact. The real difficulty is that they do not half know what they ought to know about these things, and consequently their work is half done. They have never resolutely set themselves to work to study what it means to rear a calf well. When a man is thoroughly saturated with the knowledge of a thing it holds him up to better work.

In March last, two men came into this neighborhood looking for grade dairy calves. They were men who knew what they wanted. They purchased seven grade Guernsey heifers dropped last fall, of one man and paid him an average of $24.28 for the lot. At the same time they said they could purchase calves of the same breeding and age of neighboring farmers for $10 to $15 apiece.

What made this difference in price? Simply the way the calves were handled. The seven calves were handled as follows:

(1) They were kept dry and clean with plenty of fresh, dry bedding every day and their quarters were kept well disinfected.

(2) They were fed skim milk, fresh from the separator, after the first 10 days, with a little ground flax seed and blood meal added.

When the milk was fed they were put in stanchions and the milk set before them in pails. Afterward they were given a small feed of oats followed by alfalfa hay. But the great care was to keep them dry and clean. As soon as they were through eating their oats they were let out of the stanchions and ran together loose in the compartment. They were fed milk morning and evening. When sold, they were in fine, clean, thrifty condition but not fat. They consumed apiece in the six months they were kept, about 3,500 pounds of skim milk, a dollar's worth of oats, two dollar's worth of alfalfa hay and flax seed meal, and fifty cents worth of blood meal.

After paying for the oats, hay, flax seed meal and blood meal, $3.50, and allowing $3 for the value of the calf when a week old — the price allowed by calf buyers— we have $17.78 per calf, as pay for 3,500 lbs. of skim milk and the labor.

Twelve calves were kept in the compartment. Does it pay to make a little study of calf life?

If our calves, pigs, colts and poultry are not given the right care and feed the first year of their lives, they get a set-back in growth from which they never recover. The bottom reason for all this poor live stock that floods the country, is a lack of knowledge on the part of our farmers of how to feed and care for the young things.

We are just entering on the fly season. A little time and expense in spraying the calves three times a week, with some of the fly lotions on the market, will help them wonderfully in their growth and thriftiness. There is good money in knowing what ought to be done, knowing it hard, and in doing it. Too many farmers think they can not afford to spend the time necessary to do such work rightly. If they are working for money, here is where they can most surely find it. However, there is no time of year for cheap and effective calf raising like the winter, provided warm quarters are given.

THE IMPORTANCE OF CONFORMING OUR PRODUCT TO THE MARKET DEMAND.

Of all men or classes of men who produce or manufacture something to sell the farmer is the most unyielding and unwilling to meet the demands of the market and the tastes of the consumer. It is hard to say why this is so, unless it be because of his greater isolation and less contact with men. Not long since Prof. Carroll of Ireland was addressing a body of Irish buttermakers at Carlow, once a famous center for the production of the best brands of Irish butter. He said something which bears squarely on the subject of this article. One remark was this: "What is the condition of the industry (the butter industry in Carlow) to-day? It is dead!

If we endeavour to search for the cause of this serious downfall of the butter-making industry in Carlow, we shall find it in the same series of causes that have brought ruin on many other industries. Shortly and plainly stated, we have worked up to the idea that we knew the quality of the butter that people should like better than they did themselves, Practically, we said: "You don't know what good butter is; the butter we send you is infinitely better than what your tastes recognize as the butter you prefer." While we were endeavouring to insist in this direction, the Dane came along, discovered the quality of the butter that was preferred in the London markets, and provided for this demand. Nay, more, the enterprising Scandinavian found out the qualities of butter that are required in the different markets in England, and the varieties of butter that are demanded are made to suit these markets. At the present time, Denmark and Sweden have each a well-paid commissioner in England, who examines at different markets the characteristics of the butter that is required for the districts supplied by these markets, and the butter is at once made to suit these requirements. Again, Canada is striving hard to capture the butter and bacon markets of Great Britain. An agricultural commissioner (Prof. J. W. Robertson) of enormous ability and business foresight is engaged by the Dominion Goverment to organize the agricultural resources of the country. One of his special functions is to find out what the markets require, and to advise as to the catering for these. The progress of agriculture in Canada since Mr. Robertson, the agricultnral commissioner, took his commission, is simply marvelous. The success is due mainly to the fact that an able man is in charge of the Industrial and Intelligence Department of the Government, and the sagacious, industrious farmers of the country, having confidence in him, carry out implicitly his suggestions.

The tribute Prof. Carroll pays to the phenomenal ability of Prof. Robertson in developing the production and foreign sale of Canadian dairy products, is just and true.

It is the old, old story of brains and good judgment. When will the farmers learn that intelligence is needed at his end of business just as much as it is at the market end? When will he learn that often because there is no intelligence used at the farm end, the market end fails? When will he learn that if he does not produce first-class milk, the creamery and cheese factory cannot make fine marketable butter and cheese? Where is there a place in the business that good adjusting brains, well informed brains are not needed?

HOW MUCH OVER-RUN IS POSSIBLE?

The ascertainment of the true relation of the amount of butter fat in milk or cream to the amount of standard commercial butter that can be manufactured from the same, is daily becoming more and more important. In the nature of

the case, there cannot be an inflexible standard, partly, because butter itself, as well as milk and cream, is of variable composition, and partly, because methods of creaming and churning are not exact and invariable, and the inevitable losses therefore not uniform.

Conceding then, as we must, that exactness is not possible, it remains to ascertain within what limits variations can be accepted without impeaching integrity of purpose or the exercise of ordinary care and produce.

It must be well known to the readers of HOARD'S DAIRYMAN that an over-run of one-eighth (12½%), with 4% milk, is considered by it sufficient to indicate good average work, and that anything less than this calls for investigation, because it indicates either unnecessary losses in creaming and churning (.2 of 1% of the total milk should be the maximum allowance for the losses) or an unnecessary amount of fat in the butter.

On the other hand, it is demonstrable that an over-run of more than one-sixth (16⅔%), with 4% milk, is at least impracticable, and should cause enough surprise to excite suspicion of error or something worse. In the present state of the art of butter making, the inevitable losses incident to creaming and churning can not be reduced below .15 of 1%, and butter containing less than 82.5% of fat should not be accounted of standard quality. It follows therefore, of necessity, when an over-run exceeding one-sixth is reported, that the tests of fat in the milk have been read too low, or that there is too little fat in the butter.

Entertaining these views, it goes without saying, we were not a little surprised to read in a recent issue of the New York *Produce Review*, an article entitled, "Twenty-five per cent over-run possible" and still more surprised when it was discovered that it was not only vicious in principle, basing, as it does, its argument upon a single sample of butter, but its so-called formula for computing the per cent of over-run was wholly inconsequential.

The formula given is: "Subtract fat from butter and divide gain by the fat, and multiply by 100." Applying this formula to a sample of butter containing 85% fat, the author reaches results, which he calls equations, as follows:

100—85=15; 15÷85x100=17.6% over-run.

Over-run nothing! With a good deal of unnecessary circumlocution, he finds that 15 is simply 17.6% of 85. He does not know how much fat there was in the milk from which this butter was made, or whether there was any over-run at all. For all that appears, or is assumed, to the contrary, there may have been 100 or more pounds of fat in the milk for every 100 pounds of butter produced. And yet he appears to have had an incoherent or inchoate idea that the amount of fat in the milk has some connection with the over-run, for he says of his so-called 17.6% over-run, "When the separator and churn losses are taken into consideration, this represents a normal and good over-run."

Notwithstanding this admission, that 17.6% represents a "normal and good over-run," the writer proceeds to demonstrate, or to attempt to demonstrate, that "It is not impossible to obtain an over-run of 25% in an honest way without any apparent injury to the butter." And to substantiate this claim, he cites the case of a sample of butter, entered in the "Iowa Twelve Month's Contest," which analyzed 79.4% fat, 15.5% moisture, 1.6% curd and 3.5% salt. Applying his formula as before, he gets:

100—79.4=20.6; 20.6÷79.4x100=25.94% over-run. To this he adds the qualifying sentence: "If the pounds of milk were taken as a basis for calculation of fat, the over-run would be about 1.5% less," which is simply confusion worse confounded, as pounds of milk have nothing whatever to do with the amount or per cent of over-run.

An indication of the extent to which this writer has failed to grasp the theory of the over-run question is shown by the fact that his formula would give milk of all degrees of fat content, with all degrees of loss in separating and churning, the same per cent of over-run, as it makes the amount of fat in the butter the sole basis for calculating the over-run. Thus, it is quite possible that two butter makers, starting, we will say, with 10,000 pounds of 4% milk, would produce different amounts of butter carrying the same proportion of fat, as one might run 50 lbs. of fat into the skim milk and butter milk, and the other only 15 lbs. Assuming that this butter contained 79.4% of fat, the yield in one case would be 440.9 lbs. and in the other 484.9 lbs., an over-run by one butter maker of 40.9 lbs. and by the other 84.9 lbs. or 10.25% and 21.25% respectively, whereas the *Produce Review* correspondent would have us believe that all butter containing 79.4% fat shows the invariable over-run of 25.97%

The over-run is the difference between the amount of butter manufactured and the amount of fat in the milk or cream used in making the butter, and not the difference between the butter and the fat in the butter, regardless of the losses that occur in manufacturing. Unless one knows the total amount of fat, or the per cent of fat, it is impossible to ascertain either the amount or the per cent of over-run. Inasmuch as the actual losses in creaming and churning are practically the same with 3% milk as with 6% milk, the per cent of over-run will vary somewhat with the per cent of fat in the milk. Thus, in the Iowa case, if this butter containing only 79.4% fat, was made from 4% milk and the losses in creaming and churning did not exceed .15 of 1%, the over-run was only 21.25%, instead of 25.94%. With 3% milk, the per cent of over-run would have been less; with 5% milk it would have been 22.2%; with 6% milk, 22.83%; and with 30% cream, eliminating the loss in separating, 25.37%.

The proper way to calculate over-run is to deduct the loss in creaming and churning from the test and divide this remainder by the required per cent of fat in the butter; this will give the total butter, and the difference between this amount and the total fat in the milk is the over-run. Divide the total over-run by the total fat in milk and the result is the per cent of over-run.

For example, in 100 pounds of 4% milk, there are 4 pounds of fat. If we estimate the loss in creaming and churning at .15 of 1%, the loss in 100 pounds of milk will be .15 of a pound of fat and there will remain 3.85 pounds of fat available for butter. This sum divided by .825, which is the minimum per cent of fat that should be permitted in butter, gives us the figures 4.66+ as the amount in pounds of butter that can be expected from four pounds of fat in 100 pounds of 4% milk. This is an over-run of .66+ of a pound, or exactly 16⅔% more butter than there was fat in the milk.

Or generally, if a represents the total fat in the milk, b the total loss of fat in creaming and churning, and c the per cent of fat in the resulting butter, the following formula will give the per cent of over-run:

$$\frac{\frac{a-b}{c} - a}{a} = x, \text{ or the per cent of overrun.}$$

We are not unmindful of the fact that butter containing not more than 80% fat will frequently pass as extra when fresh, but it remains to be proven that such butter has enduring quality and is not subject to excessive shrinkage. Possibly some method of manipulation may be discovered whereby the amount of water in butter can be increased to the limit of 16% without impairment of quality, but at the present time 13.5% of water, 1% curd and 3% ash must be considered the limit of safety.

Mr. F. S. Peer's Sale of Jerseys.

The average price received at Mr. Peer's Sale of the Golden Fern Importation, held May 12th, at Hoboken, N. J. was not up to expectations. Various causes are assigned, but none of them appear to be quite satisfactory. The imported herdsman comes in for a good bit of unfavorable criticism, as the animals were not in condition to show off to good advantage.

Although nine years old, Golden Fern's Lad sold for $2250 to Mr. T. S. Cooper, a circumstance that ought to appeal to breeders and dairymen alike to revise their judgments in regard to aged bulls. Golden Fern's Lad was not only well born but he had proven his superior excellence as a dairy sire by numerous sons and daughters of exceptional merit. The next highest price, $1,000, was paid by Dr. C. E. Still for Brookhill Fox, a grandson of Golden Fern's Lad through Flying Fox.

After this there was a big drop in prices, the best cow selling at $475 and others from that down to $160. Then bulls came in again for $150 down to $135, and after these came nineteen animals at from $100 to $130 each. Without going into further particulars we give the following summary.

9 bulls sold for	$4080.	average	$453.33
10 bull calves sold for	$290.	"	$29.00
59 sound cows sold for	$8170.	"	$138.47
1 crippled cow sold for	$10.	"	
4 heifer calves sold for	$200.	"	$50.00

Western Guernsey Breeders' Association.

ED. HOARD'S DAIRYMAN:—The summer meeting of the Association will be held at the Helendale farm of Mr. Fred Rietbrock, Athens, Wis.

It is hoped that all members will endeavor to be present, and all intending to go will please notify Mr. Rietbrock at once, 107 Wisconsin St., Milwaukee.

Mr. H. D. Griswold, of West Salem, is to read a paper on "The Guernsey Grade for the General Farmer."

The other subject for discussion is "Do We Pay too Much Attention to Fancy Points in the Guernsey."

CHARLES L. HILL, Secretary.
Rosendale, Wisconsin.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Weight of Green Corn Per Acre and of Same Corn, Field Cured.

Will some of your many readers tell me through your paper about how much an acre of green corn ready to cut for the silo, that would make when dry, say, 40 bushels, per acre, would weigh, and what it would weigh if allowed to stand until ripe and cut and shocked up until winter; in other words, what we use to call shock corn in Missouri. I want to find out if I can which is worth the most to feed to a few cows, a crop of corn and a crop of sugar cane, or two crops of sugar cane. I can raise a crop of corn and get off the ground and then sow it in cane and get a good crop, or I can sow it in cane early and get two good crops in a year. We have no silos in this country, and yet I don't know but what they would pay and have enough of them so we could feed it 365 days in the year. D. M.
Taylor, Texas.

We shall be very glad to have the opinion of readers on this subject, but meantime, we feel like saying that a crop of forty bushels of corn per acre is not creditable to the locality where it grows. The fault may be partly due to the soil or to the climate, but, in the majority of instances, it is more likely to be due to lack of proper tillage or rotation of crops. A yield of one hundred bushels per acre is by no means uncommon in the corn belt and an average of less than sixty bushels per acre should be accounted a poor crop almost anywhere. A field of corn yielding sixty bushels per acre would make about four and two-thirds tons of field cured forage, that is, if cut off near the ground and cured in shocks or stooks. In the green stage ready for the silo, its weight would be somewhere from eight to ten tons. Deducting one-third from these figures would give the probable yield of green corn and field cured fodder where the yield of grain would be only forty bushels to the acre.

Southern Missouri as a Dairy and Stock Country.

I think of going to the Ozark region, Southern Missouri, but some say that it is too hot and cows wont do as well as in a northern climate. Grasses grow well, particularly clovers, and also much fruit, and the shorter winters induce me to go there instead of north. Land is too high priced here for a poor man. Should like your opinion of South Missouri as a dairy and stock country. M. E. B.
Crete, Neb.

It would be manifestly improper for us to make our reading columns a vehicle for exploiting the merits of the different sections of the country for dairy purposes or otherwise. It is doubtless true of Southern Missouri, as it is of most other places, that some men succeed where others fail. It seems to us that in so important a matter as changing locality, a person should spy out the land for himself rather than depend upon the advice of friends or strangers. In these days of cheap traveling, it is a comparatively inexpensive matter to go five hundred or a thousand or two thousand miles even.

Churns and Cream Ripeners.

We are about to purchase a new churn, have always used a Disbrow, and am well satisfied with the work it does, but like the mechanical appearance of the Dairy Queen. If it will work as well as it looks, it is a much superior machine. We print our butter right from the churn, therefore it must be properly worked and I am afraid the automatic roll of the Dairy Queen will not perform right. Can you tell me anything about it or where I can find out about it aside from the manufacturers? Also would you consider it wise to invest in a cream ripener rather than cream vats when you have a nice, clean, cool, well ventilated vat and churn room? How can you keep cream cool in the ripener through the night? E. P.
Bloomington, Ill.

"Many men of many minds" have approved churns of various kinds. In the nature of things, it is quite impracticable for us to become familiar enough with all the different styles and kinds of churns to pass judgment upon their respective merits. The manufacturers of dairy machinery, as a rule, are very willing to give references and it is not a very difficult matter to write to the parties to whom reference is made and get their opinions, and in important matters it is even practicable to visit premises where they may be in operation.

The so-called cream ripeners are coming more and more into use in large creameries because of the facility with which the temperature of the cream can be controlled, but where one has a "nice, clean, cool, well-ventilated vat and churn room" it may perhaps be doubted whether the ripener would be very much superior to a good vat.

Twin Calves of Opposite Sex.

Should like to ask if twin calves of opposite sex will pay to raise as breeders? I am told heifer will not be a breeder. What is your opinion?
Crete, Neb. M. E. B.

A heifer twin to a bull is called a Free Martin, and it is very seldom that they prove to be breeders. The bull in such cases is usually of normal capacity.

Forms for Building Concrete Walls.

Can you tell me how to construct a form for building a concrete wall 9 or 10 ft. deep and 14 ft. in diameter, on which to place a tub silo?
Auburn, N. Y. E. J. R.

As stated some weeks ago, we entertain a belief that it would be much easier to go on the ground, fit up forms and build concrete walls, than it is to attempt to describe how it could be done, because in the former case, one would have the advantage of trying various methods when it was discovered that the first attempts were failures. Still more difficult is it to describe how movable forms could be constructed for use in erecting these walls Such forms have been made, and, as we understand, have been patented, but we despair of being able to give any intelligent description for constructing them. If any of our readers can furnish information of this character, they will be confering a great favor on a great number of their brethren.

Sugar Beets for Cows.

Will you kindly tell me if sugar beets—those grown and used by beet sugar factories—are the proper thing to feed to milking cows? W. H. F.
Green Bay, Wis.

Sugar beets undoubtedly make good feed for milking cows but it is doubtful if they can be raised for this purpose with profit. Mangels are much easier grown, much easier harvested and produce much larger crops, although they do not have quite so high a feeding value.

When to Sow Millet.

Will you tell me through your paper how and when to seed millet. I have a piece of ground that is too wet to plant corn, and do not want to put potatoes on it. Can land be seeded down with millet as a nurse crop? How much millet will it take to the acre? A. T.
Nowthen, Minnesota.

Millet may be seeded at any time from early spring until midsummer, as it comes to maturity in from sixty to ninety days. The amount of seed required per acre, varies from one to one and one-half bushels.

Millet is accounted a hard crop on the soil because of its rapid growth and great yield and, hence, we should not consider it a suitable "nurse" crop. And, by the way, what a misnomer this word "nurse" crop is. Instead of being a nurse, it is in fact a robber, and this more particularly if it is permitted to reach maturity.

Early History of the Babcock Test.

[By Dr. S. M. Babcock, Madison, Wis. at the National C. B. Association.]

It is now nearly twenty years since I was first deeply impressed with the injustice arising from the system of pooling milk that was practiced everywhere at that time in creameries and cheese factories. In such factories the milk was paid for, or if the factory was co-operative, dividends were apportioned, according to the amount of milk delivered by the different patrons, no account being taken of the relative values of such milk. I was then employed as chemist at the New York Agricultural Experiment Station, at Geneva, which institution was the owner of four grade Jersey cows. These cows were considerably above average excellence, the four together producing four pounds of butter daily. There was but little difference in the quantity of milk given by the individual cows of this small herd, and they were considered to be about equal value so long as the mixed milk was handled together. But experiments which were planned made it necessary to determine the butter yields of the different animals. This brought out the fact that one of the animals was producing nearly half of the total yield from all four of the cows. Analysis of the milk from each cow showed that the fat contents of the different milks was wholly in accord with the results obtained by the churn. Subsequent studies with milk from different sources entirely confirmed these results, showing conclusively that the butter producing capacity of a cow is measured by the amount of fat contained in her milk. This fact is accepted by nearly every one to-day, and from our present point of view it is difficult to understand how so evident a proposition could ever have been questioned. In those early days, however, the majority of dairymen firmly believed that the butter value of milk or cream could only be determined by the churn. It must be remembered that there was more excuse for skepticism regarding such questions in those days than at the present, for the principles involved in the manufacture of butter were not as well understood, nor were the appliances available as efficient as those now used. It must also be borne in mind that the change proposed was a most radical one, it being from a practical method, long in use, which everyone understood, to a purely theoretical one with which none of the parties involved were accustomed. Everyone believed the churn, and scarcely anyone trusted the chemist, who in many cases did not even know how butter was made. This is well illustrated by the hold which "official" churn tests of individual cows had upon breeders and dairymen all over the country. In such tests the churn was always used and no matter what results were obtained they were usually accepted without question. It was not unusual for enormous quantities of water to be retained in the butter, and in some cases, there is good reason to believe most of the milk solids were also incorporated with it. The sharp competition in this line went so far that some tests were made and accepted which demanded upwards of 25 per cent of fat in the milk if the butter obtained was of an average standard. In one case a pound of butter was obtained from less than three and one-half pounds of milk. In another, over six and one-half pounds of butter was reported in one day from a cow giving a moderate amount of milk, and it seemed that the limit would only be reached when the produce of the cow was pure butter. At that time there was no published analysis of pure milk showing over 9 per cent fat, and this figure was only reached when the yield was very small. In a few cases it had been my fortune to obtain samples of milk from some of these phenomenal cows, which in no case showed abnormal quantities of fat when subjected to analysis.

In view of these facts I had no hesitation in expressing my disbelief in those phenomenal tests which demanded more than 10 per cent of fat in the milk. In consequence of my expressed opinion I was called upon to make analyses of the milk and butter in some of the official tests. In none of these were there phenomenal yields of butter, but, what is of greater importance, there was found in every case substantial agreement between the fat content of the milk and the butter produced. This principle was not universally accepted, however, it being claimed by leading breeders that butter fat was produced in milk after it was drawn, by the methods of handling which they practiced, and in this way abnormal yields were accounted for and often accepted. All sorts of claims were made and persisted in, and years later, after the relative value plan had been quite generally accepted in creameries, the proposal to make the fat content of milk the basis for awards at the Columbian Exposition in Chicago met with so much opposition that it was at one time doubtful if any test could be arranged, and, as it was, only a few of the Breeders' Associations invited, took part.

The result of observation with individual cows turned my attention early to the injustice brought about by the pooling system in factories where very wide differences often occurred in the quality of milk supplied by different parties. The only satisfactory solution to this question which appeared at all feasible was to make the fat content of milk the basis for dividends. But with the analytical methods available at that time the expense was entirely too great, as the necessary determination could only be made by trained chemists with appliances only found in well equipped laboratories. The only rapid method for the estimation of fat in use at that time was that described by Soxhlet, which required considerable skill and was too complicated for general introduction in factories.

The problem of a simple fat test had occupied my mind for several years before I came to this state. I had then great hopes that the lactocrit which was being used to some extent in Europe might answer the purpose, and I intended to give this apparatus a careful test, but found on my arrival at the Wisconsin Experiment Station that Mr. Short, who was then a chemist in that institution, had devised a simple method for estimating fat in milk which seemed better fitted for factory use than did the lactocrit. Short's test was the first that gained sufficient foothold in the factories of this country to be used for determining the relative value of the different patrons' milk. It did much to direct public opinion to the great need of some adequate control in factories, and was followed in a short time by a number of other tests designed to accomplish the same end. All of these tests required considerable skill in manipulation, and consumed more time than the average factory man was willing to give. Besides, none of them could be used in the estimation of fat in the waste products of the dairy, such as skim milk, buttermilk or whey, where the amount was much less than 1 per cent. It was therefore impossible, with any of these tests, to locate and determine losses resulting from careless work and imperfect apparatus; but in spite of these deficiencies Short's test, and those which followed it were of inestimable service to the dairy industry of this country, as they directed attention to the great inequalities which existed in the old system, and

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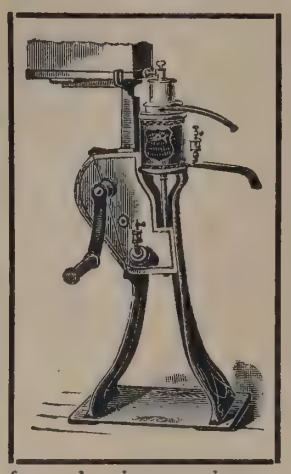
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pointed a way in which they could be remedied. It was the great and growing demand for a simpler test having a wider range of application that led to my investigations in this line. These investigations resulted in a number of the tests, some of which promised well but were not entirely satisfactory. One of these early tests gave excellent results with all mixed milks that were tried, and also with the waste products of the dairy, but failed when applied to the milk of a certain cow in the station herd. While it was doubtful if such cases would often occur, it seemed unwise to send out a test which was incapable of giving accurate results in all known cases. It was through modifications made in this test for the purpose of adapting it to this one cow's milk that the methods involved in the present Babcock test were reached. It is a source of great satisfaction to me that the method as first described has never been modified except so far as the mechanical part of the apparatus has been improved.

The Babcock test was first described in bulletin 24 of the Wisconsin Agricultural Experiment Station; the bulletin was published in July, 1890. So great was the demand that the edition was soon exhausted, and during the next two years two other bulletins describing the method were issued. From the first it met with unexpected approval and within five years it had been introduced extensively into nearly every dairy section of the world. In this country, in Canada, and in the British colonies of Australia and New Zealand it is now found in almost every creamery where milk from different patrons is received. In some it is used only as a means of control to determine the purity of milk received and for locating losses in the process of manufacture, but in the majority of creameries within these limits it is used for measuring the relative value of the milks delivered and determines the basis upon which payment for milk is made or profits are divided.

In cheese factories it has not been so generally adopted as it has in creameries, for the purpose of determining values. This is natural because the relation between the amount of fat in milk and its producing value is much closer with butter than it is with cheese. Nevertheless, I believe when all factors of the problem are considered that the fat content is as valid a measure of the value of milk for cheese as it is for butter. It is true that rich milks do not yield quite so much cheese for a given amount of fat as do poor milks, but within the limits found in factory milks the difference is not wide and is easily compensated for by the improved quality of cheese from the richer milks.

The test has not been as generally introduced, as a measure of relative values, in the dairy sections of the eastern states as it has in the west and northwest. No doubt the relatively larger number of students from the dairy schools who are operating factories in the west, has been the chief determining factor in this matter. It certainly is not a question of longitude, for on the other side of the world, in far New Zealand, every factory was operated upon this plan before it was generally accepted in Wisconsin. At present it is gaining ground everywhere and I believe in the near future that the relative value plan of fixing values based upon the fat content of milk will be well nigh universal, not only in butter and cheese factories, but in the supply houses which furnish milk for domestic consumption in cities.

No better demonstration of the great need of some adequate means of milk control could be found than that which the rapid and widespread introduction of this test supplied. At the time when this test was given to the public the factory system was greatly demoralized as a result of the practice of pooling milk without any account being taken of its quality. This practice not only offered no inducement to produce good milk, but actually put a premium upon poor milk, in consequence of which the average quality of factory milk was slowly but surely deteriorating. This resulted partly from fraud, and partly from a poorer class of cows upon the farms from which the milk was derived. In every factory association in the country much time and money were expended every year in efforts to prevent fraud through the watering and skimming of milk by patrons, and I believe in the aggregate that the cost of these efforts was as great as is the testing of milk today. The point had been reached when honest producers of high grade milk were fast withdrawing the patronage from factories and going back to private dairying rather than to submit to the injustice involved. The time therefore was most opportune for the introduction of this test which not only relieved the factory operators from unpleasant and unprofitable inspection duties, but also made it possible for all grades of milk to be pooled on an equitable basis.

In spite of the almost universal need of such a test its general introduction was beset with many difficulties. The first of these which I shall mention resulted from the method not being protected by patents. In consequence of this a great variety of very cheap and defective machines were put upon the market. These machines in many cases did very unsatisfactory work and resulted in much dissatisfaction, and for a considerable time reacted against the test. Such apparatus has, however, been driven entirely out of use by the substantial and easy running machines which have been upon the market for a number of years. Another danger arose from the widespread tradition that butter was the only legitimate standard, and that the test should be so modified as to show butter yield instead of per cent of fat. In order ty cater to this condition and thus secure trade, a number of manufacturers sold outfits provided with pipettes, for measuring milk, of larger capacity than the standard of 17 6 cc. As no two persons had the same idea regarding the probable over-run of the churn there was naturally considerable variation in the size of these pipettes. I have known of pipettes delivering 17 cc, 17.5 cc, 18 cc, 20 cc, and 22 cc being sold, all of which were supposed by the users to be correct. In one creamery I myself found three different sized pipettes in use. Is it any wonder that under such conditions variable results should have been obtained and results should have been to discredit it? These defective pipettes were at the time aptly designated "fool pipettes" by Mr. Gurler. Fortunately their use has been almost entirely discontinued and today only the standard 17.6 cc. pippette is sold with the apparatus.

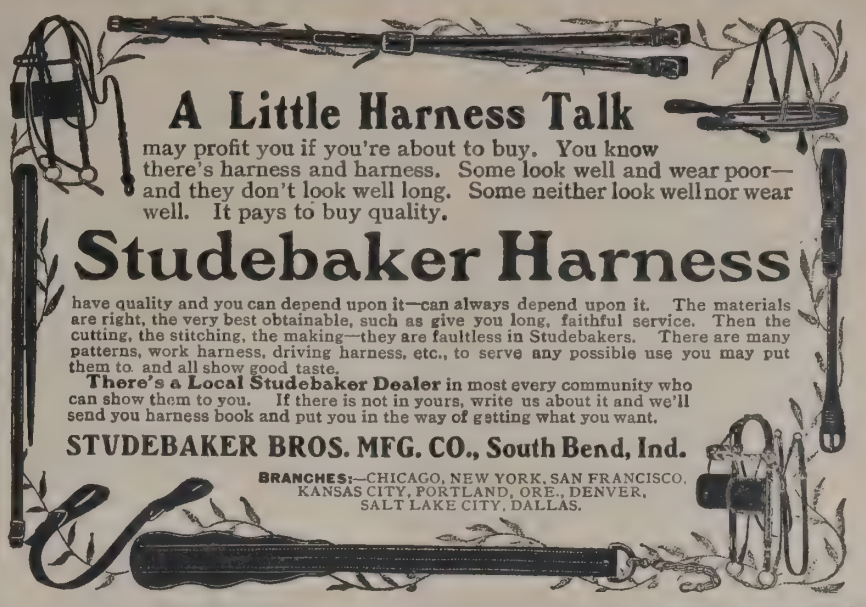
There has been much less trouble with incorrect graduation upon the test bottles, than with high or low readings in favor of either the patron or the factory and whenever this has occurred it has been the result of carelessness on the part of the makers, and not designed to give high or low reading in favor of either the patron or the factory operator. In several states there are, at the present time, laws providing for the examination of pipettes and test bottles as to their accuracy, and the use of defective apparatus is forbidden. These laws are doing much to obtain a high standard of accuracy, and there is now a very small percentage of poor apparatus on the market.

The most serious danger which has operated against the test is that arising from intentional misuse, or from misrepresentation of the results obtained. It often happens that the test is read too high or too low intentionally. Sometimes where milk is bought the test is read low in the interest of the dealer, and sometimes it is read low in order that the overrun may appear large and thus show a high grade of work. Sometimes high readings are made to attract patrons from neighboring creameries. Sometimes, where milk is paid for upon a butter basis, the test is represented as showing actual butter yield, the overrun being all appropriated by the company. Sometimes in cooperative factories, where milk is paid for by the test the poorer milks have been read high and the rich milks low in order to make the real difference appear less than it is. In this manner and others the test has been used in fraudulent ways. Probably the danger of fraud in this direction is no more than that from incorrect scales and false weights. Most cases of this kind could be avoided by a more general practice of testing milk on the farm by the patrons themselves. They will all disappear when the underlying principles of the dairy industry are better understood, and so the future has little to fear from them.

[TO BE CONTINUED.]

BINDER TWINE FARMERS wanted as agents. AUGUST POST, Moulton, Iowa

FARM FOR SALE BUFFALO CO. Stock and Grain. 360 acres, 200 acres cultivated. Good buildings, new, including stone silo. Fine stock, all machinery, etc., included. Excellent soil, well watered. HILES & MYERS, C-100 MATTHEWS BUILDING, Milwaukee, Wis.



A Little Harness Talk

may profit you if you're about to buy. You know there's harness and harness. Some look well and wear poor—and they don't look well long. Some neither look well nor wear well. It pays to buy quality.

Studebaker Harness

have quality and you can depend upon it—can always depend upon it. The materials are right, the very best obtainable, such as give you long, faithful service. Then the cutting, the stitching, the making—they are faultless in Studebakers. There are many patterns, work harness, driving harness, etc., to serve any possible use you may put them to and all show good taste.

There's a Local Studebaker Dealer in most every community who can show them to you. If there is not in yours, write us about it and we'll send you harness book and put you in the way of getting what you want.

STUDEBAKER BROS. MFG. CO., South Bend, Ind.

BRANCHES:—CHICAGO, NEW YORK, SAN FRANCISCO, KANSAS CITY, PORTLAND, ORE., DENVER, SALT LAKE CITY, DALLAS.

PAGE

Ever Notice That

we constantly advertise Page Fence for the hardest usage and the worst places! Does anybody else? PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH

IT COSTS NOTHING

to get our Illustrated Descriptive Circulars and Special Discount Sheets of

Advance Fence.

It is the best fence made, and we sell it to farmers direct from our factory at manufacturer's prices. No dealer on earth can buy Advance Fence cheaper than the farmer can. Made in any height and any length to suit all requirements of farm fencing. Write to-day; a postal card with your address will do

ADVANCE FENCE CO., 126 A St., Peoria, Ill.

BROWN

16 to 35 Cents Per Rod.

Heaviest, strongest, most durable fence made. All wires extra large. We sell to Farmers at Wholesale Prices. Coiled Spring, Barb and Soft Galvanized Wire. WRITE FOR CATALOGUE.

The Brown Fence & Wire Co. 22 Rose St., Cleveland, O.

BB FENCE We'll tell you the cheapest and best way to build it. Of any kind of wire, for any requirement, with cheap labor, no machine and we'll tell you how to fix your old fences too. Write B. B. FENCE CO., 1345 Clark St. RACINE, WIS.

SHOO-FLY THE ANIMALS' FRIEND

Half cent's worth saves 5 quarts milk and much flesh. Kills every fly it strikes; keeps off the rest. Harmless to man or beast NO LICE in poultry house or any place it is sprayed. If your dealer does not keep it, send $1.00 for Improved Three Tube Sprayer and enough Shoo-Fly to protect 200 cows. Cash returned if cows are not protected.

SHOO-FLY MFG. CO., 1005 Fairmount Ave., Phila., Pa.

EDITOR knows from experience Shoo-Fly is O. K.

Goodwin's



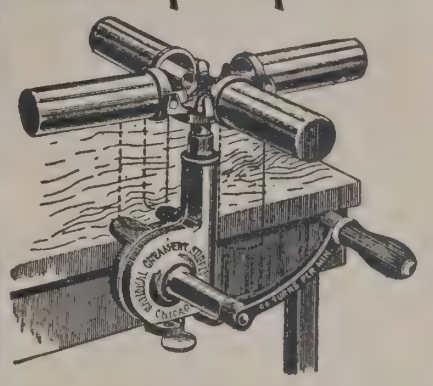
Use Goodwin's Fly Killer this season on your cows and horses and be rid of the fly pest. Cows give 25 per cent. more milk and horses are relieved. Gallon 75c, 5 gallons $3.00, 10 gallons $5.50. Sprayers 50c, or send $1.00 for sprayer and enough Fly Killer to protect 150 cows.

T. D. Goodwin & Co., AGENTS WANTED. Columbia Station, Ohio.

HIGH CARBON COILED SPRING STEEL FENCE WIRE — INDIANA STEEL & WIRE CO. BOX 311 MUNCIE, INDIANA.

NATIONAL

Babcock Milk Tester



Dotted Lines show position of bottle holders when not in motion.

Has enclosed cut gears.
Swinging bottle-holders.
Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

DOES YOUR DAIRY PAY?

It costs no more to feed a profitable than an unprofitable cow.

NET PRICES:

No. 1,—2 bottle, complete for testing milk.... each $4 00
No. 2,—4 bottle, complete for testing milk.... each 5 00
No. 3,—2 bottle, complete for testing cream and milk, each 4 50
No. 4,—4 bottle, complete for testing cream and milk, each 5 50

Prices include full directions for making test, bottle of acid, test bottle brush, acid measure, dipette and test bottles.

We are the great Dairy Supply House of the West. We carry an immense stock of all kinds of Butter and Cheese Making Apparatus and Supplies. Write for catalogues and circulars.

National Creamery Supply Co.,

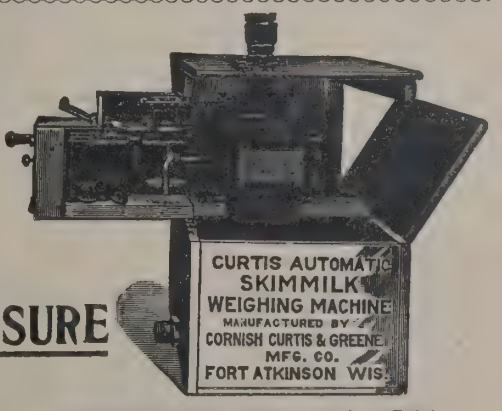
450-458 Illinois St., CHICAGO, U. S. A.

Skim Milk

Often goes to the wrong man for the simple reason that the patrons have no standard of

WEIGHT or MEASURE

and the last man suffers.



FULL DESCRIPTIVE CIRCULAR FREE.

Cornish, Curtis & Greene Mfg. Co.,

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for.... DE LAVAL ALPHA SEPARATORS.

Fort Atkinson, Wis.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—On the Elgin Board of Trade today, butter was made firm at 21c. No sales were made. The weekly output was 786,000 lbs. The N. Y. market was reported steady at 22c, receipts 10,159. Former prices:

	Tubs sold.	Price.
May 18, '03	0	21c
May 26, '02	80	22c
May 27, '01	0	18½c
May 28, '00	240	19½c

Elgin, Ill., May 25, '03. H. C. B.

A North Carolina Herd Report.

ED. HOARD'S DAIRYMAN:—Enclosed find $1 to renew my subscription to the DAIRYMAN. I do not want to miss a single issue. I am a little late in renewing, but hoped to be able to send you a few subscribers, but I find it a hard job in my section of country. I am almost alone in the dairy business in this county, and no one seems to appreciate the work of the DAIRYMAN. I am very much interested reading the herd reports, so will give you what my herd has done in 1902. I milked an average of 30 cows that made 11,000 lbs. butter, or an average of 366 lbs. to the cow.

I started dairying ten years ago with four registered Jersey cows, have bought several since and also sold a good many. I now have a herd of thirty milkers and thirty-five head of young stock. My success, if it can be called success, is largely due to the DAIRYMAN, which I have read from the time I got my first cows. By the use of scales and Babcock tester I hope to reach 400 lbs. to the cow in 1903. I have one cow which will only have to work thirty days more to make her part, so she will have the balance of the year to help some others out, for I still have some that need help to reach the 400-lb. mark. My herd is headed by Biltmore's Torment 60761. R. L. S.

Newton, N. C.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

CONCERNING OUR ADVERTISERS.

STUDEBAKER ORDERS.

Two sales recently made by the Chicago House of the Studebaker Bros. Mfg. Co. show which way the wind is setting with big concerns that are satisfied with nothing short of the best to be had in vehicles and harness. The first was to the Yellowstone Park Transportation Co., the concessionaires under the government of the transportation privileges of the Yellowstone National Park, who have some 800 head of horses in service. Some time ago this company ordered from Studebakers a few sets of harness, and having tested and compared them with other makes used by them, quickly followed with an order for fifty sets of four-in-hand harness. The order was placed expressly on the superior quality of the Studebaker goods. The other sale was to the W. C. Walch Co. of Chicago and consisted of sixty United States mail wagons and sixty sets of harness to go into the government mail service and to be made after the approved government designs and specifications. These orders, though not of great magnitude as Studebakers do things, yet indicate in a forcible way the high standing of Studebaker goods.

There is not a progressive, thinking man on the farm but that thoroughly appreciates the great convenience of a telephone system that will connect him with his neighbors, and as well with his marketing town. Just think of the saving of your own time and labor, think of its convenience with your own neighbors, think of stepping to the telephone and in a minute, having a doctor on his way to your home. There is no question but that we can all get along without these things, but why do so. The expense of a rural telephone is nowhere near what most people would think when the community takes hold and pushes it along collectively. The readers of Hoard's Dairyman are the progressive, go-ahead farmers of their community, and those who have not the advantage of a telephone system should take the matter in hand. Send to Stromberg-Carlson Telephone Co., Chicago, Ill. for their catalogue which gives a great deal of information in regard to the erection of telephone systems. If you would like to have a system installed in your community, don't put this off, but get the catalogue and be able to talk with your neighbors and others, intelligently on the question. Don't put this off but drop a card today to this firm, requesting their catalogue and mention HOARD'S DAIRYMAN, and you will receive prompt attention. In a hundred different ways the telephone makes farm life safer, pleasanter and easier. The cost is trifling as compared with the advantages and it is safe to say that any farm family that has had a telephone installed in its home for one year could not be persuaded to have it taken out and go back to the old way of living alone.

NEW FENCE CATALOGUES.

The Cyclone Woven Wire Fence Co., of Holly, Mich., with factories also at Cleveland, Ohio, and Waukegan, Ill., announces the issue of two catalogues this season instead of one as formerly. One book illustrates and describes farm fence exclusively while the other covers the ground of ornamental or lawn fencing. The latter work includes some very moderate priced styles of ornamental fence that is nearly as cheap as the common farm fence, but at the same time much more ornamental than many fabrics that sell at a high price. This low priced ornamental fence is especially designed for front fences on wood posts where an attractive job is desired without an expensive outlay.

These catalogues are free and either or both will be sent to our readers in response to a request addressed to the Cyclone Woven Wire Fence Co., Holly, Mich.



OUR PORTABLE ENGINES have many features peculiar to the OTTO and possessed by no other make. The electric ignition is entirely reliable and the battery which supplies the current is of the liquid tight kind. The water cooling device is patented and but a small quantity of water is needed. Our catalogue tells you of these and all other points of excellence for which we make claim. Engines in stock for immediate delivery.

PLACE YOUR ORDER NOW THAT YOUR ENGINE MAY BE READY WHEN YOU ARE READY FOR IT.

THE OTTO GAS ENGINE WORKS, Philadelphia, Pa.

HAVE YOU SEEN THE

Jack of All Trades

—A GASOLINE ENGINE

of the most modern type for farm use?

Pumps Water—Saws Wood—Runs Separators
Shells Corn—Grinds Feed—Churns Butter
And is adapted to many other jobs on the farm.
Saves Labor—Earns Money

Write for free descriptive catalogue "Ba."

Fairbanks, Morse & Company,
CHICAGO.





THE DREW ELEVATED CARRIER
is the cheapest and most practical device for taking away manure from stables, carrying ensilage, feed, grain, etc., etc. No trouble to put them up, no trick to work them; leaves barn yard free from posts; dumps in yard or on wagon; turns curves and switches. An inexpensive money saver. Write for illustrated catalogue and full particulars.
DREW ELEVATED CARRIER COMPANY, WATERLOO, WIS.

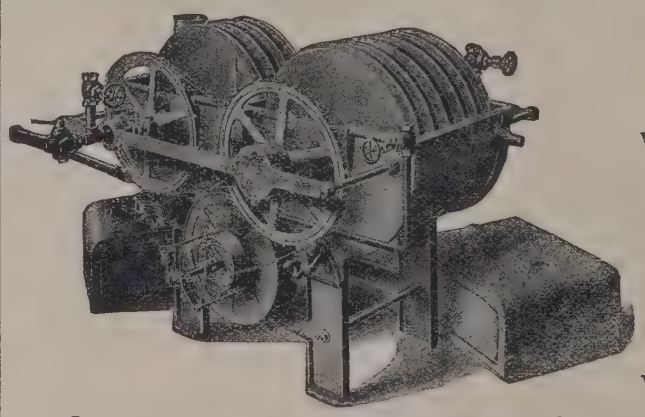
Cherry's Perfected Barn Equipments.



Manure Carrier, Feed Carrier, Grain Elevator, Barn Door Fixtures and Hay Tools. Send for illustrated Catalogue and Price List to.....

D. B. CHERRY & CO., Knoxville, Iowa.

IT'S ALL IN THE DISCS



THE FARRINGTON DUPLEX PASTEURIZER

WE CHALLANGE any Pasteurizer on the market to pasteurize cream that is heavily acid. They can't do it, and they know it. The Farrington Duplex is the only machine that will do it successfully.

Write for prices.

Creamery Package Manufacturing Co.,

BRANCH HOUSES: Kansas City, Mo. Minneapolis, Minn. Waterloo, Ia. Omaha, Neb. St. Louis, Mo.

1, 3 and 5, W. Washington St.
Chicago, Ill., U. S. A.

Canadian Branch: Cowansville, Quebec.

Did You Ever Keep a Record Of Your Cows?

IF SO, you have felt the need of a convenient, simple and handy Record Sheet. We have had so many requests for these Record Sheets that we concluded to get up one that would "fill the long felt want." We have a very simple and complete Record Sheet for 10 cows, one month, that is printed on heavy Manilla Paper, we can send postpaid at following prices:

Price 5c Each	6 for 20c	12 for 30c	25 for 50c

SIZE 10x16 INCHES

We also have a one cow Record Sheet, heavy Manilla paper (one month) that we will mail postpaid

Single Copy 5c	5 for 15c	10 for 25c	25 for 40c

SIZE 6x15 INCHES

HOARD'S DAIRYMAN.
FORT ATKINSON, WIS.



No Water here to Freeze

If you want a..... **Gasoline Engine**

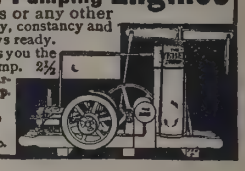
that will be always ready to start, safe, reliable convenient, economical and durable, buy a **FULLER & JOHNSON Frost Proof.** No bother with water nor expense of broken cylinder, no waiting for wind or weather. All sizes, stationary and portable. Send for descriptive catalogue to the manufacturers.

FULLER & JOHNSON MFG. CO., Madison, Wis.

WEBER Jr. Gasoline Pumping Engines

excel windmills or any other power in amount of duty, constancy and cost of running. Always ready. A trifle for gasoline gives you the water 30 men could pump. 2½ full horse power for any purpose. All sizes up to 300 h. p. Write for free catalogue.

Weber Gas and Gasoline Engine Co., Box 176 Kansas City, Mo.



OIL OR WATER COOLED.



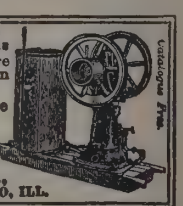
1 2 3 4 6 8 10 12 · H.P.

3 HORSE POWER.

You get it full measure at a cost of 3 cents an hour if you use the

WEBSTER Vertical Gasoline Engine.

Strong and durable for pumping, sawing, grinding, churning, etc. Guaranteed. Full line vertical and horizontal engines.



WEBSTER M'F'G. CO.,
1086 W. 15th Street, CHICAGO, ILL.

$8.95



EIGHT DOLLARS AND NINETY-FIVE CENTS

BUYS THE GENTS' HIGH GRADE NEW 1903 MODEL BURDICK BICYCLE. Shipped to any address with the understanding and agreement that you can give it ten days' free trial, put it to every test, and if you do not find it handsomer, stronger, easier riding, better equipped, better tires, hubs, hangers, bearings, and in every way higher grade than any bicycle you can buy from any other house in Chicago, at home or elsewhere for less than $20.00, you can return the bicycle to us at our expense, and you will not be out one cent.

FOR OUR FREE SPECIAL BICYCLE CATALOGUE showing the most complete line of new 1903 model gents', ladies' and children's bicycles at prices so low as to be really startling, for everything in bicycle sundries and supplies, for the most astonishingly liberal offer ever heard of, cut this advertisement out and mail to

SEARS, ROEBUCK & CO., Chicago Ill.

Creasey Ice Breakers



Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right.

Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.

J. S. L. WHARTON, Mfr.,
7th & Clearfield Sts. Philadelphia, Pa.

DAIRY MARKETS.

ELGIN, Ill., May 25—Butter—No offerings and no sales today. Official market firm at 21c.

CHICAGO, Ill., May 25—Butter—Steady; creameries, 15@21¼c; dairies, 15@18c.

Eggs—Easy; at mark, cases included, 14@14½c.

Cheese—New, weak; Twins, 11½@11¾c; Daisies, 12½c; Young Americas, 12¼c.

Live Poultry—Dull; turkeys, 10@12c; chickens, 12c.

Cattle—Prime beeves, 1,250 to 1,500 pounds, 5.20@5.40; choice to extra steers, 4.90@5.15; fair to good export and shipping steers, 4.65@4.85; medium beef steers, 4.25@4.60; plain beef steers, 3.90@4.15; common to rough, 1,000 to 1,200 lbs 3.50@3.80; good to choice feeders, 3.90@4.80; good to choice heifers, 4.00@4.60; poor to plain stockers and feeders, 2.65@3.75; fair to good cows and heifers, 3.10@4.00; good cutting to fair beef cows, 2.30@3.00; common to good canning cows 1.35@2.25; bulls, poor to choice, 2.30@4.25; veal calves, good to fancy, 5.50@6.75; calves, common to fair, 3.50@5.25; corn-fed western steers, 3.65@5 20; Texas bulls and grass steers, 2.75@3.30; Texas steers, fair to common, 3.85@4.60.

Hogs—Good to prime heavy shipping 6.15@6.40; good to choice heavy packing 6.00@6.20; good to choice heavy mixed 5.90@6 10; selected butcher weights 6.10@6.30; assorted light, 150 to 195 lbs. 5.55@5.90; common to good light mixed, 5.70@5.95; thin to choice, 50 to 130 lbs., lots 5.10@5.60; stags and rough lots, 3.50@5.60

MILWAUKEE, Wis., May 25—Butter—Creamery—extras, 21c; firsts, 18@19c; seconds, 16c process (renovated) 16@17c; whey, 10c. Dairy, fancy, 18c; lines, fresh, 15@16c; roll, 15@16c; packing, 13c; grease, 5@6c.

Cheese—American, new, full cream—Twins, 11½@12c; Young Americas, 12@12½c: Daisies, 12@12½c; Longhorns, 11¼@12c; low grades, 10@11c. Brick, fancy, new, 12@12½c; low grades, 11@12c. Limburger fancy, new, 10½@11c; low grades, 8@9c. Swiss, drum, old, choice, 15½@16c; drum, No. 2, 13@14c; Block, choice, 14@14½c; block, No. 2, 12@13c.

Eggs—Strictly fresh laid, cases returned, 13½c; dirties, 12c; seconds, 11c.

SHEBOYGAN, Wis., May 20—Cheese—The offerings on the Sheboygan Call Board today comprised 1,794 boxes of cheese, all of which sold as follows: 7 boxes Twins at 11¾c, 596 Daisies at 11¾c, 287 at 11½c, 18 cases Young Americas at 12½c, 300 at 12¼c. 38 Longhorns at 11¼c, 514 at 11⅜c. Market active.

SHEBOYGAN FALLS, Wis., May 20—Cheese—Twenty five factories offered 2,145 boxes of cheese on the Call Board today and all except 100 boxes sold as follows: 59 Twins at 11⅜c, 6 at 11¼c, 100 cases Young Americas at 12½c, 478 at 12c, 755 Daisies at 11⅝c, 51 cases Longhorns 11⅜c, 596 at 11¼c. Market active, though prices were ¾c to 2c lower than last week.

PLYMOUTH, May 19—Cheese—Twenty-five factories offered 2,582 boxes of cheese which 27 Longhorns were passed on, the balance selling as follows: 42 Longhorns, 11½c, 106 at 11⅝c; 1,027 Daisies, 11⅝c, 887 at 11⅝c; 68 Twins, 11⅞c, 70 at 12c; 315 Young Americas, 12¼c; 40 at 12⅝c. Market active.

APPLETON, Wis., May 14—Cheese—Sixteen factories offered 560 boxes of Twins and all sold as follows: 90 Twins at 11⅝c; 470 at 11½c.

BRILLION, Wis., May 14.—Cheese—The sales were: 167 Twins 11¼c; 541 Daisies at 12¼c: 20 cases Young Americas at 12c: and 18 cases of Longhorns at 11⅞c,

HORTONVILLE, Wis., May 14—Cheese—The offerings were 281 Twins and 32 double Daisies. Sales 239 Twins at 11¼c: and 32 double Daisies at 12¾c. Market active.

MANITOWOC, Wis., May 20 — Cheese — The sales reported were: 550 Daisies and 350 cases Young Americas, all at 11c.

FOND DU LAC, Wis., May 25—Cheese—Sales of cheese on the Call Board today were: 113 Twins, 10¼c; and 325 Daisies, 11c; Market more quiet.

MUSCODA, Wis., May 25—Cheese—The offerings Saturday on the Muscoda Dairy Board of Trade were 263 boxes of Twin cheese and 61 square prints; 80 boxes Twins sold at 10½c, 98 at 10c, 60 withdrawn; 61 square prints at 10c; market easy.

NEW ORLEANS, La., May 25—Butter—Extras, 22½c; firsts, 21c; ladles, 15c. steady

PHILADELPHIA, Pa., May 25—Butter—Market firm. Solids, 22¼c; nearby prints, 24c; western, 23c.

BOSTON, Mass., May 25— Butter market firm at 25c. Recipts light. Cheese unchanged, Eggs easy at 16@16½, at mark steady.

LIVERPOOL, May 25 — Butter—Good United States steady, 75s.

Cheese—Steady; American finest, white and colored, old, steady, 63s; do new, dull, 59s.

NEWARK, N. J., May 25—Butter—Market steady at 22c.

Eggs—16½@17c.

TOPEKA, Kan., May 22—Butter—Creamery butter, 20¼@22c; dairy, 17@18c.

Cheese—Longhorns, 12¾c; Twins, 12¾c; Daisies, 13c.

Latest quotations for fancy creamery, Baltimore, 22½@23c; St. Louis. 21@22c; Cincinnati, 23c; Buffalo, 22½c; St. Paul, 20½c; Minneapolis, 20½c.

NEW YORK, May 25—Butter—Receipts, 10,159; pkgs.; firm; extra creamery, 22c; creamery, common to choice, 18@21½c; state dairy, 17@21c.

Eggs—Recipts, 20,942 steady; state and Pennsylvania 17@17½c; western storage, packed, 17c; western firsts, 16½@17c; Southern firsts, 13½@14c. Kentucky, firsts, 15@15½c;

Cheese—Receipts, 1,274 pkgs; steady at decline; state full cream, fancy, small, colored and white, 11¾c; large, colored, 11¼c; large white, 11c.

UTICA, N. Y., May 25—Cheese—Sales, 1,300, large 10½c; small, 3,000 10¾c. Market active at the decline.

CANTON, N. Y., May 23—Offered 124 boxes of large cheese; 1,860 Twins and 985 tubs of butter. Large cheese sold for 10½c; Twins at 11c; butter, 22c.

LITTLE FALLS, May 18—Cheese—Sales, 61 lots, 3,640 boxes small white and colored at 11¼@11½c; Twins, 11½c.

BALTIMORE MARKET.

BALTIMORE, May 23—Butter—The receipts, so far this week, have not shown any perceptible increase over last week's receipts; hence, the offerings are not large and the market is kept well cleaned of all attractive stock. Extra creamery is ruling very firm at prices quoted, and for something extra fine our top values might be exceeded. Firsts are in moderate supply and are meeting prompt sale. There is much complaint about mottled and acidy creamery; this kind will not command a price above that of seconds; see if these objectionable features cannot be remedied. Imitation creamery is in rather light receipt; all choice invoices are in quick demand. Ladles, unless fresh and sweet, are more or less neglected; ship no more. Pack rolls solid Packing stock, when fresh and sweet, meets quick sale. Blocks and prints, when not impregnated with garlic, meet ready sale; garlicy stock is hard to sell. The market today closed firm and fairly active on all offering of desirable quality.

Creamery Separator, extras, 22½@23c; firsts, 21@22c; seconds, 19@20c. June Creamery, extras, —@—; firsts, —@—; seconds, —@— Imitation Creamery, extras, 19@20c; firsts, 17@18c; seconds, 15@16c, Iowa & N. W. Ladle, extras, — firsts, 16c; seconds, 14c. Ohio & Indiana Ladle, extras, — firsts, 15½c; seconds, 13@14c. Roll, Ohio, extras, — firsts, —@—; seconds, —. Roll, W. Va., extras, — firsts, —@—; seconds, —. Ohio Store packed, extras,— firsts, 13@14c; seconds, 12c. West Va. Store-packed, extras, —; firsts, 13@14c; seconds, 12c. Creamery blocks (2-lb.) extras, 23@24c; firsts, 21@22c; seconds, 20c. Creamery prints (⅛ lb) extras, 24@25c, firsts, 22@23c; seconds, 20@21c. Md. Va., & Penna. Prints, extras, 22@23c; firsts, 20@21c; seconds, 15@16c. Renovated Butter, extras, 19c; firsts, 17@18c; seconds, 15@16c.

Cheese—There are no old cheese on the market at all; hence, our quotations are for new stock, which is in good demand at firm prices.

N. Y. State—Cheddars, fine, 12@12¼c; choice, 11¼@11½c; fair, 10@11c; Flats, fine, 12@12¼c; choice, 11⅛@11¾c; fair, 10½@11c; Small, fine, 12¼@12½c; choice, 11¾@12c: fair, 11@11¼; Ohio Flats, fine, 11@11¼c; choice, 10@10½c; fair, 9¼@9½c; O. Picnic, fine, 11½@11¾c; choice, 10½@11c; fair, 9½@10c; Swiss Cheese, fine, 15c; choice, 12½@13½c; fair, 10@12c.

Eggs—The receipts, while not heavy, are about equal to the requirements; now, as the warm weather is likely to continue, we advise shippers to use every precaution possible in the selection and shipping of their eggs. We therefore suggest that you discontinue the use of barrels and boxes; use only cases with clean fillers. At the close of today's market the price was 15½c. There is a trifle easier feeling pervading and lower prices are likely at no distant day. NOTICE—All receipts are sold subject to loss off. G. M. LAMB & BRO.

301 Exchange Place.

NEW YORK MARKET

NEW YORK, May 23.—Butter—Receipts for the week, 38,585 packages. Exports for the week, 248 packages.

Demand was good from all quarters, and although receipts were largely in excess of last week, there is very little stock of extra creamery left over unsold, and prices are firm at the close, and all good table butter wanted, We note sales of high score. Extra goods at 22¼@22½c; best firsts at 22c, and off quality creameries at 19@21c.

So little New York State Dairy arriving that it is hardly quotable. There were small sales of strictly fancy tubs at 21@22c, and odds and ends of poor to good tubs at 16@20c.

Ladle butter is in better demand and finds plenty of buyers at our prices. Renovated is poor seller in hot weather, and there is more stock arriving than can be sold, and prices are lower and irregular on all kinds except the extreme top quality. We quote:

Creamery, extra, 22c: medium, 21@21½c; poor, 18@20c Dairy, extra, 21c; medium, 18@20c; poor, 15@17c. Ladle, creamery, extra, 19c: medium, 16@18c; poor, 13@15c. Renovated, extra. 19c; medium, 16@18c: poor, 12 to 15c.

Cheese—Receipts for the week, 29,504 boxes. Exports for the week, 11,505 boxes.

Every one wanted fancy new cheese, and supply was quickly taken at full prices; exporters bought all the large cheese at 11¾@12c, and home trade cleaned up the small sizes at 12@12¼c. Exporters were in the market for skimmed cheese, and all the arrivals at 7@10c, the latter prices being paid for fancy light skims. We quote:

Full cream, extra, 12@12¼c; medium, 11½@11¾c; poor, 9@10c.

Eggs—Receipts for the week, 88,423 cases.

Speculation in storage packed stock has about stopped, this caused a falling off in the demand, and prices were inclined to ease off and favor buyers. Near by fresh stock, however, all taken, and is always quick sale in hot weather. We quote:

New York & Penn., strictly fresh, per doz., 17@18c; Western, strictly fancy, per doz., 16½@17c; All Sections, poor to good, per doz., 14@15c

DAVID W. LEWIS & CO.

177 Chambers St.

NEW YORK FERTILIZER MARKET.

Acid phosphate	60	@	67½
Phosphate rock, f. o. b. Char'n	5 00	@	7 00
Tenn	3 00	@	4 00
Bones, rough, ₩ ton	16 50	@	17 50
ground	20 00	@	21 00
Bone meal	18 50	@	24 00
Bone black, refuse	18 00	@	19 00
Potash, dbl. m're salt 48@53 per cent	1 12	@	1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons	25 00	@	30 00
sulph of basis, 90@98 per cent	2 11	@	2 18
90@98 per cent less than 25 tons	38 00	@	40 00
Potash muriate 100 lbs	1 83	@	1 95
less than 25 tons	36 00	@	40 00
Kainit 25% S. of P., ₩ ton	9 30	@	9 50
less than 25 tons	9 50	@	10 50
Sylvinit, 35@37% P., ₩ unit	41	@	46
Nitrate of soda	2 10	@	—
Blood, Dried red, ₩ unit	2 55	@	2 60
low grade	—	@	—
Concentrated tankage	15 00	@	16 00
Fish guano, dried	27 00	@	28 00
acidulated	14 00	@	—

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—Another Guernsey bull calf from best blood in Wisconsin. Also 3-year-old bull, Befilius, well bred. Address MARCH, 1798, W. 39th St., Los Angeles, Cali. 16-2

For Sale—2-year-old Holstein bull, his dam is by a son of De Kol 2nd, who gave under supervision of Cornell University, N. Y., 536 lbs. milk and 26.56 lbs. butter in 7 days; his sire is by a son of Pauline Paul, the champion butter cow of the world, 18669 lbs. milk and 1153 lbs. butter in 1 year; he also has the blood of Pietertje 2nd, the champion milch cow of the world, 112 lbs. in 1 day, 30318 lbs. in 1 year. Price $ 25. WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis.



HEY, THERE! JUNK MAN!

I want to know how much you will give me for one of those separators that claim to be "just as good" as the

DE LAVAL CREAM SEPARATORS

I put in one of them last year because the agent claimed it was "just as good" as a DE LAVAL machine and was $10.- cheaper. I have looked about and gotten some separator experience since then and I find now that I could have bought a DE LAVAL machine of greater actual capacity for less money in the first place, while I have lost money every day through the imperfect skimming of this machine, aside from hard running and trouble of all kinds from infernally poor construction.

I am going to have a DE LAVAL machine now if I have to "junk" this old one for scrap-iron. I know it will save its cost the first year of use and should be good for twenty years. I find all well-informed dairy farmers are using DE LAVAL machines and that there are over 400,000 of them.

A De Laval catalogue may save this experience.

CHICAGO
PHILADELPHIA
SAN FRANCISCO
MONTREAL
TORONTO
WINNIPEG

THE DE LAVAL SEPARATOR CO.
General Offices:
74 CORTLANDT STREET,
NEW YORK.

Fine Dairy Farm for Sale—Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. T. S TOMPKINS, Pasadena, Cal. 15-tf

Position Wanted—Experienced butter maker wishes to change position. Have taken Dairy Course at Ames, Iowa. Good references. Address T, care Hoard's Dairyman. 15-5

Are You Color Blind?—If not, you will appreciate the natural golden colored product of the Guernseys. Pure bred bulls and grade heifers for sale. A. H. HINMAN, Allenville, Wis. 15-2

Wanted—Married man, competent to care for a dairy and work on small farm. A German with some help to milk preferred. House, garden, milk, etc. Address BOX 46, Delafield, Wis. 15-tf

Wanted—Good first-class butter for retail route. Address EDWARDS SANITARY MILK DEPOT, Greensburg, Ind. 15-2.

Wanted—Experienced farm hand, able to milk well. Give age and wages wanted. ST. IVES PARK FARM, Mont Clare Station, Chicago, Ill. 41-tf

The Business Herd of Holstein-Friesian cows are being closed out at a great sacrifice, and if you want one or more officially tested, good business cows write at once and secure first choice. State just what you want and save time and correspondence. F G. JOHNSTON & CO., Sta. B, Columbus, O. 11-tf

Holstein-Friesian Bulls from one to fourteen months old at prices that will surprise you. O. J. GODFREY, Pennellville, N. Y. 11-tf

A Registered Guernsey Bull 15 months old for sale. A very fine animal. Inquire of J. S. HUNTER, Pickett, Wis. 12-tf

For Sale—Four young registered Guernsey cows, all fresh. J. E. STORY, Stanley, Wis. 11 tf

Two fine thoroughbred Jersey bulls for sale cheap. Address JAMES M. ROGERS, Elsberry, Mo.

I have some fine Jersey bulls that I will sell or exchange for heifers and cows. CLARENCE RAGSDALE, Moberly, Mo.

Wanted—Second-hand De Laval or Sharples Safety Hand (hand size) separators. Never mind if out of order, but must be cheap. CREAM SEPARATOR SUPPLY CO., Council Bluffs, Ia. 16-3

Young Guernsey Bulls For Sale—Whose dams are being tested for advanced registry. Will be sold and half of purchase money refunded if dams fail to qualify. EZRA MICHENER, Michener, Pa. 16 2

Wanted—A first-class butter maker who understands machinery and is a good milker. Must be a hustler and capable of managing men and not a man who needs watching. If you are a good man and want a good position at a good salary, write, stating wages expected in your first letter. Address C-5, care Hoard's Dairyman, Fort Atkinson, Wis. 16-2

Wanted—Experienced farm band able to milk well. Give age and wages wanted. Address F. N. POYER, Box 93, Portsmouth, Va.

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

For Sale—De Laval "Dairy Steam-Turbine" separator, capacity 1000 lbs. per hour, used very little, in good condition. Going out of business. Address B. F. BRUNDRED, Oil City, Pa. 13-tf

Wanted—A good sober and industrious man to take charge of a small dairy herd. Must be a good butter maker and good milker and be well recommended. State wages wanted in first letter. Address D. T. HILLMAN, Big Horn, Wyo. 14 3

Buff Jersey's latest book on Farm Stock and Dairy Work is full of practical things for practical people. The Silo, how to build and fill; ensilage, its value; soil, crops, variety and how to grow. Swine, poultry and many other subjects ably treated. Send 25c for copy. Monmouth, Ill. 47-tf

Two choice young Guernsey bulls for sale. MRS. A. W. LEHMANN, Neosha, Dodge Co., Wis. 12-sp

Very Low Rates to California and Return—Via the North-Western Line. First-class round-trip tickets on sale July 1 to 10, inclusive, to San Francisco and Los Angeles. Favorable limits and stop over privileges and choice of routes. The overland limited, most luxurious train in the world, leaves Chicago daily at 8 p m. Less than three days en route. Drawing room and compartment cars, observation cars, dining cars, buffett-library cars (barber and bath), electric lighted throughout. Three trains a day from Chicago to the Coast through without change. Daily and personally conducted tourist car excursions to California, Washington and Oregon. For particulars apply to ticket agents Chicago & North-Western R'y. 16-7

Special Excursion Rates to Colorado, Utah and the Black Hills—Via the North-Western Line. Beginning June 1st excursion tickets will be sold to Denver, Colorado Springs, Pueblo, Salt Lake City, Hot Springs, Deadwood, Lead and Custer, S. D., etc., good to return until Oct. 31. A splendid opportunity is offered for an enjoyable vacation trip. Several fine trains via the North-Western Line daily. Apply to agents Chicago & North-Western R'y. 16 sp

Excursion Rates to Interscholastic Athletic Meet at Madison, Wis—Via the North-Western Line. Excursion tickets will be sold at reduced rates for trains reaching Madison after 12.00 o'clock noon of Thursday, May 28, all day May 29 and for trains arriving at Madison not later than 1:30 p. m. on Saturday, May 30, limited to return until June 2, inclusive. Apply to agents Chicago & North-Western R'y.

Excursion Rates to I. O. O. F. Grand Lodge, Eau Claire, Wis.—Via the North-Western Line. Excursion tickets will be sold at reduced rates June 1, 2 and 3, limited for return until June 6, inclusive. Apply to agents Chicago & North-Western R'y.

60 Cents from Fort Atkinson, Wis., Modern Woodmen's Picnic at Janesville, Wis.—Via the North-Western Line. Excursion tickets will be sold Thursday, June 4, limited to return the same day. Apply to agents Chicago & North-Western R'y.

WALTER JAUNCEY, manager of the Spottswood Herd of Guernsey cattle, owned by Mr. Edward T. Price of Broad Axe, Pa., has gone to the island of Guernsey for the best that locality affords to be added to the Spottswood herd.

Illinois Herd Records.

The Report of Herd "D".

ED. HOARD'S DAIRYMAN:—The cows in this herd consisted of full blood Jerseys, Grade Jerseys, full blood Holsteins, Grade Holsteins, Natives and Grade Short-Horns. There were sixty cows in the herd when the test began, and forty-seven of them remained through the year. Thirteen of the cows were sold during the time the test was being made, for they were found to be inferior and unprofitable animals. The herd contained a great many very fine dairy cows and they made some very good records. The cows were in a good condition during the whole year and were kept in a scrupulously clean and well ventilated barn which was scrubbed once a day and whitewashed twice a year. The sanitary condition was nearly perfect. The cows were not only well cared for but received well balanced rations during the entire year. The results of this herd readily show the importance for every dairyman to take good care of his cows and to feed them well. Giving some of the rations that the herd received at different times during the year, will show clearly how well these cows were fed.

From Sept. 1st to the middle of October, to the cows giving the largest flows of milk, the rations consisted of six lbs. of grano-gluten and all the green corn they would eat up clean. From October 15th to December 7th, the ration to the best milkers was about as follows:

FOOD	Lbs.	Dry Matter.	Protein.	Carbo-hydrates.	Fat.	Cost.
						Cents
Grano gluten...	5	4.71	1.335	1.940	.610	4.5
Corn meal.....	3	2.67	.237	2.001	.129	3.0
Corn Silage....	45	9.40	.405	5.085	.315	4.5
Timothy hay....	5	4.34	.140	2.170	.070	2.5
Total nutrients		21.12	2.117	11.196	1.124	14.5

The ration fed from December 7th to February 1st was as follows:

FOOD	Lbs.	Dry Matter.	Protein.	Carbo-hydrates.	Fat.	Cost.
						cents
Shorts.....	3	2.65	.366	1.50	.114	2.7
Corn meal.....	2	1.78	.158	1.334	.086	2.0
Gluten meal.....	3	2.64	.963	1 236	.075	4 2
Corn Silage.....	45	9.40	.405	5 085	.315	4.5
Hay.....	5	4.34	.140	2.170	.070	2.5
Total nutrients..		20.81	2.032	11.325	.660	15.9

The cows seem to do better when fed grano-gluten and corn meal than when they were fed shorts, corn meal and gluten meal.

The ration from February 1st to March 15th was 5 lbs. of grano-gluten, 3 lbs. of corn meal and 50 lbs. of silage, and timothy hay. From this time on until the cows were turned out to grass, they received about the following ration:

FOOD STUFFS.	Lbs.	Dry Matter.	Protein.	Carbo-hydrates.	Fat.	Cost.
						cents
Grano-gluten...	7	6.60	1.869	2.716	.868	6.3
Corn meal.....	3	2.67	.237	2.001	.129	3.0
Silage.....	60	12.53	.540	6.780	.420	6.0
Total nutrients		21.80	2.646	11.497	1.417	15.3

It will be noticed that this ration contains no hay, corn silage being the only roughage that the cows received. The cows did very well on this ration, and when they were turned out to the pasture, which was about June 1st, they were in good condition. In June the cows received about 4 lbs. of grano-gluten a day besides a grass pasture. In July and August they received nothing but pasture grass. The above rations apply more to the general feeding of the best milkers in the herd, the strippers and poor milkers getting according to the amount of milk that they were producing.

It should be observed that the rations given to the cows during the year did not contain a large amount of grain, but each one contained a liberal amount of nutrients for cows that were giving large flows of milk and yielding a large amount of butter fat. It will also be noticed that each ration contained over 2 lbs. of protein. This can be accounted for when grano-gluten is compared with bran or oats, for it contains twice as much digestible protein, therefore it is not necessary to feed as many pounds of the grano-gluten as we would have to feed of bran or oats to get the same amount of digestible protein.

The above facts are mentioned so that the reader will not be misled when he compares the total amount of grain consumed by each cow in some other herd. When the cows in this herd were not receiving grano-gluten they were receiving gluten meal which is a by-product of glucose sugar refining companies. This feed is also very rich in protein. It contains about 32 per cent of digestible protein. These facts demonstrate very clearly that it often pays farmers to sell some of their oats or corn and buy some such by-products as gluten meal, gluten feed, grano-gluten, oil meal or dried brewers grains, etc.

No. 129 yielded the most butter fat. She gave 8949 lbs. of milk, 4.52 per cent fat, 404 lbs. of butter fat or 472 lbs. of butter.

No. 324 yielded the least butter fat. She gave 3364 lbs. of milk, 4.06 per cent fat, 136 lbs. of butter fat or 159 lbs. of butter.

The average production for each cow in the herd was 5911 lbs. of milk, 4.45 per cent fat, 263 lbs. of butter fat or 306 lbs. of butter.

Cow No. 147 made butter fat the cheapest. She charged 7.5c to produce one pound of butter fat and 35.5c to produce 100 lbs. of milk.

Cow No. 44 charged the most to make butter fat. She charged 22.4 cents to make one pound of butter fat and $1.03 to make 100 lbs. of milk,

The average cost to produce one pound of butter fat was 12.3 cents and 54.9 to produce 100 lbs. of milk.

Cow No. 47 gave a profit of $57.22 and cow No. 44 charged 18 cents for her board.

The average profit of each cow in the herd was $26 64. While the average profit of each cow in this herd is very good, it would perhaps have been better if the owner could have personally looked after his cows. The cows were entirely cared for by hired help.

TABLES GIVING THE PROFIT OR LOSS OF EACH COW IN HERD "D".

GROUP I. Kept at a Loss.

No. of Cow	Lbs. of milk	Per cent Fat	Lbs. of Fat	Lbs. of Butter	Gross Returns	Cost of Feed	Loss
44	3399*	4.58	155	181	$34.85	$35.63	18c

GROUP II. Kept at a Small Profit.

No. of cow	Lbs. of milk	Per cent Fat	Lbs. of Fat	Lbs. of Butter	Gross Returns	Cost of Feed	Net Profit
337	3443	4.46	153	179	$35.29	$32.77	$2.52
324	3364	4.06	136	159	33.15	29.12	4.03
308	4617	3.83	177	206	40.17	33.80	6.37
325	4069	4.15	169	197	40.67	33.92	6.75

GROUP III. Kept at a Fair Profit.

No. of cow	Lbs of milk	Per cent Fat	Lbs. of Fat	Lbs. of Butter	Gross Returns	Cost of Feed	Net Profit
227	4389	4.40	193	225	$40.47	$29.22	$11.25
272	5266	3.61	190	222	44.30	32.67	11 63
22	3187	4.35	138	161	29.46	19.07	10.39
310	3777	4.99	188	220	41.86	30.00	11.86
264	4823	4.07	196	229	46.03	33.50	12.53
199	4700	4.72	222	259	46.76	32.16	14.62

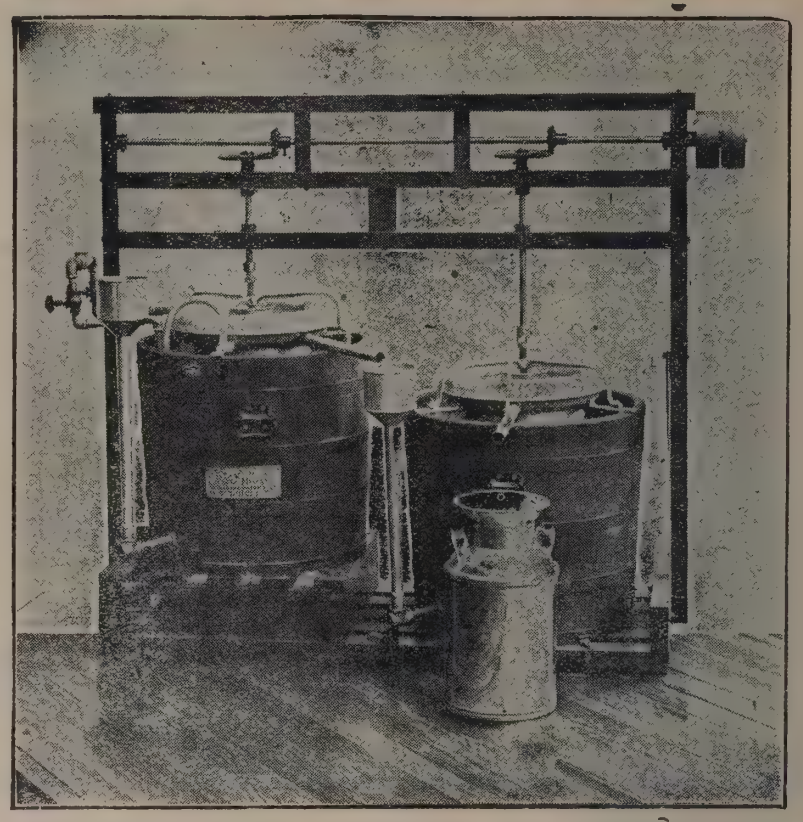
* The tenths column in the pounds of milk produced and the tenths and hundreths columns in the butter fat and butter yield have been eliminated for the convenience of the reader. The average per cent fat, however, was calculated before the elimination.

GROUP IV. Kept at a very fair profit.

No. of cow	Lbs. of milk.	Per cent fat.	Lbs. of fat.	Lbs. of Butter.	Gross returns.	Cost of feed.	Net profit.
138	5449	3.99	217	253	$49.41	$34.09	$15 32
40	6575	3.23	212	248	45.83	28.74	17.09
240	5257	4.05	213	248	50.07	32.09	17.98
263	4887	4.04	197	230	41.90	22.91	18.99
336	4796	5.00	239	279	54.11	34.88	19.23
325	5446	4.30	234	273	52.73	33.94	18.79
20	4958	4.51	223	261	51.70	32.13	19.57
13	4462	5.26	235	274	55.03	33.88	21.15
180	5505	4.19	230	269	50.14	28.53	21.61
326	5285	4.79	253	295	57 64	34.07	23.57
335	5414	4.36	236	275	56.54	32.70	23.84

(Continued on next page.)

A GREAT SUCCESS.



The Miller Cream Pasteurizer has a capacity of from 450 to 600 lbs. per hour.

Price $150 in Tin. $200 in Copper.

THE MILLER PASTEURIZING MACHINE CO.

CANTON. OHIO.

Confectioners and Bakers' Supply Co.

218 AND 220 EAST WASHINGTON ST.,

CHICAGO.



THE DICKSON IMPROVED 10 Gallon and 5 Gallon FREEZER.



THE C AND B 10 Gallon FREEZER.

ICE CREAM Machinery, Tools and Supplies.

Packing Tubs, All Kinds of Ice Cream Packing Cans, Ice Crushers, Bricks, Ladles, Spoons, Dishers, Flavors, Colors, Gelatines, Etc.

WRITE FOR OUR CATALOGUE

GROUP V. Kept at a good profit.

No. of cow	Lbs. of milk.	Per cent fat.	Lbs. of fat.	Lbs. of butter.	Gross returns.	Cost of feed.	Net profit.
161	5371	4.70	269	314	$57.00	$31.65	$25.35
309	7979	3.75	299	349	67.06	41.59	25.47
112	5481	4.57	250	292	54.65	27.62	27.01
70	6732	4.34	292	341	63.83	35.95	27 88
190	5477	5.60	3.6	357	69.31	39.44	29.87
210	5201	5.07	263	307	61.90	32.03	29 87
114	6407	4.00	256	299	59.74	29 02	30.72
38	7199	4.36	313	366	69.15	37.61	31 54
199	6132	4.75	291	340	64 04	32.50	31.54
80	5551	5.15	285	332	65 86	33.94	31.92
87	5500	4.85	266	311	59.40	27.27	32.13

GROUP VI. Kept at a very good profit.

No. of cow	Lbs. of milk.	Per cent fat.	Lbs. of fat.	Lbs. of butter.	Gross returns.	Cost of feed.	Net profit.
113	5577	4.99	278	324	$58.01	$24.80	$33.21
109	6286	4.46	280	327	61.19	25.23	35.96
46	6549	4.62	302	353	71.29	35 07	36.22
247	6581	4.76	313	366	69.10	31.68	37.42
95	7615	4.85	369	430	79.30	36.45	42.85
206	7130	4.71	336	392	78.30	31.27	47.03

GROUP VII. Kept at an excellent profit.

No. of cow	Lbs. of milk.	Per cent fat.	Lbs. of fat.	Lbs. of butter.	Gross returns.	Cost of feed.	Net profit
283	10151	3.68	574	436	$87.13	$41.77	$45.36
249	6811	4.79	326	380	74.20	29.27	44.93
262	9272	4.01	372	434	84.78	37.74	47.04
102	6501	5.46	355	414	82.20	34.88	47.32
129	8949	4.52	404	472	87.33	40.44	46 89
317	10059	3.79	381	445	86.95	8.01	48 94
184	7997	4.77	382	445	83.77	34.35	49.42
147	7890	4 70	371	432	85.25	28.02	57.22

The following table gives the list of cows in herd "D," with breed, age, date of calving and days in milk:

BREED.	No. of cow	Age.	Date of Calving.	Days in milk.
Gr. Jersey....	41	8 yrs.	Mar. 1st, 1901	365
Native.....	337	3 "	Nov. 1st 1901	304
"	324		Oct. 15th, 1901	230
"	308		Aug. 15th, 1901	320
"	323		Oct. 29th, 1901	245
Gr. Holst....	227	7 "	May 28th, 1902	274
Native.....	272		Aug. 11th, 1902	350
"	22	10 "	Mar. 7th, 1902	225
"	310	4 "	July 21th, 1902	330
"	264	7 "	Oct. 6th. 1901	303
Gr. Jersey...	161	7 "	Apr. 13th, 1902	300
Native.....	99	7 "	May 1st, 1902	304
Gr. S. H.....	138	6 "	Aug. 24th, 1901	275
Native.....	40	9 "	Mar. 23rd, 1902	274
Gr. Holst ..	240	5 "	Dec. 1st, 1901	323
" "	263	7 "	Apr. 13th, 1902	218
	336	"	Nov. 1st, 1902	340
Native.....	325	5 "	Apr. 13th 1902	300
Gr. S. H....	20	5 "	Nov. 15th, 1901	270
Jersey.....	13	9 "	Dec. 1st. 1901	302
	189		Mar. 16th, 1902	267
Native..... .	326	7 "	Oct. 6th, 1901	335
"	335	8 "	Oct. 27th, 1902	305
	309		July 21st, 1901	365
Gr. Jersey...	112	10 "	Mar. 23rd, 1902	262
Native.....	70	11 "	June 2nd, 1902	330
Gr. Jersey ..	190	11 "	June 20th, 1901	365
Native.....	210	10 "	Dec. 8th, 1901	305
"	114	10 "	Jan. 5th, 1902	275
Gr. Jersey..	38	10 "	Aug. 4th. 1902	265
"	199	8 "	Mar. 13th, 1902	309
	80		Nov. 24th, 1901	309
Native.....	87	9 yrs.	Feb. 23rd. 1902	253
"	113	9 "	Mar. 23rd, 1902	295
"	109	9 "	Mar. 23rd, 1902	260
"	46	11 "	Nov. 3rd. 1901	302
"	247	10 "	Mar. 25th, 1902	274
"	95	6 "	June 12th, 1901	300
"	206	9 "	Oct. 20th, 1901	350
Gr. Holst....	283	8 "	Dec. 1st, 1901	316
Native.....	249	5 "	Jan. 19th, 1902	211
"	262	8 "	Oct 6th, 1901	330
Gr. Jersey...	102	7 "	Nov. 17th, 1901	300
Gr. Holst.....	129	10 "	Nov. 15th, 1901	325
Holstein	317	5 "	Sept. 22nd, 1901	365
Gr. Jersey...	184	10 "	Mar 9th, 1902	325
Native.....	147	8 "	Dec. 1st, 1901	275

Elgin, Ill. A. J. GLOVER.

Experience with Cow Peas.

The cow pea is a new crop in this part of West Virginia. It has not been tried by many but a number are going to try it this year. Many get the idea that the cow pea, as it is a soil enrichener, does not need either fertilizer or a good soil in which to grow. While it has the power of drawing upon the unlimited supply of nitrogen of the air, it cannot get the other elements of fertility from that source, but it must look to the soil for potash and phosphoric acid. The cow pea is a heavy feeder upon all of these elements and unless the soil already has a sufficient quantity they must be supplied by artificial means if a good crop is grown.

Then scientists tell us that the bacteria necessary to enable the legumes to gather nitrogen from the air do not flourish in an acid soil, so this difficulty may have to be overcome in some instances by the application of lime. Some soils do not contain these bacteria and unless the soil is inoculated the crop may become a nitrogen consumer instead of a nitrogen gatherer.

If tubercles form upon the roots of the plants the nitrogen gathering properties are all right. Then another difficulty must be overcome and that is, the weeds must be sufficiently set back to give the cow peas a chance to start, at least. This has been the greatest cause of failure so far as I have noticed in this section. The land is not very well prepared to start with and the cow peas were sown broadcast and just let go. It takes the cow peas several weeks to get a start to grow so that they can do anything toward contending with the weeds. By this time the weeds have such a start that the pea crop is seriously damaged if not ruined. The land should be cultivated two or three times before the crop is sown.

I have tried the pea for several years in a small way and have tried several varieties. I find that the Whippoorwill pea is rather of a dwarfish habit for me. This variety is very early. It is earlier than is necessary for this latitude. The Black is not so early and makes more vine, but I have raised a yellow pea that has been grown for table use in this section for a long time that I think is the best one that I have tried. This variety matures in about 90 days and in reasonably good soil makes considerable vine. I am going to try a few of the Wonderful or Unknown this year. They may be too late in ripening but I think that the chances are good for this variety to mature in this section. I find that the cow pea developes tubercles in my soil all right but that the soy bean will not. I have tried soy beans three years. The Early Yellow matures but the Late Yellow variety will just barely mature when the frost stays off until October.

The soy bean seems to grow a very plump bean when it reaches maturity, but I think that the cow pea will prove a more profitable crop for this section. The great trouble is that farmers are liable to get discouraged and abandon the crop before they learn how to properly manage both the growing and harvesting, as cow peas are rather hard to get properly cured.—A. J. LEGG in *National Stockman.*

Wooden Hoops for Silos.

ED. HOARD'S DAIRYMAN:—With regard to wooden hoops for silos, where wooden hoops are used, the lining should be of inch flooring, three inches wide preferred. It should be dry when nailed up, and when complete, tarred thoroughly on the inside; if it is outside and unprotected from the weather, it should be well tarred on the outside also.

The idea is this: the silo must be airtight, and if no way is provided for tightening, as with iron hoops, it must be perfectly dry when built so it will not shrink, then thoroughly tarred to make it perfectly tight, and prevent swelling and shrinking, and preserve from decay. For an out-of-door silo, I would recommend the 2×4 stave, built on the Buff Jersey plan, spiked together edgeways, hooped with iron rods, and all well tarred before put up. I would not use two-inch lumber except with iron rod hoops. Two inch staves do not need to be tongued and grooved, nor beveled.

The reason there are so many silos discarded, as in the neighborhood of Mr. Hill, in Kansas, is no doubt because of improper construction, or improper filling. My first silo was not much of a success, except to show me the value of that (small) portion of the ensilage which kept; but I have kept "everlastingly at it" for about 16 years, and now would not think of dairying or farming without a silo.

Iowa, F. M. PARSONS.

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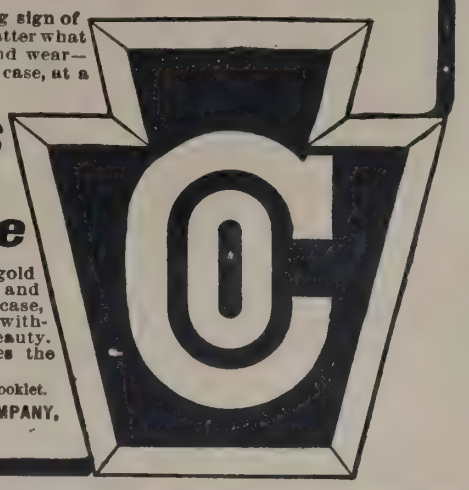
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DR. HAYES, Buffalo, N. Y.

Alfalfa Experiences.

[Press Bulletin.]

During the winter of 1902 a list of between 600 and 700 successful alfalfa raisers in this state was collected, and to each was sent a report blank, calling for a definite statement regarding a number of the processes he employed in obtaining his stand of alfalfa, and also regard his subsequent care of the crop. More than five hundred satisfactory replies were received, representing eighty counties in the state. A study of this large number of reports from successful alfalfa raisers, gives some valuable information respecting alfalfa culture.

There were 288 stands reported upon upland, and 273 upon bottom land. Even in the western portion of the state the amount of alfalfa on the upland is shown to be considerable, and very satisfactory results are evidently obtained, although naturally the yields of hay are smaller than on the bottom lands of that region. In the eastern part of the state somewhat heavier yields appear to be obtained from bottom land, but loss from winter killing or other cause is greater. Twenty-three reports state that upland is more satisfactory than bottom land. These come principally from the eastern portion of the state or the irrigated land of the western portion.

An astonishing feature of the replies is the large amount of alfalfa that they show to be growing on land with a clay subsoil. Sandy clay, clay loam, clay and lime, etc., were not counted as clay. In spite of this limitation, 245 clay or gumbo subsoils are reported. A clay or even a gumbo subsoil does not appear to be a barrier to successful alfalfa culture.

The seed bed was prepared by plowing and further working in 373 cases, and by disking or cultivating in 75. Among the latter is one method that appears to be popular and satisfactory. This consists in thoroughly disking corn land after all trash has been removed from the field. In the western part of the state, there are a number of good stands of alfalfa, obtained by breaking prairie sod, disking it, and harrowing in the seed; also by disking the unbroken sod, and harrowing in the seed. The latter commends itself as an easy way of supplementing the native grasses in pastures. The tendency to dispense with plowing on unirrigated land, increases with the distance westward from Missouri.

A study of the dates of sowing alfalfa seed in spring shows a range from early March to late June, although where advice was volunteered it was practically unanimous in favor of early sowing. There were only eight reports of summer or fall sowing, of which one was sown in July, four in August, and three in September.

In 108 cases a nurse crop was used, while in 393 cases the alfalfa seed was sown without that of any other crop. The use of the nurse crop was largely confined to extreme eastern Nebraska and the irrigated land of the west. Many persons who used a nurse crop say that they would not do so again. It has been recommended to use a light seeding of small grain, sown earlier or with the alfalfa, to prevent damage by severe winds. When sown in this way the nurse crop is mown when eight or ten inches high, to prevent it smothering the alfalfa.

In 55 cases the seed was put in with a drill, and in 447 cases it was sown broadcast. This is at least an indication that if a drill is not available a satisfactory stand can be obtained by broadcasting and harrowing in, provided the other conditions are favorable.

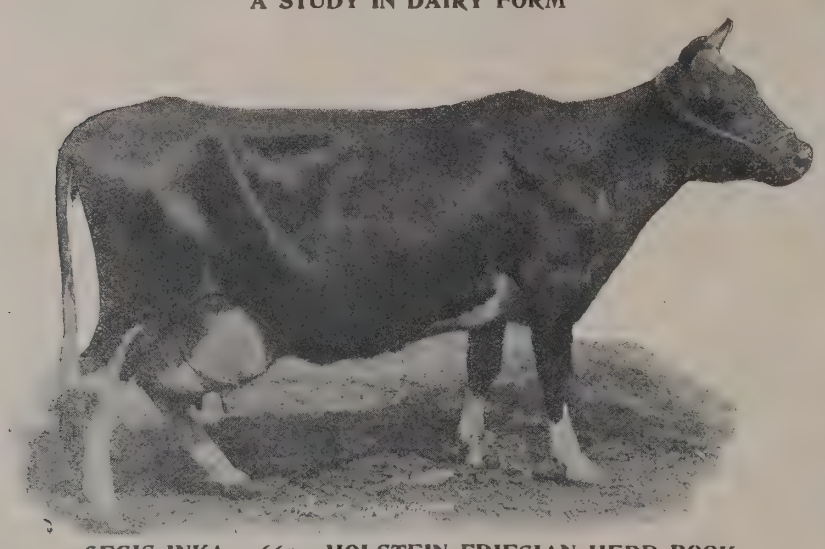
There were 138 reports of less than twenty pounds of seed per acre being used, and 336 reports of twenty pounds or more being sown. The evidence seems to be in favor of the use of at least twenty pounds of seed per acre.

Of persons having practiced disking alfalfa in the spring or at other times, 138 report that beneficial results have been obtained, while seven report that disking has been ineffective or injurious. By disking alfalfa is meant going over it in the spring with a disk harrow before growth starts, or during summer immediately after cutting for hay. It is customary to set the disks at a slight angle. This cuts the crown root and stirs the soil. Some of the correspondents prefer harrowing ing to disking. Where positive objection was made to disking, it was based on the claim that it caused the crowns to become diseased. The great bulk of the evidence was, however, in favor of disking.

Of the persons who have manured alfalfa, either by plowing in the manure immediately before seeding or by spreading it on the field after a stand had been obtained, 110 obtained beneficial results, and 13 found it to be ineffective or injurious. Objections are based on the claim that plowing in manure causes the soil to dry out, but objections to spreading manure on alfalfa are rather indefinite in their nature, except that on low land it makes the growth too rank, and the alfalfa falls down. Many of those who advocate its use, specify that the manure should be rotted and fine. One man suggests harrowing after spreading, to fine it. The reports of beneficial results from plowing under manure comes largely from the eastern portion of the state, but the use of fine manure applied as a top dressing has proven beneficial in all parts.

T. L. LYON.

A STUDY IN DAIRY FORM



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Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.
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REGISTERED JERSEY BULL CALF, 10 months old. Over 30% blood of Combination; nearly 30% blood of Brown Bessie. Traces from Eurotas (778 lbs. butter, 1 yr) and Mary Anne of St. Lambert (836 lbs butter, 1 yr.) Dam showed over 15 lbs. indicated butter in 1 week with first calf, and died of milk fever with this (3d) calf. One of best calves we ever raised. Solid color.
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JERSEY BULL, one year old. Good individual of the best breeding. Also 7 months bull from tested dam. Herd headed by Fontaine's Owl, 60436. Prices on application. Address,
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The Evergreen Farm Herd has for sale three or four A. J. C. C. heifers bred Also a few cows and some choice bull calves from two to six months old. Write for pedigrees and prices.
N. N. PALMER & SON, Brodhead, Wis

A Farmer Who Looks at Dairying Rightly.

ED. HOARD'S DAIRYMAN: — Enclosed find my dollar for renewal of subscription.

Dairying a drudgery? It must be to those that haven't interest enough in it to take a good dairy paper. It is a pleasure to me. My wife says that if I had a stove in the barn she would come out and see me occasionally.

I set some milk scales in the stable last spring, and I found that their accuracy is a great deal better than my judgment of a good or poor cow. The scales tell me that my 50-pound cow was 1,000 pounds behind a 38-pound cow by the last of December. It also interested my hired man; he took increased interest in the well doing of each cow he milked. What interests hired help, is no drawback to the business. WILL GALLUP.

Lime Creek, Mich.

Mr. Gallup's experience in regard to light that a set of scales and a Babcock test will throw on the cow question, is in line with that of all intelligent dairymen. But the value of employing intelligent methods, and their effect on the hired help, in arousing an intelligent interest in them, is certainly very suggestive. It is remarkable and creditable. Of course a hired man will be much more contented in working for a man who can teach him something He will be much better satisfied when he sees intelligent methods carried on. If he isn't it is a sure sign that he has too dull a brain to be around cows.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Making Soft Early Ripening Cheese.

ED. HOARD'S DAIRYMAN:—Will you please inform me through the columns of the DAIRYMAN how I can make a soft moist cheese, like the N. Y. White Clover cheese? Our cheese are too dry and hard. Will pressing too hard, cause the difficulty? I have a Harris curd mill and our milk is from grade Guernsey cows, without skimming. G. S. W.

Warren, Ill.

ANSWERED BY U. S. BAER, WISCONSIN EXPERIMENT STATION.

I am not unmindful of the necessity for making some distinction between the "export" and "home trade" classes of cheese. I may be permitted to say just here that I have never been quite able to see why we should have these two classes, because we find that our best quality of so called firm or "export" cheese, properly ripened, suits our home trade better than anything else we can give them. I know it is argued that by making a soft, early ripening cheese we can turn our money over quicker. There is a peculiar taste to the New York cheese, that makes it a favorite in some localities. Wisconsin cheese will keep better and longer, and when cured at a low temperature is the prime favorite in the general market and is being shipped into many cities and sold for the New York article.

In the manufacture of soft cheese, the milk should be ripened to that point where ⅛ inch of acid will show on the hot iron within two hours from time of adding the rennet. The temperature of setting the milk should be from 80° to 82°F. The action of rennet at a low temperature is not so rapid, but is of a milder kind and gives a smoother textured curd. After the curd is cut as uniformly as possible and allowed to stand for five minutes, a gentle stirring of the curd may be started. As soon as a goodly amount of whey is formed, the heating of the curd should begin. Combined with steady and gradually increased heating, the mass should be kept in continual motion until a temperature of 96° to 98°F. is attained. The firming of the cheese and formation of the acid is the most critical stage of the cheese making. Immediately on the first indication of acid on moist curd, we remove the whey and spread the curd on racks, not to exceed five inches in depth, to drain.

An excess of acid in soft, moist curd makes cheese crumbly, short, mealy, brittle texture, and often bad flavor with a leaky tendency.

After racking, the curd is cut in strips or blocks and turned frequently.

A heavy blanket to keep the temperature up is preferable to piling the curds. The curd blocks should not be piled at any time over two deep, if one desires to get a fine, smooth, silky texture.

To make a fancy soft cheese, the curd should be milled early and thoroughly mellowed and matured before salting. When curd has assumed a smooth, velvety feeling and the flavor resembles that of ripe rich cream when ready for the churn, it is in prime condition for salt, which should be added at the rate of two to two and one-fourth pounds per thousand pounds of milk.



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HORACE L. BRONSON, Cortland, N. Y. References, Second National Bank and Savings Bank, Cortland, N. Y. H. L. B.

SOUTH SIDE FARM, WHITE BEAR LAKE, MINN.

Holstein-Friesians.

Bulls in service, Prince Inka Pietertje De Kol 2d, A. R. O., 144, sire of 10 A. R. O. cows, and Daisy Van Beer's Pauline De Kol. 27610, whose dam has official record of over 22 lbs. in 7 days. Special prices on young bulls from A R. O. cows. Also Yorkshire pigs of most approved breeding now fit to ship.

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The Rennet, Hot Iron, and Acidemeter Tests in Cheesemaking.

[Paper by Prof. H. H. DEAN, Ontario Agricultural College, Guelph, at Dairymen's Convention in Western Ontario.]

We, in the dairy business, have to work hard, no matter whether it be in the factory, or occupying a public position. That is one of the penalties of being a dairyman, and that is one reason why it is so difficult to get good men to stick to the business. I presume that most men have found this to be the case, and one of the things we are aiming at in our dairy business is to make our work as light as possible, because in any case it is heavy and hard work.

Every improvement which has been made in dairy business has been the result of the application of science or truth to dairying.

We have been for some time groping in the dark after the truth, which nature has hidden from us, and which we only can learn by active research. Every speaker has aimed to give you the result of his search after truth, and after knowledge. The man who merely guesses at things, and tries to give you the impression that it is the result of his research, is a man who is not giving you sound doctrine in dairying. Let me point you to two or three illustrations on this point. What was the dairy cow in her original and natural condition? Do you find any of nature's cows which will give us ten, twenty or thirty thousand pounds of milk? Not by any means. How have these cows been obtained? By the application of scientific principles to breeding and feeding and handling dairy stock. At one time it cost a dairyman a great deal to produce a pound of milk, a pound of butter or a pound of cheese. The application of science to the feeding of dairy cows has reduced that cost materially, and I believe the time will come when we shall understand what is required by the dairy cow, and the present cost of feed will be cut in two. What is there in lucerne that enables the dairymen to reduce the cost of butter or cheese? It is a principle well known to chemists. It is something which acts on the secretive powers of the dairy cow. The nitrogenous compounds in the alfalfa, which the cow digests, enable her to produce milk in the very cheapest form possible.

It was thought at one time, and it is considered by some yet, that the only way to get cream out of milk is to set it in pans or cans; but by the application of a well-known physical law, we got the separator, and we can separate the cream from the milk and get it almost instantaneously, and I do not suppose there is any machine which has done more to help our butter makers than the cream separator.

At one time we were groping in the dark in order to find out how we could test the percentage of fat in the milk. We had lactometers and lactoscopes and pioscopes; and I remember when Prof. Robertson, my esteemed teacher, was lecturing to us students, he illustrated the pioscope, lactoscope, and all the instruments which at that time were known for testing milk. Yet all these were mere guesses. I had last week the pleasure of meeting Dr. S. M. Babcock, a man of scientific research, who has discovered a test by which anyone can ascertain correctly the percentage of fat in milk. Was that the result of an accident? Was that the result of anything less than the application of scientific truth to the principles underlying the separation of fat from milk? No. I might go on and give you innumerable examples of where science and truth have helped the dairymen.

I come now more particularly to the topic which I should have taken last evening, viz, The Rennet, Hot Iron, and Acidemeter Tests in Cheese-making.

We find men today who determine the acidity or sourness of milk by smell and taste, and some men have their sense of taste and smell so trained that they can tell you almost to a nicety what acid there is in the milk, whether it is ready for the rennet or not. They have, after a great many years, been able to train their senses to such a point that they are able to make good cheese without the aid of the rennet test; but men who had investigated this point said, "We must have something more accurate than that," and from them we get the Rennet Test. I want to point out, however, that the rennet test measures the susceptibility of milk to the action of rennet, and does not necessarily measure the acidity of milk. After looking into this matter carefully I have come to the conclusion that there is not any constant relation between the rennet test and the acid in milk; and to the conclusion that the rennet test measures the susceptibility of milk to rennet, and does not measure its acidity. The most important thing for the cheesemaker to know is how to develop and control and keep in check the acid or sourness of his curd. We have been using during the past two summers an acidemeter, and in this connection I would like to say I consider the term "acidemeter" more correct than the "alakaline test." Most of our men have got into the way of calling this the "alkaline test," which is scarcely correct. The term "alkaline test" means a test for alkalinity of any substance, and in this work we are not testing for alkalinity, but for acidity; therefore the words "alkaline test" are incorrectly used, the more correct term being 'acidemeter," or "acid test." I think it is important, if cheesemaking is a science, as we believe it is, that we use correct terms, and that we understand them when speaking about the different steps in the process of cheesemaking.

The Hot Iron Test. Now I suppose I may look out for trouble. Some of you old cheesemakers have used the the hot iron test for so long that you consider it an essential and necessary part of cheesemaking. So far as I have been able to look into the question of the origin of the hot iron test, I find that it is based on an accident, and it is a test that has continued to be an accidental test ever since. A man accidentally found that sour curd would stick to a hot iron. A cheesemaker may determine the acidity of his curd as indicated by the hot iron test, if he uses good judgment, but more depends on good judgment than upon the hot iron test. The hot iron test is not based on truth; it is not based on science. Nobody has yet offered a satisfactory explanation of it. As I said, it is the result of an accident. A man accidently touched some curd against a hot iron and found it to "string"; and from that accident we have the hot iron test as used today. It is in the same class as using the finger for a thermometer, and putting a hot horseshoe into cream to make the butter come, and other things which are based upon witchery, and upon nothing. I am satisfied that in the very near future there will be both rennet tests and hot iron tests "to burn" in the cheese factories of Canada.

So I think in connection with the rennet tests, and the hot iron tests of the cheese factories, in the very near future you will have them to burn. Why? Because the acidemeter is based on well-known chemical laws which chemists understand. A certain weight of alkali

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It is better to have some delicious, hot, food drink that you can take yourself and feed to your children conscious that it will help and strengthen and never hurt them. A lady of Oneida, N. Y., says: "I used coffee many years in spite of the conviction that it injured my nervous system and produced my nervous headaches. While visiting a friend I was served with Postum but it was not well made, still I determined to get a package and try it myself and after following directions carefully the result was all that could be desired; a delicious, finely, flavored, richly colored beverage. Since I quit coffee Postum has worked wonders for me.

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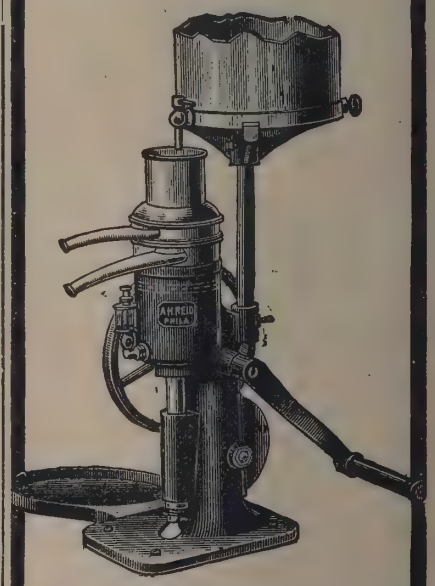


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will neutralize a certain weight of acid. The principle is based on science and truth, and if I know anything about the advance in the cheese business, we can only advance as we base our work on science and truth, and, as we depend upon guesswork or any tests which do not give us exact and scientific results, we are to that extent being misled.

We have heard a great deal about the washing of curds. To give you an illustration of how important it is to know what we are doing, I am in a position to tell you that we have found, as a result of our experiments with washing curds, that it tends to materially reduce the acid in the curd. Can you tell me a more nonsensical thing than for a cheesemaker to make the conditions favorable for acid up to a certain time, and then wash the acid out? Can you show me where there is any science in that? It is sometimes advisable to wash curds, such as acidy or tainted curds. A man who does not study these things from a scientific standpoint, is a man who is groping in the dark, and who will not attain that height we are expected to attain in cheesemaking.

What are the advantages of the acidemeter over the rennet test? First, cheesemaking will be based on acid from the beginning of the process. Second, it takes less time to make tests with the acidemeter than with the rennet test. Third, there is less waste of milk and curd. Fourth, there is less liability to error with the acidemeter as compared with the rennet test, because you have not so many things to guard against, such as temperature, strength of rennet, time, etc.

What are the advantages over the hot iron test? It gives the acidity in exact terms. There is less danger of developing too much acid on the curd. Why? Because the acidemeter will tell the cheesemaker exactly how much acid he has, whereas with the hot iron he is guessing at it. Mr. Bell, this morning, pointed out very forcibly the necessity for uniformity in our cheese, and I think the acidemeter will help us to get uniformity better than any thing else we have yet discovered.

I do not advise cheesemakers to throw away their hot iron and rennet tests all at once. You will need to study the acidemeter, and how to get the best results with it, before you use it altogether. On the other hand, do not be so pig-headed that you will not make any change, because the using of it will help you to make better cheese, and will make you a more scientific man. Some men remind me of

"The poor benighted Hindoo,
He does the best he kin do,
He sticks to his caste from first to last,
And for pants he makes his skin do."

There are some who will stick to anything from first to last, and will make no change. They refuse to see where they can make improvement. In this connection I am reminded of a piece of statuary I saw last week.

My friend, Mr. Millar, and I went into the art gallery, at Milwaukee. As you go in, there is a centerpiece of statuary, a beautiful woman, with her form perfectly poised, a perfect form in every way. Beside her stands a child. The woman is holding a mirror and gazing into it. I fancy the sculptor is making her say: "If there is anything defective in this form I will remedy it—I will make it appear so beautiful that it will charm man so that I will be able to lead him anywhere I like." She was perfect in every way, and yet she is gazing into that mirror, and you could see on her face the expression, "If there is any improvement, I am going to make it, if at all possible." What about the child? It stands with its arms across its eyes refusing to look at itself in the mirror—refusing to see the imperfections of its form; and there are men to-day who are like that child, blinding their eyes with their arms, and refusing to see anything that is wrong, whereas they ought to be like that beautiful woman who, looking at herself, says: "If there is any room for improvement, I am willing to make it."

The Breed and the Man.

ED. HOARD'S DAIRYMAN:—Every little while I notice something crop up about which is the best dairy breed and then it mostly drifts to the ones that were in the dairy test at Buffalo, and the lovers of each breed figure their own to come out best. My idea is, to be honest with each breed, the herd that had the most profit on butter and total solids over the cost of feed was the best.

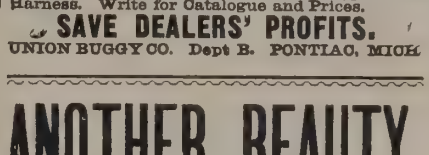
But those same herds with the same feeders changed round would have shown different results, so I say it's the man, not the cow, so there is no need for the lovers of the dairy breeds fighting about which is the best. They are all best in their own place, and there is a place for them all. It is not the best breed of cattle they want to get at, it is the best breed of herdsmen. T. B.

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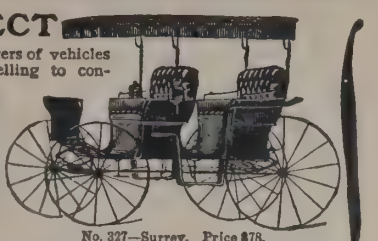
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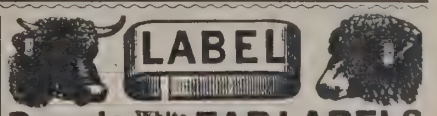


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Cures SHEEP SCABS and TICKS. CHLORO-NAPTHOLEUM DIP—the great stock remedy—cures all ailments of sheep; scabs and itch, ticks and lice; heals sores, scratches and cuts. It is strictly non-poisonous, will not injure eyes nor harm if swallowed. Veterinarians prescribe it as a drench for the *cure of Stomach Worms in Sheep.* Get our *free book* on the treatment and prevention of sheep and cattle diseases, with facts based upon Government experiments and reports from prominent breeders. It is the Sheep Breeder's Guide to Wealth. **CHLORO-NAPTHOLEUM DIP** not only keeps sheep healthy and free from parasites, it increases the growth of wool and makes the clip more valuable. Lime-Sulphur, nicotine and arsenical dips, and all the dangerous kinds, have long since yielded place to **CHLORO-NAPTHOLEUM DIP** the safe, economical and efficient dip for sheep, hogs, cattle and all stock. *PRICES, Freight Prepaid,* 1 gal. $1.50; 5 gals. $6.75; 10 gals. $12.50. Larger lots at lower rates. *Local Agents* make money by our liberal terms. Write. We sell dipping tanks and sprayers at special low prices to our customers. Prices on request. Write for Sheep Book, or book on diseases of any stock, sent free. West Disinfecting Co., Inc., 8 E. 59th St., New York.

Transfers of Guernsey Cattle.

BULLS.

Babby's Boy 8413, Ray C. Bicknell to Eugene Gorton, Fort Atkinson, Wis.
Ben of Paxtang 8617, Isabel S. Wilhelm to J. R. Geyer, Middletown, Pa.
Chico 8616, Buell T. Holcomb to Charles B. Sheldon, West Suffield, Ct.
Fantine's Jeweller 8613, Chas. Solveson to Edwin Moyer, Fort Plain, N. Y.
Globe Trotter of Homestead 8610, L. V. Axtell to J. D. Russell, Gobleville, Mich.
Gallant of Haddon 8611, Alfred M. Smith to E. T. Gill, Haddonfield, N. J.
Galland of Haddon 8611, E. T. Gill to S. R. Bradley, Nyack, N. Y.
Golden Chimes 8612, G. Bradley Dyne to S. W. Hartt, Port Angeles, Wash.
Lucius Child 6642, F. W. Tratt to J. B. Johnson, Wauwatosa, Wis.
Paul of Fairview 6907, Geo. Crehore to C. P. Winckles, Ridgeville, O.
Secretary of Fennimore 8426, Edward S. Clark to W. L. Lambert, Patterson, N. J.

COWS.

Enola of Swartara 15827, Leona of Swatara 16076 Swatara Queen's Gipsy 15826, James Boyd to A. Q. Dunkle, Steelton, Pa.
Fay of Bonny Brook 15881, W. S. Stevenson to Maude W, Murphy, Woodbine, Pa.
May of Bonnie Brook 16088, Edna of Bonnie Brook 12738, Jollity of Bonnie Brook 12739, W. S. Stevenson to George Wood, Philadelphia, Pa.
Nellie Tostevin 11028, Rowena of Valley View 16075, Theresa of Riverside 10643, John W. Little to C. J. Tyson, Flora Dale, Pa.
Rowena of Valley View 16075, Howard Slagle to John W. Little, Hanover, Pa.
Zoe Guernsey 7580, N. L. Strong to A. C. Loring, Minneapolis, Minn.

WM. H. CALDWELL, Secy.

Peterboro, N. H., May 18, 1903.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Swollen Sheath.

I have a boar about 7 months old with a swelling at the end of his sheath. It does not prevent him from serving a sow. L. D. B.
Grimsby, Ont.

ANSWER.

These swellings are often reduced by washing the parts clean with Castile soap and warm rain water once daily; when dry rub with clean lard. The cause is uncleanliness, which irritates the parts.

Texas Fever.

I see by the last issue of tha DAIRYMAN that Gov. Hoard sold a Guernsey to Wright & Son, of Texas. Can you tell me if there is any risk in taking stock from this state to the south, from Texas fever? What precautions, if any, should be taken to prevent trouble and loss? W. F. R.
Peshtigo, Wis.

ANSWER

The best preventive is to keep your stock in good sanitary surroundings, and away from diseased cattle Thorough disinfection is always advisable, which is very inexpensive, and productive of much good in these cases.

Lameness in Hip Joint.

I have a cow that is lame in the hip joint. The local veterinary advised the blister, but she has grown worse. The sore caused by the blister healed very slowly and after it healed, the skin looks red. J. W. T.
Hadly, Mich,

ANSWER.

It is impossible for us to determine the nature of your cow's lameness from the above description.

An Unthrifty Cow.

Have grade Jersey cow that freshened April 1st. She has milked well until two weeks ago, when bull took advantage and forced her, since then she has run down in condition, milks very little now and has a cough.

Have another cow, was unwell for 8 weeks. She will vomit about once a week; first calf; apparently healthly otherwise. C. A.
Dodgeville, Wis.

ANSWER.

1. Good nourishment will remedy this case quicker than anything else; the physic will do little or no good.
2. See Emeses, last issue.

Failure to Breed.

I have a cow that dropped her third calf in February last. Came in heat on the ninth day of March and was bred; came in heat again on the first day of April, but was not bred, again came in heat on the twenty fourth of April and was bred, and has not yet gone out of heat. The morning after she was bred the last time, there were drops of blood around the vagina and on the lower side of the rectum. J. W. W.
Stockton, Cal.

ANSWER.

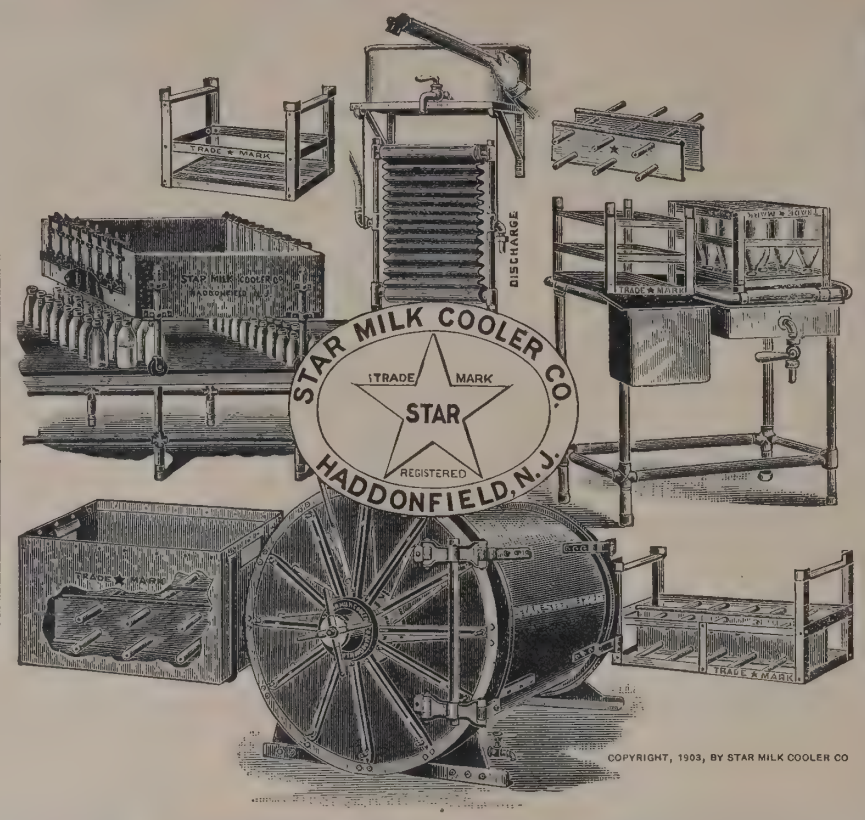
It is possible that the cow has conceived from the last breeding, but still keeps up the heat which is very often the case. Give her another chance, and if not succcessful, have her examined for an abnormal condition of the genitals, by a qualified veterinarian.

Is it Injurious?

Is it injurious for hogs to have all the water they want to lie in? I have water in the ditch all the time which they have free access to. Also is it injurious with sows with pigs. E. G. S
Ceres, Calif.

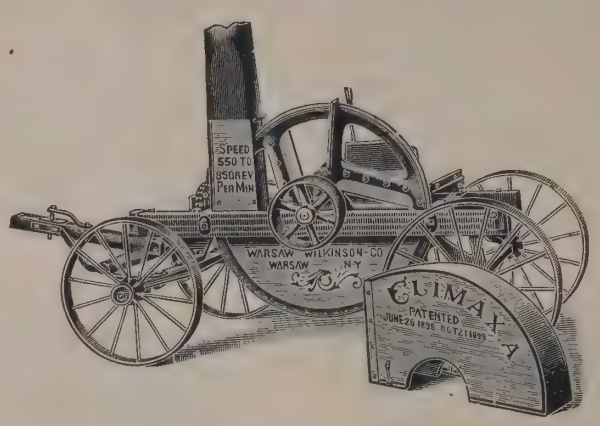
ANSWER.

It is not injurious to the health of hogs



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Ensilage and Feed Cutters.



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By the use of Fly Bouncer during hot weather, at a cost of one-half cent per day each, horses will do one-third more work; cows will give one-third more milk on two-thirds the amount of feed required without it. Sprague's Lice and Insect Killer kills lice and mites on poultry, hogs, horses and cattle. Write for free circulars and prices.

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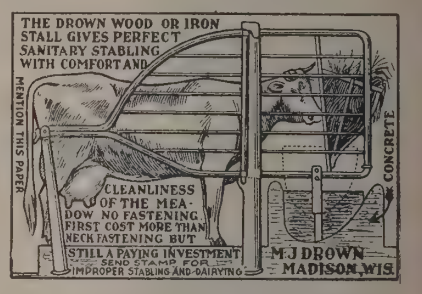
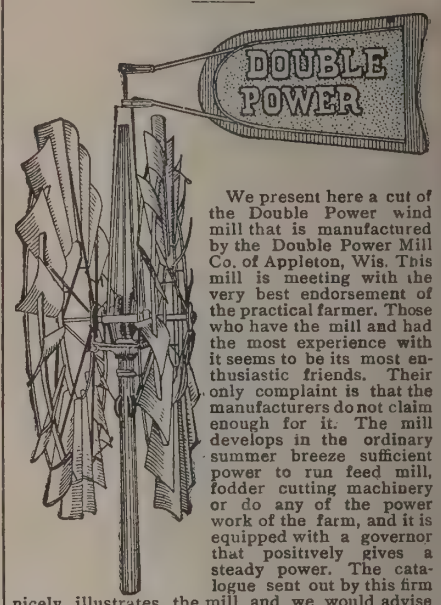


ILLUSTRATION.



We present here a cut of the Double Power wind mill that is manufactured by the Double Power Mill Co. of Appleton, Wis. This mill is meeting with the very best endorsement of the practical farmer. Those who have the mill and had the most experience with it seems to be its most enthusiastic friends. Their only complaint is that the manufacturers do not claim enough for it. The mill develops in the ordinary summer breeze sufficient power to run feed mill, fodder cutting machinery or do any of the power work of the farm, and it is equipped with a governor that positively gives a steady power. The catalogue sent out by this firm nicely illustrates the mill and we would advise every reader of HOARD'S DAIRYMAN to send for one. In illustrating the mill in these columns, of course we shall say nothing that the facts do not bear out, and the least we can say would be to report the opinions of practical farmers who have had the actual experience with the mill. The following letter received from one user:

Stockbridge, Wis., June 17, 1901. Double Power Mill Co, Appleton, Wis., Gentlemen:—The mill you placed on my barn in 1896 is about as good as new. I have seen nearly every geared mill in the country, but none can do half the work of your Double Power. I think each wheel by itself does more work than any other mill because the governor keeps the wheels right for the wind to catch the fans. I think the rear wheel has got as much power as the front wheel. I have ground over 5,000 bags of all kinds of grain with the Appleton No. 3 Grinder, and sawed 300 cords of wood for myself and neighbors. Your mill is so strong I have not had to pay out more than 80 cents for repairs, and would not paid anything if I had oiled it right. As long as I stay on the farm I would rather pay $500 for your mill than take another kind for nothing. Send your customers here, I can tell them better than I can write I have seen your new mills, they are much better than mine. Yours truly, W. J. PILLING.

Another says:

Hayton, Calumet Co., Wis., June 8, 1901. Double Power Mill Co., Appleton, Wis. Gentlemen:—Yours of June 5 at hand I have had experience with several geared mills and would not exchange my Double Power for any I ever saw. I use a 30 inch saw, and with good wind can cut all the wood we can get to the machine. For feed grinding I use a 7 inch burr, but wish it was an 8. With strong wind could run a 9 inch burr full feed. I think with a good fair wind I can do more work than with eight horses on a horse power. The governor makes it run as steady as a steam engine. I bought the first husker you made and with it have husked three hundred bushels in one day. Your mill is the strongest I ever saw. I have not paid one cent for repairs in the five years I have used it. Yours truly, JOHN W. HORST.

to lie in water at their own liberty as they go there to seek comfort.

Bloating.

Some of my cows are bloating. The pasture is blue grass with an abundance of white clover. I have lost one cow by that disease. J. L. J.
Fisherville, Ky.

ANSWER.

The trocar and cannula should not be spared in this trouble, as it gives immediate relief. Two and one-half ounces of hyposulphite of soda and one ounce of ginger may be disolved in a quart of warm water and given at one dose after tapping.

Off Flavored Milk.

I have three cows that get sick about two weeks after they drop their calves. The milk tastes and smells feverish. A neighbor advised me to give the following:

Three oz. salt petre, 2 oz. June berries, 1 lb. Epsom salts, 1 lb. linseed flour.

Divide into 6 doses and give morning and night soon after dropping the calf. They do not seem to do very well after it. E. C. J.
Stanley, Wis.

ANSWER.

Your neighbor's remedy is all right and is worth trying.

Faulty Secretion.

I have a cow recently calved that had one quarter swollen and quite hard. I applied some ointment and rubbed it thoroughly and after about the third day was very soft, but she gives very little milk from the quarter, about 5 or 6 squirts.

I also have a heifer that had a bunch on hind leg at knee joint on outside about the size of a saucer. Last summer it broke and run a little; did not lame her nor was it very sore. Now she also has a number of small ones on inside of leg running up to the bag. E. B. T.
Monroe, Wis.

ANSWER.

The best you can do with both the cows is to keep on milking and apply hand rubbing to the quarter as often as possible. They usually come right with next freshening.

The bunches appear to be warts. Have them removed surgically. This will not affect the milk.

Wart on Teat.

I have a cow that has a wart on one teat. Can this wart be removed while she is milking, without making it so sore that she will be worse than now If so, how?

I have a fresh cow that has such small holes in her teats that milking is very difficult. Can this be remedied, and how?

Is it safe to pasture cows on green oats?

What is good for cows with scours?
Knoxville, Tenn. AMATEUR.

ANSWER.

The wart can be removed with a pair of scissors and the parts touched with a stick of lunar-caustic to prevent bleeding, but it may be advisable to wait until the cow is gone dry.

Open the teat with a bistoury, which can be adjusted so as to make the hole as large or as small as you please.

Green oats will do no harm if you give other food in connection.

You must first of all ascertain the cause and remove same. This must be looked for in the feed they are getting; therefore, make a change in the diet and nature will do the rest.

The Progeny of a Jack.

Will not a Jenny breed regularly if bred to a Jack and will not progeny be either a Jack or a Jenny, as the case may be and also is not always the dam of a Jack, a Jenny? That is, I hold that the dam always of a stud Jack is a Jenny and not a mare and wish your ruling on same as I always consider the DAIRYMAN authority. W. E. S.
Los Angeles, Calif.

ANSWER

The progeny of a Jack and a Jenny would be an ass of either sex, while if a Jack were bred to a mare, the progeny would be a mule.

Pin Worms.

My horse has pin worms M. V. B. G.
Waterville, Me.

ANSWER.

Santonin, 20 grains, aloes, 1 ounce; oil of turpentine, 1 ounce; raw linseed oil enough to make a quart. Mix and drench at one dose.

Cough.

I have a heifer calf nearly 6 months old, that has a dry hacking cough. She will cough three or four times and stop and then in a few minutes will cough again, and so on. SUBSCRIBER.
Kinder Lou, Ga.

When the cough has become chronic a tablespoonful of Fowler's solution of arsenic three times daily, is beneficial. An occasional spoonful of honey on the tongue after meals, will also give good results, in connection with the above.

Infectious Abortion.

I have had three cases of abortion in my herd. Two of these are heifers that never gave milk, coming two this spring; the other is a cow coming three this spring, that has been milked the last season. Each of these animals were in heat several times last summer, and along about October they got with calf. WM. H.
McDonough, N. Y.

ANSWER.

Your cows had infectious abortion which may appear again next season, although it is not certain. See page 66-67 of the DAIRYMAN for treatment.

The Abortion Question.

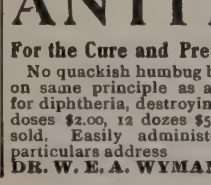
When a cow has once been afflicted with contagious abortion and recovers from it, is she thereafter immune from the disease?

I recently bought about 20 cows from a herd that had passed through a siege of contagious abortion, and out of this number three of the younger members aborted, one in December, one in February and one May 8th. If the older cows have been rendered immune by their experience, I will administer the carbolic acid treatment to the younger cows only, otherwise will doctor the whole herd. The cow that aborted May 8th has been receiving six teaspoonfuls daily, about ¾ oz., of carbolic acid, in two doses. I presume this is heroic treatment, as ½ oz. is the largest daily allowance of acid I have ever heard of being given. This cow failed to pass the placenta, and I understood that carbolic acid is helpful in this trouble. The afterbirth came away in about 70 hours after abortion, and appearances up to date seem to indicate that it is a clean job. The foetus was about 5½ months along. The cow seems to be doing well and shows no signs of harm from the acid, which, though not crystalline, was bought in original five-lb. can, and is supposed to be 95 per cent.
Antigo, Wis. R. E.

ANSWER.

When infectious abortion goes through a herd and is allowed to run its natural course, it does not appear to render the animals immune from the disease. Either the animals are reinfected, or abortion takes place because of a debilitated condition of the generative organs from the first attack. Experience teaches us that carbolic acid has no effect in this disease whatever when given per mouth. See Infectious Abortion, page 66-67 of the DAIRYMAN.

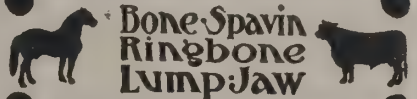
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The safest, Best BLISTER ever used. Takes the place of all liniaments for mild or severe action Removes all Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish* Every bottle sold is warranted to give satisfaction Price $1.50 per bottle, Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.
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Certain and inexpensive methods fully described in our two big booklets, which we send free if you have a case to treat. Over 140,000 farmers rely upon these same methods. Write for the books.
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ABORTION
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Guaranteed to cure caked bag in 12 to 36 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ⅓ lb 50c, 1⅓ lb $1.00, postpaid.
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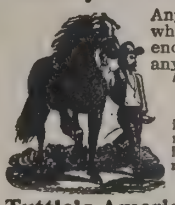
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After Abortion cows should be injected with Hood Farm Antiseptic Breeding Powder, which thoroughly disinfects, kills all germs and **makes cows breed.** Also successful where cows fail to clean and where they do not come in season regularly.
Hood Farm Abortion Cure, dollar size, prepaid to any railroad express point in the U. S., $1.25; $2.50 size, containing four times this quantity, $2.75.
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Hood Farm Flexible Injection Tube, for administering the Powder, 75 cents; by mail, 90 cents. Address
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Mention this paper in ordering.



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is sure to bring sore shoulders. You need not lay your horse off a day if you use
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BICKMORE'S GALL CURE.
It's the sovereign remedy for all **Galls, Scratches, Wire Cuts, Grease Heel,** etc. in horses. **Torn** or **Cracked Teats,** etc. in cows. Sold by local dealers everywhere, who are directed to refund money if it fails. Enclose us 10 cents for testing sample.
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is spurious or untruthful. It needs nothing but the truth to support it. It is undoubtedly the best veterinary remedy known to man.
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—A specific for impure blood and all diseases arising therefrom
TUTTLE'S FAMILY ELIXIR cures rheumatism sprains, bruises, etc. Kills pain instantly. Our 100-page book "Veterinary Experience." FREE.
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Retention of Placenta and Failure to Breed.
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is a positive cure for these diseases. Write for circular containing full information, reference and price.
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Hard Rubber *Safety* Mick Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.
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SPAVIN CURE.



Positively and Permanently Cures Bone or Bog Spavin, Ringbone (except low ringbone) Curb Thoroughpin, Splint, Capped Hock, Shoe Boil, Wind Puff, Weak or Strained Tendons and Lameness.

From Owner of "Sable Great" (2) 2:22¼:
Riegelsville, Pa., May 18, 1903.
I used "Save-the-Horse" on a very valuable filly that was turned out last spring, and while running slipped and sprung a spavin. At the suggestion of my veterinarian I blistered her twice without any improvement. I then procured "Save-the-Horse" and am able to report an entire cure. The filly goes without the slightest lameness, not even a hitch or a drag being apparent. I believe your great remedy is so valuable that no stable should be without it. LEE S. CLYMER, Prop.,
Durham Knitting Mills, also of Sunnyside Dairy and Monroe Stock Farms and owner of "Sable Great" (2) 2:22¼.

FROM A VETERINARY SURGEON.
(Received by registered mail.)
North Chicago, Ill., May 11, 1903.
Enclosed find $5.00 for one more bottle of "Save-the-Horse. With four bottles of "Save-the-Horse" I have cured three ringbones and two spavins. I bought a colt the other day with two soft curbs which I hope to remove with this bottle.
WM. C. ANDERSON, V. S.
Office Goss House, No. Chicago, Lake Co., Ill.
Memphis, Tenn.
Please send us at once 6 bottles of "Save-the-Horse" for Mr. Ben White of the Village Farm Stables, who recommends it very highly.
W. S. BRUCE & CO., Horse Goods Supply House.
Waterbury Conn., May 17, 1903.
I have used your "Save-the-Horse" and recommend it and you may send me six bottles C. O. D. I can refer you to Mr. Joslin of Joslin & Allen, and A. F. Hinchey, both of Waterbury, friends of mine who have used it and who will give you testimonials. I would like to take the agency for this section. Please let me hear from you.
H. B. LOUCKS, Boarding, Sale and Livery Stable.
Cuba, N. Y.
I had a big four-year-old horse that had a bone spavin. I tried several remedies without success. I used one bottle of "Save-the-Horse" and worked the horse right along. He is cured of the lameness and has been for some time.
Very truly, E. BROWN.
Horse can be worked continuously. Cures without scars, blemish, or loss of hair.
It can be applied at any time, anywhere, any place, and in all conditions and extremes of weather. And no matter what the age, condition or development of the case or previous failures in treating, the concentrated penetrating, absorbing power of this remedy is unfailing.
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Written guarantee with every bottle constructed solely to satisfy and protect you fully. Need of second bottle is almost improbable, except in rarest of cases Copy of guarantee sent upon application
If you have a case different from those described in our Booklet or Advertising we will advise you frankly as to the possibility of the remedy effecting a cure. Give explicit particulars, give the veterinary's diagnosis, if he is competent—inform us fully as to the age, development, location of swellings, lameness, action and previous treatment. $5.00, all druggists and dealers, or sent express prepaid.
TROY CHEMICAL CO., TROY, N. Y.

Your Horse can work without pain while his sore breast is healing if you use MOORE BROTHERS'
GALL POWDER
the most effective cure ever known for healing **sore shoulders, backs** and other skin abrasions; at druggists, or by mail $1.00. MOORE BROTHERS, Veterinary Surgeons, Albany, N.Y. "Facts for Farmers and Breeders," sent free.

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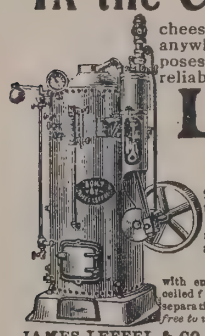


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Butter Tests Accepted for Publication by the American Jersey Cattle Club, May 14th, 1903

Angela H. of St. Lambert 153506—Sire, King of St. Lambert's King 30752; dam, Angela's Lorna 68696. Butter, 15 lbs., 1 oz.; Milk, 189 lbs., 6 oz. Test made from February 2 to 8, 1903; age, 3 yrs., 10 mos.; estimated weight, 900 lbs.; fed 8 lbs. ground corn and oats, 6 lbs. cotton seed meal, 6 lbs. wheat bran and 10 lbs. corn ensilage, daily, hay *ad lib.*

Bonnie Altetta 154999: Sire, Lady Matilda's Rioter 48311; dam, Woodlawn Daisy 97138. Butter, 16 lbs., 3½ oz.; milk, 221 lbs., 11 oz. Test made from February 27 to March 5, 1903; age, 4 yrs., 4 mos.; estimated weight, 800 lbs.; fed 12 lbs. ground corn and oats, 7 lbs. wheat bran, 6 lbs. cotton seed meal and 10 lbs. corn ensilage, daily, hay *ad lib.*

Exile's Kalmia 111647: Sire, Exile of St. Lambert 13657; dam, Volie of Sennett 49059. Butter, 18 lbs., 15 oz.; milk, 237 lbs., 8 oz. Test made from Mar. 6 to 12, 1903; age, 7 yrs., 9 mos.; estimated weight 900 lbs.; fed 12 lbs. ground corn and oats, 6 lbs. cotton seed meal, 6 lbs. wheat bran and 10 lbs. corn ensilage, daily hay, *ad lib.*

Exile's Pomona 111106: Sire, Exile of St. Lambert 13657: dam, Volie of Sennett 2d. 78638 Butter, 17 lbs.; milk, 182 lbs., 7 oz. Test made from Jan. 6 to 12, 1903; age, 8 years, 2 mos., estimated weight, 950 lbs.: fed 12 lbs. ground corn and oats, 6 lbs. cottonseed meal, and 6 lbs. wheat bran, daily, hay *ad lib.*

Gazelle of Cherry Farm 153717: Sire, King of St. Lambert's King 30752, dam Mabel's Gazelle 126815. Butter, 15 lbs. 13 oz; milk 223 lbs. 13 oz. Test made from March 21 to 27, 1903; age, 3 yrs.; estimated weight, 900 lbs.; fed 5 lbs. cotton seed meal, 10 lbs ground corn and oats, 7 lbs, wheat bran, and 10 lbs. corn ensilage, daily—hay *ad tib.*

Gazelle W. of St. L. 156799; Sire, Gazelle's King of St. L. 49640; dam, Linda W. of St. Lambort 144310. Butter, 15 lbs. 2 oz.; milk 249 lbs. 5oz, Test made from March 6 to 12, 1903; age 3 yrs. 10 months.; actual weight 980 lbs.; fed 5 qts. wheat bran, 6 qts. Buffalo gluten, 2 qts corn meal, 2 qts. oil meal and 26 lbs. corn ensilage, daily—hay *ad lib.*

Gordie Heliotrope 2d 156829: Sire Meridale Rioter 32655; dam, Gordie Heliotrope 109637. Butter, 16 lbs. 2 oz; milk, 245 lbs. 4 oz. Test made from Dec. 15 to 21, 1902; age, 3 yrs. 9 mos,; estimated weight, 800 lbs.; fed 21 qts. corn chop, 35 qts. wheat bran, 9 qts. cotton seed meal. 56 lbs. cotton seed hulls, and about 100 lbs. hay.

Honest Butterfly 129994: Sire, Honest King 38268; dam, Butterfly of Riverview 3d 85499. Butter, 16 lbs. 7 oz.; milk, 219 lbs. 2 oz. Test made from March 6 to 12, 1903; age, 7 yrs.; estimated weight, 875 lbs.; fed 10 lbs. ground corn and oats, 6 lbs. wheat bran, 6 lbs. cotton seed meal, and 10 lbs corn ensilage, daily—hay *ad lib.*

Kate of Biltmore 131014—Corrected Report, as to amount of milk; Sire, Tormentor's Harry 29920; dam, Kate Winslow 28055. Butter, 16 lbs. 6½ oz.; milk, 300 lbs. 12 oz. Test made from April 5 to 11, 1903; age, 5 yrs. 8 mos,; actual weight, 1040 lbs.; fed 45 lbs. bran, 17½ lbs. cotton seed meal, 17½ lbs distillers grains, 8¾ lbs. gluten, 8¾ lbs. dairy feed, 7 lbs. corn and cob meal. and 7 lbs. linseed meal; ensilage and corn stover. Property of Biltmore Farms, Biltmore, N. C.

King's Eupidee 163142: Sire, King of St. Lambert's King 30752; dam, Deegold 2d 63082. Butter, 15 lbs. 4 oz.; milk, 223 lbs. 1 oz. Test made from March 28 to April 3, 1903; age, 2 yrs. 3 mos.; estimated weight, 800 lbs.; fed 8 lbs. ground corn and oats, 6 lbs. wheat bran, 6 lbs. cotton seed meal and 10 lbs. corn ensilage, daily—hay *ad lib.*

King's Huldah H. 153518: Sire, King of St. Lambert's King 30752; dam, Mary M. Landseer 93950. Butter, 16 lbs.; milk, 212 lbs. 10 oz. Test made from March 21 to 27, 1903; age, 3 yrs; estimated weight, 900 lbs.; fed 5 lbs. cotton seed meal, 10 lbs. ground corn and oats, 7 lbs. wheat bran, and 10 lbs. corn ensilage, dairy—hay *ad lib.*

Lassie W. of St. L. 159935: Sire, Matilda's Riotor Lad 55076; dam, Stipond 125206. Butter, 14 lbs. 6 oz.; milk, 230 lbs. 4 oz. Test made from January 5 to 11, 1903; age, 1 yr. 9 mos.; actual weight, 610 lbs.; fed 6 qts. wheat bran, 2 qts. Buffalo gluten, 4 qts. corn and oats slop, 1 qt. oil meal, and 18 lbs. corn ensilage, daily—hay *ad lib.*

Mabel's Gazelle 126815: Sire, Joel of Pittsford Farms 28450; dam, Gazelle's Fawn 93704. Butter, 16 lbs., 6 oz; milk 212 lbs. 8 oz. Test made from March 28 to April 3, 1903; age, 6 years 10 mos.; estimated weight, 900 lbs.; fed 10 lbs. ground corn and oats, 6 lbs. wheat bran, 6 lbs cottonseed meal, and 10 lbs. corn ensilage, daily—hay *ad lib.*

Portia of Prospect 138783: Sire, Ida's Rioter of St. L. 30th 47704; dam, Bess of Ingleside 2d 59648. Butter, 22 lbs. 8 oz.; milk, 345 lbs. 13 oz. Test made from Feb. 24 to March 2, 1903; age, 4 yrs. 4 mos.; actual weight, 1935 lbs.; fed 6 qts. wheat bran, 4 qts. corn meal, 4 qts. Buffalo gluten, 2 qts. oil meal and 30 lbs. corn ensilage, daily—hay *ad lib.*

Zetta King 2d 159488: Sire, Sarah's Prince 41440; dam, Zetta King 85644. Butter, 16 lbs., 12 oz.; milk, 219 lbs. 2 oz. Test made from Feb. 20 to 26, 1903; age, 6 yrs. 4 mos.; estimated weight, 850 lbs.; fed 12 lbs. ground corn and oats, 7 lbs. wheat bran, 6 lbs. cotton seed meal, and 10 lbs. corn ensilage, daily—hay *ad lib.*

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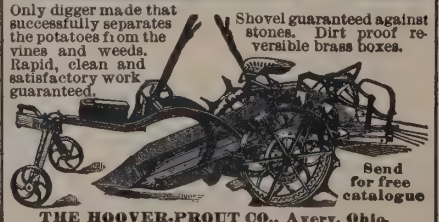


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360 acre farm, 4½ miles from Crookston, Minn, (a city of 7,000 inhabitants), and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 ft. square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and he other 14x42. The buildings are all w ll painted and in very good repair, and has a fine artesian well. Every acre of this farm in under a high state of cultivation, and is well drained by a slight ravine running through the farm, merely sufficient for self drainage. The soil is a rich deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

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Selecting a Cow for Breeding Purposes.

ED. HOARD'S DAIRYMAN:—The success or non-success which attends the breeding of cattle is greatly influenced by the judgment exercised in the selection of the cattle which form the breeding herd. In this article, I intend to deal with the selection to the best of my ability; also to the treatment they should receive after they have been chosen. It is a well known fact and apparent to most people that there are two distinct types of cattle in almost every herd. One of these is best adapted for fattening purposes, while the other type lends itself more to the production of milk, although it also may be fattened, but not quite so readily as the first mentioned type. It is of this particular class that I will first speak; yet there are many features so common to both types of cattle, that part of this article will apply to the other class.

No matter what the breed of cattle may be, it is absolutely essential that none but the very best heifers should be retained for breeding purposes. We are all aware of the fact, that in the majority of cases, "like produces like," so it is absurd to expect first class progeny from moderate or inferior parents. So long as the latter are used, we shall continue to see a number of very plain animals being produced from the herds; and it is very difficult to conceive how such animals can leave a profit for feeding, when we take into consideration what amount of feed it requires to make this class of animals look anything like good, for even when they have condition on them they are nothing to look at.

Taking the present day prices of beef in this country, the average difference between choice animals and those of a secondary description amounts to about 5 per cent per cwt. (carcass weight), and as the former are always the more easily fattened of the two, it will at once be seen how greatly everything is in favor of the breeder who rears and feeds a good class of cattle. Even with the best of treatment, a lot of moderately bred and poor framed calves will never make the best class of cattle. Then as a general rule, they do not show that aptitude for rapid fattening, which characterizes their better bred rivals, but require longer keep and a greater amount of food to make them fit for the butcher's block.

I think from what I have said, one should be convinced that it pays best to select for breeding purposes only those animals which are likely to throw really good progeny. The additional capital involved to carry out this principle is almost fully returned by the enhanced value of the first offsprings.

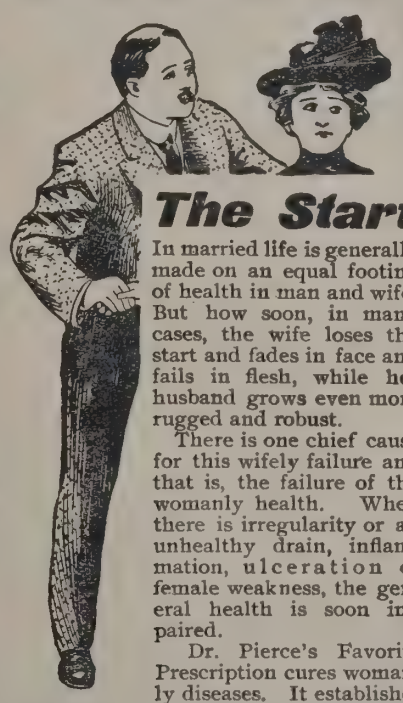
A sum of eight or ten pounds will very often represent the difference in price between a heifer showing good quality and another showing moderate quality, both of the same age; so that the first animal bred from the former will recoup her owner for the extra price laid out on her purchase. The wisest course to pursue, from a fattener's point of view, when selecting heifers for breeding purposes, is to choose those animals which, while promising to be the right kind to throw produce of good fattening propensities, will also show some indications of being good milkers. Of course, great things cannot be expected from heifers during the first year, especially if they are not fed with a view to milk production. Yet they should yield sufficient milk to rear their own calves. In fact they should do a little more than that on proper feed, or there will be no likelihood of their being able to help in rearing additional calves during the next and following years.

However, when heifers can be obtained showing parts of these two qualitiies combined —milking propensities, together with the appearance of being adapted for fattening— it is a good and wise plan to procure them, so that should they prove indifferent breeders, they can either be sold to the butcher or for dairy purposes. From time to time we hear the question asked, "When is the best time to breed from heifers?" There are many who consider stinting young is the most profitable plan, whilst on the other hand, there are others who maintain that the physical development of the animal is arrested and doubtless it is, but whether to the detriment of the cow as a milker is a point to be seriously considered.

By hundreds of years of domestication the cow has largely increased her milk yielding capacity and I really believe that in this, as in other directions, the natural powers must be trained at an early period. An early assumption of the maternal functions tends to develop and increase the milk flow. If the animals are prevented from breeding young, then their natural tendency is to grow in the direction of producing beef rather than milk. When stinted at an early age the whole process of development is directed towards those parts relating to early motherhood. The parts required for the growth of the foetus, the hindquarters, the udder, escutcheon, milk veins—those make the prominent call on the system. But with the heifer kept to a later age for breeding, her development is pronounced in the growth and thickening of the neck, withers and forequarters with a general masculine appearance, and when she is delivered at a later period it is found that it takes longer to secure a milk flow, if ever it is attained.

Taking the evidence as a whole, in this country, the majority of opinions are in favor of the heifer dropping her first calf at two years old. However, in going back to the selection of heifers for breeding purposes, when a sufficient number of heifers are not reared on the property, or when any other reason necessitates the purchase of young stock to augment the breeding herd, there is one important point that should always be kept in view when making a purchase, namely, the quality of land or food on to which they are to be brought. It is a great mistake to bring heifers that have been well fed and had every attention, on poor country, and expect them to keep in the same condition, without the same food and attention. Secondly, the climate should be taken into consideration, and the cattle to be bred should be a breed suitable to the climatic conditions, and the quality of the land and food. The heifers should show signs of good breeding (crossbreds cannot always be relied upon to throw good offspring) and have every appearance of being suitable for breeding a strong, healthy, rapid thriving class of cattle. Very strong, coarse loined animals should be avoided; but at the same time extreme fineness or weakness of bone must also be considered a fault.

The happy medium must here be sought for, but if it cannot be obtained it is better to choose those which are a trifle on the strong side, as they are, generally speaking, of a hardier constitution. Shapeliness of form is required,



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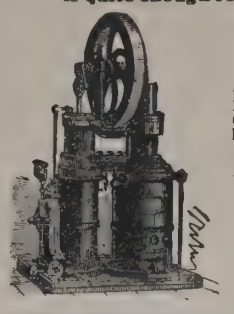
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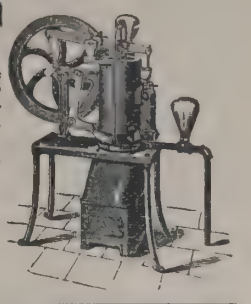
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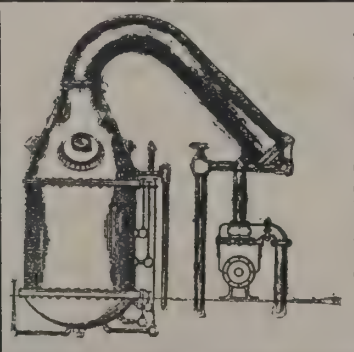
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[SIGNED] HENRY E. ALVORD,
Chief of Dairy Division, U. S. Department of Agriculture.

The use of our "MRS. LEA'S MILK AND BUTTER PURIFIER" is a necessity to producers of milk and butter when the pastures are at all infested with Garlic, Onions, Rye or Clover. It is a great saving, as the cows can be grazed, thereby saving largely in feed expenses. It always removes the taints when properly fed. The best dairies are using it largely and with profit. Try it and you will find it to your interest. For sale by The Dairymen's Supply Co., Philadelphia, Pa.; Farmers' Exchange Co, Belle Mead, N. J.; Cook & Brady, Middleton, Del; Filston Farm, Baltimore, Md.; Gardiner Dairy, Baltimore, Md.

Manufactured by VIRGINIA CATTLE FOOD COMPANY, Danville, Va.

Write Us for Prices and Further Information.



Milk Condensing Machine

I supply the most improved machinery and most successful processes for manufacturing all classes of condensed milk and evaporated cream. Factories built complete, put in operation and results guaranteed. If you are interested write for my new illustrated and descriptive catalogue. The only catalogue ever published on the subject.

R. R. ROGERS, Detroit, Mich.

I am not associated with any person, firm or company.

and it is of great importance. A broad, straight, level back always attracts the eye of a butcher, and to obtain this, we must always have cows and heifers which possess the same good quality. Deep, wide sprung and evenly covered ribs are essential, while the chest should be wide and deep.

The hind quarters should be broad and full, the skin soft and mellow and covered with plenty of fine, silky hair. Do not breed from heifers that have thick, heavy skins; in many cases they are not the best of thrivers, and are very seldom good milkers. A good head and neck helps the appearance of the animal very much, and are usually a reliable sign of a sound, robust constitution, without which success in breeding, and fattening cannot be looked for. The foregoing are some of the principal points to be attended to in choosing heifers from which to breed cattle for fattening purposes. It is very difficult to get all that we desire. Nevertheless, we should use our very best endeavors to obtain cattle of a type that will conform, as near as possible to the desired standard.

If we can only secure the class of cows that are suitable to the land and treatment they receive, and which will produce the right sort of cattle, we do not need to fear the result that will attend our breeding operations, and as far as meeting a profitable market for our cattle is concerned. The only way which we can hope to successfully meet the favor of the public, is to present nothing but the very best class of beef; and to be able to do this, we will first have to breed it. Before leaving the subject of selection, a few words about the sire to be used may not altogether prove out of place. I have previously stated that the heifers should show some signs of being fair milkers in order to do a little more than rear one calf each year.

Now, some means will have to be adopted to counteract these milking properties and to raise to the highest possible standard the propensity of rapid fattening in the offspring of these cows and heifers. There is but one way in which we can do this, and that is, to use only such sires as show by their breeding and general appearance, that they not only possess in themselves, but are likely to beget in their progeny, the essential qualities of being easily and rapidly fattened. This breeding should be closely looked into for the purpose of ascertaining whether he has decended from a breed well known for their fattening propensities, and unless the power to attain full growth at an early age, together with the disposition to lay on flesh at the same time, be a noted characteristic of his breeding, his use may not prove as beneficial as we desire. He should have all the good points mentioned as requisite to the heifers.

He must be well and evenly fleshed and his muscular appearance should be very marked in order that there may be greater liklihood of the progeny developing the fattening properties of their sire, instead of the milking qualities of the dam. To obtain good, strong, healthy calves the heifers should be in good condition when served. If in a thriving state, then it is almost certain that they will continue to thrive afterwards, which ensures the proper development of the foetus and therefore the dropping of a strong, healthy calf at proper time.

After the heifers are known to be in calf they must not be subjected to rough handling. It very often takes little to cause abortion, and most people, I think, know the nature of that malady to require warning against it. Excitement, bad or unclean food, over-driving or over-heating, bad water, etc., are all causes from which abortion may arise. With regard to the selection of cows and heifers from a milking point of view, I shall retain it for another issue, as too much space would be required to dwell on that subject in this article.

BUTTER TESTS AT NEW SOUTH WALES.
ROYAL AGRICULTURAL SHOW.

A very great amount of interest was taken in the Royal Champion butter fat test at this show, at which a prize of £100 was given under the following conditions: The competing cows could be of any breed and the prize has to be won three times by the same exhibitor, but not necessarily in succession or by the same exhibit. The percentage of butter fat to be determined by the Babcock test; the trial extends over three days. A special prize of £10-10, was also offered for the cow producing the largest quantity of commercial butter by the churn test, and another special of £6-6 for the cow giving the largest quantity of milk showing a butter fat percentage of not less than 3.25 per cent. All three prizes were competed for by the same lot of cows. Mr. A. Wealock's Spangle was first, giving a milk yield of 167 lbs., 8½ oz., and butter fat 5.870 lbs. The same owner's Stella was second; milk, 160 lbs., 10 oz., butter fat 5 870 lbs. The special for the greatest quantity of commercial butter was won by the same owner; butter 8.416 lbs. He was also second with 6 890 lbs. The special for the greatest quantity of milk was secured by same man, being both first and second. AUSTRALIA.

Relation of Milk to Cream.

ED. HOARD'S DAIRYMAN: —Please answer the following questions through your Inquiry column.

How many quarts of 25 per cent cream in 100 pounds of 4 per cent milk, also in 5 per cent milk. Please give formula.

Bernardsville, N. J. G. W. T.

In one hundred pounds of 4 per cent milk there will be 7.43 quarts of 25 per cent cream; in 100 lbs. of 5 per cent milk, 9.3 lbs. of 25 per cent cream. This is taking into account a loss of 0.1 per cent of fat in separation.

If we wish to put the above into a formula as requested it would be as follows: 25 (% fat in cream) : 3 9 (% fat in milk) : : 100 lbs. milk : x=15.6 lbs. of cream. 15.6÷2.1 (wt. of qt. of cream)= 7.43 qts., the amount of 25% cream in 100 lbs. 4 % milk.

What are lamp chimneys for?

MACBETH'S are for comfort, light and economy.

My name on every one.

If you'll send your address, I'll send you the Index to Lamps and their Chimneys, to tell you what number to get for your lamp.

MACBETH, Pittsburgh.



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We are the largest manufacturers of Grooved and Plain Tire Steel Farm Wagon Wheels in America. We guarantee our patent Grooved Tire Wheels to be the best made by anybody anywhere. Write us.

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ARMSTRONG & McKELVY Pittsburgh.
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ATLANTIC, BRADLEY, BROOKLYN, JEWETT, ULSTER, UNION } New York.
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SOME Mixed Paints may be better than others, but it cannot be said that there is no POOR Mixed Paint. There is plenty of it. Naturally, every manufacturer claims his own particular Mixture is the best.

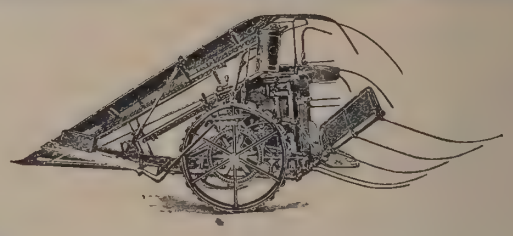
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Will prove of particular interest to you if you will call on our local agents and inspect a "Milwaukee" Corn Harvester and Binder. The simple, automatic and effective mechanism in its construction will appeal to your appreciation of a thoroughly good machine. Successful in any corn grown—long, short, standing or lodged. It's made to cut, bundle and bind corn and,—it does it to perfection;—it has no superior.

Milwaukee Division
International Harvester Company of America
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A full line of Binders, Mowers, Reapers, Corn Harvesters, Rakes, Sickle Grinders, Covers, Oil and Twine.

Big Bargains in Farm Supplies
First Class Material, Merchandise and Machinery at Sacrifice Prices.

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Porcelain Bowl, Hardwood Seat and Tank, Nickel Plated flush and supply pipes, complete, each $10.00.
Cast Iron Bath Tube, Length 5 ft. Complete with full set nickel plated fittings, each $11.00. They are new goods, ask for free catalogue of our full line of plumbing supplies.

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Strictly new, perfect, Semi-Hardened Steel Sheets, 7 feet wide, 6 feet long. The best Roofing, Siding or Ceiling you can use. We furnish nails free and paint roofing red two sides. Comes either flat, corrugated or V-crimped. Delivered free of all charges to all points in U.S. east of Mississippi R. and north of Ohio R. at $2.25 PER SQUARE
Prices to other points on application. A square means 100 square feet.

Barbed and Smooth Wire
Write for our prices on 2 and 4 point Barbed Wire, painted and galvanized; also, 65,000 pounds SMOOTH GALVANIZED WIRE SHORTS
Gauges: 10, 11, 12, 13 and 14. Price $1.40 per hundred lbs. We also handle other kinds, write us your wants.

Telephones at $5.00
Each one is guaranteed to be in perfect order before leaving our plant. We are able to offer you an instrument for $5.00 that would cost you twice as much elsewhere. We carry a full stock of supplies. Send for Phone Catalogue.

Cold Water or Ready Mixed Paints
Paints
We bought at Receiver's Sale from a leading paint house, a very large quantity of Cold Water Paints and Ready Mixed Paints. Equal in grade to any on the market.
Here is a Genuine Paint Bargain. Before placing your order, write us for our special prices. You can surely save money, without sacrificing quality.

Poultry Netting
A special lot of new galvanized No. 19 poultry netting while the supply lasts, at these prices. 150 running feet to bale.
12 inch..... $0.45 per bale.
18 inch..... 0.65 per bale.
30 inch..... 1.10 per bale.
36 inch..... 1.35 per bale.
42 inch..... 1.50 per bale.
Other grades at correspondingly low prices.

Wrought Iron Pipe
Steam, Gas or Water; sizes ⅛ to 12 in. diam. We have in stock 2,000,000 feet of Standard black wrought iron pipe, second hand. It is in good condition, complete with threads and couplings at following prices.
¼ inch at 1½ cents per foot.
⅜ inch at 2¼ cents per foot.
½ inch at 3½ cents per foot.
¾ inch at 4½ cents per foot.

Farm Forges $8.00
We bought several car loads of new Portable Forges at a low price. We have also for sale horseshoes, horseshoe nails, blacksmith tools of all kinds.
Hardware 500 doz. single bitted axes @ 35c. 175 doz. double bitted axes, 2d qual. @ 40c. 6,000 Dietz Lanterns, few slightly affected by water. Write for prices.

Gasoline Engine $70
2 HORSE POWER
Absolutely new; most modern type. Guaranteed, pumping jack & fixtures & fittings for $75. Without pumping jack $70.
Headquarters for Machinery
Our line of machinery supplies is almost unlimited. Complete stock of Saw Mills, Pumps, Sugar Machinery, etc.
And in fact everything in that line.

Building Material
LUMBER, SASH, DOORS, ETC.
We carry a complete stock of first class Building Material of all kinds. Send us your bill for estimate.
10 CARLOADS OF NEW DOORS AT $1,00 each
HARDWARE SUPPLIES
Write for our catalogue of builder's hardware. The per cent of the dealers profit we can save you will prove a revelation.

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We issue a complete illustrated catalogue containing prices of which the above are only a few samples. You ought to have a copy of this book in your home or office and we will send it upon request.

CHICAGO HOUSE WRECKING CO. WEST 35TH AND IRON STREETS, CHICAGO.

Quality of Cheese Influenced by Climate.

(Continued from page 362)

has been made in Kansas or Illinois than in Northern New York or Prince Edward Island is no criterion of the economy of the undertaking. When we consider that a cool, moist climate is essential to profitable cheese making we can easily conclude that the cheese belt of North America is by no means unlimited. Just now it happens that the best natural cheese making localities are the best butter making localities also, but this is owing to a condition. Vermont and New Hampshire are ideal cheese making states, but owing to their proximity to the best butter market in the world, Boston, they find it profitable to make butter rather than cheese.

A large part of Ontario is entirely unsuited to cheese making, yet, owing to the general demand for Canadian Cheddar, these localities are making cheese to the detriment of the industry, when they should be making butter instead. Proximity to good markets works against natural conditions. The dairy industry is badly divided as between cheese and butter. Localities are making butter that should be making cheese, and *vice versa*. A cool, moist climate, while it is the chiefest desideratum, is not, however, all. There must be pure water and sweet herbage. Sometimes it happens that in a cool, moist climate there is lots of low, marshy ground covered with acrid grasses and impure, nasty water. These conditions mitigate the production of either good butter or cheese. With coolness and moisture there must be pure running water and sweet, nutritious herbage. The more mountainous localities offer these desirable conditions.

The possibilities for enlargement of the cheese belt in America are, however, great. When the Rocky Mountain states become thickly settled, what conditions are there for the production of fine Cheddar cheese. Imagine the encouraging conditions of Colorado, for example, as a cheese producing state, with its mountain pastures, its clear, sparkling water, and its alfalfa fields, so like its Alpian cousin in Europe, where the finest cheese is made under similar natural conditions. The plain duty of the dairy associations and the Government Dairy Division is to encourage natural cheese districts to make cheese, and let those localities that do not enjoy such favored conditions, make the butter. The discovery of the new ferment, galactase, may qualify these conclusions, but time alone will have to prove this. J. A. M.

P. E. I.

Bran as a Fertilizer.

There is $13.00 worth of fertilizer in a ton of bran, in addition to the feeding value in it. Do you know that the whole Northwest—Minnesota, Dakota, Manitoba—in that whole territory the farmers are robbing their soil of its nitrogen, potash and phosphoric acid. When that wheat is ground up into flour there is a hundred dollars' worth of fertility to every carload of bran, The wheat stops in Minneapolis at the mills and the products go down into Ohio and New York.

If you and I were living on a river in which there were logs floating down past our town to another town, we would be inclined to stop those logs and manufacture them in our own town. But here we are sending down to New York and buying commercial fertilizers and shipping them a thousand miles into Wisconsin, when there is one hundred dollars' worth of fertilizer in a carload of bran which is available to us near at hand.

My friends, the reason that Wisconsin is where she is today is because we have been putting ten thousand carloads of Minneapolis bran over our farms. Do not worry about buying a carload of bran. Davenport, down in Iowa, does not think it a disgrace to buy saw logs and make lumber out of them. If you can make $3 or $5, or $10 on a ton of bran; if you can have some butter to sell and about $13 worth of fertility for every ton you buy, you are ahead of the game. If those people want to go on raising wheat and taking millions of dollars' worth of fertility out of their lands, let us be wise enough to take advantage of it to enrich our lands. Let us take advantage of it as long as they are willing to let us. Let us stop that bran in Wisconsin, stop the middlings and the Iowa corn and send our butter, cheese and eggs on east. —PROF. W. A. HENRY.

$5.00 BUGGY Offer — Most Liberal Proposition Ever Made!

FROM OUR OWN FACTORY

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"The buggy has arrived. We consider it a bargain, saving us at least $25.00 in price." — E. J. PHILLIPS & BROS., Round Mountain, California.

1000 sold since April 1st. — Remember it is ours if it does not please you.

YOUR BUGGY is built *exclusively for YOU*. We have a large stock of bodies, wheels, gears and shafts, all in lead and oil, ready to be finished *to your order* by the best mechanics the market affords. The price we quote is the cost of material, the labor of making and a small profit for our factory. Such opportunities are not offered every day.

YOU SEND $5.00 with your order and the balance 10 days before you want it shipped. It goes direct to you from our finishing rooms in all of its original beauty. ILLUSTRATIONS, DESCRIPTION and full information with *Free Vehicle Catalogue* sent upon request. Send postal today. An unusual offer. Do not miss it.

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Send for Vehicle Catalogue E10. An unequaled line of well-made and handsomely finished Buggies, Phaetons, Surreys, Runabouts, Carriages, Wagons, Carts, etc., at *Factory Prices*.

22.90 For our *"Diamond Special" Road Wagon* Solid panel spring back; padded seat sides; Pegamoid leather trimming; spring cushion; carpet; boot and shafts. *Over 300 sold during March.*

33.90 For *No. 1 "Big 4" Buggy.* Leather quarter top; solid panel back; best quality elliptic springs; green cloth trimming; all hickory wheels; springs in cushion and back; side curtains; boot; storm apron; wrench; shafts and anti-rattlers.

35.75 For our *"Leader" 3-Spring Wagon.* 1 1-16 axles; double reaches well ironed; iron hub, all hickory wheels; spring cushions; Pegamoid leather trimming; nicely finished. *A mighty good wagon at a mighty low price.*

38.50 For *Young Man's Fancy Buggy.* A general favorite. The price is less than your dealer pays for such in car lots. Long distance axles; selected hickory wheels; genuine leather quarter top; trimmed in fancy velour; side panel of body painted a dark maroon. A beautiful job in every way.

42.50 For our *"Brown Beauty" Buggy.* One of the *choicest* in the line. Brown panels on body; brown cloth trimming; brown head lining; red gear; long distance axle; new style upholstering. *A nobby rig at a low price.*

44.90 For our *"New Thorneward" Buggy.* More of this style sold than any other. Long distance axles; Bailey loops; all-wool cloth trimming; elegant finish. *You could not duplicate it from your dealer for $65.00.*

46.50 For our *"Lakeside" Triple-Service Surrey.* A large, roomy, full panel back, spring cushioned surrey which can be used also as an open driver or one seat wagon with room behind for trunks, etc. *All for the price of a buggy elsewhere.*

69.85 For our *"Peerless" Buggy.* The pride of our factory. Has all the essential features of the very highest grade work. Usually sells for $25.00 more than price quoted. *You will be proud of it anywhere.*

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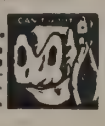
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NO HUMBUG. Three In One. Swine V, Stock Marker and Calf Dehorner. Stops swine from rooting. Makes 48 different ear marks. Extracts Horns. Price $1.50. Send $1 for trial. If it suits, send balance. Pat'd May 6, 1902. Hog and Calf Holder only 75c.



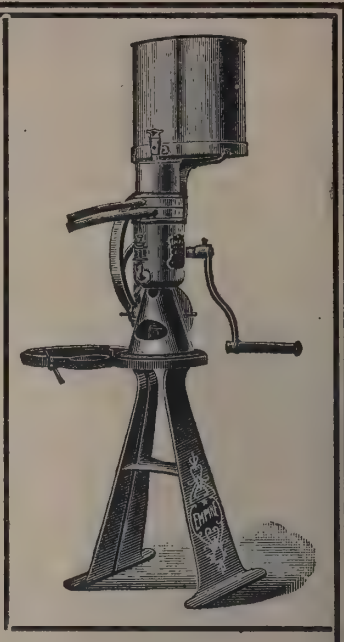
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EASY RUNNING..... Cream Separators



It's a broad claim we make but **We Deliver the Goods**

More up-to-date creamerymen are pushing the Empire Cream Separator today than any other separator on the market. Why?

More up to-date dairymen delivering cream to creameries are buying the Empire Cream Separator today than any other separator on the market. Why?

More farmers are perfectly satisfied with the Empire Cream Separator today than with any other separator on the market. Why?

It's Altogether a Question of Merit.

We do not expect to sell a separator to every farmer in the land. We do not expect every creamery to take up the sale of the Empire. We could not accommodate all of them either with territory or machines. We know some of them are tied up with other manufacturers and cannot break loose, no matter how much they want to.

We do not bull-doze creamerymen. We do not threaten "to ruin them" if they sell another machine. We do not appeal for patronage on any grounds other than simple merit. We can take that position because the

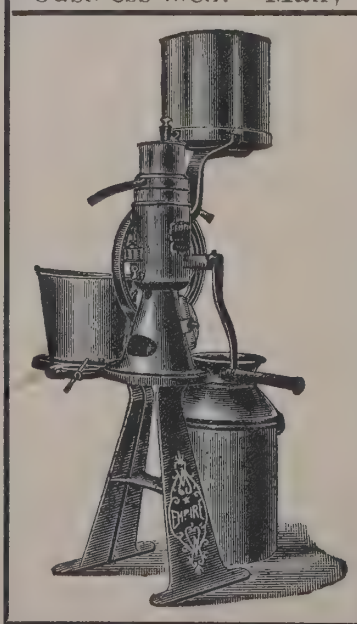
Empire Cream Separator

Does the Business.

We have never yet known a live creameryman who has thoroughly investigated the merits of the several hand cream separators on the market, to undertake the sale of another machine if he could get an agency for the Empire. Here are a few of the wide-awake fellows who are selling the Empire:

Hygeia Creamery Company, Omaha, Neb.
Geyer Creamery Co., Storm Lake, Ia.
Tri-State Creamery Co., Chicago.
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Jahnke Creamery Co., Watertown, Wis.
J. P. Baden Produce Co., Winfield, Kan.
Blue Valley Creamery Co., St. Joseph, Mo.
Central Michigan Produce Co., Alma, Mich.
The Dodge Creameries of Wisconsin and Illinois.
Des Moines Creamery Co., Des Moines, Ia.
Longmont Creamery Company, Denver, Col.
Cedar Valley Creamery Co., Cedar Rapids, Ia.
Ernest Karow, De Forest, Wis.
C. J. Dodge, Lodi, Wis.
Osseo Creamery Co., Osseo, Wis.
Comfort Produce Co., Bad Axe, Mich.
A. Nolting & Sons, Elgin, Ill.
Oakdale Dairy, Fort Dodge, Ia.
Townsend Creamery Company, Portland, Ore.
Mason City Cream Co., Mason City, Ia.

Many of the above institutions were users of other makes of power machines—all of them were most vigorously canvassed by other manufacturers—all of them have heard the stereotyped story of "ten times as many machines in use as all other makes combined," and about "protecting patents" which have expired and which no one wants to use. They have been bull-dozed and have listened to threats that "another creamery would be started across the road;" they have been offered antiquated, complicated, "patent protected" separators at as low and lower prices than they are now paying for the Empire, but they chose the Empire on a merit basis alone after a thorough investigation. Look up these companies who handle the Empire. They are clean, reputable business men. Many of them are selling from 200 to 400 separators per month. In the state of Kansas alone more than two thousand Empires were placed during the past year. The volume of business done by creameries using the Empire separators is double that of the aggregate business done by any competing machine through like channels. Investigate this statement. The Empire Separators are now being manufactured at the rate of 100 per day and still the demand is not being fully supplied. The reason is simply this:



When an Empire Separator is placed in a community, a dozen always follow it.

It is a machine that sells itself. It is so much simpler in construction, so much more easily operated; so much more easily cleaned; and gives so much less trouble that most farmers say it is worth twice as much as any other separator they ever saw. Don't be misled. Investigate for yourself. Examine the Empire, its work and its record, and then if you don't decide that it's the best separator in existence we'll not have another word to say. We want you to satisfy yourself **before you buy.** We'll guarantee the Empire will keep you satisfied after you buy.

EMPIRE CREAM SEPARATOR COMPANY,

Bloomfield, New Jersey. **Chicago, Illinois.**

The Empire has more late improvements and labor saving conveniences, covered by late patents, than any other separator made. That's why it keeps so far in the lead.

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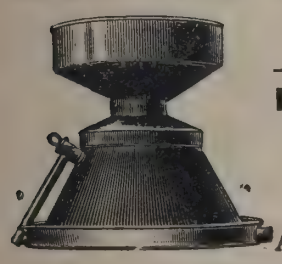
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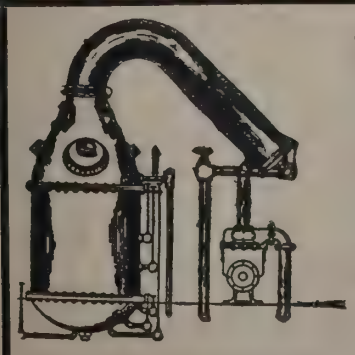
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We would like to look at the dairyman who would take a bucket half full of filth, bacteria, disease germs, barnyard refuse, etc., and use it as a milk bucket in which to do the morning's milking? You wouldn't do it,—of course you wouldn't and we don't think you know of anyone who would. But say! right here let us ask you if it is very much better to run fresh warm milk through a "bucket bowl" separator? What is the difference whether it goes into a filthy bucket or into a filthy "bucket bowl?" There are just two types of separator bowls, the **Tubular** bowl and the "bucket bowls." Only one **Tubular** bowl but a dozen or more "bucket bowls"; buckets full of cones, buckets full of plates, buckets full of discs, buckets full of blades, buckets full of contraptions that cannot be kept clean and that soon become so filthy that you must hold your nose when using them. The warm weather is coming on and if you will just get a whiff of the "disky flavor" that comes from one of these "bucket bowls" you will know what we mean. Don't let anyone sell you a bucket full of filth.

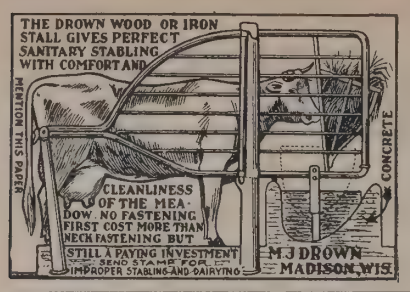
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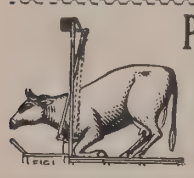
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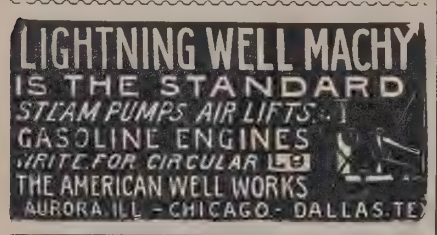
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The Next N. C. B. Meeting will be at Sioux Falls, S. D.

ED. HOARD'S DAIRYMAN:—The Executive Committee met in St. Louis, Mo., May 18-19 to decide on the location for the 11th Annual Convention of the National Creamery Buttermakers' Association. All members were present and after carefully considering the propositions, made by several candidates for the meeting, it was decided that the offer from Sioux Falls, South Dakota, as made to the committee at Cedar Rapids, Feb. 4th be accepted. The offer is as follows:

Sioux Falls subscribes $2,500 in cash towards the premium fund, free halls for all purposes and free entertainment of the officers of the Association.

It will be remembered that Sioux Falls took excellent care of the large numbers who attended the 6th Annual Convention, and as the Cataract House, which was destroyed by fire soon after that convention, has been rebuilt almost twice as large, and is run in a first-class manner by an exceptionally efficient landlord, there need be no apprehension about securing first-class accomodations. Besides the Cataract Hotel, there are a number of other well conducted hotels.

In explanation to those who were interested in having the meeting taken to Buffalo, we wish to say, that Buffalo was afforded every opportunity; your Secretary even made a trip to that city, and while the hotel situation, as well as the convention hall, was very satisfactory, and while the representatives of the Convention Bureau and Manufacturers Association showed him every courtesy, he was unable to get any definite offer as to a financial contribution, therefore it was impossible for the Committee to consider Buffalo at all.

Hoping that those interested in the creamery industry will support us in our efforts of making the 11th Annual the very best convention since the organizing of this Association, we remain,

H. J. NIETERT, Pres
J. S. MOODY, }
W.F. JENSEN, } Ex. Com.
C. D. ELDER, }
E. SUDENDORF, Sec,y.

Pearl Millet, or Pencilaria.

The United States Department of Agriculture has recently issued *Farmers' Bulletin No. 168*, which answers questions which we are frequently asked concerning pencilaria. We quote from it, as follows:

"The recent effort on the part of certain seedsmen in this country to revive interest in pearl millet by offering it under new and attractive names and at very high prices renders it desirable that a statement concern ng its cultivation and uses should be made for the information of those who may be interested in green fodder crops. This crop has been grown more or less in this country for thirty years. It is known that under favorable conditions, particularly in the southern states, it yields a large amount of green fodder. If utilized before the plant is mature the fodder is palatable, but if the plant be allowed to mature it becomes so woody as to be of little value. The most important difficulty in connection with its cultivation lies in the fact that the seed is rather unreliable. Most of those who have experimented with this crop have failed to secure a satisfactory stand. The department of agriculture has grown the crop experimentally for a number of years, and last year obtained seed from all the seedsmen in this country from whom it could be had, not only under the name of pearl millet, but under the name of pencilaria and Mand's WonderForage Plant, and they all proved to be practically the same thing. Consequently farmers who desire to try this crop are advised to purchase the seed under the name of pearl millet, as under this old and well established name it is sold cheaper than under the new names."

This same plant has been exploited in Germany under the name of Peruilaria, and sold at first at the rate of $69 per pound. The bulletin further states that of the seventy-four seedsmen whose catalogues were examined recently, thirty-five offered the plant for sale under some one or more of its names, six under the name of Mand's Wonder Forage Plant, four as pencilaria, and twenty-five as pearl millet only. Three have stated that pencilaria and Mand's Wonder Forage Plant were only new names for the old pearl millet. The price varies from 12 cents to $1.50 per pound.



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[SIGNED] HENRY E. ALVORD,
Chief of Dairy Division, U. S. Department of Agriculture.

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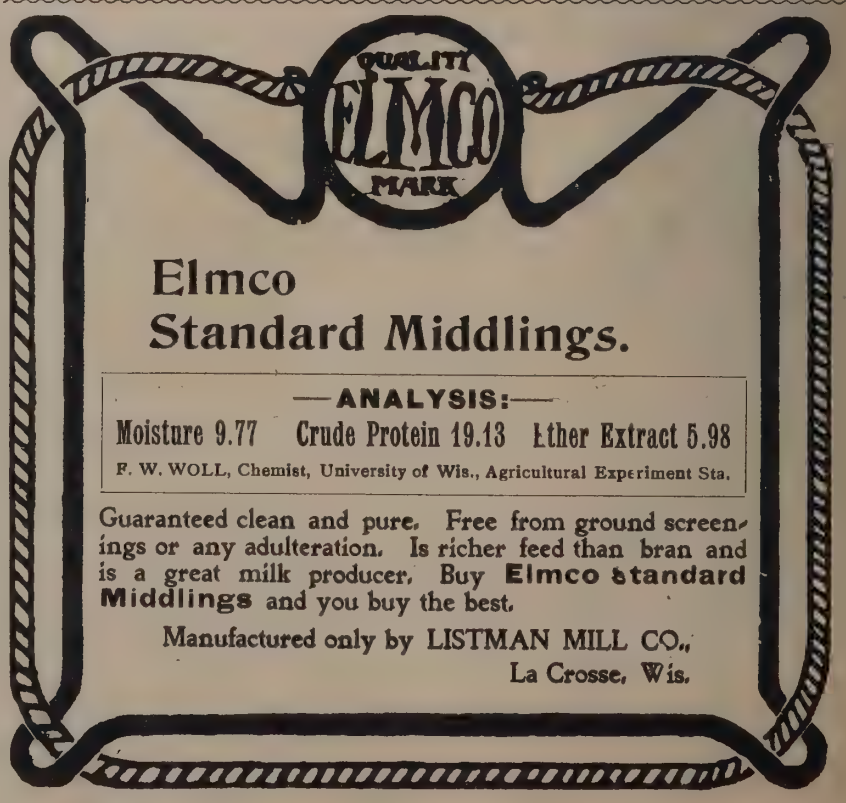
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The Physiology of Milk Secretion.

(Read Before the Nebraska Dairymen's Association by John J. Repp.)

Milk is the normal secretion of the mammary gland of females of the order mammalia. In this paper, however, only cow's milk will be considered. It is white, opaque, slightly sweet in taste, alkaline or amphoteric in reaction, and has a characteristic odor. The specific gravity is 1.029 to 1.033. It is composed approximately of water 87%, sugar 5%, fat 4% casein and albumen 3½% and salts ½%

Each of these constituents is in itself highly complex in composition. The component parts are disposed as follows: The casein, albumen, sugar and salts are in solution in the water making a solution called serum. The fat is in suspension in the serum. The fat is divided into very minute globules or particles 1-2500 to 1-5000 of an inch in diameter, each of which is surrounded by a thin sheath of casein, which prevents a coalescence of the globules.

In the process of churning, the casein envelopes are broken and the globules of fat collect in masses which we call butter. Milk is ordinarily considered a solution, but it is, strictly speaking, an emulsion as the oil globules are only in suspension and not in solution. Under the high power of the microscope the oil droplets appear as highly refractive bodies floating in a clear fluid.

As stated at the outset, milk is a secretion of the mammary gland. This gland is a dependency of the skin, and is a member of the group of glandular structures known as compound sac ular, or racemose glands. A cow has four such glands which, combined, form what is popularly known as a bag, or udder. Each gland is composed of 15 or 20 distinct lobes which are held together by connective tissue so as to form a single conical mass. Each lobe is subdivided by penetrating septa of fibrous and fatty tissue into numerous lobules which are again subdivided into the individual sacs called acini. The acini are very small, barely visible to the naked eye, and each one is lined by numerous columnar epithelial cells. These cells are microscopic in size, varying from 1-1000 to 1-200 of an inch in diameter. Each acinus has a minute tubular duct leading from it. These small ducts unite to form larger ones which constitute the ducts of the lobules. These larger ducts still further unite to form the common lactiferous, or milk-bearing, canals which in turn empty into the large cavities at the lower part of the gland called milk sinuses. The ducts and milk sinuses are lined with epithelium.

By way of illustration, in order to make the description which I have given more clear, I will ask you to imagine a very prolific grape vine with fifteen or twenty bunches of grapes hanging close together. This would represent in a rough way a mammary gland, each one of the bunches would figure as a lobule, and each grape on a bunch an acinus. Now conceive each grape hollowed out almost to the hull and then lined with small column-like bodies. These bodies would represent the cells. The stem of each individual grape will represent the small, intralobular duct which conveys the secretion out from the little sack in which it is formed. The main stem of the bunch and the principal branch upon which the various bunches hang, typify the interlobular and the common excretory canals. The fibrous and fatty tissue between the acini and lobules of the gland may be likened to the air which everywhere fills the interstices of the various parts of the vineful of grapes.

The milk sinus of which I spoke above has in each gland a capacity of about one pint, making two quarts for the entire udder. In these sinuses, together with



A PRINCE EDWARDS ISLAND DAIRYMAN.

J. A. McDona'd, of Hermanville, P. E. I. Better known to readers of the Dairyman as J. A. M.

the ducts and acini, the milk which is secreted during the intervals of milking or suckling is stored up. The milk finds its way to the exterior during the milking process through an extension of the milk-forming apparatus called the mamilla, nipple, or teat, which is pierced by a canal to admit of the passage of the fluid.

The condition of the mammary gland varies with the different periods of life, as well as under different conditions. In early life and up to the time when the first period of pregnancy is progressing the gland is usually in a rudimentary state, consisting then chiefly of fibrous and fatty tissue. The functional elements, namely the cells, acini and ducts are a solid, unexpanded, inactive mass. Near the termination of the period of gestation these essential parts of these organs undergo a rapid development so as to be in a condition for active work at the proper time. During this preparatory stage the connective tissue septa become reduced to quite thin partitions and the secreting tissues greatly predominate. After a considerable, but varying, period of lactation the functional parts of the organ become less and less conspicuous until at last their actions cease altogether. This we call "going dry." Then, unless another period of gestation intervenes, this state of atrophy becomes permanent. Thus there is seen to be a close sympathy between the organs of generation and those of lactation.

The mammary glands are well supplied with blood vessels, nerves and lymphatics. The blood supply finds its way to the glands through the external pudic artery. It is carried along the ducts in the connective tissues by small vessels and finally right up to the epithelial cells by the capillary vessels. The blood is conveyed from the udder by the subcutaneous abdominal, or milk, veins which pass forward along the abdomen just under the skin to the region of the sternum where they penetrate the abdominal wall and enter the thorax by numerous perforations, several of which are so large that they may readily be felt by the end of the finger. These openings are popularly called "milk-pores" or "milk-fountains," names which are, however, not very appropriate. The size of these openings and of the milk vein are by some considered an evidence of capacity for milk production, but such an inference is of doubtful propriety and often misleading. The lymphatics follow pretty closely the course of the blood vessels.

The nerves come from the first pair of the lumbar plexus and ramify to the walls of the acini.

Allow me now to consider briefly the exact mechanism of milk secretion. The epithelial cells to which I have already directed your attention with their blood and nerve supply are the important factors in milk secretion. All other things are subordinate. Upon the development depends the quality and quantity of the secretion. The cow must not be viewed as a receptacle into which so much water and solid food may be introduced at one end, while from the other end so much milk may be drawn. Without denying the influence of other things it is safe to conclude that most depends upon the capacity for work possessed by the cells of the gland.

The epithelial cells, which are the working part of the gland and which, as I have already pointed out, line the innumerable little sacs and tubes which make up the gland, are little masses of proteid substance, known as protoplasm, enclosed by a thin membranous wall. Near the centre of the cell is a small particle of more condensed protoplasm called the nucleus. As the time of calving approaches these cells multiply rapidly and are cast off into the acinus. In addition large, white blood cells, called leukocytes, find their way into the acini. These leukocytes take up fat droplets which are secreted by the epithelial cells and tubules. When calving occurs, watery materials are added to these accumulated cells and the resulting fluid is known as colostrum. The large leukocytes with fat droplets within them are known as colostrum corpuscles, and are a prominent feature of the fluid when viewed under the microscope. Gradually the character of the secretion changes until about the end of the fourth day it has the true character of milk. While at rest the epithelial cells are small and granular. As activity sets in and advances, the cells become increased in size, the granules disappear and the cells become filled with secretion. The outer part of the cell, between the nucleus and the lumen of the tubule undergoes fatty change and is cast off to constitute part of the solids of the milk. The remaining part of the cell which contains the nucleus, then immediately undergoes a regenerative process so that soon the cell is restored to its full size and capacity for work.

This cycle of degeneration and regeneration may be repeated a number of times in each cell before it finally dies and is cast off. In the process of milk secretion the whole cell does not degenerate, only the outer part of it. The fat, casein, albumen and milk sugar are formed by this process of partial degeneration of the cell. The water and salts, on the other hand, are the results of simple transudation, or filtration, from the blood and lymph capillaries which surround the cells. As evidence that the formation of casein and sugar are not a mere filtrate we have the fact they do not exist preformed in the blood or lymph even up to the point at which these fluids come into contact with the cell. Fat exists in the blood but only in very small quantities. The total amount of fat in the blood of a cow would not equal the amount of fat removed from the udder at one milking. It is evident, therefore, that the fat, sugar, and casein, the greater part of the bulk of solids in milk, are the product of special cell activity.

It is essential also to note the greater part of the milk is secreted during the the act of suckling or milking. It has been shown that the milk sinuses will hold about two quarts of milk. Allowing a like amount for the capacity of the acini and ducts and it is seen that the total capacity of the udder is about one gallon. This is not more than a third or a fourth of what a good cow will produce at a milking or suckling. In the intervals of withdrawal of milk from the udder the gland cells are in a state of partial rest, but as soon as withdrawal is begun the cells, which are under direct control of the nerves and blood supply, are excited to great activity, with the result that the milk is produced in large quantities. An additional evidence that in the intervals of milking the cells are only slightly active, is found in the fact that the milk which is stored up during these intervals, is very watery and poor in fat. During these rest periods the transudation of water is out of proportion to the production of solids especially fat which is the direct result of cell activity.

Knowing, then, that the principal constituents of milk are the direct outcome of the cellular activity of the mammary gland we are prepared to appreciate the great importance of proper development of this gland. As a rule a good udder is one of generous size, but this is not always the case. The fibrous and fatty tissue which make up the supporting framework of the udder, may be of such excessive development as to contribute a large part of the bulk. Such an udder, though large, is apt to be ridged and unyielding and to be reduced only slightly in size by milking. I would consider that pliability of the udder after the milk has been withdrawn is a characteristic of great importance in determining the value of an udder as a milk producer.

More valuable, however, than any external appearance is the application to each individual cow in a herd of some test of total solids or of fat alone. Owing to the fact that, as a general rule, the other solids of milk maintain a tolerably constant ratio to the fat, it is a common practice to judge of the value of a dairy cow by the percentage of fat which her milk contains. For the determination of fat, the Babcock test is used almost exclusively for commercial testing. There are other methods which are more accurate, but on account of the difficulty which attends their use they are employed only in the laboratory. Before a dairyman can lay claim to an accurate knowledge of the producing powers of the individuals of his herd he must have applied a fat test to each of them a sufficient number of times to detect the fluctuations which ordinarily occur in every cow.

In breeding or purchasing dairy cows, choice may be made from one or more of the well known dairy breeds, or from a good milking strain of the beef type. Many grade cows of unknown breeding are excellent dairy animals, and it is profitable to search for and find them. The day is coming when dairy cows will be bought and sold upon the basis of response to the Babcock test. This is an ideal which may soon be reached if it is striven for.

The manner of feeding also has an important bearing upon milk secretion. Of course, it is true that if a cow has a poorly developed milk secreting apparatus no method of feeding will make a good cow of her. Recent tests at experiment stations have shown that the fat content of milk can not be much increased by feeding methods. There is a maximum limit of production, dependent upon the gland development, peculiar to each individual cow beyond which she cannot be forced by any kind of feeding. However, any cow, whether good or bad, that has been poorly fed can be much improved by proper food given in sufficient quantity.

Water, of all foods, has the greatest influence upon the composition of milk. Cows should have as much water as they will drink, not less frequently than twice a day. In winter it should be heated so as to remove the chill. The water should always be pure. The drinking of impure water not only has a deleterious effect upon the milk, but it leads to parasitic infestation which lowers the vitality and lessens the milk flow. Of the inorganic foods, perhaps the only one that needs to be supplied is common salt. The other inorganic constituents are present in sufficient quantities in the food and water.

In connection with organic food stuffs attention is called to the fact that the various food elements, viz: proteids, carbohydrates and hydrocarbons, are not transferred directly from the food to the milk. These food principles first undergo chemical change in the process of digestion and later on, as has already been pointed out, they undergo chemical change in the epithelial cells of the mammary gland.

It is well known that starches, sugars and proteids are converted into fats. Also that one kind of fat is changed into another kind. The casein of the milk is supposed to be produced from the albumen of the cell and probably has its origin in the proteid food principle. The

origin of milk-sugar has not been clearly demonstrated, but the observation that the amount of sugar is not decreased by withholding carbohydrates, tends to show that it may originate from the proteids or even from the fats. That fats are produced from starches and sugars is evidenced by an experiment at the Geneva Station in which a cow that received in 95 days, food containing only 5.7 pounds of fat, produced during that time 62.9 pounds of butter fat and at the same time gained flesh, so the fat of the milk could not have been obtained from the body. Neither was it all obtained from the protein of the food, for only enough protein was given to produce about one-half of the fat which the milk contained. Other experiments confirmed the finding in case of this one cow.

The relation of milk-secretion to feeding is so intricate that it has been thus far impossible to put it upon a basis that is entirely scientific; it is, in a measure, empirical. The best guide we have in feeding is the nutritive ratio, with the food supplied in sufficient quantities. By nutritive ratio is meant the ratio of the proteids to the carbodydrates and hydrocarbons combined. In dairy cows it has been found by experimentation that the best results are obtained when the nutritive ratio is about 1 to 6 or 7. The quantity of food depends chiefly upon the size of the cow and the capacity of the milk glands for secretion. The dairyman is always repaid for generous feeding. Green, succulent food, in the form of ensilage, pasture and soiling crops, can be furnished every day in the year, and is invaluable.

Milk cows should be well protected against both the extreme heat of summer and the extreme cold of winter. At the same time proper ventilation should be provided. This is of the utmost importance and is frequently overlooked. While it is doubtless true that a cow kept at perfect rest will, other things being equal, give the greatest quantity of milk, yet considerations of health forbid such forcing and require that the cow be given moderate exercise in the open air. Undue exertion should be avoided.

As the milk glands are under direct control of the nervous system, any conditions which affect the nervous system, will react upon the milk-producing glands. Any undue disturbance of the normal distribution of the nervous force will divert some of the blood supply from the milk glands to some other part of the body and thus diminish the milk flow. The well known phenomenon of "not giving down" the milk is the result of lack of nervous tone in the gland brought about by some sort of excitement. The udder is not a container in which the milk is ready stored up at milking time, but an organ in which, as has already been pointed out, the greater part of the milk is elaborated while milking or suckling is in progress by virtue of the agitation produced. Unless the cow is in perfect repose this secretion will not take place normally. The lesson to be derived from this is that the cow should be treated with the greatest gentleness and be otherwise kept free from excitement, especially during the time of milking or suckling.

The Results in one Maritime Dairy.

For some issues past we have been recounting the successes and failures of farmers all over Eastern Canada, but have never before given the figures for a year from a real live Maritime dairyman.

A year ago, Mr. Fred W. Davidson, Anagance, Kings Co., N. B., submitted to us an article showing how much more money he had made in his dairy by sending his milk to the creamery, retaining the skim milk on the farm. This statement was so excellent a showing that we at once asked him to let us have his next year's figures, and as his year closes on March 15th, we are now in receipt of a rough draft from his books and a request "to write it up for him—he is too busy."

Well, to begin with, we always like a little history. Fred Davidson is a young man, possibly 40, born on a farm in upper Kings and now resident at Portage, four miles south of Anagance Station and practically on the boundary between this county and Westmorland. We are not sure how much land there is in the farm but something near 45 acres is under cultivation and the rest is divided between pasture and woodland. It is not what appeals to one as a good farm, being hilly and light and somewhat springy—just such a farm as hundreds of others, hard to manure and very hard to maintain.

The Davidsons have been a family of beef-cattle feeders, some of New Brunswick's early Herefords being theirs. It is, however, a difficult proposition to make beef pay on farms such as we have described, because it is difficult to carry them through winter without their eating their heads off.

In his early days Fred W. was a clerk in a store somewhere. We don't know where and it makes no difference. Mercantile life had no charm for him and he never quite lost sight of the farm up among the hills, across the road from the Episcopalian meeting house. In addition, however, to a fair knowledge of bookkeeping, his experience taught him the true relationship between profit and loss, a point which, on his return to the farm, he began at once to figure closely upon. It did not take him long to see that the thing would not pay unless something different was done, for from raising less and less feed on the farm they were now unable to get a catch of clover.

A change was made after much study. As we were laconically told "he got something that ate less"—he got some Jerseys and he started in to make butter, for sale in St. John. If memory serves us right, he once supplied the Royal Hotel. The business prospered. His feed went further. His cash returns were greater. His manure pile was a carefelly guarded spot. By using his skim milk profitably he not only had good calves but plenty of pork and, in fact, he came very near making the traditional two blades of grass grow.

From the beginning, every available new idea was put into effect. The new barn was light and airy, with a large manure cellar. Then came a hand separator, followed by a series of trips to the nearest Babcock test until the skimming was down fine and a knowledge of what each cow was doing, obtained. Then came a silo, and the corn growing has never failed him. This all made more cows possible and Mr. D. envolved his well-known slogan: "Raise more corn, to keep more cows, to make more manure, to raise more corn, to keep more cows." Gradually the number of cows rose to 23. Then came the parting of the ways.

On a farm where so intensive tillage must be pursued, it means much work. The family are all young and the scarcity of hired help became an alarming perplexity. Between heavy cropping on a farm where work was carried on at a disadvantage, and making butter at home, no one man could carry it all. And anyway a few bad customers too seriously affects one's profits. The business was paying too well to be dropped and after much more study it was decided to send the cream by rail to Sussex creamery, still retaining the skim milk. This meant one great saving and the event has proven it to be much more profitable than the old method of butter making when farm work was crowding and then taking chances on collections.

The next move was to get a water supply installed and a windmlll was placed on the barn with a pump in the basement to raise water from the creek which ran behind the old meeting house previously referred to. In addition to this the mill pulps the roots and the boys are happy. The final move was made in the purchase of a manure spreader and since then the expenditure for hired help has been much reduced, while, in the face of all that, the report of Sussex creamery finds Davidson's Jerseys during 1902 heading the list of 137 patrons with 16,347 pounds of cream which gave 4,779 97 pounds butter fat and brought him $1129.15 in "elegant hard money," to use the phrase of a well-known cream separator man.

So much for the past of this farm and herd—no, not quite, either. We should repeat what their owner has already told us, that the aim has been to have all cows come in in the early fall and that the land is devoted as far as possible to the production of corn and clover hay with the oats. Mill feeds are bought in sufficiently large quantities to make the price right.

Now for the statement:

RECEIPTS.		EXPENDITURES.	
Cash from creamery	$1267.65	Feed—cows	$383.56
Butter made at home at creamery prices	33.37	pigs	202.78
Pork sold	470.26	Seed grain	37.27
Beef sold	60 00	Hired help	70.00
		Taxes	33.78
		Insurance	10.00
		Bal. on hand	1093.89
	$1831.28		$1831.28

In the way of additional figures we are told that the skim milk reached the round total of 50 tons and the pork averaged $7.44 at the autumn sales and $7.56 this spring.

As we have said, the above is a cash showing, and, in our judgment, a right good one, the correctness of which is questioned by no man who knows Davidson. Taking the average, it is seen that he made a gross return of $56.56 per cow and there are heifers among the lot too. We question if the Ontario farmer we first quoted can beat the average, when the allowances are made, for we know his tax bill and hired help bill would both be at least three times greater than Mr. D's. Maritime farmers may kick, but they don't know the first principles of paying taxes.

We have been turning over mentally how to average the improvement of the land. It is a great consideration, but the only measure of its value is the gradual and continuous increase in the number of cows kept. More clover, more manure and more grains are responsible for this.

The pork question has a great interest for us. Be it known that this is the same Mr. Davidson who made his skim milk worth 42 cents per hundred in years gone by. These pigs are Yorkshires and a good lengthy sort at that. From the $470.26 received from pork sales, take the $202.78 paid for their grain and then take out $5 for roots fed, for we are giving the unbeliever in pork no chance to turn, Mr. Davidson is positive that not over two and one-half tons of turnips were used. That leaves us $272.48 for the skim milk, an average of twenty-seven and one-quarter cents per hundred, or $5.45 per ton. It must be understood that if this pork had been sold when it was bringing $9.25 per hundred in St. John, a difference would again be seen of something between $30 and $35 on the 26 hogs sold at $7.56. And it should further be explained that they were fed on corn meal, a ration which not many of our farmers would be compelled to use. Take it as it is and we should like to know how else a man can get 27¼ cents for a hundred of skim milk, and return the manure of 26 pigs to go to the upbuilding of a needy farm.

We like these statements. They show us where we are and what can be done. We scarcely expect Mr. Davidson's thanks for giving these datails because the slip he sent us with his figures might have been put in as it was and doubtless intended so to be. But this man's work is not beyond the attainments of any man and we know that many others have been watching him since the day he addressed the Dairymen's Association at Fredericton three years since, and his success in corn growing has been the subject of much other experiment in the same direction.

We should like to have his picture to show our readers, but he declines to sit and there in none in existence. We had one of the barn and herd and spoiled the plate, but we shall repeat that attempt when next we visit Portage—a trip that should be made by every one who experiences an occasional doubt of our agricultural future and can enjoy a good trout stream.—*Maritime Farmer.*

The Care of Springers.

Protein and Butter Fat.

ED. HOARD'S DAIRYMAN: — Though winter dairying has made wonderful progress in late years, to the great advantage of dairy farming as a business, for it has been many times shown that the winter dairy cow which has calved in the fall, gives a profit of from ten to fifteen dollars over that of her spring-calved sister, yet, as fall calving and winter dairying call for a larger amount of skill and care than does summer dairying, the winter dairymen are largely in the minority, and will be, no doubt, for a long time to come. Winter laying in poultry, winter lamb raising and winter horse raising have been shown to be immeasurably more profitable than the same pursued in summer, and still how few there are, comparatively speaking, who change to winter. Winter dairying, however, has made rapid progress in the last ten years and it would be idle, from a knowledge of the past, to attempt to prophesy what the next decade may bring forth. The large majority of cows still calve in the spring, and of these it is of more importance to speak.

Most people who keep a dairy of cows due to calve in the months of March, April and May, pay very little attention to the cows until the period of calving has arrived, then they fuss about them and fret them and frequently lose a good

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It tells a good deal faster if the company it keeps is not good. But butter goes through commission houses and stores, and associates with cheese and vegetables, absorbing flavors not its own. But you can preserve the purity of your butter if you wrap it in

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Without any smell or taste itself, it shuts out every foreign odor and keeps in its delicate, sweet flavor. A purely vegetable paper, made in any size or shape to suit your wants. We print your name or brand, as desired, on every sheet and guarantee it never to rub off or discolor its contents. Free samples which we are sending out never fail to interest dairy people in **Parchment Paper.** Write for them and ask for copy of our book, **"Better Butter."** Also free.

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is all right when it leaves your hands, but how about it when it has stood around the market or grocery a few days absorbing all kinds of odors? The only safeguard to your reputation is a perfect package.

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deal of time of themselves and the use of the cow by retention of the placenta and other ills. A cow, that has been neglected by its owner during the winter, and receiving no grain food up to the time of calving, will not give that measure of profit when she comes in milk that she would if given good care and food some time previous to parturition.

Ordinarily a cow does fairly well up to within a month of calving, without any meal or grain, provided her other feed is fairly succulent and nourishing. Some men take their cows fairly well through the winter on nothing but straw and turnips. Succulence, either in ensilage or roots is of the first importance. A daily winter ration of well cured oat straw, peas and oat straw, or the same made into hay with forty pounds of turnips or mangels make an excellent and cheap ration up to within a month of calving.

Beginning, however, about a month before the cow is due, a small grain ration should be given daily. I am sure that a mixture of oats, barley and peas, grown together—a crop which every dairyman should endeavor to grow—with wheat bran, half and half by weight, will be found to be both cheap and salutary. Begin with a small daily allowance of this mixture, in addition to the regular feeding, and gradually increase the grain allowance so that up to within a week of calving, the cow is getting six or eight pounds, or as much as the cow would receive with a full flow of milk.

The bowels must be watched closely and any evidence of constipation must be religiously guarded against. With free action of the bowels, troubles at calving becomes remote. To this end, salt should be fed daily in the grain ration and for a week before calving, a small handful of of salt should be given daily. Managed in this way, difficulties at calving will not occur. In almost every case, aside from cold or exposure, retention of the placenta is caused by constitutional weakness and lack of nourishment. It is my experience that cows which have been well nourished and the bowels in free condition, are not troubled with retention of the placenta. On the other hand this trouble is mostly observed in cows that have been badly nourished. At calving time the grain ration must be reduced fully one-half for a week, and gradually increased, when the milk flows freely to the normal quantity.

There is no grain food that pays larger profits in dollars and cents than the grain that is feed during the month immediately preceding parturition, when fed intelligently; and there is no part of the cow's anatomy that will bear closer watching at this time, than the action of the bowels. Oil meal would be a fine feed to form part of the ration at this time, but it is considered dangerous. However, as there are some cows which are naturally sluggish in bowel action, to these some oil meal should probably be fed, if at hand, otherwise, with such cows, a dose of Epsom salts a week before calving may be necessary. In general this, however, will not be necessary, if common salt is fed freely.

About how much grain food should a cow be fed when a full flow of milk is being given? The authorities on feeding are daily changing the opinion on this important question. The results of the Wisconsin experiments, as per last report, are too vivid to be overlooked. Here it was found that 1.80 pounds protein was fully equal to the so called standard, and as protein is the ingredient supplied largely by the concentrates, it is plain that lots of high priced protein has been wasted in all these years. Prof. Haecker it seems was able to get three hundred to four hundred pounds of butter from a daily feeding of two pounds digestible protein, and Prof. Dean gets three hundred pounds butter by feeding only eight lbs. of concentrates composed of grain and bran only, no high protein content by-product, and declares that eight pounds of grain is sufficient for one pound butter fat—eight pounds grain and bran is sufficient for one pound butter fat, mind you.

Prof. Haecker, however, has put the matter quite plain, when he says: "feed .7 pounds protein for maintenance, then add 1.1 pounds protein for each pound butter fat produced. This is a simple key to the problem. If your cow gives one pound butter fat per day, then feed 1.8 pounds protein. If, on the other hand, she elaborates but one-half pound butter fat per day, then feed but 1.25, or one and one-quarter pounds protein per day, that is presupposing that the cow is fed to her capacity.

I, for one, am very glad that these most important disclosures have been made and amply verified, for it gives added hope to the ordinary dairyman, as I have sometimes asserted, who primarily from reading and studying the costly rations with the high protein content, which were thought absolutely necessary to feed the cow before such yields, as 250 to 350 lbs. butter could be expected, and which he could never afford to feed himself. Now the fact is made plain, that give then right dairy animal, the costly protein may be cut down by almost three quarters of a pound, and yet equal results may fairly be expected. I repeat, this announcement is bound to greatly stimulate dairying, and the problem of feeding will now partly give way to the problem of breeding. Dairy papers and dairy writers can now best give increased attention to the breeding side of the dairy cow—a phase of the question hitherto considered of secondary importance. J. A. M.

Hermanville, P. E. I.

A New York Herd Report.

ED. HOARD'S DAIRYMAN:—Being a constant reader of your valuable paper for the last four years and being very much interested in all that it contains I thought I would send you a report of my little herd of four cows. No. 1, 7 years old; No. 2, 5 years old; No. 3, 3 years old and No. 4, 7 years old. No's 2 and 3 are out of No. 1; No. 4 is a stranger; No. 3 came in the 27th of June 1902, first calf; she was about 30 months old when she came in, from May 1st, 1902, until April 30th, 1903; from those four cows I sent to the creamery:

Pounds of milk	25903
Average test	4.183½
Total butter	1158 lbs.
Money received	$241.45
Skim milk, 25 cts. per 100 lbs.	$59.75
4 calves, $3 each	$12.00
Total	$313.20
Cost of keeping	$157.04
Net Gain	$156.16

Now I bought all the grain my cows eat and I fed them grain every day except about two weeks before they come in so I know just what the grain cost me.

I have estimated two tons of hay for each cow and $5 00, each, for pasturage; that makes cost of keeping each cow, $39 26; the income was $78.30, which leaves a net gain of $39.04 over cost of keeping each cow. No. 1 freshened Feb. 8 and now after milking 105 days is giving from 40 to 42 lbs. a day. No. 2 milks from 35 to 38 lbs.; she freshened April 11th. No. 3 freshened June 27 1902, first calf, and is now milking from 18 to 22 lbs.; coming in again in Sept. No. 4 freshened April 7, not doing very well, off her feed for the past four or five days; will milk about 30 to 35 lbs. when she gets onto her feed.

What I want to get at is to show what HOARD'S DAIRYMAN will do for a man that don't know it all.

On June 7, 1900, I began to take my milk to the creamery from three of the same cows I have now, No's. 1, 2 and 4, and from June 7th until Aug 30th, they brought me $27.73. The next year they were even worse, didn't go to the creamery at all but on December 18, 1901, cow No. 1 freshened and I thought I would see if book farming didn't pay. I had been told a good many times when I had asked some of my neighbors to subscribe for the DAIRYMAN that book farming didn't pay. Well from Dec. 18, 1001, until April 30, 1902, from one cow, that is all we milked through the winter, we made and sold besides what we used in a family of 5, 116¾ lbs. of butter for $28.70. Then started to the creamery May 1st, 1902 and expect to do better another year than I did last, if we get any rain soon; pasture is all burning up and hay will be a failure.

I have no silo yet but I am in hopes to have one before long. Those cows of mine are like the German's cow, just barnyard cows, but I am breeding them to a thoroughbred Holstein bull. Wishing the DAIRYMAN a prosperous future. I remain. JAMES. G. MCINERNEY.

Buskirks Bridge, N. Y.

The Dairy Industry Prospers.

ED. HOARD'S DAIRYMAN:—There seems to be an unusually large demand for butter makers and cheese makers this year. Nearly all the cheese factories in Wisconsin are now in operation, but up to the first of May we received requests for cheese makers in nearly every mail. Our supply was exhausted early in the season and I think we must have had at least ten applications for every dairy student we could recommend.

The supply of butter makers now seems to be running short and I have before me five creamery applications which I cannot fill and have just received a telegram asking me to send a butter maker on the next train. A former dairy student also writes that his factory is receiving 16,000 pounds of milk daily and that he is paid $1,000 this year to run the creamery.

Another letter just received reads as follows:

"The man that you recommended to us a little over a year ago for a butter maker has given us good satisfaction in every respect. He is a first-class butter maker, honest, temperate and everything that we could ask for. The patronage has doubled since he came to us, but he is now going into business for himself and I write to ask if you can recommend another man equally as good to us."

In addition to these positions open for practical butter makers, there is also an unusual demand for educated instructors in dairy work. We have received within a short time applications for dairy instructors to fill five college positions, paying from eight hundred to fifteen hundred dollars per year.

Surely these are indications of prosperity in the dairy industries in Wisconsin.

If any of our former dairy students are unemployed and read this article, I hope they will write me at once, I keep informed in regard to a great many of them but some fail to write and I lose track of them.

We have recently recommended the granting of certificates to twenty-one students who have completed the necessary requirements for receiving these certificates during the past year. It is claimed that there are about 2,800 creameries and cheese factories in the state of Wisconsin. We have had 1,406 students in the Wisconsin Dairy School since 1890, and 240 of these have obtained certificates.

The milk supply at the dairy school is now 17,000 pounds per day. Some of the milk has a very strong grassy flavor and we are able to notice the effect of pasteurization on butter made from such milk. We find that it is very satisfactory, the pasteurized cream butter being decidedly superior to that made without pasteurizing. Some of our butter is now being placed in cold storage, but most of the products manufactured at the school, are sold in Madison.

Ten summer dairy students are improving the opportunity which our equipment and milk supply at the present time gives them for obtaining a thorough practical knowledge of dairying in its various branches. E. H. FARRINGTON.

Wisconsin Dairy School.

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A young St. Louis lady learned a food lesson she won't forget. She says: "I suffered from indigestion for nearly 10 years and although I tried all kinds of foods for breakfast I could not eat any of them until one day I discovered Grape-Nuts and now I wonder how I ever did without it.

"I am a stenographer in a business office and need all the energy possible, but I formerly spent the greater part of every morning wishing I had gone without breakfast for I was continually reminded of it by the uncomfortable distressed state of my stomach. How much ability I lost through this I could not tell you but now all is different for I eat some fruit and a saucer of Grape-Nuts and work hard all the morning and never think about my stomach until lunch time comes.

"I feel the good effects of Grape-Nuts in a sharpened brain, better memory and increased thinking capacity. The only difficulty I have about it is that I never want to limit myself to the required amount for I love it so." Name given by Postum Co., Battle Creek, Mich.

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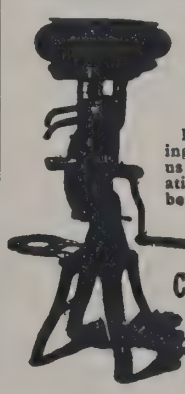
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Empire No. 0, Capacity 175 lbs per hour.	$ 60
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Empire No. 4, Capacity 675 to 725 lbs per hour.	125

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SOY BEANS, EARLY YELLOW—Northern Grown, clean and good, $2.50 per bu. SORGHUM, Orange, best variety for fodder, $1.00 per bu. (50 lbs.) Bags free on 2 bu. lots
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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own ight who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

Prof. Massey, editor of the *Practical Farmer*, in an editorial entitled "What Will You Read This Winter?" says:

"The farmer whose specialty is dairying needs to read all that has been written by experts on his specialty, if he is to keep up with the wonderful advance that has been made in dairying in recent years."

The intelligent, successful dairymen believe that doctrine, and they practice it too. But the great mass of dairy farmers, the men who "don't know where they are at," the men who keep cows that eat their heads off every year, and they don't know it, these men don't believe a word of what Prof. Massey says. And because they so disbelieve they are sorely punished, getting every dollar that they earn at the very hardest.

An old German dairyman, who makes about double the money out of his cows than any patron in the same creamery does, once said to us: "Some Yankee mens peen awful smart, but an old cow can fool 'em effery time."

In handling cream for churning, John Michels, Instructor in Dairying in the Michigan Agricultural College, says he has found it best to ripen the cream first then cool it, rather than the usual way of cooling first and ripen afterward. Private buttermakers as well as the creamery operator can easily try this, and it may be the change will bring very desirable results.

Miss Laura Rose of the Ontario Agricultural College, has been traveling in Nova Scotia on an educational trip with her traveling dairy. She has spoken to over 6,000 people at 171 meetings; has made nearly 1,000 pounds of butter, and 640 tests of milk with the Babcock. All this before her audiences. She found that the Nova Scotia farmers were about the same as those in other parts of Canada and the United States; that if they learned much of anything the teacher must go to them. Miss Rose has done a work and under a method that should receive the attention of authorities in other states.

Where men are ignorant of the true principles of their business they are invariably suffering by it. But the thing is to get them to see their own ignorance, and "turn from the error of their ways." The editor of the *Southern Farm Gazette* took a trip among the milk dairymen in several of the towns about him. This is what he says:

"There is lamentable ignorance abroad in the land with regard to feeding milk cows. We find scores of town men who are feeding from ½ gallon to a gallon of cotton seed meal at a feed. A quart at a feed is ample for an average cow giving a good flow of milk. Much more than this will not increase the flow of milk, but will make her fat, often destroying her usefulness from being over fat. As much as a gallon at a feed, which means 16 pounds a day, is quite expensive, and probably most of it passes off undigested. About 1 quart of cotton seed meal, and 2 to 3 quarts of wheat bran, with hulls, coarse grazing or other rough food, make an excellent feed and reasonably cheap."

There are thousands of such dairymen all over the land, doing business every day without right knowledge or understanding, but no one can make them see it or believe it.

IMPRISONED IN THE PAST.

In his address before the Wisconsin State Teacher's Association, President Karl Mathie made use of a sentence which means a great deal. Speaking of the teacher he, said:

"The teacher easily becomes imprisoned in yesterday's knowledge, in yesterday's methods. He is too prone to look back for details instead of looking about him for present inspiration."

Mr. Mathie's apt characterization hits the case, not only of certain teachers, but it applies exactly to the life of thousands of dairy farmers. They are "imprisoned in yesterday's knowledge," and securely locked up in yesterday's method's. They forget the operation of that great law, "circumstances alter cases;" that every new day brings with it new circumstances, new problems, new changes, new conditions.

There is no business on earth that involves such an infinite variety of circumstances, contingencies and changes as animal farming. Why? Because it is dealing with the most changeable, varied forces of all the earth, that of life—animal and vegetable life.

A few principles are fixed; they belong to yesterday and today. But out of them comes the almost infinite play of an infinite variety. No two blades of grass are alike; no two animals of the same species are alike, or can be treated alike successfully; no two farms are alike, or can be farmed alike. With all this tremendous variety, the business of dealing with these ever varying forces is turned over to a class of men, in a great many instances, who do not read, do not think, do not travel, do not study, or do anything but imprison themselves in the knowledge and methods of yesterday, which half of the time, do not fit the exigencies of the case any more than does a "square pin in a round hole."

Every effort to wrench these men out of their misfit conditions, to get them to see how little they know of the forces they are dealing with, how much they need to awaken their mind and thought, for their own sake, is met with skepticism and unwillingness to believe in anything but the worn-out impracticable knowledge and methods of "yesterday."

Ask them if they are satisfied with their present state of knowledge and the use of their present methods, and they will answer "yes". Ask them if their stock of knowledge and their methods are bringing them profit, and they will sadly say, "no."

But nevertheless they are satisfied that the fault is not with their knowledge or methods. What a strange paradox these men present.

AS A SUCCESSFUL DAIRYMAN SEES IT.

There is a broad, well defined issue constantly standing between the dairymen who think and act with HOARD'S DAIRYMAN, and the great mass of dairy farmers who adhere to worn out methods, which bring them but little profit and often direct loss. Years ago the DAIRYMAN set out on this crusade. It saw clearly that before there could be any marked success or profit in the business there must be a change, a reorganization of ideas among the dairy farmers of the land. It saw also, there must be injected into this work, more and better thought, sounder knowledge, a more willing spirit to learn, a greater willingness to see what is wrong in theory as well as practice. Our standard was different from the great mass of dairymen. It was not our own notion, so much as it was the methods, the results, the profits, and the avoiding of losses as shown by the wisest and best dairymen of the land. These men had pioneered the way. They had shown it was the best way. They had demonstrated that the magic spirit that brought such good results was not blind money or capital, but rather bright-eyed intelligence, more brains, more faith in brains and less in stupid tradition. All over the land is a host of men who are keeping cows according to tradition; doing the thing from morning till night as grandfather did it, and for no other reason. Their profits are painfully small, but that don't move them. They console themselves by saying: "I guess I am doing as well as my neighbors." When we make a thorough investigation, as in the Cow Census work, the poor work, low profits and poor understanding of these men and their neighbors, are shown up in a clear light. So we say that between HOARD'S DAIRYMAN and this great majority of half-paid, half-thinking, non-reading cow keepers, there is a broad issue. Mr. J. F. Schlappi, the man who had charge of the feeding of the cows in the Breed Test at the Pan-American, last year, in writing us under date of May 25th, says:

"Years ago, in Northern New York, where I still have my dairy farm, the farmers used to call me a "crank". But later on, when during the hard years I managed to pay for the farm, the tables turned. Oh! This dairy business, I wish I could enthuse every cow keeper to see and act as the real truth is. For instance, I doubt if there are over 1,000 dairymen in this country today, who fully realize the value to the dairy farmer of alfalfa. I repeat what I wrote you some time ago, that this plant cannot be talked about too much. The more it is talked about, looked at, and got acquainted with, the more valuable it seems to get. I said before the Kansas Dairymen's meeting that the butter production east of the Mississippi river, would come to be an insignificant factor within the next 25 years; that the enormous increase in the consumption of milk would bring this about. The statement in the DAIRYMAN on page 342, bears witness of my not being too visionary."

Mr. Schlappi used thought, good dairy sense, and made himself intelligent. He paid for his farm. Hundreds of other men in Northern New York ran every year deeper in debt. They consoled themselves by calling Mr. Schlappi and HOARD'S DAIRYMAN, "cranks." They are at it yet. A stern chase after foolishness is a long chase, and it will always find plenty of chasers. What consolation it must be to these men, to be what they are. How they do prove that there is no cash value in better thought, better ideas, better understanding.

MAKING VEALS ON SKIM MILK.

One of the important by-products of the dairy farm is the skim milk, if the farmer will but study how to use it in the most economical manner. A large proportion of the calves among creamery patrons are sold when a few days old, for a trifling sum. Yet these men have all the means at hand to make a handsome profit out of the skim milk by feeding it to the male calves, and turning them at 5 to 6 weeks of age for veals.

A Massachusetts farmer describes how he does it in a recent communication to the *American Cultivator*. He says:

It does not seem to be generally known that first-class veals can be made on a basis of sweet skim milk. Yet a great many calves reach the market and bring high prices, although never fed a quart of whole milk after the first day or two of their lives. These calves, if properly grown, look as well as any. Butchers say there is not so much internal fat, and the calf is therefore not quite so heavy as the whole milk calf, but he brings the same price, at least in the markets of towns and small cities. The writer last summer sold calves which brought the going price in the local market, 6½ cents live weight, and averaged about $9 50 value at five weeks, but were fed practically nothing but sweet skimmed or separated milk, to which was added a handful of fine wheat flour for each gallon. It was reckoned that the skim milk so used, brought about two cents per quart. The flour cost about thirty cents per calf. Flour, being fine and starchy, is mixed easily with milk and is much better than anything else. Other farmers in the vicinity use extra fine ground corn meal, fine feed, oat meal, etc., but with less satisfaction. The main points are to have the milk sweet and plenty of it at fairly regular hours, and to give the calf nearly, but not quite, all he will drink. One feed a day from the cow during the last week is a help, but is not usually necessary. It is important to have plenty of dry bedding to save warmth, as a skim-fed calf has no fat to waste keeping his body warm. Pails should be rinsed after every feed to avoid disease.

That point about dry bedding is very important. It is much harder to provide for this with male calves, but it will pay richly to see that it is done. In all of our calf raising we have considered this point of keeping the little animal dry and clean as one of the highest importance.

GOOD REASONING ABOUT COWS.

A large proportion of the farmers who keep cows, make but starvation wages at the business. That fact can be proved by taking a "Cow Census" at any creamery. The reason for this state of affairs is that these men are poor reasoners. They have but little real sound cow knowledge. The money they get out of the business, proves that. When one man, a next neighbor, gets $2.00 for every dollar spent in feed, and the other gets only 60, 70, 80 and may be 100 cents, that tells the story of brains. There can be no denying it. It is not luck; it is brains. What makes these poor dairymen the men they are? They have a contempt for good sound knowledge; that is what's the matter. There stands the same creamery for one man as for another. One uses his brains; the other does not. It sounds hard to say it, but it is Heaven's own truth, and it is time the truth was told. A lack of sound dairy knowledge produces a lack of sound dairy reasoning and that produces the wretched, poor ideas and methods, and results we see on these dairy farms, where the owners "can't learn anything from what they read."

C. E. Chapman of New York, is a good reasoner on cows, but he did not make himself so by despising the experience of others. Here is a sample of some of his reasoning on cows, in the *Ohio Farmer*, he says:

Every wide-awake dairyman should raise his own cows. Some men buy all their cows, claiming that it is cheaper than to raise them. A visit to a creamery recently, where this practice prevails, reveals the fact, that the average butter production was not over 200 pounds. One poor fellow had but 130 lbs. I did find

one man that had 300 lbs., but he did not buy his stock.

Where do the cows that are for sale come from? In some adjoining county a speculator has gone among the farmers and bought everything for sale. Does any one think a farmer would sell his best cows at the price usually paid for "pickups?" The results at this creamery show they do not. Every fall a few carloads of just such unprofitable cows are shipped out to just such places as the above. We can not make any money out of them, and sell for what we can get. I do not believe any one but an expert judge can buy the cows and keep a good average herd.

A man who keeps 60 cows and buys them all told me that he drew as many blanks one way as the other, and I did not doubt it, for as milk was the mainstay, the calves did not get enough to make a large growth.

This leads HOARD'S DAIRYMAN to say that a man who raises good cows must be a good calf and heifer raiser. There are too few men who are really good calf raisers. What is the matter with them? They are not good reasoners on calf life. They will not study. They are willing to work at coarse work, but they call fine work like calf raising, "puttering." So they say, "I can't putter with a calf." Nine out of ten of the heifers come up without a bit of special thinking back of them, as to whether they should have good dairy blood in them or not.

The owner couldn't afford to "putter" enough to raise them well after they were born. Then he can't afford to "putter" enough to do anything special to develop them as cows in the first two years of their milking, and here we are all the time, with not one cow in a hundred that will make 275 to 300 lbs. of butter a year. Mr. Chapman further says:

How many know what a good cow is? Three or four thousand pounds is believed, by many, to be a good fair average, and they raise the eyebrows when told of 10,000-lb. cows. It all depends on one's standard, which is made by the man's environment and education. In some sections the land is poor and hard to work; there is little plow land and the growing of ensilage, soiling crops and roots unknown. In such sections a large yield is almost unknown. In others, as in Delaware Co., N. Y., the land is cheap and fertile, producing good summer pasture. The farmers keep all the stock they can, plowing but little, and wintering the stock on purchased grain, often carrying a cow per acre for the cultivated land. The large amount of purchased grain makes an abundant manure pile and the small fields get richer and richer. The milk yield in such cases is large and growing larger. Here a cow is simply a machine to utilize cheap grasses in summer and purchased grain in winter for milk production, and unless the cow will produce $60 worth of milk or butter she is not considered a good one.

At one creamery 200 lbs. of butter at 20 cents, gave an income of $40, average. Inquiry showed that it took five acres of land to keep a cow. The cost of the food alone would be $35 per year, which leaves an income of only a dollar per acre for all other expenses, losses and interest, counting the manure equal to the labor. These are not good cows, but "robber" cows.

The actual value of milk is ascertained by finding the amount of butter fat in it, in practice as well as theory. They pay $1.10 for a hundred pounds of milk and sell it back for 5 or 10 cents after the butter is taken out, if they can get it, and I have known of it being run into the creek until the health authorities objected, when they hired men to draw it out and dump it. The butter fat is what we are after. I purchased a fine cow once that gave 50 lbs. and over per day, but found at the end of the week that we had no more butter than before. By using a Babcock tester I found that she gave milk that did not test more than 2 per cent, and I do not think all of that would gather in the churn. One large dairy at the milk station would not test 3 per cent, much to the owner's astonishment.

No man can afford to keep such cows, or to go on without weighing and testing the milk from each cow. When I purchased my tester I made a table, placing the cows in order of their value for butter production. After the test was completed I found the supposed No 1 cow was actually No. 5, and a cow which I had offered for half price was giving the largest profit. I have ceased depending on my "natural shrewdness" in picking profitmakers, and use something more accurate. "Weighed in the balance and found wanting" applies to both man and cow, often times. If we are struggling along with a lot of cows as poor as we are, the best thing to do is to be honest with ourselves, and put both "on record" and then look at it, even if ashamed, until we get so sick of it that we make a change. Records are valuable because they make us miserable if poor and stimulate us to do better if good. Without them, we never think of it.

Take what Mr. Chapman says and go out and read it to one of those farmers who have poor cows and are contented to keep them, and are afraid to know whether they were poor or not. Ask that farmer these questions:

"What do you think of what Mr. Chapman says? Is he right? Are you doing any thing to put your self or your cows on a better profit making scale?

Are you doing anything with your own mind and judgment? Do you really know any more about your cows or the principles of your business this year, than you did last year? Are you not running along in the same old rut of "don't know?"

We will guarantee better cows all over the land in three years time if the farmers who own the cows and who breed and raise them, will honestly ask themselves the above questions, once a week for a year.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Wisconsin Itinery of the German Agriculturists, now Traveling in This Country, June 12-15.

Early last month a party of forty-six German Agriculturists arrived in New York for the purpose of studying American agriculture. They were taken in charge by Mr. Schulte, a representative of the U. S. Department of Agriculture, Washington, who accompanies the party on its trip across the Continent and back again, making a journey covering 10,400 miles in all. They travel in special cars, visiting en route stock farms, agricultural colleges and other objects of agricultural interest. The accompanying list gives the membership.

The party will reach Madison on Saturday morning, June 13th. The plan of entertainment contemplates a morning drive over the park system laid out by the Madison Park and Pleasure Drive Association, returning to the University farm to inspect its various departments, reaching the Park Hotel for dinner at one o'clock. The afternoon program includes a visit to several University buildings and a boat ride on Fourth Lake. They will leave Madison for Milwaukee in the evening, where they will spend Sunday, returning to Lake Mills and Ft. Atkinson, Monday. At Lake Mills they will visit the Holstein herds of F. B. and E. J. Fargo and Wm. Everson and The Fargo Dairy Supply Factory. At Fort Atkinson they will inspect the HOARD CREAMERIES, the Cornish, Curtis & Green Dairy Supply Factory and the dairy farm of W. D. Hoard. From the latter point they go on to the Dunham Horse Farm, Wayne, Ill. A number of Wisconsin citizens interested in agriculture will be invited to meet these distinguished guests and to assist in their entertainment.

PERSONEL OF THE PARTY.

Dr. Victor Ritter von Bauer, Bruenn, Austria.
Maximilian Beuther, Posen—owner of feudal estates
F. Biermann, Sanitz, Mecklenburg—owner of feudal estates.
Ulrich Bohm, Kluetzow, Pomorania—agriculturist.
F. R. Brettreich, Munich, Bavaria—government official.
Conrad Eberhardt, Speyer on the Rhine.
Dr. Alfred Dietrich, Coblenz—government official.
H. Eyssenhardt, Rangsdorf, Brandenburg—owner of feudal estates.
R. Frederick Ferber, Gera—agriculturist.
Ottomar Fouerstein, Parchwitz, Silesia—agriculturist.
Dr. F. H. Flecken, Cologne.
Erich von Fluegge, Speck, Pomerania—government official.
Th. Fuehling, Frechen Rhenish Prussia—director of large estates.
A. Furhmann, Berlin—agricultural student.
Kurt Gaebler, Sorau, Brandenburg—agriculturist.
Armand Gain, Peske, West Prussia.
Henry Gildemeister, Berlin—agriculturist.
Bernard Gontard, Leipsic—agriculturist,
Chas. Hanisch, Breslau—dirccter of estates.
H. Kloevekorn, Uderwangen—owner of estates.
Victor V. Laffert, Brahlstorf, Mecklenburg—Lieutenant of the Reserve.
Hans Lampe, Leipsic—agriculturist.
Dr. Eugene Count Ledebur, Lobositz, Bohemia.
E. Lemcke, Hoppenrade, Mecklenburg, Schwerin—agriculturist.
Dr. Felix Lindemann Dresden—agriculturist.
P. Moeller, Schlieffenberg, Mecklenburg—owner of feudal estates.
Ferdinand von Prachter, Munich, Bavaria—government official.
C. Rechholtz, Doelitz, Pomerania—owner of feudal estates.
Walter Richter, Tapiau, East Prussia—agricultural inspector.
Fred Rueffer, Heidelberg—student.
Bernard Sachse, Weizig, Saxony—owner of feudal estates.
Jacob Schloesser, Koeln—Ehrenfeld—student.
E. Schneppat, Moulienen, East Prussia—owner of feudal estates.
Count von Schnurbein, Rain, Bavaria.
Ernst Simons, Elberfeld—agriculturist.
Chas. Skene, Jr., Breslau—agriculturist.
Count Schenk von Stauffenberg, Risstissen, Wuerttemburg.
Fred Staakmann, Leipsic.
Anton Triep, Elberfeld—agriculturist.
Professor Vielhauer, Mosbach Baden—teacher of agriculture.
A. Wadsack, Tennstaedt, Prov. of Saxony—owner of feudal estates.
Mr. Wagner Neudietendorf—agriculturist.
Martin Weissenborn, Fiddichow, Pomerania—agriculturist.
W. Wien, Lalendorf, Mecklenburg—agriculturist.
Dr. Martin Willner, Berlin—agriculturist.
O. Winkler, Lockwitz, Saxony—owner of estates.

The Value of a Good Man.

ED. HOARD'S DAIRYMAN:—I heartily endorse what L. O. Jackson says in writing to the *Jersey Bulletin* of his experience with hired help and the dairy cow. I have learned by experience that a good, quiet, neat and thorough milker can easily earn his employer from ten to fifteen dollars more every month, than the other fellow who takes no pride in his work and can milk the same number of cows from one-half to one hour quicker in the evening than he can in the morning. This one thing is proof enough for me that he is not the man that we want in our herd at any price.

I have in mind a herd that was being milked by a man like the first mentioned, who was turned off for a very small reason, and the other man that took his place was like the latter mentioned. The milk was weighed and put down on the milk sheet. The number of cows which were milked were thirteen. Within two days after the second man went to work the cows were giving two and one-half pounds less milk than when the other man was milking them, the cows being fed and cared for by the same man in both cases.

The way I figure this, there was about 33 pounds less milk drawn from the 13 cows each day, which would no doubt test from 6 to 8 per cent, as it would be the stripping that was left in the udder. This would be about two pounds of butter, which would be worth 40 cents. This would amount to $12 a month, to say nothing about the harm that he was doing the cows by not stripping them clean. This kind of milking carried on very long would put the cows where it would take a good milker a long time to get them back to where the first man had them. Perhaps some of them would never come up again.

So you see you can hardly measure the difference in value between a good man and a poor one in a dairy herd. I would say, if a dairyman has a man that he knows to be a good feeder and a thorough milker, to study the matter well before he makes a change and not change for a few dollars on the month, and cause the tried man to go and accept the stranger. This is one of the problems that is staring the dairymen of this country now in the face, to get good, competent men to stay with their cows. The farmers should keep better cows, and then they can afford to pay better wages to better men.

It is a hard matter to keep a good herdsman with a lot of worthless cows, and it is a harder job to maintain a good herd of cows with a worthless feeder and milker. Good men and good cows should go together, and poor men and cows should be discarded altogether.

Knapp, Wis. R. H. P.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

A Silo Query.

Enclosed find five cents stamps. Please send me a sample copy of your record sheet for ten cows; and please answer the following question:

In building a stave silo with the intention of bricking it up on the inside in the future, what distance would you advise to place sill of silo away from the inside edge of silo foundation. Do you thing 4 inches would be sufficient? W. P. K.
Weyauwega, Wis.

Four inches is quite sufficient if brick are laid up on edges, otherwise five to six inches would be none too much.

Mold in Cheese Cellar.

Am keeping Holstein cows and making cheese, buying some milk from my neighbors. Am using the cellar for curing room, but am troubled with mold. Is there any way to prevent cheese from molding. L. C.
Garrison, Ia.

If the cellar is at all damp the cheese is very apt to mold and this can only be prevented by ventilation. Even then there is liability of mold, if the cellar has, as is probable, become infected with the mold spores, and a thorough cleansing and whitewashing is necessary.

Shredder or Cutter for Silage?

What has been the experience of our readers in the use of shredders for filling silos? This is a question frequently asked us and our information on the subject is too limited to warrant reply.

Sterilizing Whey.

Could you give us any information in regard to sterilizing whey, at what temperature, etc.
Seeley Creek, N. Y. W. G. C.

Whey is usually sterilized by running exhaust steam into the whey tank till the proper temperature is obtained. This should be in the neighborhood of 155° F., but should not go above 160° F. as the albumen of the whey coagulates at 160° F. and will settle to the bottom of the whey tank, making it difficult to distribute to the patrons, as the albumen is the most valuable part of the whey.

Summer Sowing of Alfalfa.

Is June 1st too late to plant alfalfa? We are going to try a small amount, and propose to sow it in the same field with corn, but owing to the extremely dry weather in this section, have been unable to plow. This is sandy loam, with clay sub-soil and is about 15 feet or 20 feet above water level. C. BROS.
Chester Co., Pa.

We have much to learn about sowing alfalfa, especially in a country that has all kinds of climate, from sub-tropical to semi-polar, but it may be laid down as a rule, that summer sowing of alfalfa is possible only where the months of July, August and September can be depended on for sufficient rain to allow the young alfalfa plants to keep up a continuous growth. The young plant is very tender and must make sufficient growth, at least in the middle west, to form its own protecting mulch. This it will not do in this locality, and accordingly it is sown in the spring. Our correspondent knows more about the summer rainfall in his state than we do, and can thus judge of the probability of the summer growth of the young plant being sufficient to go through the winter with sufficient protection.

A Lazy Bull--Silos.

Have bull nearly two years old "pure bred," looks to be in fine condition, that is very slow to serve. Kept in the barn except when turned out in yard for exercise; has a good stall and fed clover hay only.

I am going to put up a silo and don't know the first thing about it, for twenty five head. I ask you to give all the pointers you can. W. H.
N.Y.

Feed less carbohydrates and more protein; the bull is likely too fat, more exercise will be beneficial.

We have been over the silo question so fully in recent issues that it is impracticable to recur to the question from the beginning, at this time.

Keeping Cream Sweet.

Please give the best method for keeping cream sweet for two days for city retail trade. A READER.
Fort Wayne, Ind.

If the dealer has control over the production of his cream there is no difficulty in keeping it sweet for several days if the cows, stables and milk utensils are kept in a clean and sanitary condition, as has been explained so often in the DAIRYMAN (See page 210 of the current volume.) If on the other hand the dealer only receives milk and has no control over its production, pasteurization is the easiest way out of the difficulty.

Comments and Queries from Robinswood Farm.

Relating to the Special Type of Cow the Dairy Farmer Ought to Demand From the Breeder, and Strive to Create at Home.

ED. HOARD'S DAIRYMAN:—In my last communication I referred to my belief that before breeders generally can be expected to give to their patrons the type of cow that will most nearly approach to the economic ideal, the demand for such a type must be made from without by those who are going to use the blood. The dairy farmer ought to know just what kind of a cow is best fitted to his needs, but unfortunately only a small proportion of farmers have any near approach to such a perception, and in the general state of our knowledge at the present time, no one can say definitely what the ideal should be. Some of us though have some pretty strong opinions as to the matter. When a clearly set and generally accepted ideal is mapped out, progress will be reasonably rapid in supplying the ideal.

It may be of help to some if I now place on record my own conclusions as to this matter, and incidentally thereby indicate the type of cow we are trying to create at Robinswood Farm. The subject should be considered from the structural and functional points of view, as well as with relation to the pedigrees or inherited tendencies of the animals under study.

First, let me say again that I think that every dairyman should differentiate his selection of type, not only between the special-purpose dairy type and the dual-purpose beef and dairy type, but also he should go so far as to select within the dairy type, representatives that are either of a special-purpose butter type, or of a special-purpose milk type, according to the requirements of his practice, for I presume that every progressive dairyman in this day understands that to succeed best, he has got to adopt some one of the specialties into which dairying is divided, and must pursue that specialty with the fullest ardor. I think that we are forced to an acceptance of the proposition that a highly evolved butter type of cow can make butter fat more cheaply through the use of a broader ration, than can a type of cow that is more especially a milk cow solely. In the latter case one needs a cow whose ability to digest much protein is strong, and to whom it will be profitable to feed a more narrow ration than to the other cow. I think that we will find that as intelligence increases among milk consumers, they will not demand a milk very rich in butter fat for direct consumption. They will find out that the greatest nutritive value of milk is in the nitrogenous and earthy salt elements, and that only a reasonable amount of accompanying fat in the milk is desirable, and that that fat should be in the form of small globules.

If, then, it is the farmers purpose to produce butter fat, it is certainly wise for him to select blood from a breed in which the breed tendency is to produce large percentages of fat, for the chances are largely in favor of the progeny of such blood producing a certain amount of butter fat at a lesser cost for food than if he selects a breed in which to create the same amount of fat, for a larger proportion of protein has to be eaten and digested. On the other hand, if milk of a medium or low degree of richness in quality as to fats is wanted, it follows that a breed ought to be selected in which the breed tendency is to have a highly evolved power to digest much protein; for other things being equal, the more protein digested, the more milk will be produced, so far as quantity alone is considered.

There can be no question as to not being able to let up on a narrow ration if large quantities of milk are wanted, and if the cows used are of high power as protein digesters. It would be unwise for the butter dairyman to select for the betterment of his herd blood, if the example which he selects would happen, as an individual or as a member of a family, to have a large percentage of fat, but that did not have also the breed tendency to that kind of production; for the breed tendency would crop out in the posterity of the individual with more or less certainty. The principles of specialism should be carried out to the full in dairying.

With the present amount of knowledge on hand there does not seem to be any practical way of completely judging as to the real economic merit of any cow, and as to her merit as a breeder, except from her productive record, and from the records of her ancestry. In this day, when we have the Babcock test, there is no excuse for a breeder not being able to exhibit a record of the weekly product of any of his cows, both as to quantity and quality of milk. As to the ancestors of the cows now living, we must for the most part rely on the records of seven-day tests, because in the past there was only the churn test, a most inconvenient and expensive test for the regular recording of yields for extended periods, and therefore breeders seldom did more than to make a few short tests. Unfortunately, the custom led to the abuse of making such tests, forced tests, which are defective so far as establishing the true profitableness of the cow, and which bear insufficient evidence as to the year, in and out, productive power of the cow. The buyer of dairy blood should, therefore demand a full report of the product of the blood he is to use, especially a yearly report.

Just what the per centage of butter fat should be in the milk produced by a butter cow is not yet scientifically determined. Yet it is quite probable that from 4.5 to 5.0 will, on an average for the year, prove to be the ideal as an outcome of the best economic feeding conditions for long periods in most of the states of our Union. The amount of butter fat that should be produced each year by each 100 lbs. of mature cow is also as yet undetermined, but I think that about 40 lbs. will prove to be nearly right. For example, a mature cow weighing 600 lbs. ought to give about 240 lbs. of butter (15 per cent overrun), an 800-lb. cow should produce 320 lbs., and a 1,000-lb. cow ought to give well up to 400 lbs. as an ideal yield. A close determination as to this matter can only be arrived at after a very large number of comparisons of the records of various cows have been made and carefully studied. Here is work for our institutes. This is the kind of knowledge that is needed by the dairy farmer, and by the breeder as well.

I think that the buyer should be shy of very large yields with the first calf. Here is another point still to be determined officially and authoritatively. Then again, some think that a two-year-old heifer that will give ten lbs. of butter in her best week, if she had not been pushed too fast, could be relied on to give 18 lbs. in seven days, at maturity. Others would say that an increase of 50 per cent, or a total of 15 lbs. at maturity would be about right. It seems to me that a two-year-old heifer that has not been forced for early maturity by the feeding of too easily digested and too concentrated food, and if of a moderate size or under, if she gives 8 lbs. of butter (15 per cent overrun), at her flush, ought to be carried into the 14-lb. list after four or five years of right feeding and care. The pasture-utilizing dairyman at least, should as a rule, avoid a large cow for his purpose. Largeness of size in a cow is usually the result of late breeding, of very abundant

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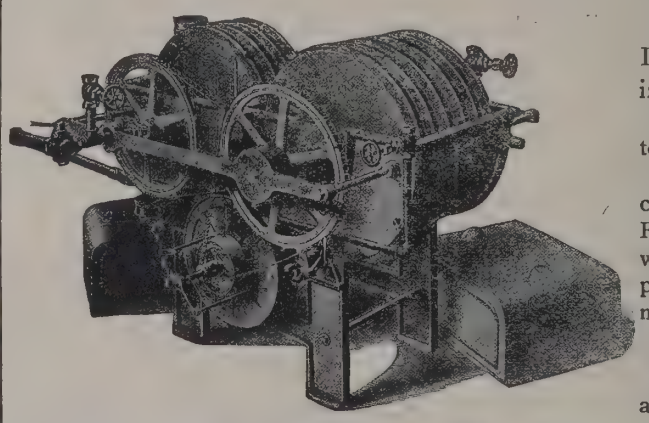
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feeding of easily digested food, and infrequent breeding, and we seldom find a sufficient proportionate mammary development in these animals to secure the most profitable results. Hence the needed food of support is likely to be too great. That exceptions are found to this proposition is due to conditions apart from the matter of size, and they do not invalidate the rule as stated. Large cows incline to the dual-purpose type.

While over production of a large flow of a milk product very rich in total solids, especially of the nitrogenous and mineral elements in the breeding cow, is to be depreciated, such examples are comparatively rare in the distinctively butter type of cow. In most cases, the trouble is to find a type of cow in which the mammary development is profitably large in proportion to the general muscular and bony systems. As a rule, such desirable conditions are only to be found in small or moderate sized cows. It is the big little cow that has little tendency to the dual-purpose type, that is the profit maker.

Unfortunately, there is no distinct milk cow type that has not more or less of a tendency to the dual milk and beef form. The Holstein people make as one of their ideal requirements that a cow shall weigh over 1,000 lbs. at maturity. I am inclined to think that this is a mistake so far as economic milk production is concerned, and is an undesirable relic of the dual-purpose idea for which the breed has been bred in the past in her native habitat. Still we must admit that for level lands with bush pasturage, the large cow is not a bad machine to work with, especially as watered feeds make watered tissues. But whatever the weight of the cow, the dairyman should seek to get one with a relatively very large development of the abdominal organs and spinal column; and a relatively small development of the general muscular system. The other structural peculiarities of what I consider a good cow, have been so frequently described in this paper that I need make no repetition of them here.

Any type of cow that is defective in constitutional vigor, or that is lacking in a reasonable ruggedness of health, or that has not become reasonably well adjusted to the conditions which will environ her in her regular work, is not best suited to the economic needs of the dairyman.

A good cow must be given more protective care than the average scrub, because a larger proportion of her digested food goes to the udder than is the case with the scrub cow; but even the good cow must be subject to a considerable amount of trying climatic and atmospheric conditions in the farm practice of most sections in the regions of our country devoted to dairying. The blood of cows that have been coddled, both as to protection and as to feeding, with a view of securing very high tests, is not of as much practical use to the dairyman as is that which is grown cold, so to speak, and so treated as to acquire a full degree of constitutional vigor.

In order, therefore, that the buyer of dairy blood can come to an intelligent judgement as to the value of the blood he is to use, he ought, among others, to be informed as to the following points. 1st. The average weight of the strain under consideration at successive periods of life. 2d. The rate at which productiveness has been developed, i. e.: Whether early, large production has been sought or otherwise. 3d. The quantity of milk that has been produced in each week of life. 4th. The quality of the milk produced as determined by a weekly Babcock test. 5th. The quantity and quality of food that has been fed. 6th. The date of each calving. 7th. The nature of the progeny, both as to constitutional vigor and as to productiveness of progeny. 8th. The physical conditions of both dam and sire at various periods of their lives. 9th. Full pedigree or history of ancestry. 10th. Structural and functional defects.-(N. B. Every animal has some "out") 11th. Nature of the animal as to ease of milking, temperament, including docility, nervousness, etc. 13th. Record of attacks of sickness, abortions, etc. 14th. The climatic influences which have been exerted. 15th. Pasturing influences that have been customary. 16th. Amount of protective care given, especially as to length of time stabled. 17th. General care and management practiced. 18th. Demonstrated profitableness of type. 19th. Portraits of animal and relations at various periods of life. 20th. A personal inspection of the structural form, which of course should be of the dairy type and in distinct contrast from the dual-dairy and beef form.

A consideration of the above, leads to the conclusion that there are more things to think of in connection with cattle breeding than many persons would suppose, and that the up-to-date dairyman has got to be an intelligent individual with a special training, and besides good powers of judgement. There is certainly a field and opening in this profession for special ability. There is plenty of room for the exceptional man, but the requirements as to ability are without question very exacting; and there is little likelihood of advanced dairying being overdone at present. The right kind of man has got to have natural aptitude and has got to have special training from childhood up. My personal opinon is, that before many such dairymen are created, the state or nation has got to step in and establish preparatory schools, especially for the purpose of forming the grown man to meet home conditions and for keeping the right sort of individuals at home on the farm, by special education. The Agricultural College does not begin early enough; does not get enough of the right material to work with.

J. M. W. KITCHEN, M. D.
New Hampshire.

Silo Experience.

ED. HOARD'S DAIRYMAN:—I have been a reader of the DAIRYMAN for several years and have received much benefit from it, and have become very much interested in our German friend's talk on the silo, and like Mr. J. N. Meroney, wish to help convince dairymen of the great value of silage, as a dairy feed. While Mr. Meroney's silo is all right for Tennessee. (as I lived there five years and know the difference in the soil) it would be a failure in this part of Ohio; therefore for Ohio readers I will say if you want a ground or dug silo, you must wall or cement below the surface of the ground in this kind of soil.

My husband built our first silo three years ago and we think that we could not do without a silo at all now. We used wire hoops and built thirty feet high and thirteen feet in diameter; this was for ten cows through the winter.

We filled the first year with corn and cane, and like our good German, we had very good sourkrout. We put in a load about; and as we are not sourkrout Dutch (my husband being German, Irish and English, making somewhat more of a mix up than ever) therefore we did not want that, so we have filled with common field corn, the last two years and will continue to do so. We cut with corn harvester, when the ears are filled and beginning to turn brown and the grain well dented, cutting one-half inch.

For feeding or emptying the silo, we invented a plan of our own (English getting the praise for this invention) as follows: On each side of the doors, which are one above the other four feet apart, he spiked a two by four scantling, across these he nailed cleats making, a ladder from bottom to top. Then he made a chute large enough for a man to pass up and down the ladder. Then he throws the feed out of the doors and it falls straight to the feed room, in front of the cows, making it very little trouble to feed the cows.

We think that dairying pays. Six years ago we came from the South with nothing to buy a cow with and had to buy on time. Now we have machinery of all kinds, to farm with; a dairy of nine cows; a Sharpless separator and fully equipped for making butter. It is all paid for, and we know that we could not have done this without the help of the dairy. We bought a farm this spring and now we have to build another silo. We expect to build it with Georgian pine single ply, 15 feet in diameter and 30 feet high, hooping with wooden hoops. Are we making a mistake in our plans or not?

Lunda, Ohio. J. A.

Weight of Cream and Fat Content.

ED. HOARD'S DAIRYMAN:—In a recent issue of your paper, I notice the answer to the inquiry by W. H. S., of Barnesville, with reference to the weight of cream. This answer, although explicit, does not quite satisfy our needs. We prefer to sell cream by weight, and by weighing a given quantity as accurately as possible, we find it weighs but a very small fraction over 8 lbs, per gal. We are required to sell cream that will churn 2 lbs. of butter per gallon, so if the question be not impertinent, I will ask you to



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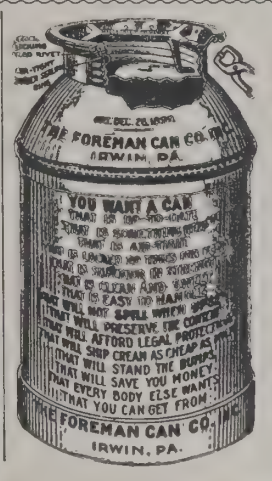
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please insert in your paper the following, with a correct answer:

What would be the exact weight of a gallon of cream that would churn 2 lbs. of butter, and what per cent of butter fat should it contain? A. H.

Flushing, Ohio.

Cream that will churn out 2 pounds of butter to the gallon should contain 1.65 pounds of fat, corresponding to 19.5 per cent. Cream containing this amount of fat should weigh 8.45 pounds per gallon. We would call attention to the fact that the relation of weight to measure in the case of cream is frequently very liable to vary. The cream comes from the separator with considerable bubbles of air enclosed in it, and if the cream is thick it is impossible for the air to escape. This makes the cream lighter than it should be, and introduces a source of error when it is measured. In the above case, a gallon of 20 per cent cream should weigh 8.45 pounds, whereas the correspondent states that it weighed but little over 8 pounds per gallon, a condition of things which easily give rise to argument. Cream, when possible, should be bought and sold by weight and fat content.

Prepotency.

This very important quality in a sire has been less discussed and studied than almost anything else. Very likely this is so because of the fact that we know less concerning it than anything else. HOARD'S DAIRYMAN has picked up every thing it could find, but still the field is almost wholly an unexplored one. A writer who signs himself "Bruni" furnishes the *Australasian* the following interesting comment on this subject:

"Prepotency is the term used by stock-breeders to describe the power possessed by some sires, of stamping their progeny with their own good qualities, physical and mental. That this power is not possessed by all pure-bred sires is well known, for it is almost absent in some, and remarkably pronounced in others. Length of inheritance, though favorable to the development of prepotency, does not always confer it. Some of the most striking instances of a lack of prepotency have been furnished by animals of long pedigree, and of the most favored strains, that were themselves famous for possessing the great qualities of their race in a pronounced degree. The uncertainty that a young stud-sire will possess this power of impressing his offspring with his own good qualities, is a stumbling block in the way of the husbandman, and a weak point in the modern show system. The highest show-yard honors go to the best animal as he appears before the judges. Of his breeding and his prepotency—two of the most important points—nothing is known. Under these circumstances, it may happen that a young, well-formed animal with a weak pedigree, and untried as a sire, would receive the highest honors, while a proved sire of the greatest merit, but not as good a show animal, would be the first to be turned out of the ring. This might easily happen, as there have been many stud-sires that were too plain to exhibit and yet were of the highest excellence as stock-getters.

The following may be quoted as instances of this:—"Agricola," writing in the *Field*, on the influence of the sire in Short-horn cattle, says of Hubback "Never before or since was there such a powerful impress imparted by any sire as that which came from Hubback. It has been said that his progeny were always the same, though the cow served by him, was of the commonest. Nevertheless, Hubback is said to have been small and common in appearance." Of Jeweller, the grandson of Royal Butterfly, the same writer observes: "He was not well appreciated when living, because he was a small, shabby-looking animal, yet he was a marvellously good stock-getter." The death of Buckingham on the voyage to Ireland, was described by Carr as a national loss, and yet he was regarded by breeders as a plain, ungainly animal. On the other hand, there have been many handsome and almost perfectly shaped animals, that have proved failures at the stud. Prepotency is not indicated by the appearance of the animal; there seems to be no means of proving it save by actual experiment. This has long been recognized by the breeders of stud-sheep, who have adopted the practice of trying a very promising ram with a few ewes. Thus they make sure of some stock by him should he happen to die, and prove him as a sire should he live.

VARYING IN RACE AND INDIVIDUALS.

Prepotency varies almost as much in races (and I might almost say in species) as in individuals. In some experiments lately made in Algeria, in raising hybrids between the Indian zebu and the mongrel cow of the country, the progeny bear a much stronger resemblance to the domestic animal than they do to the zebu. The hump which is such a marked characteristic of the zebu, almost disapears in the hybrid produce. The native cow is a mongrel, while the zebu has been bred true to type for countless ages. It is not in form only that the hybrid favours its mongrel dam. It is larger than the zebu, it matures earlier, and it gives a much larger quantity of milk. That well-known writer "Agricola" gives the following description of a zebra-pony hybrid: "In general form it is said to closely resemble a horse-foal, but the top of the wither is even better formed than in ordinary foals. In the mane and tail it is decidedly horse-like, the tail being covered with long hair from its commencement, and it also resembles the horse in the expanse of the hoofs." In several parts of the United States, experiments are being made in raising hybrids between the American bison and the domestic cattle. I have seen several photos of these hybrids, and each instance they were fairly well balanced animals. The enormous disproportion between the fore and hind quarters, that is so pronounced in the bison, disappears in the hybrid. Prepotency varies greatly among the different breeds of cattle. It has always been regarded as a marked characteristic of the Hereford, an old established, but by no means the oldest breed of British cattle. In nearly all crosses with other breeds, the peculiar marking and the form of the head of the Hereford are always reproduced in the progeny. There is, however, an exception to this rule, and that is when the Red-poll is crossed with the Hereford. In this case the characteristics of the Hereford are almost entirely obliterated. The produce are either polled or snail-horned, the white face is reduced to a few white spots, often these are absent, and the form is generally that of the Red-poll. As compared with the Hereford, the Red-poll is a breed of modern origin, and yet the former, so potent in all other crosses, fails in this. Another prepotent breed is the Jersey. There can be no mistaking this cross. It is the *bete noire* of those who purchase store cattle for fattening.

CAN IT BE RECOGNIZED?

As this quality of prepotency is of such vital importance to the breeder of high-class stock (and that, every stock breeder should be), the question naturally arises, how can this quality be recognized and how defined? We must not look to the show for any assistance in this matter. In this respect the show fails completely as an educational process. An attempt has been made in this direction by the American Guernsey Cattle Club. Among several new points introduced into their new scale of points is one for prepotency in bulls. In the instructions for the judges the following remarks occur:

"This quality is in a sense difficult to perceive or describe. It is fairly indicated by vigour of appearance, strong resolute bearing, and abundant nervous energy." I cannot help thinking that this description of the quality will be of very little assistance to the judges. Prepotency is a very indefinite thing, but it has a decided existence in stock breeding. On this subject HOARD'S DAIRYMAN remarks:

"The breeders of cattle of all breeds need to give this question, how to distinguish propotency in a bull? a deal more thought and study than they have done. It is like fertility in soil, the one thing most desired." I doubt very much if any directions to judges can be drawn up that will prove effective. Many years ago, in referring to a Merino ram which I thought had been overlooked by the judges at one of our leading shows, I ventured to predict that he would prove a great sire. The result showed the folly of prophesying before you know. Notwithstanding his splendid appearance and strong masculine character, the ram turned out worthless as a sire. So far as I can see, there is no absolute proof of prepotency in a sire but the practical test in the stud, though a pedigree showing that the quality is inherited by the family, may be accepted as a good guide. The only attempt in the show system to exhibit this quality is when a prize is given for a sire with two or more of his progeny. A better test in stud sheep would be a prize for a ram and a score of his progeny, either rams or ewes.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—Butter went up half a cent on the Elgin Board of Trade today, the Quotation Committee deciding on 21½c firm.

The output for this district was 822,000 pounds. The following sales were made:

	Tubs	Sold to	Price.
East Delavan	25	Moles	21¾c.
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	Tubs.	Price.
May 25, '03	0	21c
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June 3, '01	0	18½c
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New York firm at 22c. H. C. B.

Elgin, Ill., June 1, '03.

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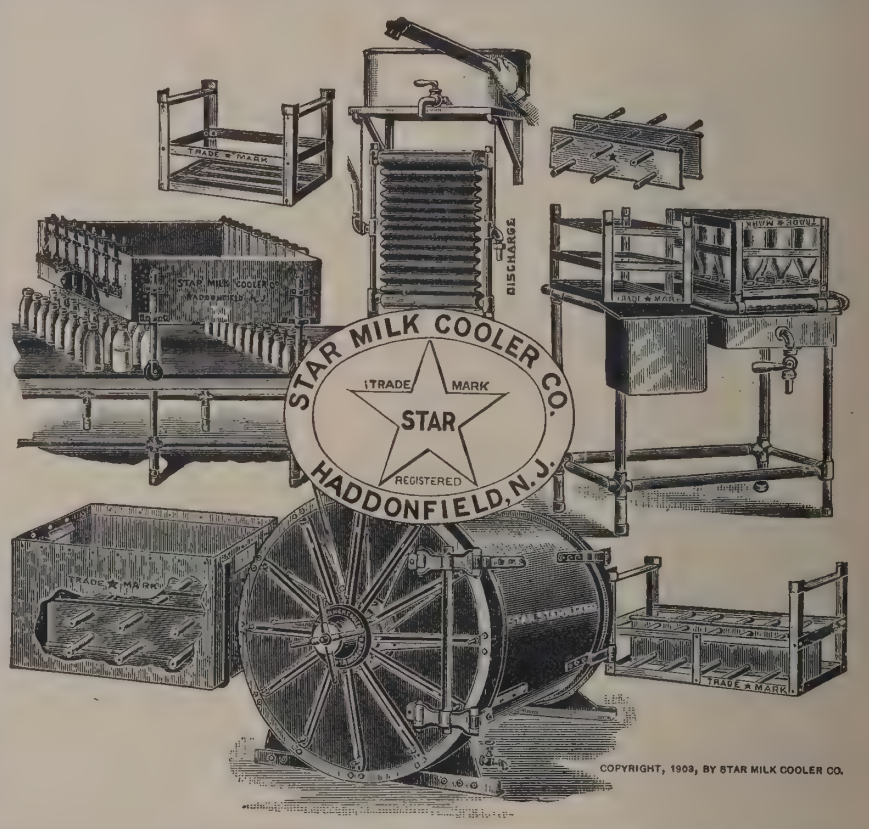
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STAR SANITARY DAIRY APPARATUS.

Did You Ever Keep a Record Of Your Cows?

IF SO, you have felt the need of a convenient, simple and handy Record Sheet. We have had so many requests for these Record Sheets that we concluded to get up one that would "fill the long felt want." We have a very simple and complete Record Sheet for 10 cows, one month, that is printed on heavy Manilla Paper, we can send postpaid at following prices:

Price 5c Each	6 for 20c	12 for 30c	25 for 50c

SIZE 10x16 INCHES

We also have a one cow Record Sheet, heavy Manilla paper (one month) that we will mail postpaid

Single Copy 5c	5 for 15c	10 for 25c	25 for 40c

SIZE 6x15 INCHES

HOARD'S DAIRYMAN.
FORT ATKINSON, WIS.

The Pest of Wild Garlic.

If Cows Feed on It the Milk and Butter are Tainted—Also Taints Flesh of Cattle

Hundreds of letters have been received at the botanical division of the Department of Agriculture in the past two weeks from dairymen and farmers all over the Middle Atlantic States, asking for suggestions for controlling the crop of wild garlic, which is not only damaging the milk, butter and other products of the dairy, but doing great damage in other ways.

Mr. Lyster H. Dewey, who for several years past devoted himself to a special study of this pest, says:

"This plant, which was probably introduced into this country by Germans, is propagated almost exclusively by means of secondary underground bulbs and serial bulblets. The form most abundant in this country rarely produces seed. Those small secondary bulbs or "cloves" grow to a depth of from three to ten inches under the earth and live all winter.

"The damage done by the plant is varied and includes that to animals to be butchered, as it taints the flesh quite perceptibly. One of the most serious damages done is to milk and to milk products, the cream on the milk being even more strongly tainted than the milk itself, while butter made from such cream is utterly worthless. Even cheese cannot be made from milk so tainted.

"The period of growth of wild garlic coincides almost exactly with that of rye and winter wheat. As the wheat grains and bulbs are similar, they are sometimes ground together, making the entire product of the wheat field useless. While methods of eradicating the plant have not yet been discovered, there are means of reducing the quantity and preventing the spread. Ploughing seems to be the easiest and most successful means of controlling the growth. This should be done late in the fall, the depth of the furrow varying in different soils, so as to leave as many bulbs as possible near the surface, where they will be exposed to alternate freezing and thawing. Any surviving shoots should be destroyed by early spring cultivation.

"This process, repeated for two successive years, will destroy almost entirely the most stubborn crop. Hogs confined on garlic patches in sand land will root out and destroy the bulbs. For lawns, the carbolic acid cure may be used. A few drops applied to the leaves of the plant or shoot will not kill the leaves but the bulb. On the White House lawn a large stand of the wild garlic was entirely destroyed by one application of the carbolic treatment.

"For dedorizing milk, tainted by wild garlic, a small piece of saltpetre placed in the recepticle will be successful. However, this treatment would not be healthy if pursued for long"—*N. Y. Sun.*

DAIRY MARKETS.

ELGIN, Ill., June 1.—Butter—Advanced ½c a pound on the Board of Trade to-day, being quoted at 21½c. Sales 178 tubs on call. Sales for the week in the district were 822,000 pounds.

CHICAGO, Ill., June 1—Butter—Steady; creameries, 15@21¼c; dairies, 15@18c.

Eggs—Steady; at mark, cases included, 13¾@14¼c.

Cheese—Weak; Twins, 10½c; Daisies, 11c; Young Americas, 11@11¼c.

Cattle—Prime beeves, 1,250 to 1,500 pounds, 5.30@5.55; choice to extra steers, 4.95@5.25; fair to good export and shipping steers, 4.75@4.95; medium beef steers, 4.40@4.65; plain beef steers, 4.00@4.35; common to rough, 1,000 to 1,200 lbs. 3.50@3.80; good to choice feeders, 3.85@4.75; good to choice heifers, 3.00@4.60; poor to plain stockers and feeders, 2.65@3.75; fair to good cows and heifers, 3.10@4.00; good cutting to fair beef cows, 2.40@3.10; common to good canning cows 1.40@2.35; bulls, poor to choice, 2.30@4.35; veal calves, good to fancy, 5.50@6.75; calves, common to fair, 3.50@5.25 corn-fed western steers, 3.65@5.20; Texas bulls and grass steers, 2.75@3.30; Texas steers, fair to common, 3.85@4.60.

Hogs—Good to prime heavy shipping 6 20@6.37½; good to choice heavy packing 6.05@6 25; plain to choice heavy mixed 6 00@6 20; selected butcher weights 6.20@6.35; assorted light, 150 to 195 lbs. 5.85@6.10; common to good light mixed. 5.00@6.10; thin to choice, 50 to 130 lbs., lots 5.25@5.80; stags and rough lots, 3.75@5.75.

MILWAUKEE, Wis., June 1—Butter—Creamery—extras, 21c; firsts, 18@19c; seconds, 16c; process (renovated) 16@17c; whey. 10c. Dairy, fancy, 17c; lines, fresh. 14@15c; roll, 14@15c; packing, 13c; grease, 5@6c.

Cheese—American, new, full cream—Twins, 10½@11c; Young Americas, 11@11¼c: Daisies. 11@11¼c; Longhorns, 11¼@12c; low grades, 9@10c. Brick, fancy, new, 10½@11c: low grades, 8@9c. Swiss, drum, old, choice, 15½@16c: drum, No. 2, 13@14c; Block, choice, 14@14½c; block, No. 2, 12@13c. lower.

Eggs—Strictly fresh laid, cases returned, 13½c; dirties, 12c; seconds. 11c.

NEW YORK, June 1—Butter—Receipts, 12,648 pkgs.; market firm; extra creamery, 22c; creamery, common to choice, 18@21½c; state dairy, 16@21c.

Eggs—Recipts, 25,671 pkgs.; market higher; nearby extra, 17½@18c: nearby firsts, 15½@16½c; western extra, 17½c; western firsts, 15½@16c;

Cheese—Receipts, 6,246 pkgs; market quiet; state full cream, fancy, small, colored, 10⅝c; small, white, 10⅝c; large, colored, 10⅝c; large, white, 10⅜c.

FOND DU LAC, Wis., June 1—Cheese—Sales at the Dairy Board today were 48 Twins at 10⅜c; 107 Twins at 10¼c; 290 Daisies at 10⅞c, and 165 at 10¾c. Market active.

SHEBOYGAN FALLS, Wis., May 27—Cheese—Twenty-four factories offered 2,599 boxes of cheese on the Call Board today and all except 100 Americans sold as follows: 40 Twins at 10½c; 23 at 10⅜c; 605 cases Young Americas at 10½c; 125 at 10⅜c; 422 Daisies at 11⅛c; 463 at 11c; 154 cases Longhorns at 11⅛c; 607 at 11c. Market active and bidding unusually lively.

SHEBOYGAN, Wis., May 27—Cheese—On the Call Board here today 1,960 boxes cheese were offered. All sold as follows: Twenty-four boxes Twins at 10¼c; 858 Daisies at 11c; 446 Young Americas 10½c; 90 at 10⅝c; 427 Longhorns at 11⅛c; 115 at 11¼c.

MANITOWOC, Wis., May 27 — Cheese — The sales reported to day were: 28 Twins at 10¼c; 35 at 10½c; 750 Daisies at 10¾c, and 400 cases Young Americas at 10¼c.

PLYMOUTH, May 26—Cheese-Twenty-eight factories offered 3,572 boxes to-day, and although there was quite a drop in prices over last week, all sold as follows: 196 cases Longhorns, 11¼c; 1,090 Daisies, 10¾c; 1,307 Daisies, 10⅞c; 521 Twins, 10¼c; 458 Young Americas, 10¾c. Market active and firm.

BOSTON, Mass., June 1—Butter—Creamery, western, extra, 22⅛@22¾c; western firsts, 21½@22c; dairy, 16@21½c; imitation creamery, 17@19c; ladle, 15@17c; box and print, 15@23c.

Cheese—Choice, 11½@11¾c; Wisconsin Twins, 10¾@11½c.

Eggs—Nearby, 20c: western selected, 16¼@16½c; fair to goed. 15@16c; Illinois, 16½c; western dirties, 12½@14c.

PHILADELPHIA, Pa., June 1—Butter—quiet; prints 1c lower; extra western creamery, 22½c; near by prints, 23c Eggs firm, ½c higher; fresh near by, 17c loss off; western. 17c; southwestern, 16½c; southern nominal, Cheese dull and lower; New York full creams, choice new, 11¼@11½c; fair to good new, 10½@11c.

ST. LOUIS, June 1—Poultry quiet; chickens, 10c; springs. 18@22c; turkeys, 9c for hens; ducks, 9c; geese. 3@4c. Butter quiet; creamery, 15@22c; dairy, 13@15c. Eggs lower, 13c; near by, fresh. loss off.

NEWARK, N J., June 1—Butter—Market steady at 22c.

Eggs—16½@17½c.

NEW ORLFANS, La., June 1—Butter—Market steady at 22½c; ladles 15c; renovated 17c.

CANTON, N. Y., May 30.—Cheese — Offered 50 boxes of large cheese; 2,286 Twins and 1,008 tubs of butter. Large cheese sold at 10⅛c; Twins 10¾c; Butter—22⅛c.

NEW YORK MARKET

NEW YORK, May 29.—Butter—Receipts for the week, 46,890 packages. Exports for the week, 771 packages.

Demand continues steady from all home quarters, and prices were strong with a tendency to outside rates. There is a general feeling among speculators to take on stocks of grass butter, and another week will probably show keen competition through all the dairy districts for butter good enough to go into freezers for fall and winter markets.

Sales of extra creamery were at 22¼ to 22½c, and good firsts sold at 21½ to 22c, and under grades at 18 to 21c.

Dairy make is wanted at full quotations. Ladles are in light supply and sell quickly at advanced prices. We quote:

Creamery, extra, 22@22¼c; medium, 21@21½c; poor, 18@20c Dairy, extra, 21@22c; medium, 18@20c; poor, 15@17c. Ladle, creamery, extra, 18@19c: medium, 15@16c; poor, 13@14c. Renovated, extra. 18c; medium, —— poor, 12 to 16c.

Cheese—Receipts for the week, 28,477 boxes. Exports for the week, 14,549 boxes.

Supplies this week were quickly taken by both home and export trade, and although prices were dropped a fraction, receivers were glad to get quit of this last end of fodder make cheese.

Market closes with all grades of cheese scarce and prices firm. We quote:

Full Cream, extra, 11⅛c; medium, 10½@11¼c; poor, 9@10c.

Eggs—Receipts for the week, 81,361 cases.

Fancy fresh goods hold their own and are wanted. All other grades in full supply and are lower and irregular in price. We quote:

New York & Penn., strictly fancy, per doz., 17½@18c; Northern & Western, strictly fancy, per doz,, 17c; All Sections, poor to good, per doz., 14@16c

DAVID W. LEWIS & Co.
177 Chambers St.

NEW YORK FERTILIZER MARKET.

Acid phosphate	60	@	67½
Phosphate rock, f. o. b. Char'n	5 00	@	7 00
Tenn	3 00	@	4 00
Bones, rough ₩ ton	16 50	@	17 50
ground	20 00	@	21 00
Bone meal	18		
Bone black, refuse	18 00	@	19 00
Potash, dbl. m're salt 48@53 per cent	1 12	@	1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons	25 00	@	30 00
sulph of basis, 90@98 per cent	2 11	@	2 18
90@98 per cent less than 25 tons	38 00	@	40 00
Potash muriate 100 lbs.	1 83	@	1 95
less than 25 tons	36 00	@	40 00
Kainit 25% S. of P. ₩ ton	9 30	@	9 50
less than 25 tons	9 50	@	10 50
Sylvinit, 35@37% P. ₩ unit	41	@	46
Nitrate of soda	2 ¼	@	2 ½
Blood, Dried red ₩ unit	2 55	@	2 60
low grade	—	@	—
Concentrated tankage	15 00	@	16 00
Fish guano, dried	27 00	@	28 00
acidulated	14 00	@	—

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—Another Guernsey bull calf from best blood in Wisconsin. Also 3-year-old bull, Befilius, well bred. Address MARCH, 1798, W. 39th St., Los Angeles, Cali. 16-2

Position Wanted—By experienced dairyman. Eight years experience. Thoroughly familiar with silo construction, testing, retail milk trade, and all departments connected with dairying. Good references. Can accept position at once. Address J. F. DUGGAN, Eufaula, Ala.

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 1901

DE LAVAL CREAM SEPARATORS

FIRST ALWAYS BEST CHEAPEST

Catalogue and any desired particulars upon application.

The De Laval Separator Co.

Randolph & Canal Sts., CHICAGO.
1213 Filbert St., PHILADELPHIA.
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GENERAL OFFICES:
74 Cortlandt St., NEW YORK.

121 Youville Square, MONTREAL.
75 & 77 York Street, TORONTO.
248 McDermot Avenue, WINNIPEG.

I Have Opened a Sanitary Milk Depot in the city of Greensburg and I have a dairy farm 3½ miles south, with one large brick two story house, two tenant houses, three barns, steam engine, 25 head cows and over 300 fruit trees. I will sell the whole business and buy the milk at 12 cents per gallon. Any one interested, address EWARD'S SANITARY MILK DEPOT, Greensburg, Ind.

For Sale—2-year-old Holstein bull, his dam is by a son of De Kol 2nd, who gave under supervision of Cornell University, N. Y., 536 lbs. milk and 26.56 lbs. butter in 7 days; his sire is by a son of Pauline Paul, the champion butter cow of the world, 18669 lbs. milk and 1153 lbs. butter in 1 year; he also has the blood of Pietertje 2nd, the champion milch cow of the world, 112 lbs. in 1 day, 30318 lbs. in 1 year. Price $125. WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis.

Position Wanted—One of responsibility for the combined work and management of manufacturing butter, cheese and process butter. Years of experience. All goods warranted. Address H, care Hoard's Dairyman. 17-3

Wanted—A married man for dairy farm. Reliable and competent. One with boys old enough to help milk preferred. Address 93, 18th Street, Milwaukee, Wis.

Wanted—To rent for a term of years, good dairy farm. Large buildings close to town in Southern Minnesota or South Dakota. C. W. WALLINE, Cambridge, Ill. 17-2

Wanted—Two good milkers at once, Germans preferred. $25.00 per month and board. A. B. NOKES, Springfield, Ill. 17-2

For Sale—The only milk route and dairy business in town of 1500 in Wyoming. Address LOCK BOX 16, Casper, Wyoming.

Practical Man Wanted—To take charge of an Indiana dairy and push sales. Single man preferred. Must be an up-to date hustler. Address "INDIANA," care Hoard's Dairyman. 17-3

Jersey Bull Calf—Can be registered. Sire has been a prize winner. Dam is a superior cow. Dairyman's price. J. BLACK, Bremen, Ohio.

Daughters of Old Paul DeKol, 14634—One two and one three years old. They are being officially tested this week. A bargain for some one. If you want them write quick. F. G. JOHNSTON & CO., Sta. B, Columbus, Ohio.

Fine Dairy Farm for Sale—231 acres within 2 miles of Madison, Wisconsin. Good set of buildings, excellent land and location that cannot be beaten. The demand for milk far exceeds the supply. The receipts from this farm last year were $4,985.co. There is a splendid chance to more than double these receipts. Ill health is reason for selling. For full description, price, etc., write C. B. CHAPMAN, Williamsburg, Virginia. 17-sp

A Good Experienced Butter Maker desires position in private creamery by middle of June. Good references. Prefer So. Dakota or Nebraska. H. YEA, Hebner, S. D.

Are You Color Blind?—If not, you will appreciate the natural golden colored product of the Guernseys. Pure bred bulls and grade heifers for sale. A. H. HINMAN, Allenville, Wis. 17-4

For Sale—Fine herd of dairy cows, three miles from Oklahoma City, O. T. Box 336. 17-2

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

For Sale—De Laval "Dairy Steam-Turbine" separator, capacity 1000 lbs. per hour, used very little, in good condition. Going out of business. Address B. F. BRUNDRED, Oil City, Pa. 13-tf

Buff Jersey's latest book on Farm Stock and Dairy Work is full of practical things for practical people. The Silo, how to build and fill; ensilage, its value; soil, crops, variety and how to grow. Swine, poultry and many other subjects ably treated. Send 25c for copy. Monmouth, Ill. 47-tf

Fine Dairy Farm for Sale—Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. T. S. TOMPKINS, Pasadena, Cal. 15-tf

Position Wanted—Experienced butter maker wishes to change position. Have taken Dairy Course at Ames, Iowa. Good references. Address T, care Hoard's Dairyman. 15-5

A Registered Guernsey Bull 15 months old for sale. A very fine animal. Inquire of J. S. HUNTER, Pickett, Wis. 12-tf

For Sale—Four young registered Guernsey cows, all fresh. J. E. STORY, Stanley, Wis. 11-tf

Wanted—Second-hand De Laval or Sharples Safety Hand (hand size) separators. Never mind if out of order, but must be cheap. CREAM SEPARATOR SUPPLY CO., Council Bluffs, Ia. 16-3

Young Guernsey Bulls For Sale—Whose dams are being tested for advanced registry. Will be sold and half of purchase money refunded if dams fail to qualify. EZRA MICHENER, Michener, Pa. 16 2

Wanted—A first-class butter maker who understands machinery and is a good milker. Must be a hustler and capable of managing men and not a man who needs watching. If you are a good man and want a good position at a good salary, write, stating wages expected in your first letter. Address C-5, care Hoard's Dairyman, Fort Atkinson, Wis. 16-2

Very Low Rates to California and Return—Via the North-Western Line. First-class round-trip tickets on sale July 1 to 10, inclusive, to San Francisco and Los Angeles. Favorable limits and stop over privileges and choice of routes. The overland limited, most luxurious train in the world, leaves Chicago daily at 8 p m. Less than three days en route. Drawing room and compartment cars, observation cars, dining cars, buffett-library cars (barber and bath), electric lighted throughout. Three trains a day from Chicago to the Coast through without change. Daily and personally conducted tourist car excursions to California, Washington and Oregon. For particulars apply to ticket agents Chicago & North-Western R'y. 16-7

Some Eastern Guernseys.

ED. HOARD'S DAIRYMAN:—It was my privilege early in May to see a number of the best Guernsey herds in the east, and the Editor has asked me to tell you a little something about them. On my way east, I stopped in Ohio, and looked at two small herds. Mr. A. R. Collins, Xenia, has about twenty Guernseys, nearly all descended from Glucose, purchased from the late Silas Betts, and Fair Duchess Minda 8591. The latter cow has milked up to 41 lbs. per day. Mr. Collins is now using Sir Bonny 6084, a fine three-year-old bull by Sir Fantine out of Bonnie Beauty 2nd, with a record of 16 lbs., 4.5 oz. butter in seven days and 407.3 lbs. in a year, at three years old. Mr. Wm. Conley, at Cedarville, at one time had quite a herd of Guernseys, but tempting prices have taken them nearly all away. One two-year-old, recently fresh, Miss Vanity's Rena was especially fine.

The rest of the trip I was in the company of Mr. W. D. Hoard and our next stop was at the farm of Miss Isabel S. Wilhelm, Harrisburg, Pa. This herd is called the "Paxtang" herd, and contains many excellent individuals, and has been the birthplace of many other good ones, including Procris of Paxtang, and all will remember her as one of the best cows in the Pan-American herd, and now the property of Mr. S. M. Shoemaker, of Baltimore. Sultana of Paxtang also owned by Mr. Shoemaker is now making a large record in the Advanced Registry tests, milking up to 56 lbs. per day, four months after calving. Miss Wilhelm now has at the head of her herd Ben Bishop, a son of Benjamin and Madame Bishop, 495 lbs. of butter, and mother of four tested cows. Perhaps the best cow in the herd is Golden Lass of Paxtang, and she certainly is a beauty and a large milker. She is by Sheet Anchor 2nd, Rilma of F. is another good daughter of the same bull. Miss Wilhelm recently sold Glenwood Boy of Haddon to Mrs. E. W. Strawbridge, of Moorestown, N. J.

This bull has left some fine young things in the herd, and one of them impressed Mr. Hoard and myself as a wonder. This was Dorothy Manners of Paxtang. She was soon due to freshen with her first calf and carried the largest udder I think I ever saw on a two-year-old Guernsey. Her dam, Virginia Girl was milking 35 lbs. and Glenwood Boy was out of Glenwood Girl 2nd; this heifer ought to make a good one if you can breed them. The three old cows Kitty Clover, Francesca and Princess Bonnie have all been extra good ones.

For many years the very best bulls obtainable have been used and the present herd will speak for the results. We left Harrisburg in the afternoon, and riding through most beautiful country (from the cars) white with dogwood bloom, we reached Landenburg, Pa., late in the afternoon, and spent nearly twenty-four hours with M. M. & E. J. Hollingsworth. This is now my third visit to this herd, and marked improvement shows each time. I sold them in Sir Coral, one of the best young bulls that we ever bred. An attack of pneumonia stunted him, and left him thick winded, but certainly did not hurt his breeding powers, if you are to judge by his get. He was sired by Sir Fantine out of Fantine 2nd, and his dam Coralette made for us 479 7 lbs, fat with her second calf, and was in 1896 first-prize cow at the Wisconsin State Fair. We thought so highly of her that we are now using exclusively her son, Coralette's Son.

Messrs. Hollingsworth have in this bull's heifers a great opportunity to make a large reputation for the bull. This is the home of Vega of Pan-American fame, and she has a beautiful heifer dropped last fall, sired by Sir Coral. They are using on Sir Coral's heifers a fine three-year-old-bull, Glenwood's Sheet Anchor of Haddon. He was sired by Mainstay out of Glenwood Girl 7th; 387 lbs. fat in an official test. This bull's calves look fine. They like this blood so well that they have just purchased of Mr. Gill, a calf from Arbutus of Haddon, 530.8 lbs, butter, and she in turn from Glenwood Girl 3rd, 541 lbs.

Messrs. Hollingsworth kindly drove us over to Mr. Mark Hughes' farm, one of the points of historic interest to Guernsey breeders, as being one of the great importing farms of the early '80s. Mr. Hughes still maintains a choice herd of Guernseys and at its head is Bookeeper 10th, a son of Economy, with a milk record of 8,010 lbs. Taking the train in the afternoon, we were soon at the "Haddon" farm of Mr. E. T. Gill, Haddonfield, N. J. This is known as the home of the Glenwood Girl family, and this family is, so far, the best one the breed has developed. Glenwood Girl 2nd recently suffered a fracture of the hip, but it is hoped to get at least one more calf from her. The other daughters, 3rd to 8th, are hale and hearty, and doing well. Glenwood Girl 6th is one of the greatest cows of the breed, and never looked better than now.

Mr. Gill has recently been inbreeding some, with excellent results. Glenwood Girl 6th has a fine bull calf by Glenwood Boy of Haddon, mentioned above, and Glenwood Girl 2nd has a fine heifer by the herd bull, Glenwood's Mainstay, a son of Glenwood Girl 6th. The fame of the herd by no means rests on this family alone for the Lucretias, Coralie of Ridgview, Nubienne and many others are grand cows. In addition to Glenwood's Mainstay, he is now using Sir Primrose, a son of Primrose Tricksey, 508 lbs. fat in the official tests, and No. 2 of the Advanced Registry.

Mr. Gill has a fine new barn, and dairy house, and is shipping large quantities of high class milk to the Abbott dairies in Philadelphia. Only six miles from Haddon Farms is Pinehurst Farm owned until his recent death, by Mr. E. R. Strawbridge, and now carefully conducted by Mrs. Strawbridge, who has always taken an active interest in the management of the herd. They have always believed in using the best bulls attainable, and have owned Mainstay, the well known son of Sheet Anchor, and Rutila's Daughter. Then they purchased Raphael of Pinehurst, a son of Lily Ella, but lost him with colic. They also used Mainsheet, a son of Glenwood Girl 4th and now are using Glenwood Boy of Haddon. The best cow in the herd is easily Auricula 2d with a record of 56 lbs. milk per day at four years old, and 12.077 lbs. at five years old.

Mrs. Strawbridge now has this cow entered for the Advanced Registery and her first month showed 53 lbs. of 4.2% milk. Selma of Pinehurst is a fine two-year-old, milking up to 30 lbs. Mrs. Strawbridge has recently purchased of Mr. Tallman, Dairymaid of Elm Place 14197, with an official record of 473.47 lbs. fat. A large lot of fine heifers give promise of future greatness for the herd.

Our next visit was to the "Florham Farms" of H. Mc. K. Twombly of Madison, N. J. The Guernsey has no better friend than Mr. J. L. Hope, the farm Supt. at "Florham." It must be conceded by everyone that no other place can equal this in its opportunity to feast one's eyes on good Guernseys. To mention half of the good ones would require a page of your paper.

The present service bulls are Rutila's Sheet Anchor, Island Champion, and May King. The two latter are imported bulls, and May King cost more money than any other Guernsey bull ever imported, or sold. All three of the bulls have wonderful good cows for mothers and only good results can follow their use.

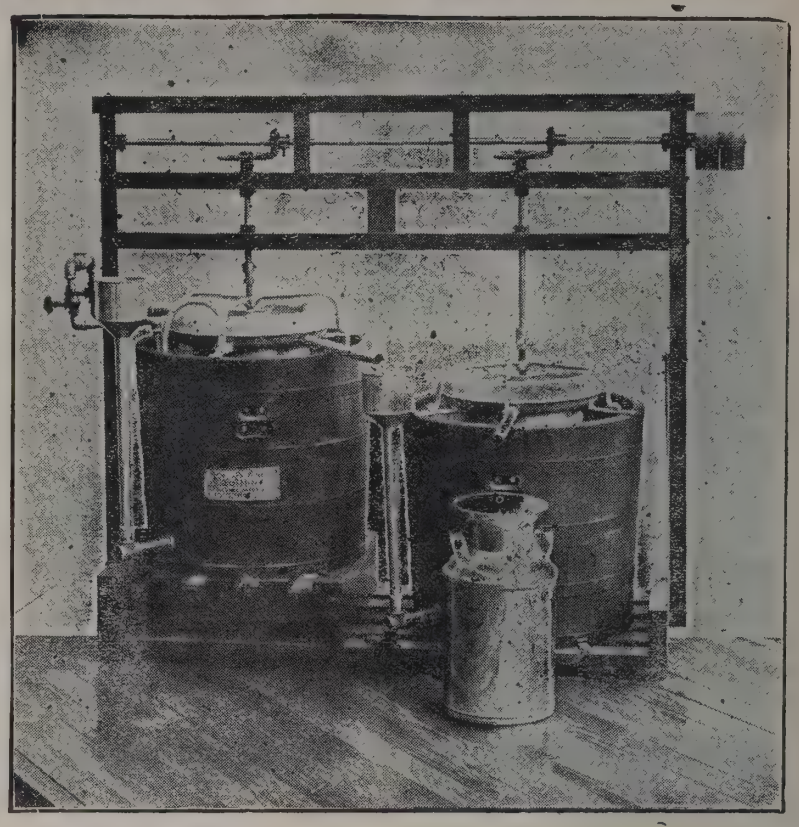
Many good young bulls are in evidence, one of the best being sired by Rutila's Sheet Anchor and out of his own sister, Sheet Anchor's Rutila, 392.4 lbs. of fat in the official tests. These two had for a dam the great Rutila's Daughter with a record of 671 lbs. butter and the winner of many prizes. It would be impossible to say which was the best cow in the herd but most people would like Imported Charmante of the Gron 14442, as, well as any. She is a marvel in her milk machinery and is besides a great beauty. She is at work in the Advanced Registry tests, and has made 408 lbs. of fat in 202 days, and bids fair to lead all the cows in the Advanced Registry. She has a most beautiful calf by Rutila's Sheet Anchor. Pretoria 14443, five years old is doing nearly as well while Daisy Itchen 3rd, a two-year-old ought to give Dollie Bloom a good race for the two-year-old record.

It will almost discourage and bewilder a breeder to see this fine collection of Guernseys, and the only encouragement he can get out of it personally is the thought that unlimited means is at command to buy as well as breed good ones.

No herd, at least in recent years, has done so much to build up the interest in the breed as this one, and all breeders in the country wish them continued success.

Do not think for a moment that Mr. Hoard and myself can admire nothing but Guernseys, for we stopped at Cedarville, Ohio, and saw the Polled Jerseys of

A GREAT SUCCESS.



The Miller Cream Pasteurizer has a capacity of from 450 to 600 lbs. per hour.

Price $150 in Tin. $200 in Copper.

THE MILLER PASTEURIZING MACHINE CO.

CANTON, OHIO.

Confectioners and Bakers' Supply Co.

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THE DICKSON IMPROVED 10 Gallon and 5 Gallon FREEZER.



THE C AND B 10 Gallon FREEZER.

ICE CREAM Machinery, Tools and Supplies.

Packing Tubs, All Kinds of Ice Cream Packing Cans, Ice Crushers, Bricks, Ladles, Spoons, Dishers, Flavors, Colors, Gelatines, Etc.

WRITE FOR OUR CATALOGUE

Mr. Orr, and on May 12th we and six or eight other Guernsey breeders attended the sale of imported Jerseys of Mr. F. S. Peer held at Hoboken, N. J. Many fine animals were sold well below their value, this being especially true of the young bulls and some of the best females sold early in the day. The cattle were not in the best of condition, but showed fine shaped udders and beautiful forms and heads of the imported type. The next day occurred the 25th annual meeting of the American Guernsey Cattle Club in New York and about 40 were in attendance. That evening off for home and work. CHARLES L. HILL.

Rosendale, Wis.

Notes on Creamery Patrons' Investigation at a Maine Co-operative Creamery.

ED. HOARD'S DAIRYMAN:—Of the number of creamery patrons, about one-third replied to the queries sent out. This one-third may be considered to be occupying advanced ground, but we will assume they are representative of the whole number and stand for the average of the patrons. The farms average 156 acres, of which approximately one-third of each is in tillage, pasture and woodland. In nearly every case pastures are permanent, and they are usually the rough lands which are unfit for cultivation. Tillage includes grass and cultivated crops, and sometimes the turf is undisturbed in a given field for as long as it yields enough to pay to mow it.

The cows are of mixed breeds, including at least seven distinct breeds. The Jersey predominates and the next most numerous strain is the Short-horn or Durham. The average number of cows reported is eight to a farm. Most of the patrons raise calves, and many are aiming at improvement of stock by breeding from the best available. A great deal can be done in this line, and in the near future, by improvements in feeding and care, and by an intelligent application of the results of a forward movement in record keeping and tests of the cows, great gains may be expected.

This is only the beginning of the rural free delivery by which dairy literature is being brought to the patron's door. The spread of information is not as catching as some other things, but it spreads and doubtless many of these patrons are destined to prove to themselves as others have done that they have not known hitherto as much about their business as they supposed they did. New standards will upset the relative values placed on the individual cows of their herds. They will realize that it does not pay to raise or feed calves from any but the cows which prove themselves best by the records.

The high prices put on the grain and seed by-products, suggests that a careful patron should try hard to substitute home grown feeds to take the place of those common feeds which have advanced to what should be made prohibitory prices on Maine farms.

Only the most concentrated of these feeds, as cotton seed meal, should be purchased, and this only when it is needed to balance up home raised feeds for balanced rations. Aim to grow legumes — clover, vetch, peas, beans and alfalfa, to feed with corn and common hay; divide the pasture and change the stock from one part to the other, thus securing a better "bite" and less travel for the cows. Raise some small areas of soiling crops in the pasture area, or adjoining the pasture, so the feeding can be done with least expense. This will supplement pasture and save "feeding on pasture" in dry times.

Among the reporters are 14 who have added the silo to their facilities for feeding, and 6 others who will build silos in the near future.

If, as assumed, these patrons are not leading those who did not answer our circular, in the near future 10 per cent of the Skowhegan patrons will be feeding cows from the silo.

If as many as that will begin to keep accurate records this year, the creamery manager can soon begin to see his business grow. This will mean some extra care and trouble, but these will be paid for in a better knowledge of what is being done, and later in better returns from better cows which will have been made better by the comparisons leading to discarding the poorest and encouraging others with more and better feed.

Maine farms are proverbially hard to cultivate, but labor saving implements must be secured and used whenever they can lighten the hard work. This is essential if patrons would produce their crops at moderate cost, and save the time from the farm operations to put into other channels, where care and thought are needed.

It appears on the table, page 304, that the average price paid for March, June, September and December, 1902, was 24½ cents per pound for butter fat. The figures for each month were 26½, 22, 23 and 26½. From the table it may be learned that some of the patrons who reported seem to have learned to have cows in full flow of milk when the price is high. Comfortable barns provided with running water help to save feed and increase the yields from cows in cold weather.

The winters are long and cold and too much of the summer's work at best must be expended in winter feeding. This serves to emphasize the need for comfortable quarters, and the tests, in order to weed out all animals that do not pay well for the great amount of time needed to feed them through the winter.

The creamery patron is of necessity a general farmer. He must raise some crops and a garden for home use. There must usually be something else for sale from the farm than milk and porkers. He is a lucky man who has tested his stock and found it to be so good that his surplus is in demand for breeding purposes by his neighbors.

The pigs are an important part of the farm income. They may have a few acres run in the summer and if care is taken to give them a clover field, a sorghum or corn patch, etc., they will do more foraging than many have believed, and require the minimum of attention.

The Skowhegan creamery is set in a region suited to the production of excellent standard winter apples. Too little attention is being given to this branch by patrons. FRANK E. EMERY.

Chicago, Ill.

Barn Questions.

ED. HOARD'S DAIRYMAN:—I am now arranging to build a dairy barn and have decided to build in accordance with plan shown in your issue of December 19th, 1902, as it is very economical as to space. I think of making the following changes: Make the 24-foot tower into a silo and put an 8 by 10 foot water tank in square between stalls which leads to calf pens, and omit the calf pens. What do you think of the changes? What inside measurement should ventilators have? How close should bottom of same be to floor and how high should they extend above the roof? Will the bent, as shown on enclosed slip, have sufficient strength to make a strong roof? I expect to use all the storage I can. At about what points on the outside should I place the fresh air duct and about what size shall I make it, and where shall I make opening for same on interior wall? I want a warm, well ventilated barn. HOARD'S DAIRYMAN has been a great auxiliary to me, and I am just selfish enough to follow its dictates to the letter. W. D. MC. K.

Brainerd, Minn.

King's rule for ventilating flues is an area of four square feet for each twenty cows. The opening at the bottom of the flue should be practically at the floor and should be provided with a register or some other arrangement whereby the opening can be closed partly or wholly as circumstances may require. There should be another opening into the flue just below the ceiling of the stable so that in summer time the hot air may be carried off through the flue. These ventilating flues should be built on the plan of a chimney and therefore extend above the ridge of the barn so as to insure a good draft without interference from the wind. The intake flues should be distributed on both sides of the stable and should not be more than ten or twelve in. square with the opening outward as far down as practicable and inward at the top of the stable. The outward opening should be not less, in any event, than three feet below the inner opening so as to prevent the warm air from passing out. It is desirable to have these flues well distributed so that the cold, fresh air in winter may be well distributed throughout the entire stable and not enter at one point and so reduce the temperature there below the average for the entire stable.

We see no reason why the proposed bent should not have sufficient strength to make a strong roof, built on the principle to be observed in constructing plank frames, but here, as in so many instances, we do not think we can serve our inquirer better than to advise him to procure a copy of King's Physics of Agriculture.

The Expert Milker.

"Train up a child in the way he should go, and when he is old he will not depart from it," is a proverb which is as true now as in the days it was first written; true in practical every day duties as well as in lessons of morality, etc.

Among many neglected duties to which the farmer is prone is the one of neglecting to properly train the boys in milking. This includes more than the simple operation of drawing the milk from the cow, although that is an art. Probably not more than one in ten persons are experts; that is, thoroughly understand the art and practice it in a scientific manner.

The child should be old enough to understand the responsibility of a milker and should be taught to be cleanly as possible as to hands and clothing. A few lessons on personal neatness will give right ideas, especially if demonstrated in the habits of the teacher himself. Theory and practice should go hand in hand here. Next in importance he should be taught to properly care for the cow or cows under his care; should see that the udder be clean from soil, etc. If the udder be clean apparently, it, as well as the other parts of the body, should be well brushed to remove loosened hair, scurf, etc. The temper or temperament of the cow should be studied also. If of a nervous temperament, he should be taught to soothe and conciliate her when she is taken with one of her "moods" instead of practicing coercion with blows, remembering that it is only the justice and mercy which one of a higher organism should show toward one of the lower, to do so, besides being a matter of profit and loss. A cow will never do her best under coercion—she may be made to behave better, but that is as far as man's authority can go. Nature will outwit man every time, and the proper or normal flow will be withheld until she gets in a better humor. Many cows are yearly ruined through fear and improper treatment.

Do not send children to take their first lesson in dairying, of the hired man, unless you know him to be well trained. Ten to one he will march direct from his duties as groom, etc., at the horse stable, with his clothing full of indescribable odors and as a necessary preliminary, fill his mouth with tobacco before beginning operations.

The girls upon the farm should also receive instructions from one competent to give it. The very best milker I ever knew was a woman, and it was a positive pleasure to witness her operations. The rhymical flow as her hands would rise and fall was as enjoyable as music, and all her movements were graceful. Farmers, to you the world looks for its supply of milkmen. See to it that the next generation is properly trained and understand their business thoroughly.—A. C. MCPHERSON, in *Wallace's Farmer*.



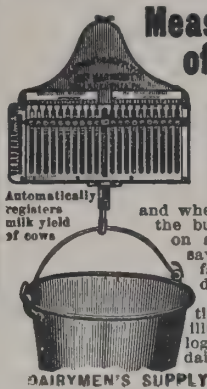
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make the work easier for both the man and team. The tires being wide they do not cut into the ground; the labor of loading is reduced many times, because of the short lift. They are equipped with our famous Electric Steel Wheels, either straight or stagger spokes. Wheels any height from 24 to 60 inches. White hickory axles, steel hounds. Guaranteed to carry 4000 lbs. Why not get started right by putting in one of these wagons. We make our steel wheels to fit any wagon. Write for the catalog. It is free.

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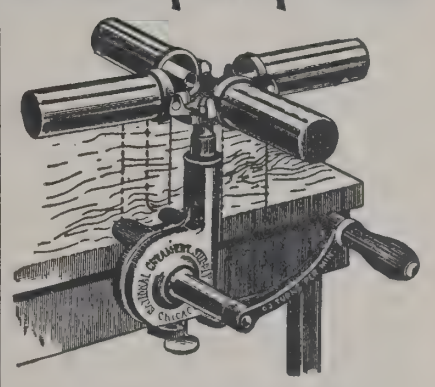
With the Automatic Milk Scale you can keep an accurate record of the yield of each cow, and remove the unprofitable ones from the dairy. Each button on scale arm corresponds to number of cow, and when pail of milk is weighed the button registers the weight on score card. Big money saver and money maker for farmers and dairymen.

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Has enclosed cut gears.
Swinging bottle-holders.
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As well made as a cream separator.
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The weight of machine when boxed, approximately 11 lbs.

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Mr. Wheaton's Canadian Dairy Notes.

Spring Cheese Receipts.—Canadian vs. Russian Butter.—Export Cheese Trade.—Cold Curing Stations for Cheese.-Refrigerator Car Service.—Meeting of Cheese and Butter Salesmen.

ED. HOARD'S DAIRYMAN:—While May, up to a couple of days ago, has been dry, the make of butter and cheese has not shown it, especially that of cheese. The receipts of cheese at Montreal from May 1 to May 19 were 48,500 boxes, as compared with 35 500 boxes for the same period of 1902. The receipts of butter do not show this advance and it looks as if our butter exports would fall behind those of last year.

The export demand for butter is not nearly so brisk as a year ago, though prices are from 1c to 1½c lower. Cable orders quote 85s to 87s, c.i.f. London, for finest creamery, or 17½c to 18c here, which is lower than can be had on the local markets. So far, however, very little full grass butter has come forward, which may have had something to do with the poor export demand.

It is felt in some quarters that Canada will find Russian butter a more formidable rival than formerly in the British market. That country is making remarkable progress in the development of her butter trade. She has a complete system of cold storage and refrigerator service between the producer and consumer, which is under direct Government control. The number of refrigerator wagons is being rapidly increased and today there are said to be 1,000 of these wagons in use in Russia. Besides these up-to-date facilities, the Russian Government has established or obtained, a flat rate of $4.12 per ton for the carriage of butter from far off Siberia to London. The only drawback seems to be in time, as it takes 15 days to cover the route. But with a complete chain of cold storage facilities such as we have described, a few days extra in time will not prove a serious obstacle.

Canadian butter, however, is of better quality than that of Russia and has already obtained a good foothold in the British market. But the advent of Russia in this field and the energy and skill she is showing both to improve quality and land her product in the best possible condition, can not be treated lightly by Canadians who wish to see our export butter trade expand.

The export cheese trade, on the other hand, seems to be moving on its way, with hardly a cloud in the horizon. With 11 to 11½c freely paid for May cheese for export, the outlook looks bright. Though the dry weather did not lessen the make, it created a sentiment in the speculative market that helped to keep up values. The rains of the past few days have been quite general and will freshen pastures and put things in good shape for a big June make. When that arrives, perhaps there may be a big slump in values, though present indications do not point that way.

All our machinery for the promotion of good dairying is in full running order. With the exception of the large increase in syndicate instruction work, referred to in our last letter, no important changes are to be noted in its operation.

The four government cool curing stations, established at Woodstock and Brockville in Ontario and at Cowansville and St. Hyacinthe, last year, began operations a week ago. There has been a large demand from the factories for space in these stations to cure cheese, much more than the Government could supply.

These stations, last year, demonstrated the advantages of cool curing and factories are desirous of getting all the benefits from it they can. But as the space is limited they will have to do without it, or build similar stations for themselves.

If they are a good thing and will save so much in shrinkage and in improved quality, one would imagine that our factories would be sure to build similar stations for themselves. But the question of cost comes in and the most enthusiastic grow cold. With factorymen, as with many others similarly situated, the cost item is never figured out in its relation to the benefits to be derived. If ten good sized factories, by having a central cool curing station, can save one quarter of a cent per lb. on all the cheese made in one season, there should not be the hesitation there seems to be on the part of dairymen to take hold of this question.

Many of these factories, if they wish to continue in the business, will be under the necessity of providing better curing rooms. Then why not join with their neighbors and have one consolidated room for all. But our factorymen are not built that way. Foolish jealously and inborn suspicion of one another, so common in this country, prevent their doing so if nothing else will. And so they journey on very willing to lose, lest they give a neighbor the advantage. It will be so, perhaps, till the end of time. It may be that the system of syndicate instruction now so firmly established can work out a cure for this suicidal and nonsensical rivalry.

Both the Grand Trunk and Canadian Pacific Railways have commenced their refrigerator car service for the season. These cars will be run regularly from central points for butter shipment to Montreal, and will stop at important points along the route.

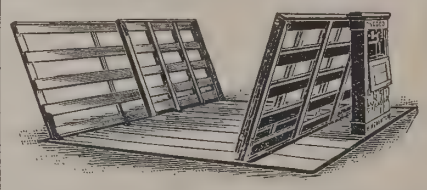
This refrigerator car service, which has been running for several years back, through the initiative of the Department of Agriculture, at Ottawa, has been of great advantage to our butter makers. Many, however, expect that it will do everything for them. There are a few things it will not do. It will not make bad butter good, nor will it keep butter cool that has been allowed to become overheated before being placed in the car. Last year a great deal of butter was sent forward in these cars that had been previously overheated at the creameries. To prevent a repetition of this the railway companies have received instructions not to accept butter on government refrigerator cars, that is not below 40 degrees, F., when placed in the car. This will shut out a lot of bad butter and induce creameries to provide better cold storage facilities at the factories, if they wish to take advantage of this special service.

A joint meeting of cheese and butter salesmen, members of the Montreal Produce Merchants' Association, and the officials of the Dominion dairying service will be held at Montreal, on June 2nd, to consider the questions of standards of quality and descriptive terms of the different grades of cheese and butter.

Such a gathering cannot but result in some good. That more specific and uniform terms are needed in describing standards of quality, no one will deny. Still it will be hard for even so representative a gathering, as this will doubtless be, to hit upon terms and descriptions that will be applicable to all, or better, perhaps, that will be acceptable by all. Already several of the dairy boards of trade in Western Ontaria, have indicated that they will not send representatives, as any standards that may be decided upon will affect only those in the east, who send

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D. E. Stone, M. D, Mt. Pleasant, Md., says: "I have used your Scales now for over a year, and am perfectly satisfied with them. If I were to pay a thousand dollars for a Scale, I could not be better suited. The Sealer of Weights and Measures said that he had never seen Scales so sensitive and accurate. When they are balanced, if you throw a straw hat on them the beam goes up. I can weigh anything from a load of hay down to a pound of butter. They entirely fill the bill, and I would not be without them."



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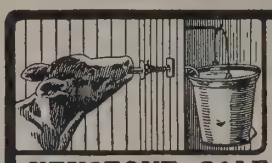
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Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale. M. M. & E. J. HOLLINGSWORTH, Landenberg, Chester Co., Pa.

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Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa. JAS. H. BEIRNE, Oakfield, Wis.

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MATURE COWS YEARLY RECORDS range from 356 to 713.3 lbs. butter. This herd contains more officially tested cows than any other herd of the breed. All of the largest records are official ones. A particularly choice lot of tuburculin tested bulls for sale from high record dams. GEO. C. HILL & SON, Rosendale, Wis.

GUERNSEYS FOR SALE Bull two years old out of Count Topsy 24.27 lbs. butter 7 days. She won 1st prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality F. W. TRATT, Whitewater, Wis.

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Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.
Especially low prices, standing of herd considered. No catalogue. State what you want.
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REGISTERED JERSEY BULL CALF, 10 months old. Over 30% blood of Combination; nearly 30% blood of Brown Bessie. Traces from Eurotas (778 lbs. butter, 1 yr) and Mary Anne of St. Lambert (836 lbs butter, 1 yr.) Dam showed over 15 lbs. indicated butter in 1 week with first calf, and died of milk fever with this (3d) calf One of best calves we ever raised. Solid color. E. E. STEVENS, North Madison, Ohio.

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Also Headquarters for Large English Berkshires and Standard Poultry.
Apply to
BILTMORE FARMS, BILTMORE, N. C.

HAZEL FERN HERD. A. J. C. C. Jerseys, blood of St. Lambert, Melia Ann, Combination, Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

ROBINSWOOD JERSEY DAIRY is offering a few Reg. Jersey Bulls ready for service at from $25 to $50, sired by a grandson of Recorder, the only living son of Brown Bessie, out of good cows. Write, stating your wants, to N. H. ROBINSON, Prop., Centralia, Wis.

FOR SALE.
JERSEY BULL, one year old. Good individual of the best breeding. Also 7 months bull from tested dam. Herd headed by Fontaine's Owl, 60436. Prices on application. Address, J. F. EGERTON, Footville, Rock Co. Wis.

The Evergreen Farm Herd has for sale three or four A. J. C. C. heifers bred Also a few cows and some choice bull calves from two to six months old. Write for pedigrees and prices.
N. N. PALMER & SON, Brodhead, Wis

JERSEYS. ST. LAMBERT and Combination, for sale; 13 cows, 8 heifers, 29 bulls.
S. E. NIVIN, Landenburg, Pa.

their cheese to Montreal for inspection.

However this may be, it looks as if some good might come out of a gathering of this kind, that would be applicable to the whole trade. If standards of quality and descriptive terms were uniform for the whole of Canada, it should aid considerably in producing a more uniform quality throughout. The outcome of the conference, will, no doubt, be watched with interest.

In a circular recently issued by the Agricultural and Dairy Commissioner, some good advice is given as to preventing the growth of mould on butter. It may be summarized as follows: Thoroughly clean the factories by liberal whitewashing with lime or the use of any other germicide; have wood work of factories dry and remove all damp and decaying pieces from the floors and gutters; look after the drainage; keep refrigerators dry and use nothing but sound wood in their make up; make butter boxes of seasoned wood and properly paraffine before using; use only good parchment paper and soak it in a solution of brine and formalin before using, and expose butter as little as possible and for as short a time as possible, in conveying it from the creamery to the railway station.

Toronta, Can. J. W. WHEATON.

CONCERNING OUR ADVERTISERS.

The Regal Gasoline Engine Co., of Coldwater, Mich., have advertisement in this issue of their small gasoline engine. They are making a small engine especially designed for dairy work 1½ and 2½ h. p. There is no purchase in machinery that proves as satisfactory and as great a saving of time and money as a good gasoline engine. Every reader of HOARD'S DAIRYMAN needs one. Write the different advertisers and get the information you need and prices.

GOOD BUGGIES CHEAP FOR THIRTY DAYS.

For one month from the date of this issue the Kalamazoo Carriage & Harness Mfg. Co., 148 Ransome St., Kalamazoo, Mich., are offering a regular $80 buggy for $45 and extending the privilege to the purchaser of trying it for thirty days and then returning it if for any reason it is not satisfactory. They do not limit the number of buggies to be sold at this price, but the time limit is inexorable, the $45 price expiring in thirty days from this date. The Kalamazoo concern is the pioneer in selling buggies direct to the people on thirty days free trial plan and have made a wonderful success of this method because of its liberality and fairness and because of the high quality, low price and good value of their goods. They are the largest manufacturers of buggies and harness in the world who sell their output direct to the users and save the middlemen's profits. Their advertisement appears in this issue and their buggy book, with all the favorites and all the newest patterns and styles of vehicles will be sent the readers on request.

Geo. T. McNeil, owner of the Elmwood Farm Holstein Herd starts ad. in DAIRYMAN this week and in writing of his herd and some recent tests he has following to say: "Mr. F. H. Richards, Cornell Agr. College, Ithaca, N. Y., recently conducted 7-day official butter test of two H. F. cows owned at Elmwood. Leila Pietertje, age 7 yrs., produced 85 3 lbs milk in one day; 577.4 lbs. in 7 days, and 21.851 lbs fat in 7 days equal to 27 lbs. 5 oz. butter 80% fat. Tulip Pietertje Inka DeKol, age 3 yrs., produced 70.1 lbs. milk in one day, 471.6 lbs. in 7 days, and 15.715 lbs. fat in 7 days, equal to 19 lbs. 11¾ oz. butter 80% fat. In justice to this heifer will state she had been milking over 60 days and had given over 3,500 lbs. milk before test began so was in very thin condition and past her best. This heifer last year made 17 2 5 lbs. butter in 7-day official test, which is the largest official record ever made in New York state by heifer under 3 years of age. As we bred this heifer it will give you an idea of class stock we produce at Elmwood."

THE GEDGE TANKS.

The galvanized steel tank manufactured by Gedge Bros. Iron Roofing Co., of Anderson, Ind., and advertised elsewhere, suggests an article of every day use on the farm. This concern is best known as a manufacturer of a superior metal roofing and siding. For several years they have been handling other makes of tanks and studying the problem of their making with the intention of bringing out a tank that should take precedence of anything on the market. The "Gedge" tank is the result. They are made round, oblong, round cornered, in fact in all desirable shapes and of any capacity from the ordinary watering trough to the large storage or tower tank for holding a water supply. Dipping and wagon tanks of approved patterns are among the list. The Gedge ad. well deserves attention of any one who is needing anything for any purpose in the tank line.

The well known preparation Chloro Naptholeum Dip manufactured by the West Disinfectant Co., of New York City, has just received an excellent endorsement from the State Veterinarian, of Wyoming. It seems that ranchmen have been having considerable trouble from mange, itch and lice in their herds, and although the laws of Wyoming are very strict in the enforcement of treatment a great deal of trouble is experienced from the fact that many, thinking that one remedy is as as good as another. The Veterinarian issues a letter to the stockmen of Wyoming calling their attention to the necessity of greater care on this point. He very strongly urges the use of Chloro Naptholeum Dip, giving his own experience as well as that of others, saving that this preparation used as directed will absolutely wipe out the trouble. It is not often that an advertised preparation receives such sweeping endorsemont.

If you have any trouble with your milk on account of the cows eating garlic or wild onions or other vegetables and weeds, look up the ad of the Virginia Cattle Food Co. They advertise "Mrs. Lea's Milk and Butter Purifier," and their goods have and are receiving the endorsement of well known men in dairy work, as well as practical dairymen. Look up their ad.

For the land's sake—use Bowker's Fertilizers. They enrich the earth and the men who till it.



OHIO'S FAMOUS HERD —OF— Holstein Cattle

OWNED BY W. B. Smith & Son

2088 W. Broad St., Columbus. O.

CLYDE PAUL DE KOL.

ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.

GEO. T. McNEIL, Theresa, N. Y.

WOODLAKE HERD.

Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN Station D., R. 1, Minneapolis, Minn.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

STAR FARM HOLSTEINS

DROUTH DROUTH DROUTH

My pastures are a total failure. *Must sell immediately, 50 royally bred registered Holstein cows.* You can get the best. You can make your own price. Inquire at once.

HORACE L. BRONSON, Cort and, N. Y

TYRANENA HERD

100 HOLSTEIN-FRIESIANS 100

A. R. O. Stock For Sale.

Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz Frank B. Fargo, Lake Mills, Wis.

SOUTH SIDE FARM, WHITE BEAR LAKE, MINN.

Holstein-Friesians.

Bulls in service, Prince Inka Pietertje De Kol 2d, A. R. O., 144, sire of 10 A. R. O. cows, and Daisy Van Beer's Pauline De Kol. 27610, whose dam has official record of over 22 lbs. in 7 days. Special prices on young bulls from A. R. O. cows. Also Yorkshire pigs of most approved breeding now fit to ship.

Holsteins That Produce Are The

HOLSTEINS THAT PAY

The kind we sell. Backed by the largest official butter records ever made. All ages, both sexes. Over 100 head to choose from.

BROOKSIDE STOCK FARM,
HENRY STEVENS & SON,
Box 208, Lacona, Oswego County, N. Y.

FOR SALE. H.-F. Bulls, ready for service from A. R. O. Cows and sired by Sir Jonanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis.

GLENVIEW HERD

A few fine heifers and bulls for sale. Also some A. R. O. cows. IRVIN NOWLAN, Toulon, Ill.

Markham Manor Farms, Simonsville P. O. Andover, Vt.

Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for description and price to J. A. THORNTON, Manager, Simmonsville, Vt.

FOR SALE.

H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address W. H. JONES, Watertown, Wis. Rural Route No. 2.

CLOVERDALE HERD

HOLSTEINS.

Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.

A. J. DAUGHERITY Streator, Ill.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148 Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.

WM. EVERSON & SONS, Lake Mills, Wis.

70 HEAD PUBLIC SALE 70 HEAD

GREATEST OFFERING OF

HOLSTEIN-FRIESIAN CATTLE.

McADAM & VON HEYNE'S

Justly celebrated herd, will be sold at Public Auction, at the home of the World's Champions, at Brothertown Stock Farms, Deansboro, N. Y.,

WEDNESDAY, MORNING, JULY 15, 1903

This sale includes every animal in our herd. Sadie Vale Concordia, the World's Champion, with official record of 30 lbs. 10.2 oz. butter in seven days, one of her sons, now 3 years old, 2 daughters, 5 granddaughters, 1 grandson and 2 great granddaughters and sons, will go to the highest bidder. **Mercedes Julip's Pietertje,** the famous ex-champion with official record of 29 lbs. 5.3 oz. butter; her daughter and granddaughter will also be sold. Another great offering in a sire is **Canary Mercedes Johanna De Kol,** out of Canary Mercedes Brightest with official record of 21 lbs. 3 oz. at an age of 2 years and 11 months, and by Johanna Rue 2nd. Paul De Kol, who has now 13 in the Advanced Register. The four nearest dams average 23 lbs. 5.6 oz. butter in official test. They average 4 6 per cent fat. This includes record of dam made in two year form. Herd numbers

70 HEAD OF VERY SUPERIOR ANIMALS,

selected with great care. A large number being from the CELEBRATED VEOMANS HERD. All cows offered are in calf, either by Sir Pietertje Posch, a son of Alta Posch, with official record of 27 lbs. 1.4 oz. butter at 2 years and 11 months, or by Sadie Vale Concordia's Paul De Kol. or by Canary Mercedes Johanna De Kol. In this offering of fine stock are cattle suitable for the best herds, also for the improvement of good herds, as well as cattle for the beginner; as the latter, in buying any of these cattle will start right, which is an important part of the success of breeding pure bred cattle. Farm can be reached on the D L. & W. to Waterville, N. Y., or the O. & W. to Deansboro, N. Y. Trains will be met promptly and visitors conveyed to the farms. Also farms can be reached by trolley from Utica to Clinton, thence by livery. Catalogues ready early in June. Address

Mc ADAM & VON HEYNE, Deansboro N. Y.

The sale will commence promptly AT 10 A. M. WEDNESDAY, JULY 15, 1903.

COL. CAREY M JONES, Auctioneer.

SHADY NOOK HERD Holstein Friesians

Offers three bulls one year old. O. I. C. White Pigs, both sexes.

W. R. GATES, Fort Atkinson, Wis.

OAKLAND HERD HOLSTEINS

PREMIER SIRE **Mutual Friend 3d's Paul**

A son of Paul De Kol & Mutual Friend 3d, 21.84 lbs butter, milk averaged 4.7% at 3 years. She has two A. R. O. daughters; 1 made over 20lbs, Must reduce herd at some price. State just what you want T. A. MITCHELL, Weedsport, N. Y.

BROOKSIDE HERD

HOLSTEIN-FRIESIANS

To reduce herd to capacity of pasture, will sell a limited number of A No. 1 young cows of high breeding and individually right, large producers, at $150 each; also 15 bull calves at bargain prices.

STEVENS BROTHERS, Lacona, N.Y.

THE MAPLE'S HERD

offers good young cows with A. R. O. records in calf to Beryl Wayne De Kol Paul, No. 28785, whose dam Beryl Wayne has an official record of 27.87 pounds of butter in 7 days. Also four yearling bulls ready for service. Special bargains in heifer and bull calves.

JOHN C. GODFREY,
PENNELLVILLE, N. Y.

Holstein-Friesian Bull Calves

Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

HOME FARM HERD.

Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams 25.1 lbs. butter in seven days. Herd numbers 125 head.

BEST FAMILIES REPRESENTED.

Special prices on six or eight bulls of serviceable age. W. B. BARNEY & CO., Hampton, Ia.

FOR SALE.

2 H. F. Bull Calves, 6 months old. Sired by Johanna Aaggie's Paul DeKol 23443, (160 A. R.) from good milkers and testers.

M. S. CAMPBELL, Genoa, DeKalk Co., Ill.

MONONA FARM Offers for sale a few well bred Holstein-Friesian Bull Calves. Also two Service Bulls at reasonable prices. The Monona Farm Herd is founded on the best stock of the De Kol, Netherland, and Clothilde families. Pense Johanna 29332 the head of the herd has 7 A. R. O. dams averaging 22 lbs. 3.7 oz. Junior sire Paul Calamity De Kol 31095.

MADISON, WIS.

THE MONONA FARM HERD.
Address. F. W. ALLIS, Madison, Wis.

Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

.....YOU MAY.....

BEGIN AT THE HEAD

to improve your dairy herd with a bull whose dam has official record of 18 lbs. 6.3 oz., sires dam 20 lbs. 8.8 oz. Individual right. Price Right.

McKAY BROS., Buckingham, Iowa.

HIGH-CLASS HOLSTEIN-FRIESIAN BULLS

and Bull Calves from A. R. O. dams and the best Advanced Registry sires. Cows all officially tested; I breed from no others. Correspondence from breeders and progressive ddirymen invited. Malcolm H. Gardner, Darien, Wis.

HOLSTEINS

High Class Advanced Registry Stock only. Best butter families. Stock for sale.

Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.



T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies. Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.

Wm. O. Jackson & Sons, South Bend, Ind.

LOOK HERE.

34 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by Gem Pietertje Hengerveld Paul DeKol, or Sir Ormsby DeKol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days, average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd? McGEOCH HERD is located at Lake Mills, Wis., 56 miles west of Milwaukee. For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis Residence: National Ave. near 40th. Phone, South 1601.

Illinois Herd Records.

The Results of Herds "A" and "D" Compared.

ED. HOARD'S DAIRYMAN:—It is perhaps well before giving the results of another herd to compare the herds "A" and "D" (herd "D" owned by H. B. Gurler) to see if it is possible to ascertain why this great difference in performance of these herds.

In comparing the two men we find that the owner of herd "A" has given but little, if any, attention to the breeding or feeding of his dairy cows. At the end of the year's test the owner of this herd expressed himself to me in these words: "I never dreamed that such differences existed between cows. It is a revelation to me." He still claims to me that he can buy just as good cows as he can raise. If intelligence is not used in breeding and selection, this is perhaps true, but if intelligence is used in breeding and selection of his animals it is not true. This man is a hard working, conscientious, honest fellow, but he has never realized before, the importance of reading and studying. He cut his timothy hay when nearly out of its second bloom, because it cured quicker and yielded more per acre.

It never occurred to him that the early cut of timothy hay was more palatable and on this account better feed for his dairy cows, and that the total digestible matter was greater in early cut hay than in well ripened. In the selection of feed for farm animals, digestibility and palatability are two important factors to be considered. This man never gave any attention to the comparative value of feeding stuffs, but fed a ration composed mainly of corn and well ripened timothy hay. This made a ration exceptionally rich in carbohydrates and very low in protein. He has begun to realize now that he must study if he is to be a successful dairyman.

When we compare the owner of herd "D" with the owner of herd "A", we find that the former has taken a different view of things. He has studied as well as worked; he has put intelligence into his business, he has long realized the difference in dairy cows and their capabilities of producing dairy products. He has selected and retained his best cows and sold his poor ones. The comparative value of different kinds of food has attracted his attention. In short, he keeps abreast with the times and applies new ideas to his dairy, as the business man accepts new ones for his interest.

Mr. Gurler not only looks after the improvement of his herd, but he studies the comparative value of feeds and how to feed his cows so as to get the highest yields. It should be borne in mind that the owner of herd "A" took care of his own herd, while Mr. Gurler has to depend entirely upon hired help, and many times his instructions were not fully carried out. For example, some cows received more grain than they were capable of digesting and assimilating to advantage, and sometimes a cow was not milked clean.

It is a fact that a dairyman who can look after his own dairy, can get larger yields and better results than a man who has to depend upon hired help.

The following table readily shows the great differences between herds "A" and "D". An example of selection and proper feeding against unselected and improper feeding of the dairy herd, or attention and study on one hand against inattention and thoughtlessness on the other:

	Lbs. of milk.	Per cent fat.	Lbs. of fat.	Lbs. of butter.	Cost to produce 100 lbs. milk.	Cost to produce 1 lb. fat.	Profit.	Loss.
Poorest cow herd A.....	1,482	3.97	58	68	$2.07	52.2 cents.		$17.83
" " " D.....	3,399	4.58	155	181	1.03	22.4 "		.18
Best " " A.....	6,145	3.63	223	260	.50	13.7 "	$18.40	
" " " D.....	7,890	4.70	371	432	.35	7.5 "	5/.22	
Average of " A.....	3,361	3.55	119	139	.92	26.0 "		4.50
" " " D.....	5,911	4.45	263	306	.54	12.3 "	26.64	

The man who has never given any thought to the great differences in dairy cows, nor the differences between herds, may be surprised at the above figures. I am sure there are greater differences than these if it were possible to get at them. The owners of the poorest herds do not see the necessity of weighing and sampling each cow's milk for a year. In view of the above facts, what keeper of cows can afford not to know what each cow is doing for him? Would it not pay to work more with the head and less with the hands?

The owner of herd "A" who has given but little attention to the improvement of his dairy, lost $4.50 per cow per year, while the owner of herd "D" who has put thought and intelligence into his business, received a net profit of $26.64 per cow. In other words, herd "A" produced 139 lbs. of butter per cow, while the average production in herd "D" was 306 lbs. of butter.

A. J. GLOVER.

Elgin, Ill.

Correction and Comments.

Concerning Clarified Milk.

ED. HOARD'S DAIRYMAN:—First, let me correct my statement in HOARD'S DAIRYMAN for April 17, which made it appear as if Mr. H. B. Gurler run his "certified" milk through the separator for cleaning purposes, which certainly would be unnecessary for milk as carefully handled as his. I knew his object was merely in that way to regulate the fat percentage to a certain standard, 4 per cent. But I also knew Mr. Gurler was satisfied that the centrifugal motion could have no bad effects upon the milk or its value as a food for young children.

Mr. F. L. Marion, of Massachusetts, seems to take offence at some of my little criticisms of his arguments against clarifying, and to some extent, pasteurizing. In his reply in HOARD'S DAIRYMAN of May 8, he informs his readers that "Mr. Moldenhawer shows he hadn't made a scientific study of the milk question. It was a noted New York physician, etc., who said, "clarified milk can never be milk." Well, it so happens that while I have never claimed to be a scientist on milk or anything else, still I have made an effort, and have had excellent opportunity to observe developments in the milk business, and to discuss these matters with more physicians and specialists in these lines than Mr. Marion ever had, otherwise, he would not be so narrow in his views, and be unable to see the benefit from other methods besides his own. I see that Mr. Marion's special authority he refers to is Dr. Louis Fischer, and his book on "Infant Feeding." I not only know Dr. Fisher well and have carefully studied all parts of his book relative to milk, but Dr. Fisher is not as well posted on details regarding milk and its treatment as he is on babies, a fact which unfortunately fits a great many physicians.

I called Dr. Fisher's attention to this, and upon his request wrote a carefully considered list of comments and corrections on points regarding milk, which he would make use of in the next edition of his book. The trouble is that most physicians know very well what they want, but not nearly as well what is possible or practical for the average dairyman, from whom come the great bulk of milk used for children and all purposes, by the people of small means in our large cities.

As Dr. Lyman Abbott says: "Let us rather try to find the points upon which we agree and not hunt for those where we disagree and we should get along far better." He meant this especially in religious questions, but it holds good also in many milk questions. Thus I never intended to belittle the work of those who truly try to produce an ideal, pure, raw milk and know that the more they will try to do their best in that direction, the better for the whole dairy industry, but I also know that neither Mr. Marion nor I will live long enough, to see enough such perfect milk shipped to the cities, to put it within reach of those who need it most. Ideals are nice to keep before us and aim at, but we have to deal with realities, such as today are causing milk riots and deaths of hundreds of infants in Chicago.

Let us find possible and practical methods by which all these children may obtain sweet, pure, wholesome milk, and enough of it at fair prices, and stop kicking against taking impurities out by clarifying and freeing the milk from undesirable germs by pasteurizing, if we by such means may gain the object, which never was gained by the few suppliers of ideal



The New 1903

REID HAND SEPARATOR

The 1903 Reid Hand Separator is the most exact milk skimmer ever made—it is simplest, fastest, lightest running, and affords most butter-producing material under all conditions. It creates a new source of revenue and maintains the income—

WEARS LESS, LASTS LONGEST

Every Reid Hand Separator is sent out under a positive guarantee, and is sold on its own merits. If you want a separator we will send a Reid on approval—work it ten days and if it does not excel all others return at our expense. Send for new catalogue and revised price list, mailed free.

A. H. REID, 30th and Market Sts., Philadelphia, Pa.



THE Iowa Dairy Separator.

AN UP-TO-DATE MACHINE REPLETE WITH PRACTICAL IDEAS.

It is built in the following sizes:

250, 350, 450, 600, 750 POUNDS PER HOUR

Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.

SEND FOR CATALOGUE NO. 60 AND PRINTED MATTER.

IOWA DAIRY SEPARATOR COMPANY, WATERLOO, IOWA.



A Cream Separator is valuable according to the amount of money it makes for you.

The American

Is a Money Maker.

It does its work so well that we dare sell it on approval. The price is low enough to make it a big winner for you the first year. Write for free catalogue.

AMERICAN SEPARATOR COMPANY, Box 1023 Bainbridge, N. Y.

Awarded Medal at Paris, 1900.

Big Profit in Cows

is but a question of getting *all* the cream (butter fat) out of the milk. With the old setting system your loss is over 80 per cent greater than with a

NATIONAL Hand Separator



A valuable machine you can test in your own home or dairy

10 Days Free

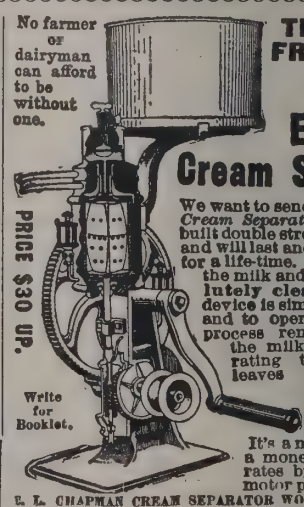
If you like—buy it; if you don't, we take it back and pay all expense—you have nothing to risk. Our catalogue gives full particulars.

National Dairy Machine Co., Newark, N. J.

No farmer or dairyman can afford to be without one.

TEN DAYS FREE TRIAL

THE ECLIPSE Cream Separator



PRICE $30 UP.

We want to send you an *Eclipse Cream Separator* to try. It is built double strength all through and will last and work perfectly for a life-time. It acts twice on the milk and skims it absolutely clean. Its interior device is simple, easy to wash and to operate. Its double process removes filth from the milk as well as separating the cream, and leaves both pure and sweet and fresh. It never gets out of order. It is guaranteed.

It's a money maker and a money saver. It operates by hand, foot or motor power.

Write for Booklet.

E. L. CHAPMAN CREAM SEPARATOR WORKS, ERIE, PA.

H. & R. REVOLVERS Always Reliable

SHOOTS STRAIGHT. Catalogue Free

Harrington & Richardson Arms Co.,

Dept. 22. WORCESTER, MASS.

NEW OXFORD BALL BEARING Cream Separator

Sold on guarantee to be the best on the market. Catalog free.

WORLD CREAM SEPARATOR CO. 41 Main St., Council Bluffs, Ia.

Stops Chills — Painkiller (PERRY DAVIS') — Cures Cramps

ICE MILK CAN Jackets are the thing. Handy, cheap, and require little ice. Please everybody. Are patented. Booklet free.

S. C. SULLIVAN, 1425 W. 4th., Erie, Pa.

"certified" milk. I have spoken with over 500 physicians in New York city about this pure milk question, and I can assure Mr. Marion and others that those among them who are best known and best posted do not today oppose pasteurization, properly carried out, on the contrary, endorse it. I mention among these, Dr. Emmet Holt, Prof. Northrup, Dr. Rowland Freeman, Dr. Abraham Jacobi and Dr. Park of the New York Health Board; likewise, Dr. Geo. M. Kober of Washington, D. C., one of our foremost authorities on milk hygiene, with whom I worked for 3 years when in charge of the Pasteur Milk Laboratory of Washington, D. C.

How little thought and study most physicians as yet have given to pasteurizing, and how vague their ideas about it, is best shown by the fact, that many who yet oppose a general introduction of pasteurization for the average milk supply of cities, will themselves advise mothers during warm weather, to boil or scald the milk for the baby; certainly proper pasteurization followed by rapid cooling before milk is put on the delivery wagons is a far safer and better method than heating or boiling the milk when it may have suffered considerably while in the raw state, during delivery.

These are such common sense facts, that no reasonable, open minded person would try to dispute this, even though they themselves are is a position to produce "an ideal" milk, which needs no pasteurizing. I happen to know and can easily prove it, that much milk was sold in New York City as certified by the milk commission, which never even came from a certified dairy. That thousands of babies have been saved by the milk from Nathan Strauss' pasteurized milk depots in New York, as well as by such milk from similar chartitable supplies in Chicago, Pittsburg, Cincinnati, etc., is an undeniable fact. Lately the firm supplying Mr. Strauss has adopted the best modern pasteurizer for treatment of all milk furnished him in New York and Mr. Marion will find that pasteurization will make more headway this year than ever before.

PASTEURIZED "*versus*" CLEAN MILK.

This is an unfortunate head line for an inquiry by R. H., of Greenfield, Ind., Apr. 27. Pasteurized milk should always be clean milk, and if the milk as it comes from the stable is not as clean as desirable, it certainly rather should be clarified before pasteurizing. I wondered rather at the editor's reply, that an 8-gallon can may be used for pasteurizing milk. Having practiced all methods of pasteurizing for 14 years, I can not endorse this at all, today.

The perfect cream line is an all important feature, that we will not get by heating in that way, neither do we have such a uniform treatment as is necessary to secure a uniform product. I consider next to cleanliness, uniformity the most important point for success in the milk business, as well as in the dairy business generally. Pasteurization will do much for a uniformity of our butter product, and I think it most fortunate that it is being encouraged by the government.

Canton, O. J. MOLDENHAWER.

Vetch, Cow Pea, and Soy Bean Hay as Substitutes for Wheat Bran.

[Press Bulletin.]

The object of the feeding experiments herein described was to ascertain whether hay made from hairy vetch, cow peas and soy beans, could be advantageously substituted for most of the wheat bran in the ration of dairy cows.

The following values per ton were used in calculating the cost of food:

Wheat bran, $20; vetch hay, $10; cow pea hay, $10; cotton seed, $12; cotton seed meal, $20; cotton seed hulls, $5.

Vetch hay proved fully equal in feeding value to a similar weight of wheat bran. By this substitution the cost of the food required to make a pound of butter was reduced 25 per cent, which is equivalent to a monthly saving of $22.20 in a herd of twenty cows.

With the vetch ration the cost of food for one pound of butter averaged 10 cents, in contrast with 13.4 cents when wheat bran was fed.

The waste in feeding vetch hay was, with most cows, about 6 per cent of the amount offered and with cow pea hay about 16 per cent; the latter residue, being useless is charged as a part of the ration.

That portion of the cow pea hay actually eaten proved fully equal in feeding value to a similar weight of wheat bran. Charging the cows with all the cow pea hay offered them, we find that cow pea hay had 86 per cent of the feeding value of wheat bran, one ton of this hay being equal to 1,720 pounds of wheat bran.

When wheat bran was worth $20 per ton cow pea hay was worth $17.20, and vetch hay $20.

The monthly profits per cow were $4.65 on the vetch ration and $4.35 on the cow pea ration.

One of the Jersey cows used in this test produced butter at a cost for food of only 8⅓ cents per pound, when fed on the vetch ration.

Running cow pea hay through a feed cutter did not decrease the waste in feeding this food.

Four and a half per cent more butter was produced with soy bean hay than with cow pea hay, if we take account of the portion of each actually eaten; however a larger proportion of the coarse stems of the soy bean hay was left uneaten.

When corn hearts was substituted for wheat bran the yield of butter was increased by 8 per cent. J. F. DUGGAR.

Agriculturist Ala. Exp. Sta.

Soy Beans in the Silo.

After two years' experience with the cow pea and one year with the soy bean, my conclusion was that the Large Black is the best pea to plant in the latitude of Jefferson county, Ohio (40 degs.), for the reason that while it is a bunch pea it will yield 50 per cent more than the Whippoorwill.

But I find more comfort in the Medium Green soy bean than in the peas. The same difficulty in curing presented itself in both. The short days and cool fall weather, with rains, made it a tedious harvest. So in the spring of 1902 I started out with a new thought in my mind, viz., to mix the beans in the silo with the ensilage corn. If I had it all my own way I would put one load of beans to two loads of corn, as this is nearly an approved dairy ration without the aid of twenty-dollar bran or of gluten meal, etc. To dodge this bran bill is important.

We planted our ensilage corn on May 28th. After this we prepared what had formerly been the oats ground in the rotation. Let the ground be well pulverized and settled. With the corn drill set as for ensilage corn, drill in rows thirty inches apart. Watch closely and when the beans just begin to sprout, which will be in three or four days, go over the ground with the weeder. Then after the beans are up, two cultivatings with the fine-toothed cultivator will be sufficient.

The beans were planted on the 18th of June. On September 24 we began cutting ensilage. The beans were cut the day before with an ordinary mowing machine, which cut two rows at a swath nicely. With an ordinary fork it was easily thrown on the hay wagon, and much less laborious than loading the corn but not quite so rapidly done.

At this date, April 13, I am nearing the bottom of my silo. I never had better ensilage and never had less waste. The beans kept perfectly and the cattle seemed to know no difference and would take a mouthful of the bean ensilage and eat it as greedily as the other. The bean ensilage turns quite dark; it is not so acid as the corn but is preserved just as perfectly. The beans take the place of the oats in the rotation, which is the most uncertain and least profitable crop. The beans leave the ground almost like a summer fallow and with but little work with the harrow and drag, aided by the nitrogen in the bean roots, make it an ideal bed for wheat.—RICHARD E. ROBERTS, in *Ohio Farmer*.

Wisconsin Cheese Makers' Association Meeting.

ED. HOARD'S DAIRYMAN:—The executive committee of the Wisconsin Cheese Makers' Association at the annual meeting held in Milwaukee on the 9th day of May 1903, unanimously voted to hold the twelfth annual convention in the city of Milwaukee on the 6th, 7th and 8th days of January, 1904.

Headquarters will be at the Republican Hotel, where a splendid hall and exhibition rooms will be provided for the convention.

Among other business matters given attention by the committee in the interests of the association, was the appointment of Mr. J. K. Powell of Stevens Point, Wis., as acting president, to the office made vacant through the death of President elect, Mr. Thomas Johnston of Boaz, Wis. U. S. BAER, Sec'y.

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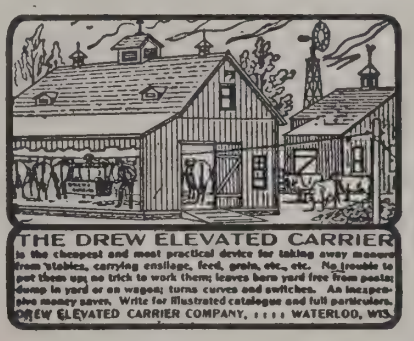
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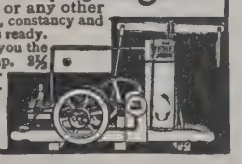
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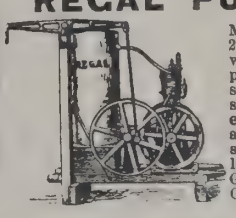




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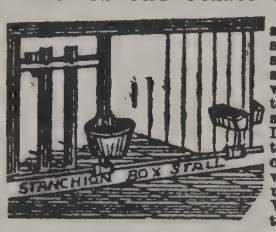
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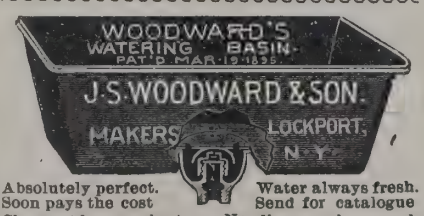
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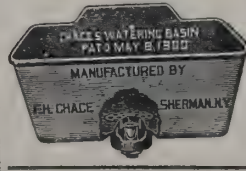




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Did This Cow Have Milk Fever?

ED. HOARD'S DAIRYMAN:—Milk fever is a little rare with us since our cows are given plenty of exercise, but this spring we had one very sick cow, one of the very best cows. At night, the calf being some twelve hours old, she seemed all right. She ate a fair quantity of hay clean, and no trouble was anticipated. The next morning she was down with her head over on her back, evidently in pain and unable to rise,

A kindly neighbor said "eggs and cider with some molasses in it." She got the dose several times during the day and lay, part of the time, with her head in a natural position. The neighbor came in again at night and said I wasn't using molasses enough. He also reminded me that when he was working for me years ago I had directed him to dose a cow similarly sick with butternut root bark tea and it was a success. The cow was given eggs and cider with more molasses and my son went for some butternut roots which I at once barked and set boiling Having had great success in case of calf. scours and inflammation of the bowels with slippery elm, I put some bark of that stewing also.

Before these messes were cooked a man that was watching with the cow came in and said he guessed there were no hopes. The cow was lying out flat and her feet growing cold.

Pouring off a mixture from two kettles and cooling it till it would not scald her, went to the barn. The man's diagnosis seemed correct, as in addition to the other unfavorable symptons, she was bloating fast.

We started with a portion of the mixed tea as an injection, getting a discharge of a little blood and hard lumps of dung. The balance from the pail was poured down the cow's throat. These operations took some ten minutes, and we had barely finished when the old cow began to show signs of improvement, while the bloat was rapidly disappearing. In half an hour she was lying with her legs bent, and while she could not quite hold her head up, it was not flat out on the floor.

The mixed tea was given during the night occasionally, and also used as an injection. The slippery elm, however, was put in in greater proportion as the cow improved. In the morning she could lie naturally and her recovery was as steady and rapid as could be expected. She never had enough of butternut root bark tea to act noticeably as a physic, but the hot dose given her first undoubtedly saved her life. Half an hour in the way she was going would have finished her. If the cow had died I should have called it milk fever and said nothing, but as she recovered, I am in doubt. Will the doctor guess?

While I am writing I will say that slippery elm has cured every case of calf scours we have had in years. The little fellows will sometimes drink it of their own accord. If we think it not quite nourishing enough we add an egg or two, but a calf will live and get well on the mucilaginous tea alone. I once cured a cow that, having eaten her fill of corn meal, was flat on her side with inflammation of the bowels. I called a cow doctor and he looked her over, said I might as well have sent for him after she was dead. A pailful of slippery elm tea, part poured down and part as an injection, put her on her feet.

I once saved a colt with butternut bark tea, after he was given up. He was bound up from his birth. After the "hoss doctor" had done what he could, a neighbor stopped to look at him and consoled me by saying: "He is a good colt Rob, but he is a dead one." I was stewing some butternut bark and poured a quart down his throat, using the balance for injections. In half an hour he was on his feet and lived to be one of the best horses I ever owned. We have used flax seed, but up to date, have found slippery elm much the better of the two, and in case of trouble, needing physic, butternut root bark will have a loosening effect and at the same time, given hot, will allay pain, surprisingly.

In the case of the cow mentioned, I ought possibly to have mentioned that as she lay on the stable floor, the milk was drawn from her bag as thoroughly as possible at frequent intervals. As she is today making more butter than any other of a dozen cows she runs with, her recovery was evidently fairly complete.

Stevenson, Conn. R. S. HINMAN.

The proof of the medicine is in the recovery of the cow, but whether the trouble was due to milk fever, is another question. Milk fever is a disease with a very large death rate, and yet it frequently yields to simple remedies. How many recoveries are due to medicine and how many to the cow are unknown, and in the above case it is a far call from Wisconsin to Connecticut, and our diagnosis would probably be faulty.

Important Dairy Laws.

During the present session of the Wisconsin legislature six bills relating to different phases of the dairy industry and the state Dairy and Food Commission, have been enacted into laws, all of which, when properly executed will not only greatly facilitate the practical, beneficial results expected of the commission, but will be of untold value to the dairy interests in building up and maintaining a good reputation for clean, wholesome food products of No. 1 quality.

Chapter 43 of the laws passed is an act to prescribe standard measures for the use of the Babcock test in determining the per cent of butter fat in milk or cream; to prevent the sale of incorrectly marked implements for use in said test, and to prescribe the penalty for false determination by said Babcock test, or otherwise. The purpose of this act is to secure to patrons of creameries and cheese factories, their just dues, by compelling the proprietors of creameries and cheese factories to correctly use and read the Babcock test in determining the value of milk or cream contributed. A penalty of $25 to $100, or imprisonment in the county jail, is provided for violation of the law. The *Agriculturist* believes this act of much value to dairymen as it protects them from the fraudulent use of wrongly graduated test bottles, pippettes, etc., and will tend to bring about a state of confidence and good feeling between patron and factory. The Dairy Commissioner will enforce this law, as well as all others pertaining to his department, with promptness and vigor.

Another chapter is an act to prevent the sale of unclean and unsanitary milk and the use thereof, in the manufacture of food products, and to prohibit unclean and unsanitary conditions of creameries, cheese factories and milk dealers' establishments or outfits.

This law prohibits patrons of creameries, cheese factories or city milk dealers from supplying milk that is drawn from cows that are kept in a filthy condition, or that are kept in unclean and unsanitary barns or stables. It prohibits creameries and cheese factories from manufacturing unclean milk into food products; it prohibits city milk dealers from selling unclean or unsanitary milk; it requires creameries, cheese factories or city milk dealers to keep their premises in clean and sanitary conditions; it requires city milk dealers who receive milk or cream in cans, bottles or vessels which have been transported over any railroad or boat line, where such cans, bottles or vessels are to be returned, to empty and properly cleanse the said cans, bottles or vessels before the milk or cream contained in them shall become sour. Penalties are provided for violations of the law.

Another chapter provides for the publications of quarterly bulletins by the Dairy and Food Commissioner. A purpose of this law is to furnish dealers in food products and those who may be interested, the results of inspections and analysis of foods, with proper explanations of the same relating to the adulteration of food, drug and drink products and of dairy products so far as the same may be deemed of benefit and advantage to the public; also brief summaries of the work done during the quarter by the commissioner and his assistants in the enforcement of the dairy and food laws. It is expected that these bulletins will furnish dealers and consumers, warnings against adulterated and misbranded food products.

Chapter 133 is an act to amend section 4601 of the statutes of 1898 relative to the adulteration of drugs and foods. The amendment is in the proviso which aims to secure the labeling, branding or tagging in a manner showing their exact character and composition of food products.

Chapter 144 is an act to provide an assistant chemist and additional food, milk, dairy, cheese factory and creamery inspectors for the Dairy and Food Commission. An assistant chemist and two inspectors to be paid by the state are provided by this act. It further provides for four inspectors, paid by the Wisconsin Dairymen's Association. This latter clause seeks to clothe with police power the four instructors now employed by the Wisconsin Dairymen's Association. It will greatly increase the efficiency of these instructors to make them inspectors also. They will do as effective work for the Dairy and Food Commission as though they were paid by the state.

Chapter 187 is an act to provide for the collecting of dairy statistics. The purpose of this law is to provide complete and classified statistics relating to the great dairy industry of the state that represents a total annual income of about $55,000,000.

The legislation of the past winter greatly increases the effectiveness of the Dairy and Food Commission, and a clean-up policy among the creameries, cheese factories and city milk dealers is to be inaugurated and maintained to the fullest extent possible, with the force at command of the commission. Penalties will be imposed through prosecutions under the law where such proceeding becomes a necessity —*Wisconsin Agriculturist.*

Transfers of Guernsey Cattle

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Center Rush 7169, Fred Rietbrock to Andrew Kull, Lake Geneva, Wis.
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Emperial 7935, James Logan Fisher to Francis Edward Bond, Spring House, Pa.
Islesboro 7733, F. Lothrop Ames to Aaron Gay, Stoughton, Mass.
King of West View 8467, E. C. Moore to Thomas Brooks, Daretown, N. J.
Lord Oakwood 8625, James H. Beirne to Otto Walters, Waupun, Wis.
King of the Ridge 8628, Robe.t W. Lord to Fred A. Parker, South Leeds, Me.
Marshall of Monmouth 8624, Dr. E. P. Turner to W. W. Sprague, Monmouth, Me.
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Nero of Vlomans Kill 8629, Baltice Meed to Wm, Clayton Waite, Grafton, N. Y.
Olin 7727, O. B. Wilbur to Clarence K. Wilcox, Greenwich, N. Y.
Riverside's Besant 6410, Jos. M. Overholt to H. E. Maltby, Maple Glen, Pa.
Rochambeau 7934, James Logan Fisher to James W. Paul Jr., Radnor, Pa.
Sir Prim of Oakwood 8622, Mrs. W. A. Junkin to Aaron Murray, Muncy, Pa.
Stranford Golden Lad 6373, J. O. Dewalt to Wm. Lindsay & Son, Plainfield, N. J.
Yorick 8621, C. A. Griscom to Will W. Fisher, Watervliet, Mich.

COWS.

Alletta of Haddon 9116, Belle Mona 14747, Belle Mona's Daisy 15349, Fern of Oakwood 14750, King's Melrose 14748, E. C. Moore to Chas. M. Seltzer, Philadelphia, Pa.
Agnes Fern 12426, Lady Laurens 8193, Maid of Otsego 9229, Stranford's Floral 9186, C. O. Potter to W. B. Beakes, Newburgh, N. Y.
Chase's Kitty Clover 12395, B. G. Tallman to C. J. Ingersoll, Keswick, Va.
Coroner's Zola 16119, Myra's Rossiter 16118, Frank M. Ross to Chas. M. Whitcomb, Ellsworth Falls, Me.
Esther of Hopkinton 12417, J. M. Morse to E. W. Colburn, Francestown, N. H.
Effie Belle 16047, Edward L. Brown to Edward W. Twaddell, Westtown, Pa.
Imp. Gaiety from the Isle 15256, Silverita's Omega 15266, P. H. McCormick to E. C. Moore, Woodstown, N. J.
Kitty of Lochiel 16109, A. J. Snyder to J. D. Cameron, Harrisburg, Pa.
Mamie M. 3d 16092, Christ Muth to Chas. L. Hill, Rosendale, Wis.
Mary Ann of Cherry Brook 13376, Herbert Merriam to Chas. H. Jones, Weston Mass.
Netherwood Hazel 14036, Netherwood Lady 14638, Wm. Lindsay & Son to Ezra Houck, Frederick City, Md.
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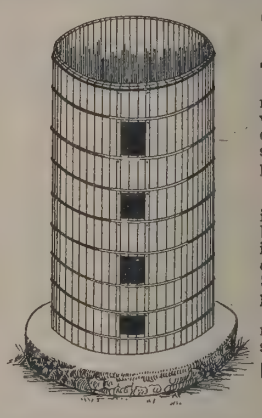
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439 Cole Avenue, DALLAS, TEXAS. 613-615 Locust Street, DES MOINES, IOWA.

Raise Your Own Cow Feed.

For the last few years commercial cow feeds, such as bran, gluten feed, cotton seed meal, oil meal and middlings have been very high in price. Last year they were particularly so. This has discouraged many dairymen from buying them. A few years ago almost every dairyman in Southern Wisconsin was buying some of these feeds. Bran used to come into Ft. Atkinson, Wis., by the train load, and dairymen bought it by the car load. The consequence was that the cows produced bountifully. According to a "cow census" of the creamery patrons, the cows of Jefferson county averaged 240 pounds of butter each; but now the returns from the creameries show a great falling off per cow. Not one-half of the dairymen of the county bought any of these feeds last year. They say they cannot afford to buy feed; that it takes all the profit to do so, and so they feed what they raise on the farm and take what they can get out of it.

In my opinion a good dairyman, with good cows, can still afford to buy commercial protein feeds and by so doing largely increase his profits. But if he can raise the proper feeds on his farm at a less expense than he can buy them, then he surely should do so. In my opinion the farmer can raise these protein feeds. In many parts of Wisconsin, and the west, Canada field peas do finely, and these, sown with oats, one and a half bushels of each to the acre, and cut for hay when the peas are about fit for table use, make a hay with about 9 per cent protein, which, with corn and oats, will make an excellent ration. Cow peas have been tried to a limited extent, and in some cases have done well. They will furnish protein.

Clover hay, if cut early and well cured, makes splendid feed, and if fed with oats for the grain part of the ration makes a well balanced ration for milk cows. But when oats are as high as they were last year, a man could sell them and buy bran even at the high price it was then, and make money by the exchange. Wherever alfalfa can be raised with success this question of raising protein feeds on the farm is solved. Alfalfa hay, if cut at a proper stage, contains 11 per cent of digestible protein. If fed with corn ensilage, it makes a perfectly balanced ration, one that is very palatable and nutritious. Nothing can beat it for milk production. In addition to the needed protein it has succulence, which is indispensable for greatest production. A little corn meal can be fed with it if there is not sufficient grain in the ensilage.

Alfalfa has been grown for many years in the semi-arid parts of the western states, but within the last few years has been tried on many farms in Wisconsin, Illinois, Iowa and other states where it was not formerly grown. Of late it seems to be proving a success. It seems to be rather a tender and delicate plant at start and needs special care to get it once started. But after it is well set, it appears to be very hardy and can stand almost anything except tramping on. Therefore, it will not bear pasturing much with heavy stock.

Bruising the crown of the root seems to be death to it. It will stand drought better than any plant I know of. The summer of 1901 was the driest ever known in southern Wisconsin. There were several small fields of alfalfa near where I live, which I watched daily. For several weeks in July and August, about the only green thing to be seen was these fields of alfalfa. Some of them were cut four times and others three times, and produced from four to six tons of the finest kind of hay to the acre, during the season. Ex-Gov. Hoard has now about 40 acres in alfalfa. Last winter his cows were fed on alfalfa hay and ensilage, with a very little bran, and there is no herd of cows in this part of the country that produced as well as his. A catch of the alfalfa can be had when the season is so dry that a catch of clover cannot be obtained. This was proved in 1901. It is best to sow it by itself on good, well prepared land, as early as possible in the spring. Sow 30 pounds to the acre. In July it will need clipping to cut off the weeds. Last summer, about the first of September, those who did this way cut it again and got from one to one and a half tons to the acre.—C. P. GOODRICH in *Prairie Farmer*.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Bloody Milk.

I have a five year-old grade Jersey. For awhile before going dry she bothered about giving bloody milk from one quarter of her bag. Went dry about three weeks. Has been fresh about two weeks now and gives bloody milk from three quarters of her bag. A READER.
Bakersfield, Vt.

ANSWER.

Try the following: Give ½ ounce of powdered ergot in food three times daily for three days, then give a teaspoonful of equal parts of dried sulphate of iron and powdered gentian root, once or twice daily until relieved.

Dysentery in Newly Born Calf.

Referring to my inquiry, and your suggestion that I more fully describe trouble with my calves, page 306, May 8th, 1903, would say that about all the information I have to give is stated in my inquiry, i.e. The calves will come all right, look well and healthy, in a day or two will becomed doopish, refusing to suck, lie around for a day or two, then die. Sometimes will have scours, usually not. I have noticed in few cases excrements are streaked with blood; their ears will droop, eyes sunken and become weak. As previously stated they are allowed to suck. R. L. R.
Spokane Bridge, Wash.

ANSWER.

Your description, as near as can be learned, answers to dysentery. Try the following;

Tincture of opium, 2 drams; tannic and salicylic acid, of each, 1½ drams. Mix and give in a pint of linseed tea to each calf affected, every three hours until relieved.

Disinfection of the entire stable is of great importance.

Red Water.

I have a cow that started to pass blood in the water 6 days before calving and is now 5 days since she freshened. L. P. K.
Pearson, Wash,

ANSWER.

Feed more nitrogenous food to make her strong, give a quart of raw linseed oil and follow this with a tablespoonful of tincture chloride of iron twice daily.



Warranted to give satisfaction.

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CAUSTIC BALSAM

A safe, speedy and positive cure for

Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

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Oldest and Best Treatment Extant.

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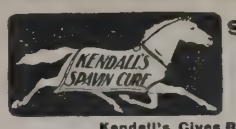


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Spavin, Ring Bone, Splint, Curb and all forms of Lameness.

Kendall's Gives Best Results.
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Yours respectfully,
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Works thousands of cures annually. Endorsed by the best breeders and horsemen everywhere. **Price $1; 6 for $5.** As a liniment for family use it has no equal. Ask your druggist for **Kendall's Spavin Cure,** also **"A Treatise on the Horse,"** the book free, or address

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Each Remedy, $1; large (four times dollar sizes) $2.50. Sent to any railroad express point in U. S., 25c. extra. C. I. HOOD & CO.,
Mention this Paper. Lowell, Mass.



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Lump Jaw

We know of over 140,000 farmers and stockmen who rely upon these same methods, and for whom we have saved hundreds of thousands of dollars. Books mailed free if you write stating what kind of a case you have to treat.

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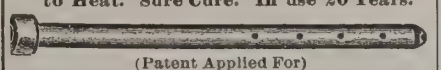
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Retention of Placenta and Failure to Breed.

KELLOGG'S CONDITION POWDER
is a positive cure for these diseases. Write for circular containing full information, references and price.
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(Patent Applied For)
Hard Rubber *Safety* **Milk Tubes and Dilating Plugs** to cure hard milkers and a teat Bistoury. Send for testimonials.
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"Just as good?" "Just as good!" Did you say? "Just as good as Veterinary Pixine!!" The dealer who tells you this is mistaken. He does not know

FACTS AND TESTS PROVE IT!

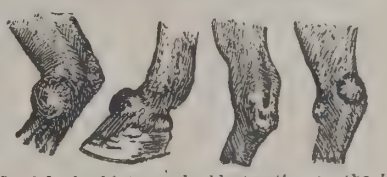
Emery, Ky., April 9, 1903.
I feel it my duty to tell what Veterinary Pixine did for a horse of mine. He was cut with a knife between the fore legs three inches deep and two inches long, which every minute would gap open. I used several different kinds of remedy without success, even to having some stitches taken. Nothing did any good and it kept swelling and became feverish I almost gave up hopes of getting him well. In the columns of the Ohio Farmer I observed your advertisement and, as it was the last chance, I purchased a box at the druggists and used it as directed and before the box was used up the cut was entirely well. I intend to keep a supply on hand for emergency cases if it costs a dollar a box. Please accept my thanks for the good I have received from its use, and if you choose you can use my name and testimony. W. S. CAMPBELL.

This penetrating, stimulating, soothing, absorbing, antiseptic, healing ointment heals from beneath the surface by disinfecting the parts, subduing inflammation and stimulating healthy granulations, not by drying and scabbing, and stimulates growth of hair, natural color. Makes quick, clean and healthy cure; heals stinging, burning, chronic saddle and collar galls, hopple chafes, abscesses, inflammatory sores and all skin diseases. It penetrates, stimulates, soothes and heals while horse works. Money refunded if it fails.

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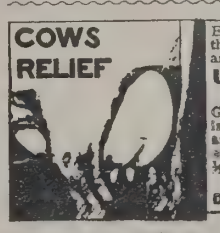
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Used Exclusively at Model Dairy
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Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.

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WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address

DR. EATON J. CROSS,
153 Congress St., Troy, N. Y

Some Feeding Problems Discussed.

What Should Govern the Amount of Feed?

ED. HOARD'S DAIRYMAN:—There is a question in regard to the practical value of suggesting the feeding of more protein or more nutriment to cows that have settled down to a given flow of milk, as has been the general custom. It has long since become plain to the close observer that such changes fail to bring the desired results, and that only a fresh, succulent pasture in the spring will cause the cows to make any marked change in the flow of milk and yield of dairy products. If the meal is increased during stall feeding in the winter, of if the nutritive ratio of the ration is narrowed, little benefit, if any, is derived therefrom. And it frequently occurs that the reverse of the results desired are obtained, by the cows gaining in flesh instead of in yield of milk.

Some years ago, when we were using the old herd of dairy cows in experimental work, some criticisms were indulged in by those who did not understand the situation, because we were feeding such heavy grain rations. If our work was carefully and intelligently examined it would, doubtless, be found that for nutriment consumed the yield of dairy products was very close to the maximum. The results were secured because the mammary functions of our cows had been developed to the full capacity of their feeding powers by several years of careful feeding and handling. Had we fed 14 pounds of meal per day to cows that had only the ability to digest and convert into dairy products 8 pounds, the results would have been different, and had nutriment in roughage cost less than nutriment from concentrates, the cost of production would have been different.

Now, and for several years past, nutriment in meal costs more than it does in roughage, and it is for this reason that we are feeding more roughage and less concentrates. Were we conducting a dairy solely for the profit, and not for experimental purposes, we should adjust the concentrates and roughage according to the cost of nutriment in each, feeding as much as possible of the one in which nutriment was the cheapest, and as little as possible of the one in which it was the dearest. We should also adjust the total nutriment supply to the work the cows were actually doing, and not in accord with the amount of work we thought they ought to do. That is, meal would be fed according to the dairy work they were doing and roughage to satisfy their feeding desires, seeing to it that the nutriment content of the two was enough for the production of the milk and for maintenance. In experimental work, however, this is not always practicable.

The futility of feeding a cow for a greater product than she is giving, with a view of causing her to increase in the flow of milk and yield of dairy products, was very clearly shown in the very interesting and instructive demonstration made by Prof. W. J. Fraser of the University of Illinois during the lactation year 1899-1900, with the two cows Rose and Nora. The former came into milk first and by careful feeding and skillful handling she was brought to her maximum flow in six weeks and to full feed in eight. She yielded at her best a little over 45 pounds of milk per day, and for the lactation period it averaged in round numbers, 5 per cent butter fat. When on full feed she received 16 pounds of concentrates daily, but the average during the year was 13.65 pounds, and the average daily ration contained 17.75 pounds of digestible matter. A very liberal supply indeed, but it was about what she needed. Her average daily yield was 31 pounds of 5 per cent milk. Her weight is not reported in the bulletin, but assuming that it was 1000 pounds, and that it required 7.75 pounds of nutriment for her daily maintenance, and that according to the table on page 104 of bulletin 79, Minnesota Experiment Station, it requires .3189 of a pound of nutriment for the production of one pound of 5 per cent milk and 9.89 pounds for 31 pounds, the daily ration for the work she was doing would be 17.64 pounds of digestible matter, which is within .09 of a pound of the calculated amount that she received.

When Nora came in she received a similar ration. That is, she was fed for a yield of 31 pounds of 5 per cent milk. But the 5 per cent ration did not cause her to give 5 per cent milk; she was not elaborating that kind, and we know of no ration that would make her do it. In the first part of her lactation it tested 3.3, and at the close 4, and averaged 3.84. Though fed for 31 pounds of milk, she yielded on an average only 21.26 pounds.

According to the table referred to she would need for the production of a pound of milk testing 3.8 per cent butter fat, .2677 of a pound of digestible matter, and for 21.26 pounds of milk, 5.59 pounds; and adding to this for maintenance 7.75 pounds, her daily requirements were 13.34 pounds of nutriment, being 3.31 pounds less than she received. While the cow was persistently fed for a yield of 31 pounds of 5 per cent milk, she just as persistently maintained her natural gait and gave 21 pounds of 3.8 milk.

The two cows referred to made fine records, one yielding 11,329 pounds of milk and 658.9 pounds of butter, and the other 8,121.6 pounds of milk and 364.6 pounds of butter, showing that they were handled with great skill. In citing the records of these cows no criticism is intended, but they are employed simply with a view of illustrating a point bearing upon a fundamental principle in feeding practice.

The demonstration was a most excellent one, but did Nora *require* the amount of nutriment she received to do the work that she did, or would she have done the same with a ration that would have satisfied her appetite but adjusted in nutriment content to the work she was doing?

If biddy lays an egg of medium size, can we, by increasing her ration, make her lay a large one; or, laying an egg a day, can she be so fed that she will lay two?

If bossy is so constituted that she yields milk testing 3.8, can we, by increasing, narrowing or widening her ration, make her give milk testing 5 per cent fat; or, if so constituted that she gives daily 21 pounds of milk for the time being, can she be so fed that she will give 31 pounds? If not, is it not a plain business proposition to feed according to the work she is actually doing, and thus bring the cost of production to the minimum?

Years ago, Mr. Goodrich told us that he dished out meal to each cow according to what he considered she could make good use of. Why did he not give the cows that were doing light work more meal to make them give more milk? Simply because he had been in close touch with his cows for years and had learned by experience and close observation that they would not, and could not if so disposed, respond to the increased feed. Of course he fed what was called a balanced ration, and may have attributed his great success largely to that fact. Possibly more was due to the attention he gave to each individual cow than to the nutritive ratio of the ration.

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Minnesota Agricultural College.

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For choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.

□ **360 acre farm,** 4½ miles from Crookston, Minn., (a city of 7,000 inhabitants), and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 ft. square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm in under a high state of cultivation, and is well drained by a slight ravine running through the farm, merely sufficient for self drainage. The soil is a rich deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50,

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired, Price $19.00 per acre.

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I can serve you better than ever with eggs for hatching. White, Barred and Buff Rocks, Cornish Indian Games, Dark Brahmas and many other varieties. Also Ducks and Geese. All prize winners. Write for prices. J. P. Gonigam, Ottawa, Ill



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THE JOHN M. CANNON LAND AGENCY, CRESCO, IOWA.

FOR SALE MY DAIRY FARM 198 acres, 1½ miles west of University. Would sell farm with or without stock. Write for detail description. G. B. M.,
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Early History of the Babcock Test.

[By Dr. S. M. Babcock, Madison, Wis. at the National C. B. Association.]

[Continued from last week.]

In early days the use of the test as a means of determining relative values in factories was opposed by many operators on account of the increased labor involved in making daily tests of each patron's milk, and indeed this was a heavy burden in large factories unless extra help was employed for the purpose. This has been materially lightened by the system of composite samples, which has reduced the necessary number of tests to two or three each month without in any way affecting their accuracy.

The profits of creameries have been materially increased as a result of the location and determination of losses in skim milk, which was entirely impractical without a test simple enough to be used upon the spot. Ten years ago the average loss of fat in the skim milk from centrifugal machines was hardly less than 0.3 per cent, and in buttermilk the loss was much more than this, and not infrequently was as much as one per cent. Some of this loss was due to poor apparatus, but most of it was due to ignorance regarding the proper management of the factory. In a creamery located within one hundred miles of this city, the average per cent fat in skim milk was found to be over 0.6. Two-thirds of this was saved by running about 500 pounds less milk through the separator per hour. This resulted in an increased yield of butter from that creamery of over sixty pounds per day, which was more than sufficient to pay all the running expenses, and converted an unprofitable business into a profitable one. This was by no means an isolated instance; such cases were quite common when no means of locating losses were available. To-day, the total loss in well managed creameries when referred to the milk handled is not more than 0.2 per cent and in many cases it is even less than this. The test has been of immense service in weeding out poor apparatus, in improving methods, and in preventing careless work in all lines of the dairy work. Not only has it been of untold benefit in the factory, but it has been almost as helpful on the farm in pointing out the profitable and unprofitble cows. So long as the churn was the only measure of quality, dairymen hesitated to incur the trouble and expense of testing individual cows, and in consequence, many of the poorest cows in a herd were never found out. There is no longer any excuse for this. Progressive dairymen and breeders of pure bred stock can now make careful studies of each cow's performance, and reject those that do not pay. The leading breeders' associations recognize this, and have either discarded the churn in their official tests, or have required the churning tests to be confirmed by tests for fat. Most of the associations have further safeguarded their tests by requiring them to be made under the auspices of an Agricultural Experiment Station, and in this way have so far as possible removed suspicion regarding them. It is noteworthy in this connection that no phenomenal tests, requiring from ten to twenty-five per cent of fat in milk, have been made since this control was established.

A review of the great advances which dairying has made during the past ten years will show that most of the progress has been brought about by a better understanding by milk producers and factory operators of the principles involved in dairy practice. The Babcock test has been an important factor in all this progress, as it has brought within the reach of every interested party a means of guarding his work In closing I may say that the appreciation which this test has received throughout the dairy world is a continual source of gratification to me. (Applause.)

DISCUSSION.

Mr. Sorenson of Minnesota: I would like to ask you what you think is the cause of the black specks in the neck of the bottle?

Dr. Babcock: The black dots in the neck of the bottle usually come from too strong acid, or having the milk too warm. It is usually particles of sugar not dissolved in the acid. If the milk is not too warm, or the acid is not too strong it will rarely occur. It can be avoided by whirling. It is entirely due to there being too strong action in the bottle when the acid is first added.

Mr. Switzer of Michigan: What class of preservaline do you use for preserving the tests?

Dr. Babcock: The tablets which contain corrosive sublimate are the ones generally used.

Mr. Switzer: There are preservalines which are recommended, so many drops.

Dr. Babcock: The liquid preservatives I think consist almost wholly of formalin. It may be sold under different names, but it is usually composed of that.

Mr. Swtizer: I find that it lessens the likelihood of black specks.

Dr. Babaock: You might add too much and in that case dilute the milk somewhat. It certainly leaves the milk in better condition for sampling than some of the others.

Mr. Duxbury of Wisconsin: I find complaints among the patrons who use the test at home. They say it does not agree with the test at the creamery, They will take the mflk from each cow and test it and then take an average and think that ought to be the test in the creamery, and that is an impossibility, isn't it?

Dr. Babcock: You are entirely right in that. In order to have the home tests agree with the tests at the creamery the samples should be taken from the mixed milk. An average of the per cents of fat from a number of cows is not the per cent of milk in the mixed milk.

Mr. T. H. Hart of Wisconsin: What causes the white residue to come under the fat?

Dr. Babcock: It usually comes from the acid being too weak. The black specks come from the acid being too strong, the white from the acid not being strong enough to dissolve the casein of the milk. It can be avoided by using more acid.

Mr. De Hough of Iowa: Will those tablets make sour milk sweet again?

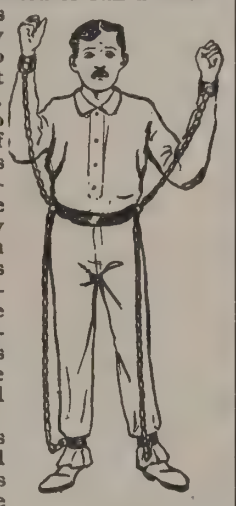
Dr. Babcock: No, they will not. They should never be used for milk which is to be used as food. None of the preservatives will sweeten sour milk, but they will prevent milk from souring. The souring does not affect the test any. Sour milk will give just the same test as it would before it was sour, if you can get your sample with the same accuracy.

Mr. J. E. Jordan of Wisconsin: Can you get as good results by filling the bottle clear full the first time or by filling twice?

Dr. Babcock: You will separate all the fat with one whirling, but you will do bet

HANDICAPPED.

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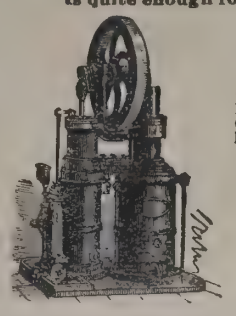
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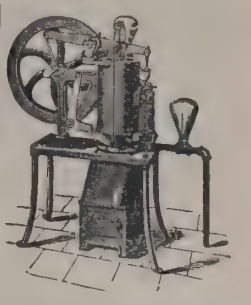
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G. A. McEdwards."

IT TAKES THE TO MAKE THE **BEST**

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ter by filling it twice—that is get a clearer reading.

Mr. Crossfield of Michigan: If I take a sample of cream to test and wish it to keep for two or three days, should I leave it as cream or add the acid?

Dr. Babcock: Add the acid when you get ready to test. If you add it first the action is too prolonged and you are apt to get dark substances under the fat, which will interfere with the reading.

Mr. Haugdahl: What does each division of the scale of the Ohlsson test bottle measure?

Prof. Farrington: I will answer that. .05 of 1 per cent, or 1-20 of one per cent.

Mr. Haugdahl: That is, if the test shows one space of fat that is .05?

Prof. Farrington: Yes.

Mr. Haugdahl: Is that the actual loss in the sample?

Prof Farrington: That is another question. Each division of the scale is meant to measure .05 fat, but whether you have gotten all the fat out is a different thing.

Mr. Haugdahl: How much do we know about it?

Prof. Farrington: It depends on what temperature you run the test and the speed at which the bottle is whirled. If it is properly run and with the skim milk the bottle ought to measure nearly the amount of fat in the test, although I think there has never been a skim milk which tests less than .05 of 1 per cent.

Mr. Monrad: Isn't it safe, professor, to have about twice the amount for luck?

Prof. Farrington: In small quantities. When the regular test bottle is used in testing skim milk I always call the reading not less than 1-10 of one per cent. The directions for reading the amount of fat on the scale have always been given to read from the extreme limit of the fat—that is from the highest point where the fat touches the scale. Now this is because you read more fat than is usually within the column, and that small difference is there to compensate for the small amount of fat which is hardly ever separated. I believe in skim milks where any fat appears, the likelihood is that there is at least 1-10 per cent of fat still left. Now, I will not say there are not tests made with a closer result, but I will confess that in my own experience I have found that skim milks containing less are extremely rare.

Mr. Haugdahl: Suppose I use skim milk. If it shows up one space on the Ohlsson bottle, what will be the test of that skim milk?

Dr. Babcock: I should say it had at least 1-10 per cent in it even under those circumstances, because in the ordinary way of testing skim milk the fat globules are extremely small and separated with great difficulty, and I believe where such small quantities are recovered there is fully as much left behind. I have never found a sample of skim milk which tested less than 1-10 per cent, and the majority did more.

Mr. Brown of Missouri: In the tests you use does the steam play directly on the bottle, and if so, does it affect the tests?

Dr. Babcock: The tests I have used have never had the steam playing directly on the bottles. It would not affect the reading, I think, one way or the other.

Mr. Sollie of Minnesota: As I understand it, one space of the Ohlsson bottle is .05 per cent fat, and the professor says to read 1-10 any way. I don't understand.

Dr. Babcock: The great advantage of reading these Ohlsson bottles is getting relative measurements. I would advise all of you to read them according to the directions and judge accordingly. But when you ask the question as to how much fat there is in that skim milk, I believe the cases are rare where there is less than 1-10 fat left. Now this difference is immaterial in any sense except as you may wish to compare work from one day to another, and for that reason take your readings as you find them.

Mr. Holloway of Indiana: I would like to ask if putting the acid in and whirling the bottle once and leaving it stand over night, whether that is hurtful or not.

Dr. Babcock: It is better to finish it immediately. You would not diminish the amount of fat by letting it stand, but you are much more likely to get sediment beneath which will interfere with the reading.

Mr. Mortenson of Minnesota: What should be the specific gravity of acid in testing?

Dr. Babcock: 1.82.

Mr. Midley of Wisconsin: What should be the temperature of sweet cream to make an accurate test?

Dr. Babcock: I should think about 60 degrees.

Mr. Midley: What effect would it have on the test if the sample were cooler than the tester?

Dr. Babcock: It will not make any difference so long as you get a clear test.

Mr. Midley: What is the cause of the great variation in the color in the tube?

Dr. Babcock: It does not affect the test at all. It depends on the solids in the milk, the quantity of casein in the cream

Mr. Midley: Will a greater or less amount of acid in the cream change the color?

Dr. Babcock: Yes, it will, as more strong acid makes a darker colored fat than less acid.

Mr. Midley: Will it require less acid for testing cream than for testing milk?

Dr. Babcock: Yes, for the reason that the solids are much less in cream than in milk. There is considerable less solids not fat in the serum of cream than in the serum of milk, and consequently these solids can be held in solution by a smaller quantity of acid.

Mr. Speers of Iowa: What is the best method of taking a sample of heavy, sour cream when it comes to the factory?

Dr. Babcock: The best way is to mix thoroughly and take it by weight. You can't get a good sample by measurement It should be by weight invariably, and great care taken in mixing.

Mr. Spitzer: In reading a sample, providing it is light or dark color below, should you read anything but the fat?

Dr Babcock: No, sir.

A Dairy Klondyke for Fifty Cents.

ED. HOARD'S DAIRYMAN:—I wish to call your attention to the copy of a recipe that I received by mail a few days ago:

"Attention, Farmers, Dairymen: Increase your income by learning to make one pound of butter from a pint of milk. Formula, 50 cents. This is not one of the worthless recipes advertised, but something new and reliable." Isn't that a dandy? Wouldn't we soon be able to command all the surplus cash of Uncle Samuel? Just think of it! Why, any old skate would be a common gold mine; any old cow that would give 2½ pints at a milking. 5 pints a day, 5 lbs. butter at least $1.00, $30 per month, $300 per year. Oh my! what would become of the dairyman, who after years of hard labor, hard thinking and diligent study, is all knocked out by a little 50-cent formula?

The Governor would have a veritable Klondyke, the Rockerfellers would soon be all out of biz, as the dairymen would have all of the cash in their bank accounts. There would be no cause for farmers' institutes or National Dairy Union, as the farmer would be able to knock out oleo in the first round without the aid of a ten-cent tax. But I suppose that suckers will bite and men live by their wits as long as their bait is good. I sent the good recipe to the Postmaster General at Washington, D. C. MOSSBACK.

Auburn, Wash.

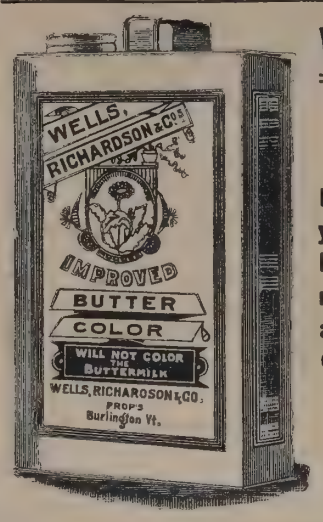
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MEAD CYCLE COMPANY, Dept. 216-C CHICAGO, ILL.

Size in Dairy Cattle.

ED. HOARD'S DAIRYMAN:—We have a herd of mixed natives, some Durham and Holstein, and have been shipping milk to Chicago. Which would be the most preferable, to cross the cattle over to Brown Swiss or Durham? We would like to raise large size cattle and have milk testing about 3.80 per cent.

Burlington, Wis. J. J. C

HOARD'S DAIRYMAN believes in breeding dairy cattle for specific dairy purposes. After many years of close study and considerable experience, we have come to the solid conclusion that any other policy will bring loss and disappointment. All over the land are thousands of dairy herds which are a vexation and snare to their owners, because they would not hold steadfast to the central idea of selecting a bull for his ability to produce good cows, and that alone. Most of these disappointing cattle were bred, so far as any thought was given to it, for so-called "Dual-Purpose." The owner would say just as J. J. C. says; "We would like to raise larger sized cattle." The object is not to raise better cows, that will return more profit at the pail, which should always be held up as the main purpose. The result is, as might be expected, in general, a lot of unprofitable cows. J. J. C. shows by his statement that he has lost sight of the effect of true dairy breeding.

Neither the Brown Swiss nor the Durham will aid him in imparting any improvement in the dairy quality of the resulting heifers. They will both probably give him the barren result of "size" in both males and females, but that is all. If he has any hope of a better future in his herd, he will hold steadily to the dairy idea—breed for it, feed for it and handle for it, and in ten years he will have a good deal more money than he will if he chases after the will-o-the-wisp of more meat, more size. No man or set of men ever developed the dairy quality of a family of cows by breeding for size. To do so he must cross over the line into beef heredities, and all he gains in the size of the male calves, he loses, and more to, by loss in the milking power of the females. If J J C. wants milk of medium fat content with size all sufficient, he should place a Holstein bull of prepotent dairy power at the head of his herd and fight it out on that line.

Manure Tests in Massachusetts.

ED. HOARD'S DAIRYMAN:—In your issue of May 15th, I was quite interested in the article of C. I. B, in regard to the experiment of Prof. W. P. Brooks, of the Hatch Experiment Station. The results are certainly contrary to some of our ideas. I hope that the experiment will be most carefully repeated as it is quite an important question.

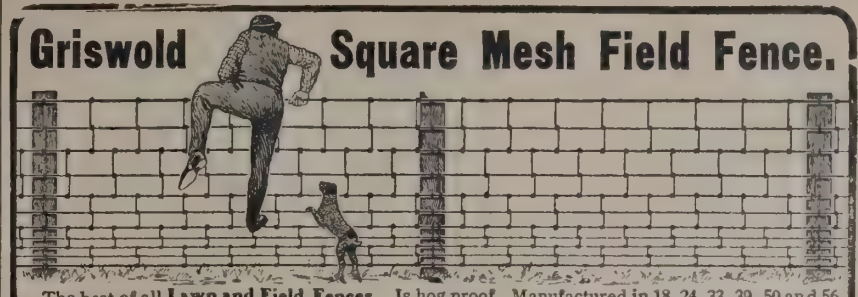
If both plots were plowed at the same time it may be a fact that they did not plow the same, for land where the manure is spread in the winter, retains its moisture much longer than where it is left in piles. Thus if the soil was a clay loam it may be a fact that the portion where the manure was spread in the winter was plowed too wet, and wet spring plowing is not good for the soil.

I have just been plowing a piece of land today, where part of it had the manure hauled in the winter and spread direct from the sled, and part of it had well rotted manure hauled on it about two weeks ago. Where the manure was spread in the winter, the land is a bit too wet to plow, but where it was hauled lately, the land crumbles in good shape.

Land that is to be planted for corn, I do not like to haul green manure after the first of March. That which we haul before that time, seems to give good results. As our farm is a dairy farm, and has been for thirty years, and like C. I. B. we haul so much manure it can't very well help but produce good crops. I hope that test will be repeated.

Lake Mills, Wis. W. F. STILES.

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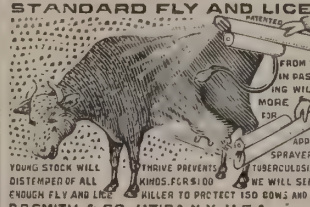
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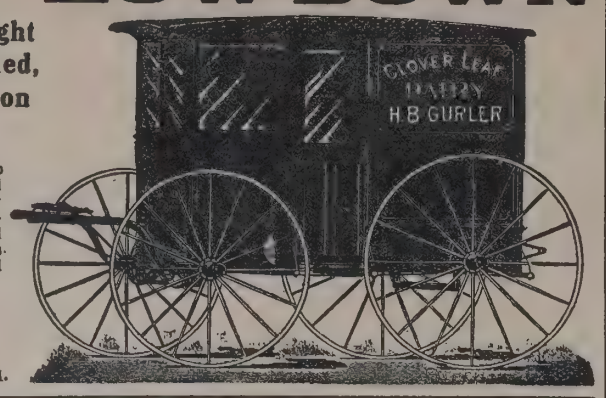
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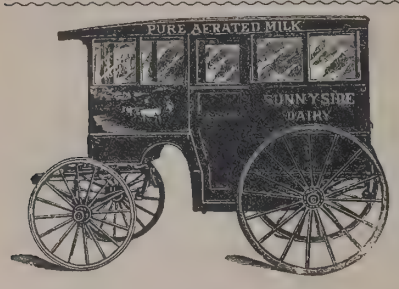


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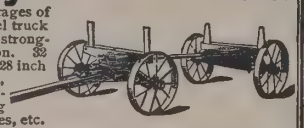
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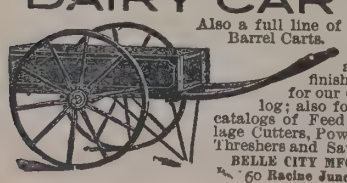


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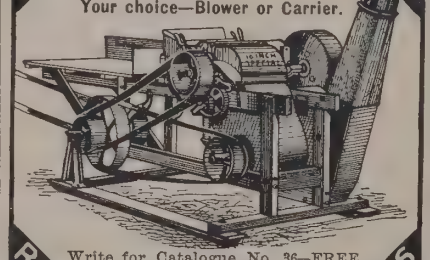
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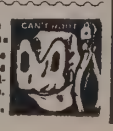
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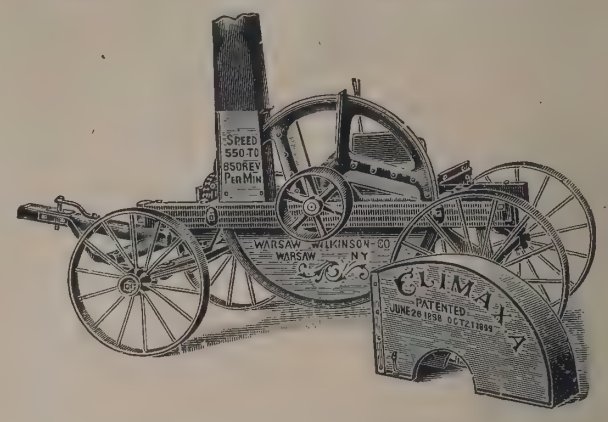
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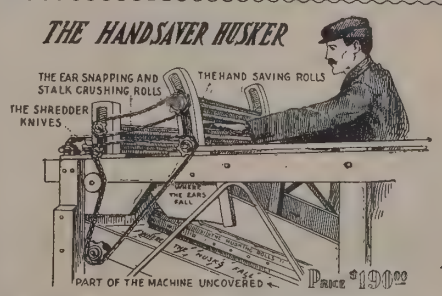
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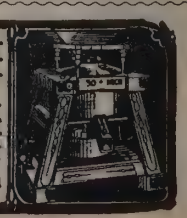


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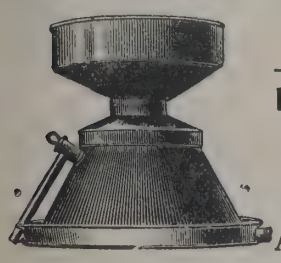
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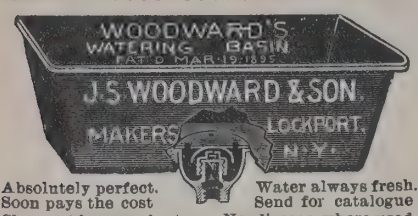
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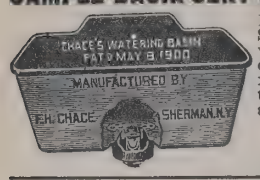
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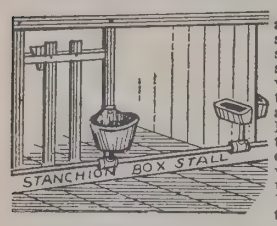
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(2) Whether there is any advantage to gain by mixing the milks of Short-horns and Jerseys, and in what proportions.

(3) What are the relative merits of Short-horns and Jerseys as butter producing breeds.

In the first of these experiments each cow in the herds tested—Jerseys and Short-horns respectively—was fed in accordance with her live weight as a whole. Grass could not, of course, be estimated, but the limited quantity of cotton cake fed during the summer was duly apportioned. In the first two winter months (October and November) the ration was distributed thus:

	Short-horns.	*Jerseys.*
Cut hay and chaff	23 lbs.	17 lbs.
Long hay	4 "	3 "
Decorticated cotton cake	6 "	4 "
In December it was altered to:		
Hay (part given as chaff)	12 "	8 "
Oats straw (part given as chaff)	12 "	8 "
Mangels and carrots	30 "	20 "
Decorticated cotton cake	4 "	2½ "
Bean meal	3 "	2 "
Crushed oats	2 "	1½ "
	63 "	42 "

The Short-horns in milk throughout the season yielded an average of 678 gallons per cow, while the Jerseys for the same period gave an average of 468 gallons per cow.

The problem for buttermakers, however, was not so much the milk yield as the weight of milk required to produce 1 lb. of butter. To determine the value of the milk of each breed for buttermaking, a series of tests was made every fortnight throughout the year. Two hundred and sixty gallons of milk were used in these tests, one-half Short-horn, the other half Jersey. The Short-horn milk produced 47 lbs. 12½ oz. of butter; the Jersey 68 lbs. 12¾ ozs. That is to say, the average butter ratio of the Short-horns was 27.13, or nearly 2¾ gallons of milk for each pound of butter, while that of the Jersey was 18.89, or less than 2 gallons of milk to make one pound of butter. The results may be summarized thus:

	Short-horns	*Jerseys*
Average live weight, lbs.	1,318	953
" milk yield gals.	678	468
" butter ratio of milk,	27.13	18.89
" yield of butter, lbs	250	248

As these figures show, the two breeds gave practically the same amount of butter. The question arises, however, whether if, cow for cow, they are equal as butter producers, they are equally costly to feed. Regulating the quantity of feeding stuffs in proportion to the live weight of the animal, it is shown that the Short-horn yield of butter per 1,000 lbs. live-weight, was 189 lbs. per annum, while that of the Jersey per 1,000 lbs. live weight was 290 lbs.

A further series of tests was made with the object of ascertaining the butter ratios of Short-horn and Jersey milks, mixed in varying proportions. It should be stated that the results of seven months only are available, and it would be undesirable to attempt to draw definite conclusions. The results obtained so far are as follows:

All Short-horn milk (actual butter ratio)	27.13
80 per cent Short-horn milk (actual butter ratio)	22.65
60 per cent Short-horn milk (actual butter ratio)	21.22
50 per cent Short horn milk (actual butter ratio)	21.86
40 per cent Short-horn milk (actual butter ratio)	19.97
20 per cent Short-horn milk (actual butter ratio)	19.85
All Jersey milk (actual butter ratio),	18.89

As these figures show, in all cases more butter was obtained from the mixed milk than would have been obtained if the two kinds had been churned separately. As indicating the economic importance of this point to the butter maker, it is shown that the addition of only 20 per cent of Jersey milk to that of the Short-horn, increases its value by 1d per gallon. Thus, on a basis of 15d per lb. for the butter, we have:

Value of milk for butter making per gallon:

All Short-horn milk	5.52 d
80 per cent Short-horn, 20 per cent Jersey	6.62 d
60 " " " 40 " " "	7.06 d
50 " " " 50 " " "	6.86 d
40 " " " 60 " " "	7.59 d
20 " " " 80 " " "	7.55 d
All Jersey milk	7.94 d

—Farmers' Gazette.



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Dairy Laws

The following is a synopsis of a portion of the Minnesota dairy laws, as they appear after revision by the last legislature. They apply especially to creameries and creamery patrons, and are worthy of careful consideration.

Especial attention is called to the fact that milk intended for the market must not be kept in stables, and that all creameries must pasteurize their skim milk, and that anyone that under-reads the Babcock test is liable to a fine of $25.00.

No person shall offer for sale unclean, impure, unhealthful, unwholesome or adulterated milk or cream, or any milk or cream that has not been well cooled, aerated, or to which preservatives of any kind have been added.

No person or firm shall keep cows for the production of milk for market, in a crowded condition, or in stables which are not perfectly ventilated and lighted, or which are filthy from an accumulation of animal refuse, or from unsanitary surroundings; nor shall milk for such purposes be drawn from cows which are themselves in a condition of filth or uncleanness, or from cows which are affected with tuberculosis, ulcers, running sores, or any other form of disease, or from cows which are fed wholly or in part upon distillery waste or brewery grains, or the waste of vinegar or garbage or that of sugar factories, or food not properly preserved in silos, or garbage or decayed food of any form, or upon any other form of food which will produce milk which is unhealthful or unwholesome; or from cows within fifteen days before and five days after parturition. Nor shall milk or cream be produced for such purposes be kept in the stable, or in a place where bad or contaminating odors exist, and all milk or cream thus produced is declared to be unclean, unhealthful and unwholesome. This shall not be construed to prevent the feeding of ensilage, from silos, when properly preserved.

Any milk which is shown by analysis to contain any substance or substances of any character whatever, not natural or normal constituents of milk, or to have been deprived, either wholly or in part, of any constituents naturally or normally contained in milk, or which is shown to contain more than 87 per centum of water fluids, or less than 13 of milk solids, of which not less than three and one-half per centum shall be fat, is declared to be adulterated milk.

All cream that shall contain less than twenty per centum of fat, or shall contain any added thickener, or foreign coloring matter, shall be deemed to be adulterated.

All creamery or dairy butter that shall contain more than sixteen per centum of water shall be deemed to be adulterated.

No person, firm or corporation shall manufacture from unclean, impure, or unhealthful or unwholesome milk, or of cream from the same, any article of food.

All creameries before delivering to any patron, skimmed or separated milk shall have pasteurized the same at a temperature of at least 180 degrees Fahrenheit.

It shall be the duty of the dairy and food commissioner to cause the inspection of all creameries, cheese factories and all other places or buildings where dairy products of any nature whatever are produced, manufactured, stored or kept for sale, at such times as it may be deemed best, and he shall have authority to require the construction of necessary drains or improvements, to correct any unsanitary or improper conditions, either in the manufacture, storage or sale of said products, and give such instructions as will cause the improvement of any such conditions as may be found to exist that he may deem should be changed for the public good, and to cause all such conditions to be fully complied with.

It shall be unlawful for the owner, manager, agent or any employee of a creamery or cheese factory to manipulate or under-read the Babcock test, or any other contrivance used for determining the quality or value of milk.

No person, or his agents or servants, shall sell, or bring to be manufactured, to any butter or cheese factory, any milk diluted with water, or any other substance whatever, or any from which any cream has been taken (except pure skim milk to skim cheese factories), or shall keep back any part of the milk known as strippings, or shall bring or supply milk that is sour, to any butter or cheese manufactory.

No butter or cheese manufactories, except those that buy all the milk they use, shall use for their own benefit, or allow any of their employes or any other person to use any of the milk or cream brought to said manufactories, or the product thereof, without the consent of the owners thereof.

Every butter and cheese manufacturer, except those who buy all the milk they use, shall keep a correct record of all the milk received, and of the number of pounds, and packages of butter, the number and aggregate weight of cheese made each day, the number of packages of cheese and butter disposed of, which record shall be open to inspection to every person who delivers milk to such manufacturer.

Whoever violates any of the provisions of this act shall be guilty of a misdemeanor, and upon conviction thereof shall be punished for each offence by a fine of not less than $25.00 nor more than $100.00, or by imprisonment of not less than thirty days, nor more than ninety days.

Wash for Dairy Buildings.

In a German periodical appears a formula for a wash which can be applied to lime walls and afterward becomes waterproof so as to bear washing. Resenschek, of Munich, mixes together the powder from three parts broken marble and sandstone, also two parts of burned porcelain clay, with two parts freshly slaked lime, still warm. In this way a wash is made which forms a silicate if often wetted and becomes after a time almost like stone. The four constituents mixed together give the ground color, to which any pigment that can be used with lime is added. It is applied quite thickly to the wall or other surface; let dry one day, and the next day frequently covered with water, which makes it waterproof.

This wash can be cleansed with water without losing any of its color; on the contrary, each time it gets harder, so that it can even be brushed, while its porosity makes it look soft. The wash or calcimine can be used for ordinary purposes as well as for the finest painting. A so-called fresco surface can be prepared with it in the dry way.

For a useful lime wash for wood and stone, the following is a good preparation:

Twenty quarts of quicklime are slaked in a suitable vessel with as much hot water as will stand at a level of six inches above the lime. The milk of lime is diluted, and first 15 grains of sulphate of zinc and then 7 grains of common salt are added. The latter causes the lime wash to harden without cracking.



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Bacteriology in Relation to Dairying.

[By Dr. W. T. Connell, Bacteriologist, Dairy School, Kingston, at Eastern Ontario Dairymen's Convention.]

It has been my privilege to come before the meetings of this Association for the past six years, and I do so again this year with a great deal of pleasure, as it affords me another opportunity to speak on the old topic of Bacteriology in some of its various relationships to the great business of dairying. It is true that a great deal of what I am going to say has been said before and in various forms, but I trust it will be of benefit to those who are not up in the subject. The particular subject which will claim my attention this morning is "The effects of cleanliness and control of temperature on bacterial contents of milk and upon its quality as affecting the manufacture of butter and cheese."

Milk, no matter how cleanly a person may be in milking, will, in practically every case, be found to contain more or fewer bacteria immediately after milking. But the cleanliness of milking has a very great influence on the number of bacteria found in the milk, and has also a very important influence on the nature or character of these organisms.

It will now be necessary for me to amplify and illustrate these two statements in greater detail. Let me direct your attention to Table 1, which gives in tabular form the results of examination of milk which was milked with varying grades of cleanliness.

A. Thus the average of samples A is 4,300 bacteria per c. c. (16 drops). These samples were taken from herds where all reasonable precautions were taken to insure cleanliness. Thus, the cows were brushed, the udders wiped off just before milking, any mud, etc., being washed off, the milkers' hands were washed and dried before milking, the cows were milked in a barn free of dust, pails thoroughly clean and scalded.

B. The average of samples B is 15,500 per c. c. These were taken from cows milked in a fairly clean but dusty barn, the udder was brushed free of coarse dust. The milker's hands were not washed, but were wiped after each milking. Pails clean but not scalded.

C. The average of samples C is 30,000. These were taken from cows milked in ordinary way, i. e., cows not brushed, udders cleaned by running unwashed hands over them before beginning to milk. Pails clean but not scalded. I am indebted to Dr. Park of the New York Board of Health for these figures, which were published in Journal of Hygiene, Volume 1, page 391. My own figures, from some examinations made under like circumstances, closely approximate to these, but as Dr. Park's are based on a larger number of samples I have used his figures for the tables.

Table 1.—Number bacteria in 1 c. c. at time of milking:

A.	B.	C.
4,300	15,500	30,000

These figures show better than talking can do the difference which cleanliness makes in the average bacterial content of milk at time of milking. It is evident that the lack of cleanliness in milking means the seeding of milk with a great number of bacteria derived from outside sources, and these sources must be the dust and hairs, including the manure particles from the cow, together with the dust of the milking place and bacteria derived from straining cloths and milk utensils. The bacteria which are present in practically all milk, even when most carefully milked, are derived from the milk ducts of the cow, and are found in greatest number in the fore-milk. Generally in the ordinary healthy animal, the vast bulk of these are the common lactic acid or souring organisms, a class of bacteria desirable in both butter and cheese making. But we cannot say the same for these bacteria which get in from the stable dust and dirt from the cow's udder. Many of these are bacteria capable of setting up most undesirable changes in the milk, if the temperature conditions be favorable and their growth be not checked by the lactic acid forms present. The organisms which do get in under these conditions, are such species as produce gassy, bad-smelling milks, or which show up later by producing pinhole, gassy or foul-smelling curds and many like undesirable conditions. I think we can take it as a rule that the cleaner the milking and milk utensils, the fewer the bacteria and more likely they are to belong to the lactic acid varieties; and on the other hand the dirtier the milking the more bacteria will be found, and the lactic acid species will be mixed in more or fewer numbers with gas-forming and like undesirable forms.

It is now a well recognized fact that when milk is kept at a low temperature, being cooled down shortly after milking,

it keeps a long time. It is not so well recognized a fact that the cleanlier the milk is the longer it will keep good at this temperature. Dairymen who supply milk to cities recognize this fact. Perhaps I should modify my statement and say that some at least do. For town or city delivery the producer usually cools his milk as soon as possible after milking, and keeps it at a low temperature until he can deliver it. Now I claim, and rightly as I think, that the cheese and butter makers have as good a right as the milk consumer to have a good, pure article of milk.

Next to cleanliness of milking, of milk vessels and surroundings, as bearing on the number of bacteria, stands the temperature at which the milk has been kept before delivery. Let me direct your attention to table 2, where you will find some figures given illustrating the effects of various temperatures on milk. The period chosen for the examination is 24 hours, as under laboratory conditions this is the most suitable. However, the figures would be fairly proportional, say for milk 15 to 18 hours old.

Table 2—Effects of temperature on bacterial contents A and C (Table 1) samples of milk after 24 hours, 1 c. c. milk.

	50 degs. F.	55 degs. F.	60 degs. F.	68 degs. F.	86 degs. F.	94 degs. F.
A	4,500	18,800	180,000	450,000	1,400,000,000 turning.	25 000,000,000 } sour and
C	48,000	187,000	900,000	4,0 0,000	14,400,000,000 sour.	25,000.000,000 } curdled.

It will be seen from this table that when milk is rapidly cooled and kept below 50 degrees Fahrenheit that there is very little change in first 24 hours, while as the temperature goes higher the increase becomes very noticeable until it reaches the maximum limit. These figures will show very clearly the great influence which temperature has upon bacterial development, and shows better than many lectures the influence of temperature in preserving milk and the benefit derived from the cooling of the milk. It also shows very clearly that the milk which was the cleaner to begin with, shows less bacterial development through the entire range of temperature until we reach the highest, where the development in both is so rapid that it reaches its maximum within 24 hours, and the milk becomes very sour and curdled.

Again, with regard to the kinds of bacteria found. The gas-forming species will grow quite as well if not better than the common souring germs at the higher temperature. However, no figures can be given which will definitely show the proportional increase in the number of the acid-forming, and the gas and other species in milk, as the results of analyses differ markedly in almost every instance. Of one thing I am assured, however, and that is, that other things being equal the common, pure lactic acid producing bacteria, develop better and more rapidly at the lower temperatures than do the common gas-forming varieties, so that milk properly cooled in summer is very seldom gassy milk. On the other hand, it is during the hot weather of midsummer, when the farmers do not cool their milk, that there is much trouble from gassy and foul milk, and pin-hole and gassy curds, I think that there are just as many gas-forming species in the milk during the cooler weather as in the hot season, but the acid-formers are the species which thrive best at the existing temperatures during these periods, and thus the growth of the gas-formers is checked, while the warmer the atmosphere, is the more the chances of both species developing, are equalized. I have taken the gas-formers as the type of the undesirable species whose presence and development are particularly aided by lack of cleanliness and high temperature, but I would call your attention to the fact that the hot months of the year are the periods during which nearly all the trouble is found. Of course, I am not now referring to winter dairying, which has troubles peculiar to itself.

In winter dairying, where cows are not kept very clean, the infection of the milk with undesirable bacteria is sometimes enormous. The low temperature at which the milk is kept stops bacterial growth of all kinds, and then when such milk is brought to creamery or factory, it is heated up to hot summer conditions with the result that we give the undesirable species an excellent chance to develop, and as they are usually more numerous than the common acid species, such milk is often very foul and produces a bad article of butter or cheese. I would commend these facts to the consideration of those making winter or "fodder" cheese. The buttermaker can overcome this by pasteurization and the use of a starter, but the cheesemaker has to fight the "dirt" in his milk, as so far no successful system of making cheese from pasteurized milk has been devised. Of course the cheesemaker has to depend upon the controlling influence of a good starter by which he adds vast numbers of the acid-producing species to the milk.

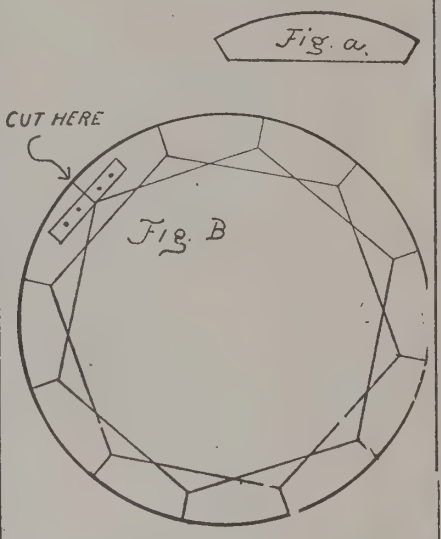
The points I want to impress today are simply those of greater cleanliness of milking (and all that appertains to this, i. e., cleanliness of utensils, stables and dairy shed) and greater attention to the cooling of milk. Some may say that if milk is thoroughly cooled, say to 55° Fahrenheit or thereabouts, that acidity develops very slowly and that there would be insufficient development of acid-forming bacteria for cheesemaking purposes. If this is the only difficulty to be overcome, its solution is very easy. Add a pure lactic starter and you can secure this factor, but do not use the starter simply to hasten the end of the day's work. I know the difficulties attending a wide adoption of such a method, one of the most important being the maintaining of such a pure starter at all times. I believe it has now come to the time when our instructors should preach not only the doctrine of cleanliness, but also the doctrine of cooling the milk more thoroughly. The Department of Agriculture (Dominion) have been experimenting in keeping cheese under temature conditions approximating those found in England. The experiments, from the reports received this past season have been very successful, resulting in an added value for the cheese so cured. Let us go a step further back in the process and begin more nearly at the beginning, i. e., approximate to English temperature conditions by cooling the milk more carefully. In other words apply English temperature conditions throughout, from the time of milking till the cheese is put on the market. If you like, you can substitute for English temperature conditions, our own temperature conditions early in June or the last half of September, both seasons of the year in which ordinarily the best cheese are made. I do not think it advisable to insist on too low a temperature for the cooling of the milk, but certainly for cheesemaking, 60 to 65° Fahrenheit is as high as advisable. For butter making 55 degrees Fahrenheit I would set as a limit.

Another matter which demands emphasis being placed upon it, is the danger which follows the taking back of whey in the milk cans, particularly from whey tanks that are not kept properly cleaned. Prof. Harrison has shown, and I can most emphatically back him up in his statements, that the usual cleaning which cans get does not suffice to free them from the bacteria found in the whey (usual cleaning by hot water and brush, and then rinsing with hot and cold water.) It requires steam or boiling water to thoroughly destroy the bacteria from a perfect can, and the older and more battered a can the longer the exposure to these agents is necessary Therefore it is better to avoid the danger of infecting the milk from the whey tank by not placing the whey in the milk cans.

To sum up. I think I have shown, first, that the cleaner the milking, the smaller the infection of the milk with bacteria, particularly undesirable forms. Second, that the lower the temperature at which the milk is kept, the less the bacterial development. Further, moderate temperatures, say up to 65 degrees Fahrenheit, aid mainly the normal acid-forming varieties, while temperatures above this are as suitable for the development of such species as the gas-forming varieties, if these happen to get into the milk in any numbers. These two factors of cleanliness and cooling of milk, are the factors of importance to dairymen to day, for if they are not lived up to, we can never get our cheese to come up to that produced in England even though English conditions are provided after cheese are made. The maker can only produce the best article from the best raw material, so that in this, as in everything else, one must begin at the begining, and that is with the milk producer.

Concrete Foundation for Round Silo.

ED. HOARD'S DAIRYMAN:—The following will answer the inquiry of E. J. R., Auburn, N. Y., in relation to building concrete foundation for silo, for any depth desired. Having used such a form for the purpose, it being inexpensive and easily made, I find it much better than any other I have seen used. I will not submit exact measurements for the reason that the person constructing it can easily do so without instructions.



First, let E. J. R. strike part of a circle 14 feet in diameter on a board, say 10 or 12 inches wide and about 3½ or 7 feet long for a pattern, and cut same like Fig A, and use same for pattern for making enough pieces like it to form two circles of the required size, also mark on ground or a smooth floor, a circle of size wanted, using same for making his form by laying these pieces upon his circle.

First, fit one course to make the complete circle, and then put a second course on top of that, breaking joints in center, as in fig. B, and so on to complete his circle, nailing the two courses well together with wire nails, and clinch. After this is finished, nail upon the edge of this form a board, not more than 8 or 9 inches wide. This should not be more than ¾ inch thick, so it may be easily bent, and the outside should be planed smooth. This piece should be nailed with center on edge of form, and if there be any difficulty to bend it, it may be cut across on the inside face with a saw part way through, at regular spaces, say two inches apart.

Nail several triangular pieces for stays on inside of rim, and on top of the pieces that make the form, which will serve to keep the rim true. At some point in form, say at one joint in lower course, saw through the completed form, and take out a piece about one inch wide from the flat pieces, but leave the rim whole, this is for the purpose of being able to loosen the form when necessary to move it. In order to keep in proper position when in place, use a piece of board with two pins in each end, as indicated in Fig. B. This form is so easily constructed and operated, I don't think that any person will have any trouble to make or use it. I find from using the above, it is much preferable to any thing else I have yet seen.

CHAS. L'AMOREAUX.

Schoharie, N. Y.

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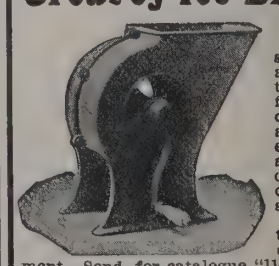
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Sometime ago I noticed in the *Review* a request for our dairy methods after your having given us some "boquets." If in any way our methods will be of any benefit to your readers we will gladly give them, but considering that all our experience in dairying dates since May 1901, it seems a presumption on our part to compare our methods with those of your readers who have been dairying for years.

In May 1901, we, my brother and I, rented the dairy of A. C. Freeman in Sacramento Co., on shares. I never saw a wilder and more vicious lot of cows. They had run with their calves for about three years, up till about four months before we took them in charge. Hired help of the kind usually available for dairy work, had been handling them and the parties were as vicious as the cows. The cows had been so badly abused that some of them would jump out of the corrals when we brought them up at nights.

We began by talking very low while we were with them, offering fruit and petting those that would allow it. The first two months these cows averaged $2 per head per month, their milk testing 4% fat. During the same months for 1902 they averaged $7.25 per head, their milk testing 5%. We kept a note of our neighbor dairymen's doings and when we saw they made mistakes we avoided them. But we owe more to the *Jersey Bulletin*, HOARD'S DAIRYMAN and the *Dairy and Produce Review* than all other sources. I nearly forgot to mention Prof. Leroy Anderson and Dr. A. R. Ward of Berkeley in the above. But to estimate the great value that these five sources of dairy information have been to us would be hard to do. To give it in print would seem an exaggeration.

It would be interesting to recite our many mistakes and experiences, but space will not permit. So I will be as brief as possible. The place which we devoted to dairying consisted of possibly 140 acres, 80 of which were sown to alfalfa and on this we had about one-fifth of a stand. The rest of the land was bottom pasture land with Canada thistles very thick on it.

In the beginning we tried soiling with alfalfa for night ration, but the cows would decrease in milk so that we drove them to the pasture at night during summer and autumn, where they might feed unmolested by heat, and the flies were not so bad. In the fall we harvested a large crop of pumpkins which we tried to feed for night ration, but it was a greater failure than soiling This proved to us that the alfalfa pasture was better than any other manner of feeding. When cold weather and the storms came we tried leaving the cows fastened in the stanchions over night but the poor things were so stiff next morning we gave it up. So we rolled our wagons and tools out in the storm and gave the cows the use of a large building devoted formerly to storing machinery. While our cows were making butter fat in a warm barn all the cows along the river were out in the storms, consuming their food energy in keeping warm.

We bred our cows to calve after the middle of July so we had the advantage of the best prices for butter, and when green feed came they gave as much milk as they would if bred in the spring and the drying up time is during hot weather and when flies are worst. We don't breed the cows sooner than three months after they calve and the heifers we let go for a longer period and no bulls are allowed to run with the cows. We find we have had wonderful success in calf getting. Not more than 10 per cent have had to be served twice. We try to dry our cows up two months before calving time, especially our heifers.

In the yield referred to by your paper we milked 20 mature cows and 18 two and three-years-olds (not sixty as stated) they averaged $67.72 above the cost of manufacturing butter, making butter fat 294½ pounds, (which does not include over churn) and 5,885 pounds milk. In this is not counted 3½ gallons of milk and one pound of butter used daily on the ranch. Our best cow gave over 11,000 pounds of milk, testing an average of 4 per cent butter fat.

During 1902 as soon as the weather would permit, we milked outside; having made mangers in our corral, we fed hay so the cows might eat while they were milked. We milked exactly on time each cow in her turn and milked till they would not give another drop. The cows were given water fresh from the well and it was a pleasure to see them supping the cool water. In the late summer we had about one and one-half acres of Bartlett pears which we fed and they seemed to be excellent feed, as the cows improved in milk when they were fed the pears. We fed our young heifers bran for a short while after calving. One of these heifers calved July 16, 1902, and in four days after calving tested 4.8; one month after tested 5.8 and two months later tested 6.4 and is now giving an average of 22 pounds of milk a day testing 6.4.

The foundation of this herd was Durham cows, having been bred to the Jersey for seventeen years. The choicest of these cows were sold to S. F. dairymen about five years ago.

We have the special-purpose dairy type of cows and they have paid in butter more than our neighbors have in butter and calves. Our steer calves sold for $16 per head when they were from six to nine months old, and we were offered $22.50 per head for all the heifers of the same age. (We have since bought the best of Mr. Freeman's herd). With the foundation we have and through the kindness of Judge Shields in placing his great bull and his registered cows with us, I see no good reason why we cannot have a herd that will average 400 pounds of butter per cow after a few years of judicious breeding and care. We could have done better with the same cows, having seen our many mistakes. Our great secret is: We love our cows and they love us.—CLAUD TRIBBLE, in *Dairy and Produce Review*.

Suggestions for the N. C. B. A. Meeting Wanted.

ED. HOARD'S DAIRYMAN:—The Executive Committee earnestly requests butter makers and others interested in the welfare of the National Creamery Butter Makers' Association to send in suggestions regarding the next annual convention, and subjects they think need discussion at the sessions. The committee is desirous of preparing a program that will be both interesting and instructive and invites the co-operation of all.

Address communications to the Secretary at Elgin, Ill. E. SUDENDORF,
Sec'y N. C. B. Ass'n.

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"I had to be very careful about my diet and could eat only very light foods. These did not seem to nourish me and instead of getting better every day I was just at a standstill and everyone began to fear a relapse. One day while lying in bed very much discouraged my sister, who was reading to me from the paper, read an article about Grape-Nuts and we decided to send for a package.

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Emporia, Kans., Jan. 2nd, 1903,
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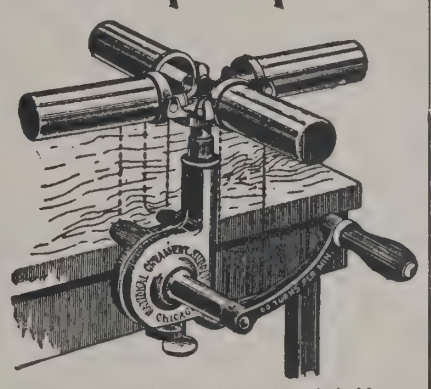
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Send for our new book on Making Milch Cows Pay.

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Babcock Milk Tester



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Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

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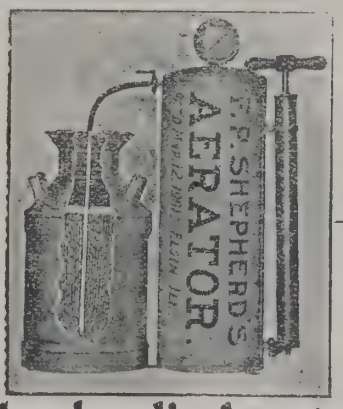
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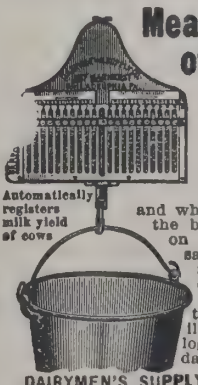


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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own ight who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

THEY must seem to have very poor cows in Minnesota and especially in Faribault county, or there is a very serious misprint in the columns of our contemporary, the *Dairy Record*. One of the inspectors of the Minnesota State Dairy and Food Department, inspected nine creameries in Faribault county, and, according to the *Record*, found 7,150 cows supplying these nine creameries, but the aggregate pounds of milk received daily there was only 37,500—less than five and one-half pounds per cow. This, of course. is a libel on the cows of that county. The only possible explanation is that some of the creameries, if not all of them, are receiving cream as well as milk, and that possibly the pounds of cream and the pounds of milk have been aggregated in the above statement as the amount received daily.

Another inspector visited twelve creameries in Chisago county and reports 4,945 cows with an aggregate daily receipt of 85,490 pounds of milk testing 3.5 to 4.4 per cent fat.

WORTH READING.

We invite the special attention of every reader of the DAIRYMAN to the article on page 429 of this issue on the relative value of alfalfa, wheat shorts, and skim milk in connection with corn for fattening pigs. It is very rarely that so much clear, valuable truth is condensed in so small a space as can be found in this article. It gives one the true bearings of economical pig feeding in a most effectual way. Another very interesting item, full of instruction is on page 410. HOARD'S DAIRYMAN took the same ground years ago. Slowly the truth makes its way.

A GRASSHOPPER ANTIDOTE.

Mr. F. L. Washburn, State Entomologist of Minnesota, advises the farmers of that state to poison grasshoppers with paris green.

The composition recommended has been used in Northwestern Canada, where grasshoppers are usually very abundant, with great success. It is called Criddle Mixture and consists of one part paris green, two parts salt, forty parts horse manure, and water enough to make the mixture soft without being sloppy.

It is reported from Manitoba, that grasshoppers are very fond of this poisoned bait and that it attracts them from several feet distance.

THE OLEOMARGARINE SITUATION.

Not only has the new oleomargarine law been upheld by the United States court in Cincinnati, but Mr. Yerkes, Commissioner of Internal Revenue, has recently upheld his former decision that the use of palm oil, even when disguised by a mixture of cotton seed oil, is an artificial coloring under the terms of the law, and insists that one of the Chicago factories shall pay something like $30,000, we believe, additional taxes by reason of of his attempt to evade the United States Statute in regard to coloring oleomargarine. It is expected, of course, that the manufacturers will carry these cases to the Supreme Court of the United States, but meantime, the Internal Revenue Department will see to it that they do not flood the country with colored oleomargarine without paying the ten cent tax, and there is every reason to believe that the decision of the Cincinnati court and the ruling of the Commissioner will be upheld by the Supreme court.

ENSILAGE ESTIMATES.

In building a silo it is always a good plan to calculate a capacity of 4 to 5 tons per cow. That will give ensilage enough for 200 days of winter feeding and leave from one to two tons for soiling when the drouth comes in summer. If perchance the summer silage is not needed, all we have to do is to clean off the moldy ensilage from the top of it and fill in again with new on top. We believe that it is profitable to build a silo even with so small a herd as six cows, provided one can secure the filling of it in good season.

The following table may be of some service to our readers in forecasting capacity of silo, number of cows and acreage of corn needed.

No. cows.	*Estimated Consumption of Silage. Tons.*	*Size of Silo needed. Diameter and Height.*	*Acres of Corn Needed*
6	30	8x8x20	2 to 3
10	50	10x13x20	5 to 6
15	75	12x15x20	7 to 8
20	100	14x17x22	8 to 10
25	125	15x18x24	10 to 12
30	150	16x18x25	12 to 14
35	175	18x20x25	13 to 15
40	200	18x22x25	17 to 20
45	225	18x25x25	19 to 22
50	250	22x25x25	22 to 25

IS THERE TO BE A FODDER-FAMINE?

What with the excessive drought in the Eastern and Southern states and the terrible devastation wrought by floods and excessive rains in the Middle West, there is every reason to justify apprehension that the coming winter will find dairymen exposed to a fodder famine unequalled in severity by any that has preceded it. In view of this probability, it becomes every dairyman to make the most possible out of the situation. Crops that have escaped the drought and the floods should be cultivated more industriously than ever. There is ample time yet in many localities for growing abundant crops of fodder corn. Indeed, we have witnessed in this latitude wonderful success with this crop planted as late as the first of July. Planted this late, it is not expected that very much grain will be produced, or that the plant will ripen, but cut and properly cured, it makes most excellent forage. Indeed, later experience seems to demand that we reverse our opinions somewhat in regard to the corn crop. Up to within a few years, it has been an accepted tenet that the corn plant must produce an ear which must be fairly mature before the fodder was of much account, but we are learning now that what might be called corn hay, as well as sorghum hay, makes a very excellent fodder. It behooves farmers everywhere therefore to make use of every possible acre in what may be called catch crops; grow fodder corn and sorghum for hay, and millet.

WE CAN'T HELP HAVING A STANDARD.

We hope every reader of the DAIRYMAN has read the very instructive articles by A. J. Glover, of Illinois, on the differences in cows as brought out in his investigations among the herds of Illinois dairymen. Mr. Glover is doing this work for the Illinois Agricultural College and the work is done in a truthful painstaking manner. It is very suggestive, very instructive and very valuable as a guide line to every man who will read, think and learn.

On page 400 of last week's issue he compares herds "A" and "D." There is a good deal in that comparison. One thought comes to us very impressively. It is this: No matter whether we are intelligent or ignorant we can't help having a standard which we carry all the time in our minds. That standard guages our work and governs us very largely.

The owner of herd "A" had his standard. It was founded very largely on ignorance of cows, but nevertheless it was a standard and governed all his actions towards his herd.

Note what Mr. Glover says about him. The man confessed: "I never dreamed that such differences existed between cows." Now that was ignorance, nothing but ignorance. He had had all the chance in the world to make himself intelligent on this subject.

Lots of sound reading matter lay all about him. But he would not read or study. All he did was just work, ignorant work, and out of that ignorance, not intelligence, he built the standard of his policy and action towards his cows.

On the other hand, the owner of herd "D," Mr. Gurler, had done all in his power to make himself intelligent on this cow question as well as other questions. He built for himself a standard out of intelligence. Not that he knows it all, for he will tell us that he is learning now faster than ever before in his life. But the standard is as intelligent as he can make it. It governs him just as the ignorant standard governs the other man. But what a difference in money, respect of his fellows, pleasure of living and doing his work, there is under Mr. Gurler's standard, as compared to what comes to the owner of herd "A."

Let us remember, always, that if we persist in despising knowledge, then ignorance will build our standard, and we shall reap as we have sown. Every man must have his standard of action. On him will depend whether it is the standard of intelligence or ignorance.

LONG KEEPING MILK.

Among city milk consumers there is a well grounded suspicion that milk that keeps sweet for more than a few hours after being received from the milkman has been dosed with preservatives. There is no doubt that judging from the past, and in many cases the present, conditions, such milk does contain preservatives in some form, and the suspicion of the city consumer is well grounded, and city milk, as a rule, deserves its poor reputation.

The conditions under which the majority of milk is produced, shipped and handled in the city trade are responsible for this, for a bulky food product that must be produced cheaply, shipped and handled cheaply that it may be sold at a low price, as is at present required, will not stand the extra care that is necessary to improve its quality without an increase in its selling price, and that in a majority of cases is not possible. But provided that an increased price could be obtained there is no reason why all milk could not be so improved in quality by increased cleanliness in production and methods of handling, that sour milk would be an unknown quantity to the city consumer, without the use of preservatives, and in cases where the producer and seller are one and the cost of production lessened by the elimination of the middleman's profits and the railroad freight, milk that is clean and therefore long keeping, can be supplied to small cities without an increase in selling price, provided the dairyman is willing to undertake the necessary trouble as to care and cleanliness.

The great trouble with the average dairyman is that he does not know or try to know or understand what cleanliness means in connection with milk. With most men there are different degrees and quality of dirt and the quality depends on personal habits or local conditions, but with milk all dirt is bad dirt, there is no gradation or degree as to its quality; it is all bad, and until dairymen have had pounded into them a just appreciation of this fact, there will be made poor butter, poor cheese and poorer city milk.

Provided that a dairyman will take the precautions to keep things clean and then make clean milk, there is no reason why city milk should not remain sweet from two to ten days, depending on the degree of cleanliness that is used in producing it and the care that is used in keeping it after it leaves his hands. But the latter part is least important as the few hours that it is in the hands of the consumer before being used, has but little effect on its quality when it is already as poor as is possible for it to be, and would have no effect if it was clean in the beginning. The mischief is done during and following milking, while it is yet warm and subject to contamination by its surroundings. It is then that dirt with its accompanying bacteria finds its way into the milk and once there, there is no way of removing it.

Milk that contains no bacteria will not sour, and so long as bacteria are not allowed to get into the milk, it will stay sweet. Thus the question of long keeping sweet milk is entirely one of cleanliness. It is impossible to exclude all bacteria from milk by any method of cleanliness that is practical to the dairyman, but it is possible to produce milk with a few thousands in place of the many millions of bacteria that are usually found in it.

Any dairyman can produce such milk if he will pay attention to the fundamental rules of clean stables, cows and milk utensils and his success will be entirely one of degree and in proportion to his degree of cleanliness. Milk produced under such conditions will keep any where from two days to a week and is a more wholesome food, more palatable and better in every way.

BACTERIA.

We trust no reader of HOARD'S DAIRYMAN will be deterred, either by its title or length, from reading the article, in another place in this issue, on this subject as related to dairying, by Prof. Connell of the Ontario Agricultural College. Bacteriology is relatively a new science, but it is one which touches mankind at all points and should be understood in some measure by all people. It is not to be expected that any considerable number of people will become expert bacteriologists, any more than they are expected to become expert analytical chemists, but that is no reason why we should not become comparatively well informed on these subjects, or at least sufficiently informed on them to understand and ap-

preciate the conclusions reached by the experts in either science.

Bacteriology and chemistry are of especial interest and importance to the dairymen. The chemist analyzes our feed stuffs and aids us very materially in determining which to select and why to choose them. Bacteriology informs us in regard to those matters which control the growth of some and decay of all substances. It has taught us how and why the leguminous crops are soil renovators and of such prime importance as feeds. It is, however, in the matter of milk and its products that bacteriology assumes its highest importance as a handmaid in dairying. It tells us why milk sours and the conditions which favor or prevent souring. It tells us why milk sometimes has offensive odors and will not make good butter or good cheese. It also tells us why sometimes milk becomes practically a poison to infants and adults as well. In other words, the presence or absence of certain species of bacteria determines the character of milk.

It will help very much to an understanding of Prof. Connell's paper for the reader to remember that bacteria are not animals or bugs, but are in fact the very lowest, microscopical forms of vegetation that grow, develop and multiply under very similar conditions that grains and grass and weeds grow, develop and multiply in our fields. For example, Prof. Connell speaks about controlling the development of undesirable bacteria in milk by seeding it with the lactic acid developing species, very much as we speak about corn and oats and other crops of grain getting the start of the weeds and keeping them down.

Pasteurization is simply applying enough heat to kill the bacteria which may be present, just as boiling, or hot, water, if poured upon plants, will kill them, The degree of heat used in pasteurization is not sufficient, however, to kill the spores or seeds of many species of bacteria, just as water hot enough to kill a living plant, will not kill the seeds of that plant.

Sterilization differs from pasteurization simply in the degree of heat applied and its duration. Thus, when the surgeon talks about sterilizing his implements and the dairy bacteriologist about sterilizing the vessels which come in contact with milk, they mean simply that they have been subjected either to such a degree of heat, or have been treated with some antiseptic to a degree which not only kills all the living bacteria, but also effectually destroys the germinating power of the spores or seeds. Dairy cleanliness implies not only removing all visible dirt, as that word is commonly understood, but in applying such a degree of heat to the utensils as will completely exterminate bacteria and bacterial spores.

A farmer easily understands what will happen if he allows a single burdock-burr to grow in his soil. Nothing short of eternal vigilance will prevent the multiplication and spread of this weed. It is much the same with bacteria, for example, in the milk can, except that in the case of the burdock weed, the multiplication is comparatively very slow, whereas with the bacterium in the milk can, the growth and development is astonishingly rapid and increases in a geometrical ratio.

Looked at from this point of view, what Prof. Connell says about temperatures favorable and unfavorable to the growth of bacteria, becomes perfectly plain and simple. Certain kinds of weeds will thrive in the soil of our fields at a comparatively low temperature, others can make no growth whatever until the warm weather sets in, and then they shoot ahead marvelously. Most fortunately for us, in this respect as in so many other respects, nature has so ordered matters that with care and prudence and vigilance, we can keep down the weeds in our fields to such an extent that they will not seriously interfere with our regular crops, and by the exercise of the same virtues we can produce and hold and transport milk without serious impairment from bacteria.

These problems should receive at this time the very serious consideration and attention of those dairymen who are delivering cream to factories from hand separators. If they will take proper precautions in milking and, after that, take proper care to keep the cream cool and have it transported to the factory often enough and with proper precautions against the weather, the farm separator plan of running a creamery will take precedence over all other methods.

Again, we urge every reader to give Prof. Connell's paper not mere cursory reading but careful study.

THE COOPER SALE OF JERSEYS.

The great Cooper sale of Jerseys at Linden Grove, Penn., came off as advertised, May 30th, and resulted in the sale of 107 animals at an average price of $292 each. The bull Forfarshire topped the sale at only $1,750, whereas, last year $7,500 was paid for Flying Fox, an animal in no way superior probably to Forfarshire. This price is also some $500 less than Mr. Cooper paid a few days ago for Golden Fern's Lad; all of which goes to show that the top prices obtained for the so-called "plums" at auction sales depend quite as much upon the spirit of the purchaser as the merits of the animals themselves. Forfarshire went to Filston Farms, Glencoe, Md. Filston Farms is primarily a dairying establishment, furnishing high grade milk to the citizens of Baltimore, but this purchase of Forfarshire and eight other animals at the Cooper sale indicates that the management there intends that for the future, as for several years in the past, Filston Farms is not to be outdone in the matter of breeding high-class producing Jerseys.

The highest priced cow was Golden Lad's Blue Bell, purchased for Biltmore Farms at $1,725. Mr. Thomas F. Lawson of Mass., who paid $7,500 last year for Flying Fox, paid $1,050 for Flying Fox's Foxhall, and Dr. C. E. Still of Missouri, came in second on females, paying $1,400 for Flying Fox's Brown Beauty.

In this sale of 107 head, only five animals brought $1,000 or more. Eight animals sold between $500 and $1,000 and twenty-three sold for $100 or less. These last, of course, were all youngsters, but none the less, they justify our contention that it would be a profitable practice for more plain dairymen to be represented at these great auction sales, where there is always opportunity to secure the very choicest breeding at prices merely nominal compared with the sums realized for the more noted and mature specimens.

INJURED UDDERS AND TEATS.

H. E. Cook, one of the noted dairymen of New York, states in the *Rural New Yorker* that one of the serious problems that confronts every cow milker " is the loss of teats and udder trouble." He says farther:

"This question in an institute "question box" is second only to feeding. In our own experience it annually foots up a heavy loss. No one cause seems responsible. A variety of mistakes and accidents are effectiev, some of them I must acknowledge due to ignorance, lack of care and to that class of happenings that could have been prevented. My hindsight is good and foresight poor, hence many of these mistakes. Poor milking or harsh milking, a lack of perfect uniformity in feeding, a disposition to feed high when prices are high, excessive use of rich nitrogenous grains, cows out in a cold day or cold rains are all responsible, and a cause more prolofic than all these, operating with them, is an organic weakness of the udder. Good cows are those with large udder capacity. These are the animals from which we raise calves and so intensify the weakness. All of these things look the every day business farmer in the face, and must be met"

We wonder if Bro. Cook does not use the old-fashioned stanchion? We see he does not enumerate that as one of the causes, yet in our experience we have found it the most prolific of all causes in the creation of injury to teats and udders.

Since we have discarded the stanchion and that is over twelve years, we have not had a single case of injured teat or loss of quarter in the udder. Mr. Cook says that in his own experience "it annually foots up a heavy loss."

We would suggest that he try the Model stall or some of the other most excellent substitutes for the rigid stanchion.

So far as we can determine, the only reason on earth why farmers use the stanchion is because it is handy for the farmer. No particular thought is taken as to its effect on the cow. She can't talk and the owner will not take pains to look into the matter.

We are confident also that the cold cement floor will prove a very prolific source of injury to udders unless especial pains is taken to floor it over and thus prevent the udder from coming in contact with the cement.

There are many physiological laws connected with the handling of cows, and it is well to handle the cow in obedience to them.

Mr. Stevens' Home Burned.

Valuable Herd Records Lost.

ED. HOARD'S DAIRYMAN:—I regret to tell you that Elmwood Cottage burned May 19th. Fire caught in roof at 8:30 a. m., a high wind blowing at the time, and in less than 20 minutes the roof fell in. No accidents, all well. We saved contents of 3 rooms. My file of monthly creamery statements was rescued, but a regretable loss is a file of 8 or 9 volumes of HOARD'S DAIRYMAN beginning with the volume containing a complete report of the memorable Battle of the Dairy Breeds at Chicago in '93, giving a good history of the progress of the dairy industry during a period of great improvements in methods of handling dairy products, and caring for dairy cows, also in producing or breeding a better class of dairy cows. Three-hundred- pounds- of- butter- per- year cows, while entirely too few, seem to be more numerous than they were ten years ago. My file of monthly milk sheets containing the record of the milkings of each cow for a period of ten years, was burned. These records consigned cows to the butcher, or retained them in the herd, also changed their relative position in the herd and show a quality in a dairy cow that is not found by measuring with a tape line or weighing the cows on a stock scale. A. M. STEVENS.

Ellensburg, Wash.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Alsike Clover for Seed.

Would you advise threshing alsike clover for the seed and then feeding the threshed hay to cows, for winter feed? What is the approximate value of it for feed?

We have 40 acres of this clover.

You may continue sending me your paper and I will renew soon.

Kendalls, Wis. Mrs. S. M. C.

Clover seed of any variety is a profitable crop even with a medium yield. A profitable yield is seldom or never secured with the first crop. This should be cut for hay and the second crop, if any, reserved for seed. The ripened, weather-beaten clover straw or haulm has comparatively little feeding value. All kinds of stock will pick it over more or less and derive some benefit, but we could not advise depending on it as a substitute for good hay, for feeding milch cows.

From Idaho.

Mr. M. G., of Woodland, Idaho, in sending us a continuation of his subscription at short rates, contrary to what is a common report in these parts, writes that "dollars do not grow on the bushes in Idaho." However, he is considerably interested in the cow business, although at present he has only five head of cattle and one of them a steer; but one of his neighbors, a little further advanced in dairy practice, has a square silo with round corners and "a Jersey bull of the vest pocket size."

Under these conditions our correspondent requests some suggestions for arranging a barn for ten or twelve cows, four horses, silo, small granary, etc., etc. Size of barn to be 24×36, with 16-foot shed on south side and west end.

We do not quite understand what our correspondent means by the shed on the south side and west end, whether it is to be open or closed, and in the latter event, used for stabling cows and horses. Open sheds are not so much in demand by dairymen in recent years as they were by our fathers and grand-fathers, for experience has taught us that the better place for the dairy cow, when the weather is such that she cannot remain out of doors, is in the closed, well-ventilated stable. If, therefore, our friend's suggestion for the shed is to have it enclosed and serve for a stable, we suggest that it would be more economical and better in the long run to make a full sized barn and dispense with low sheds. In planning a stable, we like to allow three and one-half feet space for each cow and five for each horse. Twelve cows will, therefore, require forty lineal feet for standing room and four horses twenty feet. We prefer building the silo separate from the barn and connected with it by a hall or alley from six to eight feet wide and as long as may be necessary. We suggest, therefore, that our correspondent plan to build a barn about fifty feet long and thirty-four feet wide, that he arrange to stable his cows on one side of this barn and devote the other to horses, grain-bins, granary and box-stalls, or better yet, use the upper floor for granary, reserving all of the space below for stabling, storage and passage-ways.

As to Cement for Stable Floors.

Being about to build new stables for dairy herd, and not being entirely satisfied whether to use wood or concrete for surface of stall platform, advice is requested on two points.

Why not make front half of platform with two-inch plank surface, and rear half, concrete, being careful to have roughened surface to hold bedding? In New England, bedding is very scarce, and we are quite certain not to have enough so that knees can be properly protected from contact with concrete, but will try to have reasonable amount to cover rear half.

What is proper length of platform for average Guernsey cows, pure bred or grades? We plan to use the Bidwell stall, or equivalent.

NUTWOOD FARMS.

New Market, New Hampshire.

See the answer to C. H. H., Mount Joy, Pa., in this issue. From what is said there, it follows that we would especially object to the use of concrete as suggested in the above inquiry. If there is any part of the anatomy of a cow which needs exceptional protection, it is the udder. This is one reason why cows should not be permitted to lie out in cold and frosty nights, or be subjected to cold rains and driving storms. The udder is a very sensitive organ, and, if the concrete floor is used, a double supply of bedding should be interposed between such a floor and the udder. Several instances have come to our knowledge recently, where parties using and heretofore commending concrete floors have found it expedient to cover the standing platform with boards or plank.

The average Guernsey cow as regards length of body is an uncertain quantity. A platform four and one-half feet wide would probably accomodate the greater proportion of such cows, but undoubtedly, some might require as much as five feet, and, for others, four feet would suffice. A very good way to fashion a platform, is to make it four feet wide at one end and five at the other.

Plank or Concrete for Stable Floor.

Which would you prefer, plank or concrete floor for cow stable? My stable which at present has a ground floor must be repaired and I would like something better.

It is less than a year that I started taking the DAIRYMAN, but am well pleased with it. C.H.H.

Mount Joy, Pa.

The DAIRYMAN has never advocated, and its Editors have never practiced, the use of concrete floors as a standing platform for cows or stock of any kind. Such a floor has some advantages from a sanitary point of view, but in our opinion, these are outweighed by the disadvantages. Concrete or stone of any kind is a very excellent conductor of heat, as one can easily determine by placing his hand upon a stone, or standing bare footed upon a concrete floor. Such a floor absorbs the heat from the body, unless very thoroughly and completely protected by an abundance of bedding. Cement is all right for gutters, drive ways and mangers, but for drive ways and walks should be left rough, that is, should not be troweled down smooth.

Jerseys and Guernseys

Will you be kind enough to inform me what is the difference between the Jersey and Guernsey breeds? Which breed holds the highest record for butter fat? I have six of what I call grade Jersey and some people say they are Guernseys. Hope I am not asking too much for a new subscriber. J. W.
Provo City, Utah.

It is a somewhat difficult matter to express in words just what are the precise differences between the Jersey and Guernsey breeds of cattle. Both breeds are especially noted for giving moderate amounts of milk containing more than the average per cent of butter fat, and consequently, relatively smaller proportions of other milk solids. This circumstance tends to make them relatively more economical producers of butter than the cows of breeds especially noted for large flow of milk containing smaller percentages of butter fat. As a rule, the Guernseys average a trifle larger than the Jerseys and are of a more quiet disposition. There is less variety of color among them than among the Jerseys. They are universally of some shade of fawn with more or less white markings, and more frequently than otherwise, have a white shield in the forehead. With very rare exceptions, they have buff noses. The Jersey on the other hand, almost invariably, has a black nose encircled with a ring of light or mealy colored hair. In color they vary from almost a pure black through all the gradations to a very light fawn, and quite frequently, developing into light squirrel gray. They are also very often of broken color, white and black, or white and fawn. This lack of uniformity in color has been the cause of much regret among some Jersey breeders, and not many years ago, there was a sort of a crusade against the broken colored animals, and even to this day, the solid colored animals find the readiest sale among average buyers. The better informed Jersey breeders and the better informed Jersey dairymen pay little or no attention however to this matter of color, but value an animal for its dairy potency.

It is impossible to say which breed holds the highest record for butter fat, as so few of the so-called records have been made under similar conditions and supervised and authenticated under similar rules and regulations. There are so-called records for cows of both breeds that challenge credulity. At the World's Fair in Chicago, the average test for Guernsey milk was 4.285+%; for Jersey milk, 4.81+%. At the Pan-American Exposition in Buffalo, Guernsey milk averaged 4.60%, and Jersey milk, 4.58%.

Siloing Small Lot of Alfalfa.

I have an acre of alfalfa, medium heavy growth, and unless the weather changes it will be impossible to cure it (it is just beginning to blossom.) I also have a small silo, 10 by 20 ft. in which there is about 10 ft. of silage. Would it be possible to ensilo this small amount of alfalfa, or had I better wait a little and run my chances in curing it for hay. I am afraid this small amount would not pack sufficiently to keep well. M. L. S.
Kankakee, Ill.

We do not feel justified in advising this inquirer to attempt to preserve so small a first crop of alfalfa in the silo. We cannot say that it might not be fairly successful, but on the other hand, like the inquirer himself, we have very serious doubts whether it would pack sufficiently to insure good keeping unless pretty heavily weighted or very thoroughly tramped and then securely covered.

Jersey Herd Book Register.

I have recently purchased a herd of Jerseys and wish to know if there is such an article as a herd book, similar to the year book for horses?

Would you consider a bull by Recorder 29239, dam Columbiana, well bred for service in a milk herd? H. E. K.
Waupun, Wis.

Just what the "Year Book for Horses" may be, we are not advised, but if our inquirer has reference to books of registry or pedigrees for the different breeds of cattle, his inquiry may be answered in the affirmative. The American Jersey Cattle Club, J. J. Hemingway, Secretary, No. 8, West 17th St., New York City, publishes the official register for Jersey cattle, and can furnish copies of recent volumes. Full sets are difficult to obtain.

The bull referred to is of excellent breeding and fit for use in any herd.

Alfalfa Silage for Colorado.

Am very much interested in silage and believe it will make this country a good dairying country. We raise abundance of alfalfa, and that and corn silage I believe will make dairying pay here. I would like to know more about silos. Does not alfalfa silage when put in silo before blossoming, when fed to cows wet, bloat them? We have a great deal of trouble here with bloat, when we feed half matured alfalfa, if it gets wet. There is no silo in this part of the country, do you think it would pay here to have them? W. E. C.
Broomfield, Colorado.

We are unable to answer the specific questions submitted by this inquirer, as we have had neither experience nor reports from others along this line. On general principles, we should say there need be but little fear on this score as the feeder has the matter under personal control at all times. If any of our readers can throw any light on this topic, we should be very glad to hear from them. Meantime we may say that alfalfa has been very successfully siloed for many years, especially in California, and unless there is an early change in the weather, promising us a cessation of the frequent showers and heavy rains, which have visited this section of the country so frequently the last few weeks the editors will feel compelled to put their first crop of alfalfa into silos.

Belt or Turbine Separator.

For a dairy of 20 to 25 cows, which would be the best to buy a separator, run by steam, or by belt power as I now have a gasoline engine, and expect to churn my own butter?
Bryan, Ohio. H. J. N.

As the writer has a garoline engine and would find it necessarv to put in a steam boiler to run a turbine separator it will probably be better under the conditions to buy a belt separator as it can be run by his gasoline engine.

Storing Cut Hay.

As we like to feed cut hay to our cattle in winter we thought that if hay could be cut as it is brought from the field it would save one handling. As we have never tried this method, or know of any one else who has, we wonder whether or not you had ever heard of such a thing being tried and if so, with what success?
Delaware, MIDDLETOWN FARMS.

We have never tried this method of storing hay nor do we know of anyone who has, but on general principles, we can see no good reason why it might not be successful. It is not an uncommon thing to store oats in this way and it is said to be a sure preventive against mice. Hay cut in this manner would not pack as closely as when put into the mow full length.

Rearing Calves on Skim Milk.

Find enclosed 5 cents in stamps, for which, send me a milk sheet, for 10 cows. I am a new student in your class. and I would like to know what is the objection to turning calves on grass, if I spray to keep off flies? Would you advise feeding oil meal with skim milk to calves, how do you feed it, and how much? Thanks to you, I am keeping a record of the performance of each cow.
Shinglehouse, Pa. E. H.

There is no objection to turning calves on grass, provided, they are not only protected from flies but have opportunity to get out of the hot, blazing sun of mid-summer. Unless there is natural shade in pastures, sheds should be erected under which they can get away from the scorching summer heat.

Oil meal makes a very good addition to skim milk for calves, but it is not quite as good, in our judgment, as ground flax seed and no better, at least, than germ oil meal. At first, the oil meal and the flax seed, should be thoroughly scalded before mixing with the milk. For the young calf a small teaspoonful is all sufficient. As the calf grows

"ADVERTISEMENT."

LEARNING THINGS.

We Are All in the Apprentice Class.

When a simple change of diet brings back health and happiness the story is briefly told. A lady of Springfield, Ill., says: "After being afflicted for years with nervousness and heart trouble, I received a shock four years ago that left me in such a condition that my life was despared of. I could get no relief from doctors nor from the numberless heart and nerve medicines I tried because I didn't know that the coffee was daily putting me back more than the doctors could put me ahead.

"Finally at the request of a friend I left off coffee and began the use of Postum and against my convictions I gradually improved in health until for the past 6 or 8 months I have been entirely free from nervousness and those terrible sinking, weakening spells of heart trouble.

"My troubles all came from the use of coffee which I had drunk from childhood and yet they disappeared when I quit coffee and took up the use of Postum." Name given by Postum Co., Battle Creek, Mich.

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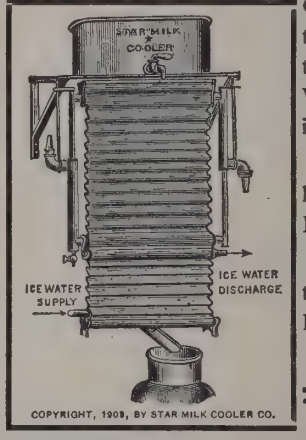
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older and larger, this may be gradually increased until, at four or six months, the amount may be a full tablespoonful twice a day.

Clean Milk for City Use.

Just at the present time we seem to be on the eve of a revolution in the methods that are being used in handling the milk supply of cities. The authorities are discovering that there is a direct relation between unclean milk and the city health. The only trouble in this crusade is that the producer is being held responsible almost entirely for the quality of the milk. He is, no doubt, to blame to a large degree, but the methods of transportation and handling in the city should certainly come in for their share of the trouble and not put the whole burden on the shoulders of the dairyman. The following gives the view of the subject from the viewpoint of the city milk inspector:

In many of the great cities of this country the milk supply is closely connected with the health and life of the people. This is especially true of the babies in great cities like Chicago. Recently the milkmen of that city have put into force a rule of once a day deliveries. As a result, disease and death have come to many children, as much of the milk is delivered too sour to be used, so the health department claims. Of course, if the milk were clean and cleanly handled it would keep for more than twenty-four hours. But the milk is in such poor condition that it will keep for but a few hours in warm weather. The Board of Health warns the public that the dirty milkman is more dangerous than the dishonest one. An official of the Board of Health said: "The problem is the most serious the department has faced in years. It is a matter of life and death. It is practically impossible to keep milk for twenty-four hours in the congested districts, and it is in these districts that the greatest infant mortality results. The people there seldom are able to purchase ice. We believe that the milk drivers will see the dangers of the situation and give the problem serious consideration."

According to the department's statistics, close milk inspection during the last six years has brought a decided improvement in the milk supply of the city. During the previous six years, before stringent methods were enforced, there had been 66,003 deaths of children under 5 years of age in the city. During the six years now closing there have been but 51,046 such deaths. The under-5-years population, according to the federal census, increased 30 per cent between 1890 and 1900. So that on this basis, instead of 51,046 deaths in the second six-year period there would have been, had the earlier death rate continued, 85,083 deaths.

Sour milk is declared to be the cause of the increased death rate recently among babies. One of the health commissioners of Chicago asserts that the increased death rate is due to intestinal diseases caused by the fermentation set up by the attempt to digest sour milk. Chief Milk Inspector T. F. Grady of Chicago says: "Germs thrive wonderfully in the milk detained by the flakes of rust left after the can has been washed. In this way the supply for a whole neighborhood is often polluted, the children being the greatest sufferers. I have devised a red label which is to be pasted tightly on every rusty milk can coming into Chicago. The can will go back to the farmer and his name be retained. If that can ever comes back it will be smashed and the milk in it poured out, as well as any other milk that farmer sends in. By keeping his name we can tell who uses rusty cans and we shall condemn his whole supply for fear of missing the rusty can. The consequences are too grave to be overlooked. We intend also to post a circular on all milk platforms warning dealers that they must sterilize their cans before sending milk in them to Chicago. Sour milk is very common. It might be supposed that formalin would be used to counteract the tendency to sour, but careful tests have revealed none."

The war for clean dairy products should go on till we have not only pure butter and cheese, but pure and clean milk delivered to our cities.—*Farmers' Review.*

A Silo for a Sixty-five Acre Farm.

ED. HOARD'S DAIRYMAN:—I am thinking of building a silo and would like to know how large a one I need on a sixty-five acre farm, all tillable land. Am keeping twelve cows at present. Would like to known if by building a silo I could make enough to pay to keep a hired man the year round.

I enclose cut of a silo, but think it is most too expensive. Could I build a cheaper one and have it answer the same purpose. I can buy good hemlock lumber at $14 per thousand and select 2×4's for $15. Silo could be built eight feet in the ground. AN OLD SUBSCRIBER.

Omro, Wis.

It is not number of acres but number of animals to be fed which determines the proper size of silo. Sixty-five acres of tillable land about Omro, Wis., can easily be made to support forty cows and other stock in proportion. As stated in a recent issue of the DAIRYMAN, a very good rule for estimating the required size of a silo is to allow one cubic foot of space per day for each animal to be fed. Thus, for twenty cows to be fed two hundred days in the year, one would need to provide four thousand cubic feet of silo space. For this number of cows, we should advise building a silo fifteen to sixteen feet in diameter and twenty-five to thirty feet deep.

The style of silo shown in the cut and descriptions accompanying this inquiry, can be highly commended, but it is also true that a very serviceable and fairly durable silo can be made at much less cost, and it may be either circular, or rectangular with the cut off corners, as so often explained and shown by illustrations in the DAIRYMAN.

Tarring Inside of Silo.

ED. HOARD'S DAIRYMAN:—I propose to build a silo with sixteen sides, double boarded inside with two thicknesses of inch maple and beech with damp proof paper between the boards; the silo to be 6 wide, 32 feet high. What I wish to know is, will it be necessary to tar the inside lining of boards? It would seem a very disagreeable task to handle the boards fresh tarred.

The silo will be in the barn which has a basement. I can drive into the barn when the loaded wagon will be one-half way to top of silo. So with twice pitching the silage, we can throw the silage into the top of silo. I have experimented with a square silo 6 feet wide by eight feet high, and the silage kept fairly good, one thickness of maple boards, without paper, and last summer I lined this square silo with common tar paper and sprinkled the silage as put in, and had very little spoiled silage. This 6×8 silo furnished enough for my three cows all winter but the silage next the tar paper smelled strong of the tar.

I have read about others painting inside of silos with tar which I suppose would not be likely to ever get dry inside of a silo.

My cows ate the silage which smelled of tar as I could not well separate it from the other but I had rather they do not have to eat tar silage. How long do you think the inside lining of proposed 32 ft. silo will last without tar? S. E. R.

Pentwater, Mich.

It was quite the custom a few years ago to paint the inside of silos, and for this purpose gas tar thinned with gasoline was used. It is, however, an open question at the present time whether this practice was particularly beneficial. Present theories are that the sooner the lining of a silo can dry out after the silage is removed, the better will it be for the lumber. The lining of a silo is not such an expensive matter as to require very serious consideration. A more important matter perhaps would be the choice of paper to place between the two thicknesses of lining boards. The common tar paper is very easily and very quickly destroyed by the acids of silage and we suggest to this inquirer that he correspond with the Standard Paint Company, Department H. 100-Williams St., New York City, N. Y. The Senior Editor, acting upon the advice of Prof. King in the premises, has used the paper manufactured by this Company, both in his silo and for lining stable floors, with very great satisfaction. The present writer's experience is that pine lumber on the inside of the silo will last from eight to ten years without renewal.

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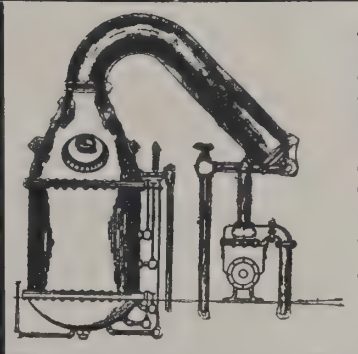


represent the same maximum of superiority found in all cans bearing our famous Milk Can Trade Mark. They are made to be the **neatest, cleanest, strongest** and **most wear resisting** cans upon the market. It will pay you to know more about **Buhl Cans. Remember** the Buhl is the only can in the world that is made with the **Buhl "Victor" Can Breast** and the **Buhl "Victor" Round** handle that cannot cut the hands. We shall be pleased to mail you special circulars and other matter, which contain the helpful, money saving information you should have. When you read this you will know why there are more **Buhl Factory Cans** in use than of all other makes combined. Write us direct about cans and we will tell you where you can get them.

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Milk Condensing Machine



I supply the most improved machinery and most successful processes for manufacturing all classes of condensed milk and evaporated cream. Factories built complete, put in operation and results guaranteed. If you are interested write for my new illustrated and descriptive catalogue. The only catalogue ever published on the subject.

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I am not associated with any person, firm or company.

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make the way plain in night work or travel. Always shed a strong, clear, white light, with no choking, scoting or smoking.

Over Sixty Years the Favorite.

Made in many styles and sizes for all purposes, as hand lanterns, driving lamps, post lamps for streets, for front of country residences, church doors, etc. CATALOGUE SENT FREE.

R. E. DIETZ COMPANY, 94 Leight Street, New York.
Established 1840

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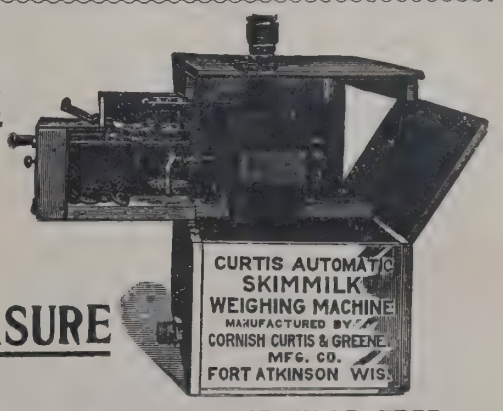
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Often goes to the wrong man for the simple reason that the patrons have no standard of

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and the last man suffers.



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Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for....
DE LAVAL ALPHA SEPARATORS.

Fort Atkinson, Wis.

Illinois Herd Records.

Report of Herd "B"

ED. HOARD'S DAIRYMAN:—This herd was composed largely of common native stock and grade Holstein cows. There were a number of fairly good dairy cows in the herd and a number of promising heifers. The cows weighed on an average about 1,050 pounds. The general health of the herd was good. A few of the cows aborted during the year and some of them had caked udders, and a few of them were sold on this account.

A number of them were disposed of so early in the test that their records are not calculated with the rest of the herd, but are given separately. On the whole it can be said that the cows received good care and were fairly well fed throughout the year.

The cows were fed from Oct. 1st to Nov. 1st, some ear corn, stalks and pasture. During the months of November and December, the cows received the following ration:

FOOD.	Lbs.	Dry matter.	Protein.	Carbohydrates.	Fat.	Cost.
						Cents.
Bran	6	5.31	.774	2.406	.204	3.4
Corn meal	6	5.35	.474	4.002	.258	6.0
Millet hay	8	7 04	.256	3.880	.080	4.0
Corn stover	10	5.95	.170	3.240	.070	2.0
Total nutrients.		23.65	1 674	13.526	.612	17.4

This ration would have been considerably better if two pounds of oil meal or gluten meal had been substituted for 3 pounds of corn meal and would have cost no more.

During the month of January and February the fresh cows received 7 pounds of bran, 4 pounds of corn meal, oat straw and corn stover *ad libitum*.

In March and April they received a ration about as follows:

FOOD.	Lbs.	Dry Matter.	Protein.	Carbohydrates.	Fat.	Cost.
						Cents.
Bran	6	5 31	.774	2.406	.204	5.4
Gluten feed	3	2.70	.699	1.521	.081	3.3
Clover hay	5	4.23	.340	1.790	.085	2.5
Corn stover	8	4.76	.136	2.592	.056	1.6
Total nutrients		15.00	1.949	8.309	.436	12.8

Oat straw *ad libitum*.

This is a very good ration. It is a balanced ration and contains enough nutrients for cows giving large flows of milk. If some succulent food such as roots or silage had been added, it would have been still better.

In May the fresh, cows or the ones giving the most milk, received the following ration:

FOOD.	Lbs.	Dry Matter.	Protein.	Carbohydrates.	Fat.	Cost.
						Cents.
Shorts	7	6.17	.854	3 50	.266	6.3
Gluten feed	3	2.70	.699	1.521	.081	3.3
Clover hay	5	4.23	.340	1.790	.085	2.5
Millet hay	8	7.04	.256	3.880	080	4.0
Total nutrients		20.14	2.149	10 691	.512	16.1

Oat straw *ad libitum*.

This is another very good ration and it supplies enough nutriment for a cow producing 350 lbs. of butter fat a year. Each cow in the herd during the rest of the year received 2 lbs. of shorts a day, besides plenty of blue grass pasture.

Hartwell No. 2 yielded the most butter fat. She gave 6,197.5 lbs. of milk, 3.99 per cent fat, 247.47 lbs. of butter fat or 288.71 lbs. of butter.

Brindle No. 1 yielded the least butter fat. She gave 3,731.9 lbs. of milk, 2.88 per cent fat, 107.50 lbs. of butter fat or 125.41 lbs. of butter.

The average production for each cow in the herd was 5,360 lbs. of milk, 3.52 per cent fat, 188 lbs. of butter fat or 220 lbs. of butter.

Spotty No. 1 charged to produce 100 lbs. of milk, 40.7c and 12.6c for one lb. of butter fat.

Red Bird charged to produce 100 lbs. of milk, 70.9c and 23.1c for one lb. of butter fat.

The average cost of this herd to produce 100 lbs. of milk was 57.0c and 16.1c to make one lb. of butter fat.

Spotty No. 1 gave a profit of $25.32 and Red Bird charged $1.28 for her board.

The average profit of each cow was $12.12.

TABLES GIVING THE RECORD OF EACH COW IN HERD "B."

GROUP I.

PRODUCING LESS THAN 150 LBS. OF BUTTER FAT.

NAME OF COW.	Age, Years.	Breed.	Date of Calving	Days in Milk.	Lbs. Milk.	Per Cent Fat.	Lbs. of Fat,	Lbs. of Butter.
Brindle No. 1	15	Native	Feb. 2, 1902	203	3731	2.88	107	125
Little Lamie	8	"	March 1, 1902	275	3956	3.05	120	140
Belle	3	Grade Holstein	Nov. 10, 1901	290	4412	3.38	149	174
Red Bird	6	" "	Sept. 30, 1901	300	4974	3.04	151	176
Harry Cow	10	" "	Feb 3, 1902	240	4891	3.14	153	179

GROUP II.

PRODUCING LESS THAN 200 LBS. OF BUTTER FAT.

Brindle No. 2	4	Native			4683	3.43	161	187
Alice	3	Grade Holstein	Nov. 13, 1901	287	4231	3.97	168	196
Sleepy Eye	5	Native	Dec. 25, 1901	320	4190	4.20	176	205
Dora	6	Grade Holstein	March 21, 1902	310	4989	3.70	184	215
Hartwell No. 1	8	Native	May 27, 1902	270	4421	4.20	186	217
Black No. 1	8	Grade Holstein	Jan. 28, 1902	275	6179	3.05	188	220
Black No. 2	4	" "	Feb. 21, 1902	340	5474	3.52	193	225
Bottle	5	" "	April 11, 1902	300	5450	3.66	199	232

GROUP III.

PRODUCING LESS THAN 250 LBS. OF BUTTER FAT.

Pet	5	Grade Holstein	Feb. 12, 1902	260	6793	3.10	211	246
Spotty No. 2	8	Native	Sept. 24, 1901	300	6720	3.34	224	262
Roaney	7	"	Nov., 7, 1901	305	5705	3.94	225	262
Clara	5	Grade Holstein	Oct. 1, 1901	300	6101	3.89	237	277
Beauty	4	Native	Oct. 5, 1901	305	6402	3.82	245	285
			July 31, 1902					
Spotty No. 1	12	"	Feb. 21, 1902	280	7711	3.20	247	288
Hartwell No. 2	12	"	March 1, 1902	267	6197	3 99	247	288

TABLE GIVING THE PROFIT OR LOSS OF EACH COW, HERD "B."

GROUP I.

KEPT AT A LOSS.

NAME OF COW	Lbs. of milk.	Per cent fat.	Lbs. of fat.	Lbs. of butter.	Gross returns.	Cost of feed.	Net loss.
Red Bird	4974	3.04	151	176	$33.99	$35.27	$1.28
Belle	4412	3.38	149	174	33.26	34.30	1.04
Brindle No 1.	3731	2.88	107	125	25.41	26.41	1.00

GROUP I I.

KEPT AT A SMALL PROFIT.

Alice	4231	3.97	168	196	$38.61	$34.30	$4.31
Little Lamie	3956	3.05	120	140	27.32	21.95	5.32
Harry Cow	4891	3.14	153	179	35.00	27.93	7.07
Sleepy Eye	4190	4.20	176	205	40.53	31.67	8.86

GROUP III.

KEPT AT A FAIR PRORIT.

Black No. 2	5474	3.53	193	225	$44.28	$32.91	$11.37
Spotty No. 2	6720	3 34	224	262	50 85	38 51	12.34
Roaney	5705	3.94	225	262	52.43	39.46	12.97
Dora	4989	3.70	184	215	39 51	26.40	13.11
Black No 1	6179	3.05	188	220	44.36	30.71	13.65

GROUP IV.

KEPT AT A VERY FAIR PROFIT.

Bottle	4550	366	199	232	$42.79	$27.37	$15.42
Beauty	6402	382	245	285	53.62	36.79	16.83
Hartwell No. 1	4421	420	186	217	38.24	21.10	17.14
Brindle No. 2	4683	343	161	187	38.52	20.85	17.67
Clara	6101	389	237	277	54.85	35.95	18.90
Pet	6793	310	211	246	48.60	28.18	20.42

GROUP V.

KEPT AT A GOOD PROFIT.

Hartwell No. 2	6197	3.99	247	288	$55 47	$30.49	$24.98
Spotty No. 1	7711	3.20	247	288	56.73	31.41	25.32

Elgin, Ill. A. J. GLOVER.

Live Stock at the Louisiana Purchase Exposition.

Provision Made for a Premium List.—Classification and Prizes on a Scale Never Before Attempted.—A Quarter of a Million Dollars Allotted for the Competition.

The Louisiana Purchase Exposition, in recognition of the magnitude and importance of the Live Stock Industry, and appreciating that St. Louis, the seat of the World's Fair, 1904, is practically the geographical center of the largest improved stock-producing area on the globe, has appropriated a quarter-million dollars to prizes for which the world's stockmen are invited to compete.

This vast sum makes possible a classification much in advance of any heretofore attempted, with prizes on a scale of generosity before unknown in the history of expositions. The largest sum previously offered by a like enterprise was $142,500, at the Columbian, in Chicago in 1893.

In the classification, every branch of improved animal industry is to have its proportionate recognition, whether it be the Percherons, Short-Horns, Pigeons or Pointers; whether the meek-eyed cows from the Channel Islands, or descendants of the American bison that once made populous the plains beyond the Missouri; whether the petite ponies from the Shetland Isles or the robust mule that has in recent years so rapidly advanced in public esteem by his proven usefulness in war, no less than in the prosaic paths of peace.

For the accommodation of the array of exhibits which will compete for the prizes offered, the management have allotted thirty acres of the most desirable ground in all the Exposition tract of over twelve hundred acres, most of which it overlooks, and upon this hill will erect the requisite buildings, combining the desired modern features of utility and adaptation with harmonious and pleasing architectual effect.

The building scheme will comprehend between forty-five and fifty structures, including thirty-three barns to accommodate eighty or ninety horses and and cattle each; several others with slightly less capacity, four octagonal barns, 100 x 100 ft., to accommodate cows to be used in a dairy demonstration, with silos and feed barns, a grand amphitheater and arena, 250 x 450 feet, for an exhibit ring, and a building for puplic sales of live stock and for stockmen's conventions, in which will also be made the exhibits and demonstrations with relation to live stock under the auspices of the Association of American Agricultural Colleges and Experiment Stations.

Aside from those usually shown various classes of horses not previously taken up at Expositions, such as those for artillery, calvalry and ambulance use in the military service, fire department, express and ambulance horses for city purposes, will be given the consideration their importance justifies.

Cattle, sheep and swine, as with horses, will be given such a wide range of prizes as to reward generously, independent of the specials given by states and breeders' organizations, the exhibitor, the breeder and the feeder, aggregating offerings so inviting that they must attract the choicest products that pasture and feedlot, supplemented by human skill, have yet evolved.

One of the most interesting and instructive features planned for the Exposition will be a comparative test of breeds of cows with reference especially to their dairy qualities in both butter and cheese production, and incidentally their gains in flesh.

Poultry, pet stock, dogs and the minor animals and fowls are to be recognized more fully than has ever before been done, and every energy will be bent to have at St. Louis in 1904, along with the other magnificient arrays of the world's most interesting and best, the most extensive and instructive presentation of animal exhibits ever assembled. * * *

Cash Value of Sharp Criticism.

P. H. Kieffer, of Strawberry Point, Ia., is a creamery butter maker, who is searching for all the intelligent criticism he can get on his work. He realizes that there is a cash value in such criticism. He was one of the butter makers who entered the six months' Educational Test, and he won handsome distinction in it. At Milwaukee he told what he had learned in that test, of which the following is a summary:

"I sent my first tub of butter to the test

234 ACRE FARM FOR SALE

One-half mile from Janesville, Wis New 12 room house, good barns, etc. Fine black soil. A great bargain and if taken at once the purchaser gets the rent. It is one of the best farms in the famous Rock River Valley and will be sold on easy terms to a good man.
WILSON LANE, Janesville, Wis.

CASH FOR FARMS We will turn your farm, business or city property into ready money at once irrespective of location; money sent to your home bank; you can step in, close the deal and get the cash; send cash price and stamp for necessary papers. Chicago Business Exchange, Real Estate Dept., 167 Dearborn St., Chicago.

FOR RENT 200 ACRE GRAIN and DAIRY FARM 16 miles from Minneapolis and 2½ miles from railroad station. One mile from church and school. Five miles from creamery, on milk route where your milk and cream is taken up daily. On free daily mail route. Five miles from beet factory where beet pulp can be had at 50c per ton. Soil a deep, heavy black loam, clay subsoil; 40 acres in fine clover; 100 acres in crops; 60 acres in wood pasture. Borders on one lake; small lake on place; small stream connecting lakes. New windmill. Eight room house. Splendid barn for 40 head of cattle and 8 horses, and 60 tons of hay. Corn cribs, grain bins, ice house, etc. Will rent for a term of years to party who has cattle to put on the place. Address
C. L. SMITH,
Court House. MINNEAPOLIS, MINN.

GINSENG CULTURE BETTER THAN A GOLD MINE
You have the land, I have the seed and plants. Get rich quick. Others do—you can do the same. $5,000 to $20,000 made in from three to five years cultivating Ginseng. Will pay from $16,000 to $30,000 per acre. A medical root, will grow on farm or in your gardens, no experience necessary. Write for particulars.
G. BETTS, Ginseng Gardens, EVANSTON, ILL.

ILLUSTRATION.

BLIZZARD CUTTER AND SHRDDDER.



We are picturing here a piece of machinery that makes direct appeal to every corn raiser who wishes to get the greatest value out of the fodder. It is the Blizzard Cutter and Shredder, the prize product of the Joseph Dick Agricultural Works, Canton, Ohio. Elsewhere is an advertisement which sets forth in brief the special merits of the machine. It has grown directly out of the need for a single piece of machinery to do everything in the way of fodder preparation. It goes farther and serves equally well for hay and straw cutting. Through its pneumatic tube it elevates to any height, giving it special value for the filling of silos. To many of our readers it is a familiar sight, they being aware from long experience of its great worth in this particular field. To such as are not we suggest writing the manufacturer for the catalogue and learning more about it before silo filling and winter feeding time comes on.

ILLUSTRATION.

VEHICLE ECONOMY.

The word economy has so many different meanings that it is often misinterpreted. In the matter of buying vehicles; to one it may mean doing without altogether; to another, using the old rattle trap affair that long ago outlived its usefulness; another will tell you that it means to buy the cheapest priced style to be found; while another, after careful consideration, will decide that it is true economy to buy from an old established manufacturer who has a deserved reputation for making first-class goods and selling them at moderate prices.



One concern which meets these requirements is our advertiser, the Elkhart Carriage & Harness Mfg. Co., of Elkhart, Ind. We show one of their late patterns above. These people have been manufacturing high grade vehicles and harness continuously for thirty years and during all of that time have sold only direct to the consumer. This fact, taken with the high character of their work, constitutes the truest economy for the vehicle buyer, who thus gets his goods at first hands without paying unnecessary profits. The Elkhart Co. actually manufacture everything they sell and can show the goods. Hundreds of buyers come every year to Elkhart, some from long distances, to select in person, as they more than save their railroad fare on the price. The new catalogue is now out and shows 195 styles of vehicles and 65 styles of harness. It is a book of 224 large pages, showing photographic views of all their styles. From this catalogue one may order as safely as from a store exhibit, for this Company takes all the risk of satisfying the purchaser. A copy will be sent free to any reader. Write to-day and mention HOARD'S DAIRYMAN.

in Chicago in May," said Mr. Kieffer. "I placed it at 96 points, and kept a tub of the same butter in the cooling room, to make my own observations on the day the butter was to be examined by the experts in Chicago. On that day, eight days after I forwarded my tub, I found the tub I had kept had turned acid a trifle, and I began to hope that the tub I had forwarded had got lost, and that I wouldn't hear from it. I got the criticism, however, which was as bad as I had anticipated. Expert D. B. White wrote me that the flavor was unclean, probably because the milk had been poor. There was too much moisture in the butter, and it was a trifle rancid. From this I learned that I would have to look out for butter that scored 96 points, unless the milk was of the best quality.

The June butter, said Mr. Kieffer, was a little milder in flavor, and the butter of each month was better than the preceding months, mainly because of the advice and criticism from the tester, until he scored a perfect butter at the September test. Concluding, he made a hearty appeal for the association to give unanimous support to another test to be begun immediately, and recommended that the secretary be paid a good salary for looking after the work. The test was conducted by the association and assisted by the Department of Agriculture.

The expert said that the poor butter was caused by bad milk. Of course, the patrons were responsible for the quality of the milk. Now the question arises, would they court and accept criticism and advice as to the quality of their milk with the same spirit that Mr. Kieffer accepts it as to his part of the work?

If they could bring their milk to the same tribunal of fearless criticism that the butter maker has to bring the butter, they would soon learn their mistakes as he learns his. It is a pity that the milk production part of butter making, which is just as important as any other, can hide behind the creamery and never hear the verdict the market renders. Yet the patron is responsible as much as the butter maker for the quality of the butter.

DAIRY MARKETS.

ELGIN, Ill., June 8—Butter—Ruled firm on the Board of Trade today, selling at 22c a pound, an advance of ¼c from last week. The output for the district for the week was 828,000 pounds.

CHICAGO, Ill., June 8—Butter—Firm; creameries, 15@22c; dairies, 15@18¼c.

Eggs—Steady; at mark, cases included, 13¾@14¼c.

Cheese—New steady; Twins, 10½c; Daisies, 11c; Young Americas, 11¼@11½c.

Cattle—Prime beeves, 1,250 to 1,500 pounds, 5.30@5.50; choice to extra steers, 4.90@5.25; fair to good export and shipping steers, 4.70@4.95; medium beef steers, 4.40@4.65; plain beef steers, 4.00@4.35; common to rough, 1,000 to 1,200 lbs. 3.50@3.80; good to choice feeders, 3.85@4.70; good to choice heifers, 4.15@4.85; poor to plain stockers and feeders, 2.85@4.00; fair to good cows and heifers, 3.20@4.10; good cutting to fair beef cows, 2.40@3.10; common to good canning cows 1.40@2.35; bulls, poor to choice, 3.20@4.35; veal calves, good to fancy, 5.75@6.75; calves, common to fair, 3.50@5.50; corn-fed western steers, 3.85@5.40; Texas bulls and grass steers, 2.75@3.30; Texas steers, fair to common, 3.85@4.75.

Hogs-Good to prime heavy shipping 5.95@6.07½; good to choice heavy packing 5.80@5 95; plain to choice heavy mixed 5.75@3.90; selected butcher weights 5.85@6.00; assorted light, 150 to 195 lbs. 5.65@5.90; common to good light mixed, 5.65@5.80; thin to choice, 50 to 130 lbs., lots 5.20@5.70; stags and rough lots, 3.60@5.50.

Sheep—Choice to prime native wethers, 5.00@5.30; plain to good mixed lots, 4.00@5.00; fair to prime western yearlings, 5.00@5.75; fair to fancy native and western ewes, 3.85@4 50; plain ewes and breeding stock, 3.25@3.70; culls and tail end stock, 2.00@3.00; native lambs, poor to fair, 3.50@5.50; good to prime native lambs, 5 60@7.00; fair to prime native lambs, 5.60@7.00; fair to prime western lambs, 5.50@7.15; spring lambs, 4.00@7.25.

MILWAUKEE, Wis., June 6—Butter—Creamery—extras, 21½c; firsts, 18@19c; seconds, 16c; process (renovated) 16@17c; whey, 10c. Dairy, fancy, 17c; lines, fresh, 14@15c; packing, 13c; grease, 6@9c.

Cheese—American, new, full cream—Twins, 10½@11c; Young Americas, 11@11½c: Daisies, 11@11½c; Longhorns, 11½@12c; low grades, 9@10c. Brick, fancy, new, 10½@11c; low grades, 9@10c. Limburger—Fancy, new, 10½@11c; low grades, 8@9c; Swiss, drum, old, choice, 15½@16c; drum, No. 2, 13@14c; Block, choice, 14@14½c; block, No. 2, 12@13c.

Eggs—Strictly fresh laid, cases returned, 14c; dirties, 12c; seconds, 10c.

MUSCODA, Wis., June 6—Cheese—Offerings were 311 boxes Twins and 8 boxes prints. Sales: 161 Twins at 10¾c and 150 Twins and 80 prints withdrawn.

APPLETON, Wis., May 28—Cheese—Nineteen factories offered 1 000 boxes of Twins and all except 284 boxes sold as follows: 620 at 10⅜c, and 96 at 10¼c.

HORTONVILLE, Wis., May 28—Cheese—The offerings were 750 Twins and 99 double Daisies. Sales 145 Twins at 10½c, 478 at 10⅜c, and 99 double Daisies at 10¾c. Market active.

PLYMOUTH June 2 -Cheese-Twenty-seven factories offered 3,731 boxes cheese. Forty Ameri-cas were passed on, the balance selling as follows: 428 cases Longhorns, 11c; 2,150 Daisies, 11c; 370 Twins, 10¼c; 193 at 10⅜c; 490 Young Americas, 10¾c, 60 at 10⅝c. Market active and firm.

FOND DU LAC, Wis., June 8—Cheese—Sales at Call Board today: 138 Twins at 10⅛c, 40 at 10¼c and 105 Daisies at 11c, 375 at 11⅛c. Market active.

BRILLION, Wis., June 4 —Cheese—The sales of cheese on Brillion Call Board: 851 Daisies at 11c: 359 Twins 10¼c; 28 at 10⅜c; 36 Young Americas at 11⅝c, 15 at 10¼c; 19 Cheddars at 10c. Market strong and active.

SHEBOYGAN, Wis., June 3—Cheese—On the Call Board here today the offerings and sales comprised 2,384 boxes of cheese as follows: 67 boxes Twins at 10¼c; 1,013 Daisies at 11c; 472 Young Americas at 10⅝c; 165 at 10¾c; 630 cases Longhorns at 11⅛c; 37 at 11¼c Bidding was the most lively of the season.

SHEBOYGAN FALLS, Wis., June 3—Cheese—Twenty three factories offered 2,833 boxes of cheese on the Call Board today and all sold as follows: 26 Twins at 10⅜c, 67 at 10¼c ; 793 cases Young Americas at 10⅝c; 1,021 Daisies at 11c, 918 cases Longhorns, 11c, and 8 at 10⅞c. Market active and firm.

BOSTON, Mass., June 8—Butter—Creamery, western, extra, 23c; western firsts, 22@22½c; dairy, 16@22c; imitation creamery, 17@19c; ladle, 15@17c; box and print, 17@23½c.

Cheese—Choice, 10¾@11¼c; Wisconsin Twins, 10¾@11¼c.

Eggs—Nearby, 21c: western selected, 16¼@16½c; fair to good, 15@16c; Illinois, 16½c; western dirties, 13½@14c.

PHILADELPHIA, Pa., June 8—Butter—Market firm. Solids 23c. Nearby prints 24; western, 23c.

NEW ORLFANS, La., June 8—Butter—Market firm; extras, 22½@23c; ladles 16c.

LIVERPOOL, June 8 —Butter—Good United Sates steady, 75s.

Cheese—American finest, white dull, 54s 6d; colored, quiet, 57s.

Latest quotations for fancy creamery: Baltimore, 23c; St. Louis. 22@22½c; Cincinnati, 23½c; Newark, N. J., 22c; Buffalo, 22½c; St. Paul, 20½c; Minneapolis, 20½c.

UTICA, N. Y., June 8—Market quiet at unchanged prices. Large Cheddars, 2,000 at 10⅜c; small, 3,000 at 10½c.

CANTON, N. Y., June 8.—Cheese — Offered 55 oxes of large cheese; 2,524 Twins and 1,074 tubs b butter. Large cheese sold at 10 3-16c; Twins 10⅜c; ofButter—22½c.

NEW YORK, June 8—Butter—Receipts, 11,612; pkgs.; market . firm; state dairy, 17@21½c; extra creamery, 22½c; creamery, common to good, 18@22c.

Eggs—Recipts, 12,732 pkgs.; market firmer; nearby firsts to extra, 16@18c; western extra, 18c; western, seconds to firsts, 15@17c.

Cheese—Receipts, 4,113 pkgs; market steady; state full cream, fancy, small, colored and white, 10⅝c; large, colored, 10⅝c; large, white, 10½c.

NEW YORK FERTILIZER MARKET.

Acid phosphate	60	@	67½
Phosphate rock, f. o. b. Char'n	5 00	@	7 00
Tenn	3 00	@	4 00
Bones, rough, ₱ ton	16 50	@	17 50
ground	20 00	@	21 00
Bone meal	18		
Bone black, refuse	18 00	@	19 00
Potash, dbl. m're salt 48@53 per cent	1 12	@	1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons	25 00	@	30 00
sulph of basis, 90@98 per cent	2 11	@	2 18
90@98 per cent less than 25 tons	38 00	@	40 00
Potash muriate 100 lbs	1 83	@	1 95
less than 25 tons	36 00	@	40 00
Kainit 25% S. of P. ₱ ton	9 30	@	9 50
less than 25 tons	9 50	@	10 50
Sylvinit, 35@37% P. ₱ unit	41	@	46
Nitrate of soda	2 10	@	2 15
Blood, Dried red ₱ unit	2 55	@	2 60
low grade	—	@	—
Concentrated tankage	15 00	@	16 00
Fish guano, dried	27 00	@	28 00
acidulated	14 00	@	—

BALTIMORE MARKET.

BALTIMORE, June 3—Butter—Notwithstanding there has been a further increase in the receipts of creamery the market has maintained a firm tone since our last issue. The demand both for consumption and storage purposes continues very good. There is no disposition on the part of receivers to force sales, hence it is a case of buy or not, just as you choose. The quality of the stock arriving (with but a few exceptions) has been very satisfactory. Several long lines of extras have gone in the freezers. Firsts—The supply is insufficient to satisfy the demand. Second—Unless well up in quality are slighted. Imitation creamery is very scarce. Fancy stock is in active demand. Ladles, so far this week, have been in more liberal supply; the stock as a rule is not very attractive. Packing stock is in moderate receipt and quick demand when the quality is desirable. Blocks and prints—When fresh and free of garlic meet prompt sale. The market closes fairly active and very firm on all attractive offerings. N. B.—Use nothing but well seasoned clean tubs and be sure to see that they are thoroughly soaked as there is still considerable complaint of mildew and mould. Try and obviate this very great nuisance.

Creamery Separator, extras, 23c; firsts, 22@22½c; seconds, 19@21c. June Creamery, extras, —@—; firsts, —@—; seconds, - @— Imitation Creamery, extras, 19@20c; firsts, 17@18c; seconds, 15@16c, Iowa & N. W. Ladle, extras, 18c; firsts, 16@17c; seconds, 15c. Ohio & Indiana Ladle, extras, 17@18c; firsts, 15½@16c; seconds, 14@15c. Roll, Ohio, extras, — firsts.—@—; seconds, —. Roll, W. Va., extras, — firsts, —@—; seconds, —, Ohio Store packed, extras, 15c; firsts, 14c; seconds, 13½c. West Va. Store-packed, extras, 15c; firsts, 14c; seconds, 13½c. Creamery blocks (2-lb.) extras, 24c; firsts, 23 seconds, 21@22c; Creamery prints (¼ lb) extras, 25c, firsts, 23@24c; seconds, 22@23c. Md. Va., & Penna. Prints, extras, 23c; firsts, 21@22c; seconds, 17@20c. Renovated Butter, extras, 19c; firsts, 17@18c; seconds, 15@16c.

Eggs—With the receipts less liberal and quite a good consumptive demand, there was a firmer feeling prevailing at the close of today's market on all choice to fancy lots. Market closed at 16 cents. Ship in crates instead of barrels and boxes. Please bear this in mind as it will be greatly to your advantage to do so.

Cheese—Receipts liberal; demand irregular; market quiet and unsettled.

N. Y. State—Cheddars, fine, 11@11¼c; choice, 10½@10¾c; fair, 9@10c, Flats, fine, 11¼@11⅜c; choice, 10¾@11c; fair, 9¾@10¾c; Small, fine, 11½@11⅞c; choice, 11@11¼c: fair, 10@10½; Ohio Flats, fine, 10@10½c; choice, 9@9½c; fair, 8½@8¾c; O. Picnic, fine, 10½@11c; choice, 9¾@10c; fair, 9@9½c; Swiss Cheese, (domestic) fine, 15c; choice, 12½@13½c; fair, 9@10c.

301 Exchange Place. G. M. LAMB & BRO.

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 1901

FARM SEPARATORS.

If you are interested in Farm Separators you will find much that is interesting and instructive in the new booklet.

"Be Your Own Judge

How to apply business principles to the testing and selection of a separator." - - - - -

A copy of which will be gladly sent upon application.

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217-221 Drumm St., SAN FRANCISCO.

GENERAL OFFICES: 74 Cortlandt St., NEW YORK.

121 Youville Square, MONTREAL.
75 & 77 York Street, TORONTO.
248 McDermot Avenue, WINNIPEG.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—An experienced man to take charge of milk route. Must be a single man and a hustler. State wages and references. Wanted immediately. S. G TAYLOR, Mauston, Wis. 18-3

Two choice young Guernsey bulls for sale. MRS. A. W. LEHMANN, Neosha, Dodge Co., Wis. 12-8p

Position Wanted—One of responsibility for the combined work and management of manufacturing butter, cheese and process butter. Years of experience. All goods warranted. Address H, care Hoard's Dairyman. 17-3

Wanted—To rent for a term of years, good dairy farm. Large buildings close to town in Southern Minnesota or South Dakota. C. W. WALLINE, Cambridge, Ill. 17-2

Wanted—Two good milkers at once, Germans preferred. $25.00 per month and board. A. B. NOKES, Springfield, Ill. 17-2

Practical Man Wanted—To take charge of an Indiana dairy and push sales. Single man preferred. Must be an up-to-date hustler. Address "INDIANA," care Hoard's Dairyman. 17-3

Are You Color Blind?—If not, you will appreciate the natural golden colored product of the Guernseys. Pure bred bulls and grade heifers for sale. A. H. HINMAN, Allenville, Wis. 17-4

For Sale—Fine herd of dairy cows, three miles from Oklahoma City, O. T. Box 336. 17 2

Position Wanted—Experienced butter maker wishes to change position. Have taken Dairy Course at Ames, Iowa. Good references. Address T, care Hoard's Dairyman. 15-5

A Registered Guernsey Bull 15 months old for sale. A very fine animal. Inquire of J. S. HUNTER, Pickett, Wis. 12-tf

For Sale—Four young registered Guernsey cows, all fresh. J. E. STORY, Stanley, Wis. 11 tf

Wanted—Second-hand De Laval or Sharples Safety Hand (hand size) separators. Never mind if out of order, but must be cheap. CREAM SEPARATOR SUPPLY CO., Council Bluffs, Ia. 16-3

Half Price—Three registered Jersey heifers one year old and under. First check for $100 takes them. Satisfaction guaranteed. WALTER ZIMMARMAN, Moray, Kans. 18-2

For Sale—Davis Cream Separator, 450 lbs capacity, used 2 months, good condition. J. KOHL, Reeseville, Wis. 18-2

For Sale—One No. 3 De Lavel separator in good order, used a short time only. Putting in larger machine. FOREST HOME FARM, Purcellville, Va. 18-2

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

Buff Jersey's latest book on Farm Stock and Dairy Work is full of practical things for practical people. The Silo, how to build and fill; ensilage, its value; soil, crops, variety and how to grow. Swine, poultry and many other subjects ably treated. Send 25c for copy. Monmouth, Ill. 47-tf

Fine Dairy Farm for Sale—Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. T. S. TOMPKINS, Pasadena, Cal. 15-tf

Very Low Rates to California and Return—Via the North-Western Line. First-class round-trip tickets on sale July 1 to 10, inclusive, to San Francisco and Los Angeles. Favorable limits and stop over privileges and choice of routes. The overland limited, most luxurious train in the world, leaves Chicago daily at 8 p m. Less than three days en route. Drawing room and compartment cars, observation cars, dining cars, buffett-library cars (barber and bath), electric lighted throughout. Three trains a day from Chicago to the Coast through without change. Daily and personally conducted tourist car excursions to California, Washington and Oregon. For particulars apply to ticket agents Chicago & North-Western R'y. 16-7

Special Excursion Rates to Colorado, Utah and the Black Hills—Via the North-Western Line. Beginning June 1st excursion tickets will be sold to Denver, Colorado Springs, Pueblo, Salt Lake City, Hot Springs, Deadwood, Lead and Custer, S. D., etc., good to return until Oct. 31. A splendid opportunity is offered for an enjoyable vacation trip. Several fine trains via the North-Western Line daily. Apply to agents Chicago & North-Western R'y. 16 sp

Very Low Excursion Rates to North American Saengerfest at St. Louis, Mo.—Via the North-Western Line. Excursion tickets will be sold at reduced rates June 16th to 17th, limited to return until June 22, inclusive. Apply to agents Chicago & North-Western R'y.

Excursion Rates to Milwaukee, Wis.—Via the North-Western Line. Excursion tickets will be sold at reduced rates June 11 and 13, inclusive, limited to return until June 15, inclusive. on account of State Meeting United Commercial Travellers. Apply to agents Chicago & North-Western R'y.

"Short Jaunts for Busy People" is the title of a handsomely illustrated booklet issued by the Chicago & North Western R'y, briefly describing nearby summer resorts, with information as to summer hotels and boarding houses, railroad and hotel rates, etc. Sent on receipt of 2 cent stamp. Address W. B. Kniskern, Passenger Traffic Manager, Chicago. For rates. tickets, etc., apply to agents Chicago & North-Western R'y. 18-sp

Creamery Building.

[Paper read by OSCAR ERF, (Illinois Experiment Station) at the Wisconsin Buttermakers' Association, Waukesha, Wis.]

The keen competition in modern butter making necessitates systematized work. The minor details closely allied, in this vocation, must be taken into consideration in order to lessen the cost of manufacturing butter and at the same time to produce an improved article. To do this we must look for the most improved and economical methods, take advantage of all natural means, locate judiciously, manage affairs on business principles, and look for more convenient arrangements. The latter is the easiest to obtain and yet in glancing over the different factories that are in existence at the present time, we find this point sadly neglected. There is a need for better creamery buildings—buildings that are more convenient in arrangement so that they can be kept sanitary.

In launching into this business we must first look for a suitable location. The most necessary requirement is to locate near the center of a milk producing district, or rather in a section of the country where the people are naturally inclined toward dairying. It is essential to have a sufficient number of cows that will insure enough milk to make a creamery profitable.

The total cost for running a creamery and marketing the product, including interest on the investment and provision for a sinking fund, ought not to exceed 3½ cents for every pound of butter made. Under favorable conditions this cost ought to be reduced to 3, or even as low as 1½ cents. The smallest practical creamery cannot be operated for less than $4 or $5 per day. It becomes evident then that the daily product should be over 150 pounds as a safe minimum. Consequently no creamery should be put into operation unless having control, or a promise, of about 300 cows.

A reliable supply of good, pure water is another requisite of great importance. Cold water is advantageous in every respect and at the same time saves ice.

The surroundings should be such as to insure pure air, with little dust and a minimum amount of direct exposure to sun light. A lawn around the creamery with some trees and shrubs will aid in purifying the air besides making the surroundings more attractive.

A creamery should be located within reasonable distance of some shipping point where the product can be marketed to the best advantage, and so that the factor of transportation shall not enter in to offset the profit.

DIMENSIONS.

It is rather difficult to give the dimensions of a creamery to suit all conditions. However, there is this fact to be borne in mind, that the working rooms of a creamery should be built small and compact, and convenient in order to save labor in keeping the creamery clean. As an approximate estimate I should say that a creamery handling milk from 400 to 600 cows should contain 900 to 1,200 square feet of floor space, not including coal space and store room.

PLANNING.

Since dairying is carried on in such a wide range of latitude and longitude and to such a varied extent, it becomes impossible to have a set plan for a creamery suitable for all conditions and requirements. Hence, the wisest plan I can suggest, if a new creamery is to be erected, is to put it in the hands of a competent and practical creameryman of wide experience, and have him outline a building to suit the particular situation. The extra remuneration for the service of such a man is soon regained in the saving of labor and expense.

There are, however, a few essentials which every butter maker should think of in arranging a creamery. He should try to arrange his building and machinery to secure both convenience and cleanliness and so as to perform the labor in the factory in the easiest possible manner and under the most economical conditions. All who have had experience in a creamery know of the loss of time and the waste of labor resulting from some seemingly small mistakes in the construction of the building, as for instance putting a door in the wrong place, or locating the boiler room at a distance, or putting the receiving platform three or four feet higher than the bed of the highest wagon that comes to the creamery, or locating the separator and cream vat at a great distance apart which necessitates the cleaning of long milk or cream conductors. These faults should be foreseen in order to save the operator as much work as possible and to enable him to reach given points easily and without unnecessary steps in a round-about way.

CONSTRUCTION.

In constructing a creamery we must continually bear in mind that whatever we build must be built so that it can be kept in a sanitary condition. The first essential is to find some way to dispose of the creamery sewage in a cheap and effective manner. This can easily be done, in any location where the solid rock does not come to the surface, by means of a septic tank and filter bed to purify the creamery sewage. This septic tank is nothing more than a solidly built vault or box of such capacity as to hold the sewage that runs from the creamery every twenty-four hours. The object of the septic tank is to settle the organic matter in the sewage and at the same time serves the purpose as a receptacle for incubating the bacteria which decompose the organic matter into a gas or a solution, which is carried through into a filter bed where these constitutents are absorbed by the soil, and the water that is liberated therefrom is purified.

The septic tank may be constructed of either brick, grout, or wood,—brick or grout being preferable. It should be so arranged that the rush of the incoming sewage will be checked before it reaches the tank in order not to disturb the flocculent matter that is settling in the tank. It should also be arranged with cross partitions between the inlet and outlet so that the floating and settled material will not move with the current of water and obstruct the outlet of the tank. The tank must be located in the ground under the frost line so that it may be kept at a uniformly warm temperature in order to induce the growth of the bacteria which will decompose the organic matter in the sewage. Large quantities of either hot water or a strong disinfectant must not be put into the tank as such things will destroy the germ life. With these precautions the organic matter will thoroughly decompose and the tank will remain practically free from sediment providing that little inorganic material, such as sand and mud, has been deposited in the tank, and consequently it is not necessary to clean the tank more than once a year.

If flowing water is at hand a septic tank is all that is necessary since decomposition has gone on to such an extent that no odor arises. Under all other conditions a filter should be used in connection with the septic tank. The filter bed into which the sewage flows can be constructed in various ways, depending on the soil of that particular locality in which the plant is situated. The most common, and probably the cheapest, way to make this filter where the soil is composed of sand, loam, or clay, is by running a tile drain into a field, and from this a series of branches so as to distribute the sewage over a considerable area.

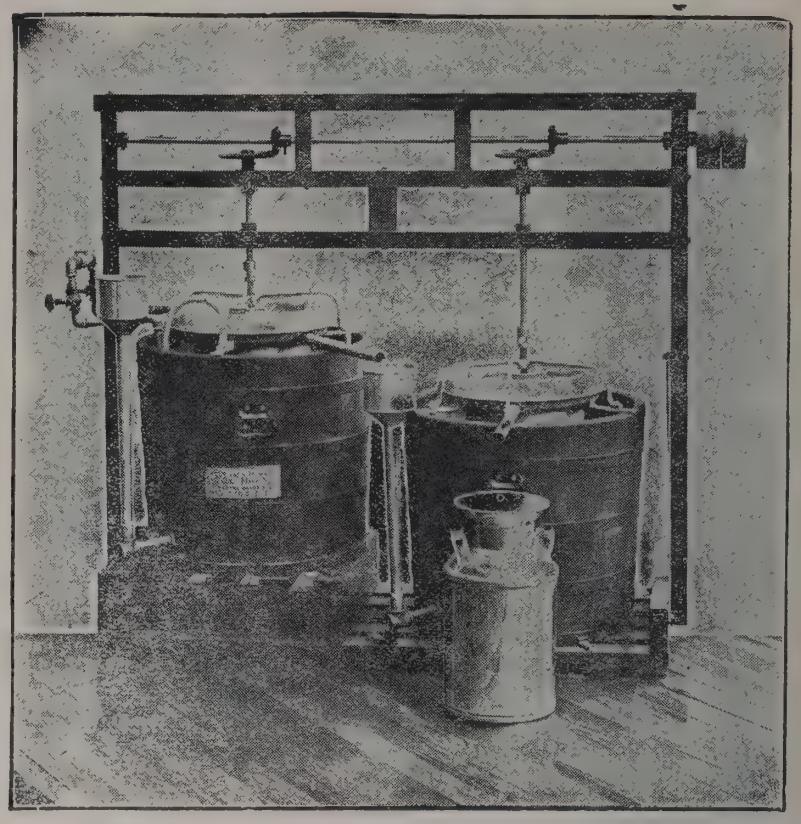
Drain tile should be laid on the same level, intercepting these sewage tile, for the purpose of taking up the superfluous water and thus prevent the ground from becoming saturated. If the soil is of a hard texture, or if a hard pan lies near the surface, the sewage can then be discharged into a small bed of sand which is thoroughly drained and aerated, and which acts as an excellent sewage purifier. This method of sewage disposal is very economical. The cost of such a plant varies from $20 to $80 depending upon the construction, the size of the creamery, and the particular locality in which it is situated.

BRICK VS. WOODEN CREAMERY.

There is no question but what a brick building is not only the most sanitary but is also the cheapest in the long run. Although the first cost may be somewhat greater, in some localities of the central states, for a brick than for a frame building, yet when the high insurance and the necessary repairs of a frame building are considered, it will be found that the brick or grout creameries are not too expensive as is commonly thought, or too elaborate for creamery work.

In choosing either brick or frame walls, the building should be placed on solid foundation walls. This foundation base should not be less than 18 inches in depth and 15 inches in width. It can be constructed of either grout or brick, grout being the cheaper of the two. On this foundation, a wall should be built 15 to 18 inches high, the width depending on

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WRITE FOR OUR CATALOGUE

the material used. If common wall stone is used, about 15 to 18 inches would be the proper width; if range stone, 10 to 12 inches would be sufficient; if made of solid or hollow brick, 12 inches would be ample in width. If the building is of brick, a two course wall would be sufficient for a single story building. The walls should have an air space and should be bound together by means of wire stays. If the walls are to be constructed of wood, either 6 x 6 hemlock sills can be laid on the foundation on which should be placed 2 x 4 scantling, or a box sill may be made of Norway pine, from 2 x 8 planks.

The scantling should be boarded on the outside with cheap lumber, papered and sided on the paper with siding. The inside of the 2 x 4's should be lined with paper, nailing an inch strip on the scantling, reline this with paper and follow it with common ceiling. This will make a very cheap and effective wall with two air spaces. Lath and plaster may be substituted for the first layer of paper on the inside of the scantling, but only at greater expense and with no particular advantage.

An artistic, durable and fire proof roof can be made by the use of slate; however, where cheapness is desired a galvanized roof without cornice, is much cheaper an equally as good. The rafters on such a building may be of common hemlock or yellow pine, and of 2 x 5 in size for shingle, or a galvanized roof, depending somewhat on the width of the building. If slate is to be used the rafters should be 2 x 6.

FLOORS.

It is very essential in every creamery to have a good sanitary and substantial floor. There is no question but what cement fills all the requirements, and if constructed properly, is much superior to wood, I think all buttermakers will agree on this point.

The chief objection to cement floors is that they are too cold and moist for the health of the operator, and this is the reason more creameries do not have them. This difficulty is entirely a fault in the construction of the floor and can be easily overcome by laying the cement floor in the following manner: Lay the cement floor at least one foot above the outside ground surface. First lay a tile drain, close to the foundation, around the inside of the building, and to make things better lay one or two drains through the center of the building and connect this with an outside drain. Fill in with cobble stones or broken stone to the depth of three or four inches, then fill in with three or four inches of cinders. If the cinders are more easily obtained, it is preferable to use them throughout. The next three or four inches of cinders should be mixed with common cement or sand, applied evenly and thoroughly tamped, using an approximate proportion of ⅓ common cement, ⅓ cinders, and 1 ⅓ sand. On the top of this spread a coat 2 inches thick of Portland cement, ⅓ cement and ⅔ coarse gravel. Finish with a ½-inch layer of Portland cement mixed proportionately half sand and half cement. Let this thoroughly harden and a good floor can be insured if the sand used is clean and well mixed, with cement, the cement fine and freshly burned, and the mixture not moistened too much so that it can be well tamped.

This makes a floor that is more expensive than is commonly advocated. However, it is economy in the long run to pursue this or a like method, as a cheap cement floor in a creamery is next to no floor. If the proper thickness of cinders has been used below it can be guaranteed that the cement floor will be dry. The objection of floors being cold can be readily overcome by laying 2½ or 3-inch tile in the first layer of the cement, through these tiles run 1-inch or ¾-inch steam pipes. Connect this steam pipe on one side with the exhaust pipe of the engine, on the other side with the sewer. Regulate the amount of exhaust steam by means of a valve to go through these pipes which act as condensers and at the same time will warm the floor of the creamery, making it more healthful than any wood floor that can be constructed. Hence, I can conceive of no case where the wood floor should be used unless the creamery is a two-story building, or with a cellar underneath, and even in this case it would seem to be economy to use a cement floor on top of the wood floor. In this case the wood floor must first be covered with paper, two or three inches of cinders must be spread on the floor to allow for the contraction and expansion of the wood, and cement on this as before.

In creameries it is always advisable to have the floor corners rounded and a wainscoting of 18 inches to 2 feet, built of cement. This is advantageous in a brick or even a frame building.

A cement floor in a creamery should have a slant, of ¼-inch to every foot, toward a drain. This drain is sometimes made of cast iron, but it can be made of cement which is just as durable and much cheaper. The bottom of this drain should have a slant of ¼-inch to every foot toward an inlet to an underground drain which should be connected at this point with a bell trap to prevent the odors from the sewer coming up into the factory.

Where it is necessary to build a wooden floor in a creamery, it is wise to have the joist not more than eight inches apart in order that the floor can be firmly nailed and to prevent warping. At the same time the joist should always be laid full length on the sills and cross sills. To be economical in material, never span more than twelve feet without having a support. The flooring should be of the best white oak, or if this is not obtainable, use good Georgia pine. The flooring should be well matched and dressed, 1½ to 2 inches in thickness and should be covered with two coats of boiled linseed oil, applied hot and thoroughly ironed in with hot irons.

THE ELEVATION OF CREAMERY FLOORS.

In building a creamery it is very essential to know what method is preferred for conveying the milk from the receiving vat to the cream separator, whether this is to be done by gravity or with pumps. Different floor elevations are required in these methods and each has its advantage and disadvantage. It is merely a question with the operator whether he prefers to climb four or more steps, or to clean one of our simple modern milk pumps.

The machines in a creamery should be so placed as to avoid the use of long conductor pipes and the pipes should have as few angles and joints as possible. Special care should be taken to select pipes that are smooth on the inside. Tinned copper or brass pipes are the best, although drawn steel, tinned on the inside may be used to advantage. Rubber hose should never be used for conducting milk, or cream, even for the shortest distance.

Another necessary adjunct to a modern creamery is a good, well insulated refrigerator. As the conditions vary so much in a creamery it is rather difficult to estimate the size of the refrigerator, but a practical height should never be less than 6½ feet and the ice box above it should be as high as can be made under the rafters, although this never ought to be less than five feet. In building a refrigerator an important point is to have it well insulated so as to retain the cold temperature.

The method of insulating these refrigerators differs greatly, but in running a series of tests at our Station last year we reached the conclusion that some insulating material in the center of the wall, well protected from moisture by double thickness of paper and boards on each side and with a dead air space on each side of this insulation, gives not only the best results, but is also the cheapest. This insulating material can consist of rock cotton, granulated cork, or planer shavings. Since the shavings afford an excellent place for vermin it is very necessary that they be disinfected with some poisonous solution like copper sulphate or corrosive sublimate, then the shavings must be thoroughly dried.

Great care should be taken in building a good, well insulated floor in this refrigerator. Not only should the floor be insulated at the sides, but beneath the floor the space between the ground and the boards should be filled in with 4 to 6 inches of cinders.

It is always well to have the ice box located in such a position as to induce the greatest movement of air in the refrigerator; this is very essential to good refrigeration. Hence the ice box placed above the refrigerator seems to be the most efficient location. The refrigerating room below should be connected with the ice box above by means of a flue on one side to receive the upward current of warm air and another flue on the opposite side to receive the downward current of cold air.

In building such a refrigerator it is almost necessary to build an ante room to it, for while entering the refrigerator one door can be closed while the other door is open. The inside of the refrigerator should be painted with some cold water paint.

Where ice cannot be secured from ice companies it is necessary to have an ice house in connection with a creamery. The dimensions of the ice house depend upon the purpose and the capacity of the creamery. Ordinarily an ice house of 150 tons capacity is ample for a creamery handling from 8,000 to 10,000 pounds of milk a day. As a cubic foot of ice weighs 55 pounds an approximate estimate can be made from the above for the size required for the conditions in this latitude.

An ice house may be built of single or double walls, depending upon the ease and cheapness with which ice can be secured in winter. It is not generally advisable to have an ice house directly connected with the creamery building, but it should be located close by in order to save labor in getting ice.

The inside walls of a brick creamery may be plastered and painted or the rough walls may simply be painted, with two coats of oil and white lead and a third of white lead and varnish; both methods being sanitary, the latter being the cheapest.

The windows should be large and placed well above the floor and should be arranged so as to drop from above as well as below, in order to secure good ventilation. The creamery should be provided with a ventilator on the roof and passages connected with the rooms below to carry off the steam and heat.

The boiler of a creamery is really a part of the building. It is a difficult matter to estimate the size of a boiler for a creamery, but I will say that it should be large and of good capacity. A large boiler may not be as economical as a

Goodwin's



T. D. Goodwin & Co.,

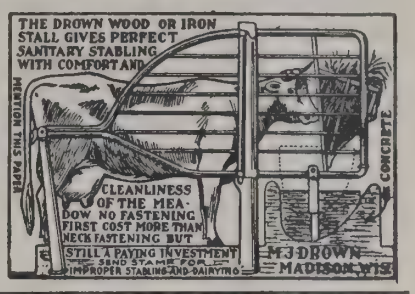
USE GOODWIN'S FLY KILLER this season and make your stock comfortable. Your cows will give 25 per cent more milk; your beef cattle will fatten with one-half the feed and your horses will do their work with ease. Goodwin's Fly Killer will protect stock from flies when in pasture as well as in stable. It's convenient, cheap, practical. It's a sure lice killer and will keep stables and hog pens in a sanitary condition. Prices: Gallon 75c; 5 gallons $3.00; 10 gallons $5.50. Good sprayer for applying same 50c, or send $1.00 for Sprayer and enough Fly Killer to protect 150 cows. Agents wanted. T. D. GOODWIN & CO., Columbia Station, Ohio.

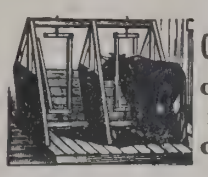
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Half cent's worth saves 3 quarts milk and much flesh. Kills every fly it strikes; keeps off the rest. Harmless to man or beast NO LICE in poultry house or any place it is sprayed. If your dealer does not keep it, send $1.00 for Improved Three Tube Sprayer and enough Shoo-Fly to protect 200 cows. Cash returned if cows are not protected.

SHOO-FLY MFG. CO., 1005 Fairmount Ave., Phila., Pa.

EDITOR knows from experience Shoo-Fly is O. K.





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Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.

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"I wrote to Dr. Pierce for advice though I thought surely I would die."

"After my baby came in January, 1900," writes Mrs. Nancy Abner, of St. Paul, Ark., "I suffered severely from all sorts of aches and pains, until the following May, when I read one of your pamphlets, treating on female diseases. I wrote to Dr. Pierce for advice, although I thought surely I would die, as our physician told me I was more liable to die than to get well; your fatherly advice caused my health to be restored. I took five bottles of Dr. Pierce's Favorite Prescription, three of 'Golden Medical Discovery' and three vials of 'Pellets,' together with your other remedies, and I am now able to do all my work."

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A Steel Stanchion beats anything you ever saw for tying cattle. Lighter, stronger, neater. Swings on chains. Not in the way when lying down. Agents wanted. Write for special terms and prices. Jas. Boyle, Mfr., Salem, O.



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SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated Circular free. GLENORA MFG. CO., Glenora, Yates Co., N. Y.

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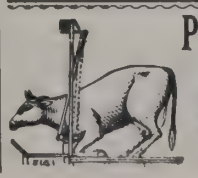


Scott's Perfect Swinging And Self Closing Cow Stanchion

Each cow shuts herself in place.

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Prescott's Swinging Swivel tanchion

Keeps Cows Clean.

Swings forward while getting up or lying down. Looks back while standing Full particulars free.

E. PRESCOTT, Beverly St., Boston, Mass

small one, where run to its greatest capacity, however, it requires less labor to fire such a boiler, which is a greater factor than fuel in many of our creameries. There is no particular preference of boilers, but I will say that the better the boiler is insulated on the outside, as the brick boilers or the modern marine boilers, the better it is for all purposes in a creamery.

I believe in a sterilizer and dry room for a creamery and this can be most economically located near the boiler where the heat of the boiler, which would be otherwise wasted, will serve to dry the utensils.

Water should be piped with black iron pipes to all vats, to the sink, the churn, and in case of a whole milk factory, to the skim milk tank.

The skim milk tank of a whole milk creamery should be lined or made of galvanized iron in order that it may be kept clean and sanitary. The ground around the place where the skim milk is drawn should be paved in such a way that the drip will run off into the sewer. It is necessary to flush this place every day during the summer to keep conditions sanitary around the creamery.

The exhaust steam should never be wasted but utilized for heating the building or scalding the skim milk in order to keep it sweet until it is fed.

THE HEATING SYSTEM.

There are a great many different schemes for heating a creamery and yet I might say that a majority of the creameries have no system at all. The simplest heating system and the one that works best is where steam is forced through a series of heating coils arranged in the rooms of the creamery and connected with the hot water tank above. The un-utilized steam that passes through these coils is thereby not lost, but serves a purpose for heating the water in the insulated tank above.

There are a great many other minor details too numerous to mention in a paper of this kind, but in planning a creamery these little points will come to a practical man.

Summer Meeting of the Western Guernsey Breeders' Association.

ED. HOARD'S DAIRYMAN:—The summer meeting of this association was held at the Helendale farm of Mr. Fred Rietbrock, Athens, Wis., June 3rd, 1903.

The association members and invited friends were Mr. Rietbrock's guests from the time they left Milwaukee, and occupied a Pullman, and Pres. Whitcomb's private car.

Fully seventy-five from the southern part of Wisconsin and from Michigan and Minnesota were in attendance.

This association numbers among its members nearly all of the Guernsey breeders of the middle west and nearly all of these were present, and with them came Professors Carlyle, Russell, Moore and Woll of the Wisconsin College of Agriculture, Prof. Haecker of Minnesota, ex-Gov. Hoard, and Herdsman Danks of the Wisconsin Station, and Mrs. Adda F. Howie and F. H. Scribner, Jersey people. Nearly or quite 300 local farmers with their wives attended the meeting and partook of the bountiful noonday lunch.

Excellent papers and discussions were a part of the program, and the *Athens Record* was out by five o'clock in the afternoon with a full report of the meeting. Mr. Fred Vogel, Jr., Milwaukee, Wis.; Mr. C. W. Wilcox, Des Moines, Iowa; Mr. W. S. Guilford, Racine, Wis.; Mr. G. A. Freeman, Pewaukee, Wis., Mr. F. W. Seymour, Milwaukee, Wis., were elected for membership in the association, this making the total membership 69 from six states.

The forenoon was spent in driving over the beautiful country about Athens, as the guests of the people of the town and surrounding country. The soil and crops were a revelation to many who had never been in north central Wisconsin, and many were heard to say that they believed that from an agricultural standpoint Marathon was the best county in the state.

The business meeting adjourned at four o'clock, when two hours were very enjoyably spent in looking at Mr. Rietbrock's fine herd of Guernseys. If anyone came with the idea that all of the good Guernseys were in Southern Wisconsin, they went away with different ideas. The service bulls are Guydette, whose dam, Yeksa's Queen made 599.8 lbs. of butter in a year.

This is perhaps the largest bull of the breed, weighing in fair flesh, 2,100 lbs., and not at all coarse, even with this size.

Another is Buckthorn, whose dam, Queen of Chenequa, made 512 lbs. butter for Mr. Solveson, and her dam was the well known cow Fantine 2nd that made 602.7 lbs. butter. Another is Treynore, a bull that was first prize at the Wisconsin State Fair, and out of Tricksey 3rd who, and her dam as well, were both first prize winners at the same show. Mr. Rietbrock has also coming on a fine young bull in Paxtang, a son of his cow, Elloree of Paxtang, purchased last year at a large price from Miss Wilhelm of Pa. This young bull was sired by the well known Glenwood Boy of Haddon, whose dam, Glenwood Girl 2nd, made 593.5 lbs. of butter in a year.

Mr. Rietbrock also maintains a good herd at Glyndwr Farm near Portage and uses there, Benign, a son of Benjamin, and Preston, 441 lbs. He has many extra good cows, most of them being daughters or granddaughters of Yeksa's Prince, who like most of the bulls was sold before his value was known. One of these, Yeksa Sunbeam was milking 47 lbs. of milk that the manager said was testing 4.3% fat. A number of others have milked above 40 lbs., and one up to 54 lbs. per day. The whole herd are very uniform and have splendid udders and teats.

Among the best ones not of the Yeksa family are Elloree of Paxtang mentioned above, a Madame Patti, a daughter of Benjamin, and Lindenora, a daughter of Lily Ella's Jeweler. After a rousing vote of thanks to Mr. Rietbrock. we separated from what had been the greatest meeting ever undertaken in this line among dairy cattle breeders. GEO C. HILL.

Rosendale, Wis.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

A Short Talk on Improved Large Yorkshires.

ED. HOARD'S DAIRYMAN:—The present era of wonderful prosperity for the farmer offers long sought opportunities to replace the mongrel with pure bred registered stock, which will not only bring largely increased profits in open market but enable the careful breeder to dispose of surplus choice animals at advanced prices, to others also having in view the bettering of their financial condition; and in this most commendable transformation the pig has received his full share of attention.

This is because no other live stock will so soon bring profitable returns on the investment. Pigs and prosperity go hand in hand, and the farmer without them is poor indeed.

It is true that some farmers who have had a round or two with hog cholera have decided that there is no money in pigs; and, without endeavoring to locate and correct the trouble, have gone out of the business. Others have refused to yield and have persistently bent their energies toward overcoming the evil; and it is to those, whose pluck, perseverance and research, brought first from England to Canada and later to the United States the Improved Large Yorkshires that all lovers of the choicest product of the pig are deeply indebted.

A glance at a thoroughbred Yorkshire cannot fail to impress one with the thought that an animal so constructed, with a long, deep, well-boned frame, must surely yield the largest possible percentage of high price meat in the form of well streaked bacon, and that the absence of excessive fat about the neck and throat must indicate far less liability to cholera and kindred diseases than the square, blocky and excessively fat specimens of other varieties which we have for years been taught to admire at the fairs and stock shows.

Statistics, and the experience of breeders and packers, have fully demonstrated that these cases of "Love at first sight" are amply justified.

In Canada few other than Yorkshires are bred for the packing house trade, and as nearly all their output of bacon is exported to England and sold at top prices, Canadian farmers are paid from one dollar to one dollar and fifty cents per hundred pounds more for Yorkshires than for other varieties. The American palate is as sensitive to good things as is that of our English cousin, and as a consequence the demand for Yorkshire breakfast bacon has so rapidly increased, that packing houses in the West have distributed by the car load, boars of this excellent breed, among the extensive pig raisers from whom they draw their supply.

The demand is not for lard, the price of which must always be regulated by that of cottolene and other substitutes, but for lean meat of exquisite flavor and tenderness, of which the Yorkshire has at the present time an apparent monopoly.

If comparative freedom from disease and the superior quality of meat were the only advantages possessed by the Yorkshires, they would be sufficient to convince most investigators of their true merits, but when we add to the good points mentioned those of great prolificacy, gentle disposition, and ability to properly suckle and raise large litters of rapidly maturing pigs, it would appear to the most sceptical that as a money earner the Improved Large Yorkshire stands in a class by itself.

Yorkshires are white, and so strong is the paternal influence in breeding that the writer has never seen a black spot on a pig from a Yorkshire boar, even though the dam were a Berkshire or Poland China. White pigs are preferred by the butchers and packers, hence the value of Yorkshire boars in improving herds of other varieties. W. H. FISHER.

Columbus, Ohio.

THE BROWN BESSIE HERD Offers one bull 14 months old, sired by Recorder, 29239, the only living son of Brown Bessie and has 14 tested daughters. Dam, Relay, 70353, test 17 pounds 2 ounces. She a daughter of Diploma with 61 tested daughters. Also Berkshire Pigs of English and American selected stock. H. C. TAYLOR, Orfordville, Wis.

Old Homestead Guernseys. Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females. Especially low prices, standing of herd considered. No catalogue. State what you want. L. V. AXTELL Perry, Lake Co., Ohio.

Wasteland Guernseys Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale. M. M. & E. J. HOLLINGSWORTH, Landenberg, Chester Co., Pa.

GUERNSEYS. HADDON FARMS—Home of the noted GLEN WOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

VALLEY FARM Is offering some good bargains in young bulls from 1 mo. to 2 yr. old. Also B. P. Rock Cockerels, $1.25 each. Write FRED STUBLEY, Black Earth, Wis.

PROSPECT HILL JERSEY HERD. Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25. W. J. HUSSEY, Mt. Pleasant, O

ST. OMER HERD Offers young bulls fit for service, out of tested dams with good yearly records. Strong in Exile of St. L., King of St. L. and Stoke Pogis of Prospect. Reasonabe prices. JOS. T. HOOPES, Bynum, Md.

FOR SALE GOLDEN LAD BLOOD. sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

BILTMORE JERSEYS are great and presistant dairy workers and typical Jerseys. We ask comparison with any other herd for YEARLY MILK & BUTTER YIELDS, SUBSTANCE AND FINISH. The herd contains more prize winners at the leading exhibitions (including the Pan-American) than any other herd. The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service as you cannot get it. Also Headquarters for Large English Berkshires and Standard Poultry. Apply to BILTMORE FARMS, BILTMORE, N. C.

HAZEL FERN HERD. A. J. C. C. Jerseys blood of St. Lambert, Melia Ann, Combination, Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

ROBINSWOOD JERSEY DAIRY is offering a few Reg. Jersey Bulls ready for service at from $25 to $50, sired by a grandson of Recorder, the only living son of Brown Bessie, out of good cows. Write, stating your wants, to N. H. ROBINSON, Prop., Centralia, Wis.

FOR SALE. JERSEY BULL, one year old. Good individual of the best breeding. Also 7 months bull from tested dam. Herd headed by Fontaine's Owl, 60436. Prices on application. Address, J. F. EGERTON, Footville, Rock Co. Wis.

The Evergreen Farm Herd has for sale three or four A. J. C. C. heifers bred Also a few cows and some choice bull calves from two to six months old. Write for pedigrees and prices. N. N. PALMER & SON, Brodhead, Wis

JERSEYS. ST. LAMBERT and Combination, for sale; 13 cows, 8 heifers, 29 bulls. S. E. NIVIN, Landenburg, Pa.

YORKSHIRES. The Large, Improved Yorkshire is by all odds the best white hog on the market today. Prolific, easy keeping, with desired size lacking in Small York. Young stock for sale. E. E. STEVENS, R. F. D., North Madison, Lake Co., Ohio.

YORKSHIRES A few choice imported Boars. September farrow. Also pigs from imported stock ready for delivery in 8 weeks. W. H. FISHER, Spahr Bldg, Columbus, O

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. All our choice pigs of 1902 farrowing have been sold. We are now taking orders for 1903 farrowing. JOHN WHITE & SON, Adamstown, Md.

AYRSHIRE CATTLE of the BEST of BREEDING. Also Chester White Pigs, ready to book for season's trade. Young stock of both sexes. Prices reasonable. Come and see us. F. TSCHUDY & SONS, Monroe, Wis.

NORTH OAKS FARM, MINN ST. PAUL, (Jas. J. Hill, Proprietor.)

AYRSHIRE BULLS Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address, N. E. McKISSICK, Supt., Cardigan, Minn

GUERNSEYS FOR SALE. Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa. JAS. H. BEIRNE, Oakfield, Wis.

Rosendale Guernseys. MATURE COWS YEARLY RECORDS range from 356 to 713.3 lbs. butter. This herd contains more officially tested cows than any other herd of the breed. All of the largest records are official ones. A particularly choice lot of tuburculin tested bulls for sale from high record dams. GEO. C. HILL & SON, Rosendale, Wis.

GUERNSEYS FOR SALE Bull two years old out of Count Topsy 24.27 lbs. butter 7 days. She won 1st prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality F. W. TRATT, Whitewater, Wis.

BUY DIRECT FROM FACTORY, BEST MIXED PAINTS At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.

Money to Waste on Aquatic Creamers, but None to Invest in Profitable Reading.

An Alfalfa Query from Maine.

ED. HOARD'S DAIRYMAN:—You probably think I did not try to get a club for your most valuable paper, but I did, and failed completely. Could not find any one at our local Grange that could afford it. One of the patrons cannot afford the DAIRYMAN and of course cannot purchase an effective cream separator, but uses one of those aquatic affairs. One man, whom I urged to put a quarter in a mailing card last year, had money to invest in the same way. We are really in a bad way here, butter fat, 22c; bran and corn meal have been about $1.50 per hundred and cotton seed $1.80, the past winter. Just starting in silos. I am afraid we have not much alfalfa land, too wet and heavy. I would like your opinion and advice about a piece of land; I plowed part of an old pasture last fall, late, some parts were wet, so I turned a deep furrow across the end and through the middle, and it seems to be gravelly. Do you think it advisable in this climate, almost Aroostock county, to drain it and try alfalfa? The land lies fine to drain. It slopes to the south and also to the west, and forest on the west. If drained how deep had I ought to dig? Would have to hire it done, wages one dollar or more and board a day. No surplus capital and a large family

DOWN EASTER.

Penobscot Co., Maine.

Reports of the character submitted by this correspondent concerning the attitude of his neighbors towards improvement in dairy husbandry are discouraging and at times almost disheartening. What is the use, we are tempted often times to say, of trying to help those who show no disposition whatever to help themselves? Why not let them wallow in the mire of their own ignorance? However, with us, it has always happened that when about on the point of giving up, there will come in reports of a different character, reports bearing abundant testimony that we are not living and laboring altogether in vain, but in some measure at least, are helping on to better things, to higher life, greater comfort, a very considerable number of our fellowmen, and there is a satisfaction in that which nothing in the way of dollars and cents can measure. And so, we say to Down Easter, "Do not be utterly cast down and disheartened." Sooner or later, some of his neighbors, taking note of his methods and comparing them with their own, will be inclined to ask "why the difference" and join him in the march upward and outward to better things and larger hopes.

No one can tell in advance whether alfalfa will thrive under the conditions named. Only a few years ago, it was assumed that it was useless to try alfalfa in Wisconsin, that it would only thrive in the warm and semi-arid regions of the West and Central West, but at the present time, the question is not so much where it will thrive as where it will not thrive. So far as present experience has gone, about the only condition which seems fatal to alfalfa prospects is the presence of soil water too near the surface. In the present state of knowledge on the subject, it is not safe to advise anyone to try to raise alfalfa on land where standing water comes within eight feet of the surface. Of course, surface drainage is indispensable, that is to say, water standing on alfalfa from thirty-six to forty-eight hours, is pretty sure to kill it.

It would not be prudent to undertake to tile-drain land for alfalfa as it would be almost certain to send its roots into the drains and clog them up. If our friend can, by a system of shallow, open ditches, dispose of the surface water on this field and the permanent soil water does not come within ten feet of the surface there would seem to be no reason why he might not expect fair crops of alfalfa.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

OHIO'S



FAMOUS HERD

—OF—

Holstein Cattle

OWNED BY

W. B. Smith & Son

2488 W. Broad St., Columbus, O.

CLYDE PAUL DE KOL

HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale

GEO. T. McNEIL, Theresa, N. Y.

WOODLAKE HERD.

Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN Station D., R. 1, Minneapolis, Minn.

STAR FARM HOLSTEINS

DROUTH DROUTH DROUTH

My pastures are a total failure. *Must sell immediately, 50 royally bred registered Holstein cows.* You can get the best. You can make your own price. Inquire at once.

HORACE L. BRONSON, Cort and, N. Y

TYRANENA HERD

100 HOLSTEIN-FRIESIANS 100

A. R. O. Stock For Sale.

Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz Frank B. Fargo, Lake Mills, Wis.

SOUTH SIDE FARM, WHITE BEAR LAKE, MINN.

Holstein-Friesians.

Bulls in service, Prince Inka Pietertje De Kol 2d, A. R. O., 144, sire of 10 A. R. O. cows, and Daisy Van Beer's Pauline De Kol. 27610, whose dam has official record of over 22 lbs. in 7 days. Special prices on young bulls from A. R. O. cows. Also Yorkshire pigs of most approved breeding now fit to ship.

Holsteins That Produce Are The

HOLSTEINS THAT PAY

The kind we sell. Backed by the largest official butter records ever made. All ages, both sexes. Over 100 head to choose from.

BROOKSIDE STOCK FARM,

HENRY STEVENS & SON,

Box 208, Lacona, Oswego County, N. Y.

FOR SALE. H.-F. Bulls, ready for service from A. R. O. Cows and sired by Sir Jonanna DeKol, 25467 A. R. O. Butter record of dam, 21.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs C. A. SCHROEDER, West Bend, Wis.

GLENVIEW HERD

A few fine heifers and bulls for sale. Also some A. R. O. cows. IRVIN NOWLAN, Toulon, Ill.

Markham Manor Farms, Simonsville P. O. Andover, Vt.

Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Seldeme Clothilde. No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for description and price to J. A. THORNTON, Manager, Simmonsville, Vt.

FOR SALE.

H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address W. H. JONES, Watertown, Wis. Rural Route No. 2.

CLOVERDALE HERD

HOLSTEINS.

Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.

A. J. DAUGHERITY Streator, Ill.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS | 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs, butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No 29175. Sire: Count Colantha Alban No. 28148 Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.

WM. EVERSON & SONS, Lake Mills, Wis.

70 HEAD PUBLIC SALE 70 HEAD

GREATEST OFFERING OF

HOLSTEIN-FRIESIAN CATTLE.

McADAM & VON HEYNE'S

Justly celebrated herd, will be sold at Public Auction, at the home of the World's Champions, at Brothertown Stock Farms, Deansboro, N. Y.,

WEDNESDAY, MORNING, JULY 15, 1903

This sale includes every animal in our herd. Sadie Vale Concordia, the World's Champion, with official record of 30 lbs 10.2 oz. butter in seven days, one of her sons, now 3 years old, 2 daughters, 5 granddaughters, 1 grandson and 2 great granddaughters and sons, will go to the highest bidder. **Mercedes Julip's Pietertje,** the famous ex-champion with official record of 29 lbs. 5.3 oz. butter; her daughter and granddaughter will also be sold. Another great offering in a sire is **Canary Mercedes Johanna De Kol,** out of Canary Mercedes Brightest with official record of 21 lbs. 3 oz. at an age of 2 years and 11 months, and by Johanna Rue 2nd. Paul De Kol, who has now 13 in the Advanced Register. The four nearest dams average 23 lbs. 5.6 oz. butter in official test. They average 4 6 per cent fat. This includes record of dam made in two year form. Herd numbers

70 HEAD OF VERY SUPERIOR ANIMALS,

selected with great care. A large number being from the CELEBRATED YEOMANS HERD. All cows offered are in calf, either by Sir Pietertje Posch, a son of Alta Posch, with official record of 27 lbs. 1.4 oz. butter at 2 years and 11 months, or by Sadie Vale Concordia's Paul De Kol. or by Canary Mercedes Johanna De Kol. In this offering of fine stock are cattle suitable for the best herds, also for the improvement of good herds, as well as cattle for the beginner; as the latter, in buying any of these cattle will start right, which is an important part of the success of breeding pure bred cattle. Farm can be reached on the D. L. & W. to Waterville, N. Y., or the O. & W. to Deansboro, N. Y. Trains will be met promptly and visitors conveyed to the farms. Also farms can be reached by trolley from Utica to Clinton, thence by livery. Catalogues ready early in June. Address

McADAM & VON HEYNE, Deansboro N. Y.

The sale will commence promptly AT 10 A. M. WEDNESDAY, JULY 15, 1903.

COL. CAREY M. JONES, Auctioneer.

SHADY NOOK HERD Holstein Friesians

Offers three bulls one year old. O. I. C. White Pigs, both sexes.

W. R. GATES, Fort Atkinson, Wis.

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PREMIER SIRE Mutual Friend 3d's Paul | A son of Paul De Kol & Mutual Friend 3d, 21.84 lbs butter, milk averaged 4.7% at 3 years. She has two A. R. O. daughters; 1 made over 20lbs,

Must reduce herd at some price. State just what you want T. A. MITCHELL, Weedsport, N. Y.

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HOLSTEIN-FRIESIANS

To reduce herd to capacity of pasture, will sell a limited number of A No. 1 young cows of high breeding and individually right, large producers, at $150 each; also 15 bull calves at bargain prices.

STEVENS BROTHERS, Lacona, N.Y.

THE MAPLE'S HERD

offers good young cows with A. R. O. records in calf to Beryl Wayne De Kol Paul, No. 28785, whose dam Beryl Wayne has an official record of 27.87 pounds of butter in 7 days. Also four yearling bulls ready for service. Special bargains in heifer and bull calves.

JOHN C. GODFREY,

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Holstein-Friesian Bull Calves

Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

HOME FARM HERD.

Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams 25.1 lbs. butter in seven days. Herd numbers 125 head.

BEST FAMILIES REPRESENTED.

Special prices on six or eight bulls of serviceable age. W. B. BARNEY & CO., Hampton, Ia.

FOR SALE.

2 H. F. Bull Calves, 6 months old. Sired by Johanna Aaggie's Paul DeKol 23443, (160 A. R.) from good milkers and testers.

M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

MONONA FARM Offers for sale a few well bred Holstein-Friesian Bull Calves. Also two Service Bulls at reasonable prices. The Monona Farm Herd is founded on the best stock of the De Kol, Netherland, and Clothilde families. Pense Johanna 29332 the head of the herd has 7 A. R. O. dams averaging 22 lbs. 3.7 oz. Junior sire Paul Calamity De Kol 31095.

MADISON, WIS.

THE MONONA FARM HERD.

Address. F. W. ALLIS, Madison, Wis.

Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

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BEGIN AT THE HEAD

to improve your dairy herd with a bull whose dam has official record of 18 lbs. 6.3 oz., sires dam 20 lbs. 8.8 oz. Individual right. Price Right.

McKAY BROS., Buckingham, Iowa.

HIGH-CLASS HOLSTEIN-FRIESIAN BULLS

and Bull Calves from A. R. O. dams and the best Advanced Registry sires. Cows all officially tested; I breed from no others. Correspondence from breeders and progressive ddirymen invited. Malcolm H. Gardner, Darien, Wis.

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High Class Advanced Registry Stock only. Best butter families. Stock for sale.

Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.



T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.

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LOOK HERE.

34 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by Gem Pietertje Hengerveld Paul DeKol, or Sir Ormsby DeKol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days, average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd? McGEOCH HERD is located at Lake Mills, Wis., 56 miles west of Milwaukee. For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis Residence: National Ave. near 40th. Phone, South 1601

PUBLIC SALE OF FAMOUS CATTLE.

Current advertisements in this paper, announce a dispersal sale at auction, July 15th, 1903, of the Brothertown Stock Farms herd of Holstein-Friesian cattle. This herd is the home of the two cows, Sadie Vale Concordia and Mercedes Julip's Pietertje, who stand at the head in the list of officially tested Holstein cows. These and others like them are included in the sale catalogue, in company with males of choicest breeding, including a son of Sadie Vale Concordia.

Well may the proprietors, Messrs McAdam and von Heyne, say that a sale of this character will be an "occasion of rare interest for the Holstein-Friesian world," and that it offers "a fine opportunity for breeders to improve their herds with a new addition of most fashionable breeding," and that the "beginner has also a chance to select a foundation herd of the most noted families and combinations.

A FARMER BIGGER THAN HIS FARM.

Travel where you will through the farming districts in any state, a moment's glance is only needed in passing a farm, to see whether the farm or the farmer is the bigger. Old Sam Evans, a quaint New Yorker, used to illustrate the men who were smaller than their farms, by the story of the old sow which had eleven pigs when she had only eight places of nourishment. Uncle Sam said: "She had oversized herself."

But here is a case related by Prof. Weld, of the New Hampshire Agricultural College, where the farmer was bigger every way than his farm. Prof. Weld says:

I have in mind a young and successful New Hampshire dairyman, a graduate from our four years' agricultural course who, after graduation, returned to his father's farm and in due course of time has established for himself a herd of thirty pure bred Jerseys. He began this work with one cow and has steadily followed the plan which he adopted before taking up that work. Eventually the father retired, selling to the son the ancestral acres. Steadily and surely the young man has continued, gradually increasing the size of his herd, and increasing the individual productive capacity of the cows at the same time. Last year the thirty cows, every one of which was bred and raised on the farm, averaged him 340 pounds of butter per cow. Should you meet him to-morrow he could tell you just the amount of milk and butter each one of those thirty cows produced, as well as the cost of food required to produce it. He makes his own butter on the farm, using the skim milk and buttermilk in raising his young stock and pigs. His farm is one of those side hill farms, such as are often found in New Hampshire, but it is a model of neatness and one can but feel a higher regard for agriculture and dairying as a business, after having inspected its various departments.

Does Casein Affect the Keeping Quality of Butter.

It has heretofore been held by experts in dairying that one of the reasons why butter from which the casein, or nitrogenous part of the milk, has not been completely removed in the process of washing is more liable to become rancid or develop strong flavors more readily than butter which has been thoroughly washed, is because the casein or nitrogenous matter thus left behind undergoes rapid decomposition, and therefore injures the keeping quality of the butter. With the object of putting this matter to a test, some interesting experiments were carried out last year in connection with the dairy department of the Ontario Agricultural College. The question which it was the purpose of these trials to answer was: "Does the amount of nitrogenous matter in butter affect its keeping quality?" For the purpose of the trials a number of samples of butter, churned in different ways and washed with different quantities of water, were carefully analyzed for the purpose of determining the proportion of nitrogen present in them. Other samples of the same butter were carefully put by and kept for a certain length of time, at the end of which they were examined and graded according to their quality. So far as the experiments went, the results showed that the presence of more or less nitrogenous matter in the butter did not materially affect its keeping quality. The proportion of nitrogen present in the majority of samples ranged from .076 to .090. Curiously enough, some of the samples which contained the smallest proportion of nitrogen were those which kept worst, or rather were of the worst quality at the end of the three months. The sample which scored the highest proportion of marks was made from milk separated at 180 degrees Fr., and containing .079 of nitrogen. Another sample which scored very high was washed with brine, and contained .085 per cent of nitrogen, whereas a third, which contained only .079 per cent of nitrogen, and was made from milk kept in shallow pans, scored the lowest of any of the samples.

We append a table showing the results obtained with the various samples tested.

DESCRIPTION OF BUTTER.	*Average per cent. of Nitrogen.*	*Average score at end of 3 months. Max.- 100.*
Butter washed with brine...	0.084	91.
Butter washed with water...	0 085	94.
Butter made from cream separated at 90 degrees F...	0.070	92.5
Ditto, at 140 degrees F.....	0.087	92.3
Ditto, at 160 degrees F.....	0.091	93.8
Ditto, at 180 degrees F,.....	0.079	94.75
Milk set in shallow pans.....	0.079	73.
Milk set in deep vessels. ...	0.083	87.

Dollar-a-Day Cows!

A Reply to John Gould.

ED. HOARD'S DAIRYMAN:—In your issue of May 29th, page 364, column 2, is a clipping from an article written by myself and published in the columns of the *National Stockman and Farmer* followed by a criticism by one John Gould, to which I beg space to reply.

First, the criticism is unfair, the statement never was made that the cow would give 5½ to 6 gallons of four per cent milk, ten months in the year; but I have grade Short-horn cows in my barn that in ordinary flesh will weigh 1200 lbs. and have given during the winter months, January, February and March, 5 to 6 gallons of 4 per cent milk, and which made me one dollar per day, shipped to the city market. Now I am no scientific dairyman or teacher or enlightener. I am a plain, practical farmer and milk shipper; have had 60 years' experience, and that experience is my teacher; and I lay more stress on the individual cow, than on any family, breed, fad or fancy in cows, and I care nothing about Mr. Gould's nervous theory, incurving thighs or his pelvic arch. I don't care if she looks like a hyena, camel or buffalo, if she does her work at the pail, that is her passport and her bill of particulars.

With regard to the "if" Mr. Gould refers to, I have frequenty had these kind of cows lose their usefulness in my dairy on account of not breeding, and of course then they would go to the butcher.

Now what I have written concerning this matter does not seem so wonderful or so deserving of ridicule as it seems to this facetious Mr. Gould. There are other men a plenty in this vicinity (we are all farmers and milk shippers) who are doing as well with their herds of common or grade cows, or scrubs, as the breeders call them, as I am. And if Mr. Gould will come to Export, it is 20 miles east of Pittsburg, on the P. R. R., I will bring him to my farm, and try to convince him that this is no fancy tale; and will also show him a field of wheat that is hard to beat even by a Buckeye.

Export, Pa. JOHN G. FOIGHT.

Pig Feeding.—Rotation of Crops, Etc.

ED. HOARD'S DAIRYMAN:—I am feeding some pigs about 2 months old. I want to give them equal weights of shorts and ground or soaked corn mixed with about all the separator skimmed milk that they will drink. What I want to know is, what price ought whole ear corn to be, to be equal to hominy meal at 90 cents per cwt? What is the per cent of gain made by grinding corn for pigs?

I have about 50 acres of tillable land and no permanent pasture. Is there a better rotation of crops than the one I am following, viz.: Corn, oats, wheat, clover and timothy for meadow, clover and timothy for pasture?

Would there be any gain or loss by plowing sod for oats, then follow with corn, and then sow wheat on corn stubble without the work of breaking the



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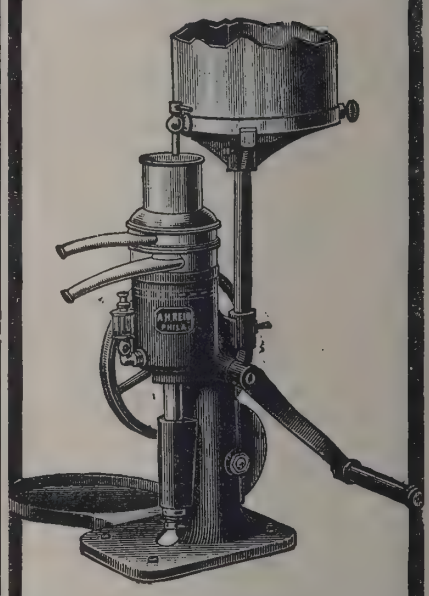
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ground? I spread all the manure on the land for corn and use all the wheat to buy shorts for pigs and bran for cows.

Will this rotation of crops build up the soil, or impoverish it? Am I on the right track?

Your paper is quite an encouragement to me. I feel that I have learned more about dairying from it and the experience I've had since I commenced taking it, than I knew before I commenced taking it. N. P.

Bloomingdale, Ind.

Experience has demonstated that the most profitable way to feed young pigs is to use not more than three to five pounds of skim milk with each pound of middlings or ground corn. Probably, well soaked and softened corn fed in the same proportion might serve an equally productive purpose, although, for very young pigs, we should prefer the ground feed. We cannot advise feeding corn and cob meal to swine and especially to young swine. The pig has a comparatively small stomach and, therefore, does not require bulky food and cannot handle it to good purpose.

Hominy meal contains approximately 88% of digestible nutrients and ground corn 84%, but for feeding with skim milk, we do not think there would be anything gained by using the hominy meal in preference to ground corn.

The present system of rotation is possibly as good as any that could be adopted and it is very doubtful whether any gain would result by changing the first crop on sod-plowing from oats to corn. It is coming to be believed that the better way to handle manure is to spread it on grass land and not plow it under. This, of course, necessitates comparatively light manuring, but it insures a greater development of the grass for hay or pasture, and what is equally important, a larger development of the root system, thus adding materially to the humus in the soil, a matter which receives altogether too little consideration.

Thanks for the compliment to our paper. The accumulation of evidence of this character continually incites us to spare neither labor nor expense in the endeavor to make a journal worthy of the continued confidence, support and respect of its tens of thousands of readers.

Dairy Breed Test.

At the Maine Experiment Station Holsteins, Ayrshires and Jerseys were tested during a period of two years on the following points: 1. The amount of food and nutriments. 2; Yield of milk solids, fat, cream and butter, and the combination of the whole milk, skimmed milk and butter milk.

Results—The average amount of water free food consumed daily, for each animal, was Holsteins, 27.4 pounds; Ayrshires, 24.7 pounds; Jerseys, 23.3 pounds.

The annual yield of milk solids was Holsteins, 1,014 pounds, Ayrshires, 848 pounds; Jerseys, 827 pounds; and of butter fat, Holsteins, 285 pounds; Ayrshires, 233 pounds, and Jerseys, 297 pounds. Milk required for a pound of milk solids, Holsteins, 8.3 pounds; Ayrshires, 7.8 pounds; Jerseys, 6.6 pounds; for a pound of butter fat, Holsteins, 29 4; Ayrshires, 28.3; Jerseys, 18.3.

3. The cost of a quart of milk, reckoning the cattle foods at market prices was: Holsteins, 1.83 cents; Ayrshires, 2.03 cents; Jerseys, 2.42 cents. The food cost of a pound of milk solids was for Holsteins, 7.09 cents; Ayrshires, 7.45 cents; Jerseys, 7.44 cents; of a pound of butter fat, Holsteins, 25.22 cents; Ayrshires, 26 62 cents; Jerseys, 20.43 cents.

The average composition of the milk for the two years was: Holsteins, solids 12.22, fat 3.47; Ayshires, solids 12.98, fat 3 67; Jerseys, solids 15.24, fat 5.50.

The loss of fat in the skimmed milk was least for the Jerseys. Solids of skimmed milk were: Holsteins, 9.50 per cent.; Ayrshires, 10.40 per cent; Jerseys, 10.50 per cent.

Transfers of Guernsey Cattle.

BULLS.

Commodore Mainstay 8632, Est. G. A Seager to R. H. Briggs, Brattleboro, Vt.
Chesterland Duke 8636, J. A. Beidler to J. A, M. Johnton, Chesterland, O.
Duke of Franklin 8633, Canterbury Shakers to Alfred D. Gilo, Franklin Falls, N. H.
Duke of Lemon 6614, W. W. McClellan to Willard Marsh, Middletown, O.
Flash of Fire 8396, H. McK. Twombly to Dr. Chas. McBurney, Stockbridge, Mass.
Glenwood's Mainstay 6th 8641, E. T. Gill to M. M. & E. J. Hollingsworh, Landenburg, Pa.
Glenwood's Mainstay 5th, 8640, E. T. Gill to R. F. & A. H. Parker, Westboro, Mass.
Isaleigh Superbus 8609, J. N. Greenshields to Barclay Stephens, Montreal, Que.
Isaleigh Superbus 8609, Est. Barclay Stephens, to S. G. Laviolette, St. Jerome, Que.
Jewel of Kendall 8635, Chas. Solveson to F. H. Marion, Kendall, Wis.
King Edward of Hampton Court 8631, Albert Jones to T. Edward Hamilton, Lutherville, Md.
King of Kewaunee 8634, J. D. Powers to R. C. Oestreick, Kewaunee, Wis.
Ollie's King of Belle Vernon 8041, J. A. Beidler to The Belle Vernon Farms Dairy Co. Willoughby, O.
Prosperity 6294, J. F. Knox to Friends Indian School, Tunesassa, N. Y.
Prince DesMoines 7476, C. W. Wilcox to M. L. Meagher, Overton, Neb.
Spunk 8588, R. F. Hamilton to J. P. Lutz, Knox, Pa.

COWS.

Annie McQueen 15035, and Lassie McQueen 15944, Phyllis Adele 13165, S. I. Murphy to George Wood, Philadelphia, Pa.
Abbott's Pride 13360, Florence Cooper 15555, Joseph Cooper & Son to K. E. Dingman, Fillmore, N. Y.
Armorel 4th of Haddon 14056, Diamond of Haddon 14054, Madeline of Bendbrook 14530, Naomi's Lady Jessie 15625, Naomi's Lady of Orange 15626, Richinda of Haddon 16143, Sadie of Bendbrook 13713, Sonsie of Bendbrook 13712, E. T. Gill to R. F. & A. H. Parker, Westboro, Mass.
Blanceflower of Meadow Green 15888, Countess May 2nd 15822, Countess Violet 2nd 15821, Couture Maid 15824, Esperance of Meadow Green 15887, Fanny du Briquet 2nd 15823, Mrs. Marion G. Hathaway to R. F. & A. H. Parker, Southville, Mass.
Clarissant of Riverside 11559, Daisy of Lemon 15023, Dimple of Lemon 16139, Hope of Lemon 15596, Lemon Queen 11825, Libby M. 9803, Mary of Lemon 13746, Pearl of Lemon 21686, Sallie Marshall 9800, Spotted Lilly of Lemon 12688, Andrew B. Sill to Albert French, Lebanon, O.
Dew Drop's Pearl 16129, Prairie Lillie 13511, P. Powers to F. A. W. Kieckhefer, Milwaukee, Wis
Francesca S. 16072, Uphemia S. 16073, Est. Barclay Stephens to S. G. Laviolette, St. Jerome, Que.
Forest Rose 2nd 7233, Lockey of the Highlands 10546, Louisette 7587, J. M. Duncan to C. A. Carmichael, Perry, N. Y.
Halline of Upper Freehold 16128, T. Woodward to E. T. Gill, Haddonfield, N. J.
Mince of Guernsey Hill 15408, Ossie of Guernsey Hill 16050, Queen of Guernsey Hill 9847, Viola of Guernsey Hill 13817, Fair Annia of Guernsey Hill 10725, Fair Lady of Guernsey Hill 16130, Galenza of Guernsey Hill 10724, S. P. Boles to George Wood, Philadelphia, Pa.
May of Lemon 14459, Andrew B. Sill to Warder Voorhees, North Bend, O.
Marrlette 9979 J.F. Knox to Friends Indian School, Tunesassa, N. Y.
Topsy Dewey 12833, Edward Sharpless to George W. Haggerty, Landenburg, Pa.

WM H. CALDWELL, Sec,

Peterboro, N. H., June 2, 1903.



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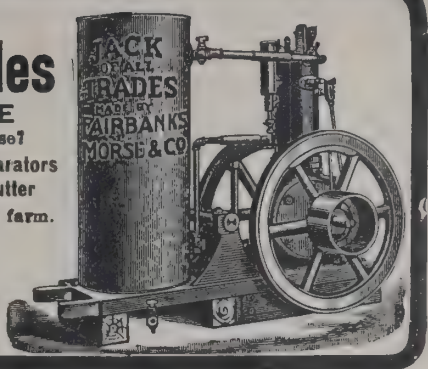
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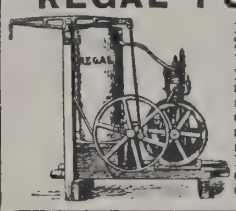
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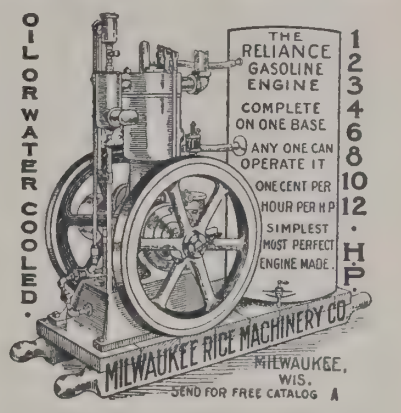
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that will be always ready to start, safe, reliable convenient, economical and durable, buy a FULLER & JOHNSON Frost Proof. No bother with water nor expense of broken cylinder, no waiting for wind or weather. All sizes, stationary and portable. Send for descriptive catalogue to the manufacturers.

FULLER & JOHNSON MFG. CO., Madison, Wis.

Cream SEPARATORS All about them and other things for the dairy and creamery. A. H. REID, Philadelphia.

H.&R. REVOLVERS Always Reliable

SHOOTS STRAIGHT. Catalogue Free

Harrington & Richardson Arms Co.,

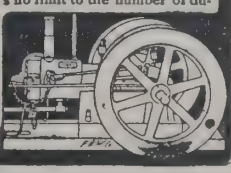
Dept. 22. WORCESTER, MASS.

A WONDER POWER.

Users are amazed at the simplicity and service of the 2½ horse power

WEBER JR. GASOLINE ENGINE.

It cannot get out of order. A ten year old boy runs it as well as a man and there's no limit to the number of duties it sets for itself. Less than a nickle an hour runs it. Fitted and tested, ready for business the moment it arrives. Other sizes up to 300 h. p. Write today for free catalogue.



Weber Gas & Gasoline Engine Co., Box 176 Kansas City, Mo.



People Buy Butter by the Nose.

They may also taste it, but if it does not smell sweet they are not likely to do so. Your butter may suit the public nose exactly when it leaves your dairy or creamery, but how about it at the end of a week's handling by other parties? Is it not wiser and better for the butter and your reputation to so pack it that neither will be endangered? You can make sure of these points by wrapping every print in a sheet of our

Pioneer Brand Parchment Paper.

It will keep that rancid lot close by from spoiling yours. It keeps out all destructive germs and injurious odors and entirely preserves all the flavor and natural sweetness. It makes fastidious buyers want more of your butter. You see we print your name, name of dairy or creamery or other private trade mark or brand on every sheet. It helps to build a reputation for your butter. Just think these things over and then write us for samples of paper and booklets. **Be sure to ask for our booklet, "Better Butter."** We mail these free.

The Paterson Parchment Paper Co., 37 Eighth St., Passaic, N. J.

Testing Cows in Scotland.

Report on the Benefits Derived by a Systematic Test and Weeding out of Poor Cows—Production Increased One-Third and Over.

Farmers who keep cows for milk production, should be sufficiently interested in their dairy investment to make that investment pay the largest possible dividends. How it is done in Scotland, with comment on other systems, appears in a recent report by John Speir of Newton Farm, Glasgow, which report in part reads:

"For a long time back it has been customary in this and other countries for persons taking a particular interest in their cows to regularly weigh the milk of each animal. A very few people did so morning and evening, but the bulk of those who kept milk records, and their number is very small, contented themselves by doing so once a week or once a month. Where cows are kept, the busiest hour of the day is usually that of milking; the consequence is that, although most breeders are cognizant of the gain to be derived from a milk record, only an enthusiast undertakes the trouble.

Twenty years ago, when I first made a tour of Danish farms, I was greatly impressed with the number of average farmers who methodically weighed the milk of each cow night and morning. Few people are so methodical in their habits as the Danes, and none have learned and appreciated so highly the value of a milk record as they have done. The enthusiasm and methodical working of the Danes were not, however, proof against becoming tired of such work. A more satisfactory way had, therefore, to be discovered and this work has now almost entirely fallen into the hands of small societies, which undertake the work for their members.

These societies, as a rule, are composed of from ten to twenty farmers (twelve is considered the most suitable number) who own among them from 200 to 400 cows. Each society becomes affiliated with the Royal Danish Agricultural Society, and through them get from the government a grant ranging from one-third to one-half of the total expenses. The society then engages a young man, whose duty it is to spend a day at each farm, weigh and test the milk of every cow, and during the winter also weigh the total quanitity of food of each class given to the cows for one whole day. It is the duty of each member to board and lodge the young man while at his farm, and convey him and his weighing machine and milk tester to the next farm when finished

One person can weigh the food, and weigh and test the milk of any number up to fifty cows in one day, and, being constantly at it, becomes more expert, and does it more reliably than the ordinary farmer. The results for each farm are all tabulated by the parent society, which forwards a copy of the results to every member. Each member contributes in proportion to the number of cows tested, dry cows being left out of the account. According to Danish labor, the cost works out at about ¼d per cow for each double weighing and testing of the milk and weighing of the food used.

As a rule, the visits are made every fortnight, but in some cases every week, and others only once a month.

The first societies were begun in 1895, and the number at the present time is over 300. The work is very popular with the average farmer, as he finds he gets many hints as to cheapening cost of production. Some farmers are found to produce a gallon of milk or one pound of butter at two-thirds of the cost of others, and some herds to produce one-third more than others.

Comparing the Danish records of the first and last years, it seems that the average milk yield of each cow has been increased nearly ½ per cent per annum, while the percentage of fat has also been somewhat improved. This result, which in time will amount to an immense gain, has been brought about principally by breeding from the best milkers, and getting rid of the bad ones. The gain in the seven years under review seems steady, and appears likely to be maintained for a considerable time to come.

This system has rapidly spread over both Sweden and Norway, the latter country, owing to the greater variety in the size of its herds, adopting a slightly different system of membership. In Norway, each member, besides keeping the weigher for a day and paying the cost in proportion to the number of his cows, pays an arranged-on sum as an entrance fee.

This system of methodically weighing and testing the milk has brought to light numerous instances of families of cows which produce double the milk that the average animal does, and in some cases even more than that. Many instances are also discovered of cows which do not give sufficient milk to even pay for their keep. One notable instance may be mentioned among many, of a cow which for fifteen years has averaged over 1,400 gallons of milk per annum, or over six tons of milk each year. This cow gives milk of fair average quality, and several of her progeny seem as if they would equal, if not excel, her milk yield. The red Danish cow is a little larger than the average Ayrshire and smaller than the Short-horn, the live weight running from 8½ to 9½ cwt.

The following may be mentioned as instances of what can and has been done by selection of good milking types:

Mr. Tisdall, when he began business, bought twelve of the best heifers he could get, and continued to breed from the best of these for twenty years. The average yield of milk the first year was 456 gallons, the tenth year it was 600 gallons per heifer, the twentieth year 868 gallons per heifer for twelve. By the same process, Mr. Evens, Burton, Lincoln, had the following: For three years to 1893, his cows averaged 751 gallons; for three years to 1896, his cows averaged 811 gallons; for four years to 1900, his cows averaged 861 gallons. An increase of 110 gallons in ten years. Mr. Evens has one cow, Beauty, which, after her third calf, gave 2,051 gallons in eighty-one weeks; after her fourth calf, 1,622 gallons in fifty-two weeks. Burton Old Profit has given an average of 1,200 gallons for seven years."

A New Way of Fattening Poultry.

Armour & Co., of Chicago, have established a large poultry fattening establishment, at Marshalltown, Iowa.

The method employed is a most novel one, and has been tried in the east with great success. The old theory that: "You can lead a horse to water, but you cannot make him drink," has been exploded so far as live poultry is concerned. By the new process they not only lead the chick to the feed, but they also force him to take it into his interior, and, best of all, he fattens on it. The chickens are fed one at a time by machinery. The food used is especially prepared, and is composed largely of cereals. It is in liquid form and is forced into the fowls through the bill by a high pressure. As soon as they are fed, the fowls are put in a dark room, so that they will not, by running around, lose their flesh. They are kept in this room excepting during the feeding time. Ten days are all that are required to make what was a poor, lean chicken a plump, fat fowl.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN: —Butter went up a half notch on the Board of Trade to-day and is now quoted at 22 cents firm. The output was 828,000 lbs. New York was reported steady at 22½ cents, with receipts of 11,612 lbs.

Sales:

	Tubs.	*Sold to.*	*Price.*
Montford	100	Sherwin	22c
Delavan	65	Moles	22c

Former prices:

	Sales.	*Price.*
June 1, '03	178	21½c
June 9, 02	316	21½c
June 10, '01	0	18½c
June 11, '00	0	18c

Elgin, Ill., H. C. B.

CONCERNING OUR ADVERTISERS.

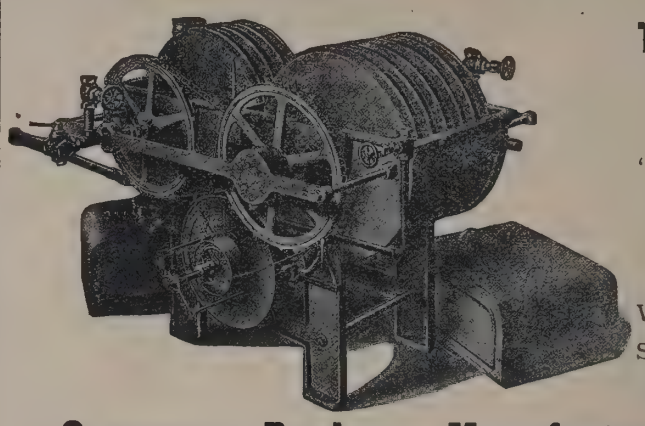
SHREDDED FODDER.

About one half the feed value of the corn crop is in the stalks, and wherever this fact is thoroughly understood the corn grower considers it just as important to shred the fodder as to husk the ears. If the stalks are allowed to stand in the field until after the corn is husked, the fodder has little or no value as feed stuff, and this explains much of the misinformation that is still extant relative to shredded fodder. Neither timothy nor clover would make good feed if allowed to stand too long before cutting. If, however, the corn is cut at the right time, the fodder when shredded makes excellent feed, which analysis shows to be fully as nutritious as timothy hay. The McCormick husker and shredder enables the farmer to husk and shred his corn at one operation, thus saving time as well as all of the corn, and practically doubling the value of the crop.

CORN IS KING.

If you raise corn you need to use the latest and most approved appliances, not only for cultivating the crop, but for harvesting it as well. We cannot urge our readers too strongly the importance of investigating the merits of the Badger Corn Har-

IT'S ALL IN THE DISCS



The Farrington Duplex Pasteurizer.

"Kills two birds with one stone." Heats and cools all in one machine. All metal. Either Belt or Turbine driven.

Write for prices.

Send for our circular on Pasteurizer for milk plant.

Creamery Package Manufacturing Co.,

BRANCH HOUSES: Kansas City, Mo. Minneapolis, Minn. Waterloo, Ia. Omaha, Neb. St. Louis, Mo.

1. 3 and 5, W. Washington St.

Chicago, Ill., U. S. A.

Canadian Branch: Cowansville, Quebec.

Did You Ever Keep a Record Of Your Cows?

IF SO, you have felt the need of a convenient, simple and handy Record Sheet. We have had so many requests for these Record Sheets that we concluded to get up one that would "fill the long felt want." We have a very simple and complete Record Sheet for 10 cows, one month, that is printed on heavy Manilla Paper, we can send postpaid at following prices:

Price 5c Each | 6 for 20c | 12 for 30c | 25 for 50c

SIZE 10x16 INCHES

We also have a one cow Record Sheet, heavy Manilla paper (one month) that we will mail postpaid

Single Copy 5c | 5 for 15c | 10 for 25c | 25 for 40c

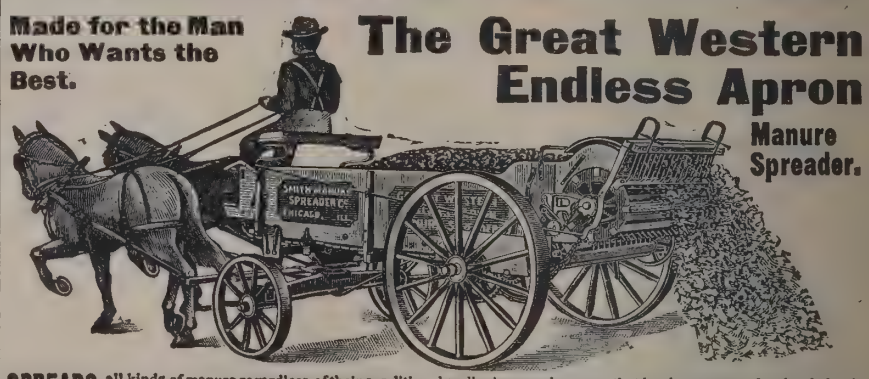
SIZE 6x15 INCHES

HOARD'S DAIRYMAN.

FORT ATKINSON, WIS.

Made for the Man Who Wants the Best.

The Great Western Endless Apron Manure Spreader.



SPREADS all kinds of manure regardless of their condition, handles barnyard manure that has been tramped so hard that it is necessary to loosen with pick, fresh stable manure, containing wet or dry straw, corn stalks, etc. Old straw stack bottoms, whether rotted or not. Cow manure fresh from the gutter, sheep manure, lime, salt, ashes, and in fact all kinds of manure and fertilizers and does it quicker, better and more evenly than by hand. Spreads as much manure in one day as 15 men can by hand. Spreads the largest load in 2 to 4 minutes. Makes the same amount of manure go three times as far and produce better results. Every machine has our NON-BUNCHABLE RAKE which forms a hopper and holds all hard chunks of manure in contact with beater until thoroughly pulverized before discharging, therefore no bunching or uneven work. The ENDLESS APRON is one continuous apron (Not a ½ apron) and therefore is always ready to load, no turning back into position with crank or reverse gears to cause breakage. Apron does not extend below axle. The Combined HOOD AND END GATE keeps manure away from beater while loading, prevents choking of beater when starting and acts as a hood and wind shield in spreading. Starts the manure in the right direction, therefore spreads more evenly. **It has a graduating lever and can be regulated to spread thick or thin 8 to 25 loads per acre while in motion. It catches the poor spots with a double dose.** LIGHT DRAFT 1st. Because the load is nearly equally balanced on front and rear wheels. 2nd. The team as near load as it can work. 3rd. Front and rear axles are same length and wheels track. 4th. Beater shaft runs in a **ball and socket bearing,** therefore no friction. **Beater** is 23 inches in diameter. Has a shipper that **positively** throws machine into and out of gear and holds it there. STRENGTH AND DURABILITY. Our machine is **Seat** turns over when loading. Machine turns in its own length. made so strong that it is almost impossible to break it. Every piece is made extra strong regardless of cost. Every gear and sprocket wheel is keyed on. We use no pins or cheap crontrivance to come loose, get out of order, break and cause trouble. GUARANTEE. Should any part break, wear out, or get out of order within one year, we replace free of charge. LARGE CATALOGUE 10 by 13 inches, with 8 large cuts shows spreader perfectly and describes it fully. Gives 34 reasons why the **Great Western Endless Apron Manure Spreader** is the best and most complete machine made and why you should have one. Also tells how to apply manure to secure best results. **Mailed free.**

SMITH MANURE SPREADER CO., 59 N. JEFFERSON ST., CHICAGO, ILL.

BLIZZARD

Safe, Strong and Efficient.



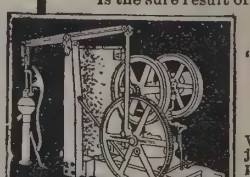
Cuts and Shreds all kinds of Dry and Green Fodder and elevates it to any desired height through a PNEUMATIC TUBE. No sprocket, no link belt, no elevator buckets, web, slats, etc. **Saves power, breakage and annoyance.** It cuts various lengths; **any capacity you want.** Call at your dealer's and examine it or write us for circulars and descriptive matter, &c

Joseph Dick Agricultural Wks., Box 20, Canton, Ohio.

Painkiller PERRY DAVIS' CURES CRAMPS & COLIC

A Steady Water Supply is the sure result of the use of our

Webster "Handy Man" Gasoline Engine.



Walking beam pump jack attached. Fits any pump and suited to either deep or shallow wells. Best thing ever made for the purpose.

1 1-2 Full Horse Power. Pulley for belting to light machinery—grinding, separating cream, churning, spraying, irrigating, etc. Simple, safe, efficient. Fully guaranteed.

Catalog of Vertical and Horizontal Engines of all kinds. FREE.

WEBSTER MFG. CO., 1086 W. 15th St., Chicago, Ills.

vester, as manufactured by I. Z. Merriam of Whitewater, Wis. See ad in another column.

WHY COWS SHOULD BE PROTECTED FROM FLIES.

Every thinking farmer and dairyman knows that if he protects his cows from flies during the hot days, they will give in return a larger quantity of milk and gain instead of losing flesh. Then there is also to be taken into consideration the fact that when cows are thus protected during fly-time, there's no difficulty experienced in milking—no irritable cows, with their continual whirling of tails. A stock protector that is having a large sale just now, and which is claimed to be the best manufactured, is familiarly known as "Shoo Fly." This wonderful protector of cattle in fly time is a harmless liquid that not only keeps flies away, but kills all that come in contact with it. Cures all sores, scratches, skin diseases, hoof ailments, etc. "Shoo-Fly" is for sale by most all dealers, but if for any reason it cannot be obtained, send $1.00 to the Shoo-Fly Mfg. Co., 1005 Fairmount Ave., Philadelphia, Pa., and get in return the latest improved three-tube sprayer and enough "Shoo-Fly" to protect 200 cows. If it does not do what is claimed for it, money will be cheerfully refunded.

BROTHERTOWN STOCK FARM SALE.

In the advertising columns of this issue will be found the second announcement of the public sale of the celebrated Brothertown Herd of Holstein-Friesian Cattle. This sale will be an occasion of rare interest for the Holstein-Friesian World. We believe there was never a more propitious time for breeders to add worthy animals to their herds, and we trust that a large delegation will attend the sales.

The sale will be held at the home of the World's Champions, at Brothertown Stock Farms, Deansboro, N. Y., July 15, 1903, and will commence at 10 a. m. sharp. The farm can be reached over the O. & W. to Deansboro, N. Y., or over the D. L. & W. to Waterville, N. Y., or on the street car from Utica to Clinton, N. Y. Visitors will be met at trains promptly and livery can be obtained at Clinton to get to the farm.

The first animal in the catalogue is Canary Mercedes Johanna DeKol, a sire of great individuality and choice breeding, now in his two year form. His dam is the great heifer Canary Mercedes Brightest, with official record of 21 lbs. 3 oz. butter in seven days at an age of 2 years, 11 months. Her average test being 4.34 per cent butterfat, and his grandam is the great cow, Canary Mercedes, with official record of 25 lbs., 2.6 oz., butter and average test of 4.96 per cent butter fat. He is sired by Johanna Rue 2nds Paul DeKol who has now 13 daughters in the Advanced Register and his dam is Johanna Rue 2nd, with official record of 21 lbs., 4.5 oz. butter in seven days, and his granddam is Mutual Friend 2nd, with official record of 25 lbs. 12.2 oz. butter in 7 days. The average production of his four nearest dams is 23 lbs., 5.6 oz. butter, and they aver age over 4 per cent butterfat.

The Mercedes family is too well known by the high percentage of butter fat and the get of the above bull will speak for itself.

Canary Mercedes Brightest 2nd, a full sister to the above sire, is a well proportioned heifer and in calf to Sir Pietertje Posch, a son of the famous heifer, Alta Posch, with official record of 27 lbs. 3 oz. butter at an age of 2 years 11 months, this being the world's record for 2 and 3 year-old cows. Two of the most attractive numbers of the catalogues are Sadie Vale Concordia, the world's Champion butter cow with official record of 30 lbs. 10.2 oz. butter in seven days, 123 lbs. 10.7 oz. butter in 30 days and 220 lbs. 8 4 oz. butter in 60 days, and Mercedes Julip's Pietertje with official record of 29 lbs. 5.7 oz. butter in seven days. Mercedes Julip's Pietertje will be fresh in about 12 days, and she will be in fine condition at the time of sale.

Both cows are too well known to enter into details of their breeding, both have added new glory to the breed, and undoubtedly many new admirers and friends have been won over by the great performance of those two noble animals.

A son of the World's Champion, Sadie Vale Concordia's Paul DeKol, is also another attraction. He is a fine, vigorous bull, 3 years old, very straight and a fine handler. He is sired by Paul De Kol 4th, and was bred at the well known Yeomann's herd. The average production of his 11 nearest dams, mostly tested by Messrs. Yeomanns, is 23 lbs. 6 oz. butter in seven days. This includes the record made by his granddam at an age of 22 months. All other cows in his pedigree average over 20 lbs. butter per week. A half sister of Sadie Vale Concordia, sired by Paul DeKol, is also offered. This sale includes 2 daughters and 9 grand daughters of Sadie Vale Concordia, also a daughter and granddaughter and one prospective calf of Mercedes Julips Pietertje.

There is a number of very choice cows in calf to Sir Pietertje Posch or to Sadie Vale Concordia's Paul DeKol, or to Canary Mercedes Johanna De Kol, some of them with large official records, of fered. Also a number of very choice calves of both sexes, backed by large official records and by the best of breeding. Messrs. McAdam and Von Heyne have always used the best sires obtainable and have feared no expense of getting them. This sale is a fine opportunity for breeders to improve their herds with a new addition of the most fashionable breeding. The beginner has also a chance to select a foundation herd of the most noted families and combinations.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Nymphomania.

One of my cows, to all appearances, is with calf, but seems to be in heat all of the time. C. M.
Wausau, Wis.

ANSWER.

This is a diseased condition of the clitoris which may be remedied by amputation of this organ. Employ a qualified veterinarian and have him make a thorough examination.

Sore Teats.

My cows have got sore teats and it is almost impossible to milk them; they crack open and bleed. The cows are out to pasture. Do you think they are caused by the cold winds? M. M.
St. Johnsbury, Vt.

ANSWER.

Traveling through wet pastures and pools of water by which the teats are immersed in the water or mud and afterwards dried by the air or wind is the usual cause. Wash the teats clean with soap and water and rub thoroughly dry, then apply glycerite of tannin, after each milking.

Selulitis.

I have a cow with sore eyes. Her eyes water and seem as if she has pus in them, and in the morning they are closed and has a time to get them open, and swollen good deal. The pus and water always run out of her eyes. The eyes seem to be sound otherwise. SUBSCRIBER.
Concordia, Mo.

ANSWER.

Bathe the eyes morning and night with camomile tea and add to each pint of the tea 10 grains of boric acid.

Unknown Disease.

One of my cows giving a good supply of milk came in heat, took the bull, was put into the barn during the day. The next day was in just as high heat. Kept in barn. Did not eat or drink anything, but bawled a good deal. Next day she was just the same and when turned out she wanted to jump on the cattle. When she stood and bawled she would fall down. Did not eat or drink and continued in that way, and when so weak she could not get up would bawl just the same, and finally died. A SUBSCRIBER.
Lone Rock, Wis.

ANSWER.

It would require a personal examination to ascertain the nature and cause of this disease. A post mortem examination would probably bring some light on the subject.

Milking from Six Teats.

A cow that milks out of six teats, the small ones on the back, makes it troublesome and also disaggreeable to milk her. W. H. T.
Melville, N. J.

ANSWER.

It is not advisable to milk the two little teats at all when she comes fresh. If you would not milk them from the start, they would not secrete milk and your extra work would be avoided.

Scabs on Teat—Abscess.

Several cows of the herd have sore teats. Begins with small scab, black. One swelled up and cracked open; the first one looked as if cut with wire fence. That one is well, having used creolin. The others do not respond to this treatment. Is it cow pox? Another cow at calving, retained afterbirth. I removed by hand; in a day or two she seemed lame in one hind leg. A swelling came just above the knee outside. Is not lame now. Could she have had milk leg and shall I have it lanced? F. W.
Hopewell Ctr., Pa.

ANSWER.

1. Wash the parts clean with soap and water after each milking, then rub dry and apply glycerite of tannin.

2. The enlargement appears to be an abscess. Have it lanced and keep parts clean thereafter.

Stringy Milk.

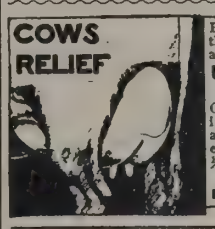
Have a cow that gives a sort of a gargety, or stringy milk, a'so bloats very easy when eating but a little grass. SUBSCRIBER.
Augusta, Wis.

ANSWER.

The condition of the milk together with the other symptoms are good evidences of indigestion. Give a complete change in diet, and a full dose of physic, small and frequent feeds of easy digestible food may be given; also give a tablespoonful each of powdered ginger and hyposulphite of soda, in food twice daily.

Horse Owners! Use
GOMBAULT'S
Caustic Balsam

A Safe, Speedy, and Positive Cure
The safest, Best BLISTER ever used. Takes the place of all liniaments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*
Every bottle sold is warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O.


COWS RELIEF
Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.
Used Exclusively at Model Dairy
Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.
O. H. MFG. CO.,
Dept. H, Lyndon, Vt.

Hay Fever and Asthma
Cured to stay cured. Never return. A radical departure. Cause eliminated. Constitution changed.
FREE Nerves reconstructed. Splendid health. Over 52,000 patients. Good references. ("Reliefs," or change of climate, cannot cure..) Write for BOOK 41 F FREE, containing reports of many interesting cases. Address
DR. HAYES, Buffalo, N. Y.

Leg and Body Wash.

When it comes to stiffness and soreness of muscles, tendons, etc., nothing equals
Tuttle's Elixir
for restoring normal conditions. Apply to the body as a mild sponge bath and put on light blanket. Sponge the legs and put on light bandages.
Used and Endorsed by Adams Express Company.
Tuttle's American Condition Powders
—A specific for impure blood and all diseases arising therefrom.
TUTTLE'S FAMILY ELIXIR cures rheumatism, sprains, bruises, etc. Kills pain instantly. Our 100-page book, "Veterinary Experience," FREE.
Dr. S. A. TUTTLE, 62 Beverly St., Boston, Mass.
Beware of so-called Elixirs—none genuine but Tuttle's. Avoid all blisters; they offer only temporary relief, if any.

THIS TRADE MARK
on a package guarantees to the public that it is genuine. Beware of imitations. Substitutes yield the dealer more profit, but cost you the same.
Bickmore's Gall Cure


is the quickest, surest and best cure known for Harness, Collar and Saddle Galls, Scratches, Grease Heel, Speed Cracks, Wire Cuts, etc. Just as good for Chapped, Torn or Cracked Teats on cows. Sold by all dealers and guaranteed by us. Sample mailed for 10 cents. Get it now and have it ready when you need it.
BE SURE AND WORK THE HORSE.
BICKMORE GALL CURE CO., Box 515, Old Town, Me.


The Books are Free

Spavin Lump Jaw
You can cure Bone Spavin, Bog or Blood Spavin, Ringbone, Curb, Splint or any Blemish hard or soft, Fistula, Poll Evil, Sweeny or Knee-Sprung, also Lump Jaw in cattle, with very little trouble or cost. Our two booklets tell you how and prove that you can do it, and we will guarantee you success in every case. Over 140,000 farmers and stockmen are doing it our way. If you have a case to cure write us and we will send you the books free.
FLEMING BROS., Chemists,
22 8 Union Stock Yards, Chicago, Ill.

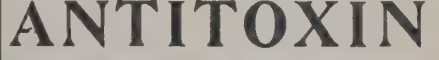
Make Cows Breed
Hood Farm Breeding Powder does it. Write for circulars telling how and why. Best remedy for failure to breed, failure to clean, irregularity in coming in season.
By mail, $1.15. Four times larger size to any railroad express point in U. S., $2.75. C. I. HOOD & CO., Lowell, Mass.


ABORTION
Can be successfully treated with Anti-Abortion Serum. Easily administered and permanently cures. Information free.
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RUPTURE CURED while you work. You pay $4 when cured. No cure, no pay ALEX. SPEIRS. Box 846, Westbrook, Me.


"Just as good?" "Just as good!" Did you say? "Just as good as Veterinary Pixine!!" The dealer who tells you that is mistaken. He does not know
FACTS AND TESTS PROVE IT!
Emery, Ky., April 9, 1903.
I feel it my duty to tell what Veterinary Pixine did for a horse of mine. He was cut with a knife between the fore legs three inches deep and two inches long, which every minute would gap open. I used several different kinds of remedy without success, even to having some stitches taken. Nothing did any good and it kept swelling and became feverish I almost gave up hopes of getting him well. In the columns of the Ohio Farmer I observed your advertisement and, as it was the last chance, I purchased a box at the druggists and used it as directed and before the box was used up the cut was entirely well. I intend to keep a supply on hand for emergency cases if I have to pay a dollar a box for it. Please accept my thanks for the good I have received from its use, and if you choose you can use my name and testimony.
W. S. CAMPBELL.
This penetrating, stimulating, soothing, absorbing, antiseptic, healing ointment heals from beneath the surface by disinfecting the parts, subduing inflammation and stimulating healthy granulations, not by drying and scabbing, and stimulates growth of hair, natural color. Makes quick, clean and healthy cure; heals stinging, burning, chronic saddle and collar galls, hopple chafes, abscesses, caked bag, cow pox, and hoof rot. It penetrates, stimulates, sooths and heals while horse works. Money refunded if it fails.
Price, 2-oz. box 25c; 8-oz. box 50c; 5-lb. pkg. $4.00, at all druggists and dealers or sent prepaid.
TROY CHEMICAL CO., Troy, N. Y.
Also Manufacturers of "Save-the-Horse" Spavin Cure. $5.00 a bottle. Send for copy of guarantee and booklet.

ABORTION,
Retention of Placenta and Failure to Breed.
KELLOGG'S CONDITION POWDER
is a positive cure for these diseases. Write for circular containing full information, references and price.
H. W. KELLOGG COMPANY, St. Paul, Minn.

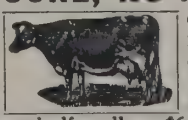
ABORTION,
Failing to Breed and to bring Cows to Heat. Sure Cure. In use 20 Years.

(Patent Applied For)
Hard Rubber *Safety* Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.
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For the Cure and Prevention of Milk Fever.
No quackish humbug but a scientific fact. Works on same principle as antitoxin injection in man for diphtheria, destroying poison in system. Four doses $2.00, 12 dozes $5 00. No less than 4 doses sold. Easily administered with syringe. For particulars address
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☞ Your Horse can work without p in while his sore breast is healing if you use MOORE BROTHERS'
GALL POWDER
the most effective cure ever known for healing sore shoulders, backs and other skin abrasions; at druggists, or by mail $1.00. MOORE BROTHERS, Veterinary Surgeons, Albany, N.Y. "Facts for Farmers and Breeders," sent free.

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NO CURE, NO PAY
WRITE, giving symptoms and directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address

of animal sick, and will ship you sufficient to cure your cow with full
DR. EATON J. GROSS,
152 Congress St., Troy, N. Y

Cost of Milk in New Jersey.

Beginning April 1st, 1896, records have been kept at the New Jersey Experiment Station showing the cost of making milk. No other station has made investigations at all comparing with these New Jersey investigations in length of time, in fullness of detail, and in accurate computation of all the elements of cost, and we present a summation of the record, which will serve producers as a basis for computing their own cost of production. The New Jersey conditions and computations will answer for all the New England States and the Middle States, and therefore the appended summation is equally interesting and valuable. The station report gives the elements of cost as follows in

TABLE IV.

The kind, the amount and cost of foods for the 30 cows of the dairy herd for one year, April 1st, 1900, to April 1st, 1901:

	Pounds fed.	*Cost a ton.*	*Total.*
Wheat bran	34,000	$18.00	$288.00
Dried brewers grains	26,100	14 50	189.23
Corn meal	15,000	21.00	157.50
Linseed meal	1,800	28.00	25.20
Cottonseed meal	9,000	27.00	121.50
Pea meal	2,000	18.00	18.00
Cost of feeds			$799.43
Soiling crops	360,000	1.20	216.00
Silage	200,000	2.50	250.00
Dry cornstaks	20,000	4.00	40.00
Hay	30,000	5.34	80 10
Cost of roughage			$586.10

Total cost of food	$1,385.53
Cost per cow per day	12.65 cents
Cost of feeds	$799.43
Cost per cow per day	7.30 cents
Cost of roughage	$586.10
Cost per cow per day	5.35 cents
Total yield of milk	89.851 quarts
Average per cow per day	8.26 quarts
Cost of food per quart	1 54 cents
Cost of feed per quart	.89 cents
Cost of roughage per quart	.65 cents

The cost of feeds represents what was actually paid for them. The cost of hay, corn stalks and soiling crops represents the actual cost of labor, seed and manure; the farm manure being charged at the rate of $1.50 per ton.

The average cost of the daily ration was 12.65 cents, of which 7.3 cents, or 57.7 per cent, is due to purchased feeds, and 5.35 cents, or 42.3 per cent, to the cost of farm crops. The total cost of producing milk, including the cost of labor and the interest on the decrease in the value of the herd, the latter item being estimated.

TOTAL COST OF PRODUCING MILK.

Foods as per statement		$1,385.53
Labor	$600	
5 per cent int. on herd value	60	
5 per cent decrease in value	60	720.00
Total		$2,105.53
Cost of food per quart of milk	1.54	cents.
Cost of work and int. per quart	.80	"
Total cost per quart	2.34	"

TABLE V.

Average cost of producing milk for four years:

	Cows.	*Pounds.*	*Quarts.*	*Lbs. per cow.*
1896	23	1415'7	64916	6:53
1897	25	154768	7c990	6191
1898	25	172726	79232	6911
1899	30	198345	90084	6612
1900	30	195875	89851	6529
Average		172646	79195	6479

COST PER DAY PER COW.

	Feeds.	*Roughage.*	*Total.*
1896	4.99 cents.	6.64 cents.	11.66 cents.
1897	5.06 "	6 38 "	11.44 "
1898	6.53 "	6.16 "	12.69 "
1899	6 65 "	6.58 "	13.23 "
1900	7.30 "	5.35 "	12.65 "
Average	6.11 "	6.21 "	12.32 "

COST PER QUART OF MILK.

	Feeds.	*Roughage*	*Labor and interest.*	*Total.*
1896	.646c.	.865c.	.99c.	2.49c.
1897	.650c.	.820c.	.92c.	2 39c.
1898	.750c.	.710c.	.82c.	2.28c.
1899	.800c.	.790c.	.79c.	2.38c.
1900	.890c.	.650c.	.80c.	2.34c.
Average	.747c.	.765c.	.86c.	2.38c.

Milk and Cream Fat Content.

ED. HOARD'S DAIRYMAN:—I bought a De Laval Baby No. 2, hand separator and find by several tests, at several places and times, two-tenths of one per cent butter fat. Would you call it clean skimming? My average test is 4.2, and at the creamery, they allow me 27 per cent on cream. Is that right? My first test was 30, then 28, next 27. I turn it as regular as clock work. Milk is separated as it comes from cows; didn't change anything on separator; don't mix cold and warm cream together; keep the cream in a very cold place, and cannot account for the change.

When I started in, it took 7¼ pounds of milk to one pound of cream, now it takes 8½ pounds at the same test of milk 4.2. Could you tell me what cream test I ought to have on milk testing 4.2? Please answer through your paper, others are interested in it. A. F.

Don's Prairie, Cal.

We can only repeat what we have so often said in the past, that both milk and cream vary in per cent of fat without any known reason, and that by no known method can a dairyman with a hand or power separator, obtain cream containing the same amount of fat from day to day. All dairymen should buy and use a Babcock test, then they would know and not guess the amount of fat they are producing and selling.

The cow is an uncertain quantity as a fat producer; always was and always will be and until the dairyman knows for himself and does not depend on the say-so of other men, there will always be room for discussion and controversy as to the amount of fat supplied to the creamery. In the above case, fresh cows in the herd or turning the cows on new grass pasture would account for any changes in the quality of cream. Also the separator changes as well as the cow. The skim milk should not contain more than 0.1 per cent of fat. More than that is a waste. There is nothing in the above statement to indicate what your cream should test, as we do not know how much cream is taken from the milk; it may be anywhere from 20 to 40 per cent fat, But if 20 pounds of cream are taken from every 100 lbs. milk, the cream should contain 20.5 per cent of fat. allowing a loss of 0.1 per cent in the skim milk.

Difference in Farms and Pastures.

Is it a fact that cows will milk better on some farms than others, although cared for by the same parties, and with seemingly the same care? Are grasses on some farms better adapted to producing milk than others? If you can give me any light on this, it will be greatly appreciated.

Clinton, N. Y. A. W. R.

There is, of course, very great difference in farms and pastures, as well as between different acres on the same farm. The character of the soil modifies the quality and constituent elements of the herbage in a very marked degree.

The LAGUNA de TACHE GRANT

Laton, Fresno County, proves to be an Ideal Home for Farmers and

DAIRYMEN

60,000 ACRES OF IRRIGATED LAND IN THE

HEART OF CALIFORNIA

Alfalfa a specialty. Creameries on the Estate. Ample Railroad Facilities.
Land Sold on Easy Terms in Small or Large Lots.

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Special Offer of Fine Dairy Farm

ADJOINING RED WING, MINNESOTA.

174 ACRES—140 under high cultivation, balance good pasture and woodland. Has complete machinery for Dairy, with power, etc., and all machinery for cutting corn. Two large silos, sufficient to hold feed for 50 cows, and large barn to tie up 70 head. One new house—could not be built for less than $2,500; another good house for help. Large horse barn and granary. Improvements could not be duplicated for less than $7,500. Monthly receipts over $600. All for sale at $12,000.

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in Central Wisconsin? We offer very desirable lands to actual settlers. Our lands are in Marathon County and are some of the very best hardwood, agricultural and dairy lands in the state. Deep clay loam soil. Good water easily obtainable at but little depth. Country opened with good roads and well populated.

Schools, both public and parochial, churches, general stores, bank, creamery, etc., within easy reach. Ready market for farm and forest products.

Terms reasonable. If you desire to improve your condition write for further particulars to

RIETBROCK LAND & LUMBER CO., ATHENS, WIS.

16000 ...ACRES...

Of the Best Hardwood Lands in Northern Wisconsin.

They are located in Lincoln, Langlade, and Oneida counties, and only 240 miles from Milwaukee on main line of C. & N. W. R. R., Ashland Division.

These lands are especially selected and are very fine lands for dairying. The land is level, free from stone, and no soil ever produced better crops of hay, grain, and vegetables. Good roads, schools, and churches. Excellent water, both in running streams and lakes, where fishing and game abound. These lands have never before been offered on the market. Are for sale at a low price and on easy terms.

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or THE JEFFRIS CO.,
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FREE HOMESTEADS OF 160 ACRES

(the only charge being $10 for entry) in Manitoba, Assiniboia, Saskatchewan and Alberta. Send to the following for an Atlas and other literature as well as for certificate giving you reduced rates, etc. Superintendent of Immigration, Ottawa, Canada; or to the authorized agent of the Canadian Government—

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J. M. MacLACHLAN,
307 Third Street, - Wausau, Wis.

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Are pouring into the Northwest from every country in Europe. If you have any desire to make money by land investment, you must hurry. We have excellent dropositions. Write us what you want, where you want it. We own all kinds of land in Minnesota, Wisconsin and N. Dakota, and can please you. Maps sent on application. Agts wanted

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198 acres, 1½ miles west of University. Would sell farm with or without stock. Write for detail description, G. B. M.,
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Choice farming lands for sale in Central Wisconsin. Write us.

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Containing 214 ACRES of high, flat land in the town of Marcy, Oneida Co., N. Y., seven miles from Utica and one mile from Oriskany, in the Mohawk Valley. A large colonial brick house, four bay barn in excellent condition; reputed to be the best dairy farm in Oneida Co., will be sold at Public Auction to the highest bidder by the undersigned Referee appointed for that purpose by judgment of the Supreme Court in an action of partition, at the Court House, Utica, N. Y., June 25, 1903, at 12 m. Will keep from 80 to 100 head of cattle and near several lines of railroads. Well adapted for a fancy stock farm. Address inquiries to CLARENCE STETSON, Referee, or Lewis, Watkins & Titus, Plff's. Atty's., Utica, N. Y.

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in Dunn, St. Croix, Barron, and Price counties make the best homes on earth; because, 1st., soil heavy; 2d., some timber, fuel cheap; 3d., springs and streams numerous; 4th, no blizzards or drouths; 5th., no sand or pine stumps; 6th, near the best northern markets; 7th, best dairy section known; 8th., no crop failures; 9th., successful settlement and all prosperous; 10th., corn, oats, wheat, rye, potatoes, tobacco, hay, etc., unexcelled in the United States.

If you want a Canadian home, we can, and will take you to the best locality in Manitoba or Assiniboia. Send for catalogue or come yourself. We sell on easy terms our own lands in Wisconsin and Canada. DUNN COUNTY LAND CO., Downing, Dunn County, Wisconsin, or 156 East 3d Street, Rooms 5 and 6, St. Paul, Minnesota.

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I can serve you better than ever with eggs for hatching. White, Barred and Buff Rocks, Cornish Indian Games, Dark Brahmas and many other varieties. Also Ducks and Geese. All prize winners. Write for prices. J. P. Gonigam, Ottawa, Ill.

The Relative Value of Alfalfa, Wheat Shorts and Skim Milk to Supplement Corn for Fattening Pigs.

(Press Bulletin.)

The object of the experiment just performed at the Nebraska Experiment Station and described below was (1) to show that corn can be fed more economically in conjunction with foods rich in protein and mineral matter, and (2) to determine which of three common foods is the cheapest source of protein.

Twenty pigs, uniform in type, all in good condition, were placed in four lots, five pigs in each lot. They were put on their experimental rations long enough to become accustomed to the change before the initial weighings were made.

The alfalfa fed in this experiment was in the nature of chaff, consisting mostly of leaves which had fallen from the hay as it was thrown from the mow to the barn floor for cattle. For the purpose of making a true comparison of these leaves with the whole plant, an analysis was made. The leaves were found to be 40 per cent richer in crude protein than the entire plant, 30 per cent higher in fat, 15 per cent higher in mineral matter, and 50 per cent lower in crude fiber, which substance is largely indigestible matter. This chaff was first mixed with the corn meal, then placed in the feed trough, where it was made into a thick slop with water. The other lots were fed in the same way, except that the feed for lot 2 was mixed with skim milk instead of water.

FINANCIAL STATEMENT.

With the alfalfa hay worth $7 per ton, the leaves, containing 40 per cent more protein, would be worth approximately $10 per ton. The shorts cost $12.50 per ton, delivered. The Dairy Department charged fifteen cents per hundred for the skim milk used. Corn was delivered to the barns at thirty cents per bushel. Adding the usual rate of six cents per hundred for grinding, the corn meal cost $12 per ton. At these prices, each hundred pounds of gain in the several lots cost as follows:

Lot 1.	Corn alone	$4.48
Lot 2.	Corn and skim milk	3.97
Lot 3.	Corn and shorts	3.53
Lot 4.	Corn and alfalfa	3.40

The skim milk pigs were the most hearty feeders and made the heaviest gains, but it proved a more expensive source of protein at the prices quoted.

This experiment shows that at the market prices quoted and in the proportions used in the experiment, skim milk will make corn bring four cents more per bushel, wheat shorts eight cents more, and alfalfa leaves nine cents more. Assuming that only 5 per cent of the 252,520,173 bushels of corn produced in Nebraska this year, is being fed to hogs as a single food, these figures would go to show that over $1,000,000 more wealth would be added to the state if wheat shorts or alfalfa were substituted for one-fifth of the corn fed.

THE SLAUGHTER TEST.

Since corn is deficient in protein and mineral matter, we should naturally expect that pigs when supplied more of these materials from other sources, would have a greater proportion of lean meat, more blood and bone, better developed vital organs, and therefore greater bodily vigor.

After the pigs were finished for market, one was selected from the alfalfa lot to represent the pigs that were supplied more protein. A pig twelve pounds heavier was taken from the corn-fed lot. These were both slaughtered and cross-sections of the carcasses placed before the students of the School of Agriculture for examination. All were quick to identify the alfalfa-fed pig by the thicker streaks of lean and thinner layers of fat meat. Both the pigs dressed 83.7 per cent of their live weight. The internal organs weighed as follows:

	Corn Pig.	Corn and alfalfa pig.
	Pounds.	Pounds.
Heart	.7	.7
Lungs	1.2	1.4
Liver	3.4	3 9
Blood	5.4	5.7
Intestinal fat	5.	5.7

This slaughter test shows that by supplying more protein, in this case by feeding alfalfa, we get a greater development of internal organs and more health and vigor. Undoubtedly, if more attention were given to supplying such foods as will bring about a healthy organism, losses from cholera and other diseases would be greatly reduced.

The strength of the thigh bones was tested by providing supports at both ends, applying pressure in the middle. This test was made in a machine for testing strength of materials. The bones of the corn-fed pig measured one-sixteenth of an inch larger in diameter. One bone from the corn-fed pig broke under a pressure of 320 pounds, and the other 330 pounds. One of the bones of the corn-and-alfalfa-fed pigs broke at 500 pounds, and the other at 520 pounds. From this test it is evident that break-downs, which often occur in heavy corn-fed hogs, are the fault of the feed rather than the animal. It further shows that the ability of the hog to stand up well on legs is a matter of density of bone rather than size.

In another experiment, varying quantities of alfalfa will be fed to determine the best proportion for making the most economical gains.

E. A. BURNETT.
H. R. SMITH.
Nebraska Experiment Station.

The Tennesee Farmers' Convention.

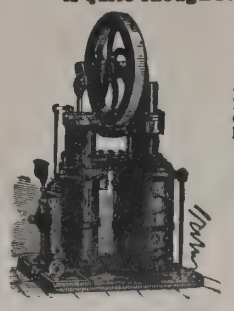
ED. HOARD'S DAIRYMAN: — The Southern farmer has come to appreciate the value of education. This was shown at the 28th annual meeting of the East Tennessee Farmers' Convention recently held in Knoxville, where over 1,200 of the best farmers from Tennessee, Kentucky, Virginia, Alabama, Georgia and the Carolinas, assembled. While a number of gentlemen of national reputation were present, they did not have a monopoly of the good things, for rarely have better discussions been heard from the farmers. This is a healthy sign; it shows that the farmers are thinking and reading and equipping themselves to meet their difficult problems.

The subject of grasses attracted a good deal of attention. Blue grass had many advocates, but as it is only adapted to certain sections; there were many who favored Bermuda. Gentlemen who have had experience with this grass asserted that it would produce 200 pounds of beef per acre. One of the best papers presented was on tall oat grass. It was shown from the results of investigations at the Experiment Station, that excellent hay and pasture can be had from combining tall-oat grass, orchard grass and meadow fescue with red or alsike clover.

There is a growing interest in stock husbandry. This was evidenced by the crowd surrounding Prof. Shaw while he scored some typical beef and dairy cat-

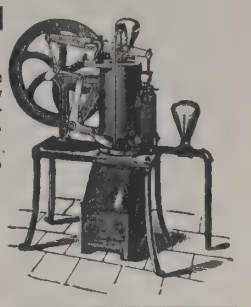
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It pays for itself on the first crop grown after its use.



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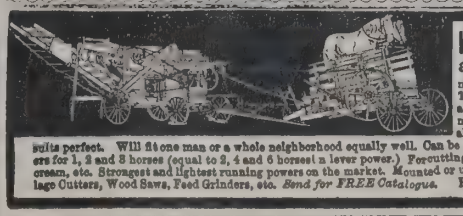
wet, dry, lumpy, caked, strawy, full of corn stalks, etc., better than it can possibly be done by hand. Spreads lime, ashes, salt, compost, etc.

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will save more hard labor, more time, more money and bring about better results than any other machine that can be employed on the farm. It trebles the value of even a small amount of manure. It is the only thing that can successfully top dress wheat in the spring, meadow lands, pastures, etc. Can be hauled onto any land easily and without injury to land, as wheels have broad tires. Can be turned on the ground it stands on, as front wheels turn entirely under. It is strong and durably made of good material and with ordinary care will last indefinitely. Greatly improved for 1903. Send for new illustrated catalogue and "How to Grow Big Crops"—Free. Remember that the only original and genuine Kemp Manure Spreader is made by us and the patents thereon have been fully sustained by a recent decision of the U. S. Circuit Court.

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make the handiest and most economical threshing outfit known. The thresher is made in three sizes, 21, 26 and 30 in. cylinder. It is a simple, easy to handle, light running, strong, durable and effective machine. Will thresh and clean wheat, rye, oats, barley, flax, rice, alfalfa, millet, sorghum, timothy, etc. Capacity 200 to 500 bus. Results perfect. Will fit one man or a whole neighborhood equally well. Can be run by steam, gasoline, or any other power if preferred. Tread powers for 1, 2 and 3 horses (equal to 2, 4 and 6 horses on a lever power.) For cutting dry feed, ensilage and shelling, sawing wood, pumping, separating cream, etc. Strongest and lightest running powers on the market. Mounted or unmounted, as ordered. We also make Lever Powers, Feed and Ensilage Cutters, Wood Saws, Feed Grinders, etc. *Send for FREE Catalogue.* HEEBNER & SONS, No. 20 Broad St., Lansdale, Pa.



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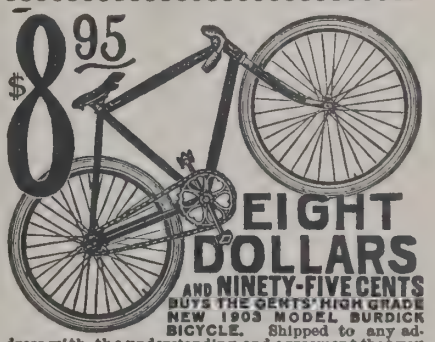


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FOR OUR FREE SPECIAL BICYCLE CATALOGUE showing the most complete line of new 1903 model gents', ladies' and children's bicycles at prices so low as to be really startling, for everything in bicycle sundries and supplies, for the most astonishingly liberal offer ever heard of, cut this advertisement out and mail to

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DON'T SEND A CENT Try a "1900" Washer for 30 days, free of all charges, freight prepaid both ways. The "1900" Ball Bearing Washer is the simplest, easiest machine ever made for washing clothes. Saves time, money and worry. Write at once to "1900" Washer Co., 219 A State St., Binghamton, N. Y.

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Cures SHEEP SCABS and TICKS. CHLORO-NAPTHOLEUM DIP—the great stock remedy—cures all ailments of sheep; scabs and itch, ticks and lice; heals sores, scratches and cuts. It is strictly non-poisonous, will not injure eyes nor harm if swallowed. Veterinarians prescribe it as a drench for the *cure of Stomach Worms in Sheep.* Get our *free book* on the treatment and prevention of sheep and cattle diseases, with facts based upon Government experiments and reports from prominent breeders. It is the Sheep Breeder's Guide to Wealth. CHLORO-NAPTHOLEUM DIP not only keeps sheep healthy and free from parasites, it increases the growth of wool and makes the clip more valuable. Lime-Sulphur, nicotine and arsenical dips, and all the dangerous kinds, have long since yielded place to CHLORO-NAPTHOLEUM DIP the safe, economical and efficient dip for sheep, hogs, cattle and all stock. *PRICES, Freight Prepaid,* 1 gal. $1.50; 5 gals. $6.75; 10 gals. $12.50. Larger lots at lower rates. *Local Agents* make money by our liberal terms. Write. We sell dipping tanks and sprayers at special low prices to our customers. Prices on request. Write for Sheep Book, or book on diseases of any stock, sent free. West Disinfecting Co., Inc., 8 E. 69th St., New York.

What Prof. Shaw, Professor of Agriculture, Michigan Agricultural College, Says About Zenoleum Dip:

"Zenoleum was used quite extensively by the writer during the last year of his connection with the Montana Experiment Station. It was used most largely in the Swine Department. Among the uses to which it was put are the following: 1—Mange. We found applications of Zenoleum to give a perfect cure in case of hog mange with one or two applications. 2—In the case of a skin disease causing a scurfiness, the exact cause of which was not well understood, and which resulted in the loss of hair over almost the entire body, applications of Zenoleum completely removed the cause of the trouble. 3—In the case of an outbreak of hog cholera, the indications were that the mortality was reduced among the mature animals. Small quantities were given daily in the food fed. 4—We found it very useful in maintaining the best sanitary conditions among the pens."

Send for copies of "Zenoleum Veterinary Advisor" and "Piggie's Troubles" and see what others say about it. Books mailed free. Sample gallon of Zenoleum $1.50, express prepaid. Five gallons $6.25, freight prepaid.

"The Great Coal Tar Carbolic Dip." ZENNER DISINFECTANT CO., 34 BATES STREET, DETROIT, MICHIGAN.

tle. Many of these persons had never seen a score card or given any consideration to animal conformation, and they were delighted to learn the relative value of the specific points and the conformation indicating excellence for a particular purpose.

Prof. Massey's papers on Market Gardening and the Cow Pea were also greatly enjoyed. One of the warmest discussions was on the relative merits of red clover and cow peas.

There is a growing interest in the silo. Several gentlemen who have had years of experience prepared models and brought them to the meeting to show the best and cheapest methods of constructing silos and preserving the food. Though two hours were devoted to the subject of silos it was only well begun when adjournment became necessary. A number of the models have, therefore, been put away for the next meeting, when, if necessary, a half day will be devoted to the silage question.

Hon. W. W. Ogilvie, Commissioner of Agriculture for the state, gave an interesting address on the work of his department. It is expected that with the liberal appropriation which the last legislature made for institutes, a complete system of meetings will be organized.

The meeting closed with a visit to the Station farm, where the delegates had an opportunity of looking into the excellent work being done there. The farm was the picture of neatness, and though things had suffered from the extremely dry weather of the past six weeks, all were surprised to see everything looking so well. After refreshments had been served, the visitors wended their way homeward well pleased with what they had seen and heard and unanimously agreed that the 28th annual meeting was the greatest success in the history of the convention. Some people thought that the meeting of last year would never be eclipsed, but the attendance of over 1,200 farmers this year passed all previous records. The farmers of East Tennessee are to be congratulated on the splendid showing they made. An invitation is extended to all who are interested in agriculture to attend the next annual meeting.

ANDREW M. SOULE.

Knoxville, Tenn.

A Wisconsin Herd Record.

ED HOARD'S DAIRYMAN:—Four years ago last fall I begun to read your paper. I then got—Nov. $53, Dec. $52—15 cows. Before spring, 7 cows went to the shambles. Some were bought, some were raised and the next winter it was—Nov. $93, Dec. $94, 15 cows. The barn had a fit of the colds. An internal application of tarred paper at a cost of $3 effected a cure. Other improvements followed—a tank in the barn, an addition to the stable, a silo and a registered sire. Below is record of herd for year ending March 1st. 1903. Every mess of milk is weighed. Tests are made frequently. The cows are mostly fresh in early autumn. Several were disposed of, not being satisfactory; one heifer was kept only a month. Bran is figured at $15; clover hay at $10. I make no comments, each man draws his own moral when he reads a story.

Cows booked during year, 16--8 cows, 8 heifers.
Cows disposed of during year, 5—2 cows, 3 heifers.
Cows milked all the year, 11 cows.
Average No. for the entire year.....13.8

Cash from creamery $812
Skim milk at 20 cts. per 100.....$140
Estimated cream and milk used on table and feed to calves.....$50

Total.....$1002
Feed—hay 5, silage 2½, bran 6, bundle corn 1½.....15cts.
Total with pasture at $5 per year.....$36

Total.....$496.80

Best cow (gross).....$95
Poorest.....$30
2 cows each over 400 lbs. butter.
4 cows each over 300 lbs. butter.
1 cow less than 250 lbs. butter
Grandma, Jersey, sweet 16,280 lbs.

Brandon, Wis. H. W.

Butter Tests Accepted for Publication by the American Jersey Cattle Club, May 28th, 1903

Harmony of Millbrook 154792—Sire, Diploma of Millbrook 46123; dam, Velvet of Millbrook 133992. Butter, 16 lbs., 7 oz.; milk, 270 lbs., 9 oz. Test made from Apr. 27 to May 3, 1903; age, 4 yrs., 4 mos.; estimated weight, 850 lbs.; fed 28 lbs. cotton seed meal, 28 lbs. bran, 14 lbs. corn, 14 lbs. oil meal and 21 lbs. hay—pasture.

Joy's Daisy 2d 149527—Sire, Prince Yokun 46224; dam, Joy's Daisy 149526. Butter, 16 lbs.; milk, 331 lbs., 4 oz. Test made from May 15 to 21, 1900; age, 4 yrs., 7 mos.; estimated weight, 700 lbs.; fed no grain—about 5 lbs. hay daily and pasture of mixed grasses.

Rose of Millbrook 151360—Sire, Diploma of Millbrook 46123; dam, Answer 2d 128074. Butter, 14 lbs., 3 oz.; milk, 230 lbs., 3 oz. Test made from Apr. 18 to 24, 1903; age, 4 yrs., 11 mos.; estimated weight, 850 lbs.; fed 28 lbs. cotton seed meal, 14 lbs. corn, 21 lbs. bran, 105 lbs. cotton seed hulls and 14 lbs. alfalfa hay.

Signia's Footprint 130751—Sire Signia 29385; dam, Edith's Footprint 66777. Butter, 14 lbs. 5⅓ oz.; milk, 250 lbs. Test made from May 9 to 15, 1903; age, 7 yrs., 6 mos.; estimated weight, 950 lbs.; fed gluten feed and hay—pasture.

Weber Farm's Clifford 2d 132105—Sire, Fancy's Harry 6th 24768; dam, Weber Farm's Clifford 104436. Butter, 15 lbs., 4 oz.; milk, 248 lbs. Test made from Jan. 2 to 8, 1903; age, 6 yrs., 7 mos.; actual weight, 835 lbs.; fed 8 qts. wheat bran, 5 qts. Buffalo gluten, 4 qts. corn and oats chop, 1 qt. oil meal and 25 lbs. corn ensilage, daily—hay *ad lib.*

Capacity of Silo for Twenty Cows.

ED. HOARD'S DAIRYMAN:—Enclosed find one dollar subscription for your paper for one year, I would not be without it. Am going to build a silo, have about twenty cows. How large a silo would I need? I intend to build a brick one. Can you tell me how many bricks I would need? Our cows are up about six months in the year. Also can you recommend some good book on silos and silage? Will write you some time in the future and let you know how much good your paper has done for me. C. A. A.

Englishtown, N. J.

Perhaps as good a rule as any that can be formulated for estimating the capacity of a silo for any given number of cows is to allow one cubic foot of space for each cow for each day, silage to be fed, where the silo is twenty or more feet in depth. On this basis, twenty cows would require four thousand cubic feet of silage for two-hundred days. A silo fourteen feet in diameter and twenty-five feet deep would have 3850 cubic feet and this would allow feeding from thirty to thirty-five pounds per day to each cow for six months.

A book which treats exhaustively on the construction of silos and other farm buildings, and on almost innumerable other farm problems, is King's Physics of Agriculture. This book and Henry's Book on Feeds and Feeding, we do not hestitate to recommend to every reader of HOARD'S DAIRYMAN. By special arrangment with the publishers, we are able to furnish these books, postage or express prepaid, at publishers prices, namely, $1.75 for Physics of Agriculture and $2.00 for Feeds and Feeding.

We shall be much gratified to receive the promised communication in regard to the progress C. A. A. may have made in dairying.

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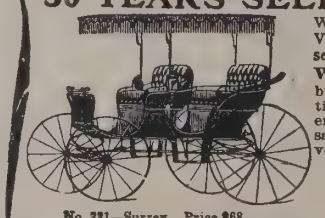


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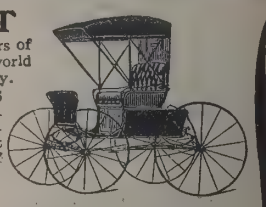
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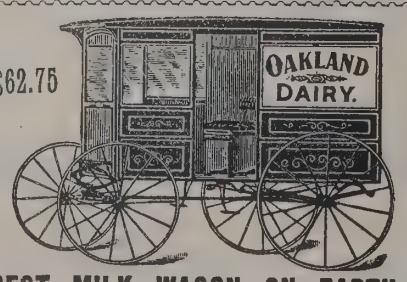
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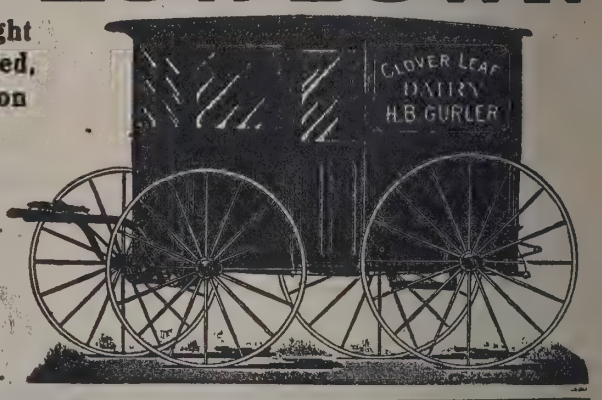
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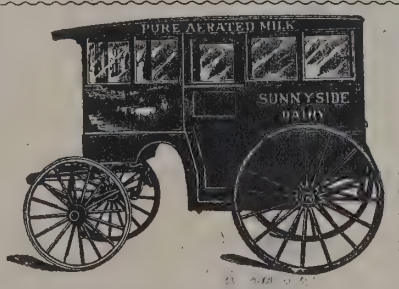
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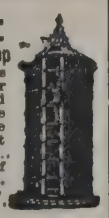
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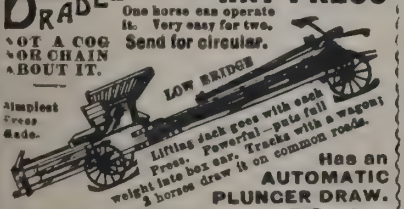
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The Wooden-Hooped Silo.

Has the round silo described by Jno Gould and another correspondent — made with ⅞-in. pine only—been tested sufficiently by use to be found practical?

The wooden-hooped silo mentioned so frequently of late, has been in practical use now about four years, and so far as I know, or can learn, has given the best of satisfaction. The best endorsement is that wherever they have been erected, more are being built. If Mr. C. is not satisfied, or thinks ⅞-inch lining is not strong enough, he can remedy the matter by lining up the inside wall with 1⅜ flooring, costing a little more and securing greater strength; or get it in another way, much cheaper, by springing on more hoops between the "regulars" half way to the top. This, is quickly done after the silo is built, by springing the hoop stuff to the silo and nailing round and round. For this, two thicknesses of the hoop material would be ample. This would make the hooping consist of nine regular, four and five lap hoops, and four go-betweens of two layers each. In building the silo with wooden hoops be careful in nailing, so that the nails will not center the hoops all the time. Drive them so that they will be up and down hill, so that all the width of the hoop will have its proportion of the nails, and in putting on the outside covering observe the same precaution.

In some of the later numbers of HOARD'S DAIRYMEN there has been much reference to the wooden, built-up, hoop silo, and each and all give it unqualified endorsement. In a letter just received I am informed by the writer that last year he built a wooden-hooped silo and lined it up with 2×4 hemlock bill stuff. He had it dressed and slightly beveled, and spliced on the hoops, not getting extra long material. He put on the lining by driving the nails slightly "toeing" bringing the lumber closely together. He says the silo was a great success in every way. He found that the hemlock 2×4's cost less than the pitch pine flooring, and when he fills it this season with some of the "carboliniums" he expects to have the premium silo. While his silo holds nearly 200 tons, he found that the hoops made of ½-inch by 3-inch-wide stuff, were strong beyond any possibility of giving way, and that there was never a sign that the hoops were any other than of one unchanging length, and that the silo remained perfectly firm and rigid with no signs of slackness. Another man writes that he made the hoops for his silo of 3-inch wide elm stuff, ½-inch thick, making the hoops 3x3 inches, and using a few more. Instead of lining up with pine flooring, he first lined up inside with 6-inch wide elm boards, then put on tarred paper and put on a second layer of 1x6 inch red oak lumber, breaking joints. The silo was filled in the fall of 1900 and the silage then put in is now, March 1903, being fed without loss or waste by mould or decay—all of which is fairly good testimony in favor of the wooden hoop.—JOHN GOULD in *Ohio Farmer.*

The Profitless Cow.

Much has been said and written on the subject of scrub stock, and the scrub cow has come in for her full share of condemnation. The *Live Stock Farmer* has the following to say on the subject:

"A cow census would show that, so far as the farmer is concerned, half of the cows could be sent to the butcher without loss to their owners. The public would, of course, be the loser, for a definite amount of milk would be taken out of trade, and the remainder would be in such demand that the price would be enhanced. On the farmer's side, however, the result would mean profit. Ultimately the general public might get its milk as cheap as at first, for the poor cows would no longer produce poor cows, but the entire supply of calves would come from profitable milkers. Now, year after year, the farmer puts a certain sum of money in the way of feed into his cow and gets back the same sum. He throws in his work. Most of the men that are doing this do not know it, for they have never kept an account of what they are doing. They have no idea as to the results from milking operations. They take it for granted that the hard work they are putting in is profitable. Little by little the poor cows are being weeded out of the herds, but progress is slow. We need to use more universally the milk scales, the Babcock test and the lead pencil."

For the land's sake—use Bowker's Fertilizers. They enrich the earth and the men who till it.

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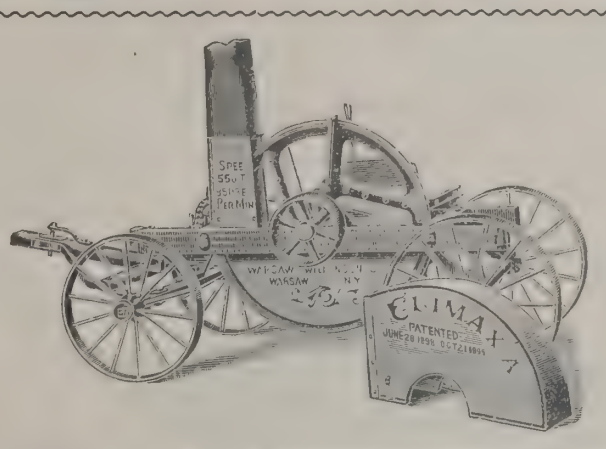
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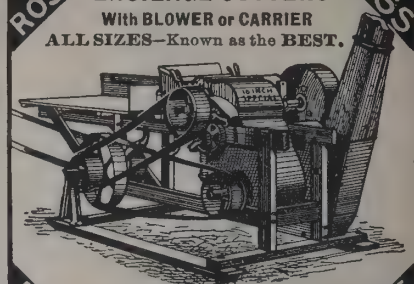
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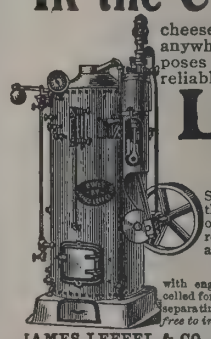
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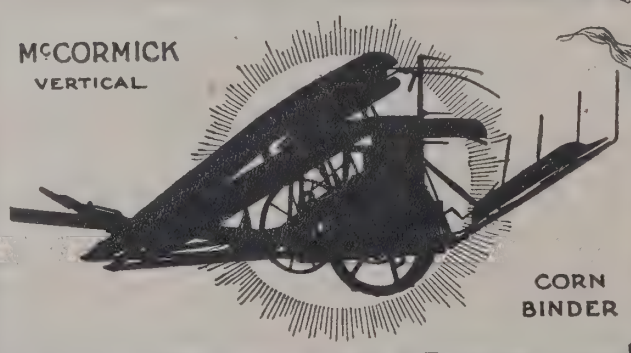
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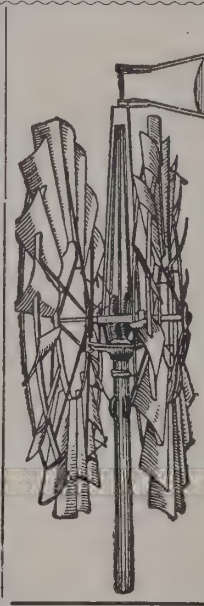
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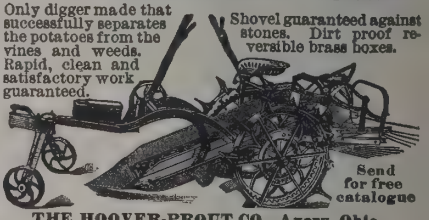
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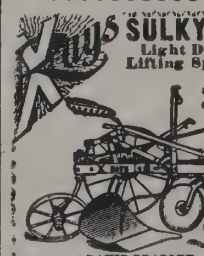


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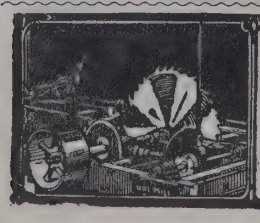
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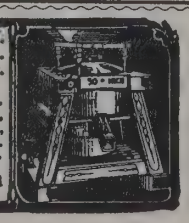


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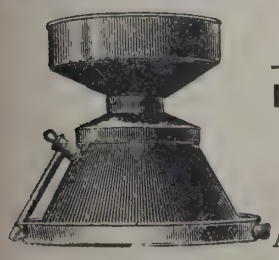
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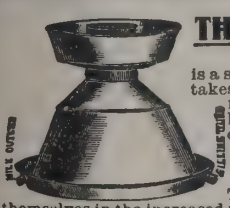


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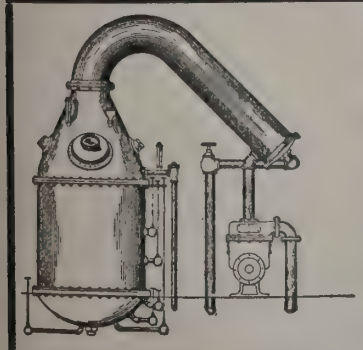
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Buckets Buckets

A MULTITUDE OF BUCKETS

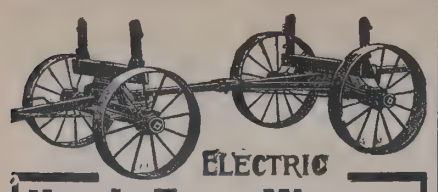
Buckets full of cones, buckets full of vanes, buckets full of radish graters, buckets full of blades, buckets full of discs, buckets full of contraptions that make it impossible to keep them clean. There are at least a dozen of these "bucket bowl" separators, all more or less alike and one as good as another. These cheap machines are all in the same class and not much choice.

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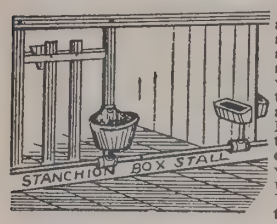
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It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. **Why not use the Best?** Write for descriptive circular.

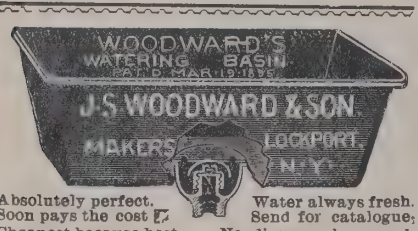
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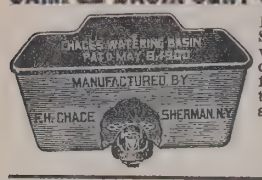
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Absolutely perfect. Soon pays the cost. Cheapest because best.

Water always fresh. Send for catalogue. No disease where used.

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for stock, storage, dipping, wagons, etc., of shapes and capacities to meet every farm need. Best line galvanized ware made, including roofings and sidings, eaves troughs, conductors, ridge capping, etc. Sold by prominent dealers everywhere. When you buy insist on getting the "Gedge" or "Anderson" brand. If not there write us. We'll see you supplied.

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We make them for 1, 2, 3 and 4 horses, with speed regulators. Unequalled for Cutting and Grinding Feed, Sawing Wood, Threshing, Pumping Water, etc. Also make Threshers, Engines, Feed Cutters, Silos, etc. *Illustrated Catalog Free.*

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and you will have at once the strongest, safest and most reliable power it is possible to secure.

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RUPTURE CURED while you work. You pay $4 when cured. No cure, no pay ALEX. SPEIRS, Box 846, Westbrook, Me.

Wide Fluctuation in Milk Yield.

ED. HOARD'S DAIRYMAN:—I am a reader of your most excellent paper, I think this being the fourth year that it has been taken in our home. Although we have just now one cow only, we like to know how to treat even one cow so as to make the best of her and for her. She is a fine Jersey, but fluctuates so in her milk, (was fresh four months ago) some days falling as much as two quarts in her milk, maybe next day will give large mess. Am feeding her fresh cured alfalfa, about 14 lbs. daily, ground barley, about 8 lbs. and about 2½ lbs. cocoanut cake.

When fresh, she usually gives full four gallons of milk for several months. Just now she gives some days 12 quarts, but at others 10, and even much less. As I say, she fluctuates as I never knew her to do. Can you give me any reason?

The flies are very bad and have made lumps on her udder just where the teats join it. They matterate at times and make her very cross to milk. I use great care used in bathing and cleaning her, then using lard and sometimes sweet oil. Her udder has no fever but the flies seem to poison her just where they bite. Any suggestion would be gratefully received regarding her unsteady flow of milk, also if a change in ration is necessary.

Los Angeles, Cal. A. F. W.

It is much to be regretted that dairymen are not as solicitous to make the best of their cows and for their cows, as this correspondent is for the one cow. It is a noticeable fact that town cows, as a rule, do very much better than farm cows, and the only reason that can be assigned for this difference is that the town cow comes into much closer relation and sympathy with her care-taker than the farm cows.

A goodly number of our subscribers are like the writer of the above communication, keeping perhaps but one cow, but they seem to find it profitable to avail themselves of the information which we are able to gather and present to our readers from week to week, and they are not so apt to be governed by tradition and habit. There is abundant reason to to believe,—indeed, the truth of the proposition has been demonstrated over and over again,—that the farmer, with from eight to twenty cows, could easily increase their product from fifty to one-hundred per cent, if he would abandon prejudice, and care for his cows in a more enlightened manner and with greater regularity.

Another source of great loss to the dairymen is the fact that he is prone to treat his herd as a unit rather than as individuals. For this reason, he does not know, as the keeper of one cow does, which of his individual cows are kept at a profit and which at a loss. We have yet to hear of a single instance where the farmer has adopted the plan of weighing the milk of each cow, that he has not found some members of the herd not giving milk enough to pay for their feed—regular drones living on the bounty of their betters. It is probably true that there is not a herd of dairy cows that might not be improved by eliminating two or more cows in every ten.

But this is apart from the inquiry submitted by A. F. W. In our opinion, the plague of flies is sufficient to account for the great fluctuation in the yield of milk, as reported. We therefore advise that some measures be taken to protect this family cow from this plague of flies. Possibly, some of the preparations advertised in the DAIRYMAN might be used with complete satisfaction, but in this particular case, with only one cow to care for, it would seem to be quite possible to fasten some sort of a shield about the udder which should effectually keep off the flies. Make a canvas bag, shaped so as to fairly fit the udder and suspend this with straps, making, if necessary, some sort of a harness with a crupper attachment.

To heal the present sores, if the services of a skilled veterinarian are not available, consult the family physician, who will be able to suggest some antiseptic or emollient which will serve a good purpose.

We do not think the present system of

(Continued on page 455.)

ARMOUR'S BLOOD MEAL Cures Scours in Calves.

First proved by the Kansas Agricultural Experiment Station, and since corroborated by thousands of leading stockmen who have used it without a single failure. Equally effective for the diarrhea of all animals.

PREVENTS weak bones, paralysis of the hind legs and "thumps" in pigs; "big head" of foals; "rickets" of all young animals; abortion due to incomplete nutrition, and a host of other troubles.

A Potent Food for Work Horses, Dairy Cows, Poultry.

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pays back many fold what you put into it. It is an appetizer. It cleans and tones the system. It is a concentrated food, highly nutritious, and with proper tonic and medicinal elements for stock. "My shoats were looking bad and doing poorly until I started them on **Prussian Stock Food.** They are now coming very rapidly. My calves do better with a little of it in slop than they did on skimmed milk. I also recommend it for horses. **Pays me big to feed it.** BEN SMITH, Dundee, Mich." **50c and $1. pkgs. Pails $3.50.**

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ELMCO BRAN

—ANALYSIS:—

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F. W. WOLL, Chemist, University of Wis., Agricultural Experiment Sta.

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Hoard's Dairyman

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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A STABLE FOR EIGHTY COWS.

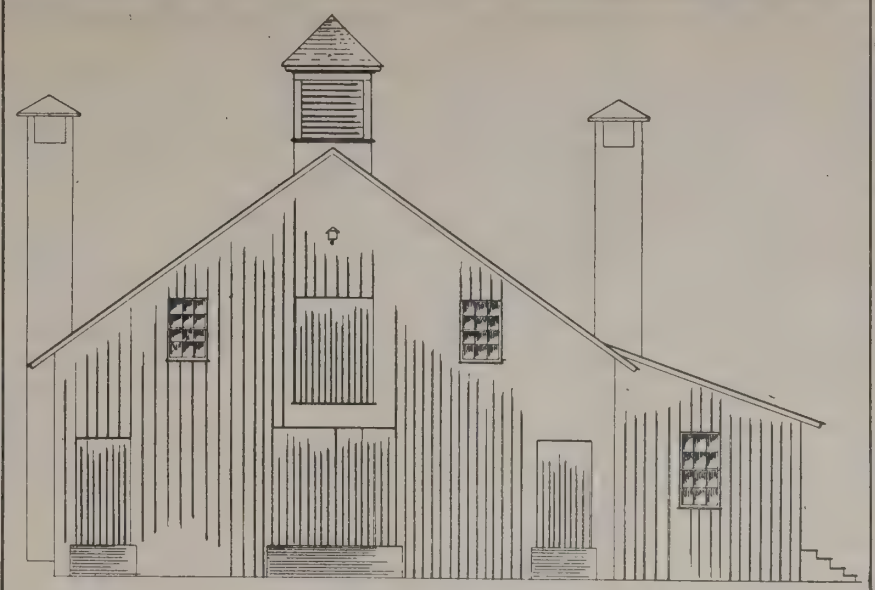
Mr. Walter E. Ward, of Albany, N. Y., has paid us the compliment of submitting for criticism plans of a cow stable prepared for him by Mr. Wm. J. Obenaus, an expert architect of that city and has kindly given permission to have cuts made therefrom for publication in the DAIRYMAN. These cuts, it is hardly necessary to explain, are zinc etchings made directly from the architects drawings, and it is somewhat unfortunate that the reduction in size has made much of the lettering indistinct.

The main building is 36x80 feet in external dimensions, with an addition at one end, 12x34 feet for a manure shed, and another in the center of one side, 12x12 ft. for a milk room. Being near the barn and silos, where there is plenty of room for forage, there is no special need for utilizing the space over the stable except for grain, ground feeds and general storage. Consequently the studding for the sides is only 14 ft. It is proposed to have the floor incline toward the manure shed 12 inches in its entire length, for the purpose, evidently, of allowing the liquids to drain off. The floor is to be from 2 to 3 ft. above the surface of the ground and laid upon three rows of 2x10 joints resting on the exterior foundation walls and two central walls, 14 ft. apart from centers. The joists will be 16 inches apart on centers, and as will be seen from the cross-section, the outside rows of joists are 8 inches lower than the central row and incline very perceptibly away from the center. On top of these joists there are other 2x8 joists, presumably introduced to provide space for the concrete gutters.

Concerning these gutters and some other matters, Mr. Ward writes as follows:

"I would like especially to know your views as to whether the gutter is better concrete or plank, when it is off the ground 2 or 3 feet, resting entirely upon timbers the greater portion of the length of 80 feet. Also whether the ventilators are as good when constructed outside of the buildings with openings at the floor and top of the stable; whether they are as effective as if they were directly in the stable. The reason for putting them outside is on account of the room they would occupy inside.

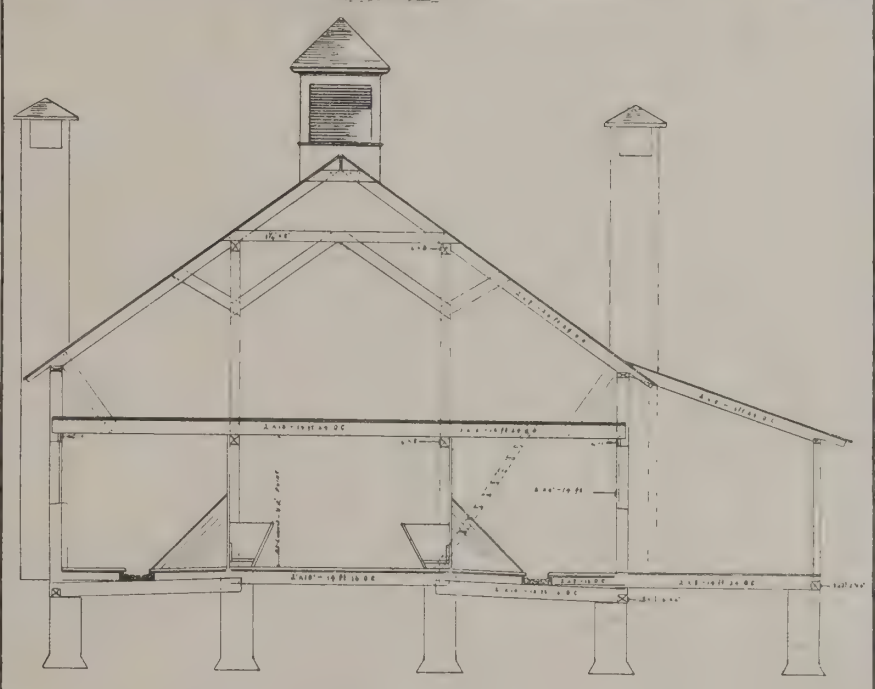
"It is designed to sheathe up the outside with two thicknesses of boards, one horizontal and the outside vertical, with paper between, and ceil them up on the inside with common boards, with paper next to the studding and make both floors overhead and below double, with paper between. Also to hollow out the manure house, and have a concrete bottom."



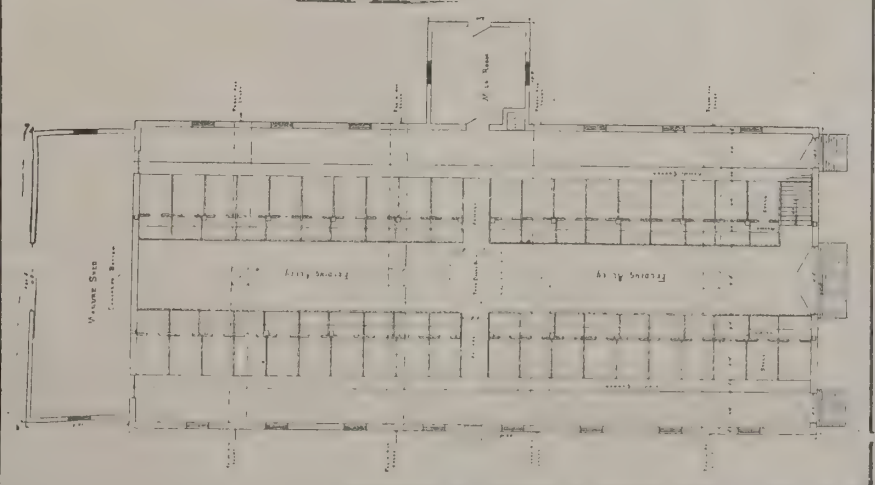
FRONT ELEVATION

1/4 Scale





CROSS SECTION



The only other item of construction that we care to comment at length upon is that the inlets for fresh air appear to open outwardly in spaces between the upper joists, but in passing may say our judgment is that practically all the diagonal bracing in the upper story or loft, might be dispensed with. That, however, is a minor matter, of which it may be said that if they are unnecessary, they do no harm.

It goes without saying that we are glad to lay these plans before our readers and invite careful study of the same. There is very much in them to commend, especially the provision for abundant light, for excluding the cold of winter and the heat of summer by dead-air spaces in the walls, and for removing the foul air.

Upon the two specific inquiries submitted by Mr. Ward, we are of the opinion that the architect has made ample provision for supporting the concrete gutters so firmly that there is practically no danger of their cracking, and that the ventilating shafts will work quite as well on the outside of the building as on the inside. No matter where located, these shafts should be made practically air-tight from top to bottom. This can be accomplished probably most cheaply and most durably by lining them with galvanized iron. Concerning the gutters generally, we may say that the editors of this paper have never taken very kindly to the suggestion that they should be of great depth, and, as a matter of fact, the Senior in his barn has no sunken gutter. The platform upon which the cows stand is raised two inches above the general floor, and from eighteen inches to two feet in the rear of this, a common 2×4 is spiked to the floor. This space is found ample to contain all the droppings, is easily cleaned, seems to answer all the purposes of a gutter and obviates all danger of injury to the cows from stepping off and down six to eight inches. The floor is so close, and is kept so by the liquids, that it is completely water-tight, and we have little doubt as to whether it is not as cleanly as a concrete gutter would be. These and some other points which we shall mention, are, however, so much a matter of personal choice and predilection, that we think it is wise for every man to be persuaded in his own mind and satisfy that persuasion.

Personally, we prefer to have our cows face outward, and devote the central space to a driveway for cleaning out the droppings and hauling them to the fields, practically every day in the year. Of course, there may be, now and then, a day when the snow may be so drifted that it is impracticable to do this, but these are the exceptions and are liable to be of short duration. It follows, therefore, that personally, we have no use for a manure shed, but as with gutters, if others prefer to store their manure, we can have no controversy with them on such a topic. We should, however, quite seriously object to having this manure shed run entirely across the end of the stable, but would rather divide it into two sections and reserve the central part for an extension of the central drive-way, so that a team could pass in at one end of the stable and out at the other end; so that doors might be opened at both ends. This, of course, would necessitate making the two manure sheds perhaps somewhat longer in order to hold all the accumulations of the winter months. Or better still, separate the manure shed or covering entirely from the stable proper, and, with some one of the litter carriers, remove the droppings a goodly distance and thus leave both ends of the stable free for ingress or exit. If the cows are still left facing inward, the doors for entrance should be not less than four feet wide, both as a matter of safety for the cows passing through, and for greater convenience in removing the droppings.

Apart from matter upon which individual preferences may be followed without seriously impairing the usefulness or convenience of a stable, one item upon which there can be no compromise is the plan for admitting fresh air into this stable by direct openings. Constructed as this plan seems to indicate, they are no better than windows, and the objection is that when open, there is as much

opportunity for the warmer and purer air to escape as for the fresh air to enter.

The proper plan for constructing these entrances for fresh air is to have the outer opening not less than three feet lower than the inner opening. In fact, the outer opening may be carried down to nearly or quite the level of the floor. Constructed in this way, the outer air passes upward and is discharged at an opening practically on a level with the ceiling of the stable, where it mingles with the warmer air and gradually settles down to the floor and is drawn off through the ventilating shafts, but so moderately as not to develop any strong currents or drafts, and the warm air of the stable will not descend in these fresh air inlets. In this way, it is possible to keep an even and comfortable temperature in the stable at all times.

Instead of having the upper floor doubled, we should prefer to have a single floor on top of the joists and a ceiling on the lower edges of the joists in the stable, thus doing away with the corners and crevices which afford such splendid opportunities for the gathering of cobwebs, dust and litter of all kinds.

Incidentally, we may remark that in place of the timbers suggested by the architect, we would use timbers built up of 2×6 and 2×8 plank, and make provision for four or more box stalls.

The Value of Rye.

Rye is not generally considered of very great value as a hay plant. Much of this prejudice may be due, however, to the fact that it is seldom properly made. The value of hay made from any plant depends very largely upon how it was made. A Wisconsin farmer writing to HOARD'S DAIRYMAN says: "The sowing of rye for pasture, for hay, for the grain, for clover seeding and for increasing fertility has proved, in my experience, of so much profit that it is a constant source of wonder to me that farmers do not make more use of it than they do.

I always aim to have a field of rye to use for spring pasture for my cattle, as it comes on before any other pasture and just at the time when the cows are pining for something green and will surely fall off in the milk yield if they do not get it. The blue grass or clover pasture is not fit to turn into, this latitude before the first of May, (hardly then), while the rye pasture is ready by the middle of April.

Last spring I had forty acres sown in the corn field the previous fall, after the corn was in the shock, simply by drilling between the rows of shocks and harrowing once afterward at an expense per acre as follows:

Seed, 1½ bu	$.90
Drilling, 1 hour	.30
Harrowing, ⅓ hour	.10
Total	$1.30

or, $52 for the forty acres.

The use of the land is less than nothing (very much less) as the rye is sown after the corn is harvested and pastured off in time for the succeeding crop of corn, the soil working up in much better condition and richer than had the ground remained bare, besides being cleaner of weeds.

On my forty acres I pastured thirty-five head of cattle from April 11 to May 15, saving in feed, at the least calculation, $105. The cows did not require any other feed, increased in the milk flow while on the rye, and fell off immediately when taken off, although they were turned into the blue grass pasture where the feed, by the middle of May, had gotten a fine start. Will any one say that catch crop of rye did not pay me 100 per cent profit, to say nothing of the increased fertility of the land?

Many farmers have condemned rye hay simply because they thought they must wait until it was fully headed before cutting, and naturally, the resulting product was more like straw than hay, tough and unpalatable, fit for little but bedding. The time to cut rye for hay is just when it first begins to show heads; then if properly cured (and it is not hard to cure) it makes a fine hay, relished by all kinds of stock. When cut thus early there will be an almost equally large second crop of hay or pasture. I only learned to make good rye hay this past season. I did not make much, and it is long since fed out, but if I am ever confronted with the prospect of a short hay crop, I shall not hesitate to go into the rye field with mowing machine and hay loader and expect to fill my barn with good winter forage.

On my farm I have been able to raise on an average, more pounds per acre of rye than of oats, nearly as valuable for feed. I usually grind it all and feed to cows and hogs, mixed with other feed. Sometimes when the price is high, I sell it. Several years ago when the rye crop in Russia failed, I shipped a car load to Chicago, which netted me 82 cents per bushel. The yield being twenty-five bushels per acre brought me in the sum of $21, besides the straw, which is of great importance on a stock farm, where bedding is at a premium. The straw from an acre of rye is worth more than from two acres of oats, not only because there is more of it, but also because it lasts much longer, does not wet and mat down like oats or barley straw. For the last few years, however, the tempting prices offered for rye straw for the Lake Shore stables have taken much of the rye straw away from my own stock, having to content myself with the cheaper oat, barley or flax straw. I received last year $145 for the straw from twenty acres at $8.50 per ton, which was a trifle over $7 per acre for the straw alone.

Only once in twenty years have I failed of a first-class catch of clover, when sown in the early spring on the frosty surface of the rye field; the extraordinary dry season of 1901 being the exception. I have almost entirely given up attempting to seed clover in the oats, preferring the surer method of plowing the oat stubble in the fall, sowing rye and seeding in the spring.

Even when the entire crop of rye is taken from the land, it leaves the soil in the best of tilth. A few years ago we took off a crop of rye from one side of a field and a crop of oats from the other; the next year the whole field was in corn and we could see plainly where the oats and rye met, the corn on the rye ground having a stronger growth and better yield.

The growing of rye does not seem to exhaust the fertility in the soil so rapidly as most other crops. An old adage has it:

Sow wheat after wheat
You will have nothing to eat,
But rye after rye
You may sow till you die.

Most farmers need all the green feed it is possible to raise, and will hesitate to plow under a rank growth of rye, but if there is a superabundance of pasture I think it pays. J. B. Root, an old market gardener, of Rockford, Ill., says: "A crop of rye turned under, is equal to forty two-horse loads of good manure in mechanical, if not in manurial, value." Theo. Louis, the great Wisconsin hog man, has brought up his farm to a high state of fertility by plowing under successive crops of buckwheat and rye. Geo. McKerrow once said: "Some of the best pieces of corn I have seen have followed a rye crop turned under.

There is, however, one thing to be guarded against in plowing under a rye, crop, namely, that it is not left on the ground too long. A large growth of foliage removes the moisture from the ground very rapidly, and there is danger if the plowing should be followed by a dry spell, that there might not be sufficient moisture in the seed bed to germinate the new crop. If rye is kept closely pastured, there will be much less danger from this source, and the manurial effect should be almost as great.—*Prairie Farmer.*

Sunlight in Barns.

ED. HOARD'S DAIRYMAN:—Sometime ago our Station published a bulletin and gave many illustrations of model and otherwise, dairy barns in our state, and in the number shown I did not see one that had windows enough in it. The same thing occurs in the DAIRYMAN'S illustrations of cow barns. Why is it? The fellows who have covered pails with cotton, etc., are among the number who seem to think daylight and sunshine are detriments to a cow's comfort while confined in the stable. My rule for windows in a cow barn is to make out your bill for twice as many windows as you think you need, and then when your team has gone to town after them, telephone your lumber dealer to double the bill at his end.

Now, there are windows and windows. Last week's DAIRYMAN showed what was called a model dairy barn, and the windows looked more like knot holes or woodpecker holes, than windows. Get good, big double sash, 10×12 lights, 6 lights to sash, and have them not more than 8 feet apart along walls north, south, west and east. Then put in sky lights. It will pay big. Now you have windows, make all doors double, that is to open bottom and top, and never shut top door unless low temperature or storms make it necessary.

When you have light, buy a barrel of lime and have a whitewashing machine, and let your boys work it rainy days; whitewash walls and ceiling and floor if they want to. More light will be the result. A fly in our cow barn looks like a black bear on the walls that are white as—let me see—oh, yes, the cotton that is used to cover pails to keep out dirt, that can't be seen in the windowless cow barns.

Say boys, how about the Connecticut stations report on the covered pail question, is not Buff Jersey's plan upheld in it? It is all right to try to keep clean and be clean, but don't milk in a stable so dark you have to take milk outside to see if it is really clean. And about that white washing machine, ever seen one? It is a wonder. Your boys will quit ball playing any time to use it and when they have gone over your building you know every crack, crevice and corner is well covered. Ceilings can be gone over as easily as walls Last week my 11 year-old daughter and I went all over our brooder house, 12x60 ceiling and walls, in 15 minutes.

After you have given the cow barn its Sunday dress, fill machine with water, add 4 oz. of sulphuric acid to three gallons of the water and thoroughly saturate your hen houses and surrounding. Lice mites and every creeping thing will pass away. This is the best lice and mite killer in the world. Now stock men, get your herd of steers or mixed stock in a small yard fill machine with Shoo Fly and spray the cattle. Do this once a week and note results. Don't tell your dairy friends, for if you should, butter would drop to 10 cents a pound. The fly plague keeps butter up. See!

BUFF JERSEY.

Monmouth, Ill.

Testers and Tests.

ED. HOARD'S DAIRYMAN:—As my subscription will expire June 19th, I wish to have it continued. I have been a reader for a few years and will be a reader a few years longer, as you will find the enclosed renewal blank and money. I read the DAIRYMAN and find it O. K. in the experiments I try through it.

Now I wish to bother the editor with a few questions about the milk tester. Is there any standard tester in your state or any other state, that laws or by-laws of the state experiment stations cover? If there is please let me know. If not what make is the best and truest, as I want to get one and also a hand separator?

Next question: Does a herd of 12 to 16 cows vary in butter fat? Say their test was 4.60 per cent on a regular ration; in one month drops down to 4.15 per cent on the same feed; then raising again as butter is falling in price. At present it is 24 cts. per lb., butter fat 4.25 per cent. That looks funny. But a milk tester and a set of scales will be an eye opener to me or the creamery man. I have to cart my milk three miles, so a separator and tester and scales would be a saving of time, butter fat, price of butter and wear of team.

WM. F. L.

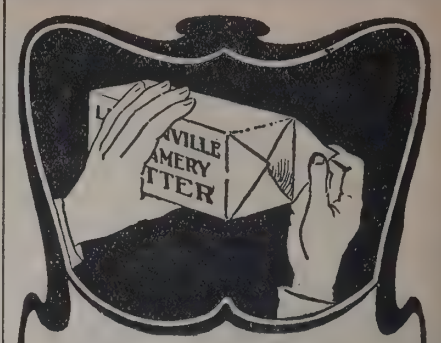
Delabole, Pa.

There is not to our knowledge any standard make of tester and no particular make is universally accepted as the best. On the contrary, we do not know of any make of Babcock tester which is not giving good satisfaction and none which will not be sold with a guaranty to do first-class work when, directions are followed. As a rule, we favor patronizing local dealers in purchasing all kinds of machines and machinery, but sometimes it becomes necessary, when local dealers are not disposed to get up-to-date articles, to send away. In that case, try to deal with persons or firms of recognized reliability.

It is not all unusual for the milk of a herd to show comparative wide variations from month to month, the reason for which cannot be discovered. When our friend gets his tester and his separator, he will be in a position, as every farmer should be, to protect himself in these repects.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.



Butter is Exposed

to many contaminating odors in commission houses and shops before it reaches the consumer. If the creameryman will wrap every pound print separately in

Pioneer Brand

Parchment Paper

he will shut out all foreign odors and taints and preserve its purity, sweetness and flavor. He will be safeguarding his brand in the best butter protector known. **Pioneer Parchment is a pure vegetable** parchment—not an imitation. It is tougher and stronger when wet than when dry. It imparts no taste or smell to the butter for the very good reason that it does not have either. You ought to have your name or brand printed on every package you sell. If you really make good butter, that is your most effective means of getting a reputation for it. We know how to do that printing so that it will not rub off or discolor the butter—print what you want. Our free samples of parchment paper are most convincing of their great worth to the butter maker. Write and ask for them. And our free book, **"Better Butter"** will interest and instruct you. Ask for it too.

THE PATERSON PARCHMENT PAPER COMPANY.
No. 87 8th Street, Passaic, N. J.





The Gem

FIBRE PACKAGE.

The border of this advertisement is a section of the **Package** cut in half. It shows just how the **Package** is made. Note the three thicknesses of fibre in the walls. Note how the sides and the inside bottom are pressed and dovetailed together. Note how the whole is reinforced by the extra bottom. It's lined throughout with parchment paper. Treated as it is, it **is impervious to moisture, mildew or mould.** It will not sweat in warm weather and is slow to freeze in cold weather. It's the ideal market package for anything but is specially desirable for butter. Made in numerous convenient sizes. Illustrated booklet and samples **mailed free.**

THE GEM FIBRE PACKAGE CO.,
Dept. E, Gem Building, Detroit, Mich.

CREAMERYMEN, DAIRYMEN and MILK DEALERS

Can be Promptly Furnished with anything they want at reasonable prices, if they will write me. My CHILDS' PATENT MILK BOTTLE FILLER is the best on the market. Send for free catalog.

J. S. BIESECKER,
59 Murray St., New York City.

The Rape Plant, Its Culture, Use and Value.

Among all forage plants possible and profitable of cultivation in Canada none seems worthier of a more extensive use than rape. It is simple of culture; it makes a strong, rapid growth; it adapts itself quite readily to different soils and to various climatic conditions; it responds vigorously to fertilizer and to good cultivation; and, most important of all its good qualities, it is a palatable, wholesome and nutritious green food for all kinds of live stock on the average Canadian farm.

Rape stems and leaves resemble those of Swedish turnips or ruta bagas, but the roots are like those of cabbage. The leaves are numerous, smooth, more or less fleshy, irregular in outline and covered with a fine bluish bloom. The plant grows to a height of from one to four feet, according to soil and season.

The variety most commonly used in Canada is the Dwarf Essex. Several other sorts, most notably Dwarf Victoria and Broad Leaved, have been brought forward, but have not, on trial, been found to equal the Dwarf Essex in yield or in power of resistance to drought or flood.

The varieties used as forage plants are biennial, but do not, generally speaking, live through the winter in Canada, unless it be in certain parts of British Columbia. Seed, therefore, is imported and is generally good. Occasionally, however, seed of the annual variety or Bird Seed rape, is sold in the place of the Dwarf Essex or other biennial sorts, causing considerable loss to the stockman. The seedsman from whom the rape seed is secured should, therefore, be required to guarantee it as being that of Dwarf Essex.

Rape in the farm economy may be classed with root or hoed crops. It will grow on almost any kind of arable land. It does best, however, on soils rich in plant food and full of humus or vegetable matter. It should, therefore, be sown on fields prepared as they would be for roots or corn. Sod, to give a good crop of rape, must be left to rot for some time after ploughing, before sowing rape. It should be harrowed at frequent intervals and the field be in a state of perfect tilth when seeded. New land may be most profitably used to grow this crop for a year or two immediately after being cleared. Large crops of rape are practically certain on such land, and stumps or roots interfere but slightly with the harvesting.

Black soil or muck gives good returns when put under rape, and may be expected to give better returns with rape than with most other crops.

The seeding season extends from the first week in May till the end of August, subject, of course, to local climatic conditions. The crop, growing under favorable weather and soil conditions, may be fit for pasture in about five weeks. From this fact, the stockman can decide for himself how late he may venture to sow in any given district in order to ensure a sufficiently long feeding period to make it worth while. The plant will stand a quite heavy frost without suffering appreciable injury.

BROADCAST.

Rape may be sown broadcast or in rows. Where intended to be used for soiling, a thin broadcast seeding may be expected to give satisfaction. The quantity of seed required per acre when sown broadcast is about four pounds. A larger quantity of seed may be used when it is intended to cut as soon after seeding as possible; a lesser quantity where it is intended to permit the plants to attain their full growth. The leaves and small stems are the most nutritious and palatable parts of the plant, hence the above conditions of seeding.

When cutting for soiling, care should be taken to cut not lower than four or four and a half inches from the ground. By observing this precaution, a second, and even a third, crop may be expected from the same area without any further seeding.

Where sown in rows, less than four pounds per acre may be used. The quantity is, of course, affected by the space between the rows. Anywhere from 20 to 30 inch spaces give more or less satisfaction, but 22-inch spaces are probably the most profitable. Less space than 22 inches makes horse cultivation inconvenient; greater space means a slight decrease in the yield per acre. In dry soils or droughty areas, level culture should be practiced; in badly drained fields or rainy districts, it is advisable to sow on ridges.

The method of seeding in rows is, generally speaking, much to be preferred over the broadcast. The principal reasons for such preference are:—(1) Greater proportion of leaf to stem. (2) More rapid and vigorous growth. (3) Less waste when pastured, as animals naturally walk between rows, and do not, therefore, trample so many leaves or plants as when sown broadcast. (4) Permits of cultivation, which insures conservation of moisture in dry seasons, and destruction of weeds in wet times.

Rape is sometimes mixed with grain and sown in the spring. It makes a slow growth till harvest time, when after the removal of the grain it rapidly shoots up. This is a rather uncertain method and more or less objectionable when it does succeed, on account of the amount of it harvested with the grain, and so retarding the curing of the sheaves.

Clover will, generally speaking, do better than rape under such conditions.

Rape is sometimes sown in corn fields, just before the last cultivation. The results are seldom satisfactory, however, as the corn takes nearly all the available moisture and sunlight.

As already indicated, rape is an exceedingly valuable food. It is especially well fitted for sheep, swine, young cattle and steers. It has been fed to dairy cows with good results.

SHEEP ON RAPE.

Breeding ewes do well on it in summer, and it constitutes a capital feed for "flushing" or putting them into good condition for breeding in the fall. Lambs thrive upon it, but in their case it is possibly even more imperative than with older sheep or cattle to provide some other pasture (preferably other than clover) in addition to the rape.

PASTURE FOR PIGS.

It makes a very good pasture for brood sows. A little corn or barley fed in conjunction helps to balance the ration.

For fattening and growing pigs it can not be surpassed. They sometimes need to be trained to eat it, but once taught they consume it most freely. An acre sown on good land and handled carefully may be expected to carry from 25 to 40 pigs from June 15 to October. The exact number an acre will carry depends upon the season, the soil and the method of handling. To get the best results, the field should be divided into three or four equal parts and the pigs changed over to a fresh part each week or ten days.

SOILING PIGS.

Of course, greater returns in pounds of pork produced may be secured by cutting the rape and feeding it to pigs in pens, but more labor is required, and so, in a measure at least, the advantage is lost.

YOUNG CATTLE AND STEERS.

Calves relish a small amount of rape at a very early age and do well on it when fed judiciously. Young cattle thrive on it when it is fed in connection with natural grass pasture. Steers intended for stall feeding or late fall marketing cannot be better cared for than to be allowed the run of a good field of rape.

DAIRY COWS.

Dairy cows respond well to a rape ration, but judgment must be exercised in feeding, or evil odors may find their way into the milk pail.

In feeding rape to cattle and sheep care should be taken to prevent bloating. They should never be allowed to enter a rape field when very hungry, more especially should this precaution be observed if the rape is wet from dew, rain, or frost. Once accustomed to the feed, however, and having access to it at all times, little danger may be anticipated. Pigs are not affected in this way.

On account of its very juicy nature, it is practically impossible to cure rape, and when cured it is not so palatable nor so valuable a food as when green. It is not much used in making ensilage.

In sections where rather steady frost maintains (once the hard frosts come) rape may be cut and put in small piles to freeze. It should be taken to the stable the day before required for feed and allowed to thaw out completely before being fed. Repeated thawing and freezing spoil it for forage.

In chemicial composition and feeding value rape resembles clover. It is even richer than clover in flesh-forming constituents, and is exceedingly succulent. Analyses show its water-content to run from about 89 to about 94 per cent. The nutritive ratio or proportion of digestible protein (flesh-forming constituents) to digestible carbohydrates and fats (heat producing constituents) is about 1 to 3.37. Such a large proportion of digestible protein accounts for the great feeding value of the plant. Then, since average, growing animals require a ration of a nutritive ratio of about 1 to 5.5, it is easily seen why most animals require some other food not so rich in protein, along with rape. Timothy or a mixed grass pasture would be suitable for this purpose.

COST TO PRODUCE RAPE AT OTTAWA.

One Acre.

Ploughing in spring	$2.00
Harrowing (4 times) team, 3 hours	.75
Rolling, ¾ hour	.20
Seed, 3 lbs. at 8 cents	.24
Sowing, 3 hours at 13⅓ cents	.40
Hand wheel hoeing, once, 4 hours	.53
Cultivating, 3 times, single horse, ⅔ day at $2	1.50
Hoeing, once, 1 day	1.33
	$6.95

If the rent of land be considered and any commercial fertilizer, or barn yard manure, be applied, the cost of production would of course be increased. As already indicated, however, barnyard manure may be most profitably applied to land used for this crop.

Lambs and sheep have been fed with most excellent results. No exact record was kept of the amount consumed, however, as they were pastured.

Steers have been pastured here on rape and good results secured. A bunch of 22 steers made an average of 50 lbs. gain, live weight, in 3 weeks on an area of 2 acres. About 30 sheep had been allowed to pasture on part of this same area for 10 weeks. The sheep had had at the same time access to a limited area of natural grass pasture.

A study of the results shows that to produce 100 pounds of pork, only 269 pounds of meal were required in addition to the rape. The average amount of meal required for 100 pounds of pork is 425 pounds. The use of rape, therefore, saved 156 pounds of meal on each 100 pounds of pork produced, or about 1,210 pounds of meal saved by three-sixteenths of an acre of rape. All pig weights mentioned are live weight.

Many other lots have been fed similarly with similar results. In 1902, 60 pigs were fed on an acre and a half. In addition to the rape pasture, about 500 pounds of meal were required for each pig from weaning time to an average of 185 pounds live weight in October or November.

J. H. GRISDALE.

Canada Department of Agriculture, Bulletin No. 42.

Weevils in Ground Feed.

A subscriber asks how to destroy and keep weevils out of ground feed. We are unable to give any advice on this point and refer it to our readers who may have had experience.

"ADVERTISEMENT."

NOT DRUGS

Food Did It.

After using laxative and cathartic medicines from childhood a case of chronic and apparently incurable constipation yielded to the scientific food Grape-Nuts in a few days. "From early childhood I suffered with such terrible constipation that I had to use laxatives continuously going from one drug to another and suffering more or less all the time.

"A prominent physician whom I consulted told me the muscles of the digestive organs were partially paralyzed and could not perform their work without help of some kind, so I have tried at different times about every laxative and cathartic known but found no help that was at all permanent. I had finally become discouraged and had given my case up as hopeless when I began to use the pre-digested food Grape-Nuts.

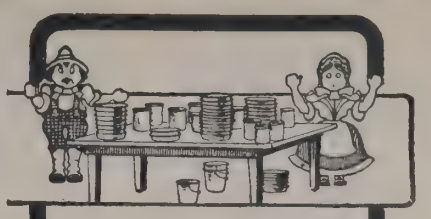
"Although I had not expected this food to help my trouble to my great surprise Grape-Nuts digested immediately from the first and in a few days I was convinced that this was just what my system needed.

"The bowels performed their functions regularly and I am now completely and permanently cured of this awful trouble.

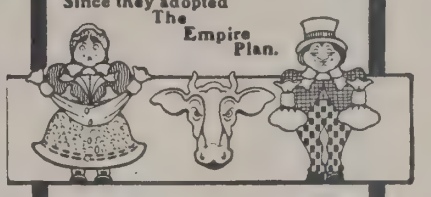
"Truly the power of scientific food must be unlimited." Name given by Postum Co., Battle Creek, Mich.

There is a reason.

Healthful desserts are just as easy as the bad kind. For further particulars see the little recipe book in each package of Grape-Nuts.



A long time ago, when they first began
To keep milch cows, poor Dairy Dan
And Milkmaid Molly had troubles galore,
And always seemed to be getting more.
They'd work and worry and stew and fret
And always would end the year in debt.
But by and by they found a way
To lessen their work and get more pay.
They bought an Empire, and every cow
Is yielding a handsome profit now.
They're Jolly Molly and Dandy Dan
Since they adopted The Empire Plan.



The Easy Way

is not always the best way, but it so happens in the case of the

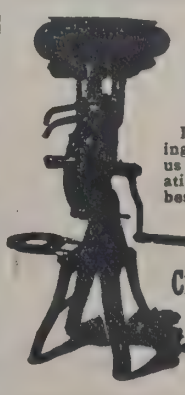
Empire Cream Separator

that it is both the **easiest** and the **best.** The Empire runs more lightly than any other separator of the same capacity; it is more easily cleaned, because it has few parts; it lasts longer and costs less for repairs, because it is better built and freer from intricate mechanism. In short, it is the simplest, most efficient hand power cream separator made. We guarantee that it will do better work with less labor and trouble, than any other separator, and all we ask is a chance to let you prove our claims to your own satisfaction. What do you say?

Let us send you our good book on "Making the Dairy Pay." It's free for the asking.



Empire Cream Separator Company,
Bloomfield, New Jersey.
Western Office, Fisher Building, Chicago.



Notice to Dairymen

If you are thinking of buying a Cream Separator write us for Catalogue and information. We manufacture the best machine on the market.

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54 to 64 N. Clinton St.
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$3 a Day Sure Send us your address and we will show you how to make $3 a day absolutely sure; we furnish the work and teach you free, you work in the locality where you live. Send us your address and we will explain the business fully, remember we guarantee a clear profit of $3 for every day's work, absolutely sure. Write at once.
ROYAL MANUFACTURING CO., Box 855, Detroit, Mich.

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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own ight who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

We congratulate the Holstein-Friesian Association of America on the eminently sensible conclusions reached at its recent annual meeting, as announced in a circular, issued by Mr. S. Hoxie, Superintendent of Advanced Registry, under date of June 4, 1903, and published in full elsewhere in this issue.

The drouth in New England is becoming very serious. There has been no rain for 47 days, and according to reports there is absolutely no pasture, and drouth and frost have destroyed all chances of hay from meadows that are usually heavy producers. All crops are stationary, are either making no growth, or are dead from want of water.

The losses are very large at present and will be immensely increased unless conditions change very soon. The drouth extends into eastern Canada, and there has been a decided falling off in production and shipments of dairy products.

Every dairyman is, or should be, a grower of more or less fruit. More dairymen would be growers of different varieties of fruit had they not learned in the bitter school of experience that too many venders of trees and vines have not been quite reliable in their dealings. Farmers in purchasing trees, shrubs, vines and plants should endeavor to be careful to deal only with reliable parties, and it will help them in selecting such parties to read carefully the abstract of the address by our friend, Mr. J. H. Hale, of Connecticut, on the relation between the nurseryman and his customers, which is published elsewhere in this issue.

A significant illustration of the changes which have come about in recent years in the attitude of the national and state governments towards the dairy industry is furnished in the program for the coming convention of the National Association of Dairy and Food Commissioners, which is to be held at the State Capitol, St. Paul, Minn, July 21st to 24th. The program is apparently concerned more with other food stuffs than with dairy products as such, but no one who is even superficially cognizant of the work done by these various commissions can have failed to observe that much the larger part of their duty and labor is given to milk and its products and the detection and punishment of infringement upon their purity.

HOW TO TREAT A HIRED MAN.

It is not a difficult job. The golden rule will reach it. Elbert Hubbard has phrased it as follows:

"They do my work. Therefore I treat them as I would like to be treated. They are I and I am they."

When a man does your work be as patient with him as you would with yoursely if you was doing it. Use no harder language to him for his mistakes or short comings than you would to yourself when you make mistakes.

Always it is the spiteful word that breeds trouble. Actions do not make half the trouble in this world that words do. Kind, patient men make good hired men, if anybody does.

LIGHT AND VENTILATION.

These are the farmers' busy days, but they are not so busy that he should not be giving more or less thought to preparations for housing as well as feeding his cows. Stables in particular should receive very attentive consideration. Among the items not to be overlooked, are the questions of light and ventilation. Unless stables are well lighted now, windows should be put in during the summer or early fall. Unless there is proper ventilation now, arrangements should be made so that the cows can have pure air to breathe. These are not merely questions of speculative interest, but they have direct connection with practical returns. Light is a most effective germ destroyer. Fresh, pure air is absolutely indispensable for man and beast, if they are to do their best. Good air to breathe will lessen the amount of feed required and increase the returns. We beseech the readers of Hoard's Dairyman to think on these things carefully. It is not necessary to go to very great expense, but it is necessary, if one wants best returns, in some way to provide light and fresh air in the stable.

A MAN OF OBSERVATION.

For years the old Short-horn outline as to a straight back has been having "free course" in the Jersey scale of points. No one among the Jersey breeders seems to have challenged this un-dairy like top line, or asked whether there was any dairy sense in such a back. Years ago, when the senior editor of the Dairyman put forth his "Nervous Theory" concerning the physiological make up or temperament of dairy cattle, he gave the following formula as his idea of this question of conformation:

"Temperament decides function and function establishes form," and so all study of form must be based on function and temperament, the main thing in breeding being to establish a clear and decided dairy temperament or tendency, as contra-distinguished from the beef temperament or tendency. Whenever he would turn to the Jersey scale, he would strike that old Short-horn declaration in favor of a "straight back from the horns to the setting on of the tail." He opposed this as well as several other points as being out of line with the best expression of dairy temperament.

Of late the Jersey breeders have been discussing a new score card advanced by Mr. Probert, and the *Jersey Bulletin* has been publishing the comments and criticisms of many of the breeders on the same.

These comments make mighty interesting reading. The following by Mr. W. R. Spann, of Dallas, Texas, was evidently written by a man who has used his eyes and studied the dairy form as the function of milk giving has produced it in notable cows. He says:

"I consider the Probert score card a most excellent one on the whole. The wording might be shorter and the whole simplified by consolidating some of the sections into one. I have cut level back to setting on of tail 2 counts, as I think altogether too much stress is laid on a level straight back. No experienced dairyman ever saw a body with "deep, large paunch, well hooped barrel," with a back level to setting on of tail. The two points simply can't go together. This might do to judge two-year-olds by, but an aged cow with a straight level back never carries a large, well filled paunch.

The two points taken off of the level back I would add to the neck and hips. A beefy, thieving cow shows her fault first in neck and withers, and I contend that a good breeding cow must have exceptionally wide hips. Width of hips also goes with large, deep paunch. Would also have rump long "and not sloping."

The race horse breeders study the speed conformation by what is shown in the build of the best race horse. They would not take the top line of a draft horse, or the pitch of the draft shoulder, and try to breed race horses by any such outline. The breeders of hunting dogs, or game chickens, where a special function is desired in each, study the outline that belongs to the hunting and fighting function, as seen and demonstrated in the most noted of these respective breeds.

Breeders of dairy cattle should do the same thing, and Mr. Spann is right when he says: "No experienced dairyman ever saw a body with deep, large paunch, well hooped barrel with a back level to the setting on of tail."

The cows that have given renown to the Jersey breed, or any other dairy breed, do not have such backs. But that is a dairy judgment concerning dairy cattle, even if it is not Jersey like.

WHY SHOULD WE STRIVE TO MAKE PROGRESS?

It is very evident that Hoard's Dairyman is a great disturber of those who wish to let things go on in the old slipshod way. We receive a great many letters in the course of the year which indicate this fact:

One man in Ohio writes: "What is the use of so much talk about reading and studying about this dairy work? Cows have been kept here in Ohio for a hundred years, and we have got along pretty well."

Another man in Connecticut touches us up in the same way though he does confess "that the Dairyman has opened my eyes as to what can be done and how to do it, more than anything I ever struck before."

Very often we get from some, frank expressions of thankfulness for what the Dairyman is doing, practically the same view. A farmer will write renewing his subscription and he will add a few lines to say how gratified he is that he has been brought into contact with better ideas. One man in Iowa put the case in a very expressive manner. He said:

"I think I ought to tell you something about myself and what the Dairyman has done for me. I was like my neighbors, for we are all patrons of a creamery. The creamery people did not care whether we knew any more about the business or not. Sometimes I think they had rather we would keep ignorant. Then we couldn't learn much from one another because there was not a man among us that would give ten cents to know any more. Every man was cocksure he knew all there was to know about keeping cows. There was lots of grumbling and kicking, and we couldn't see that it was because we were working in the dark. One day I got a sample copy of Hoard's Dairyman. Some things I read there convinced me that here was a paper that was talking straight at the dairy farmers. I have been reading it for 8 years. I have found it hard to understand all I read there, but when I struck a word I could not understand, my daughter Lucy, and she is a good girl if I do say it, she would say, 'Go to the dictionary, father.' I feel that I have been through a course of sprouts that has made a bigger, stronger man of me. It shows in my cows, in my pigs, and in my barns. I have never made as much money on my farm as I have since the Dairyman began coming. My two boys, one is twenty and the other is seventeen, are as interested in the paper as I am, and Lucy helps us all. I don't have very good luck in getting my neighbors to take it, but they are beginning to see that this go-it-blind way don't bring in the money, nor make a man contented with his business."

There is the answer better than we could have told it in twice the space, to the question we started out with: "Why Should we Strive to Make Progress?"

Another, a hard headed, old German in Illinois, writes us in his simple, direct way that goes to the mark like a rifle shot.

"I hope you keep on with your paper. You do good; that's enough. Never mind the foolish ones; work for the men who got sense. You can't help a man who got no sense."

So we find our answer in all places and among all kinds and races of men. Somehow we must speak the message we have been commissioned to deliver. The mission of the Dairyman is to bring this business of dairy farming up to a common-sense, intelligent standard; to get men to see that there are right principles involved that should be studied out; to rouse the mind of the farmer to the taking of an intelligent interest in his work; to get him to see that he is making but little profit, and sometimes much loss, because he does not put enough brain work into the problem. And no man, in these days, can do the right kind of thinking unless he is a reader of what other men think and do. The facts brought out in Mr. Jenkins' Investigation of Creamery Patrons, show how farmers can punish themselves because they will not read, will not study, and will not try to become intelligent dairy farmers.

When a man puts the cart before the horse, his progress is slow and painful. When he tries to make money out of cows by nursing his ignorance and refusing to do anything for his better education he is putting the cart before the horse.

How much better would he feel and act if he would stop long enough to consider that ignorance of the best thought and judgment in any other business is not considered to be an aid and help to the men who are engaged in it. We say a good deal on this phase of the question. The reason we do is the fearful amount of indifference to real intelligence that prevails among the men who handle the cows of this country. Such indifference is a terrible set-back to prosperity and progress, and if they were intelligent as they ought to be, they would see it. They feel it but don't see it.

CONCERNING DAIRY PROGRESS.

Some one has said that: "All there is to human progress is the growth of good judgment among the masses." Taken widely that is true. A few men, at the start, hunt out the truth of a thing and set it up before the people. Progress in the adoption of such truth depends on how fast the rest of mankind see and appropriate the same for their own use.

Only a few years ago and the great mass of dairy farmers in this country were in the dark as to the science of dairying. More progress has been made in the last ten years in knowledge and judgment, by the average farmer, than in 100 years before. All this has come first through the agricultural chemist, then

through the practical experimenters like Professors Henry, Jordan, Armsby, Roberts, Soule, Haecker, and a host of others. Then comes the important work of the dairy paper, like HOARD'S DAIRYMAN, and the best agricultural papers who sift and assort this useful knowledge out and make it known to all farmers who have enterprise sufficient to read and learn. But still there is a great body of farmers who keep cows, who can never learn any new and important truth or improvement until their more intelligent neighbors take it up and maybe have enjoyed its benefits for ten years or more. It has been this way with the silo and many other improvements. In one way and another there is progress, even among the most ignorant and unprogressive.

After all, example is more powerful than precept, especially among farmers. We need in every farming community the stimulating and inspiring example of a few good farmers who believe in wise, intelligent farm methods; in improved live stock; in good modern farm buildings; in the best ideas of tilling the soil, in short, who believe in the use of good brains in farming, and who believe there is good profit in doing all they can to make themselves intelligent. Go into such a community and it is astonishing how much more perfect, as well as profitable, farming is. Such farmers live the farmer's life like men of intelligence. There are hundreds of such communities in the United States and Canada. Such men are never heard sneering at "book farming." They read books and papers and know the value of them to sharpen the perceptions, and make sound their judgment. We have plenty of the other kind of communities also. There the standard is low. Books and papers are scarce. The district school house is an unsightly wart on the land scape. The cattle are scrubs; ideas about farming and farm manhood are low, and ignorance of good farming and everything else prevails. What a contrast!

MARKET PRICES.

It is now about time that the so-called official quotations sent out by boards of trade, butter and cheese boards and so forth, should be made to conform to the fact. It is quite a common practice for commission merchants in the East to publicly advertise that they will guarantee consignors from one-half a cent to one cent, and sometimes even two cents per pound for butter above the official quotations. This, of course, is only another way of saying that the official quotations are not reliable or truthful, that there is a market, not spasmodic but continuous, every week and every day in the year, for dairy products at a substantial advance above official quotations. More than this, it is a well known fact that some dairy butter outsells in all the leading markets every other kind of butter. Of course, not all dairy butter sells in this way, but special brands or makes that have found a market all their own. This dairy butter is consigned to commission merchants and they find a special market for it at advanced prices, and there is no good reason in the world why these prices should not find a place in the regular market report. No greater stimulus could be given to the dairy industry throughout the country, than to see published in the daily and weekly papers a truthful report of the actual sales of dairy products in the great markets of the country. Then, if A and B and C discovered that their make of butter or cheese did not command the highest prices, they would be very apt to institute inquiries as to the reasons. This might result, and probably would result primarily, in either forcing some middlemen out of the business or compelling them to render more accurate reports of sales. There is too much reason to believe that at the present time, commission men resort to leveling processes, grading up the low quality products and grading down the high quality products, just as buttermakers in Wisconsin have been in the habit of manipulating the Babcock test, professedly trying to make a fair average, but never forgetting the margin for themselves. The legislature of Wisconsin, at its recent session, under the advice of Dr. Babcock and others familiar with the facts, passed a very stringent law, forbidding all misreading or misreporting of Babcock tests. Why would not such a law applied to reports of sales by comission houses, be in the interest of fair dealing and good morals? Why should not the Congress in furtherance of interstate commerce, make it a misdemeanor for any one publishing a paper circulating in more than one state, to publish any other than correct reports of actual sales?

PAYS ITS DIVIDENDS IN GOLD.

Governor A. B. Cummins, of Iowa, in his inaugural address spoke a large truth when he said:

"The science of agriculture and analogous pursuits has in recent years received a marked impetus. The wonderful progress in learning which relates to the farm and the dairy is doing more, and will do more, to put money into the pockets of the farmer, the stock raiser and the dairyman than any other branch of educational training. Other forms of study may be curious and interesting but this form pays its dividends in gold."

There is something in that the individual farmer can appropriate. What is it that is giving this "marked impetus?" "Progress in learning," not in not-learning. Learning comes from study of the facts about us; study of the facts of other men's experience by reading; study everywhere in the things that shall make us intelligent in the business we have in hand.

A Good Creamery Bulletin.

Some of the things that a North Yakima Wash., Creamery says to its Patrons—To Get more Profit from their Dairies.

Mr. L. Englemann, buttermaker for the Rockwood Creamery Company, North Yakima, Wash., has compiled and sent out to the patrons of that plant the following circular, which is headed "Bulletin No. 1" indicating that more are to follow as thought expedient. It reads:

The Rockwood Creamery Company intends to issue bulletins from time to time, in order to keep it patrons posted on all branches of dairying and creamery work, and point out such ways that are most profitable and enjoyable.

We hope to get a hearty support from our patrons and we will do all we can to make these bulletins most interesting. There has never been a brighter prospect for dairying than now, and especially the farmers of this state realize more for their products than in any other state; besides we have excellent dairy and food laws.

Some patrons think all they have to do is to deliver milk to the creamery or separate the milk at home, and this ends their responsibility. This is a wrong idea. The relations between creamery and patron are so interwoven that one's welfare means the other's welfare too. For instance: A patron who has a good herd of cows, and knows how to feed and care for them, will always get a big check; the creamery can easily satisfy him, while on the other hand, a man with a poor herd of cows will always be a kicker, and this is natural. The business of a creamery would be more pleasant if all of its patrons would belong to the first named type of farmers. In other words, the creamery is interested that all its patrons have good cows and know how to feed and care for them.

The welfare of the patrons means the welfare of the creamery.

The patron expects that his returns are based on the top price of the market. The creamery expects that all cream and milk will be in such a good condition that it can be made into a first-class article of butter. Consequently, please take good care of milk and cream. Avoid bringing dirty or tainted milk or cream, and see that your cans and separators are kept clean.

CARE AND RUNNING OF HAND SEPARATORS.

1. Aim to have 38 to 42 per cent cream. First, rich cream will keep better, and second, the creamery does not want any skim milk. You need all the skim milk for your hogs, calves and chickens.

2. In winter time it is harder to separate milk than in summer time; consequently be sure that your milk is warm enough and run your separator a little faster than usual.

3. Be sure that your separator is level.

4. Keep your separator clean and look especially for the skim milk tubes.

5. Use only the very best of oil and clean occasionally all gearings with petroleum.

There is a drawback connected with the separator, viz.: Farmers lose sight of the test of their herds. While we admit that some farmers will soon find out whether their cows are paying or not, there are others, who lay the blame on the separator or to the creamery.

Don't forget that you can get a 40 per cent cream out of milk testing 3 per cent only.

Perhaps the Rockwood creamery may inaugurate a system by which they will test your cows and herds right along.

CARE OF THE HERD.

It is a wrong idea to believe that a cow testing 5 per cent is a good cow. The cow that gives the most butter fat within a year is the most profitable cow, no matter what her test is. Don't get the idea that a certain breed is the only and best breed. A good cow is a good cow, no matter to what breed she belongs. Select the breed you like best and which is best adapted to your circumstances, and cows that milk ten to eleven months during the year; also they may have only a fair average test.

Important points that a dairyman must keep in mind, are:

1. The bull is half the herd.
2. Raise the calves from your best cows.
3. Sell all your poor cows.
4. Keep your herds in a healthy condition.
5. Feed and milk regularly.
6. Feed only wholesome food and look carefully to the drinking water.
7. Poor food and dirty water give tainted milk and impair the health of the cow.
8. Keep your calves growing.
9. Don't feed warm milk one day and cold the next.
10. If you want a good dairy cow from your calf, get a good, long body with well sprung ribs on your calf.
11. The coat of an animal is a good indication of its condition.
12. Try to have your cows "come in" in fall and winter. Winter dairying pays the best; besides, you have more time to milk in winter than in summer.
13. Try to raise all the hay for your herd.
14. Make the most out of skim milk.
15. Dairying and hog raising are a very good combination.

If this bulletin should find the approval of our patrons and be a welcome guest in their homes, we shall issue more bulletins, treating on feeding, breeding, care of milk and cream, etc.

CREAMERY BUSINESS.

In conclusion we wish to say a few words regarding creamery business. It is a wrong idea to believe that the creameries in this city are making any money. The Sunnyside creamery has raised its charge for making butter. The Hazelwood creamery, at their Moscow, Idaho, plant, pay 2¼ cents less than market price and don't give any overrun. They charge in addition to that 2½ cents for hauling, or in all 4¾ cents without any overrun, against our 3½ cents plus 11 per cent overrun. The creamery in Walla Walla pays on the same basis as the Hazelwood. We may further say that all prices on material used in creameries have advanced.

The Rockwood creamery has purchased a new tester, especially made for us; the glassware used is also all tested as to its accuracy, and we pay the closest attention to testing, because everything is tested over again and we have on all our work a double check. The balance we use in weighing our cream is the best in the market. We do not guess on anything, but weigh and test carefully and keep posted on all new ideas and inventions. All the men we employ are competent, having years of experience, both in this state and other states, and they are all up-to-date creamerymen. The most trouble in testing hand separator cream is caused by not taking a fair sample of cream out of the can. For instance: You can not take a fair sample from a lumpy cream, or you must know how much cream to take out of cans, one containing thick cream, one containing thin cream and so on, in order to get a fair test.

The Rockwood creamery has made a study of all this, and all our men are fully acquainted with these facts; they know how to take a sample and test; they know how to test sour cream accurate, they run the tester till they get a clear test, not a milky or burned up test, which leaves too much to guess at. We weigh all our cream samples and don't use a pipette; for instance, a 40 per cent cream will show only 37.6 per cent fat by using a 17.6 cc. pipette, and even by using an 18 cc. pipette, you can not get 18 grams of cream in your test bottle, especially not so when cream is a little sour or fresh from the separator, and you require 18 grams to get a fair sample.

Remember, the creamery that gives you the fairest test is the creamery to patronize, not the creamery that makes you think they are paying a better price.

Soliciting your patronage, we remain, respectfully yours,

ROCKWOOD CREAMERY CO.

How to Preserve Alfalfa in Stack.

Broadcast seeding is best, generally, but if a drill is used care should be taken that the seed is not planted too deep. One and a half inches is deep enough; twenty pounds to the acre is the standard quantity. The best way to get your hay in stack is to commence on the first crop as soon as it is well budded for bloom. Cut one-half of say a twenty-acre field and put it into the stack; then, if the weather is good while you are cutting and stacking the last part of the field, the first part will have a great start for the new crop and will keep your haying of the three or four cuttings for the season well divided, and you will, as a rule, have a majority of your alfalfa hay bright and free from dust. And one shock of bright, clean alfalfa is worth more than a wagon load of musty, dusty stuff for your dairy cows for winter butter.

Stack in ricks not over twelve feet wide, keep sides of the stack straight and the same width as high as you can pitch off the wagon. In topping out shake the hay out and spread it carefully. Pound down the sides with the fork and tie the top before you leave the stacks. It will turn the rain as well as any hay with the same care in topping. You will be surprised how little the rain will penetrate. It is generally claimed it won't turn rain, and it won't if stuck on with lumps and chunks. The man with big fields and machinery will learn by his necessities how to work his crop.—L. MORSE in *Nebraska Farmer*.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Siloing Clover.

Please let me know through the columns of your valuable paper, the best method of putting clover into a silo for summer use. I want to cut the latter part of June, clover enough to fill one silo (not cut with a cutter). Shall I let it cure a few hours or not? Any information will be thankfully received. Also please tell me if the second crop in September can be treated the same as the June crop. Medium red I raise. B. J. C.
Willink, N. Y.

Do not let the clover wilt, but get into the silo as soon as possible. Spread it evenly and tramp down as solid as possible. When filling is completed wet the surface thoroughly and cover with whatever is most convenient unless feeding commences at once. Second crop can be handled in same manner.

A Self-Sucking Heifer.

I have a young cow who is inclined to suck herself. Can you suggest a prevention or cure? Can it be done without disfiguring her?
Rockford, Ill. SUBSCRIBER.

Insert a common, jointed bull ring in the nose of this cow and hang two or three large harness rings in this bull ring.

Siberian Millet.

C. W. N., of Lyons, Nebraska, asks about the value of Siberian Millet as a feed for dairy cows, stating that excessive rains have seriously affected farm work in his section of the country.

Siberian Millet is a new name and we have great doubt whether it differs very materially from some of the well recognized older varieties. Any kind of millet makes good feed for dairy cows, provided it is harvested before the seeds are fully formed. What is needed is to have the nutrients in the forage and not in the seed. Cut and cure for hay very soon after the heads come into flower.

Silo Queries by a New Subscriber.

Is a silo made from 2×4s equal to patented article? Should staves be beveled? Should they be matched? Is hemlock as good as Georgia hard pine? How are oak and whitewood? How many hoops on a 12×24 foot silo? Should staves be dressed on both sides? I am a new subscriber.
Botzum, O. A. L. W.

It is hardly to be expected that a domestic-made silo will be equal in all respects to one made in a shop equipped especially for the manufacture of silos, but a domestic or home-made silo may be made to answer every practical purpose, and if the silo is more than ten feet in diameter, there is no necessity for either beveling or matching the staves. Good quality hemlock makes a good silo, but probably not as good as one made from Georgia hard pine. Oak lumber would be, perhaps, more durable, but oak has a way of swelling and shrinking so much that we should prefer either the pine or the hemlock. The lower hoops should be not more than two feet apart and after the third hoop is on, this space may be gradually increased in succession. We prefer to have the lumber dressed on both sides, but surfacing one side only suffices for all practical purposes.

Drying off Cows.

I have some cows that freshened about four months ago and I desire to fatten them for market. Can you tell me how to check or stop the flow of milk, also as to treatment and rations? Have corn and cotton seed meal. E. P. S.
Ashville, N. C.

I have a cow that I wish to dry up. Could you please tell me of some remedy for it? The cow just came in, but has cut her teats so badly that she is not suitable for a milk cow. (Mrs.) A. B.
Newman, Calif.

There are those who contend that simply ceasing to milk is an effective and safe way to dry off cows. We have never had quite courage enough to follow this plan, but at first, we milk only once a day instead of twice and then leave considerable milk in the udder. After two or three days, it will be found that the cow gives no more milk at the one milking than she did at each of the previous two milkings. We then milk only every third day and continue this until the amount secreted is materially lessened and so continue to increase the intervals from time to time until the cow becomes practically dry. Meantime, feed no grain, and if practicable, withhold all fresh feed, giving only dry fodder.

Unless one is abundantly supplied with pasturage or fodder that would otherwise go to waste, there is no profit whatever in attempting to fatten these cows. Better sell them at once for what they will bring.

A Stave Silo Query.

In building a stave silo do you advise setting the staves back on the foundation, if so, how much, or flush with the inside? Would it be possible to plaster on the bare clay, as many cisterns are made, so as to prevent water from soaking in from the sides and bottom. W. O. D.
Hanover, Wis.

The present writer in building a silo on his farm set the staves back from the inner face of the foundation wall about five inches, and this, for the purpose of enabling him to line it with a course of brick if future developments should seem to make such a lining desirable. This space or rim was filled in with clay slanting up to the staves, much as putty is used to fasten glass in a window. This clay served the double purpose of making a tight joint between the staves and the foundation and giving an easy slide to the silage over the projection.

We have had a great many reports from parties who have practiced plastering the walls of silos in clay grounds with great success. The soil on our own farm is not suitable for adopting this plan, so in building cisterns, we simply line up with a single layer of brick and put the cement on the brick.

To Get Water in Barn.

I have a barn which I wish to have stock water in. I have a No. 1 well 100 feet from the barn and a No. 1 spring 300 feet from the barn. The well is on a level with barn, the spring 50 ft. lower than barn. How had I better proceed to get water in in my barn? Can I pump water with an engine in the barn and the well 100 feet away, 78 ft. well, or will I have to use a wind mill? If you can give me any light on this question, it will greatly oblige me.

I get lots of valuable information from your paper.

I am milking 16 cows and feeding my skim milk to hogs. Use a Davis cream separator. I have a cross of Poland China and Berkshire, thoroughbred on both sides, which I make weigh at 5 1 5 months old, average for litter of 8, 216 pounds. Another litter of 9 at 6 months old averages 236 I feed corn and wheat meal with skim milk. Tell me how to get a better gain.

I am just a boy in age and only a yearling in dairy work. I have 240 acres of land.
Fair Grove, Mo.

If there is a fall of four to eight feet from the spring referred to in the above communication, we are of the opinion that the most satisfactory way to get water into the barn, would be to use one of the hydraulic rams advertised in this paper.

If there is no available fall from the spring, it is entirely practicable to pump water from the well with an engine located in the barn one-hundred feet away. This can be done, either by the use of a rope belt, or by running a shaft the distance, the shaft made of gas-pipe and supported at intervals. It is perhaps doubtful, however, all things considered, whether a wind-mill at the well would not only give equally as good satisfaction but be cheaper in the long run.

The weight of pigs reported should be fairly satisfactory. The only question is whether they could be fed to greater profit by increasing the proportion of meal to milk. Various experiments have shown that not more than from three to five pounds of milk should be fed with one pound of grain. This may not give the pigs as much drink as they would like, but if they have pure water in connection, to satisfy their thirst, there will be no more profitable way for using the skim milk.

Starting a Holstein Herd—Handling the Sire.

Would it be advisable in starting a herd of pure blood Holsteins, to start with half brother and sister, both by the same sire?

Is it best to keep the male tied up, or let run with the cattle? Subscriber.
Merced, Cal.

There is no objection in starting a herd as suggested, provided, the animals show no defects. Close breeding tends to intensify defects perhaps even more than it intensifies good qualities. Therefore, as a rule, unless one is an excellent judge of cattle, it would be preferable to have dam and sire not closely related. It is the better, because the safer, practice, not to allow the male to run with the other cattle, but keep him either tied or give him the range of a small paddock, and if possible, some company.

Salty (?) Milk.

We are having trouble with the cheese. I am making Swiss cheese and have had trouble from the start. The cows are in good flesh and milk well. My cheese maker and milkers say that some cows give salty milk from one teat and then from one of the other teats next time, and cows that were fresh this spring. Now you will confer a great favor by you or some of the patrons to tell us how to get rid of it, or what to feed to correct the trouble. S. H.
Berlin Center, Ohio.

It is almost incredible that trouble of the character represented should occur in different herds, and still more incredible, that it should travel from one quarter of the udder to the other quarter. We venture to hazard the opinion that the cause of the trouble is more with the milkers than with the cows. The only way to determine this for certain is to compare the milk when fresh drawn with other samples that have stood for a few hours. If the trouble is with the cow, the milk when first drawn will show the defect very perceptibly; but if the milker

"ADVERTISEMENT."

THE REAL CRANK

Is Plainly Marked.

A crank is one who stays in beaten paths when common sense tells him to leave.

The real crank is one who persists in using coffee because accustomed to and yet knows it hurts him. It is this one who always pays the penalty, while the sensible person who gives up coffee and takes on Postum Food Coffee in its place enjoys all the benefits of returning health.

A well known manufacturer's agent of New York City visited the grocery department of one of the big New York stores not long ago and there he tasted a sample cup of Postum made the right way. He said afterwards: "Just through the energy of that young woman who was serving Postum there I became a convert to the food drink and gave up the drug drink coffee and got well.

"I had used coffee to excess and was gradually becoming a complete wreck, getting weaker and more nervous every day. I paid the penalty for using coffee and when I tasted the delicious Postum I was glad indeed to make the change.

"So I gave up the coffee altogether and have used Postum instead every since. My family at first called me a crank but seeing how Postum benefitted me the first month they all got in line and as a result of Postum's remarkable benefits to me we all drink it now entirely in place of coffee and we are well." Name given by Postum Co., Battle Creek, Mich.

There are many reasons why the Improved

U. S. SEPARATOR IS THE ONE TO BUY

BELOW ARE A FEW OF THEM:

THE U. S.

Costs no more than inferior machines
Gets More Cream out of the Milk
Is less expensive to operate
Increases the quantity
Improves the quality
Will wear longer
Soon pays for itself
Has its gears enclosed
Bowl has few parts to wash
Has simple self-emptying Bowl
Has many other points of superiority
More fully described in our catalogues which are free for the asking, all making

The U. S. Separator the Standard Separator of the World

For Western customers, we transfer our separators from Chicago, LaCrosse, Minneapolis, Sioux City and Omaha. Address all letters to Bellows Falls, Vt.

Vermont Farm Machine Co., Bellows Falls, Vt.



WHEN YOU SEND IN YOUR RENEWAL, SPEAK TO A FEW OF YOUR NEIGHBORS AND HAVE THEM JOIN YOU. CLUB RATES: 2 Subscriptions, $1.50; 3 Subscriptions, $2.00; 4 Subscriptions, $2.50; 5 Subscriptions, $3.00.

IT IS IMPORTANT

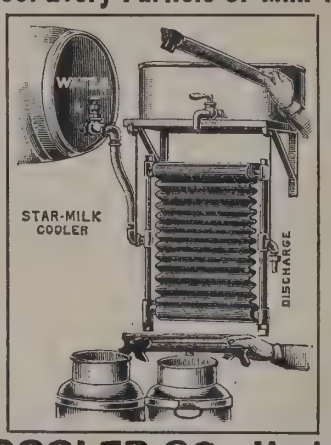
That You Cool Every Particle of Milk Thoroughly

Why not buy a good machine?

You purchase other machines that are first-class why not a cooler?

You will not look at a cheep Feed Cutter, Mower, etc.

If you want an easy mind, buy one of our coolers.



Stirring with a stick is not cooling.

You must have a long flow for the milk and a long flow for the water.

Thorough cooling brings good business.

Good Business means Good Money.

GOOD MONEY!!!!

Write for Printed Matter

STAR MILK COOLER CO., Haddonfield, N. J.



EASY. It is easy to go on losing money by taking care of milk in the old way, that is, by not taking care of it: But it is easy, too, to take proper care of your milk with a

Champion Milk Cooler-Aerator

The Champion is pre-eminently the easy Cooler—easy to buy, easy to take care of, easy to use.

A Booklet for the asking.

Champion Milk Cooler Co.,
67 Main Street, CORTLAND, N. Y.

is entirely at fault, the milk when first drawn will appear to be all right and after standing will go off in condition. In the former case, there may be something wrong with the feed or the cow, and can only be corrected by a judge of feeds or the use of some appropriate internal remedy given to the cow, but in the latter case, let the milkers thoroughly brush and dampen the udders and flanks of the cows before milking and see to it that their hands and clothing and milk utensils are thoroughly clean.

After making a thorough examination of the milk when first drawn and after standing several hours, write us again.

Selling Buttermilk at Creamery.

How should we sell buttermilk? So much for the buttermilk that you get from churning 100 pounds butter, or by the barrel, and what should we get?
Augusta, Wis. J. H. K.

Buttermilk can be sold the same as skim milk, by the hundred pounds, and it has the same value if it is kept in good condition and stored and delivered from a clean tank.

Fly Preventives.

Is there anything that money can buy, that will keep flies off cows? J. W.
Hibbing, Minn.

You will find in the advertising columns of the DAIRYMAN, a number of preperations that are successfully used for this purpose.

Calf Raising on Separator Milk.

How can I raise calves on separator milk? Would you advise cotton seed meal in it, and how prepared? How much for each calf? C. C. M.
Bar Harbor, Me.

On page 352 will be found a very full discussion of the methods of calf raising on skim milk. Cotton seed meal should not be used.

Meeting of Agricultural Educators in Pennsylvania.

ED. HOARD'S DAIRYMAN:—The State Board of Agriculture, the county chairmen of institute management, the state institute lecturers, the various agricultural organizations of Pennsylvania, with a very good representation from the State College and Experiment Station, held a three days' meeting at Huntingdon, Pa., June 2, 3, 4, that eclipsed everything of the kind previously attempted. Almost every county in the state was represented. The addresses were of a high order, delivered by such men as Dr. Geo. W. Atherton, President of State College; Prof. John Hamilton, Institute Specialist in the National Department of Agriculture, and other eminent educators.

Considerable time was used in discussing, devising and formulating plans of future action in reaching the agricultural masses with helpful educational work along agricultural lines and practically unanimous conclusions were reached that the work be continued, with conservative changes and improvements, on lines previously pursued. The Director of Institutes should feel highly gratified by the unanimous endorsement he received from almost every county in the state.

The farmers institute in our state is a most completely and systematically organized effort at agricultural education. More people are reached and more helpful practical work done than could possibly be accomplished in any other way for the same amount of money. The system is of gradual growth. Much of the pioneer work was done by the Hon. Thomas J. Edge, for many years secretary of the Board of Agriculture, nobly assisted by many capable workers, amongst them being our present secretary of agriculture, Hon. N. B. Critchfield.

The present system, however, was originated and organized by Prof. John Hamilton, now Farmers' Institute Specialist in the United States Department of Agriculture, and well might he be chosen to this newly organized division, as he undoubtedly devised one of the best institute systems we have in this country to-day. His ability along the lines of agricultural educational organization is second to none. Prof. Hamilton was succeeded by the present institute director, Hon. A. L. Martin, who has so improved and perfected the system that his over-sight and control of the work is like that of a general of an army and his responsibility is even greater. He has a corps of about 40 selected lecturers in the field most of the time during the institute season.

The state is divided into five sections of twelve to fourteen counties each. Each section is in charge of a competent, practically educated agriculturist, who makes daily reports to the director. He is accompanied by a scientific expert, generally selected from the Experiment Station. While the third man is, as Mr. Martin puts it, fresh from the farm, with his sleeves rolled up, who knows how hard a man must work and think to make mother earth yield a dollar, and who practices what he preaches. Five such trios are daily engaged for about three months in the five sections of the state, teaching some of the principles that underlie modern scientific agriculture.

In each county is a local chairman, who has charge of all local arrangements and who also makes a full report of every institute held. Thus it will be seen that the director of institutes has the entire work as it progresses, mapped out before him almost daily. But Mr. Martin does not depend on the written reports only, but one time he is in the northeastern part of the state then in the southwestern, then in the central giving his helpful advice and kindly presence; then home again to find possibly someone disabled whose place must be filled at once. I doubt if there is a busier man in the state than Mr. Martin during the institute season, but he is one of those men who never tire of well doing.

During this last year over 150,000 people attended these institutes. The agricultural outlook of the Keystone state is indeed bright when about 70% of the farmers attend these practical educational meetings.

L. W. LIGHTY.
East Berlin, Adams Co., Pa.

The Best Time to Cut Alfalfa.

Prof. Wm. P. Headden, chemist of the Colorado Agricultural College, has issued a pamphlet entitled "The Best Time to Cut Alfalfa." He says that there is a very generally accepted notion that there is a considerable difference in the value of the respective cuttings of alfalfa for feeding purposes, the third receiving the preference for milch cows, especially if it is made without the plants having been touched by frost; the first and third for sheep feeding, and so on. There are two means of investigating the subject; first by the study of the chemical composition of the plant and second by feeding experiments. So far as the composition is concerned the best time to cut alfalfa would be at that period when it would produce the greatest number of pounds of the respective food elements, expressed in the common standards.

One of the merits of hay made from the leguminous plants is that they are rich in nitrogen, the percentage of which multiplied by 6.25 is put down as the proteids. If alfalfa is cut in the bud and enough is taken to make 100 pounds of hay, the same alfalfa if allowed to stand until in half bloom, would make 126 lbs. of hay or 145 lbs., if cut in full bloom. If allowed to stand longer it would decrease. If the question were as to when is the best time to cut alfalfa to make the most hay the answer would be when it is in full bloom. But the question is: When is the best time to cut alfalfa? That time evidently is not when it will make the most hay, nor of the best quality, but when the largest yield of digestible food ingredients may be obtained. This answer involves two factors: composition and digestibility.

One hundred pounds of early-cut hay will contain 15 lbs. of albuminoids and 1.5 lbs. of amids; the 126 pounds cut in half bloom will contain 15.8 pounds of albuminoids and 2.9 pounds of amids. The 145 pounds cut in full bloom will contain 19 pounds of albuminoids and two pounds of amids. Leaving the amids out, and reducing these figures to the basis of a pound, it is found that the relative values of the three cuttings are 116, 100, and 108. Or stated otherwise, 86.2 lbs. of alfalfa hay cut in the bud, or 92.6 pounds cut in full bloom, are equal in value to 100 pounds cut in half bloom.

It is assumed that the albuminoids in the three stages of development are equally digestible. If this be true, the largest amount of digestible proteids would be obtained by cutting in full bloom.

Prof. Headden concludes that after allowing for a little latitude in the use of the terms half bloom, full bloom and late bloom, the time to cut alfalfa in order to get the greatest value per acre is at the period of full bloom.—H. A. C. in *Breeders' Gazette.*



Shepherd's Aerator

Is most simple, most effective, least trouble. While you go on milking millions of air globules from the charged tank are passing up through the milk, driving out all animal heat and foreign odors. Works in shipping can. No other vessel to clean. **King among Aerators.** All dairymen prize it. Write for descriptive circular.

F. P. SHEPHERD & CO., Elgin, Ill.



Measure the Milk of each Cow

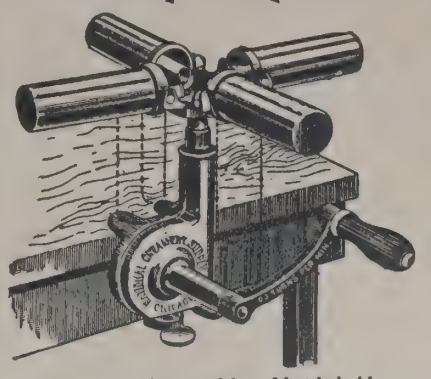
With the **Automatic Milk Scale** you can keep an accurate record of the yield of each cow, and remove the unprofitable ones from the dairy. Each button on scale arm corresponds to number of cow, and when pail of milk is weighed the button registers the weight on score card. Big money saver and money maker for farmers and dairymen. Send for testimonials and illustrated catalogue of **Bestov** dairy supplies.

TRADE MARK BESTOV

DAIRYMEN'S SUPPLY CO, Phil'adelphia, Pa.

MILK WON'T SOUR If you use The Erie Can Refrigerators. An acknowledged Success. Booklet Free.
S. C. SULLIVAN, 425 W. 4th., Erie, Pa.

NATIONAL
Babcock Milk Tester



Dotted Lines show position of bottle holders when not in motion.

Has enclosed cut gears.
Swinging bottle-holders.
Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

DOES YOUR DAIRY PAY?

It costs no more to feed a profitable than an unprofitable cow.

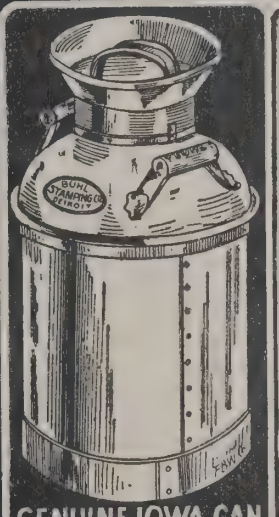
NET PRICES:

No. 1,—2 bottle, complete for testing milk.... each $4 00
No. 2,—4 bottle, complete for testing milk.... each 5 00
No. 3,—2 bottle, complete for testing cream and milk, each..... 4 50
No. 4,—4 bottle, complete for testing cream and milk, each..... 5 50

Prices include full directions for making test, bottle of acid, test bottle brush, acid measure, dipette and test bottles.

We are the great Dairy Supply House of the West. We carry an immense stock of all kinds of Butter and Cheese Making Apparatus and Supplies. Write for catalogues and circulars.

National Creamery Supply Co.,
450-458 Illinois St., CHICAGO, U. S. A.



Truth to Tell

There are no other milk cans made that can equal in wearing qualities the genuine

BUHL CANS

They are tinned to stay tinned, and put together to stand years of hard service. Other cans crack easily, become dented, and being lightly tinned soon rust and go to pieces. Not so with the "Buhl Factory," "Improved Elgin" and "Genuine Iowa." They will outlast any other cans on the market, and are thoroughly and quickly cleaned, **Remember,** the Buhl is the only can in the world that is made with the **Buhl "Victor" Can Breast** and the **Buhl "Victor" Round Handle.** As there are many inferior imitations of this can, we stamp all ours with the **Milk Can Trade Mark.** Look for it. Sold by all live dealers. Ask about them, or write us direct.



BUHL STAMPING COMPANY,
212 W. Larned St., Detroit, Michigan.



The Distribution of Skim Milk.....

It is known that the just complaints of creamery patrons on account of unfair distribution of skim milk are the bane of the separator creamery business. Further disputes among patrons, annoyances to managers, hindrances to the best work of buttermakers, watering the skim milk, and many other ills in the same train are unnecessary, since the

Barber-Coleman Check Pump

has for more than five years been successfully solving the problem in many different creameries. When a patron has dropped in his check he can pump the amount of skim milk called for by his check, less the percentage taken out as cream, so in like proportion to all other checks. Its measuring apparatus is just an ordinary pump which everyone understands and knows how to operate.

Cornish, Curtis & Greene Mfg. Co.,
General Sales Agents De Laval Alpha Separators,
FORT ATKINSON, WIS.

Program of the National Association of State Dairy and Food Departments, at St. Paul, Minnesota, July 21, 22, 23, 24, 1903.

TUESDAY.

MORNING SESSION, 10 A. M.

Convention called to order by Hon. J. W. Bailey, President of The National Association of State Dairy and Food Departments.
Address of Welcome on Behalf of State - Hon. S. R. VanSant, Governor of Minnesota
Address of Welcome on Behalf of City - - Hon. Robert Smith, Mayor of St. Paul
Response on Behalf of Association - - Hon. A. H. Jones, Food Commissioner of Illinois
Roll Call by States.
Appointment of Committee on Resolutions.
President's Address - Hon. J. W. Bailey Dairy and Food Commissioner of Oregon, President
Recess.

AFTERNOON SESSION, 2 P. M.

Address—The National Food Law - - - Congressman H. C. Adams, of Wisconsin
Discussion by the following gentlemen: Hon. John Hamilton, Department of Agriculture, Washington, D. C.; Hon. A. H. Jones, State Food Commissioner of Illinois; Mr. R. M. Allen, Secretary Food Division Kentucky Experiment Station; Hon. E. A. McDonald, State Dairy and Food Commissioner of Washington; Hon. Scott Bonham, Attorney Ohio Dairy & Food Commission.
Address—The Dairy Industry of the Country - Hon. H. R. Wright, Dairy Commissioner of Iowa
Discussion by the following: Hon. Henry E. Alvord, Chief of the Dairy Division, Department of Agriculture, Washington, D. C.; Hon. Geo. M. Whitaker, General Agent Dairy Bureau of Massachusetts; Hon. J. B. Noble, Dairy Commissioner of Connecticut; Mrs. Mary L. Wright, Dairy Commissioner of Colorado; Hon. C. P. Sherwood, Dairy & Food Commissioner of South Dakota; Hon. Frederick J. H. Kracke, Assistant Commissioner of Agriculture of New York; Hon. E. E. Kaufman, Assistant Dairy Commissioner of North Dakota; Hon. R. M. Patterson, Assistant Food Commissioner of Illinois; Hon. John M. Thomas, Secretary and Agent State Dairy Bureau of California.
Recess.

EVENING SESSION, 8 P. M.

Address—Effects of Antiseptics on the Human Body Under Recent Experiments - - Prof. H. W. Wiley, Chief of U. S. Bureau of Chemistry.
Discussion by the following gentlemen: Prof. J. H. Shepard, State Chemist of South Dakota Dr. Wm. Mitchell, State Chemist of Colorado; Prof. S. S. Ladd, State Chemist of North Dakota; Prof. Elton Fulmer, State Chemist of Washington.
Address—Food Standards - - - - Edward N. Eaton, M. S., Illinois State Analyst
Discussion by the following gentlemen: Prof. M. A. Scovell, Director of Kentucky Experiment Station, Member U. S. Food Standard Commission; Prof. B. W. Kilgore, State Chemist of North Carolina; Dr. Wm. Frear, Vice-Director Pennsylvania Experiment Station, Member U. S. Food Standard Commission.

WEDNESDAY.

MORNING SESSION, 9 A. M.

This day has been set aside for the purpose of having Manufacturers and Dealers address and take part in the Convention.
Address—Regulation of the Food Industries - Mr. R. M. Allen. Secretary of Food Division, Kentucky Experiment Station.
Address—Response, The Food Profession - Mr. L. M. Frailey, Jos. Campbell Preserve Co., Camden, N. J.
Address—The Manufacture of Flavoring Extracts Dr. V. C. Price, President Price Flavoring Extract Co., Chicago, Ill.
Discussion by the following gentlemen: Prof. R. E. Doolittle, Michigan State Analyst; Hon. Joseph E. Blackburn, Ex-Dairy and Food Commissioner of Ohio; Mr. McCormick, Of McCormick & Behnke, Manufacturers, St. Paul, Minn.; Prof. J. O. LaBach, Chemist Food Division, Kentucky Experiment Station; Mr. R. S. Fowler, of Royal Remedy & Extract Co., Dayton, Ohio; Dr. Richard Fischer, State Chemist of Wisconsin.
Address—The Manufacture and Preservation of Fruits and Vegetables - R. J. Evans Of Heinz & Co., Pittsburgh, Pa.
Discussion by the following gentlemen: Hon. A. W. Smith, Michigan Dairy & Food Commissioner, Hon. S. C. Bassett, Deputy Dairy Commissioner of Nebraska: Frank H. Madden, of Reid, Murdock & Co., Chicago, Ill.; Hon. E. O. Grosvenor, Ex-Dairy & Food Commissioner of Michigan; Mr. J. Weller, of the J. Weller Co., Cincinnati, Ohio; Mr. J. D. Miller, Attorney for Sprague, Warner & Co., Chicago, Ill.
Address—Corn Products and Their Purity - Dr. T. B. Wagner, General Superintendent Corn Products Co.
Recess.

AFTERNOON SESSION, 2 P. M.

Address—The Manufacture and Preservation of Meat Products - Prof. E. S. Manns of Armour & Co., Chicago, Ill.
Discussion by the following gentlemen: Mr. Edward Tilden, Pres't Libby, McNeill & Libby Chicago, Ill.; J. N. Hurty, M. D., Phar. D., Secretary Indiana State Board of Health and Food Commissioner: Mr. W. M. Shirley, Swift & Company, Chicago, Ill.
Address Dairy Products.
Discussion by the following gentlemen: Prof. M. A. Scovell, Director Kentucky Experiment Station; Hon. H. B. Gurler, DeKalb, Ill.; Hon. B. D. White, of St. Paul, Minn.; Prof. T. L. Haecker, Prof. of Dairy Husbandry, Minnesota Agricultural College; Mr. F. D. Coburn, Superintendent Live Stock Department, Louisiana Purchase Exposition.
Address—The Purity of Distilled Products - - Mr. R. C. Stoll, Stoll Co., Lexington, Ky
Discussion - - Hon. E. H. Taylor, Jr. Pres. E. H. Taylor, Jr., & Sons, Frankfort, Ky.

THURSDAY.

MORNING SESSION, 9 A. M.

Address—Uniform Labeling - - - Hon. A. H. Jones, Illinois Food Commissioner
Discussion by the following gentlemen: B. H. Warren, Dairy and Food Commissioner of Pennsylvania; Hon. George L. Dingman, Assistant Dairy and Food Commissioner of Minnesota; Hon. J. Q. Emery, State Dairy and Food Commissioner of Wisconsin; Hon. Horace Ankeney, State Dairy and Food Commissioner of Ohio; Hon. Moroni Heiner, Dairy and Food Commissioner of Utah.
Address—Antiseptics and Coloring in Food Products - By Prof. J. H. Shepard State Chemist of South Dakota.
Discussion by the following gentlemen: Prof. R. E. Doolittle, State Chemist of Michigan; Prof. J. O. LaBach, Chemist, Food Division Kentucky Experiment Station; Prof. Julius Hortvet, State Chemist of Minnesota; Prof. A. L. Winton, Chemist Connecticut Experiment Station; Prof. Herman Harms, State Chemist of Utah Dairy & Food Commission; Prof. J. M. Nelson, State Chemist of Nebraska Food Commission; Dr. F. Aschman, Chemist, Pennsylvanion Dairy and Food Division.

FRIDAY.

MORNING SESSION, 9 A. M.

Report of Committees.
1st Report of Regular Committees.
2nd Report of Legislative and Executive Committee.
3rd Report of Finance Committee.
4th Report of Committee on Resolutions.
Report of Special Committees.
1st Report of Committee to Confer with Association of Official Agricultural Chemists.
2nd Report of Committee on New Constitution and By-Laws.
3rd Report of Committee on National Food Law.
4th Report of Committee on Standards.
5th Report of Committee on Rulings.
6th Report of Committee on Nominations.
Election and Installation of Officers.
Adjournment.

SPECIAL NOTICE.

The foregoing will be followed as closely as possible, but other subjects will be introduced if found desirable.

The officers of the Association are especially anxious that all members of this organization be present to participate in the several sessions of the meeting, as matters of great importance are to be considered.

The convention will be held in the Senate Chamber of the State Capitol, St. Paul.

HEADQUARTERS.

For the National Association of State Dairy and Food Departments will be at the Windsor Hotel.

Headquarters of the Executive Committee will be at the Willard Hotel.

Headquarters of the Committee on Resolutions will be at the Dartmouth Hotel.

TRANSPORTATION RATES.

A rate of $16 00 for the round trip via C. & N. W. R. R. from Chicago to St. Paul has been secured. Special arrangements are made to leave Chicago on the N. W. Ltd. at 6:30 p. m., Monday, July 20th, arriving at St. Paul at 7:25 a. m., Tuesday, July 21.

Orders for tickets and sleeping car reservations can be made through Mr. H. B. Meyers, 1623 Manhattan Building, Chicago, or D. H. Hoops, General Agent C. & N. W. R. R., No. 212 Clark street. The rate for berths are $2 per berth; compartment car rates are $2.50 per berth.

During the months of July and August, summer excursion rates are in effect in almost all parts of the United States and round trip tickets can be purchased to St. Paul at about the rate of one and one-third fare for the round trip. Those purchasing tickets in this manner should try and have them read via Chicago & Northwestern, from Chicago, in order to put the entire party on the Northwestern Limited, which leaves Chicago, 6:30 p. m., Monday, July 20, 2903.

Those desiring reservations at any of the above hotels, or desiring other information, address:

HON. W. W. P. McCONNEL,
State Dairy and Food Commissioner, St. Paul, Minn.

J. W. BAILEY, Pres., Oregon.
R. M. ALLEN, Sec., Kentucky.
A. H. JONES, Illinois.
H. R. WRIGHT, Iowa.
W. W. P. McCONNEL, Minnesota.

The Cost of Milk.

Few Dairymen Know It or Try to Find Out.

What does it cost to make a quart of milk? Ask this question of almost any farmer and the answer will be: "I do not know." If all dairymen knew the true answer many of them would go out of the business at once, for one-half of the cows in the country do not give milk enough to pay for their feed at the price now received. A neighbor to whom I made this statement got mad at once, declared he had paid for a farm with milk, for twenty years selling but little else. The fact is, the cows converted the hay, grain and grass into milk, which did not sell for the market price of those products. All the profits of growing these things were swallowed by the cows, along with them, and the cows given credit for it.

The average yield of milk per cow does not exceed 3,000 pounds, and the market price of milk will not pay for the feed. There are many cows and herds which exceed this average, in every locality, and, of course, there must be as many more which give below the average. The latter class are "money losers" every time. The reason that milk sells so low is that most products sell for but little more than actual cost, and selling milk below cost, without knowing that the supply is too large. The remedy for low prices of farm products is more knowledge of their cost.

The curse of modern business is the competition of bankrupt stocks which flood the market, crowd down the price for a short time, ruin legitimate dealers and then disappear. The money to start them was earned in some other way and is lost. The operator stops until more is made in some other line. The fertility of the farm, the crops grown, supply the funds (food) for another year of trial. On the best farms, with careful management, there may be a small income, but it's the mass I wish to warn, wake up and save from toil, hard and unremitting, for mere board and clothes. The following actual figures show what it is possible to do:

A dairy of sixteen cows, many of them grade Holsteins, were well kept and fed. One can see by the figures they were far above the average dairy:

Whole number of cows milked	16
Amount of milk sold	142,226 lbs.
Average per cow	8,889 lbs.
Average price of milk per 100 lbs.	$1.041
Amount received for milk	1,481.89
Average per cow	92.61

To produce this milk it cost for:

Help hired, farm and house	$274.00
Owner	$240.00
Interest on land	$185.00
Three and a half tons hay	$35.00
Phosphates	$29.20
Threshing and silo, etc	$24.60
Paid for grinding	$34.15
Paid for feed	$438.79
Total	$1,260.74

Average cost for purchased feed per cow, $27.42. Average amount received less feed, per cow, $65.19. This leaves a profit of $221.

This is profit providing you do not reckon interest on value of cows, or depreciation in value, and allow all the food given them from the farm at the cost, instead of at the market price. The profits made on all the crops grown are included in the milk statement.

If a herd so far above the average in milk yield comes so little above the margin, where does the ordinary come in? But few dairies feed as much grain as does this man, but, aside from this, a poor cow eats about as much as a good one. It is easy to cut the 8889 pounds of milk down one-half, but you cannot cut the food bill equally.

Here is another "above the average" record, which gives but cold comfort to the careless cowkeeper:

Interest on farm and stock	$ 450 00
Depreciation and repairs	200 00
Taxes	50 00
Help and board	619 00
Twine	10 00
Fertilizer	33 80
Grass seed	23 50
Feed	323 00
	$1,708,00
Milk received	81,364 qts.
Cost per quart	.02
Money received	$1,753 23

The owner did not live on his farm but hired the help to run the farm. The loss of one cow would wipe out the profit.

How many who sell milk at the station receive an average of 2 cents per quart? These men both feed a good deal of grain and have extra good farms, which

Did You Ever Keep a Record Of Your Cows?

IF SO, you have felt the need of a convenient, simple and handy Record Sheet. We have had so many requests for these Record Sheets that we concluded to get up one that would "fill the long felt want." We have a very simple and complete Record Sheet for 10 cows, one month, that is printed on heavy Manilla Paper, we can send postpaid at following prices:

Price 5c Each	6 for 20c	12 for 30c	25 for 50c

SIZE 10x16 INCHES

We also have a one cow Record Sheet, heavy Manilla paper (one month) that we will mail postpaid

Single Copy 5c	5 for 15c	10 for 25c	25 for 40c

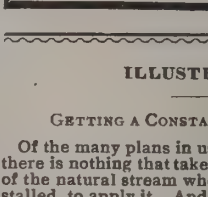
SIZE 6x15 INCHES

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FORT ATKINSON, WIS.

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Farmers wanted as agents. AUGUST POST, Moulton, Iowa.

"NEW HERO"
excels in strength and effective working qualities and sells at a price that "fits the purse." It is the combination of these three features in the highest possible degree which a practical man looks for when buying

ENSILAGE MACHINERY.



The "New Hero" Cutters are the simplest in construction of any made; so strong that, size for size, they weigh more than any others; they have every practical advantage and improvement claimed for others and many found in no other; they are guaranteed to outlast and outwork others. Sizes, 9 in. to 26 in.; with or without self-feed table; shredder attachment if desired; swivel feed carrier. We make also a complete line of sweep and tread horse powers, shellers, huskers, feed grinders, wood saws, windmills, etc. Remember that Appleton quality is the standard of excellence, and write to-day for free catalog.

APPLETON MFG. CO.,
35 Fargo Street, Batavia, Ill., U. S. A.

ILLUSTRATION

GETTING A CONSTANT WATER SUPPLY.

Of the many plans in use for the raising of water there is nothing that takes precedence of the power of the natural stream when proper machinery is installed to apply it. And just here it is proper to remark that our advertising columns are showing in the Rife Hydraulic Engine a machine most excellently adapted to this purpose. Its varying sizes meet the requirements of a large or limited service, and the power required is so small in proportion to the duty it performs that there are but few country places with running streams where it will not give most satisfactory service. An idea of the machine may be gathered from the cut shown here. It is not only effective, but simple in the extreme and very durable. A beauty about all such powers, and particularly the Rife Engine, is



that when once installed there is practically no expense for many years to come, in the running. Many Rife Engines have been in constant operation for upwards of ten years without a dollar's worth of repairs. In the vicinity of New York, where they are best known, they are a familiar sight, seeming to have been adopted with one accord as the improved plan of raising water for all purposes at the country seats. About a dozen years ago one of these engines was installed on the famous Biltmore estate at Asheville, N. C., and it proved so effectual that to-day there are now fourteen Rifes employed, furnishing water for all the various purposes for which they have use. Very recently an irrigating plant has been established in the Hawaiian Islands, near Honolulu, with a Rife Engine for its base and furnishing 3 000 gallons per minute. These are but suggestions of its popularity and scope of duty. To the small country user it suggests easy possibilities in the way of an economical and constant fresh water supply. Whoever is wrestling with a water problem should write to the Rife Engine Co., 126 Liberty Street, New York, for their catalog and get further informotion at first hand.

produce heavy crops of grass and grain. This enables them to crowd a cow to her fullest extent without buying. They are both good judges of cows and do not keep a poor cow long. They buy and sell, not raising young stock, and often selling one nearly dry and replacing with a fresh milker.

"Would I advise abandoning the dairy?" I asked a professor of animal industry at one of our experiment stations if he would like to try to produce milk for sale at 2 cents per quart and depend on it for a living. The look he gave me and the shake of the head were answer enough. He has figures and results, from a good herd, for many years' work and knows.

No, I would not advise abandoning the dairy, but would advise knowing what it costs to keep in the business and would then, if too expensive, either change my methods or business. Knowledge lets in a good deal of light and shows things never dreamed of sometimes.

If you weigh the milk from each cow for a year, probably one or two will "go" without delay. If you have a cow get into the green oats the weight of her milk for a day or two may make you open your eyes to the possibilities of a good cow in good feed, and you may reduce the number of cows kept to that point that you can feed them well or you may grow a soiling crop another year.

If the cow with the big udder and large flow in May "peters out" in September, her milk record will remind you that appearances are deceitful and you will look for something else besides a beefy udder when you buy another.

The trouble with dairying is more in the manager than in the manger—it is "a" difference.—*Ohio Farmer.*

Seeding for Permanent Pasture.

Have 2 fields, high ground, dry gravelly soil, well drained but windy, containing 21 acres, plowed and harrowed early, but not planted; waiting 46 days for decent rain. What would you suggest, seeding at this late date, or waiting till August or September? It is my intention to make permanent pastures of aforesaid fields Am a regular subscriber at my New York City address, but green at farm operations. Hence this query.
Gladstone, N. J. G. R. M.

We would not attempt to grow a crop the present season, but seed with grasses exclusively, as soon as the summer drouth is permanently broken. Use a variety of grass seeds and do not stint in quantity.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN: — Butter dropped to 21c on the Board of Trade today. The output for the week was 829,000 pounds and sales were as follows:

Barrington, 35 tubs, 21c, to Sherwin.
Howard, 25 tubs, 21c, to Sherwin.

New York market reported firm at 21½c; receipts 240,750 tubs.

Former prices were:

	Tubs sold.	*Price.*
June 8, '03	165	22c.
June 16, '02	220	21c.
June 17, '01	0	19c.
June 18, '00	115	19½c.

Elgin, Ill., June 15, '03. H. C. B.

DAIRY MARKETS.

ELGIN, Ill., June 15.—Butter — Declined 1c a pound on the Board of Trade today owing to large receipts and excellent pasture, selling at 21c. The sales of the district for the week were 829,000 pounds.

CHICAGO, Ill., June 15—Butter—Easy; creameries, 16@21½c; dairies, 15½@18½c.

Eggs—Steady; at mark, cases included, 13¾@14¼c.

Cheese—New steady; Twins, 10½c; Daisies, 11c; Young Americas, 11@11½c.

Cattle—Prime beeves, 1,200 to 1,500 pounds, 5.25@5.40; choice to extra steers, 4.80@5.25; fair to good export and shipping steers, 4.50@4.75; medium beef steers, 4.30@4.40; plain beef steers 4.10@4.25; common to rough, 1,000 to 1,200 lbs. 3.60@4.00; good to choice feeders, 3.85@4.75; good to choice fat heifers, 4.10@5.00; poor to plain stockers and feeders, 2.85@4.00; fair to good cows and heifers, 3.20@4.00; good cutting to fair beef cows, 2.45@3.10; common to good canning cows 1.40@2.30; bulls, poor to choice, 3.20@4.30; veal calves, good to fancy, 6.00@7.00; calves, common to fair, 3.50@5.50; corn-fed western steers, 3.85@5.30; Texas bulls and grass steers, 2.75@3.30; Texas steers, fair to common, 3.85@4.65.

Hogs-Good to prime heavy shipping 6.10@6.25; good to choice heavy packing 6.00@6.15; plain to choice heavy mixed 6.00@6.10; selected butcher weights 6.10@6.20; assorted light, 150 to 195 lbs. 5.95@6.10; common to good light mixed, 5.95@6.10; thin to choice, 50 to 130 lbs., lots 5.65@6.00; stags and rough lots, 3.75@5.80.

MILWAUKEE, Wis., June 15—Butter—Creamery—extras, 22c; firsts, 19@20c; seconds, 17c; process (renovated) 18@19c; Dairy, fancy, 17c; lines, fresh, 14@15c; packing, 13c; whey, 10c; grease, 5@6c.

Cheese—American, new, full cream—Twins, 10½@11c; Young Americas, 11@11¼c: Daisies, 11@11¼c; Longhorns, 11¼@12c; low grades, 9@10c. Brick, fancy, new, 10@10½c; low grades, 9@10c. Limburger—Fancy, old, 10½@11c; low grades, 8@9c; new, fancy, 9@10c; off grades, 7@8c Swiss, drum, old, choice, 15½@16c; drum, No. 2, 13@14c; Block, choice, 14@14½c; block, No. 2, 12@13c.

Eggs—Strictly fresh laid, cases returned, 14c; dirties, 12c; seconds, 12c., checks, 10c.

FOND DU LAC, Wis., June 15—Cheese—Sales at Dairy Board today: 44 Twins at 10c, 95 at 10½c, 40 at 10¼c, and 317 Daisies at 11c. Market active.

MUSCODA, Wis,, June 15—Cheese—Offerings on Muscoda Dairy Board of Trade were: 508 boxes Twin cheese; 348 boxes sold at 10½c; 160, 10 3-16c. Market active. There will be a number of factories change from making print cheese to Twins this week.

BRILLION, Wis., June 11—Cheese—Sales on Brillion Call Board: 367 Twins, 10⅜c; 996 Daisies, 10¾c; 31 Cheddars, 11½c; 50 Young Americas, 10¾c; 28 Young Americas, 10⅝c.

SHEBOYGAN FALLS, Wis., June 10—Cheese—Twenty-one factories offered 2,690 boxes of cheese on the Call Board today and all, except 147 withdrawn, sold as follows: 25 factories at 10¼c; 707 cases Young Americas at 10¾c; 865 Daisies at 10¾c; 71 at 10⅞c; 471 cases Longhorns at 11⅛c; 403 at 11c. Market active and firm.

SHEBOYGAN, Wis., June 10—Cheese—Much activity was again shown at the meeting of the Call Board here today and the offerings of 2,290 boxes of cheese were all sold as follows: 40 boxes of Twins at 10⅜c; 45 at 10¼c; 391 Daisies at 10¾c; 619 cases Young Americas 10¾c; 569 cases Longhorns 11⅛c; 86 at 10¼c.

BOSTON, Mass., June 15—Butter—Creamery, western, extra, 22@22½c; western firsts, 21½c; dairy, 16@21c; imitation creamery, 17@19c; ladle, 15@17c; box and print, 17@23c.

Cheese—Choice, 10½@11c; Wisconsin Twins, 10½@11c.

Eggs—Nearby, 22c; western selected, 15¾c; fair to good, 14@15c; Illinois, 16c; western dirties, 13@13¾c.

PHILADELPHIA, June 15.—Butter — Dull and ¼c lower; extra western creamery, 22c; nearby prints, 23c.

Eggs—Firm, good demand; fresh near by, 18c, loss off; western, 18c; southwestern, 17c.

Cheese — Quiet, unchanged; New York full creams, choice, new 11@11¼c; fair to good, new, 10½@10¾c.

ST. LOUIS, June 15.—Butter—Steady; creamery, 16@25c; dairy, 14@17c.

Eggs—Lower, 14½c loss off.

KANSAS CITY, June 15.— Eggs—steady; Missouri and Kansas, 11c doz. cases returned; new No. 2, white wood cases included, 11½c.

BALTIMORE MARKET.

BALTIMORE, June 11—Butt r—Although the receipts of creamery continue quite liberal they have not been up to expectations; the quality as a rule is running very good. There has been no accumulation of Extras and Firsts, as the speculative and the demand for consumptive purposes has been fully equal to the supply. Seconds—While the supply is not large, it is fully equal to the requirement. Badly mottled stock is very slow sale. Imitation Creamery—Choice stock is in extremely light supply and active request. Ladles and fresh, sweet, grass stock meet prompt sale, while hay stock is more or less slighted. Packing stock continues in fairly liberal receipt, but the supply is not at all excessive, as the demand is equal to the offerings of desirable stock. Blocks and Prints—Choice to fancy invoices find ready sale. There is no demand for goods impregnated with garlic. The market closes firm and presents a healthy appearance.

N. B.—Use every effort in your power to avoid mold and mildew.

Creamery Separator, extras, 23½c; firsts, 22@22½c; seconds, 20@21c. June Creamery, extras, —@—; firsts, —@—; seconds, —@— Imitation Creamery, extras, @20c; firsts, 18@19c; seconds, 15@17c, Iowa & N. W. Ladle, extras, 18c; firsts, 16@17c; seconds, 15c. Ohio & Indiana Ladle, extras, 17@18c; firsts, 15½@16c; seconds, 14@15c. Roll, Ohio, extras, — firsts.—@—; seconds, —, Roll, W. Va., extras, — firsts, —@—; seconds, —, Ohio Store packed, extras,—c; firsts, 15c; seconds, 14@14½c. West Va. Store-packed, extras, c; firsts, 15c; seconds, 14c. Creamery blocks (2-lb.) extras, 24c; firsts, 23 seconds, 21@22c; Creamery prints (½ lb) extras, 25c, firsts, @24c; seconds, 22@23c. Md. Va., & Penna. Prints, extras, 23c; firsts, 21@22c; seconds, 18@20c. Renovated Butter, extras, 19c; firsts, 17@18c; seconds, 15@16c.

Eggs—There is a continued scarcity of strictly fancy stock, and for this kind there is an active demand at 17½c. Some of the receipts are showing the effects of heat and the loss off has been quite heavy.

N. B,—Be sure to ship in crates and not in barrels or boxes.

Cheese—Receipts ample; demand moderate; market quiet but firm.

N. Y. State—Cheddars, fine, 10¾@11c; choice, 10¼@10½c; fair, 9@9½c, Flats, fine, 11@11⅞c; choice, 10½@10¾c; fair, 9½@10c; Small fine, 11⅛@11¼c; choice, 10⅛@11c: fair, 9¼@10; Ohio Flats, fine, 9¼@10c; choice, 8¾@9c; fair, 8@8¼c; O. Picnic, fine, 10@10¼c; choice, 9¼@9¼c; fair, 8½@9c; Swiss Cheese, (domestic) fine, 15c; choice, 12½@13½c; fair, 9@11c.

301 Exchange Place. G. M. LAMB & BRO.

NEW YORK FERTILIZER MARKET.

Acid phosphate	60	@	67½
Phosphate rock, f. o. b. Char'n	5 00	@	7 00
Tenn	3 00	@	4 00
Bones, rough ₩ ton	16 50	@	17 50
ground	20 00	@	21 00
Bone meal	18		
Bone black, refuse	18 00	@	19 00
Potash, dbl. m're salt 48@53 per cent	1 12	@	1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons	25 00	@	30 00
sulph of basis, 90@98 per cent	2 11	@	2 18
90@98 per cent less than 25 tons	38 00	@	40 00
Potash muriate 100 lbs	1 83	@	1 95
less than 25 tons	36 00	@	40 00
Kainit 25% S. of P ₩ ton	9 30	@	9 50
less than 25 tons	9 50	@	10 50
Sylvinit, 35@37% P ₩ unit	41	@	46
Nitrate of soda	2 05	@	2 10
Blood, Dried red ₩ unit	2 55	@	2 60
low grade	—	@	—
Concentrated tankage	15 00	@	16 00
Fish guano, dried	27 00	@	28 00
acidulated	14 00	@	—

NEW YORK, June 15—Butter—Receipts, 10,255 pkgs.; market unsettled; state dairy, 15@21c; extra creamery, 21½c; creamery, common to choice, 18@21c.

Eggs—Recipts, 12,189 pkgs.; steady state and Pa., extra, 18½c: firsts to 16½@17c western extra, 18½c; western, seconds to hrsts, 15@17c.

Cheese—Firm; receipts, 7,243 pkgs; small white and colored, white, 10¾c; large colored, 10¾c; large white, 10⅝c.

UTICA, N. Y., June 15—Eastern and foreign advices being more favorable, prices here are much firmer; 3,500 small, 10½c; 2,500 large, 10½c.

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 1901

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Catalogue and any desired particulars upon application.

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READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—A quantity of second hand creamery machinery and cheese-making machinery, including a twelve horse power boiler and engine for sale cheap. Address BOX 121, Albion, Mich. 19-2

Wanted—A man to work in the cheese factory as helper. Must be neat and willing to work. State wages in first letter. Address P H. KASPER R. F. D., Clintonville, Wis.

For Sale—Registered Holstein bulls out of prize winners, ready for service. Also calves. Bargains. W. M. BENNINGER, Benningers, Pa.

Guernseys Wanted—Prices wanted on a dozen head, more or less females. Must be good individuals and descendents of good families. W. M. MARCH, 1798 W. 39th St, Los Angeles, Cal. 19-2

Position Wanted—One of responsibility for the combined work and management of manufacturing butter, cheese and process butter. Years of experience. All goods warranted. Address H, care Hoard's Dairyman. 17-3

Wanted—Graduate of Dairy School, not afraid of work and capable of managing men, as assistant manager in an Hygienic Milk Bottling Establishment. State wages expected and where you have been employed. Address, with references, SCHIER'S HYGEIA DAIRY, Baltimore, Md.

Wanted—A single man for general farming. Must be a good milker. Write, stating wages wanted, addressing ELI I. CROSIAR, Utica, Ill.

Wanted—At once, a first-class dairyman, single, to take charge of a dairy where 1000 quarts are bottled daily. Man must be strong, quick, and able to run things in a clean way. WALTER CUTTING, Pittsfield, Mass.

Wanted—Man and wife to conduct 100-acre farm near Chicago. Must be experts at butter making and poultry raising and be experienced in all farm matters. Must forward good references. B. W. S., 1443 Marquette Bldg., Chicago, Ill.

For Sale—One Holstein bull calf of Signal breeding. ST. STAINSLAUS COLLEGE, Macon, Ga.

For Sale—One No. 1 Alpha De Laval Separator, one 150 gallon Potts Pasteurizer, and one O. K. Power Buttet Worker all in good condition. Address BOX 28, Buckeystown, Md. 19-2

For Sale—One 100 lb. Embree Worker; one 150 gal. Reid Box Churn; one 1000 lb. De Laval Separator; one 8 horse power engine and boiler (on wheels). Address JAMES S. BIGGS, Rocky Ridge, Md. 19-4

For Sale—A W. H. S. Sharples separator. Run about 12 mo. Perfect order; $50. WALLACE L. COLDWELL, Blue Mounds, Wis.

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

Wanted—An experienced man to take charge of milk route. Must be a single man and a hustler. State wages and references. Wanted immediately. S G. TAYLOR, Mauston, Wis. 18-3

Buff Jersey's latest book on Farm Stock and Dairy Work is full of practical things for practical people. The Silo, how to build and fill; ensilage, its value; soil, crops, variety and how to grow. Swine, poultry and many other subjects ably treated. Send 25c for copy. Monmouth, Ill. 47-tf

Practical Man Wanted—To take charge of an Indiana dairy and push sales. Single man preferred. Must be an up-to-date hustler. Address "INDIANA," care Hoard's Dairyman. 17-3

Are You Color Blind?—If not, you will appreciate the natural golden colored product of the Guernseys. Pure bred bulls and grade heifers for sale. A. H. HINMAN, Allenville, Wis. 17-4

Position Wanted—Experienced butter maker wishes to change position. Have taken Dairy Course at Ames, Iowa. Good references. Address T, care Hoard's Dairyman. 15-5

A Registered Guernsey Bull 15 months old for sale. A very fine animal. Inquire of J. S. HUNTER, Pickett, Wis. 12-tf

Half Price—Three registered Jersey heifers one year old and under. First check for $100 takes them. Satisfaction guaranteed. WALTER ZIMMARMAN, Moray, Kans. 18-2

For Sale—Davis Cream Separator, 450 lbs capacity, used 2 months, good condition. J. KOHL, Reeseville, Wis. 18-2

For Sale—One No. 3 De Lavel separator in good order, used a short time only. Putting in larger machine. FOREST HOME FARM, Purcellville, Va. 18-2

Fine Dairy Farm for Sale—Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. T. S. TOMPKINS, Pasadena, Cal. 15-tf

Very Low Rates to California and Return—Via the North-Western Line. First-class round-trip tickets on sale July 1 to 10, inclusive, to San Francisco and Los Angeles. Favorable limits and stop over privileges and choice of routes. The overland limited, most luxurious train in the world, leaves Chicago daily at 8 p m. Less than three days en route. Drawing room and compartment cars, observation cars, dining cars, buffett-library cars (barber and bath), electric lighted throughout. Three trains a day from Chicago to the Coast through without change. Daily and personally conducted tourist car excursions to California, Washington and Oregon. For particulars apply to ticket agents Chicago & North-Western R'y. 16-7

Mr. Wheaton's Canadian Dairy Notes.

A Definition of Fine Butter and Cheese—Methods of Manufacture—The Season in Canada—Buying Cheese—Cheese Prices

ED. HOARD'S DAIRYMAN:—Cheese and butter exporters, dairy instructors, makers and salesmen, to the number of one hundred, met at Montreal early in June to decide upon cheese and butter standards. The readers of the DAIRYMAN will be interested in knowing what was done.

Mr. J. A. Ruddick, Chief of the Dairy Division, Ottawa, presided. A full discussion took place upon the matters brought before the meeting. Those present were seemingly unaminous in favor of adopting standards of excellence for both cheese and butter.

The following is the definition of the finest butter adopted:

"Butter—Finest Creamery butter shall be butter made in a creamery under the system known as the centrifugal or separator process.

Flavor—Sweet, clean and fresh.

Body—Good and uniform and not loose made or watery; must contain less than 16 per cent moisture to conform to the law of England. With proper care none of our Canadian butter should contain more than 13 per cent moisture.

Color—Even and uniform; should be straw colored or pale but not white or lardy.

Salt—Must not be over three per cent unless by special arrangement.

Package—Boxes must be strong, well made, of well seasoned wood, properly paraffined; of the uniform capacity of 56 lbs., clean, and in good condition for shipping. When hooks are used, four hooks on each box. Tubs must be strong, neat and of uniform size. Pure vegetable parchment paper of not less than forty pounds of paper to the ream must be used for lining the package."

The following in reference to fodder and gathered cream butter was also adopted.

"Fodder butter should be salted 4 per cent, clean in make, and clear straw color. Fresh or new made, should not be kept till stale before shipping, but should be in consumers' hands ten to fifteen days after it is made. Neat and clean 30 lb. tubs aud 56 lb. boxes only should be used, as the appearance adds much to the value of the butter.

Gathered cream butter or western Ontario—this should be shipped often and given to the consumer when fresh; three or four days make great difference to the quality.

Parchment paper should be the best: free from any inclination to mold; grading of butter is not desirable; what is No. 1 today, will be No. 2 next week."

The following requirements of finest cheese were adopted:

Finest cheese—Flavor, clean and pure.

Body—Close, good and well cured.

Texture—Silky, solid and meaty.

Color—Good and uniform.

Finish—Of good shape and fairly uniform in size, neat in finish, with good rinds and clean surfaces.

Boxes—Must be strong and close fitting."

The meeting also recommended the use of at least ¼ lb. and not more than ½lb. to each 100 lbs. of butter, of the best preservative, specially prepared for butter, and that this should be thoroughly mixed with the butter.

The most striking thing in these recommendations is, that the particular process by which finest butter shall be made, should be defined, which is tantamount to saying that good butter can be made only by this process. The cream-gathered buttermakers, of whom there is a large number in Western Ontario, will probably resent such discrimination.

Both good and bad butters have been made in the past by both the separator and the cream gathering process. It is not the latter system which is at fault, but the way in which it is managed in some sections. Nothing will be gained by putting a ban on the system itself. Why not adopt some means whereby the methods of operating it can be improved upon?

This definition of what the finest butter shall be will shut out all the butter made in the Government creameries in the Northwest territories, besides the private creameries all through the west, which are operated on the cream gathered plan, as no other is suitable to the sparsely settled west. And these Montreal dictators would, forsooth, brand all the butter of the west and of Western Ontario as not the finest because it is made by one process and not by the other.

The definition of finest cheese is a more rational one and should meet with favor by our dairymen generally. There was a feeling, before the meeting was held, that any standards for cheese decided upon would be applicable only to the districts in Eastern Ontario and Quebec, which ship their cheese to Montreal subject to inspection. Many of the dairy boards of trade in Western Ontario took this view and did not send delegates.

Many American dairymen will, doubtless, be surprised at learning that the use of preservatives had been recommended at a gathering of Canadian dairymen. There has, however, been a feeling for some time among many interested in the development of our butter trade, that a small amount of some good preservative might profitably be used in butter made for export. This feeling has crystalized into the recommendation of the Montreal meeting.

It remains to be seen how far our butter makers will go in the use of preservatives. Had a few good preservatives been named by the meeting it would have saved buttermakers from being imposed upon and sought after by manufacturers who might claim to have a good preservative when it was not.

The season of 1903 is not likely to be as prolific of good pasturage for cows as was that of 1902. In Ontario, east of Kingston, and in Quebec the dairymen are experiencing one of the severest drouths in years. The grass in these districts is so poor that cows can hardly find picking enough to keep them alive, let alone to produce milk. Many farmers are feeding last year's hay in an effort to keep up the milk flow, which has fallen off very much, greatly lessening the cheese output in these sections.

While the balance of Ontario has not suffered so much, the pasturage is not as good as a year ago, and though there has not been any serious falling off in the milk flow, it is not likely to keep up to as high a level as last year. More supplementary feed will be required, and more care in keeping the cows thrifty and in good producing trim.

Many cheese factory salesmen within the zone where Montreal inspection of cheese holds sway, strongly object to this plan as being one that gives buyers practically every thing their own way, when they get the goods under their control. The members of the Ottawa cheese board have objected very strongly to this plan. At a recent meeting it was decided to ship all cheese ready for sale into cold storage at Ottawa, the day before the market is held, and to sell after the cheese had been inspected by the buyers.

How this plan will work out, it is hard to say. A number of the factories in the vicinity of Ottawa have resolved to try it and their experience will go a long way towards influencing others similarly situated.

While the bulk of the sales made subject to Montreal inspection, turn out satisfactorily to all concerned, there is a suspicion on the part of many factorymen, that they are not always fairly dealt with. This plan certainly gives the buyer a chance to act unfairly if he so desires, and it is reported that he occasionaly does so when there is any great slump in prices. It would be fairer for all concerned if the goods could be examined before being sold.

The price of June cheese has got down near to a 10 cent basis. At the markets this week from 10c to 10½c and 10 5-16 cents are the ruling figures for the first half of June make. In Eastern Ontario and Quebec, where the effects of the drought are beginning to be severely felt, factorymen are inclined to hold back a little, expecting a higher market. But as the dry belt affects only a comparatively small area of the cheese producing area, prices may not advance on that account.

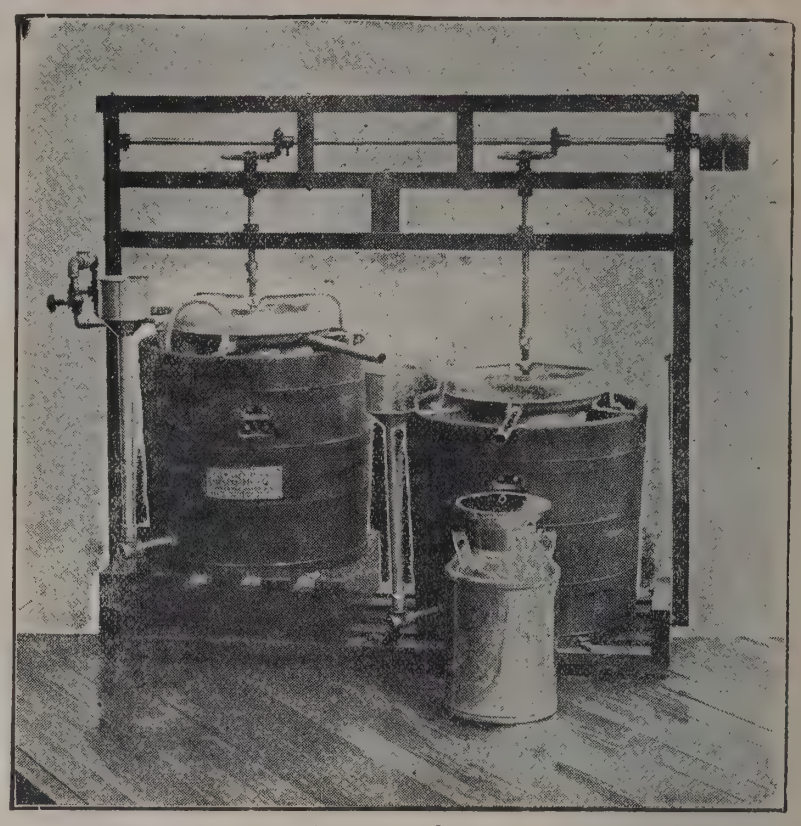
Large increases in butter supplies during the past week or two have weakened the market which stands at about 18 to 19 cents for creamery butter. The quality of the grass goods arriving is said to be excellent, which may help values.

Toronto, Canada. J. W. WHEATON.

Announcement of Nursery Inspection.

An expert entomologist, employed by the Experiment Station, will, in a few days, inspect nurseries, in accordance with the San Jose scale law. The cost of inspection, as provided by law, will be

A GREAT SUCCESS.



The Miller Cream Pasteurizer has a capacity of from 450 to 600 lbs. per hour.

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WRITE FOR OUR CATALOGUE

five dollars ($5) for each ten acres devoted wholly or in part to nursery stock grown for sale purposes. Nurserymen who have their premises inspected by the above mentioned inspector while on his regular trip will not be required to pay any part of his travetling expenses, but those who delay making application until the inspector has left the state will be charged traveling expenses in addition to the fee required by law.

All nurserymen desiring to have their premises inspected should apply at once to Agricultural Experiment Station, Madison, Wisconsin.

W. A. HENRY, Director.

Producing Clean Milk.

How Science is Applied in the Walker-Gorden Laboratory Great Establishment.

On account of the growing interest in the production of sanitary milk, the following account of the famous Walker-Gorden milk business which was recently visited by a commission of German Agriculturists visiting this country, will be interesting reading for which we are indebted to the New York *Produce Review*.

The Walker-Gordon Laboratory Company is organized to provide pure milk and cream and to furnish for infants and invalids a milk modified as to its constituents, chiefly upon the prescription of physicians. The company has laboratories in New York, Philadelphia, Boston, Chicago, Baltimore, Buffalo, Cincinnati, Cleveland, Grand Rapids, Pittsburg, St. Louis, Washington, Montreal, Ottawa, Toronto, and in London, England. Farms are operated at various points from which these laboratories are supplied. The plant at Plainsboro, New Jersey, is situated on the main line of Pennsylvania R. R., about midway between New York and Philadelphia, and furnishes milk to the laboratories in both the latter cities, from which private customers are supplied with milk and cream guranteed as to purity and fat content, and where prescriptions for modified milk are filled. This modification consists in varying the proportions of fat, protein and milk sugar according to the needs of infants and invalids.

The Plainsboro farms comprise about 700 acres of good land, mostly tillable, lying in one of the best farming sections of New Jersey. The improvements consist of good substantial fencing, and buildings for the proper accomodation of all the departments of a great dairy farm. The buildings have all been erected for use rather than show, but are tastefully built and present a most attractive appearance.

The German party escorted by Mr. C. E. Gordon was taken first to the silos. Of these there are three having a capacity together of about 1,200 tons. They are circular in form, narrowing toward the top, built very substantially of brick and coated on the inside with a mixture of coal tar. The silos are filled by a power blower from the shredding machine. Mr. Gordon explained that the grain fed, and most of the hay, were purchased, the Plainsboro farm providing the green fodder and ensilage; the latter is fed from October through the wtnter—ordidarily 20@25 pounds to the cow, the dry cows getting rather more. The last green food given is cow peas.

Overhead trolley provides easy means of transfering the ensilage from the silos to the cow stables near by, as well as for carrying the stable refuse to the manure distributing point where it is dumped from the big buckets directly into carts and spread over the land.

The cow stables are six, each having accommodations for about fifty cows; they are well and strongly built, of good height and provided with every convenience for sanitary operation. The high ceilings, rising to a gable roof in the middle, are whitewashed yearly; the floors are of cement, guttered behind the cows; the sides from about 4 feet above the floor to about 8 feet, contain glass sash, provided with hanging blinds, permitting ample light and air. The cows' stanchions are placed in two rows so that the cows' heads are toward the center aisle of the building. For bedding is used kiln dried shavings, which are procured in bales from the Standard Oil Works box factory at a cost of $4.50 per ton. Mr. Gordon said they had found this bedding very satisfactory. Stationary troughs, one for each two cows, are provided in which water is automatically supplied through connecting pipes and kept at a uniform level by a single ball valve in tank of even height at one end of the building. Over the head of each cow is a frame containing her individual record—when purchased, age, when tested, when served, amount and kind of food required; and behind each cow is another record of milk produced.

There are about 300 cows on the farm at present; they are selected without special regard to breed, though among them are several thoroughbred Guernseys, Jerseys and Holsteins, and pure blood bulls of these breeds. Calves are reared from cows whose product amounts to 10,000 pounds of 4% milk in a year. The company aims to keep only cows in perfect health; they are examined every two weeks by a veterinarian and any that may become sick are sent away. The present herd yield averages about 23 pounds daily, and the average fat test is 4.40.

In one of the stables are kept cows selected for infant feeding, the selection being made according to the character of the fat globules.

The visitors were investigating the stables at milking time, and were able to observe the care with which this work is done. The cow's tails and flanks are washed daily and before milking, the udders are washed whenever necessary. Twenty-six milkers are employed, each provided with white duck suits which are sterilized twice daily. The cows are milked in partly covered pails, previously sterilized, which are immediately emptied into larger covered cans standing at the end of the aisle; these, when filled, are placed on small flat cars that run on a narrow guage railway outside, by which they are at once transferred to the milk house, being elevated on an incline to second story. Then the cans are emptied into a large circular can through strainer cloths and cotton and the milk passes at once to a large porcelain vat where it is thoroughly mixed; thence over a large tubular cooler and directly to the bottling apparatus below. The temperature of the milk is reduced to 34 and 40° by the cooler and the milk is in sealed bottles at that temperature within an average of 12 minutes after being drawn from the cows. The bottles are then packed in boxes holding 12 quarts, covered with ice, and immediately taken to the rail road station. An Alpha DeLaval separator is used for separating such cream as is needed.

A room that is adjacent to the milk room is devoted to washing and sterilizing the bottles.

The German visitors seemed much impressed with the convenience and completeness of all the arrangements and seemed to regard the plant as a model of scientific milk production and handling.

Forage Crops to Supplement Summer Pasture and Winter Hay.

(Press Bulletin.)

Because of the long continued drouth the prospects are very unfavorable for the hay crop. While it is to be hoped that before this reaches the eye of the reader the drouth will have been broken by copious rain, many farmers will still need to grow special forage crops to supplement the summer pasturage or the winter's hay. While Indian corn is the best forage plant for Maine, if a sufficient acreage has not been planted, the season is so far advanced that other quicker growing plants can now be more advantageously used.

The millets—Hungarian, German, Pearl and Japanese, Rape, and on light, warm soils, early soy beans—are the more desirable. The smaller growing millets can be made into hay, the larger can be fed green, or made into silage. Rape is valuable as a summer and fall feed for cattle, sheep, hogs and poultry. The soy bean is highly nitrogenous, but Maine is so far north as to make it a somewhat uncertain crop. Those who need to plant supplementary forage crops, should send to the Secretary of Agriculture, Washington, D. C (do not inclose postage as the Department has free use of the mails), for the following Farmers' Bulletins:

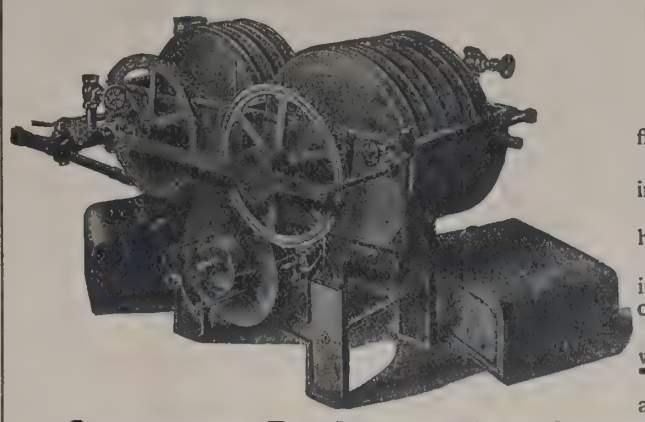
No. 101. Millets.
No. 164. Rape as a Forage Crop.
No. 168. Pearl Millet.

Do not send to the Maine Experiment Station for these publications, as we can not supply them.

CHAS. D. WOODS, Director.
Maine Agricultural Experiment Station.

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As an Aerator it heads the list.

All foul smells coming from the milk pass off in the steam.

Easily cleaned, no work to operate.

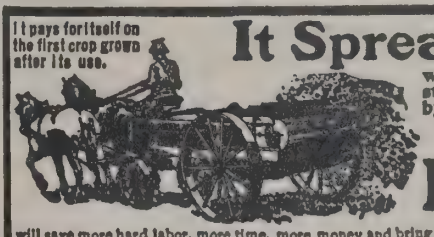
Write for circular and prices.

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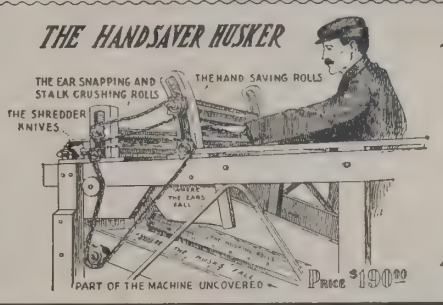
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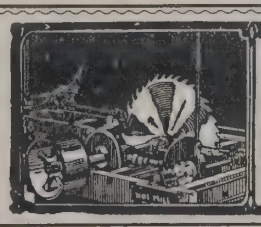
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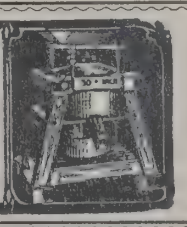


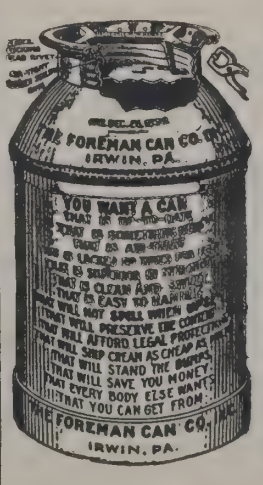
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We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity—1000 cans daily, which should enable us to fill all orders promptly.

Every can sold on a guarantee.

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Creasey Ice Breakers



Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right.

Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.

J. S. L. WHARTON, Mfr.,
7th & Clearfield Sts. Philadelphia, Pa.

NOW IS THE TIME TO SUBSCRIBE FOR HOARD'S DAIRYMAN.

More About Milking.

ED. HOARD'S DAIRYMAN:—The articles in late numbers of the DAIRYMAN on milking are suggestive and should receive due attention from farmers.

The one in DAIRYMAN for May 15, written by L. O. Jackson, seems almost beyond belief. To think that there could be an increase in yield of milk of 9 gallons a day from 16 cows as the result of a change of milkers, when the first was considered good, while the second proved to be so much better as to get this great increase with other conditions the same, is enough to set farmers to thinking.

With such an experience as this, as an illustration, is it any wonder that cows dry up in milk when the class of milkers who have to be so largely depended upon is taken into consideration?

Time was—a generation or more ago—when there were more sons and daughters in the farmers' homes than now, and as a usual thing they all learned to milk. Now it is not common for women to milk, at least here in Vermont, and that is all right, as they have enough to do in the house, and the milkers are largely the hired help.

I live in an extensive dairy region where many cows are kept, where help is hard to be obtained and the question of milking is becoming a serious one.

It is, indeed, on these farms with large dairies, the most important part of the day's work, and needs to be attended to at the proper time and in the best manner.

The help is mostly hired by the month, season, or in uncommon instances by the year, just as it happens to be.

It is a good man who can be retained a year or more in one place, and, perhaps not as long. These frequent changes are bad when taken in connection with milking and should be avoided as far as possible, if the help is at all what it should be; if not, the sooner a change is made, the better it will be.

I think that if farmers would so manage as to have a certain number of cows given to each milker—that is the same cows—all of the time, it would be be much better than milking just as they come. This might require a little more attention, but it must be productive of decidedly better results. In this way the milker and cow will get used to each other, the cows will be more quiet and the milker, understanding the peculiarities of each cow, will know better how to get along with them. When the man and the cow are on good terms with each other, there will not be much trouble.

Quite a good many years ago there was a farmer living in Vermont who had a small, choice herd of Jersey cows which probably exceeded any other herd in the state in the production of butter. He had the entire management and care of these cows, and if possible, they were always milked by him. Under these favorable conditions, these cows did their best, and, as may be supposed, the owner was proud of them.

It happened one winter that the managers of the State Dairymen's Association desired to have him attend the annual meeting and give his experience with his cows for the benefit of other dairymen, but were under the necessity of so arranging that he go home in season at night "to milk his cows."

Here was one secret of his success, he milked his own cows and the work was well done.

Regularity in milking should also be considered, for cows as well as men are the creatures of habit. If possible the intervals between milkings should be about the same, as this will be better for the cows when giving large amounts of milk.

One night while attending a Farmers' Institute in winter, I stopped with a farmer who had a fine herd of Jersey cows. After getting home from the evening meeting, between 9 and 10 o'clock, what did he do but take his pail, go to the barn and milk. He must have done this work alone, as it would be difficult getting hired help to assist at that time of night. I do not remember at what time they were milked the next morning.

This is a practice we would not advise others to follow.

I have a farmer friend who is about 75 years old. His father had a large farm, milked many cows, and made money with cheese at 5 to 6 cents a pound. This man when well, has always milked. He now, at his age, averages 17 cows night and morning, and sometimes has milked 20. He must be a natural milker, but it would seem that this number is too great even for a much younger man.

The milking should be made as pleasant and agreeable a part of the day's work as circumstances will permit, and then there will be less difficulty with it.

It is well to commence the day's work early in the morning, but it should be the endeavor to get through equally early at night. There is nothing I think that will discourage the boys or hired help more than being constantly late with the milking and other chores at night. This doing a full day's work on the farm and the chores afterward, is not a practice to be commended or that will work well.

Franklin Co., Vt. E. L. TOWLE.

Important Notice to Owners of Holstein-Friesian Cows.

At the annual meeting of the Holstein-Friesian Association of America, held at Syracuse, N. Y., June 3, 1903, the following changes in the rules of Advanced Registry and official testing were made:

1. Requiring that a period of at least six days shall elapse after a cow drops her calf before an official test shall commence.

2. Requiring that the computation of butter from butter fat shall be made by adding to the amount of fat one-sixth of said amount, which shall then be given in pounds and ounces. This computation shall be made by the Superintendent of Advanced Registry, and the experiment stations shall be held responsible for only the amount of milk and butter fat reported by them. The requirements of butter fat to admit to entry in the Advanced Registry remain unchanged. For a cow calving at two years, or under two years of age, the minimum requirement being 7.2 lbs. butter fat in seven consecutive days; for a cow calving at just three years of age, 8.8 lbs.; for a cow calving at just four years of age, 10.4 lbs.; for a cow calving at five years of age or over, 12 lbs. Every day of increased age at date of calving from two to three years, from three to four years, or from four to five years increases the requirement, .00439 of a pound per day.

3. The system of economic testing heretofore maintained is abandoned and in its place a requirement is made that in all cases in which the production of butter fat in seven consecutive days is 18 lbs. or more, the owner shall report, in connection with the production, the kinds and amounts of food consumed by the cow during the test, to his best knowledge and belief, under oath.

4. Prizes for seven-day records and thirty-day records for the year commencing May 6, 1903, and closing May 5, 1904, are as follows:

FOR SEVEN-DAY RECORDS.

PRIZES.

Class. 1. Cows 5 years or over.	*Class 2. 4½ years and under 5 years.*	*Class 7. Cows under 2½ years old.*
1st, $40	1st, $40	1st, $40
2nd, 38	2nd, 35	2nd, 38
3rd, 36	3rd, 30	3rd, 36
4th, 34	4th, 25	4th, 34
5th, 32	5th, 20	5th, 32
6th, 30	6th, 15	6th, 30
7th, 28	7th, 13	7th, 28
8th, 27	8th, 12	8th, 24
9th, 26	9th, 11	9th, 22
10th, 25	10th, 10	10th, 20
11th, 24	*	11th, 19
12th, 23		12th, 18
13th, 22		13th, 17
14th, 21		14th, 16
15th, 20		15th, 15
16th, 18		16th, 14
17th, 16		17th, 13
18th, 14		18th, 12
19th, 12		19th, 11
20th, 10		20th, 10

FOR THIRTY-DAY RECORDS.

PRIZES.

1st, $40	1st $40	1st, $40
2nd, 35	2nd, 30	2nd, 30
3rd, 30	3rd, 20	3rd, 20
4th, 25	4th, 15	4th, 15
5th, 20	5th, 12	5th, 14
6th, 18	6th, 10	6th, 13
7th, 16		7th, 12
8th, 14		8th, 11
9th, 10		9th, 10

* Classes III for ages 4 years and under 4½ years; IV, ages 3½ and under 4 years; V, ages 3 and under 3½ years; and VI, ages 2½ and under 3 years, same prizes as class II.

The same cows may compete for prizes offered for records of seven consecutive days, and for prizes offered for thirty consecutive days.

According to the rules, an owner can win but three prizes offered for the seven-day records, nor can he win but three prizes offered for the thirty-day records. This arrangement affords opportunity for a large number of breeders to secure prizes.

S. HOXIE,
Supt. of Adv. Registry.

CATTLE COMFORT
KEEPS FLIES OFF CATTLE.
A RELIABLE ARTICLE
Keeps Cows, Horses, etc. comfortable in fly time. Sold by Seedmen and Merchants. For pamphlets write
HAMMOND'S SLUG SHOT WORKS
FISHKILL ON-HUDSON, N. Y.

THE BROWN BESSIE HERD
Offers one bull 14 months old, sired by Recorder, 29239, the only living son of Brown Bessie and has 14 tested daughters. Dam, Relay, 70353, test 17 pounds 2 ounces. She a daughter of Diploma with 61 tested daughters. Also Berkshire Pigs of English and American selected stock.
H. C. TAYLOR, Orfordville, Wis.

Crops For Late Planting.

Advice From Missouri Experiment Station —Not Yet Too Late to Secure a Good Crop.

The unprecedented rains have destroyed wheat, rye, oats, and corn in many localities of the State. It is not yet too late to secure good yields of several valuable forage and grain crops. Only seventy-five per cent of the corn has so far been planted in the State. There is yet time to plant corn, and with an average season secure a fair yield of grain. The following suggestions are offered at this time to farmers who failed to finish planting corn before the rains, and also to those whose crops have been destroyed by washouts, floods and overflows. The stock farmer especially can by good management even at this late date produce an abundant and sufficient supply of valuable feed for animals. The purely grain farmer is not so well situated under the present conditions to get the most out of his land.

PLANT CORN UP TO JULY IST.

Farmers will be urged to try many

(Continued on next page.)

BUY DIRECT FROM FACTORY, BEST
MIXED PAINTS
At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N Y.

AYRSHIRE CATTLE of the BEST of BREEDING. Also Chester White Pigs, ready to book for season's trade. Young stock of both sexes. Prices reasonable. Come and see us.
F. TSCHUDY & SONS, Monroe, Wis.

NORTH OAKS FARM, MINN ST. PAUL,
(Jas. J. Hill, Proprietor.)
AYRSHIRE BULLS
Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address,
N. E. McKISSICK, Supt., Cardigan, Minn

Rosendale Guernsey Herd
TUBERCULIN TESTED.
Sixty head of choice Guernseys headed by Coralette's Son, (see page 450) whose dam, Coralette made 479.7 lbs. fat in one year at 3½ years old, and was first prize cow at Wisconsin State Fair in 1896.
Some fine young bulls for sale.
GEO. C. HILL & SON, Rosendale, Wis.

GUERNSEYS FOR SALE.
Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.
JAS. H. BEIRNE, Oakfield, Wis.

GUERNSEYS FOR SALE
Bull two years old out of Count Topsy 24.27 lbs. butter 7 days. She won 1st prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality F. W. TRATT, Whitewater, Wis.

Old Homestead Guernseys.
Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.
Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL Perry, Lake Co., Ohio.

GUERNSEYS.
HADDON FARMS—Home of the noted GLEN WOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

VALLEY FARM Is offering some good bargains in young bulls from 1 mo. to 2 yr. old. Also B. P. Rock Cockerels, $1.25 each. Write
FRED STUBLEY,
Black Earth, Wis

Wasteland Guernseys
Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.
M. M. & E. J. HOLLINGSWORTH.
Landenberg, Chester Co., Pa.

JERSEY BARGAINS.
REGISTERED YEARLING BULL, sire a son of Brown Bessie, winner of 30 and 90 days butter tests, Chicago, 1803. Dam traces to Euratas (778 lbs. 1 yr.) Mary Ann of St. Lambert (836 lbs. 1 yr.), also Brown Bessie; fat test showed 364 lbs. 1st. season, within year, and 15 lbs. 1 oz. (258 lbs. milk) in 1 wk; died of milk fever this (3d) calf. Thrifty, solid color.
E. E. STEVENS, North Madison, Ohio.

FOR SALE
CAR LOAD HIGH GRADE JERSEY COWS
Some granddaughters of Exile's Ona, 106212, butter record, 20 pounds 14 ounces.
A. L. FITCH, Westmoreland, N. Y.

PROSPECT HILL JERSEY HERD.
Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.
W. J. HUSSEY, Mt. Pleasant, O

ST. OMER HERD
Offers young bulls fit for service, out of tested dams with good yearly records. Strong in Exile of St. L., King of St. L. and Stoke Pogis of Prospect. Reasonable prices. JOS. T. HOOPES, Bynum, Md.

FOR SALE GOLDEN LAD BLOOD. sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

BILTMORE JERSEYS
are great and presistant dairy workers and typical Jerseys. We ask comparison with any other herd for
YEARLY MILK & BUTTER YIELDS, SUBSTANCE AND FINISH.
The herd contains more prize winners at the leading exhibitions (including the Pan-American) than any other herd.
The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service as you cannot get it.
Also Headquarters for Large English Berkshires and Standard Poultry.
Apply to
BILTMORE FARMS,
BILTMORE, N. C.

HAZEL FERN HERD. A. J. C. C. Jerseys blood of St. Lambert, Melia Ann, Combination, Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

ROBINSWOOD JERSEY DAIRY is offering a few Reg. Jersey Bulls ready for service at from $25 to $50, sired by a grandson of Recorder, the only living son of Brown Bessie, out of good cows. Write, stating your wants, to
N. H. ROBINSON, Prop., Centralia, Wis.

FOR SALE.
JERSEY BULL, one year old. Good individual of the best breeding. Also 7 months bull from tested dam Herd headed by Fontaine's Owl, 60436. Prices on application Address,
J. F. EGERTON, Footville, Rock Co. Wis.

The Evergreen Farm Herd has for sale three or four A. J. C. C. heifers bred Also a few cows and some choice bull calves from two to six months old. Write for pedigrees and prices.
N. N. PALMER & SON, Brodhead, Wis

JERSEYS. ST. LAMBERT and Combination, for sale; 13 cows, 8 heifers, 29 bulls
S. E. NIVIN, Landenburg, Pa.

sorts of new forage and grain plants which are recommended to be far better than corn. This Station advises all farmers to plant corn in every case where the conditions allow this to be done before July 1st. The most important factors in securing a crop when planted so late, is the selection of the right variety. Select in every case that variety of corn which will mature earliest in your locality. Some early maturing varieties of corn that can be recommended are Pride of the North, Riley's Favorite, Reid's Yellow Dent, and any variety of Flint corn. Any one of these varieties will yield more grain or forage in Missouri than almost any other forage crop, if planted before July 1st. These varieties should be planted somewhat thicker than the varieties usually grown in Missouri.

SORGHUM AND KAFIR CORN.

These crops are grown extensively every year in some sections of Missouri. They yield a large amouut of forage, and if planted before the first of July they may also produce a good yield of grain. The best variety of sorghum for Missouri under the present late conditions is the Early Amber. For bottom lands we recommend the Early Orange which stands up better. This should be planted in rows about 3 or 3½ feet apart. The most practical way to plant sorghum, is in the ordinary corn planter, using the broom corn discs. It can also be planted with a disc or shoe drill. On rich lands it should always be planted in rows. On poor lands it may sometimes be advisable to sow broadcast. Kafir corn is successfully grown, especially in Southwest Missouri, and may be grown with profit in other sections of the State. For the production of grain, kafir corn is to be selected always in preference to sorghum—for forage only, sorghum is probably better. The best varieties of kafir corn are the red kafir corn and the white. At the Kansas Station it was found that kafir corn yielded from 30 to 58 bushels of grain per acre, and the grain was nearly as valuable as Indian corn for fattening cattle and hogs. The seed, if planted by drilling, should be sown at the rate of six pounds per acre.

COW PEAS.

Cow peas have been grown successfully in every section of the state of Missouri. The best time for planting them is from the 15th of June to the first of July. They can be planted as late as the middle of July. The yields of hay from cow peas planted on good soil, are from one and a half to three tons per acre. This hay is as valuable as clover hay, for all purposes of feeding. The best varieties for Missouri are Clay and Whippoorwill for hay, and the New Era, Warren's Extra Early, and Red Ripper for grain. If cow peas are planted immediately, it will be possible to cut them for hay during the last week in September and by discing the ground thoroughly, put it in splendid condition for wheat. Where it is desired to sow submerged lands for wheat in the fall, this will be found altogether the most satisfactory method.

SOY BEANS.

This crop furnishes one of the most valuable grains for feeding purposes that can be produced on the average Missouri farm. The yield of soy beans is from 20 to 30 bushels per acre. They can be planted in June at the rate of half a bushel per acre. They should be planted in drills about three feet apart. They can be harvested by pasturing with hogs or they may be pastured with other animals, or they may be harvested for their grain. The average two-horse corn cultivator may be arranged with two inclined knife edges which will cut two rows at a time. After drying, they may be raked up and stacked and the stack covered with some material that will shed water, or placed in the barn. They can be threshed in the ordinary threshing machine by removing part of the concaves. The grain from soy beans contains a larger per cent of digestible protein than any other of the grains grown on the farm. This makes this crop peculiarly valuable to be fed with corn.

Every farmer who has land that has not been planted on account of the recent rains, should plan to put in some of the crops suggested above. It is not at all necessary that the land should lie idle, and Missouri may yet produce a maximum crop. The Station will upon application gladly give more detailed information regarding the production of any one of these crops.

F. B MUMFORD, Acting Director.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

4 BULL CALVES FOR SALE

Under 6 weeks, fine individuals from our Clyde Paul De Kol bull; Dam 24.38 lbs. butter in 7 days. And from tested cows, with good records, the price is right. W. B. SMITH & SON, Breeders Pure Holstein Cattle. 2488 W. Broad St., Columbus, O.

ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale. GEO. T. McNEIL, Theresa, N. Y.

WOODLAKE HERD.

Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN Station D., R. 1, Minneapolis, Minn.

STAR FARM HOLSTEINS

DROUTH DROUTH DROUTH

My pastures are a total failure. *Must sell immediately, 50 royally bred registered Holstein cows.* You can get the best. You can make your own price. Inquire at once. HORACE L. BRONSON, Cortland, N. Y.

TYRANENA HERD

100 HOLSTEIN-FRIESIANS 100

A. R. O. Stock For Sale.

Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz Frank B. Fargo, Lake Mills, Wis.

SOUTH SIDE FARM, WHITE BEAR LAKE, MINN.

Holstein-Friesians.

Bulls in service, Prince Inka Pietertje De Kol 2d, A. R. O., 144, sire of 10 A. R. O. cows, and Daisy Van Beer's Pauline De Kol. 27610, whose dam has official record of over 22 lbs. in 7 days. Special prices on young bulls from A. R. O. cows. Also Yorkshire pigs of most approved breeding now fit to ship.

Holsteins That Produce Are The

HOLSTEINS THAT PAY

The kind we sell. Backed by the largest official butter records ever made. All ages, both sexes. Over 100 head to choose from. BROOKSIDE STOCK FARM, HENRY STEVENS & SON, Box 208, Lacona, Oswego County, N. Y.

FOR SALE. H.-F. Bulls, ready for service from A. R. O. Cows and sired by Sir Jonanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis.

GLENVIEW HERD

A few fine heifers and bulls for sale. Also some A. R. O. cows. IRVIN NOWLAN, Toulon, Ill.

Markham Manor Farms, Simonsville P. O. Andover, Vt.

Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for description and price to J. A. THORNTON, Manager, Simmonsville, Vt.

FOR SALE.

H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address W. H. JONES, Watertown, Wis. Rural Route No. 2.

CLOVERDALE HERD

HOLSTEINS.

Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.

A. J. DAUGHERITY Streator, Ill.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No 29175. Sire: Count Colantha Alban No. 25148 Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent. fat 4.92. Correspondence solicited WM. EVERSON & SONS, Lake Mills, Wis.

70 HEAD PUBLIC SALE 70 HEAD

GREATEST OFFERING OF

HOLSTEIN-FRIESIAN CATTLE.

McADAM & VON HEYNE'S

Justly celebrated herd, will be sold at Public Auction, at the home of the World's Champions, at Brothertown Stock Farms, Deansboro, N. Y.,

WEDNESDAY MORNING, JULY 15, 1903

This sale includes every animal in our herd. Sadie Vale Concordia, the World's Champion, with official record of 30 lbs. 10.2 oz. butter in seven days, one of her sons, now 3 years old, 2 daughters, 5 granddaughters, 1 grandson and 2 great granddaughters and sons, will go to the highest bidder. **Mercedes Julip's Pietertje,** the famous ex-champion with official record of 29 lbs. 5.3 oz. butter; her daughter and granddaughter will also be sold. Another great offering in a sire is **Canary Mercedes Johanna De Kol,** out of Canary Mercedes Brightest with official record of 21 lbs. 3 oz. at an age of 2 years and 11 months, and by Johanna Rue 2nd. Paul De Kol, who has now 13 in the Advanced Register. The four nearest dams average 23 lbs. 5.6 oz. butter in official test. They average 4.6 per cent fat. This includes record of dam made in two year form. Herd numbers

70 HEAD OF VERY SUPERIOR ANIMALS,

selected with great care. A large number being from the **CELEBRATED VEOMANS HERD.** All cows offered are in calf, either by Sir Pietertje Posch, a son of Alta Posch, with official record of 27 lbs. 1.4 oz. butter at 2 years and 11 months, or by Sadie Vale Concordia's Paul De Kol, or by Canary Mercedes Johanna De Kol. In this offering of fine stock are cattle suitable for the best herds, also for the improvement of good herds, as well as cattle for the beginner; as the latter, in buying any of these cattle will start right, which is an important part of the success of breeding pure bred cattle. Farm can be reached on the D. L. & W. to Waterville, N. Y., or the O. & W. to Deansboro, N. Y. Trains will be met promptly and visitors conveyed to the farms. Also farms can be reached by trolley from Utica to Clinton, thence by livery. Catalogues ready early in June. Address

Mc ADAM & VON HEYNE, Deansboro N. Y.

The sale will commence promptly AT 10 A. M. WEDNESDAY, JULY 15, 1903.

COL. CAREY M. JONES, Auctioneer.

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Headed by Mercedes Mechthilde Pietertje. No. 25,795, oldest son of Mercedes Julips Pietertje. 75 O. I. C. White Pigs, both sexes, in pairs and trios, not related. W. R. GATES, Fort Atkinson, Wis.

OAKLAND HERD HOLSTEINS

PREMIER SIRE **Mutual Friend 3d's Paul** A son of Paul De Kol & Mutual Friend 3d, 21.84 lbs. butter, milk averaged 4.7% at 3 years. She has two A. R. O. daughters; 1 made over 20lbs, Must reduce herd at some price. State just what you want T. A. MITCHELL, Weedsport, N. Y.

BROOKSIDE HERD

HOLSTEIN-FRIESIANS

To reduce herd to capacity of pasture, will sell a limited number of A No. 1 young cows of high breeding and individually right, large producers, at $150 each; also 15 bull calves at bargain prices.

STEVENS BROTHERS, Lacona, N.Y.

THE MAPLE'S HERD

offers good young cows with A. R. O. records in calf to Beryl Wayne De Kol Paul, No. 28785, whose dam Beryl Wayne has an official record of 27.87 pounds of butter in 7 days. Also four yearling bulls ready for service. Special bargains in heifer and bull calves.

JOHN C. GODFREY,

PENNELLVILLE, N. Y.

Holstein-Friesian Bull Calves

Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

HOME FARM HERD.

Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams 25.1 lbs. butter in seven days. Herd numbers 125 head.

BEST FAMILIES REPRESENTED.

Special prices on six or eight bulls of serviceable age. W. B. BARNEY & CO, Hampton, Ia.

FOR SALE 2 H. F. Bull Calves, 6 mo. old sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers. M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

MONONA FARM MADISON, WIS. Offers for sale a few well bred Holstein-Friesian Bull Calves. Also two Service Bulls at reasonable prices. The Monona Farm Herd is founded on the best stock of the De Kol, Netherland, and Clothilde families. Pense Johanna 29332 the head of the herd has 7 A. R. O. dams averaging 22 lbs. 3.7 oz. Junior sire Paul Calamity De Kol 31095. THE MONONA FARM HERD. Address, F. W. ALLIS, Madison, Wis.

Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

.....YOU MAY.....

BEGIN AT THE HEAD

to improve your dairy herd with a bull whose dam has official record of 18 lbs. 6.3 oz., sires dam 20 lbs. 8.8 oz. Individual right. Price Right. McKAY BROS., Buckingham, Iowa.

HIGH-CLASS HOLSTEIN-FRIESIAN BULLS

and Bull Calves from A. R. O. dams and the best Advanced Registry sires. Cows all officially tested; I breed from no others. Correspondence from breeders and progressive dairymen invited. Malcolm H. Gardner, Darien, Wis.

HOLSTEINS

High Class Advanced Registry Stock only. Best butter families. Stock for sale. Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.



T. G. YEOMANS, strain of H. F. Cattle. nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale. Wm. O. Jackson & Sons, South Bend, Ind.

LOOK HERE.

34 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by Gem Pietertje Hengerveld Paul DeKol, or Sir Ormsby DeKol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days, average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd? McGEOCH HERD is located at Lake Mills, Wis., 56 miles west of Milwaukee. For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis Residence: National Ave. near 40th. Phone, South 1601

The Relation Between the Nurseryman and His Customers.

[Abstract of talk by J. H. HALE, South Glastonbury, Conn., before the American Association of Nurserymen, Detroit, Mich., June 11th.]

Owing to the nature of the business and the fact that the real value or purity of many varieties of nursery stock cannot be known for some years after planting, the nurseryman, aside from being a most conscientious and careful propogator, is in honor bound to act as a counselor and friend of the planter. The most successful lawyers are those who aim to keep their clients out of lawsuits and other troubles, and so the nurseryman, who wants a profitable and permanent business, can find no surer way to success than by guiding intending planters towards the purchase of most suitable varieties, regardless of any surplus stock he may have of less desirable sorts. To be sure, many nurserymen at the present time do not know as much about varieties, suitable locations, methods of culture marketing, etc. as they ought. The demand for cheap trees and plants has forced him to hustle in the production of greatest number of trees and plants at least possible cost, and the average customer is not willing to pay for anything but the bare cost of the trees. And so it is that there are far too many nurserymen who could not tell at sight the fruit of many of the varieties they propogate.

The vast majority of nurserymen are honest, careful men, yet being human they do make mistakes and when once a mistake is made the continued propogation by taking buds and scions from the planter or nurseryman, who gets his stock that way, is not on the road to success and will never cut much figure in the market. Frequent visits to fruiting fields and orchards of successful cultivators, will supplement the information obtained from our own test plots and those of the Experiment Stations, for the nurseryman should be a walking cyclopaedia of horticultural information, always on tap for the benefit of his own customers and those of the other fellow also. The more horticultural information we can circulate, the larger and better will be our business.

One of the largest items of expense in my office is correspondence on horticultural topics that do not pertain directly to the nursery sales, and I count it profitable advertising to furnish information to all who inquire, even to the extent of explaining how to prune, plant and care for a lot of trees bought from another nursery. There is something wrong in a nursery that is always seeking new customers.

Old customers should be our best ones, and will be, if care is taken to always give them the best stock you have and never sell them a variety you would not plant yourself. Nothing pleases a man more than to show his friends his lawn, garden, field or orchard giving satisfactory results of bloom or fruitage, and if by judicious advice in planting you have started him on the road to success, the fruitage of his plants and trees and his constant talk are all in your favor; a standing advertisement, "fully illustrated, top of column, next to reading matter."

If a customer asks for Ben Davis apples, Keiffer pears, Snead peach, Gold plum, Ada Strawberry, or other like truck, and says he knows what they are



Holstein Cow, Sadie Vale Concordia.

Premiere Holstein-Friesian Cow. Property of MC ADAM & VON HEYNE, and to be included in their sale of July 15th.

nursery row, increases the error and we are sending out mixed varieties, causing no end of trouble, both to the nurseryman and planter.

It may cost a little more to take our buds and scions only from fruiting trees of known value, but it insures purity and tends to breed up rather than down. My orchard interests being greater than my nursery interests, I know and feel these things from the planter's point of view, and I am sure there is a generation of planters growing up who will gladly pay any extra cost of propogation to the nurseryman who will always propogate from fruiting stock.

An experimental test field and orchard is a very expensive adjunct to a nursery, but it is absolutely essential where one has not other means of keeping fully posted as to varieties.

Our Agricultural Experiment Stations are doing considerable of this class of work, yet ought to do ten times as much as most of them are now doing, and do it better too; and if they have not funds enough to fully do the work it is our duty to see that our Legislatures make more liberal appropriations and also our duty to furnish the Station freely all new trees and plants a few years before introduction if possible. This might hinder the sale of the great Hunkedory pear, Bouncing Bet strawberry, or Aaron's Dewy rose, yet be of real encouragement and value to intending planters and to the business interests of the legitimate nursery trade. I know that in a few instances in the past, that plants, buds and scions have passed out of the hands of the Experiment Station people without proper authority. To my notion the and yet wants them, it may not be a crime to deal with him, but to work them off with colored plates on unsuspecting victims in any section of the country where better varieties may be grown, is an injury to the buyer and a blow at the nursery trade. It should be the aim of the nurseryman to know as much as possible of the soil and climatic conditions in the section of country where his customers reside, otherwise he is not in position to recommend varieties most suitable to successful culture. Nursery sales agents who are lovers of plants and trees and who keep up to date in varieties and methods, are true missionaries of horticulture, helping the ladies out on pruning roses, telling them how to rid their plants of insect pests and by being generally useful at the right time and by traveling in the same territory year after year have wonderfully stimulated horticultural thought and practice, to their own profit and the public good, while the fellow with picture books and big stories, selling so-called novelties at high prices is no permanent help to the legitimate nursery trade or the cause of horticulture.

While it is true that nursery agents blaze the way in new territory and tempt many people to buy in a small way, everywhere, yet as soon as people become well interested in horticulture there is more and more direct dealing between planters and nurseymen, saving in cost to the one and increasing the profits of the other, and for the continuation of this mutual benefit arrangement, the nurseyman must by education, training, thought, and practice be a leader among men, one whom planters may look up to with confidence.

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much in trees and plants and not enough in ideas. We cannot help others without helping ourselves more, and so anything that we can honestly do to help the planter to greater pleasure and profit will surely help the nursery trade. Don't be selfish about it either, help any and all you can, you cannot possibly be of help to others without enriching yourself.

Make your catalogue a hand-book of up-to-date useful information, do a little more than you agree every time. Many trees and plants fail to make a satisfactory start through lack of proper pruning at the start; I find it a good plan to send out with my orders a few specimen plants properly pruned root and top. Customers often think I overdo the matter, but final results are so satisfactory that they are sure to come again and stay permanent customers. A little extra care in packing, a little stronger cord, a little more moss, straw or burlap will add a little to the cost of packing, and sometimes a little soaking of the bale itself before shipment may add to the cost of freight or express and the customer may be a litle excited when he pays the bill, but when the trees and plants begin to grow and show the results of these little extra attentions, everybody is happy and business is on a firm foundation.

You can't satisfy everybody, but it pays to keep trying. The perishable nature of trees and plants, when out of the ground, makes it almost impossible to deliver many trees and plants in the same good condition as when they leave the nursery. Then the handling by the planter and his soil conditions have much to do with results.

A few years ago I shipped some 40,000 small fruit plants to two customers on the same day, plants of mostly the same varieties, dug from the same field on day of shipment, handled and packed by the same men all the way through, and shipped away on same train and delivered to both parties three days after. A little later, when they came to pay the bills, one customer praised the plants, liberal count, and good packing and told of his fine fields of growing plants. The other said, while he had been swindled before by nurserymen, this was the worst of all, not over ten per cent of his plants were alive and wanted to know what I was going to do about it. Of course I had to shoulder most of the loss, but tried to get even by telling him to prepare his land better next time and exercise greater care in handling plants, which he will, no doubt, buy of the other fellow.

Last year I had an exceptionally fine lot of peach trees of large size and fine form and sent them out to my customers with great satisfaction, and so was a little chagrined by receiving in one day's mail, two letters, one complaining of the "small sized, inferior trees," and the other saying "no use for trees big enough for saw logs."

A gentleman in New England, starting a large orchard property, placed an order for 3,000 peach trees with a very reliable nursery firm in New York, leaving them to select the varieties. They sent him a splendid lot of trees, yet of varieties utterly unsuited to his location.

One variety of 200 trees is paying a profit, the other 2,800 have been cultivated at a loss and the man is discouraged and the nursery trade suffers, all through the failure to have a little "spot knowledge" to throw in for good measure with the trees.

Don't sell a Bosc pear, or Crawford peach to be planted on sandy lands if you can help it. Aim for successful results in all tree planting, help to make the business of your customers successful and profitable and you will have done more to advance our nursery interest than can possibly be accomplished in any other way.

Alfalfa in the South.

Inoculation of alfalfa seed and soil seems to be a perplexing question. There are several conditions to be considered and then the practical applications of the scientific facts are made plain to the farmer. The germ of the alfalfa nodule grows best in alkaline media and grows poorly or not at all in acid media. Hence acid soils (sour soils) are not suitable for the growth of alfalfa unless they are changed from acid to alkaline, or the soil be made rich in plant foods, especially nitrogen. All lime lands are alkaline in reaction and are consequently most suitable for the growth of alfalfa. Recently I saw specimen plants from a ten acre field of alfalfa which was sown in the fall (rainy autumn) and in four weeks the plants had an abundance of tubercles on their roots. No inoculation was made, but the land was a rich, black lime land. This was done by Dr. McCain, of Sumter county, in the Western part of Alabama in the black lime belt of the State.

Some one may say that there were germs enough on the seed to inoculate lime land. If so, no inoculated soil is required. At any rate the quantity of soil required for inoculating lime lands is greatly exaggerated and possibly in most cases not required. A limited experience has led me to conclude that 100 pounds of inoculated soil, thoroughly pulverized aud sowed or drilled with 20 to 30 pounds of alfalfa seed, will thoroughly inoculate any alkaline soil.

The reaction of the soil may be known by the presence of lime rock or tested by the use of blue and red litmus paper. When moist alkaline soil is placed on red litmus paper it will cause the red paper to become blue; when on blue paper the color will not change. Moist acid soil will turn blue litmus paper red and will not change the color of red litmus paper. Litmus paper may be purchased of the druggists.

Liming land may change it from acid to alkaline in reaction. Usually, acid soils require from 10 to 20 barrels of lime per acre, in order to make them alkaline, and it may not be necessary to relime the land for years, the time depending on the chemical combinations made in the soil by the lime and the rapidity and rate of leaching or washing out of the lime by the rains.

All the rich lime lands of Alabama are good alfalfa producing lands. The poor eroded lime or bald spots or patches should be brought up by using mellilotus, or sweet clover, because it will grow better than alfalfa in such places, produces fairly good pasture and the first year it will produce better hay than Johnson grass or timothy, if cut at the proper time.

According to the experience of Dr. McCain, alfalfa may be grown on rich lime land where Johnson grass has partially taken possession. On such land sow it in the fall, and if the rains are early and sufficiently frequent and heavy frosts do not come until late in December, the alfalfa will get a good start in the fall and winter, so that the hoar frosts of winter cannot lift it out, nor the growth of Johnson grass choke it out in the spring. During the first spring and summer, cut it as often as the Johnson grass begins to exceed the alfalfa in growth, and disk after every cutting. When the rains are good and the frosts are not too early, fall sowing of alfalfa gives it a good start of the weeds during the following spring. In that sense fall sowing has the advantage over spring sowing, but spring sowing on rich lime land with good and sufficient rains will make one or two good cuttings the first year.

Let me suggest that Alabama or Southern farmers who have indestructible Johnson grass, try sowing hairy vetch in August or September right in the Johnson grass without disking or plowing. If the land is rich lime land and fall rains are good, the next May will show a sight fit for the gods.—C. A. CARY in *Breeder's Gazette.*

Alabama Experiment Station.

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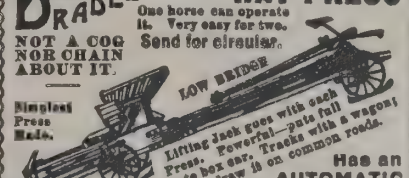
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This Guernsey bull was bred by and is owned by George C. Hill & Son, Rosendale, Wis. He was sold as a calf to Rather & Beyer, two bright young dairymen of Calumet Co., Wis. Messrs. Hill bought him back in March, 1902, so his oldest, pure bred calves were dropped in January, this year. He was sired by Viscount 2177, the sire of Countess Bishop, 499.9 lbs. fat with second calf, and out of Coralette 5722, with a record of 479.7 lbs. fat in a year, commencing at 3½ years old.

She was first prize cow at the Wisconsin State Fair in 1896, and Mr. C. P. Goodrich in reporting that fair had the following to say of Coralette: "Of cows three years old and over, there was a splendid show of eleven. It put the judge, Mr. H. C. Taylor, on his mettle to make a decision in this case; but he went at the job in a workmanlike style, carefully and deliberately, never overlooking any essential point in any animal. He finally settled on Geo. C. Hill & Son's five-year-old cow, Coralette, as entitled to the first. When the onlookers, who were interested in dairy stock, came to look her over, they all said, "That's right. She is a splendid animal, perhaps a trifle too thick in the neck to suit the ideas of some, but that is the only fault anybody could posslbly find with her. She has the thin shoulders, deep body, strong back, thin thighs, and splendid udder of the true dairy cow."

This cow was one of the best daughters of the well-known bull, Benjamin, who sired ten cows that made over 343 lbs. of fat. Her dam was Coral of Paulsdale that made 16 lbs. of butter in a week, and 369.2 lbs. fat in a year. Her grandam was Coralie, and great grandam, Coral 2d

Viscount, the sire of Coralette's Son, was equally well bred, but in different lines, and the Messrs. Hill are to be congratulated upon his return to their herd.



GUERNSEY BULL, CORALETTE'S SON, A. G. C. C., 3987.
Property of GEO. C. HILL & SON, Rosendale, Wis.

Conditions in Northern New York.

ED. HOARD'S DAIRYMAN:—It may be of some interest to your readers in other states to know how we are and have been faring for the past two months in central New York. March was warm and quite an amount of plowing done; the fore part of April was excessively wet, three weeks of mud which left the soil in a heavy, sodden shape, and from about the 15th of April no rain has fallen to wet the soil to the depth of one inch (and only two at that, and they were local) until June 12, last night, a northeast rain set in and has rained all night and is now raining hard at 8 a. m.

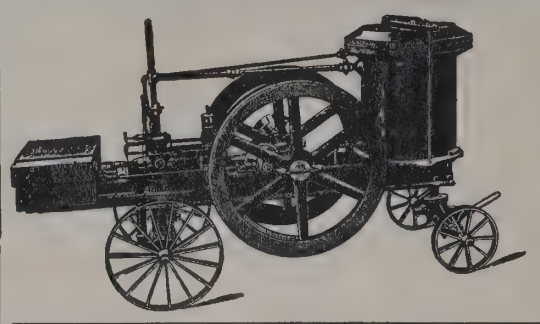
The damage to crops can better be told at the harvest, but it is safe to estimate the damage to the hay crop in Cayuga Co. alone at over one hundred thousand dollars unless we can get a second cutting. Many had already turned into meadows to keep their cows from going dry. Some few who had plenty of hay and silage have kept their cows up, but the great majority turned out their cows early to save feed bills and have, perhaps, a little hay to sell, as it has brought a very remunerative price, and plenty of hay has been sold recently for feeding that could otherwise not be sold at all.

Many farmers have not a furrow plowed for corn, very little corn planted, and much of that will have to be planted over again and many pieces that were sown to oats will be worked over, and be put

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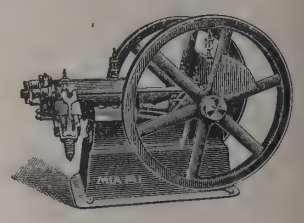
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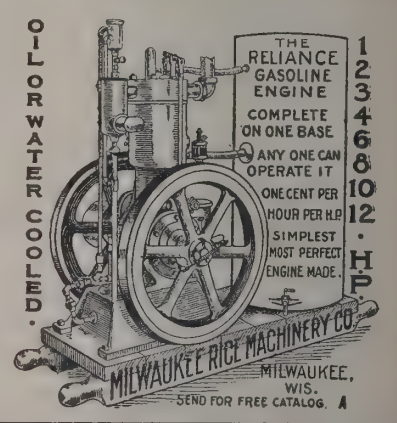
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that will be always ready to start, safe, reliable convenient, economical and durable, buy a FULLER & JOHNSON Frost Proof. No bother with water nor expense of broken cylinder, no waiting for wind or weather. All sizes, stationary and portable. Send for descriptive catalogue to the manufacturers.

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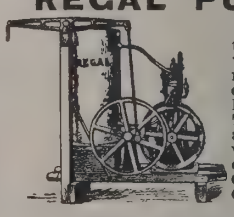


WEBER JR. Gasoline Engines
are the outgrowth of 19 years of engine building. Not approached for strength, safety, simplicity or width of duty. Valuable for a score of farm duties. Any boy can run them. 2½ full horse power at less than 5 cts. per hour. Tested and ready for action upon arrival. Made to fit farmers' needs. Other sizes up to 300 h. p. Write for free catalogue.
WEBER GAS & GASOLINE ENGINE COMPANY, Box 176, Kansas City, Mo.

WANTED: YOUNG MAN in every locality to act as salesman, who can start work Sept. 1st or before, to take orders in town and country direct for our woolen mills, on men's all wool suits and overcoats made to order. We want bright, clean, thoroughly reliable men, (farmer's sons preferred). Permanent position. The right man can make $1000 per year. References required as to character. Address
MICHIGAN WOOLEN MFG. CO., Detroit, Mich.

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. All our choice pigs of 1902 farrowing have been sold. We are now taking orders for 1903 farrowing.
JOHN WHITE & SON, Adamstown, Md.

REGAL PUMPERS.

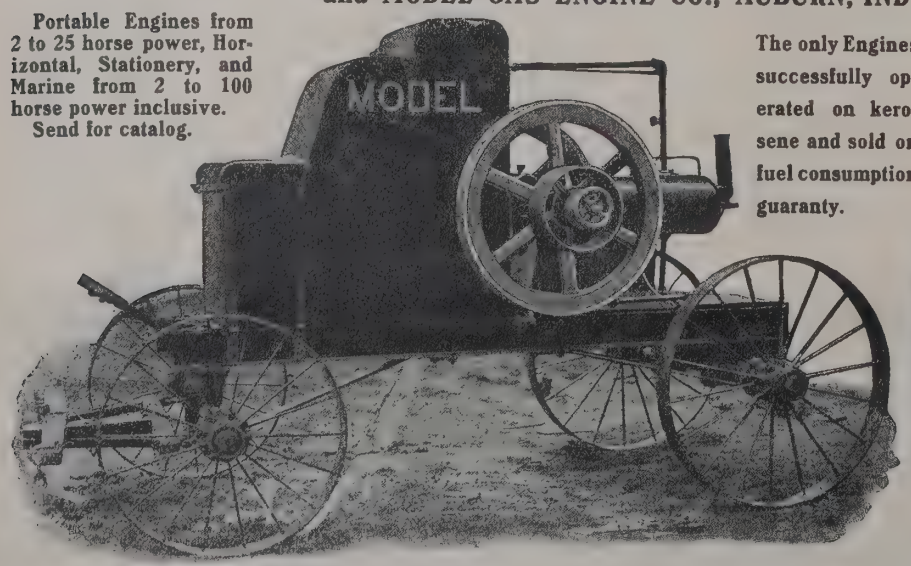


Always ready, never tired. Pump water, saw wood, grind feed, churn, run cream separators, etc. Wages, one cent an hour per horse power. Think of it, the back aches they save. Season will be dry. Write for catalogue "D" REGAL GASOLINE ENGINE CO., Coldwater, Mich.

The Model Gas and Gasoline Engines

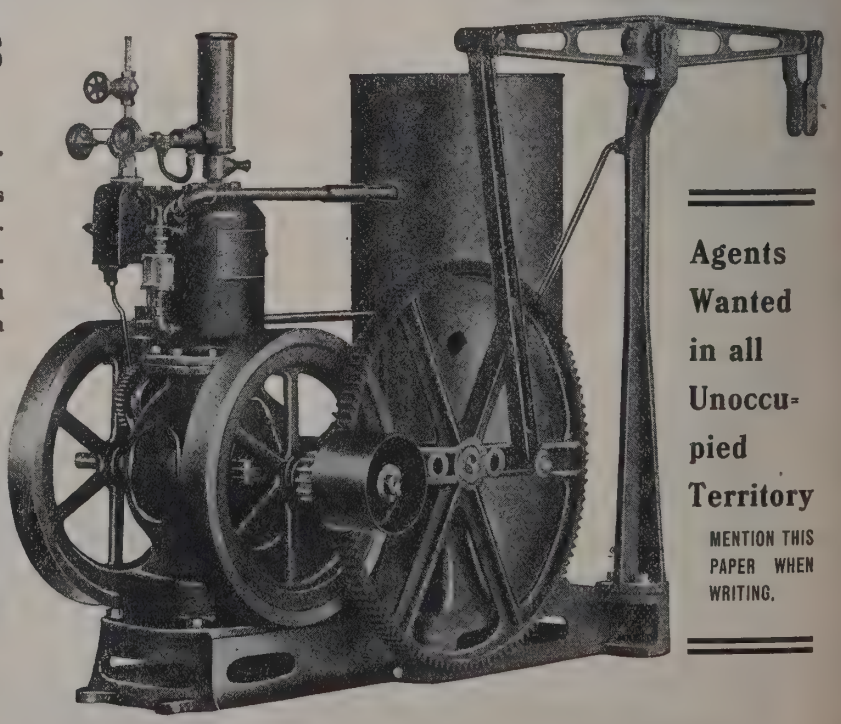
MANUFACTURED BY
THE CENTRAL CITY IRON WORKS, STEVENS POINT, WIS.,
and MODEL GAS ENGINE CO., AUBURN, IND.

Portable Engines from 2 to 25 horse power, Horizontal, Stationery, and Marine from 2 to 100 horse power inclusive.
Send for catalog.



The only Engines successfully operated on kerosene and sold on fuel consumption guaranty.

PORTABLE ENGINE WITH TANK AND STEEL TRUCK.



VE RTICAL ENGINE AND PUMP JACK WITH ALL IRON BED PLATE.

Agents Wanted in all Unoccupied Territory

MENTION THIS PAPER WHEN WRITING.

into corn and Hungarian for stock feed, but mostly at present time will be an extra effort to grow all the corn possible.

It has been very discouraging to our farmers to read in the papers of the excessive wet in the west and our teams standing idle because the ground was so hard they could not plow. We have the promise of seed time and harvest, but at the present outlook it will be the lightest harvest in New York state known by the oldest inhabitants. One neighbor, who is in his 92nd year, says he never saw the like, but this heavy rain puts fresh hope in our minds. A. D. BAKER.

Auburn, N. Y.

Pasteurized Whey.

ED. HOARD'S DAIRYMAN:—How much better is whey that has been pasteurized for the feeding of calves and hogs than the whey that is left to sour? G. B. C.

Richland Center, Wis.

Whey that is left to sour has a very much lower feeding value simply because it is not clean and wholesome food. The bacteria that grow in sour, unclean whey tanks will produce stomach troubles when the sour whey is fed. Besides, the bacteria produce compounds in the fermenting whey that are more or less poisonous when fed. This does not mean that slightly sour whey is dangerous, but whey that is slightly sour easily goes over into whey that is more than sour, and it is best not to take the chance of producing an unhealthy article. Heating the whey obviates all this and gives a clean, healthy food which the other conditions do not.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

CONCERNING OUR ADVERTISERS.

Every one knows that a horse with the heaves is depreciated from $25.00 to $50 00, and some people would not take a horse with the heaves as a gift. Heaves is a disease which is liable to attack even the most valuable and best conditioned horse. It is well to have a known effective remedy on hand. Such a remedy is undoubtedly to be found in the Prussian Heave Powders, manufactured by the Prussian Stock Food and Remedy Co., St. Paul, Minn., whose advertisement we are running in another column. Many telling testimonials from users have appeared from time to time in these columns. It is one of a number of valuable preparations by the same company, which includes Prussian Stock Food, Poultry Food, Lice Powders, Lice Killers, Cough and Distemper Cure, e c. A good book explaining all the above is the 68 page Farmer's and Stockman's Manual, which, as indicated in the advertisement, is mailed free if you write the Company how many head of ctock you have.

The Havana Metal Wheel Co., Havana, Ill., announce in our columns that they "lead the world" as manufacturers of grooved and plain tire steel farm wagon wheels. They also guarantee their patented grooved tire wheels to be the best made by anybody anywhere. They are able to fit any sized skein. Our readers should write, if interested, for their directions for measuring axles for metal wheels.

A LESSON OF THE TIMES.

It is a very neat and attractive hanger in several colors and halftone effects, handsome enough for home decoration, which the Studebaker Bros. Mfg. Co. are sending out under the above title. It would be more aptly described as a pictorial history of the rise of a great manufacturing establishment. The upper panel pictures the unpretentious but now famous Studebaker blacksmith shop of 1852—the bud in which was wrapped up the brilliant Studebaker future. For it was this humble shop that by growth, development and enlargement is the logical predecessor of all that the great plant now boasts. Following this is an excellent reproduction of the plant as it now is, with the legends "Largest in the World" and "Plant Covers 101 Acres." Below are tastefully grouped the five Studebaker Brothers whose faces have become so familiar, and from a cornucopia on either side of this groupe comes all manner of vehicles, typical of the endless stream which flows from the Studebaker factory to all corners of the earth. This hanger, 20x38 inches in size, tinned top and bottom, may be had by writing the Studebaker Bros Mfg. Co., South Bend, Ind., and enclosing six cents in stamps to pay postage. It ought to be in every school house in the land.

FARMERS SAW MILL, $125.00.

The DeLoach Mill Mfg. Co., Box 112 Atlanta, Ga., who manufacture every description of modern saw mills, in all sizes, are offering an exceptional bargain in their Farmers' Saw Mill at $125. This will cut 2,000 feet of lumber per day with only four-horse power. So great is the popularity of this mill that its sale has extended around the world, not only into Alaska, British Columbia, and Mexico, but across the sea to Europe, Asia, Africa and the islands of the sea. Their handsome catalogue will be sent free to our readers who request it, and is highest authority on the subject of which it treats.

RURAL TELEPHONES.

Telephones are becoming very common in rural communities, and the more they are used the greater their appreciation. The low cost of maintaining a service of that kind makes it possible for those who are in even very moderate circumstances to have telephone connection with their neighbors and with neighboring towns. It may safely be said that the telephone has solved more problems than any other invention of modern times. It has made farm life more attractive and brought into close communication those who have formerly been widely separated. It is now a common thing to have daily conversation with friends or relatives who live many miles away and where formerly exchange of friendly greeting or consultations concerning business was a matter of considerable time and a journey of several miles, it is now a matter of minutes and of going to a telephone in the house. In the matter of business alone any farmer can well afford to pay the small cost of a telephone, for there will be dozens of times during the year when he can make or save money by being in almost instantaneous touch with his market town. Putting in operation a telephone line is very simple. Any one can do it, and it requires no special skill to keep in repair and operate a line. There are numerous makes of telephones for rural lines on the market, but the ones made by the Stormburg-Carlson Telephone Mfg. Co., Chicago, Ill., is having the largest sale and is giving the best satisfaction. This is one of the oldest houses in this line in the country, and the telephones made by this company have been found to be perfect in their adaptation to the uses of people in country places. The company publishes a very interesting catalogue and we would advise our readers to send for one, and see for themselves how easy it is to "get on the line." Address Stromberg-Carlson Telephone Mfg. Co., F15, Chicago, Ill., and do not forget to say we invited you to do so.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Infectious Abortion.

I have eight cases of abortion in my herd. Can you give me your idea of how to treat it?

Port Arthur, Tex. J. C. M.

ANSWER.

We must, first of all, isolate the cows which have aborted: destroy the afterbirth and foetus, and thoroughly disinfect the stables in which they have aborted: whitewash the walls and give plenty of light in the stables. About the best agent to apply to the floor is air-slaked lime. Apply it once daily after cleansing. In the absence of lime, wood ashes or land plaster may be used instead. If in the grass season it is advantageous to put the healthy cows to pasture. The cows which have aborted should not be allowed to retain the after-birth; the same should be promptly and completely removed, and the uterus and vagina thoroughly cleansed by irrigating same with a 1-5000 solution of bichloride of mercury, or other disinfecting agents. This can best be done by using a large-sized fountain syringe, and should be repeated once daily, until the disappearance of the vaginal discharge. Until this has entirely disappeared no cow should be used for breeding purposes, or be allowed to be returned into the herd among the healthy cows. We may also increase the power of resistance of all the animals by means of food rich in nitrogen, and a teaspoonful or two of powdered cramp bark in food, once daily.

This is a very important question to the dairymen, but it seems they have paid very little attention to it heretofore, as the same question is being asked almost every week. Many prefer to try patent medicines taken internally and others inject them hypodermically into the connective tissues to be absorbed by the blood, and maintain the idea that through these sources they may obtain relief. While it is generally accepted that the disease is caused by a specific germ which confines itself to the vagina and uterus and remains there for an indefinite time, even after abortion has taken place, would it not seem reasonable that we should seek relief through these channels by applying antiseptic agents directly to the seat of the trouble, thereby destroying these germs and preventing their accumulation in the first individual which aborts in your herd, and preventing the disease from going any further?

NOTHING SO GOOD



has ever been presented to the public and which has been of such wondrous merit as

Kendall's Spavin Cure.

It is the old reliable remedy for Spavins, Ringbones, Splints, Curbs and all forms of Lameness. It cures without a blemish because it does not blister. Price $1. 6 for $5. As a liniment for family use it has no equal. Ask your druggist for KENDALL'S SPAVIN CURE, also "A Treatise on the Horse," the book free, or address DR. B. J. KENDALL CO., Enosburg Falls, Vt.



Lump Jaw
Spavin
Ringbone
Fistula
Poll Evil
Knee-Sprung



Cure Them All

You can cure all these diseases and blemishes easily, thoroughly and inexpensively. You can also cure Curb, Splint, Sweeny and soft enlargements of every description. If you have any such cases to treat, write us. We will send you two big booklets giving you all the information you need. No matter how old the case or what has failed, we will guarantee a cure by the methods the books tell of—methods now employed by over 140,000 farmers and stockmen. Write today.

FLEMING BROS., Chemists, 228 Union Stock Yards, Chicago, Ill.



NEWTON'S Heave, Cough, Distemper and Indigestion Cure. A veterinary specific for wind, throat and stomach troubles *Strong recommends.* $1.00 per can. Dealers. Mail or Ex. paid. Newton Horse Remedy Co., Toledo, Ohio.

PROPOSITION

$65,000 MADE IN 7 MONTHS.

We can give a few parties who can secure $175 to $2500, a very paying business, choice locality. We have an article, or machine, valuable to all farmers and stock raisers. Four men made

CLEAR $65,000 IN 7 MONTHS
Two Men Made

$2,000 IN ONE WEEK

Sales in one county $12,360. The like never before known. Thorough investigation invited. Best bank references. Write at once to the following address

JONES & PRITCHARD
United States General Agents.
L Box 537 BEAVER DAM, WIS.

"SAVE-THE-HORSE"
— TRADE MARK —
SPAVIN CURE.



Send for our booklet—a valuable treatise on the injuries and diseases of horses and tells why

"SAVE-THE-HORSE" WILL POSITIVELY AND PERMANENTLY CURE

Bone and Bog Spavin, Thoroughpin, Ringbone, (except low ringbone), Curb, Splint, Capped Hock, Windpuff, Shoe Boil, Weak and Sprained Tendon, and all lameness. Give explicit particulars as to your case. Give the veterinarian's diagnosis, if he is competent. Describe action, age, location of swellings and lameness and we will advise you frankly as to the possibilities of "Save-the-Horse. $5.00 per bottle. Written guarantee with every bottle under our seal and signature constructed solely to satisfy and protect you fully. Need of second bottle is almost improbable, except in rarest of cases. $5.00 at all druggists and dealers or sent express prepaid.

TROY CHEMICAL CO., TROY, N. Y.



ABORTION

Can be successfully treated with **Anti-Abortion Serum.** Easily administered and permanently cures. Information free.

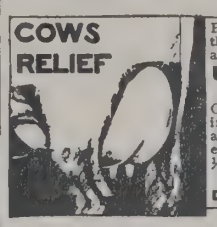
DR. ROBERTS
VETERINARY REMEDY CO.,
525 Grand Ave., Waukesha, Wis.

BARREN COWS CURED.

Write for Pamphlet and Testimonials.

Oldest and Best Treatment Extant.

MOORE BROS., V. S., Albany, N. Y.



Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.

Used Exclusively at Model Dairy

Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.

O. H. MFG. CO., Dept. H, Lyndon, Vt.

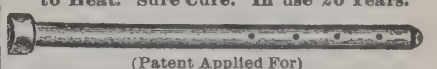
ABORTION,

Retention of Placenta and Failure to Breed.

KELLOGG'S CONDITION POWDER
is a positive cure for these diseases. Write for circular containing full information, references and price.
H. W. KELLOGG COMPANY, St. Paul, Minn.

ABORTION,

Failing to Breed and to bring Cows to Heat. Sure Cure. In use 20 Years.



(Patent Applied For)

Hard Rubber *Safety* Milk Tubes and Dilating Plugs to cure hard milkers and a teat **Bistoury.** Send for testimonials.

Dr. WM. HORNE, Janesville, Wis.

Horse Owners! Use
GOMBAULT'S
Caustic Balsam



A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action Removes all Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.* **Every bottle sold is warranted to give satisfaction Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.**
THE LAWRENCE-WILLIAMS CO., Cleveland, O.

After Abortion Cows should be injected with Hood Farm Breeding Powder. Used in connection with Hood Farm Abortion Cure it is the best means of preventing abortion.

Two sizes of each, $1 and $2.50. To any railroad express point in U. S., 25 cents additional. C. I. Hood & Co., Lowell, Mass.

BLACKLEGOIDS

BEST PREVENTIVE OF BLACKLEG.



Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each **Blacklegoid** (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. **Blacklegoids** are sold by druggists; *ask for them.*

Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.

PARKE, DAVIS & CO. - DETROIT, MICH.

Branches: New York, Kansas City, Baltimore, New Orleans, Chicago; Walkerville, Ont.; Montreal, Que.; London, Eng.

CURE "THE" COW

NO CURE, NO PAY



WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address

DR. EATON J. CROSS,
152 Congress St., Troy, N. Y

An Appreciative Trial Subscriber.

Yield of Cheese From 4 per Cent Milk.

ED. HOARD'S DAIRYMAN:—I enclose $1 for which please extend my subscription to the DAIRYMAN. I am one of your 5 month's trial subscribers. Words can not express my appreciation of your valuable paper. I am sorry that I did not become a subscriber sooner. I run a dairy of twelve cows, a mixed lot, two pure bred Jerseys, some others that contain quite a lot of Jersey blood, one Holstein, and a few grade Durhams, and sell milk and some cream to retail trade. I farm some in connection with my business, have no silo, but by good feeding in winter and proper housing and other attention to details and good pasture in summer, make my 12 cows average upwards of 225 pounds of milk per day, the year through. Besides our own use of milk in small family, I sell $1,200 worth of milk and cream per year.

I am thinking of increasing my business and as I have no more market for fresh milk and cream, would you be so kind as to tell me through the DAIRYMAN how many pounds of cheese from 100 pounds of whole milk, testing 4% butter fat, I might expect? I have a fair idea as to what I could realize from butter, but don't know anything in regard to the amount of cheese I could make from 100 pounds of 4% milk. If not too much trouble, give me an estimate, please. J. L. B.

Rolla, Mo.

Letters of the above character are not only gratifying to the editors, but they should prove a strong incentive to readers to inquire why they may not do as well or better than J. L. B. is doing. Good feeding, proper housing and other attention to details enable him to secure $1,200 a year from twelve cows. If we allow that it costs half of this gross income to deliver the milk and cream to customers, there still remains a net income of $50 per cow. We believe this might be increased at least 50% if still greater attention was paid to selecting out, and keeping the best cows and disposing of those that do not come up to the proper standard.

Answering the specific inquiry, we may say that a few years ago, Prof. John W. Decker, now of the Ohio Agricultural College, made 11.4 pounds of green cheese from one hundred pounds of 4 per cent milk at the Wisconsin Dairy School. This cheese in curing would certainly have lost not more than one pound, leaving 10.4 pounds cheese fit for the market. Whether our inquirer can obtain this yield will depend somewhat upon his skill and the appliances provided for manufacturing the cheese.

Inoculating for Alfalfa.

The recent discovery of successful methods of growing alfalfa will probably lead to the seeding of many fields to this legume during the present season. I seeded a field of four acres last year and met with both marked success and complete failure—success in that portion of the field where the soil was inoculated and failure where there was no inoculation. My field was thoroughly prepared and a very even stand obtained. At the time of seeding I sowed about one acre across the field with soil infected with alfalfa bacteria, or, in other words, with soil in which alfalfa had grown successfully, with its root tubercles in abundance.

I applied about 100 pounds of this soil to the acre, The whole field grew well during the summer and root tubercles were found in abundance six weeks after seeding, on a small part of the infected acre where the infection had been very heavily applied. As the season advanced the infected acre began to show more thrift and at the end of the season was noticeably larger than the uninfected parts. This spring the field presented on May 10, a most convincing proof of the absolute necessity of soil inoculation. The growth of the alfalfa on the infected acre had exceeded our most sanguine expectations. It is of a dark green color and making an enormous growth. The drainage has carried the infection in streaks and spots to the lower parts of the field, all of which show the same luxuriance. The division line separating a narrow strip of uninfected land on the upper side of the field toward which there has been no drainage, is as distinctly marked as the boundary of a field. On those portions of the field where there has been no inoculation the alfalfa has been of a pale yellow color and very much of it so feeble and stunted that it will soon die out unless assisted. I have procured more soil with which to inoculate these remaining parts of the field.

I would urge those who attempt to grow alfalfa to go at it in the right sure way; do not take chances. Where one man will succeed without systematic inoculation a score of men will fail. To depend on the infection which is in the seed is too hazardous and too expensive and usually entails the loss of the first seeding with the consequent loss of the use of the land and labor for the year.

Infected soil can be procured for 50 cents per 100 pounds and the freight added. This is enough for an acre. I procured both lots of soil that I used from the Illinois Experiment Station. It may be procured from well-established alfalfa fields where there is an abundance of root tubercles. There is no great mountain in the path; just get the infected soil and sow it broadcast, by hand if you like, one handful at a throw; sow at the time of seeding and harrow it in; the little fellows in the dirt will do the rest.—RALPH ALLEN, in *Breeders' Gazette*.

Transfers of Guernsey Cattle.

BULLS.

Diana's Rambler of Cherry Hill 8094, Myron L. Chamberlain to Wm. H. Boyden, Leomenster, Mass.
Darnley 8213; Myron L. Chamberlain to A. U. Hutchings, Topsfield, Mass.
Dandy Duke 8657, N. E. Smith to C. W. Bender, Elk Lick, Pa.
Golden Horn Phil of Fernwood 7875, Thomas E. Brooks to Charles M. Seltzer, Philadelphia, Pa.
Gen. Vasquez 8658, Est. L. Hinman to John Harness, Neenah, Wis.
Hazel's Ben 8645, W. A. Alexander to to S. W. Griggs & Son, Woodhull, N. Y.
Huntmar 8659, C. A. Griscom to J. E. Bertolette, Athol, Pa.
Imp. Itchen Masher 8660, F. S. Peer to W. H. Gratwick, Buffalo, N. Y.
Lady's Glenwood 8533, Chas. L. Hill to Wilcox & Stubbs, Des Moines, Ia.
Pat S. of Fairview 7960, N. E. Smith to J. F. Cowan, New Kingston, N. Y.
Richland's Andy 8642, A. F. Pears to S. W. Applegate, Elizabeth, Pa.
Roy Marshall 8650, Wm. H. Borden to James Ross, Clarksboro, N. J.
Trickson 8442, Geo. C. Hill & Son to Frederick Schley, Clintonville, Wis.

COWS.

Calthina 2nd 7194, Lady Ethel 8912, S. R. Dickey to James M. McCamant, New London, Pa.
Imp. Claremont of Jasemine 16164, Imp. Elfine of the Vilette 3rd 16163, Imp. England's Lady Gay 16167, Imp. Merton Beauty of Haut Pave 16162, Imp. Merton Butter Maid 2nd 16166, Imp Merton Genetta 16165, F. S. Peer to W. H. Gratwick, Buffalo. N. Y.
Golden Moments 14604, F. Lothrop Ames to Charles H. Jones, Weston, Mass.
Hulda Taylor 16155, W. H. Havens to C. R. Havens Cream Ridge, N. J.
Jennie's Girl 13485, C. A. Freshcorn to John Reefer, Zelienople, Pa.
Jean of Haddon 16159, E. T. Gill to R. F. & A. H. Parker, Westborough, Mass.
Laurena of Fernwood 14123, T. E. Brooks to C. M. Seltzer, Philadelphia, Pa.
Latilla 15778, M. L. Welles to W. C. Sullivan, San Antonio, Tex.
Melvia F. 13404, Henry P. Comstock to M. I. Wheeler, Great Barrington, Mass.
Mollie's Gracie 16160, N. E. Smith to C. W. Bender, Elk Lick, Pa.
Queen Red Rose 14340, Wm. H. Boyden to George Wood, Philadelphia, Pa.
Rose of Raritan 8820, Geo. LaMonte to Howard Vansyckle, Lebanon, N. J.
Victoria V. 11377, J. J. Bixby to Jay C. Aldrich, South Plymouth, N. Y.
Yolo Maid 5903, Wm. H. Borden to George Wood, Philadelphia, Pa. WM. H. CALDWELL, Sec'y. Peterboro, N. H.

Skim Milk Returned.

How much skim milk is returned to the patrons of co-operative creameries where just the cream is bought and is it usually returned by weight or measure? F. M. C.

Silcett Springs, Va.

Skim milk is returned to the patrons by weight. The amount of skim milk to be returned depends somewhat on how much cream is taken, but as an average 80 pounds of skim milk is returned for every 100 pounds of milk delivered.

234 ACRE FARM FOR SALE

One-half mile from Janesville, Wis. New 12 room house, good barns, etc. Fine black soil. A great bargain and if taken at once the purchaser gets the rent. It is one of the best farms in the famous Rock River Valley and will be sold on easy terms to a good man.
WILSON LANE, Janesville, Wis.

IOWA FARMS For Sale $45 to $65 Per Acre.

We offer improved Iowa farms close to church, school and town, with local telephone and rural mail delivery, soil rich, black loam, and level, at $45 to $65 per acre. We also have special bargains in North and South Dakota and Canada. If you wish to buy or sell land or city property anywhere, write to us for confidential terms. We make a specialty of long range sales, so no matter how far away you live, if interested write us. We refund railway fare to parties who buy of us. Send for price list with pictures of farms.
THE JOHN M. CANNON LAND AGENCY, CRESCO, IOWA.

Special Offer of Fine Dairy Farm
ADJOINING RED WING, MINNESOTA.

174 ACRES—140 under high cultivation, balance good pasture and woodland. Has complete machinery for Dairy, with power, etc., and all machinery for cutting corn. Two large silos, sufficient to hold feed for 50 cows, and large barn to tie up 70 head. One new house—could not be built for less than $2,500; another good house for help. Large horse barn and granary. Improvements could not be duplicated for less than $7,500. Monthly receipts over $600. All for sale at $12,000.
H. A. CAMPBELL, 107 E. 4th St., St. Paul, Minn.

DO YOU WANT A HOME

in Central Wisconsin? We offer very desirable lands to actual settlers. Our lands are in Marathon County and are some of the very best hardwood, agricultural and dairy lands in the state. Deep clay loam soil. Good water easily obtainable at but little depth. Country opened with good roads and well populated.

Schools, both public and parochial, churches, general stores, bank, creamery, etc., within easy reach. Ready market for farm and forest products.

Terms reasonable. If you desire to improve your condition write for further particulars to
RIETBROCK LAND & LUMBER CO., ATHENS, WIS.

16000 ...ACRES...
Of the Best Hardwood Lands in Northern Wisconsin.

They are located in Lincoln, Langlade, and Oneida counties, and only 240 miles from Milwaukee on main line of C. & N. W. R. R., Ashland Division.

These lands are especially selected and are very fine lands for dairying. The land is level, free from stone, and no soil ever produced better crops of hay, grain, and vegetables. Good roads, schools, and churches. Excellent water, both in running streams and lakes, where fishing and game abound. These lands have never before been offered on the market. Are for sale at a low price and on easy terms.
INTERIOR LAND CO., or THE JEFFRIS CO.,
JANESVILLE, - - WISCONSIN.

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For choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.

360 acre farm, 4½ miles from Crookston, Minn., (a city of 7,000 inhabitants), and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 ft. square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm in under a high state of cultivation, and is well drained by a slight ravine running through the farm, merely sufficient for self drainage. The soil is a rich deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50,

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired. Price $19.00 per acre.

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Gasoline Engines in Creameries.

(Paper read by E. E. Koch at the Wisconsin Buttermakers' Meeting.)

As Professor Farrington has asked me to write a paper on the use of gasoline engines in creameries I will attempt to do so, although I do not feel able to do it as it should be, and I hardly think you will enjoy another paper written by me after hearing this one, but experience is the best teacher as our worthy secretary will find from this experience.

I bought a six-horse-power Hart-Parr gasoline engine, September, 1902, and have used it since for creamery power, with a six horse-power boiler for heating purposes, but think an eight-horse-power engine would do my work more satisfactorily. The boiler is plenty big enough. I will say from what experience I have had with a gasoline engine that they are the power for creamery purposes. There are several reasons for saying so. They run with a little more even motion than steam, because, as a general thing, steam is up and down in a boiler, at least, that has been my experience, and when the steam goes up or down in the boiler it affects the motion of the engine, and an uneven motion will cause a separator to get out of balance soon and will not give as good results in separating as an even motion will.

Creameries can be run cheaper with gasoline engine and steam for heating purposes, than they can with steam for power. For example, will give you figures for four months in 1901 with steam for power and the same four months in 1902 with gasoline engine for power, and steam for heating purposes. September, October, November and December, 1901, I used 37 tons of coal at $3 83 per ton, $141.71; received during the four months, 382,105 pounds of milk. The cost of handling one thousand pounds was 37 cents. September, October, November and December, 1902, I used 304 gallons of gasoline at 11 1-10 cents per gallon, $33.77; 16 tons of coal at $3.92 per ton, $62.72; total, $96 49. Received during same months, 508,391 pounds of milk. The cost of handling one thousand pounds was 18 9-10 cents, a difference of 19 9-10 cents per thousand, but will say the old boiler I was using used more fuel than a new boiler would, so do not think these figures will apply to boilers which are in good shape.

I am satisfied there are creameries in Wisconsin which are using extra fuel enough, on account of inferior machinery, to pay interest on the money necessary to buy first-class machinery. I think there are other makes of gasoline engines probably just as good as the Hart-Parr, with one exception. It is an upright engine and does not rack the base as a horizontal engine will.

You can readily see that the concussion on a piston moving up and down will not rack the base as much as the concussion on a piston moving horizontally. A few miles from our factory there is a skimming station run by a 5½-horse-power horizontal engine. The engine was placed on a base very much like the one our engine is placed on, and their base is racked quite badly, while the base our engine rests on is as firm as ever. There is less work handling a gasoline engine; it uses less oil and is very clean.

I would say to those thinking of buying new power for their creameries, I would get an eight-horse-power gasoline engine and a six-horse-power boiler for a creamery running from seven to twelve thousand pounds of milk per day. In all cases get an engine with power enough to handle the machinery easily, and you will have no trouble with the engine. In getting an engine with plenty of power, the engine will last longer, use less gasoline and will not exhaust the battery so quickly as if you tax the engine heavily, which you will have to do, if you get one with just power enough to do your work. There are so many sparks in a battery. The oftener the engine ignites the more sparks it uses, and when the engine does its work easily it does not ignite so often, thus the battery will last longer.

All gasoline engines from six to ten or twelve-horse-power, should use one gallon of gasoline every ten hours to run the engine. After that, it should use one gallon of gasoline for every horse-power used every ten hours. For example, a six-horse power engine if worked to its full capacity for ten hours, should use seven gallons of gasoline.

All gasoline engines for creamery purposes should have the cylinder enclosed, and so arranged that a six-inch stove pipe may be attached and piped out of the creamery, to carry the burnt gas out of the building, which passes through the cylinder. If an engine has but one ignitor attached to it, it should be a tube ignitor as it is surer than the spark ignitor, but I think both are necessary: if one should get out of order, the other could be used without delay. The spark ignitor is far the handier of the two. The engine can be started in a few seconds with the spark, while with the tube, it takes some minutes. There is a smell of burnt gasoline from the tube which does not come from the spark ignitor. If you have a gasoline engine and fire breaks out on the premises and you have plenty of hose, you can get the water where you most need it without delay.

There are three important things in handling a gasoline engine: First, plenty of gasoline, and supply tank; second, having both ignitors in running order; third, to avoid getting too much gasoline into the cylinder where gas explodes. This happens generally when the engine is hot, when being started after it has stopped recently. By getting too much gasoline in at once, it will not explode and will have to evaporate or be worked out by turning the engine some time with the ignitor attached and no gasoline allowed to flow in. This need not happen if operators are careful not to open valve which admits gasoline to engine, too much at first. An oil cooler is an improvement over the water cooler, as it does not need any attention winter or summer.

Some manufacturers will tell you the oil coolers are not a success, that they will not cool the cylinder properly in warm weather, because they do not make them. But experience has proven that they are a success.

Danger in Pasturing Alfalfa.

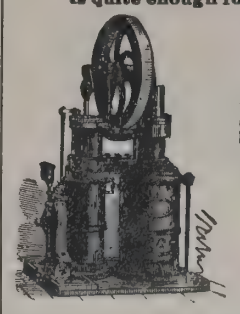
Professor D. H. Otis of the Kansas Experiment Station says: There is probably no crop that appears more refreshing and inviting in the spring of the year than a good field of alfalfa. The plant starts early, makes rapid growth, and when dry feed becomes scarce or stale, there is a temptation to pasture it with various classes of stock. For horses, swine, or chickens, alfalfa undoubtedly furnishes the best pasture obtainable. For cattle, there are certain dangers attached to its use that should be carefully considered. The cow has four stomachs; the first, or paunch, is where the bulk of the food consumed is stored, ready to be ground in the process of chewing the cud. Under certain conditions, some feeds, green alfalfa being a notable example, while lying in the paunch will form gas, and when this gas is present in sufficient quantities it may cause the cow to bloat to such an extent as to cause death, unless the animal is punctured by making an opening into the paunch to allow the escape of the gas. No doubt if alfalfa could be used successfully as a cow pasture, it would mean greatly increased profit from both dairy and stock cattle. During the last two years the Kansas Station has been experimenting to see what could be done in the way of pasturing alfalfa. This work has covered both fall and spring seasons.

On September 26, 1901, nineteen common cows were given all the alfalfa hay they would eat, and in the afternoon pastured on alfalfa, which was in a fine succulent condition, as a result of the September rains. They were watched carefully and left in from an hour to an hour and a half. No bad results followed. The next morning they were again fed all the alfalfa hay they would eat, but after having had a taste of the green alfalfa they seemed to care very little for the hay. They were turned into alfalfa pasture at 7:20 a. m., and were taken out at 8:35 a. m. No sign of bloat was apparent. They were left in a dry lot, with access to alfalfa hay. At 1:20 p. m. one of the smaller cows was bloated. To give the matter a thorough test, the remainder of the herd was again turned on alfalfa pasture and remained there about fifty minutes, when one of the cows showed signs of bloating. Gas formed so rapidly that it was necessary to use the trocar and cannula. The paunch was so full of food that very little gas could be removed by the cannula. Four other cows were also bloated. Three were relieved by a gag, and one was finally relieved by the trocar and cannula, although complete relief did not occur until about 7.30 p. m.

The first of November we took ten calves, averaging about six months of age, and put them on alfalfa pasture, five with bits, and five without bits. These calves became accustomed to alfalfa

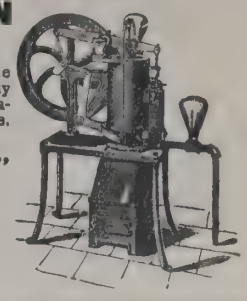
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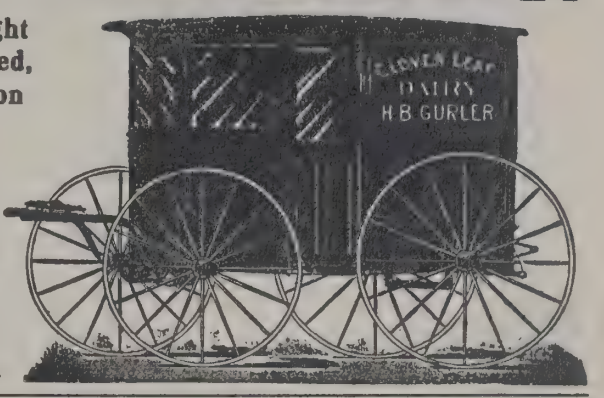


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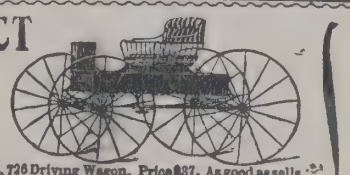
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justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

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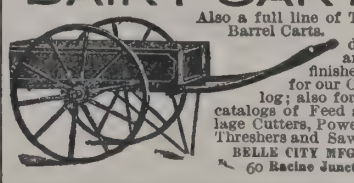
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gradually, the time being increased to fifteen minutes per day until they got all they would eat. This experiment was continued through the month of November, and we did not have a single case of bloat, with or without the bits.

We continued the experiment with the bits during the months of May and June, 1902, using cows instead of calves. Three cows were provided with bits and one without. These cows were first allowed to eat all the tame grass pasture that they could handle, after which they were turned on alfalfa for fifteen minutes. The next day they were given the same treatment, with the exception of increasing the time on the alfalfa to thirty minutes; the third day they were on one and one-half hours; the fourth three hours, and then all day, and a little later were allowed on all day and night. No case of bloat appeared for over a week. At this time the alfalfa was cut and soon after the cows were eating second growth. One morning soon after this, the cow without the bit bloated immediately after being watered; she was relieved of the gas by a gag, after which an alfalfa bit was placed in her mouth, when she was allowed to return to the alfalfa pasture. For a couple of days all went well, after which she bloated up six different times, and the last time had to be punctured. One of the other cows bloated three times and another four times. One of the cows went through the experiment without bloating at all. About the middle of June a fifth cow was added to the experiment with a bit. In less than ten days she had bloated twice.

Our experience indicates that it is unsafe to pasture alfalfa with cows, although some farmers have done it successfully, and we have done it successfully with the some individual animals. If a man wants to run the risk of pasturing alfalfa we believe the bits are a help, in that they prevent the cows from eating alfalfa as rapidly as they would without them. The bits might have some influence as a gag, although they appear to be rather small for this purpose and have a tendency to make the cow's mouth sore. Our experience indicates that the openings into the bore of the bit are of no particular value as they are stopped up with the green feed within five minutes after the cows commence eating. The straight bit seems to be better than the curved ones, as they are more easily cleaned. The cows did well while on alfalfa. They increased in the milk flow and not only did not need grain but would practically refuse to eat it, but they required so much watching, especially with the second growth of alfalfa, that we considered it too risky to keep them on it longer.

Infected Alfalfa Soil.

Dr. Cyril G. Hopkins, of the Illionis Experiment Station at Urbana, has just issued a circular (No. 76) entitled "Infected Alfalfa Soil," which is herewith reproduced: There has recently been some mention in the agricultural press of the difficulty of obtaining infected alfalfa soil for use in the inoculation of alfalfa fields. The Illinois Experiment Station is furnishing infected alfalfa soil to farmers in all sections of the State, as was announced last year in our bulletin No. 76, "Alfalfa on Illinois Soil," a second edition of which is now in press and will be sent to anyone free of charge upon application.

We furnish this soil in grain bags delivered to the railroad freight houses of Champaign or Urbana for 50 cents per 100 pounds to cover cost of collecting, drayage and bags. Remittance is best made by postoffice money order or Chicago bank draft. Personal checks are not accepted. Orders should be placed at least two or three weeks before the soil is wanted, as weather conditions may make it impossible to collect the soil promptly and get it in suitable condition for shipping. We advise using at least 100 lbs. of infected soil to the acre. Definite trials on large areas have shown that this amount is sufficient to produce a very satisfactory inoculation. The soil should be scattered over the field with some degree of uniformity; but it is not like seeding grain and it is not absolutely essential that every square yard in the field should receive its due portion of infected soil. Some care should be taken in spreading it over the higher places in the field but if places should be missed on sloping land or on lower lying lands, the bacteria will soon be carried over them by surface drainage waters; indeed, if all the water sheds in the field (that is, all ridges and high places) are well inoculated the entire field will ultimately become infected, the bacteria being carried by soil washing; but the infection is more rapid of course it the infected soil is spread over the entire field with some degree of uniformity when it is first applied.

If possible, the soil should be applied at about the time the alfalfa seed is sowed and then harrowed in with the seed; but it may be applied a month or two before sowing the alfalfa or at any time afterward, and it is not absolutely necessary that it be harrowed in, although that is advisable. If applied to a field where the alfalfa is already a year or two old, the infected soil may be mixed with the soil of the field by harrowing or disking (the disks being set straight so as not to cut off the alfalfa roots), preferably early in the spring or after a cutting has been made. Infected soil may be applied in any way to get it over the field, as by hand (throwing it from the wagon), with an end-gate seeder, if the soil is dry enough and sufficiently well pulverized, or in any other way which may be found convenient.

The results obtained during the past year (as will be shown in the second edition of Bulletin No. 76) fully confirm the results previously reported by this station concerning the importance and value of inoculation for alfalfa. The information which we now have, strongly indicates that if it is provided with the proper bacteria, alfalfa can be successfully grown on any soil where both corn and red clover are successful crops. Where there is difficulty in obtaining a good stand and luxuriant growth of red clover the soil is probably acid and should be treated with lime or ground limestone, and on soils which are deficient in phosphorous, an application of fine ground steamed bone meal or some other non-acidulated phosphorous fertilizer will be found profitable. Farm manure which is of such benefit to the corn crop has but very little value for alfalfa on most Illinois soils, when free from acidity and well provided with the alfalfa bacteria.

THE FARMER FAILS

In health just as does the city-man, and he fails commonly from the same cause, "stomach trouble." The farm is a wholesome place to live; the farmer's life is a healthy life; but no external advantages can overcome the effects of a diseased stomach. When the stomach and its allied organs of digestion and nutrition are diseased, the food eaten is imperfectly digested and assimilated, and the consequent loss of nurtition results in physical debility.



Dr. Pierce's Golden Medical Discovery cures diseases of the stomach and other organs of digestion and nutrition, and enables the perfect digestion and assimilation of food. It builds up the body with sound flesh and solid muscle.

"I used ten bottles of Dr. Pierce's Golden Medical Discovery and several vials of his 'Pleasant Pellets' a year ago this spring, and have had no trouble with indigestion since," writes Mr. W. T. Thompson, of Townsend, Broadwater Co., Montana. "Words fail to tell how thankful I am for the relief, as I had suffered so much and it seemed that the doctors could do me no good. I got down in weight to one hundred and twenty-five pounds, and was not able to work at all. Now I weigh nearly one hundred and sixty and can do a day's work on the farm. I have recommended your medicine to several, and shall always have a good word to say for Dr. Pierce and his medicines."

The sole motive for substitution is to permit the dealer to make the little more profit paid by the sale of less meritorious medicines. He gains; you lose, therefore accept no substitute for "Golden Medical Discovery."

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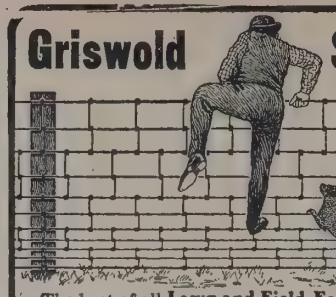
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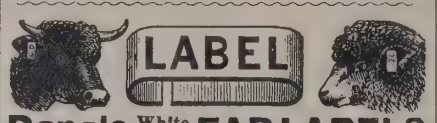


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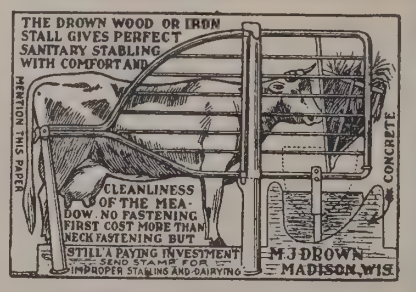
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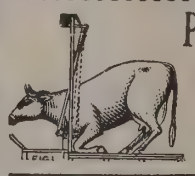
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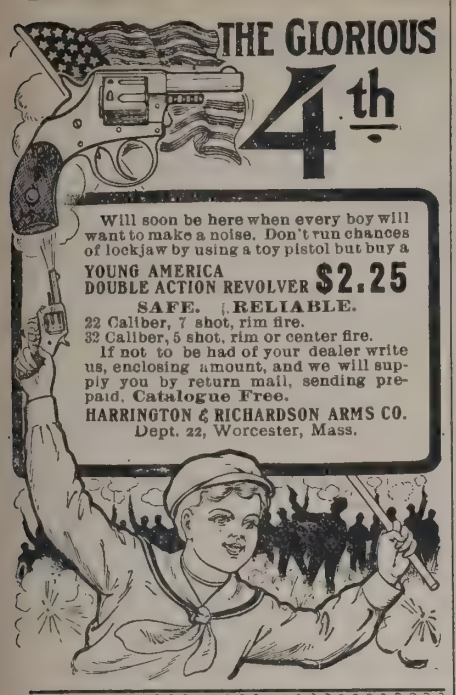
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Complete with extra nipple, $1.50, express prepaid. Circulars free.
M. T. PHILLIPS, POMEROY, PA.

Wide Fluctuation in Milk Yield.

(Continued from page 434)

feeding has anything whatever to do with the fluctuation in the yield of milk, but we do incline to the opinion that the cow is fed more than is really profitable and the probabilities are that quite a proportion of the present feed passes off undigested.

Testing Farm Separator Cream.

Prof. Farrington of the Wis. Experiment Station and Dairy School, gave a very thoughtful address at the Buttermakers' Convention, in Waukesea, part of which, was devoted to the above subject. Patrons as well as buttermakers should be deeply interested in this question for it is evident that farm separation is coming very rapidly. He said:

"The testing of cream is now a subject in which the buttermakers take a lively interest. They have to do a great deal more of it now than two years ago, and I think the universal experience of them all is, that cream testing is far more difficult than milk testing. The ordinary manipulations of the test are generally well understood, but there are a few points connected with the subject which I wish to mention. First, the sampling of cream for testing: this requires a great deal of care to have it done fairly. When cream haulers sample cream at different farms, a box of one-half pint bottles should be taken along and this box of samples ought to be iced in summer and kept from freezing in winter, just as carefully as the cream-carrying cans are protected. These half-pint bottles filled to the cover will furnish a good sized sample of each lot of cream, and when no preservative is used in them the buttermaker has a chance to inspect the condition of each lot of cream which was poured into the large cans. This will help him to locate any trouble he may be having with his butter. If these samples get sour and lumpy, there is some defect in the method of caring for them during transportation, but I think on the whole such a large sample as this, without using a preservative, until perhaps it arrives at the creamery, is the most satisfactory one to take. After the sample has been thoroughly mixed and tested, the cream, which is left, may be emptied into the cream vat.

When it comes to testing the cream, I presume that every buttermaker knows that the cream should be weighed and not measured into the test bottle. The scales made with agate bearings and knife edges are more easily kept in good condition for this purpose, than those having metal bearings, which will easily tarnish and rust. Another thing that will be of great aid in obtaining accurate readings of the cream fat, is to allow the test bottle to cool and the fat in the necks to solidify or crystallize after the last whirling in the centrifuge. This cooling helps to separate the water from the fat; this separation in many cases, has not been accomplished by the whirling alone. When remelted and warmed to about 120 degrees Fahrenheit the fat will be clear, oily, water-free and in the best condition possible for measuring.

"A new idea regarding the cream test bottle has been proposed and used somewhat in recent times. This is designed for the purpose of testing very rich cream. The commonly used cream bottles are graduated to measure 30 per cent fat when eighteen grams of cream are taken, but the new bottle is made with a longer neck and is whirled in a larger tester than those formerly made. My experience with these test bottles is rather limited, and I am consequently not able to discuss them, but I have always felt that so long a column of fat as would be separated from a 40 to 50 per cent cream was hard to measure accurately on account of the careful work needed in regulating the temperature of so much fat. The expansion and contraction of so long a column of fat affects the readings so much that it has always seemed to me to be safer to use less cream, say nine grams in a test bottle that will measure 30 per cent fat than to try to test 18 grams in a bottle that will measure 60 per cent fat. This use of the 30 per cent cream bottles will also make it possible to test all kinds of liquid dairy products in one tester or centrifuge."

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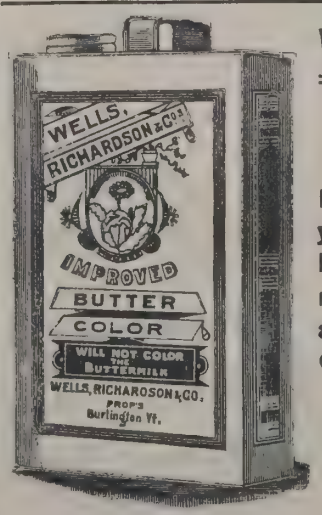
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International Stock Food Co., Minneapolis, Minn.

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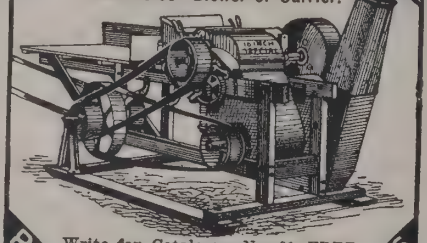
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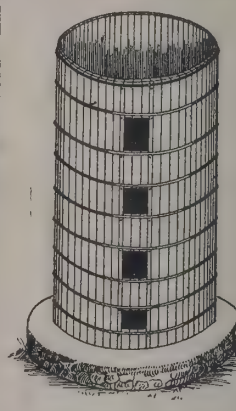
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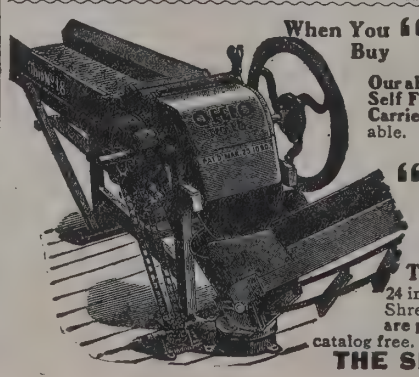
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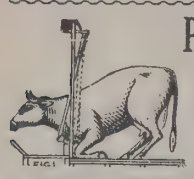
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THE NEW PATENT
Cow Stall
AND FEED TROUGH.

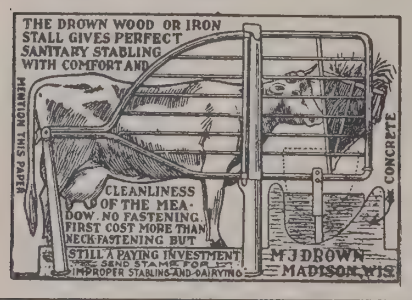
This is tne only Cow Stall with a centering hinge Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars. **R. A McLERY & CO., Palmyra, Wis.**



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Keeps Cows Clean.
Swings forward while getting up or lying down. Locks back while standing Full particulars free.
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Beverly St.. Boston, Mass



The BEST Cattle Fastening.
SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated Circular free. GLENORA MFG. CO., Glenora, Yates Co., N. Y.
Infringements will be prosecuted.





CHAIN-HANGING CATTLE STANCHION
The Most Practical **CATTLE FASTENER** ever invented. Manufactured and For sale by
O. H. ROBERTSON, Forestville, Conn.

WILDER'S STANCHION



Being an improvement over Smith's. Lightest, strongest, quickest, safest stanchion made. Has steel latch and automatic lock. Becomes stationary when open. Animal cannot turn in it in backing out. Made of best seasoned hard wood. Pins for fastening with every stanchion. Send for testimonials.
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A Steel Stanchion beats anything you ever saw for tying cattle. Lighter, stronger, neater. Swings on chains Not in the way when lying down. Agents wanted. Write for special terms and prices. **Jas. Boyle, Mfr., Salem, O.**

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EDITOR knows from experience **Shoo-Fly** is O. K.

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Use our latest improved machines and you can down all competition! The old kinds are "not in it." Address
LOOMIS MACHINE CO., Tiffin, Ohio.

The Averill & Gregory Sale of Holsteins.

We are indebted to the Syracuse, (N. Y.) *Evening Herald* for the following report of the above sale which by the account will be seen to have been an extremely successful one. A picture of the great cow, Segis Inka, which sold for $1,600 will be found on page 374 of the DAIRYMAN and we thought so well of her from her photograph alone that we gave the picture the title of "A Study in Dairy Form." If her selling price is any indication of her actual value she is certainly worthy of the description given to her in the picture.

"Eccentricity" was the keynote of the bidding at the Averill & Gregory Holstein-Friesian sale yesterday afternoon, when the last of the famous herd went under the hammer. Purchasers paid big prices for animals which in no way ranked with some of the others that brought less. A. & G. Butter King, which was at the head of the A. & G. herd and accounted one of the best sires in the breed, went for $175, while A. R. Mills, of Portageville, paid $180 for A. & G. Maud Mooie Burk, a bull calf, not yet three months old.

The prices averaged well, however, and the sale was a distinct satisfaction to the proprietors of the farm and the Holstein breeders generally. One hundred and fifty-seven head of stock were sold for a total of $25,100, the average price being $159 81. Of these 157, one sold for $1,600, Segis Inka; one for $525, A. & G. Netherland Maud, one for $520, A. & G. Burke Segis Inka; one for $450, Netherland Maude Mooie, and one for $400, Mahomet Pauline DeKol.

Ten head were sold for between $300 and $400; 19 for between $200 and $300; 28 for between $150 and $200; 54 for between $100 and $150, and 41 below $100.

It is generally conceded that Dr. W. N. Landon, who bought the two highest priced cows at the sale got the best two animals. Doctor Landon, who is a comparatively new man in the breeding business, bid with rare judgment, waiting until the acknowledged experts began bidding on an animal and then, when the bidding had just about stopped, raising the price just sufficiently to shut everybody out.

There was a round of applause for him yesterday, when he bid and bought A. & G. Netherland Maud for $525 after a half dozen of the best judges had forced the price up to $500.

THE SALE OF SEGIS INKA.

Segis Inka acknowledged the applause which greeted her appearance Thursday in the auction ring with a loud-mouthed "moo." The auctioneer had scarcely offered her when E. J. Fargo of Lake Mills, Wis., bid $1,000, a price which was covered several times in less than a minute. The bidding was lively until $1,400 was reached, when all but Harvey A. Moyer, of this city, and F. P. Knowles of Worcester, Mass., dropped out. "Barney" Kelly forced the price slowly up at $25 jumps until it reached $1,500, when the enthusiam seemed to lag.

OFFERS FOR THR CALF.

The auctioneer pleaded and begged for twenty minutes or so, and it looked as if Segis Inka was to be bid off at that price, when Henry Stevens, the blind president of the Holstein-Friesian Association, arose and announced that he would give the services of his bull free, and pay $500 for the calf dropped by Segis Inka. He had scarcely dropped back into his seat when H. L. Bronson, of Cortland, announced that he would give the services of his bull free and $600 for the calf. The announcement was received with applause, and the bidding started in again until $1,550 was reached, when it lagged again.

Then W. A. Matteson, of Utica, started the pot boiling again with the statement that he would give the services of his bull free and $750 for Segis Inka's first calf and followed it up a few minutes later by saying that he would give the services of his bull free, and take the chances with the rest of buying the calf.

The price was forced up immediately until it reached $1,580, where it stuck. Mr. Knowles made the bid, and Mr. Moyer dropped out. It looked as if the celebrated cow was going to Massachusetts for all the efforts to get a higher price

(Continued on page 479.)



The woman of taste, means and refinement always wants the best soap to be had. She well knows that her beauty depends largely upon the healthy tint of the skin; and that this depends upon the purity of her soap. She likes pretty and scented toilet accessories, but she wants good soap for *use*. She has soaps, and soaps in fancy boxes, but she has a cake of Ivory Soap at her washbowl.

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Hoard's Dairyman

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Making Ice Cream

The American public has a strongly developed appetite for ice cream in all its forms and it should be the duty of the dairymen to satisfy the appetite to as large a degree as possible whenever there is a market for the product. There is money for the dairyman in it if he puts a good article on the market, but the ice cream must be of good quality and well made. The following methods are given by Prof. Haywood the *National Stockman*:

CREAM MUST BE GOOD.

The chief requisite in the manufacture of good ice cream is good cream. By this is meant cream that contains from 23 to 25 per cent. of fat. With this quality of sound, sweet cream it is comparatively easy to make a first-class ice cream. If, however, this quality of cream is not available a fair quality of ice cream can be made from cream containing but 16 per cent. of fat by adding to the cream about 2 per cent of some gelatin filler.

THE PENNSYLVANIA DAIRY SCHOOL RULE.

The rule, if it can be called such, that has been followed by the dairy school for the past four years is as follows: For other than fruit flavors, two and one-half ounces of granulated sugar is weighed out to each pound of cream to be frozen. For chocolate flavor three-fourths of an ounce of Braun's chocolate paste is added to each pound of cream. The cream is put into the freezer which has previously been packed with a freezing mixture, the sugar and flavoring added, the cover put on and the freezer started; slowly at first to prevent churning, but rapidly as the cream begins to freeze. When crushed fruits are used for flavor the amount of sugar used need not to exceed two ounces to the pound of cream, as the fruit being preserved in a syrup already contains a large amount of sugar. One of the most popular fruit flavors is strawberry, an ounce of the crushed fruit and an ounce of the fruit juice usually giving the desired amount of flavor. When canned peaches are used for flavoring the flavor will be materially improved by adding the juice of a lemon to each can of peaches used.

EXTRACT FLAVORING.

In using extracts for flavoring it is usually necessary to flavor at least the first lots of cream made from each new lot of extract by taste, as it is difficult to get two shipments of extract of the same strength. Some ice cream makers claim that extract flavorings injure the grain or body of the ice cream. Whether this claim can be substantiated or not, it is almost certain that a more delicate flavor can be obtained from the vanilla bean for example, than from the extract of vanilla. Unless care is exercised in the selection and use of extracts they are likely to impart a characteristic disagreeable flavor to the ice cream. Where their use can be avoided they are not to be recommended.

BODY.

The body of the ice cream is influenced to a great extent by the richness of the cream used in its manufacture. Ice cream made from cream containing but from 16 to 20 per cent of fat will lack body or character, when put into the mouth it immediately melts and vanishes, which is disappointing to the lover of good ice cream. On the other hand when cream with from 23 to 25 per cent of fat is used the ice cream has a toughness that is regarded with favor by the ice cream connoisseur. Again, the richer ice cream is apparently not as cold as that made from poor cream and in consequence the consumer is not troubled with the pains in the roof of the mouth so often caused by eating ice cream made from poor cream or from eating water ice or sherbet.

Perhaps the rapidity of freezing has some influence upon the body of the ice cream. This in turn is influenced by the strength of the freezing mixture or the amount of salt that is added to the ice. One pound of coarse ice cream salt, to ten or twelve pounds of crushed ice gives a medium, quick,freezing mixture. The freezer should always be stopped as soon as the ice cream begins to roll up on the stirrer. If the freezing is carried too far the water in the cream freezes, the grain or body becomes granular and the cream is ruined.

THE YIELD OF ICE CREAM.

The yield of ice cream is governed perhaps by three factors. First, by the amount of air that can be incorporated into the freezing mass. Second, by the expansion of the milk albumen caused by whipping the cream during freezing, and, third, by the expansion of the cream serum during the freezing of the cream. The increase of ice cream over the unfrozen cream varies within very wide limits. Why it should vary and vary so widely is a question that a large number of experimental freezings has failed to answer satisfactorily. Ice cream makers frequently claim that they get an increase of one hundred per cent of ice cream over cream. While the writer has occasionally gotten an increase of 80 per cent the average has been approximately 60 per cent.

To obtain the greatest benefit of the increase of ice cream over cream it should be measured and disposed of as soon after feeezing as convenient. Ice cream served as soon as it has hardened after freezing, is very light and feathery and is preferred by many in this condition. If the ice cream is held in a packer for twenty-four hours a large part of the air that has been incorporated in it during freezing collects in the cream in such a way that, when the cream is stirred, as it has to be in repacking, it escapes and the bulk of the ice cream is reduced approximately ten per cent. As a consequence the cream has a more solid consistency and to some does not have the light, fluffy, lively attractiveness characteristic of freshly frozen cream.

PACKING ICE CREAM.

After the cream is frozen it is usually transferred to porcelain lined, iron packing cans packed in a freezing mixture in cedar tubes. From these the cream is distributed to the retail trade by means of small tin packing cans holding from one to four quarts. Ice cream should not be left in contact with metal for any considerable length of time, as the cream is liable to become tainted.

Care should be exercised to keep the cream in the large containers well packed to prevent the cream from becoming soft and to see that the freezing mixture in the retail packers is strong enough to keep the cream firm but not so strong that the cream will become so hard as to be unmanageable.

ICE CREAM BRICKS.

For the high class trade there is quite a demand for ice cream bricks containing from one to three flavors and two or more colors. These are made in a brick shaped tin mould, those having the double lid are much to be preferred. When more than one kind of cream is used in a single mould, care should be taken to make the different layers as even and as uniform as possible. Special care should also be taken to fill the mould as full as it will possibly hold, as moulds that are filled are not likely to be contaminated with salt in freezing. As soon as the moulds are full they are packed in a strong freezing mixture for an hour and a half or until the cream is frozen solid. They are then taken out, rinsed off with clean, cold water and both lids removed.

The thin blade of a knife is then run around the inside of the mould and the brick of ice cream pressed out upon a table. With a thin bladed knife the brick is cut into five or six pieces, each individual piece wrapped in paraffine paper, and put into a packer surrounded by a strong freezing mixture. Ice cream made into bricks frequently sells for from forty to seventy-five cents per quart.



A JERSEY MOTHER AND DAUGHTERS.
Property of Fred Stubley, Black Earth, Wis.

Working Under Hard Conditions.

Ed. Hoard's Dairyman:—Find enclosed money order for $1 to renew my allegiance to the Dairyman. I neglected to renew my subscription at its expiration and have been extremely busy and have been doing without the great Cow Apostle's advice, but for all that,we have been very successful and hadn't I ought to, I have been going to Cowlege, for over twenty years under the tutelage of Hoard, Henry, Buff Jersey, Goodrich, et al.

I am from Wisconsin, and last fall rented a farm in Brown Co., Minn. There were 28 cows in milk, including heifers and strippers and the monthly checks from creamery ranged from $50 to $60. We took charge of the business Oct. 1, and there was a marked improvement at once in the milk flow and the size of our checks till for December, it was over $106, brought about by proper care and handling. It must have been the care and regularity in milking; surely it was not the feed, for I must say it was the poorest feed I ever fed to cows, frosted corn fodder that had stood a month after being frosted before it was cut with corn binder.

It was planted late and was in all stages from silking to roasting ears when it was killed by frost early in Sept., so you can judge what the feed was like. I looked over the premises before renting, and barn and all buildings were in poor shape, especially the barn, it was awful filthy and bad. One part has no gutter behind the cows and by the removing of the droppings, the dirt has been removed to a depth of 18 to 24 inches.

The barn is set on posts and the cows passing in and out have carried out the dirt on each side and under the sill to a depth of 2 feet, and when we came here, that was full of slush composed of cow manure, water and dirt and the cow's udders, would drag in that filth and when they passed over the sill, the pressure on the udder was so great as to sometimes cause the milk to squirt from the teats;and say, wasn't it nice milking with udders and teats covered with such filth?

The other part of the barn was not quite so bad, but the owner, when he saw with what disgust I viewed the barn and their ways of doing, had many excuses to offer for having things thus. The main and only plausible reason was that he could not get help to do the work on the farm and fix the barn and many other things that needed doing just about as bad, and if I would rent the farm it would relieve him of the farm work and care of the cows and he would go right to work and fill in the barn and put in gutter, etc., and fix everything up in fine shape.

Well, when we took possession he didn't just have time to fix the barn and so it has gone. We did some temporary work, fixing so the cows could get in and out of barn without getting their udders covered with filth, but he hasn't done a thing yet, and I am thoroughly disgusted with the old prevaricator and procrastinator.

He was also to fence a hog pasture. I sowed the barley and rape for same, but that is all the good it did. It is a foot to 18 inches high, but the ten sows and their pigs remain shut up in a pen.

I will not wrangle with this man. I shall try to rent a farm with up-to-date buildings and equipment and let him have this all to himself. J. W. Vana.

Minn.

Care of Milk and Cream.

How Farmer Patrons of Creameries May Best Secure Milk Products of Extra High Quality.

W. A. Wilson, dairy superintendent, Regina, Assiniboia, Canada, in *Northwest Farmer*, reviews the methods of caring for milk and cream on the farm as follows:

During the present year indications thrroughout the west seen to warrent favorable prices for dairy produce, particularly for creamery butter. At present a ready market is available for the supply as soon as it is manufactured, and at a price from 2c to 4c a pound in advance of that for the corresponding period of the previous year. This, no doubt, will prove an inducement to have creameries commence operations earlier than usual, which will be greatly assisted by the pleasant weather of early spring and the splendid condition of the roads. In this respect the season will be a remarkable contrast to that of the early part of 1902, and a better season for co-operative dairying is almost evident. To obtain the maximum returns for the produce the attention of the dairymen, from the beginning of the season, should be centered on establishing a market on what they have to offer for sale by adopting methods in the care and handling of milk and cream on the farm which are beneficial, and whereby the raw material will not become contaminated.

CONTAMINATION OF MILK AFTER LEAVING THE UDDER OF THE COW.

Milk as it leaves the udder of a healthy cow is practically pure, free from germs and foreign matter. It may, however, become impure or tainted in various ways, as, for instance, in any of the following: 1. By mixture with it of particles of dirt, manure, bedding, hair, etc., during or after milking. 2. By absorbing strong odors as from manures, fertilizers, etc. 3. By introducing of bacteria, which may cause souring, or bitter, slimy, ropy, or so-called "bloody" milk.

Under the first condition milk is contaminated with filth of various kinds, in many cases through carelessness in the barns. There are likely to be particles of dust and dirt in the air and on the bodies of most cows, especially about the udder, which readily find access to the milk, chiefly during the milking period. The attempt to prevent this by attaching a strainer to the milk pail during milking is not advisable. Such strainers are cumbersome, they tend to spatter the milk and are disagreeable to use. The true method of preventing contamination of milk by such foreign matter as we are considering is to be sought in securing the right conditions in the stable, thoroughly cleansing the cow and by the employment of milkers clean in person and clothing who understand how the cow should be milked and who will do the work properly.

During the summer months, when the milking is done in the open air, the surrounding atmosphere should be pure, the milking done in a sheltered spot, which largely prevents the wind from blowing

dry dust into the milk, and the yard kept scrupulously clean. The whole body of the cow should be brushed and the udder and parts of the body adjacent to the udder should not only be brushed, but wiped with a damp cloth or sponge; dampening the hair just before milking will do much to prevent dust from the udder and parts adjacent falling into the pail. The dress and hands of the milker should be thoroughly clean, and milking always done with dry hands. If the hands could simply be moistened, the practice might allowable, but the practice of moistening the hands is apt to degenerate into the habit of making them wet, so wet that there is a drip from the hands into the pail, which means filth and which cannot be too strongly condemned.

Owing to the marvelous rapidity with which it absorbs odors while cooling, the milk should be removed from the stable as soon as it is drawn. While the aim should be to keep the stable free from odors this result can seldom be so perfectly attained as to make it desirable that the milk should stand in the stable, or in an atmosphere polluted with stable odors, or such as are too often manifest near the milking pen.

The use of a fine cloth strainer is desirable, but it should be remembered that the mere straining of milk does not undo the evil of filthy milking, and also, that the carelessness in washing and sterilizing the strainer cloth may lead to serious trouble in contaminating the fresh milk. The cloth should be rinsed and thoroughly washed in tepid water and as a last operation sterilized in boiling water.

CONTAMINATION BY MEANS OF BACTERIA.

Probably the most common form of contamination of milk comes under this head. Milk as it is secreted by a healthy cow is believed to be sterile, that is, it contains no germs. So far as it is known it is not possible for bacteria of any kind to pass through the digestive organs and the blood vessels, and appear in the milk. In the end of the teat of the cow, however, which is usually moist and its temperature favorable to the multiplication of germs, the organisms are invariably found, and it is because of this probability that it is advisable to discard the first few streams of milk drawn from the cow, which wash out and hold the germs lodged at the end of the teat. It is practically impossible to milk a cow under such conditions that no bacteria will find their way into the milk.

They are to be found almost everywhere and the air and fine particles of dust contain many of those minute organisms. They find a fertile and congenial medium for growth and multiplication in the warm milk as it is drawn from the cow, and while absolute freedom from bacteria is an impossibility, the number can be kept relatively low by observing the conditions of cleanliness, alluded to previously, and by immediately cooling the milk to at least 60° F., and retaining it at that temperature until delivered to the creamery. At a moderately high temperature, or from 70° to 100° F., bacteria multiply with marvelous rapidity, while below 60° F., their growth is very materially checked, and the milk or cream will keep free from taint for a considerably longer period. Milk pails and dairy utensils of various kinds are often the source from which bacteria find their way into the milk. Having been used to hold milk in which bacteria have multiplied and then being imperfectly cleansed, they abundantly seed the new milk put into them with germs of various kinds. All dairy utensils should be smooth, especially in the interior, and the seams of the tin pails should be perfectly filled with solder. Wooden pails should never be used. Every dairy should have a plentiful supply of hot and cold water, and, if possible, steam. All tinware used in handling milk or cream should be first rinsed in warm water, then thoroughly washed in hot water and strong soap or washing soda, then rinsed and finally scalded or steamed for several minutes. Simply turning live steam into a can or pail is not all that is necessary. The steam needs time to reach every crevice and corner. Cloths and sponges should be used as little as possible in washing dairy utensils; brushes are preferable.

From the time the milk is drawn from the cow until the butter is manufactured, much trouble will be avoided if cleanliness is observed in every detail from start to finish, and the milk immediately cooled and kept below 60 deg. F., where the surrounding air is free from odors and dust, and where perfect ventilation is easily attainable. It will also result in a superior finished product.

Drought and Catch Crops.

ED. HOARD'S DAIRYMAN:—The severe drought in Maine was broken on June 8th, 9th, and the week was marked by cool, cloudy weather with more rain later toward the end.

The hay crop may grow up in some localities so as to be worth harvesting as a rather late crop. Crops for a quick growth of forage are in order. Nowhere can anything be found which is likely to equal Indian corn, if sown in rows, rather thick, and cultivated during its early growth. We would not hesitate to plow quite late for this crop—all through June, in fact. Turn the furrow slice completely over and cultivate nearly or quite half way through it, without bringing the turf to the surface. This can easily be done with roller, or drag and slant-toothed harrows, such as Thomas Smoothing or cut away. Do not use a spring tooth which lifts and digs.

Many Maine farmers know the value of flat turnips sown broadcast. These can be used for pigs, young cattle and dry cows. It is not a time to spend much effort on new, untried things, and we would pin our faith on rather large areas of these stand-bys and go right at it and put in a good, large area and then add a little to one or both, later. Would advise trying sorghum if it did not need so careful hand work the first of its growth.

This is a good time to make a beginning to stem the leak of money from the farm in the high-priced by-products—bran, etc. We would begin with not less than an acre and from that to ten acres of good land put into alfalfa. Plow the ground at your leisure soon after putting in the corn and turnips. Plow and cultivate in the same careful way. You may be able to leave the land a few days if cultivated as fast as plowed. Then go over it a few times more to insure a good moist seed bed. Then sow 10 to 18 pounds of fresh alfalfa seed per acre. On good, rich land worked to a fine seed bed the less amount of good seed will produce a good stand of plants. On poorer land especially if not fine and reduced to good seeding surface, 18 or 20 pounds is none too much, and we would hesitate to insure a crop of any kind on such preparation.

The alfalfa should be sown in August. We would try to sow it early in that month, and if conditions were favorable would be prepared to run the mower over it in September. No pasturing should be allowed unless, if not cut, and it were pretty tall in October and the ground firm, we might turn sheep and calves over it, but we we would not allow them to stop long, or to camp on it. Last year a seeding of nine acres under the writer's direction on the Laramie Plains with one late irrigation, succeeded well enough to yield a pretty fair cutting. It was sown in June. In North Carolina, August is the best month to sow alfalfa as demonstrated by Mr. Brandly, farmer for the Biltmore estate. This mountain climate somewhat approaches that of the northeastern states only shorter and milder winters, but more trying conditions in other respects.

Alfalfa is being grown successfully in New York state. Originally introduced there about a hundred years ago it was neglected, to be again introduced about twenty or more years ago at the State Experiment Station. Hay was made there on which a digestion experiment was made, and this, combined with one made in Colorado, showed digestible nutrients practically equal pound for pound, to wheat bran. From this second introduction the spread of alfalfa growing has been considerable. One authority, a couple of years ago, claimed at least 50,000 acres in and near one county in central New York. (See Coburn's Alfalfa.)

Writers have shown the hardiness of alfalfa. It resists severe cold. Drought harms it about the least of cultivated crops. This crop does not bear flooding and growers will do well to put it on land which does not overflow, or on which water does not collect and stand. Though such land when well underdrained, may produce good crops of alfalfa.

Good articles have recently appeared in HOARD'S DAIRYMAN on alfalfa, notably on pages 374 and 403.

Lastly, in regard to the permanence of a seeding of alfalfa: Once you get a good stand it should remain good, if not abused, for at least ten years.

What do we mean by, "if not abused?" Why, if not pastured with heavy animals; if all animals are kept off when the land is wet; if the cuttings are so timed that no seed is formed; if some care is taken to replace some of the plant food "grown off" from the land, by top-dressings put back on the alfalfa field. These top dressings may be of good stable manure put on with a manure spreader, or even, of only muck; or they may be of ashes, unleached hardwood, or leached, but proportioned to the amount of plant food contained in the substance spread out on the alfalfa. FRANK E. EMERY.

A Letter From H. E. Cook.

ED. HOARD'S DAIRYMAN:—I notice on page 415 of recent issue, you touch me up on the old rigid stanchion.

I am sorry you guessed and then argued from a presumption—of course for many years we did use them but of recent years the swing stanchion hung with chain, has taken their place. Now I don't think these conditions are ideal. The only all-around perfect place for a cow is to run loose in a box stall, but that makes for so large a breathing space that the animal can not warm it and so there seems but one way out and that to be secured some way upon a platform and space minimized. A mistake that we made, but have changed many of the platforms and shall, before winter, change the balance, was in using a platform too narrow, that brought the udder against the corner of the gutter, and another, of having insufficient width of stall. For cows weighing 1,050 to 1,150 pounds, 5 feet in length of platform and 4 feet for width is about right. This size, with the swing stanchions is very satisfactory.

There is, however, with me yet, some loss. It comes as often in the summer as in the winter. It comes in dry, warm weather, as well as in cold, damp weather and so far as I know it affects very many fairly good cow keepers in the same way.

I know I do not always have the most careful milkers. I like to have things "go," and so the men around are usually those who are active, hustling fellows, and such men are hustling milkers and injury comes from that source, sometimes another trouble. I want the cows to work to their limit, just as I do myself, and so here comes an organic difficulty of working the cows very hard, and when this is done, that part most severely taxed gives out first. I do not say this is always the best way. And so we might go on indefinitely; but enough. I know it does a fellow good occasionally to confess to his faults,—"open confession," etc.

I can see the mistakes of the past and and of the present, and these I am trying to avoid, but new conditions, new problems are constantly arising that keep me guessing. I commenced working over cheese vats and churns twenty-seven years ago, and I thought after a couple of years that the course would be smooth. I am yearly confronted with perplexities as hard to solve as they were then. I suppose, Mr. Editor, when these troubles all cease, the millenium will have dawned; and furthermore, when the time comes that I am unable to make

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improvements, when I can not look back upon errors, and what now seems ignorance, I am ready to quit the business and move off the planet.

How To Cheapen The Cost Of Milk Production.

Mr. E. K. Slater, one of the inspectors on the staff of the Dairy and Food Commissioner of Minnesota, contributes some very excellent advice on this subject to the *Dairy Record.* It may be said with great truth that Mr. Slater contributes nothing new on this subject, but he reiterates old truths in a new and convincing way, and if every cow keeper in the land would take heed to what he says, there would be much less complaint that dairying don't pay. Note what our friend from Marshfield says in his communication, asking how to handle a bull, in our inquiry department. He reports that his cows pay him a net profit of over $100 each per year. This means, in the first place, that he has the proper style of machinery, to wit, cows, and then he takes proper care of this machinery. He does not say, but the presumption is, that he disposes of his milk to town customers and probably in estimating his profits per cow, does not deduct the cost of delivering this milk, but if we make the most liberal estimate on this score, there will remain at least $50 net profit per cow, after all expenses are paid.

Mr. Slater writes as follows:—We may improve the facilities for turning out the best buttermakers in the country. We may build the finest creameries that money can pay for. And we may encourage the output of fancy butter until the day of the millenium; but we will not be directly aiding or strengthening those forces which are responsible for future dairy progress.

The primary problem in dairy progress is the cow and her care.

Not many years ago gentle, unassuming "old Brin" was responsible for everything going into the make-up of the butter.

Now the facilities for handling milk and cream have been greatly improved and they, to a large extent, control the flavor of the finished product. The cow, however, is still the source of supply of raw material.

It is the duty of the creamery, with its improved machinery and high priced butter maker, to convert the raw material into butter at the minimum expense, but the cow precedes the factory.

It is the opinion of the writer that the subject of cost of milk production is the most vital one confronting the dairy industry of the country today.

If dairying is to continue in the ascendency the dairy farmer must realize that milk must be produced at a minimum cost or the profits accruing from the business cannot be satisfactory.

The dairyman who produces a pound of butter on his farm at a cost of 10 or 12 cents receives just as much for his butter on the market as the dairyman who produces butter at a cost of 18 or 20 cents per pound.

The profit depends on the difference between the cost of production and price received for the butter.

Among our creameries the price paid for butter fat will average about the same during the year, while the cost of producing a pound of butter fat on the farm will vary from 7 to 8 to as high as 25 cents per pound.

Is it not evident, therefore, that the cost of production is the most important item to be taken into consideration on the dairy farm?

In order to produce milk at a low cost it is necessary to have the proper style of machinery to manufacture that milk. The beef cow is not "cut out" for producing milk at a low cost, and the sooner the dairymen of the country realize this fact, the sooner they will solve the problem of cost of milk production.

Alfalfa in Ohio, Cutting and Curing.

ED. HOARD'S DAIRYMAN:—Yes, we can grow alfalfa in this climate grandly and, after we learn its habits, get a stand, generally. And when well cured it is one of the best of feeds, equaled only in productiveness by king corn, and it possesses certain qualities, both in feeding and growing, that makes it a companion and not a competitor to corn.

We can grow it in the corn belt probably better than elsewhere in the United States. The moist air gives it great vigor, but I am "up against" that one phase "properly cured." Experience teaches me to cut it whenever it begins to turn yellow near the ground and drop the bottom leaves. Don't look for bloom if it will cut a swath. You can rake and cut it at once, but how can you cure it?

Last year was an exception, but this year all was ready May 16th, and although the crop was short we cut down as much in the evening as we thought we could take up Monday afternoon, and do some more cutting. This is our system, Sundays excepted: cut one afternoon or evening before it begins to get damp. The next day throw this together in a loose, wide windrow with a side delivery rake. This is to keep the dew from falling on the cured hay. Next day as soon as the dew is thoroughly dried off and the leaves show the least tendency to crumble, turn it over with the side delivery rake. This leaves it in a loose, continuous windrow and ready for the loader, which we like to start soon after dinner, but all depends on the weather.

This year we had the weather our way and the most of our hay was housed to our notion. True, it was heavy and compact, but it was short and so leafy. It surely was the ideal. It was taken to the barn and unloaded by hand so as to be sure and have it spread evenly. I expected it to cure brown and get very warm, but just as we finished the rain commenced, and it has rained for three weeks. That hay settled and settled and got hot. Oh, my! You could no more bear your hand down in it than in boiling water.

I got scared and dug down to find it as brown as mahogany; no mold or decay, but wet and hot. I would have thrown it out if I had not taken sick, but we used the last of our corn silage a few days ago and we had begun using this alfalfa a week before to get the cows used to it. They ate it well and do well upon it, with good blue grass pasture. It is cooling off now, but it is silage, not hay. It is damp and dark; yet no mold only on top and the sides.

I am sure that clover and alfalfa can be cured to a fine quality of hay by stacking or mowing when just right. I do not mean dry, but containing no external moisture. I have seen enough to convince me of this in my own barn; and unless there is some way to cure it besides in the cock or windrow, alfalfa will be a failure on most farms in the corn belt. True, I can silo it, I have no doubt, but I want my silos for corn and the alfalfa for dry feed besides.

Many farmers have no silo. My second crop is most ready. I had intended stacking it, only wilted, believing it would cure out dry and only have 10 or 12 inches of mold around the outside, but if it cures wet when so nearly dry, will it cure dry even though I stack it to give it equal ventilation, and no obstruction in settling.

The rains will not penetrate it to harm it if the internal curing process is all right. I surely saw many accounts years ago of experiments along this line. These stacks were cabled down, but that is not necessary; it will settle tight. I feel it too expensive for me to try this at my own risk and kindly ask for whatever knowledge there is to be had on it, and will say if the knowledge is meager it surely would be a fit subject for our stations to demonstrate for us as there are thousands of farmers sowing alfalfa this spring.

P. CLAWSON.

Butler Co., Ohio.

Performance a Test of Merit.

We find the following very sensible comments and conclusions in the columns of our esteemed contemporary, The *Wisconsin Agriculturist.*

Performance is something that must not be lost sight of by the practical dairyman in grading up his herd. Sometimes the fancy points of the breed he is using for the grading up, and sometimes a little thing like color, will influence a breeder much more than it ought.

One of the best grade herds an *Agriculturist* representative who travels about the state remembers having seen, were grade Jerseys, and the wise owner made production the standard by which the cows eligible to a place in the herd were judged. The butter record was set at 350 pounds and every cow's production was judged by the Babcock test.

But the point we were getting at is that though this herd was far above the average of many pure bred herds, some Jersey men would have objected to many of the individuals because they were so dark in color. We do not think that this discrimination is as marked as it was some time since and it is time that it be done away with in herds where production is the measure of value. Some men would keep a cow in a grade herd because she was a nice type, and pretty, even if she did not make money enough to pay for her feed, but the practical dairyman must not do it.

Destroying Insects in Stored Grain.

ED. HOARD'S DAIRYMAN:—Your subscriber who inquires on page 437 as to how to destroy weevils in ground feed can get the desired information in Farmers' Bulletins Nos. 45 and 145 which treat respectively on insects injurious to stored grain and the use of carbon bisulphid as an insecticide. These bulletins he can obtain free by writing to the Secretary of Agriculture, Washington, D. C.

La Crosse, Wis. E. J. B.

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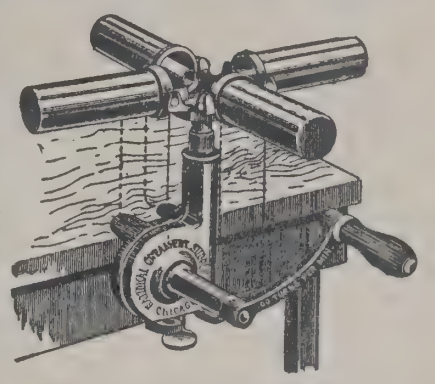
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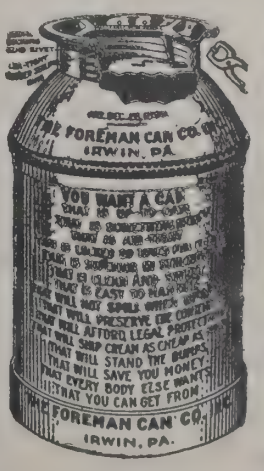
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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own ight who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

How long a sowing of alfalfa will last is unknown, so many things depend on climatic conditions, but from Texas comes the report of a patch of alfalfa that was sown in 1868, and is consequently now about 35 years old.

R. T. D., OF Vermont asks John Gould some questions in another column, and in the course of his communication makes the not uncommon remark, that manure improves in quality with age, if stored in a manure cellar. We would like to have him give some reason for this statement, and our columns are open for discussion of this important topic.

ONE of the German agriculturists now touring the country, criticised the placing of a hand separator in the middle of the dairy barn and stated that the German law would forbid the placing of a separator in such a situation. Why? Because of the liability of the cream absorbing barn odors, with consequent lowering of the quality of the butter. They evidently believe in preventing the introduction of off flavors in the milk instead of relying on the ability of the butter maker to get them out afterwards.

THE *Drover's Journal* of Chicago is calling loudly for a thorough awakening on the part of the dairymen of Illinois. It declares the state is running clear behind in everything pertaining to dairy progress. Young men are sent to the dairy schools of other states because they have none worthy of the name at home. The *Journal* demands that a radical change be made in the creamery management of the state. It points to Minnesota for an example of what a first-class dairy state should be. Minnesota grants a liberal appropriation for special dairy education and keeps up a first-class dairy commission and a number of inspectors, who travel the state constantly.

What the *Journal* says about the backward condition of the Illinois dairymen is true, every word of it. Several of the leading dairymen of that State have repeatedly spoken to us lamenting most decidedly the lack of true dairy spirit in the state. Illinois is a very wealthy state and it is to be regretted that her University has not taken the lead more than it has in promoting dairy education and progress in that state. The interest suffers in many ways because of the state of indifference which prevails.

We are quite content to let Mr. Grote have his say, in another place in this issue, on the question whether concentrated feed stuffs can be used with profit in the daily ration of the milch cow, with no other comment thereon than the one suggestion, that farm-grown grain crops are fully as "concentrated" as the general run of the so-called by-products. Therefore the "facts" for which he makes such insistent demand apply with as much pertinence to "rations which can be raised on the farm" as to rations made up in part from purchased products. The really important question is whether the farmer can or cannot sell farm-grown feeds and purchase other feed-stuffs at a profit.

For an example, take oats and bran. When oats can be sold for 32 cents per bushel, which is $20 per ton, what can the dairy farmer afford to pay for bran? Disregarding for the present the difference in manurial value which can be realized after feeding a ton of each and amounts to $2.14, we have the fact, shown by chemical analysis and digestion experiments, that bran contains an average of 58 per cent digestible nutrients and oats 66 per cent, or 14 per cent more than bran, and bran 12½ per cent (one-eight) less than oats.

Notwithstanding feeding trials have shown only 10 per cent in favor of oats, let us give them the full benefit of their theoretical value, and, making an allowance of $3 for cost of hauling back and forth, we will have $14.50 as the amount the farmer could afford to pay for one ton of bran when oats sell at the barn for 32 cents per bushel. The $2.14 additional manurial value of the bran is the clear profit in the transaction.

Our gifted contemporary the *Jersey Bulletin*, as might have been expected, "chortles" somewhat exuberantly over the change in the rules of the Holstein-Friesian Association, in regard to estimating the practicable yield of butter from a test showing the amount of butter fat, apparantly unmindful of the fact that it "lives and moves and has its being" in a very frail glass tenement, so far as "records" are concerned.

For example, one of the many skits in its issue of June 17th, reads as follows:

Jersey breeders are wholly unable to symphathize with the Holstein breeders if those Advanced Registry records are placed where impossible things ought to be. They can not imagine the result if all the records of Jersey cows should be nullified at "one fell swoop." Just imagine, if you can, the situation in Jersey breeding circles if our records had all been made by guess work, and we found our estimates all wrong, and based on an impossibility. But there is no chance for such blunders when you churn and weigh the butter, as Jersey breeders were wise enough to do.

The great reliability and freedom from "blunders when you churn and weigh the butter," so boastingly advanced by the *Bulletin*, receives a solar-plexus blow in an adjoining column of the same paper and in charity to the weakness, inseparable from a breed organ, we copy, but forebear to comment.

The Chemist of the Ontario Agricultural College, in the twenty-eighth annual report of that institution, makes note of a sample of butter received by him, that upon analysis showed the abnormal amount of 53 per cent water. He says:

"The tester was put to the bottom of the crock and when withdrawn showed no signs of the excessive amount of water, and when turned out, the butter left the crock clean and dry, showing no moisture apparently."

No doubt it had been treated with one of the nostrums which make it possible to retail water at 20 to 30 cents per pound: or was the analytical operation at fault?

A GOOD THOUGHT ON EDUCATION.

The other day we heard a farmer's son bemoaning the fact that he had been given nothing better than a good high school education. We did not exactly like the spirit in which he spoke. There was more of the ring of discontent than of manly pluck in his voice. Then we thought of the hundreds of good farmers we know, who were given nothing better than a country district school in their boyhood days, and along with it the solid, hard work training of the farm. Plenty of men among this number have amassed a good fortune, have fine homes and every comfort about them, with a well stocked library supplied with the best books, magazines and news papers of the day. *They have educated themselves every day in the year since they went to school.* They are well educated men too. A college cannot give a man an education, and a farm cannot prevent one either. It all depends on the boy and man, wherever he is.

Here is what Elbert Hubbard says, and it is right to the point:

"Education is a matter of desire—no man was ever better educated than he wished to be. If you desire education you will find opportunity for improvement on every hand. Providence is on your side, and time and chance will join hands to assist you—not always to give you the exact education you had in mind, but you will get something just as good. That is Nature's way—you choose one thing and you are given another; but if you never desire anything then you get nothing, Nature helps every man to become what he wants to become. The energy you put forth in securing a college degree, will secure a prize of relative value somewhere else. The man who is diligent at college will be diligent in business, serving the Lord; he is by nature, and will be diligent anywhere. The boy who is a loafer at home will be a loafer at college."

So the DAIRYMAN says, let no man lament his hindrances, for if he is the right kind of a man hindrances will help.

"I CAN'T SEE."

Not long since we were telling a farmer neighbor of the results of our experiments with alfalfa, especially as to what we had learned concerning its more than double value over clover as a milk producing food, and we added as a further consideration that the past summer our alfalfa fields had grown three heavy cuttings, or over 7 tons to the acre. To this he replied: "That all may be true, but *I can't see* that alfalfa is worth any more than clover to feed cows."

Another farmer came to us recently and traded a nice grade Jersey heifer calf three weeks old for a half grade Guernsey bull calf of the same age. He proposed to raise this bull calf to use at the head of his herd to improve the quality of the resulting heifers. He really said he wished to "grade up" his cows. When asked why he did not use a thoroughbred Guernsey, and so have pure a fountain of dairy qualities to draw from, he said: "I don't see why a full blood is any better than a grade for that purpose."

Another neighbor stood beside the fence one day and watched our teams as they were going with the disc harrow, over a field that had grown silo corn the past summer. "What are you doing that for?" he asked. "We are going to sow that field to rye as a cover crop for the winter, and to plow under next spring," was the answer. "Why do you do that?" "Because we have not manure enough to go over it as we ought and the land needs humus. It takes about a bushel of rye and the labor, and it is a paying thing to do." He turned away with a look which said: "That's some of Hoard's book farming" and then he said, "*I can't see* that it will pay to do all that."

Here were three men and they represent thousands of like make up who "can't see." There is a fearful amount of that "can't see" condition among the farmers of the land. They don't see because they take no pains to see, or maybe they think the truth will come to them and force them to see it. Mingled with all this exists an indifference, a sort of don't-care-whether-I-see-or-not. With such farmers there is no real hunger or thirst for any better knowledge than they now possess, a supreme contentment they have in the poor, impracticable methods they daily pursue. No man can make any progress or the best profit as long as he keeps up the cry, "I can't see."

Every man is responsible as to whether he sees or don't see. He must make an effort to see. He must try and look into things. An old negro preacher once said to his congregation, "If de Lord ebber gets you into Hebben, he done got to tie yo' laigs an' frow yo' dere by main force."

Some farmers we know of are evidently waiting for some such interposition of power to make them see. One farmer in this county made serious objection to his son attending the Short Course the coming winter at the Wisconsin Agricultural College. He said, "it is all blamed nonsense to throw away money for what you get there."

He was blind and wanted his son to be blind, "like unto himself."

No other calling in American society that we know of, contains so many men who "can't see," and who really make no effort to see. Fortunately for the honor and progress of Agriculture, there is a constantly increasing number who propose to see whatever truth exists that makes for their profit in farming. On them will depend the future of the American farm.

A LETTER FROM A READING, THINKING, HIRED MAN.

There is nothing better on a dairy farm than a reading, thinking, hired man. Such a man, if he is industrious and faithful, is sure to command the highest wages and hold his place against all comers. It gives us great pleasure to publish the following letter from such a man:

ED. HOARD'S DAIRYMAN:—As I am very much pleased with your paper I enclose one dollar for you to continue it another year. I do not have very good luck with the coin cards you sent me. The farmers claim that book farming costs too much, but there is enough in HOARD'S DAIRYMAN every week to interest me, even though I do not keep any cows. I think it likely, however, that I will commence farming before long. I am working by the month, and I have thought some of going west, even to the state of Washington. Would you advise a young man to go there that desires to engage in farming? I would rather farm than engage in any other work.

Wishing you the best success with your paper, I am very truly,

Rome, N. Y. JOHN AEGERTER.

We have no fears of Mr. Aegerter making a success of himself on the farm whether he goes to Washington or any other good dairy state. He is starting right and that is a good deal.

When a young man proposes to first set his mind and understanding right, all of his subsequent labor will follow in right lines. The state of Washington presents some good attractions in the way of dairy farming. So does the state of New York. We have many times thought that the largest, natural advantages for successful dairy farming are to be found in the east. Good farms, with good barns and stables, good society

and schools and the best of markets, with land very cheap, can be found in New York.

We have in mind now a couple of young men, Germans, who bought a dairy farm of 160 acres three years ago in the town of Stockbridge, Madison Co., New York, for $3,600. Thirty years ago that farm would have sold for $100 an acre. These young men are thoroughgoing dairy farmers, and they are making handsome money. With modern, intelligent methods those eastern farms can be quickly brought back to their former productiveness.

It is the man, his brain, skill and energy that tells. Just in proportion as these essential qualities fade out in any community, does the price of land decline, and sometimes that is the very place for a bright, plucky young man to take hold. He can get cheap land and large outside advantages.

We can hardly understand why the farmers about Mr. Aegerter should claim "book farming costs too much." Certainly they have never tried it.

The other kind of farming has cost the state of New York fifteen hundred millions of dollars in 30 years, in the decline of values in her farm lands. Her anti-book farmers have nothing to boast of in the way of economy.

SOME THINGS ABOUT THE BABCOCK TEST FOR THE FARMER TO CONSIDER.

The Continental Creamery Co., of Kansas, are doing all they can to get their patrons to take an enlightened view of dairy farming. No doubt the patrons in Kansas are just about the same as they are in other states, some of them willing to learn the truth and others unwilling. But every patron ought to stop and examine himself in the light of the following questions: "Why is it that the most successful men and the most enlightened farmers and creamery men look at the question one way, and I look at it in another?

Can it be that their intelligence is wrong and my ignorance of the best money making methods is right?

Am I doing what I can to know whether my notions are sound or unsound?

Am I really making any effort to make myself intelligent?

Am I not calling certain ideas impractical, when in reality I have never looked into them to see whether I am right or not?

Have I done anything in particular to make myself intelligent on dairying, in the same way as other men have to do who are intelligent?

Reasoning along these lines, and they are the right lines, the Continental Creamery Co. have issued a booklet for the instruction of the farmers who supply them with milk, and here are some of the things they say:

THE BABCOCK TEST.

The deeper the insight obtained by the patron into the present creamery methods and practices, the better pleased he will be with the results. Likewise the more he knows of the Babcock test and its workings, the less reason or inclination the patron has to complain of the tests of his product when reported from the creamery or skimming stations. If the grocer fails to give the farmer correct weights for his butter, he buys scales and weighs the butter at home. If the creamery patron concludes that the creamery is not giving correct tests why should he not buy a Babcock tester, the use of which will dispel the apparently mysterious things which present themselves?

The Babcock test should be in actual use at every farm in determining for the owner the relative value of his cows. A common notion prevailing among farmers is that profit depends upon the test. If one person has a higher test than his neighbor, it must be that he is getting more profit from his cows. Likewise, if one cow has a test of 3.5 per cent, and another 4.9, then the conclusion is drawn that the 4.9 is by far the better of the two. Prof. D. H. Otis of the Kansas Experiment Station, says: "In regard to the low and high testing for cows, we must bear in mind that the test is only one factor. Frequently more depends upon the pounds of milk than upon the test. Take, for example, two cows at the agricultural college. Cow No. 20, during her first year's record, yielded 9,116 pounds of milk in twelve months, which tested an average of 4.2 per cent. Cow No. 11 yielded 3,475 pounds in the same length of time with a test of 5.1 per cent. A number of farmers, when shown the test of these two cows, have expressed themselves to the effect that cow No. 11 was an excellent cow because she had a test of 5.1 per cent. No. 20, with a 4.2 per cent test, produced for the year 383 pounds of butterfat, and No. 11, with a 5.1 per cent test, produced only 178 pounds of butter fat, a difference of 205 pounds in favor of the low testing cow. No. 20 brought us an income of $40.37 above the cost of feed, while No. 1 brought us only $17.60 over cost of feed."

Are you milking cows which are just paying their board, or are they returning you a profit for labor and feed?

A Babcock tester and a pair of scales will determine for you.

Any bright boy or girl fifteen years of age can easily learn how to run a Babcock test. Give the boys and girls a chance to learn.

THE GERMAN FARMERS IN WISCONSIN.

The party of German Agriculturists who are touring the United States, spent three days of last week in Wisconsin and although the time was brief, they crowded much of sight-seeing and entertainment into the short time they were in the state.

They arrived in Madison from St. Paul on Saturday morning, and spent the day in visiting the Experiment Station and University. Although they had been surfeited with sight seeing in the eleven thousand miles they had travelled, they seemed just as eager to see the things of interest that the Experiment Station had to offer, as if they had just started. Note books and cameras were much in evidence all day.

It was the almost universal comment of the party that agriculture in this country is so different from German conditions. Men, soil, crops and methods vary widely from what they are accustomed to see, and are interesting accordingly. On arriving in Madison they were met at the depot by Dean W. A. Henry of the College of Agriculture, assisted by the faculty, the German members of the State University faculty, and a number of invited guests. The party left the depot in carriages and were driven to Eagle Heights on the University drive. The University horse barn was reached before 10 o'clock, when the tour of inspection began, and the German visitors were treated to one surprise after another at the Wisconsin Station. Dean Henry and the heads of departments were kept exceedingly busy answering questions through interpreters. While a few of the party could read and talk English, a majority could not do so, and the interpreters were called upon continually to explain the meaning of signs and placards hung upon the walls in the various buildings.

From the horse barn the party went to the hog and sheep barns. What attracted their attention there most, was the razor back hogs from Texas, few of the visitors having ever heard of them. Much interest was manifested in the Berkshires, with their sleek and well rounded appearance, and the arrangements for experimental work in feeding hogs and keeping records of individual animals. Many questions were asked and notes jotted down. Dean Henry and Prof. W. L. Carlyle busily explained the methods of feeding and caring for the hogs. Interest was taken in the arrangement of pens and feeding hogs separately, for keeping proper records. After viewing the sheep barns and beef cattle in paddocks, the dairy barn was visited, where great interest was manifested in the manner of keeping cows, arrangement of stalls with the printed record of each cow over the head of the stall. From the cow stables the party went to the live stock judging pavilion, where a light lunch was served.

Leaving the dairy barn on the way to the dairy school building, the experimental plots of farm crops were passed and inspected. The keenest appreciation of the visit, however, was evidenced when the dairy school was reached as the magnitude of the work done there dawned upon them. Exceedingly close inspection was made of the various butter churns, cream separators, pasteurizers, coolers, Babcock testers; in fact, all the utensils used in the manufacturing of butter and cheese were carefully looked over with interest and surprise. When the first members of the party entered the underground tunnel, the passage way leading to the refrigerating rooms in which cheese is being aged by the cold cured process, the greatest surprise of the day was in store for them. This cold curing process of cheese making is a Wisconsin innovation, and a revolution in European methods. Every member of the party took great interest in this experimental work and many questions had to be answered.

The horticultural and physics building was next visited and the visitors were shown through the greenhouses. From here the party moved to the new Agricultural College building, which has just been erected at a cost of $150,000, with its four floors of commodious rooms and auditorium. In passing through the halls and rooms of the large structure, comments of praise were freely heard that the state of Wisconsin should be so liberal in appropriating money for agricultural education. The visitors were given bulletins, pamphlets and pictures of the various departments to forward to friends in Europe.

At 1 o'clock the party took dinner, after which they took a trip on Lake Mendota, back to the University. Here the state Historical Library and the Gymnasium were visited. With the former building the Germans were delighted. A trip was then taken to the farm of S. H. Marshall on Lake Mendota. The visitors then came back to the city, and left on the 6 o'clock train for Milwaukee.

After the Sunday spent in visiting and entertainment in Milwaukee, the party came back to agriculture and spent Monday in a rapid review of dairy conditions in Jefferson county, beginning at Lake Mills where the large Holstein herds of the Fargo Bros. were visited and also the noted Jersey herd of W. P. Phillips. As the Channel Island breeds are almost, if not entirely unknown in Germany, there was much interest shown in Mr. Phillip's herd of butter producers. The Holsteins were of more interest as being closer related to the cattle of Germany and the $1,400 cow, Duchess Ormsby II Hengerveld de Kol, received special attention.

At 2 o'clock the party left the home of the Holsteins for the territory of the Guernseys, reaching Fort Atkinson shortly before three o'clock. On arrival they were driven to the Hoard creamery.

Most had heard of the Hoard creamery before they started on their trip, and they had planned to inspect it critically. Every detail came in for attention, and scores of questions were asked regarding percentages of butter fat and the hygienic methods employed in the plant.

The refrigerator part of the plant was examined after the appliances for making butter had been looked over. From the creamery the party drove to the Cornish, Curtis & Greene factory, where dairy supplies were seen in process of construction, and then the drive led to the dairy farm of the Senior editor of the DAIRYMAN.

Tables had been placed under the trees in the grove surrounding the big farmhouse, and before proceeding to an inspection of the fields and buildings and the herd of Guernseys, the party were invited to seat themselves around the tables and partake of luncheon.

When driving in to the farmyard the visitors had become interested in the fields of alfalfa that met their view, and as soon as luncheon was finished, several of them posted off to inspect them at close range.

After the inspection of the barn and herd the guests returned to the lawn, where there was a season of song and good fellowship, until it was time to catch the train for the south.

A notable feature of the day in the dairy region, and one which was an especial source of pleasure to the visitors, was the participation in the entertainment of sons of the fatherland who had emigrated to this section of Wisconsin and become masters of prosperous estates. Nearly every carriage in which the visitors rode, both at Lake Mills and Fort Atkinson, belonged to a German farmer. The teams were driven by the farmers, who explained everything of interest to the tourists in their native tongue.

The party will sail shortly for home and the first result of the visit will be an official report to the government of what has been noted, with suggestions as to the possibilities of introducing any American methods into German farming. The report will be awaited with much interest as being a comment of intensive farmers on the extensive methods of America.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Milk and Cheese Yield.

How much full cream cheese can be made from average milk, enough to make 100 lbs. of butter?
New York City. O. G. M.

One hundred pounds of butter contains on an average, 82.5 lbs. of fat. Average milk contains 3.75 per cent of fat; thus the above weight of fat is equal to 2,200 lbs. of 3.75 per cent milk, and this amount of milk will make on an average 222 lbs. of cheese. The above figures are of course average estimates, the actual yield of cheese depends largely on the quality of the milk, and the skill of the cheese maker as well as the richness of the milk, and figures like the above must always be regarded as largely theoretical and subject to revision by practical work.

Registering Jerseys.

F. W. B., Tilden, Wis., writes us as follows:

Can you give me a little information how and where I can have Jersey cattle registered? I bought a cow last fall which is full blood, but not registered, her sire and dam were brought to Chippewa Falls by Ex. Govenor T. C. Pound and were both registered, so I would like to have a number for this one too, as I bought her to raise stock with. She was bred to a full blood sire before I bought her and June 1st she dropped a fine bull calf, which I also would like to have registered. The old cow, his dam, gave 14 lbs. of butter in 7 days, so I think he will make a fine sire to head my herd of high bred Jerseys.

He can obtain the necessary information and blanks by writting to J. J. Hemingway, Secretary of the American Jersey Cattle Club, 8, west 17th street, New York, N. Y.

He may find it a matter of some difficulty to secure the necessary evidence as to the breeding of this cow and her calf, but with patience and perseverance, and possibly some little expense, the chances are that the necessary evidence can be obtained, and it is well worth all it will cost to get such an animal properly recognized and registered.

A Corn Bran Inquiry.

Please balance ration for cows from corn bran, sugar feed, corn and cob meal, and cotton seed meal. Has corn bran more protein than wheat bran, and is it cheaper at the same price?
Daretown, N. J. SUBSCRIBER.

It is not possible to submit a ration formula without information as to the kind and quality of the roughage which may be available. Corn bran and sugar feed are two distinct feeds, although the term "sugar feed" is not recognized as a standard feed, because of its great variability. Corn bran contains 7.4 per cent digestible protein and wheat bran 12.6 per cent, but the former contains enough more carbohydrates and fat to give more than equal feeding value, where one does not especially require protein.

Ventilating a Barn.

C. E. M., Stewartville, Minn., has a barn 24×56 feet containing a silo and hay mow, with lean-tos on one side and one end for cow stalls, and asks how he can ventilate the same in an effective but not expensive way. Feeding alleys run between the lean-tos and the main building.

He should build a ventilating flue or shaft in the main barn, and from the sketch given, we think it might be located adjacent to the silo. This shaft should have a cross section of four square feet for every twenty head of stock, and should rise up through the ridge, if practicable, and at all events, higher than the ridge somewhat. Let there be an opening two feet square or more on a level with the floor, with a door or slide so that it can be opened or closed, in whole, or in part at will. This will draw off the cold and foul air from the floor. Let there be a similar opening on a level with the ceiling of the stable that can be opened and closed at will for drawing off the hot air in the stable in the summer months. This shaft or flue should be practically air tight from top to bottom, just as a chimney in the house should be air tight in order to secure a good draft.

To provide for the entrance of fresh air, let there be at least a half dozen openings a foot square just below the ceiling of the stable connected with flues running down three feet or more and then opening outwards into the outer air. This bend or change of direction in the intake flues will prevent the warm air from escaping and not interfere with the entrance of the pure air from the outside. These openings for the entrance of fresh air should be provided with slides so that they may be closed as occasion may require, letting in more or less fresh air according to circumstances.

Value of Cream of Different Per Cents of Fat.

Will you please give me the proper price per quart for cream testing 30% and 40% butter fat, based on the price of 18 cents per quart for cream testing 22% butter fat? I understand there is a greater loss in quantity, as the per cent of butter fat increases, than the proportion would indicate. Are there any tables published covering the above, also showing the weight per quart of cream of different per cents of butter fat? W.
New York.

A gallon of 30% cream will weigh 8.34 lbs. and will contain 2.50 lbs. of butter fat. A gallon of 22% cream weighs 8.44 lbs. and contains 1.85 lbs. of butter fat. Now, if the 22% cream sells for 72 cents, the 30% cream should sell for 96.2 cents per gallon, or 18 and 24.05 cents per quart. If it is taken proportionally according to the per cent of fat present, the selling price of the quart of 30% cream would be 24.55 cents, a difference of half a cent a quart in excess of the true value. In practical work the weight of a quart of cream varies on account of contained air, and this is sufficient to destroy any practical relations between volume and weight, and probably for this reason no tables covering the above point, have been made.

Handling the Bull.

I have been a reader of HOARD'S DAIRYMAN for several years, studying the weekly issues like an earnest student would his text book.

And to convince you that I have profited by the study, I want to say that I have made my cows pay me a net profit of over $100 per year each.

But unfortunately for me there is one thing I have not yet learned, and that is how to handle a bull. That little bit of ignorance nearly cost me my life last Tuesday, and but for the quick action of my boy, a lad of 17, grasping the bull by the rope fast in his ring, I would now be on cemetery hill. As a result of that escapade, I am pretty badly bunged up.

I regret to be obliged to part with my bull, all on account of not knowing how to handle a creature of that kind. He is a registered Holstein-Friesian; weighs 2,000 lbs., 4 years old. All I can get for him is 2½ cents per pound.

As I am a carpenter by education and not a dairyman, you can judge how it is that I do not know more about handling bulls.

Now, what I would like to see in the DAIRYMAN is an able article by some expert, who can tell how to handle a bull with some fair degree of safety. I want him to tell what kind of a ring he puts in his nose that will not break; what kind of a stick is used to lead him with, and what kind of a fastening at the end of the stick; How to fasten the bull in his stall and give him some chance to move about.

This may provoke a smile in old hands at the business, but with me it is a serious thing and may cost the life of myself or son. T. F. V.
Marshfield, Wis.

It appears from the foregoing letter that the ring in his bull's nose was all sufficient. We have had no difficulty with the common, copper bull rings that are on sale in most hardware stores. We aim to keep pretty close watch of them to see that the rivets do not become too much worn, and after a ring has been in for some considerable time, we either put in a second one, leaving two in the nose, or take out the old one and put in a new one. For a staff, we usually go to the hardware store and select the best fork handle we can find, and put on the end of this, one of the malleable hooks and springs which are also usually on sale in hardware stores. If not obtainable, where this subscriber lives, his hardware merchant will be more than willing to order one or more from the wholesale dealers with whom he trades. Never attempt to take the bull out of his stall without the use of this staff.

As a further precaution, with bulls that are pretty strong willed, we pass a small, strong cord through the ring, across the face of the bull and around the horns. This gives an extra purchase on the nose, lifting it up, and effectually prevents the bull from lowering his head, as bulls are accustomed to do when they charge.

A cross bull is not a very pleasant animal to have on one's premises, but, sometimes, they are much safer animals to handle than a bull that has never exhibited any ugliness or disposition to have his own way, because in the former case, we are continually on our guard, and it is nine points in the battle not to be taken by surprise. We should, therefore, hesitate somewhat to dispose of an animal that suited us in every other respect because he was disposed to be cross. There are none too many first-class bulls in the world, and when one has proven his efficiency, it is worth while to submit to considerable extra trouble and care rather than take the chance of getting a poorer animal. Whenever such a bull is to be handled, there should always be two people present, one with the staff and the other with a rope.

There are various ways for confining a bull. One is to give him the freedom of a strong box stall. This is the plan adopted in the barn of the editors of HOARD'S DAIRYMAN at the present time. The present writer has sometimes tied his bull in a large stall with a strong halter and given him the freedom of a small paddock day times.

The main point, however, in handling a bull, is to be always on one's guard and never give him an opportunity to get any advantage. One should never undertake to drive or corner a bull, for they very soon learn that they can have their own way, and when they have once had it, they are very apt to try it again. We have never had a cross bull on our farms, largely because we train them from calfhood up, never giving them an opportunity to show their strength, but we always proceed on the theory that they may attempt this at any time, and so we are constantly on the lookout to see that they get no advantage.

Poor Churning.

Does abundance of fresh air have any effect on churning? I use a barrel churn and have had considerable trouble since warm weather began. There has been a decrease in both quantity and quality of butter although treated just as it was in cool weather. E. P. S.
Asheville, N. C.

All Babcock testers now on the market are good machines so far as we know, it

"ADVERTISEMENT."

POWERFUL

A Pure Food Drink Has Great Sustaining Power.

The sustaining power of Postum Coffee when properly cooked is greater than most people imagine and it is well illustrated in the story told by a young Texas woman who says: "I almost lived on Postum Cereal Coffee for over a month and there was over a week I did not eat anything at all but just drank the food drink Postum and yet I grew stronger and gained weight.

"Our family physician examined Postum and decided to use it altogether in place of coffee. We all think it has no equal as a nourishment for the sick for beside being pleasant to the taste it is so strengthening. My father and mother have always been coffee drinkers and suffered all kinds of troubles from the coffee until about a year ago a neighbor was prasing Postum and mother decided to try it.

"They improved at once and have drank Postum ever since and mother, who used to be bothered with nervousness and sleeplessness particularly, is in splendid health now. She says the change come entirely from drinking Postum and leaving off coffee." Name given by Postum Co., Battle Creek, Mich.

There are many reasons why the Improved

U. S. SEPARATOR IS THE ONE TO BUY

BELOW ARE A FEW OF THEM:

THE U. S.

Costs no more than inferior machines
Gets More Cream out of the Milk
Is less expensive to operate
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Soon pays for itself
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Bowl has few parts to wash
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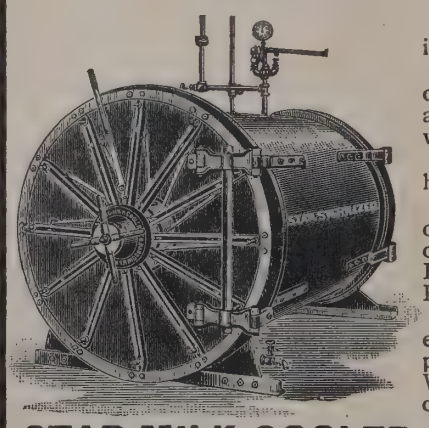
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Vermont Farm Machine Co., Bellows Falls, Vt.



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Heavy Pressure Sterilizer, which will insure thorough Sterilization. **TRY IT.**

A good thing is not to be lightly passed over. Placing a lot of bottles in a box and giving them a vapor bath is NOT what we call sterilization.

The entire mass of bottles must be heated to 212 deg. Fhr. or over.

Send for our Sterilizer Booklet which contains illustrations and descriptions of our complete Sterilizing Outfit, including Bottle Cars, Bottle Carriers, Reversing Racks, Spacers, Etc.

Sterilizers are becoming a necessity in every Hygienic Dairy, therefore send for prices and information regarding them. We will go into the details with you cheerfully. - - - - - - -

STAR MILK COOLER CO., Haddonfield, N. J.



Do not Cool Your Milk

the old-fashioned way, with a dipper or a paddle, but get an up-to-date

Milk Cooler-Aerator.

Saves Time, Labor, Patience and Money.

A Free Booklet; ask.

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being entirely a question of material and work. Air has no effect on churning, although many experimenters have spent much time and money to prove that air is advantageous in the gathering of butter. The trouble you have probably comes from changes in the condition of your cream and this may be caused by over ripening or from the presence of bacteria that do not produce the normal lactic acid ripening of the cream. Which of these causes is the active one in your case we cannot say, but a little experimenting on your part would soon show if the cream is ripened properly and has the usual amount of acid present.

Farm Buildings.

We have lately purchased a large farm in this state, 2,500 acres, and intend establishing thereon a model dairy farm to furnish milk to one of our largest national institutions, with whom we have a contract. Could you give us any information regarding building of silos and filling, or refer us to some treatise on this subject, also as to the best kind of corn to be used in planting for silo feed. Also, could you place us in communication with parties who have model barns, that we may get their ideas on this subject. J. V. J.
Newburg, N. Y.

Get King's Physics of Agriculture, $1.75 from this office, for full information on these and thousands of other subjects. There are very few barns that we could recommend as models, and none to our knowledge near Newburg. The best kind of corn for silage is the largest variety that will mature on the farm.

Dairying and Soil Fertility.

The New Jersey Experiment Station has conducted some experiments with the idea of illustrating the extent to which soil fertility is accumulated where dairy animals are kept on the farm. Twenty-three cows in 1896 consumed 9.40 tons of bran, 8.20 tons of dry brewers grains, 6.10 tons of corn meal, and 3.55 tons of linseed meal, these foods containing 1,700 pounds of nitrogen. In 1897 twenty-five cows consumed 12.50 tons of bran, 8.15 tons of dry brewers grains, 3.30 tons of corn meal and 4.45 tons of linseed meal; the total amount of nitrogen in this food being 1,781 lbs. The same number of cows in 1898 consumed 14.50 tons of bran, 10.25 tons of dry brewers grains, 5 tons of corn meal, 3.50 tons of linseed meal, and 1.75 tons of rice meal; this food containing 2,190 pounds of nitrogen. The foods of the three lots mentioned contained, respectively, 958, 1,108 and 1,373 pounds of phosphoric acid; also 462, 562 and 655 pounds of potash, respectively. There was contained in the milk of the twenty-three cows of 1896, 849 pounds of nitrogen, this being 851 pounds less nitrogen than was contained in the food consumed. In 1897 the milk contained 927 pounds of nitrogen, this being 854 pounds less than the amount supplied in the food. The herd in 1898 were supplied in the food, 1,154 pounds more nitrogen than was removed from the farm in the milk. In 1896 there was 640 lbs. more phosphoric acid supplied in the feed than was contained in the milk; in 1897, 761 pounds and in 1898, 984 pounds. of potash the food contained 214 pounds more than the milk in 1896, 291 more in 1897, and 353 more in 1898. To summarize these results, it may be said that during the three years there was a gain of 2,859 pounds of nitrogen, 2,385 pounds of phosphoric acid and 858 pounds of potash; that is, these amounts of the fertilizing elements were left on the farm in the form of barnyard manure after removing the milk. If there is this increase in fertility when the milk is taken from the farm, what must be the result when only the cream is removed? It simply is this, that the amount is practically nil, being less than $1 for every $400 worth of dairy products sold. There is no system of farming that to so great an extent conserves the elements of fertility as dairying, and especially so when only the butter fat is removed and the skim milk left on the farm to be fed to the calves and hogs.

The Art of Testing Cream.

"Testing is a very simple thing." This is an expression used by many who never studied the real nature of testing. The Babcock tester is generally used in this country, while in Europe this tester is looked upon as an inaccurate method. The Europeans employ mostly Soxhlet's tester, the Laktokrit or Wollny's refractometer. Compared with those three named testers, the Babcock is the most simple tester which gives also sufficient accuracy. It is, however, to be regretted that the many manufacturers have made the Babcock tester inaccurate first by putting out inaccurate glassware, and second, their machines are are wrongly constructed.

Now, let us ask what influences the testing mostly, taking for granted that a good sample is taken.

1. Inaccurate pipette in milk testing.
2. Careless weighing in cream testing.
3. Adding water to cream sample.
4. Amount of acid.
5. Strength of acid.
6. Temperature of acid.
7. Temperature of sample.
8. Speed of tester.
9. Length of first running.
10. Quality of water added.
11. Length of second running.
12. Careless reading.
13. Temperature of reading.
14. Inaccurate glassware.

There are fourteen points to be looked after, and if it should happen that one point gets neglected the whole test may be spoiled.

Some states have already passed a law which compels each creamery to have the glassware tested, a law, which every state in the Union ought to have, as inaccurate glassware is causing endless trouble in creamery life.

The color of the fat is a good indication of the proper amount, proper strength, and the right temperature of the acid we use in our testing. The most trouble is caused by weak acid in testing heavy cream, and in winter time by using too cold acid. Another great annoyance in testing, is the amount and the nature of the preservatives used in our samples, as for instance, too much bichromate of potassium causes serious trouble.

One of the main points in testing is reading at the right temperature, which subject was fully discussed by Professor Woll, of Madison, and by the late Mr. Beebe, chemist of the Hazelwood Company. By the way, I think Mr. Beebe has done very much to improve our system of testing. He was an eminent, careful and accurate worker, and he ought to receive due credit for his work. That many of our tests are read too high is simply the fault of the tester, and another great drawback of our testers is the wrong relations between diameter and speed. We know of a tester which, according to the instruction of the manufacturer, should be run not over 750 revolutions per minute, ought to be run at least 800 revolutions to give a fair result, because the tester has a diameter of 18½ inches.

We have conducted a series of experiments in order to find out the relations between test and weight of sample taken, and give the result below:

Weight of cream.	*Weight of sample.*	*Test.*	*Butter fat in lbs.*
	I		
70 lbs. (thin)	1 oz.	33½%.	
70 lbs. (thick)	1 oz.	composite	46.90
	II		
70 lbs. (thin)	1 oz.	34½%.	
70 lbs. (thick)	2 oz.	composite	48.30
	III		
70 lbs. (thin)	2 oz.	32%.	
70 lbs. (thick)	1 oz.	composite	44.80
	IV		
70 lbs. (thin)	2 oz.	29½%	20.65
70 lbs. (thick)	2 oz.	37½%	26.25
			46.90

The reader will easily see that the composite test, 33½ per cent, is correct, because it gives us a 46.90 pounds butterfat, the same amount as in No. IV, where each lot was tested by itself.

Taking too much cream out of the can, containing thick cream, with the sample dipper gives us a too high reading, viz, 34½ per cent, and vice versa with the can containing thin cream; the consequence is a like amount must be taken with the sample dipper, provided the weight of each can is alike also.

Weight of cream.	*Weight of sample.*	*Test.*	*Butter fat in lbs.*
	I.		
70 lbs. (thick)	2 oz.		
60 lbs. (medium)	2 oz.	32½%	
40 lbs. (thinner)	2 oz.	Composite	55.25
	II.		
70 lbs. (thick)	2 oz.	35%	24.50
60 lbs. (medium)	1¾ oz.	31%	18.60
40 lbs. (thinner)	1¼ oz.	28%	11.20

Our true average test ought to be: (54.30×100)+ 170(weight of cream)= 31.94per cent. 31.94×170=54.30.

The reader will notice our mistake, viz: taking the same amount out of each can regardless of the amount of cream each can contained.

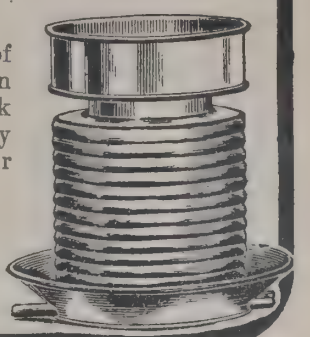
I do not claim to have made any new discovery. Any up-to-date creameryman knows this all, but I was surprised to find such a big difference, and it simply shows us how careful we must proceed in taking samples.—LUDWIG ENGLEMANN in *The Ranch*.

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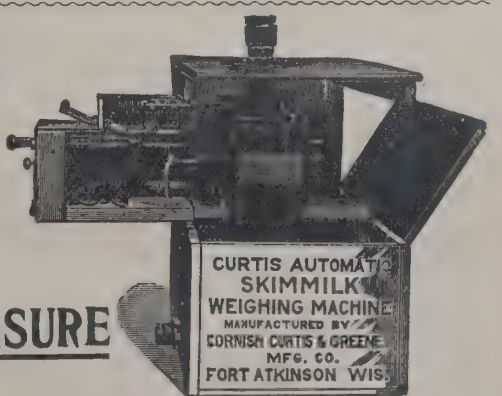
HOARD'S DAIRYMAN.
FORT ATKINSON, WIS.

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WEIGHT or MEASURE

and the last man suffers.



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Fort Atkinson, Wis.

Illinois Herd Reports.

The Report of Herd "C."

ED. HOARD'S DAIRYMAN:—This herd was composed of Natives, Grade Shorthorns, Grade Holsteins, one Red Poll and two Grade Jerseys. The cows weighed on the average, about 1,050 lbs. and were in good health during the whole year. There were no abortions or caked udders during the time the test was made. A number of the cows were sold early in the test because of their rapid falling off in milk flow when about three months along in the period of lactation. This is a very common fault with a great many cows kept in the dairy, and it is not noticed as much as it should be by the owners. They remember the cow when she gave a full pail of milk.

The herd received good care during the year, and was kept in a warm barn during the winter where they received a fairly good ration. The fresh cows in October to November were fed daily about 3 lbs. of bran, shock corn and pasture. From Nov. 15th to Jan. 1st., the ration consisted of the following food: bran, 5 lbs.; corn meal, 3 lbs.;corn stover *ad libitum*. If the farmer could have given his cows 10 lbs. of alfalfa or clover hay and less corn stover, it would have been a considerably better ration for his cows. In Jan. and Feb., a little better ration was fed. It was about as follows:

FOOD STUFFS.	Lbs.	Dry Matter.	Protein.	Carbo-hydrates.	Fat.	Cost.
						Cents.
Bran	5	4.42	.645	2.005	.170	4.5
Corn meal	5	4.45	.395	3.335	.215	5.0
Gluten feed	1	.90	.233	.507	.027	1.1
Timothy hay	5	4.34	.140	2.170	.070	2.5
Corn stover	12	7.14	.204	3.888	.084	2.4
Total nutrients		21.25	1.617	11.905	.566	15.5

This ration would have been still better if the corn meal had been reduced 2 lbs. and gluten feed increased to 4 lbs. During the months of March, April and May, to the cows giving the largest flows of milk were given the following ration:

FOOD STUFFS.	Lbs.	Dry Matter.	Protein.	Carbo-hydrates.	Fat.	Cost.
						Cents
Bran	5	4.42	.645	2.005	.170	4.5
Gluten feed	2	1.80	.466	1.014	.054	2.2
Oil meal	1	.91	.293	.327	.078	1.4
Timothy hay	15	13.02	.420	6.510	.210	7.5
Total nutrients		20.15	1.824	9.856	.512	15.6

The cows were turned out to pasture about the 20th of May, and as soon as the grass was plentiful they received no grain during the rest of the test. They, however, received some forage in connection with the pasture. Green peas and oats were fed in July, and in August green sorghum. It can be said that the herd was well cared for the whole year, and moreover, every cow was fed as near as possible according to the amount of milk and butter fat that she was yielding. It must be borne in mind that the rations given above were fed to cows that were producing the most milk and butter fat, and not to the strippers.

"Crazy" produced the most butter fat in this herd. She gave 6,945 lbs. of milk, 4.23 per cent fat, 294 lbs. of butter fat or 343 lbs. of butter.

"Harrison" produced the least butter fat. She gave 2,722 lbs. of milk, 3 96 per cent fat, 108 lbs. of butter fat or 126 lbs. of butter.

The average production of each cow in the herd was 4,942 lbs. of milk, 3.90 per cent fat, 193 lbs. of butter fat or 225 lbs. of butter.

"Jersey" produced butter fat the cheapest. She charged 29.7c to produce 100 lbs. of milk and 6.6c to make one pound of butter fat.

"Harrison" charged 97.7c to make 100 lbs. of milk and 24.6c to make one pound of butter fat.

The average cost of this herd to produce 100 lbs. of milk was 55.5c, and 14.2c to produce one pound of butter fat.

"Jersey" gave a profit of $34.77, and Harrison charged $1.27 for her keeping.

The average profit for each cow in the herd was $16.22.

TABLES GIVING THE RECORD OF EACH COW IN HERD "C."

GROUP I.

KEPT AT A LOSS.

NAME OF COW.	Age, Years.	Bree .	Date of Calving	Days in Milk.	Lbs. Milk.	Per Cent Fat.	Lbs. of Fat.	Lbs. of Butter.	Gross Returns.	Cost of Feed.	Loss.
Ella	2	Grade Holstein	9 25 01	295	3519	3.64	128	149	$29.12	$30.98	1.86
Harrison	2	" "	7 6-01	246	2721	3.96	108	126	25.34	26 61	1.27

GROUP II.

KEPT AT A SMALL PROFIT.

NAME OF COW.	Age, Years.	Breed.	Date of Calving	Days in Milk.	Lbs. of Milk.	Per Cent Fat.	Lbs. of Fat.	Lbs. of Butter.	Gross Returns.	Cost of Feed.	Net Profit.
White Face	2	Grade Holstein	9 15-01	290	3865	3.56	137	160	$31.69	$31.30	$.39
Millie	2	Native	10 20-01	330	4118	3.83	157	184	36.68	28.29	8.39
Duchess	8	Native	1 2 02	197	4229	3.59	151	177	37 47	28.31	9.16

GROUP III.

KEPT AT A FAIR PROF.T.

Victoria	4	Gr. S. H.	6 5-02	214	2979	4.34	129	151	$26.28	$15.81	10.47
Little Brownie	8	Native	10 3-01	245	5121	3.75	192	224	45.18	32 60	12.58
Lady	9	Gr. S. H.	3 28 02	103	5015	3.94	197	230	42.71	27.72	14.99

GROUP IV.

KEPT AT A VERY FAIR PRORIT.

Queen	4	Gr. S. H.	3 28 02	260	4857	3.73	181	211	$38 90	$21.61	17.29
Pet		Native	11 26-01	305	5590	3.43	191	223	45.15	25.66	19.49
Babe	6	Gr. Jer.	10 3-01	365	5186	4.68	242	283	54.78	33 60	21.18
Old L. Back	12	Native			5926	3.55	210	245	50.34	28.47	21.87
Black Hawk	4	Gr. Hols.	9 26-01	335	6500	3.99	259	303	58.52	34.88	23 64

GROUP V.

KEPT AT A GOOD PROFIT.

Stubborness	9	Gr. Hols.	3 20-02	246	5924	3.50	207	242	$45.19	$20.39	24.80
Roaney		Gr. S. H.	1 15-02	245	6013	3.97	238	278	57.46	29.00	28.46
Crazy	10	Red Poll.	10 4-01	335	694	4.23	294	343	66.77	35.22	31.55
Jersey	9	Gr Jer.	1 3-02	275	5498	4.48	246	287	51.15	16.38	34.77

Elgin, Ill. A. J. GLOVER.

Meeting of Eastern Guernsey Breeders' Association.

You are requested to attend a meeting of Guernsey breeders at the home of M. M. & E. J. Hollingsworth, Landenberg, Pa., on Friday, June 12th, at 10 o'clock a. m., at which time it is proposed to form an association, the object of which shall be the promotion and encouragement of breeding Guernsey cattle: Hon. E. T. Gill, Hon. Anthony Higgins, Edward Trotter Price, E. J. Hollingsworth, S. I. Murphy, Dr. E. B. Voorhees, M. M. Hollingsworth.

In response to the foregoing call a number of breeders assembled and on motion of the hosts, Hon. E. T. Gill was elected temporary chairman and S. I. Murphy temporary secretary.

Mr. Gill, on taking the chair, stated that the object of the meeting was to form an association composed exclusively of persons who were directly interested in the breeding of registered Guernsey cattle.

The subject was then thoroughly discussed by the breeders present, and it having been decided upon to form such an association, the chairman appointed Messrs. M. M. Hollingsworth, J. L. McCormick and Edward Twaddell a committee to draft a constitution and by-laws.

After the committee had made their report the secretary read the constitution and by-laws as drafted by the committee, and they were then adopted by the breeders present.

The organization, which is to be known as the "Eastern Guernsey Breeders' Association," then elected officers as follows:

President, Hon. Anthony Higgins, Wilmington, Del.; 1st vice-pres., Hon. E. T. Gill, Haddonfield, N. J.; 2nd. vice-pres., George Wood, Philadelphia, Pa.; sec'y. and treas., M. M. Hollingsworth, Landenburg, Pa.; members of executive committee, Edward Twaddell, Devon, Pa.; J. L. McCormick, Bell Air, Md.; S. I. Murphy, Woodbine, Pa.

This concluding the business for the day, the meeting adjourned.

After partaking of the excellent lunch, which had been prepared, the party carefully inspected the Guernsey herd which now contains about sixty registered animals. The older members of the herd are largely the get of Landenberger 2981, and Count Rosendale 3957, the latter a full brother to Prince Rosendale, who was first prize and sweepstakes Guernsey bull at the Pan American Exposition.

The sires now in service are Sir Coral 5239 and Glenwood's Sheet Anchor of Haddon 6372. Sir Coral is by Sir Fantine, who was a son of Mr. Solverson's famous Fantine 2nd, record 23.5 pounds butter in 7 days, 607.7 pounds in 1 year. His dam was Coralette 5722, record 17 pounds, 2 oz. butter in 7 days, 560 pounds in one year and who was 1st prize cow at Wisconsin State Fair, and dam of Coralette's son, who heads the herd of Messrs. Geo. C. Hill & Son, Rosendale, Wis. His oldest daughters are just beginning to freshen and two of them are now being tested for the advanced register. Glenwood's Sheet Anchor of Haddon was bred by Mr. E. T. Gill, of Haddonfield, N. J. His sire, Mainstay has one daughter in the Advanced Register, and is a son of the famous prize winner, Sheet Anchor and Rutila's Daughter, the latter has a record of 21 pounds, 9 oz. in 7 days and 571 pounds in 1 year and has one Advanced Register daughter.

His dam, Glenwood Girl 7th 9114, record 506.5 lbs. butter in one year, 14 lbs., 5¾ oz. in 7 days, was sired by Pat of Haddon who has four daughters in Advanced Register and has for dam Imp. Glenwood Girl, who was the dam of six daughters with records from 504 to 667 lbs. butter in one year.

None of his daughters are yet in milk, but he is being largely used on the get of Sir Coral and his offspring will combine the blood of many of the most famous animals of the breed.

The next meeting (the date of which will be fixed later) is to be held at the home of Mr. E. T. Gill, Haddonfield, N. J.

Woodbine, Pa. S. I. MURPHY.

Are Concentrated Feeds Necessary?

Mr. Grote Continues the Discussion.

"The teacher easily becomes imprisoned in yesterday's knowledge, in yesterday's methods. He is too prone to look back for details, instead of looking about him for present inspiration."—Page 390.

ED. HOARD'S DAIRYMAN:—When I sent in my questions, I did not intend to have a controversy with the Editor. My aim was to get the established facts; the "proof" which sustained the Editor's position that "a cow of pronounced dairy temperament cannot eat and digest enough roughage to furnish sufficient raw material from which to elaborate milk up to her capacity," and, "we think that cows will do fairly well on clover silage and clover hay alone, but better and with more profit if they have some grain in connection."—Page 258.

The right decision on these points is of great importance to the dairyman, and an intelligent dairyman is not satisfied with the conclusions of others. He claims the right to examine into the facts himself, and from them form his own conclusions. A teacher offering a theory should always be prepared to defend that theory by producing the established facts which sustain his theory. The feeding problem of cows is not yet fully solved. It is a great question yet unsolved, if the feeding of concentrated feed is a benefit to the cow, and at the same time increases the net profits of the dairymen. Any facts and figures which give light on these points should be welcome to every reader of the DAIRYMAN, but the evidence should be furnished as much as possible in detail.

It is immaterial in this inquiry whether a woman prejudges the damages which a mouse, a little harmless snake, lizzard, toad or bug can do on account of the peculiar cut of her clothes, or for other reasons, so as to induce her to climb on a chair or table, or whether she prejudges those animals on account of her ignorance in regard to them or their habits. It is my opinion that the latter is the cause. Ignorance, or only part information, or misunderstanding is the cause of all prejudice or prejudgment.

It is also immaterial whether a farmer, living 10 to 30 miles from railroad where he could sell or exchange produce, hauled over poor roads, where 2,000 lbs. is a good load, can lose 2 or 3 days for a man and team to exchange one ton of feed and make the transaction practical and profitable.

It is also immaterial for this inquiry that thousands upon thousands of successful dairymen do purchase feed and do exchange feed raised on the farm for by-products. A large number of good farmers do not.

The question is? Is it profitable for the farmer and necessary for the cow to purchase this expensive feed, or can a more profitable system suitable to all farmers be substituted?

If experience has demonstrated that an average good cow cannot dispose of more than 25 lbs. of dry matter during 24 hours, it has also demonstrated that a cow will starve if the 25 lbs. dry matter does not contain the proper digestible nutrients, and it has also demonstrated that 25 lbs. proper dry matter, is about all the dry matter that 99 per cent of the existing cows are able to digest properly.

An experiment in Madison, Wis., did show that an increase of the concentrated food of the ration from 8 to 12 lbs. did not give sufficient increase in milk to pay the additional cost. It is necessary that the feeder must have common sense. There are a number of rations that can be raised on the farm and at a considerably less cost than buying by-products, which have no more than 25 lbs. dry matter, containtng sufficient digestible nutrients to furnish 90 per cent of the existing milk cows with proper digestible nutriments, to sustain their milk flow up to their full capacity. (See the clover ration.)

If the DAIRYMAN can prove that the more expensive ration gives so much more income that the additional income will cover the extra expense and labor and leave in addition a surplus, the DAIRYMAN has done a service to the whole dairy business, and we will all acknowledge its superior sagacity. This requires facts and figures. Let us have them. It is a business proposition and has to be decided on its merits alone.

The fact that juries so often fail to agree and that people disagree on the tariff proves only that different people draw different conclusions from the same facts, or that the comprehension of the different people is not equally advanced, or is misled by pre-formed opinions. The facts must, therefore, be so plainly proven that all persons must come to the same conclusions and acknowledge that the facts have been established for all minds.

There are a number of questions which require settlement besides the one of most profiatble feeding, such as the question of raising fodder corn (which I think is very important) but the feeding question, the prejudice that concentrated food is a necessity under any circumstances to successful and profitable feeding, has either to be proven or disproven.

Mauston, Wis. CHAS. N. GROTE.

Butter-Tests Accepted for Publication by the American Jersey Cattle Club, June 18, 1903.

Chocolate Maid 131035: Sire, Brown Bessie's Son 11th 50830: dam, Miss Newhouse 92487. Butter, 14 lbs., 8 oz.; milk, 204 lbs., 13 oz. Test made from Jan. 30, to Feb. 6, 1903; age, 3 years, 6 months; estimated weight, 800 lbs.; fed 9 lbs. oats, 9 lbs. bran and shorts, 1½ lb. oil meal and 15 lbs. sliced potatoes, daily. hay *ad. lib.* Property of Estate of W. S. Ladd, Portland, Oregon.

Cretesia's Ramona 148867: Sire, Cretesia's Albert Pogis 21730; dam, Ramona B. 52135; butter, 15

lbs. 4 oz., milk, 1236 lbs., 8 oz. Butter, 15 lbs., 4 oz.; milk, 236 lbs., 8 oz. Test made from Nov. 16 to 22, 1902; age, 9 years, 4 months; estimated weight, 950 lbs.; fed 6 quarts middlings, 6 quarts bran, 1 quart corn meal, 1⅓ quarts of a mixture consisting of one part gluten to two parts cotton seed meal, 1⅓ quarts oil meal and 1¼ quarts gluten, daily.

Imported Grace Darling, 145737: Sire, Beauty's Grevcoat P. S. 2248 C.; dam, Alouette P. S. 6958. H. C. Butter, 15 lbs., 3 oz.; milk, 201 lbs., 4 oz. Test made from April 12 to 18, 1903; age, 5 yeare, 2 months; estimated weight, 850 lbs.; fed 9 quarts bran, 30 lbs. ensilage, 1⅓ quarts oil meal, 1⅓ qts. gluten and 1⅓ quarts of a mixture consisting of one part oil meal to two parts of cotton seed meal, daily.

King of St. L.'s Jewel of C. H. 130559: Sire, Coal Hill King of St. L. 32996; dam, Charity of Pittsford 2d 88849. Butter, 15 lbs., 8 oz.; estimated fat, 13.266 lbs. milk, 303.8 lbs. Test made from May 11 to 17, 1903; age, 7 years, 2 months; actual weight, 880 lbs.; fed 18¼ lbs. bran, 18¼ lbs. linseed meal, 18¼ lbs. corn and cob meal and 105 lbs. ensilage; blue grass pasture. Property of Ohio State University, Columbus, Ohio.

King of St. L's Jewel of C. H. 130550, 14 days; Butter, 29.6 lbs., estimated fat, 25.723 lbs.: milk, 601.6 lbs. Test made from May 11 to 24, 1003; age, 7 years, 2 months; actual weight, 880 lbs; fed 39¼ lbs. linseed meal, 39¼ lbs. bran, 39¼ lbs. corn and cob meal and 210 lbs. ensilage; blue grass pasture. Property of Ohio State University, Columbus, Ohio.

Lemorna 02879; Sire, Signia 29385: dam, Avonola Waif 66778; butter, 17 lbs.; milk, 302 lbs. Test made from May 21 to 27, 1903; age, 9 years, 8 months; estimated weight, 800 lbs.; fed gluten feed and bran; pasture.

The Relation of Cream to Butter.

Will you please let us know through your paper the difference in the test of a given amount of cream and the amount of butter it will make? I am shipping cream, and while we made 38 lbs. of butter from 100 lbs. cream we only got 28% test. It may be right, but it does not look so to me.

Chandler, Okla. K. F. duM.

It is entirely practicable to obtain an overrun of 18 to 20% of standard commercial butter from cream testing 30% or more fat. It follows, therefore, that cream yielding 38 lbs. of butter from 100 lbs. cream would test about 32% fat. Cream testing 28% fat would make approximately 33 lbs. butter per 100 lbs.

DAIRY MARKETS.

ELGIN, Ill., June 22.—Butter—Ruled firm on board of trade today at 21c. The sales of the week were 830,000 pounds.

CHICAGO, Ill., June 22—Butter—Easy; creameries, 16@20¾c; dairies, 15½@18c.

Eggs—Easy; at mark, cases included, 12½@13¾c.

Cheese—New steady; Twins, 10½c; Daisies, 10¾@11c; Young Americas, 11@11½c.

Cattle—Plain beeves, 1,200 to 1,500 pounds, 5.50@5.70; choice to extra steers, 5.10@5.45; fair to good export and shipping steers, 4.85@5.05; medium beef steers, 4.50@4.75; plain beef steers 4.20@4.35; common to rough, 1,000 to 1,200 lbs. 3.75@4.10; good to choice feeders, 3.85@4.75; good to choice fat heifers, 4.10@5.00; poor to plain stockers and feeders, 3.80@4.00; fair to good cows and heifers, 3.30@4.00; good cutting to fair beef cows, 2.45@3.20; common to good canning cows 1.50@2.40; bulls, poor to choice, 3.20@4.30; veal calves, good to fancy, 5.50@6.75; calves, common to fair, 3.25@5.75: corn-fed western steers, 3.85@5.25; Texas bulls and grass steers, 2.75@3.50; Texas steers, fair to common, 3.85@4.60.

Hogs-Good to prime heavy shipping 6.05@6.15; good to choice heavy packing 5.95@6.10; plain to choice heavy mixed 5.95@6.10; selected butcher weights 6.05@6.12½; assorted light, 150 to 195 lbs. 6.05@6.12½; common to good light mixed. 5.95@6.05; thin to choice, 50 to 130 lbs. pigs 5.70@6.05; stags and rough lots, 5.70@6.05.

MILWAUKEE, Wis., June 22.—Butter—Creamery—extras, 21c; firsts, 18@19c; seconds, 16c; process (renovated) 18@19c: Dairy, fancy, 17c; lines, fresh, 14@15c; packing, 13c; whey, 10c; grease, 5@6c.

Cheese—American, new, full cream—Twins, 10½@11c; Young Americas, 11@11¼c: Daisies, 11@11¼c; Longhorns, 11¼@12c; low grades, 9@10c. Brick, fancy, new, 10@10½c: low grades, 9@10c. Limburger—Fancy, old, 10½@11c; low grades, 8@9c; new, fancy, 9@10c; off grades, 7@8c; Swiss, drum, old, choice, 15¼@16c: drum, No. 2, 13@14c; Block, choice, 14@14½c; block, No. 2, 12@13c.

Eggs—Strictly fresh laid, cases returned, 14c; dirties and seconds, 12c., checks, 10c.

FOND DU LAC, Wis., June 22.—Cheese—Sales of cheese today on the dairy board were 128 Twins at 10¼c, 21 at 10⅜c, and 340 Daisies at 10⅞c. Market active.

SHEBOYGAN, Wis., June 17—Cheese—On the Call Board today 2,557 boxes of cheese were offered and sold as follows: 36 boxes Twins at 10¼c; 22 at 10⅜c: 321 Daisies at 10⅞c; 902 at 10¾c: 65 cases Young Americas at 11c; 538 at 10⅞c; 95 cases Longhorns at 11¼c; 566 at 11⅛c, Demand strong and ultimate brisk bidding.

SHEBOYGAN FALLS, Wis., June 17—Cheese—Twenty four factories offered 3,098 boxes cheese on Call Board to-day and all sold as follows: 11 Twins at 10¾c, 100 Americas at 11c; 751 at 10⅞c: 90 Daisies at 10⅞c, 970 at 10¾c; 324 cases Longhorns, 11¼c, 852 at 11c. Demand strong; market firm.

Latest quotations for fancy creamery: Cincinnati, 23c; Buffalo, 22; St. Paul, 20c; Minneapolis, 20c.

BOSTON, Mass., June 22—Butter—The butter market opened steady and unchanged. Eggs were firmer. Quotations: Butter—Creamery, western, extra, 22c; western firsts, 21c; dairy, 16@21c; imitation creamery, 17@19c; ladle, 15@17c; box and print, 17@22½c.

Cheese—Choice, 10½@11c; Wisconsin Twins, 10½@11c.

Eggs—Nearby, 22c; western selected, 16c; fair to good, 14@15c; Illinois, 16c; dirties, 13@13¾c.

PHILADELPHIA, Pa., June 22—Butter—Market firm. Solids 22c. Nearby prints 23; western, 22c.

WASHINGTON, D. C. June 22—Butter—Market very firm Extras, 22c. Choice firsts 21c; renovated, 19c.

TOPEKA, Kan., June 20—Butter—Creamery butter, 21@22c; dairy, 17½@18½c.

Cheese—Longhorns, 11c; Daisies, 11c; Daisy Twins, 10¾c;

ST. LOUIS, June 22.—Butter—Steady; creamery, 17@22½c; dairy, 15@18c.

Eggs—Higher, 13c loss off.

KANSAS CITY, June 22.—Eggs—firm; Missouri and Kansas, cases returned, 11½c doz.; new No. 2. white wood cases included, 12c.

NEWARK, N. J., June 22—Butter-Market steady at 21¼c.

Eggs—Firm at 18@18½c.

NEW ORLFANS, La., June 22—Butter—Extras, 22@22½c; firsts, 21c; ladles, 16½c.

CANTON, N. Y., June 20—Cheese — Offered 55 large, 2,803 Twin cheese and 1,300 tubs of butter. Large and Twin cheese sold at 10¼c; butter sold at 21¼c.

NEW YORK, June 22—Butter—Receipts, 9,200 pkgs.; market steady; state dairy, 17@21c; extra creamery, 21½c; creamery, common to choice, 18@21c.

Eggs—Recipts, 12,656 pkgs.; market steady; state and Pa. extra, 18½c; firsts, 16@17c; western extra, 18½c; western, seconds to firsts, 15@17c.

Cheese—Receipts, 1,901 pkgs; market steady; state full cream, fancy, small white and colored, 10¾c; large, white and colored, 10¾c.

UTICA. N. Y., June 22.—Cheese—Market about the same as last week; 1,200 large white cheese and 2,000 colored at 10½c; 3,500 small colored and 1,500 white also at 10½c.

NEW YORK MARKET.

NEW YORK, June 20—Butter—Receipts for the week, 64,414 packages. Exports for the week, none.

Notwithstanding the large receipts, our market has been steady and at the close reecivers are asking a fraction more than quotations for extra butter, and many lines were put in freezers on speculation.

Trade has taken freely of finest creamery butter, and 21½@21¾c was freely paid by local dealers, and we note sales to southern and eastern trade of firsts and seconds 19@21c. New York dairy of finest quality is wanted at 20½@21c; most of the arrivals, however, were of poor to good grades and sold at 16@20c.

Ladle goods are accumulating and with exporters entirely out of the market, prices were weak and in buyers' favor. We quote:

Creamery, extra, 21½c: medium, 20@21c; poor, 16@19c; Dairy, extra, 20½@21c; medium, 18@20c; poor, 15@17c. Ladle, extra, 17@18c; medium, 16@16½c; poor, 14@15c.

Cheese—Receipts for the week, 42,658 boxes. Exports for the week, 11,719 boxes.

Most of the fine cheese here this week were sold on the docks to speculators who paid 10¾@11c for Cheddars and 10¾c for small sizes, and all went into cold storage for later market.

Exporters took fancy large cheese at 11c, and bought freely of middling grades skimmed cheese at 5@7c. Market closes firm. We quote:

Full Cream, extra, 10¾@11c; medium, 10@10½c; poor, 8@9c.

Eggs—Receipts for the week, 71,411 cases.

The market is filled with poor lots of eggs from all quarters. These goods are freely offered at lower and irregular prices. Strictly fancy fresh stock, however, is not plentiful and is in demand as it always is at full prices. We quote:

N. Y. & Penn., fancy stock per doz., 19@20c: Northern & Western fancy stock, 18@18½c: All sections, poor to good, 13@17c.

177 Chambers St DAVID W. LEWIS & Co.

LIVERPOOL, June 22—Butter—Good United Sates steady, 75s.

Cheese—American finest, white quiet, 53s; colored, quiet, 55s.

NEW YORK FERTILIZER MARKET.

Acid phosphate	60	@	67½
Phosphate rock, f. o. b. Char'n	5 00	@	7 00
Tenn	3 00	@	4 00
Bones, rough ℔ ton	16 50	@	17 50
ground	19 00	@	20 00
Bone meal	19		
Bone black, refuse	18 00	@	19 00
Potash, dbl. m're salt 48@53 per cent	1 12	@	1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons	25 00	@	30 00
sulph of basis, 90@98 per cent	2 11	@	2 18
90@98 per cent less than 25 tons	38 00	@	40 00
Potash muriate ℔ 100 lbs.	1 83	@	1 95
less than 25 tons	36 00	@	40 00
Kainit 25% S. of P. ℔ ton	9 30	@	9 50
less than 25 tons	9 50	@	10 50
Sylvinit, 35@37% P. ℔ unit	41	@	46
Nitrate of soda	2 05	@	2 10
Blood, Dried red ℔ unit	2 55	@	2 60
low grade	—	@	—
Concentrated tankage	15 00	@	16 00
Fish guano, dried	24 50	@	25 00
acidulated	22 00	@	23 50

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Two choice young Guernsey bulls for sale. MRS. A. W. LEHMANN, Neosha, Dodge Co., Wis. 12-sp

For Sale—A yearling H.-F. Bull, sired by the best son of De Kol 2d (dead) and out of the last and only living daughter of Mechthilde. Address STOCK EXCHANGE, Monroe, Wis.

To a conscientious, energetic, up-to-date dairyman, who knows the meaning of the word "clean", can furnish his own horses, wagons, and tools, and will raise my calves, I will furnish, with no other charge for rent, a good dairy farm and herd, with silo and power, and will buy his milk at $1.15 per cwt. Or will consider giving interest in business. Correspondence invited. Address F. M. POWERS, Atlanta, Georgia. 20-2

Man Wanted on dairy farm. Only good milkers and competent feeders need apply. Address W. O. MORROW, Route 2, Salem, Oregon.

For Sale—3 Reg. Holstein Bulls 1 yr. old. Also few heifers. FRANK BREWSTER, Bowers, Wis. 20-2.

Angelus Herd Guernseys—For Sale—Bull Calf, superior breeding; price $50.00. Address MARCH, 39th & Western, Los Angeles, Cali. 20-2

For Sale—A second hand, self-feeding, 16 inch Smalley Ensilage Cutter in good order, together with 56 feet of carrier, 18 feet of which was new last year Also a three horse Smalley Tread Power in good condition. The above will be sold cheap to make place for larger machinery. W. D. HOARD, Fort Atkinson, Wis. 20-tf.

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 1901

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FIRST
ALWAYS BEST
CHEAPEST

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217-221 Drumm St., SAN FRANCISCO.

GENERAL OFFICES:
74 Cortlandt St., NEW YORK.

121 Youville Square, MONTREAL.
75 & 77 York Street, TORONTO.
248 McDermot Avenue, WINNIPEG.

For Sale—A quantity of second hand creamery machinery and cheese-making machinery, including a twelve horse power boiler and engine for sale cheap. Address BOX 121, Albion, Mich. 19-2

Guernseys Wanted—Prices wanted on a dozen head, more or less females. Must be good individuals and descendents of good families. W. M. MARCH, 1798 W. 39th St., Los Angeles, Cal. 19-2

For Sale—One No. 1 Alpha De Laval Separator, one 150 gallon Potts Pasteurizer, and one O. K. Power Buttet Worker all in good condition. Address BOX 28, Buckeystown, Md. 19-2

For Sale—One 100 lb. Embree Worker; one 150 gal. Reid Box Churn; one 1000 lb. De Laval Separator; one 8 horse power engine and boiler (on wheels). Address JAMES S. BIGGS, Rocky Ridge, Md. 19-4

Are You Color Blind?—If not, you will appreciate the natural golden colored product of the Guernseys. Pure bred bulls and grade heifers for sale. A. H. HINMAN, Allenville, Wis. 17-4

A Registered Guernsey Bull 15 months old for sale. A very fine animal. Inquire of J. S. HUNTER, Pickett, Wis. 12-tf

Fine Dairy Farm for Sale—Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. T. S. TOMPKINS, Pasadena, Cal. 15-tf

Fine Dairy Farm for Sale—231 acres within 2 miles of Madison, Wisconsin. Good set of buildings, excellent land and location that cannot be beaten. The demand for milk far exceeds the supply. The receipts from this farm last year were $4,985.co. There is a splendid chance to more than double these receipts. Ill health is reason for selling. For full description, price, etc., write C. B. CHAPMAN, Williamsburg, Virginia. 17-sp

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

Wanted—Position in dairying business by single man (38) familiar with Babcock test, Buttermaking, Separators, Boilers and Engines, etc. Also the care and feeding of dairy cows. Address D-5, care of HOARD'S DAIRYMAN. 20-tf

Wanted—An up-to-date man of 20 years experience wants to rent a good sized dairy or stock farm, with stock, up-to-date buildings and equipments, tools, teams, etc., or will accept position as manager. Understand all machinery to run an up-to-date farm or dairy. Married and have family. Adr. "Van" General Delivery, Sleepy Eye, Brown Co., Minn. 20-tf

Wanted—Two good single men at $35 00 per month and board. Higher wages in harvest. Also one or two experienced milk maids $5.00 per week. State experience. L. TUTTLE, Verdi, Minn. 20-2.

Wanted—An experienced man to take charge of milk route. Must be a single man and a hustler. State wages and references. Wanted immediately. S. G. TAYLOR, Mauston, Wis. 18-3

Buff Jersey's latest book on Farm Stock and Dairy Work is full of practical things for practical people. The Silo, how to build and fill; ensilage, its value; soil, crops, variety and how to grow. Swine, poultry and many other subjects ably treated. Send 25c for copy. Monmouth, Ill. 47-tf

"Short Jaunts for Busy People" is the title of a handsomely illustrated booklet issued by the Chicago & North Western R'y, briefly describing nearby summer resorts, with information as to summer hotels and boarding houses, railroad and hotel rates, etc. Sent on receipt of 2 cent stamp. Address W. B. Kniskern, Passenger Traffic Manager, Chicago. For rates, tickets, etc., apply to agents Chicago & North-Western R'y. 18-sp

Special Excursion Rates to Colorado, Utah and the Black Hills—Via the North-Western Line. Beginning June 1st excursion tickets will be sold to Denver, Colorado Springs, Pueblo, Salt Lake City, Hot Springs, Deadwood, Lead and Custer, S. D., etc., good to return until Oct. 31. A splendid opportunity is offered for an enjoyable vacation trip. Several fine trains via the North-Western Line daily. Apply to agents Chicago & North-Western R'y. 16-sp

Very Low Rates to California and Return—Via the North-Western Line. First-class round-trip tickets on sale July 1 to 10, inclusive, to San Francisco and Los Angeles. Favorable limits and stop over privileges and choice of routes. The overland limited, most luxurious train in the world, leaves Chicago daily at 8 p. m. Less than three days en route. Drawing room and compartment cars, observation cars, dining cars, buffett-library cars (barber and bath), electric lighted throughout. Three trains a day from Chicago to the Coast through without change. Daily and personally conducted tourist car excursions to California, Washington and Oregon. For particulars apply to ticket agents Chicago & North-Western R'y. 16-7

Very Low Excursion Rates to Boston, Mass—Via the North-Western Line. Excursion tickets will be sold June 30 to July 4, inclusive, limited to return until July 12, inclusive, on account of N. E. A. annual meeting. 20-3

Fourth of July Excursion Rates—Via the North-Western Line. Excursion tickets will be sold at low rates to points on the North-Western system within 200 miles of selling station, July 3 and 4, good returning until July 6, inclusive. Apply to agents Chicago & North-Western R'y. 20-3

Very Low Rates to Denver, Colorado Springs, Pueblo and Return—Via the North-Western Line, July 1 to 10, inclusive, with final return limit until and including August 31, 1903, account of C. E. Convention, Stop over privileges and choice of routes. Side trips can be made at reduced excursion rates to various Colorado points, to the summit of Pike's Peak, to Ogden and Salt Lake City, (to Yellowstone National Park, from Denver, only) and to San Francisco, Los Angeles, etc. Low rate excursion tickets to Colorado also on sale daily, limited for return until Oct. 31. For particulars apply to ticket agents Chicago & North-Western R'y. 20-3

Alfalfa East of the Mississippi.

The *Practical Farmer* correspondents give their experience with alfalafa as follows:

For the past five years I have been experimenting with alfalfa in a small way here. During this time I have tried sowing it with wheat after the manner of sowing red clover, but got no alfalfa. Have sown it in the fall, and it came up well, but not much of it was left in spring. Have sown it with the oat crop with partial success. Have tried light seeding of oats with it as a nurse crop with still better success, but had the best results from sowing alfalfa alone—sown about the first of May, on land that had been plowed early in April and kept well worked for three or four weeks before sowing. The piece was clipped over twice the first season to cut back the alfalfa and the weeds. My soil is high, gravelly clay loam inclined to be dry. Last season I had two acres for cutting. It was three years sown and I got four cuttings. The first crop was the heaviest and yielded about with red clover. The later cuttings were not so heavy, but made finer hay. I have learned to cut just as the first blooms begin to show. If let stand a few days longer the leaves will drop and the stems become woody, and the growth of the next crop will not start up so readily. I am feeding alfalfa hay now, both to work horses and milch cows. It is all right. Have cut much of it and fed it to hogs without curing, but lost a good calf by feeding it alfalfa in this way. I do not care to take the chances of pasturing cattle on it. In parts of the field where the growth was light I treated it to a good dressing of barnyard manure, but could see no improvement. Then tried wood ashes, and was so well pleased with the results that I have used eight tons on two acres. I think the benefit was due mainly to the lime in the ashes. Part of the field is now starting on its fourth year and seems to be better than ever. On account of its permanent nature alfalfa is not so well suited as red clover to a place in the crop rotation, but I believe that a few acres of alfalfa meadow on each farm, to be fed in the winter along with the corn and fodder, will about settle the question of a balanced ration for winter feeding.

I have an acre of alfalfa, seeded in the spring of 1900. It yielded nothing until last year, when I cut it four times, making one and a quarter tons per cutting. Having seen it growing in the west, I was much impressed with its value, and made four attempts to grow it before succeeding, and this is in the face of Prof. Massey's warning not to try it east of the Mississippi river, as it would only make a feeble, sickly growth and soon give up the struggle. I tried it first by sowing with oats. Being dry, so few seeds grew that the ground was plowed and sown to grass. Two years later, in mowing over the ground, I discovered a very thrifty alfalfa plant in full bloom. I reasoned that if one plant would grow successfully, more would. I sowed another small patch that made a good growth the following fall, but cattle ran on it and tramped it out during the winter. The next trial was on ground too flat and wet, and it froze out. The last, sown three years ago on a dry hillside, with oats, nearly perished in the memorable drought of that year, when all clover and much grass died. Up to this time it looked as though I had better have taken Prof. Massey's advice, and let alfalfa alone, but persistence sometimes brings its reward, and on the 8th of May, 1902, there was a uniform growth 20 inches high before the pastures would afford a bite of grass. At present it is more promising than ever, and I am sowing ten acres this spring. The final success is doubtless due to the bacteria and root tubercles, which did not appear till last year. My soil is white oak loam, that shades off into tough, heavy clay in places, the alfalfa doing about as well there as elsewhere. I confess to a little pride over my success now in spite of the past, not present, teachings of Prof. Massey, and the adverse criticism and opinion of all my friends and neighbors.

[This only shows that none of us are too old to learn. For over thirty years we had seen only failure, as a rule, with alfalfa in the east and had concluded that the trouble was climatic. But we have learned that the fault was with ourselves and not with the climate, and that when properly managed the alfalfa crop is as certain and valuable in the east as elsewhere, and is certain to become a standard meadow crop all over the land, north and south.—ED.]

I believe there is no crop that pays better for the amount of work than alfalfa. After the severe winter of '97, which killed off our clover, I decided to try alfalfa. With no experience to back me I bought 100 pounds of seed, and sowed it with the oats in the spring as we do clover. By the time the oats were cut, it stood a foot high all over the land. The next year we harvested three crops, and in 1901 three crops, which made 13 large loads of hay from the five acres, on an 8×16-foot rack, and the season was dry. Last year we made three cuttings and got 15 loads of hay from the same field. For the benefit of those who would try it, I would state that after the first year it is best to disk it in the spring, and then smooth with a harrow. You may think that this treatment would kill it, but it will not. It will kill the weeds that have started, and send the alfalfa along at a double quick. The land on which we raised this, is near the timber, clay soil on part, and on one end a sandy loam with a sandy subsoil. There is no better paying crop, for everything from a hen to a horse will eat and thrive on it.

We know from experience that there is much land in New York that, properly fitted for the crop, would make four to five tons per acre of alfalfa hay, where farmers are now getting two tons per acre of cured hay. It should not be sown on land in regular rotation with other crops, for it will hold the land for many years if cared for. It has done finely for me on our creek bottom with black muck soil and no hard-pan below, similar to much prairie soil. It will do especially well on limestone soil and on some gravelly lands. A farmer should try some of his best land near the house to save travel. Alfalfa will not thrive among weeds or with grasses like orchard grass. The soil should be tilled and cultivated thoroughly in hoed crops for two years, such as cabbages, corn, potatoes and beans, to clean out the weeds and weed seed. Then plow and fit the land as for a garden. This labor will pay well once in 12 years. Sow 25 to 30 pounds of seed per acre to get a thick stand over the land. Sow last of April or first of May in this climate. Go over with a light harrow and then roll. Some say use no nurse crop, but I would sow not over one bushel of oats per acre with the alfalfa. These shade it just right in dry weather. It should be cut as soon as the first blossoms start and it will branch and thicken up better. It needs more curing than other clover, and mainly in the cock.

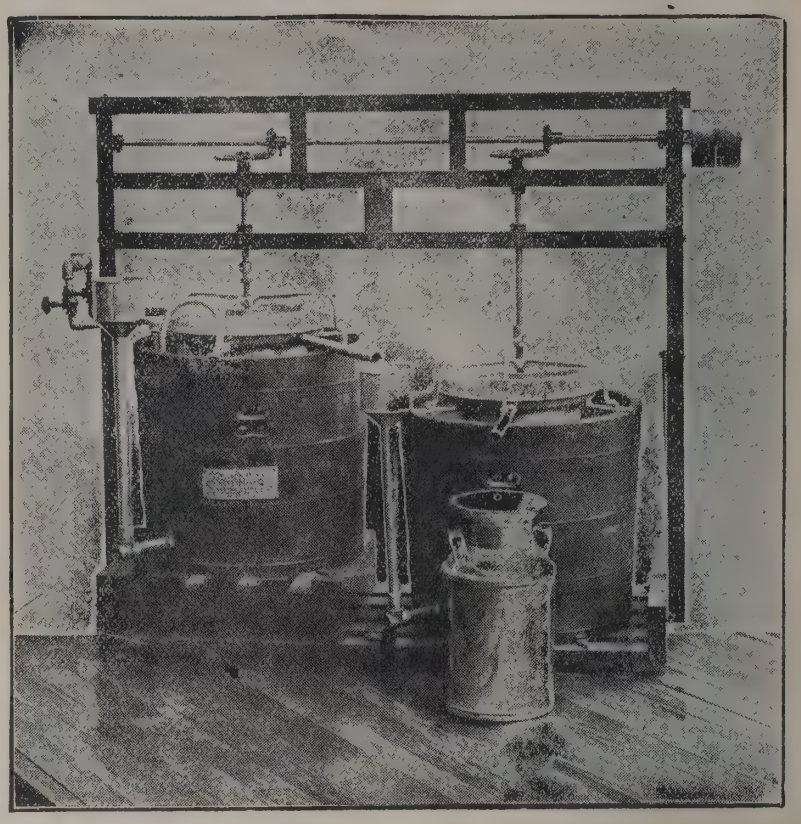
I have sown a small piece of alfalfa as an experiment on a pea stubble in drills 18 inches apart and quite thickly in the drill. I had a good stand and it was three inches high in late November, when I scattered fresh manure over part of it. The rest I let go bare. Cold did not seem to affect it much, but a few warm, balmy days this spring, and then a sharp cold night bit the tops some, but did not kill it. Where the manure was put in November one-half the plants are killed, and there is a bad stand, but where no manure was put there is a good stand and is doing well. I sowed the seed the 23rd of September, 1902, on well drained upland soil somewhat sandy, with a porous subsoil. The alfalfa cannot contend with weeds, and I have cultivated and cleaned mine. I think as a rule, that cow peas are the best crop here as clovers do not do well, and peas do well with little care.

[You should clip the crop over as soon as it shows signs of blooming, whether large enough for hay or not. This season will be the critical time with it, and it should be mown several times to strengthen the roots. A moderate application of lime will help it wonderfully.—Ed.]

I have found alfalfa one of the most profitable crops that can be grown, and to a dairyman almost indispensable, being so near a perfect ration. Some people here claim that they cannot grow it, as it will winter-kill. But this has not been my experience. It is sure death to alfalfa to try to grow it on wet land. It must be sown on land that is dry and the richer you make it the better, for heavy manuring will give you heavier crops. I sow 16 quarts to the acre, and usually cut three times during the season.

Little alfalfa is grown here. Twelve years or more ago a neighbor who had a brother in California who was always ad-

A GREAT SUCCESS.



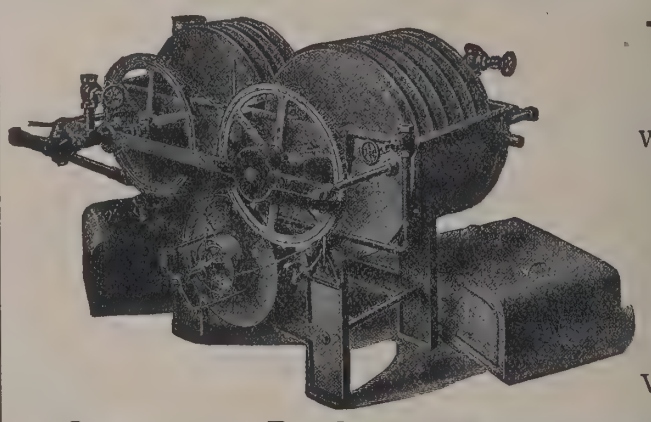
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Price $150 in Tin. $200 in Copper.

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THE FARRINGTON DUPLEX PASTEURIZER

WE CHALLANGE any Pasteurizer on the market to pasteurize cream that is heavily acid. They can't do it, and they know it. The Farrington Duplex is the only machine that will do it successfully.

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To add weight and winning flavor to your butter, salt it with

DIAMOND CRYSTAL SALT

"The Salt that's ALL Salt."

Quickly dissolves, becoming a part of the butter. Not washed out in the working like common salt. Send for free book—"Just Salt."

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Measure the Milk of each Cow



Automatically registers milk yield of cows

With the Automatic Milk Scale you can keep an accurate record of the yield of each cow, and remove the unprofitable ones from the dairy. Each button on scale arm corresponds to number of cow, and when pail of milk is weighed the button registers the weight on score card. Big money saver and money maker for farmers and dairymen.

Send for testimonials and illustrated catalogue of Bestov dairy supplies.

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DAIRYMEN'S SUPPLY CO, Philadelphia, Pa.

Banner Lye

One can make ten pounds of the best hard soap or twenty gallons of soft soap without boiling or large kettles.

vocating the use of alfalfa in the east, sent his brother some seed, which he sowed on new land. It made as fine a stand as anyone could wish, and staid there for years unaffected by cold or dry weather. This caused others to try it, but in every case it was a complete failure. Part of the seed did not seem to grow, and that which did made a very poor showing. It was short lived, and both cold and heat seemed to affect it, while medium red clover made two or three tons per acre right alongside of it. So the farmers here are of the opinion that it is not suited to this climate, as clover has proved superior to it every time.

[The fact that it did well in one instance shows that the climate is not at fault. The failures are just what have occurred all over the east in times past. But now that we are learning the needs of the plant there is no doubt that on proper soil it will succeed with you. Not that it should or is ever intended to supersede red clover, but as a standby and a permanent meadow that can be relied upon in seasons when too dry for the clover.—ED.]

Alfalfa has been successfully grown by three generations of my family in Georgia, since 1838—on the sea coast, in Middle Georgia, in Baldwin Co., in Bartow Co., and in Dade Co., Georgia. Alfalfa does not mind the texture of the soil, if it is rich enough. It is useless to sow alfalfa on poor soil. Our plan has been to prepare the land most thoroughly, plow deeply and cross plow, and harrow till all lumps are fined. Twelve pounds of seed per acre, sown in drills 18 inches apart and covered lightly. Sow in April. Keep clean the first year by plowing with a narrow plow and smooth with the smoothing harrow. Cut twice the first year. It will be at its full growth the third year, but will give three good cuttings the second. Top dress heavily with well rotted manure every third year. Five tons per acre of the best of hay is not an uncommon yield. Here our first cutting comes early in April, a month before red clover can be cut. For soiling, an acre near the stock lot is invaluable. As horses on light work need but one feed of grain daily if they have alfalfa freshly cut twice a day, it comes in well. Four or five cuttings a season are needed. Mow as soon as the alfalfa begins to show bloom. One acre well planted will furnish green and dry fodder for five horses for a year. For milch cows it is the finest of food. The root strikes very deeply, and if well cared for the alfalfa will last twenty years or more. Every farmer in the south should have at least five acres in this valuable forage plant.

SUMMARY.

We have never before had so complete a discussion of the alfalfa question in the East. We have had the topic up before in past years, but the experience in the eastern part of the country has seemed to be against its success. For one, the editor, as is well known, had come to the conclusion that the alfalfa crop was not for us, as a rule, east of the Mississippi River. Mr. Bryan's practice is not a bad one at all, but it has been found that broadcast sowing and clipping will take the place of cultivation in rows and keep the weeds down. The great fields we saw a few days ago on the Occoneechee farm of Col. J. S. Carr, near Hillsboro, N. C., now a number of years old, were broadcasted and clipped and limed. Next spring it is the intention, we believe, to disk these fields over thoroughly and fertilize to renew the growth. It has been found that when the crop is a number of years old this disking and thorough chopping of the whole surface is of great advantage to the crop. Col. Carr has now about 25 acres in alfalfa, having broken up one field this season, and has also sown another large field to take its place. He is growing alfalfa as a money crop for the hay, which he sells in various parts of the country at a remunerative price. We are firmly of the opinion that south of the Potomac at least, if not somewhat north of that line, the sowing should always be done in the fall. Weeds trouble the young plants much less at that season, and a fairly good crop can be had the following season, after liming the young growth in the spring. The essentials in the production of alfalfa seem to be a strong soil well drained, clipping two or three times the first season, and an occasional dressing of lime. A plant of good size pulled from the soil will show few, if any, root tubercles, for they seem to be mainly on the smaller roots and further down than in most legumes. Dig a plant carefully and the tubercles will usually be found. Of course a plant that produces such a heavy growth draws heavily on the mineral content of the soil, and the fertility of the land must be kept up. Stable manure is good, but it is lacking too much in phosphoric acid and potash and tends to weeds. An annual dressing of acid phosphate and muriate of potash will be found better on most soils, and lime must be supplied once in four or five years. The time is close at hand when every farm North and South will have its permanent meadow of alfalfa, just as they now have a permanent pasture. Alfalfa is not intended to supersede red clover in the North or cow peas in the South, for it is not a plant to take into the regular farm rotation. But as a standby it will be found invaluable, and as in Col. Carr's case, it can be made a very profitable money crop.

A Kansas Man's Analysis of the Dairy Business.

(By W. F. JENSEN, Secretary and Treasurer of The Continental Creamery Co.)

Has it ever occurred to you that the most prosperous countries make a leading issue of the dairy business? The richest and most contented states in the Union are those wherein the farmers depend on dairying to a large extent. In making a trip through Northern Illinois, Southern Wisconsin, the New England states and New York state, the traveler is impressed with an apparent barrenness of the soil, and yet he sees on all hands fine dwellings and barns. The many millions of dollars that were loaned to farmers in the west, by eastern loaners, were largely the savings of those people of the rocky hills and fields in the east, who seem to get from their herds of dairy cows, a nice, comfortable living, and in addition a nice, comfortable bank account. The longer I live here in Kansas, the more I am impressed with the fact that a great many of the Kansas people are neglecting their opportunities and neglecting their possibilities to extract from their farms their greatest values in return for their labor and possessions. There is no question but that butter and cheese at the present value, which is 3 or 4 cents higher than it has been for a number of years, is better than any other line of farming; besides it lends to farming a certain stability and assured income. And we all know how well and how contented the old soldier feels who has his pension coming every month. I had this brought to my notice last week, very forcibly indeed.

In the summer of 1895, when I was running creameries in Mitchell county, I had occasion to help a farmer buy twenty cows. This farmer was almost on the verge of bankruptcy, having a big mortgage on his farm and nothing to pay principal or interest with. He milked very heavily during the years of '95, '96, '97 and '98. He had an average income annually of over twelve hundred dollars from his dairy, and eventually paid off the mortgage and had fifty or sixty cattle on hand.

Mitchell county was then blessed with several good wheat crops, and this man I have in mind, in company with a great many other Kansas farmers, thought that he could make all the money that he would want by raising wheat and fattening cattle. I met this old friend of mine last week and the first thing he asked me was, could I assist him in getting money wherewith to buy fifteen or twenty cows. He said he had plenty of roughness and plenty of fodder and nothing to feed it to. If this gentleman had kept on milking fifteen or twenty cows, if he had continued dairying and diversified farming, if he had not put his dependence entirely on one crop, he would today perhaps have had plenty of money in the bank, been in easy circumstances and able to buy a hundred or five hundred cows if he wanted to do so.

I feel stronger than ever in my belief that neither Kansas nor any other country is adapted to purely grain raising. Any farmer can maintain ten, fifteen or twenty cows on a quarter section, and he can receive from them a steady, reliable income of from six hundred to one thousand dollars per year, and can he wish for better conditions than those?

Farmer boys will go to town to look for work as clerks for salaries of three, four and six hundred dollars per year; yet they have the chance on the farm to earn many times that amount, to live in ease and comfort, to be engaged in the most independent and surest way of making a living that is known to man. I maintain that no state or farming community can be called prosperous until its farmers engage in diversified farming, depending not on one or two grain crops, but depending above all on keeping their herds of cows to which they can feed the fodder and grasses that have their natural home in Kansas. And when that time comes, as surely it will, when the majority of Kansas farmers realize that dairying and diversified farming means prosperity, then Kansas will be the wealthiest and most contented agricultural state in the Union.

Making Cottage Cheese.

[Extract from U. S. Farmers' Bulletin No. 166.]

A toothsome and nutritious article of food is made from sour skim milk or buttermilk by allowing the casein to coagulate by the action of acid already naturally formed, and then expelling the water by the aid of heat. A considerable number of products, locally distinct and different in the degree of dryness of the curd, are made in this way. The general process of manufacture is to take sour buttermilk or skimmed milk which has coagulated, heat it gently from 85 to 125 degrees Fahrenheit, according to circumstances, and drain off the whey through a cloth strainer. Then reduce the texture of the resulting curd by kneading with the hands or a pestle; salt is added, and the produce is improved by the addition of a small quantity of cream or butter. Some persons consider it an improvement to season by the use of one of the more common spices, as nutmeg, caraway, etc, It is largely made only for domestic consumption, but in most cities and villages, especially during the summer months, there is a considerable demand for fresh cheese of this sort, and its manufacture is often a source of revenue to factories suitably located. It is usually sold and eaten in a fresh state, but it may be subjected to certain processes, which quite materially change its character and which vary widely in different localities. This simple kind of cheese is also called Dutch cheese, cottage cheese, and schmierkase.

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A beautiful Georgia lady, Vice-President of the East End Palmetto Club, of Savannah, and prominent socially there, relates the following experience: "You certainly have produced the finest medicine for suffering women that is to be had in the country. I want to recommend it especially to mothers. I was seventeen years old when my darling boy was born. Felt very exhausted and weak for a long time, and it seemed I could not get my strength back. My sister-in-law bought me a bottle of Dr. Pierce's Favorite Prescription (after I had tried several of the other remedies which are so much advertised, and found no relief). I had little faith in the medicine at the time and was so weak and sick that I felt discouraged, but within a week after I had commenced taking your 'Prescription' I was like a different woman. New life and vitality seemed to come with each succeeding day, until, in a few weeks, I was in fine health, and a happy, hearty woman. My boy is now two years old, and, thanks to your splendid medicine, I am enjoying perfect health. If at any time I feel tired or in need of a tonic, a few doses of your 'Favorite Prescription' recuperates me at once. My address is No. 511 Jones Street, East, Savannah, Ga.

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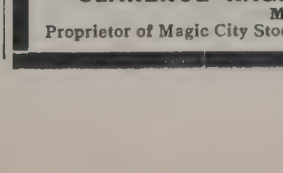
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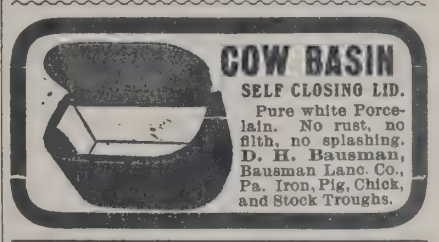
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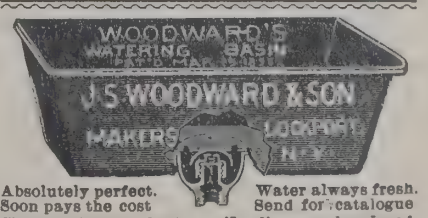
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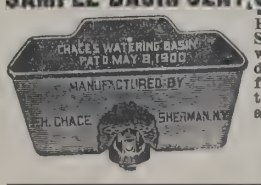
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Care of the Cows at Calving Time.

ED. HOARD'S DAIRYMAN:—Frequently dairy farmers are altogether too careless in regard to the treatment of their cows that are carrying calves. This is far from being an unimportant question, as many are inclined to imagine, and should be clearly understood by all those who wish to attain perfection. To begin with, I may state that there are many little items in regard to the management of the pregnant cow, which all dairymen should thoroughly understand, and if these were better understood by those connected with this industry, there would be a marked falling off in the deaths amongst our dairy herds.

It is a very evident fact that when a cow calves, there is a sudden rush of milk into the udder. This must, to a certain degree, cause a shock to the system, which in a great number of cases is the chief factor in causing milk fever. This is probably caused through the animal being too fat and not having sufficient exercise. To prevent this, one must take steps to eradicate this ever prevalent disease.

In the first place, after the animal has proved in calf, and not required any further for milking purposes, she should be put on entirely different diet. At this period it is not necessary to stimulate the milk flow, hence, food required for that purpose would be turned into fat. In cases where cows are used to being stabled, their food should consist of bran mashes, with sufficient linseed cake, to keep the bowels open. While on the other hand, if they are not stable fed, they should be turned out on poorer country immediately their services can be dispensed with in the herd.

Milk fever seems more likely to attack animals that have had several calves, than heifers. If the animal happens to be a very heavy milker, and comes from a breed of cows that have suffered from milk fever, she should have some medicine in addition to the food stated above. During recent years it has been found that the administration of a drachm of iodide of potash in water night and day, for a week previous to calving, is an effective preventive for milk fever; and if the cow is very fat she should have an extra dose prior to calving.

Animals that are unfortunate enough to be paralyzed with the disease are often cured by injecting two drachms of the medicine dissolved in a quart of freshly boiled water, into the udder. Some people at this stage will persist in giving the animal a good dose of Epsom salts; but this is not altogether a good plan, as the unfortunate animal may be choked. When the calf comes, and the cow is not showing any symptons of the disease, no attempt should be made at first to remove the afterbirth, but if does not come away promptly she should be given a good feed of oats as this frequently has the desired effect. If the cleaning does not come away within three hours after this, then it should be removed by hand. The newly calved cow should have sloppy bran mash providing she is stabled.

The milk should not be wholly stripped away at first. The calf sucks but a small portion at first in nature and this is the index for us to follow. For a few days, milk some three times a day, but do not take all the milk to cause a void in the udder which the lacteal glands immediately try to fill up, causing a strain upon the system of the cow. It is better to allow the calf to suck for a few days in cases where the cow is very fat. If the udder does not soften promptly it should be bathed well with hot water three times a day, and castor oil well rubed in. Stabled cows should be fed carefully for at least a week after calving.

"DAIRY SUPERVISION IN AUSTRALIA."

Recently a very great amount of dissatisfaction has been caused amongst the dairymen in this country in regard to the provisions of the proposed new bill for the supervision of dairies and milk production generally. This bill has been drafted by Dr. Gresswell, chairman of the Public Board of Health, and while that respected gentleman may have had good intentions, he contrived to introduce some clauses, if carried out under strict inspection, would I dare say be the means of injuring this thriving industry. That the utmost cleanliness should exist in all dairies and everything pertaining to the production, handling and sale of milk, goes without saying and I must candidly confess that there is great room for improvement in the general management of our dairy herds, and the milking yards and sheds are frequently in a very bad state. But to give the Board of Health the power to make regulations pertaining to the milk, the cow, the men employed, the milking sheds and almost everything in connection with the whole dairyman's plant appears to me to be quite uncalled for.

The industry is not in the position to stand such legislation that will cause unnecessary expense to our dairymen. The production of butter for the past couple of seasons, even in the most favored districts where drought has been unknown, has gone off considerably; and if dairy farmers are forced to have their cows examined twice each year, at their own expense, and those supposed to be suffering from any disease, destroyed, well, I think all those individuals who are possessed of any brains at all, will leave dairying alone. This periodical examination is, of course, intended for a check against the spread of tuberculosis in our dairy herds.

The actual expense involved in making this periodical inspection and test, will probably amount to 10 or 12 shillings per head for the animals operated on, this I should say, is rather expensive for farmers. Another clause of this proposed bill provides that all cow yards, milking sheds, pig styes, etc., must be paved or flagged with brick, stone, cement or asphalt, and shall be provided with suitable drains. This may prove all right in some districts where stone and bricks are plentiful, but in other parts of our country it would mean a very large outlay for the farmers. In trying to accomplish too much in this respect there will be nothing done, hence, it is to be hoped that this industry will not get a reverse that may put it back for a considerable time.

PROPER TIME TO FEED COWS.

The time of day at which dairy cows should be fed, is a matter of more importance than most people are inclined to think. In referring to this subject, my advice applies more to those who run their cows on the pasture and feed at various times during the day. A great many dairy farmers make it a practice to feed their animals either in the morning, when milking operations are going on, or just after the milking is concluded, and again in the evening. The result is, that instead of the cows going away during the intervening time and feeding, they hang round the yard or paddock where the fodder is usually dealt out to them.

This causes them to be unsettled, and the consequence is, that the milk supply is affected. Except in cases where there is no natural fodder, it will be found a wiser plan to only feed once a day and give them that at night after the milking has been accomplished. Those who have tried this plan, find that it acts splendidly. The best plan, I think, is to have a couple of small paddocks near the milking sheds. In these the cows can be turned after they have been milked, and a good supply of food, whatever it may consist of, can be handed out to them. The animals quickly fill themselves, after which they lie down and chew their cud quite contentedly. When they are required for the morning, there is little or no trouble required in mustering them. After they have been milked they go away quite contented to the grass paddock, realizing that they are not to receive any more artificial food until evening comes round. Those who have followed out this plan, find that it gives very satisfactory results.

MANGLES FOR WINTER FEED.

Of all the root crops grown for winter feed for dairy cattle, perhaps none are so satisfactory and so profitable as the mangle where soil and climate are suitable. A few farmers in our state have been in the habit of growing a small area each year, but the practice is not so general as it should be. When fed to cows at the rate of 25 to 30 lbs. per head per day, together with as much good oat straw as can be eaten, the supply of milk during the winter months is maintained at a high level. On fairly good land one can rely on an average crop of, say, 60 tons per acre, and though in bad seasons only 40 tons may be obtained, yet in favorable years up to 90 tons is not an uncommon occurrence.

The first essential in mangle culture, is a piece of good soil in a moist but not wet situation, as the roots have to grow in the summer. The land is plowed in latter end of April or beginning of May, which soon brings up an autumn growth of weeds, and early in spring a scarifying is given, and sufficient harrowing to reduce the soil to a fine tilth. Raised drills about 28 inches apart are made with the hiller, and then the surface is flattened and compressed with the roller. The quantity of seed required, when sown by hand, is about 3 lbs. per acre. A dibble 16 inches long should be used, and with this a small hole is made about half an inch deep, into which two or three seeds are dropped and the earth firmly pressed over them. The distance between the holes should be 16 inches, which is measured by the dibble of that length. Hand sowing may appear a slow and tedious method, but when over 100 tons of roots can be obtained from a couple of acres, the labor cost is comparatively trifling. On large areas the drill should be used. When the plants have been up for a few weeks and are about 5 inches high, they should be thinned out, only leaving one every 16 inches. The plants should be thoroughly cleaned of weeds a couple of times, which is all that is necessary. The roots may be pulled during the month of May. The tops are pulled off and the roots carted to a convenient spot, where they should be piled in heaps about 5 or 6 ft. high. No cover is required, as after being stacked for a few weeks they are better for feeding purposes, becoming a little softer and more easily eaten by stock. Mangles are gross feeders, hence a good supply of manure is very essential for the production of a good crop.

AUSTRALIA.

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Bull two years old out of Count Topsy 24.27 lbs. butter 7 days. She won 1st prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

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HAZEL FERN HERD. A. J. C. C. Jerseys blood of St. Lambert, Melia Ann, Combination, Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

ROBINSWOOD JERSEY DAIRY is offering a few Reg. Jersey Bulls ready for service at from $25 to $50, sired by a grandson of Recorder, the only living son of Brown Bessie, out of good cows. Write, stating your wants, to
N. H. ROBINSON, Prop., Centralia, Wis.

FOR SALE.
JERSEY BULL, one year old. Good individual of the best breeding. Also 7 months bull from tested dam. Herd headed by Fontaine's Owl, 60436. Prices on application. Address,
J. F. EGERTON, Footville, Rock Co. Wis.

The Evergreen Farm Herd has for sale three or four A. J. C. C. heifers bred Also a few cows and some choice bull calves from two to six months old. Write for pedigrees and prices.
N. N. PALMER & SON, Brodhead, Wis

JERSEYS. ST. LAMBERT and Combination, for sale; 13 cows, 8 heifers, 29 bulls
S. E. NIVIN, Landenburg, Pa.

Manure Cellars in Vermont.

A Silo Question.

ED. HOARD'S DAIRYMAN:—John Gould says in HOARD'S DAIRYMAN that he does not see why the New England farmers stick to their manure cellars. I can tell him how he can find out. Let him build a barn with a manure cellar and use it for two years and the problem will be solved. He will then ask the question: How did I ever get along without a manure cellar?

I would like to ask Mr. Gould if he remembers trying to get to Washington, Vt., with the Board of Agriculture, the 19th of February, 1902? Would it have been possible to get into most of our fields to spread manure? And that was not an exceptional day by any means.

We have many such days in the winter. There are three men of us on our farm, all good workers, and there were 30 or 40 days during the winter that all of us could not have kept the road clear, cleaned the stables and spread the manure from 65 head of cattle each day as they come and the manure is not worth near as much as when kept in the cellar and drawn out when wanted.

Then, it is too expensive to hitch up a pair of horses 365 days in a year to draw out one or two loads of manure. When with a manure spreader you can draw out 25 or 30 loads without hitching up of team. In haying it is a great hindrance and on Sundays it is not pleasant and the men do not like to do it.

I would like to ask Mr. Gould if he thinks it would hold to use elm ½ inch sprung round a round silo for hoops to begin at the bottom and cover the outside and nail with 8-penny nails, breaking joints. R. T. D.

Williamstown, Vt.

The American Corn Row.

A Record of Waste.—Nothing Practical About It.

"The American corn row last year reached from the earth to the sun and back again with some million miles to spare, and we harvested just about one-third of the crop, which a wiser agriculture would have given us.

PROF. I. P. ROBERTS."

And yet, every farmer who was one of that great army who raised but a third of a corn crop, or when he had raised that third, wasted a large portion of it by unwise methods of feeding, looks upon himself as a *practical* man. Was ever the word "practical" worse applied than by these men who use it to cover their lack of intelligent methods? In their minds the teachings of knowledge, of experience, of science are nothing but theory, while they are the real practical men of agriculture.

A leading farmer of Pennsylvania once said to us: "I prided myself for years on being a *practical* man, until by some means or other I discovered that I was using the word to cover my own lack of sound knowledge. Since that time I have looked back on my own ignorance of what I could easily have known of good farming methods, had I been a mind to, and feel ashamed to think I ever used the word. It didn't apply to me at all."

Truly we "live and learn" but slowly, and when we come to see that we really need to learn, there are but few years left in which to learn.

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA.

President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.

FEES FOR REGISTRY.

TO MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.

NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. ☞All blanks furnished free.

Life Membership, $25.

Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.

Address F. L. HOUGHTON, Putney, Vt., for information relating to Registration of Pedigrees.

HOLSTEIN-FRIESIAN BULLS FOR SALE.

Ready for service; from A. R. O. animals; sired by Johanna Rue 2nd Paul De Kol, sire of 13 A. R. O cows. Also young bull calves by same sire. THOS. CAINES. Supt.

ARCADIA, - MISSOURI.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A

4 BULL CALVES FOR SALE

Under 6 weeks, fine individuals from our Clyde Paul De Kol bull; Dam 24.38 lbs. butter in 7 days. And from tested cows, with good records, the price is right. W. B. SMITH & SON, Breeders Pure Holstein Cattle. 2488 W. Broad St., Columbus, O.

ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale. GEO. T. McNEIL, Theresa, N. Y.

WOODLAKE HERD.

Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN Station D., R. 1, Minneapolis, Minn.

STAR FARM HOLSTEINS

DROUTH DROUTH DROUTH

My pastures are a total failure. *Must sell immediately, 50 royally bred registered Holstein cows.* You can get the best. You can make your own price. Inquire at once. HORACE L. BRONSON, Cortland, N. Y.

TYRANENA HERD

100 HOLSTEIN-FRIESIANS 100

A. R. O. Stock For Sale.

Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz Frank B. Fargo, Lake Mills, Wis.

SOUTH SIDE FARM, WHITE BEAR LAKE, MINN.

Holstein-Friesians.

Bulls in service, Prince Inka Pietertje De Kol 2d, A. R. O., 144, sire of 10 A. R. O. cows, and Daisy Van Beer's Pauline De Kol. 27610, whose dam has official record of over 22 lbs. in 7 days. Special prices on young bulls from A. R. O. cows. Also Yorkshire pigs of most approved breeding now fit to ship.

Holsteins That Produce Are The

HOLSTEINS THAT PAY

The kind we sell. Backed by the largest official butter records ever made. All ages, both sexes. Over 100 head to choose from. BROOKSIDE STOCK FARM, HENRY STEVENS & SON, Box 208, Lacona, Oswego County, N. Y.

FOR SALE. H.-F. Bulls, ready for service from A. R. O. Cows and sired by Sir Jonanna DeKol, 25467 A. R. O. Butter record of dam, 21.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis.

GLENVIEW HERD

A few fine heifers and bulls for sale. Also some A. R. O. cows. IRVIN NOWLAN, Toulon, Ill.

Markham Manor Farms, Simonsville P. O. Andover, Vt.

Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Solderne Clothilde. No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for description and price to J. A. THORNTON, Manager, Simmonsville, Vt.

FOR SALE.

H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address W. H. JONES, Watertown, Wis. Rural Route No. 2.

CLOVERDALE HERD

HOLSTEINS.

Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.

A. J. DAUGHERITY Streator, Ill.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS | 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148 Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.

WM. EVERSON & SONS, Lake Mills, Wis.

70 HEAD PUBLIC SALE 70 HEAD

GREATEST OFFERING OF

HOLSTEIN-FRIESIAN CATTLE.

McADAM & VON HEYNE'S

Justly Celebrated Herd of Holstein-Friesian Cattle will be sold at Public Auction, at Brothertown Stock Farms, Deansboro, N. Y., on

WENDESDAY, JULY 15, 10 O'CLOCK A. M.

SADIE VALE CONCORDIA, THE WORLD'S CHAMPION BUTTER COW, with an official butter test of 30 lbs. 10 2 oz. of butter in seven days, 123 lbs. 10.7 oz. in 30 days, and 220 lbs. 8.4 oz. of butter in 60 days, will go to the highest bidder. Also one of her sons, two daughters, five grand-daughters, two great grand-daughters and two great grand-sons are included in this sale, and placed within the reach of every buyer or breeder.

This sale also includes the famous ex-champion, Mercedes Julip's Pietertje, with an official record of 29 lbs. 5.7 oz. of butter in seven days, her daughter and her grand-daughter.

This Sale Offers to Breeders Three Sires of Very Choicest Breeding

SADIE VALE CONCORDIA'S PAUL DE KOL, No. 27,392, three years old; sire Paul De Kol 4th.; dam, Sadie Vale Concordia, official record 30 lbs. 10.2 oz. butter. This is the world's record for mature cows.

SIR PIETERTJE POSCH, No. 30.155, two years old; dam, Alta Posch, official record 27 lbs. 2.4 oz. butter, at 2 years and 11 months. This is the world's record for two and three year old cows.

CANARY MERCEDES JOHANNA DE KOL, No. 30,251; sire Johanna Rue 2nds. Paul De Kol; dam, Canary Mercedes Brightest, official record 21 lbs. 3 oz. at 2 years and 11 months. His four nearest dams average 23 lbs. 5.6 oz. butter in official record; they also average 4.06 per cent. in butter fat. All cows offered are in calf either to one or the other of the above named bulls. The Herd numbers

70 HEAD OF VERY SUPERIOR ANIMALS,

selected with great care. A large number being from the CELEBRATED YEOMANS HERD. This superiority has been strongly demonstrated, having won in last year's official tests more prizes for large and economical production than any other herd either in the United States or Canada.

In this offering of fine stock are cattle suitable for the best herds, also for the improvement of good herds, as well as cattle for the beginner; as the latter, in buying any of these cattle will start with the most famous and most desirable families, the most important, if not the prime factor in the success of breeding pure bred cattle.

The farms can be reached on the D. L. & W. R. R. to Waterville, N. Y., or the O. & W. R. R. to Deansboro, N. Y., where at either station visitors will be met promptly, on the morning of the sale, and conveyed to the farms. Also the farms can be reached by trolley from Utica to Clinton, N. Y., thence by livery. Catalogues ready early in June. Address

Mc ADAM & VON HEYNE, Deansboro, N. Y.

The sale will commence promptly AT 10 A. M. WEDNESDAY, JULY 15, 1903.

COL. CAREY M. JONES, Auctioneer.

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Headed by Mercedes Mechthilde Pietertje. No. 25,795, oldest son of Mercedes Julips Pietertje. 75 O. I. C. White Pigs, both sexes, in pairs and trios, not related.

W. R. GATES, Fort Atkinson, Wis.

OAKLAND HERD HOLSTEINS

PREMIER SIRE **Mutual Friend 3d's Paul** A son of Paul De Kol & Mutual Friend 3d, 21.84 lbs. butter, milk averaged 4.7% at 3 years. She has two A. R. O. daughters; 1 made over 20lbs, Must reduce herd at some price. State just what you want T. A. MITCHELL, Weedsport, N. Y.

BROOKSIDE HERD

HOLSTEIN-FRIESIANS

To reduce herd to capacity of pasture, will sell a limited number of A No. 1 young cows of high breeding and individually right, large producers, at $150 each; also 15 bull calves at bargain prices.

STEVENS BROTHERS, Lacona, N.Y.

THE MAPLE'S HERD

offers good young cows with A. R. O. records in calf to Beryl Wayne De Kol Paul, No. 28785, whose dam Beryl Wayne has an official record of 27.87 pounds of butter in 7 days. Also four yearling bulls ready for service. Special bargains in heifer and bull calves.

JOHN C. GODFREY, PENNELLVILLE, N. Y.

Holstein-Friesian Bull Calves

Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

HOME FARM HERD.

Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams 25.1 lbs. butter in seven days. Herd numbers 125 head.

BEST FAMILIES REPRESENTED.

Special prices on six or eight bulls of serviceable age. W. B. BARNEY & CO, Hampton, Ia.

FOR SALE 2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.

M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

MONONA FARM Offers for sale a few well bred Holstein-Friesian Bull Calves. Also two Service Bulls at reasonable prices. The Monona Farm Herd is founded on the best stock of the De Kol, Netherland, and Clothilde families. Pense Johanna 29332 the head of the herd has 7 A. R. O. dams averaging 22 lbs., 3.7 oz. Junior sire Paul Calamity De Kol 31095.

MADISON, WIS.

THE MONONA FARM HERD. Address, F. W. ALLIS, Madison, Wis.

Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

.....YOU MAY.....

BEGIN AT THE HEAD

to improve your dairy herd with a bull whose dam has official record of 18 lbs. 6.3 oz., sires dam 20 lbs. 8.8 oz. Individual right. Price Right.

McKAY BROS., Buckingham, Iowa.

HIGH-CLASS HOLSTEIN-FRIESIAN BULLS

and Bull Calves from A. R. O. dams and the best Advanced Registry sires. Cows all officially tested; I breed from no others. Correspondence from breeders and progressive ddirymen invited. Malcolm H. Gardner, Darien, Wis.

HOLSTEINS

High Class Advanced Registry Stock only. Best butter families. Stock for sale.

Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.



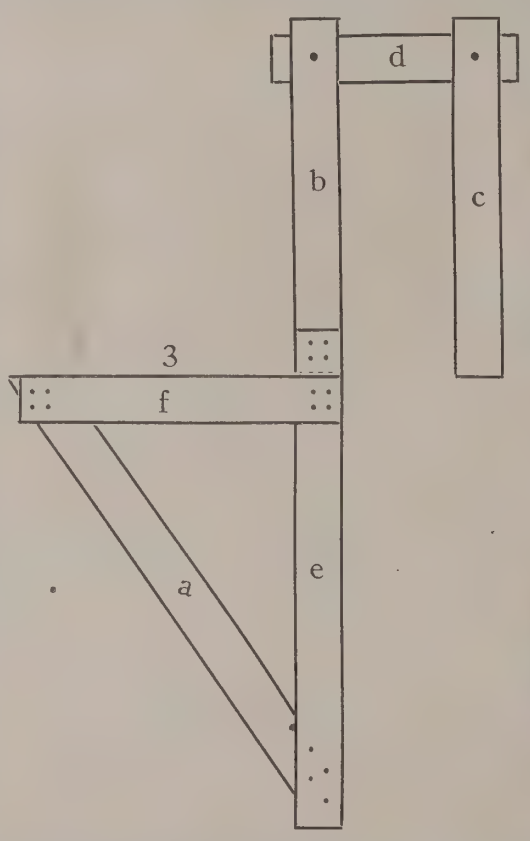
T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale. Wm. O. Jackson & Sons, South Bend, Ind.

LOOK HERE.

34 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by Gem Pietertje Hengerveld Paul DeKol, or Sir Ormsby DeKol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days, average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd? McGEOCH HERD is located at Lake Mills, Wis., 56 miles west of Milwaukee. For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis Residence: National Ave. near 40th. Phone, South 1601.

How a Cement Silo was Built.

In erecting the cement silo referred to in the article of Mr. Wing in your issue of April 22, I would say that we used the best quality of Portland cement, one part; clean sand, three parts, and screened gravel, five parts, the sand and cement being thoroughly mixed dry, and sufficient water added at the time the gravel was mixed in to make a tolerably thin mortar. We were unable to get gravel with an admixture of sand in the right proportions and consequently were compelled to screen our gravel. We dug a circular ditch the size of the silo 3 feet deep and 1 foot wide. This we filled with mortar to a level with the surface of the ground. Two circular hoops, one 36 feet and the other 38 feet in diameter and 2 feet wide, were then made by nailing half-inch green oak boards on 2×4×3 feet hemlock pieces, which were placed vertically on the inside of the smaller hoop, and on the outside of the larger hoop, were fastened together at the top, 12 inches apart with 2×4 inch cross pieces bolted on. The mould thus made was then set on top of the foundation wall, one hoop on each side thereof and 12 inches apart. After the first filling of the mould, each hoop was cut in three places and a section of about 6 inches taken out of the inside hoop at each place where cut. Draw and extension lugs were then attached to each hoop at each place where they were cut, in such manner that the sections of the inside hoop could be drawn closer together at the points where cut and the sections of the outside hoop pushed apart at such points, thus lessening the diameter of the inside hoop, and increasing the diameter of the outside one. By this manner, after the wall had sufficiently hardened, for which we allowed three days after each filling, the sides of the mould could be loosened from the wall, so that the mould could be easily lifted. The raising of the mould was accomplished by five or six men, each with an improvised lifting jack placed under the cross pieces at the top of the uprights on the mould and resting upon boards placed on the top of the cement wall. By all of them lifting together at the same time the mould could be easily raised and was held in place by putting supports under it at a few points around the wall. These supports were 2×4 in. pieces set upright and resting upon the ground. We tried putting pieces of iron rods under the mould and on top of the wall, but found the uprights preferable. Each time after the mould was raised it would be brought into proper position by tightening the lugs on the outside hoop and extending those on the inside hoop, when filling would again proceed. The mortar was thoroughly settled in the mould with a spade and smooth surfaces of the wall were secured by running the spade up and down the inside edges of the mould after the mortar was put in.



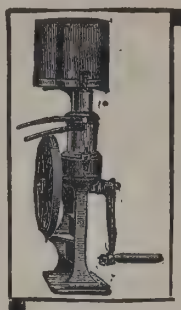
The wall was built to a height of about 6 ft. without scaffolding. In order to make a base for scaffold boards, pieces 2×4 in. and about 5 ft. in length were spiked to the lower end of the studding on the inside hoop and to this extension were spiked two pieces, making an inverted triangle as shown in the figure. The studding on the hoops were placed 2 ft. apart and brackets for scaffolding 4 ft. apart. The scaffolding boards were nailed securely to the top of these brackets. The scaffold was cut at each of the three points where the inside hoop was severed so as to allow the hoop to be contracted at the time of raising the mould after each filling. The mould and scaffolding were thus all connected and all raised together after each filling in the manner described.

Before beginning work on the silo we erected in the center of the site a heavy strong pole about 65 ft. in height made by splicing three telephone poles together. Our silo was to be 52 ft. in height and 36 ft. inside diameter, so we placed on this pole at 50 ft. above the ground, a swinging arm 18 ft in length and attached to the outer end a block and tackle which was operated by a horse and with which the mortar could be raised and landed at any point on the scaffold. Three loops made of wire were attached to the lower block and one of the loops was thrown over the wheel of the wheelbarrow in which the mortar was brought inside the silo, and one over each handle, and in that manner the filled wheelbarrow was raised to the scaffold and landed at any desired point thereon, and the mortar dumped directly from the wheelbarrow into the mould by one man taking hold of the wheelbarrow at the wheel and another at the handles. An ordinary horse could raise all two men could handle in this manner. We laid in the wall about 6 to 8 inches apart strands of oo wire, which is about ⅜ inch in thickness, and has a tensile strength of 8,000 pounds, the ends being passed by each other and doubled back.

The doors were made by setting a wooden frame 2 feet 6 in. by 3 feet with a 3 inch jam into the mould and filling with mortar around it. The bottom of the first door was placed 6 feet above the ground and the bottom of each succeeding door 4 feet from the top of the one immediately below it. To re-enforce the wall at the doors a number of extra wires 10 or 12 feet in length were placed in the wall below, and above each door and extended up and down into the wall at the sides of the doors, the ends of each strand being doubled back onto itself. A temporary door extending to the ground was left at the bottom of the silo to admit the wheelbarrows, and the wires laid in the wall were left long enough at this door, so that when it came to be filled up, after the silo was completed, they could be tied together, thus causing no weakness of the wall at that point.

We used an earth bottom. The inside of the wall, after the silo was finished, was given a heavy coating of coal tar applied as hot as possible. We made a row of doors on opposite sides of the silo and constructed over each a chute extending to the top of the silo, a ladder being made fast to the inside of one chute, and the whole fastened and held by bolts set in the wall as it was building. The silage is thrown from the silo into these chutes from any of the doors and drops directly into the feed wagon.

This silo was erected with our ordinary farm labor, two fillings of the wall being made each week, which necessitates extending the work over a period of four months. This method we found very practical, situated as we were, but if one were expecting to employ a special force of men to erect a silo and wanted to push it to completion as rapidly as possible, it would, of course, be best to use continuous cribbing instead of the mould. The cribbing for the whole of a silo, however, would form a considerable item of the cost. If walls thinner than 12 inches were built—and were I building again I should make the walls only 4 or 6 inches thick—continuous cribbing would be required. A closely woven wire screen 2 or 3 feet wide and fitted with draw



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on your own farm and make sure you have a bargain and a money maker, when you buy the
AMERICAN CREAM SEPARATOR.
A friend to every man who owns a cow. A machine that is sold on its merits at a surprisingly low price. Get in touch with us. Write for our catalogue. **It Is Free.**
American Separator Company,
Won Medal at Paris in 1900. Box 1023 Bainbridge, N. Y.



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AN UP-TO-DATE MACHINE REPLETE WITH PRACTICAL IDEAS
It is built in the following sizes:
250, 350, 450, 600, 750 POUNDS PER HOUR
Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.
SEND FOR CATALOGUE NO. 60 AND PRINTED MATTER.
IOWA DAIRY SEPARATOR COMPANY, WATERLOO, IOWA.



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If you are thinking of buying a Cream Separator write us for Catalogue and information. We manufacture the best machine on the market.
Davis Cream Separator Co.,
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NEW OXFORD
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Sold on guarantee to be the best on the market. Catalog free.
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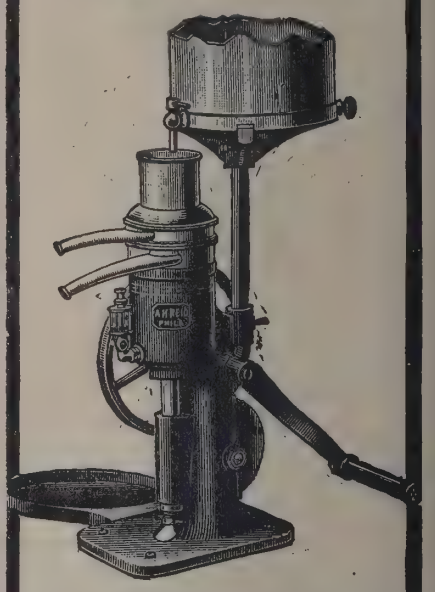
Shepherd's Aerator
is most simple, most effective, least trouble. While you go on milking millions of air globules from the charged tank are passing up through the milk, driving out all animal heat and foreign odors. Works in shipping can. No other vessel to clean. **King among Aerators.** All dairymen prize it. Write for descriptive circular.
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Creasey Ice Breakers



Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right.
Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.
J. S. L. WHARTON, Mfr.,
7th Clearfield Sts. Philadelphia, Pa.

Reid's Hand SEPARATOR



The "best" separator is that one which does its work most thoroughly and easily, that is built of strongest material, and that is most easily washed and kept in order.
First cost is a great point with a buyer, but ease of running, perfection of skimming and simplicity in washing are even greater considerations.
The **Reid Hand Separator** has but a single cylinder inside the bowl, and skims as closely as one-hundredth of one per cent. Indeed, some tests indicate "not a trace" of fat in the skim milk.
The Reid is perfectly planned and strongly built, and it literally "runs like a watch."
As to our guarantee of excellence, we make the strongest statement that can be expressed in words: **Money back (less freight) if the buyer is not satisfied.**
There is a new (free) booklet about the Reid Hand Separator.
Sizes run from 150 lbs. to 500 lbs. per hour.
A. H. REID
CREAMERY AND DAIRY SUPPLY CO.,
PHILADELPHIA, PA.

MILK WON'T SOUR If you use The Erie Can Refrigerators. An acknowledged Success. Booklet Free.
S. C. SULLIVAN, 425 W. 4th., Erie, Pa.

lugs at two or three points to bring it tightly up against the wall could be used for the outside, and the screen held the proper distance from the inside wall by blocks which could be raised as the mortar was filled in.—HUMPHREY JONES in *Breeder's Gazette.*

Commercial Pepsin in Cheddar Cheese Making.

ED. HOARD'S DAIRYMAN:—In spite of the light thrown on the subject of Cheddar cheese making and ripening by the notable investigations of the Wisconsin and New York (Geneva) Experiment Stations, the manufacture of cheese still continues to be, to a large extent, a "rule of the thumb" process. A great amount of investigational work must yet be done in studying the principles underlying the action of rennet, the function of bacteria, and the chemical and biological changes during curing, before the manufacture of Cheddar cheese can be placed on anything like a scientific basis. One of the chief drawbacks to an understanding of the process is the very meager knowledge we have at present of the composition of the rennet extracts used to coagulate the milk. For some years it seems to have been generally conceded that good rennet can be prepared only from the stomachs of calves, and one frequently meets the statement that rennet extract should be made from "the fourth or digestive stomach of a calf that has not yet ceased to live on milk."

Some of the Danish manufacturers go farther and say that good rennet can be made only from calves that have never had food in their stomachs, and base their claim for the superiority of Danish over American extracts upon the fact that large numbers of such stomachs are obtainable in Denmark, while they cannot be procured in America. These rennet extracts, we are told by the physiologist, contain at least two enzymes, one of which (rennin) coagulates milk but does not digest it, the other (pepsin) digests milk but does not coagulate it. Fleischman mentions still another enzyme that produces lactic acid. Granting the presence of these three enzymes, there are still present, in all probability, a large number of unidentified compounds, so that in reality we know very little of the true composition of rennet extract.

The writer has never felt convinced of the presence of two distinct enzymes, i.e. rennin and pepsin. As these enzymes are to a large extent hypothetical substances it seems that it would have answered the purpose just as well to have ascribed two properties to one body, as to have assumed the presence of two different ones, especially as the enzymes themselves have never been separated in the pure state. In the hope of throwing a little light on the subject of probable existence of one or two enzymes in the stomach, a series of experiments have been conducted by the writer which, while they have made no appreciable addition to the scientific phase of the subject, have taken a practical turn which seems to justify their publication. It may not be out of place to state here, that there are some results, which it is hoped can be added to and published in the near future, that seem to indicate that in fresh preparations made from the stomach lining the rate of coagulation bears a distinct relation to the rate of digestion.

While connected with the Wisconsin Experiment Station, the writer, who was assisting Drs. Babcock and Russell in their investigations on the influence of rennet in cheese ripening, suggested that it be attempted to make cheddar cheese by using commercial scale pepsin as a substitute for rennet extract. Two such cheeses were made and reported briefly in the 17th annual report, page 116. In making them, four (4) grams of scale pepsin dissolved in water was added to 125 pounds of milk. The milk coagulated to a firm curd that cut and acted in every way like the curd produced by rennet. The cheeses were typical high rennet cheese both in appearance and in the character of the chemical by-products. That they resembled high rennet cheese is not surprising in view of the fact that eight times as much pepsin was used as later experiments show to be necessary. Again, the milk where the four grams of pepsin was added coagulated in seven minutes, while the control, to which three ounces of Hansen's Rennet Extract to 1,000 lbs. milk was added, required sixteen minutes to coagulate. In the earlier stages of ripening they were in every way desirable cheeses, but later developed the bitter flavor characteristic of high rennet cheese ripened at high temperatures. When about two months old two of the experts scored the pepsin cheese above the control cheese, not knowing the history of the cheese they were examining.

Although this experiment suggested interesting possibilities, the press of other work made it impossible to follow this matter up at that time. During the past winter, however, through the courtesy of Professor Decker, of the Dairy Department of the Ohio State University, it was made possible to continue the work. The pepsin used was a sample of Armour's 1 to 3,000 soluble scale pepsin, kindly donated by the manufacturers. The first thing done was to prepare a solution having the same coagulating power as the sample of Hansen's Rennet extract, then being used in the cheese room.

After several trials it was found a 5% solution of pepsin was practically of the strength desired. A number of duplicate cheese were made, on different days from previously well mixed milks, using the pepsin solution in one vat and Hansen's Rennet Extract in the other. Apparently the curds produced were just alike. Mr. B. B. Herrick, instructor in cheese making, and well known as a practical cheese maker of long experience, conducted the experiments and much of the credit for their successful outcome is due to him. He is very positive that no cheesemaker could have detected any difference in the curds of the two vats. Unfortunately the milk received at that time was overripe and consequently none of the cheese were fully ideal. The pepsin cheese, however, were equal to those made with rennet extract, in fact, could not be distinguished from them.

These experiments gave such conclusive evidence that a solution of commercial pepsin could be substituted for rennet extract in ceddar cheese making that it was decided to continue the study under factory conditions and Mr. Herrick was so firmly convinced of the success of the venture that he offered to carry on the work at his own factory at Wellington, Ohio, at his own risk. Early in the season, two days' run of milk, several days apart, was made up into flats and held in his curing room at about 60° F. In making this cheese a 5% solution of Armour's pepsin mentioned above was used, being added to the milk in the proportion in which rennet extract is usually used, i. e. about three fluid ounces to the thousand pounds of milk. The curds were perfectly normal and the finished cheese of excellent quality. As the local market calls for a very young cheese, about twenty of this lot were sold, when six weeks old, to Mr. Herrick's regular trade and caused no comment which indicated that there was any suspicion that they were abnormal in any respect. When asked about them one dealer said that they were unusually fine cheese. Mr. Webster of the Horr-Warner Co. pronounced them excellent and Mr. Drennen of Philadelphia, a man with some considerable knowledge of cheese, declared them "equal to the best New York make."

A full week's run of pepsin cheese has recently been completed. Several runs of a week at a time will be made at frequent intervals during the season and it is expected that before the season closes the availability of commercial pepsin for Cheddar cheese making will be established beyond peradventure. Mr. Herrick is himself so satisfied of the practicability of using pepsin, that he declares that, if he had not a large quantity of rennet extract on hand, he would be inclined to use pepsin entirely in his factory.

The only points that remain to be determined are the keeping quality of the pepsin cheese, and whether they will age with desirable flavors. All the work done so far indicates that the development of flavor will be entirely normal. Several of these cheese, however, will be held long enough to demonstrate this point, part of them being kept at ordinary temperatures and the rest placed in cold storage. As a report will be made on these at a later date, this article may be considered as a "progress report" and is offered for publication at this time with the thought, that other cheese makers may be sufficiently interested to use the method to a limited extent in their factories and report their experiences. In case anyone should desire to do so the following suggestions are made: Use only

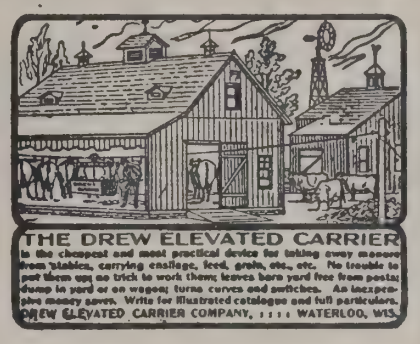
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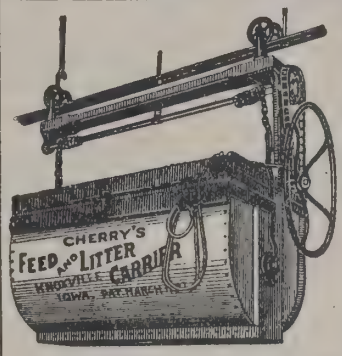
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scale pepsin of 1 to 3,000 strength and do not use any of the saccharated pepsins; dissolve one ounce of pepsin in twenty ounces of water and use this solution at the rate at which you are using commercial rennet extract, handling the cheese in the ordinary way; do not make up more of the solution at one time than can be used in three or four days—rather have it fresh, although the pepsin seems to be more active after a few hours than when first dissolved.

This question naturally suggests itself: Does the use of pepsin offer any advantage over rennet extract? There is practically no difference in the first cost at the present price of pepsin, though something might be saved in freight as one pound of pepsin will make two and one-half gallons of solution. At the present time, however, only a very insignificant part of the material available is used in making pepsin—the demand being somewhat limited and it is possible that it could be produced at a much lower cost if made in larger quantities. For the present the question of cost does not enter into the discussion. There are, however, one or two points in favor of the use of pepsin.

Rennet extracts are variable in strength. One well known cheese maker told the writer that it always took him some time to become accustomed to each new lot of rennet. The scale pepsins put on the market by reliable manufacturers to meet the requirements of the U. S. Pharmacopoeia (the so-called 1 to 3,000 pepsin) have proved fairly constant in strength. Again, rennet extracts deteriorate rapidly, especially in warm weather, while pepsin being in a dry form can be kept for a long time without injury. Rennet extracts often contain large numbers of bacteria and molds, while pepsin can be obtained approximately sterile. On the whole this use of pepsin seems to be of sufficient promise to justify a somewhat extended trial.

As noted above, these experiments add nothing to our knowledge of the number of enzymes present in the stomach, as the methods used in the preparation of both pepsin and rennet would tend to extract all enzymes present. They do, nevertheless, establish the fact that the stomach of the pig is as practical a source of coagulating material as that of the calf. It may be well to state here, that in a recent letter received from Armour & Company, in answer to some questions concerning the samples of pepsin used in these experiments, the statement is made that nothing but the linings of pigs' stomachs is used in the manufacture of their scale pepsin.

ALFRED VIVIAN.

Ohio State University.

Sugar Beet Pulp for Dairy Cows.

Bad Economy to Buy and Haul Any Bulky Food.—What Succulence Is and Is Not.

It is a well known fact that sellers and promoters of by-product foods always claim some mysterious value for their food not found by the chemist—a given percentage of protein and carbohydrates in New York State, they have to acknowledge. They assert that their particular food has a power to greatly assist assimilation of other foods.

My belief and understanding of the effect, source and value of succulence are about like this: In the first place, total solid digestible matter, properly balanced, is the basis of stock feeding. The animal cannot digest what it does not receive. When we, therefore, add succulence at the expense of digestible food nutrients, we are simply, in plain English, starving the animal, nothing more, nothing less. On the other hand, both for milk production and the building of an edible carcass, a small quantity at least of some succulent food must be given for the highest continued production.

What is succulence? Any food in which the natural juices are still held, either by cutting from a growing field or preservation in some form—ensiloing or storing roots. Drying a food and then mixing it again with water does not give succulence. In fact, it is my opinion that water added to any dry food is a positive damage, unless it is dusty hay for horses, and then it is given for a physiological effect, from the fact that less saliva is secreted during mastication.

Now in regard to beet pulp: Cornell Experiment Station found that it had, by weight, one-half the value of corn silage. Silage can be produced from a minimum of $1 50 to a maximum of $3 a ton, ready to feed from the pit. We are therefore safe in saying that beet pulp is worth, delivered at the feeding barn, from 75 cents to $1.50 a ton. I have had intercourse with many practical feeders, near to and far from the sugar beet factories in New York State, where they have paid from 75 cents to $1 a ton at the factory, and all the way from $1 to $3 freight, besides the handling and hauling from the railroad station, which would, of course, vary widely. It costs, by the way, more to haul and handle a ton of beet pulp, worth not to exceed $1.50, than a ton of cottonseed, worth more than $30.

I live three and one-half miles from a railroad station. Our teams will, as a rule, haul from four to five tons of stuff a day between milkings, morning and night.

The net cost of hauling a ton would, therefore, be not less than 60 cents nor perhaps more than 75 cents. The same rate for hauling food nutrients in the more highly concentrated food stuffs would be from $5.50 to $6.50 a ton. At this rate the item of hauling alone would therefore take away all the profit one might expect from feeding any food. Very few farmers have continued to feed the stuff, so far as I am aware, who were obliged to pay for any transportation charges.

If the feeding can be carried on at the factory and the labor of handling be minimized, pulp can no doubt be fed as a part ration.

There is a fault usually found, however, when large quantities of so-called cheap, bulky food are at hand, to overfeed. The animal is thereby forced to take too much bulk to get the required quantity of food. Filling a cow full and feeding her may be diametrically opposite propositions. From the point of view of an eastern cow feeder and milk producer, there is one fundamental principle that should always be kept in mind if foods are used not grown upon the farm—buy only the highest concentrates, keeping in mind, of course, the cost of the food nutrients contained and the requirements of the animal in order to balance the home grown stuffs. Produce and feed from the farm are of the succulent and coarse, bulky foods, which should constitute about two-thirds of the total food consumed.

To illustrate from present feeding: As I write (May 25) we are experiencing a severe drouth, and pastures are very short. To maintain milk flow grain must be fed.

It is a question, therefore, what foods will furnish the most digestible protein and carbohydrates for the least money. Here are some of the figures, putting a price of 3 cents a pound upon digestible protein and 1 cent a pound upon digestible carbohydrates:

Mixture of one-half ton cottonseed meal and one and one half tons corn meal; total cost at our railroad station, $33 for the corn and $15 for the cottonseed=$48.

The cottonseed contains 372 lbs. protein at 3 cents	$11 16
The cottonseed contains 444 lb. carbohydrates at 1 cent	4 44
The cornmeal contains 237 lb. protein at 3 cents	7 11
The cornmeal contains 2,292 lb. carbohydrates at 1 cent	22 92
Feeding value of two tons	$45 63
Cost over feeding value, $2 37	

Mixture of one-half ton linseed meal and one and one-half tons red dog or low grade flour. Total cost of mixture: Red dog, $34.50; linseed, $14.50=$49.

The linseed meal contains 293 lb. protein at 3 cents	$8 79
The linseed meal contains 485 lb. carbohydrates at 1 cent	4 85
The red dog contains 405 lb. protein at 3 cent	12 15
The red dog contains 1,974 lb. carbohydrates at 1 cent	19 74
Feeding value of two tons	$45 53
Cost over feeding value, $3 47.	

Two tons bran contain 488 lb. protein at 3 cents	$14 64
Two tons bran contain 906 lb carbohydrates at 1 cent	9 06
Feeding value	$23 70
Cost of two tons, $40; cost over feeding value, $16 30.	
Two tons middlings contain 512 lb. protein at 3 cents	$15 36
Two tons middlings contain 1 214 lb. carbohydrates at 1 cent	12 14
Feeding value	$27 50
Cost of two tons, $43; cost over feeding value, $15 50.	

I am, therefore, feeding the corn and cottonseed to milch cows, and the red dog or low grade flour and linseed meal to all young calves and hogs.

The cows are eating grass, which makes this food ideal, both from a physiological and pecuniary standpoint. The red dog and linseed are fed with whey, and so the combination is again ideal. The results in milk and growth are in harmony with the figures.

When it is necessary to increase the bulk and ash content, which it will be later in the season, I shall then put into the two tons mentioned a ton of bran, and all will again be complete.

I have departed from a discussion of the beet pulp question, but it was only to give a practical illustration of the proposition to buy highly concentrated foods. I could, if space permitted, make many other combinations that would arrive at the same conclusion. It does not pay to haul, handle and ship water.—H. E. COOK in New York *Tribune Farmer*.

The Value of Barnyard Manure.

The Ohio Station has recently issued a bulletin dealing with the important question of the preservation and proper use of barnyard manure. The experiments on this subject were made on rotations of corn, oats and wheat followed for two years by clover and timothy mixed, and on corn, oats, and wheat grown continuously. "In these experiments manure "taken from flat, open yards, where it had accumulated for several months during the fall and winter, and had been subjected to the conditions which affect the ordinary open-yard manure of the average Ohio farm, conditions which involve very considerable losses," was compared with manure treated as follows:

A lot of manure, taken from an open yard, where it had accumulated during the winter from daily cleaning out of the stable behind a herd of dairy cows, which had been liberally fed on bran, gluten meal, corn meal, hay and silage, was divided in the spring into four parcels. On one parcel the finely ground phosphatic rock, from which acid phosphate is made by treating with sulphuric acid, and which, in its untreated condition, is known in the south as "floats" was dusted as the manure was thrown into a pile; on a second parcel acid phosphate was dusted; on another the crude potash salt known as kainit, and on another, land plaster, or gypsum, these materials all being used at the uniform rate of two pounds per 100 pounds of manure, or 40 pounds per ton. At the same time a lot of manure was taken from box stalls, where it had accumulated under the feet of animals, which were kept continuously in their stalls, being given sufficient bedding to keep them

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We publish in this number an item that should have the careful consideration of every reader, young and old. Habits of economy, a careful judicious spending of every cent of one's income, thrift and saving should be cultivated by all. The young should be trained in the proper spending of money so that they may acquire the habit of making each dollar go the farthest possible. "A penny saved is a penny earned" is a wise maxium, and should be before the young, often. The old, too, will find it beneficial to be reminded of this old adage, to have their attention called to the duty of careful expenditures. In another column will be found an advertisement that briefly calls attention to an institution that has done more to help the thrifty, saving buyers of the country than any other. The lines illustrated are so varied that everyone should be interested. Every statement made is genuine, and backed by the well known reputation for honesty and fair dealing of the old and tried house of H. R. Eagle & Co., of Chicago.

HOGS AND HOG CHOLERA.

Breeders dread hog cholera more than any other plague of the pen, because they know it to be their greatest enemy. The various state experiment stations and the largest breeders have devoted much time and money to the discovery of the best and surest method of dealing with this pest and the consensus of opinion is that Chloro-Naptholeum Dip is the safest and most reliable preparation that can be had and that if it is used in time and systematically and regularly as a wash for hogs and a disinfectant in their pens it is the best safeguard. That this preparation has saved hundreds of thousands of dollars to stock raisers in general and hog breeders in particular is fully attested by these facts. This preparation is the product of the chemical laboratory of the West Disinfecting Co., Inc., 22 E. 59th street, New York, who will forward their free books on the treatment of parasitic and skin diseases of Swine, Cattle, Sheep, Horses and Poultry to such of our readers as write them. The book is really a "guide to wealth." It will be well to mention the kind of stock in which you are most interested to get the right books for your information.

For the land's sake—use Bowker's Fertilizers. They enrich the earth and the men who till it

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Bloating.

My neighbor lost a valuable cow yesterday on alfalfa pasture. His cows had been running on rye pasture all spring and a week ago he turned them on alfalfa several hours a day with no bad effects. Yesterday, one of them bloated so bad that it died in less than one hour. Where is the proper place to insert trocar. Is it safe to cut alfalfa and feed to horses in the stable, or is it better to let it wilt well first? WM. W. C.
Grafton, Wis.

ANSWER.

Every dairyman should supply himself with a trocar and cannula, as when the cows begin to bloat there is not time enough to call a veterinarian. Insert the instrument at a point equally distant from the last rib, the hip bone and the transverse process of the lumbar vertebrae on the left side. The trocar is withdrawn after both have been properly inserted, and the cannula left in place as long as any gasses escape. One ounce each of powdered ginger and hyposulphite of soda may be given in a little warm water after bloating.

(The office Editor is of the opinion that limited amounts of alfalfa fresh from the field, if not wet with dew or rain, could be safely fed to horses, but he is without experience, and therefore cannot advise with certainty.)

Weak in Limbs.

My calf was all right in the morning and was just able to get up on her feet, but the next day she was not and has not been on her feet since, that is about a week; the calf eats and drinks but can't get on her feet. When she tries to get up her hind legs spread out. P. W. B.
Newbury, N. Y.

ANSWER.

Induce the calf to stand as much as possible so that she may regain her strength. While standing, rub the back and legs with alcohol, freely.

Breeding Cows.

How often should a cow be served when she comes in heat. Some cows come to my bull and after they are served they throw off considerable slime and are sure to come in heat the second and third time and fail to get with calf. D. H.
Ritchley, Mo.

ANSWER.

As a rule one leap is sufficient; no matter if she does discharge a greater part of it, there is enough left to answer the purpose if the cow is in good breeding condition.


Above trade mark on every box.

Cure For Galls

While you work the horse.

It's BICKMORE'S

Dealers selling it everywhere are authorized to refund money if it fails to cure all Galls, Scratches, Cracks, Wire Cuts, etc. The standard horse remedy for many years. Sample 10c.

BICKMORE GALL CURE CO., Box 515, Old Town, Me.

Lump Jaw
Spavin
Curb
Splint
Sweeny

Cure Them

Lump Jaw in cattle, Fistula and Poll Evil in horses, and almost every blemish that a horse can have, even bad Bone Spavin, Ringbone and Knee Sprung, can be readily cured by anybody. We want to tell you how to do it, prove that you can do it, and guarantee you success in doing it. Two big booklets explaining everything sent free. Write now.

Fleming Bros., Chemists, 226 Union Stock Yards, Chicago, Ill.

You Lose Money



every time your horse is laid up with Sore Shoulders, Neck or back.

Tuttle's Elixir

cures them and Curb, Splint, Sprained Cord, Spavin, etc. Given internally it is unequaled for Colic, Distemper, Founder, Pneumonia, etc.

Used and Endorsed by Adams Express Company.

Tuttle's American Condition Powders

—A specific for impure blood and all diseases arising therefrom.

TUTTLE'S FAMILY ELIXIR cures rheumatism, sprains, bruises, etc. Kills pain instantly. Our 100-page book, "Veterinary Experience," FREE.

Dr. S. A. TUTTLE, 62 Beverly St., Boston, Mass.

Beware of so-called Elixirs—none genuine but Tuttle's.

Avoid all blisters; they offer only temporary relief, if any.

PROPOSITION

$65,000
MADE IN 7 MONTHS.

We can give a few parties who can secure $175 to $2500, a very paying business, choice locality. We have an article, or machine, valuable to all farmers and stock raisers. Four men made

CLEAR $65,000 IN 7 MONTHS
Two Men Made

$2,000 IN ONE WEEK

Sales in one county $12,360. The like never before known. Thorough investigation invited. Best bank references. Write at once to the following address

JONES & PRITCHARD
United States General Agents.
L Box 537 BEAVER DAM, WIS.



"Just as good?" "Just as good!" Did you say? "Just as good as Veterinary Pixine!!" The dealer who tells you that is mistaken. He does not know

FACTS AND TESTS PROVE IT!

Emery, Ky., April 9, 1903.

I feel it my duty to tell what Veterinary Pixine did for a horse of mine. He was cut with a knife between the fore legs three inches deep and two inches long, which every minute would gap open. I used several different kinds of remedy without success, even to having some stitches taken. Nothing did any good and it kept swelling and became feverish. I almost gave up hopes of getting him well. In the columns of the Ohio Farmer I observed your advertisement and, as it was the last chance, I purchased a box at the druggists and used it as directed and before the box was used up the cut was entirely well. I intend to keep a supply on hand for emergency cases if I have to pay a dollar a box for it. Please accept my thanks for the good I have received from its use, and if you choose you can use my name and testimony.

W. S. CAMPBELL.

This penetrating, stimulating, soothing, absorbing, antiseptic, healing ointment heals from beneath the surface by disinfecting the parts, subduing inflammation and stimulating healthy granulations, not by drying and scabbing, and stimulates growth of hair, natural color. Makes quick, clean and healthy cure; heals stinging, burning, chronic saddle and collar galls, hopple chafes, abscesses, caked bag, cow pox, and hoof rot. It penetrates, stimulates, soothes and heals while horse works. Money refunded if it fails.

Price, 2-oz. box 25c; 8-oz. box 50c; 5-lb. pkg. $4.00, at all druggists and dealers or sent prepaid.

TROY CHEMICAL CO., Troy, N. Y.

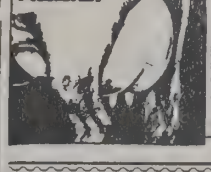
Also Manufacturers of "Save-the-Horse" Spavin Cure. $5.00 a bottle. Send for copy of guarantee and booklet.

Your Horse can work without pain while his sore breast is healing if you use MOORE BROTHERS'

GALL POWDER

the most effective cure ever known for healing sore shoulders, backs and other skin abrasions; at druggists, or by mail $1.00. MOORE BROTHERS, Veterinary Surgeons, Albany, N.Y. "Facts for Farmers and Breeders," sent free.

COWS RELIEF



Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.

Used Exclusively at Model Dairy

Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.

O. H. MFG. CO., Dept. H, Lyndon, Vt.

ABORTION,

Retention of Placenta and Failure to Breed.

KELLOGG'S CONDITION POWDER is a positive cure for these diseases. Write for circular containing full information, references and price.

H. W. KELLOGG COMPANY, St. Paul, Minn.

ABORTION,

Failing to Breed and to bring Cows to Heat. Sure Cure. In use 30 Years.



(Patent Applied For)

Hard Rubber *Safety* Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.

Dr. WM. HORNE, Janesville, Wis.

Horse Owners! Use

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Caustic Balsam

A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.* Every bottle sold is warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland, O.



ABORTION

Can be successfully treated with Anti-Abortion Serum. Easily administered and permanently cures. Information free.

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VETERINARY REMEDY CO.,
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Calves That Scour

Get run down, even if they do not die. Hood Farm Calf Scour Cure and Digestive Powder, used in connection, cure scours promptly; keep calves from shrinking.

$1 and $2.50. Sent to any railroad express point in U. S., 25c. extra. C. I. HOOD & CO., Lowell, Mass.

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BEST PREVENTIVE OF BLACKLEG.



Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each Blacklegoid (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. Blacklegoids are sold by druggists; *ask for them.*

Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.

PARKE, DAVIS & CO. - DETROIT, MICH.

Branches: New York, Kansas City, Baltimore, New Orleans, Chicago; Walkerville, Ont.; Montreal, Que.; London, Eng.

CURE "THE" COW

NO CURE, NO PAY

WRITE, giving symptoms and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address



of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and

DR. EATON J. CROSS,
153 Congress St., Troy, N. Y.

Cheese as a Food.

What more important questions can occupy our attention than those relating to human food. The advancement and development of the race depends primarily upon its aliment. And as man is the ultimate of all earthly creation, his food should consist of the best elements in earthly production. In vegetables we find all the elements composing the bodies of animals, but in a lower state of organization. The cow eats grass and finds in it all the elements necessary to build up and support her own system, and these she concentrates and elaborates into a higher form of food for man.

The muscles, nerves, and brain power of man must be supported by nitrogenous food, and the more concentrated this food is the greater the muscular power will be, the more sensitive the nerves and the keener the intellect. Shakespeare understood this when he made Cassius say:

Now in the name of all the gods at once
Upon what meat does this our Ceasar feed,
That he has grown so great.

The more we progress in chemical knowledge the better we understand digestion and nutrition, hence the "balanced ration" which is as necessary for man as for the lower animals. It then becomes of great importance that we should understand the elements of the food we use, and learn to so combine these as to produce the highest development of health and strength. Hygienic writers take milk as the best standard for human food. Cheese is concentrated milk; all the elements save the sugar are retained which is easily supplied by other food. The history of cheese dates way back in ancient times. We find Job referring to it thus:

Hast thou not poured me out as milk,
And curdled me as cheese?

Cheese was a common article of food among the Greeks and Romans, and Homer celebrated its virtues in the feasts of those times, thus:

There thrice within the year the flocks produce,
Nor master there, nor shepherd ever feels
The dearth of cheese, of flesh or of sweet milk
Delicious drawn from udders never dry.

It is not enough to know that food is agreeable to the palate and easily digestible, but what are its constituents and what part of the system it builds up. The human system being complex in its elements, its food must likewise be complex and various. The young receive in the form of casein (cheese) the chief constituents of the mother's blood. When chemically examined, casein is found to contain a much larger proportion of the earth of bones than does blood, and that in a very soluble form capable of reaching every part of the body.

If milk is the standard of human food, cheese, its important product, must be healthful, unless it shall have changed its elements or condition in the process of manufacture. Therefore, a cheese to have its greatest nutritive value must be properly made, well ripened and carried on to that easily digestible stage by the agent rennet. A pound of such cheese is said to be equal in value to beef-steak, pound for pound, as eighteen and one-half is to ten.

As cheese contains all the elements of milk except the sugar, this does not render it less healthful or digestible, but only deprives it of this supporter of heat and respiration, which is easily supplied in other foods, such as bread, potatoes, and other vegetables. The fat adds to the digestibility of cheese, hence whole milk cheese is more easily digested than skim milk cheese. The best proof of its healthfulness is found in the fact of its use among all civilized people. The long experience of the English, Scotch and Irish laborer proves cheese to be the most wholesome as well as nutritious food. A small quantity of cheese with them takes the place of a larger quantity of meat, and enables them to endure such hard labor as the American thinks he can only perform upon a generous meat diet. In Germany the farm laborer depends largely upon skim milk cheese as food. The American Encyclopedia says:

"The peasants of some parts of Switzerland, who seldom ever taste anything but bread, cheese and butter, are a very vigorous people."

Americans, generally speaking, eat too little nitrogenous food, owing perhaps to their predilection for the finest flour and much pastry, especially pie. Women are not such flesh eaters as men, and with their love of sweetmeats the nervous system becomes illy nourished; these sweetmeats are nearly all starch and sugar. If they would make cheese a more constant article of diet and use more unbolted flour, with more open-air exercise, they would soon become the most healthful and robust, as they are now said to be the most beautiful women in the world. Cheese is less liable to putrefactive changes than flesh and thus much less likely to develop in the human system those scrofulous diseases attributed to animal food.

Thus, in summing up, it appears evident that the casein of milk is a highly important alimentary principle and proves equally healthful and invigorating whether taken in the liquid state of milk, or in the concentrated form of cheese. Although the American people are more favorably situated for the production of cheese, more especially in the northwestern part of the Union, we have not learned to use it as a daily diet. I think one reason is, we eat our cheese too soon after making, and do not give it time to ripen properly. Such cheese is hard to digest and really not fit to eat. If we examine the question of economy in reference to the comparative prices in market we find that retail prices of cheese range from sixteen to twenty-two cents per pound, about the same as beef, showing cheese to be about half as much as beef, according to its real value. If we compare it with pork, or mutton, or fish, we shall find it the cheapest food. There is very little waste in cheese, while beef is one-eighth bone. It also has the advantage of requiring no cooking, and in the warm season saves the poor the expense of fire. Of all forms of animal food it is undoubtedly the most economical.

The dairyman who would produce cheese will not have to look for a foreign market for some time, as the per capita consumption of cheese in the United States is only three pounds while butter is about twenty pounds per capita. Therefore, if he will manufacture the best quality of cheese he will find a good demand for it, and let us hope the American people will soon become a greater consumer of this most nutritious food, cheese.—W.W. GRANT in the *Industrialist.*

Raising Fodder Corn.

The following directions for raising fodder corn are given by Prof. Haecker of the Minnesota Experiment Station, and are particularly applicable at the present time, when the untoward season in various parts of the country has prevented the planting and sowing of ordinary crops:

"For growing fodder corn, harrow once a week until about June 15, then sow the corn with an ordinary wheat drill, leaving two shoes open and closing five, then two open and five closed, two more open and the rest closed, when three double rows are planted at once. The double rows will be about 44 inches apart, and the two drills in the row about six inches apart. It requires about a bushel of seed to the acre. Use common homegrown dent corn for seed, or other good dent variety, but not the large Southern or flint. Harrow once more before corn is up, and once when it is two or three inches high; then cultivate once between the rows. The late planting is preferable because it affords an opportunity to kill most of the weeds before planting, and by June 15 the soil is warm, and the corn will grow so rapidly that the weeds are choked down and the field will be clean when the crop is harvested. Thick planting is recommended because it produces much more feed per acre than if planted in hills, and because it prevents the developing of ears, which is objectionable, since it is better for the nutrients to be left in the stalks and leaves than to be transferred to an ear, where there is less obtainable nutriment. It also saves husking, shelling and grinding of the grain, and if planted thickly, the whole stalk is consumed."

Although Prof. Haecker mentions June 15th as the proper time for planting fodder corn, there is every reason to believe that it may be planted with profit even so late as July 1st. Our readers in the Eastern States, where they have suffered so severely from droughts, might well try planting more or less of this fodder corn to furnish them with roughage for the ensuing winter when there is likely to be such a dearth of hay. Although Prof. Haecker does not advise using flint corn for this purpose, his reasons are simply that the amount per acre will be less than when the dent varieties are used, but we know from experience, that very satisfactory results can be had from flint corn.

Special Offer of Fine Dairy Farm

ADJOINING RED WING, MINNESOTA.

174 ACRES—140 under high cultivation, balance good pasture and woodland. Has complete machinery for Dairy, with power, etc., and all machinery for cutting corn. Two large silos, sufficient to hold feed for 50 cows, and large barn to tie up 70 head. One new house—could not be built for less than $2,500; another good house for help. Large horse barn and granary. Improvements could not be duplicated for less than $7,500. Monthly receipts over $600. All for sale at $12,000.

H. A. CAMPBELL, 107 E. 4th St., St. Paul, Minn.

DO YOU WANT A HOME

in Central Wisconsin? We offer very desirable lands to actual settlers. Our lands are in Marathon County and are some of the very best hardwood, agricultural and dairy lands in the state. Deep clay loam soil. Good water easily obtainable at but little depth. Country opened with good roads and well populated.

Schools, both public and parochial, churches, general stores, bank, creamery, etc., within easy reach. Ready market for farm and forest products.

Terms reasonable. If you desire to improve your condition write for further particulars to

RIETBROCK LAND & LUMBER CO., ATHENS, WIS.

FOR SALE MY DAIRY FARM 198 acres, 1½ miles west of University. Would sell farm with or without stock. Write for detail description, **G. B. M.,** P. O. Box 144, Charlottesville, Va.

Buy You a Ticket to CROOKSTON, MINN., and call upon

The Polk County Land & Loan Company

For choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.

360 acre farm, 4½ miles from Crookston, Minn., (a city of 7,000 inhabitants), and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 ft. square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm in under a high state of cultivation, and is well drained by a slight ravine running through the farm, merely sufficient for self drainage. The soil is a rich deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50,

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired. Price $19.00 per acre.

HERE IS YOUR CHANCE!

For an "up-to-date" responsible dairyman, to rent, for term of years, a very desirable Ranch and 125 head milch cows, in one of the choicest dairy sections of California. No snow, nor yet excessive heat. Green grass the entire year. No winter feeding necessary. Freights reasonable. Apply to G. H. KELLOGG, 330 Pine St., San Francisco, Cali.

Give Us YOUR ADDRESS On a Postal

It would please us to tell you about our lands. We can convince you that our lands are well selected bargains. Virgin soil, plenty of water, fine crops of hay, grain and vegatables.

Sold on easy terms to suit purchaser. Special railway rates to anybody desiring to look at them. We would like to take the matter up with you. Write us and find out what we have to offer. We own the lands and selected them personally.

INTERIOR LAND CO.,
Janesville, Wis.

CHILLS ILLS AND DOCTORS' BILLS. **Painkiller** PERRY DAVIS' CURES THEM ALL

'FEMINOLOGY' Table of Contents and sample pages FREE.

A scientific book for women, one of the most valuable works ever written. It treats of marriage, care of babies, diet, nursing, children's diseases and their care, physical culture, personal beauty, giving information that is all important to health and happiness. Has 700 pages, beautifully illustrated, and 28 colored plates.

"If the information contained in Feminology were more widely and timely known and heeded, endless and needless miseries might be avoided."—Chicago Tribune.

Write for 32-page table of contents and see what this valuable book contains. An agent wanted in your town.

C. L. Dressler & Co., 2230 Gladys Av., CHICAGO, ILL.



Western Canada

The Vast Areas of this Remarkable Agricultural Country

are attracting more attention than any other District in the World.

"The Granary of the World."
"The Land of Sunshine."
The Natural Feeding Grounds for Stock.

Area Under Crop in 1902—1,987,330 Acres.

Yield 1902—117,922,754 Bu.

Abundance of water. Fuel plentiful. Building material cheap. Good grass for pastures and hay. A fertile soil, a sufficient rainfall and a climate giving an assured and adequate season of growth.

Homestead Lands of 160 Acres FREE.

The only charge being $10 for entry. Close to Churches, Schools, etc. Railways tap all settled districts. Send for Atlas and other literature to Superintendent of Immigration, Ottawa, Canada; or to the authorized Canadian Government Agent—

T. O. CURRIE,
12 B. Callahan Bldg., Milwaukee, Wis.
J. M. MacLACHLAN,
307 Third Street, - Wausau, Wis.

WISCONSIN FARMS

in Dunn, St. Croix, Barron, and Price counties make the best homes on earth; because, 1st., soil heavy; 2d., some timber, fuel cheap; 3d., springs and streams numerous; 4th, no blizzards or drouths; 5th., no sand or pine stumps; 6th, near the best northern markets; 7th., best dairy section known; 8th., no crop failures; 9th., successful settlement and all prosperous; 10th., corn, oats, wheat, rye, potatoes, tobacco, hay, etc., unexcelled in the United States.

If you want a Canadian home, we can, and will take you to the best locality in Manitoba or Assiniboia. Send for catalogue or come yourself. We sell on easy terms our own lands in Wisconsin and Canada. **DUNN COUNTY LAND CO.,** Downing, Dunn County, Wisconsin, or 156 East 3d Street, Rooms 5 and 6, St. Paul, Minnesota.

BURCHARD-HULBURT INVESTMENT CO. FARM LANDS ST. PAUL MINN.

EMIGRANTS BY THE THOUSAND

Are pouring into the Northwest from every country in Europe. If you have any desire to make money by land investment, you must hurry. We have excellent dropositions. Write us what you want, where you want it. We own all kinds of land in Minnesota, Wisconsin and N. Dakota, and can please you. Maps sent on application. Agts wanted

BURCHARD-HULBURT INVESTMENT CO.
Manhattan Bldg., St. Paul, Minn.

WOOD COUNTY, WIS. We offer for sale a number of improved and unimproved farms in Wood county. Send for our list, or better still, state just what you want and we will do the rest. You will miss it by not writing to

HILES & MYERS, C-100 MATTHEWS BLDG., MILWAUKEE, WIS.

234 ACRE FARM FOR SALE

One-half mile from Janesville, Wis. New 12 room house, good barns, etc. Fine black soil. A great bargain and if taken at once the purchaser gets the rent. It is one of the best farms in the famous Rock River Valley and will be sold on easy terms to a good man.

WILSON LANE, Janesville, Wis.

Room for Improvement in Cheese.

Our sister state, Minnesota, not content with her standing as a butter state, is determined to challenge Wisconsin, New York and Canada in the matter of producing cheese of the highest quality. Following is the paper read by J. Lehnerr before the Cheese Makers' Educational Convention in that state, and it contains matter that deserves reading and consideration in every cheese making community:

We can make just as good a cheese in the state of Minnesota, as they do in any other state in the Union. All we need is the production of a good, clean-flavored, unadulterated milk.

How can we improve the quality of our cheese?

There are people living to-day who believe that our cheese factories are O. K., that is, good enough, and that there is no need of getting alarmed and using big cross marks on this subject. Yes, there are people who believe in leaving well enough alone; who never want to go to any extra trouble and expense in order to try to improve their methods and old ways of doing things. They say this talk of keeping up with the times is a new-fangled notion, and time costs money for those who try it; in fact, we are often told that those who stick to the "good, old-fashioned ways" and do not have much to do with these up-to-date things are the most successful and make the most money.

I, for one, look at it in another light and think if we want to make any progress and want to improve the quality of our cheese, we must not feel satisfied with our present standard or degree of perfection, and think we are all right. The moment we do this we are at a standstill, and that means that we are going backwards; and those who are progressive and up-to-date will improve and advance, and we will be pushed aside to see the great progression of the onward, moving, up-to-date passer-by.

Another thing we probably should do more, but can not very well, and that is to reject all milk which has not been thoroughly cooled or aerated, or contains any dirt or smell whatever. But if this were done, the cheesemaker would be apt to have a pretty lively time and considerable trouble. Personally, I have tried to follow this rule to some extent, but found it impossible; as our patrons do not practice aerating their milk and can not detect anything wrong with the milk, even if it is slightly tainted; therefore, would think a wrong had been done. So we are simply obliged to accept milk which we do not care to, and lots of it, too, just to keep peace and prevent trouble.

But now we come to the point: Nobody, I do not care who it is, can make a very high grade of cheese out of tainted or imperfect milk. Every patron that allows his cows to remain dirty, covered with a thick coating of manure, never takes a brush and cleans the cows, and there are plenty of them, is surely not in favor of improving the quality of cheese. They claim they can do clean milking even though the cows be dirty. I do not take much stock in this theory. Milk, cheese and butter are articles of food to be eaten by men, women and children; a great many forget this. They seem to think that it does not make any difference what kind of milk is sent to the factory, judging from what may be seen on the strainers of factories, and I believe if the dirt which falls into a milk pail could be separated, placed on a plate for food for such a milker, he would change his mind, and I do not know but it would be a very good medicine for the man. If the cow is clean and your hands and pails are also clean, there is every reason to believe the milk will also be clean. On the other hand, if the can is dirty and the milker is filthy, the milk is bound to be tainted. In the summer, cows wander over dirty sloughs and the udders become dirty. The udder should be washed at every milking and unless this is done, bad milk comes to the factory. Many claim that it does not pay to brush the cows, wash udders, feed balanced rations, aerating and cooling milk. Men who make this claim are invariably the ones who never try it and their opinions are worthless. Can anybody tell me how much they have lost in taking good care of their cows and doing the other things mentioned? I say, take your hat off when you meet a good cow.

When you cultivate, prepare and care for a field properly, you will get larger crops and better results than by little or no care and cultivation. This is an established fact that none can dispute. The same principle holds true in the dairy department of the farm as well as in the crop department. If there is not money enough in our cheese business to warrant our doing the right work I say quit the business. Do not bother with it unless you can do it as it should be done. Remember the old saying. Whatever you do, do well.

A little more about taking care of the milk. I will say:—After the milk is drawn from the cow, milk should be properly aerated and cooled. Filth on the cow's udder carries a great many bacteria into the milk. Germs in milk multiply very rapidly unless the milk is aerated and cooled immediately after it is drawn from the cow. This should be done outside of the stable. Cooling milk arrests the growth of germs. The sanitary condition of milk is very important. Milk has frequently caused the spreading of germ diseases, such as scarlet fever, diphtheria and typhoid fever. The purity of the water supply and the condition of the stables are the two most important factors for the production of good milk. A cow's stable is a place for a cow to live in, not to exist in. The health of men and women depends, to a large extent, upon the cow, the health of the cow depends largely on her house being properly aired and cleaned; therefore, the health of children and men depends in a great measure on how the cow's stable is looked after.

Neither cattle nor other animals should be allowed or compelled to drink stagnant water. In fact, no animal should be given water to drink which we would hesitate about drinking ourselves.

Some causes of bad flavored milk are weeds, such as Swede turnips and tops, rape, musty meal, raw potatoes, grass having bad smelling weeds, such as leeks or rag-weed.

If you have some old and rusty cans, leak badly and have dinged covers and spill one-half a gallon or more of milk every day they are sent to the factory, should you continue to use them? Will it not pay to buy new ones?

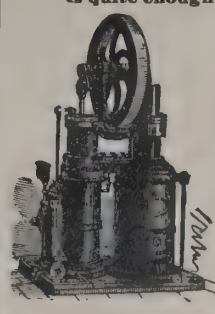
Where possible, insist on the whey being returned in the milk cans. Let it stand in the cans until just before commencing to milk, then, empty, rinse very slightly with warm—not hot water. Put the evening's milk at once into this can without straining and aerating. If it gets to the factory before it sours, step into the factory about noon and hear the cheesemaker give an exhortation on gassy curds and whey flavors. Observe the look on his face, which says, "If I get through by 8 or 9 o'clock I'll do pretty well." Come around again in about three weeks and see the buyer look at the cheese made from the vat into which but one can of such milk was emptied and notice him set this cheese aside for further inspection or a lower price. He may refuse it altogether. It will do for the home market and will have a great tendency to develop home consumption.

To wash milk pails, milk cans, etc., they should first be rinsed in luke warm water, next washed with hot water and then scalded, after which put them in a nice place to air and dry. Do not wipe dairy tinware with a dishcloth. Make a bonfire of all the old dishcloths that are used for wiping dairy utensils and the flavor of the milk will go up 10 per cent.

Now we come to the weigh room. There is the good chance to make the good or the poor cheese. It is the duty of the cheesmaker to inspect carefully the milk and milk cans and can covers, take out samples of milk of both morning and

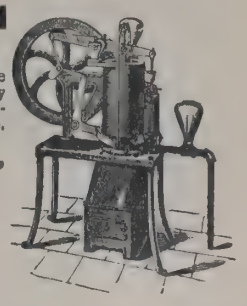
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not only makes easy work of getting out the manure, but by the way in which it breaks it up and makes it fine, it more than trebles the value of the same. It will break up and spread evenly, manure that cannot be handled with a fork. It doesn't matter how hard, lumpy, caked, strawy, or stalky the manure is, this machine will spread it. It makes fine, well rotted manure go a long ways in top dressing wheat in the spring, meadow lands, pasture, etc. Being mounted on broad faced wheels, it can be handled on any kind of ground without serious cutting in or rutting. Can spread back and forth, as front wheels turn entirely under. Can be turned on the ground it stands on. 1903 machine has our new **Beater-Freeing Device, Apron-Returning Device** and numerous other improvements. Send for latest catalogue (free) and read about these and other advantages and also about **"How to Grow Big Crops."** Remember that the only original and genuine Kemp Manure Spreader is made by us and the patents thereon have been fully sustained by a recent decision of the U. S. Circuit Court. KEMP & BURPEE MFG. CO., BOX 48, SYRACUSE, N. Y.

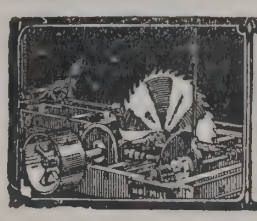
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SPREADS and pulverizes all kinds of manure, fresh, well rotted, mixed, full of straw or cornstalks, sheep manure. No matter how tough, we guarantee our spreader to spread it so evenly that one load will do more good than three spread by hand. **Endless Apron** is always ready to load. **No turning back** after each load is spread. **Front wheels** cut under and machine can be turned in its own length. REGULATED motion to spread thick or thin. Our **non-bunchable rake** holds all large chunks on top of beater until they are **thoroughly pulverized. Combined Hood and End Gate** keeps manure away from beater while loading and acts as wind hood in spreading. LIGHTEST DRAFT ever produced on a manure spreader, because front and rear wheels track and the load is nearly equally balanced on front and rear axles which brings load up close to horses. **Send for free illustrated catalogue** giving full description and how to apply manure to secure best results. **Saves time, labor, money.**

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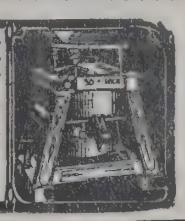


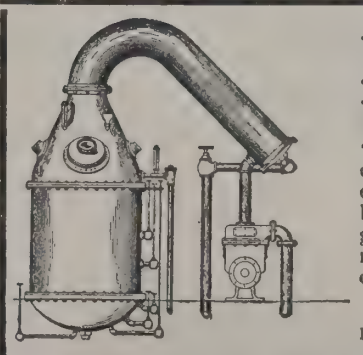
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Kills Lice and Cures Mange, Itch and Scab on Cattle, Sheep, Swine and Horses. Chloro-Naptholeum Dip is the only preparation that can be absolutely relied upon to stop Hog Cholera. Guaranteed. Agents Wanted.

1 gallon $1.50; 5 gallons $6.75, prepaid.

WEST DISINFECTING CO., Inc., 8 E. 59th St., New York.

What Prof. J. H. Sheppard Says About Zenoleum Dip:

The favor which Zenoleum has among stockmen is consistent evidence of its merit.

January 28, 1903. J. H. SHEPPARD, Prof. of Agriculture, Agricultural College, North Dakota.

Send for copies of "Zenoleum Veterinary Advisor" and "Piggie's Troubles" and see what others say about it. Books mailed free. Sample gallon of Zenoleum $1.50, express prepaid.

"The Great Coal Tar Carbolic Dip." ZENNER DISINFECTANT CO., 34 BATES STREET, DETROIT, MICHIGAN. Five gallons $6.25, freight prepaid.

evening milk, make your test every two weeks, invite farmers to be present, if possible, when you make the test. It is the duty of the cheesemaker to examine daily the inside and outside of the opening from the weighing can into the milk conductor, and offensive matter appearing yellow, when not with milk, is most dangerous to the flavor and keeping qualities of cheese. He should be thoroughly qualified as to teaching the farmers improved methods of handling stock, feeding stock, general farming and to answer questions asked by farmers about the weigh room.

Seeding to Grass.

The *Ohio Farmer* gives the following advice on seeding down to grass:

I have three acres ridge and clay land which I intend to sow to grass, and thought I would use orchard grass, Kentucky blue grass and clover. Would that be a good mixture, and what amount of each would you use? J. C. J.
Cuyahoga Co., Ohio.

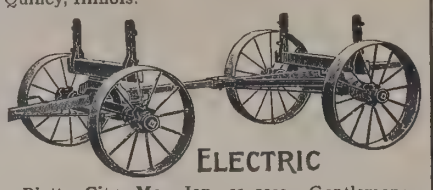
If you want it for permanent pasture, we would plow it in July, top dress, if possible, cultivate about once a week until Sept. 10th, drill in 8 pecks per acre of good wheat, with 300 lbs. per acre of good superphosphate, and after ten days or so, sow broadcast 4 to 6 quarts of timothy and 30 quarts of recleaned blue grass seed per acre, and early in March when the land is honey-combed with a "sugar freeze," broadcast 4 to 6 quarts of medium clover seed, and a bushel of orchard grass, and do not pasture or mow before June of the year following, unless it be to clip the stubble to kill the weeds, in September or early October after wheat harvest. Thus you can get good pasture.

C. M. G., Adams Co., O., has 160 acres of rather poor land in the southern part of Adams Co. It is more than he wants to "farm" and he wishes to seed it, and asks about lime, commercial fertilizers, and other questions to be inferred from our replies:

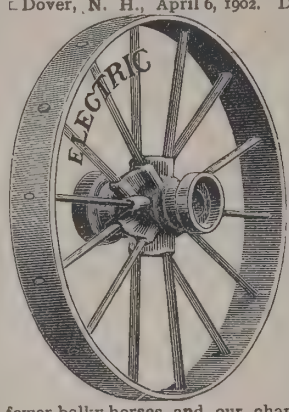
Yours is in the non-glaciated, hilly, limestone part of the state. We would not advise lime as a fertilizer on such land. Better use good, high-grade acid phosphate and tankage if you can get the latter, mixed thoroughly at the rate of 200 lbs. of the former to 100 lbs. of the latter. Seed to wheat, 6 to 8 pecks per acre, late in September and soon afterwards sow broadcast 3 pecks per acre of "recleaned" or hulled blue-grass; seed 4 quarts per acre of timothy and in the spring, 4 to 6 quarts per acre of medium clover seed. We would not advise orchard grass under the circumstances.

ILLUSTRATION

What some people say of the metal wheels and wagons made by the Electric Wheel Co., Box 130, Quincy, Illinois:



Platte City, Mo., Jan. 25, 1903. Gentlemen:—The wheels I got of you carried an old Spanish cannon from Tracey to Platte City over a turnpike road with rocks sticking above the surface 4 inches. The cannon weighed 14,000 pounds and people expected to see the wheels break down, but they didn't. I broke two axles and pulled the tougue out once, but the wheels did not break, and if in 1000 years from now anyone visits Platte City, the old cannon will still be standing, and people will tell about the little spindling wheels that carried it there. Yours truly, J. C. H.



Dover, N. H., April 6, 1902. Dear Sirs:—From your catalogue I believe you sent me stronger wheels than I ordered. You must have thought I was looking for a bargain and I certainly got one, as they are as good to-day as when they left the shop and run ⅓ easier on smooth hard road and ⅔ easier on a soft or sandy road. We would have better roads with less expense, could draw the same load easier, have fewer balky horses, and our chances of reaching Heaven would be increased 25% if we all used wide tired metal wheels. Thanking you for the new catalogue and booklet, I am truly yours, C. E. H.

Augusta, Mont., March 4, 1902. Gentlemen,—Will tell you the same as I tell everybody else—you make the best wheel I ever saw stuck on a wagon. My wheels are ½ inch tires 5 inches wide and will bet money they will carry 9000 pounds on fair roads. When I unloaded your wagon there (Appleton City, Mo.) I put on a four-horse load of hog wire from Chicago and drove uptown to hear remarks. The only serious objection I heard was that those 5 inch tires would not cut down in the mud properly. Very respectfully, J. V.

Evansville, Ind., April 21, 1902. Gentlemen—Some time ago I bought a set of metal wheels of you and like them very much. I have trouble keeping my wagon at home as my neighbors have bothered the life out of me ever since I got it. I would not do without it, and never use my high wagon at all, except when my neighbors have my little wagon. As ever, I remain, yours respectfully, C. H.

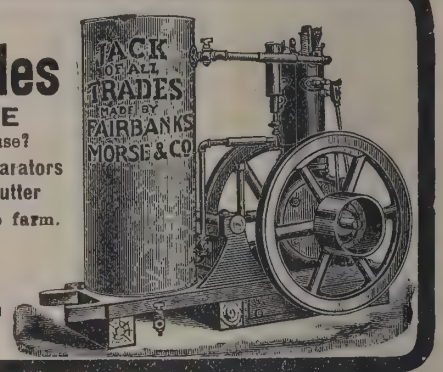
The original of all these letters can be seen at the office of the Electric Wheel Co., Quincy, Ill., to whose wheels and wagons they refer. Better send for their free catalogue and know more about their wheels and wagons.

TRADE MARK OTTO

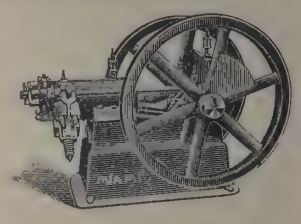
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CHICAGO.



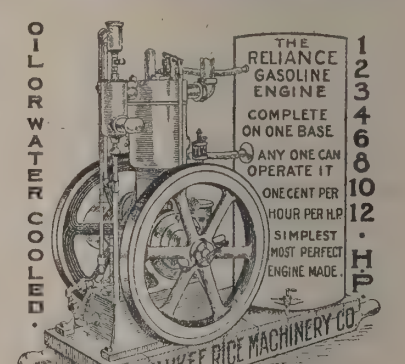
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Write for Catalogue and nearest Agent.





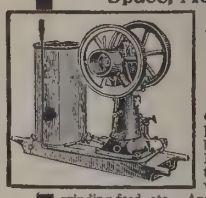
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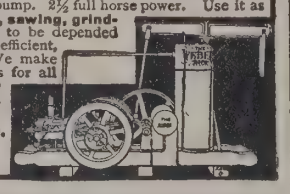
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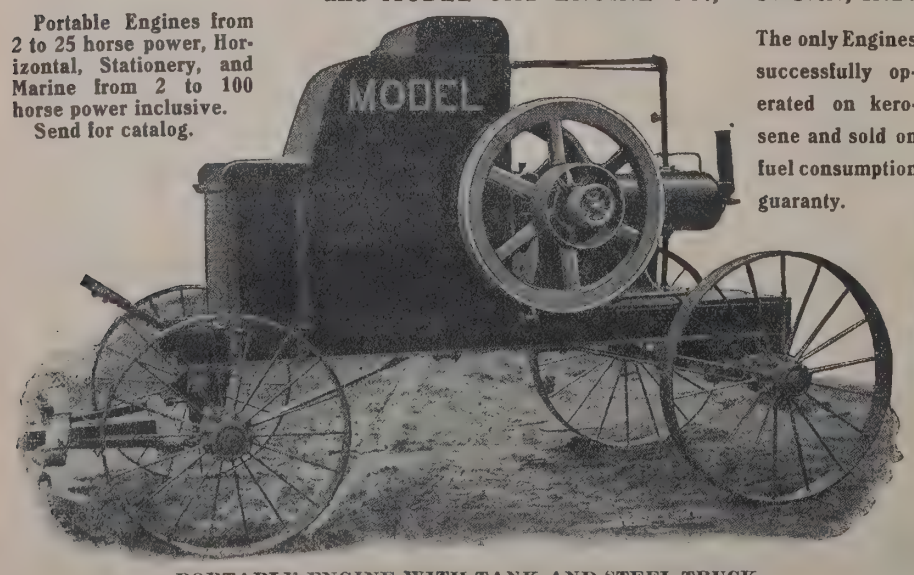
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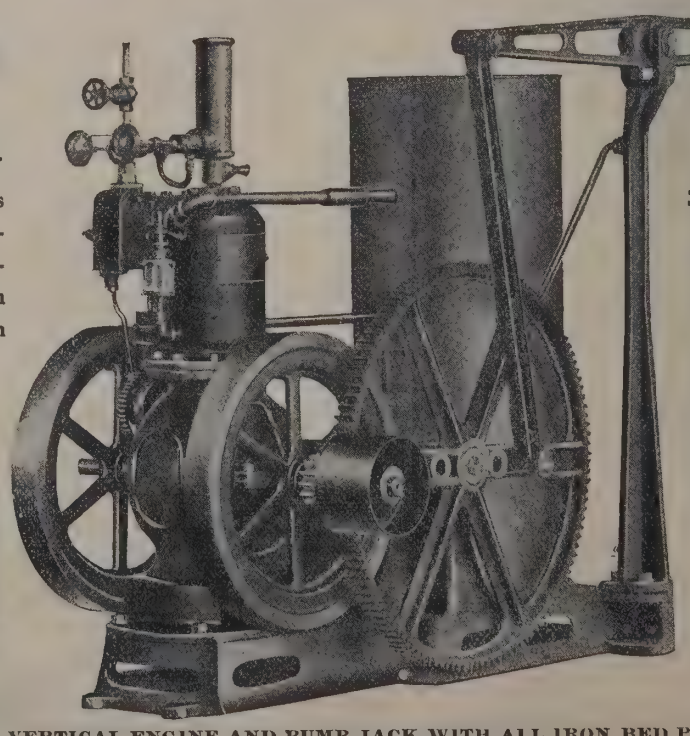
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VERTICAL ENGINE AND PUMP JACK WITH ALL IRON BED PLATE.

Agents Wanted in all Unoccupied Territory

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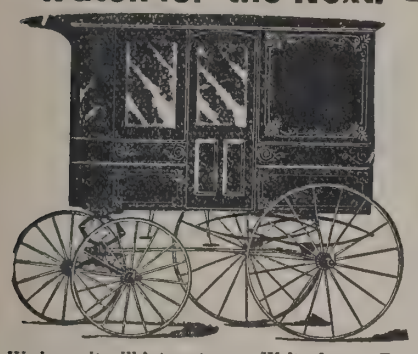
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make the way plain in night work or travel. Always shed a strong, clear, white light, with no choking, scoting or smoking.
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Established 1840



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They'll not take too much, and they'll get it as they want it. Don't force animals to eat salt when they don't require it, by mixing with food.
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Pure-Salt Bricks
are all salt, no impurities. Improve the quality and yield of milk. A modern convenience, always present, animals never neglected, and costs for each only about a nickle a month. See how they enjoy helping themselves when you place it within reach. For all stock. Buy of dealers or send for free booklet to
Belmont Stable Supply Co., Brooklyn, N.Y.

The Averill & Gregory Sale of Holsteins.

(Continued from page 458)

had failed, when Dr. W. N. Landon, of this city, who had been a silent spectator of the proceedings, got a round of applause when he bid $1,600, at which price the cow was finally knocked down to him.

"The biggest price since the Wales sales in 1888, said Mr. Fargo, who is an authority, and there was more enthusiasm.

Cash Value of Manure.

A bulletin recently issued by the Department of Agriculture emphasizes the value of manure and its economical employment upon the farm. It says experiments show that the fertilizing value of the manure of our domestic animals for one year is as follows: for the horse $27, for the cow $19, for the hog $27 and for the sheep $2. Computing the total value of the fertilizing ingredients according to the number of animals reported in the live stock census of 1900, we have for the enormous aggregate, in round numbers, $2,774,000,000, not an insignificant figure by any means. The result, although approximate, is correct in representing the commercial value of the fertilizing elements, nitrogen, phosphoric acid and potash, as found in the animal excreta.

Of course it is impossible for the farmer in general to go to the expense and trouble of shedding his barnyard to guard against extremes of drought or moisture, exposure and heat, or for the erection of a lean-to in connection with his stable and the consequent attention involved, but it is possible and highly practicable for every farmer to attach such importance to this valuable farm product (for such it is), as to utilize it in the most practicable manner possible in sustaining the fertility of his farm and in increasing the mechanical and physical conditions of the soil.

Some of the more important points in the summary are given below:

1. Barnyard manure represents fertility drawn from the soil, which must be returned if productiveness is to be maintained.

2. The value of manure obtained in cattle feeding often represents largely the profits of feeding.

3. Manure contains the fertilizing elements of the soil, renders the already present elements more available, improves mechanical condition, makes it warmer and enables it to retain more moisture or draw it up from below.

4. The urine is the most valuable part of the excreta, containing much nitrogen and potash in easily available forms. The nitrogen easily escapes into the air unless the manure is mixed with the solid excrement or straw.

5. Poultry manure ranks highest in fertilizing value, while sheep, pig, horse and cow manure follow in respective order.

6. In a given class of animals the value of their manure is determined more largely by their food than by any other factor.

6 Deterioration of manure results from fermentation or by leaching or weathering.

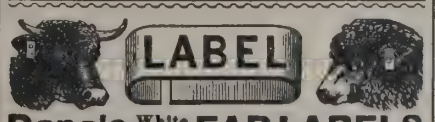
8. When possible it is generally best to apply manure in the fresh condition, especially for improvement of the mechanical condition of heavy soils. Well-rotted manure is best for improving condition of light sandy soils.

9. Fresh manure has a forcing effect, and it is therefore better suited to the growth of grass and forage plants, than to cereals.

10. Direct application of fresh manure to root crops often proves injurious.

11. Manures should be spread on the land uniformly and not left in heaps. And it might be added that evenness of application is best obtained by use of the manure spreader. Unless the manure is applied evenly, the soil is only fertilized in spots and the best results cannot be expected.

12 Mixing of manures often conduces to rapid fermentation and the consequent loss of nitrogen by evaporation.



Dana's White Metallic **EAR LABELS**
stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Samples free. **Agents Wanted.**
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starts in the raw material—that's the best obtainable and there's everything in the selection and the curing. The honesty continues all through the making and finishing. Results, longest life, fitness and greatest service. **You Always Find the Essentials** in Studebakers. There's no slighting, no deception, no variance from high quality. That's why multiplied thousands pin their faith to them. Are you of the number? Local dealers most everywhere. Catalogue and particulars direct if requested.



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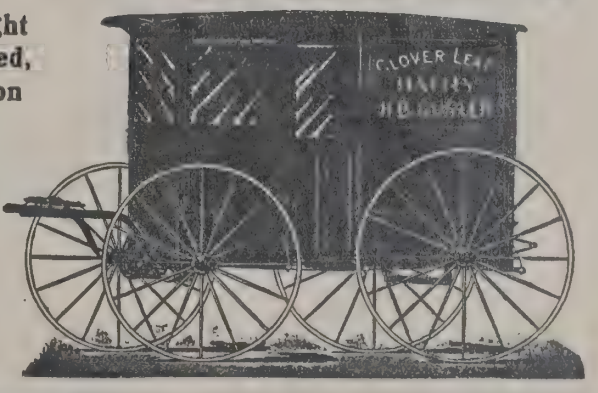


May be kept ever so clean, your cattle may be pedigree stock and you may feed them in the most approved manner, but your patrons will never suspect these things if you deliver milk from a ramshackle wagon. An attractive milk wagon attracts trade; it's not a luxury, but a practical necessity.

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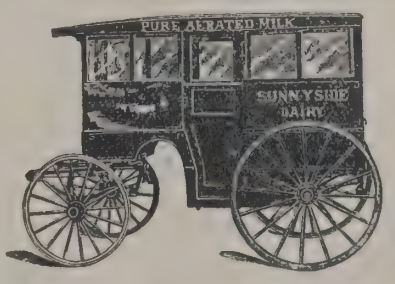
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Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the Market.



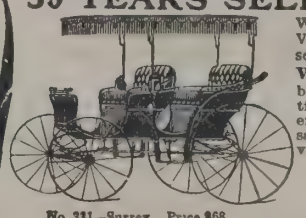
20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send. for catalogue, prices and terms Wagons for carrying Bottled Milk a specialty.

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Send us your address and we will show you how to make $3 a day absolutely sure; we
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STRAIGHT KNIVES. Easy to keep in order. Cheap to replace. Cut the material more evenly and do more of it.

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The Silver Manufacturing Co.,
Established 1854. Salem, Ohio.

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Feed and Ensilage
Cutter



Does everything, cuts hay, straw, ensilage, shreds fodder and fills the silo to any height; all done by one machine. Sold on full guarantee. Write for catalogue.
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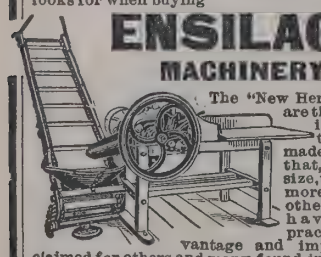
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ALL SIZES—Known as the BEST.



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The "New Hero" Cutters are the simplest in construction of any made; so strong that, size for size, they weigh more than any others; they have every practical advantage and improvement claimed for others and many found in no other; they are guaranteed to outlast and outwork others. Sizes, 9 in. to 26 in.; with or without self-feed table; shredder attachment if desired; swivel feed carrier. We make also a complete line of sweep and tread horse powers, shellers, huskers, feed grinders, wood saws, windmills, etc. Remember that Appleton quality is the standard of excellence, and write to-day for free catalog.

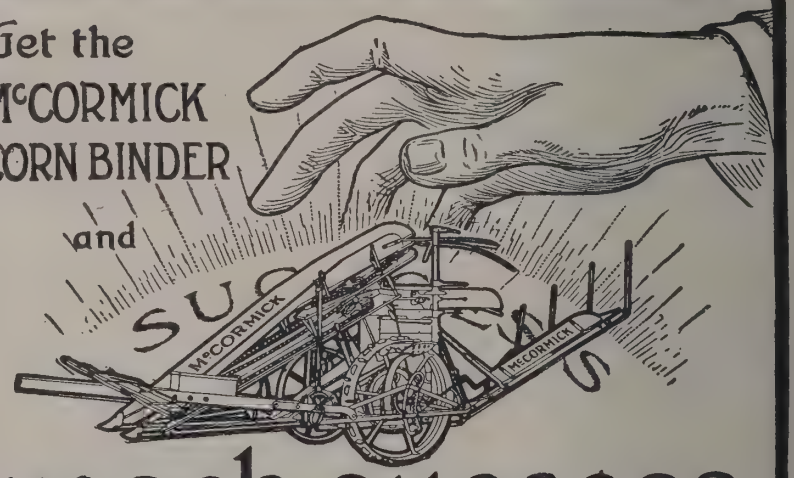
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VOLUME XXXIV. FORT ATKINSON, WIS., JULY 3, 1903. NUMBER 21

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CHR. HANSEN'S LACTIC FERMENT
To Ripen your cream, ensuring
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Medals—Bronze 1878 Silver, 1887, World's Fair, 1893.

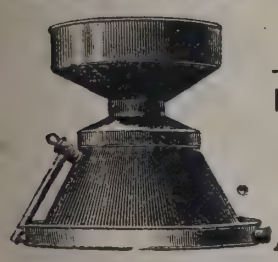


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Never until this year has it been possible to buy a cream separator of from 3200 lbs. to 3600 lbs. actual skimming capacity for $300.00, nor one of 2500 lbs. to 2800 lbs. capacity for $290.00. By the old plan of selling it was necessary to charge about $200.00 more to cover selling commissions, traveling expenses, experts' services, etc., etc. We have cut out these expenses and the creameryman is receiving the benefit. Isn't $200.00 worth saving? If you think so, buy a large capacity SUSPENDED BOWL FACTORY TUBULAR for $300.00.

THE Proposition is Right

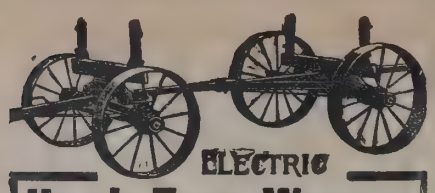
You are not asked to take any chances on the TUBULAR. Any responsible creameryman in America can have one on trial with no obligation whatever to buy or keep it. We would not want him to buy it unless he is convinced of its being the best separator he has ever seen. We will take our chances on his wanting to keep it. Isn't this proposition all right?

THE Separator is Right

The 1903 Suspended Bowl Factory Tubular Separator will skim ordinarily at two one-hundredths of one per cent.; when conditions are favorable less than one one-hundredth, and never above five one-hundredths. The large capacity TUBULAR requires less than 30 lbs. steam pressure—a little more than half the requirement of any other separator. It will skim without clogging longer than other separator, and it is built to wear. Don't you think a separator of that kind is about right?

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The Sharples Co., **P. M. SHARPLES,**
28, 30 & 32 So. Canal St. West Chester, Pa
CHICAGO, ILL. U. S. A.



ELECTRIC

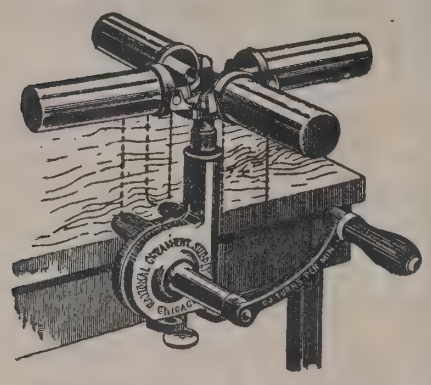
Handy Farm Wagons

make the work easier for both the man and team. The tires being wide they do not cut into the ground; the labor of loading is reduced many times, because of the short lift. They are equipped with our famous **Electric Steel Wheels**, either straight or stagger spokes. Wheels any height from 24 to 60 inches. White hickory axles, steel hounds. **Guaranteed to carry 4000 lbs.** Why not get started right by putting in one of these wagons. We make our steel wheels to fit any wagon. Write for the catalog. It is free.

ELECTRIC WHEEL CO., BOX 130, QUINCY, ILL.

NATIONAL

Babcock Milk Tester



Dotted Lines show position of bottle holders when not in motion.

Has enclosed cut gears.
Swinging bottle-holders.
Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

DOES YOUR DAIRY PAY?

It costs no more to feed a profitable than an unprofitable cow.

NET PRICES:

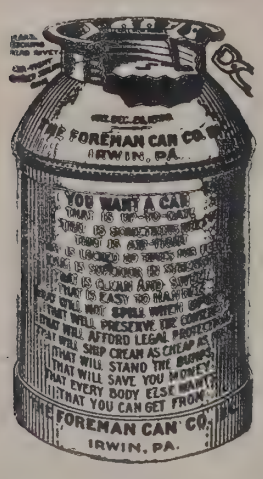
No. 1,—2 bottle, complete for testing milk.... each $4 00
No. 2,—4 bottle, complete for testing milk.... each 5 00
No. 3,—2 bottle, complete for testing cream and milk, each..... 4 50
No. 4,—4 bottle, complete for testing cream and milk, each..... 5 50

Prices include full directions for making test, bottle of acid, test bottle brush, acid measure, dipette and test bottles.

We are the great Dairy Supply House of the West. We carry an immense stock of all kinds of Butter and Cheese Making Apparatus and Supplies. Write for catalogues and circulars.

National Creamery Supply Co.,

450-458 Illinois St.,
CHICAGO, U. S. A.



We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity—1000 cans daily, which should enable us to fill all orders promptly.

Every can sold on a guarantee. Write for Circular H.

HEAVES and HORSES.

There is no more effective and speedy cure for the much dreaded **Heaves, Cough, Distemper** and **Indigestion** in horses than

PRUSSIAN HEAVE POWDERS

Earle Johnson of Oviatt, Mich., writes that he bought a heavy pony for $25.00, cured it with Prussian Heave Powders, and sold it and its mate for $125.00. Your dealer probably has it. If not, write to us. Price, 50 cents; sent by mail, 60c. We will forward it and send you at same time our 68-page book free if you ask it.

PRUSSIAN REMEDY COMPANY, ST. PAUL, MINN.

Special Agents:
PORTLAND SEED CO., Portland, Oregon.
H. W. WILLIAMS & CO., Ft. Worth, Texas.

WHY ARE MEN SO UNWILLING TO LEARN?

A devoted friend of the HOARD'S DAIRYMAN in New York, writes us a letter on business matters, but there is one statement he makes which we think other men should read. He was describing the strange indifference of the farmers about him to their own improvement in dairy knowledge, and says:

"It seems as if they really prefer ignorance to knowledge. I labor with them every chance I can get. They come to me for advice. If they have a sick cow, they will ask me to look over my file of the DAIRYMAN and see if there is any thing there that will hit the case, and I often find something that will help them. But when it comes to themselves they will not read on dairy questions. They have seen the improvement in my own case. I tell them that every new and valuable idea I have I have got from the DAIRYMAN. They can see it and they know it. Yet after all this, they will not read. I cannot believe they lack in brains for they will take political papers. They admit that they must read if they keep posted in politics.

I was a good deal the same way at first. But about the second sample copy of the DAIRYMAN I got, over 10 years ago, showed me that I needed to know more about this cow business if I wanted to make any money at it. I have read the paper ever since, and keep it filed and bound. It has been worth hundreds of dollars to me. A few of my neighbors are taking hold in the same way, but it required constant talking on my part to get them started. But the majority of them are as indifferent to their own betterment in dairy understanding, as they would be if they were made of wood. I do not believe they will ever make any progress in knowledge, or make any money as long as they think and act as they do now."

The Value of Sugar Beet Pulp.

Prof. B.C. Buffum sums up the question of the use of the pulp in a bulletin of the Colorado Station as follows:

It should be stated that the attempts to compute the cash value of pulp compared with other foods do not indicate its total value. It supplies a succulent food at a time when such food is either not available or is scarce, and its effect on stock seems to be much more favorable than either its chemical analysis or the return in increased meat or milk would indicate. To its actual nutritive effect as a food should be added its general effect on the quality of meat and milk and on the animal system. Pulp undoubtedly overcomes much of the injurious effects of dry and concentrated foods, puts the system in good sanitary condition, keeps off disease, and so aids the appetite and digestion and assimilation of food that there is less waste, both of food which is generally discarded in eating, and that which usually passes through the animal undigested.

There seems to be no difficulty in regard to keeping beet pulp. While there is some loss of material when placed in open piles, the fermentation which takes place seems to be beneficial rather than otherwise. Animals eat the sour pulp as well, and after a little time even better than they do the pulp fresh from the factory, and the dry beet chips on the surface of the piles are very palatable to sheep and cattle. Nebraska feeders claim that pulp which has been left in open piles for two or three years is as good as ever.

No injurious effects have been observed from feeding pulp, unless too large amounts are given before the animals become accustomed to it. * * *

The greatest difficulty with pulp feeding is that the large amount of water it contains makes it heavy and rather expensive to handle, and it is sometimes difficult to keep the animals dry and comfortable while feeding large amounts of it. The feeder who is near the factory and has the appliances so arranged that he can handle the pulp with the least expense, should make the greatest use of pulp and will gain the greatest profit from its use. If it can be placed before stock at a cost of not more than $1 per ton, we believe it will bring good returns for the investment, and in many instances it may be worth two to three times this amount. Whether fresh, fermented or dry, beet pulp is a valuable stock food, and one of which our farmers should make the largest possible use.

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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Notes on the Creamery Patrons' Investigation at the Bainbridge, N. Y., Creamery.

Ed. Hoard's Dairyman:—One of the creamery patron investigations instituted by Hoard's Dairyman has recently been made among the patrons of the creamery at Bainbridge, N. Y. This creamery is a notable one. Its management has taken the initiative in several important matters during its brief but eventful history of some fifteen years. What few creameries had operated in the vicinity previous to this one, were accustomed to pay their patrons at somewhat irregular intervals. Here, almost from the first, the milk has been purchased at a definite price, and payments have invariably been made upon the 20th of every month for the milk of the previous month.

As the region about the creamery is included in the Catskill foot hills, hauling the skim milk home is a somewhat unpleasant task for the patron, consequently one of the chief problems for the creamery proprietor for several years, was to find a profitable use for the skim. At one time a concern which had been induced to erect a laboratory near the creamery, took considerable quantities of skim milk to be utilized in the manufacture of certain invalid foods. Later when experiments were made to employ casein as a coating or sizing for paper, this creamery was one of the first to successfully accomplish its production. It was not long after the casein business proved its practicability that farmers found it necessary to pay about twenty-five cents per hundred for skim milk. Then, too late to retain their hold upon it, farmers began to realize something of the value of skim milk when fed on their farms.

At the creamery there was still a waste product, as no use had been found for the whey. It was not long, however, before the National Milk Sugar Company put in operation, across the way, a laboratory for the production of sugar of milk, taking whey from this and other creameries in the vicinity.

While a large amount of casein has been produced in the past, and recent improvements make it possible to produce still larger amounts, the demand for bakers' cheese and other products of skim milk has been so great at times, particularly in winter, that all the skim has been turned to the production of these products. High grade cream and bakers' cheese were the chief articles of sale last winter, but with the return of warmer weather, butter making and the manufacture of casein again receive attention. Butter, cream of various degrees of richness, clarified and bottled milk, several varieties of cheese, including Italian cheese, casein for paper sizing and whey for sugar of milk are the principal products sold from this creamery.

It is apparent that the business of this concern should increase, and increase it has. Its patronage extends further and is more general than formerly; the demand for its products is widening, and there seems to be ample reason for the claim that this is the largest creamery concern in America where the business is all conducted at a single point. In its dealings with patrons the ground is taken that to get the milk the most liberal prices must be paid consistent with requirements. An effort has also been made for sometime to interest farmers in furnishing richer milk. For example, a certain fixed price is made for milk not testing above 4 per cent butter fat, and another price from ten to twenty cents per hundred higher, is fixed for milk testing 4.4 per cent, and for that testing between the two extremes a proportionate price is paid.

Perhaps an example will make this clearer. In January, milk testing not to exceed 4 per cent was paid for at $1.45 per one hundred pounds, and that testing 4.4 per cent, $1.65 per hundred. If a dairy averaged to test 4.3 per cent, the price was $1.60. Prices are ruling higher this year, and winter milk, in particular, is likely to be in good demand. A brief history of this concern may interest many readers of Hoard's Dairyman.

In 1888 M. C. C. Hovey and Mr. Fred White, both residents of this town, started the Bainbridge creamery. The building was 80 feet long and 40 ft. wide and one story high. It cost for erection and equipment about six thousand dollars. Annex after annex has since been built, another story added, a barn erected, a cold storage plant installed, and recently a building for drying curd and for a feed store has been equipped. The creamery and cold storage have now a floor of nearly 16,000 square feet and the newly equipped building has over 13,000 square feet additional.

In the former department there are twenty-seven rooms. Since the concern opened its doors for business, it has never closed them for a day, even during all the changes that have been made in the buildings and in the personnel of the company. Early in its history Capt L. R. Clark became a member of the company. A little later Mr. White withdrew, and after a time Mr. Clark did the same, leaving Mr. Hovey sole proprietor. From this time on there was really no change in the ownership till April 1902, when Mr. Hovey sold out to the Casein Co. of America.

During all these years Mr. Hovey was practically the only one interested in the management. For a considerable portion of the time he was educating his eldest son, Mr. W. W. Hovey, to become a successful creamery manager. This young man engaged himself in one department after another until he became familiar with every detail of the creamery work. At the same time he was carrying on his studies in the high school from which he was graduated. A course in a good school of business followed, and then he took charge of the office work in the creamery. The usefulness of all this special preparation becomes apparent when with the change of ownership the younger Mr. Hovey was engaged as general manager.

Regarding the sale to the Casein Co. of America, there can be little doubt but that a good price was paid, but the report, published in some papers at the time, that the property changed hands at $250,000 was surely based upon an exaggerated estimate. It is probable that the price mentioned might be cut in two, and then discounted liberally before reaching the correct figures. Since the change of ownership, upwards of forty thousand dollars have been expended in improvements and better equipments. A large part of the purchase price was for "good will," which means, of course, the energy and business ability that had been put into building up the trade and establishing profitable relations with milk producers of the vicinity.

In the Dairyman's investigation among the patrons of this creamery, it was shown that the one hundred patrons reported were making an average profit of somewhat less than one per cent on the cost of the feed. Only a few of these dairymen expressed themselves as opposed to good farm papers, but on going over the list, it appears that only thirty-five out of the hundred can be considered as careful readers of dairy subjects. Every one of the thirty-five shows a profit made on the cost of the feed. Of the remaining sixty-five, thirteen make a profit as shown by the schedule, while fifty are actual losers. The thirty-five who are readers get an average return of $49.66 per cow, while the remaining sixty-five get an average of $32.23 per cow, a difference of $17.43 per cow in favor of the man who studies his business. Those who study expend an average of $1.68 more per cow for feed, but that $1.68, together with enlightened judgment, returns 1,037 per cent of itself.

Chenango Co., N. Y. H. H. Lyon.

A Grade Holstein Record.

Ed. Hoard's Dairyman:—Perhaps a complete record of my Grade Holstein cow, "Delilah" will be of interest to you. Her picture appeared in the Dairyman about two or three years ago with one year's record. Her complete record is as follows: From July 4, '98 to May 23, '03, or six weeks short of 5 yrs.

In 1898, milking period was 44 weeks and made 10,965 lbs. milk; average test, 4.4, sufficient to made 554 lbs. of 85% butter.

In 1899, milked 44 weeks, making 12,062 lbs. milk; average test, 3.875, making 537 lbs. of butter.

In 1900, milked 50 weeks and gave 13,926 lbs. milk testing 3.75. Making 600 lbs. of butter.

In 1901, counting 48 weeks, gave 16,637 lbs. milk, testing 4.06; making 776 lbs. butter, and she became barren and continued her work 42 weeks longer and gave 7,546 lbs., testing 4.5, making 390 lbs. of butter.

She milked in the 5 years, 228 weeks and was dry 26 weeks. Average lbs. of butter per week, 12 53-100. Average lbs. of milk per week, 268.

Her best week was 447 lbs. of milk, and her best butter test was 752 lbs. of milk testing 4.7, making 40.64 lbs. of butter in 14 days. In August of 1901, her feed was alfalfa with short season of pasture each year. About 3 years of the time she had brewers wet grain and corn chop, and for two years bran instead of brewers grain. May 23 last she weighed at the stock yards, 1260 lbs. and neted me $42.00.

Now had this cow been a dual-purpose cow, how much more would she have been worth for beef, and how much less would she have returned in products? In the five years the tests were the Babcock 14 days composit test, every three months, while this record was being made.

She was a very good representative of the dairy form as taught by the Dairyman, which has been very valuable to me, and, with practical experience, has made me very emphatic in selecting a cow for the dairy to get the dairy form and avoid the "dual cow," that some of our friends seem to admire. Perhaps they admire them more from sight than from records and calculation.

Denver, Col. C. E. Bull.

It Pays to Keep Posted.

Read agricultural papers, books and daily papers with market reports. Don't say you haven't time to read nor the money to pay for papers, because you have. A short time ago two farmers, A and B, met shortly after receiving their monthly dividend at the butter factory. A says to B, what did your cows test? B answered, 5%, and I get 95c per 100 lbs. for my milk. Said A, mine test only 4% and I get 76c per 100 lbs. I am going to sell my cows and get some that will pay better.

C, wanting some cows, and having read agricultural papers, looked up the weigh sheets at the creamery; this is what he found. A's cows' average yield of milk per cow for the year in round numbers was 5,500 lbs., test 4%, price per 100 lbs. milk 76c, or $41.80 per cow. B's cows, 4,000 lbs. test 5%, price per 100 lbs. milk 95c, or $38 per cow. Here was a difference of $3.80 per cow in favor of A's herd, besides 1,500 lbs. milk extra for feeding purposes. C bought A's cows for $35 (B wanted $40 for his.)

D, is a country merchant who reads the market reports, and E, a farmer who does not. D sees that beans have advanced in market from $1.35 to $2.15. E comes to the village, D makes it a point to see him and says: "What about those beans I offered you $1.35 for the other day; are you going to bring them down?" E—"I told you that I was going to have $1.50 for those beans; there are 20 bus., and if you want them at my price, will bring them tomorrow." D—"All right, bring them in." Loss to E. $13.

C and D are getting wealthy. A, B and E just make a living and they cannot understand it, as they work hard and never spend a dollar foolishly, as they say. Now A, B and E, you subscribe for two or three agricultural papers, study the practical methods of farming contained therein and at the end of the year you will have saved something besides a living.—*Ex.*

Alfalfa Experience in Pennsylvania.

Ed. Hoard's Dairyman:—I will state my alfalfa experience as I see so few reports from this state and none from this county of Lancaster, with its fertile limestone soil.

Last summer, after taking off a soiling crop of corn, I harrowed the ground, being careful not to disturb the stalks, and thus obtained a seed bed two inches deep.

I have read every article concerning alfalfa, that has come under my notice, and with few exceptions they recommend a soil plowed as deep as possible, even sub-soiled. This I believe to be a grand mistake, under certain conditions.

We would suppose, from the nature of the plant, that alfalfa roots possess a penetrating power equal to that of our common red clover, or of corn roots, which we know enter the soil several feet at least below the depth of the plow. The object of plowing must therefore be merely to prepare a seed bed, and not to deepen the soil. I speak of good corn and clover land.

With the soil in proper condition as to fertility and alkalinity, the question of getting a catch of alfalfa is clearly one of moisture. Hence, we can see no reason for preparing the soil to a greater depth than that sufficient to guarantee a good germination of the seed, and a freshly plowed soil is not in condition to retain moisture.

We are told that young alfalfa is more susceptible to drouth than red clover. We know from experience and observation that red clover prefers a solid soil.

Except to bury rubbish, why then should we plow for alfalfa even deeper than we do for corn?

With these considerations in view, I prepared the soil as described above, and after applying thirty bushels of air-slacked lime to the acre plot, on August 16th I sowed and drilled in thirty pounds of alfalfa seed.

The seed was diluted with corn meal and run through the wheat distributors. A small portion of the plot was seeded by running the seed on top of the ground and this was covered with a weeder. For the greater portion, however, the hoes of the drill were permitted to run as deep as they would, and the seed was covered about an inch deep. This was done to get the seed below the dust of the surface, believing that it had sufficient vitality to push through. The entire plot was rolled.

The shallow seeding came up directly, but the other lingered, and it took some time for it all to come through, but soon gained upon the other and kept up a constant growth until winter, when the growth averaged thirteen inches.

The shallow sowing had troubles of its own and peculiar to itself, for dry weather set in when it was but a few inches high, and it looked sick, but pulled through and made sufficient growth to stand the winter well.

This spring the cold, wet weather appeared to affect the entire plat, but the shallow sowing to a much greater extent than the other. Because of this I mowed the entire plat the latter part of April. I have just finished mowing the plat as a soiling crop. Good judges said it would have made at least a ton of hay. The average stand was probably twenty-eight inches, but individual stalks stood as high as forty-three inches. This however, was true of only the deep sowing, the other did not reach a height of over eighteen inches, but was much thicker on the ground than appeared to be. The cows ate it greedily, being fed in connection with ensilage.

Bellemonte, Pa. T. C. McIlwaine.

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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of them read dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

Howmuch more net profit will there be in an acre of wheat yielding 20 bushels than in one yielding 15 bushels? On the first impulse most people would say thirty-three and one-third per cent more, because 20 is that much more than 15. But there is a difference between net profit and gross income, and it is consequently safe to say that a yield of 20 bushels is 100 per cent more profitable than one of 15 bushels. The same principal applies to the cows in a dairy herd. The cow that yields 20 lbs. of butter while another is yielding 15 lbs., gives fully 100 per cent more net profit.

SOME years ago, says the *Cosmopolitan Magazine*, some reformers in England learned to their horror that the operatives in certain factories were working under conditions that destroyed their lungs and left them on an average only a half dozen years of life. In their efforts to stop this waste of human life, they found their most persistent opponents among the very men they were trying to benefit. Such is the strange perversity of human nature. The same experience has come to HOARD'S DAIRYMAN in its efforts to work reform in the ideas and practices of dairy farmers, and to stop some of the fearful waste of labor, time and food that is constantly going on among them. The most pronounced opponents to such reforms are the men who are doing the most wasting, and suffering the most by it.

"THE DUAL-PURPOSE COW AGAIN."

Under the above title, *The Prairie Farmer*, in its issue for June 18 of the present year, endeavors to show that various grade and pure bred Shorthorn cows have been more profitable producers of milk and butter than dairy-bred grade animals, although, according to custom, it insists it has no intention of "claiming that the dual-purpose cow is ahead of the special dairy cow for strictly dairy work." In support of this contention, it refers again to the so-called milking trials in England, which last only two days, quotes quite fully from the reports of the Wisconsin Experiment Station for the years 1899 and 1900 and mentions other short term records and reports.

Its confessed purpose, both in the recent article and in another published last January, is to "demonstrate the fallacy of the position taken by HOARD'S DAIRYMAN and some other dairy writers, that there is no such thing as a dual-purpose cow, and that it is beyond the bounds of possibility to produce such a breed."

There would be some pertinence to this purpose if HOARD'S DAIRYMAN or any representative "dairy writer" had ever denied that there existed in all breeds, instances of phenomenal milk producers, or that in some sections in England there were herds of Short horns that had been bred for years with special reference to dairy ability. But in the United States deep milking Short horns are no more abundant than prize-worthy beef steers from dairy dams, and most unfortunately for *The Prairie Farmer's* argument it remains to be proven that these double-purpose individuals have any ability to transmit their peculiarities to offspring. There is no rule in breeding which can be relied upon to insure that the males shall make profitable steers and the females from the same sire and dam profitable dairy cows.

The misleading character of short term or single year records is nowhere more graphically set forth than in the Wisconsin Station report for 1900, which shows that one cow produced 110.90 pounds butter in one year and 324.81 pounds the next year, and another cow increased from 184.33 pounds to 364.56 pounds.

SOME IDEAS ABOUT BREEDING DAIRY CATTLE.

There are two theories before the world on this question: The theory of breeding for specific purpose and type, the theory of breeding for dual-purpose and type.

The first theory has behind it the clear, specific experience of those who have established dairy breeds of cattle, such for instance as the Jerseys and Guernseys as advanced butter breeds, giving milk of great richness in butter fat, and the Ayrshires and Holsteins giving milk in larger quantity, and of less per cent of fat.

These four breeds are called dairy bred cattle because in the main their breeders hold to the idea and purpose of making butter in the one case, and milk in the other, the main object of their breeding. In other words these four breeds of cattle are bred to a specific purpose and to a certain extent to a specific type or form, the so-called dairy form.

Nature has satisfied the purpose of these breeders by granting them increasing development of dairy capacity in their cattle, just as long as they have held steadily to their specific purpose. She has in every case punished them also, sooner or later, with loss of dairy capacity, as well as loss of *dairy heredity and prepotency*, whenever they have departed from the line of breeding for these specific purposes.

In this way, and *only in this way*, have we been enabled to establish breeds of cattle of specific dairy prepotency and the power of constant development in dairy productiveness.

Nature at her best is full of confusing variation. Breed as closely as we may to a specific purpose, there will still come to our hand plenty of failures. Too many breeders in the past have poisoned the stream with foolish fads, with ideas of breeding for meat as well as milk and butter, and their ideas have left their detracting effect on the procreative powers of the cattle we are now using. Do the best we can, we will have all the confusing diversity and variation we want, all the loss of dairy capacity we can take care of, without *breeding for it on purpose.*

Dairy breeders must never lose sight of the great principle that all future development lies in the direction of holding steadfastly to two principles: Breed for the single purpose of dairy capacity and strength of constitution.

By the term "development" we do not mean so much the production of phenomenal cows, as that there shall be less and less failures; a larger per cent of certainty that the resulting heifers will prove profitable cows, and the resulting bulls the sires of profitable cows.

If the foregoing premises are sound, it is plainly evident that no breeder of dairy cattle or dairy farmer can afford to meddle with the confusing heresy of "dual purpose."

AN APPRECIATIVE SOUTHERNER AND A CONTRAST.

The following postscript was attached to a letter received from Mr. Hooper Alexander, one of the leading lawyers of Atlanta, who is also much interested, in a practical way, in dairy work and enterprise:

"I have read your paper now for several years, and I do not flatter when I say that it is in my opinion the best paper in the United States, devoted to any specialty. The patience and courtesy with which you answer over and over again the same inquiries entitles you to a high place among the elect."

We quote the above very highly appreciated commendation for the purpose of showing the wide contrast which exists among men. Here is a gentleman of culture and thought who is deeply immersed in his other business, but who finds a little time to devote to a study of dairy questions. He reads and studies the DAIRYMAN and appreciates it, and is glad of the opportunity to take and pay for the services of a friend and counsellor such as it is.

Thousands of farmers all over the United States, who have their capital and time and labor invested in the business, and who really and constantly need the education such a paper would bring them and yet, "though an angel come down from Heaven" he could not induce them to take sufficient mental interest in their own business to subscribe for such a paper.

Not long since a leading merchant in a neighboring town, related to us the following incident. He was talking with a dairy farmer who was complaining of the hard time he was having to get along. The merchant, who is a keen business man, one who knows the value of keeping posted in his own business, asked the farmer if he read HOARD'S DAIRYMAN? "Imagine my surprise" he said "when this farmer broke out with a foolish rant about reading such papers. He said it was all rot, and no farmer could afford to spend his time that way.'" He confessed to me that neither he nor his family read anything but "story papers."

"Here was a man," said the merchant, "who was not ashamed to boast to me of his ignorance of his daily business, and how he kept his children in the same ignorance. At the same time he was owing me a store bill three years old, and yet was really proud of the fact that he never read dairy papers, did not know anything about what they treated upon, and was contented as a kitten in what he did not know."

This is the contrast—the lawyer and the farmer—one reaching out for all the knowledge he can obtain and thankful for it; the other, of choice, turning his back on the light and *boasting* that he is not one of "them fellers" that waste their time reading dairy papers. No wonder the lawyer is the man he is. Small wonder either that the other man is where he is. And let us say that there are thousands upon thousands of just such men keeping cows for a business in these United States.

Every improvement, every bit of progress, every increase in their own good fortune, has been forced upon them. Not a man among them ever did a thing or thought a thought that has helped along the dairy progress. They keep their minds as dark and blank as possible, and call themselves dairymen. They never know of any new improvement until some of the more intelligent have tried it and have enjoyed its benefits for ten years or so. They are down on books and papers that talk of the farm or the cow, but they are great on "story papers." What a help such men are to the cause of better farming and more prosperous farmers.

INDICATIONS OF CONSTITUTION IN DAIRY CATTLE.

The *Maritime Farmer* in an interesting article on "Breeding Dairy Cows For Production," defines constitution in dairy cattle by saying that "the wide chest, good heart girth," are the chief indications of constitution in a dairy cow. It seems to us as if the *Farmer* as well as many other writers has fallen into the old beef-type method of judging constitution in dairy cattle, and for want of a better knowledge is still keeping it up. They have only to look at the form of a race horse and his build about the heart and lungs and then compare him to the deep chested, wide-between-the-fore-legs form of the draft horse to see that there is something lacking in this old definition of constitution. Is the race horse deficient in constitution or staying power? Compare the setter and pointer dog with the deep chested bull dog. Does the hunting dog lack in constitution? Is either the race horse or hunting dog lacking in heart and lung power? Why, one minute of the work of the race horse calls for more breathing capacity and heart action than two days of the slow, steady pulling of the draft horse. And so in like manner it is with the hunting dog and his labor in the field.

The dairy cow does not lack constitution or staying power, in her chosen field, because she does not have the deep brisket and great width between the fore legs that mark the beef animal.

More than this, the beef outline is not an indication of large heart and lungs. We wonder sometimes if these beef outline advocates, ever examined the lungs and heart of a racehorse and dairy cow to see whether they were smaller in size and compacity for action than those of the draft and beef type. The form of the dairy cow like that of the race horse has been fashioned by the dominating effect of a peculiar function. Function always modifies form, builds it and shapes it to its own purpose.

But constitution is an independent quality, and must be present in all forms and functions, else the animal does not last well in its work. Constitution simply means vitality; power to endure; ability to resist disease and discouraging circumstances. It is largely derived from the brain and nervous system. This is shown more clearly in men.

It is found in men of slight form and fails in men of large chest girth. Its indications must be sought for in other lines than are indicated by the old Shorthorn doctrines and outline.

The construction of the walls of the abdomen, strong will and temper, active, alert bearing and action, are much better indications of enduring constitution than the formula generally given of "wide chest and good heart girth."

MILK FEVER.

Considerable complaint is heard throughout Wisconsin and the middle west, this year, in regard to milk fever. The disease is quite apt to prevail in moist seasons, where cows are allowed to calve on damp ground, or if they lie on such ground for several days before and after calving. Dr. Peters, of the Nebraska Experiment Station, gives the following simple formula for using the Schmidt cure:

"First wash the udder thoroughly and the operator's hands with soap and water, removing all the dirt; then the udder should be thoroughly milked. Each

quarter should be entirely empty. After this is done an ordinary milk tube is inserted. The milk tube, rubber tubing and funnel should be thoroughly sterilized before using. If a funnel is not available an ordinary fountain syringe that has been thoroughly cleansed and sterilized by allowing hot water to run through it may be used. The solution injected into the udder is made by dissolving two drams of iodide of potassium in one pint of boiling water. This solution is allowed to cool to that of the body temperature, and then one-fourth of it is injected into each quarter of the udder. The udder should be previously cleaned and disinfected with a 5 per cent solution of carbolic acid. After the solution has been injected rub the udder from ten to fifteen minutes. Allow the solution to remain in the udder from an hour to an hour and a half, and then milk it out. If it is necessary this treatment may be repeated within eight or ten hours. The disease has been greatly reduced by this treatment.

"Recently a modification of this treatment has been in use. The entire udder is inflated with air. The udder is first thoroughly washed and cleansed with an antiseptic solution such as carbolic acid, 5 per cent. Each quarter is thoroughly milked and then inflated with air. This is done by attaching a pump to the ordinary milk tube that has been inserted into the udder. After the udder is filled with air, massage or rub it from twenty to forty minutes, so as to distribute the air throughout the entire udder. This method has given very good satisfaction.

Prevention is far better than cure. The DAIRYMAN would urge that all cows that are heavy milkers in particular be placed in a comfortable box stall if possible fully a week before calving, and a pound dose or two of Epsom salts be administered. After calving keep the cow in the stall for four days, giving her all the luke warm water she will drink, with a little oat meal sprinkled thereon. Be sure to keep the cow away from all draughts of air. Milk fever usually commences with a chill as does puerperal fever with women. It is a good plan not to empty the udder fully for four days, and let the calf remain by her side. Thoroughly disinfect the stall every day with a strong whitewash or carbolic acid.

DAIRY FARMING.

A Pennsylvania correspondent writes thus:

"I like HOARD'S DAIRYMAN for a good many things. More than any other paper that I am acquainted with, it tries to get things and principles connected with dairying, down to a practical definition where the comprehension of common men can get hold of their meaning. But I particularly like the paper because it pays especial attention to the problems of the dairy farm. There are a good many of these problems and the best of us are all the time at our wits end to know just what to do. It would please me very much if you would give me a résumé of what you think are the problems of the American dairy farm. Bunch them together once, and let us see how they look as a whole.

Yours truly,
J. S. MUNSON.

Bradford Co., Pa.

Our correspondent sets us at no very easy task, for the problems that confront the dairy farmer almost every day are as infinite in character as are the almost infinite variations of vegetable and animal life.

We should first understand that the dairy farmer is dealing with *life*. Though he be ever so well educated and trained, the great ocean of facts is a thousand times greater than he is. Of course the advantage is greatly on the side of the man who makes of himself an intelligent student of these facts. Ignorance helps no man. About as good an epitome as we have ever seen of what we should strive to study, and as far as we can to master, is found in the following statement of the Course of Study at the British Dairy Institute, Reading, England.

"General management of a dairy farm; soils, manures and cropping; use of home-grown and purchased foods; composition and preparation of different kinds of foods; compounding of food rations; grasses and forage plants; management of pastures; farm live stock; breeds of dairy cattle; management of milk cows, dry cows, feeding cattle and young stock during summer and winter; the feeding and rearing of calves; the best breeds of pigs and their management."

Here comes one of the most important branches of knowledge—"The sanitary arrangements of a dairy farm, water supply, animal hygiene, etc." On this point alone, how to provide for the health and better efficiency of our farm animals, there exists a most appalling state of ignorance among American farmers, and largely so because few of them believe they need any special study, or stock of knowledge on that point more than they now possess.

To all of the above we may add—the construction of stables and other farm buildings in a healthful, economical and efficient manner. Most men ask but two questions when they set out to build a stable or barn (1) "How cheaply can I do it? (2) How can I make it most handy for myself?" no matter whether it is all right for the cow or not.

Those persons who think it is an easy thing to comprehend all there is to know, and that they can do this with uninformed minds, can tell by looking over the foregoing list what the best informed dairy authorities think of the proposition.

There is scarcely a day in which the dairy farmer is not called upon to exercise the best judgment he can obtain on the foregoing points. Is it not time they were made the subject of especial study by the men who profess to be dairymen?

FEEDING TERMS.

Judging from letters and inquiries received, the terms, scientific and practical that are used in dairying and feeding are often stumbling blocks before the feet of many of our readers, and it is probable that in many cases readers hestitate to acknowledge even to themselves, that ignorance of the meaning of these terms forms a decided obstacle to the better understanding of the science of dairying.

Everyone is more or less subject to the same trouble, and the man who keeps up with the procession must be constantly familiarizing himself with the terms that are constantly being formed by scientific workers to explain conditions and methods for which there are no words in English, and which would otherwise require a phrase or even a sentence to explain. Recently we received a new work on animal nutrition and on looking it over we find metabolism, katabolism, anabolism, and a few others of like nature that sent us at once to the dictionary for information.

Unfortunately for the average reader, the dictionary assumes frequently that the seeker for knowledge in a certain branch has a wide assortment of knowledge in other branches. Supposing a dairyman, to whom the terms used in feeding are somewhat new, goes to the dictionary to find out what albuminoids are and he finds the following. "Albuminoids: One of the class of organic principles which form the main part of organized tissues." This may be clear to some but it does not throw much light nor assist the seeker after knowledge.

The fact is that very few of the terms used in feeding can be defined in a few words and carry to the mind of the inquirer any clear meaning of what the term actually means, and this is especially so where there are two words that are used to indicate the same substance. Thus, albuminoids and proteids are used for names of substances containing nitrogen, and that can be used for foods, or that are derived from foods digested and assimilated by the living animal.

Of this class the white of egg and the casein of milk are the most common examples, but they are only two of a long series of bodies that can be used as food and that vary slightly in taste and appearance according to the source from which they are obtained. There is not a living thing in the world, from bacteria up, that does not contain albuminoids of some kind, and the number of varieties is probably beyond calculation.

Like all other nutrients, the albuminoids go through a long series of building up and decomposing, continually being made and unmade. The great reservoir and starting point is the air that contains a large per cent of nitrogen. By various methods chemical, physical and bacterial, this nitrogen is changed into bodies that can be used as food by plants. The plants work over these products derived from the air and store them up as albuminoids, which can then be used as food by animals.

The animal works over this material, uses a little of it to supply its own wants and in the process makes a large part of it into substances that can again be used by plants to form more albuminoids, which are again used by animals, etc.

A little of the nitrogen is wasted each time a change is made, and that goes back to the air again, to be finally captured once more and started on its rounds through plant, animal, bacteria—a kind of perpetual motion as it were—without which all life would come to a sudden stop.

Professor Homer C. Price, Professor of Horticulture and Forestry, Iowa State College, has been elected Dean of the College of Agriculture and Domestic Science and Head of the Department of Agriculture of the Ohio State University, with the title of Professor of Rural Economics, and will enter upon his new duties in July.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Plan for Small Barn Wanted.

Enclosed find 25 cents for subscription to your paper for such a length of time as 25 cents will pay for. I want to build a small cow barn, one that will accommodate, say, 3 cows in milk and 3 or 4 calves and heifers, the whole arranged with a view to handiness in feeding and saving manure. If back numbers of your paper contain plans of such a small barn, the entire subscription taken in back numbers would suit me just as well. M. L.
Clinton, Miss.

Our personal experience, corroborated by observation, is that a small barn is never large enough. Either the amount of stock to be stabled increases beyond anticipation or the barn becomes a convenient place for shelter and storage for the thousand and one things that accumulate, either on the farm or about a city or town residence. While it is true that we have published, at different times, suggestions for small and large barns, we do not recall any that would seem to meet the requirements of this particular inquirer. Indeed, without further and more specific information, we find it difficult to form very much of a conception as to the requirements he has in mind. We estimate that the six or seven animals to be provided for will require a space at least 13×26 feet in the clear for stable accommodations. This will provide a convenient passage way and stall room for the seven animals. In addition, there would be required more or less room on the same level with the stable for the storage of ground feed, tools and so forth. The amount of room to be appropriated for this purpose will depend somewhat upon the location and character of the surroundings. A feeding alley in front of the cows four feet wide might be considered ample, or a space 8 to 12 feet wide might possibly be utilized.

We observe with much satisfaction that this inquirer wants provision made for saving the manure. This is a matter too much neglected everywhere. Where manure cannot be hauled direct from the stable to the field, the ideal method is to build a shed entirely disconnected from the stable; but where, for any reason, this is impracticable, a shed or shelter may be built alongside the stable. An open shed across one end or one side of the proposed barn six feet wide would probably afford all the shelter necessary for saving the manure, but a wider shed, open to the yard, might prove a very convenient place for the cows to take refuge under in case of storm or oppressive heat.

These suggestions indicate provision for a structure not less than 28 feet in width by 35 feet in length on the ground. Commencing at one end we would devote 12 feet to a manure shed, with a substantial partition between it and the stable proper. Next to this partition, would be a walk or passage five feet wide, then a gutter one foot wide, a platform four and one-half feet wide and then two feet for mangers, in front of which there would be at least eight feet in the clear. Let there be windows enough in this stable to make it fully as light as one would want an ordinary living room, and at some convenient place, provide a ventilating shaft with a cross section containing not less than two square feet. Concerning this matter of ventilation, see the communication from H. A. W., Pineville, Pa., and our answer thereto.

Milk, and Cream from Same, Tested and Great Difference in the Amount of Butter Fat Shown.

Would you kindly give me following information No doubt you have already answered similar questions, but it appears in a different light. A quantity of milk was sent to factory and tested as milk, the total butter fat amounted to 225 lbs. as per test. The cream from same milk was tested and total butter fat amounted to 175 lbs., being a difference of 50 lbs. butter fat. Both milk and cream were tested alike, same measurement. The cream, I presume, should be tested by 18 grams weight. Now would this make the difference? Since the hand separators are used we have at the factory both milk patrons and cream patrons so that above makes considerable difference.
Danville, Que. W. R. E.

The chances are, we think, that the samples taken for testing the cream were very light. The ordinary pipette will not deliver 18 grams of cream at any time, and if the sample is taken directly after the cream is separated, there will be so much air mixed with the cream that the sample will be very light indeed. A recent law in Wisconsin provides that in testing cream, the sample shall always be taken by weight and this is practically the only way to obtain the proper test.

In making a test of this kind, three or four different samples should be taken, one to check against another.

King System of Ventilation.—Quantity of Condition Powders to Feed.

Will you please explain what the King system of ventilation is, and how it is done for the ventilation of a barn. Please give the amount of condition powders that is to be fed to a horse, cow, or hog at one dose, that Mr. Cook advised feeding, on page 301. W. W.
Coopersville, Mich.

As more fully explained in our answer to H. A. W., of Pennsylvania, the King system of ventilation is based upon the principle of admitting fresh air at the ceiling and drawing off the cold and the impure air at the floor. The practical application of this principle in different cases must be governed by the special conditions in each case.

The formula for condition powders given on page 301, shows the principle ingredient to be linsend oil meal, and therefore, it may be safely fed, if necessary, in very considerable quantities, from a tablepoonful to a pint, twice a day. It should not be forgotten, however, that, as a rule, neither animals nor men need to be continually dosed with condition powders or medicine of any kind.

How to Keep 40 Cows on 65 Acres of Land.

In a recent number of the DAIRYMAN, page 417, you said 65 acres of tillable land would support 40 cows. What rotation of crops would you use in connection with corn to supply the necessary roughage? What provision should be made for pasture? NEW SUBSCIBER.
Bath, Ohio.

The statement we made, to which this inquirer refers, was based upon our knowledge of the fact that the inquirer in that case resides in one of the most productive sections in Wisconsin. There is probably just as good land in Ohio, but we are not sufficiently acquainted with Ohio conditions to justify a similar statement for every farm in that state. Given good land in Ohio, or elsewhere, we should depend very largely upon corn and alfalfa as the main crops, and devote very little acreage to pasture. We should expect to raise corn enough to fill silos and have considerable left over for cribbing. We should aim to keep a goodly number of hogs to take the skim milk to good advantage, and expect to use the money received for hogs in purchasing feed for the cows and other hogs. Alfalfa has not been recommended for a short rotation and we should, therefore, until more is learned about alfalfa, expect to grow some common clover, and possibly, wheat, oats and barley. These, however, are questions that can only be fully answered when one is entirely conversant with the soil, climate and markets. Mr. Terry, of Ohio, has found it very profitable to grow wheat and potatoes in connection with clover.

Soil Inoculation for Leguminous Plants.

Of the three elements going to make up the value of fertilizers, nitrogen is by far the most expensive. While this element is abundant in nature, forming four-fifths of the atmosphere, it is only under certain rare conditions that this uncombined nitrogen becomes available for plant growth. It has long been known that leguminous plants, such as clover, alfalfa and cow peas are unusually rich in nitrogen, and increase the nitrogen of the soils on which they grow. This was not explained until science brought out the fact that this family of plants is able to obtain nitrogen from the air. It has been found that the power of securing free nitrogen exists only when small nodules or tubercles containing bacteria are found on the roots. It is now generally believed that these bacteria draw their nitrogen from the air and convert it into forms which can be utilized by the plants on which the nodules grow,

In growing these renovating crops for improving the soil it is important to know whether the nodules are formed upon the roots. If they are not there, the greater benefit from growing such crops is lost and the soil makes no actual gain in nitrogen. Where a crop like clover has been grown at intervals for a series of years, it is probable that the soil will contain the proper bacteria for forming tubercles. It has been found, however, that the bacteria growing upon the roots of one legume, as clover, may not grow upon the roots of another genus, as the cow pea. Therefore, where the nodules are not formed, as is very probable with leguminous plants new to the section where planted, it is advisable in seeding the plants to also sow their proper inoculating bacteria. The absence of root tubercles will probably account for the reported failures of leguminous crops in many sections.

A recent report states that the soy bean has been grown at the Kansas Station since 1890. Only recently, however, have tubercles formed upon the roots, and this was brought about by artificial means. Inoculated soil was obtained from a soy bean field at the Massachusetts Station, and by scattering it over the Kansas land, plants with tubercles were grown, producing an increased yield and a higher percentage of nitrogen. Several methods of inoculating were tried. The seeds were thoroughly wetted in a bag suspended in water, into which the Massachusetts soil had been stirred. Again, the dry soil was sown broadcast over the fields, and in other cases was drilled with the seed. The best results were obtained by sowing inoculated soil in the drills. The method of securing inoculated soil and of inoculating a field is described as follows: In a 500 foot row incorporate 100 pounds of inoculated soil with the seed at the time of sowing. After harvesting the crop take up the soil in the row to a depth of 4 to 5 inches, spread on boards in the shade until dry, and sack. When planting a field to soy beans apply this soil with the seed by means of a fertilizer attachment to the grain drill.

The Alabama Station has experimented with commercial inoculating material (Nitragin) and inoculated soil on a variety of crops, but especially with hairy vetch and crimson clover as winter cover crops. It was found that while vetch and clover during the first year developed only a few tubercles on the station soil and made poor growth or failed entirely, they were after a few years of continuous growth abundantly supplied with them and made good growth. However, it would seem hardly profitable to wait for the slow action of natural inoculation when the desired result can be easily and quickly accomplished by artificial means. Where there is a small patch of clover, vetch, or peas, bearing root nodules, a field of a similar crop may be readily inoculated by using soil from the former. At the Alabama Station the crops were inoculated by applying soil from old fields and by dipping the seed previous to sowing in water into which had been stirred soil from an old garden. Artificial cultures (Nitragin) were also used, but their cost, together with liability to deteriorate, is believed to preclude their use in general farm practice.

In the experiments with hairy vetch grown on a soil for the first time, one lot of seed was dipped into a water solution of earth from an old garden spot where vetch had grown, and another was sown without treatment. The inoculated plants had large clusters of tubercles on the roots and produced 2,540 pounds per acre The soil of the inoculated plat, besides producing the larger crop, was left in much better mechanical condition. In a crop of crimson clover, seed inoculated with Nitrogin produced an average of 4,057 pounds; not inoculated, 761 pounds per acre Not only was the total amount of forage increased in the above instances, but there was a larger percentage of nitrogen in the inoculated plants. The total amounts of nitrogen contained per acre in the crops, were as follows: Hairy vetch—inoculated, 105.5 pounds; not inoculated, 7 lbs. Crimson clover—inoculated, 143.7 lbs; not inoculated 4.3 pounds.

In earlier experiments at this station, the average increase in weight of the inoculated plants, after thorough drying, was with hairy vetch, 89 per cent; Canada field peas, 138 per cent; crimson clover (young plants), 146 per cent. In a soil which had not borne leguminous plants for many years, some tubercles developed on hairy vetch, Canada field peas, crimson clover, lupines, cowpeas and Japan clover (*Lespedeza striata.*) Yet, even on this soil the increase in weight of plants by inoculation was with hairy vetch 38 per cent; Canada field peas, 58 per cent; and crimson clover, 79 per cent.

In experiments with hairy vetch at the Mississippi Station the yield was increased 64.6 per cent by scattering inoculated soil in the drills with the seed, and 34 per cent by soaking the seed in water containing the tubercle germs. The amount of nitrogen was also considerably increased by inoculation. The inoculation soil used was obtained from a field bearing hairy vetch which had an abundance of nodules. As regards methods of inoculation, the Mississippi Station makes the following statements:

There are at least three methods of inoculating soil with these germs. One mothod is to fiud a field on which a crop of vetch, peas or clover has grown, on the roots of which an abundance of nodules was developed. In such a case one may be sure that the soil of the old vetch or clover field is full of germs that escaped from the nodules when they decayed. Then draw dirt from this field, about 1 ton to the acre, and scatter as evenly as possible over the one to be inoculated. It shonld then be quickly harrowed in, especially if it is a hot, clear day, because sunshine kills the germs. The dirt should bc taken preferably from 2 to 3 inches below the surface. A second method is to obtain some earth from an old inoculated vetch or clover field, put it in a vessel, and pour water on it. Then stir thoroughly allow it to settle, and use this water to thoroughly wet the seeds to be sown. The water thus obtained is full of germs from the soil, which will stick to the seeds as they dry. Here again we should use care and not dry seed in sunlight. This seems to be the most economical way of inoculating a field. It is not a difficult matter to spread out a bushel or two of clover or vetch seed on an old cloth or tight floor, and sprinkle with plenty of the muddy germ water. The seeds may be left right there until they dry, if they are in the shade, and then are ready to sow. A third method is to buy a material known as Nitragin, This is simply gelatinous substance full of the germs one wishes to

"ADVERTISEMENT."

BIT HIM

If It Had Been a Bear.

Sometimes it is good to be in a position where you can turn around to your shelves and take down food that is a rebuilder and life saver. A prominent grocer of Murrysville, Pa., had heard so many of his customers praising the food Grape-Nuts that he finally gave it a trial himself. He says: "For several years up to 16 months ago I was hardly fit for business from indigestion which also affected my head. My brain was dull and I could hardly keep my books.

"One day I heard one of my customers praising the food Grape-Nuts so highly that I wondered if it would fit my case, so I took a package from the shelf and said that I would use it and even if it failed I would not be much the loser.

"But before I had finished that one package such a change came over me that I thought it wonderful and by the time three packages had been eaten I had changed so you would not believe it if I told you about it. My head grew clear and my mind strong and my memory was very much improved and I was well in every respect. I can only give you a faint idea of all the good the food has done me. It is all I eat for supper nowadays and the rest of my family think as much of it as I do. Truly it is a great food and if it were not a great food it would not have done me so much good and have such a tremendous sale in my store." Name given by Postum Co., Battle Creek, Mich.

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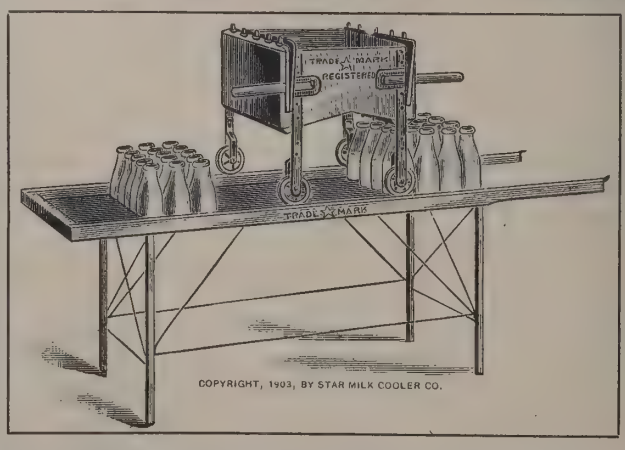
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use. It it is made in Germany, and consequently in the trip across the ocean and then to us it is liable to ferment and spoil.

Even if the Nitragin can be obtained in good condition, its cost renders its use of doubtful economy, as already stated.

In using inoculated soil it should be borne in mind that while experiments have shown that the germs from one plant will inoculate very closely related plants and even in some cases those distantly related, the best results will probably be obtained by using germs from the same species of plants as that which it is proposed to inoculate.

It is important to bear in mind that soil inoculation for leguminous plants is most valuable for poor soils deficient in nitrogen, and is not likely to prove profitable on soils abundantly supplied with available nitrogen. In experiments at the North Dakota Station with peas and red clover grown on pure sand and on a garden soil rich in nitrogen it was found that inoculation with Nitragin resulted in a largely increased yield in case of the sand, but produced little increase on the garden soil.—*Farmers Bulletin No. 124.*

The Dairy Exhibit at the St. Louis World's Fair.

ED. HOARD'S DAIRYMAN:—Thinking that the boys may want to hear something about the World's Fair, I will say that the Agricultural Palace, in which the dairy exhibits are to be located, will be 500 feet wide and 1600 feet long, and is now being built in the most desirable part of the grounds. The Dairy Products will be displayed in three mammoth plate glass refrigerators, each 90 feet long and 30 to 40 feet wide. The working dairy will be along the wall of the building near by the glass refrigerators and will occupy floor space of about 3,600 sq. feet and will be fitted with all the latest machinery and appliances. Here the milk from the dairy herds will be made up into butter and cheese. In order that the work in the dairy may be seen by all who so desire, the walls will be of glass. A number of leading dairy states have already applied for space and it is expected that the state exhibits of butter and cheese will be the largest and most attractive ever shown.

In the machinery line over 20,000 sq. feet of space have been applied for, and all the prominent manufacturers of dairy and creamery apparatus will take part.

There will also be working exhibits of sanitary milk plants, and fancy foreign and domestic cheese, and a large exhibit of butter and cheese from foreign countries. E. SUDENDORF,

Supt. Dairy Exhibits St. Louis World's Fair.

Silos and Alfalfa Important Problems.

Effect of Standing Water on Alfalfa.

ED. HOARD'S DAIRYMAN:—For nearly two years I have been a constant reader of the DAIRYMAN. There are two questions which have been discussed at length in the DAIRYMAN and which greatly interested me: viz., Alfalfa and the silos. The silo is easily solved and I expect to put one up this season, but the alfalfa is another thing, in which I cannot agree with you in all your teachings. I tried a little last year and while it proved a failure as a whole, the experience was worth the effort. The soil was clay loam to sand, subsoil, hard clay to sand. On the clay loam it froze out badly and on sand it stood quite badly but was slow starting in the spring. Where water stood on the low ground for three weeks in April it nearly all killed out. The question to me is: If standing water will kill alfalfa in 48 hours why will not three weeks under water kill all or nearly all on land adjoining that is elevated but a few inches? Even on the sand, the water stood on the surface for weeks while the frost slowly drew out.

Others are trying and I shall try again another year. The dry season obliges me to use the plot for soiling this year. Success to the DAIRYMAN. A. B. C.

Clarence Center, N. Y.

Transfers of Guernsey Cattle.

BULLS.

Ben E. 8678, Melvin Thomas to Lake Remington, Middle Falls, N, Y.

Dewey's Standard 8663, Dr. Henry F. Sears to William C. Endicott, Danvers, Mass.

Dr. Hunt 8664, Mr. Robin 8662, Dr. Henry F. Sears to William C. Endicott, Danvers, Mass.

Dewey of Brookside 5512, R. C. Oestreich to F. A. W. Kieckhefer, Milwaukee, Wis.

Don Nereus 7211, Sydney Fisher to Mrs. G. M. Slipp, Jacksonville, N. B.

King Clement 8677, Est. W. S. Ladd to G. W. Gibbens, Walla Walla, Wash.

Ready Luck 8036, Sydney Fisher to George Bradley, St. Armand, Que.

Shafter's Boy 8146, Chas. D. Fogg to E. D. Robbins, Bridgeton, N. J.

Squire Jeweller 7173, Geo. H. Elmer to Taylor Bros. Millville, N. J.

Bugle 8685, Chas. Solveson, to Brown Bros. Lumber Co., Rhinelahder, Wis.

Fred Arba 8686, Christ Muth to Fred Jacobi, Centerville, Wis.

General Warren 8671, William B. Rice to A. W. Bliss, Warren, Mass.

Islesboro 7733, Aaron Gay to Hopewell Bros., Natick, Mass.

Laddie of Lyndon Heights 8670, C. R. Myer to Thomas H. Bacon, Jericho, N. Y.

Milo of Chester 8638, A. J. Cassatt to Ira L. Hersey, Hess, Pa.

Nonpariel of Hillside Farms 8639, Lyman Blair to W. J. Malhmann, Lubec, Me.

Oscar of Melrose 8673, H. C. Bughman to Charles A. Bruce, Coraoplis, Pa.

Otego Locktown 6357, Thomas S. Michener to Natl. Farm School, Pa.

Philwood 6092, F. W. Kimball to Harry Jewett, West Salem, Wis.

Red Rover 8681, O. Koogle to W. E. Routzahn, Germantown, Ohio.

Rosamond's Malcolm of Willowdale 8651, C. I. Sissen to John H. Bowlby, Bath, N. H.

Two Creeks 8648, Fred Vogel Jr. to Fred Clausing, Grafton, Wis.

Teddy of Woodend 8279, A. C. Loring to E. C. Gale, Minneapolis, Minn.

COWS.

Blee 2nd. 16182, Dewey's Bountiful 16181, Dewey's Polly 16180, Dewey's Robin 16183, Topsfield Rosie 16179, Dr. Henry F. Sears to William C. Endicott, Danvers, Mass.

Beauty of Scarborough 16204, Job Griffin to E. J. Becker, Scarborough, N. Y.

Belle of Glenora 16018, Mrs. G. M. Slipp to Wm. R. McCready, Jacksonville, N. B.

Fanny Fernwood 4th 12607, P. R. Pelton to George F. George, Monticello, N. Y.

Helen of Norwood 16168, P. H. McCormick to F. C. Moore, Woodstown, N. J.

Hybernia 5533, Lola 4562, Sylvan Beauty 6038, J. L. McCormick to E. C. Moore, Woodstown, N. J.

Iola's Girl 15558, Mollie Woodburn 2nd. 15559 Zoe Mou 15329, Chas. D. Fogg to Thomas E. Brooks, Daretown, N. J.

Katrina Fernwood 3rd. 16208, P. R. Pelton to Bowdish & Osborne, Ferndale, N. Y.

Lydema B. 10949, David T. Brown to George Wood, Philadelphia, Pa.

Riverside's Mercedes 11630, Andrew B. Sill to W. A. Shafer, Hamilton, O.

Ramena's Best 15885, Edward Sharpless to S. I. Murphy, Woodbine, Pa.

Tunesassa Butter Cup 16209, J. F. Knox to Friends Indian School, Tunesassa, N. Y.

Vivian Netherwood 14035, Wm. Lindsay & Son to Wm. C. Schulz, Philadelphia, Pa.

Anna's Pride of Prospect 15008, Erma's Hope 15007, May Hope 15330, Mosella's Rose of Prospect 15009, Princess Leonta Girl 15010, C. O. Potter to Harry Yates, Buffalo, N. Y.

Imp. Claremont Jessie 2nd 16216, F. S. Peer to Wm. Rockefeller, Tarrytown, N. Y.

Cleopatra of Eden 16242, C. Morton Smith to Dr. C. C. Morrison, Bar Harbor, Me.

Dorcas of Prospect 16169, Fern Le Cheminant 6228, Madame Rose 10759, Mosella Rose 10716, Pride's First 14040, C. O. Potter to G. B. Tallman, Perry, N. Y.

Lucretia's Glenwood Girl of Haddon 16240, E. T. Gill to R. F. & A. H. Parker, Westborough, Mass.

Miss 4 D. 12052, A. A. Oakes to E. J. Miller, Auburn, Me.

Nellie Cronje 16099, Henry Winke to R. Tratt, Whitewater, Wis. WM. H. CALDWELL, Sec'y.

Peterboro, N. H., June 23, 1903.

"ADVERTISEMENT."

SURE NOW

The Truth About Coffee.

It must be regarded as a convincing test when a family of 7 has used Postum for five years, regaining health and keeping healthy and strong on this food drink.

This family lives in Millville, Mass., and the lady of the household says: "For eight years my stomach troubled me all the time. I was very nervous and irritable and no medicine helped me.

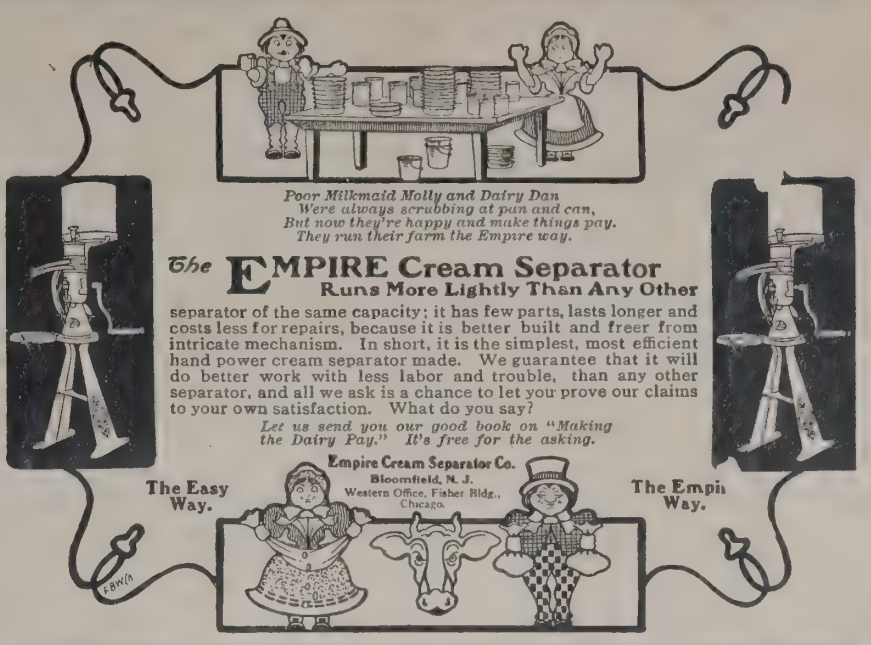
"I had about given up hope until 5 years ago next month I read an article about Postum Cereal Coffee that convinced me that coffee was the cause of all my troubles. I made the Postum carefully and liked it so much I drank it in preference to coffee but without much faith that it would help me.

"At the end of a month however I was surprised to find such a change in my condition. I was stronger in every way, less nervous and at the end of 6 months I had recovered my strength so completely that I was able to do all of my own housework. Because of the good Postum did us I knew that what you claimed for Grape-Nuts must be true and we have all used that delicious food ever since it first appeared on the market.

"We have 7 in our family and I do the work for them all and I am sure that I owe my strength and health to the steady use of your fine cereal food and Postum (in place of coffee.) I have such great faith in Postum that I have sent it to my relatives and I never lose a chance to speak well of it." Name furnished by Postum Co., Battle Creek, Mich.

Ice cold Postum with a dash of lemon is a delightful "cooler" for warm days.

Send for particulars by mail of extension of time on the $7,500.00 cooks contest for 735 money prizes.



Poor Milkmaid Molly and Dairy Dan
Were always scrubbing at pan and can,
But now they're happy and make things pay.
They run their farm the Empire way.

The EMPIRE Cream Separator
Runs More Lightly Than Any Other

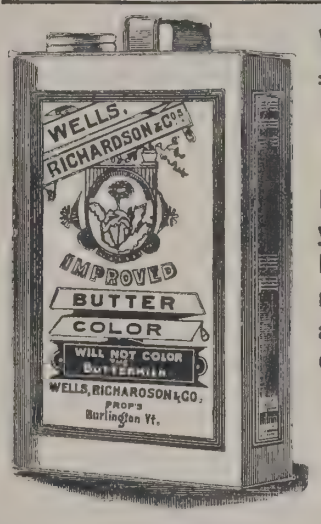
separator of the same capacity; it has few parts, lasts longer and costs less for repairs, because it is better built and freer from intricate mechanism. In short, it is the simplest, most efficient hand power cream separator made. We guarantee that it will do better work with less labor and trouble, than any other separator, and all we ask is a chance to let you prove our claims to your own satisfaction. What do you say?

Let us send you our good book on "Making the Dairy Pay." It's free for the asking.

Empire Cream Separator Co.
Bloomfield, N. J.
Western Office, Fisher Bldg., Chicago.

The Easy Way. The Empi Way.

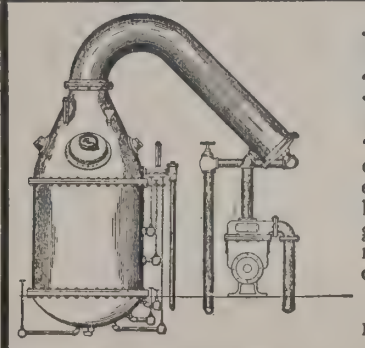
THE KIND THAT HAS NO MUD.



Wells, Richardson & Co.'s
Improved Butter Color

Has stood the test for many years, and users of color know that it can always be relied upon. It is the BEST and therefore the CHEAPEST COLOR on the market.

For Sale By All First-Class Supply Houses.



Milk Condensing Machine

I supply the most improved machinery and most successful processes for manufacturing all classes of condensed milk and evaporated cream. Factories built complete, put in operation and results guaranteed. If you are interested write for my new illustrated and descriptive catalogue. The only catalogue ever published on the subject.

R. R. ROGERS, Detroit, Mich.

I am not associated with any person, firm or company.



The Distribution of Skim Milk.....

It is known that the just complaints of creamery patrons on account of unfair distribution of skim milk are the bane of the separator creamery business. Further disputes among patrons, annoyances to managers, hindrances to the best work of buttermakers, watering the skim milk, and many other ills in the same train are unnecessary, since the

Barber-Coleman Check Pump

has for more than five years been successfully solving the problem in many different creameries. When a patron has dropped in his check he can pump the amount of skim milk called for by his check, less the percentage taken out as cream, so in like proportion to all other checks. Its measuring apparatus is just an ordinary pump which everyone understands and knows how to operate.

Cornish, Curtis & Greene Mfg. Co.,

General Sales Agents De Laval Alpha Separators,
FORT ATKINSON, WIS.

A Problem in Ventilation.

Remodeling a Stone Barn.

ED. HOARD'S DAIRYMAN:—Enclosed find subscription to your most valuable paper. Frequently find an article worth many times the price of year's subscription. We have completely remodeled our barn with the exception of placing ventilators. The barn is an old and very substantial stone structure, double decker and accommodates thirty-two cows; horses in an entirely separate, though connected, building. Our ventilators must be placed with the next two weeks, and any information thereon in your next issue, if possible, would be greatly appreciated. Owing to thick stone wall, they must pass up through hay bays and they are now entirely empty and ready for carpenters. How near floor must ventilator extend that carries off foul air? how high? It is 30 feet to square of barn. And how can I best place opening to fresh air inlets? Don't want to penetrate stone wall. Barn 35x72 feet, entry on each side, sixteen cows in a row, standing back to back, with an abundance of room. Each cow is automatically supplied with fresh, pure water, has large, easy, roomy stanchion, dry floor, but we must have pure air. I am sorry I left writing so late, but trust to hear from you promptly, that I may avail myself of your knowledge and experience.

Pineville, Pa. H. A. W.

In the absence of a sketch showing the the general arrangement of this barn and stable, we can do no better than submit some general suggestions in regard to a plan for ventilation. The ventilating flue proper may be located almost anywhere, so that it is as much out of the way as possible. For 32 cows, it should have a cross section of about 7 square feet, or there may be two of these flues, each with a cross section of four square feet. This flue should extend from the level of the stable floor above the ridge of the barn—not necessarily through the ridge, but with its top higher than the ridge of the barn so as to prevent a downward draft. It should be built and used exclusively for ventilating purposes, and not, as is so often the case, for the double purpose of drawing off the foul air and furnishing a chute for delivering hay from the upper stories. In other words, it should be built and operated on the same plan that chimneys are built. There should be openings into this flue on a level with the stable floor, and these not so much for furnishing an outlet for the vitiated air, as for drawing off the colder air of the stable, which is always at or near the floor. There should also be openings in, to these flues near the ceiling of the stable for use in summer to allow the heated air of the stable to escape. All openings should be furnished with some sort of appliances which may be opened and closed, in whole or in part, at will.

The more difficult part of the problem of ventilating this stable is in the admission of fresh air without making openings through these heavy stone walls. Ordinary windows are not adapted for this purpose, because they are quite as well suited for letting the warm air out ot the stable, especially in winter time, as for the admission of fresh, pure air. In building a new stable, or in remodeling an ordinary frame barn, it is comparatively easy to provide for the admission of fresh air by constructing several small flues in the side walls, opening interiorly at or near the ceiling of the stable and exteriorly three or more feet lower. By having the exterior opening lower than the interior opening, it is impossible for the warm air at the top of the stable to escape. As it is impracticable in this case to pierce the wall for these several small openings, the only recourse would be to construct one or more large ducts opening outward into descending flues, reaching well towards the ground and running horizontally along the ceiling with occasional openings into the stable.

In short, the plan is to provide for the introduction of fresh air into the stable at several points along or near the ceiling and in such a way that the warmer air of the stable cannot escape. In this way, the fresh, cold air is evenly distributed all through the stable, comes in contact with the wamer air at the ceiling and gradually finds its way downward to replace the foul and cold air at the bottom, which is drawn off through the ventilating shafts. It involves precisely the same principles that were operated in the dwellings of our ancestors, when the large, open fireplace, with its big chimney was the only means employed for heating the dwelling. Unlike our modern structures, those houses were not air-proof and the fresh, cold air sifted through the walls and windows in innumerable places, in sufficent quantity to supply the demands of the large chimneys. In some ways, those old houses were not as comfortable as the modern stove or furnace or steam heated apartments of our day, but there was plenty of fresh, pure air and no accumulation of dead and foul air in the rooms. The result was that our ancestors were a healthy, rugged race and could endure exposure and hard labor much better than their descendants of the present day. In like manner, if we want a healthy, rugged herd of cows, that can make the best use of their food and furnish us the highest quality of milk, we must provide for constant change of the atmosphere in our stables, and this in such a way, as to distribute the fresh air evenly throughout the stables, by drawing off the the colder and impure air at the floor after the manner in which the old-fashoned chimney ventilated the old-fashioned house.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Wetting Top of Silage.

In one of your issues last year you requested some of your subscribers who had silos, after filling the same, to wet the material on top very thoroughly several inches deep, and report results to the DAIRYMAN. I am very anxious to know whether the experiments were made and if they were what was the result. I would also like to know whether it is desirable or beneficial to sprinkle, with salt water, the silage as it is filled in. R. W. W.

Washington, N. C.

Several parties reported wetting the top of the silage and uniformly with good results. Unless the corn is over-ripe, there is no necessity for wetting the silage as it is delivered from the cutter into the pit. When frosted or over-ripe it is desirable to use enough water to insure a rapid heating of the mass. We do not consider it advisable to use salt in the silo.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The Elgin Board Meeting was largely attended today. The Quotation Committee decided on 20c firm as the market price. One-hundred and fifteen tubs were offered; 55 sold to Moles for 20½ cents.

Former markets:

	Tubs sold.	*Price*
June 22 '03	0	21½c.
June 23, '02	0	21½c.
June 24, '01	0	19c.
June 26, '00	100	19c.
June 19, '99	371	18c.

New York 20½c steady; receipts 10937 tubs.

Output Elgin district 831,400 pounds.

Elgin, Ill., June 29, '03. H. C. B.

DAIRY MARKETS.

ELGIN, Ill., June 29—Butter sold at 20c a pound on the board of Trade to-day, a fall of 1½c from last week. The sales for the district were 831.000 pounds.

CHICAGO, Ill., June 29—Butter—Easy; creameries, 16@20¾c; dairies, 15@18c.

Eggs—Firmer; at mark, cases included, 12½@13¾c.

Cheese—Easy; Twins, 10@10½c; Daisies, 10¾@11c; Young Americas, 11@11½c.

Cattle—Prime beeves, 1,200 to 1,500 pounds, 5.45@5.65; choice to extra steers, 5.10@5.40; fair to good export and shipping steers, 4.80@5.05; medium beef steers, 4.45@4.70; plain beef steers 4.20@4.35; common to rough, 1,000 to 1,200 lbs. 3.75@4.10; good to choice feeders, 3.85@4.75; good to choice fat heifers, 4.10@5.00; poor to plain stockers and feeders, 2.80@4.00; fair to good cows and heifers, 3.30@4.00; good cutting to fair beef cows, 2.45@3.20; common to good canning cows 1.50@2.40; bulls, poor to choice, 3.20@4.30; veal calves, good to fancy, 5.40@6.25; calves, common to fair, 3.25@5.00; corn-fed western steers, 3.85@5.25; Texas bulls and grass steers, 2.75@3.80; Texas steers, fair to common, 3.90@4.70.

Hogs-Good to prime heavy shipping 5.70@5.80; good to choice heavy packing 5.60@5.75; plain to choice heavy mixed 5.60@5.70; selected butcher weights 5.70@5.80; assorted light, 150 to 195 lbs. 5.75@5.90; common to good light mixed, 5.65@5.80; thin to choice, 50 to 130 lbs. pigs 5.65@6.00; stags and rough lots, 4.00@5.50.

MILWAUKEE, Wis., June 29.—Butter—Cream-



Getting the Milk Profit.

If you are interested in the milk business, either as dairyman or dealer, or are converting milk into any of its varied products, you should be interested in our magnificent line of

Dairy and Creamery Supplies.

Ours is the most extensive house of its kind in the West. Our line includes such standard articles as Milk Cans, Areators and Heaters, Milk Tickets and Stationery; Pails, Strainers and Dairy Tinware of all kinds, in fact a complete line of Milk Dealers' supplies. We also handle extensively Boilers, Engines, Churns, Butterworkers, Vats, etc. Amongst our specialties, manufactured solely by us, are Dairy Queen Churn, Boyd Cream Ripener, Success Skim Milk Weigher, Sturges Pasteurizer, Milk Heaters, Seamless Steel Cheese Hoops, Perfection Milk Coolers and 20 styles of Milk Cans. We are not a part of any trust, but an independent house furnishing high class supplies at a low margin of profit. The stock we carry is so varied that we publish a special appropriate catalogue for each department. Write us for anything you need in any way connected with the milk business, and we will mail you free the proper illustrated catalogue. We are sure to meet your every want and we guarantee to save you money.

STURGES & BURN MFG. CO.,

Kansas City, Mo. Chicago, Ills. St. Paul, Minn.

Flavor

The market value of butter is unquestionably its flavor, and its flavor is unquestionably affected by the quality of the salt used. Prize winning butter makers always use DIAMOND CRYSTAL SALT—"*the Salt that's ALL Salt*"—to insure that *winning flavor*. Its pure, dry flakes quickly dissolve—assimilate *evenly* through the butter, and add a keeping quality that is inestimable. No waste—no grit—no mottled effect. The only salt in the world that's all salt. Dairymen will find our illustrated booklet "Just Salt" contains valuable hints. We send it free.

DIAMOND CRYSTAL SALT CO., ST. CLAIR, MICH.

WORCESTER SALT IS THE BEST

The largest Creamery in the world uses WORCESTER SALT, and—this telegram tells the rest:

"Kansas City, Mo., March 7, 1902.

WORCESTER SALT CO.,
168 Duane St., New York.

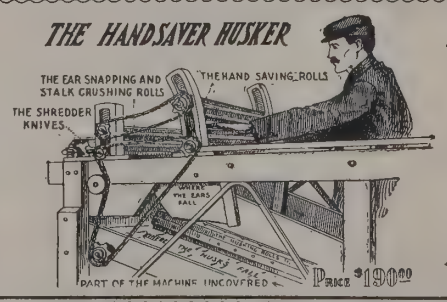
Continental won sweepstakes, also State cup trophy at Kansas Dairymen's meeting; score Ninety-Eight. Worcester Salt used ten highest scores.

G. A. McEDWARDS."

IT TAKES THE TO MAKE THE BEST

WORCESTER SALT COMPANY,
168 DUANE STREET, NEW YORK.

THE HANDSAVER HUSKER



YOU CAN'T GET HURT
HUSKS 50 BUSHELS PER HOUR
SNOW WON'T BOTHER
ASK ABOUT OUR 2 WHEEL WIND MILL AND ALL IRON WOOD SAW
ADDRESS
DOUBLE POWER MILL CO.
APPLETON, WIS.

3 FEEDS TO THE ROUND  SELF FEEDER 2 PROFITS IN HAY BALING

ADMIRAL HAY PRESS CO. BOX 34 KANSAS CITY MO.

WRITE TODAY FOR OUR FREE CATALOGUE

ery—extras, 21c; firsts, 18@19c; seconds, 16c; process (renovated) 17@18c; Dairy, fancy, 17c; ines, fresh, 14@15c, packing stock, 13c; whey, 10@12c; grease, 5@6c.

Cheese—American, full cream—New Twins, 10¼@11c; Young Americas, 11@11¼c: Daisies, 11@11½c; Longhorns, 11½@12c; low grades, 9@10c. Brick, fancy, new, 9½@10c; low grades, 8@9c. Limburger—Fancy, old, 10@10½c; low grades, 6@8c; new, fancy, 9@10c; off grades, 7@8c; Swiss, old, drum, choice, 15½@16c: drum, No. 2, 13@14c; Block, choice, 14@14½c; block, No. 2, 12@13c.

Eggs—Strictly fresh laid, at mark, cases returned, 13½; dirties and seconds, 12c., checks, 10c.

SHEBOYGAN FALLS, Wis., June 24—Cheese—Twenty-one factories offered 2,658 boxes of cheese on the Call Board today and all sold as follows: Seven Twins at 10¼c; 751 cases Young Americas at 11c; 150 Daisies at 10⅞c; 642 at 10¾c; 37 cases Longhorns at 11¼c; 1,071 at 11⅛c. Market active and firm.

SHEBOYGAN, Wis., June 24—Cheese—On the Call Board here today 2539 boxes of cheese were offered. All sold as follows: 49 boxes Twins at 10¾c; 1,273 Daisies, at 10¾c; 65 cases Young Americas, at 11¼, 346 at 11⅛c, 164 at 11c; 60 cases Longhorns at 11¼c, 567 at 11⅛c, 15 at 11c, Market continues strong and active.

MANITOWOC, Wis., June 24 — Cheese — The sales reported to day were: 130 Twins at 10¼c; 550 cases Young Americas at 10½c; and 1,600 Daisies at 10½c.

SEYMOUR, Wis., June 23—Cheese—Offerings were 566 Twins and 972 double Daisies. Sales: 438 Twins at 10¼c; 128 withdrawn: 811 double Daisies at 10½c; 100 at 10⅜c and 61 withdrawn.

PLYMOUTH Wis., June 23-Cheese-24 factories offered 3,380 boxes to-day and all sold as follows: 650 Longhorns, 11⅛c; 1,775 Daisies, 10⅞c; 290 Twins, 10¾c; 30 at 10¼c; 628 Young Americas, 11c. Market very active.

FOND DU LAC, Wis., June 29.—Cheese—sales of cheese at the dairy board today were 76 Twins at 10¼c, 27 Twins at 10⅜c, and 528 Daisies at 10¾c. Market active.

Latest quotations for fancy creamery: Philadelphia, 21c; Baltimore, 22½c; St. Louis, 21½@22c Cincinnati, 23c; Buffalo, 22; St. Paul, 19¼c; Minneapolis, 19½c.

CANTON, N. Y., June 29—Cheese — Offered 55 boxes large, 2,619 Twin and 1,409 tubs of butter. Large and sold at 10⅜c; Twin 10¼c; butter sold at 21c.

PHILADELPHIA, Pa., June 29—Butter—Market, steady. Solids 21c. Nearby prints 22; western, 21c.

WASHINGTON, D. C. June 29—Butter—Market weak. Extras, 22c. Choice firsts 20@21c; renovated, 19c.

NEWARK, N. J., June 29—Butter-Market steady at 21½c.

Eggs—18½c for extras.

LIVERPOOL, June 29—Butter—Good United States steady, 75s.

Cheese—American finest, white quiet, 52s; colored, quiet, 54s.

TOPEKA, Kan., June 27—Cheese—Longhorns, 11c; Daisy Twins, 10¾c; Prints, 11½c.

Butter—Creamery butter, 21@22c; dairy, 17½@18½c.

BOSTON, Mass., June 29—Butter—Creamery, western, extra, 21@21¼c; western firsts, 20½c; dairy, 16@20½c; imitation creamery, 17@18½c; ladle, 16@17½c; box and print, 17@22c.

Cheese—Choice, 10½@11c; Wisconsin Twins, 10½@11c.

Eggs—Nearby, 22@23c; western selected, 16c; fair to good, 14@15c; Illinois, 16c; dirties, 13@13½c.

BALTIMORE MARKET.

BALTIMORE—June 25—Butter— With continued liberal receipts and favorable reports from the principal dairy sections for a large output of butter, there is not that activity that characterized this market a short time back, although the local consumptive demand continues fairly good, and jobbers are readily taking their regular lots: there is very little speculation, consequently several lots have gone into the freezers on shipper's account; toward the close of to day's market, there were several buyers on the lookout for the long lines of fancy creamery, and several sales were affected at top values Imitation creamery, although in more liberal receipt, the supply of desirable quality is not at all burdensome. Madles—The supply is daily on the increase; only faultless stock will reach our top prices. Packing stock—The receipts have been increased considerably since our last issue, and prices had to be lowered to prevent the stock accumalating. Prints and Blocks—The receips are fully eaqual to the requirements. The market in general, while on the quiet order, closes steady to firm on all attractive offerings.

Creamery Separator, extras, 22½c; firsts, 21½@22c; seconds, 19@21c. June Creamery, extras, —@—; firsts, —@—; seconds, —@— Imitation Creamery, extras, 19@19½c; firsts, @18c; seconds, 15@17c, Iowa &N. W. Ladle, extras, 17½c; firsts, @17c; seconds, 15@16c. Ohio & Indiana Ladle, extras, 17@17½c; firsts, 16c; seconds, 15@15½c. Roll. Ohio, extras, —firsts, —@—; seconds, —. Roll, W. Va., extras, — firsts, —@—; seconds, —. Ohio Store packed, extras, 14½c; firsts, 14c; seconds, @13½c. West Va. Store-packed, extras, c; firsts 14c; seconds, 13½c. Creamery blocks (2-lb.) extras, 23c; firsts, 22c. seconds, 20@21c; Creamery prints (½ lb) extras, 24c, firsts, 22@23c; seconds, 20@21c. Md. Va., & Penna. Prints, extras, 22c; firsts, 20@21c; seconds, 17@19c. Renovated Butter, extras, 19@20c; firsts, 17@18c; seconds, @16c.

Eggs—We have had a continued irregular market since our last issue; this is owing to the ample receipts and a less active demand, hence there is an easier feeling and prices had to be lowered to prevent the accumulation of stock that showed signs of tonderness; strictly fresh stock is always saleable at top prices. The market closed at 16½c

NOTE—Pack in cases and not in barrels an boxes.

Cheese—The receipts are fully equal to the requirements; the market rules quiet but firm.

N. Y. State—Cheddars, fine, 10¾@11c; choice, 10¼@10½c; fair, 9@9½c, Flats, fine, 11@11½c; choice, 10½@10¾c; fair, 9½@10c; Small fine, 11⅛@11¼c; choice, 10½@11c: fair, 9¼@10; Ohio Flats, fine, 9¼@10c; choice, 8¾@9c; fair, 8@8½c; O. Picnic, fine, 10@10½c; choice, 9¼@9½c; fair, 8½@9c; Swiss Cheese, (domestic) fine, 15c; choice, 12½@13½c; fair, 9@11c.

301 Exchange Place. G. M. LAMB & BRO.

NEW YORK MARKET.

NEW YORK, June 27.—Butter—Receipts for the week, 66,561 packages. Exports for the week, 25 packages.

Receipts are largely in excess of the corresponding time one year ago, and prices fully as high; then, as now, prices were pegged up at a price far above its worth and put into "Freezers" entirely on speculation. Last year there was no profit in June and July butter and August and early September makes sold at the lowest prices of the entire year. Will the coming summer be a repetition of last year?

There were free sales of Extra Fresh Creamery, but there was more than enough to go around, and large blocks were put into Cold Storage for account of receivers. Firsts were offered at 20½@21c, and under grades at 18@19c.

At the close there was more Creamery Butter offering, and a general feeling that prices must go lower if present heavy receipts continue. Selections of finest New York Dairy tubs sold readily at 20c: bulk of arrivals, however, were poor stock packed in all kinds of sizes of packages and sold at 16@18c. Ladle goods were more plentiful and prices easier. Renovated only salable in small way and for very finest quality. We quote:

Creamery, extra, 21c; medium, 20@20½c; poor, 15@19c; Dairy, extra, 20c; medium, 17@19c. Poor, 15@16c.

Chese—Receipts for the week, 37,419 boxes. Exports, 13,734.

Home trade and exporters took all the fancy goods that were offered and paid 10⅞@11c, but there were only a few sales at the latter price. Many of the finest factories arriving this week were stored in freezers for later markets. Good grade skims sold readily at 5@7c; while fancy makes were quickly taken at 8@9c. We quote:

Full cream, extra, 10⅞@11c; medium, 10@10¾; poor, 8@9½c.

Eggs—Receipts for the week, 65,201 cases.

Fancy marks sold readily on arrival at full prices. Ordinary grades continue abundant and freely offered We quote:

New York & Penn., strictly fancy, per dozen, 19c; Northern & Western, strictly fancy, 18@18½c; All sections poor to good, 13@17c.

177 Chambers St DAVID W. LEWIS & CO.

NEW YORK FERTILIZER MARKET.

Nitrate of soda		2 00	@ 2 05
Blood, Dried red	₱ unit	2 55	@ 2 60
low grade		—	@ —
Concentrated tankage		15 00	@16 00
Fish guano, dried		24 50	@25 00
acidulated		22 00	@23 50
Acid phosphate		60	@ 67½
Phosphate rock, f. o. b. Char'n		5 00	@ 7 00
Tenn		3 00	@ 4 00
Bones, rough	₱ ton	16 50	@17 50
ground		19 00	@20 00
Bone meal		19	
Bone black, refuse		18 00	@19 00
Potash, dbl. m're salt 48@53 per cent		1 12	@ 1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons		25 00	@30 00
sulph of basis, 90@98 per cent		2 11	@ 2 18
90@98 per cent less than 25 tons		38 00	@40 00
Potash muriate ₱ 100 lbs		1 83	@ 1 95
less than 25 tons		36 00	@40 00
Kainit 25% S. of P	₱ ton	9 30	@ 9 50
less than 25 tons		9 50	@10 50
Sylvinit, 35@37% P	₱ unit	41	@ 46

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—A first-class single man, not under 30 years of age, to work with a business dairy herd. Must understand rearing of young stock, be good milker and of good habits Permanent position to right party. References required. Address O. K., care of HOARD'S DAIRYMAN.

Wanted—First-class single man who thoroughly understands the work of retail deliveryman on milk route. Must be steady and of good habits. Permanent employment to right man at living wages. References required. Address MILKMAN, care of HOARD'S DAIRYMAN.

To a conscientious, energetic, up-to-date dairyman, who knows the meaning of the word "clean", can furnish his own horses, wagons, and tools, and will raise my calves, I will furnish, with no other charge for rent, a good dairy farm and herd, with silo and power, and will buy his milk at $1.15 per cwt. Or will consider giving interest in business. Correspondence invited. Address F. M. POWERS, Atlanta, Georgia. 20-2

For Sale—3 Reg. Holstein Bulls 1 yr. old. Also few heifers. FRANK BREWSTER, Bowers, Wis. 20-2.

For Sale—A second hand, self-feeding, 16 inch Smalley Ensilage Cutter in good order, together with 56 feet of carrier, 18 feet of which was new last year Also a three horse Smalley Tread Power in good condition. The above will be sold cheap to make place for larger machinery. W. D. HOARD, Fort Atkinson, Wis. 20-tf.

For Sale—First-class dairy farm of 256 acres, one-half mile from city limits of River Falls, Wis. 245 acres in crop and pasture; balance woodland. Fine buildings, creek and spring with milk-house. Call, or address the owner, MARTIN MURPHY, River Falls, Wis. 21-4

For Sale—One 6 month old Jersey bull calf, pure bred, well marked. Price on cars $30.00. Enquire W. H. RODDIS, of Roddis Veneer Company, Marshfield, Wis. 21-2

Wanted—Practical and experienced man in creamery and dairy work. Must be capable of taking charge plant and men. Apply PEOPLES ICE COLD STORAGE CO., McKeesport, Pa.

For Sale—Milk route, horses, harness, wagon, separator, cans, tickets, etc. A nearly new and very complete outfit. Present net earnings about $150.00 per month. A splendid business opportunity. Apply to JOHN L. FISHER, Hayes Block, Janesville, Wisconsin. 21-3

Wanted—An experienced man to work on small dairy. Married man with small family preferred. State wages expected in your first letter and give references. Must be an all-round man. L. O. HAMILTON, Barron, Ill.

Will Sell gr. son Stoke Pogis and Ida of St. L. Dam tested 17 lbs. 4 oz. E. W. MOODY, No. Andover, Mass. 21-2

Wanted—Married man with one boy old enough to milk, to work in an up-to date dairy; commence work Sept. 1. Good house surroundings and wages to proper parties. Write A. H. BARROW, Roodhouse, Ill.

For Sale—From Angelius Herd Guernseys—3-year-old bull "Befillius", a beauty of the best blood from Wisconsin, $125.00 f. o. b. Also bull calf out of Countess Lonan by Befillius, $50 00. W. W. MARCH, 1798 W. 39th St., Los Angeles, Cali. 20-2

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 1901

98 PER CENT

Of the Creameries of America Now Use

DE LAVAL CREAM SEPARATORS

After Twenty Years of Experience and Trying Twenty Makes of Machines.

That is a Record which Speaks for Itself and also Means Something to the Inexperienced Buyers of.....

FARM CREAM SEPARATORS.

Farm or Factory De Laval Catalogues May Be Had for the Asking.

The De Laval Separator Co.

Randolph & Canal Sts., CHICAGO.
1213 Filbert St., PHILADELPHIA.
217-221 Drumm St., SAN FRANCISCO.

GENERAL OFFICES:
74 Cortlandt St., NEW YORK.

121 Youville Square, MONTREAL.
75 & 77 York Street, TORONTO.
248 McDermot Avenue, WINNIPEG.

For Sale—Dairy farm consisting of 76 acres. Also the entire stock of well bred young dairy cows and heifers, all in good condition. Call on me at farm, close to R. R., 1 mile north Mechanicstown Station, or write to N. E. KIMBALL, Mechanicstown, O

For Sale—Two granddaughters of Exile, 20 and 21 mo's. old; served. 3 solid color St. Lambert bulls. Three 4 and 6 mo's. old, sire a double Gr. son of St. Lambert Boy sire of 54 tested cows. J. A. HERR, Lancaster, Pa. 21-4

For Sale—One De Laval Separator; one Star Milk Cooler; one Receiving Vat; one heating Weigh Can, 60 gal.; Six Horse-power Boiler; one 100 gal. Potts Pasteurizer. All as good as new. DALLASTOWN CREAMERY CO., Dallastown, Pa.

For Sale—One 100 lb. Embree Worker; one 150 gal. Reid Box Churn; one 1000 lb. De Laval Separator; one 8 horse power engine and boiler (on wheels). Address JAMES S. BIGGS, Rocky Ridge, Md. 19-4

A Registered Guernsey Bull 15 months old for sale. A very fine animal. Inquire of J. S. HUNTER, Pickett, Wis. 12-tf

Fine Dairy Farm for Sale—Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence. cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. T. S. TOMPKINS, Pasadena, Cal. 15-tf

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

Wanted—Position in dairying business by single man (38) familiar with Babcock test, Buttermaking, Separators, Boilers and Engines, etc. Also the care and feeding of dairy cows. Address D-5, care of HOARD'S DAIRYMAN. 20-tf

Wanted—An up-to-date man of 20 years experience wants to rent a good sized dairy or stock farm, with stock, up-to-date buildings and equipments, tools, teams, etc., or will accept position as manager. Understand all machinery to run an up-to-date farm or dairy. Married and have family. Adr. "Van" General Delivery, Sleepy Eye, Brown Co., Minn. 20-tf

Wanted—Two good single men at $35.00 per month and board. Higher wages in harvest. Also one or two experienced milk maids $5.00 per week. State experience. L. TUTTLE, Verdi, Minn. 20-2.

Very Low Excursion Rates to Boston, Mass—Via the North-Western Line. Excursion tickets will be sold June 30 to July 4, inclusive, limited to return until July 12, inclusive, with a special return limit by extension until Sept. 1. on account of N. E. A. annual meeting. Variable routes. Stop-overs allowed at Detroit. Niagara Falls, Philadelphia, Baltimore, Washington and other specified points. Apply to agents Chicago & North-Western R'y.

Very Low Rates to Atlanta, Ga.—Via the North-Western Line. Excursion tickets will be sold July 5, 6 and 7, with final return limit by extension until Aug. 15, inclusive, on account of B. Y. P. U. Annual Convention. Apply to agents Chicago-North Western R'y.

Special Excursion Rates—The North-Western Line will sell low rate round-trip tickets to Fond du Lac and intermediate stations, good every Sunday until Sept. 27, 1903. Apply to agents Chicago & North-Western R'y. 21-7

Low Rates to the East—Particular attention is being called by the Chicago & North Western R'y to low rates which have been made for meeting of the National Educational Association at Boston, next month. These round trip excursion rates with liberal return limits are available at a time of the year when teachers, students and others are making their plans for the summer vacation, and afford an excellent opportunity for a journey to one of the most interesting cities in the world, as well as reaching the seashore and mountain resorts of New England. Parties are being formed at various points in the west for the purpose of making this journey in congenial company. The officials of the Chicago & North-Western advise that the movement as now anticipated will be very large. For particulars apply to ticket agents Chicago & North-Western R'y.

Buff Jersey's latest book on Farm Stock and Dairy Work is full of practical things for practical people. The Silo, how to build and fill; ensilage, its value; soil, crops, variety and how to grow. Swine, poultry and many other subjects ably treated. Send 25c for copy. Monmouth, Ill. 47-tf

Very Low Rates to California and Return—Via the North-Western Line. First-class round-trip tickets on sale July 1 to 10, inclusive, to San Francisco and Los Angeles. Favorable limits and stop over privileges and choice of routes. The overland limited, most luxurious train in the world, leaves Chicago daily at 8 p. m. Less than three days en route. Drawing room and compartment cars, observation cars, dining cars, buffett-library cars (barber and bath), electric lighted throughout. Three trains a day from Chicago to the Coast through without change. Daily and personally conducted tourist car excursions to California, Washington and Oregon. For particulars apply to ticket agents Chicago & North-Western R'y. 16-7

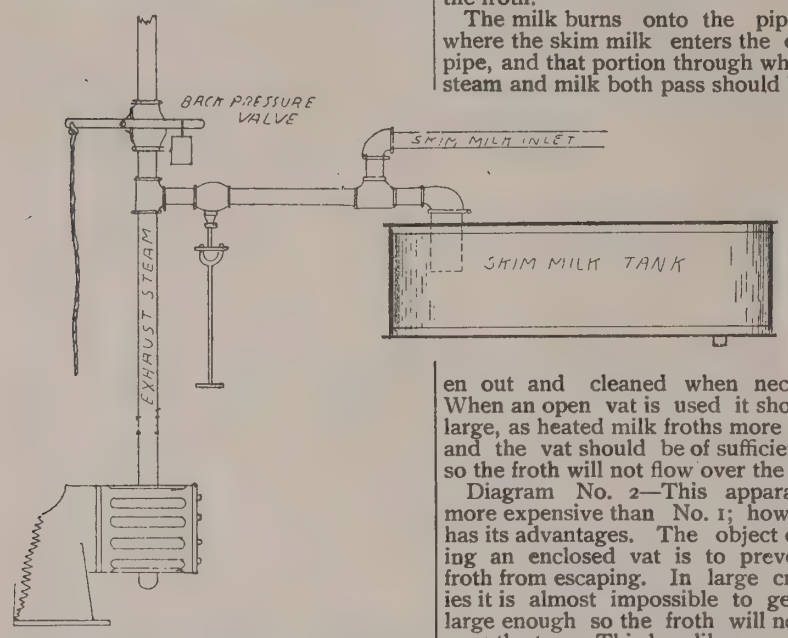
Fourth of July Excursion Rates—Via the North-Western Line. Excursion tickets will be sold at low rates to points on the North-Western system within 200 miles of selling station, July 3 and 4, good returning until July 6, inclusive. Apply to agents Chicago & North-Western R'y. 20-3

Very Low Rates to Denver, Colorado Springs, Pueblo and Return—Via the North-Western Line, July 1 to 10, inclusive, with final return limit until and including August 31, 1903, account of C. E. Convention, Stop over privileges and choice of routes. Side trips can be made at reduced excursion rates to various Colorado points, to the summit of Pike's Peak, to Ogden and Salt Lake City, (to Yellowstone National Park, from Denver, only) and to San Francisco, Los Angeles, etc. Low rate excursion tickets to Colorado also on sale daily, limited for return until Oct. 31. For particulars apply to ticket agents Chicago & North-Western R'y. 20-3

Pasteurization of Skim Milk.

The skim milk returned to the patrons by some creameries, has been a serious problem, and farmers have sustained thousands of dollars of losses since the establishment of the creamery industry in the state. Experiments have conclusively proved that skim milk, which has been allowed to become sour, is reduced in value for feeding to any kind of stock, at least five cents per hundred pounds. During the year 1901, at least one billion pounds of skim milk was returned to the patrons of the creameries in the state, and, if it had all been returned in poor condition, it would have been a loss to the patrons of at least half a million dollars, not counting the loss of calves and pigs killed by the feeding of poor milk; but fortunately a good many creameries have pasteurized (heated) the skim milk and delivered it to the patrons in the best possible condition.

We have seen some creameries make an attempt at pasteurizing the skim milk, but only heated it to a temperature of 130 or 140 degrees F., at which temperature only a few, if any, of the fermenting bacteria which cause the sour-



ing of milk were killed, but instead the milk would soon cool down to a temperature where the bacteria would multiply more rapidly, and the result was sour milk before the farmer reached home, and the people would say pasteurization was a failure. "They tried it," but the fact is, the milk was not pasteurized at all, but simply warmed.

Denmark, the little country which is turning out so much fancy butter, and is practically the only competitor the United States has in England, reached a point quite a number of years ago, where the country was threatened with the annihilation of their cows by the much dreaded disease, tuberculosis, and as a result, they took up pasteurization of the skim milk, and have had a law for several years, compelling every creamery to pasteurize the skim milk at a temperature of 185 degrees F. before it is returned to the patrons. The creamery inspectors are furnished instruments by which they can tell whether or not the milk has been heated to the required temperature, even after it has been cooled. If it is found that it has not been heated properly, the creameryman is prosecuted. We have been informed that tuberculosis there is being rapidly stamped out. The farmers do not feed the calves any milk which has not first been pasteurized.

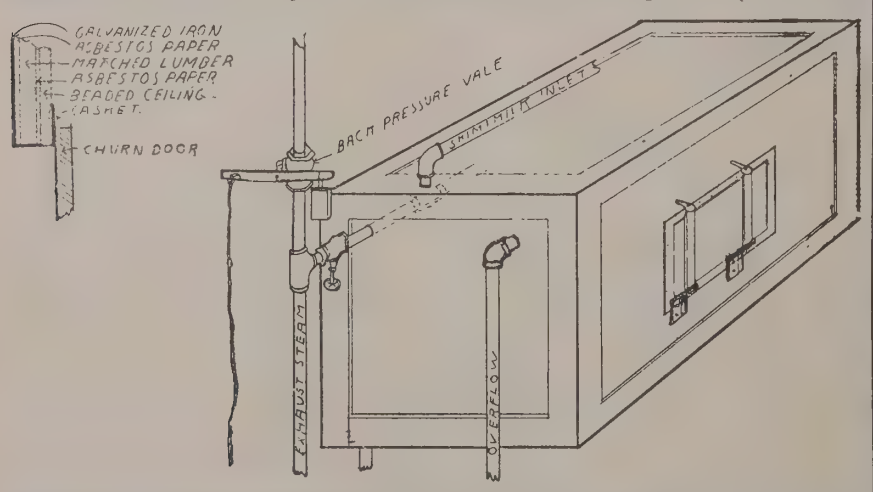
From the tests which have been made in Minnesota of cows, it was found that tuberculosis prevails almost everywhere, and we ask, is it not about time for the farmers to protect their stock against such a disease? The new law enacted by the legislature, at the session just closed, requires that all skim milk from creameries must be pasteurized at a temperature of 180 degrees F. If this law is complied with, it will benefit the dairymen of Minnesota hundreds of thousands of dollars. The Dairy and Food Commission is willing to assist the creameries, when asked, by sending men to help install the necessary apparatus for heating the skim milk. The diagrams shown, illustrate the simplest and cheapest contrivances we know of, and will do the work satisfactorily.

Diagram No. 1 illustrates the arrangement of piping for pasteurizing skim milk. This is so simple that it needs no explanation, and will only say that the length of pipe from where the milk is admitted should be two or three feet long, and the pipe which extends into the skim milk vat should be twice the size of the exhaust pipe, as it breaks down some of the froth.

The milk burns onto the pipe from where the skim milk enters the exhaust pipe, and that portion through which the steam and milk both pass should be taken out and cleaned when necessary. When an open vat is used it should be large, as heated milk froths more or less and the vat should be of sufficient size so the froth will not flow over the top.

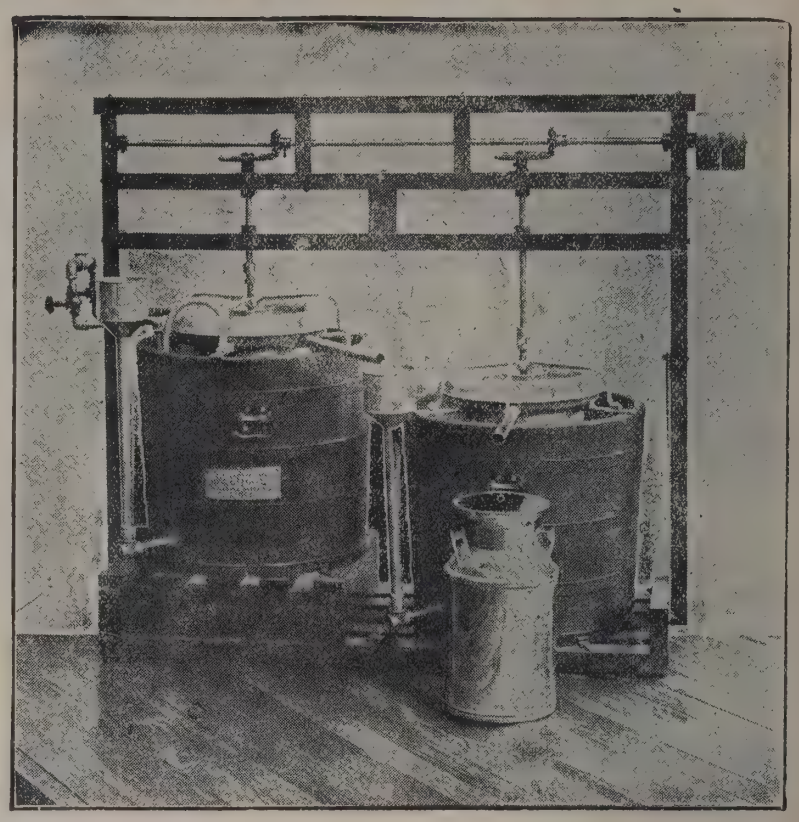
Diagram No. 2—This apparatus is more expensive than No. 1; however, it has its advantages. The object of having an enclosed vat is to prevent the froth from escaping. In large creameries it is almost impossible to get a vat large enough so the froth will not flow over the top. This box-like apparatus is not a pasteurizer, but simply a tight vat to hold the milk after it is pasteurized. This is similar to the one constructed by E. O. Quinvold, which is giving such excellent satisfaction at the Crown Creamery in Steele county.

By the use of this diagram it should not be difficult for any mechanic to make such a vat quite easily. It is simply a box of any desired size, made from galvanized iron, covered, first with asbestos paper, then with matched lumber (medium grade of flooring will do), then another thickness of asbestos, and then with beaded ceiling. It could be made with only one thickness of abestos and beaded ceiling, but the double thickness makes the vat stronger and there will be less radiation. A common churn door, which may be taken from a discarded churn, which should be riveted and soldered to the galvanized iron on the side of the vat, makes an excellent door of sufficient size so a man can get into the vat to wash it, which should be done, and the vat kept clean.



The exhaust pipe should be fastened to the vat by the use of a flange riveted and soldered to the galvanized iron, and the threads on the pipe cut long enough to

A GREAT SUCCESS.



The Miller Cream Pasteurizer has a capacity of from 450 to 600 lbs. per hour.

Price $150 in Tin. $200 in Copper.

THE MILLER PASTEURIZING MACHINE CO.

CANTON, OHIO.

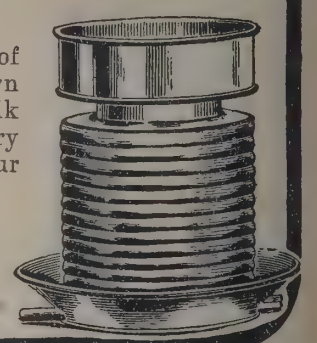
Milk Dealers' Supplies

Milk Aerators, Pasteurizers and Coolers
Ice Cream Cans and Tubs
Milk Bottles
Milk Shipping Cans
Milk Bottle Caps



These are but a few of the many things of our own superior make for the milk dealer, dairyman and creamery man. Write at once for our free illustrated catalogue.

STURGES & BURN MFG. CO.
CHICAGO.



BUHL CANS ARE NOT Like Other Milk Cans Because They Are Better

This is equally true of the Buhl Factory, "Improved Elgin" and Genuine Iowa Cans; superior material, design, workmanship, and smooth finish combine to produce those **long wear** qualities for which the **Buhl Cans** are so renowned. **Remember** the Buhl is the only can in the world that is made with the BUHL "VICTOR" CAN BREAST and the BUHL "VICTOR" ROUND HANDLE. They may cost a little more than common cans—we do not know, for we cannot tell how badly "the trust" and others are beating you. We know that the small added cost of the **Buhl Cans** will prove the best can investment you ever made. Every can that is stamped with our famous Milk Can Trade Mark, as shown here is a genuine **Buhl Can.** The mark is a guarantee of all around excellence. Ask your local dealer for **Buhl Cans.** If he does not have them he can get them for you. Write us about it. We will see that you are supplied.



Buhl Stamping Company, 212 W. Larned Street, Detroit, Mich.

reach through far enough so a tee may be put on the inside of the vat and a piece of pipe two or three feet long put into the tee. The skim milk pipe should be extended through a flange on the top of the vat into the tee. The flange should be riveted and soldered the same as the ones for the exhaust outlet and overflow pipes. The overflow pipe should be a little lower than the exhaust pipe.

The milk will burn onto the pipe from which the skim milk enters the exhaust pipe, and that portion of the pipe through which the steam and milk both pass should be taken out and cleaned when necessary. The exhaust or milk pipe should not be reduced in size, for these or any other pasteurizers.

W. W. P. McCONNELL,
Minnesota Dairy and Food Commissioner.

Putting up Alfalfa in the Stack.

I have lately been reading a number of very interesting articles regarding the stacking of alfalfa, and while I am not averse to them as a whole I would like to give an account of my system. I stack several hundred tons annually, using the Fleming swinging stacker and two Fleming senior sweeps or go-devils, carrying the hay ahead of the horses and taking it direct from the windrow. I drive lengthwise of the windrow, zigzaging so as to fill the sweep full length, then shove some ahead, raise the load over and let down on top; back up, chug in again fast and this piles the hay six feet high, checking one horse so as to pull out of the windrow, at the same time raising the load. In this way the load is carried direct to the stacker, driving square up to the pitcher and dropping the load thereon. Then I back off, wheel half way around by starting one horse and backing the other and go for another load.

The stack-tender gathers the trip-rope and pulls back the rope in the left hand, leaving the trip-rope loose and starting the horse with the right hand. The horse is trolleyed to the guide rope running through a ring fastened to the bit by a short strap to keep him in place and to stop him when the stacker is swung high enough. As the horse moves the load rises and swings toward the stack. The driver holds by the pull back rope, changing the loose trip-rope into the right hand. If he wishes the load on the near side of the stack as soon as it clears he commands the horse to stop and hold there, at the same time loosening his hold on the back rope a little. If the stacker has been properly adjusted gravity will swing the load wherever the stacker wishes it and it is then tripped. The pitcher teeth strike the stack, the load remaining partly on them.

Then the horse starts again to draw the pitcher out, letting the load down on the near side of the stack beautifully. The pitcher snaps up into position and locks. The driver then pulls it back by the rope, backing the horse ready for another load, while the stacker climbs onto the load and settles it into position and leans on his fork ready for the next. When the next load comes up, the builder possibly wants it dumped on the off side of the stack. Then we manage differently, by letting the horse pull the load up high above the stack. When swung to proper place with the horse kept going we trip, which throws the load bottom side up, on the far side of the stack. The horse soon learns to stop when it is time to trip and backs right up. The stacker must be alive and pull the stacker back quickly into position.

This makes a stack from sixteen to eighteen feet wide, thirty-five feet long and twenty-three feet high without moving the rig. It can be topped out a little higher by taking hay directly off the pitcher and throwing it back. The hay coming on the stack in this way in 500 to 600-pound jags and dropping on the top without being loosened makes a very solid stack. All the leaves remain in the hay, if rains have not already spoiled it. I have stacked eighty-three tons in two days with a full outfit—four men and five horses—the hay being measured after thirty-days' settling. I usually stack in the middle of a ten-acre field, joining two stacks together, if necessary, making a rick from fifty to seventy feet long, stacking the second crop by the side and the third by that, etc. It takes no more room to stack in the field than in a stack yard, therefore I raise alfalfa in my stack yard. Of course do not get a crop where I stack but use the same place each year, hauling in winter to the feed lots.—E. C. Scriven in *Field and Farm.*

—THE—

"1900" BALL-BEARING WASHER FREE

FROM FACTORY TO YOUR DOOR.

FREIGHT PREPAID BOTH WAYS ON 30 DAYS FREE TRIAL.

No Deposit or Advance Payment Required. If Not Satisfactory, Return it at Our Expense. No Questions Asked.



The "1900" BALL-BEARING Washer is the greatest time, labor and expense saving appliance ever invented. An absolute necessity to Households, Laundries, Hotels, Boarding-Houses, Public Institutions, Etc. Only practical, simple, easy-running washer ever made. Hundreds of thousands now in successful use.

The "1900" Ball-Bearing Automatic Washing Machine is the simpliest, easiest running, most efficient machine for washing clothes ever invented. It is a thoroughly practical labor-saving machine for washing all kinds and grades of materials, from the finest laces to the coarsest fabrics. It is constructed on scientific principles. It revolves on ball-bearings, which render the rotary movement as easy as the wheels on a high-grade bicycle. The "1900" Washer will wash any garment without boiling, without scrubbing and without wear or tear. There is absolutely no need of using any chemicals. Soap and hot water are the only necessary things to do perfect work.

The Washing is Done while the Operator Sits by the Side of the Tub, Revolving it by the Handle halfway around to right and left.

CONVINCING TESTIMONY.

$1,000 Will Be Forfeited to Anyone Proving These Letters Not Genuine.

Burnside, Iowa, April 1, 1903.
My wife is delighted with the Washer we got in January. **Would not part with it for $1,000 if she could not get one like it.** The day she formerly dreaded she now enjoys! Does not become tired of the wash and has **no backache any more.** We therefore both appreciate very much your kindness in sending us the liberal proposition through which we became owners of one of your "1900" Washers. Yours thankfully,
REV. A. E. GUSTOFSON and Family.

Dennysville, Mo., March 25, 1903.
Find enclosed **for full payment for "1900" Washer,** for which send me receipt in full. We have tried it for all purposes and am well satisfied that it will do all that you claim it will. Today we have done a large wash for a family of ten and had it all done and **on the line in just two (2) hours;** used to take me until after dinner the old way. Shall recommend it to my friends whenever a chance occurs. CHAS. H. DUDLEY.

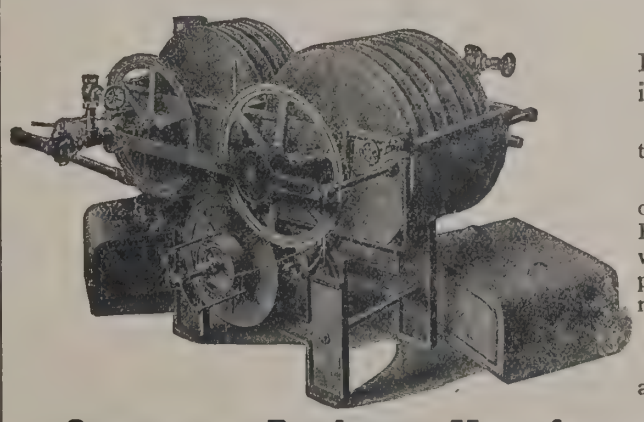
REMEMBER—You take absolutely no risk, incur no expense or obligation whatever. The Washer is sent by us on 30 days' trial, freight prepaid both ways, and positively without any advance or deposit of any kind.

For catalogue and full particulars of this liberal and absolutely genuine offer address

"1900" WASHER CO.,
219 N. State Street. Binghamton, N. Y.

References:
FIRST NATIONAL BANK, Binghamton, N.Y.

IT'S ALL IN THE DISCS



The Farrington Duplex Pasteurizer.

Butter must score top notch nowadays.

Butter made from cream pasteurized in a FARRINGTON DUPLEX will score from 6 to 8 points higher than that made from raw cream.

Prove it for yourself.

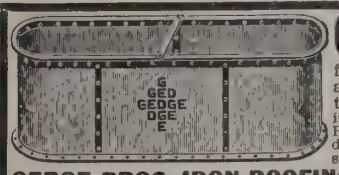
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Creamery Package Manufacturing Co.,

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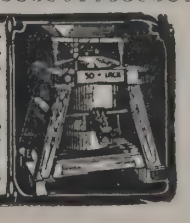
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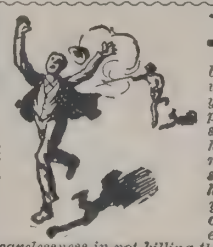


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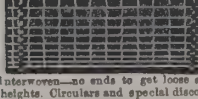
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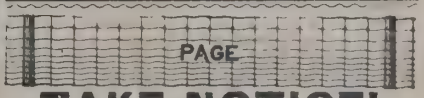
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What Caused the Shrinkage in Milk?

Feeding Pigs for Profit.

ED. HOARD'S DAIRYMAN:—Through the columns of your much appreciated paper we will ask for needed information. In this section of Vermont we all thought our troubles over when the drouth was broken, but the end is not yet. My cows during the dry weather did very well in keeping up a full flow of milk. They had 20 lbs. ensilage and a mixture of corn and oats from two to four lbs , and bran one to two lbs. At same time were on pasture, too dry for anything we thought. Since the rains they have shrunk nearly one-third in milk. We fed the last of silage today. Will have an abundance of peas and oats soon. Shall feed hay until they are ready to cut, and cut off the grain ration. It doesn't seem to pay to feed it. We can't get cotton seed or oil meal. Can you suggest any ration that ought to bring them back to their milk and at same time be profitable for 19-cent butter?

I have five acres peas and oats. They were divided into plots and sown in successive sowings so as to provide green feed, but dry weather prevented the growth so they will all be ready about same time. Should you advise cutting into silo or haying them, and at what stage should you cut so as to get the most digestible food? When we cut and hay them when in the "milk" stage, the cattle leave a large amount of the straw and do not seem to relish them as when cut earlier.

How late in the season may we seed for alfalfa? I have been waiting for some of our progressive farmers to try it, but I guess I shall have to start the ball rolling.

We have 16 young pigs about 5 weeks old. Will you please give me a ration that ought to give a profit from start to finish? They are confined in pens, kept dry. We cannot pasture them, as we draw muck and horse manure to make all the manure we can from the skim milk. Corn meal, $1.25; middlings, $1.35; bran, $1.20. P. J. H.

Johnson, Vt.

It is impossible to say what caused this abnormal shrinkage in milk, unless it was that the fresh growth of grass after the copious rains afforded very little nutriment. The proper thing to have done when this shrinkage was first observed, would have been to increase the allowance of grain so as to hold up the milk flow at all hazards. It is not altogether a question as to whether the daily yield of milk will pay for the feed, but consideration should be given to the future. When a shinkage in milk becomes well established, it is practically impossible to bring the cows back to their normal flow, no matter how they may be fed. Therefore, though the grain fed today may not produce milk enough to pay the cost, yet the cost will be repaid in the future.

Oats and peas do excellently well in the silo, but we should prefer to make them into hay if there is a prospect of corn enough to fill the silos. Cut for hay a little earlier than the milk stage. The proper time is when they are in blossom, the same as we cut clover and timothy hay.

It is not yet known how late in the season alfalfa may be seeded in the climate of Vermont and Wisconsin. As yet, we cannot advise seeding alfalfa except in the spring. It needs to get a good, strong root growth to carry it through the winter and the following spring.

According to the tables given in Prof. Henry's work on Feeds and Feeding, pigs weighing from 30 to 40 pounds, should have a daily allowance of 4½ pounds of skim milk with 1½ pounds of corn meal, or middlings, or a mixture of both. When weighing from 70 to 80 pounds, increase the milk to 7 pounds and the grain to 2¼ pounds. When the weight increases to 120 pounds and over, increase the milk to 9 or 10 pounds and the grain to 3 or 3½ pounds. At 175 pounds in weight, give 12 pounds of skim milk and four pounds of grain.

These figures are only general suggestions and should not be followed blindly, but the feeder should watch the developments and be governed largely by them; feeding more or less as circumstances seem to require.

The Curing of Hay.

Since the hay crop is likely to be light this year, it is doubly important that it be handled to the best possible advantage and cut and cured in such a way as to secure the largest amount of nutrients in the most digestible and palatable form.

To this end it is well at this season to bear the following facts in mind: Early cut hay is relatively richer in flesh-forming elements; it is more palatable and digestible; it has a sweeter aroma; but it has the disadvantage of being much more difficult to cure. Grass as it approaches maturity, gains considerably in weight, part of this increase consists of starch and sugar, which is valuable to the feeder; and part consists of crude fibre which decreases digestibility and renders the hay less palatable. Early cut hay is more valuable per ton than late cut; but a larger amount of digestible nutrients per acre is obtained by later cutting. Late cut hay has also the advantage of being more easily and rapidly cured, thus diminishing not only the labor, but also the risk of loss in harvesting.

Early cut hay is especially valuable for sheep, calves, colts, and dairy cattle; while for fattening cattle, late cut hay will give as good results. In experiments conducted by Prof. Sanborn of New Hampshire, and Prof. Henry, of Wisconsin, to determine the relative value of early and late cut hay for fattening steers, the advantage was a little in favor of the late cut hay.

Whether hay should be cut early or late will depend, therefore, on the following conditions: 1. The stock to be kept; at least enough hay should be cut early to supply the dairy cows and young stock. 2. The season; if the weather be "catchy" it is generally wiser to defer the cutting until somewhat later. 3. The acreage to be handled; if the crop be large, it will be necessary to begin cutting earlier.

By earlier cutting is meant cutting at or before the time of full bloom. By late cutting is meant cutting between the time of full bloom and ripening. In any case, however, hay should be cut before it is ripe enough for the seed to shell readily. A crop of mixed clover and timothy hay is at its best if both quality and quantity are to be considered, when from one-third to one-half of the clover blossoms have turned brown.

Hay should be cured and stored as rapidly as possible after cutting. With this in view, it is better to defer cutting in the morning till most of the dew is off. If 30 tons or more of hay is to be handled in a season, a tedder will be found a good

"COME in the evening or come in the morning, when you're looked for or come without warning"—You'll always find your Tread Power ready for business. OF WHAT OTHER FARM MOTOR—Wind Steam or Gasoline—can this be said? A PERFECT GOVERNOR ensures absolutely even speed. Send for free catalogue.



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An investment now may bring you a fortune. The Pacific Oil Reporter of San Francisco, for June 6th, a very high authority on oil wells, by the way, declares that our company has splendid prospects. If you are interested and will write to us we will send you unquestioned proofs of the reliability of our investment and satisfactory references.

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Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.
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Bull two years old out of Count Topsy 24.27 lbs. butter 7 days. She won 1st prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

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Especially low prices, standing of herd considered. No catalogue. State what you want.
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HADDON FARMS—Home of the noted GLEN WOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

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Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.
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FOR SALE The highly bred GUERNSEY BULL, Golden Glow, No. 6779, 4 years old, Price $100, F. O. B., if sold at once.
Also his son, two months old, $50. Will register before delivery. Sire, Golden Glow, 6779; dam, Zilka La, No 12921, a superior butter cow. Also a fine two months old bull calf. $25; sire, Golden Glow; dam, a 5 per cent. butter fat Jersey cow. Address S. S., Camden, Del.

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TUBERCULIN TESTED.
Sixty head of choice Guernseys headed by Coralette's Son, (see page 450) whose dam, Coralette made 479.7 lbs. fat in one year at 3½ years old, and was first prize cow at Wisconsin State Fair in 1896.
Some fine young bulls for sale.
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FOR SALE GOLDEN LAD BLOOD, sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. E. C. GREEN, Albion, Wis.

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instrument. Care must be exercised to avoid storing hay while at all damp from rain, dew, or absorption from the ground. Moisture of this kind will spoil hay much quicker than the water contained in its own sap.

Last year attention was called to the method of curing clover hay practiced successfully by Mr. Herny Glendenning, and a number of other prominent and reliable farmers. Mr. Glendenning thus outlines his method: Cut when in full bloom, or when the blossoms contain the most honey. Cut in the morning after the dew has dried off. That cut in the morning may be cocked up in the afternoon. The mower should not be run later than 4 p. m., and all cut that day should be put into cock before the dew falls. This hay should be put into the barn next day and well tramped into the mows. He especially emphasizes the following conditions:

1. Do not cut in the morning until the grass is dry.

2. Do not allow fresh cut hay to lie on the ground over night, exposed to dew or rain.

3. If any hay should get wet with rain, let it stand in the cocks until thoroughly dry before taking to the barn.

Mr. Glendenning states that his hay came out as green as when it was put in, with the blossoms a beautiful pink color, which would indicate that it had not heated so much as one would naturally expect.

The advantages of this method are: 1. The saving of time between cutting and storing, lessening the risk of damage from rain. 2. All leaves and blossoms, the most valuable part of the plant, are saved. 3. The hay is cleaner and brighter than that cured in the old way.

Of course the hay cannot be cured by rule; conditions vary. A good method of curing on a gravelly upland farm would be quite unsuited to the flatter clay and humus soil.

The length of time for which hay should be exposed in the swath will be determined by its ripeness, by the humidity of the atmosphere, the temperature and moistness of the soil, the presence or absence of wind, etc. So that every man must be, in a large measure, a law unto himself, and his practice must be governed by personal experience.

It appears to be a fact, however, that when the conditions are favorable, and the necessary skill and judgment exercised, clover may be stored much greener than was formerly thought possible, and that the very best quality of hay may be secured in this way.

F. W. HODSON,
Canadian Live Stock Commissioner.

Is it Profitable to Feed Grain on Pasture?

Is it profitable to feed cows on pasture, a grain ration? If so, how much and which of the following atprices given: Corn meal, wheat bran and old process oil meal, each 1 cent per pound. C. A. J.
Hudson, Mich.

When pastures are at their best, cows need practically no grain, but pastures are not at their best except for a very few weeks. The amount of grain to be fed depends altogether upon the condition of the pastures. Ground corn or middlings if they were not so concentrated, would make an ideal supplement to short pastures. We consider it better to mix bran with the corn or middlings, equal parts by weight, and feed enough to keep up a normal flow of milk. Even when pastures are at their best, a very small feed of grain encourages the cows to report for duty on time.

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Bulls in service, Prince Inka Pietertje De Kol 2d, A. R. O., 144, sire of 10 A. R. O. cows, and Daisy Van Beer's Pauline De Kol. 27610, whose dam has official record of over 22 lbs. in 7 days. Special prices on young bulls from A. R. O. cows. Also Yorkshire pigs of most approved breeding now fit to ship.

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Box 208, Lacona, Oswego County, N. Y.

FOR SALE. H.-F. Bulls, ready for service from A. R. O. Cows and sired by Sir Jonanna DeKol, 25467 A. R. O. Butter record of dam, 21.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis.

GLENVIEW HERD

A few fine heifers and bulls for sale. Also some A. R. O. cows. IRVIN NOWLAN, Toulon, Ill.

Markham Manor Farms, Simonsville P. O. Andover, Vt.

Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for description and price to J. A. THORNTON, Manager, Simmonsville, Vt.

FOR SALE.

H. F. A. R. O. cows and heifers bred to Duchess Ormsby Plebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address W. H. JONES, Watertown, Wis. Rural Route No. 2.

CLOVERDALE HERD

HOLSTEINS.

Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.

A. J. DAUGHERITY Streator, Ill.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS | 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22123. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No 29175. Sire: Count Colantha Alban No. 25148 Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.
WM. EVERSON & SONS, Lake Mills, Wis.

70 HEAD PUBLIC SALE 70 HEAD

GREATEST OFFERING OF

HOLSTEIN-FRIESIAN CATTLE.

McADAM & VON HEYNE'S

Justly Celebrated Herd of Holstein-Friesian Cattle will be sold at Public Auction, at Brothertown Stock Farms, Deansboro, N. Y., on

WEDNESDAY, JULY 15, 10 O'CLOCK A. M.

SADIE VALE CONCORDIA, THE WORLD'S CHAMPION BUTTER COW, with an official butter test of 30 lbs. 10 2 oz. of butter in seven days, 123 lbs. 10.7 oz. in 30 days, and 220 lbs. 8.4 oz. of butter in 60 days, will go to the highest bidder. Also one of her sons, two daughters five grand-daughters, two great grand-daughters and two great grand-sons are included in this sale, and placed within the reach of every buyer or breeder.

This sale also includes the famous ex-champion, Mercedes Julip's Pietertje, with an official record of 29 lbs. 5.7 oz. of butter in seven days, her daughter and her grand-daughter.

This Sale Offers to Breeders Three Sires of Very Choicest Breeding

SADIE VALE CONCORDIA'S PAUL DE KOL, No. 27,392, three years old; sire Paul De Kol 4th.; dam, Sadie Vale Concordia, official record 30 lbs. 10.2 oz. butter. This is the world's record for mature cows.

SIR PIETERTJE POSCH, No. 30.155, two years old; dam, Alta Posch, official record 27 lbs. 2.4 oz. butter, at 2 years and 11 months. This is the world's record for two and three year old cows.

CANARY MERCEDES JOHANNA DE KOL, No. 30,251; sire Johanna Rue 2nds. Paul De Kol; dam, Canary Mercedes Brightest, official record 21 lbs. 3 oz. at 2 years and 11 months. His four nearest dams average 23 lbs. 5.6 oz. butter in official record; they also average 4.06 per cent. in butter fat. All cows offered are in calf either to one or the other of the above named bulls. The Herd numbers

70 HEAD OF VERY SUPERIOR ANIMALS,

selected with great care. A large number being from the CELEBRATED YEOMANS HERD. This superiority has been strongly demonstrated, having won in last year's official tests more prizes for large and economical production than any other herd either in the United States or Canada.

In this offering of fine stock are cattle suitable for the best herds, also for the improvement of good herds, as well as cattle for the beginner; as the latter, in buying any of these cattle will start with the most famous and most desirable families, the most important, if not the prime factor in the success of breeding pure bred cattle.

The farms can be reached on the D. L. & W. R. R. to Waterville, N. Y., or the O. & W. R. R. to Deansboro, N. Y., where at either station visitors will be met promptly, on the morning of the sale, and conveyed to the farms. Also the farms can be reached by trolley from Utica to Clinton, N. Y., thence by livery. Catalogues ready early in June. Address

Mc ADAM & VON HEYNE, Deansboro, N. Y.

The sale will commence promptly AT 10 A. M. WEDNESDAY, JULY 15, 1903.

COL. CAREY M. JONES, Auctioneer.

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Headed by Mercedes Mechthilde Pietertje. No. 25,795. oldest son of Mercedes Julips Pietertje. 75 O. I. C. White Pigs, both sexes, in pairs and trios, not related.
W. R. GATES, Fort Atkinson, Wis.

OAKLAND HERD HOLSTEINS

PREMIER SIRE **Mutual Friend 3d's Paul** { A son of Paul De Kol & Mutual Friend 3d, 21.84 lbs. butter, milk averaged 4.7% at 3 years. She has two A. R. O. daughters; 1 made over 20lbs,

Must reduce herd at some price. State just what you want T. A. MITCHELL, Weedsport, N. Y.

BROOKSIDE HERD

HOLSTEIN-FRIESIANS

To reduce herd to capacity of pasture, will sell a limited number of A No. 1 young cows of high breeding and individually right, large producers, at $150 each; also 15 bull calves at bargain prices.

STEVENS BROTHERS, Lacona, N.Y.

THE MAPLE'S HERD

offers good young cows with A. R. O. records in calf to Beryl Wayne De Kol Paul, No. 28785, whose dam Beryl Wayne has an official record of 27.87 pounds of butter in 7 days. Also four yearling bulls ready for service. Special bargains in heifer and bull calves.

JOHN C. GODFREY,
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Holstein-Friesian Bull Calves

Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

HOME FARM HERD.

Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams 25.1 lbs. butter in seven days. Herd numbers 125 head.

BEST FAMILIES REPRESENTED.

Special prices on six or eight bulls of serviceable age. W. B. BARNEY & CO.,
Hampton, Ia.

FOR SALE 2 H. F. Bull Calves, 6 mo. old. sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.
M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

MONONA FARM Offers for sale a few well bred Holstein-Friesian Bull Calves. Also two Service Bulls at reasonable prices. The Monona Farm Herd is founded on the best stock of the De Kol, Netherland, and Clothilde families. Pense Johanna 29332 the head of the herd has 7 A. R. O. dams averaging 22 lbs. 3.7 oz. Junior sire Paul Calamity De Kol 31095.
MADISON, WIS.
THE MONONA FARM HERD
Address, F. W. ALLIS, Madison, Wis.

Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

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BEGIN AT THE HEAD

to improve your dairy herd with a bull whose dam has official record of 18 lbs. 6.3 oz., sires dam 20 lbs. 8.8 oz. Individual right. Price Right.
McKAY BROS., Buckingham, Iowa.

HIGH-CLASS HOLSTEIN-FRIESIAN BULLS

and Bull Calves from A. R. O. dams and the best Advanced Registry sires. Cows all officially tested; I breed from no others. Correspondence from breeders and progressive ddirymen invited. Malcolm H. Gardner, Darien, Wis.

HOLSTEINS

High Class Advanced Registry Stock only. Best butter families. Stock for sale.
Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.



T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.
Wm. O. Jackson & Sons, South Bend, Ind.

LOOK HERE.

34 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by Gem Pietertje Hengerveld Paul DeKol, or Sir Ormsby DeKol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days, average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd? McGEOCH HERD is located at Lake Mills, Wis., 56 miles west of Milwaukee. For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis Residence: National Ave. near 40th. Phone, South 1601.

Weed Destruction by Means of Chemicals

Much interest has been shown at a number of the agricultural experiment stations in the possibility of weed destruction by means of chemicals. As long ago as 1895 it was found at the Vermont Station that the orange hawkweed, a serious pest in pastures and meadows, could be destroyed without injury to the grass by sowing salt over the land at the rate of 3,000 pounds per acre. Many experiments have since been conducted at the same station with other chemicals for the eradication of weeds in walks, drives, courts, etc. Among the chemicals tested were salt, copper sulphate, kerosene, liver-of-sulpher, carbolic acid, arsenic and salsoda, arsenite of soda and two commercial weed killers, the active principle of which apparently was arsenic. The weeds which it was sought to destroy were plantain, dandelion, chicory, ragweed, knotweed and various grasses. All the chemicals were applied in solution except the salt. As in the case of the hawkweed experiments, salt was found efficent in destroying all the weeds when applied dry and in large quantity. When salt is used for this purpose adjacent lawns should be protected against washing, or they may be injured. Crude carbolic acid, 1 pint in 4 pints of water, applied at the rate of 8 gallons per square rod, was very efficient. The various arsenical preparations proved valuable as weed destroyers, and choice between them was largely a matter of expense. All things considered, the arsenite of soda and the carbolic acid solutions proved the most valuable chemicals for weed destruction under the conditions of these experiments.

A most interesting series of experiments in weed destruction in fields of growing grain has been carried on at the North Dakota and other stations, as well at as many places abroad. Several years ago, in France, it was accidentally found that a solution of blue vitriol (copper sulphate) destroyed charlock or wild mustard plants. Acting upon this hint, experiments have been conducted in France, Germany, and England, where charlock is one of the worst weeds in grain fields, meadows, and pastures. The method employed is to spray the crop with solutions of blue vitriol while the weeds are young and not too well protected. While the results obtained are in some respects conflicting, the best results have been secured when a 2 per cent solution (1 pound to about 6 gallons of water) is sprayed over the field at the rate of from 40 to 60 gallons per acre. The spraying should be done on a clear, still day, and before the weeds begin to come into flower. If a rain should fall within twenty-four hours, or the weeds are too old, a second spraying will be necessary.

This treatment has been repeatedly tested without permanent injury to wheat, oats, barley and rye, while such weeds as charlock, shepherd's purse, penny cress, etc., were almost completely destroyed. No injury followed such treatment upon young clover growing in the grain. At the North Dakota Experiment Station a 10 per cent solution of blue vitriol was sprayed over an exceptionally weedy plat of wheat, the principal weeds being charlock, wild barley, wild rose, penny cress, shepherd's purse, wild buckwheat, lamb's quarter, and great rag weed. The spraying was made June 1 when the wheat was 3 to 5 inches high, and on August 8 all the weeds except the wild rose and the older plants of penny cress were dead. Some of the leaf tips of the wheat had been slightly burned, but the yield of grain was considerably larger than from an equal unsprayed area. On June 20 part of an oat field containing many weeds was sprayed with a solution of 1 pound of copper sulphate to 4 gallons of water. The oats at the time were about six inches high, the weeds being about the same height. An examination of the plats was made on August 1, and the treated area was free of all weeds except pigeon grass and wild rose. The oat plants were stalky and well stooled, while on the untreated area the plants were weak and failed to stool. The crop on the sprayed portion was believed to be at least one-third more than upon the unsprayed area. The solution was employed at the rate of 40 gallons per acre.

In some regions objections have been raised against the use of solutions of copper sulphate, especially upon plants intended for forage, since it might be possible for animals to get an amount sufficient to kill them. While such a condition of affairs is possible, yet it is hardly probable in the usual practice of weed destruction. To overcome this difficulty the use of solutions of copperas (iron sulphate) is recommended. Where copperas is employed it will be found necessary to have a stronger solution than where blue vitriol is used. Copperas solutions should be from 10 to 15 per cent, or about 1 pound of the chemical to each gallon of water. The results secured with this chemical do not seem to be quite as satisfactory as where the copper sulphate is used, and the increased strength of solution required makes their cost about the same.

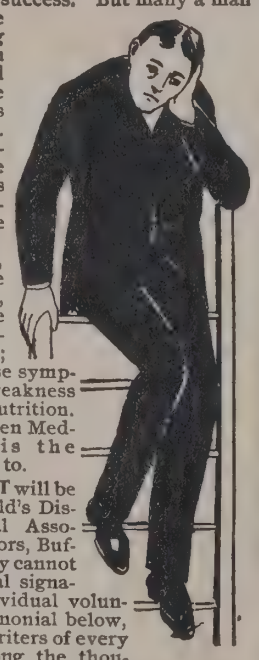
It must not be expected that all weeds may be destroyed by chemicals, at least in an economical way. Some weeds are so protected by hairs, scales, wax, etc., as to render their leaves impervious to the solutions as usually employed. Against such weeds the use of chemicals will be followed by disappointing results, but against charlock, wild mustard, shepherd's purse, wild radish, and penny cress, they may be successfully used if the application be made according to the suggestions given above. The solutions have been found to retard the growth of other weeds, without completely destroying them, as follows: Curled dock, bindweed, dandelion, sow thistle, and groundsel. In any case the results attained will depend upon the thoroughness of the application.—*Farmers Bulletin No. 124.*

About Children Milking.

ED. HOARD'S DAIRYMAN: — It has occured to me that in my article on milking, in DAIRYMAN for June 19, I

AT THE TOP.

It is a laudable ambition to reach the top of the ladder of success. But many a man who reaches the topmost rung finds his position a torment instead of a triumph. He has sacrificed his health to success.

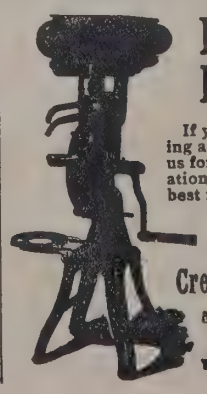


A man can succeed and be strong if he heeds Nature's warnings. When there is indigestion, loss of appetite, ringing in the ears, dizziness, spots before the eyes or palpitation of the heart; any or all of these symptoms point to weakness and loss of nutrition. Dr. Pierce's Golden Medical Discovery is the medicine to turn to.

$3,000 FORFEIT will be paid by the World's Dispensary Medical Association, Proprietors, Buffalo, N. Y., if they cannot show the original signature of the individual volunteering the testimonial below, and also of the writers of every testimonial among the thousands which they are constantly publishing, thus proving their genuineness.

"For about two years I suffered from a very obstinate case of dyspepsia," writes R. E. Secord, Esq., of 13 Eastern Ave., Toronto, Ontario. "I tried a great number of remedies without success. I finally lost faith in them all. I was so far gone that I could not for a long time bear any solid food in my stomach; felt melancholy and depressed. Could not sleep nor follow my occupation. Some four months ago a friend recommended your 'Golden Medical Discovery.' After a week's treatment I had derived so much benefit that I continued the medicine, I have taken three bottles and am convinced it has in my case accomplished a permanent cure. I can conscientiously recommend it to the thousands of dyspeptics throughout the land."

The "Common Sense Medical Adviser," 1008 large pages in paper covers, is sent *free* on receipt of 21 one-cent stamps to pay expense of mailing *only*. Address Dr. R. V. Pierce, Buffalo, N. Y.



Notice to Dairymen

If you are thinking of buying a Cream Separator write us for Catalogue and information. We manufacture the best machine on the market.

Davis Cream Separator Co.,

54 to 64 N. Clinton St. CHICAGO, ILL.



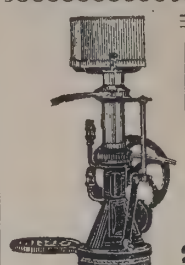
The New 1903 REID HAND SEPARATOR

The 1903 Reid Hand Separator is the most exact milk skimmer ever made—it is simplest, fastest, lightest running, and affords most butter-producing material under all conditions. It creates a new source of revenue and maintains the income—

WEARS LESS, LASTS LONGEST

Every Reid Hand Separator is sent out under a positive guarantee, and is sold on its own merits. If you want a separator we will send a Reid on approval—work it ten days and if it does not excel all others return at our expense. Send for new catalogue and revised price list, mailed free.

A. H. REID, 30th and Market Sts., Philadelphia, Pa.



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Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.

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It does its work so well that we dare sell it on approval. The price is low enough to make it a big winner for you the first year. Write for free catalogue.

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Awarded Medal at Paris, 1900.



Throwing Butter Away

by the old method of skimming milk is rank folly. With a **National Cream Separator** you can save 60 per cent. of the butter-fat you are now throwing away. It separates warm milk, and milk of a temperature as low down as 65 degrees, light or heavy cream and skims practically *clean*. We send it

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trial. Let you test it—see for yourself the saving it makes. If not satisfactory send it back—we pay all costs. Catalogue free.

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No farmer or dairyman can afford to be without one.



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C. L. CHAPMAN CREAM SEPARATOR WORKS. ERIE, Pa.

WANTED: YOUNG MAN in every locality to act as salesman, who can start work Sept. 1st or before, to take orders in town and country direct for our woolen mills, on men's all wool suits and overcoats made to order. We want bright, clean, thoroughly reliable men, (farmer's sons preferred). Permanent position. The right man can make $1000 per year. References required as to character. Address

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MILK WON'T SOUR If you use The Erie Can Refrigerators. An acknowledged Success. Booklet Free.

S. C. SULLIVAN, 425 W. 4th., Erie, Pa.

omitted one important matter, and that is concerning milking by children.

Here in Vermont, where dairies are usually large and help quite scarce, the children are put to milking at a pretty early age. It is well for the boys, and in many parts of this country it will be for the girls as well, to learn to milk as early as they are able to without injury to themselves. But the trouble will be that where the children are at all ambitious and the parents do not consider the matter properly, they will do too much of this kind of work for their own good. At a time when they are growing fast and before they have strength in hands or arms, care should be exercised that they are not allowed or compelled to do too much, and thus result in injury to themselves. This should be avoided as far as possible.

I know of some small boys that regularly milk 10 or 12 cows. This is too much and must be very tiresome for them. It may serve also to beget a dislike for the work, and possibly some might be inclined to slight it, which would be bad for the boys and worse for the cows. Make the work for these young hands as pleasant and agreeable as possible by giving them the best and easiest cows to milk. Also they should learn to treat the cows kindly, which some of the older ones are not always apt to do. The writer commenced to milk with one cow out of the small dairy, getting up early in the morning to attend to this work.

I remember of hearing from my mother, many years ago, of a little girl brought up on a large farm, who was too small to sit on a stool and milk, but would stand up, her head reaching a little above the cow's flank—the old, native cows—and milk like a veritable sprite.

I write this in the interest of children who I am always pleased to see doing well for themselves and others. I would have them learn as early as is suitable for them to do so, the various kinds of work on the farm and in the house, and to do it in a creditable manner; yet I would not have it such as to become irksome or distasteful, but rather pleasant to the young boy or girl, and I am sure, Mr. Editor, that you will fully agree with me in this matter. These boys and girls will soon become the men and women of the future, and we desire to have them prove to be the best in the world.

Franklin Co., Vt. E. R. TOWLE.

Prizes to be Awarded at the 11th Annual Convention National Creamery Butter Makers' Association, Oct. 19-23, 1903.

A championship cup valued at $100 will be awarded to the butter maker whose average score is highest in the six months' educational tests.

For the best package of creamery butter in the convention, a solid gold medal; and for the second best package of creamery butter, a solid silver medal.

To the state delegation having the highest average score, a beautiful silk banner, costing not less than $100, providing there are ten or more entries from that state.

To the butter maker scoring the highest from each state having ten entries or more, a silver cup valued at $50, providing that he is not the winner of the first or second prize, and providing his butter scores 95 or better.

Each exhibitor scoring 93 or over will receive a diploma of merit.

Cash prizes will be given to the amount of $5,000 as follows:

Two thousand dollars to be divided pro rata among all those scoring over 90, no matter whether they are present or not, and $3,000 to be divided pro rata only among those scoring over 90 who are present at the convention. Fifty dollars will be presented to the best appearing state delegation in the procession, and $25 to the second best.

Only one package will be received from a creamery.

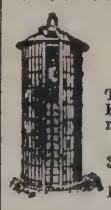
The large prizes are offered by the friends of the association to induce butter makers to attend in person. Those sending butter for competition are earnestly requested to come to the convention.

Under the rules no side or special premiums are accepted by the association.

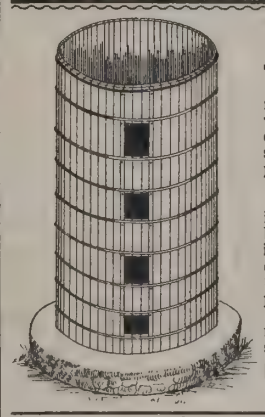
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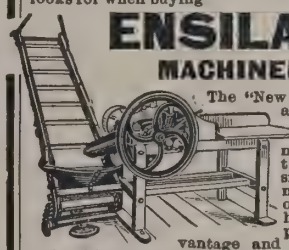
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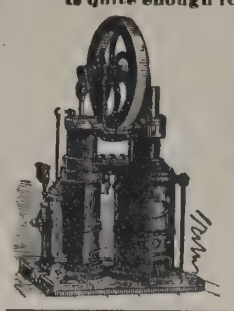
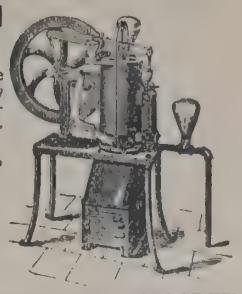

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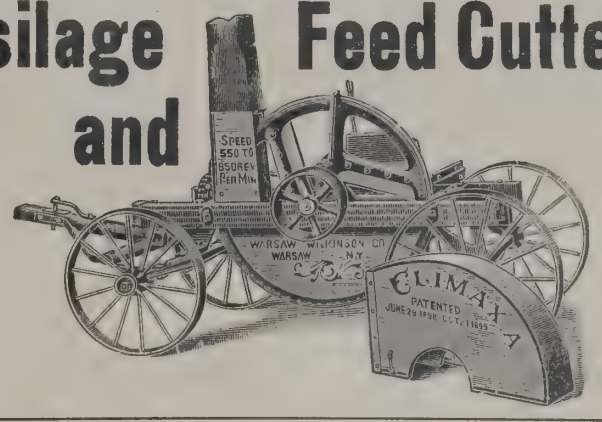
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These machines cut and elevate with the same wheel at the same time. This wheel has paddles which throw and fans which blow. Without the fans the paddles would throw the ensilage 15 feet high. A light blast of air in addition will blow it to any height. No chains, belts or cogs to slip and waste power. A two-horse tread power will cut and elevate 4 tons per hour, a 10 h. p. engine 20 tons per hour. The easiest running and safest cutters and blowers made. Also cutters and carriers, shredders, silos, engines, horse powers, saw machines, etc. Send for catalogues.
HARDER MFG. CO., COBLESKILL, N.Y.

"NEW HERO"
excels in strength and effective working qualities and sells at a price that "fits the purse." It is the combination of these three features in the highest possible degree which a practical man looks for when buying
ENSILAGE MACHINERY.

The "New Hero" Cutters are the simplest in construction of any made; so strong that, size for size, they weigh more than any others; they have every practical advantage and improvement claimed for others and many found in no other; they are guaranteed to outlast and outwork others. Sizes, 9 in. to 26 in.; with or without self-feed table; shredder attachment if desired; swivel feed carrier. We make also a complete line of sweep and tread horse powers, shellers, huskers, feed grinders, wood saws, windmills, etc. Remember that Appleton quality is the standard of excellence, and write to-day for free catalog.
APPLETON MFG. CO.,
35 Fargo Street, Batavia, Ill., U. S. A.

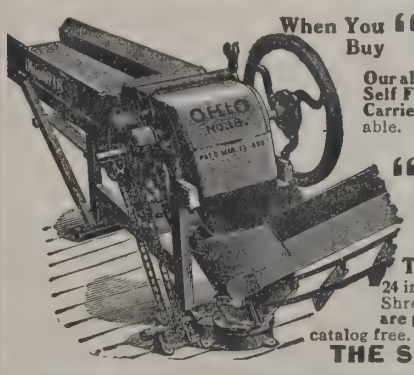
CORN HARVESTING Done—Faster, Easier, Cheaper by using the BADGER CORN HARVESTER than by any other known method. Do not wait, investigate now! Address I. Z. MERRIAM, Whitewater, Wis.

Painkiller PERRY DAVIS'
The world-known household remedy for cuts, burns, bruises—cramps, diarrhœa and all bowel complaints

HALF ENOUGH WATER
Is quite enough for some people, but most people want water every day. If

RIDER or ERICSSON HOT AIR PUMPS
Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 35,000 in daily use. Catalogue "B 5" on application to nearest store.
Rider - Ericsson Engine Co.,
35 Warren St., NEW YORK.
239 Franklin St., BOSTON.
692 Craig St., MONTREAL, P. Q.
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40 N. 7th St., PHILADELPHIA.
Teniente Rey, 71 HAVANA.
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CLIMAX
Ensilage and Feed Cutters.


"THE COMPLETE MACHINE"
The CLIMAX is **not** a machine with a "blower attachment," nor is it a made over, old style machine with some fans attached. It is a new, complete cutter and blower, made on the best principle.
All the parts of the CLIMAX are built with one end in view—to make a perfect cutting and elevating machine with as few parts as possible, to stand the heavy strain.
The Knives are perfectly straight and have the true shearing cut. They cut clean and even, and are easy to keep sharp.
The Reversing Gear is the simplest made. It is perfectly smooth and absolutely positive. The machine can be stopped or reversed in an instant, without danger of breakage. There are only two cog wheels in the machine.
Cutting and Elevating is done with the same wheel. Less power is required to operate, fewer parts, and great strength are combined.
Made in different sizes. Either mounted or unmounted. The only Feed Cutter made that is on wheels which are part of the machine. No platform required.
The CLIMAX will fill **any** silo in **any** conditions. Fully guaranteed. Ask your dealer, or write for catalogue. Its free.
WARSAW-WILKINSON CO., WARSAW, N. Y.


When You Buy "OHIO" Ensilage Cutters you buy Satisfaction.
Our absolute guarantee goes with this, our New "Ohio" Self Feed Ensilage Cutter and New Metal Bucket Swivel Carrier. It is made to be the best thing of its kind procurable. Self-feed increases capacity 33⅓% and saves 75% labor feeding.
"OHIO" Means Greatest Capacity, Least Power Required.
The man who owns one says so. All sizes, 11 to 24 in. Profit by the experience of others and get the best. Shredder blades to fit all sizes. 1903 "Ohio" Blowers are powerful machines. Write today. Latest illustrated catalog free. Modern Silage methods 10 cents. Established 1854.
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ROSS ENSILAGE MACHINERY ROSS
When you buy the ROSS you buy the best
Your choice—Blower or Carrier.

Write for Catalogue No. 36—FREE.
Prof. Woll's Book on Silage 10c.
THE E. W. ROSS CO.
Springfield, Ohio.
ROSS ROSS


HEEBNER'S ENSILAGE CUTTER.
The best cutter on the market for green or dry corn. Leading ensilage cutter made. It not only cuts, but crushes the stalks, rendering them palatable. Stock greatly relish and thrive on it. A $5.00 attachment turns the machine into a perfect shredder. Runs with least power. Used for cutting all kinds of stock foods. Power can be applied to pumping, churning, grinding, etc. Catalog free.
HEEBNER & SONS, 20 Broad St., Lansdale, Pa.

NOW IS THE TIME TO SUBSCRIBE
FOR
Hoard's Dairyman.

Cream SEPARATORS all about them and other things for the dairy and creamery A. H. REID Philadelphia

Demand for Butter Makers.

Room at the Top.

ED. HOARD'S DAIRYMAN:—A letter just received from the manager of a co-operative creamery reads as follows:

"The stockholders of this creamery had a meeting yesterday and voted to discharge our present butter maker for uncleanliness, etc. The directors asked me to write you for a graduate of the dairy school, one that has ability for handling patrons nicely, honest, absolutely clean and a good calculator.

I am aware of the fact that this is a pretty difficult time of the year to employ a butter maker, but we have decided that the salary of a butter maker is not so much of a figure when put up against losing butter and patrons daily. What we want is an absolutely spotless creamery, run on a sound basis, and I think our patrons will stay by us.

The greatest difficulty we have to contend with is sour cream patrons. We do not take any sour cream but there are creameries all around us to which patrons haul sour cream and receive extras for their butter. I do not see how they can pay extras for butter made from some of the cream they take, it will not make it. We are proposing to run a cream wagon about ten miles south of here and undoubtedly the cream will be sour when we receive it. Can you suggest any way to overcome this difficulty? If the sour cream was not mixed with sweet cream, could we not make two grades of butter and pay the patrons accordingly?

We test our samples every two weeks. The jars are placed on shelves near the weigh can; our receiving door is toward the east. Now the sun shines on these bottles every morning. Does this make any difference in the test?"

This letter indicates a condition of affairs which I presume is becoming more common among the creameries in this state every day. Sour cream is being delivered to the factories and probably the amount of such cream received daily will increase as summer advances. The letter shows that the patrons of this creamery are becoming convinced, first, that a butter maker of experience and good common sense must be paid good wages. Second, that the creamery must not expect any good butter maker to make butter which will grade as extras from milk or cream which is probably several days old, and decidedly sour when it is received at the factory.

In my reply to this letter I recommended a former student of our dairy school, and I hope that he will prove to possess the qualifications sought for by this creamery manager. Being a dairy school graduate, however, is not always a guaranty that the butter maker will do as he has been taught to do. We have to do the best we can to teach such students as we have and then trust to their earlier training to have developed a disposition in them always to do the best they know how to do. As I have previously stated, we have had a great demand for our students this year and it was hard for me, as this man suggests, to find a good man to fill this place.

In reply to his questions about receiving sour cream at a factory, I stated that the best way to overcome this difficulty is to gather the cream daily. I think this is the best solution possible of the butter quality side of the hand separator question. If the farmers will clean their separators each time they are used and provide clean cans for hauling the cream, and this cream is gathered daily, I think that the quality of our creamery butter will not be lowered by the hand separator. But unless this is done many factories will have just the trouble mentioned by this man.

The cream gathering cans used by the haulers ought to be given considerable attention. An insulated can protected while on the road by a canvass or some other suitable covering will aid greatly in preserving the cream in the condition in which it was obtained at the farm, until it arrives at the creamery. I think in many cases the cream is spoiled by the long journey which it must take in the hot sun to the creamery, even when well taken care of at the farm.

The keeping of sample jars in direct sunlight is not to be recommended. At the present time I think most creameries use some form of corrosive sublimate to preserve composite samples. Such samples are not very much effected by sunlight, not nearly so much as those preserved by bi-chromote of potash. It is not a good plan, however, to allow the sun to shine directly on the samples and this should be prevented by means of a window shade, if there is no other convenient place for the shelves. It is probably not necessary to say that each jar should be tightly covered to prevent evaporation. The sunlight, however, will not have any bad effect on the test when the samples are preserved with corrosive sublimate, provided it does not heat them to so high a temperature that the cream is soured.

E. H. FARRINGTON.
Wisconsin Dairy School.

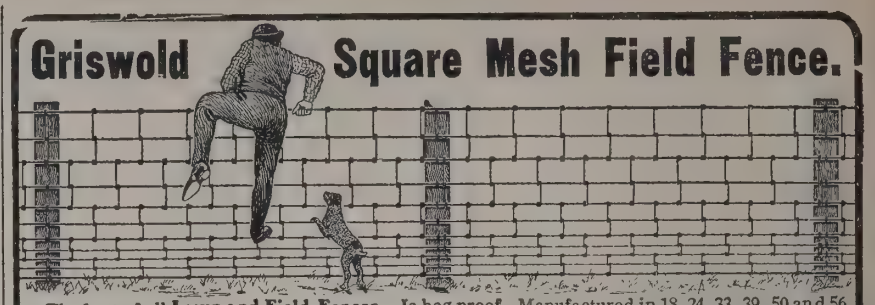
Devonshire Cream.

ED. HOARD'S DAIRYMAN:—An English friend while here visiting, remarked that their Devonshire cream was very fine and kept sweet several days without ice. Please inform a new subscriber how our Devonshire friends handle their cream. A. H. R.
Locust Valley, N. Y.

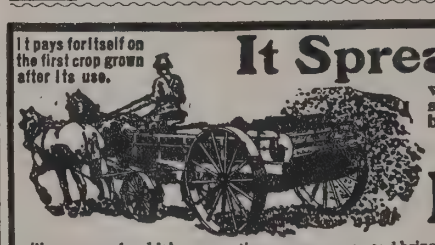
What is known as Devonshire cream is a species of pasteurized cream and is made as follows:

"The milk must be taken direct from the cow, and strained into the pans in the usual way. It should set in a cool dairy, and I believe for want of this cool apartment, many a good housewife has failed to turn out the genuine article. Good, sound pans must be used, as they have to bear constant heating. There is an objectionable plan in some establishments of leaving the milk in the sheds for a time after it is drawn from the cow. Clotted cream made from such milk will not turn out a good flavor, as there is sure to have been more or less tainting of milk while standing about. Just now many Devonians milk out in the open field, and if the cows are quiet the plan has its advantages, for there is no tainting of milk there.

"This requires the most care; indeed, there is nothing else in the whole process but a mere tyro could manage. As soon as the milk is cold, or, say, about nine or twelve hours after brought from the cow, the pans are lifted to the fire. In big dairies, there are what are known as Devonshire stoves especially made for the purpose. The stoves so made, heat water in which a number of pans may be set so as to scald a quantity of milk with little trouble. In smaller dairies the kitch-



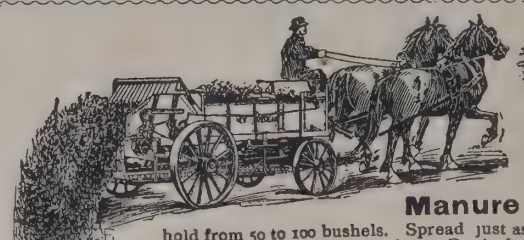
The best of all **Lawn and Field Fences.** Is hog proof. Manufactured in 18, 24, 33, 39, 50 and 56 inch heights; in 20 and 40 rod rolls. The narrow widths can be supplemented to any height desired by Barbed or Plain wire, or two strand twisted Cable wire. Manufacturers of **Diamond Mesh Fence. Plain, Galvanized, Barbed or Telephone Wire. Wire Nails and Hay Bale Ties.** Write for illustrated catalogues and price lists. **Dillon-Griswold Wire Co., Sterling, Ill.**


It pays for itself on the first crop grown after its use.

It Spreads Manure,
wet, dry, lumpy, caked, strawy, full of corn stalks, etc., better than it can possibly be done by hand. Spreads lime, ashes, salt, compost, etc.

THE IMPROVED
Kemp Manure Spreader

will save more hard labor, more time, more money and bring about better results than any other machine that can be employed on the farm. It trebles the value of even a small amount of manure. It is the only thing that can successfully top dress wheat in the spring, meadow lands, pastures, etc. Can be hauled onto any land easily and without injury to land, as wheels have broad tires. Can be turned on the ground it stands on, as front wheels turn entirely under. It is strong and durably made of good material and with ordinary care will last indefinitely. Greatly improved for 1903. Send for new illustrated catalogue and "How to Grow Big Crops"—Free. Remember that the only original and genuine Kemp Manure Spreader is made by us and the patents thereon have been fully sustained by a recent decision of the U. S. Circuit Court.
KEMP & BURPEE MANUFACTURING CO., BOX 46, SYRACUSE, N. Y.


New American Manure Spreaders
hold from 50 to 100 bushels. Spread just as thin or thick, fine or coarse, as ground requires. Don't have to stop team to make change. Most substantial, largest capacity, lightest draft.
Send today for Booklet B.
American Harrow Co
Detroit, Mich.

CATTLE COMFORT
KEEPS FLIES OFF CATTLE.
A RELIABLE ARTICLE
Keeps Cows, Horses, etc. comfortable in fly time. Sold by Seedmen and Merchants. For pamphlets write
HAMMOND'S SLUG SHOT WORKS
FISHKILL-ON-HUDSON, N. Y.



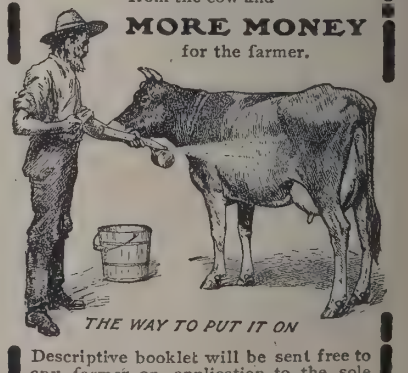
MORE MILK MORE MONEY!
Cows will give 15 to 20 per cent more milk if protected from the torture of flies with
CHILD'S SO-BOS-SO KILFLY.
Kills flies and all insects; protects horses as well as cows. Perfectly harmless to man and beast. Rapidly applied with **Child's Electric Sprayer.** 30 to 50 cows sprayed in a few minutes. A true antiseptic; keeps stables, chicken houses, pig pens in a perfectly sanitary condition.
Ask for Child's SO-BOS-SO or send $2 for 1-gal. can and Sprayer complete, Ex. pd. any point east of the Mississippi.
CHAS. H. CHILDS & CO., Sole Manufacturers, 15 LaFayette Street, Utica, N. Y.

Goodwin's


T. D. Goodwin & Co.,
USE GOODWIN'S FLY KILLER
this season and make your stock comfortable. Your cows will give 25 per cent more milk; your beef cattle will fatten with one-half the feed and your horses will do their work with ease. Goodwin's Fly Killer will protect stock from flies when in pasture as well as in stable. It's convenient, cheap, practical. It's a sure lice killer and will keep stables and hog pens in a sanitary condition. Prices: Gallon 75c; 5 gallons $3.00; 10 gallons $5.50. Good sprayer for applying same 50c, or send $1.00 for Sprayer and enough Fly Killer to protect 150 cows. Agents wanted. **T. D. GOODWIN & CO., Columbia Station, Ohio.**

Rippley's Fly Remover

instantly removes all flies, mosquitos, lice and other insects from cattle, horses and other animals sprayed with it. It is healing to any sore. Animals rest easy and feed quietly all day. Cows give ¼ more milk, which is a big saving. 1 gal. will protect 500 cows. Endorsed by the best class of people. Order at once and secure agency, you can sell hundreds of gallons. 1 gal., $1.10; 2 gal., $2.10; 5 gal., $4.50; 10 gal., $9.00. **RIPPLEY'S Special Sprayer** for applying same, 65c; **4 gal. Compressed Air Sprayer** for applying same on large herds, $5.00; 5 gal., 5.50. Money refunded if not as represented. Our Breeders' Supply catalog mailed free; tells how $8.00 per head can be saved by using Fly Remover; ½ bbl. lots of 30 gal., $25; freight paid on 20 or 30 gal. lots.
Gentlemen:—For three years I have been experimenting with different things to keep flies off my cows, but not until I tried your Fly Remover and Compressed Air Sprayer was I successful. I used this last year and found that it costs less than one cent per week per cow. With your Compressed Air Sprayer it takes but a few minutes to put it on, and the result has been that my cows were free from flies, and during the year gave 6400 pounds of milk each, which made 324 pounds of butter per cow. I can heartily recommend it to all stock owners.—JOHN ARMSTRONG, President State Board of Agriculture, De Smet, S. D., June 4, 1901.
RIPPLEY HARDWARE CO., Box 20, GRAFTON, ILL.
Western Office, Watertown, S. D.

Cow-Ease
(Trade Mark Registered.)
MEANS MORE MILK
from the cow and
MORE MONEY
for the farmer.

THE WAY TO PUT IT ON
Descriptive booklet will be sent free to any farmer on application to the sole manufacturers,
CARPENTER-MORTON COMPANY,
Boston, Mass., U. S. A.

Shoo-Fly THE ANIMALS' FRIEND

Kills every fly it strikes: keeps off the rest. Harmless to man or beast. Trade Mark
This cow was a terror to milk prior to using ½ cents worth of Shoo-Fly. Had it been used earlier, she would not have lost milk and flesh to the amount of $14.00. The other cow was protected early and continued to give 18 qts. of milk daily through fly-time
Shoo-Fly is the original stock protector used by the same dairy-men since 1885, after testing imitations. It prevents contagious abortion and other diseases, cures all sores, scratches, skin diseases, hoof ailments, etc. **NO LICE** in poultry house or any place it is sprayed. Beware of imitations that last only a few hours and make sores. If your dealer does not keep **Shoo-Fly** (made in Philadelphia, Pa.,) send us $1.00 for latest Improved Three Tube Sprayer and enough **Shoo-Fly** to protect 200 cows Cash returned if cows are not protected.
SHOO-FLY MF'G. CO. 1005 Fairmount Ave., Phila., Pa.
EDITOR knows from experience Shoo-Fly is O. K.


NEW IDEA FLY TRAP
Set this trap outside your kitchen door or dairy and you will have no more trouble. One in the stable will afford your cattle relief.
Catches 60,000 flies a day
11 in. diameter, 22 in. high. Ask your dealer. AGENTS make good money selling. Write for terms.
NEW IDEA FLY TRAP COMPANY,
Department H, Cissna Park, Ill.

FLIES? **ORR'S FLY KILLER.**
No Other as Good.
1 gal. $1; 5 gal. $4; Sprayers 50c.
ORR & COOPER, Box 829, BEAVER, PA.

STANDARD FLY AND LICE KILLER


en range does duty, the pans of milk being set in vessels of boiling water, or the pans may be set on a heated range. In any case, the object is to scald the milk, and to do it promptly and exactly. It should reach such a temperature that causes a little movement on the surface—a very slight simmer suffices; then it may be removed back to the dairy to get cold. When cold, the cream is taken off at convenience, and that is clotted cream, which is rightly, so highly esteemed. In cold weather the milk is all the better left for twenty-four hours, or even thirty-six, before scalded."

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Bloating.

No. 1. Will you please give me some treatment for clover bloat?

No. 2. Will you tell me how to dry up a cow, so as to fatten her? Is it advisable to dry up milk cows before freshening? H. J. W.

Bloomington, Ill.

ANSWER.

No. 1. It is always best to keep on hand a trocar and cannula, and tap the animal as soon as she bloats. After tapping you may give an ounce or two of hyposulphite of soda, and an ounce of powdered ginger in a quart of warm water to prevent fermentation and cessation of digestion.

No. 2. If you will cease to milk the cow, she will soon dry up. It is advisable to allow a cow to dry up before freshening.

Warts on Teats.

I have a two-year old heifer whose hind teats are covered with what seems to be warts. They vary in size, one as large as a walnut, making it very bad for milking. L. W. H.

Woodfords, Maine.

ANSWER.

Clip them off with a sharp pair of scissors and touch up the wounds with a stick of lunar caustic; after this keep the parts clean, and soften with lard occasionally.

Scabs on Calves.

My calves shed the hair around the eyes, nose, head, then extends back on the body, finally they scour bad and die. They were kept in a pen in the cow stable. The stable and barn built new two years ago; would whitewashing the inside of the stable and calf pen, prevent further trouble in that direction. W. W. H.

La Crosse, Wis.

ANSWER.

Wash the parts with a solution of Zenoleum, taking one quart to five gallons of water, apply once daily. Whitewashing the pens will be beneficial.

Disinfecting Stables.

Please advise the most economical and effectual way of thoroughly disinfecting cow stables? R. L. R.

Spokane Bridge, Wash.

ANSWER.

It is advisable to cover the floor with a thin layer of slacked lime, after each cleansing; whitewash the walls, and spray the stalls at least once daily with a good disinfecting solution. The writer uses for this, Zenoleum as directed by manufacturers, though there are other preparations of equal value for this purpose. See ads. in DAIRYMAN.

Cow Pox.

Some of my cows teats are very sore, a little hard lump forms, and after two or three days her skin turns yellow on same, and seems to be full of a watery substance. G. A. C.

Kempton, Ill.

ANSWER.

Your cows have cow pox. Wash the parts clean and apply iodine ointment after each milking. Such cows should always be milked last to keep the trouble from going through the entire herd.

White Scours.—Trouble With Milk.

I have lost several calves with what appears to be the white scours. They seem to be all right when they come, but in about twenty-four hours they commence to scour and keep getting worse very fast. The passages turn from a natural to a whitish or milky color.

Have been having a good deal of bother about the night's milk straining at the factory in the morning. It appears at first with little flakes which rise with the cream and after being strained remain in the strainer. Or, in using the cream in the coffee, at first there will be little flakes rise in the cup and will not dissolve like natural cream, and as it gets worse it will rise in large chunks and will not mix at all. It seems to be all right when fresh, but gradually gets worse with age. I have been using some disinfectants which seem to help some times but not always

Andheim, Cal. H. H. C.

ANSWER.

Make a complete change in food of cows, give to each in food, once daily, two ounces of sulphate of soda until there is a change in the milk and cream. Give the calves so affected tincture of opium, 2 drams; tannin and salicylic acid, of each 1½ drams. Mix and give in a pint of linseed tea every three hours until relieved. Before giving the above you may give a tablespoonful of castor oil to each calf.

The cause of the white flakes appearing in the milk is uncertain, but as they do not appear until some time after the milk is drawn from the cow, it indicates some species of bacteria as the cause. The remedy is a thorough cleaning of all milk utensils with scalding water and washing soda. Attention should also be paid to the cleanliness of the cows and stables. In such a case disinfectants are of little value as they do not remove the cause of the trouble but only suppress it for a time.

Unknown Disease.

Two of our heifers have just dropped calves that lived only a few hours; calves were perfect, but had a big bunch on the side of their necks. I cut into this and it looked much like a piece of liver full of blood; they seemed to have trouble with their breathing and lay stretched out full length on the ground, not getting up, but occasionally giving a few strong kicks or struggles, and bawling rather unnaturally. H. BROS.

Mission, Wash.

ANSWER.

The trouble requires personal investigation; it would not be safe to make a rough guess at so important a question. Consult a qualified veterinarian and have him make a thorough investigation.

Fistula.

One of my cows has a running sore on the bottom of the udder between the four teats. W. B.

High View P. O. Assa., Canada.

ANSWER.

Your cow has a fistula between the teats which must be removed surgically. Medical agents will not destroy it on account of its being situated in an unfavorable part of the body.



GOMBAULT'S
CAUSTIC BALSAM

A safe, speedy and positive cure for

Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a HUMAN REMEDY for Rheumatism, Sprains, Sore Throat, etc., it is invaluable.

Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

THE LAWRENCE-WILLIAMS COMPANY, Cleveland, Ohio.

Milk Fever Cure

Hood Farm Milk Fever Cure (Improved Schmidt Treatment complete) saves the lives of the most valuable cows. Can be applied after the cow is unconscious. Three treatments, $2.50. Sent to any railroad express point in the United States, $2.75.

C. I. HOOD & CO.,
Lowell, Mass.

Mention this Paper.



ABORTION

Can be successfully treated with Anti-Abortion Serum. Easily administered and permanently cures. Information free.

DR. ROBERTS
VETERINARY REMEDY CO.,
527 Grand Ave., Waukesha, Wis.

'FEMINOLOGY' Table of Contents and sample pages FREE.

A scientific book for women, one of the most valuable works ever written. It treats of marriage, care of babies, diet, nursing, children's diseases and their care, physical culture, personal beauty, giving information that is all important to health and happiness. Has 700 pages, beautifully illustrated, and 28 colored plates.

"If the information contained in Feminology were more widely and timely known and heeded, endless and needless miseries might be avoided."—Chicago Tribune.

Write for 32-page table of contents and see what this valuable book contains. An agent wanted in your town.

C. L. Dressler & Co., 2230 Gladys Av., CHICAGO, ILL.

Five Cases of Spavin Cured.

Buffalo, N. Dak., Jan. 26, 1903.
Dr. B. J. Kendall Co.,
Gentlemen:—I have cured five horses absolutely of Spavin in the last four years with your Kendall's Spavin Cure.
Very truly yours,
Harry D. Ruettel.



The endorsement of its users guarantees its merits.

Price $1; six for $5. As a liniment for family use it has no equal. Ask your druggist for KENDALL'S SPAVIN CURE, also "A Treatise on the Horse," the book free, or address

DR. B. J. KENDALL CO., ENOSBURG FALLS, VT.

The Books Are Free

Spavin
Ring Bone
Knee Sprung
Fistula
Poll Evil
Lump Jaw

If you have a horse that is lamed or blemished by any kind of a growth or enlargement, that is Knee Sprung or has Fistula, Poll Evil or Sweeny, or if there is a case of Lump Jaw among your cattle, write us at once. We will send you two big booklets. One tells you just how to cure these diseases and blemishes. The other proves that you can cure them, and we guarantee you success besides. Same methods employed by over 140,000 farmers and stock owners. Write for the books and tell us what kind of a case you have to treat.

FLEMING BROS., Chemists,
228 Stock Yards, Chicago, Ill.

PROPOSITION

$65,000
MADE IN 7 MONTHS.

We can give a few parties who can secure $175 to $2500, a very paying business, choice locality. We have an article, or machine, valuable to all farmers and stock raisers. Four men made

CLEAR $65,000 IN 7 MONTHS
Two Men Made
$2,000 IN ONE WEEK

Sales in one county $12,360. The like never before known. Thorough investigation invited. Best bank references.
Write at once to the following address

JONES & PRITCHARD
United States General Agents.
L Box 537 BEAVER DAM, WIS.

"SAVE-THE-HORSE"
TRADE MARK
SPAVIN CURE.



Send for our booklet—a valuable treatise on the injuries and diseases of horses and tells why

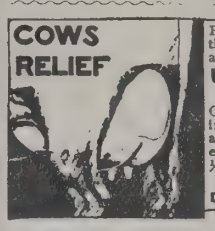
"SAVE-THE-HORSE" WILL POSITIVELY AND PERMANENTLY CURE

Bone and Bog Spavin, Thoroughpin, Ringbone, (except low ringbone), Curb, Splint, Capped Hock, Windpuff, Shoe Boil, Weak and Sprained Tendon, and all lameness. Give explicit particulars as to your case. Give the veterinarian's diagnosis, if he is competent. Describe action, age, location of swellings and lameness and we will advise you frankly as to the possibilities of "Save-the-Horse. $5.00 per bottle. Written guarantee with every bottle under our seal and signature constructed solely to satisfy and protect you fully. Need of second bottle is almost improbable, except in rarest of cases. $5.00 at all druggists and dealers or sent express prepaid.

TROY CHEMICAL CO., TROY, N. Y.



NEWTON'S Heave, Cough, Distemper and Indigestion Cure. A veterinary specific for wind, throat and stomach troubles. *Strong recommends.* $1.00 per can. Dealers. Mail or Ex. paid.
Newton Horse Remedy Co., Toledo, Ohio.



Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.

Used Exclusively at Model Dairy

Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.

O. H. MFG. CO.,
Dept. H, Lyndon, Vt.

BARREN COWS CURED.

Write for Pamphlet and Testimonials.

Odest and Best Treatment Extant.

MOORE BROS., V. S., Albany, N. Y.

ABORTION,

Retention of Placenta and Failure to Breed.

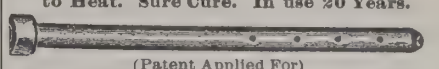
KELLOGG'S CONDITION POWDER

is a positive cure for these diseases. Write for circular containing full information, references and price.

H. W. KELLOGG COMPANY, St. Paul, Minn.

ABORTION,

Failing to Breed and to bring Cows to Heat. Sure Cure. In use 20 Years.



(Patent Applied For)

Hard Rubber *Safety* Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.

Dr. WM. HORNE, Janesville, Wis.

CHLORO NAPTHOLEUM DIP

Kills Lice and Cures Mange, Itch and Scab on Cattle, Sheep, Swine and Horses. Chloro-Naptholeum Dip is the only preparation that can be absolutely relied upon to stop Hog Cholera. Guaranteed. Agents Wanted.

1 gallon $1.50; 5 gallons $6.75, prepaid.

WEST DISINFECTING CO., Inc., 8 E. 59th St., New York.

BLACKLEGOIDS

BEST PREVENTIVE OF BLACKLEG.



Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each Blacklegoid (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. Blacklegoids are sold by druggists; *ask for them.*

Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.

PARKE, DAVIS & CO. - DETROIT, MICH.

Branches: New York, Kansas City, Baltimore, New Orleans, Chicago; Walkerville, Ont.; Montreal, Que.; London, Eng.

CURE "THE" COW
NO CURE, NO PAY



WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address

DR. EATON J. CROSS,
152 Congress St., Troy, N. Y

Creamery Investigation in New York.

ED. HOARD'S DAIRYMAN:—You asked me if I could give you some dairy articles and particularly facts, and that reminds me that a Vermont man wrote me personally if what was published in one of your March issues regards putting the second growth of grass in silo, was a fact I never have tried in any manner to mislead any brother farmer, and must say what is published under my signature is just as I find things in my own experience or the experience of others, and in the following I shall report the same just as I find it, hoping the experience of a few farmers who got together to see what they could do may induce others to profit by their experience.

During the latter part of the winter of 1901 and the fore part of 1902, a few progressive farmers who meet weekly at a small club house erected for the special purpose of such meetings, began to discuss the question of how they were to continue to maintain the fertility of their farms, as the selling of hay seemed to be the only remunerative crop they could produce. It must be remembered that the locality I am writing about was a strictly grain growing section and was called the Lime Stone section, where in years gone by large crops of clover seed, wheat and barley, oats and corn were grown. The failure to mature clover seed was the first great misfortune to this locality. The scarcity of farm hands, both in doors and out, was another great drawback, the low price of meat a few years ago discouraged the growing of beef and pork. Now, what was to be done with farm lands decreasing in value both in price and production?

A creamery was proposed at Oakwood, a small station on the L. V. R. R. about midway between Avasco and Cayuga Lakes. The first objection was raised: What shall we do for water, as there was no available water near for the purpose, as we all know without water a creamery would not be of any account. A liberal citizen who owned large land holdings adjacent, proposed to furnish all the water they wanted, and immediately set a steam drill to work in the lime rock. The result was, an inexhaustible supply of water at 45 degrees was obtained, and while this drill was going down among the rocks the interest of those farmers increased. A committee was formed to visit some creameries in the county and report what they found out.

About this time the creamery sharks got wind of what was going on, and they began to put in their work, but the good sound sense of the hoary sons of toil prevailed, and they gave them the go-by, and went to work on their own good judgment, by forming a company with a certain amount of capital in shares of $50 each. The stock was soon all taken, as the people had confidence in the men who were at the helm. The farmers' wives were almost overjoyed when they were assured of the creamery, for they readily looked forward to the relief from the daily care of the milk, beyond what they received in the house for the wants of the family.

The result to-day is two skimming stations have been added, and a stable enterprise is assured. Almost one of the first acts of the committee was to secure a first-class buttermaker, and one who wanted every thing on a square basis, and is very particular about his statement to the patrons.

I give below his form of statement. Perhaps some one can give him one better, as that is what he would like if it is possible.

	Lbs.	
Whole amount of milk received		
Whole amount of butter fat		
Butter sold		
Butter sold to patrons		
Cream sold		
Buttermilk sold		
Total sales		
Charge for manufacturing butter sold		$
" " " patron's butter		
" " " cream		
" " " buttermilk		
Amount to be divided		$
Amount of milk furnished—lbs		
Your average test—per cent		
Equals butter fat—lbs. at—per lb		
Butter for home use—lbs. at—per lb		

On the success of some of the individual farmers as dairymen, my future reports will be made.

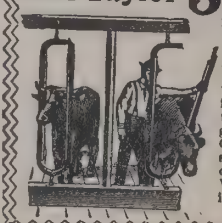
Auburn, N. Y. A. D. BAKER.

For the land's sake—use Bowker's Fertilizers. They enrich the earth and the men who till it

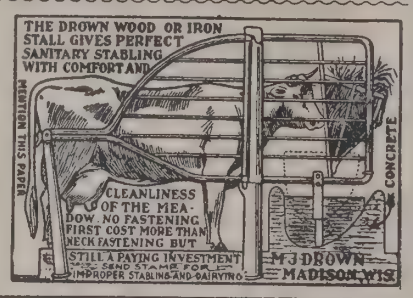


WILDER'S
PATENT SWING STANCHIONS
Chain or Pin Fastened.
Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.
Safest, Strongest, Most Convenient fastening made. Cheapest to put in and save room in barn. Send for Stanchion Catalog to
J. K. WILDER & SONS, BOX 11, MONROE, MICHIGAN.

This Taylor Stanchion



is made of angle steel lined with hard wood on side next the animal's neck. It is lighter, neater and stronger than any other stanchion made. Swings on chain at top and bottom and admits of greatest freedom of motion. Cattle can lay with head on side. Easiest opened and closed. Reliable Agents Wanted. Write for special terms, prices, etc.
JAMES BOYLE, SALEM, O.

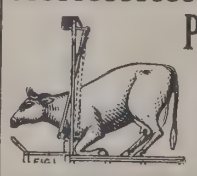




CHAIN-HANGING
CATTLE STANCHION
The Most Practical CATTLE FASTENER ever invented. Manufactured and For sale by
O. H. ROBERTSON, Forestville, Conn.



THE NEW PATENT
Cow Stall
AND FEED TROUGH.
This is the only Cow Stall with a centering hinge Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars. R. A McLERY & CO., Palmyra, Wis.



Prescott's Swinging Swivel tanchion
Keeps Cows Clean.
Swings forward while getting up or lying down. Looks back while standing Full particulars free.
E. PRESCOTT, Beverly St., Boston, Mass



The BEST Cattle Fastening.
SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated Circular free. GLENORA MFG. Co., Glenora, Yates Co., N. Y.
Infringements will be prosecuted.

A CHANCE TO MAKE MONEY
I have berries, grapes and peaches a year old, fresh as when picked. I used the California Cold Process. Do not heat or seal the fruit, just put it up cold, keeps perfectly fresh, and costs almost nothing; can put up a bushel in 10 minutes. Last year I sold directions to over 120 families in one week; anyone will pay a dollar for directions when they see the beautiful samples of fruit. As there are many people poor like myself, I consider it my duty to give my experience to such and feel confident anyone can make one or two hundred dollars round home in a few days. I will mail sample of fruit and full directions to any of your readers for nineteen (19) 2-cent stamps, which is only the actual cost of the samples, postage, etc. FRANCIS CASEY, St. Louis, Mo.

Special Offer of Fine Dairy Farm
ADJOINING RED WING, MINNESOTA.
174 ACRES—140 under high cultivation, balance good pasture and woodland. Has complete machinery for Dairy, with power, etc., and all machinery for cutting corn. Two large silos, sufficient to hold feed for 50 cows, and large barn to tie up 70 head. One new house—could not be built for less than $2,500; another good house for help. Large horse barn and granary. Improvements could not be duplicated for less than $7,500. Monthly receipts over $600. All for sale at $12,000.
H. A. CAMPBELL, 107 E. 4th St., St. Paul, Minn.

DO YOU WANT A HOME
in Central Wisconsin? We offer very desirable lands to actual settlers. Our lands are in Marathon County and are some of the very best hardwood, agricultural and dairy lands in the state. Deep clay loam soil. Good water easily obtainable at but little depth. Country opened with good roads and well populated.
Schools, both public and parochial, churches, general stores, bank, creamery, etc., within easy reach. Ready market for farm and forest products.
Terms reasonable. If you desire to improve your condition write for further particulars to
RIETBROCK LAND & LUMBER CO., ATHENS, WIS.

FOR SALE MY DAIRY FARM 198 acres, 1½ miles west of University. Would sell farm with or without stock. Write for detail description. G. B. M.,
P. O. Box 144, Charlottesville, Va.

Buy You a Ticket to CROOKSTON, MINN., and call upon
The Polk County Land & Loan Company
For choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.
360 acre farm, 4½ miles from Crookston, Minn., (a city of 7,000 inhabitants), and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 ft. square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x44. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm in under a high state of cultivation, and is well drained by a slight ravine running through the farm, merely sufficient for self drainage. The soil is a rich deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.
This is a 320 acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50.
160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired. Price $19.00 per acre.

IOWA FARMS For Sale $45 to $65 Per Acre.
We offer improved Iowa farms close to church, school and town, with local telephone and rural mail delivery, soil rich, black loam, and level, at $45 to $65 per acre. We also have special bargains in North and South Dakota and Canada. If you wish to buy or sell land or city property anywhere, write to us for confidential terms. We make a specialty of long range sales, so no matter how far away you live, if interested write us. We refund railway fare to parties who buy of us Send for price list with pictures of farms.
THE JOHN M. CANNON LAND AGENCY, CRESCO, IOWA.

CASH FOR YOUR



farm, home, business, or other property (no matter where located or how large or small) may be obtained through me. Send description, state price, and get full particulars free. Est'd 1896. Highest references. Offices in 14 cities, from Boston to San Francisco.
W. M. OSTRANDER
1519 N. A. Building, Philadelphia

WISCONSIN
Farm Lands
$8 to $12 PER ACRE.
On terms to suit purchaser. We would like to show you the lands and can give you low railroad rates to come and look at them. This is the future dairying country of the Northwest.
Our lands are only 240 miles from Milwaukee with splendid markets on all sides. None of the land lies more than three and a half miles from the railway station. Write and find out about it. Yours very truly,
INTERIOR LAND CO.,
Janesville, Wis.

NOW IS THE TIME TO SUBSCRIBE FOR HOARD'S DAIRYMAN.

160 ACRE FARMS IN WESTERN CANADA FREE



Western Canada
Has Free Homes for Millions.
Upwards of 10,000 Americans have settled in Western Canada during the past five years. They are Contented, Happy and Prosperous and there is room still for Millions. Wonderful yields of wheat and other grains. The best grazing lands on the Continent. Magnificent climate, plenty of water and fuel. Good schools, excellent churches, splendid railway facilities.
FREE HOMESTEADS OF 160 ACRES
(the only charge being $10 for entry) in Manitoba, Assiniboia, Saskatchewan and Alberta. Send to the following for an Atlas and other literature as well as for certificate giving you reduced rates, etc. Superintendent of Immigration, Ottawa, Canada; or to the authorized agent of the Canadian Government—
T. O. CURRIE,
12 B. Callahan Bldg., Milwaukee, Wis.
J. M. MacLACHLAN,
807 Third Street, - Wausau, Wis.

WISCONSIN FARMS
in Dunn, St. Croix, Barron, and Price counties make the best homes on earth; because, 1st., soil heavy; 2d., some timber, fuel cheap; 3d., springs and streams numerous; 4th, no blizzards or drouths; 5th., no sand or pine stumps; 6th, near the best northern markets; 7th., best dairy section known; 8th., no crop failures; 9th., successful settlement and all prosperous; 10th., corn, oats, wheat, rye, potatoes, tobacco, hay, etc., unexcelled in the United States.
If you want a Canadian home, we can, and will take you to the best locality in Manitoba or Assiniboia. Send for catalogue or come yourself. We sell on easy terms our own lands in Wisconsin and Canada. DUNN COUNTY LAND CO., Downing, Dunn County, Wisconsin, or 156 East 3d, Street. Rooms 5 and 6, St. Paul, Minnesota.

FARM LANDS BURCHARD-HULBURT INVESTMENT CO. ST. PAUL MINN.
EMIGRANTS BY THE THOUSAND
Are pouring into the Northwest from every country in Europe. If you have any desire to make money by land investment, you must hurry. We have excellent dropositions. Write us what you want, where you want it. We own all kinds of land in Minnesota, Wisconsin and N. Dakota, and can please you. Maps sent on application. Agts wanted
BURCHARD-HULBURT INVESTMENT CO.
Manhattan Bldg., St. Paul, Minn.

FARM FOR SALE WOOD CO., WIS.
120 ACRES, 60 acres cleared, balance in hardwood timber. Rich clay soil. Particulars furnished by
MILES & MYERS, C-100 MATTHEWS BLDG., MILWAUKEE, WIS.

234 ACRE FARM FOR SALE
One-half mile from Janesville, Wis. New 12 room house, good barns, etc. Fine black soil. A great bargain and if taken at once the purchaser gets the rent. It is one of the best farms in the famous Rock River Valley and will be sold on easy terms to a good man.
WILSON LANE, Janesville, Wis.



No Matter What Its Company

may be, butter will be preserved through commission houses and markets as well as in the household, if it is wrapped in our

Pioneer Brand Parchment Paper.

Outside smells and odors never penetrate through it, and it shuts in all the delicious flavor. Preserves butter better and longer than by any other means. If you make good butter you may get the name of so doing by letting us print your name, dairy or brand on every sheet. It never rubs off or discolors butter, and you can have no more effective advertisement. Parchment paper samples will quickly convince you of their value. Send for them. Sent free. Ask also for copy of our free book, entitled "Better Butter."

THE PATERSON PARCHMENT PAPER CO.,
No. 37 8th Street, Passaic, N. J.

THE PATERSON PARCHMENT PAPER CO. PIONEER PASSAIC-N-J-



Let Them Help Themselves.

They'll not take too much, and they'll get it as they want it. Don't force animals to eat salt when they don't require it, by mixing with food.

COMPRESSED

Pure-Salt Bricks

are all salt, no impurities. Improve the quality and yield of milk. A modern convenience, always present, animals never neglected, and costs for each only about a nickle a month. See how they enjoy helping themselves when you place it within reach. For all stock. Buy of dealers or send for free booklet to

Belmont Stable Supply Co., Brooklyn, N.Y.

A SUCCESSFUL SHORT-HORN SALE.

The Wisconsin Short-horn Breeders' Association held a combination sale in the stock judging room at the dairy barn of the Wisconsin Experiment Station, at Madison, on the 10th inst. Forty-three females were sold at an average of $123.10 and six bulls at an average of $97.50. The highest price realized was $310 for a three-year-old heifer purchased by F. W. Coates, of Dubuque, Ia.

Mr. Geo. McKerrow, Supt. of Farm Institutes and President of the State Agricultural Society, in the course of some introductory remarks, is reported to have spoken in part as follows:

"This sale will be a success because there are sensible people here who want to buy Short-horn cattle. We have promise of an immense crop of hay and grain, as we always have, and we will have plenty of feed to feed them. We should keep all these cattle here to enlarge the Short-horn herds of Wisconsin. We have a great many farmers in Wisconsin who are not dairymen. They want cattle to eat up the rough feed on the farm and turn it into money. For the farmers who are not dairymen, probably no class of cattle suit them better than Short-horns."

We quite agree with Mr. McKerrow that "for the farmers that are not dairymen, probably no class of cattle suit them better than Short-horns," but we think Mr. McKerrow unintentionally fell into the quite too common error of leaving the impression with his hearers that dairy cattle are not as profitable consumers of rough feed on the farm as beef cattle. If there is any difference in this respect, we believe that the dairy cow will consume just as much coarse feed as her beef brother or sister and turn it into more profitable channels as well. It is altogether a mistake to suppose that the dairy cow is not fitted to consume large quantities of roughage.

When one compares the prices realized at this sale with those realized at the McGeoch sale of Holsteins recently held in Milwaukee, he cannot fail to be convinced that rearing dairy cattle of high quality in Wisconsin, is quite as profitable as raising Short-horns.

Georgia Dairymen's Association.

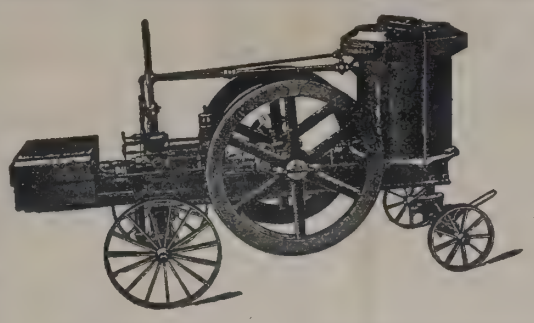
ED. HOARD'S DAIRYMAN:—The annual meeting of the Georgia Dairymen's Association is to be held in the city of Athens on the 4th and 5th of August. We are arranging a good program and believe that we are very fortunate in having the promise of Prof. W. A. Henry to be with us and make two addresses.

All railroads south of the Ohio River will sell round trip tickets for one fare, plus 25 cts. These tickets may be purchased on Saturday, Monday and Tuesday the first, third and fourth days of August. W. L. WILLIAMSON.

Harmony Grove, Ga.

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FLOUR CITY GASOLINE ENGINES

Portable and Stationary, 3 to 25 H. P.
Catalogue on Application.

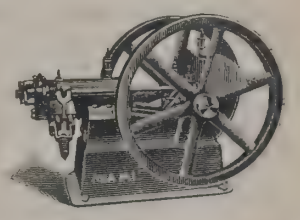
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MINNEAPOLIS, MINN.

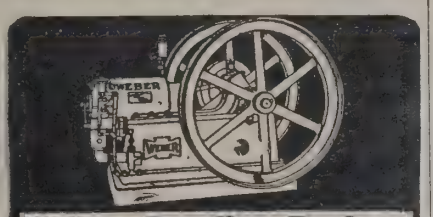
You would probably get a ***CERTAIN AMOUNT OF SATISFACTION*** out of any old kind of a gas or gasoline engine.

But if you want one to give you better service than a steam engine, and as good service as an electric motor, and cheaper to run than either, get a

MIAMI GAS OR GASOLINE ENGINE.
Miami Engines, Horizontal, 5 to 65 H.P., 12 Sizes.
Woodpecker Engines, Horizontal, 2½ H.P., Special.

THE MIDDLETOWN MACHINE CO., Middletown, Ohio.
Write for Catalogue and nearest Agent.





Weber Gasoline Engines

generate most power at least expense and in form best adapted to small or large purposes. Everything from the 2½ horse Jr. to 300 h. p. Engines. All money earners, built to last, absolute in safety. No skilled engineer or license required. Any intelligent person can operate. Preferable to steam for many reasons. Catalog shows why. Write for it.

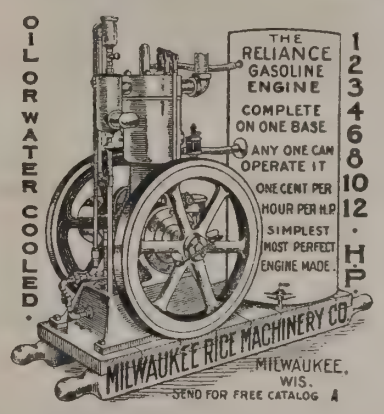
WEBER GAS & GASOLINE ENGINE CO.,
Box 176, Kansas City, Mo.



If you want a..... **Gasoline Engine**

that will be always ready to start, safe, reliable convenient, economical and durable, buy a FULLER & JOHNSON Frost Proof. No bother with water nor expense of broken cylinder, no waiting for wind or weather. All sizes, stationary and portable. Send for descriptive catalogue to the manufacturers.

FULLER & JOHNSON MFG. CO., Madison, Wis.



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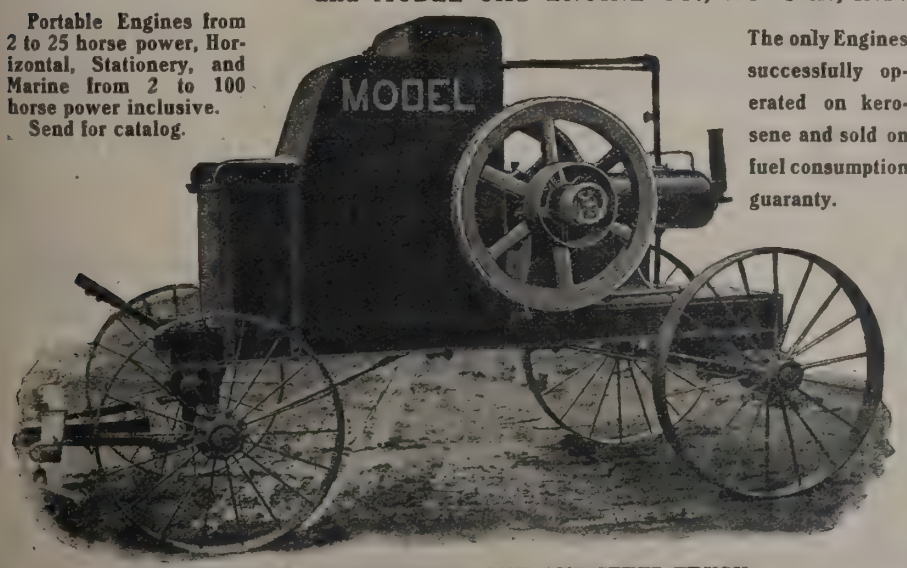


Always ready, never tired. Pump water, saw wood, grind feed, churn, run cream separators, etc. Wages, one cent an hour per horse power. Think of it, the backaches they save. Season will be dry. Write for catalogue "D" REGAL GASOLINE ENGINE CO., Coldwater, Mich.

The Model Gas and Gasoline Engines

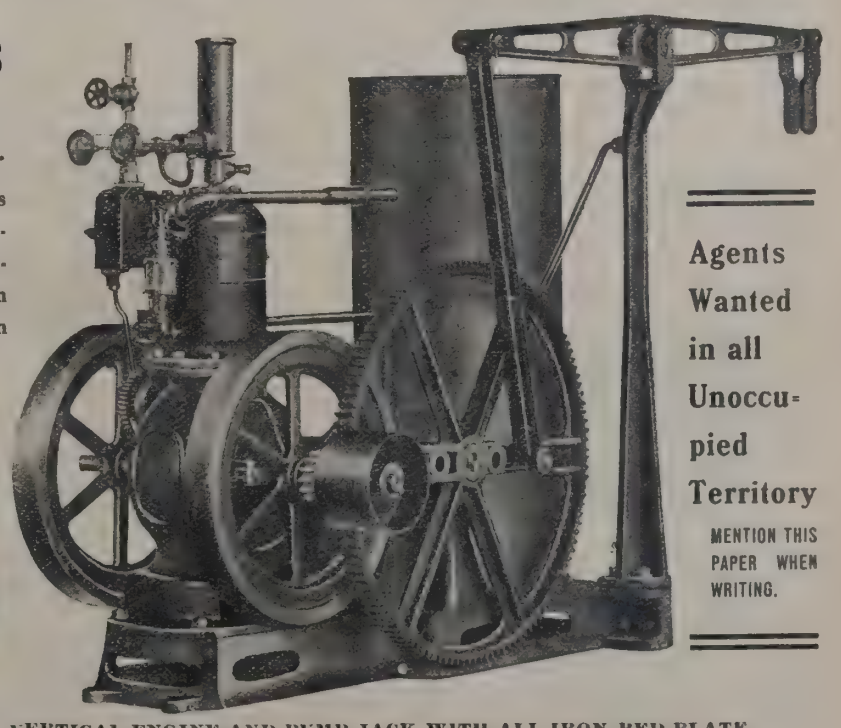
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THE CENTRAL CITY IRON WORKS, STEVENS POINT, WIS..
and MODEL GAS ENGINE CO., AUBURN, IND.

Portable Engines from 2 to 25 horse power, Horizontal, Stationery, and Marine from 2 to 100 horse power inclusive. Send for catalog.



The only Engines successfully operated on kerosene and sold on fuel consumption guaranty.

PORTABLE ENGINE WITH TANK AND STEEL TRUCK.



VERTICAL ENGINE AND PUMP JACK WITH ALL IRON BED PLATE.

Agents Wanted in all Unoccupied Territory

MENTION THIS PAPER WHEN WRITING.



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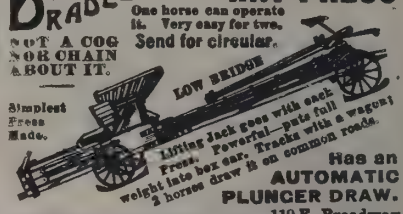
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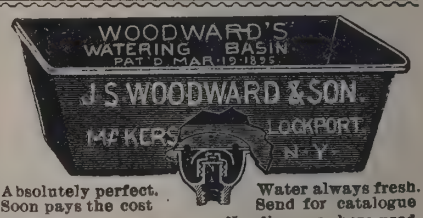
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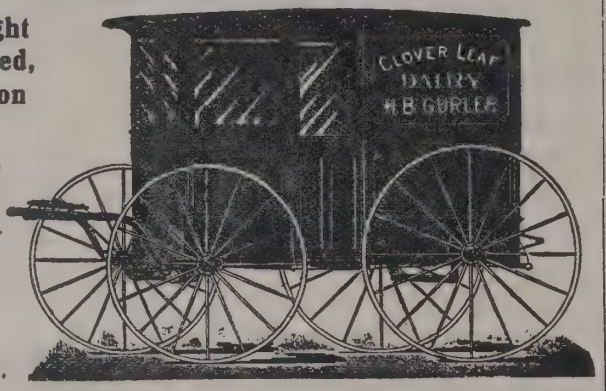


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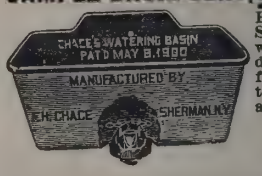
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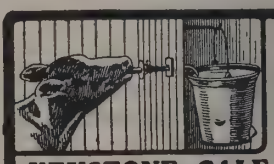


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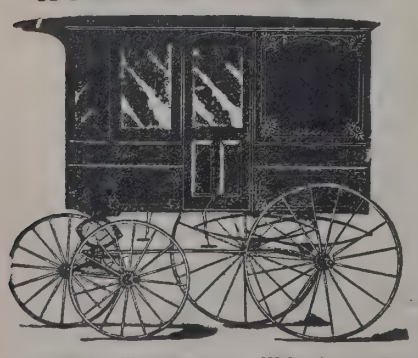
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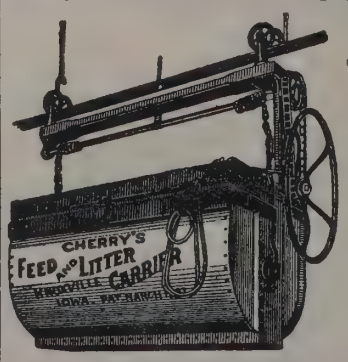
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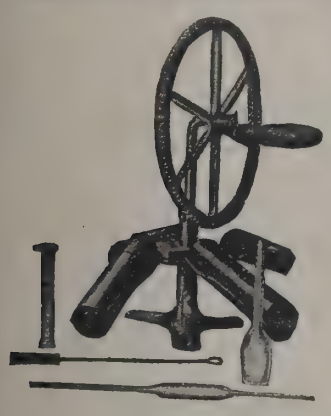


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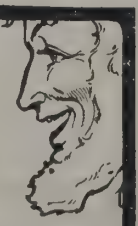
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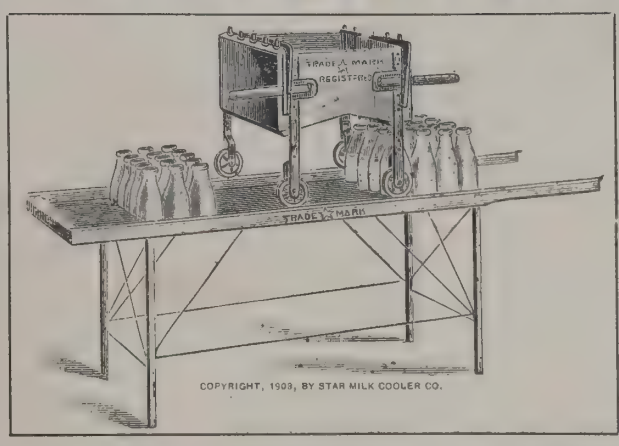


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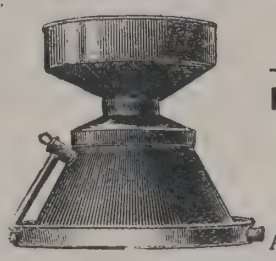
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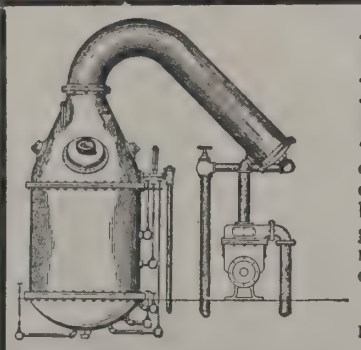
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Alfalfa Hogs.

We have recently spent a week in the Platte valley of Missouri making a somewhat critical study of two points in the agriculture of that region–alfalfa and sugar beets. We were fortunate in meeting with a number of farmers from Illinois and Iowa who keep books and scales and grow hogs on alfalfa, and can, therefore, give us some quite accurate data as to the cost of growing hogs in that way. The brood sows are kept through the winter on a ration of five pounds of chaffed alfalfa hay and one pound of corn. The summer feed of sows and pigs is from one to one and one-half pounds of corn per day and as much alfalfa as they care to eat.

Hogs grown in this way do not make as rapid gains as are made with a heavier corn ration, the gain being about one-sixth of a pound per day for the first two hundred or two hundred and fifty days, and the cost being not far from two cents per pound with corn at 40 cents per bushel. The gain reported is incredibly small.—Ed.

What particularly impressed us, however, with hogs grown in this way was the tendency to differentiate in type from hogs grown under the conditions prevailing in Iowa and Illinois, and the clover country of Kansas and Nebraska. These hogs are longer in the body, set up a little higher on their legs, partaking somewhat of the bacon type, and unquestionably have much greater vitality and disease resisting power. It will not be a great while until the term "alfalfa hog" means a different type of hog from that grown east. In fact, we believe that in time to come, when the railroads master the problem of carrying hogs through without disease, that quite a per cent of the hogs of the country will be grown west of the corn belt where alfalfa does better than it does in the corn belt, and shipped east to cattle feeders and farmers who have more corn than hogs. These hogs when put upon a heavy corn diet, whether on an alfalfa farm or off it, make very rapid gains, and we believe will make better use of corn than hogs grown on a corn ration. In fact, we are very sure of this. Theoretically it can be no other way.

We found indications, too, that hogs grown on alfalfa have much greater resisting power to cholera than hogs grown on corn and subjected to the same disease under the same conditions. Theoretically this should be true, and we believe experience will prove it.

Two points are suggested: First, that it will pay every farmer who has land near his farm that will grow alfalfa to make an effort to secure an alfalfa hog pasture next year; either alfalfa alone, or alfalfa mixed with say alsike clover, or a mixture of common red and mammoth. Where it is used as a hog pasture exclusively, this will be entirely practical. We do not think it will be desirable to do it in an alfalfa country. In fact, in that section it is found best to put not more than six hogs per acre on the alfalfa field, and then mow it regularly when it should be mown, that is, when it begins to bloom. Hogs really only make paths through that much of it and that number does not interfere with cutting a fine hay crop and thus have alfalfa fresh for the hogs every six weeks or two months.

The next point that suggests itself is, why may not the farmers do the same thing with clover? They could not get the same results, but they can get results approximate to it to some extent; that is, if they will take a year and grow their hogs and feed a pound to one pound and a half of corn, thus making the full use of clover and rape, they can grow hogs approximately as cheap as farmers can in the alfalfa country. This, of course, applies only where farmers want to grow hogs to heavy weights and take from a year to fifteen months time. It would not apply where farmers want to push hogs as rapidly as possible. In that case the full use of the clover cannot be made but they will receive enough to balance the corn ration and make a considerably better use of the corn than can be made where it is fed *ad libitum*.

There is a good deal more that could be said on this subject. We are simply giving impressions after a week's study of hog growing in the alfalfa section.—*Wallace's Farmer*.

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Soft Pork.

The South Carolina and Alabama experiment stations have observed that the fat from pigs fed peanuts was oily and had a low melting point.

According to the Alabama station this was corrected to a certain extent by feeding corn before slaughtering.

Fifty years ago in the east there were two general feeds for hogs for the pork market. One was corn and the other was distillery feed. The distillery fed hogs all produced the soft pork and a runny lard. That is, it did not have the usual firmness of corn fed pork. And it was considered the strongest recommendation if you were able to say that your pork was corn fed, as it was not believed that anything else in the feed line would make pork equal to that which was fed corn.

We know that quite a number of farmers practiced going to the distillery and buying distillery-fed hogs and feeding them four weeks on corn, and it was believed that this changed the texture and firmess of the pork, overcoming the softness caused by the distillery slop.

The beechnut, that some years is in sufficient quantities to fatten hogs, makes an oily bacon, soft, but exceptionally sweet and of fine flavor.

The Canadian experiment stations have been studying the cause which produces soft pork for some years, and they go back upon the established general belief of firmness produced by corn feeding, and state that the highest quality of firmness is produced by a combination ration—the grain ration consisting of a mixture of oats, peas and barley—and that Indian corn and beans tend to produce softness, though a large percentage of corn can be fed with a proper mixture in conjunction with skim milk, without any injury to the quality of the pork.

This is so opposed to the ideas of the general farmer, which he has found from experience in producing the home cured meats, that it will be difficult for them to believe these statements. — *American Swineherd.*

Alfalfa and the Swine Industry.

The Hay No Longer Restricted to Corn Belt —The Drouth Robbed of its Terrors.

There promises to be a revolution in the swine growing and feeding industry of the country. Heretofore there has been but one phase to the hog business, and that is, the corn belt of the country has been the hog belt, solely and exclusively, for all other sections did not grow or fatten enough porkers to supply the demands of the consuming centres Upon the corn crop of the Mississippi Valley states, therefore, depended the swine output. Gradually, as the corn country pushed its way to the west, the pork belt also followed, spreading from Illinois, Ohio and Indiana to Missouri, Iowa, Nebraska, Kansas and the Territories. When all available corn lands of these last named states and territories had been taken up, however, it seemed that the hog belt had reached its limit, for the "arid" and "semi-arid" districts of extreme Western Kansas, Colorado and the Southwest were barriers that forbid the incursions of the hog growing industry.

The barriers that seemed insurmountable, however, have proven to be all bugbears, for alfalfa has taken up the march where corn left off, and the hog is now following the hay where formerly it followed the grain. Shippers from the west tell of the immense impetus given the swine breeding business in their country since the value of alfalfa as a hog feed has been ascertained. Three years ago it used to be a standing joke—this feeding of hay to hogs—and many a green city chap has had occassion to rue his questionings along that line. Now, however, green cured alfalfa is the principal winter feed of swine in the west, and the growing plant is the chief fattener in the summer months Hogs are coming to market right off alfalfa that have never tasted grain in their lives, and they sell and kill out right along with hard corn finished swine. It has been found that sows do better with their pigs if they be kept on an alfalfa diet and not allowed to overfeed with the more heating corn. Many western farmers handle their pigs from infancy until within a month or so of marketing on alfalfa alone, and then finish the swine on grain. Others claim the latter is unnecessary, even if the pigs be allowed green pasture. The western farmer who has a fair to good crop of alfalfa need never worry about keeping his hogs through the winter in the absence of corn. Bad months may come and hold on all summer, but so long as they leave enough alfalfa for winter roughness the farmer need rush no stock to market in order to avoid its starving to death in the winter.

Alfalfa has thus robbed a drouth of its terrors and provided a new and bounteous feed for swine. The inevitable result of this is that it will cause a shifting about of the centre of hog production of the country. Heretofore the corn belt has been officially and unofficially recognized as "everything" when it came to hogs, but it would seem the day for the passing of this monopoly has arrived. Corn has long been regarded as the natural feed for swine, and there is no reason to believe that it will be entirely displaced by another plant, but nevertheless it is certain that alfalfa is looming up as an essential factor in hog production. The new plant will take its stand alongside of corn and will compete with the latter in the markets of the country. The east will no longer be able to point to itself as the Alpha and Omega of the hog business, and fear for what the country will do should it fail to keep up its output for a single year. Even should the swine belt not shift from the east to the west, it is absolutely certain that the former will have to share with the latter the honor of filling the demands of the markets of the country. It is now corn, alfalfa and pork, and not corn and pork.— *The Drover's Telegram.*

Weeds in Alfalfa.

ED. HOARD'S DAIRYMAN: — Have 2 acres alfalfa, sowed June 1st, have a fine stand but also have a better stand of weeds. What would you advise doing?
Roodhouse, Ill. A. H. B.

The young alfalfa should be clipped during the first season, whenever the weeds seem to be getting the upper hand and especially before they go to seed.

Rape and Teosinte for Hay.

Please tell me through the columns of the DAIRYMAN how late I can sow Dwarf Essex rape and Teosinte and be reasonably sure of a crop. Also tell me what is the value of each cured as hay for winter feed My corn is late and I want to sow rape in one field and Teosinte in the other, but do not need them for forage or after feed.
Palatine Bridge, N. Y. L. B D.

It is never advisable to attempt to make hay of rape.and concerning Teosinte Prof. Henry in his work on Feeds and Feeding says, "This plant is too tropical to have a forage value outside a belt bordering the Gulf." Dwarf Essex rape may be sown at any time from early spring until August in the Northern States, the seed being scattered at the rate of three or four pounds to the acre broadcast, or two or three pounds in drills 30 inches apart. The crop is harvested by turning the stock directly into the field to consume the abundant leaves and stems.



THE GERMAN AGRICULTURISTS AT THE WISCONSIN EXPERIMENT STATION

Reproduced by courtesy of the Wisconsin Agriculturist

German Farmers Entertained at Dreamwold by Thomas W. Lawson.

Costly Souvenirs Issued.

ED. HOARD'S DAIRYMAN:—Dreamwold Farm of Thomas W. Lawson, opened its gates, draped with the German and American flags to 36 members of the German Agricultural society this morning at 10 o'clock. The Germans were entertained in a royal way until sundown. One of the most pleasing features of the occasion, and one which the visiting guests considered the greatest courtesy that has been shown them since they came to this country, was a presentation of a handsome souvenir of Dreamwold to each guest by Mr. Lawson. In this, he outlined his program for the entertained and expressed his greetings.

The souvenirs were not thought of until Friday eve, but were compiled, printed, bound and ready for distributing when the guests arrived at the gates of Dreamwold.

Friday eve, Mr. Lawson received a notice of the intended visit of the delegation and straightway he dictated the text that he was to give to the printer Saturday. The souvenirs were finished this morning, 10 o'clock. It required the making and mounting of 2800 8x10 photographs, and setting up the printing 37, 10x12 forms and the assembling and binding of the printed sheets.

Speaking of the book, one of the members of the delegation, said: "It is a souvenir that will be cherished with fond remembrance of the kindness and hospitality of the master of Dreamwold." The German delegation left its special cars at Egypt Station at 10 o'clock, and was cordially received at the gates of the farm by C. C. Clapp, who in the absence of Mr. Lawson, acted as host, Mr. Lawson, who was detained in Boston by business.

GERMAN FLAGS DISPLAYED.

Across to Dreamwold, American flags were entwined with the colors of Germany. This pleased the delegation and before entering, its members stopped to admire decorations. Passing inside the gates the visitors were taken in charge by Mr. Clapp. In barges they were taken over the driveway of the farm. The trip was followed by an inspection tour on foot. The stables, where some of the finest horseflesh in the world is kept, were first inspected.

The brood-mare stables and service building, and the carriage building containing over forty different kinds of carriages, were also visited. Then they visited the dog kennels, the farm horse stable and the beautiful cow barn, the home of Flying Fox, the champion Jersey Bull, and his daughters. The herd numbered 47 head and the herdsman, P. H. Robinson, drew milk from the rudimentary teats, which surprised the German delegation. They said they had travelled over all parts of the country and the only bull they had ever seen to give milk in Germany or this country and all took snap shots at Flying Fox.

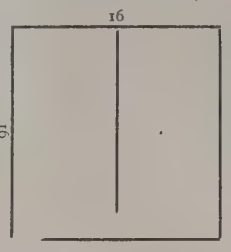
Early in the afternoon the Germans were entertained at lunch in a tent, and while they were eating, the chimes on the tower but a short distance away played, The Watch on the Rhine. The early part of the afternoon was devoted to a display of horses and horsemanship in the riding academy.

When the exhibition had nearly come to a close, the host's daughters, Gladys and Dorothy Lawson, rode in upon the Tally-ho and waved their hands to the visitors. The guests arose from their chairs and lifted their hats as the coach passed. The Misses Lawson acknowledged the courtesy by again waveing their hands and smiling. At the lunch, every visitor had been presented with a Lawson pink, which he had up to that time worn in the buttonhole. As the coach again made the circuit of the track, the Germans arose with their pinks in their hands. When the coach passed close to them, they threw the cherished flowers at the coach. Gladys Lawson caught several of the pinks as they passed. The Germans cheered and shouted, Bravo. After the horse show the visitors were entertained with horse racing on the track. The races were a source of pleasure to the Germans who sported about like schoolboys and made small wagers on the outcome of the races. The visitors left Dreamwold at 5:30 and were to leave Boston at 12:03 for N. Y., where they will stay for a few days before returning to Germany. Among those who made the trip to Dreamwold yesterday with the delegation, were Wm. T. Renick, German consul at Boston and J. I. Schulte of the American Bureau of Agriculture at Washington. P. H. ROBINSON.

Egypt, Mass.

Handling a Vicious Bull.

ED. HOARD'S DAIRYMAN:—I saw an item in last DAIRYMAN from T. F. V., Marshfield, Wis, inquiry for handling a cross or vicious bull. I have had a good deal of experience with them. I find the only safe way is a pen 16 feet square made of 16-foot bridge plank, 3 inches thick, 5 feet high, well spiked up; a door 3 feet wide of the same material, hung with good strap hinges and locked; also a partition across the middle. See diagram. With door hung you can turn bull from one to the other and clean out. We put feed in one end, turn bull in and drive him back. Let him have both pens when you please. I kept one three years in that way. He would kill a man in a minute if he could get to him.



Columbus, Wis. S. W. E.

Notes from New York.

Lessons from the Drouth. A Short Crop of Milk.

ED. HOARD'S DAIRYMAN:—The longest and earliest period of drouth ever experienced in Jefferson Co., has just passed. The meadows and pastures had become, in many instances, nearly a barren waste. The drouth was felt all the more keenly because it came when there was practically nothing to supplement the pastures except grain, and the prospect of a fodder famine made the farmers feel very discouraged. As usual in such cases the new meadows stand the drouth best, due to the fact that the humus has not become so decayed and changed to soil, so that it was capable of retaining the moisture better than the older meadows.

We shall, in the future, make it a practice of never again allowing our meadows to lie down longer than the fourth year, no matter how promising they may be. We are, in the future, going to take good care of the crops of humus to increase the moisture holding capacity of our soils. Most of our soils are strong in the fertilizing elements, but they lack humus, the one great soil sponge that holds the moisture and thereby unlocks fertility.

Never before were there so many milch cows in our immediate vicinity as at the present, and it looked at one time as though they would have to be sacrificed, but the prospects now are that there will be plenty for home use, but little for export.

Another lesson: The corn crop is a very uneven quantity. Some of it came up but hardly enough to leave for a crop. There was not enough moisture in the soil to insure germination. Now why was it? Were our methods wrong? We will never again leave the corn plots untouched until all the other sowing is completed.

We shall go over our corn ground so as to break the direct connection between the moisture in the soil and the air, and stop evaporation, so that when we get ready to sow our corn, there will be something there to make it grow. We have always practiced this method until this year, but for some reason we were not on the lookout for this early dry spell, and took too many chances. Well, we made a mistake and we are ready to acknowledge it. We shall write these two things in big letters on memory's bill board:—Never let the meadows cut more than four crops, and work over the corn ground early, to conserve the moisture.

We hear our dairymen neighbors making a general complaint that their cows are not giving an average flow of milk. I always ask them the question of why? There are always a number of possible reasons available yet they are always traceable to the dairyman himself rather than to the cows. Insufficient feed, unpalatable feed poor water, and makeshifts resorted to at the time of short pastures and water.

Constant vigilance at such times is the price of milk. A farmer must know when the feed and water is liable to get short and ought to give his attention to so important matters as these before the loss is felt by the cattle themselves. Once the cows are neglected and allowed to go without sufficient feed or water, and the fact is immediately seen in the milk pail. One cannot afford to allow his cows during any season of the year to have at their disposal anything less than a full balanced ration. If it isn't supplied to them in the pasture we ought to make up the deficiency in the stable, so that there would be no more shrinkage than naturally comes with the extension of the period of lactation.

We wonder sometimes if the readers of the DAIRYMAN really and truly understand the great underlying principles of balanced rations. We would like to hear from Dr. Kitchen on the subject. We once put this question in an institute question box: "Why is a balanced ration cheaper than one that isn't balanced" and a Cornell graduate gave us a long talk on, The Evolution of the Dairy Cow and said he "guessed that covered the question." Look up thoroughly this question of balanced rations for the cows, horses, pigs and hens and many surprises will be, yours. I don't mean just read it up but if you are sceptical try a couple of your cows with such a ration and note results.

New York. JAS. M. PLATO.

To Kill Weevils in Ground Feed.

ED. HOARD'S DAIRYMAN:—I see in your issue of June 19th, a subscriber asks for a remedy to kill weevils in ground feed and grain. Put the ground feed in an air tight box; and for 1,000 pounds take one-half tea cup of bi-sulphide of carbon; put it in an earthen vessel and set in the box on top of feed, close the lid and cover up with an old blanket; do not open the box for 24 hours, then open and leave open for 24 hours. Do not go around this box with any kind of fire or light for two or three days, as bi-sulphide of carbon is very explosive. It will not injure the feed. It will kill weevils in beans, peas, or wheat and does not injure them for food after being treated.

Groton, N. Y. W. P.

DON'T PUT OFF

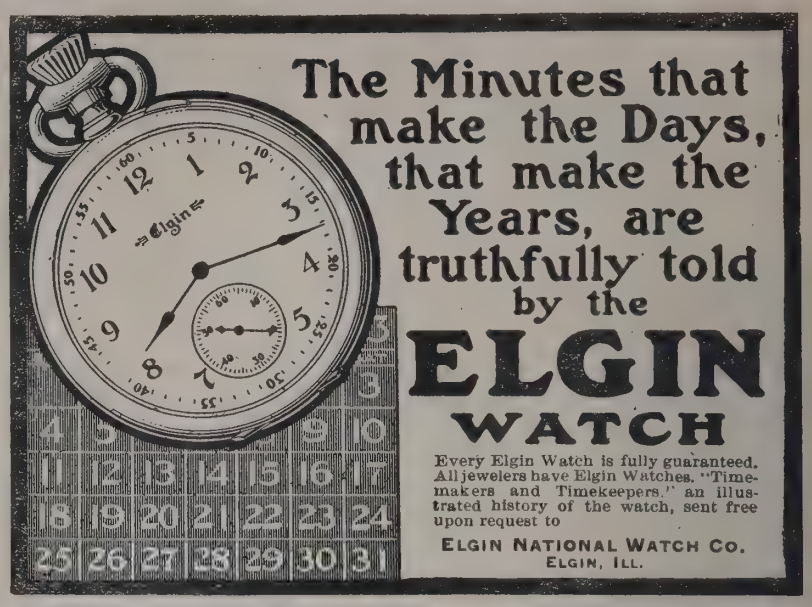
Seeing your friends and having them join in for a good club of subscribers.

An Alfalfa Query.

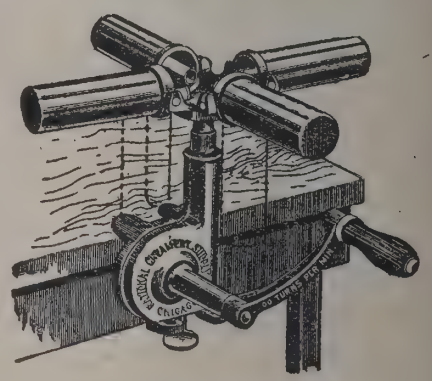
I sowed 15 lbs. of alfalfa seed on one-half acre of ground. I top dressed with fine manure and put on at the rate of 200 lbs. fertilizer per acre. As a nurse crop I put 1 bushel oats per acre. I have a good stand of alfala from 2 to 8 inches high and a very rank growth of oats about 1 ft. high. What had I better do with the oats? Leave them till in the milk and cut, or cut it sooner. I could not get it dry enough for hay now, unless it would get better weather than we have had for some time. J. W. D.

Seagertown, Pa.

We had exactly this difficulty on a few acres of alfalfa last year. The growth of oats was so large and the weather so unfavorable, that we found it impossible to cure the oats and get them off the field in time to allow the alfalfa to grow. On so small a piece of ground as this inquirer has, we advise letting the oats get fairly well headed out, than mow the field, and if the weather is not such that the oats and alfalfa can be cured properly for hay, cure them as well as you can, but be sure to haul them off the ground. Better lose this crop of hay than the seeding of alfalfa.



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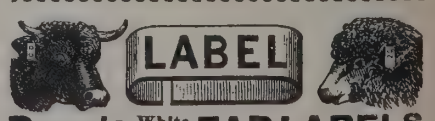


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C. H. DANA, 55 Main St., West Lebanon, N. H.

Inflammation of the Udder Among Cows.

ED. HOARD'S DAIRYMAN:—It may be of interest to inquirie into the question of contagion in connection with inflammation of the udder, or as it is commonly called, garget or mammitis.

One of the results of this disease is in certain cases the occurrence of suppuration and the formation of an abscess, and the contamination of the milk with pus. That inflammation and suppuration may be induced by the introduction of pus into healthy structures has been demonstrated over and over again, and in the case of suppurative inflammation of the udder, the experiment of injecting pus from the diseased part mixed with water, into the milk ducts of a healthy cow, has been successful in producing the disease, but so also has the injection of putrid meat juice. If these modes of transmission can be accepted as samples of infection or contagion, there can be no doubt that catarrhal, septic and suppurative forms of mammitis are all contagious or infectious.

Inoculation with any morbid products of udder disease is constantly effected by the hands of milkers, and in this way a single case of garget, ending in the formation of an abscess and the contamination of milk with pus, may lead to the infection of a number of cows, which may be milked by the man who has milked the diseased cow.

Doubtless, the adoption of the most elementary sanitary precautions would suffice to prevent the spreading of mammitis, but the milkers are not pathologists and do not realize that, because one cow is giving milk mixed with pus and blood, the animals in the same shed are likely to be infected with the same disease of the udder, from the introduction of the pus into the milk ducts by the hands of the milkers.

When the discovery is made of the spreading of garget among the cows in a shed, it is more than probable that the animals which were first affected will altogether escape suspicion. But even if, owing to a visit from a veterinary surgeon, the information is given to the dairyman that the disorder is being carried from cow to cow by the persons engaged in milking, it may be too late to repair the error which has been committed; in fact it is most probable that a considerable proportion of the cows have already become more or less infected. Nevertheless, it will be desirable to give instructions that the diseased cows are not to be milked until after the milking of the healthy cows is finished.

It might be supposed that in any case of udder disease, no matter how apparently slight it may be, the cow would be taken out of the shed, or, at least, would be left to the last to be milked. That this very obvious precaution is, however, frequently disregarded is perfectly well known.

A virulent form of contagious mammitis is sometimes met with, but it is not very general. A specific organism has been discovered in this form of the disease, and has been proved highly infective, even when cultivated and injected into the udder in a pure state viz, free from other organisms.

The mode of communication of the more virulent form of mammitis is doubtless by the hands of the milkers, as in the case of the suppurative and catarrhal forms of the disease, and in order to prevent the spreading of the malady, the affected cows should be isolated as completely as may be possible. In this connection, it may be observed that cow sheds in towns are seldom provided with space sufficient for this purpose, and the owner has to make the best of the means at his disposal.

Symptoms of the different forms of mammitis are at the outset too closely related to enable the amateur to make a correct diagnosis at once, but, as the disorder advances, the characters of each form of the malady become more marked.

In the common form, the first signs are tenderness, which is often detected by the milker, when there is very slight evidence of the disease on the surface. The milk may be tinged with blood, and some pink deposit may be found at the bottom of the vessel in which the milk has been received. Small clots may also be noticed slightly stained with blood.

Under proper precautions the disease, in the benign form, may cease with the initial stage, but, unless the milk be effectually drawn from the diseased quarters, and the temptation to avoid the trouble of doing this is fostered by the resistance which is offered by the cow, the affection may rapidly advance to the catarrhal stage. Indurated areas of greater or less extent may also appear, while the pain and swelling of the udder become more evident.

The presence of pus in the milk, with partial blocking of the milk ducts, general fever, with loss of appetite, and excessive thirst, will indicate the suppurating form of mammitis, which may go on to the gangrenous stage if not checked by proper treatment. It is under these circumstances that an extension of the affection is to be feared, and every possible precaution should be adopted to prevent the conveyance of infected matter from the diseased cows to the healthy ones.

Constitutional symptoms sometimes assume an urgent character in the most malignant form of mammitis, and among sheep the disease is often fatal.

Among the consequences of the acute and malignant forms of mammitis, blocking of the milk ducts in one or more of the teats is not uncommon. The obstruction may be of a temporary nature, but as soon as it is detected, which may be some time after its occurrence, steps should be taken to ascertain, by the use of a flexible probe or bougie, whether or not it is capable of being removed. A small portion of clot, from curdling of the milk, may easily be disposed of, but the constriction of the canal, owing to the contraction of the walls, or adhesions, which have been formed during the inflammatory process, require skilled surgical interference for their cure, and where the use of the bougie, or the trochar and cannula, has not proved effective, the amputation of a portion of the teat should be made.

Obviously some means of clearing the canal must be found, or the retained milk will ferment and lead to serious structural disturbances, involving at the least, loss of the diseased quarter. A chronic form of mammitis attended with induration and other structural changes, which progress very slowly, is another termination of the inflammatory action, either acute or sub-acute in its character.

Montreal, Can. W. R. GILBERT.

Cost of Shredding Fodder.

A correspondent of *Breeder's Gazette* wished to know about shredding fodder—the cost and how much fodder an acre will produce. James A. Parden of Iowa, gave him this answer: Most shredders charge by the hour, but a few charge by the bushel. Those that shred by the bushel generally charge 5 cents per bushel; those by the hour charge about $1.50 to $2.50 per hour. It is cheaper for the farmer to shred by the bushel. It generally takes about twelve horses to run a power on a shredder, the farmer furnishing six of them. A good many now use steam engines instead of powers. They generally run by the hour to make it pay. The farmer must furnish the band cutter in both cases. It takes three teams to haul into the machine if the fodder is close by; if not, it takes more. To about every forty bushels of corn you get a ton of fodder, and as it is worth as much as hay it pays better to shred than to seed down valuable land.

DON'T WASTE CORN FODDER.

In view of the fact that the annual crop of corn will yield some 60,000,000 to 80,000,000 tons of corn stover, all of which may be utilized, the American farmer can, if he is thrifty, save one-third of the feeding value of his crop. From this the farmer will learn the lesson that he cannot afford to waste one hill of his corn fodder. It should all be cut and shredded and fed the next summer to save his pastures for the dry fall weather which so often impairs them. With a barn or shed full of shredded fodder the stock can be kept growing all the time and will be in good condition for the feed lot or to enter the next winter.

How to Build and Pay for a Co-operative Creamery.

I wish to say a few words concerning the matter of organizing creameries. If the farmers are inclined to buttermaking rather than cheesemaking, then I say any community that supports a cow population of 400 should co-operate to build a creamery. But how shall we co-operate to build a creamery? In the first place, do not allow any of the numerous creamery "promoters" to teach you co-operation in creamery matters; they charge too high a price for the instruction and their teachings may not be correct. Very few first-class creameries are put up by these promoters, and we cannot afford second-class creameries. You have right in your midst some bright, hustling young man whom you can send to one of the up-to-date creameries of Michigan, and get just the information you are after with reference to the building of a creamery.

Now, how shall we get the funds to build a creamery? A good method is, briefly, as follows: Let 40 or 45 farmers each subscribe $100 in the form of a note bearing, we will say, 6 per cent interest; 45 such notes will furnish the funds necessary to build a first-class creamery. Hand these notes to some responsible person who can put up the cash for them, perhaps a banker. As already suggested, let some one of your number be paid a salary to get the necessary information on the construction and equipment of a creamery and allow him to proceed to build it. The cost of the creamery and the salary paid will not exceed $4,500. You will see, therefore, that you can get a creamery in your neighborhood by simply paying the interest on $100 until the creamery is paid for. A creamery, if rightly managed, will pay for itself in a few years, and will always stand as a blessing in your community.—JOHN MICHELS in *Ohio Farmer*.

"ADVERTISEMENT."

BABY WEATHER.

Little Fellows Don't Like the Hot Days.

Mothers should know exactly what food to give babies in hot weather.

With the boiling hot days in July and August the mother of a baby is always anxious of the health of her little one and is then particularly careful in feeding. Milk sours quickly and other food is uncertain. Even in spite of caution, sickness sometimes creeps in and then the right food is more necessary than ever.

"Our baby boy two years old began in August to have attacks of terrible stomach and bowel trouble. The physician said his digestion was very bad and that if it had been earlier in the summer and hotter weather we would surely have lost him.

Finally we gave baby Grape-Nuts food feeding it several times the first day and the next morning he seemed better and brighter than he had been for many days. There was a great change in the condition of his bowels and in three days they were entirely normal. He is now well and getting very strong and fleshy and we know that Grape-Nuts saved his life for he was a very, very ill baby. Grape-Nuts food must have wonderful properties to effect such cures as this.

"We grown-ups in our family all use Grape-Nuts and also Postum in place of coffee with the result that we never any of us have any coffee ills but are well and strong." Name given by Postum Co., Battle Creek, Mich.

The reason Grape-Nuts food relieves bowel trouble in babies or adults is because the starch of the grain is predigested and does not tax the bowels, nor ferment like white bread, potatoes and other forms of starchy food.

Send for particulars by mail of extension of time on the $7,500.00 cooks contest for 735 money prizes.

Empire Empire

Eight Years



Fifteen Cows

1895 1896 1897 1898 1899 1900 1901 1902

The Empire Way

Makes Cows Pay.



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Emporia, Kans., Jan. 2nd, 1903.

Empire Cream Separator Co., Bloomfield, N. J.

Dear Sirs: Have used one of your **Empire** Cream Separators for the past eight years, during which time I have been milking at all times from twelve to fifteen cows. The cost for repairs in the eight years has been only seventy-five cents. I have had experience with other separators but consider the **Empire** superior to any other, as it never caused me any bother. It is easy to clean and has proven very durable. It does good work at all times. L. H. VAHSHOLTZ, Rural Route No. 4.

The Empire Cream Separator turns more easily, is more easily cleaned, does better work, and costs less for repairs than any other, because it is the **simplest separator made.** Don't buy a separator until you have investigated the merits of the Empire.

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Empire Cream Separator Co., Bloomfield, N. J.

Western Office—FISHER BUILDING, CHICAGO.

Eight Years 75 cents for Repairs Fifteen Cows

Scott's "Perfect" Cow Stanchion

SWINGING
SELF-CLOSING
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NECESSITIES FOR PERFECT STANCHIONS

Made of hard wood—strong and durable. Price $1.00. Satisfaction guaranteed.

Write for descriptive circular.

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AND FEED TROUGH.

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Swings forward while getting up or lying down. Looks back while standing. Full particulars free.

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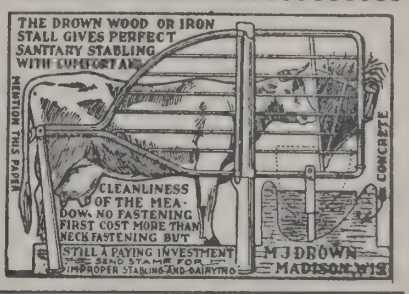


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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

THE largest single field of alfalfa in the world, comprising 5,000 acres, is in Nebraska.

IT is quite evident that there has been injected into the veins of the U. S. Revenue Department new ideas and standards as to its duty in enforcing the oleomargarine law. This, no doubt, is due to the force and influence the dairymen were seen to have in securing the passage of the law. Heretofore, the Revenue Department has paid no attention whatever to the safe-guards and regulations which the law threw about the traffic so it could not deceive the public. The officials eased their conscience by saying that their sole business was to collect revenue. But last month two men were convicted in St. Louis on the ground that they took off the wrapper that designated the stuff as oleomargarine. When arrested these men had the discarded wrapper in their pockets. Both were fined $200 and a short term of imprisonment.

As an example of building better than was expected, we have seen nothing happier of late than this item from the *Wisconsin Agriculturist*:

"Warm weather is trying weather for cows. The wife and considerate dairymen will do everything possible to add to their comfort, and consequently to his profit, at this time."

The typesetter who transformed wise into "wife" and the proof reader who failed to note the change, had no thought, probably, that the things essential for the comfort of cows are much more likely to suggest themselves to the wife than to the husband, or that the surest indication of a "considerate dairyman," is his willingness to accept and follow the advice of his wife in all those matters which make for the cows' comfort. While therefore the wise and "considerate dairyman" will do all he knows how to do for the comfort of his cows, it is also true that the combination of a "wife" with a "considerate dairyman" will do much better.

THE time is not far distant when the farmer of the middle west who is subject to the uncertainties of rainfall, will make irrigation a part of his farming operations and thereby obtain a certainty in crop growing that can be obtained in no other way.

The Wisconsin Station has been carrying on experiments in this line and reports that the cost of irrigation of the tracts used for the purposes of these experiments was $6.68 an acre, not including interest on the investment, but including all extra labor. There was obtained as a result of surface irrigation an increase of 2.5 tons per acre in the crops of clover hay; 29.95 bushels increase in corn and 83.9 bushels increase in potatoes. The figures indicate an apparently very large profit by the use of irrigation even in such a country as Wisconsin, where the rainfall is rarely seriously deficient, and where drouths are no more common than they are throughout the greater portion of the United States.

The official conclusion from the Wisconsin experiments is, that where water can be had and brought on the land without too serious an outlay, irrigation will add largely to the profits of intensive farming.

Similar experiments recently made in New Jersey have shown excellent success in the use of irrigation in the culture of small fruits and vegetables. Sandy soils, poor in plant food, which, by the use of manure alone, showed little increase in fertility, became very productive through the use of water in connection with the manure.

DR. Leonard Pearson, State Veterinarian of the Department of Agriculture, has been offered an appointment as a member of the Philadelphia Board of Health. The position carries no salary, but it will give the appointee an opportunity to render useful service to his commonwealth.

This offer of appointment is notable because it comes nearer giving milk producers representation on a city board of health than they have ever had before. It is well known that Dr. Pearson's sympathies are with milk producers and as a result of his efforts in their behalf, covering a long series of years, he has their confidence to an unusual degree. It will be remembered that, together with Dr. Gilliand, he has worked out at the University of Pennsylvania, and is now perfecting under the support of the State Live Stock Sanitary Board, a system for preventing tuberculosis of cattle by vaccination.

If Dr. Pearson decides that he can afford the time that the work of the Board of Health will require, and accepts the position offered him, it is to be confidently expected that his actions in relations to questions pertaining to the milk supply of Philadelphia will be progressive but reasonable, and in harmony with the best interests of producers of good, clean milk. As in his work for the State Live Stock Sanitary Board, he will, no doubt, wish to receive suggestions and have made known to him the observations and opinions of practical men in the milk trade. This alone will be a distinct advance, because heretofore the Boards of Health of cities have not given much consideration to the needs or wishes of dairymen.

ALFALFA FOR BROOD SOWS.

Bro. Wallace of the *Farmer* advises siloing alfalfa to winter brood sows on. Here is a bit of personal experience. Last fall the Senior editor of the DAIRYMAN commenced feeding nine brood sows on alfalfa hay and their drink. This was continued all winter, the sows keeping in fine condition. These nine sows had 78 pigs with only one "titman" in the lot, and we have raised 75 weaned pigs to the present time. We never had sows yield milk as abundantly, and never raised a lot of pigs which showed as much vigor, right from the start. The cost of wintering did not exceed $1.50 per animal. They did not receive a particle of grain food during their wintering period. There is nothing finer for the production of strong, active pigs than alfalfa hay.

THE PRICE OF COWS.

Throughout all of the dairy states east and west, the word comes that cows are unusually high. In New York and New England, good fair cows sell quickly at $50 to $60 a head. Not only are prices well up, but the fact is, good cows are scarce and hard to find. The buyers from the Elgin district look for big, beefy cows that they can feed for a few months at a heavy rate, get what milk they can and then sell them for beef. The consequence is, these buyers do not establish a market for profitable dairy cows. A cow might give 50 pounds of milk a day testing 5 per cent but if she is under 1,000 lbs. in weight, the buyer will not pay as much for her as he would for a big beefy thing, giving not more than 20 lbs. of milk testing 3 per cent. There is no dairy sense or dairy judgment or dairy progress in such a senseless condition of things. It is demoralizing in its effect. Farmers who think and act on the spur of the moment are apt to believe that the Elgin brand is the right kind of cows for a dairyman to produce. We have known of certain farmers who have followed this idea out to the extent of placing a heavy beef bull at the head of their herd, composed of cows that they had carefully bred up to a first-class stage of production. These men did not stop to consider that there were already enough poor cows in the country, and what was really wanted was a cow that would pay a big profit at the pail. There has been a marked reduction of the stock of cows all over the country owing to the high prices of beef as well as the high prices of feed. Now is a capital time for the bright, intelligent dairy farmer to turn his attention to the raising of likely grade Jersey, Guernsey, Holstein, or Aryshire heifer calves. There is nothing one can feed their skim milk to that will pay a bigger return than nice heifer calves.

TRUE THEORIES IN BREEDING.

Dr. Kitchen reasons well in the *Jersey Bulletin* of June 24 on this craze for a few phenomenal high producers in dairy cattle. He holds to sound physiological sense when he says that the transmission of desirable qualities depends not so much on the immediate sire and dam, as it does upon the *number of desirable* sires and dams that lay back of the last generation. Therefore it follows that a study of pedigree and the performance of the animals that constitute that pedigree is the supreme thing when we are looking for good producers.

The Doctor says: "An animal is produced in the likeness of what is an average of *all* of the potencies and tendencies of all its ancestry." He figures that only about one-eighth of that likeness comes from the dam on an average, and another eighth comes from the sire, "while the balance comes from ancestry more remote."

This we believe to be sound doctrine. Each succeeding father and mother are like pieces of tile adding to the channel down which flows the desired traits and tendencies. Of course it is important that constant care be had in the selection of parents on both sides, to do all we can to gradually enlarge the channel. That is all we can do. Any increase of capacity must come slowly, for if we study the channel we will find that enlargement has *always* increased slowly.

These principles should teach all men who breed dairy cattle that a study of pedigree and the performance of the fathers and mothers in that pedigree, is very important. Often we hear men say: "O, I don't care anything for pedigree; what I look after is the individual character of the animal." It is very easy to go half-dressed in this matter. Individual merit is good and important, but it is only a sign that the animal has inherited well. If the animal is to convey value, it must have as near as possible an unbroken channel of heredity in good qualities to draw upon, and the *larger* and *longer* the channel, the more likely will it be to get what we want.

This principle in breeding shows how unwise those farmers are who cross here and cross there, breaking up the line of descent all they can, under the notion that breeding is like making soup—a hodge-podge of everything.

No breed of farm animals ever was or ever can be established in that way. Nature, while very indulgent, sets bars and limitations. She works slowly but in *straight* lines, holding certain characteristics chief all the time. In cattle, the "hodge-podge" breed is but the extension of the "dual-purpose" to its final logic. If we breed to the enlargement of dairy qualities, we must hold to dairy qualities as our chief purpose.

EXPERIENCE IN ALFALFA ON HOARD'S DAIRYMAN FARM.

This year we are harvesting about 32 acres in alfalfa, and some of the things we have learned may be of service to the readers of the DAIRYMAN. It will be remembered that we have repeatedly cautioned our readers to leave a strong, heavy growth on the field in the fall, and this especially for all growers in this northern latitude. Last fall the fourth crop came on finely, and our foreman thought if it was cut it would renew again in time to afford ample protection for the winter. In one field of 8 acres in our absence he had cut around the outside, covering about five acres. On our return we asked him to leave a square piece of about three acres in the center uncut.

When spring came it was seen that the portion of the field that was cut was seriously injured, but the center showed no injury whatever. We accordingly ploughed up the cut portion, leaving the center 3 acres to the growth of alfalfa. The breaking up was another lesson. It required a team of three heavy horses, and the roots of alfalfa showed like coarse stubble all over the ploughed portion. But the effect of the alfalfa on the mechanical condition of the soil was a revelation. The ground ploughed like an ash heap. The field had been in alfalfa four years, bearing three heavy crops each year. It had never been dressed with manure, though it had had two tons of commercial fertilizers and two dressings of wood ashes. The ploughed portion was sown with a bushel and a half of oats to the acre and re-seeded to alfalfa. The stand of oats at the present time is the finest and most even that we have ever produced, some estimating a production of 80 bushels per acre. The soil is a heavy clay and appears to have been broken up to a great depth by the alfalfa roots. We estimate that the weight of roots to the acre is over six tons.

The portion remaining in the center, about three acres, has produced a very heavy crop this year, fully three tons to acre the first cutting.

From this experience we conclude as follows:

(1) In this latitude the fourth crop should always be allowed to stand on the field as a winter and spring protection, unless it is intended to plough up the field.

(2) The effect of alfalfa on the land is to greatly break up and fine the soil besides adding greatly to its fertility in the same manner, but greatly in excess of clover.

(3) As a rotation of crops alfalfa is a

decidedly economic success. We propose to go over the whole of our arable land with alfalfa, in rotation. It is vastly cheaper than barn yard manure and many times more effective. It requires 30 lbs. of seed to the acre, worth, say 12 cents a lb. This is $3.60 an acre. Can any man haul manure to the same amount of fertility that alfalfa will give for $3.60 an acre? We expect to break up 15 acres of alfalfa the coming fall for corn next spring and shall seed a like amount of present corn ground. Our experience with the carrying of nine brood sows all winter on alfalfa hay and the effect on the pig crop is recorded in another place in this issue.

A MEATY AND INSTRUCTIVE LETTER.

Sometimes we get informal letters from our subscribers which tell a very instructive story of dairy experience. The facts of human experience are always interesting to study, for often they tell us what to avoid as well as adopt.

The following excerpt is taken from a letter received from Mr. G. L. Poole, of Wellsfield, Ohio:

ED. HOARD'S DAIRYMAN:—I rented a cow, three years old, of a man last winter and gave him one-third of what her milk came to as the rental. I kept her 101 days and paid the owner as his share $42.70. Now he thinks I know a whole lot about feeding and has told the master of a neighboring grange about it, and they want me to come over some night and tell them about it.

There will be about 15 silos built in this Middlefield township this summer. We are located in easy access to Cleveland by the electric railroad.

I am in hopes I can stir up a little dairy enthusiasm and desire for better ideas here by using HOARD'S DAIRYMAN for a spoon. Anyway I shall hammer away at them on the ideas of weighing each cow's milk, looking after the cow's comfort, feeding a balanced ration, breeding to a good sire, training heifers to be persistent milkers and the greater profit in winter dairying. I am making preparations to keep 15 or 20 cows next summer, and as I only have a 56-acre farm it will require some extra work and good planning to make things come out right. I sowed a patch of oats and peas the middle of March, and June 21 I began to feed. They were 3 to 5 feet high. I measured four square feet of ground and weighed them. They weighed 15½ ounces to the foot or over 20 tons per acre. At that rate it would seem oats and peas would hustle corn to be king.

I cannot express the benefit in pleasure, as well as cash profit, I have received in studying HOARD'S DAIRYMAN. I am sorry I did not begin sooner, but as I am only 28 years of age perhaps I will have it to read a good while yet.

P. S. I wish you would have a cheese factory patron investigation taken in this locality. If I was investigated it would read something like this: Patron No. 1—Has a herd of 10 cows, grade Holsteins. Cost of keeping for one year, $34.50; milk yield, 5,636 lbs. per cow. Returns from cheese factory (8 months) and shipping milk to city (4 months) $58.91. Winter ration consists of 35 lbs. ensilage, 6 lbs. corn stover, 7 lbs. gluten feed and bran. Summer ration consists of pasture, soiling crops and 3 pounds of bran. Basement stable; moderately warm, well lighted, but no especial system of ventilation. Tight gutters, and horse manure used as an absorbent. Manure handled in the winter as convenient. Raise my best heifer calves to keep up the herd, and use *always* a registered bull. No abortion. Reads HOARD'S DAIRYMAN and agricultural papers. After selling out 3 culls, the remaining 7 cows averaged $70.18 apiece, and three of them were 2-year-old heifers.

The above statement shows what it does for a farmer when his brains, as well as his hands, are enlisted in his own behalf. Mr. Poole has not neglected the brain side of the problem. We venture one suggestion, and that is, that he purchase a couple tons of land plaster and sprinkle the horse manure in the gutters when first it is placed there. We find it very valuable.

A Vermont Barn—Suggestions for Ventilation Wanted.

ED. HOARD'S DAIRYMAN:—I have noticed articles in your valuable paper from time to time, in regard to barn ventilation but I am unable to obtain the information from the files I have, that I want. I have a new barn that will stable 45 to 50 cows, and I want to ventilate the stable as it ought to be. I enclose plan of barn and stable drawn roughly. If you can from these sketches get an idea of the barn and can give me a plan for ventilation or put me on track of such information, I will gladiy pay you for your trouble. Barns of this kind steam up badly in cold weather and the roofs fairly drip and wet the hay when weather warms up. I have put no cupola on the barn yet and will not until I decide upon a plan of ventilation.

My two hay chutes will be located as indicated in the enclosed plan, and will run well up above the level of the plates andcan be extended to the roof, if I can use them in my plan for ventilation, connecting them with the cupola. I placed them back of the center of the bays to make it easier to get the hay out. The side next to the floor will always be the highest and the location of the chute will thus make it easier to get the hay out, than if the chute was placed next to the floor as is usually done.

Franklin, Vt. C. W. GATES.

The sketches enclosed with this letter show a structure 75 feet long by 44 feet in width and provide for a basement 8 feet in the clear, and 22 foot posts above this to the plates. Apparently, it is intended to make a three-story structure, driving into the barn on the third floor, which is to be four feet below the plates. In the basement stable, the sketch shows 8 feet in width, lengthwise of the center, devoted to a feeding alley and mangers, with a row of cows fastened in stanchions on either side. The hay chutes referred to are above this alley and located about 8 feet from either end—the bays on either side of the barn floor, being 30 feet wide.

It is to be regretted, we think, that this correspondent did not consider with more care the plans for this structure. In a barn 75 feet long, there will be only about 142 linear feet for stabling cows and providing passage ways. There should be at least three of these passages on either side, each three feet wide, which will take 18 feet from our 142, leaving only 124 feet available for stalls. Unless they are considerably undersized, this will not accomodate 40 cows comfortably. We think it preferable to allow not less than 3½ feet in width for each cow, and then with a partition between each two cows, there will not be more than three feet and three inches clear space. We consider the partitions practically indispensable, although, we regret to say, they are found as yet in comparatively few stables. The absence of partitions is the prolific source of injury to udders and teats.

This correspondent seems to be of the opinion that, in some way, it will be practicable to use the hay chutes as ventilators. This is another mistake all too frequently made in barn and stable construction. They might do very well for summer use, but in the winter, in our nothern climate, the ventilating shaft should open on a level with the floor, as has been explained so frequently of late in these columns. We need pure air in the stable and a fair degree of warmth. If the ventilating flue opens at the top of the stable, it affords a ready and complete exit for the heat generated by the bodies of the animals and all the cold there is in the stable settles to the floor. With the opening into the ventilating shaft on a level with the floor, the cold and impure air in the stable is drawn off and the warmer air at the ceiling comes down to replace it. The converse of this plan applies for the introduction of fresh, cool or cold air from the outside. This should be admitted at the ceiling as far away from the cows as possible, be distributed quite evenly all over the stable, so that the temperature throughout may be fairly uniform. The openings for admitting this fresh air should not be direct from outside to inside like a window, but the exterior opening should be not less than three feet lower than the interior opening, and the two connected by a flue. Otherwise, the warm air at the top of the stable would escape through these openings, with the result that we would have a cold uncomfortable place for cows to stand and lie down.

We are in somewhat of a quandary as to the proper location for a ventilating shaft or shafts. A large central shaft, if not too much in the way, might be locaed at one end of the feeding alley and run straight up through the ridge of the barn, or if preferable, two shafts or flues could be built in opposite corners, run up through the bays to the roof, then slant and come together to a single flue through the ridge in the center. There should be not less than four square feet of cross section in these flues for each twenty head of stock in the stable. If only one flue is built, it should be not less than two and one-half feet by four feet inside measurements and this flue should be as air proof throughout its whole extent, as a chimney in a dwelling house.

If this correspondent had planned a barn only 36 feet in width by 90 feet in length, he would have enclosed the same number of square feet, but in much better shape for practical use on a dairy farm.

Alfalfa as a Fertilizer.

The great value of alfalfa as a feeding stuff, especially in the Western and Southern States, is well understood. This has been established by long practical experience and by the scientific investigations of a number of the experiment stations. These investigations have not only demonstrated its value as a feed for all kinds of stock, including pigs and poultry, but have shown the stage of growth at which the plant contains the greatest amount of nutritive material and the best ways of curing and ensiling the crop. The value of alfalfa as a fertilizer has, perhaps, not received so much attention, although a number of stations have investigated this phase of the subject. Professor Buffum, of the Wyoming Station, has shown that the crop is especially valuable for increasing the nitrogen of soils of the arid or semi-arid region for improving the tilth, and for destroying weeds by crowding them out. In experiments at this station it was found that land which had previously been in alfalfa produced $8 to $12 more value in wheat, $16 worth more of oats, and $16 worth more of potatoes per acre than land which had grown potatoes and grain before, and these "increases of yield and value were produced with absolutely no cost for fertizing the land.

The results were obtained on land which had been in alfalfa five years, the crop being cut for hay each year, leaving nothing but the stubble and roots in the soil.

According to analyses reported by the Colorado Station, a ton of alfalfa hay contains 44 pounds of nitrogen, 8.27 pounds of phosphoric acid, 50.95 pounds of potash, and 40 pounds of lime. Alfalfa is a leguminous plant, and is therefore able to draw the larger part of its nitrogen from the air, thus causing an actual increase of nitrogen in the soil. It can readily be seen from the above figures that if the alfalfa is turned under, a considerable increase in the available fertility will result, but even if the crop is removed the soil is improved in tilth and fertility by the shading of the ground and the decay of the large deep-growing roots of the plant, as was demonstrated in the experiments above referred to.—*Farmers' Bulletin No. 133.*

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Oats or Oat Hay.

Which is the best way to cut oats? Is it better to cut them green or to wait until they are ripe then cut them and have them threshed? Which would give the most milk? Our hay crop is very light this year. S. T. R.
DeRuyter, N. Y.

Under the conditions stated we should prefer to make the crop into hay.

Effect of Stirring Milk on Fat Test.

I have been told by several people that when milk is just cooled off, it should be stirred thoroughly, on account of having a higher test. Is this so or not? I take my milk to the factory, and it goes by test. J. F. S.
Haven, Wis.

Stirring the milk can have no effect on the fat test as the fat can be neither increased nor lessened by any mechanical action. The milk is stirred to aid in cooling it more rapidly, which has a decided influence on its quality when made up into butter or cheese. It should also be thoroughly mixed by stirring or pouring when the sample is taken, in order that the sample may be an accurate representative of the whole mass.

Prof. Dean's Acidimeter—The Alkaline Test.

Is the Acidimeter mentioned by Prof. H. H. Dean in article in your paper on page 376, issue of May 29th, 1903, the same Acidimeter sent out by supply houses for testing the strenght of acid for testing milk. J. L. C.
Plainview, Neb.

The acidimeter sold for the purpose of testing sulphuric acid, is an instrument for ascertaining the specific gravity of a liquid. The acidimeter proposed by Prof. Dean is an alkaline solution that is used to test the small amount of lactic acid that is found in milk and whey. Farrington's alkaline tablets or Mann's test solution are used for this purpose. These are frequently called the alkaline test because the solutions are alkaline, but they should be called the acid test as they determine the amount of acid in milk or whey.

Has Great Difficulty in Keeping Ice.

I have an ice-house that I have a great difficulty in keeping ice in. The house is 12x16; posts 12 feet; slate roof; lined under rafters to keep off heat from roof: ventilated at eaves of roof; foundation, stone 3½ feet high, laid with lime and sand. This house joins another of same size, filled in with saw dust, and has an air space of 6 inches between siding and the saw dust filling. I cover the ice heavy with saw dust. In filling the house I place poles in the bottom, cover with straw then saw dust; then it is ready for the ice. I have tried different ways of filling it: I put tile in the bottom and out through wall. Now, if you can give me any information on the matter, I would be glad to pay you for it. This building is sided up and down with matched siding. Have you any book on the building of ice-houses? C. S.
Delaware, N. Y.

There may be several contributing causes to the excessive waste of ice complained of. It is possible that our correspondent uses too much covering on the top and sides, but from the description given, we are lead to believe that the more serious fault lies, possibly, in the drain tile which leads out through the wall. Drains from ice houses should be so securely trapped as to prevent all possibility of an ingress of air from the outside to the bottom of the ice.

We have no book which treats of the construction of ice-houses.

Per Cent and Value of Butter Fat.

Kindly give me the value of butter fat.

1. One cow giving 40 pounds of milk per day, testing 5 per cent butter fat.
2. One giving 38 pounds of milk per day, testing 4.6 per cent butter fat.
3. One giving 30 pounds of milk per day, testing 5.4 per cent butter fat.

Will you also kindly give me the value of fat per day at 25 cents per lb? P. H. R.
Egypt, Mass.

The 40 lbs. of 5 per cent milk contains 2 lbs. of fat of a value of 50 cents; 38 lbs. of 4.6 per cent milk contains 1.75 lbs. fat, value 43.7 cents; 30 lbs. 5.4 per cent, contains 1.62 lbs. of fat, value, 40.5 cents.

A Foundation Wall for Silo.

Am thinking of building a silo; am going to put up one 15×30, four feet of it will be in the ground. How thick ought the wall to be, and ought it to be laid up in cement or laid up dry and plastered over with a good coat of cement? A. J. McL.
Buskirk, N. Y.

A very light foundation wall answers every purpose for a silo. Make this wall as narrow as can conveniently be laid up. If brick were used, eight inches or a foot would suffice, but if stone, it will be difficult to make a good wall less than about 18 inches wide. The wall should be laid up in mortar, not necessarily cement mortar, but plastered on the inside, however, with good cement mortar.

Rye Gluten Feed.

Will you please state in your next issue the value of rye gluten feed as a milk producer? I can get this at $18; bran at $18; gluten meal, $25; corn, $17. L. R.
North Olmstead, O.

Rye gluten feed as such has not yet found a place in any of the tables of feeding analyses. Presumably, this feed is a distillery by-product and if in good condition and thoroughly kiln dried, should make a good feed and would be relatively cheap at the price named. In buying any of these feeds with the new names, a guaranteed analysis should be insisted upon.

Plan Wanted for a California Barn.

I have read that you have published plans of farm barns, and as I want to build one about 48x 50 feet, to accommodate about 10 or 12 head of stock and storage for hay and want to do it right, I would like to get a suitable plan, and ask you to send me such sketches as will meet my want. I do not know whether your plans were published in the DAIRYMAN or in book form, but if you will send me a copy at once I will send you the money on receipt. Which is preferable for hitching cows in stalls, halters or stanchions?

Los Angeles, Cal. J. K. MOORE.

We have published a great many plans for barns in recent years, but nothing, so far as we now remember, which would seem to meet the requirements of this inquirer. Indeed, it is difficult to determine from what he has written just what sort of a structure would probably best suit him. One of the important questions would be whether this was to be a farm barn or a city barn, whether the hay to be stored is loose or in bales, whether there is to be an old fashioned barn floor or what. In a general way, we might say that a structure 48 feet wide by 50 feet long does not seem to us to present the best arrangement, and yet, it may be exactly what this inquirer wants. A stable across one end of the barn, 14 feet wide would afford stall room for his 12 head of stock and this would leave something like 30 to 32 for a barn floor, if one is needed, and a mow for storing hay. It is, however, about time that the old fashioned barn floor should be dispensed with. It was used by our forefathers as a threshing floor before the introduction of threshing machines, but in the modern barn it takes a good deal of space that might be used with more profit for other purposes.

It is quite possible that this inquirer would find valuable suggestions in Prof. King's book entitled "Physics of Agriculture." This book, not only gives plans of barns and other farm structures, but, as its title implies, contains much other valuable information concerning the problems which are continually confronting the farmer. The publisher's price of the book is $1.75, and by special arrangement, we are able to furnish it, postage paid on receipt of that amount. Rigid stanchions cannot be approved. Some form of swing stanchion or one of the stalls advertised in this paper should be used.

Where Is the Loss of Fat?

I am bringing cream to a creamery but it seems to me that I am not getting as much money out of my business as I ought to. In month of May I brought to creamery 441¼ lbs. cream; test was 27½ which gave 121 lbs. butter fat at 22½c amounting to $27.31.

I am weighing my milk at every milking and had during month 3310 lbs. milk. I took sample of milk during month, of every milking from each cow

One cow tested	3.30	giving	lbs.	milk.....	1004
" " "	3.70	"	"	"	1016
" " "	4.90	"	"	"	 636
" " "	4.80	"	"	"	 804
Total.....					3460
Used at home.....					150
Run through separator...					3310

The milk was tested by the buttermaker. Now the best way I can figure I am the looser of $2.48 but can't make out where the loss comes in unless it should be in separating.

They paid at creamery 90c for 4 per cent milk and price of butter was 20.85 cts; N. T. L.

Iola, Wis.

From the figures given, we find that the average amount of fat in this milk was 4.06%, and if the separator worked properly, should have yielded 132 pounds of butter fat in the cream. It is, of course, impossible for us to say whether the discrepancy in the actual test of the cream resulted from faulty separation or improper sampling of the cream. The inquirer should have had his skim milk tested to ascertain whether his separator was doing proper work, and this not for one or two days only, but for several days in succession. If it should be found that the separator was doing its work properly, then the manner of taking the sample and testing the cream should be investigated. By the laws of Wisconsin, it is forbidden to take cream samples with a pipette, but they must be weighed out, fully 18 grams.

If the creamery pays 90c for 4% milk, it is paying at the rate of 22½c per pound for butter fat.

Buckwheat for Silage.

Will you kindly through your valuable paper inform me if buckwheat can be successfully siloed, and if ensilage will make good feed for fattening steers and at what stage of maturity should it be put in the silo? S. K. H.

Carroll Co., Md.

We have never heard of any attempt to preserve buckwheat forage in the silo. Undoubtedly, it could be very succeesfully siloed, but just what would be the quality of the resulting silage is an entirely different problem. It would doubtless be very much like the green forage, just as corn silage corresponds very closely with the green corn as it is cut from the field, or clover silage resembles green clover. If our correspondent has had any experience in feeding green buckwheat to steers, he can form an approximate estimate of the feeding value of the resulting silage. Possibly, some of our readers may have tried putting buckwheat into the silo. If so, we should be very glad to have them report results. The buckwheat should be cut for silage sometime before the stalks get too dry and woody.

Yields Less This Year Than Last Year.

A. B. W. of Raleigh, N. C., writes as follows:

Please tell me why my cows do not improve after first calf? They have more pasture now than last year and as good feed. I feed cotton seed meal, wheat bran and cotton seed hulls, but do not get as much milk and butter.

It is perhaps natural that this inquirer should submit such a question, but probably with little expectation that we could return him a very satisfactory answer. There are a good many perplexing experiences which meet the dairyman on every hand. The quality of milk given by individual cows may vary widely from day to day, and we are yet without any means of ascertaining the cause for it in many instances. So too, cows will sometimes do extra well one season and very poor the next season and *vice versa*. As we have quoted elsewhere, a notable illustration of this variation in yield is given in the report of the Wisconsin Experiment Station, for 1900, where a cow yielding only 110 pounds of butter in one year, yields the next year 324 lbs. We cannot say that such differences are incredible because they have been observed too often to admit of any question, but they are not explainable. We cannot tell why there should be such a variation. It is a very common thing to compare the milking cow with a machine. In a sense, she is a machine, but she is very different from the ordinary wood and iron machines that are driven by power. She is a nervous entity, a phenomenon.

As a mere guess, we are disposed to think that possibly these heifers were over-worked during their first year of lactation and are recouping for this by the great falling off in yield noted this year.

The Chippewa Valley Creamery Company, at Chippewa Falls, is receiving about 4,000 pounds of cream daily and had during the month of May last, 215 patrons, all of them using farm separators. One of the instructors of the Wis-

"ADVERTISEMENT".

"DABSTERS"

People Who Do Things by Piecemeal.

Many people are convinced coffee is the cause of their sufferings and stop its use from time to time to get relief. During these periods when they are not drinking coffee they feel better. They are getting well in small installments.

How much better it is to stop short on the coffee and shift to well made Postum and get well once and for all. As soon as this is done the destroying effects of coffee are stopped and a powerful rebuilding agent is set to work. Health comes back by bounds and so long as the right food and drink are used and improper food is left alone the cure is permanent.

A lady of Readfield, Me., says: "I was always a great lover of coffee and drank it so steadily that I would have to stop it at times on account of dizziness in my head, gas in the stomach and other troubles. I would leave off the coffee for a few weeks until I felt better, then would go to drinking it again.

"I continued this for years and paid dearly for it, until about a year ago I read a Postum Cereal article and bought and carefully prepared some. It filled the place of coffee from the start so far as flavor and taste go and it has righted my stomach troubles. I have improved so that my friends notice the change. I have exchanged sickness and misery for health and happiness. Through Postum I have got well all at once." Name furnished by Postum Co., Battle Creek, Mich.

Ice cold Postum with a dash of lemon is a delightful "cooler" for warm days.

Send for particulars by mail of extension of time on the $7,500.00 cooks contest for 735 money prizes.

U. S. CREAM SEPARATOR

Excels Everything at the Kansas State College

Read carefully Press Bulletin, No. 123, issued May 26th, 1903.

The U. S. Separator excelled the five other separators in the competition, but we refer to one only in this space, viz: our "would be competitors."

De Laval average test of skim-milk, .048
U. S. " " " .033
U. S. excels De Laval - - - - .015

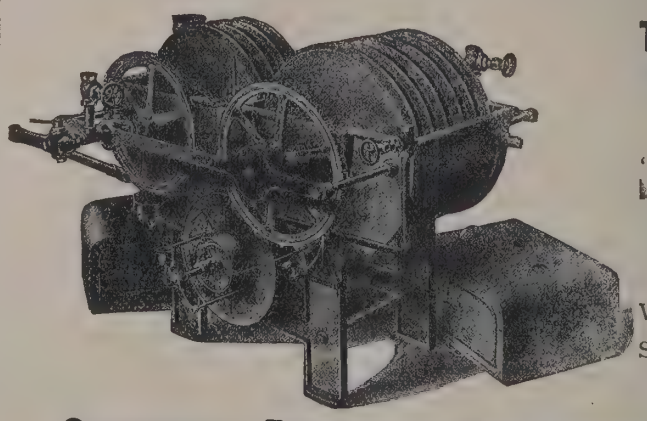
This shows that the De Laval Separator left 45 per cent more butter-fat in the skimmed milk than the U. S.

These tests substantiate former records and are continued proofs that the U. S. IS THE MOST THOROUGH SKIMMER IN THE WORLD.

VERMONT FARM MACHINE CO.,
BELLOWS FALLS, VT.

WHEN YOU SEND IN YOUR RENEWAL, SPEAK TO A FEW OF YOUR NEIGHBORS AND HAVE THEM JOIN YOU. CLUB RATES: 2 Subscriptions, $1.50; 3 Subscriptions, $2.00; 4 Subscriptions, $2.50; 5 Subscriptions, $3.00.

IT'S ALL IN THE DISCS



The Farrington Duplex Pasteurizer.

"Kills two birds with one stone." Heats and cools all in one machine. All metal. Either Belt or Turbine driven.

Write for prices.

Send for our circular on Pasteurizer for milk plant.

Creamery Package Manufacturing Co.,

BRANCH HOUSES: Kansas City, Mo. Minneapolis, Minn. Waterloo, Ia. Omaha, Neb. St. Louis, Mo.

149 to 153 East Superior St., Chicago, Ill., U. S. A.

Canadian Branch: Cowansville, Quebec.

PAGE

Our Spring Sales

prove that Page Fence quality is appreciated.
PAGE WOVEN WIRE FENCE CO., Adrian, Mich

IS THERE ANY REASON

why you should pay the dealer a large profit for selling you fence when you can buy the ADVANCE FENCE direct from our factory at manufacturer's prices? There is no better farm fence made. Entirely interwoven—no ends to get loose and injure stock or ravel out. Many heights. Circulars and special discounts free.
ADVANCE FENCE CO., 126 E St., Peoria, Ill.

BROWN

16 to 35 Cents Per Rod.

Heaviest, strongest, most durable fence made. All wires extra large. We sell to Farmers at Wholesale Prices. Coiled Spring, Barb and Soft Galvanized Wire. WRITE FOR CATALOGUE.
The Brown Fence & Wire Co.
229 Mason St., Cleveland, O.

GRISWOLD WIRE FENCE

Square Mesh, Dimond Mesh Fence, Plain, Galvanized, Barbed, or Telephone Wire. Write for illustrated catalog and price list.
DILLON-GRISWOLD WIRE CO., Sterling, Ill.

consin Dairymen's Association visited this creamery recently and reports the condition of all the cream from these separators as good. One reason for this perhaps is a little card which is furnished to every person shipping them cream, bearing on one side the following directions in regard to caring for the milk and the cream:

THE MILK.

1. Always strain your milk before separating.
2. Separate as soon as possible after drawing from the cows.
3. Feed the skim milk to the calves and pigs as soon as separating is done.

THE CREAM.

1. Always have a clean receptacle to catch the cream.
2. Cool the cream as rapidly as possible by stirring, with the can either in the cold air or in cool fresh water.
3. Note! Note! Never put two batches of cream together until each has been thoroughly cooled.
4. Weigh your cream on a good scale. Take a good sample and apply the Babcock test before shipping, and if anything looks wrong, please let us know.

On the reverse side of the card appears the following:

DEAR SIR—In presenting you with this little card, it is our object to show you briefly as possible how to make farming profitable, and where the leaks are. We urgently request you to read and study every item and judge for yourself our sincerity in working to your interests. What we know and want you to know is that the most profitable business on the farm is dairying, and it is a cash business; that the most practical and economical way is to separate your milk on the farm as soon as you are through milking; that a superior quality of butter is made from cream handled in this way. Hence the better results.

This is what we have paid for the last 6 months for butter fat: Nov., 25c; Dec., 27c; Jan. 25½c; Feb., 25c; March, 26½c; April, 24½c; Average: 25 85-100c.

Heredity and Environment.

In an address on this subject before the Missouri Improved Live Stock Breeders' Association, Benton Gabbert, of that state, said among other things:

These two great factors cover the entire field, not only in cattle, but in all plant and animal life, including the human family as well. Heredity is the transmitting of traits, both good and bad, from ancestors. This is the great law of nature. In fact, outside of collected data and personal knowledge, it is as self-evident a fact as two and two make four, for from whence or where could the offspring derive its individuality if not from its progenitors? And this law of heredity is retroactive, not the first parents giving all, but the power of transmission, running back in some instances to remote ancestors.

Take a tabulated pedigree, and you will see that the genealogical tree branches from one trunk to two forks, to four limbs, to eight branches, and on, widening, if there is no line breeding, almost indefinitely, and any one of these branches may crop out, and this cropping out, if very pronounced, is called atavism. Just why atavism occurs no one knows. The most probable solution, to my thinking, must be some corresponding environment, similar to the remote ancestors, and mating where prepotent blood lines lead back.

Nature in her great law of the survival of the fittest should teach us a lesson in breeding. The law of heredity, or the old maxim, that like produces like, has built up our pedigrees, a good law to hold to, but not infallible. We see the animal, or should, before we trace the pedigree, and if the pedigree is satisfactory, that is the animal for our herd. But with some the pedigree is first, the individual excellence of the animal second. Now the one who chooses from pedigree places too much value on remote ancestry. From my observation and experience, the culmination of heredity should be in the good qualities of the animal you are selecting; the two should go hand in hand, a good animal and a good pedigree; then you have assurance doubly sure that your animal will be prepotent; generally, prepotency can be expected only from a union of this kind.

This power of prepotency sometimes ceases with the animal; the offspring are all that you could desire, but the power of transmission does not reach to the third generation. We see this in all breeds and that family drops out of the first ranks soon enough to keep the pedigree crank from spoiling many good herds, but, as a general rule, the prepotent animal transmits the same qualities to the offspring, and they breed on and on; then pedigee becomes a talisman for a good animal.

We now reach a problem in breeding that is a difficult one to solve, one about which our best breeders differ, one which the most successful breeders practice, yet most all breeders condemn. I refer to lines of breeding, or breeding animals of same blood lines so blended that some tabulated pedigrees have the same blood lines in most every cross. In starting the pure-bred herds of all the breeds, inbreeding was resorted to from necessity in forming a type. Even now it is closely follwed by some breeders making a type, so that any good judge can pick out in a large show ring the different breeders' cattle, by type. There is much to be said both for and against line breeding.

The best herds have at their head some great sire, with his sons and grandsons in service. In fact, I cannot now recall a noted breeder either at home or abroad who has changed his herd bull every two years, or one who has bought his cows in preference to raising them, that has succeeded in reaching the top or in establishing a distinct type.

Out-crosses generally help the first cross, but subsequent crosses deteriorate. For this rule we have no less authority than Darwin. We think the same rule holds good in breed lines; that is, in crossing families of the same breed; but if these families nick I would seek no farther, but would prefer these two families rather than try a third family. I would term the inter-crossing of these two families, line breeding. In-breeding I would define as taking a great sire and breeding in-and-in with his progeny. This process produces some very superior individuals, with a great many not so good.

We condemn this course of line or in-breeding more from our prohibiting by law such relations in the human family than from an observance of Nature's teachings. The wild animals in a state of nature necessarily in-breed, yet we have some fine specimens.

The wild horse, through the survival of the fittest, keeps the herd in splendid form. The best stallion, in their stampedes from wild animals, is followed by the fleetest mare; with vicious bite and heels of fire he guards his harem, until the young son, more robust, takes his place.

When we consider environment, it is so closely allied to heredity that the proper treatment of a herd makes environment almost the parent of heredity. Were it not so, there could be no progress. The fine herds of today owe their superiority to proper handling for generations. It is the selecting and mating of the best, and giving those feeds judiciously that build up a healthy animal, that transmits environment.

Environment can, through necessity, model the form. Darwin tells us that the long neck of the giraffe came by selection through environment. The giraffe is a habitant of Africa where severe drouths occur every few years. The herbage is burned up and the giraffe feeds upon the leaves of the trees; those with the longest necks alone survive; these in turn meet succeeding drouths, and this gave the giraffe his elongated neck. I am more and more convinced, from reading and actual observation, that more herds retrograde from being under-fed than from being over-fed. We hear criticisms from our best farm journals against the practice of over-fattening our show animals, yet the fat animal nine times out of ten goes to the front; and I make this assertion and, if you think awhile, I believe you will agree with me, that the herds that are most successful at the fairs have for herdsmen the best feeders and fitters. In fact, in the beef breeds we expect fleshing qualities. The general verdict of the ring side is always for the animal in perfect bloom. The feeder's art has been taxed to the utmost to bring the animal to perfection, and if he fails, the fault is lodged against the animal and not the fitter. Between a perfect form in a skeleton, and rare fleshing qualities with a lack of symmetry, we would always take for a feeding steer the fleshing qualities.

ARMSTRONG & McKELVY Pittsburgh.
BEYMER-BAUMAN Pittsburgh.
DAVIS-CHAMBERS Pittsburgh.
FAHNESTOCK Pittsburgh.
ANCHOR, ECKSTEIN } Cincinnati.
ATLANTIC, BRADLEY, BROOKLYN, JEWETT, ULSTER, UNION } New York.
SOUTHERN, SHIPMAN } Chicago.
COLLIER, MISSOURI, RED SEAL, SOUTHERN } St. Louis.
JOHN T. LEWIS & BROS CO Philadelphia.
MORLEY Ceveland.
SALEM Salem, Mass.
CORNELL Buffalo.
KENTUCKY Louisville.

YOU may have had occasion to use White Lead in one, two, three or five pound cans and found it unsatisfactory.

If so, it was because it was not Pure White Lead, but some Mixture of Zinc and Barytes (principally Barytes) labeled "White Lead." If you want Pure White Lead be sure the package bears one of the brands named in the list.

If interested in paint or painting, address

National Lead Co., 100 William Street, New York.

Did You Ever Keep a Record Of Your Cows?

IF SO, you have felt the need of a convenient, simple and handy Record Sheet. We have had so many requests for these Record Sheets that we concluded to get up one that would "fill the long felt want." We have a very simple and complete Record Sheet for 10 cows, one month, that is printed on heavy Manilla Paper, we can send postpaid at following prices:

Price 5c Each	6 for 20c	12 for 30c	25 for 50c

SIZE 10x16 INCHES

We also have a one cow Record Sheet, heavy Manilla paper (one month) that we will mail postpaid

Single Copy 5c	5 for 15c	10 for 25c	25 for 40c

SIZE 6x15 INCHES

HOARD'S DAIRYMAN.
FORT ATKINSON, WIS.

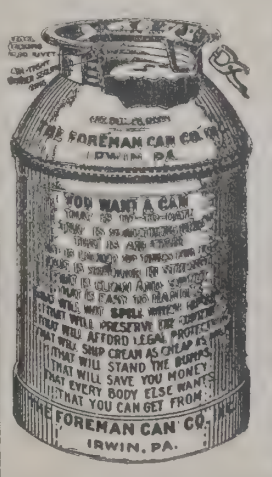
"COME in the evening or come in the morning, when you're looked for or come without warning"—



You'll always find your Tread Power ready for business. OF WHAT OTHER FARM MOTOR—Wind Steam or Gasoline—can this be said? A PERFECT GOVERNOR ensures absolutely even speed. Send for free catalogue.
St. Albans Foundry & Implement Co., St. Albans, Vt

READ OUR LATEST OFFER
TO PRIZE WINNERS ON BUTTER AND CHEESE.

First and Second Prize Winners on Butter and Cheese at the Six Months' Educational Contest held by the Government will receive the Culture free for one year if users of THE O. DOUGLASS IMPROVED BOSTON BUTTER & CHEESE CULTURES. Samples and instructions free. NO SUCCESSOR. Send all orders to O. DOUGLASS, 25 John Street, Boston, Mass.



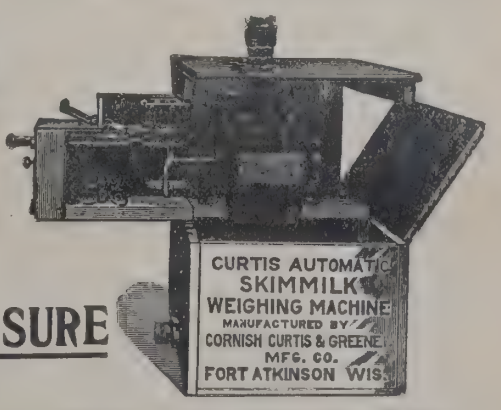
We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity—1000 cans daily, which should enable us to fill all orders promptly.
Every can sold on a guarantee.
Write for Circular H.

Skim Milk

Often goes to the wrong man for the simple reason that the patrons have no standard of

WEIGHT or MEASURE

and the last man suffers.



☞ FULL DESCRIPTIVE CIRCULAR FREE.

Cornish, Curtis & Greene Mfg. Co.,
Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.
Agents for....
DE LAVAL ALPHA SEPARATORS.
Fort Atkinson, Wis.

A Colorado Feeding Problem.

Fly Pest Remedies.

ED. HOARD'S DAIRYMAN:—Under separate cover I am sending you a sample of the grain I am now feeding. It is shipped in from Nebraska and is supposed to be the albuminous part of corn mixed with oats. I like it well and prefer it to corn chop. Am also feeding with it linseed meal.

Can you formulate me a ration with this and cotton seed meal or linseed meal and all the alfalfa the cows will eat? In your issue of June 26th, page 474, I notice a table by Mr. H. E. Cook. It seems to me that ½ ton cotton seed meal to 1½ tons chop is a very heavy feed. I am milking 36 cows and feed about 400 lbs. grain per day. Practically we have no pastures and depend upon feeding in summer much as in winter. This mixed feed costs me about $1 per hundred; cotton seed meal and linseed meal $30 per ton. Mr. Cook's table looks good to me and I want to find out if you would advise putting in a ton of bran to increase, as he says, the bulk and ash content.

Perhaps you will find on examination of this chop that I require neither the linseed nor the cotton seed meals.

If there is any expense attached to analysis, or in any other way, let me know and I will remit by return mail.

Do you take any stock in the fly-killer advertisements in your paper? If so, kindly let me know and I am willing to try anything if it will only keep away the flies. G. McC.

Denver, Colo.

We have no appliances for making analyses of feeding stuffs and do not think it advisable to provide such appliances, or even to act as intermediaries in securing analyses of feeding stuffs from other States, as this is a matter which should be attended to by the Agricultural Colleges and experiment stations, each for its own State.

The final test of every feeding stuff is determined by its use and the effects produced. If on trial this mixed feed or by-product is producing better results than could be had with the same amount of money invested in pure corn chop or ground oats, or other feeds obtainable in Colorado, there is no reason why it should not be used.

With plenty of good alfalfa hay, one does not need to look elsewhere for feeds like cotton seed meal, linseed oil meal and others containing large proportions of protein. Alfalfa hay contains practically all of the protein needed, and if the cow could eat and digest enough of it to supply sufficient nutriment for maintenance, and the production of milk in profitable amounts, no grain would be needed. But as she cannot do this, we think it advisable to add some more concentrated feed. Theoretically, ground corn would be the most appropriate complement to feed with alfalfa hay, but ground corn is too concentrated to be fed alone, and therefore, should be diluted, or, as we sometimes say, extended, with bran or chaffed hay or straw or oats. The only necessity we see for using linseed meal would be for its hygienic effect, if any was needed. This can only be determined from time to time by careful watching of the herd and its individual members.

We should consider 400 pounds of grain per day to 36 cows, extra heavy feeding and probably more than could be made profitable. Doubtless, some cows in the herd could eat grain at this rate and return a good profit, but it would be a very extra herd indeed that could take, on an average, 10 lbs. of grain per day. In other words, cows should be fed as individuals and no more be given to any cow than she could give a good account for in the pail. This implies the careful weighing of the milk every day and keeping a record of it that can be referred to in connection with the amount of grain fed.

In regard to the fly repellents advertised in our columns, we can only say that we have tried some of them with very great satisfaction. Whether they would answer a similar purpose with the fly pests in Colorado, we cannot say, but we apprehend that any one of these advertisers would be more than willing to send a sample at wholesale rates for trial.

Some Florida Feeding Problems.

The Protein Problem and Cotton Seed Products.

ED. HOARD'S DAIRYMAN:—One of the best grain feeds we have for this climate is distillers dried grain. It is bulky, as well as palatable. All kinds of stock eat it with a relish. Being kiln dried, it keeps very much longer in this climate than our mill feeds.

We bought last February in Southern Kansas a car load of alfalfa hay, and we find difficulty—in fact, we have not been able to compound a balanced ration. While feeding alfalfa, both our grain and hay are so high in protein that instead of 1 to 5.6, we can only get 1 to 4 in feeding the quantity we think necessary. We give our milch cows all they will eat, which is about 8 lbs., per day, of hay, with a pasture run of Bermuda grass, but the pasture is small for so many cows, and that does not cut much of a figure in the feeding problem.

With distillers dried grain at $30.00; feed meal, $26.50; wheat bran, $24.50; cotton seed meal, $26.50; cotton seed hulls, $9.00; alfalfa hay, $23.00, let us see how you would formulate a ration that will be both economical and wholesome and yet be a balanced ration. Our cows are Jersey grades, medium size, averaging 8 quarts. Most of them calved in mid-winter and due to calve late next fall. One fresh, calf one week old, is giving 35 lbs. on 8 lbs. grain and about the same amount of hay. She gave 7,500 lbs. in eleven months last milking period.

We sell part of milk from the wagon at 10 cents; make remainder into butter for which we net 30 cents. While making butter, we cannot feed to exceed 6 lbs. of cotton seed hulls per day, and a half pound of meal. If we do, it shows very readily in the butter. Hulls are worse than cotton seed meal.

I am often surprised to see it noted by correspondents in DAIRYMAN the amount of cotton seed meal given to milch cows. When I can get my protein as cheaply from any other source, and I am not making butter, I do not feed a particle of cotton seed meal. I would not knowingly buy a cow that has been fed regularly the amount of cotton seed meal I see mentioned. It is a very constipating feed, and I consider it unwholesome for all kinds of stock. It will produce milk and lots of it, but at the expense of the animal when fed to exceed two pounds daily, especially in this warm climate of ours. The distillers grain is laxative in its nature, and so bulky and easily digested that it has everything to recommend it, if you are feeding something that needs protein to balance the ration.

As a rule, those who have feed to buy are not careful enough to find the feeding value of what they are buying. I do not know what the rules of chemists are to figure values of protein and carbohydrates but using the same unit for all, will show the comparative value, and by using the table of digestible protein and carbohydrates we can easily know if we are getting value received, when on the market to buy.

Manufacturers of by-products issue leaflets frequently, showing relative values and the article they are selling is in large black type. I enclose such an one from a Cotton Oil Co., and of course cotton seed meal stands No. 1 according to the showing they make, and cotton seed hulls stand 37th on the list of 50 kinds of feeding stuffs. Hulls differ very much in their feeding value. It all depends on the amount of seed left in them. When we are retailing all of our milk, we can feed 8 to 10 pounds per day to advantage, but not so when a part of our milk goes to butter

I limit my ration of grain for every 8 quarts of milk not to exceed 7 lbs. grain; 30 lbs. milk and over, 12 lbs. grain.

Florida. E. W. AMSDEN.

The doctrine of balanced rations, like many other theories and doctrines, may easily be carried too far, so far in fact, as to become predominant when it should be only subservient. When one is sure his animals are receiving sufficient digestible protein to supply the specific demands for that specific nutrient, he need not be concerned about the further composition of his ration, except as it may affect its cost. Protein will serve the same purposes as carbohydrates, and when it costs no more per pound of contained digestible nutrients, it may be substituted in place of carbohydrates, without regard to the nutritive ratio of the resulting combination.

A North Carolina Barn.

ED. HOARD'S DAIRYMAN:—I am about to build a dairy barn 30x60 feet with ceiling 8 feet high, for 20 cows facing outward. Should I make the building tight and use the King system of ventilation? The mercury seldom ever reaches zero here, and 20° above is considered cold. I have never seen any barn in this state, not even the barn at the Agricultural College, that had any means of ventilation except by windows. If you advise the use of King's system, please tell me how many intake and outlet flues I should have in the building.

I value your paper very highly and would not think of being without it.

Statesville, N. C. J. H. B.

If the plans already formed have not progressed too far, we unhesitatingly advise this correspondent to increase the width of the proposed barn at least four feet so as to give not less than 32 feet width, inside measurement. This is none too much for two rows of cows in any climate, and more especially, none too much for the climate of North Carolina.

As we have so often observed in regard to stable construction, similar principles apply as in constructing a dwelling house. More and more, we are coming to understand that cows need comparatively the same degree of protection from heat and cold and foul air that human beings require. The South has banked altogether too much upon climate, for statistics show, that a larger per cent of the cattle, for example in Louisiana, die from exposure to storms and cold than in Minnesota. A brief and transitory experience in the South in the early 60's convinced the editors of HOARD'S DAIRYMAN that the Southern climate is fully as trying as the Northern climate, that there are violent and pronounced changes in temperature, and that, as a rule, the dwelling houses in the South are more uncomfortable during the winter than the dwelling houses in the North.

We are, therefore, decidedly of the opinion that it would be a profitable investment for this correspondent to adopt the King system of ventilation in its entirety. He should also provide an abundance of windows, as well for letting in light as for admitting the cooling breezes of summer, if the stable is used during the warm months.

There should be about four intakes for fresh air on each side, but one large flue, two feet square will answer for drawing off the foul and cold air.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Highest Butter Records.

ED. HOARD'S DAIRYMAN:—Will you please publish in the DAIRYMAN the highest butter records for one week held by Jersey, Holstein, Guernsey and Ayrshire cows? G.

Middletown, Del.

We place so little confidence in these weekly records as determining the quality or value of a cow, that we make no effort to preserve a list of them. Experience has demonstrated over and over again that the cow making the largest amount of butter in seven days very rarely gives the highest annual yield. The large weekly records are usually made under so high a pressure that it would be almost sure death to continue it for a year. They, therefore, are in no sense an indication of the normal productive capacity.

We happen to be able to refer to the latest book of butter tests issued by the American Jersey Cattle Club and we find there the cow, Princess Second, credited with having made 46 pounds and 12 ounces of butter in seven days. This was a so-called official test made in 1885. We are not justified in saying that this cow did not make this amount of butter, but we may say, with great propriety, that the evidence submitted does not convince us, nor so far as our acquaintance extends with Jersey breeders in general, does it convince them, that any cow at any time or under any circumstances, yielded this amount of standard commercial butter in seven days.

The largest Holstein record, accepted by the Holstein-Friesian Association as officially authentic, was made a few weeks ago by the cow, Sadie Vale Concordia, owned by McAdam and von Heyne Deansboro, N. Y. Her yield as reported was 24.5 pounds of fat. At the time it was made, the rules of this Association authorized the addition of 25 per cent to the amount of fat for estimating the butter yield, and the cow was, therefore, credited with a yield of 30 lbs. 10.2 ounces of butter. Since that time the rules have been changed, so that in estimating butter from butter fat, only one-sixth is added. For records of Guernsey cows, write W. H. Caldwell, Secretary American Guernsey Cattle Club, Peterboro, New Hampshire? and for Aryshires, write C. M. Winslow, Secretary Ayrshire Association, Brandon, Vt.

A writer in a recent issue of the *Jersey Bulletin* regrets that breeders do not have any accessible means of "racing" their heifers-in-milk, or older classes, against each other in competitive butter tests for premiums or sweepstakes, just as breeders of trotting and running horses have competitive speed tests. In other words, this writer seems to lament that dairy cattle cannot be made to pander to the gambling instincts and furnish one more opportunity for winning or losing large sums of money.

We are very far from joining in this regret, and this, not for moral considerations only. The dairy cow is kept for use and the profit she may return on the farm from year to year, and it is no indication of her ability in these respects that, under forced draft, she is able to make a large daily or weekly record. On the contrary, it is the ability to keep everlastingly at it that makes her worth, just as the roadster is a more valuable horse for service than the racer.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The Quotation Committee of the Elgin Board of Trade decided on 20 cents steady as the market price of butter.

The New York market is steady at 20½ cents; receipts 17012 tubs.

The output for the Elgin district 834,600 pounds.

Hampshire offered 50 tubs and Woolverton's bid of 19 cents did not effect a sale. H. C. B.

	Tubs sold.	*Price*
June 29 '03	55	20½c.
June 30, '02	0	21½c.
June 24, '01	0	19c.
June 26, '00	100	19c.
June 26, '99	207	18c.

DAIRY MARKETS.

ELGIN, Ill., July 6.—Butter—Ruled steady on the Board of Trade this afternoon, selling at 20c a pound, the same as last week. The sales for the Elgin district were 834,000 pounds.

CHICAGO, Ill., July 6—Butter—20 firm.

Eggs—15¼ firm.

Cattle—Prime beeves, 1,200 to 1,500 pounds, 5.25@5.40; choice to extra steers, 4.80@5.20; fair to good export and shipping steers, 4.60@4.80; medium beef steers, 4.35@4.55; plain beef steers 4.10@4.25; common to rough, 1,000 to 1,200 lbs. 3.75@4.10; good to choice feeders, 3.85@4.75; poor to plain stockers and feeders, 2.80@4.00; fair to good cows and heifers, 3.10@4.40; good cutting to fair beef cows, 2.25@3.00; common to good canning cows 1.30@2.20; bulls, poor to choice, 3.20@4.20; veal calves, good to fancy, 5.00@5.75; calves, common to fair, 3.00@4.75; corn-fed western steers, 3.85@5.25; Texas bulls and grass steers, 2.75@3.70; Texas steers, fair to common, 3.80@4.60.

Hogs—Good to prime heavy shipping 5.70@5.80; good to choice heavy packing 5.55@5.70; plain to choice heavy mixed 5.50@5.65; selected butcher weights 5.65@5.80; assorted light, 150 to 195 lbs. 5.80@6.00; thin to choice, 50 to 130 lbs. pigs 5.75@6.20; stags and rough lots, 4.00@5.50.

MILWAUKEE, Wis., July 6.—Butter—Creamery—extras, 20c; firsts, 17@18c; seconds, 15c, process (renovated) 16@17c; Dairy, fancy, 17c; lines, fresh, 14@15c; packing stock, 13c; whey, 10@12c; grease, 5@6c.

Cheese—American, full cream—New Twins, 10½@11c; Young Americas, 11@11¼c; Daisies, 11@11¼c; Longhorns, 11¼@12c; low grades, 9@10c; Brick, fancy, new, 9½@10c; low grades, 8@9c; Limburger—Fancy, old, 10@10½c; low grades, 6@8c; new, fancy, 9@10c; off grades, 7@8c; Swiss, old, drum, choice, 15¼@16c; drum, No. 2, 13@14c; Block, choice, 14@14½c; block, No. 2, 12@13c.

Eggs—Strictly fresh laid, at mark, cases returned 13¼; dirties and seconds, 12c., checks, 10c.

MONROE, Wis., June 27—Cheese—Today's quotations: New, round Swiss, 12@12¼c; new block Swiss, 11¼@12c; new brick, 9¼c; new Limburger, 8½c. 1902 cheese of all kinds sold out.

APPLETON, Wis. July 6—Cheese—Sales, 88 Cheddars and 862 Twins at 10c; 65 Twins at 10½c; 90 Twins at 10¼c.

PLYMOUTH Wis., June 30-Cheese-20 factories offered 3,604 boxes of cheese, of which 410 Daisies were passed on. The balance sold as follows: 238 Longhorns at 11⅛c, 131 at 11c; 979 Daisies at 10¾c, 758 at 10⅝c; 313 Twins at 10¼c; 526 Young Americas at 11c, 59 at 11⅛c. Market steady, active and firm.

FOND DU LAC, Wis., July 6.—Cheese—Sales of cheese at dairy board today: 140 Twins at 10½c, and 467 Daisies at 10⅝c. Market steady.

WASHINGTON, D. C. July 6—Butter—Market steady. Extras, 21@21½c. Fancy firsts 20@21c; renovated, 19c.

NEW ORLEANS, La., July 6—Butter—Market quiet;extras, 21⅛c;firsts, 19½c; ladles, 16c.

TOPEKA,Kan.,July 3—Butter—Creamery butter, 20@21c; dairy,17c.

Cheese—Longhorns,11c; Daisy 11c:Daisy Twins 10¾c; Prints, 11½c.

LIVERPOOL, July 6—Butter—Good United States steady, 75s.

Cheese—dull. American finest, white 50s, 6d; colored, 51s, 6d.

BOSTON, Mass., July 6—Butter—Creamery western extra, 21c; western firsts, 20c; dairy, 16@20c; imitation creamery, 17@18½c; ladle, 15@16½c; box and print, 16@21½c.

Cheese—Choice, 10½@11c; Wisconsin Twins, 10¼@11c.

Eggs—Nearby, 22@23c; western selected, 16c; fair to good, 14@15c; Illinois, 16c; dirties, 12@13c.

PHILADELPHIA, Pa., July 6—Butter—Steady, fair demand; extra western creamery, 21c; nearby prints 22c.

Cheese—Dull and easier; New York full creams, choice new, 10¾c; fair to good new, 10@10½c.

Eggs—Steady, good demand: fresh nearby, 17c: loss off; western, 16½@17c; southwestern, 16c; southern, 15@16c.

ST. LOUIS, July 6.—Butter—Slow; creamery, 15@21c; dairy, 15@17c.

Eggs—Lower, 13c loss off.

KANSAS CITY, July 6.—Eggs—firm; Missouri and Kansas, cases returned,11½c doz.; new No. 2 white wood cases included, 12c.

Butter—Creamery, 17@19c: dairy, fancy, 18c.

NEW YORK, July 6—Butter—Receipts, 17,012 pkgs.; market barely steady; state dairy,16½@20c; extra creamery,common to choice, 16½@20c; factory, 14@16½c; renovated, 13@17c; imitation creamery, 16@18c.

Eggs—Recipts,13,330 pkgs.; market steady; state and Penn., 15½@18¼c; western extras, 18@18½c; western, seconds to firsts, 15@17c.

Cheese—Quiet. Receipts, 9,627 packages; state full cream, fancy, small white and colored, 10¼c; large, white and colored, 10¼c.

WATERTOWN, N. Y., July 3.—Cheese—Sales, 6,000 large at 9¾@10c; small, 10@10½c.

CANTON, N. Y., July 3—Cheese — Offered 56 boxes large, 2,577 Twin and 1,473 tubs of butter. Large and sold at 9¼c; Twin 10c; butter, 20¼c.

UTICA, N. Y., July 6.—Cheese—Eastern and foreign advices have had a depressing effect on the market; 3,000 large white and colored sold at 9¾c; 2,000 small, 9¾c; 1,200 small, 10c.

NEW YORK MARKET.

NEW YORK, July 3.—Butter — Receipts for the week, 63,234 packages. Exports for the week, 418 packages.

The price for extra creamery dropped to 20½c immediately following our last report, and although receipts were very liberal and far in excess of one year ago, there has been enough trade from all quarters to keep the market steady and price on this quality is firm at the close. Special fancies sold to the grocery trade at a small premium, while speculators paid quotations for large lines of "Extras", and this was the heaviest week of the season for the storing of freezer butter.

We note sales of several full parcels of New York State and Western Creameries at 19 to 20c. There is more New York State Dairy offering; quality, however, is ordinary and the selling prices are 16@19c. Ladle butter is dull and prices favor the buyers. We quote:

Creamery, extra, 20½c: medium, 19@20c; poor, 15@18c; Dairy, extra, 19@20c; medium, 16@18c; poor, 14@15c.

Cheese—Receipts for the week, 35,311 boxes. Exports, 6,771 boxes.

Market is fairly active and steady. Sales of finest small cheese to home trade at 10⅝, and large sizes for export at 10¼c.

Some of the receivers refused to sell at these prices and put their cheese in "Freezers" for later markets. Good inquiry for best light skims, while lower grades sell slowly at irregular prices. We quote:

Full cream, small, extra, 10⅝c; medium, 10@10¼c; poor, 8@9¾c; large, extra, 10½c; medium, 10@10¼c.

Eggs—Receipts for the week, 58,828 cases. Fine fresh stock is all wanted at full prices. All other kinds are in full supply at easier prices. We quote;

New York & Penn., strictly fresh, per dozen, 19@20c: Northern & Western, best marks, 18@18½c: all Sections, poor to good, 13@17c.

177 Chambers St. DAVID W. LEWIS & Co.

BALTIMORE MARKET.

BALTIMORE, Md., July 2—Butter—The firm feeling noted in our last issue on creamery has subsided to a large extent, and buyers have been very exacting in their demands, both as to quality and price, consequently up to the present time there have been but few sales reported of long lines: several lots that were limited in price have gone into the freezers; the local consumptive demand keeps up unusually good for the season, hence the market keeps pretty well cleaned of all desirable extras and firsts. Seconds are very slow sale, and this grade is accumulating quite rapidly. Imitation creamery—The receipts are daily on the increase; the demand is confined principally to fancy stock. Ladles—The supply is fully equal to the requirements; there is a very close discrimination in regard to quality. Packing stock continues in liberal receipt; all fresh, sweet invoices meet ready sale, while off stock is slow sale, and concessions have to be made in order to prevent accumulations. Blocks and prints continue in full supply; all stock impregnated with garlic has to be sold at reduced prices. The general market closes quiet but steady.

Creamery Separator, extras, 21½c; firsts, 20@21c;seconds, 18½@19½c. Ohio Store packed, extras,—c; firsts, 13½c; seconds, @13c. West Va. Store packed, extras,—c; firsts,13½c; seconds,13c. Creamery blocks (2-lb.) extras, 22c; firsts, 21c; seconds, 19@20c; Creamery prints (¼ lb) extras, 23c. firsts,21@22c; seconds, 19@20c. Md. Va., & Penna. Prints, extras, 21c; firsts, 20c; seconds, 18@19c.

Eggs—The conditions of the market so far this week have been rather unsatisfactory; while the receipts in general are moderate, they are about equal the requirements; the demand is confined chiefly to strictly fancy stock; this kind will always command top prices, while stock of doubtful quality is hard to move at reduced prices. Be sure to examine your eggs carefully before shipping, and ship in cases only; the market in general closes quiet at 16 cents, and lower prices are looked for.

Cheese—The receipts are fully equal to the requirements; the market rules quiet but firm.

N. Y. State—Cheddars, fine, 10¾@11c; choice, 10¼@10½c; fair, 9@9½c, Flats, fine, 11@11½c; choice, 10½@10¾c; fair, 9½@10c; Small, fine, 11⅛@11¼c; choice, 10½@11c: fair, 9½@10c; Ohio Flats, fine, 9½@10c; choice, 8¾@9c; fair, 8@8½c; O. Picnic, fine, 10@10½c; choice, 9¼@9½c; fair, 8½@9c; Swiss Cheese, (domestic) fine,15c;choice, 12½@13½c; fair, 9@11c.

301 Exchange Place. G. M. LAMB & BRO.

NEW YORK FERTILIZER MARKET.

Nitrate of soda		2 00	@ 2 05
Blood, Dried red	℔ unit	2 55	@ 2 60
low grade		—	@ —
Concentrated tankage		15 00	@16 00
Fish guano, dried		24 50	@25 00
acidulated		22 00	@23 50
Acid phosphate		60	@ 67½
Phosphate rock, f. o. b. Char'n		5 00	@ 7 00
Tenn		3 00	@ 4 00
Bones, rough	℔ ton	16 50	@17 50
ground		19 00	@20 00
Bone meal		19	
Bone black, refuse		18 00	@19 00
Potash, dbl. m're salt 48@53 per cent		1 12	@ 1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons		25 00	@30 00
sulph of basis, 90@98 per cent		2 11	@ 2 18
90@98 per cent less than 25 tons		38 00	@40 00
Potash muriate ℔ 100 lbs		1 83	@ 1 95
less than 25 tons		36 00	@40 00
Kainit 25% S. of P	℔ ton	9 30	@ 9 50
less than 25 tons		9 50	@10 50
Sylvinit, 35@37% P	℔ unit	41	@ 46

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale--Registered Guernsey Bull, 4 months old. W. J. DAWSON, LaCrosse, Wis.

A Good Permanent Position for the Right Man.—Qualifications: Sober, industrious, good command of the English language and knowledge of newspaper work in stock and dairy lines. Duties: Assist in editorial and office work. Address J. B., care Hoard's Dairyman, Fort Atkinson, Wis.

Wanted—Second-hand outfit for condensing milk. Address X. Y. Z., care Hoard's Dairyman. 22-2

For Sale—A second hand, self-feeding, 16 inch Smalley Ensilage Cutter in good order, together with 56 feet of carrier, 18 feet of which was new last year Also a three horse Smalley Tread Power in good condition. The above will be sold cheap to make place for larger machinery. W. D. HOARD, Fort Atkinson, Wis. 20-tf.

For Sale—First-class dairy farm of 256 acres, one-half mile from city limits of River Falls, Wis. 245 acres in crop and pasture; balance woodland. Fine buildings, creek and spring with milk-house. Call, or address the owner, MARTIN MURPHY, River Falls, Wis. 21-4

For Sale—One 6 month old Jersey bull calf, pure bred, well marked. Price on cars $30.00. Enquire W. H. RODDIS, of Roddis Veneer Company, Marshfield, Wis. 21-2

For Sale—Milk route, horses, harness, wagon, separator, cans, tickets, etc. A nearly new and very complete outfit. Present net earnings about $150.00 per month. A splendid business opportunity. Apply to JOHN L. FISHER, Hayes Block, Janesville, Wisconsin. 21-3

Will Sell gr. son Stoke Pogis and Ida of St. L. Dam tested 17 lbs. 4 oz. E. W. MOODY, No. Andover, Mass. 21-2

Two choice young Guernsey bulls for sale. MRS. A. W. LEHMANN, Neosha, Dodge Co., Wis. 12-sp

Wanted—A position as working manager of a first-class dairy or creamery. Have had 10 years experience in creamery and dairy work. Best of references. Address 309 Broadway, Macon, Mo.

For Sale—2-year-old Holstein bull; his dam is by a son of DeKol 2nd, who gave, under supervision of Cornell University, 536½ lbs. milk and 26.56 lbs. butter in 7 days, and his sire is by a son of Pauline Paul the champion butter cow of the world, 18,669 lbs milk and 1,153 lbs. butter in 1 year. Price $125. Speak quick. WIS. LIVE STOCK ASSOCIATION, Appleton, Wis. 22-sp

For Sale—Or will trade for good farm. A first-class grocery with established cash trade in best residence district in Chicago. Only best land will be considered. Will pay cash difference. EDWARD G. WIDMANN, 8 and 10 East 47th St., Chicago. 22-2

Good Dairy Farm and Route For Sale. near Gettysburg, Pa. Good chance to give family a college education at little expense. For further particulars address W. F. G., R. F. D. No. 12, Gettysburg, Pa.

For Sale—Fine litter Scotch Collie pups. Write for price. R. C. SNAVELY, Hudson, Ill.

Holstein-Friesian Bulls For Sale—Strong in the blood of the Duchess Ormsby family. Price from 20 to 35 dollars. For particulars address H. SCHAFFER & SON, R. R. No. 1, Appleton, Wis.

Macon County, Missouri. Farm For Sale.—80 acres good land, well fenced, plenty small fruits; two-story 8-room frame residence, front and rear stairs, large halls, cellar 16x32; barn 42x60 with 12x60 leanto. All in meadow and pasture. Residence within 100 yards of depot just outside corporate limits town of 600, 4 miles of coal mines two thousand miners. Place to start a creamery. Six are shipping cream 75 miles away. Price $75.00 per acre, one-third down balance 5%. Write for particulars. CHAS. H. MARMADUKE, Callao, Mo. 22-4

Wanted at Once—Experienced churn room helper in large factory. Must be active and capable of doing hard work. When writing state age and salary expected. We run Sundays. FARMERS CO-OPERATIVE DAIRY ASSOCIATION, Rusk, Wis.

Wanted—To buy a second-hand separator. Must be in good order. Prefer a Tubular. H. M. GRUBB, 1519 8th Ave., Beaver Falls, Pa. 22-tf

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 1901

A POINT

To Creamerymen Regarding Farm Separators.

A well-known and up-to-date Western creameryman, located in a territory where there is a growing demand for Farm Separators, aptly said a short time since at a gathering of fellow creamerymen:

"I have chased the agents for 'lightning-rod', second-class cream separators out of my territory by selling the patrons myself the best and only kind of a cream separator to buy—the **De Laval** machine."

Experienced creamerymen generally are doing the same thing where Farm Separators are wanted by patrons, thus holding and satisfying their patrons and protecting their business against the inroads of "centralizing" pirates and the "lightning-rod" separator cohorts associated with them.

This is a matter of vital importance to many creamerymen and one they are making a serious mistake to delay over.

The De Laval Separator Co.

Randolph & Canal Sts., CHICAGO.

1213 Filbert St., PHILADELPHIA.

217-221 Drumm St., SAN FRANCISCO.

GENERAL OFFICES: 74 Cortlandt St., NEW YORK.

121 Youville Square, MONTREAL.

75 & 77 York Street, TORONTO.

248 McDermot Avenue, WINNIPEG.

Position Wanted—A northern dairyman, graduate Wisconsin Agricultural College and of life-long experience, desires position in charge of up-to-date southern dairy. Am an expert feeder and butter maker and thoroughly understand retail milk trade and all other departments of dairy work. A No. 1 references. E. O. THORSGAARD, Valdosta, Ga. 22-2

For Sale—Two granddaughters of Exile, 20 and 21 mo's. old; served. 3 solid color St. Lambert bulls. Three 4 and 6 mo's. old, sire a double Gr. son of St. Lambert Boy sire of 54 tested cows. J. A. HERR, Lancaster, Pa. 21-4

For Sale—One 100 lb. Embree Worker; one 150 gal. Reid Box Churn; one 1000 lb. De Laval Separator; one 8 horse power engine and boiler (on wheels). Address JAMES S. BIGGS, Rocky Ridge, Md. 19-4

A Registered Guernsey Bull 15 months old for sale. A very fine animal. Inquire of J. S. HUNTER, Pickett, Wis. 12-tf

Fine Dairy Farm for Sale—Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence. cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. T. S. TOMPKINS, Pasadena, Cal. 15-tf

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

Wanted—Position in dairying business by single man (38) familiar with Babcock test, Buttermaking, Separators. Boilers and Engines, etc. Also the care and feeding of dairy cows. Address D-5, care of HOARD'S DAIRYMAN. 20-tf

Wanted—An up-to-date man of 20 years experience wants to rent a good sized dairy or stock farm, with stock, up-to-date buildings and equipments, tools, teams, etc., or will accept position as manager. Understand all machinery to run an up-to-date farm or dairy. Married and have family. Adr. "Van" General Delivery, Sleepy Eye, Brown Co., Minn. 20-tf

Very Low Excursion Rates to Musical Festival, American-Swedish Singers, at Minneapolis, Minn.—Via the North-Western Line. Excursion tickets will be sold at reduced rates July 20, 21 and 22, limited to return until July 27, inclusive. For particulars apply to Agents Chicago & North-Western R'y. 22-3

Excursion Rates to Ashland, Wis.—Via the North-Western Line. Tickets will be sold at reduced rates July 13, 14 and 15, limited to return until July 17, inclusive, on account of Wisconsin Elks' Annual Meeting. Apply to agents Chicago & North-Western R'y.

Excursion Rates to Monona Lake Assembly at Madison, Wis.—Via the North-Western Line. Excursion tickets will be sold at reduced rates July 21 and 22, limited to return until August 7, inclusive. Other dates of sale on certificate plan. Apply to agents Chicago & North-Western R'y. 22-3

Very Low Rates to Detroit, Mich.—Via the North-Western Line. Excursion tickets will be sold July 14 and 15, with very favorable return limits, on account of I. E. L. Convention. Apply to agents Chicago & North-Western R'y.

"Short Jaunts for Busy People" is the title of a handsomely illustrated booklet issued by the Chicago & North-Western R'y, briefly describing nearby summer resorts, with information as to summer hotels and boarding houses, railroad and hotel rates, etc. Sent on receipt of 2 cent stamp. Address W. B. Kniskern, Passenger Traffic Manager, Chicago. For rates, tickets, etc., apply to agents Chicago & North-Western R'y. 18-sp

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Special Excursion Rates—The North-Western Line will sell low rate round-trip tickets to Fond du Lac and intermediate stations, good every Sunday until Sept. 27, 1903. Apply to agents Chicago & North-Western R'y. 21-7

Buff Jersey's latest book on Farm Stock and Dairy Work is full of practical things for practical people. The Silo, how to build and fill; ensilage, its value; soil, crops, variety and how to grow. Swine, poultry and many other subjects ably treated. Send 25c for copy. Monmouth, Ill. 47-tf

Very Low Rates to California and Return—Via the North-Western Line. First-class round-trip tickets on sale July 1 to 10, inclusive, to San Francisco and Los Angeles. Favorable limits and stop over privileges and choice of routes. The overland limited, most luxurious train in the world, leaves Chicago daily at 8 p. m. Less than three days en route. Drawing room and compartment cars, observation cars, dining cars, buffett-library cars (barber and bath), electric lighted throughout. Three trains a day from Chicago to the Coast through without change. Daily and personally conducted tourist car excursions to California, Washington and Oregon. For particulars apply to ticket agents Chicago & North-Western R'y. 16-7

Fourth of July Excursion Rates—Via the North-Western Line. Excursion tickets will be sold at low rates to points on the North-Western system within 200 miles of selling station, July 3 and 4, good returning until July 6, inclusive. Apply to agents Chicago & North-Western R'y. 20-3

Very Low Rates to Denver, Colorado Springs, Pueblo and Return—Via the North-Western Line, July 1 to 10, inclusive, with final return limit until and including August 31, 1903, account of C. E. Convention. Stop over privileges and choice of routes. Side trips can be made at reduced excursion rates to various Colorado points, to the summit of Pike's Peak, to Ogden and Salt Lake City, (to Yellowstone National Park, from Denver, only) and to San Francisco, Los Angeles, etc. Low rate excursion tickets to Colorado also on sale daily, limited for return until Oct. 31. For particulars apply to ticket agents Chicago & North-Western R'y. 20-3

Observations after an Eastern Trip.

Clarifying and City Milk Supply.

ED. HOARD'S DAIRYMAN:—Upon my return here I found some inquiries by mail, called forth by my remarks in HOARD'S DAIRYMAN of June 5, page 400 and 401, regarding clarifying and pasteurizing. Having had several verbal inquiries on the same subject, it may be as well to reply in HOARD'S DAIRYMAN if room can be found. On my late trip I had several confirmations of my views on that subject.

"Shall I clarify?" "Shall I pasteurize?" are questions frequently asked both by milk dealers and milk producers, and I always answer: "That depends." At the Ohio State Dairymen's Convention the question was asked: "What was the difference between a horse and a hobby?" Answer: "A horse you can get off of, a hobby you can't." This was a special hint for my benefit, applied to pasteurization, and I appreciated it rather as a compliment, because I think it as fine a hobby as I ever rode in my boyhood days. But for all that, I can get off for a little while on special occasions. And I shall, therefore, first say a word about when I think clarifying by separator should be done and when not.

WHEN IS CLARIFYING NOT NEEDED?

Of course I speak especially regarding milk for city supply. Now, when a dairyman can give such careful attention to details in producing milk at his own private dairy, that such milk comes up to the high standard of purity required by the various "Milk Commissions" to be labelled "Certified," then such milk should be so free from impurities, that when left undisturbed in a bottle for twelve hours, no sediment whatever will be found at the bottom.

Every ambitious dairyman should frequently make this simple test for his own satisfaction. If any sediment is found, then he better mend his ways, or clarify. I have frequently examined bottles sold with certified milk which did contain sediment, and while all such dark accumulations in the milk are not necessarily poisonous, still they prove a lack of such especial care as is implied by the word "certified," which then becomes a delusion and a snare. I was pleased to see that Mr. H. B. Gurler, who certainly has carefully investigated as to what would be injurious to milk used for infant feeding, is very positive that no injury can be done to the character of milk by running it through a separator, even when not necessary for purifying purposes, but merely in order to have an exact fat per cent in the milk, and if we cannot have clean milk in any other way, I think all such doubtful milk rather should be run through a separator to remove all visible impurities, which always are liable to injure the milk in some way if permitted to remain in it Every dairyman producing milk for direct consumption, can soon find out how clean his milk is.

To decide whether a "Pure Milk Co." should "clarify" all milk collected from a number of dairies or not, I suggest this rule: Better to keep dirt from getting into the milk, than taking it out afterwards! Now, if such a Milk Co., depends on its supply from a limited number of dairies and said dairies belong to a rather cleanly class of farmers within such limited distance from the milk plant in town that they as a rule haul the milk themselves, then I advise that said company, before starting operations, make an effort to induce all these patrons to milk their cows in such a way as to furnish milk as free from dirt as possible, and besides paying for all milk according to fat percentage, also to give special premiums to such patrons who for the whole month have supplied the cleanest and coldest milk, and "dock" those whose milk has not been up to the standard for cleanliness and cooling.

In that way we may succeed in a few places, to get milk so clean that clarifying becomes unnecessary. While such ideal, general supplies for a city or town will be exceedingly rare, still no efforts in that direction will ever be wasted, and will necessarily bear fruit by a gradual improvement of the whole milk supply. Now I shall mount my "hobby" again.

WHEN IS PASTEURIZING NOT NEEDED?

When a dairyman not only gives his personal attention to the most cleanly methods in milking and handling of the milk, but also has such ideal sanitary conditions of stables, cows and employees, as to make it possible and practical to produce an ideal, pure milk, every day in the year, and also to make sure that the milk is handled and delivered in such careful manner as to reach the consumer in perfect condition. We should add, that even such ideal milk is too frequently deprived of its excellence by careless handling and exposure by the customers themselves.

During my eastern trip I had full confirmation of my views, that such milk is, and will continue to be, very scarce. There is very little increase in the supply of such truly "certified" milk, because the much increased cost of production makes the sale price so high that very few people are willing to pay it, even though they are able.

The great mass of people who rear the most children, and who especially need a better milk supply, will never get this ideal "certified" milk, and if they shall have a uniformly wholesome milk, such must be supplied by an entirely different method.

WHEN IS PASTEURIZATION NEEDED?

From all my observations in towns or cities in the East and Middle West, I have come to the conclusion that the places are very scarce indeed where proper pasteurization would not effect a most beneficial improvement in general supply of both milk and cream for cities and towns. It is an undeniable fact, that in every city, where pasteurization is being more generally introduced, a constant and gradual improvement of both milk and cream is taking place.

The best confirmation of this assertion may be found in the circumstance that no dealer, who once has properly adopted pasteurization of his supply, goes back to the old way! And those who at first only pasteurize the supply from one source, gradually adopt it for all. It may be asked if pasteurization is of such advantage, why then do not dealers more rapidly adopt it? The reason is simple enough: A great majority of dealers do not have such control of their supplies as to compel pasteurization at the shipping depots, neither are their present facilities in the cities such as to make a change in their whole system easy.

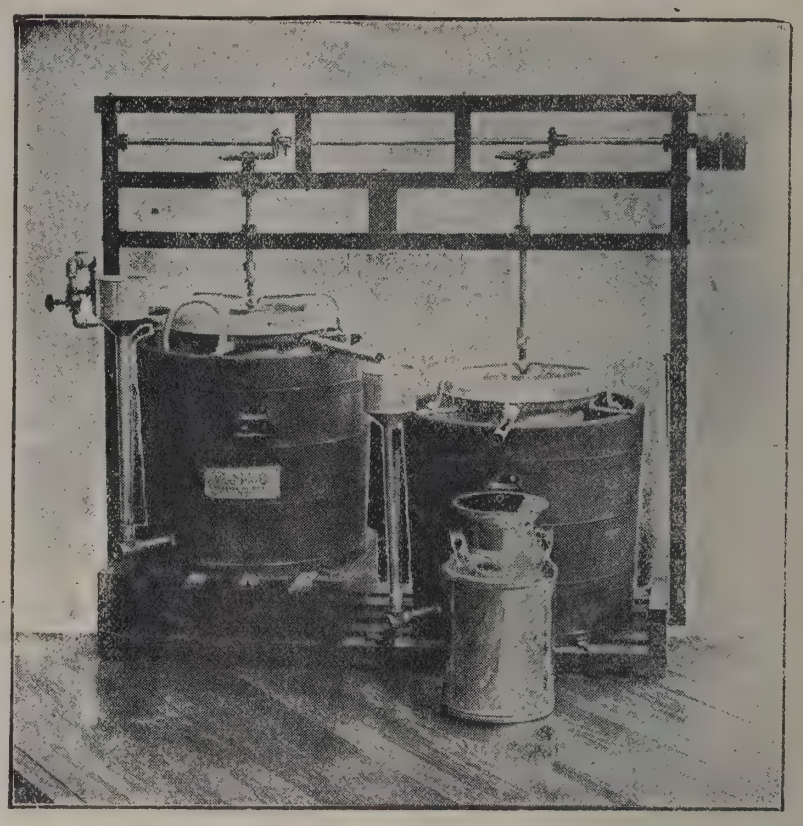
Before they can realize benefits and profit from such a change, a considerable expense is necessary; those who have ample means are reluctant to make the change, until they are fully convinced of the financial advantages to be gained; others, who would like to make the change, lack the means to do it properly, and have to wait, or combine with others. But this comparative slowness in a general adoption of pasteurization, I think will in the end prove most beneficial to the consuming public, and to the milk producers as well.

If every one who just took a notion, could at once try pasteurization for a while, too many would go into it carelessly and without sufficient knowledge of all the details necessary for successful, proper pasteurization. Dealers have by this time found out that the old makeshift methods of so-called pasteurization will not answer, and such have almost disappeared. If we want an improvement, we want it right. The public always takes slowly and suspiciously (can we blame them?) to every new "fad", or what they suppose to be such, and it is no wonder that so much prejudice exists both among the general consumers and physicians, against so-called pasteurized milk.

PHYSICIAN'S OPINION REGARDING PASTEURIZATION.

We hear a lot of talk about physicians being opposed to pasteurization, especially by milk dealers who are not ready to adopt it, and by a few narrow minded private dairymen, who fear that a general adoption of pasteurization of milk for city supply would lessen the demand for an ideal raw milk, for which they even now find it difficult to find a steady market at the higher prices made necessary by its expensive production. With all my enthusiasm regarding pasteurized milk I am still convinced that there will always be a good market for truly "certified" milk; while on the other hand

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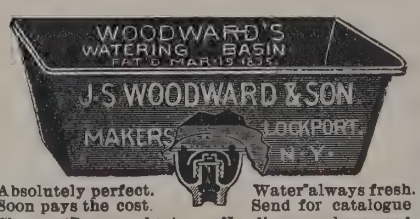
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not only makes easy work of getting out the manure, but by the way in which it breaks it up and makes it fine, it more than trebles the value of the same. It will break up and spread evenly, manure that cannot be handled with a fork. It doesn't matter how hard, lumpy, caked, strawy, or stalky the manure is, this machine will spread it. It makes fine, well rotted manure go a long ways in top dressing wheat in the spring, meadow lands, pasture, etc. Being mounted on broad faced wheels, it can be handled on any kind of ground without serious cutting in or rutting. Can spread back and forth, as front wheels turn entirely under. Can be turned on the ground it stands on. 1903 machine has our new **Beater-Freeing Device, Apron-Returning Device** and numerous other improvements. Send for latest catalogue (free) and read about these and other advantages and also about **"How to Grow Big Crops."** Remember that the only original and genuine Kemp Manure Spreader is made by us and the patents thereon have been fully sustained by a recent decision of the U. S. Circuit Court. KEMP & BURPEE MFG. CO., BOX 46, SYRACUSE, N. Y.



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Pure white Porcelain. No rust, no filth, no splashing. D. H. Bausman, Bausman Lane. Co., Pa. Iron, Pig, Chick, and Stock Troughs.

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most certainly a genuine improvement of the general milk supply by pasteurization will gradually do away with all "sham" sanitary and certified products.

On my late trip I called again upon a number of the best known physicians connected with health boards and milk commissions in Washington, Philadelphia and New York and found none of them opposed to pasteurization provided only good, clean milk is used for such purposes. They also all agreed, that whatever method of pasteurization destroys disease germs and lactic acid germs, without changing the natural character of the milk, is the most desirable method; all also emphasized the importance of a method, by which all milk was treated absolutely uniformly, so that both physicians and consumers would feel assured that milk and cream received one day would be just as pure and safe every day in the year. This lack of uniformity in the product, so commonly caused by older (and some late) processes, is today the one hindrance to the introduction of pasteurization.

We constantly hear it repeated that physicians do not believe in pasteurizing milk for infants. Now if there were any real foundation for this opinion, then certainly we should not have heard so much again right lately, regarding the saving of so many little lives by the distribution of pasteurized milk from the many various charitable milk depots; nor would Nathan Straus' gifts of outfits of nursing bottles, etc, for pasteurized modified milk, have been accepted with such great gratitude by the charitable milk commissions for Philadelphia and Chicago.

If pasteurized milk is good for the babies, it must be good for all, and while few take as good care of their stables, cows and milk as the Walker-Gordon Co., still about half the milk prescribed for infants by physicians is today ordered pasteurized to a temperature of 160° or 170° for 30 minutes, about the same as used in Mr. Straus' laboratories—which prolonged heating of course causes far more change in the character of the milk, than when such is rapidly heated to only 160° or 162°, and rapidly cooled below 40°, the whole process only requiring 1½ minutes. Whenever I have explained this matter to physicians, they invariably become much interested, and desirous of an early opportunity to personally observe the work done in this manner. I can also assert that a number who have acquainted themselves with the modern process, have been most agreeably surprised and have a very different opinion regarding pasteurizing from what they had before.

TO PRODUCERS OF CERTIFIED MILK

who look upon pasteurization as their enemy, I wish to say, that I know at least 3 of the most careful producers of such milk, who endorse and recommend the best modern method for continuous and rapid pasteurization and cooling. Mark it, these are all men who don't believe in sham work of any kind, who know there is always room at the top, and who never oppose anything that will help to improve the general supply of milk. They are Mr. R. A. Pearson, General Manager of the Walker-Gordon Co., in New York City; Dr. Geo. B. Chapman, who personally superintends the production of certified milk at his dairy farm at Dover Plains, N. Y.; and H. B. Gurler, who produces certified milk for Chicago at his private farm, but who also, as Pres. of the DeKalb Dairy Co., pasteurizes all milk collected from the various farms supplying milk to said company. This is what I like to "rub in," that there should be no antagonism between certified and pasteurized milk, but that on the contrary they fill two distinct needs, and should be sold side by side by the same suppliers and from the same wagons. The saving of wasteful expense in the delivery of certified milk by itself is obvious.

EXPENSES OF PASTEURIZATION.

The variety of opinions regarding cost of pasteurization is easily explained. The largest and best known firms invariably say that any extra expense incurred is far outweighed by the saving from losses of souring surplus. Once in a while we hear some late beginner say that it costs too much for ice. Why is this? Simply because the first necessity for economizing ice, or artificial cooling, is an ample supply of cold water. If we depend on water from a creek or pond, it will be cold only as long as the weather is cold, but when summer arrives such water gets too warm.

Whoever wants to pasteurize most economically, should try to supply sufficient water from a well or spring. The colder and more abundant the more saving in the ice bill. In a city where a refrigerator plant is operated in connection with the milk plant, this economy is less important than where we depend on ice for cooling. Still even in cities I advise the boring or driving of a well, which always will pay.

In no case do I advocate "clarifying" milk (collected from several dairies) for cleaning purposes, without subsequent pasteurization. Any milk containing impurities and sediment to be removed by any method of "clarifying," unavoidably also contains an excess of a variety of germs, which need destroying by pasteurization. While "clarifying" frees milk from visible particles of dirt of all kinds, still experiments frequently have shown that the keeping quality was lessened instead of increased.

I close by asking any readers to write regarding any point where I have not been sufficiently clear, and I shall reply as far as I am able in HOARD'S DAIRYMAN.

J. MOLDENHAWER.

Canton, Ohio.

Notes from the St. Louis Exposition.

F. D. Coburn, Chief of the Department of Live Stock, of the Louisiana Purchase Exposition, has arranged for a total of over 26,000 prizes in the classifications for horses, cattle, sheep, swine, poultry, etc., for the World's Fair show next year. These are unprecedented in amount and are divided among twelve breeds of beef and dual-purpose cattle with 2,352 prizes; four breeds of dairy cattle, 560 prizes; nineteen breeds of horses, 3,458 prizes; eleven breeds of swine, 2,772 prizes; fourteen breeds of sheep, 2,548 prizes; 375 varieties of poultry and pigeons, 10,300 prizes; fifty-seven breeds of dogs, 2,604 prizes. There are thirty-two additional prizes for single cows and herds entered in the dairy demonstration; five for oxen; fifty-five for mules and 1,310 for the estimated displays of pet stock, vehicles, etc.

Provision has been made for five cash prizes and two honorable mention awards in most sections except poultry. The final arrangements of the classifications may still further enlarge the number of prizes offered.

Up to the present time that feature of the World's Fair at St. Louis pertaining to live stock has been designated as a "section," a title which erroneously seemed to indicate that it was a branch or subordinate feature of some other department.

This has now been changed by the management and Mr. Coburn will hereafter be officially known as "the Chief of the Department of Live Stock." The Exposition has added much to its popularity in making live stock an independent department and giving it a separate Chief with a prize fund of $250,000. This substantial recognition will do much to attract attention to the great St. Louis enterprise and secure the hearty co-operation of stockmen, fanciers and others interested. This is the first World's Fair to give live stock the prestige and rank of a department with an independent Chief, and the great extent and high character of the live stock exhibits already assured the World's Fair, confirm the wisdom of this liberal policy.

An entirely new departure decided upon as a leading feature of the live stock awards at the Louisiana Purchase Exposition, is the premier or sweepstakes championships for each breed. These are intended as grand prizes to recognize both the skill of the breeder and the enterprise of the exhibitor. It is proposed to give a premier championship award to the breeder making the best showing in each class, the showing to be determined by the largest aggregate amount awarded to animals bred by the breeders represented in that class. The premier award to the exhibitor in each class will be made on the same basis.

The large amount to be offered for prizes and the consequent breadth of the classifications and the world-wide character of the shows will make the premier championships at St. Louis an exceptional honor, certain to be strongly competed for and highly appreciated by the exhibitors as well as breeders of the prize animals.

Live stock exhibitors in each breed class at the World's Fair will receive a senior champion prize and a junior champion prize for males and females, and a

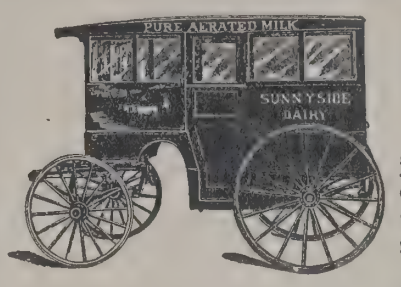
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"The Salt that's ALL Salt"

you get paid for at butter prices. It becomes a part of the butter—that's why.

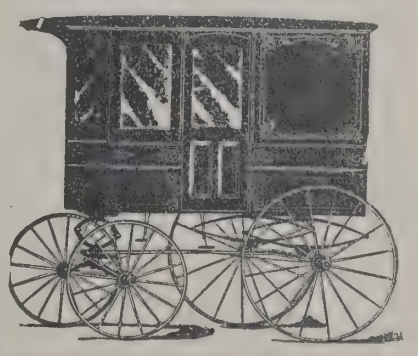
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Highest Grades—Lowest Prices—Guaranteed.
Shipped on Approval. Full line Buggies and Harness. Write for Catalogue and Prices.

SAVE DEALERS' PROFITS.

UNION BUGGY CO. Dept B. PONTIAC, MICH.

reserve champion award will follow in the four classes. Competition for the senior championship will be limited to mature animals, and young males and females only will compete for the junior champion prizes. Prospective exhibitors express themselves as highly pleased with the plan of Chief Coburn of providing for a more equitable method of awarding championship prizes, and thus increasing the number of honors.

French Butter Making.

Too Much Air in Cream Detrimental Says Professor Leze.

For many years there has been a claim, with but little foundation, that the action of oxygen was necessary for the production of the finest butter, and the patent office shows numerous devices for the oxygenation of cream, which have never been used beyond the experimental stage. Now the expert says that oxygen is injurious and gives his reason in the following article on butter production and cream ripening:

At a recent meeting of the British Dairy Farmers' Association held while visiting France, Prof. Leze read the following paper reported in the *North British Agriculturist*:

The manufacture of butter has for a long period been a prosperous industry in France, and the produce of Normandy in particular has enjoyed a world-wide reputation for its quality and delicious aroma. On the farms of Normandy are found those admirable pastures, full of sweet herbage, which produce the suave and delicate perfume. The aspect of these fine pastures, and their very luxuriant vegetation, are suggestive of the prosperity of the large breeders of cattle and of the facility with which their breeds succeed under these happy conditions. The dairy in Normandy is the most natural of those industries which are attached to the farm, and it is most agreeable to see on many large holdings of the country how admirably the milk apartments are equipped, and the perfect condition in which they are maintained. It is the delight of the mistress to show her department to her visitors, and she is happy to receive the legitimate compliments which are addressed to her. It is easy to recognize that, with the care which is generally exercised in Normandy throughout the whole of the work, and with the method which is regularly followed, the farmers are able to manufacture produce which is at once excellent and uniform in its superior character, accidents being quite the exception, and the exception extremely rare. If care in manufacture is diminished, or cleanliness less scrupulously observed, difficulties are multiplied, and on particular days the butter is inferior and will not keep. In this case, however, it is set aside, and when the trouble has disappeared the thought of it is diverted, and the accident is quickly forgotten.

It is necessary to remember that in this industry a study of the question leads us to a special difficulty—that which relates to the rapidity of manufacture. The milk arrives at the farm; in twenty-four hours, at the outside, it has disappeared—often, indeed, in still shorter time. If intended for the production of butter, it is skimmed on its arrival, the cream is put to ripen or to sour, and subsequently churned, the butter produced being despatched as rapidly as possible to the consumer. What can be done in so short a time? Under the circumstance the practice is too long, but the farmer takes the risk, and it is for him to decide. If the butter is good, so much the better; if it is bad, so much the worse. Nobody knows why, and it is believed to be impossible to know.

Happily, in the dairy experiment stations, it is precisely this scientific question which is the object of research and investigation. The attention of those engaged in the work is called to two points—the quality of the milk, and the fermentation or ripening of the cream.

Of the quality of the milk we have little to say; it is evident that if the milk is bad, it is impossible to manufacture anything good. The good dairywoman takes care of the quality of the milk; she tastes the cream, she determines the necessary acidity she requires, and she rejects mercilessly the doubtful milks, of which the odor and flavor are not those of milk fresh and pure. It is however, to the souring, or maturation, of the cream that attention should be called; it is necessary to point out, and even to persuade those concerned, that it is in the course of this process that the quality of the butter is created—good, if the maturation is well conducted; bad, if it is defective. This maturation is accompanied by an augmentation of acidity, and we may lay down the principle that if the acidity is not rapidly and regularly augmented the butter will be defective. It is not necessary to have recourse to an elevation of the temperature in order to develop this acidity. At 20° C (68° F.) or even 18° C. (64° F.) it is too warm, and fermentation is defecttve. It is necessary to endeavor to maintain the cream at from 14 to 15° C. (56 to 59° F.) The fermentation is, say some, a lactic fermentation. This is true as a point of departure, and it may be found advantageous to employ the lactic ferments of commerce in order to freely promote acidification. Reliable ferments are rare, and it is important to select from the best brands with great care, inasmuch as commerce has often been encumbered with goods of deplorable quality. This, however, we would specially insist upon, that the maturation to which we have referred is a fermentation without air; it is, in a word, a fermentation anaerobic. Air is detrimental to the quality of cream. If cream is produced by the mechanical separator, it is necessary to carefully purge it of air, for it is too much aerated. To this end a thin layer of cream may be spread over two refrigerators, which will bring it down to a temperature of 4 to 5° C. (39 to 41° F.). If, however, a vacuum could be produced in the vessels which contain the cream, this would be perfect. Without this operation, which is often difficult, it is necessary to keep the cream at a low and regular temperature.

It is easy to prove that air is detrimental; for the superior or first layers—those exposed to the air—have always a disagreeable flavor, and they are rejected in consequence. Finally, we may point out that the most apparent and genuine superiority of cream raised spontaneously, over cream mechanically separated, is specially found in this absolute want of mixture with air when the cream rises by gravitation. It is also interesting to show that if we add to cream certain ferments free from oxygen, the quality is much improved. We insist upon these new ideas as of the highest practical importance, and we propose to develop, for those who are more particularly interested, the scientific side of these reactions of ferments.

Least Practicable Diameter for Stave Silos.

ED. HOARD'S DAIRYMAN:—Last year I saw in the *American Agriculturist*, a description of a stave silo; it was built of 2x4 scantling. They said to build a foundation of stone and set up the 2x4's like staves and spike every one to the other, just as they are set up (the idea being to keep the staves from falling down in the summer time or when it is empty) and put iron hoops on so it can be tightened up by drawing the hoops up

Cream SEPARATORS All about them and other things for the dairy and creamery A. H. REID, Philadelphia

BUY DIRECT FROM FACTORY, BEST
MIXED PAINTS
At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.

YORKSHIRES.
The Large, Improved Yorkshire is by all odds the best white hog on the market today. Prolific, easy keeping, with desired size lacking in Small York. Young stock for sale.
E. E. STEVENS,
R. F. D., North Madison, Lake Co., Ohio.

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. All our choice pigs of 1902 farrowing have been sold. We are now taking orders for 1903 farrowing.
JOHN WHITE & SON, Adamstown, Md.

NORTH OAKS FARM, MINN ST. PAUL,
(Jas. J. Hill, Proprietor.)
AYRSHIRE BULLS
Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address,
N. E. McKISSICK, Supt., Cardigan, Minn

Fairbank Guernsey Herd
Mr. Fred Rietbrock and Geo. C. Hill & Son wish to announce to the readers of the Dairyman that they have jointly purchased this justly celebrated herd.
From this herd have come such well known cows as Materna, that was the best Guernsey in the World's Fair tests in 1893.
Lily Ella and Lilvta, with official records of 782.2 and 710.5 lbs. fat respectfully.
Lady Enid and Grayline, winners of 2nd and 3rd prizes at Wisconsin State Fair, 1902, and many other well known cows.
There are now in the herd many as good cows as were ever there, including the following record daughters of Lily's Bonny Boy.
Starlight of Geneva, 542.37 lbs. fat; Careno 2nd, 468 lbs. fat; Teresita 436.2 lbs. fat; Oido of Geneva, 356.6 lbs. fat, and Electra of Geneva 363.27 lbs. fat.
Besides these are many other high record cows mostly granddaughters of Lily's Bonny Boy. We offer many of the best for sale including the two herd bulls, Wolfram, 5 years old from Materna, and Starlight's Excelsior, 17 months old, out of Starlight of Geneva.
These cattle can be seen at farm of Geo. C. Hill & Son, Rosendale, Wis., after July 15. Address all correspondence to CHARLES L. HILL, Rosendale, Wis.

A BUTTER PROBLEM

THE AVERAGE COW.		A WINTERGREEN HILL COW.	
130 lbs. butter per annum at 18c	$23.40	739 9.10 lbs. butter, per annum at 25c	$184 97
Skim-milk	11.74	Skim-milk	21 94
Total	$35.14	Total	$206 91
Deduct the usual allowance for keeping	35.00	Her keeping for the year cost	54.75
Profit	.14	Profit	$152.16

The above comparative statement shows what may be accomplished by a cow bred and trained for a special purpose. It is within the power of any farmer to increase his results at a very moderate outlay by introducing better blood into his herd through a well bred sire. A treatise has been prepared giving hints believed to be of value to any one wishing to investigate the subject. It will be sent, free, with bull sale list, to any one contemplating a purchase. The list includes bulls of all ages, of good breeding, and offered at reasonable prices. Address
WINTERGREEN HILL FARM, Dept. A., Scottsville, N. Y.

THE BROWN BESSIE HERD Offers one bull 14 months old, sired by Recorder, 29239, the only living son of Brown Bessie and has 14 tested daughters. Dam, Relay, 70353, test 17 pounds 2 ounces. She a daughter of Diploma with 61 tested daughters. Also Berkshire Pigs of English and American selected stock.
H. C. TAYLOR, Orfordville, Wis.

FOR SALE The highly bred GUERNSEY BULL, Golden Glow, No. 6779, 4 years old, Price $100, F. O. B., if sold at once.
Also his son, two months old, $50. Will register before delivery. Sire, Golden Glow, 6779; dam, Zilka La, No 12921, a superior butter cow. Also a fine two months old bull calf, $25; sire, Golden Glow; dam, a 5 per cent. butter fat Jersey cow. Address S. S., Camden, Del.

Rosendale Guernsey Herd
TUBERCULIN TESTED.
Sixty head of choice Guernseys headed by Coralette's Son, (see page 450) whose dam, Coralette made 479.7 lbs. fat in one year at 3½ years old, and was first prize cow at Wisconsin State Fair in 1896.
Some fine young bulls for sale.
GEO. C. HILL & SON, Rosendale, Wis.

Wasteland Guernseys
Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.
M. M. & E. J. HOLLINGSWORTH,
Landenberg, Chester Co., Pa.

GUERNSEYS FOR SALE.
Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.
JAS. H. BEIRNE, Oakfield, Wis.

GUERNSEYS FOR SALE
Bull two years old out of Count Topsy 24.27 lbs. butter 7 days. She won 1st prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

Old Homestead Guernseys.
Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.
Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL Perry, Lake Co., Ohio.

GUERNSEYS.
HADDON FARMS—Home of the noted GLEN WOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

AYRSHIRE CATTLE of the BEST of BREEDING. Also Chester White Pigs, ready to book for season's trade. Young stock of both sexes. Prices reasonable. Come and see us.
F. TSCHUDY & SONS, Monroe, Wis.

VALLEY FARM Is offering some good bargains in young bulls from 1 mo. to 2 yr. old. Also B. P. Rock Cockerels, $1.25 each. Write
FRED STUBLEY,
Black Earth, Wis

PROSPECT HILL JERSEY HERD.
Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.
W. J. HUSSEY, Mt. Pleasant, O

FOR SALE GOLDEN LAD BLOOD. sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

BILTMORE JERSEYS
are great and presistant dairy workers and typical Jerseys. We ask comparison with any other herd for
YEARLY MILK & BUTTER YIELDS, SUBSTANCE AND FINISH.
The herd contains more prize winners at the leading exhibitions (including the Pan-American) than any other herd.
The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service as you cannot get it.
Also Headquarters for Large English Berkshires and Standard Poultry.
Apply to
BILTMORE FARMS,
BILTMORE, N. C.

HAZEL FERN HERD. A. J. C. C. Jerseys blood of St. Lambert, Melia Ann, Combination, Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

ROBINSWOOD JERSEY DAIRY is offering a few Reg. Jersey Bulls ready for service at from $25 to $50, sired by a grandson of Recorder, the only living son of Brown Bessie, out of good cows. Write, stating your wants, to
N. H. ROBINSON, Prop., Centralia, Wis.

FOR SALE.
JERSEY BULL, one year old. Good individual of the best breeding. Also 7 months bull from tested dam. Herd headed by Fontaine's Owl, 60436. Prices on application. Address,
J. F. EGERTON, Footville, Rock Co. Wis.

The Evergreen Farm Herd has for sale three or four A. J. C. C. heifers bred Also a few cows and some choice bull calves from two to six months old. Write for pedigrees and prices.
N. N. PALMER & SON, Brodhead, Wis

with a wrench; 4x4's being set up equal distance in the circle with holes in to hold the hoops to place, with earth bottom, claiming it kept the silage better on the ground than a cement bottom.

I have never seen a silo and don't know anything about them, I would like to know through your paper, when to put the corn in the silo and whether there should be any water put on it as it is put in. Also, why would it not be a good idea to put clover in a silo, as it is so hard to cure, about the time of the year when it rains pretty easy and often. I want to know what you think of a silo built of 2x4's, with iron hoops and earth bottom, as I want one as cheap as I can get it, so it keeps the silage in good condition. Would it be practicable to build one less than 15 feet in diameter.

Fenelton, Pa. C. J. MILLER.

The plan proposed for building a silo will answer all practical purposes, but we should prefer a cemented bottom unless the soil is a pretty hard, impervious clay. A porous soil will let in more or less air and this will tend to spoil the silage.

Our personal experience this season, in trying to secure a heavy growth of alfalfa and common red clover, adds very much to our conviction that it is a good idea to put the first cutting into the silo rather than attempt to cure it for hay.

Corn is at its best for silage when the lower leaves on the stalks commence to dry and the grain on the ears is fairly well glazed or dented. At this stage, it is not necessary to put any water on the corn as it goes into the silo, but when the silo is filled, it is a most excellent plan to put on a large amount of water, thoroughly wetting the surface all over. In fact, our best success in keeping silage was in a silo without any roof, where the frequent fall rains kept the top pretty thoroughly wetted. There was very little loss on the surface and practically none further down.

Building an Ice House.

ED. HOARD'S DAIRYMAN:—We wish to build an ice house. Having had no experience, we submit you our plan and would be pleased to have your opinion through the DAIRYMAN as early as convenient. Our plan is to build a stone wall 16 inches thick, 16 feet square, 12 feet high, laid up in good lime and sand and build a frame building outside of the wall with a six-inch space between the wall and siding; building would be well drained, standing on a solid ledge of rock about two feet in the ground.

Angola, Kan. C. K. R.

The plan proposed is a very good one in many respects, but in our judgment, would be considerably improved by reversing the locations of the stone wall and the wood covering. In other words, we would build the stone wall and then line it with boards, leaving an air space of some four to six inches. Double board the inside with a good quality of tar paper between so as to make it effectively air proof.

Just what is meant by good drainage, we cannot quite determine. As will be seen in the answer to a correspondent in New York, it is necessary in providing this drainage to effectively exclude all possibility of the entrance of outside air. If a pipe drain is laid, it must be securely trapped.

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA.

President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.

FEES FOR REGISTRY.

TO MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.

NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. All blanks furnished free.

Life Membership, $25.

Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.

Address F. L. HOUGHTON, Putney, Vt., for information relating to Registration of Pedigrees.

HOLSTEIN-FRIESIAN BULLS FOR SALE.

Ready for service; from A. R. O. animals; sired by Johanna Rue 2nd Paul De Kol, sire of 13 A. R. O. cows. Also young bull calves by same sire. **THOS. CAINES, Supt.** ARCADIA, - MISSOURI.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

4 BULL CALVES FOR SALE

Under 6 weeks, fine individuals from our Clyde Paul De Kol bull; Dam 24.38 lbs. butter in 7 days. And from tested cows, with good records, the price is right. W. B. SMITH & SON, Breeders Pure Holstein Cattle. 2488 W. Broad St., Columbus, O.

ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale. GEO. T. McNEIL, Theresa, N. Y.

WOODLAKE HERD.

Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN Station D., R. 1, Minneapolis, Minn.

STAR FARM HOLSTEINS

DROUTH DROUTH DROUTH

My pastures are a total failure. *Must sell immediately, 50 royally bred registered Holstein cows.* You can get the best. You can make your own price. Inquire at once. HORACE L. BRONSON, Cortland, N. Y.

TYRANENA HERD

100 HOLSTEIN-FRIESIANS 100

A. R. O. Stock For Sale.

Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz Frank B. Fargo, Lake Mills, Wis.

SOUTH SIDE FARM, WHITE BEAR LAKE, MINN.

Holstein-Friesians.

Bulls in service, Prince Inka Pietertje De Kol 2d, A. R. O., 144, sire of 10 A. R. O. cows, and Daisy Van Beer's Pauline De Kol. 27610, whose dam has official record of over 22 lbs. in 7 days. Special prices on young bulls from A. R. O. cows. Also Yorkshire pigs of most approved breeding now fit to ship.

Holsteins That Produce Are The

HOLSTEINS THAT PAY

The kind we sell. Backed by the largest official butter records ever made. All ages, both sexes. Over 100 head to choose from. **BROOKSIDE STOCK FARM,** HENRY STEVENS & SON, Box 208, Lacona, Oswego County, N. Y.

FOR SALE. H.-F. Bulls, ready for service from A. R. O. Cows and sired by Sir Jonanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis.

GLENVIEW HERD

A few fine heifers and bulls for sale. Also some A. R. O. cows. IRVIN NOWLAN, Toulon, Ill.

Markham Manor Farms, Simonsville P. O. Andover, Vt.

Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for description and price to J. A. THORNTON, Manager, Simmonsville, Vt.

FOR SALE.

H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address W. H. JONES, Watertown, Wis. Rural Route No. 2.

CLOVERDALE HERD

HOLSTEINS.

Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.

A. J. DAUGHERITY Streator, Ill.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 23128. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No 29175. Sire: Count Colantha Alban No. 25148 Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited. WM. EVERSON & SONS, Lake Mills, Wis.

70 HEAD PUBLIC SALE 70 HEAD

GREATEST OFFERING OF

HOLSTEIN-FRIESIAN CATTLE.

McADAM & VON HEYNE'S

Justly Celebrated Herd of Holstein-Friesian Cattle will be sold at Public Auction, at Brothertown Stock Farms, Deansboro, N. Y., on

WEDNESDAY, JULY 15, 10 O'CLOCK A. M.

SADIE VALE CONCORDIA, THE WORLD'S CHAMPION BUTTER COW, with an official butter test of 30 lbs. 10 2 oz. of butter in seven days, 123 lbs. 10.7 oz. in 30 days, and 220 lbs. 8.4 oz. of butter in 60 days, will go to the highest bidder. Also one of her sons, two daughters, five grand-daughters, two great grand-daughters and two great grand-sons are included in this sale, and placed within the reach of every buyer or breeder.

This sale also includes the famous ex-champion, Mercedes Julip's Pietertje, with an official record of 29 lbs. 5.7 oz. of butter in seven days, her daughter and her grand-daughter.

This Sale Offers to Breeders Three Sires of Very Choicest Breeding

SADIE VALE CONCORDIA'S PAUL DE KOL, No. 27,392, three years old; sire Paul De Kol 4th.; dam, Sadie Vale Concordia, official record 30 lbs. 10.2 oz. butter. This is the world's record for mature cows.

SIR PIETERTJE POSCH, No. 30.155, two years old; dam, Alta Posch, official record 27 lbs. 2.4 oz. butter, at 2 years and 11 months. This is the world's record for two and three year old cows.

CANARY MERCEDES JOHANNA DE KOL, No. 30,251; sire Johanna Rue 2nds. Paul De Kol; dam, Canary Mercedes Brightest, official record 21 lbs. 3 oz. at 2 years and 11 months. His four nearest dams average 23 lbs. 5.6 oz. butter in official record; they also average 4.06 per cent. in butter fat. All cows offered are in calf either to one or the other of the above named bulls. The Herd numbers

70 HEAD OF VERY SUPERIOR ANIMALS,

selected with great care. A large number being from the CELEBRATED YEOMANS HERD. This superiority has been strongly demonstrated, having won in last year's official tests more prizes for large and economical production than any other herd either in the United States or Canada.

In this offering of fine stock are cattle suitable for the best herds, also for the improvement of good herds, as well as cattle for the beginner; as the latter, in buying any of these cattle will start with the most famous and most desirable families, the most important, if not the prime factor in the success of breeding pure bred cattle.

The farms can be reached on the D. L. & W. R. R. to Waterville, N. Y., or the O. & W. R. R. to Deansboro, N. Y., where at either station visitors will be met promptly, on the morning of the sale, and conveyed to the farms. Also the farms can be reached by trolley from Utica to Clinton, N. Y., thence by livery. Catalogues ready early in June. Address

Mc ADAM & VON HEYNE, Deansboro, N. Y.

The sale will commence promptly AT 10 A. M. WEDNESDAY, JULY 15, 1903.

COL. CAREY M. JONES, Auctioneer.

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Headed by Mercedes Mechthilde Pietertje, No. 25,795. oldest son of Mercedes Julips Pietertje, 75 O. I. C. White Pigs, both sexes, in pairs and trios, not related. W. R. GATES, Fort Atkinson, Wis.

OAKLAND HERD HOLSTEINS

PREMIER SIRE **Mutual Friend 3d's Paul** A son of Paul De Kol & Mutual Friend 3d, 21.84 lbs. butter, milk averaged 4.7% at 3 years. She has two A. R. O. daughters; 1 made over 20lbs, Must reduce herd at some price. State just what you want T. A. MITCHELL, Weedsport, N. Y.

BROOKSIDE HERD

HOLSTEIN-FRIESIANS

To reduce herd to capacity of pasture, will sell a limited number of A No. 1 young cows of high breeding and individually right, large producers, at $150 each; also 15 bull calves at bargain prices.

STEVENS BROTHERS, Lacona, N.Y.

THE MAPLE'S HERD

offers good young cows with A. R. O. records in calf to Beryl Wayne De Kol Paul, No. 28785, whose dam Beryl Wayne has an official record of 27.87 pounds of butter in 7 days. Also four yearling bulls ready for service. Special bargains in heifer and bull calves.

JOHN C. GODFREY, PENNELLVILLE, N. Y.

Holstein-Friesian Bull Calves

Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

HOME FARM HERD.

Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams. 25.1 lbs. butter in seven days. Herd numbers 125 head.

BEST FAMILIES REPRESENTED.

Special prices on six or eight bulls of serviceable age. W. B. BARNEY & CO., Hampton, Ia.

FOR SALE 2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers. M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

MONONA FARM Offers for sale a few well bred Holstein-Friesian Bull Calves. MADISON, WIS. Also two Service Bulls at reasonable prices. The Monona Farm Herd is founded on the best stock of the De Kol, Netherland, and Clothilde families. Pense Johanna 29332 the head of the herd has 7 A. R. O. dams averaging 22 lbs. 3.7 oz. Junior sire Paul Calamity De Kol 31095. THE MONONA FARM HERD Address, F. W. ALLIS, Madison, Wis.

Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

.....YOU MAY.....

BEGIN AT THE HEAD

to improve your dairy herd with a bull whose dam has official record of 18 lbs. 6.3 oz., sires dam 20 lbs. 8.8 oz. Individual right. Price Right. McKAY BROS., Buckingham, Iowa.

HIGH-CLASS HOLSTEIN-FRIESIAN BULLS

and Bull Calves from A. R. O. dams and the best Advanced Registry sires. Cows all officially tested; I breed from no others. Correspondence from breeders and progressive ddirymen invited. Malcolm H. Gardner, Darien, Wis.

HOLSTEINS

High Class Advanced Registry Stock only. Best butter families. Stock for sale. Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.



T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale. Wm. O. Jackson & Sons, South Bend, Ind.

LOOK HERE.

34 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by Gem Pietertje Hengerveld Paul DeKol, or Sir Ormsby DeKol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days, average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd? McGEOCH HERD is located at Lake Mills, Wis., 56 miles west of Milwaukee. For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis Residence: National Ave. near 40th. Phone, South 1691

Raising a Calf and Caring for the Dam at Calving Time.

(An Address before the Jersey Breeders' Association of South California, by PROF. E. W. MAJORS.

The first thing to decide, if the animal is not a heifer with first calf, is, how long shall we have the cow go dry? I believe that six or eight weeks is desirable, except in the few cases where forced drying up would cause injury to the udder. There are some cows that want to go from one period of lactation to the next without going dry at all, and they are heavy milkers, and injury to the udder may result from the attempt of compelling them to go dry. However, if judgment is used in reducing the feed about two months before the time of calving, nearly every cow may be made to go dry without injury.

The feeding of the animal during the intervening six weeks is an important factor in preparing her for good work during the approaching lactation. I do not altogether believe in the semi-starvation method that is so frequently advocated. The cow has to nourish the foetus and store up some reserve food to carry her through the calving period. Prof. Haecker of the Minnesota Station has shown that cows lose weight for about nine weeks from the time of calving. He has shown also that the per cent of butter fat decreases gradually during that period. It is these facts that enable our friends, the Holstein breeders, to make large seven-day tests, the cows giving large amounts of milk and testing much higher during that period than they will during any other time in the period of lactation. The risk of milk fever must be considered, but attention to the condition of the animal's bowels will enable us to ward of this dreaded disease without letting her get into too run-down a condition. The food should not be too heating. Bran and oil meal, with some succulent feed, as grass or roots, will be satisfactory. Where green alfalfa can be fed you have a supply of the most valuable nutrients, especially if some straw is used in addition.

As the time of calving approaches, consideration must be given to the place where the animal is to be when calving. A clean, well lighted box stall is the most desirable. The animal should be put in there some days before, in order to have her become accustomed to her surroundings. This, too, gives the herdsman a chance to notice the condition of the droppings and find out whether the bowels need loosening. If they do, a dose of salts should be given. Use about 1 pound Glaubers salts and 1 ounce of ginger. If a heifer with first calf, her udder should be rubbed and the teats worked gently so as to have her accustomed to the idea of being milked. Much trouble with kicking cows might have been prevented had the owner devoted a few minutes now and then, to the handling of the heifer. In fact, I do not think that this ought to be left to the last four or five weeks, but should be begun early in the life of the calf. Exercise should not be neglected, and it is much better for a cow to be running out of doors in the bright sunshine, than to be shut up in a close stall. Fresh air and exercise are powerful aids to a healthy condition.

As the day of calving approaches see that the stall is bedded with good clean straw. Let no droppings or urine-soaked straw remain there longer than necessary. It is very desirable, too, that the hind quarters of the cow, including the vulva, be kept as clean as possible. When calving takes place the herdsman, or better, the owner, should be near at hand without being too much in evidence. Many herdsmen seem to consider this a time when their services can be dispensed with altogether; others are anxious to assist in the operation whether they are needed or not. There is a happy medium. He should see that the presentation is normal, otherwise the cow may strain until she is exhausted, and may die; or she may do some lasting injury to the tender organs. As soon as the calf is dropped, the cow will, as a rule, lick it dry. If she refuses to do this, the calf should be sprinkled with salt and this generally has the desired effect. Should the cow still refuse, the calf must be rubbed with a woolen cloth. However, we have seldom to resort to the last method. At this time there is another point that should, I think, receive more consideration than it does. We are troubled a great deal with white scours. Veterinarians who have made a study of this disease tell us that infection frequently occurs through the navel. The cord is, of course, broken at the time of birth, and while it is closing over, germs may enter directly into the animal's body. Many doctors have recommended the tying and cutting of the umbilical cord and while I do not fully agree with this, yet I think it would pay to use a disinfecting wash and some drying powder. The following has strong endorsement for the wash: a five per cent carbolic acid solution; and for the powder, tannicacid, 1 ounce; iodoform, 4 drams; zinc oxide, 1 ounce. Use the wash first and then cover the navel with the powder. While both mother and the calf must receive our attention, it will be somewhat less confusing if I continue the treatment of the dam and take up the calf later.

The cow will, if she was in a good healthy condition, generally clean—that is, pass the afterbirth—soon after calving. If she does not, I would not be in a hurry to remove it. A weight may be tied to the part protruding from the vulva and the constant bearing down will aid in bringing it away. If it does not come away within forty-eight hours I advise the consultation of a veterinarian, unless you are thoroughly familiar with the internal anatomy of the uterus. Damage may be done to the generative organs and the animal made a non-breeder by the misdeeds of an ignorant operator.

The cow should be given water, but it should not be too cold. A large amount of cold water may cause an animal's not cleaning as rapidly as it otherwise would. A good way to supply the water is through succulent feed, as by grass or roots, and by slopping the grain. A slop of bran and flaxseed meal is cooling, and, at the same time, has a laxative effect. Be sure that the bowels are working freely. If there is the slighest tendency to constipation give some gentle laxative. Salts are probably the handiest and are quite effective.

Feeding should be done judiciously. To crowd the animal with food during the first week is most undesirable. Get her off her feed during the early period and you will have more or less trouble during the whole period of lactation; commence slowly and increase gradually as you see she responds through the milk pail. Better to have her a little hungry than to have her appetite clogged.

Let us return to the calf. I do not advise allowing it to suck more than once. In fact, I am not sure but that it is better to remove the young animal before it has been allowed to suck at all. The pen to which it is removed should be some distance from the dam's stall, as, if they cannot hear one another call, you will have less difficulty in getting them accustomed to the separation. The quarters should be well lighted and ventilated and in such a position that the sun may shine in as freely as possible. There are no better preventives of disease than fresh air and sunlight. The calf must be given the first milk taken from the cow, the colostrum, as that is necessary for properly clearing the bowels and starting the digestive functions. In teaching a calf to drink, we find that they have different degrees of intelligence. One learns quickly, while another seems to prefer starvation rather than learn to drink. Pure bred animals are, as a rule, more intelligent than scrubs, and of pure bred I know of no cattle more intelligent than the Jersey. If the calf has not sucked at all, you will find little trouble in teaching it. If it has, it may be advisable to let it skip a feed in order to sharpen the appetite. I have had good results from dipping my fingers in the pail and getting the calf to suck the milk from them and then gradually lower your fingers into the milk, and as the animal sucks in the milk withdraw your fingers. Above all, be patient, don't lose your temper. Warm milk should be fed from the pail twice a day during the first week. No hard and fast rule can be given in regard to the amount that should be fed. There is where some of the beginners in Jersey breeding have erred. They have looked at the small calf and decided that it must be made to grow, so they have fed it as big a feed as though it were a Holstein or a Short-horn. It is better to underfeed a trifle than to overfeed.

Arrange small pens, or tie the calves up when feeding them so that they cannot suck one anothers' ears. At the close of the first week commence to reduce the whole milk and substitute skim milk. Be sure that it is blood heat (about 95 degrees.) As the substitution progresses add a small quantity of flaxseed gruel or the ground flaxseed. Where you have use for a small quantity only, do not



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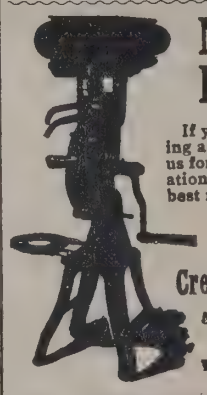
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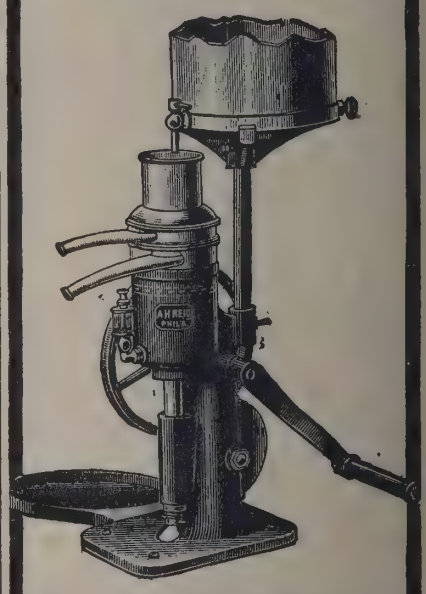
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make the gruel, as it sours readily and is then unfit for food. At the end of the second week the calf should be receiving skim milk and no whole milk. The flaxseed meal can be increased to a desert spoonful. When the calves are about four weeks old, I would remove them to an open pen with small stanchions with feeding boxes in front along one side. The calf soon learns its place and goes to it when feeding time comes around. The advantage of this is, that the pails are not upset, and when the calf is through drinking you can give it a small amount of hay or grain. Keep the calves in the stanchions for a half hour after feeding and by that time they will not be inclined to suck one another. When the calf is about six weeks old, give it a bunch of clean hay to nibble on, and a handful of whole oats or rolled barley in the manger. Water and salt should be provided. It seems almost unnecessary to emphasize the importance of cleanliness. A clean pen, clean bedding, and clean pens for feeding. A large part of the mortality among young calves could be prevented if the farmer would pay more attention to cleanliness. Dirty pails and sour milk are common causes of scours. If you are feeding creamery skim milk and cannot be sure of its sweetness, it is better to see that it is always sour, as you will have less trouble than when you are feeding one day sour and another sweet. You will undoubtedly have some trouble with scours, and where it is caused from overfeeding or from sour milk, I have found no better remedy than raw eggs. Put egg, shell and all, into the calf's mouth and break it there, holding the calf's jaws until everything is swallowed. Feed these two or three times a day. The eggs supply considerable nourishment and the whites are good for the lining of the stomach.

Exercise must not be neglected, some breeders do not advise it, as they fear that the calves will have crooked legs. I will risk the legs in favor of a good constitution. Without that your cattle will never be the most valuable type of dairy animal. Remember that what has been said applies to dairy calves. You must, therefore, increase the hay as rapidly as possible, so as to encourage the development of the digestive organs. You must not feed too heavily or you will start that disposition to lay on fat that is ruinous to a good dairy cow.

California Questions About Milking, Overrun and Alfalfa.

ED. HOARD'S DAIRYMAN:—I'm green, so green that even the cows try to come and lick me, or at least some of them are always anxious to have me rub their heads and necks. But to come to the point, can you tell me when I can tell when I'm through milking a cow? I milk full hand, dry teat, until I get practically no milk; if I strip the cow, I can get maybe a pint more milk, which is very rich. Some people say "milk every drop out of the udder, and to do so I must strip the cow, which Mr. K. and Mr. J. tell me is not good for the cow. I know that the quicker you can milk a cow the better, but what is worth doing at all, is worth doing well."

In the issue of June 5th (of the current Vol., page 391,) R. H. P., says:" The way I figure etc., would be stripping that was left in the udder." Then again— "This would amount to $12.00 a month, to say nothing about the harm that he was doing the cows by not stripping them clean;" which way shall I do? Is the Hugulund method of milking a good subtitute for stripping?

The other day I was discussing the question of over-run of cream. Here we receive one-fifth; now taking the way you calculate total butter (page 367, current Vol.)—divide test of butter fat by per cent of fat in butter. But my informer told me that this wasn't right—he is an agricultural college graduate. What do you say? He says add one-fifth of butter fat to butter fat, to get total butter. In my case, if he be wrong, I lose .10 per cent a pound of butter from every 60 lbs. of cream I send to the creamery. At least this is the way I figure; our test is 39%.

Several times I have seen this statement or one very much like it—page 423 current Vol. "So far as present experience has gone, about the only condition which seems fatal to alfalfa prospects is soil water too near the surface." "Not safe to advise anyone to try to raise alfalfa on land where standing water comes within eight feet of the surface."

Our experience has been that we have gotten five crops of alfalfa a year, on sandy, unirrigated, river bottom soil, with water six feet from the surface, but we lost our alfalfa field the third year because flood water stood on it for three days. Yet it has been the experience of our neighbors that the alfalfa that staid with them the longest has been on land with water within six feet and less.

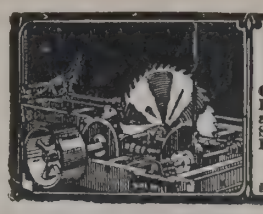
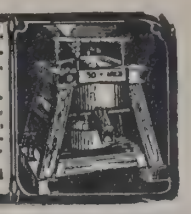
I would not give HOARD'S DAIRYMAN for any dairy paper I've seen yet and I'm enjoying it immensely. Next year I'll send you my herd report, for as yet we haven't a pair of scales or a Babcock tester. H. M. McK.

Santee, Cal.

We consider a modicum of "stripping" with the thumb and finger not only permissible but really essential. When the present writer was at his best as a milker, his plan was, when the udder was nearly empty, to grasp quite a bit of the lower part of the udder, where it joins the teat, with his thumb and first finger and thus crowd down the contents of the milk cistern into the teat and expel the milk by closing the remaining fingers upon the hand, changing about once or twice from teat to teat. Every milker, however, has his peculiar idiosyncrasies, and in a way, can be allowed to follow them. Results are more important than methods and the udder should be completely, or practically so, emptied. It is to be remembered, however, that the udder is something more than a mere cavity, like the inside of a jug. It is made up of cells, which are broken down and form milk as the process of milking goes on, and it is therefore to be expected that a cow cannot be milked so completely dry that it will not be possible to get a few streams or drops after a lapse of even a few seconds.

In regard to the over-run question, we may say here as we have said hundreds of times before, that it will vary from time to time, because the resulting butter varies more or less and conditions are never alike on different days. When a test of cream is properly made, it is quite possible to obtain one-fifth, or 20% overrun, but this is probably more than can be expected in all creameries, at all times, and especially in what are known as the gathered cream creameries, unless the samples are very accurately taken, and are proportioned to the amount of cream delivered.

Our correspondent's experience with alfalfa is to the point and we are glad to have it. HOARD'S DAIRYMAN aims to be conservative and it has not hitherto advised seeding to alfalfa where the permanent ground water line was not more than six feet from the surface lest failure should result. But we live to learn and we have learned a good deal in recent years about alfalfa and there is probably much more to learn yet. Our own personal experience with alfalfa is teaching us many things and among them is the probability that, contrary to current opinion, alfalfa may become the most profitable sort of crop for a short rotation. We are not prepared to advocate this just at present, but experience with a small field of alfalfa plowed this spring seems to indidate that alfalfa may become, par excellence, the crop for short rotations. If any of our readers have had any experience in in this line, we should be very glad if they would give us the results.


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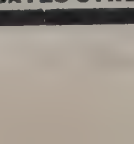
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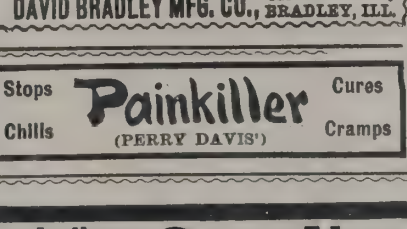
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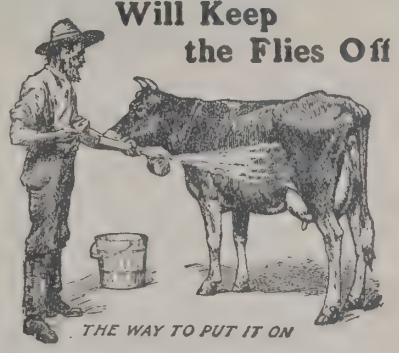

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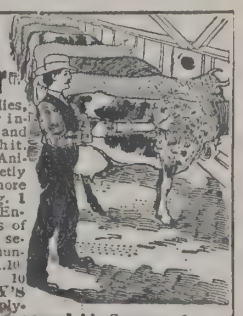
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Western Office, Watertown, S. D.

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ORR & COOPER, Box 829, BEAVER, PA.

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Send for copies of "Zenoleum Veterinary Advisor" and "Piggie's Troubles" and see what others say about it. Books mailed free. Sample gallon of Zenoleum $1.50, express prepaid. Five gallons $6.25, freight prepaid.
"The Great Coal Tar Carbolic Dip." ZENNER DISINFECTANT CO., 34 BATES STREET, DETROIT, MICHIGAN.

"Going After their Dinner."

ED. HOARD'S DAIRYMAN:—On this page is a fair likeness taken under difficulty, owing to the persistency of the "bossies." Persistence, inherited probably from their persistent mother.

"Gold Bargain" was bred by General George E. Bryant, of Madison, Wisconsin, and carries the Jersey blood of "Omaha" and "Metah", a pair the General bought in 1870, at the Atlantic seaport, of the late Col. George E. Waring, the famous civil engineer who made New York City clean. This cow was selected and bought by Professor W. L. Carlyle, of the University of Wisconsin, from the herd of General Bryant, and at the station given a yearly test. She was known to be a good cow, but General Bryant did not regard her as his best cow, nor does he now, though she holds the champion test at the station of all breeds in all past time. We append her pedigree. Scan it.



Gold Bargain 91634	Gold Bugler 20036	Gold of St. Lambert 16744		
		Fanny Bugler 19911	Bugler 2127	
			Metah's Queen 4886	Omaha
				Metah
	Big Bargain 76274	Omaha Jr. 15367	Omaha	
			Metah	
		Baby Ryan 42139	Ryan 9891	Omaha
			Metah's Baby 9710	Metah

There is no hap-hazard, come-by-chance breeding on the page. Every bull is a sire of fourteen pound cows; every cow is in the fourteen-pound list as well as a producer of fourteen-pound daughters. Mark the three out crosses: Gold of St. Lambert, Bugler to Lawrence; and Lady Mary, Ryan to Gold Basis and Gilderoy.

Following is Prof. Carlyle's testimony:

University of Wisconsin,
Agricultural Experiment Station,
MADISON, Wis., Feb. 23, 1903.

General George E. Bryant,
Capitol Building.
Madison, Wisconsin,

DEAR GENERAL:—I have your favor of recent date asking for a report of the yields of milk, butter, etc., of the cow "Gold Bargain" that we purchased from you. In the year just past this cow gave 8,395 pounds of milk with an average of 5.98 per cent fat. This yielded a total of 502 pounds of butter fat, and 585 pounds of butter. I would be very glad, indeed, to have you get a photograph of her, but it would be well for you to wait a week or two when she will be fresh again and you will get a much better photograph of her udder. The cow is looking very well, indeed, and we are proud of her.

Hoping that you will let me know when you can visit the barns, and I will arrange to meet you, I am,

Yours very truly,
W. L. CARLYLE.

When the artist went to make the photograph he found not only the cow but twin calves, and that was words, as plain as a cow could speak them: "These prove that I belong to a milking family."

Madison, Wis. X

New York State Milk Associations.

ED. HOARD'S DAIRYMAN:—It would be interesting to know how many dairymen are interested directly in supplying milk for New York City. The number must be well into the thousands, besides there are other thousands who sell milk at prices gauged by the price which the milk shippers receive. There can be no doubt that the middlemen have in years passed so crowded down the price of milk that there were no profits left the producer. A sort of organization was what accomplished the effect for the dealers, though it may be doubted whether the organization might not have been more liberal with the producers, had it been more thoroughly organized, and in better business hands.

Organization on the part of the producers was necessary to meet the organization of the dealers, and an attempted organization of that description is now at hand. It is interesting to note that whenever there has been any organization of producers, even of the rudest kind, the dealers have been anxious to conciliate the farmers who thus organized. Whether the farmers will yet get a thoroughly efficient organization is a matter for the future to answer.

At the present time there are three organizations at work, all in harmony it is said, besides the locally organized co-operative creamery associations.

These are the Five States Milk Producer's Association and the Co-operative Creameries Association, both of which have been described, and which have acted in harmony. Now there is set before the people the People's Pure Milk Company, regarding which there is much to learn.

A meeting of the F. S. M. P. Association and of the Co-operative Creameries Association was called to meet in Binghamton, July 1st, 1903. The committee that was appointed at the March meeting to secure, if possible, the signatures of enough officers of co-operative creameries to bring the list up to 40 or over, succeeded in their undertaking, and the meeting was expected to hear reports of committees, adopt a constitution and by-laws for the co-operative creameries association, and to hear the proposition of the People's Pure Milk Company. All this was accomplished.

One of the objects of the meeting at Binghamton was to bring before the milk producers, the aims and objects of the Peoples Pure Milk Co., and to take steps to complete the sale of the milk, supplied by the members of the F. S. M. P. Association. Several years ago, when the association was making its greatest progress, apparently, its officers secured the name and address of practically every farmer who was furnishing milk for shipment to New York. It is said that a power of attorney was secured from over ten thousand of these farmers enabling the sales committee to effect the sale of the milk, whenever the right opportunity should offer. The number of cows kept by each farmer was also ascertained and a conservative estimate made of the amount of milk that could be furnished. That estimate was for 20,000 cans daily, of forty quarts each.

With the formation of the Peoples Pure Milk Co., it is claimed that a market is at hand for the milk.

There can be no doubt but that a vast amount of work was done by the sales committee and apparently in a systematic manner. Mr. Lattimer, of Tioga Center, a member of that committee, tells me that he practically turned his house into an office, that he had as many as twenty employees at work at one time gathering statistics and tabulating, and that he has the facts in available form, by means of which the committee hopes to effect the sale of milk.

It has been suggested that no company is likely to be formed to purchase milk, or to expend much in equipment without knowing that the milk can be procured. If there should be no hitches either on the part of the purchasing company, or the Five States people who are to be the sellers, it looks as though a gigantic business deal might be made.

The farmer will want to gain information about many points before he turns over the product of his dairy to the new concern, and one of the objects of the meeting was to bring information to the farmer. The company is incorporated under the laws of New York at a capital of $25,000,000. Mr. Lattimer says that a large part of this capital is already underwritten, that is, the sale of the stock is guaranteed by various concerns that make a business of doing such work. The officers of the company have given their personal guaranty in writing, that they will carry the work through.

There is another point that will interest the farmers, and that is the fact that three-eighths of a cent a quart on all the milk handled for two years is to be turned to the purchase of stock of the company. This means that fifteen cents on every can is to be deducted from the purchase price of the milk, and that amount finally returned to the farmer in the form of stock certificates of the People's Pure Milk Company.

It seems rather early to make many comments, and it is perhaps best to await developments. The matter concerns too many farmers to be overlooked. It is a gigantic affair, and the question of its success would seem to depend very much upon the personnel of the management. It is thought by some that the capitalization of the company is too high, but the claim is made that enough can be saved by proper handling to pay a dividend on the capital named.

It should be understood that a large proportion of the dealers in New York have already signified their intention of becoming members of the new company, turning over their plant and equipment to its management, or are considering the proposition. With a company composed of producers and dealers, there should be harmony. It may be well to remark that the term of contract for supplying milk, is five years, beginning October 1st, 1903. The contract price ranges slightly in advance of that offered by the Bordens for

Dietz Lanterns

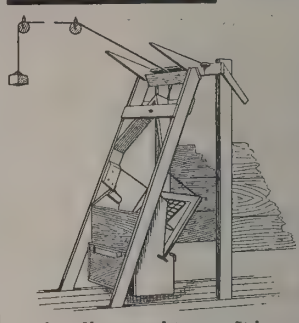
make the way plain in night work or travel. Always shed a strong, clear, white light, with no choking, sooting or smoking.

Over Sixty Years the Favorite.

Made in many styles and sizes for all purposes, as hand lanterns driving lamps, post lamps for streets, for front of country residences church doors, etc. CATALOGUE SENT FREE.

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Established 1840

JUST OUT! UNDERHILL SELF ADJUSTING STALL



No Gutters
No Platforms
No fastenings
No Stables to clean

Cease trying to keep your cows clean. You can't do it. Give them a chance and they will do it themselves. This is the only way and the easy way. Write for circular telling what the cow has discovered to us. It is a great revelation.

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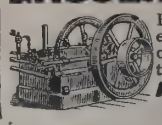
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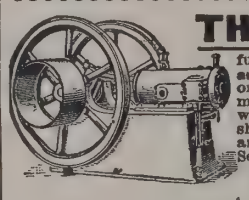
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furnish the greatest possible power at the lowest possible cost in time, labor, fuel and money. They are so simple that any body can run them without expert training or experience. Our Volume Governor gives uniform speed. Our Acme Mixer is the most positive and economical on the market. Our Hand Starting Lever starts engine with least effort. All bearings of Iridium Bronze. Best material and workmanship throughout. Many sizes from 4 (actual) h.p. up. Best for all farm work—cutting and grinding feed, sawing wood, pumping water, separating cream, churning, etc. Send for free catalog before you buy. It may save you time, money and annoyance.

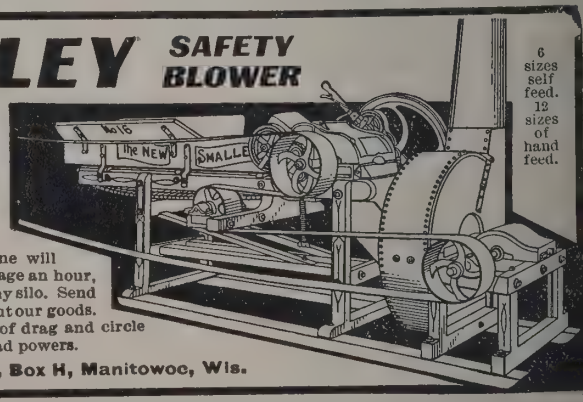
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6 sizes self feed. 12 sizes of hand feed.

Only One Belt Required.

No lost power. No danger in operation. Belt cannot slip. Every part strong and of best material. No more strain on the *Smalley* machine when Blower is attached than with the ordinary carrier. Largest size machine will easily handle ten tons of ensilage an hour, cut ½ inch and elevate into any silo. Send for 1903 catalogue, tells all about our goods. We also make complete line of drag and circle saw machines, sweep and tread powers.



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DAIRY AND STOCK FARM FOR SALE

667 ACRES, WAUSHARA CO., WIS.

Three miles from Wild Rose, C. & N. W. R. R. New barn, 34x136, cement floor; new silo 16x27; one barn, 30x40; 3 good houses; hog house; granary; tool house; good water; trout stream running through; "fine fishing;" adjoining two lakes; all fenced; level land. This place could be made into four good farms.

One new 10 horse Gasoline Engine; one new Ensilage Cutter, 10 ton per hour; one new Carrier; one De Laval Separator, new; one new Binder; one new Corn Cutter and Binder; one Seeder; one New Reaper and all other Farm Machinery.

Stocked with Guernseys. This place will be sold with or without stock and machinery, and will be sold at a bargain if taken soon. Address owner.

C. N. GARDNER, Saxeville P. O., Waushara Co., Wis.

their year ending next October. It will be an important, and perhaps a difficult, task to fully inform the farmers regarding all the conditions of the proposed sale, between now and next October. Mass meetings are to be held, and it is expected that the agricultural press will help in spreading a knowledge of the matter. There is a general feeling of hopefulness among those who attended the recent meeting. H. H. LYONS.

Chenango Co., N. Y.

TRANSFERS OF GUERNSEY CATLTE.

BULLS.

Glenwood Boy of Mt. Pleasant, E. T. Gill to B. F & Haywood Shreve, Columbus, N. J.
Jack Fisher 8471, G. E. Foster to Mrs. J. A. Goodwin, East Livermore, Me.
King David 7930, R. H. Cushman to Charles Jones 2nd., Deerfield, Mass.
Prince Karageorgevitch 8692, Est. L. Himan to Charles Heller, Calumetville, Wis.
Pauline's Romeo 7853, J. P. Welsh to F. M. Smith Jr., Ivy Depot, Va.
Spring Brook 8680, Frank M. Ross to J. H. Cornnes, East Eddington, Me.
Sunnynook's First 8697, R. A. Borden to Charles Gerber, Weathersfield, Vt
St. Nicholas 3rd. 6379, J. P. Welsh to T. E. Hyde, Bloomsburg, Pa.

COWS.

Andalusia Girl's Brownie 16247, Craig Biddle to Thomas S. Ellis, Philadelphia, Pa.
Ada P. 15981, Ezra Michener to Frank Tupper, Canton, N. Y.
Betsey Taylor of Riverside 16186, Hilda Sprague of Riverside 16189, Honey Dew of Spring Brook 16246, Little Me Too of Riverside, Susan M. 10490, James Forsyth to M. H. Parker, Portlandville, N, Y.
Belle of Shirley 12331, Melvina of Fernwood 9462, E. C. Moore to Chas, M. Seltzer, Philadelphia, Pa.
Daisy of Geneva 16255, Robert Watson to C. F. Bouthillier, Sainte Therese, Que.
Dutchess of Elm Place 15832, G. B. Tallman to Lyman Blair, Greenville, Maine.
Edna Cooper 13669, George La Monte to Howard Vansyckle, Lebanon, N. J.
Jessamine of Clayton 14436, and Rona 4777, I. B. Pancoast to Wm. Hann, Glassboro, N.J.
Kucretia 4th. 11269, Sweet Clover Blossom 11270, E. T. Gill to R. G. Slow 2nd. Georgetown, Mass,
Miss Glaenzer of Riverside 161288, Miss Julia of Riverside 16187, James Forsyth to F. F. Fisher, Watervliet, Mich.
Merian Tarpine 16249, James T. Mayhew to W. C. Schulze, Philadelphia, Pa.
Mariana Perry 9029, L. V. Axtell to J. W. Grute, Milledgeville, Pa.
Mary Carithers 14296, McCormick & Edgerly to Mr. E. J, White, Columbus, O.
Mamie of Rosendale 16259, Christ Muth to Geo. C. Hill & Son, Rosendale. Wis.
Mamie M. 3rd, 16092, Chas. L. Hill to W. C. Sullivan, San Antonio, Tex.
Martha Marshall of Lemon 16012, Willard Marsh to Albert French, Lebanon, O.
Miss Rita 2nd. 15058, Ezra Michener to F. M. Smith Jr., Ivy Depot, Va.
Nancy of Lemon 15595, Clarence Childs to Albert French, Lebanon, O.
Pomara Girl of Haddon 140951, Trixie 11268, E. T. Gill to F. S. Martin, New Gloucester, Me.
Polly of Geneva 12904, Robert Watson to A. Baumgartner, Saints Agatha, Que.
Queen Faucette 11878, Queen of Fernwood 14473, E F. Gill to B. F. & Haywood Shreve, Columbus, N. J.
Rob's Gem 6046, John P. Rowe to George E. Wallace. Rochester, N. H.

Peterboro, N. H. WM. H. CALDWELL. Secr'y.

CONCERNING OUR ADVERTISERS.

REAL HORSE POWER.

A machine that transmits the entire effort of the animal. It is highly probable that no small steam engine yields the power claimed for it; even fewer "horse powers" do. From the effort of the animal heavy mechanism has heretofore subtracted a great portion of the power, and it has remained for a Vermont firm to produce an ideal horse power. This power is known as A. W. Gray's Sons' Horse Power. It is manufactured at Middletown Springs, Vermont. It is not a new thing, but its later improvements are all new and all very valuable—insuring lightness with strength; ease of operation, with great durability; thoroughly good construction, with low price. These powers are in general use for running threshers, wood sawing machines, cream separators, churns, ensilage cutters, cider mills, pumps, etc, and for like uses. The mechanical devices and the method of construction that makes the Gray powers so very desirable are set out in a most interesting manner in the 1903 catalogue. This catalogue treats the entire subject in a very comprehensive manner, going over the question of applied power, effect on the animal, conditions and results generally. Any one that needs power can ill afford neglecting this book. Messrs. A. W. Gray's Sons also manufacture threshers, wood-saw machines, ensilage cutters, etc., which are also treated in this catalogue. Like their celebrated power, these machines are of the very best construction, and have the best labor saving attachments and devices. Any one contemplating a purchase of power or machine may have the catalogue free by addressing A. W. Gray's Sons, Middletown Springs, Vermont.

The firm of J. K. Wilder & Sons of Monroe, Mich., manufacturers of Feed and Ensilage Cutters, Wind Elevators, Horse Powers, Land Rollers, Clod Pulverizers and Soil Packers, and a general line of Agricultural Implements, have been succeeded by the new corporation known as the Wilder-Strong Implement Co., organized under the laws of the State of Michigan. The capital stock of the new organization is $50,000.00. The officers of the new concern are as follows, viz: Wm. H. Strong, Pres., J. K. Wilder, Vice Pres., E. S. Wilder, Sec'y and Treas. Wm. H. Strong, the new member of the firm is a well known business man of Detroit, Mich. The new company will continue to manufacture the lines of goods formerly made by J. K. Wilder & Sons, but with added capital and the added energy of the new firm member are planning to double their former output.

TORMENTS OF FLIES.

Knowing that our readers will be pleased to learn of a reliable preparation that will protect their cows and horses from the torments of flies and mosquitoes, we call your attention to the Fly Remover advertised by the Rippley Hardware Company, Grafton, Ill. We have received many reports stating that it would protect stock and horses from flies, mosquitoes, and lice, also that it will not injure them when directions are followed; also it is non poisonous. Parties who use it claim their animals are protected all day and feed quietly. Horses work and drive better. We have seen many strong endorsements on these goods, which we know to be from very responsible parties. The cost of using it is so small as compared with the comfort your animals derive, you cannot invest a like amount of money that will realize a greater profit. We request that you give it a trial at once. Send for their 100-page Breeders' Supply Catalogue. See their advertisement elsewhere in this issue.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Indigestion.

Can you tell me why cows chew old bones? Is it a lack of phosphate? If so, do cows yield milk to their full capacity under these circumstances? If not, do you think it would pay to supply phosphate to pastures in shape of South Carolina rock and what quantity per acre? L. S. ST. J.

Canajoharie, N. Y.

ANSWER.

Chewing bones and other unnatural substances is usually an indication of an acid condition of the stomach, which brings about this unnatural desire, and is a form of indigestion. Give each animal ½ oz. of bicarbonate of soda in a little water twice, daily until relieved.

Obstructed Teats.

One of my cows is very slow to milk in the front teats. There appears to be an obstruction near the upper end of the teat which only allows the milk to pass slowly and it takes twelve or fourteen minutes to milk those two quarters and she does not give over three gallons per day. E. N. R.

Franklinville, N. Y.

ANSWER.

There is an obstruction in the teats, perhaps a stricture, which can be remedied by the use of a teat bistoury with which you can lay open the obstruction and gain a free flow of milk.

Sucks the Cows.

I have very fine young bull that sucks my milch cows. Is there a preventive for this?

Hopkinsville, Ky. R. W. W. & SON.

ANSWER.

An ordinary calf weaner applied to the nose will remedy your case.

Lump Jaw.

Please give symptoms and traetment of lump jaw in cattle. Can a three months old calf have it?

Marshfield, Ore. M. V.

ANSWER.

An enlargement usually appears in the vicinity of the most prominent part of the lower jaw, which will break open and discharge a creamy pus. This pus will trickle on the grass while the animal is feeding in the pasture, and other cattle will follow and eat the grass with the pus, which contains the infectious germs, and in this way it will spread through the entire herd. After the pus is all discharged from one enlargement, it usually disappears and others will follow in the immediate vicinity. It does not appear in calves so young, as a rule.

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GOMBAULT'S **Caustic Balsam**

A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all liniaments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.* Every bottle sold is warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland, O.

Good News to Stock Owners

Just the information that you must have to successfully treat Fistula, Poll Evil, Sweeny, Knee-Sprung, Curb, Splint, Spavin, Ringbone and all blemishes hard or soft, also Lump Jaw in cattle.



Bone-Spavin Ringbone Lump-Jaw



Certain and inexpensive methods fully described in our two big booklets, which we send free if you have a case to treat. Over 140,000 farmers rely upon these same methods. Write for the books.

FLEMING BROS., Chemists, 998 Union Stock Yards, Chicago, Ill.

Leg and Body Wash.



When it comes to stiffness and soreness of muscles, tendons, etc., nothing equals

Tuttle's Elixir

for restoring normal conditions. Apply to the body as a mild sponge bath and put on light blanket. Sponge the legs and put on light bandages.

Used and Endorsed by Adams Express Company.

Tuttle's American Condition Powders

—A specific for impure blood and all diseases arising therefrom.

TUTTLE'S FAMILY ELIXIR cures rheumatism, sprains, bruises, etc. Kills pain instantly. Our 100-page book, "Veterinary Experience," FREE.

Dr. S. A. TUTTLE, 62 Beverly St., Boston, Mass.

Beware of so-called Elixirs—none genuine but Tuttle's.

Avoid all blisters; they offer only temporary relief, if any.

Sore Shoulders

used to lay a horse up for weeks at a time, resulting in much annoyance and loss to the owner. Now you can cure him while he works and never lose a moment of his service by using

Bickmore's Gall Cure



Guaranteed to cure Harness, Collar and Saddle Galls, Scratches, Grease Heel, Speed Crack, Cuts, etc. None genuine without the "Old Gray Horse" trade mark on each box. Beware of imitations. Ask for and insist upon getting "Bickmore's," for nothing else is so good. Substitutes yield the dealer more profit, but cost you the same. Sample, enough to cure one horse, mailed for 10 cents. Write now.

BE SURE AND WORK THE HORSE.

BICKMORE GALL CURE CO., Box 515, Old Town, Me.

☞ Your Horse can work without pain while his sore breast is healing if you use MOORE BROTHERS'

GALL POWDER

the most effective cure ever known for healing sore shoulders, backs and other skin abrasions; at druggists, or by mail $1.00. MOORE BROTHERS, Veterinary Surgeons, Albany, N.Y. "Facts for Farmers and Breeders," sent free.

Cows Made to Breed

Inject with Hood Farm Breeding Powder when they fail to breed, do not clean, are irregular; also after abortion. Of greatest value to breeders and stock owners. Dollar size by mail, $1.15; large size, four times more, to any railroad express point in U.S. $2.75. C. I. Hood & Co., Lowell, Mass.



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Can be successfully treated with Anti-Abortion Serum. Easily administered and permanently cures. Information free.

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"Just as good?" "Just as good!" Did you say? "Just as good as Veterinary Pixine!!" The dealer who tells you that is mistaken. He does not know.

FACTS AND TESTS PROVE IT!

Emery, Ky., April 9, 1903.

I feel it my duty to tell what Veterinary Pixine did for a horse of mine. He was cut with a knife between the fore legs three inches deep and two inches long, which every minute would gap open. I used several different kinds of remedy without success, even to having some stitches taken. Nothing did any good and it kept swelling and became feverish. I almost gave up hopes of getting him well. In the columns of the Ohio Farmer I observed your advertisement and, as it was the last chance, I purchased a box at the druggists and used it as directed and before the box was used up the cut was entirely well. I intend to keep a supply on hand for emergency cases if I have to pay a dollar a box for it. Please accept my thanks for the good I have received from its use, and if you choose you can use my name and testimony.

W. S. CAMPBELL.

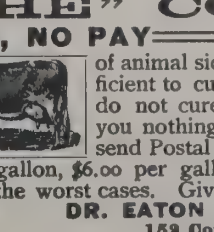
This penetrating, stimulating, soothing, absorbing, antiseptic, healing ointment heals from beneath the surface by disinfecting the parts, subduing inflammation and stimulating healthy granulations, not by drying and scabbing, and stimulates growth of hair, natural color. Makes quick, clean and healthy cure; heals stinging, burning, chronic saddle and collar galls, hopple chafes, abscesses, caked bag, cow pox, and hoof rot. It penetrates, stimulates, soothes and heals while horse works. Money refunded if it fails.

Price, 2-oz. box 25c; 8-oz. box 50c; 5-lb. pkg. $4.00, at all druggists and dealers or sent prepaid.

TROY CHEMICAL CO., Troy, N. Y.

Also Manufacturers of "Save-the-Horse" Spavin Cure. $5.00 a bottle. Send for copy of guarantee and booklet.

COWS RELIEF



Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.

Used Exclusively at Model Dairy

Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.

O. H. MFG. CO., Dept. H, Lyndon, Vt.

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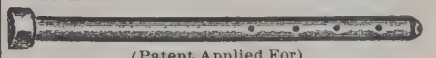
Retention of Placenta and Failure to Breed.

KELLOGG'S CONDITION POWDER is a positive cure for these diseases. Write for circular containing full information, references and price.

H. W. KELLOGG COMPANY, St. Paul, Minn.

ABORTION,

Failing to Breed and to bring Cows to Heat. Sure Cure. In use 20 Years.



(Patent Applied For)

Hard Rubber *Safety* Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.

Dr. WM. HORNE, Janesville, Wis.

CHLORO NAPTHOLEUM DIP

Cures Contagious Abortion in cows; cures Scours in calves; keeps flies off cows so that they stand quietly and rest easy at milking. Used in the Dairy, makes every condition perfectly sanitary. Guaranteed. Agents wanted. 1 gal. $1.50; 5 gals. $6.75 prepaid. Larger lots at lower rates.

WEST DISINFECTING CO., Inc., 8 E. 50th. St., New York

BLACKLEGOIDS

BEST PREVENTIVE OF BLACKLEG.



Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each Blacklegoid (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. Blacklegoids are sold by druggists; *ask for them.*

Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.

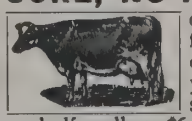
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CURE "THE" COW

NO CURE, NO PAY

WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address



DR. EATON J. CROSS, 153 Congress St., Troy, N. Y

Alfalfa Silage in California.

Grading up a Herd.—Cutting Hay Into Mow.—An Editorial Statement Corrected.

ED. HOARD'S DAIRYMAN:—Conditions are very different here from those in the east, but the cow is, or may be, the same everywhere and there is always something of interest to me in every issue of your paper.

Alfalfa silage is certainly a success here, but hardly equal to corn.

Our first crop of alfalfa is, on old ground, always full of foxtail and these sharp beards are very troublesome in the hay.

In the form of silage they are as soft as silk. My experience, covering four years, convinces me that well matured alfalfa makes the best silage. The fox tail is then nearly mature and water is run into the carrier continuously from a ¾ inch pipe. Not quite so much is added though as is present in immature alfalfa, for the juice seldom exudes from bottom of silo as it does when very young grass is put in.

Am grading up a herd of all sorts of native cows by using a pure bred Jersey bull. Have not been at it long enough to tell just what improvement will be made, but the heifers last year averaged as well as the old cows. Average yield per cow 220 lbs. butter fat, returns $54.-20, plus calves and skim milk pigs. Am aiming now at the 300 lb. mark and when I reach it will try for 400 lbs.

Noting an inquiry in last paper about cutting hay direct from the field, will say the immense feeding farms of Henry Miller surround us on nearly all sides, and this experiment was tried here last year. It was so successful that his head superintendent told me they would put in 36 in. machines (they now use 24 in.) and cut all hay as it came from field, within two years. Must take exception to your statement that hay so cut would not pack as closely as long hay. I built a little hay barn, last fall, 16×24 on ground with 16 ft. posts. Filled it to the plates with no tramping except what was done in scattering the feed (twice a day) and put in 20 loads. It would have been impossible to get in 10 such loads, uncut, with any reasonable amount of tramping. F. B. M.

Dos Palos, Cal.

We are very much obliged to F. B. M. for the foregoing contribution to our columns. What he has to say about alfalfa silage is very much to the point and should have the attentive consideration of such of our readers as may contemplate preserving alfalfa in this way. We regret, however, that he did not extend his communication a little further and tell us what the effect upon the subsequent cutting was when the first crop of alfalfa was allowed to become so mature.

We shall be very glad to hear from this correspondent further and especially as to his success in grading up his herd.

More than all else, however, we are especially gratified for this correspondent's correction of the editorial statement in regard to cutting hay into the mow directly from the field. In the nature of things, it is impossible for the editors to answer from experience the thousand and more questions submitted to them every year and it is not to be wondered at that when they get beyond the domain of personal experience, they should sometimes blunder, as in the instance referred to; but in such cases, they are very glad indeed to be corrected and they would esteem it a favor if more of their readers felt at liberty to criticise the editorial statements and opinions.

Cheese Scoring Tests at the Michigan Station.

ED. HOARD'S DAIRYMAN:—The Michigan Cheese Scoring Test is the only test of its kind in existence, and we are glad to say that it is a complete success. Our cheesemakers are very much interested in this test, and we believe it will accomplish a great deal of good.

In the June scoring there were 34 entries of cheese and 55 entries of butter. That these scoring tests are accomplishing the object for which they were inaugurated is illustrated by an abstract from a letter of one of the participants, which reads: "We are well pleased that we entered the contest on account of the information it gives. It will always stimulate us to better efforts."

After each scoring of butter and cheese a criticism of the score is sent out to the butter and cheese makers individually.

The following copy shows something of the character of these criticisms:

CRITICISM.

"I enclose herewith score cards showing wherein your cheese was defective.

The chief defect in your cheese was in the flavor. Both the flavor and the texture showed that the milk from which this cheese was made was strongly gassy. During the summer months there will always be more or less of gassy milk, even with the best of care in handling the milk. It, therefore, behooves the cheesemaker to follow the best methods known in combating these gassy milks. One of the best means of overcoming the gassy effects of milk is to add a liberal amount of fine flavored sour milk, or what we call "starter" to the milk in the morning before setting. The amount of starter that may thus be used depends somewhat upon the amount of acidity already present in the milk. It may be said that the amount of starter used may vary from two to five pounds for every one hundred pounds of milk. The good effects from the addition of sour milk in combating gassy milk comes from the antagonistic relation that exists between the souring germs and the gas-producing germs. The effect of adding a heavy starter is that of either killing the gas germs present in the milk or retarding their action. We feel confident that if you can so instruct your patrons as to have them bring you a fairly sweet milk, one that will permit the use of at least from two to three pounds of starter to one hundred pounds of milk, that the defect you experienced from gassy curds will be largely, if not entirely, overcome."

The information bulletin that is occasionally sent with the criticism is as follows:

INFORMATION BULLETIN.

STARTERS.

A good starter is a clean flavored batch of sour milk or skim milk.

Starters are used to overcome bad fermentation in milk and cream.

There are two kinds of starters: (1) Natural. (2) Commercial.

A natural starter is ordinary sour milk or skim milk.

Commercial starters are made in laboratories by selecting and breeding the right kind of acid producing germs.

Commercial starters are giving very good satisfaction and their use is rapidly increasing.

Among the important of these starters or cultures may be mentioned:

1. Douglas Culture, manufactured by O. Douglas, Boston, Mass.
2. Keith Culture, manufactured by S. C. Keith, Jr., Charlestown, Mass.
3. Hansen's Culture, manufactured by Hansen's Laboratory, Little Falls, New York.

Commercial starters are prepared as follows:

Heat four pounds of milk, or preferably skim milk, to 160 degrees F. Keep at this temperature 10 to 15 minutes, then cool quickly to 70 degrees F. Now introduce bottle of Commercial Culture and let stand till milk has just thickened. This thickened milk is the starter.

The starter is carried on from day to day as follows:

Heat and cool milk as explained above (pasteurize) and introduce into this enough of the four pounds of starter already made to sour the milk in 24 hours at a temperature of 70 degrees F. The amount required is generally 3 to 4 per cent; that is to every 100 pounds of pasteurized milk we must add 3 or 4 pounds of old or mother starter. The remainder of the old starter is added to the milk used for cheese making.

By always saving a little of the old starter and putting this into milk newly pasteurized (heated and cooled) it will be seen that in this manner the original ferment can be carried from one batch of milk to another for weeks.

The average amount of starter to every 100 lbs. of milk in cheese making is 3 lbs.

The best way to handle tainted or gassy milk is to use a liberal amount of starter.

JOHN MICHELS,
In Charge of Contests.
Michigan Agricultural College.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

A Wisconsin Herd Record.

ED. HOARD'S DAIRYMAN:—I send you a report of my dairy herd of Holstein-Friesian cows, 32 head, for year ending April 1st, 1903, as follows:

Pounds of milk for year, 248,000; money for year, $2,554.40; average milk per cow, 7,750 lbs.; money expended for concentrated feeds, $320, leaving a net balance of $2,234.40 or $69.82 per head. Nine of the 32 cows were two-year-old heifers.

This milk was taken to a cheese factory; price per cwt. $1.03. W. H. J.

Watertown, Wis.

For the lasd's sake—use Bowker's Fertilizers. They enrich the earth and the men who till it.

Special Offer of Fine Dairy Farm
ADJOINING RED WING, MINNESOTA.
174 ACRES—140 under high cultivation, balance good pasture and woodland. Has complete machinery for Dairy, with power, etc., and all machinery for cutting corn. Two large silos, sufficient to hold feed for 50 cows, and large barn to tie up 70 head. One new house—could not be built for less than $2,500; another good house for help. Large horse barn and granary. Improvements could not be duplicated for less than $7,500. Monthly receipts over $600. All for sale at $12,000.
H. A. CAMPBELL, 107 E. 4th St., St. Paul, Minn.

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in Central Wisconsin? We offer very desirable lands to actual settlers. Our lands are in Marathon County and are some of the very best hardwood, agricultural and dairy lands in the state. Deep clay loam soil. Good water easily obtainable at but little depth. Country opened with good roads and well populated.
Schools, both public and parochial, churches, general stores, bank, creamery, etc., within easy reach. Ready market for farm and forest products.
Terms reasonable. If you desire to improve your condition write for further particulars to
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Buy You a Ticket to CROOKSTON, MINN., and call upon
The Polk County Land & Loan Company
For choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.
360 acre farm, 4½ miles from Crookston, Minn., (a city of 7,000 inhabitants), and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 ft. square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm in under a high state of cultivation, and is well drained by a slight ravine running through the farm, merely sufficient for self drainage. The soil is a rich deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.
This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50,
160, acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired. Price $19.00 per acre.

FOR SALE
My fine country home and dairy farm of 120 acres within 1¼ miles of Waukesha city limits and electric line. This farm is well watered and fenced, and well equipped with buildings painted and in good order; 10 acres wood lot, balance under plow and in high state of fertility. For particulars address
O. P. CLINTON, Waukesha, Wis.

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Proprietor of Magic City Stock Farm.

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Western Canada
Land of the Sunshine, Grain Growing, Mixed Farming.

The Reason Why
more wheat is grown in Western Canada in a few short months, is because vegetation grows in proportion to the sunlight.
Area Under Crop in Western Canada 1902—1,987,330 Acres.
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Abundance of water and fuel. Building material cheap. Good grass for pasture and hay. A fertile soil. A sufficient rainfall and a climate giving an assured and adequate season of growth. All these conditions are found in Western Canada.
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The only charge being $10 for entry. Send to the following for an Atlas and other literature, showing location of lands in Western Canada, and also for certificate giving you reduced freight and passenger rates, etc. The Superintendent of Immigration, Ottawa, Canada; or to the authorized agent of the Canadian government—
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in Dunn, St. Croix, Barron, and Price counties make the best homes on earth; because, 1st., soil heavy; 2d., some timber, fuel cheap; 3d., springs and streams numerous; 4th, no blizzards or drouths; 5th., no sand or pine stumps; 6th., near the best northern markets; 7th., best dairy section known; 8th., no crop failures; 9th., successful settlement and all prosperous; 10th., corn, oats, wheat, rye, potatoes, tobacco, hay, etc., unexcelled in the United States.
If you want a Canadian home, we can, and will take you to the best locality in Manitoba or Assiniboia. Send for catalogue or come yourself. We sell on easy terms our own lands in Wisconsin and Canada. DUNN COUNTY LAND CO., Downing, Dunn County, Wisconsin, or 156 East 3d Street. Rooms 5 and 6, St. Paul, Minnesota.

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One-half mile from Janesville, Wis. New 12 room house, good barns, etc. Fine black soil. A great bargain and if taken at once the purchaser gets the rent. It is one of the best farms in the famous Rock River Valley and will be sold on easy terms to a good man.
WILSON LANE, Janesville, Wis.

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Farm Lands
$8 to $12 PER ACRE.
On terms to suit purchaser. We would like to show you the lands and can give you low railroad rates to come and look at them. This is the future dairying country of the Northwest.
Our lands are only 240 miles from Milwaukee with splendid markets on all sides. None of the land lies more than three and a half miles from the railway station. Write and find out about it. Yours very truly,
INTERIOR LAND CO.,
Janesville, Wis.

Official Record of Holstein-Friesian Cows From April 18 to May 16, 1903.

This class of records are made under the supervision of agricultural colleges and state experiment stations. In every case a representative of such an institution, paid by the institution, oversees the entire work. The samples of milk are tested by him in duplicate and a composite sample is forwarded by him to the station or college to be tested there. In cases of phenomenal production re-tests are also made during which the cows are constantly watched that by no possibility the contents of their udders can be increased by the injection of milk or fat.

During this period reports of 75 cows have been received: Seven have thirty-day records, two have twenty one-day records and all have seven day records.

Jessie Maida 48805—4 years, 8 months: in 30 days: Milk 2,325.8 lbs., fat 78.753 lbs., equivalent butter 91 lbs., 14.1 oz., best seven days commencing 30 days after calving: Milk 594.1 lbs., fat 20,611 equivalent butter 24 lbs., 0.7 oz.

Edith Prescott Aaggie 44291—6 years: in 30 days: Milk 2,082.8 lbs., fat 70.896 lbs., equivalent butter 82 lbs., 11.4 oz.: best seven days commencing 23 days after calving: Milk 518.5 lbs., fat 18.810 lbs., equivalent butter 21 lbs., 15.1 oz.

Homestead Gradock DeKol 49460—3 years, 9 months; in 30 days: Milk 1,936.1 lbs., fat 66.305 lbs. equivalent butter 77 lbs, 5.7 oz.; best seven days commencing 34 days after calving: Milk 476.8 lbs., fat 17.881 lbs., equivalent butter 20 lbs. 13.8 oz.

Zora DeKol 51516—3 years, 2 months; in 30 days: Milk 1,956.4 lbs., fat 60.059 lbs., equivalent butter 70 lbs., 1.1 oz.; best seven days commencing 24 days after calving: Milk 471.6 lbs., fat 15.836 lbs., equivalent butter 18 lbs. 7.6 oz.

Small Hopes DeKol 44292—6 years; in 30 days: Milk 1,903.4 lbs., fat 63.530 lbs., equivalent butter 74 lbs., 1.9 oz: best seven days commencing 16 days after calving: milk 450.3 lbs., fat 16.049 lbs., equivalent butter 18 lbs., 11.6 oz.

DeKol Goudgeld 41904—6 years in 30 days: Milk 1,837.3 lbs., fat 55.715 lbs., equivalent butter 65 lbs.; best seven days commencing 24 days after calving: Milk 526.7 lbs., fat 17.492 lbs., equivalent butter 20 lbs., 6.5 oz. Food consumed during the seven-day test 259 lbs. ensilage, 88 lbs. alfalfa hay, 75 lbs. Four X distillers grain, 35 lbs. bran, 14 lbs. gluten meal, 14 lbs. ground oats, 14 lbs. ground corn and 3.5 lbs. oil meal. Owner McAdam & von Heyne, Deansboro, N. Y.

Ruby Shadeland DeKol 52052—3 years 4 months; in 30 days: Milk 1,740.1 lbs., fat 53.117 lbs., equivalent butter 61 lbs., 15.5 oz; best seven days commencing 15 days after calving: Milk 470.6 lbs., fat 15.375 lbs., equivalent butter 17 lbs., 15 oz. Food consumed during the seven day test 256 lbs. ensilage, 84 lbs alfalfa hay, 61.5 lbs. Four X distillers' grain, 28 lbs. bran, 14 lbs. gluten meal, 14 lbs. ground oats, 14 lbs. ground corn and 7 lbs. oil meal. Owner McAdam & von Heyne, Deansboro, N. Y.

Flora Hamilton 42036—6 years; in 21 days: Milk 1,388.4 lbs., fat 48,235 lbs., equivaleut butter 56 lbs., 4 4 oz.: best seven days commencing 13 days after calving: Milk 461.5 lbs., fat 17.806 lbs., equivalent butter 20 lbs., 12.4 oz.

Nellie Burke Pietertje 4 659 9 years, in 21 days; milk 1, 142.6 lbs.; fat 44.915 lbs., equivalent butter 52 lbs., 6.4 oz.; best seven days commencing 29 days after calving: milk 392.3 lbs., fat 15.509 lbs., equivalent butter 18 lbs., 1.5 oz. Owner Averill & Gregory, Syracuse, N Y.

The remaining seven day records were as follows:

Jessie Fobes 2d's Tritomia 44130—6 years: milk, 539.1 lbs., fat 19.652 lbs., equivalent butter 22 lbs., 14 8 oz.

Heilo 4th's Pet 43611—7 years: Milk 508.7 lbs., fat 17.117 lbs., equivalent butter 19 lbs., 15.5 oz. Owner W. H. Jones, Watertown, Wis.

Liscomb Aaggie 3d. 47553—5 years: Milk 451.9 lbs., fat 16.960 lbs., equivalent butter 19 lbs., 12.6 oz. Owner A. N. McGeoch, Milwaukee, Wis.

Duchess Ormsby 3d's Butter Girl 49079—5 years, 6 months: milk 421.9 lbs., fat 16.322 lbs., equivalent butter 19 lbs., 0.7 oz. Owner A. N. McGeoch, Milwaukee, Wis.

Minnie Spaanz 2d. 58388—7 years: Milk 475 5 lbs., fat 15.820 lbs., equivalent butter 18 lbs., 7.3 oz. Owner A. N. McGeoch, Milwaukee, Wis;

Molly Wood 2's DeKol 43816—7 years: Milk 391 2 lbs, fat 15.574 lbs., equivalent butter 18 lbs., 2.7 oz. Owner Henry Stevens & Son, Lacona, N. Y.

Hannah Melchior 43017—5 years, 8 months; Milk 497.6 lbs., fat 15.147 lbs., equivalent butter 17 lbs., 10.8 oz Owner F. B. Fargo, Lake Mills, Wis.

Netherland Lucy Wit 48996—8 years: Milk 468.7 lbs., fat 14 912 lbs., equivalent butter 17 lbs., 6.4 oz.

Piebe 5th 35246—9 years: Milk 421.4 lbs., fat 14.911 lbs., equivalent butter 17 lbs., 6,3 oz. Owner W. H. Jones, Watertown, Wis.

Marrilla Plum 41782—6 years, 11 months: Milk 441.4 lbs., fat 13.972 lbs., equivalent butter 16 lbs., 4.8 oz.

Jessie Fobes 2d's Myrtle 49192—5 years, 4 months: Milk 404.6 lbs., fat 13.642 lbs., equivalent butter 15 lbs., 14.7 oz. Owner A. N. McGeoch, Milwaukee, Wis.

Zeruiah Clothilde 48158—5 years, 11 months: Milk 442.2 lbs., fat 13.616 lbs., equivalent butter 15 lbs., 14.2 oz.

Rag Apple's Abbekirk Burke 41873—6 years, 6 months: Milk 469.4 lbs., fat 12.708 lbs., equivalent butter 14 lbs, 13.2 oz.

Lady Alice Geldertje 63441—8 years: Milk 348.8 lbs., fat 12.662 lbs., equivalent butter 14 lbs., 12.4 oz.

Daisy DeHaan Mechthilde 42833—6 years: Milk 425.2 lbs., fat 12.594 lbs., equivalent butter 14 lbs., 11.1 oz

Rowena Maid 2d 38564—7 years: Milk 394.7 lbs., fat 12.516 lbs., equivalent butter 14 lbs., 9.6 oz.

May Ormsby 46453—5 years, 8 months: Milk 308.8 lbs, fat 12.171 lbs, equivalent butter 14 lbs, 3.2 oz. Second record commencing 16 days after calving: Milk 397.5 lbs., fat 12.159 lbs., equivalent butter 14 lbs, 3 oz. Owner A. N. McGeoch, Milwaukee, Wis.

Carren Wase DeKol 49450—4 years, 11 months: Milk 553.2 lbs., fat 18.651 lbs., equivalent butter 21 lbs., 12.2 oz.

Alcartra Polkadot 50798—4 years: Milk 421.2 lbs., fat 17.403 lbs., equivalent butter 20 lbs., 3 oz.

Molly Gordon 48428—4 years, 7 months: Milk 436.1 lbs., fat 14.691 lbs., equivalent butter 17 lbs., 2.2 oz.

Manor DeKol Lady Burke 48069—4 years, 5 months: Milk 436.6 lbs., fat 14.208 lbs., equivalent butter 16 lbs., 10.3 oz.

Pauline Burke DeKol 48083—4 years, 10 months: Milk 460.7 lbs., fat 14.180 lbs., equivalent butter 16 lbs., 8.7 oz.

Duchess Ormsby 4th 48504—4 years: Milk 386.6 lbs., fat 13.918 lbs., equivalent butter 16 lbs., 3.8 oz. Owner, A. N. McGeoch, Milwaukee, Wis.

Canary Queen Lily 48257—4 years, 11 months: Milk 306.2 lbs., fat 12.903 lbs., equivalent butter 15 lbs., 0.9 oz. Owner, F. B. Fargo, Lake Mills, Wis

Mechthilde Mink 4,822—4 years, 6 months: Milk 360.4 lbs., fat 11.833 lbs., equivalent butter 13 lbs, 12.9 oz. Owner, A. N. McGeoch, Milwaukee, Wis.

DeNatsey Baker 55471—3 years, 9 days: Milk 484 2 lbs, fat 17.306 lbs., equivalent butter 20 lbs., 3 oz.

Witra 2d, 50162—3 years, 10 months: Milk 438.3 lbs., fat 16.636 lbs., equivalent butter 19 lbs., 6.5 oz.

Dora DeKol Hengerveld 52907—3 years, 6 months: Milk 474.2 lbs., fat 15.861 lbs., equivalent butter 18 lbs., 8.1 oz.

Winana Pietertje DeKol 50734—3 years, 10 months: Milk 455.7 lbs., fat 14.641 lbs., equivalent butter 17 lbs., 0.9 oz.

Korndyke Queen 2d 54089—3 years: Milk 406.5 lbs., fat 14.542 lbs, equivalent butter 16 lbs., 15.5 oz. Owner, Henry Stevens & Son, Lacona, N. Y.

Glen DeKol Artis 52748—3 years, 5 months: Milk 456 lbs., fat 14.435 lbs., equivalent butter 16 lbs., 13.5 oz.

Pietertje Lady Wonder DeKol 52467—3 years, 8 months: Milk 467.4 lbs., fat 13.885 lbs., equivalent butter 16 lbs., 3.2 oz.

Daisy Sindt Mechthilde 53283—3 years: Milk 384.4 lbs., fat 13.833 lbs., equivalent butter 16 lbs., 2.2 oz.

Silver Gloss 6th's DeKol 52137—3 years, 10 months: Milk 371 lbs., fat 13.764 lbs., equivalent butter 16 lbs., 0.9 oz.

Mary Beets DeKol 50829—3 years, 10 months; Milk 434.4 lbs., fat 13.613 lbs., equivalent butter 15 lbs., 14.1 oz.

DeKol Mechthilde 52494—3 years, 9 months: Milk, 407.7 lbs. fat 13.419 lbs, equivalent butter, 15 lbs., 10.5 oz. Owner, T. S. Tompkins, White Bear Lake, Minn.

Piebe Orleans Burke 55192—3 years: Milk 357.1 lbs., fat 12.574 lbs., equivalent butter, 14 lbs., 10.7 oz. Owner, W. H Jones, Watertown, Wis.

Veeman Koningen 3d, 53025—3 years, 7 months: Milk, 360.1 lbs., fat 12.446 lbs., equivalent butter, 14 lbs., 8.3 oz.

Daisy Mechthilde Barrington 64556—3 years, 7 months: Milk 451.3 lbs., fat 12.199 lbs., equivalent butter, 14 lbs., 3.7 oz.

Spikkelbird 51046—3 years, 10 months: Milk, 401.9 lbs., fat, 12.173 lbs., equivalent butter, 14 lbs., 3.2 oz.

Beauty Jewel Virgo 53220—3 years: Milk, 338.9 lbs., fat 11.475 lbs., equivalent butter—13 lbs, 6.2 oz. Owner, John B. Irwin, Minneapolis, Minn.

Midland Hengerveld DeKol 50830—3 years, 11 months: Milk, 383 lbs., fat 11.475 lbs., equivalent butter, 13 lbs. 6.2 oz.

Minnie Hengerveld DeKol 52571—3 years: Milk, 345.9 lbs., fat 11.150 lbs, equivalent butter, 13 lbs, 0.1 oz.

Sethje Veeman Pietertje DeKol 53233—3 years, 6 months: Milk 341 lbs., fat 10.086 lbs., equivalent butter, 11 lbs., 12.3 oz.

Zora Lilith DeKol 53676—3 years: Milk, 325.8., fat 9.217 lbs., equivalent butter, 10 lbs,, 12 oz.

Katy Spofford Corona 2d, 53117—2 years, 10 months: Milk 401.2 lbs., fat 12.572 lbs, equivalent butter, 14 lbs., 10.7 oz.

Lady Oak 2d's Piebe DeKol 58644—1 year, 11 months: Milk 278.7 lbs., fat 10.554 lbs., equivalent butter, 12 lbs. 5 oz.

Gipsy Queen Pauline DeKol 53394—2 years, 9 months: Milk, 257 lbs., fat 10.400 lbs., equivalent butter, 12 lbs 2 1 oz.

Aaggie Careme Parthenea 2d, 62672—2 years, 10 months: Milk 339.2 lbs., fat 10.038 lbs., equivalent butter, 11 lbs., 11.4 oz. Owner, T. S. Tompkins, White Bear Lake, Minn.

May DeKol Pietertje 56687—2 years 4 months:

$500 REWARD FOR WOMEN

WHO CANNOT BE CURED.

So uniformly successful has Dr. Pierce's Favorite Prescription proven in all forms of Female Weakness, Prolapsus, or Falling of Womb, and Leucorrhea, that, after over a third of a century's experience in curing the worst cases of these distressing and debilitating ailments, Dr. Pierce now feels fully warranted in offering to pay $500 in cash for any case of these diseases which he cannot cure.

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Therefore, *insist* on having Dr. Pierce's Favorite Prescription and turn your back on any unscrupulous dealer who would insult your intelligence by attempting to foist upon you some inferior substitute, under the plea that "it is just as good." Insist on having the article which has a record of a third of a century of cures and which is backed by those willing to forfeit $500 if they cannot cure you.

In cases attended by a leucorrheal drain a solution of Dr. Pierce's Lotion Tablets should be used conjointly with the use of the "Favorite Prescription." They are sold by all druggists, or sent post-paid to any address, on receipt of 25 cents in stamps. Send 31 cents in stamps for Dr. Pierce's Common Sense Medical Adviser. Address WORLD'S DISPENSARY, Buffalo, N. Y.

Weak and sick women are invited to consult Dr. Pierce, by letter, *free*. All correspondence is held as strictly private. Address Dr. R. V. Pierce, Buffalo. N. Y.

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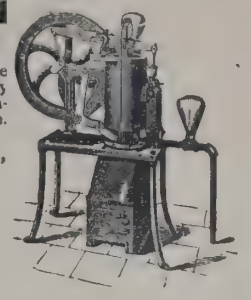
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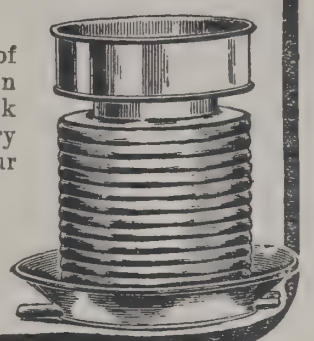
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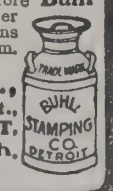


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Lady Fern Piebe 58175—2 years, 1 month: Milk 267.5 lbs., fat 9 413 lbs., equivalent butter 10 lbs., 15.7 oz. Owner, W. H. Jones, Watertown, Wis.

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Liscomb Aaggie 6th 57980—2 years, 3 months: Milk 299 lbs., fat 8.828 lbs., equivalent butter 10 lbs., 4.8 oz. Owner, A. N. McGeoch, Milwaukee.

Small Hopes Mooie 58149—2 years, 2 months: Milk 289.5 lbs., fat 8.787 lbs., equivalent butter 10 lbs., 4 oz.

Buckeye Maid DeKol 64473—2 years, 10 months: Milk 326.6 lbs., fat 8.684 lbs., equivalent butter 10 lbs., 2.1 oz.

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Valley Farm Topsy 59589—1 year, 11 months: Milk 23c.2 lbs., fat 7.985 lbs., equivalent butter 9 lbs., 5.1 oz.

Busacker DeKol 54729—2 years: Milk 204.8 lbs., fat 7.925 lbs., equivalent butter 9 lbs., 3.9 oz. Owner, A. N. McGeoch, Milwaukee, Wis.

Johanna Douglas 59076—2 years: Milk 190.1 lbs., fat 7.539 lbs., equivalent butter 8 lbs., 12.7 oz

Yorkville, N. Y. S. Hoxie.
Supt. of Advanced Registry.

How to Make Clover Grow on Sandy and Prairie Land and in Dry Sections.

A correspondent writes us how he succeeds in growing clover on sandy land. The soil is very sandy in that part of Michigan, with no clay hard-pan under it. Unless one can grow clover on such soil it is hard to keep up the fertility. Our friend writes that he has no difficulty at all in getting good crops of clover. He sows on corn stubble without any nurse crop. He goes over the land twice with a spring tooth harrow, when it gets dry enough to work nicely in the spring. Then the clover seed is put on with a seeder and covered with a fine-tooth harrow. When the weeds get well started, along in June, he mows them off and leaves them on the field, of course being careful to not bunch them up so any clover plants will be smothered. This is the whole story in a few words; but it is a story of great value to farmers living on sandy land, or where it is difficult to get a good stand of clover on account of a lack of rain. It is substantially what the writer has advised at Institutes all over the state of Minnesota, where there is difficulty in making clover grow. Some of the soil is sandy; some prairie. The plan is equally good for both kinds. Lack of moisture is one great trouble there. The crop starts and then is injured by dry weather before it gets rooted deeply enough to reach permanent moisture. Now how does sowing on corn stubble help the matter? Well, one makes a nice seed bed on the surface two or three inches deep, and puts the seeds in it. They sprout and the roots start downward. Almost at once they get into solid earth, the lower part of the soil that was turned over for corn. In this solid ground capillary action can take place. Water is creeping up slowly from below as long as any is left. Water will rise through this solid soil; it will not rise through loose soil. Supposing you sow on sandy, or prairie soil that was plowed and rather loose to the depth of the furrow. The plants start; then a dry, windy time comes. The moisture dries out of the loose soil down under the roots and around them. Then they die. When the seed is within an inch or so of solid ground such a result can hardly take place. The roots will get into the solid ground and find moisture. It will be well to add that on sandy and loose prairie soils the seed should be put down about two inches deep; some say even deeper. I would not work the corn stubble more than three inches deep. And it should be harrowed over once, as soon as dry enough to work in the spring to check the evaporation of water. Then later, put on the rest of the tillage. Make the surface very fine and nice. Mr. Wade sows no nurse crop, and mows off the weeds when they get well started, say about eight or ten inches high. This is a great point on land where there is a lack of moisture, or in dry regions, and also where the soil is not very rich. A nurse crop takes plant food and water out of the soil, just what the young clover plants need. If there is enough for grain crop and clover, too, all right. Often there is not. Then the clover has a better chance sown alone, provided one does not let the weeds grow. In round numbers it takes from 300 to 500 tons of water out of the soil to grow a ton of dried oats, or wheat (grain and straw together), or weeds. In a dry section, or a dry soil, clover needs this water. Leaving out the so-called nurse crop and mowing off the weeds early in their growth saves it for the clover. It does more. The clippings of the weeds make a fine mulch on the surface, which tends to check the evaporation of water from the soil. It also increases the available fertility somewhat. In a slight degree it is following out nature's way of increasing fertility. Grass grows up and dies down. Leaves fall from the trees. Thus nature slowly made prairie and upland fertile, saving the moisture at the same time with the mulch. These principles are as old as the hills, but in our haste we sometimes loose sight of them. Sometimes it might be best to mow the weeds off twice, clipping the clover a little also. It will tend to increase its root growth. In some parts of the North it is not too late to sow clover alone now. And these same principles can be applied in other ways. If you sowed clover seed with oats this spring, mowing them as soon as they head, for hay, will save water for the clover, and perhaps save a seeding that otherwise would fail. If the clover was sown on your rye or winter wheat, don't let weeds grow up in the stubbles. This is a point I was always very particular about. It the weather is dry in July and August, this year many thousands of acres of young clover will fail simply because a heavy crop of weeds is allowed to grow up and take the plant food and water. Many P. F. people, however, now mow their stubbles. Study over these matters, my good friends. Profits in farming do not come from hit-or-miss work, as a rule. Learn the very best ways; then do them. and promptly on time. If other methods fail this year, perhaps it will be best to arrange to sow clover alone on corn stubble next spring.—T. B. Terry in *Practical Farmer.*

A Michigan Herd Report.

Ed. Hoard's Dairyman:—Below find report of my herd of grade Jersey and Guernsey cows, year ending April 1st, 1903. Number of cows figured 13½, having 13 from April 1st to December 1st when one cow was sold, and one two-year-old heifer coming in November 1st. Another two-year-old coming in February 10th which, I think, makes figure of 13½ for year about right.

Total milk	83,372 lbs.
Butter fat	4,360.92
Average test	5.23%
13½ cows	6,175 lbs. milk each
" "	323.03 lbs. butter fat each
Adding 1-6 overrun	376 " " " "
Cash received for butter	$989.48
" " " per cow	$73.29

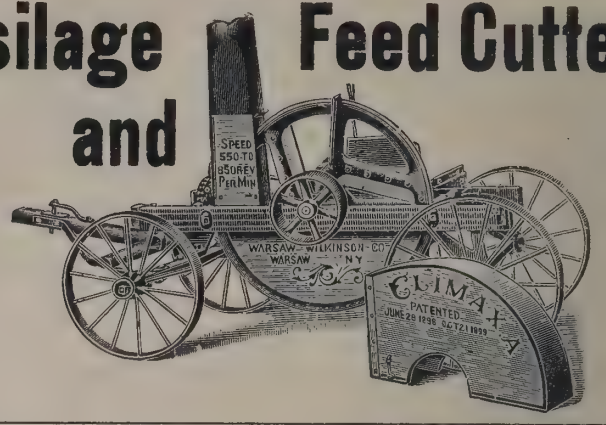
Cash returns are net receipts from creamery. Twelve cows freshened in fall. Winter feed, silage, clover hay and shredded corn fodder. Grain ration, maximum 3 lbs. each bran and Atlas gluten meal, daily in two feeds on silage. Year ending April 1st, 1902, feeding less well balanced ration and without silage, same herd produced average per cow 5,340 lbs. milk, 266.9 lbs. butter fat.

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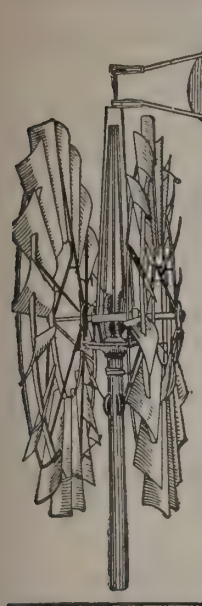
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An Opinion on Red Polls.

ED. HOARD'S DAIRYMAN:—I once wrote you an opinion on Red Polled cattle, saying I should try some. Have had one crop of calves from a Red Polled bull and all but one were bull calves and that one from a heifer so poor a milker thal I sold her for beef and the calf for veal.

Last October bought a cow that came fresh Nov. 6, and if the breed is to be judged by her it is an excellent dairy breed.

One of our butchers says that they do not kill out good; does not like them for beef.

My cows are grade Jerseys, and last year made an average of about 300 lbs. I say about, for I sold some cows that had aborted and bought some more, but it was very close to 300, I think a little over.

A strange thing happened in my herd this spring, a cow 13 years old had milk fever, with right hind quarter paralyzed. She made a good recovery, and is now doing well. I had learned that old and young cows were exempt. A seven year old cow had it lightly, although had given her saltpetre as a preventive. J. K. M.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Print Cheese.

The first print cheese was made at the Wisconsin Dairy School during the winter of 1898-99. Since that time some of the details have been changed, but the general plan of the operation is the same as originally carried out. In so far as the cheese is concerned, no deviation has been made from the ususl process of making Cheddar cheese, except a modification in the pressing and the "follower" used in the press.

The following is the method at the University of Wisconsin: The cheddar cheese curd is placed in a mold or hoop of rectangular shape, the bottom or "follower" of which is a carved board. The board makes the impression of the raised letters U. W. (University of Wisconsin) and the grooves which marks the cheese into prints. Each section on which U. W. is stamped represents one-half pound, two sections making one pound. This one pound print of cheese is about the size of a one-pound print of butter. Its length and width are determined by the carving of the board, which may be made of any size or design to suit a particular trade. The thickness of the block is, of course, regulated by the amount of curd put into the mold each time. Each blook of fifteen prints is 11½ by 13¼ by 2½ inches, each print being 2½ by 2½ by 4¼ inches in size. The cheese was pressed in an upright press, the carved board being placed at the bottom of the rectangular mold and the bandage cloth cut to cover the carved board, sides and bottom of the cheese.—*Farmer's Bulletin*, Department of Agricultural.

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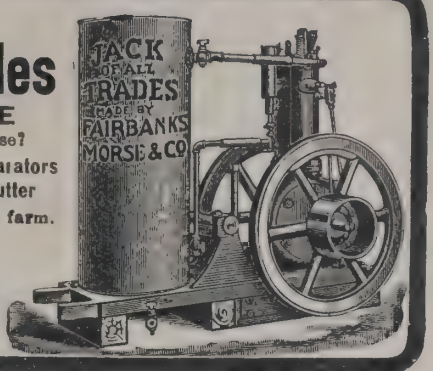
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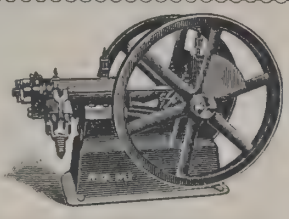
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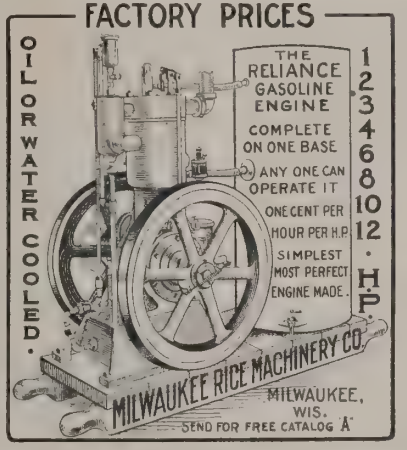
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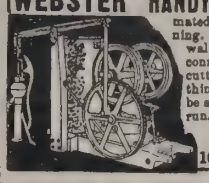


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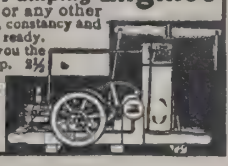
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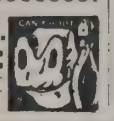
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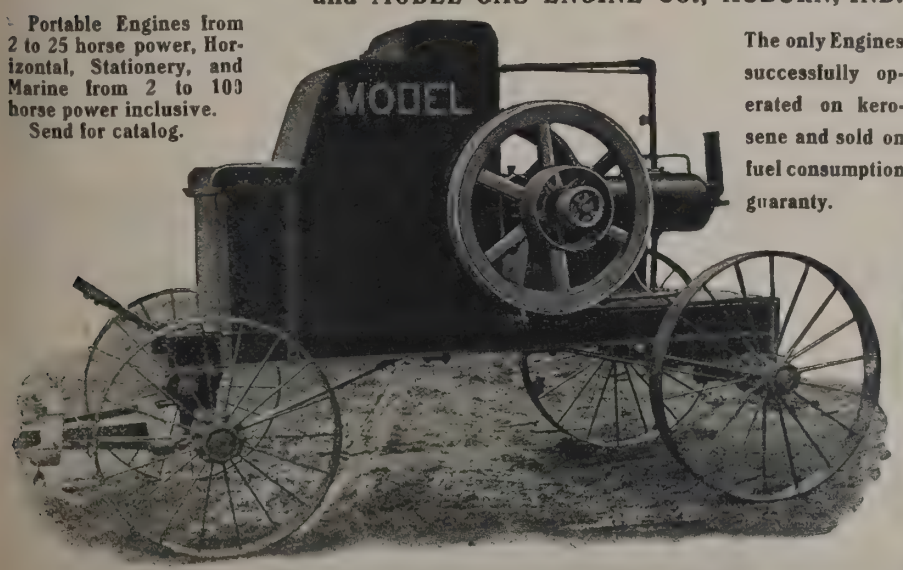
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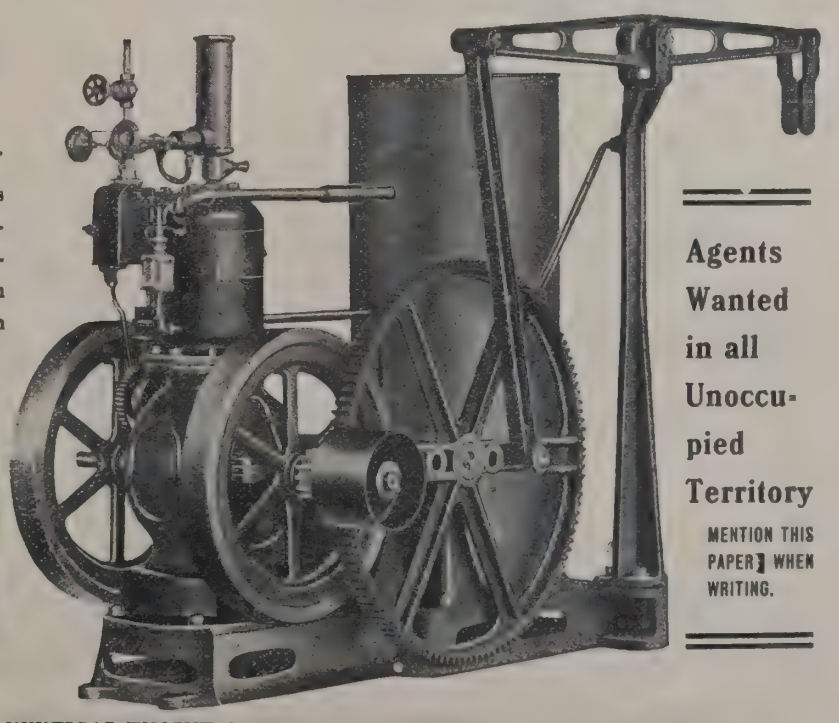
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A lot of people make separators, and all are made with the bucket bowl excepting one—

The Tubular.

There is but one **Tubular** type of separator and we make that. Our competitors cannot make it because our patents prevent. They have to make the old style bucket bowl or none at all. The **Tubular** is a great improvement, and it is just a question whether you want this improved machine or one of the old style bucket bowl machines. Write for free catalog

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Write for Illustrated Dairy Paper "The Separator" and Catalogue No. 144. Both Free.

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HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., JULY 17, 1903. NUMBER 23

University of Ill

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REFERENCE:—Any bank or wholesale house.

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs**
Liberal Advancements Made on Consignments.
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ASK YOUR DEALER IN DAIRY SUPPLIES FOR
CHR. HANSEN'S LACTIC FERMENT
To Ripen your cream, ensuring
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AND AERATOR.

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PERFECT FLAVOR IN BUTTER AND CHEESE
results from perfect milk. Perfect milk is that which has been properly handled from the moment it left the cow until it reaches the finished product.
THE PERFECTION MILK COOLER AND AERATOR
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The Champion is pre-eminently the easy Cooler—easy to buy, easy to take care of, easy to use.
A Booklet for the asking.
Champion Milk Cooler Co.
67 Main Street, CORTLAND, N. Y.

The Separator Patent Fakir.

It must be humiliating to a manufacturer to find himself in such straits that he is obliged to admit the superiority of a competitor's goods, and to threaten prospective customers with patent litigation if they buy the superior article which a thorough trial has convinced them they should use. This seems to be the present condition of a prominent manufacturer of the "bucket bowl" type of cream separators who has recently been threatening those creamerymen who have placed their orders for the **1903 Suspended Bowl Factory Tubular Separator.** His action merely helps to illustrate the superiority of the **Tubular** and his inability to compete with it by legitimate means. Why does he not tackle us with his "patent bluff"? Because "we have been there before" and the "bluff" wouldn't work.

Just Remember Three Things.

You can get a Tubular on trial with absolutely no obligation whatever to buy or keep it, and if it is not a superior machine to any other separator made we want you to ship it back.

You can save about $200.00 if you buy a **Tubular** on our new plan, which cuts out all of the expense so common with our competitors in the sale of their inferior machines.

The Largest Cream Separator Works in the World backs you up, protects you, and guarantees absolute safety against loss from patent litigation, threatened by any disgruntled competitor, if you buy a **Tubular.**

Write for Catalogue No. 144

The Sharples Co., 28, 30 & 32 So. Canal St. CHICAGO, ILL.

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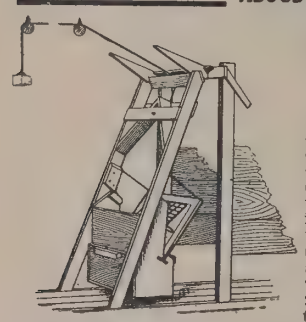
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PATENT SWING STANCHIONS
Chain or Pin Fastened.

Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.

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No fastenings
No Stables to clean

Cease trying to keep your cows clean. You can't do it. Give them a chance and they will do it themselves. This is the only way and the easy way. Write for circular telling what the cow has discovered to us. It is a great revelation.

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Keeps Cows Clean.

Swings forward while getting up or lying down. Locks back while standing Full particulars free.

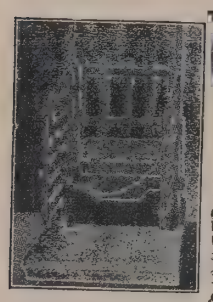
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The BEST Cattle Fastening.

SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated Circular free. GLENORA MFG. CO., Glenora, Yates Co., N. Y.

Infringements will be prosecuted.



THE NEW PATENT

Cow Stall

AND FEED TROUGH.

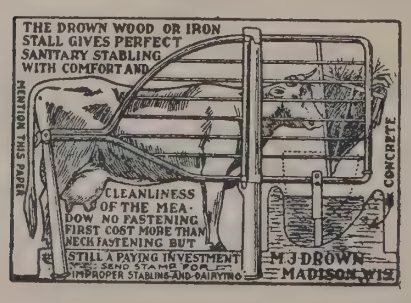
This is the only Cow Stall with a centering hinge Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars. **R. A McLERY & CO., Palmyra, Wis.**

This Taylor Stanchion



is made of angle steel lined with hard wood on side next the animal's neck. **It is lighter, neater and stronger** than any other stanchion made. Swings on chain at top and bottom and admits of greatest freedom of motion. Cattle can lay with head on side. Easiest opened and closed. **Reliable Agents Wanted.** Write for special terms, prices, etc.

JAMES BOYLE, SALEM, O.



Relative Values of Milk and Cream.

Other North Carolina Queries.

ED. HOARD'S DAIRYMAN:—I wish to get your opinions on the following points:

1. What would be the best means of my getting into communication with farmers and dairymen who are open to engagement?

2. We sell milk here at retail by the wagon method. There are no creameries in this section of the country. We find great trouble to get dairy help of all kinds, but particularly in securing men for the wagons. Would it be possible to secure men from abroad who are well qualified for this work?

3. Outside of our North Carolina Experiment Station, where would you recommend sending a young man for a few weeks' course in practical dairying?

4. A certain dairy here sells milk testing about 4 or 4½ per cent butter fat at 8 cents per quart. This same dairy sells cream at 25 cents per quart. What per cent of butter fat would you say their cream tested? Could that be a fair quality of cream?

5. With 4 per cent milk at 8 cents per quart, what per cent should cream be to sell for 25 cents per quart? What per cent to sell for 32 cents per quart, Would either of these be considered a good, rich cream?

6. In buying a separator, would I be reasonably safe in accepting the claims of the two or three largest advertisers in the DAIRYMAN regarding their machines, as fairly trustworthy? W. J.

Asheville, N. C.

P. S. Do not answer No. 6 if you prefer not to.

1. We know of no better way of getting into communication with farmers and dairymen, who may be open to engagements, or are looking for a change of location, than to advertise in the strictly dairy papers.

2. It seems to be a very difficult matter this season to obtain men well qualified for any kind of work and still more difficult to get experts in special lines. It is, however, entirely within the range of probability, not to say possibility, that an advertisement of a few lines in our reading notice columns would put this inquirer into communication with more than one bright, intelligent young man who would be very glad to take up his residence in the inviting climate about Asheville, in North Carolina. These young men might not be, at present, experienced in this special line of work, but would very readily fall into any plans submitted for their guidance.

3. There are now so many good dairy schools in so many of the states, that we must be excused from recommending one to the exclusion of the others. New York, Pennsylvania, Ohio, Wisconsin, Michigan, Iowa, Minnesota and Kentucky could be safely recommended.

4. & 5. With 4% milk selling at 8 cents per quart, one could not afford to sell cream containing over 13% fat for 25 cents per quart, or more than 17.5% fat at 32 cents per quart. Neither of these creams would be considered a merchantable article in this part of the country. Fairly good cream for commercial purposes should contain from 20 to 25% fat, and with milk at 8 cents per quart should sell at the rate of about 2 cents per quart for each per cent of fat in the cream.

6. We do not hesitate to say, that in our opinion, one would be reasonably safe in accepting the claims of any of the advertisers in this paper, regarding their machines. Of course, every manufacturer naturally thinks that his products are equal, if not superior, to those produced by his rivals. His opinions can hardly be accepted at their face value, but when statements of plain facts are made, we think they may be generally trustworthy. These facts would relate principally to the normal capacity of the machines, the efficiency of their skimming and the amount of power required for their operation.



CHAIN-HANGING
CATTLE STANCHION
The Most Practical
CATTLE FASTENER
ever invented.
Manufactured and For sale by
O. H. ROBERTSON,
Forestville, Conn.

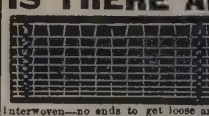
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Heaviest, strongest, most durable fence made. All wires extra large. We sell to Farmers at Wholesale Prices. Coiled Spring, Barb and Soft Galvanized Wire.
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The Brown Fence & Wire Co.
222 Mason St., Cleveland, O.

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why you should pay the dealer a large profit for selling you fence when you can buy the

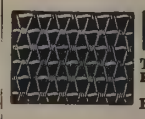
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direct from our factory at manufacturer's prices? There is no better farm fence made. Entirely interwoven—no ends to get loose and injure stock or ravel out. Many heights Circulars and special discounts free.

ADVANCE FENCE CO., 126 E St., Peoria, Ill.



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DEALERS IN
GRASS SEEDS, CLOVERS, FLAX SEED, LAWN GRASS, BEANS, PEAS, POP CORN, BIRD SEEDS, BUCKWHEAT, BAGS, ETC.
OFFICES, WEST TAYLOR ST., AND THE RIVER, CHICAGO

Bran, Middlings, Feed, Flour

AND ALL KINDS OF...
DAIRY FEED

Can load Mixed Cars.
Ask for Prices and mention this paper.

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PURE OIL MEAL. **USE FOR MILCH COWS AND FATTENING STOCK.**

Superior to corn, oats and hay. Ton lots $23.50; half ton $12.25; 500 pounds $6.75; 100 pounds $1.50. Put up in 100-lb. sacks f. o. b. Minneapolis. Cash with order.

This Meal is Guaranteed Absolutely Pure. We also manufacture Strictly Pure Linseed Oil.

NORTHERN LINSEED OIL CO.,
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When ordering mention this paper.

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Elmco Red Dog Flour

—ANALYSIS:—
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F. W. WOLL, Chemist, University of Wis., Agricultural Experiment Sta.

A strong, rich feed; one that offers exceptional attraction as a quick fattener, economical, uniform, producing fat without risk of cholera. Buy **Elmco Red Dog Flour** for hogs and you buy the best.

LISTMAN MILL CO.,
Sole Manufacturers,
La Crosse, Wis.

Hoard's Dairyman

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Correspondents must not expect us to acknowledge the receipt of letters containing remittances for subscriptions. The receipt of the Dairyman is sufficient notification that the money has been received. The label on the paper will show date to which subscription is paid. In case of renewals if date on lable is not changed within two weeks after remittance is sent, inform us at once.

Remit by draft on Chicago or New York, or Post Office orExpress Order (never by personal check), addressing Hoard's Dairyman, Fort Atkinson, Wis.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

Entered at Fort Atkinson, Wisconsin, as second-class matter.

Proving the Testing.

George P. Grout in an article on "Milk Testing," in *Farm Student's Review*, gives importance to the point of proving to the patrons by actual demonstration that the test is reliable and correct. He says:

The subject of testing milk has been touched upon lightly, but much of the time has been lost from sight in the strife to make a fine flavored butter. Butter making is truly an important factor in the successful creamery operator's occupation, but in the strife for high scores and in the endeavor to make just a little better butter than the neighboring creamery, he should not lose sight of the fact that the testing of milk has much to do with establishing the confidence of patrons and farmers. For this reason the testing should be done well, and it should be done so that all interested would feel they were getting all that is due them.

The operation is not at all difficult, there being certain rules which always apply when carefully followed. From the fact that it is not difficult and because no special credit is given a butter maker because he is expert in the use of the Babcock test, very little thought is expended in developing this part of the work. This is one of the principle mediums through which our best butter makers gain the much desired confidence of their patrons and should be a point enlarged upon.

The other day I called on a bright Minnesota buttermaker, who told me during the conversation, that the farmers tributary to his creamery had a very good grade of cows. I asked him to take a ride with me, and I then had the pleasure of seeing some of the cows. Our conversation developed that this butter maker was not only a prize winner, but that he was a student of the Babcock test.

He was not satisfied to let the testing of the composite samples each month end his care and thought on the matter of testing, but applied this test in weeding out the poor cows from among the herds of his patrons and had influenced them, with the aid of the Babcock test, to get rid of the poor ones, and to take more interest in and better care of those remaining.

This should be one of the characteristics of every growing buttermaker. He should look, not to see how little, but how much he can do to advance the interests of his patrons. To this class of men only a word or suggestion is necessary. They do not stop with the mere knowledge of testing gained either from the man from whom they learn the trade, or from the ideas gained at the dairy school, but are hungry for more information, and are building on what they have learned and gained in careful practice. To them it is not necessary to say, "do every little detail carefully;" this is one of the principles inbred in a successful man or in a successful buttermaker, if you please. This is one of the things which has made him successful. The check to our advancement comes when we lose interest. As soon as we lose interest in a thing we fail to reach out after further information pertaining to this certain line and neglect to use our minds in connection with the details of the work, and it becomes only mechanical. For this reason it follows that even a good man may have his thought so directed in a certain line that his mind is not working with him in the little details about the test, but is off in search of food for thought along the lines of desirable flavors, and no doubt he has in mind just how that last starter smelled or tasted. To do good work we should keep up a deep interest in every branch of the work. While we are at testing let us gather a few interesting things about testing. Let us ask our minds to accompany us through the simple operations and we will promise in return something of interest at each step. With new interest new truths are uncovered.



A TENNESSEE DAIRY HERD.
Property of D. C. Young, Sweetwater, Tenn.

We should say as we start our testing, "Well, I do not wish to have our average test lower than our neighbor's because I may be using a pipette which delivers too small a quantity of milk." "I will measure out 17.6 c. c. of mercury in my burette and prove my pipette, and in the future I will be sure what I am doing so long as this pipette lasts." We should say: "Now, these test bottles were supposed to have been correct when they left the factory, but I wish to be absolutely fair and do not wish to give Friend Jones any better test because he is my friend, than I give Brown." There is a plunger made for the purpose of testing bottles and by taking a pipette small enough to slip inside of the neck of the bottle you can run water into the bottle, filling it to the zero mark without getting any water on the side of the neck to interfere with the reading. When the first section of the plunger is inserted into the water it should raise it to the "5" mark. The second section should cause the water to stand at "10." If we have no plunger we can use a 2 c. c. pipette, fill it with mercury to the mark indicating the above named amount and run the mercury from one bottle into another. This can be done nicely before the bottles are used, because there will be no water to interfere. When the mercury is in the bottle, we are careful to fit a tight cork into the neck, inserting it as far as the "10" mark, then inverting the bottle we find, if the bottle is correct, that the 2 c. c. of mercury has just filled the graduated space in the neck.

We then reason: "This is new acid, and while we suppose it is of the proper strength we might easily spoil out test unless we know it to be correct. Our creamery is liberal in getting things with which to work and we have a small hydrometer for testing the specific gravity of the acid. If we find it too strong, that reading is 1.83 when it should be 1.82, we will either have to set the acid and samples in the refrigerator, add a little water to the acid, take a little less, or we might leave the cork out of the acid bottle for a time and as the acid has great affinity for water it will soon take enough out of the air to dilute the acid.

If we have no hydrometer we might use the little scales, the board furnish for weighing samples of cream. If we are careful to balance two glass measures on the scales we can measure out 100 c. c. of condensed water from the steam pipe and measure out 100 c. c. of acid in the other glass, and as the acid is nearly twice as heavy as distilled water, if it is of the proper strength, it will take 82 grams on the water side to balance the acid. If milk is compared in place of the acid it should take three grams and a fraction to balance the milk.

With all these little things at your fingers' ends where you can use them, you can make it so clear to your patron that you are strictly up-to-date in your methods and competent, that he will not be led to wonder if he gets his proper test.

Take care in shaking up your composite sample each day that the cream is not slopped all over the inside of the bottle, set your sample bottles into hot water to melt what little fat you have stuck to the inside of the bottle.

Show your patrons, if they come in while you are testing, that you can run the milk down to the mark on the pipette quickly, but exactly, not by attempting to remove your finger a little from the end of the pipette to let in the air, but by merely twisting the stem a little between the thumb and fingers, letting out the milk drop by drop.

Tell them why it is necessary to weigh out 18 grams of cream on a small pair of scales when the cream tests over 25 per cent, instead of measuring with an 18 c.c. pipette. When their attention is called to it they will see that the heavier or thicker the cream the more it will stick to the inside of the pipette. They will see that the only accurate way is to weigh the cream samples and will not hesitate to purchase a small pair of scales.

If you have a lactometer, show them the difference in the specific gravity of skim milk and whole milk, and then show them how the lactometer will sink to the bottom of the glass in a sample of cream and tell them that the buoyancy corresponds with the weight of the liquids. If you should have a patron with good cows who thinks the test only a matter of guess, and complains because he has a low test, show him that you can, by applying your rules, lactometer and test, easily tell how much water has been put in a given sample. If the coat fits he will doubtless put it on.

If your over-run is not as large as it should be, according to the estimation of the board, and it is because you are making a dry butter, you can easily show this to their satisfaction by weighing out 4.5 grams of butter into a cream bottle, add three-fourths of a measure of water, and multiplying the reading by 4, thus showing the fat is in the butter, you can convince them. If they are good thinkers and are watching you, wondering why in practice you use as much acid for testing cream, when there is not as much casein, and reason would say you should not use as much, you can easily explain it to them by showing them you use a little water in rinsing out the pipette, and that if you weigh out the cream, you actually use less acid because the cream is weighed directly into the bottle and no water used in rinsing to combine with the acid.

All these points will be of interest to them, they will see that you are posted, they will be also pleased to know that it is not merely a form, but that you actually determine, when you attempt it, just what is in the milk. It will not then be necessary at the weigh can to tell them that you know what you are about. They will have learned the fact in a much pleasanter way. You will also have gained more interest, and new points will have been brought out.

Questions and Answers.

Hoard's Dairyman:—Enclosed find my renewal subscription for coming year. I take a number of papers, but Hoard's Dairyman is the one I depend on.

I am thinking of buying a gasoline engine. I have increased my number of cows, keeping now nearly 50. When I commenced reading the Dairyman three years ago, I had about 15 cows, and looked after them as most of my neighbors do now, which didn't mean very close or intelligent care, but Hoard's Dairyman got me to buy a registered bull and put up a silo, build larger barn, and last fall bought a separator. My tread-power used to fill my wants, but I have got to have better power. Which gasoline engine is the best? There are several advertised in the Dairyman.

I wish you success in your grand work. I am going to get you a few subscribers among my neighbors. They need its counsel bad enough and some of them will appreciate it too. J. S. M.
Illinois.

We would really like to help J. S. M. on his gasoline engine purchase, but in fact know too little as to the comparative merits of the different machines advertised, to justify an opinion as to which would be the best for him to purchase. It is with these engines, as with most machinery, impossible for any one person to know all there is to be known about the different makes and styles. We may have had personal experience with a certain engine or separator or other machines and found it satisfactory, but it would be consummate arrogance to consider this little experience sufficient foundation for a statement that it was better than others we had not tried. Moreover, it often happens that a machine giving good satisfaction to one man fails to meet the expectations of some other men.

Our personal experience with farm machinery and implements is no different or greater than that of many other dairymen, and for the reason that we know so little about the relative merits of the many different kinds of machines, we not only hesitate to advise, but in fact must beg to be excused from expressing opinions. The best advice we can give is to write to those parties who advertise in Hoard's Dairyman. Get their circulars and printed matter and read up and compare their relative claims. It will be found probable, that in some respects, one engine or other machine, will commend itself to one intending purchaser and some other machine, only slightly different perhaps, will be preferred by some other intending purchaser. The advertisements of a number of the leading gasoline engines on the market will be found in our columns.

This answer to J. S. M. may be taken as a general answer to the many similar inquiries we are receiving from time to time. Our advertising columns represent the leading and most reliable manufacturers in every line of machinery wanted by the dairy farmer. It is not to be expected that every individual reader will want all that is advertised, any more than he would think it practicable or practical to buy everything seen in a dry goods or grocery store, but our advertising columns should certainly be helpful in enabling our readers to find what they want, and introduce them to the best people to do business with.

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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own ight who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

ALMOST every square foot of grass land in Wisconsin is covered this summer with white clover. Land that has not shown a white clover blossom for years is showing as thick a crop as if it had been sown this spring. Nature is using abundant rains to grow a dormant crop, and the farmer is getting the advantage of it. The present growth of white clover means increased fertilify to every foot of land where the white blossoms are found, and the results will be evident for several years.

MR. HARDIN, of the *Jersey Bulletin*, has discovered a Daniel in the person of Prof. Wing who walked in the Holstein lion's den and choked him until he reconsidered the impropriety of a 25% overrun. Mr. Hardin carefully ignores another Daniel-like judgment of Prof. Wing, which is as follows:

"It is just as misleading to the public to "figure in" excessive water by means of a too large conversion factor, *as it is actually to leave the superfluous water in the butter and weigh it and call it butter.*"

The above was written concerning records in general, but perhaps Prof. Wing is a "Daniel" only when Holstein methods are criticised.

Ripe hay is poor stuff, not worth the cutting, yet many men consider only the weight obtained, regardless of the amount of nutrients it contains.

There is little profit in feeding sawdust to a cow, whether it comes from a saw mill or a field full of ripe grass, but because the hay does not show its poverty as a milk producer, many men keep on feeding the cow a good, big ration of cellulose and then wonder that there are no returns in the milk pail.

An experiment at the Maine Experiment Station with timothy illustrates the value of early cut hay. For this experiment two acres as nearly alike in amount and condition of standing grass as possible were selected. One was cut in early bloom and the other ten days after bloom. The hay was stored under like conditions, and on Nov. 28 was reweighed and analyzed. There was a difference of 65 pounds in the weight of the dry hay in favor of the early cutting, but when we come to the digestible nutrients per acre and to the percentage composition of the hay we find a very marked difference. The percentages of digestible nutrients were: Protein, 4.89; carbohydrates, 48.73, and fat, 2.08, in the early cut, as against 3.29 per cent of protein, 45.30 of carbohydrates and 1.70 of fat in the late cut hay. This was an increase in digestible nutrients in the early cut over the late cut hay of 63.46 per cent of protein, 24.08 per cent of fat and 12.26 per cent of carbohydrates. It will also be noticed from the above that the greatest increase is in the protein, or most valuable portion.

THE SAME OLD SONG.

The editors of HOARD'S DAIRYMAN obtain a clear view of the real state of dairy intelligence in a great many communities in these United States. In these communities will be one or more of the most enterprising and progressive farmers. They are very apt to be subscribers of the DAIRYMAN. The paper has done them good, and they desire their neighbors to receive the same benefit. So they start out, and many times return discouraged.

Here is an example: Mr. James Mc Inerny, of Buskirk, N. Y., writes: "I am trying to get up a club for the DAIRYMAN. Some don't have time to read; others say 'book farming don't pay.' They still sing the old song."

Mr. Inerny finds, as all other men find, that it is the man who can't make his own way of farming pay, who is the most prejudiced against dairy papers and books, who talks the loudest. "Book farming don't pay." They have grown so rich at their mode of farming, they don't need to read.

SELECTING A BULL.

On this important question F. W. Hodson well says:

Experienced men are able to select good cows with a reasonable amount of certainty, but the most expert dairy judge is largely at sea when he attempts to select a good bull by appearances alone. When we come to the question of raising good cows, we find that the only road to success is in breeding from cows of known capacity and from bulls whose female ancestors have also been tested for merit at the pail and churn It is almost imperative that a good bull should be backed by a considerable number of good producing dams and granddams, if satisfactory results are to be expected from his daughters.

We wonder sometimes if breeders of dairy cattle ever study the score card of the American Guernsey Cattle Club which was adopted by that organization three years ago. In this scale of points will be found, for the first time in history, an attempt to bring this problem of judging a dairy bull down to settled principles.

It is by no means a perfect attempt nor one that subsequent experience may not modify, but it covers new and important ground, nevertheless. We advise every reader of the DAIRYMAN to write the Secretary of the club, Mr. W. H. Caldwell, Peterboro, N. H. for a copy of this scale.

ABOUT DAIRY CATTLE.

We wish every dairy farmer in the land could possess and read the Year Book of United States Department of Agriculture for 1902. On page 145 is a chapter devoted to "Dairying at Home and Abroad" written by Maj. Henry E. Alvord, Chief of Dairy Division. Maj. Alvord spent a number of months in the summer of 1901 in investigating the dairy conditions and practices of the leading dairy sections of Europe. His conclusions are based on a sound practical knowledge of the best practice in America and he draws some very instructive judgments from what he saw and studied. On the question of dairy cattle he says:

"Dairy cattle constitute the foundation, and all important factor of the industry." How does this comport with the ideas of thousands of dairy farmers in the United States who think that beef blood, dual-purpose blood, any and all sorts of blood, is good enough with them for a "foundation." He further says:

"We have no dairy cattle of our own in America; we have adopted those orignated in and brought from other countries. Even our "native" or "common" stock or "scrubs" are but mongrels of another continent. It is impossible to estimate the debt of the dairy farmers of this country to the breeders of Ayrshires and Guernseys and Holstein-Friesians and Jerseys in their native lands. These are the four races of cattle *upon which mainly rest the present and future prosperity and progress of dairying* in America."

Those are strong words, yet we cordially believe them to be true. If true, what sort of work is any dairy farmer doing for himself or his country who breeds beef blood into his herd? Does he see the future as it should be seen?

SOMETHING WORTH READING AND REFLECTING UPON.

The editors of HOARD'S DAIRYMAN believe they are doing a much needed work among the farmers who keep cows. They believe—nay more, they know—that the tone or sentiment existing among those farmers concerning what they should do as dairymen is too low, to bring good profit. We will say nothing about any other consideration but actual profit. No man can make the money with cows, he ought to make, and look and act towards his business as the great mass of dairy farmers do look and act.

There is such a lack of intelligence; so little real thought or study; so little brain work, that of necessity the standard is a low, unprofitable one. Yet these dairy farmers do not see it. Take those 80 men in the Creamery Patron Investigation in Onondaga Co., N. Y., which has been running through the columns of the DAIRYMAN.

Mr. Jenkins has visited each one of those farmers; he has investigated the actual conditions in which they carry on their work; what their cows are, what they cost for keeping, what their earnings were at the creamery, and last how much intelligence each man put into his work. Think of the idea of 80 men who profess to be dairymen, and not one in ten having real interest enough in his business to read dairy literature, or try to keep his mind intelligent on this important question. Is there any cash value to such reading and study? Here is a bit of testimony on the question:

Mr. M. E. Bemis, manager of the Scottdale Dairy and Stock Farm of Scottdale, Ga., writes us the following testimony of the value to him of thorough reading and study in this line of work. He says:

"Much of my success in securing my present position is due to a careful study, for several years, of HOARD'S DAIRYMAN. I came south from Vermont about a year and a half ago. In my first position which I came to fill, I was unfortunate. The man in charge, in 16 months that he had managed the farm, had 5 men besides myself. None of them were any good, and all of us were forced to quit without a record. I came here and began work as an ordinary hand. In less than 7 months I have been gradually promoted to a position of business manager of one of the best dairies in the south. I don't say this to brag, but to show that a young man with a good knowledge of the dairy business, has a good chance to succeed, and for this knowledge I am largely indebted to the DAIRYMAN. You have my best wishes."

Compare the results of Mr. Bemis' work, what came of his attention to the best thought and best knowledge he could get, and its final effect on his fortunes, with the effect of the no-read, no-think, no-study policy so many dairymen believe is the heighth of wisdom. This principle of intelligence applies everywhere on the dairy farm. It tells in the owner; it tells in the hired man. It is often the saving clause. Take the last ten farmers of the Onondaga Investigation that Mr. Jenkins reports. Here they are:

The amount received for $1.00 invested in feed is as follows:

No. 71	$ .81
No. 72	1.10
No. 73	1.36
No. 74	.49
No. 75	.79
No. 76	.48
No. 77	1.05
No. 78	.99
No. 79	.76
No. 80	.99

No. 76 lost 52 cents on every dollar he had invested in feed. No. 71 lost 19 cents; No. 75 lost 31 cents; No. 74, 51 cents; No. 78 lost 2 cents; No. 79, 24 cents; No. 80 lost one cent.

There is the story boiled down to the mental condition of the men who are behind the cows. Could anything bring out with sharper distinctness the truth that if farmers will not read and study and strive to make themselves intelligent workers in this dairy business, they will inevitably bring punishment upon themselves?

THE FARM SCHOOL AND FARMER THAT IT HAS PRODUCED.

Every means, every agency, every thing that is at work moulding the thought, shaping the judgment, and affecting the fortune of the American farmer is of the greatest interest to HOARD'S DAIRYMAN. For this reason we have labored for years to arouse the farmers of this country to a sense of the importance of doing more than they are doing to improve their minds, to increase their mental grasp on the serious problems that confront them in farming. Their hands are strong enough; no complaint about their industry, for they work more hours than any other class of men. The trouble is not there. But there is trouble, weakness, and serious failure in another direction, and that is in their lack of desire to know what they ought to know.

We speak of the farmers of the United States as a class. Here and there, scattered through them are men who have a strong desire to be well posted, up-to-date farmers. These men realize the great assistance it is to have a well stored mind. They take time and pains, and spend money for sound information, just as intelligent men in other vocations do.

Our readers know that we have spoken often on the unsatisfactory conditions in the country school. We have been trying to rouse the farmers and teachers to a sense of their duty in this matter, for we can see what this poor country school meant for the farmer that now is. We can see what the right kind of a school will mean to the farmer that is to be, and we can see what it will also mean to the future prosperity of the country.

An eastern friend, who is both an educator and farmer, writes us thus:

"I have read with great interest your repeated editorials, urging the farmers to do more reading, and thus obtain a better, broader understanding of what can be and should be learned concerning this great proposition we call farming.

"No man on earth needs the help that intelligent reading will bring him, as does the average farmer. His boys, if they are to be any better farmers than their father, need to come up in a reading home; need to know what the farm books and papers are talking about. Still further, the state and the nation require that the farmer shall be a reading man in order to stop this fearful waste of fertility that is going on, all over the land.

But you and I will never see the farmer what he should be in the scale with other men, until the country district school is differently organized from what it now is. The farmer is just on a par with the school he was educated in. Elevate that and you will elevate the farmer to the place he belongs."

How true are the above words, and how few are the farmers who realize their truth.

The farmer gets his schooling in the

country school. It is the poorest school in the land. Besides this, the average farmer has little or no ambition to make his district school any better than it is. He ought to know by this time, with all his experience, that the old Bible is right when it says: "As ye sow so shall ye reap."

What kind of sowing has been going on in the country school all these years? The farmer is just what his father was before him. The same poor school and half educated teachers did the work for them. The same poor school with no improvement for fifty years, is doing the same wretched work for the farm boy of 1903. Not a word is taught that will help him comprehend and make use of the information he needs, in agricultural books and papers. What is said there concerning the science of the farm, is all Greek to him. It was Greek to his father. The law student cannot understand the meaning of law unless he learns the meaning of the law terms. The farmer would despise a lawer who could not understand the meaning of what he reads in law books, and so he would despise the doctor or surveyor, or the preacher, or the mechanic, who did not keep thoroughly posted in the literature of his own profession. He expects them to be intelligent. He expects them to understand what they read. He expects that they will go to school—a good school—and become educated in the business they are to follow.

But the farmers of the United States go to the ground at once when it comes to considering their own schools, the country district school. They evidently want them to be poor and cheap, and to carry out that idea they hire the poorest, cheapest of teachers and shut out every study that will help the farm boy to understand the meaning of what science has to give to aid him in farming.

Just so the farmer was educated, and just so is he educating nearly every boy that is to be the farmer of the future.

If the farmer of today understands the meaning of agricultural literature, he has obtained that knowledge by a hard struggle, without any assistance from the school of his youth. Not an hour of teaching was ever given to him to help him understand the meaning of the terms used in agricultural chemistry. Yet agricultural chemistry is the foundation of all science in farming. And so the procession moves on from father to son. All the outside world except the farmer is being helped along by education. Note how the villages and cities tax themselves for their schools. Note how grudgingly money is raised in the country districts to help the country school. Note how many farmers despise what they call "book farming." Note how many are rearing their boys in the same contempt for knowledge. The farmers pay more money in taxes to educate doctors and lawyers than they do to educate their own sons in the great study of agriculture. Surely, the country district school is the place to start the great work of making the American farmer what he should be, as an enlightened citizen and farmer.

Criticisms on Butter in the Fourth (June) Test for the Current Year.

E. SUDENDORF, Secretary National Creamery Buttermakers' Association, Elgin, Illinois.

DEAR SIR:—You perhaps will be interested, and the buttermakers pleased, to know that the butter at the fourth test was, perhaps, the best of any since the inauguration of the six months' tests last year.

I asked W. D. Collyer, the judge, after the scoring was completed, how, in his opinion, the last butter compared with that of previous tests. His reply was: "The workmanship was better than at any test the last two years; there was less slushy, over-worked, off-colored butter, and on an average was a very good lot, and it was more satisfaction to score such goods than those of inferior quality."

This is pretty late to tell how the scoring is being conducted, but inasmuch as a buttermaker asked me recently, if the judges did not score the butter made without a starter lower than the rest, and as on an average I believe that is true, I may explain that the scorer does not know how the butter is made, whether pasteurized, from whole milk, gathered cream, or whether or not a starter was used. All the judge has is a blank score card and a trier filled with butter. From this sample the butter is scored, the results written on the score sheet, and then the number of the tub is also written on the score sheet, and the tub is passed on. The buttermaker's method slip is found by number, the name on which has been torn off by the secretary before the slips are turned over to any one else. The butter is then again examined, and the criticisms made. The judge knows nothing about the kind of butter, where it came from, or to whom it belongs. He does not know when a trier is handed him whether it is butter or oleomargarine.

DEFECTS.

Certain defects are more prominent in butter one month than another. During some of the winter months, the causes of poor butter are entirely different from those found at present. One defect heretofore classed with many others as poor milk, a fatty flavor, different from that commonly called oily, was quite pronounced in a good deal of this butter. This peculiar flavor is due to the melted butter fat, caused by the sun striking the cans, and it can easily be detected after inspecting milk at the creameries, which is brought in cans unprotected from the sun, and possibly a short exposure on the sunny side of the factory. I have also noted the absence of this flavor at creameries where patrons had the cans covered with canvas or blankets, or observed the presence of it on loads, when some of the cans were not covered. The remedy for this, of course, is to have the patrons cover the cans. This one thing was the cause of a good many scoring a point or two lower than they would have without this fatty flavor. Those who will find the criticism "fatty" on their score sheets will know what it means.

WEEDY FLAVOR.

Weedy flavor was in evidence in many tubs, and some of the flavors called weedy may simply have been from lowland pastures, and not weeds at all, but all the butter that had such flavor was classed as weedy.

OILY.

Very little butter had an oily flavor; less of that flavor is found in summer than in winter. I may have more to say about this flavor at some future time, but would advise buttermakers not to put in a large supply of color, and what they have on hand should be corked well and kept in a cool place, but not allowed to freeze.

FEVERISH.

There was also less of the feverish flavor than at the May test. In an article about one year ago, I said that flavor possibly was caused by the feverish condition of the cows, which I still believe is true in some instances, but I have also traced the same flavor to milk from cows too soon after calving.

OLD MILK.

Old milk flavor is found at every test, and about the only thing possible that can be said on that subject is to tell the buttermakers to do the best they can to get the milk every day. Pasteurization will partly overcome that flavor.

STARTERS.

Off flavored and over-ripe starters were less in evidence than at former tests and the makers are doing good work with starters, and should make that subject a study.

CURDY.

Curdy flavor cannot be traced to any one cause, and there was considerable of it at the last test, but it may be well to caution the buttermakers not to use a large amount of starter, say 20 to 25 per cent, or if they do use a large amount it is necessary to stay by the cream and keep it stirred. High ripening temperatures, over-ripe and large amount of starter seem to have something to do with curdy flavor.

PASTEURIZED CREAM BUTTER.

The pasteurized cream butter, on an average, was of better quality than usual, and many of the best buttermakers would make a better article of butter if they had pasteurized cream to work with, and that system is growing in favor more every day.

HIGH SALT.

Some of the buttermakers evidently tried to cover up a bad flavor by adding salt, which I believe is a mistaken idea, unless the flavor is very bad; but in several cases at this test, the butter would have scored higher had it not been so highly salted. Some of the salt seemed to impart a stale, bitter flavor, perhaps not due to the salt, but due to the taints the salt took up by being stored in a place where taints existed. I may also add that some creamery companies, for the difference of five to ten cents a barrel, buy enough salt to last two or three years, when enough to last six months would be more sensible.

SOFT BUTTER.

Some of the butter reached Chicago in a heated condition, and was largely the fault of the shipper not packing it properly. When butter is shipped by express, any distance, the twenty pound tub should be wrapped with several thicknesses of paper and then put into a 60 pound tub, which should first be partly filled with paper, and the space between the 20 and 60 pound tub should be filled with paper, and a good supply put on top of the small tub. Any tub will do if it is dry and clean. I should also advise those who send butter to Sioux Falls, to pack their butter in the same way. Some care should be taken to use good paper. I have seen some common, brown paper used, which became wet, perhaps from the large tub, and the odor penetrated the butter, which scored low.

It would be a satisfaction to all concerned, if the next two lots would show as much improvement as the last one.

B. D. WHITE.

St. Paul, Minn.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Tests not Satisfactory.

I have two Iowa patrons; their tests in Iowa did not go under 5 per cent. I have seen the reports myself. The same cows brought to Barron Co., Wis,, last year, tested only 3.8 to 4.1. One of those patrons told me they are not satisfied with that test, although he was here when testing was done. He told me that he weighed 50 pounds of milk, and made 2¼ pounds butter. So let me know in next paper how much butter can he make out of that test, 3.8 to 4.1 per cent. I am very sure my test is right It is a hand tester. I always test two bottles to find how much acid it stands, so it makes clear test. M. J. W.

Tuscobia, Wis.

In order to make two and one-half pounds of standard, commercial butter from fifty pounds of milk, it will be necessary that the milk should test not less than 4 4 per cent fat. Of course it would be quite possible to make this amount of butter from fifty pounds of milk testing less, if more water was incorporated in the butter, but it would not be first-class butter.

The only thing you can do with these dissatisfied patrons is to assure them, as you seem to have done, that your test is correct, that they are getting all the fat there is in the milk, and that it is frequently the case that cows sometimes fall down wonderfully in their test on change of location. It is all right to do what one can to satisfy patrons, but patrons are sometimes so unreasonable in their statements and demands that about all that can be done is to say to them: "If not satisfied, keep your milk at home or take it somewhere else."

A Recipe for Pork Pickle Wanted.

Can you or any of your readers furnish a prescription for curing or pickling pork for home consumption that will guarantee its keeping 6 months or more in a southern climate, where the temperature necessitates the meat being put in pickle within 24 hours after killing.

Jamaica, W. I. A DOWN SOUTH DAIRYMAN.

If any of our Southern readers can furnish the information sought in the above inquiry, we shall be very glad to receive and publish it, not only for the benefit of this reader, but for others similarly circumstanced. So far as we are personally concerned, the only method for pickling pork that we are acquainted with is to pack it securely in salt, being sure to use more salt than can possibly be dissolved in the pickle. After the pork has been in this saturated brine a few days, or possibly, a few weeks, we would take it up, wash it thoroughly, scald the brine, which by this time has drawn more or less matter of one kind and another from the meat, and then repack it. When the pork has become thoroughly cured in the salt, we expect it will be necessary, in the southern climate, to take it up and smoke it thoroughly.

Feeding Value of Wheat.—Best Breed.—Hard Milkers.

I subscribed for your valuable paper through Mr. Haskins, and received my first copy dated June 26th and wish to ask a few questions; as the business is new to me I want all the information that I can get. Is whole wheat (ground) a good ration for milk cows? If so, when bran is $18 per ton and wheat from 50 to 60 cents per bushel, will it pay to sell the wheat and buy bran, or will it pay to buy wheat instead of bran, or what is the relative feeding value of 100 lbs. of bran and 100 lbs. wheat (ground?)

Which is the most profitable breed of dairy cows? I mean as a breed, the Jerseys, Guernseys or the Holsteins? Is the Red Poll a good dairy breed? I have a cow that is very hard to milk. Would you recommend those rubber teat dilators, or teat openers? Are they a success? T. H.

Medford, Okla.

Ground wheat of itself does not make a very satisfactory feed for cows, as they have great difficulty in eating it, because when mixed with the saliva, it makes a thick, sticky paste. It is therefore necessary when using whole wheat to mix it with bran or some other product to overcome this pastiness, to a greater or less degree. It might be fed with cut straw or hay and in this combination would make an excellent complement to alfalfa hay. Wheat contains about 83 per cent of digestible nutrients, whereas bran contains only 58 per cent.

If the best and most profitable breed of dairy cows could be satisfactorily determined, there would be but one breed, but opinions differ so widely in this respect, that it must be considered, not simply an open question, but an indeterminable question. This is very fortunate as it enables one to consult his own preferences and whims. One man may prefer Jerseys, his next neighbor, for reasons satisfactory to himself, dislikes Jerseys and pins his faith to Holsteins, while a third man in the same neighborhood, disliking both Jerseys and Holsteins, will have nothing but Guernseys. Red Polls are not accounted a distinctively dairy breed of cows. There are many good and profitable milkers among them, but breeders of this stock recommend them as the ideal dual-purpose farm cow.

The hard milking cow is a serious problem. Sometimes these teat dilators answer a very good purpose. At other times, it is recommended to sever the muscle at the end of the teat with a sharp knife. Unless the cow is especially profitable, the best treatment we know of is to sell her to the butcher.

Amount Skim Milk and Whey.

1. What is the amount and feed value of the skim milk that a patron should receive from 100 lbs. of whole milk delivered to a creamery?

2. What is the amount and feed value of the whey from 100 lbs. milk that a patron should receive from a factory making Italian cheese?

Penn. J. E. A.

This inquiry was accompanied with an addressed, stamped envelope, evidently upon the theory that we would answer by mail. This is contrary to our rules, not only because we have not the time to answer communications by personal letter, but for the further and very good reason that we have nothing to say on these subjects that cannot be said in print where it can be read and known of all men.

The amount of skim milk that a patron should receive from 100 pounds of whole milk delivered to a creamery will depend somewhat upon the way the separator is run, or the amount of fat in the cream. It used to be the practice to return about 80 pounds of skim milk for 100 pounds of whole milk. In later times, creameries are unsually running a thicker cream and there would be perhaps a little more skim milk.

It is as impossible to determine the feeding value of skim milk, as it is to determine the feeding value of corn or oats. This value will vary with the price of other feed stuffs and especially with the skill and care of the feeder in using it. It is quite easy to make skim milk return a value of 25 cents for each 100 pounds, when fed to growing pigs or calves. It is equally easy to so handle skim milk that it will not return more than 10 cents per hundred pounds.

Inasmuch as 100 pounds of milk is expected to average nearly or quite 10 pounds of cheese, there should result about 90 pounds of whey and whey is estimated to be worth from 5 to 7 cents per hundred pounds.

Raising Fodder Corn.

A Difference of Opinion.

ED. HOARD'S DAIRYMAN:—In the DAIRYMAN of June 26 on page 476 you give an article on Raising Fodder Corn by Professor Haecker of the Minnesota Experiment Station. After reading that article I said, is the Professor authority on that subject? If so then I am clear way off, for he says plant the corn thick so as to prevent the forming of ears, for it is better for the nourishment to remain in the stalk than to go into the ear. In other words he don't want any ears to form on the stalks at all. No sir! I hold that no stalk is worth anything for fodder in green state at all, unless it has formed an ear and partly grown said ear. Now let me tell you how I came to this conclusion.

Some little time ago I drilled a piece of corn next to my lane for the purpose of using it for fodder for my cows when the grass became short. That corn grew splendid. Some of it was 8 ft. high and on down to 4 ft. Well, the grass became short and I began to feed this corn after it had tasseled out but no ears on the stalks at all. For the first feed or two they ate them all up nice and clean, but soon I found some of the butts of those stalks left and soon the lane became covered with the stalks.

I said, what is the matter? I guess I had better change my feeding place, and so I took the stalks up to the stable and fed them in the mangers, but the result was no better. The cows would eat the leaves and the top of the stalks but would leave the butts, and again I said, what is the matter? Then I thought I would try an experiment and so I wheeled up a feed or two of corn that had been grown in the hill. These were large stalks, some two inches through, with large ears on from eight inches to a foot long. I picked off some of the largest of the ears for the pigs but the result was, the cows ate up those stalks from end to end and looked around for more.

And again I asked myself, what is the matter now? And so I thought I would try an experiment with my own mouth, and so I went and cut one of these typical stalks that had not formed an ear, and cut out portions of it, prepared it and ate it myself, and I soon found out that this stalk was rank bitter, and there was not the least good taste in the stalk.

Then I went and cut one of the largest stalks with the largest ear on and prepared that in the same way and ate that, and I found that sweet and pleasant to the taste, and I was not long in deciding what was the matter, and so firm has become that decision that I don't want any stalks to feed my cows for green fodder, than those stalks that have ears on, and since I have adopted this plan of preparing my fodder corn, I have had no trouble with the cows wasting the butts of the stalks.

In fact, I find in Experiment Station Bulletin No. 11, on page 56, that the butts of the stalks have 3.49 protein and the middle has 2.71 protein and the top has only 1.88 protein. So, as far as the butt is concerned, it is the most valuable part of the stalk, which my cows were leaving with those stalks that had not formed ears. And so surely have I become convinced by this, and other like experiments, that if any one would put the fodder corn in for me, in the way first spoken of, free of expense to me, I would say no. W. B. J.

Salem, Mich.

The Canadian Butter Bill.

Manufacture of Renovated Butter Prohibited—First Reading of Bill—Peculiar Definitions—Excess of 16% Water Deemed an Adulteration.

Canada is starting on the right road in looking after the purity of her dairy products. By so doing, she will be saved from the costly mistakes of permitting the manufacture of oleomargarine, filled cheese, etc. Following is the proposed new law regarding dairy products:

1. This Act may be cited as The Butter Act, 1903.

2. This Act shall come into operation on the first day of July, nineteen hundred and three.

3. In this Act unless the context otherwise requires—,

(*a.*) "Creamery" means a place where the milk or cream of not less than fifty cows is manufactured into butter;

(*b.*) "Dairy" means a place where milk or cream of less than fifty cows is manufactured into butter;

(*c.*) "Butter" means the food product commonly known as butter, which is manufactured exclusively from milk or cream or both, with or without the addition of coloring matter, common salt, or other harmless preservative;

(*d.*) "Creamery Butter" means butter which is manufactured in a creamery.

(*e.*) "Dairy Butter" means butter which is manufactured in a dairy.

(*f.*) "Renovated Butter" or "Process Butter" means any butter which has been melted, clarified or refined, and made to resemble butter.

4. Any butter which contains over sixteen per cent of water shall be considered adulterated within the meaning of this Act.

5. No person shall mix with butter any acid, alkali, chemical or any substance whatever, which is introduced or used for the purpose or with the effect of causing the butter to absorb water or any part of milk or cream.

6. No person shall manufacture, offer, sell, or have in his possession for sale, any oleomargarine, butterine, or other substitute for butter, manufactured wholly or in part from any fat other than that of milk or cream.

7. No person shall manufacture, offer, sell, expose, or have in his possession for sale, any renovated butter, process butter, adulterated butter or butter which has been treated in the manner described in section 5.

8. No person shall brand or mark the word "creamery," or any combination of words which includes the word "creamery," upon any box, package or wrapper containing butter, unless the butter contained in the box, package or wrapper consists wholly of creamery butter manufactured at one place.

9. No person shall sell or offer, expose or have in his possession for sale, any butter contained in any box, package or wrapper upon which the word "creamery," or any combination of words which includes the word "creamery," is branded or marked, unless the butter contained in the box, package or wrapper consists wholly of creamery butter manufactured at one place.

10. Every person who, by himself or through the agency of another person, violates any of the provisions of this Act, shall, for each offence, upon summary conviction, be liable to a fine not exceeding four hundred dollars, and not less than ten dollars, together with the costs of prosecution, and, in default of payment of such fine and costs, shall be liable to imprisonment, with or without

"ADVERTISEMENT."

SLOW STARVATION

The Dyspeptic's Diet Leaves no Chance for Regaining Strength.

The dyspeptic who starves body and brain because food will not digest has no chance to get strong again because bodily strength cannot be built up except on food that will digest.

That is the mission of Grape-Nuts which any dyspeptic can digest and which will begin to build up and nourish at once.

A Wisconsin man says: "For the last 7 years I have been a great sufferer with stomach trouble and for 18 months I could not eat or drink anything, not even a spoonful of milk, without great suffering.

"It seemed I had tried every remedy in the world and I had given up all hopes of ever getting better when a friend advised me to eat Grape-Nuts food. I was just about too much discouraged to do so for I expected to die and all my friends expected I would too but finally did send for a sample box and when it came I was so weak I could not turn over in bed.

"Then I began to take the Grape-Nuts, just a little bit at first, moistened with hot milk and from this time I began to grow stronger and before I had finished the fourth package I could eat and drink anything I wanted and it did not hurt me in the least. So the right food helped me to health after everything else had failed.

"Experience, actual use, proves absolutely the great power of the scientific food Grape-Nuts." Name given by Postum Co., Battle Creek, Mich.

Send for particulars by mail of extension of time on the $7,500.00 cooks contest for 735 money prizes.

THE U. S EXCELS ON ANY TEMPERATURE.

Our "would-be competitors" the DeLaval Separator Co., finding themselves badly beaten in the six weeks' tests of six different makes of Separators at the Kansas Agricultural College, as shown by the official Bulletin No. 123 issued May 26, 1903, in their efforts to break the force of so disastrous a defeat, have compiled a Bulletin of their own "getting up" purporting to be signed by several students, in which they try to make it appear that the DeLaval was not terribly beaten, as the Official Bulletin shows it was as follows:

Average test of skimmilk of DeLaval Separator	**.048**
" " " U. S. "	**.033**
U. S. excels DeLaval	**.015**

Showing that the DeLaval Separator left 45 per cent. more butter fat in the skimmed milk than the United States.

Again in this "gotten up" Bulletin, our "would-be competitors" state that the U. S. Separator "choked up" on 39 lbs. of milk at 70 degrees of temperature and that the DeLaval ran 80 lbs. Every dairyman using a U. S. Separator knows that the U. S. will not "choke up" on 80 lbs of good milk at 70 degrees, and that such statements are made in an attempt to break the rapidly gaining popularity of the

U. S. SEPARATOR.

We make the following proposition to any dairyman wishing to buy a separator, viz.: We will put a U. S. Separator into his dairy and agree that it will not "choke up" on 80 lbs. or twice 80 lbs. of milk in good condition at 70 degrees, provided he will pay for the separator if it does not "choke up."

The best authorities do not advocate separating at 70 degrees, but if Dairymen prefer to, the U. S. will do it when properly adjusted.

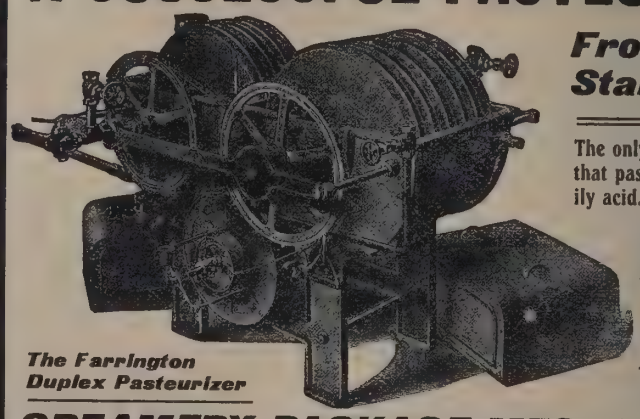
The U. S. Separator skims cleaner than any other separator on the market at any temperature from 70 degrees to 156 degrees at proper adjustment. The Official Bulletin No. 123 of Kansas Agricultural College, dated May 26, 1903, states that

The U. S. Excelled all Others in tests of Skimmed Milk and in Minimum Total Loss.

THE U. S. SEPARATOR HOLDS WORLD'S RECORD.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.

A SUCCESSFUL PASTEURIZER



The Farrington Duplex Pasteurizer

From Every Standpoint.

The only Pasteurizer made that pasteurizes milk heavily acid.

It makes good Butter — that makes good business.

Your Butter will score 8 points higher.

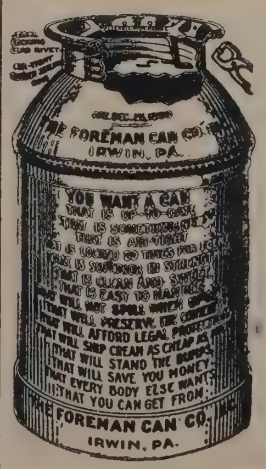
Write to the

CREAMERY PACKAGE MFG. COMPANY

BRANCH HOUSES: Kansas City, Mo. Omaha, Neb. Minneapolis, Minn. St. Louis, Mo. Waterloo, Ia.

149 to 153 East Superior Street, **Chicago, Ill., U. S. A.**

Canadian Branch: Cowansville, Quebec.



We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity—1000 cans daily, which should enable us to fill all orders promptly.

Every can sold on a guarantee. Write for Circular H.

'COME in the evening or come in the morning, when you're looked for or come without warning"—



You'll always find your Tread Power ready for business. OF WHAT OTHER FARM MOTOR—Wind Steam or Gasoline—can this be said? A PERFECT GOVERNOR ensures absolutely even speed. Send for free catalogue.

St. Albans Foundry & Implement Co., St. Albans, Vt.

NOW IS THE TIME TO SUBSCRIBE FOR

Hoard's Dairyman.

hard labour, for a term not exceeding three months, unless such fine and the costs of enforcing it are sooner paid.

11. Any person charged with the enforcement of this Act may enter any premises to make examination of stock or packages, and the marking thereof, whether such stock or packages are on the premises of the manufacturer or owner, or on other premises, or in the possession of a railway or steamship company; and any person who obstructs or refuses to permit the making of any such examination shall upon summary conviction, be liable to a penalty not exceeding five hundred dollars, and not less than twenty-five dollars, together with the cost of prosecution, and, in default of payment of such penalty and costs, shall be liable to imprisonment, with or without hard labour, for a term not exceeding six months, unless the said penalty and costs of enforcing it are sooner paid.

The last sections refer more to the enforcement of the law and provide that one-half of the fines recovered shall be payable to the informant or complainant.

In the discussion on the first reading, Dr. Reid, of Grenville, wanted to know how a farmer's wife was going to find out whether her butter contained a fraction over 16 per cent of water. She might find herself subject to heavy penalty and be entirely innocent of any wrong doing. To this the Minister answered that any person honestly trying to make good butter would have much less than 16 per cent of water in it. The instances where such a percentage of water was found, were, in his opinion, deliberate attempts to sell water for butter.

Mr. Boyd pointed out that of 105 samples of creamery butter examined at the experimental farm, the amount of water ran from 7 to 16 per cent. The great majority contained 12 or 13 per cent, and one sample made by experts, contained over 16 per cent.

Flooded Alfalfa.

In the regions covered by the recent disastrous floods was a large acreage of alfalfa that was covered with water for a greater or less length of time. Regarding the probable results of this flooding, Prof. A. M. TenEyck of the Kansas Experiment Station says:

On June 7, I drove five miles north of Manhattan through the flooded district in the valley of the Blue river. The waters had practically disappeared from the surface soil, but the ground was very wet and soft in most of the fields at that time. I believe that practically all crops which were covered by water three or four days, have been destroyed in this district. It is possible that alfalfa on well drained fields may revive. By careful examination of fields which were under water for four or five days I observed that new shoots were starting from the crowns of about 10 per cent of the plants. The old stems seemed dead and on the stems and leaves were more or less of a deposit of mud which gave the fields a very unfavorable appearance. I am advising disking of these fields as soon as the ground is dry enough. It may be necessary in many cases to cut the alfalfa before disking. This will be no small undertaking because of the deposit of mud and the lodged condition of the crop. I advise disking in order to break up the cemented close condition in which the surface soil will be left when the ground dries. The great need of the alfalfa roots is for air and perhaps if air is supplied soon enough the plants will survive, at least the disking will do no harm.

It does not seem to be a fact that alfalfa is always destroyed by being flooded with water for short periods of twenty-four to forty-eight hours as has been stated in some of our publications. I quote from Bulletin 66 of the Texas Experiment Station, which has just been issued: "Alfalfa is naturally opposed to wet soils, but where favorable soil conditions exist, well matured alfalfa has a wonderful power of recuperation. The destructive effect of the overflows is greater on the immediate river front land and in practically every instance where such lands were devoted to alfalfa the crops were killed out to an unprofitable stand. The heavy deposit of sediment on the plants, in some instances completely covering them, prevents the natural life functions of the plants.

Mr. O. J. Chance, who has a large acreage of alfalfa in the Brazos bottom, about two miles from the river, in speaking of the effect of the overflow, said: 'The overflow of last summer did not completely cover my crop, but remained on the land for the greater part of six days. It was running water. My alfalfa land is well drained except in spots. The crop was only slightly injured except in the low places, where the water stood for some time after the overflow water had receded. In such places it was killed out.'

Mr. Robert F. Smith, of the Smith & Carson Plantation, said, 'A large part of our alfalfa was under water for nearly eight days last summer, and being located near the river front, was covered with eight to ten inches of sediment. Almost four weeks later this land was prepared for fall oats. A good sprinkling of alfalfa came up with the oats, having survived the severe conditions to which it had been subjected. I believe that there is very little danger to alfalfa from overflows back from the river, say from one to two miles, except in poorly drained spots. A light rain following the receding of the overflow waters is a great help, as it washes the sediment off of the plants. The overflow of this winter did not injure my crop planted last fall, although it was on the land for two days and completely covered it for a part of that time.'

Mr. John Nabors said: 'If there is not too much sediment and it is running water, alfalfa will stand overflows of long duration, and especially so if the overflow is followed by light rains to clean off the sediment from the plants.'

The alfalfa on the Koppe plantation is located about one mile from the river. The overflow of last summer completely covered this field for at least five days—the fence-posts were almost entirely under water. The alfalfa only died in poorly drained spots and where scalded by the sun."

The water did not recede from the alfalfa lands in the part of the Blue Valley visited soon enough for the rains to wash the sediment from the plants. Yet taking into account that the alfalfa was practically matured and ready for cutting, I believe that if the fields can be cleared and disked before the ground bakes, much of the alfalfa on the Blue river bottom will be saved. This will doubtless hold true for other flooded districts.

HE HITS THE NAIL ON THE HEAD.

Prof. C. G. Hopkins, of the Illinois Agricultural College, put the fertility question in a sharp light when he recently said:

"The merchant buys and sells and buys again, but the farmer sells and sells until he is practically 'sold out.'"

"ADVERTISEMENT".

EXPERIMENTS

Learn Things of Value.

Where one has never made the experiment of leaving off coffee and drinking Postum it is still easy to learn all about it by reading the experiences of others.

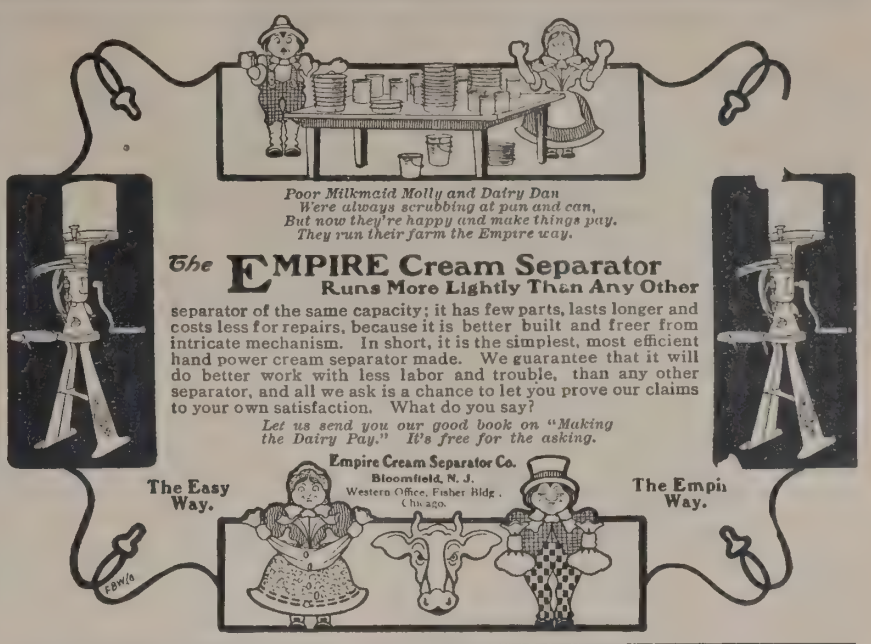
Drinking Postum is a pleasant way to get back to health. A man of Lancaster, Pa., says: "My wife was a victim of nervousness and weak stomach and loss of appetite for years and was a physical wreck; although we resorted to numerous methods of relief one of which was a change from coffee to tea, it was all to no purpose.

"We knew coffee was causing the trouble but could not find anything to take its place and cure the diseases until we tried Postum Food Coffee. In two weeks' time after we quit coffee and used Postum almost all of her troubles had disappeared as if by magic. It was truly wonderful. Her nervousness was all gone, stomach trouble relieved, appetite improved and above all a night's rest was complete and refreshing.

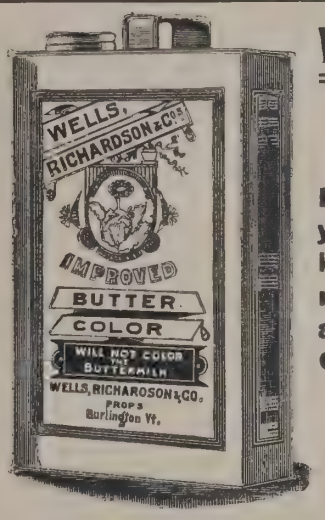
"This sounds like an exaggeration, as it all happened so quickly, but we are prepared to prove it. Each day there is improvement for the better for the Postum is undoubtedly strengthening her and giving her rich red blood and renewed life and vitality. Every particle of this good work is due to Postum and to drinking Postum in place of coffee." Name given by Postum Co., Battle Creek, Mich.

Ice cold Postum with a dash of lemon is a delightfnl "cooler" for warm days.

Send for particulars by mail of extension of time on the $7,500.00 cooks contest for 735 money prizes.



THE KIND THAT HAS NO MUD.



Wells, Richardson & Co.'s

Improved Butter Color

Has stood the test for many years, and users of color know that it can always be relied upon. It is the BEST and therefore the CHEAPEST COLOR on the market.

For Sale By All First-Class Supply Houses.

Creasey Ice Breakers



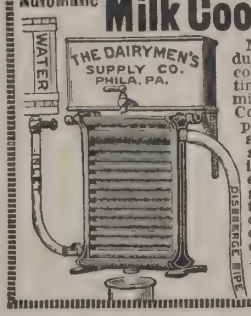
Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right.

Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.

J. S. L. WHARTON, Mfr.,
17th Clearfield Sts. Philadelphia, Pa.

MELONEY'S Automatic Milk Cooler and Aerator

TRADE MARK BESTOV



Made of the best conducting material—sheet copper and coated with tin outside where the milk comes in contact. Cools milk quickly. Expels all animal odors and the smell of grass and garlic. Aerates it thoroughly. Can be easily cleaned. Fully guaranteed. Used by the most progressive dairymen. Send for catalogue "Bestov" dairymen's supplies.

Dairymen's Supply Co., Dept. Philadelphia, Pa.



The Distribution of Skim Milk.....

It is known that the just complaints of creamery patrons on account of unfair distribution of skim milk are the bane of the separator creamery business. Further disputes among patrons, annoyances to managers, hindrances to the best work of buttermakers, watering the skim milk, and many other ills in the same train are unnecessary, since the

Barber-Coleman Check Pump

has for more than five years been successfully solving the problem in many different creameries. When a patron has dropped in his check he can pump the amount of skim milk called for by his check, less the percentage taken out as cream, so in like proportion to all other checks. Its measuring apparatus is just an ordinary pump which everyone understands and knows how to operate.

Cornish, Curtis & Greene Mfg. Co.,

General Sales Agents De Laval Alpha Separators,
FORT ATKINSON, WIS.

Points on Calf Food.

Experiments in Supplementing Skim Milk With Various Feeding Stuffs.

Bulletin No. 92, issued by the U. S. Department of Agriculture, contains an interesting section devoted to a report of calf feeding experiments as follows:

"The Iowa Station has conducted experiments extending over a number of years to learn what feeding stuffs may be profitably combined with skim milk for calves. In two of the tests, linseed meal, ground oats, and a mixture of corn meal and flaxseed were compared as supplements to separator skim milk. In the last test reported corn meal was also included. For this test (which covered 74 days) twelve calves were divided into four lots of three each. During the test each lot consumed about 3,760 lbs. of separator skim milk and 1,480 lbs. of hay. In addition, lot 1 was fed 429 lbs. of linseed meal; lot 2, 605 lbs. of oatmeal; lot 3 59 lbs. of flaxseed and 538 lbs. of corn meal, and lot 4, 601 lbs. of corn meal. The lots were kept in well-ventilated sheds with yards connecting. Salt and water were always accessible. The foods consumed, gains made, and cost per pound of gain in the last experiment are shown in the following table:

SUMMARY OF RESULTS OF CALF FEEDING.

	Nutritive ratio of ration.	Total gain.	Average daily gain per head	Dry matter eaten per lb. of gain.	Cost of feed per lb. of gain
		lbs.	lbs.	lbs.	cts.
Lot 1. Skim milk, hay, with linseed meal....	1:3	483	1.63	4.13	2.5
Lot 2. Skim milk, hay, with oatmeal.....	1:4.1	498	1.68	4.31	2.2
Lot 3. Skim milk, hay, with flaxseed and corn meal.....	1:4.8	489	1 65	4.32	2.3
Lot 4. Skim milk, hay, corn meal.....	1:4 9	509	1.72	4.16	2.0

"From these figures it appears that the best and most economical gains were made on corn meal and skim milk. Comparing the results of all the tests made, it is found that 'in each of the three experiments conducted by this station, linseed meal has given lower and more expensive gains and has been in every way less satisfactory than either oat meal or corn meal and flaxseed.

* * * The results indicate that pure corn meal is superior to pure linseed meal for feeding calves in combination with skim milk.'

"While the results of these experiments are contrary to prevailing opinion concerning the relative value of these feeds, it is not unnatural or in any way unreasonable that the carbonaceous grains should be more suitable for feeding with skim milk than a highly nitrogenous product like linseed meal.

"The conclusion seems warranted that a nitrogenous feed, such as oil meal, is neither necessary nor most profitable to supplement a separator milk ration for young calves. All of these rations, even when corn and flaxseed were used, were narrower than whole milk, and it is evident that the element lacking in separator milk is not albuminoids, but fat or its equivalent—carbohydrates—in some form palatable and digestible to calves.

"In recent experiments made in Holland the effect of increasing the fat in skim milk for calves or of adding starch was tested. Sufficient whole milk was added to skim milk to make the desired amount of fat.

"When starch was fed it was cooked to a paste in the skim milk. About 94 per cent of the starch was digested, the co-efficient of digestibility being as high as in the case of the adult animal. The addition of starch to the ration diminished the digestibility of protein somewhat. It was, however, on the whole satisfactory, although the author believes that fat is preferable.

"A prominent French investigator has recently published the results of a number of years' experience in feeding starch and skim milk to calves, and regards this combination of foods as very satisfactory. He states that a calf weighing on an average of 70 lbs. at birth, should gain about 2 lbs. in weight a day, about 6 quarts of milk being required for this by a calf of the above weight. When the calf is eight days old, starch in the proportion of 1.7 ounces to a quart of milk may be substituted for whole milk. No bad results follow the change in feed and the gains made are satisfactory. The starch should be cooked to a smooth paste with half the milk used, then mixed with the remainder and fed warm. The value of this method of feeding from an economical standpoint is discussed at considerable length.

"These experiments all indicate that what might be expected on theoretical grounds is found to be the case in practice. It is known that the body requires protein for its growth and maintenance, and in addition fat and carbohydrates for supplying the necessary energy. Whole milk is the normal food of the calf; it contains a sufficient amount of protein. If the fat is removed, the skim milk supplies the same amount of protein as before, but something must be added as a source of energy. It is known that within limits fat and carbohydrates are interchangeable for this purpose. In the experiments cited above carbohydrates (either in form of starch or cereal grains) were successfully combined with skim milk, and in this way the animal was supplied with an abundance of protein and energy and made satisfactory gains. When it is possible to supply protein in a by-product, such as skim milk, and the supplementary material in an inexpensive form, the profitable feeding of calves is assured."

Our Special Elgin Letter.

Although the Call Board was quiet, butter men took quite an interest in discussing crop conditions favoring the dairymen. Not a few tillers of the soil were in attendance.

The Quotation Committee decided on 20 cents steady as the market price of butter. Last week the market was 20 cents steady, with an output for the district of 834,000 pounds; output this week 832,900 pounds.

There were no sales or offerings.

Former markets:

	Tubs sold.	Price.
July 6, '03.....	0	20c.
July 7, '02.....	0	21c.
July 8, '01.....	0	19c.
July 9, '00.....	0	19c.
July 10, '99.....	119	18c.

New York steady, 20½c, receipts, 12,410.

H. C. B.

Elgin, Ill.

DAIRY MARKETS.

ELGIN, Ill., July 13—Butter—No offerings and no sales today. Market steady at 20 cents.

CHICAGO, Ill., July 13—Butter—Steady; creameries, 15@20c; dairies, 14@18c.

Eggs—Steady; at mark, cases included, 13@14¾c.

Cheese—New; steady; Daisies, 11@11½c; Twins, 10@10½c; Young Americas, 11c.

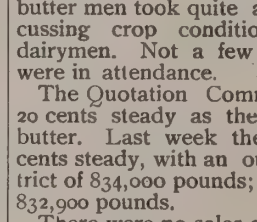
Cattle—Prime beeves, 1,200 to 1,500 pounds, 5.40@5.60; choice to extra steers, 5.10@5.35; fair to good export and shipping steers, 4.75@5.00; medium beef steers, 4.45@4.70; plain beef steers 4.20@4.35; common to rough, 1,000 to 1,200 lbs. 3.75@4.10; good to choice, fat heifers, 4.10@4.75; good to choice feeders, 3.85@4.75; poor to plain stockers and feeders, 2.80@4.00; fair to good cows and heifers, 3.10@4.40; good cutting to fair beef cows, 2.25@3.00; common to good canning cows 1.30@2.20; bulls, poor to choice, 3.20@4.20; veal calves, good to fancy, 5.00@5.85; calves, common to fair, 3.00@4.75; corn-fed western steers, 3.85@5.25; Texas bulls and grass steers, 2.75@3.70; Texas steers, fair to common, 3.80@4.65.

Hogs-Good to prime heavy shipping 5.35@5.55; good to choice heavy packing 5.20@5.35; plain to choice heavy mixed 5.05@5.25; selected butcher weights 5.35@5.55; assorted light, 150 to 195 lbs. 5.50@5.70; thin to choice, 50 to 130 lbs. pigs 5.50@6.00; stags and rough lots, 3.00@4.90.

MILWAUKEE, Wis., July 13.—Butter—Creamery—extras, 20c; firsts, 17@18c; seconds, 15c, renovated 16@17c; Dairy, fancy, 17c; lines, fresh, 14@15c; packing stock, 13c; whey, 10@12c; grease, 5@6c. Receipts, 15,891 lbs.; Saturday, 17,522 lbs.

Cheese—American, full cream—New Twins, 10½@11c; Young Americas, 11@11½c; Daisies, 11@11½c; Longhorns, 11½@12c; low grades, 9@10c; Brick, fancy, new, 9@9½c; low grades, 8@9c; Limburger—Fancy, old, 10@10½c; low grades, 6@8c; new, fancy, 9@10c; off grades, 7@8c; Swiss, old, drum, choice, 15¼@16c; drum, No. 2, 13@14c; Block, choice, 14@14½c; block, No. 2, 12@13c. Market easy on most all lines; offerings plentiful; demand limited. Receipts, 28,050 lbs.; Saturday, 25,800 lbs.

Eggs—Strictly fresh laid, at mark, cases returned, 13½; dirties and seconds, 12c., checks, 10c. Market steady. Receipts, 274 cases; Saturday, 696 cases.



SAW MILLS, 4 H. P. cuts 2,000 feet per day—All Sizes—Planers, Shingle Mills and Edgers with Patent Variable Friction Feed-Portable Grinding Mills, Water Wheels, Lath Mills, etc. Send for large Catalogue. Freight don't count.

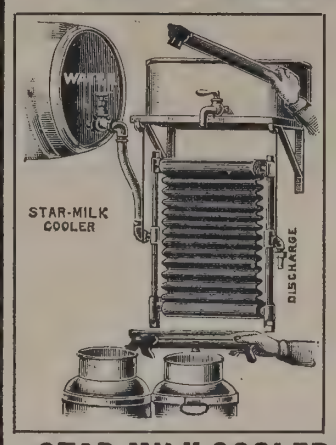
Box 801, Atlanta, Ga. DeLOACH MILL Mfg Co 114 Liberty St., N. Y.

CEMENT POSTS.

The Janesville Cement Post Co. has now ready for sale and immediate delivery a large supply of line fence posts, corner posts and hitching posts. Those desiring posts that will neither rot nor burn, but posts that will last for ver, write for catalogue.

JANESVILLE CEMENT POST CO. Janesville, Wis.

THE DAIRYMAN'S PRIDE.



Try One and Be Happy, Too.

This cooler can be depended upon to cool milk or cream down to within 2 deg. of the temperature of the water run through it.

Every particle of milk has 40 inches run over the smallest size Cooler. Milk that is chilled on an ice cold surface will not keep so well as milk that is cooled gradually and thoroughly.

Try one of our Coolers

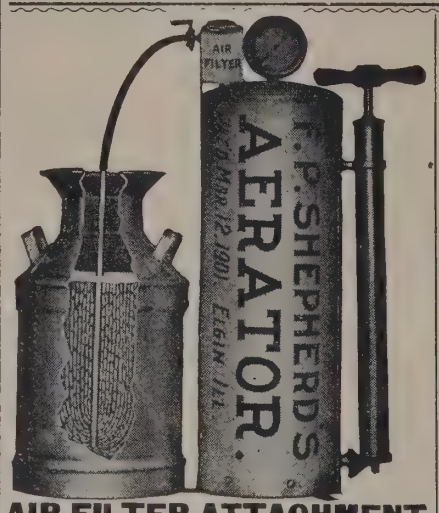
You will wonder how you ever managed without it.

Made in all sizes.

Send for Cooler Booklet which will give you a full description together with list prices and capacities.

Let us hear from you.

STAR MILK COOLER CO., Haddonfield, N. J.



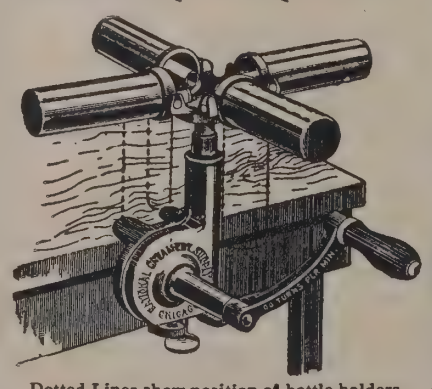
AIR FILTER ATTACHMENT

Makes Shepherd's Aerator The Standard.

Pure filtered air from charged tank drives out animal odors and impurities while the milking goes on. No attendance, no extra vessel to clean, nothing but the can. Circulars free.

F. P SHEPHERD & CO., ELGIN, ILL.

NATIONAL Babcock Milk Tester



Dotted Lines show position of bottle holders when not in motion.

Has enclosed cut gears.
Swinging bottle-holders.
Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

DOES YOUR DAIRY PAY?

It costs no more to feed a profitable than an unprofitable cow.

NET PRICES:

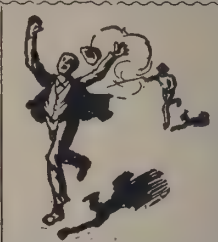
No. 1,—2 bottle, complete for testing milk.... each $4 00
No. 2,—4 bottle, complete for testing milk.... each 5 00
No. 3,—2 bottle, complete for testing cream and milk, each..... 4 50
No. 4,—4 bottle, complete for testing cream and milk, each..... 5 50

Prices include full directions for making test, bottle of acid, test bottle brush, acid measure, dipette and test bottles.

We are the great Dairy Supply House of the West. We carry an immense stock of all kinds of Butter and Cheese Making Apparatus and Supplies. Write for catalogues and circulars.

National Creamery Supply Co.,
450-458 Illinois St.,
CHICAGO. U. S. A.

Painkiller PERRY DAVIS' CURES CRAMPS & COLIC



You Coward

You killed him behind his back! That's what YOU would say wouldn't you if you saw such a scene as the picture shows? Did you ever stop to think that YOU may have killed someone? You may be sending death and sickness and misery to some happy home because the milk you sell or make into butter or cheese has absorbed diseased germs from your carelessness in not killing that bad odor. Would'nt you feel better to know you had invested $2.50 in a can of Kno Germ that is absolutely guaranteed to kill bad odors, and you had it ready the moment you notice the bad smell? A can of Kno Germ makes 300 gallons liquid odorless Disinfectant-six large barrels-costs you $2.50. Guaranteed by us and your regular supply house Be ready and order TO-DAY, or send 5-cent stamp for sample can and test it. Sample makes 10 gal. liquid odorless, disinfectant. Splendid in the sick room. May save you doctor's bill, perhaps life. Don't put it off, write us now while you think of it. M. H. FAIRCHILD & BRO., 399 Michigan St eet, CHICAGO

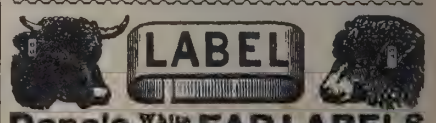
Steel Water Tanks

for stock, storage, dipping, wagons, etc., of shapes and capacities to meet every farm need. Best line galvanized ware made, including roofings and sidings, eaves troughs, conductors, ridge capping, etc. Sold by prominent dealers everywhere. When you buy insist on getting the "Gedge" or "Anderson" brand. If not there write us. We'll see you supplied. Gedge Bros. Iron Roofing Co., Box 482, Anderson, Ind.



MARK YOU your live stock of whatever kind with the thoroughly reliable, rust proof, non-corroding, easily read.... ALUMINUM "STAY THERE" EAR MARKERS

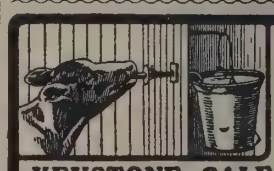
Don't pull out, rust out or tear out. Name, address and consecutive numbers on each tag. Free sample, catalog etc. WILCOX & HARVEY MFG. CO. 198 Lake St. CHICAGO, ILL



Dana's White Metallic EAR LABELS

stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Samples free. Agents Wanted.

C. H. DANA, 55 Main St., West Lebanon, N. H.



SENT out under positive guarantee. Money refunded if not satisfactory. No bolting food. Perfect digestion. All tinned—no rust.

KEYSTONE CALF FEEDER

Patented under No. 721,384. Used in about forty experiment stations. Mass. Ag'l College writes as follows:

Mr. M. T. Phillips, Dear Sir:—I write to say that the Calf Feeder is giving excellent satisfaction. We have found it to be all we could ask for in a feeder. It is easily cleaned and appears to be durable. Yours truly, E. A. JONES, Supt.

Complete with extra nipple, $1.50, express prepaid. Circulars free.

M. T. PHILLIPS, POMEROY, PA.

GROOM YOUR CATTLE BY POWER

Our Improved Grooming Brushes, revolving 1200 times a minute, insure glossy coat, clean skin, active pores, health and beauty. Their use increases value of all stock. Indispensable for prize winning show cattle. Will groom 30 to 50 head an hour, and do it better than by hand. Get our Free Booklet and learn to groom your cattle, horses and all stock the best way.

CHICAGO FLEXIBLE SHAFT CO., 194 Ontario St., Chicago, Ill.

Dietz Lanterns—

make the way plain in night work or travel. Always shed a strong, clear, white light, with no choking, scoting or smoking.

Over Sixty Years the Favorite.

Made in many styles and sizes for all purposes, as hand lanterns, driving lamps, post lamps for streets, for front of country residences church doors, etc. CATALOGUE SENT FREE.

R. E. DIETZ COMPANY, 24 Laight Street, New York. Established 1840

SHEBOYGAN, Wis., July 8—Cheese—On the Call Board here today 1,964 boxes of cheese offered of which: 61 boxes Daisies passed. Sale were as follows: 42 boxes Twins, 10¼c: 16, at 10⅜c: 691 Daisies, 10⅝c: 527 Young Americas, 11c: 162 Longhorns, 11¼c: 462, 11⅜c. Bidding exceptionally brisk.

FOND DU LAC, Wis., July 13.—Cheese—sales of cheese at the dairy board today were 180 Twins at 10¼c, 114 Twins at 10⅜c; 204 Daisies at 10⅜c, 110 at 10⅞c. Market active.

PLYMOUTH Wis., July 7-Cheese-24 factories offered 3,722 boxes of cheese, of which 140 Daisies were passed on. The balance sold as follows: 406 Longhorns at 11c, 109 at 11⅛c; 1,895 Daisies at 10¼c, 350 at 10⅝c: 281 Twins at 10⅜c, 84 at 10; 324 Americas at 11c, 35 at 11⅛c, 58 at 10⅞c. Market active and firm.

MANITOWOC, Wis., July 8 — Cheese — The sales reported on the dairy board to day were: 140 Twins at 10c; 750 Young Americas at 10½c; and 1,450 Daisies at 10¼c.

BRILLION, July 9.—Cheese—Cheddars. 136, 10⅜c; 26, 10c; Daisies. 791, 10¼c; 45, 10⅜c: Flats, 323, 10¼c; 43, 10½c: Young Americas, 93, 10¾c. Total 1,657.

ST. LOUIS, July 13.—Butter—Slow; creamery, 15@21c; dairy, 15@17c.
Eggs—Steady, 12½c loss off.

KANSAS CITY, July 13.— Eggs—firm; Missouri and Kansas, cases returned, 12c doz.; No. 2. white wood cases included, 12½c.
Butter—Creamery, 17@19c; dairy. fancy, 17c.

UTICA, N. Y., July 13—Cheese—Market active at the decline. Large, white and colored, 9¾c; 1,000 white and colored, 9¾c; small, 4,000 at 9¾c.

NEW YORK, July 13—Cheese—Receipts. 750 pkgs.: market steady: state full cream, fancy, small colored.10c; small white large colored, and large white 10c.
Butter—Receipts, 12,140 packages; market steady state dairy, 14@20c: extra creamery, 20½c; creamery, common to choice, 15¼@20c.
Eggs—Recipts.12,351 pkgs.; market steady: to firm; state and Penn, firsts to extras, 17@18½c; western extras, 18@18½c; western, seconds to firsts, 14@17c.

BOSTON, Mass., July 13—Butter—Creamery, western, extra, 21c: western firsts, 20c: dairy, 16@20c; imitation creamery, 17 ladle, 15@16¼c; box and print, 16@22c.
Cheese—Choice, 10@10½c; Wisconsin Twins, 10@10½c.
Eggs—Nearby, 23@24c; western selected, 16c; fair to good. 14@15c; Illinois, 16c; western storage,13@17c.

TOPEKA,Kan.,July 11—Butter—Creamery butter, 20@21c; dairy, 17@18c.
Cheese—Longhorns, 11c; Twins, 10¾c: Prints, 11½c.

LIVERPOOL, July 13—Butter—Good United States steady, 75s.
Cheese—Easy, American finest, white 49s, do colored, 50s.

WASHINGTON. D. C. July 13—Butter Market steady. Extras, 21@21½c. Choice firsts 20c; fancy renovated, 18c.

PHILADELPHIA, Pa.,July 13—Butter—Market steady. Solids, 21c; nearby prints. 23c; western, 22c.

BALTIMORE MARKET.

BALTIMORE, Md., July 9—Butter—There is little change to note in the condition of the market since our last issue. The receipts were unusually heavy on Monday: this is attributable to Saturday being a closed holiday. and stock that should have been delivered that day was not delivered until Monday. Buyers seem to have regained more confidence in the past two or three days, and several long lines of creamery have changed hands. In addition to the speculative trade, the local consumptive demand continues quite good. There has also been a fairly good demand from the out-of-town trade: consequently there has been no accumulation of desirable stock. Imitations are in ample supply; only choice and fancy makes will bring full prices. Ladles—All fresh and sweet stock meets quick sale, while defective stock is slighted. Packing stock continues in liberal supply; all fresh, sweet invoices are promptly sold on arrival, while off stock hangs fire. Blocks and prints are in ample supply for the requirements. The market generally closes quiet, with receivers quite firm in their views on all attractive stock.
Creamery Separator. extras, 21½c; firsts, 20@21c;seconds, 18½@19¼c. Iowa & N. W. Ladle, extras. 17¾c; firsts, 17c; seconds. 15@16c. Ohio & Indiana Ladle, extras, 17c; firsts, 16@16½c; seconds, 15c. West Va. Store packed, extras, —c; firsts, 13¼c; seconds, 12½@13c. Creamery blocks (2-lb.) extras, 22c: firsts, 21c; seconds, 19@20c; Creamery prints (⅛ lb) extras, 23c, firsts, 21@22c; seconds, 19@20c. Md. Va., & Penna. Prints. extras, 21c; firsts, 20c; seconds, 18@19c.
Eggs—While the receipts are only moderate, they are about equal to the requirements. The quality in many instances is running very unsatisfactory: hence. the loss-off is quite heavy. You cannot be too particular in grading and candling your eggs at the starting point, and be sure to pack in cases. The market closes quiet, but there seems to be a firmer feeling on choice stock. The market closed at 15¼ cents.
Cheese—The receipts are ample; demand sluggish; market weak and unsettled. Note.—Our quotations on Swiss cheese are for old stock; new will not command within 3 or 4 cents as much as old.
N. Y. State—Cheddars, fine, 10½@10¾c; choice, 10@10¼c; fair, 8¾@9¼c, Flats, fine, 10½@10¾c; choice, 10@10¼c; fair, 9@9½c; Small, fine, 10¾@11c; choice, 10@10½c: fair, 9¼@9¾c; Ohio Flats, fine, 9@9½c; choice, 8@8½c; fair, 7@7½c; O. Picnic, fine, 9@9½c; choice, 8½@9¼c; fair, 7½@8c; Swiss Cheese, (domestic) fine, 15@16c; choice, 13@14c; fair, 10@12c.
301 Exchange Place. G. M. LAMB & BRO

NEW YORK MARKET.

NEW YORK, July 11.—Butter— Receipts for the week, 70,680 packages. Exports for the week, none.
Trade has been good for long lines of fancy creamery butter to go in freezers, and speculators have been obliged to pay a slight premium when quality and quantity suited. Under grades of creamery make were inquired for and sold readily at 19 to 20c, and our market closes with firm prices for all table qualities of butter. Several lots of New York state dairy butter were sold at 17c, while selections of fancy tubs sold at 19 to 20c. Ladle and low grades Western butter are in liberal supply and prices only steady. The intense heat of the week has staggered local consumption and only the cold storage demand has saved prices from going lower. We quote:
Creamery, extra, 20½c: medium, 19@20c; poor, 15@17c; Dairy, extra, 19@20c; medium, 16@18c; poor, 14@15c.

Cheese—Receipts for the week, 36,184 boxes. Exports, 6,851 boxes
The market has been active all the week, and although prices were marked down at the close, there is no stock left over unsold, and receivers would insist on a premium before selling any of their best go ds. Exporters and home trade were liberal buyers and took both full creams and skimmed cheese. We quote:
Full cream, extra, 10c; medium, 9@9¼c; poor, 8@8½c.
Eggs—Receipts for the week, 60,892 cases. Strictly fresh laid stock was in very light supply and sold quick on arrival at 19@20c. All other grades were plentiful and freely offered at 13 to 17c. We quote:
New York & Penn, strictly fresh laid, per dozen, 19@20c; Northern & West-rn, strictly fresh laid, 18@18½c: all Sections, poor to good, 12@17c.
177 Chambers St, DAVID W. LEWIS & CO.

NEW YORK FERTILIZER MARKET.

Nitrate of soda		2 00	@ 2 05
Blood, Dried red	₱ unit	2 55	@ 2 60
low grade		—	@ —
Concentrated tankage		15 00	@16 00
Fish guano, dried		24 50	@25 00
acidulated		22 00	@23 50
Acid phosphate		60	@ 67½
Phosphate rock, f. o. b. Char'n		5 00	@ 7 00
Tenn		3 00	@ 4 00
Bones, rough	₱ ton	16 50	@17 50
ground		19 00	@20 00
Bone meal		19	
Bone black, refuse		18 00	@19 00
Potash, dbl. m're salt 48@53 per cent		1 12	@ 1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons		25 00	@30 00
sulph of basis, 90@98 per cent		2 11	@ 2 18
90@98 per cent less than 25 tons		38 00	@40 00
Potash muriate ₱ 100 lbs		1 83	@ 1 95
less than 25 tons		36 00	@40 00
Kainit 25% S. of P	₱ ton	9 30	@ 9 50
less than 25 tons		9 50	@10 50
Sylvinit, 35@37% P	₱ unit	41	@ 46

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Angelus Herd Guernseys—For Sale—Bull Calf, superior breeding; price $50.00. Address MARCH, 39th & Western, Los Angeles, Cal. 23-tf

Wanted—I wish to purchase a retail milk business. Address with particulars. J. W. WILDER, Quincy, Ill.

For Sale—Dairy Farm, 576 acres, about 75 head well bred Jersey cows and heifers, herd in good condition, 1 mile from growing town of five thousand, dairy well established and paying handsomely Chronic illness requires sale, though sacrificed. Great bargain. Write for particulars. MRS. M. R. CARTER, Gainesville, Florida. 23-4.

Farm For Sale or Rent—A desirable stock and dairy farm in Winona Co., Minn., 13 mi'es below Winona, 2 miles from R. R. depot, 1,400 acres good land all fenced, well watered. There is on the farm a good 8-room dwelling house, two large barns, dairy building with churn, vats and implements for making butter, steam engine and 10 h. p. boiler, 75 cows, 450 high grade Shropshire ewes, 100 Angora gorts. young cattle and hogs. Running water in all the buildings. Will rent farm on shares with stock, or sell farm with or without stock. LLOYD BARBER, Winona, Minn. 23-3

Wanted—A good single man to take charge of dairy. Hollander preferred. C. M. BOTTEMA, Stockyards, Indianapolis, Ind. 23-2

For Sale—A 125 gal. milk route with 2 horses and 2 wagons and 40 cans. all in first-class condition. Ill health only reason for selling. For particulars address J. E. MARTINDALE, Benton Harbor, Mich.

For Sale—Seven miles east of Green Bay Wis., one well equipped cheese factory and small grocery store. 6,500 pounds milk daily. Fine location for a wide-awake man. For full particulars write to W. P. KRATZ, R. 3, Green Bay, Wis. 23-4

Herdsman Wanted—One familiar with care and feeding of Holstein-Friesians. Good references and experience required. Address F. W. ALLIS, Monona Farm, Madison, Wis. 23-4

For Sale—Cheap for cash, largest retail milk route in Sycamore, Ill. Rent 50 acre farm (good crops) buy milk, up-to-date machinery, four loads daily. Apply at once. GOVE & INGERSOLL, Sycamore, Ill

Experienced butter maker wanted at once. K. K. POWELL, Stevens Point, Wis.

For Sale—Or will trade for good farm. A first-class grocery with established cash trade in best residence district in Chicago. Only best land will be considered. Will pay cash difference. EDWARD G. WIDMANN, 8 and 10 East 47th St., Chicago. 22-2

Macon County, Missouri. Farm For Sale.—80 acres good land, well fenced, plenty small fruits; two-story 8-room frame residence, front and rear stairs, large halls. cellar 16x32; barn 42x60 with 12x60 leanto. All in meadow and pasture. Residence within 100 yards of depot just outside corporate limits town of 600, 4 miles of coal mines two thousand miners. Place to start a creamery. Six are shipping cream 75 miles away. Price $75.00 per acre, one-third down balance 5%. Write for particulars. CHAS. H. MARMADUKE, Callao, Mo. 22-4

Wanted—To buy a second-hand separator. Must be in good order. Prefer a Tubular. H. M. GRUBB, 1519 8th Ave., Beaver Falls, Pa. 22-tf

Fine Dairy Farm for Sale—Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. T. S. TOMPKINS, Pasadena, Cal. 15-tf

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

Buff Jersey's latest book on Farm Stock and Dairy Work is full of practical things for practical people. The Silo, how to build and fill; ensilage, its value; soil, crops, variety and how to grow. Swine, poultry and many other subjects ably treated. Send 25c for copy. Monmouth, Ill. 47-tf

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 1901

A FEW FACTS

Of Interest to Creamerymen in Farm Separator Territories

From the Report of the Creamery Station Operators' Meeting in the "Nebraska Dairyman" for June.

"Mr. Shopbell was of the opinion that the sale of Hand separators had just begun. He said they sold easier,—that suspicion had been allayed among patrons and they now realized the Hand separator was one of the most necessary pieces of machinery on the farm. He compared the cream separator with a self-binder. The self-binder cost a great deal more money than a separator. The farmer could not buy a self-binder on the terms given on a separator. The self-binder the farmer uses a week or ten days during the season—if he raises a crop—otherwise it is standing idle, rusting with age and non-use, bringing no returns and in no way assisting in the way of helping to meet the expenses of the farm or providing the family necessities. On the other hand, the cream separator is in use every day, the farmer needs it 365 days in the year, and with proper care one will outlast a self-binder five times. He said it was an easy matter in his territory to sell separators now. Farmers were sending for him to come and sell them one. It no longer required coaxing because dairying was accepted to be the most profitable part of the farm and farmers now realized a cream separator was indispensible—even more so than a sewing machine. He said that every woman on a farm could better afford to do her sewing with a needle and buy a cream separator instead of a sewing machine."

It is hardly necessary to add that Mr. Shopbell is selling DE LAVAL Separators and has been doing so for several years with great success.

A De Laval Catalogue or any other separator information desired may be had for the asking.

THE DE LAVAL SEPARATOR CO.,

Randolph & Canal Sts., CHICAGO.
1213 Filbert St., PHILADELPHIA.
217-221 Drumm St., SAN FRANCISCO.
GENERAL OFFICES: 74 Cortlandt St., NEW YORK.
121 Youville Square, MONTREAL.
75 & 77 York Street, TORONTO.
248 McDermot Avenue, WINNIPEG.

Position Wanted—A northern dairyman, graduate Wisconsin Agricultural College and of life-long experience, desires position in charge of up-to-date southern dairy. Am an expert feeder and butter maker and thoroughly understand retail milk trade and all other departments of dairy work. A No. 1 references. E. O. THORSGAARD, Valdosta, Ga. 22-2

For Sale—Two granddaughters of Exile, 20 and 21 mo's. old; served. 3 solid color St. Lambert bulls. Three 4 and 6 mo's. old, sire a double Gr. son of St. Lambert Boy. sire of 54 tested cows. J. A. HERR, Lancaster, Pa. 21-4

A Registered Guernsey Bull 15 months old for sale. A very fine animal. Inquire of J. S. HUNTER, Pickett, Wis. 12-tf

Wanted—Second-hand outfit for condensing milk. Address X. Y. Z., care Hoard's Dairyman. 22-2

For Sale—A second hand, self-feeding, 16 inch Smalley Ensilage Cutter in good order, together with 56 feet of carrier, 18 feet of which was new last year Also a three horse Smalley Tread Power in good condition. The above will be sold cheap to make place for larger machinery. W. D. HOARD, Fort Atkinson, Wis. 20-tf.

For Sale—First-class dairy farm of 256 acres, one-half mile from city limits of River Falls, Wis. 245 acres in crop and pasture; balance woodland. Fine buildings, creek and spring with milk-house. Call, or address the owner, MARTIN MURPHY, River Falls, Wis. 21-4

For Sale—Milk route, horses, harness, wagon, separator, cans, tickets, etc. A nearly new and very complete outfit. Present net earnings about $150.00 per month. A splendid business opportunity. Apply to JOHN L. FISHER, Hayes Block, Janesville, Wisconsin. 21-3

Guernsey Bull Calves For Sale—All by Lilly Ella's Jeweller, whose dam, Lilly Ella, made 23.72 lbs. butter in seven days. If you want the best at a moderate price, address JOHN BARTH, 109 Clinton St., Milwaukee, Wis. 23-2

Wanted—First-class young man to take charge of a retail milk wagon. Must have some experience, be steady and industrious. Permanent employment to right man at $40 00 per month and board. References required. F. D. HUTCHINSON, Missoula, Mont. 23 2

Excursion Rates to Race Meet at Freeport, Ill.—Via the North-Western Line. Excursion tickets will be sold July 27, 28, 29 and 30, limited to return until Aug. 1, inclusive. Apply to agents Chicago & North-Western R'y. 23-2

Excursion Rates to Chautauqua Assembly at Sycamore, Ill.—Via the North-Western Line. Excursion tickets will be sold at reduced rates July 31 and Aug. 1, limited for return until Aug. 11, inclusive. Other dates of sale and limits on certificate plan. Apply to agents Chicago & North-Western R'y. 23-3

Low Excursion Rates to Rock River Assembly at Dixon, Ill.—Via the North-Western Line. Excursion tickets will be sold within a radius of 50 miles, at reduced rates on three dates, Aug. 1, 7 and 9, with favorable return limits. Other dates of sale on certificate plan from a more extended radius. Apply to agents Chicago & North-Western R'y. 23-3

Very Low Rates to California and Return—Via the Chicago & North-Western R'y August 1 to 14, to Los Angeles and San Francisco, with final return until October 15, inclusive, account National Encampment G. A. R. Three trains a day from Chicago to the Coast through without change. Daily and personally conducted tourist car excursions. Special G. A. R. train will leave Chicago 10:30 p. m, Tuesday, Aug. 11; DeKalb, 12:10 a. m., Wednesday, Aug. 12; Clinton, 3:50 a. m.; Cedar Rapids, 6:20 a. m.; Marshalltown, 8:25 a. m.; Boone, 10:30 a. m; arriving at Omaha, 2:00 p. m., leaving Omaha 3:30 p. m., and running via Denver, Colorado Springs, Pueblo and Salt Lake City. For itinerary, illustrated folder and full particulars, apply to Agents Chicago & North-Western R'y. 23-5

Very Low Rates to Pittsburg, Pa—Via the North-Western Line. Excursion tickets will be sold Aug. 1, 2, and 3, with very favorable return limits, on account C. T. A. U. Convention. Apply to Agents Chicago & North-Western R'y. 23-3

Special Excursion Rates—The North-Western Line will sell low rate round-trip tickets to Fond du Lac and intermediate stations, good every Sunday until Sept. 27, 1903. Apply to agents Chicago & North-Western R'y. 21-7

Excursion Rates to Monona Lake Assembly at Madison, Wis.—Via the North-Western Line. Excursion tickets will be sold at reduced rates July 21 and 22, limited to return until August 7, inclusive. Other dates of sale on certificate plan. Apply to agents Chicago & North-Western R'y. 22-3

Very Low Excursion Rates to Musical Festival, American-Swedish Singers, at Minneapolis, Minn.—Via the North-Western Line. Excursion tickets will be sold at reduced rates July 20, 21 and 22, limited to return until July 27, inclusive. For particulars apply to Agents Chicago & North-Western R'y. 22 3

Half Rates to Northern Wisconsin Saengerfest at Ashland, Wis.—Via the North-Western Line. Tickets will be sold at one fair for the round trip July 16, 17, 18 and 19, limited to return until July 20, inclusive. Apply to agents Chicago & North Western R'y.

Excursion Tickets to Milwaukee—Via the North-Western Line, will be sold at reduced rates July 18 and 19, limited to return until July 20, inclusive, on account of annual Picnic and Concert. Social Democratic Party of Wisconsin. Apply to agents Chicago & North-Western R'y.

Special Excursion Rates—The North-Western Line will sell low rate round trip tickets to Lancaster and intermediate sections, good every Sunday until Sept. 27, 1903. Apply to agents Chicago & North-Western R'y. 23-5

Excursion Rates to Street Fair at Spring Valley, Ill.—Via the North-Western Line. Excursion tickets will be sold at reduced rates July 14 to 18, inclusive, limited for return until July 20, inclusive. Apply to agents Chicago & North Western R'y.

Very Low Rates to Baltimore, Md—Via the North-Western Line. Excursion tickets will be sold July 17 and 18, with very favorable return limits, on account of annual meeting B. P. O. E. Apply to agents Chicago & North-Western R'y.

Mr. Wheaton's Canadian Dairy Notes

Dairy Legislation in Canada—Process Butter Refused Admittance—Creamery and Dairy Butter—Licensing Cheese and Butter Makers—Summer Milk—American Association of Institute Workers.

ED. HOARD'S DAIRYMAN:—After a pretty long period of freedom from the touch of the law giver, the dairy industry is shortly to feel the effects of some new legislation. The Hon. Mr. Fisher, Minister of Agriculture, has introduced a bill at Ottawa to still further protect the industry against the manufacture of spurious or adulterated dairy products.

This bill prohibits the manufacture or sale of renovated, adulterated or process butter, or of oleomargarine, butterine or other substitute for butter, manufactured wholly or in part from any fat other than that of milk or cream. The proper marking of butter is also dealt with and provision made for the examination of stock or packages.

The penalties under the act for manufacturing or dealing in oleomargarine, process butter, etc., are heavy, ranging from $200 to $400 for each offense. Fines ranging from $10 to $50 each, will apply to minor infractions of the law.

The need for further regulation of the trade in butter has come at the request of Montreal exporters, who with Mr. Fisher are desirous of maintaining the high standard of Canadian dairy products abroad. Since the introduction of more stringent regulations at Washington in regard to process butter, attempts have been made to introduce the manufacture of this article, which many consider to be only another name for adulterated butter, into Canada. To prevent any further attempts of this kind and to still further emphasize the position that Canada has always taken in regard to adulterated food products of any kind, this legislation is being introduced.

The bill as first introduced defined creamery butter as butter made in a creamery receiving milk from a stipulated number of patrons. This feature brought forth a lot of opposition from owners of private dairies, who, manufacturing after the creamery method, have sold their butter as creamery. Consequently it has been thought wise not to interfere with this class of butter makers in so far as the local trade is concerned.

With regard to the export trade the situation is different. For sometime past the practice has prevailed of sending to the British market, butter represented as creamery butter, but which was only butter made in small dairies, repacked for export and sent forward as creamery. Originally, this butter may have been good, but by reason of frequent handling and the unevenness of the quality in any large quantities of it, it has tended to discredit Canadian butter in the English market. As our export butter trade should be protected and only the very best quality sent forward, the original provisions of the act relating to the marketing of butter as creamery will be retained. This will of course, shut out the smaller concerns from the export trade, but will not deprive them of the privilege of selling their butter at home as creamery.

For some time, the creamery men of this province have objected very strongly to private dairies encroaching upon their preserves, by selling their product as creamery even on the local market. The enforcement of this act will, therefore, not help them any in the local market, as was first expected, and the grievance will still exist. But a half a loaf is better than none, and if they are given the exclusive right to the export trade, there should be little room for complaint from the creamery butter manufacturer.

But what about the fellow, who buys dairy butter in the corner grocery, thinking he is getting "creamery?" Is he not entitled to some protection? He has not raised any objection to changing the original bill as introduced, and consequently his interests will not be considered. It seems reasonable, however, to suppose that the consumer at home should receive as much consideration as the consumer abroad.

But so far, in nearly all our legislation in regard to food products, it is the fellow across the sea who receives first consideration. The cheese manufacturer sends his best stuff abroad and makes the local market the dumping ground for any "culls" he may have lying around. The local consumer gets even by eating less cheese and buying some other food to take its place. The same thing holds good with other lines, in which the best quality is selected for export. While such a policy undoubtedly strengthens the export trade, it tends to leave undeveloped a very profitable home market.

The Montreal Produce Merchants' Association have taken a very decided stand in reference to the licensing of cheese and buttermakers in the Province of Quebec. They have asked the Quebec Government to appoint a commission to examine butter and cheese makers and issue licenses to competent men, these licenses to be granted to such persons as upon careful examination are found qualified to manufacture cheese or butter of first-class quality, to judge correctly of the quality and condition of milk offered by different patrons, and to carry on the business in such a way that the interests of all concerned will be protected.

The association further asks that the goverment forbid any person, who does not hold a license, to manufacture cheese or butter at any factory at which milk from various patrons is received and at which the proceeds from all sales of the products are distributed among the patrons in proportion to the quantity, or to the quantity and quality of the milk supplied by them severally.

So far there has been no report as to what action the Government will take in the matter. Quebec has of late years been the leader in legislation having for its object the better education of the maker and the production of a higher quality of product, and it would not be surprising if the request of the Montreal Association were complied with and a system of licensing makers introduced. There has been some agitation in Ontario for the licensing of factories. Why not license the makers who will have charge of these licensed factories?

July and August are the trying months of the year for the dairyman. If the milk is not properly looked after during this period, difficulty is sure to arise in the quality of the cheese and butter output. And yet how difficult it is to get the average farmer to look after the milk during this busy season. The milking and the milk are only of secondary consideration with a great many and receive only secondary care and treatment. But how foolish this is. The haying and the harvesting, no matter how important they may be, are not sufficiently so to pay for neglect of the cow and her milk, which should be attended to with as much regularity and care as during any other season, and more so, as the warm weather will play sad havoc with milk that is not properly looked after.

Cleanliness, aeration and cooling are the three essentials for the proper care of milk at this season. Most patrons know, or should know, the importance of applying these in connection with the milk product. A little attention to detail, a little previous preparation in the way of providing facilities, and the thing is done, the value of the product increased, and the maker made happy.

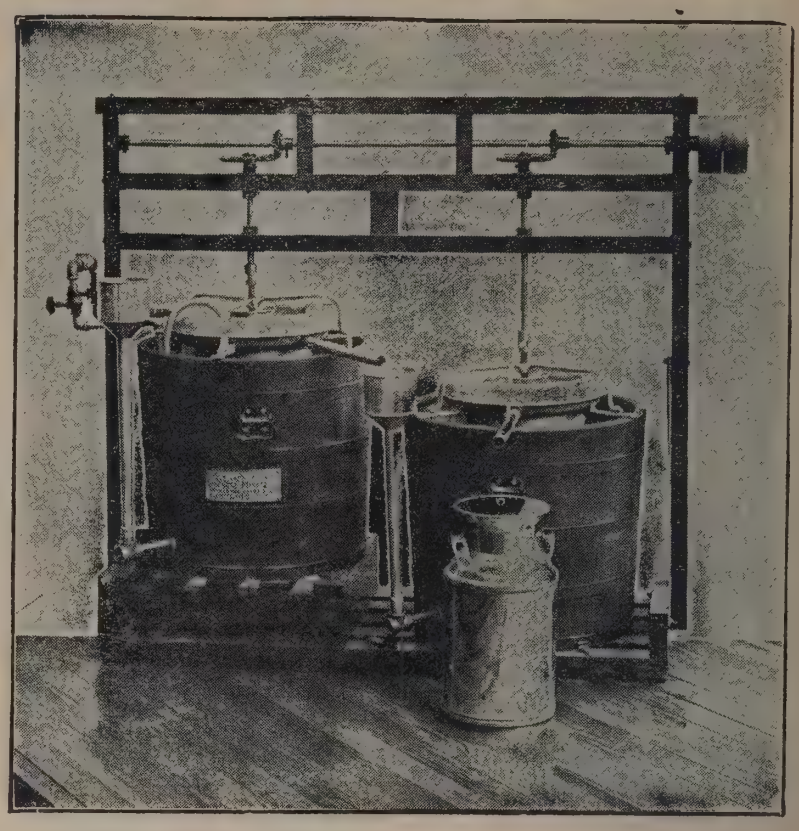
A gathering of sufficient international importance to merit a reference in HOARD'S DAIRYMAN took place in Toronto, last week. It was the Eighth Annual Meeting of the American Association of Institute workers. About sixty delegates were present from Uncle Sam's domains, from as far south as Florida, and as far west as Minnesota. Delegates were present from the Canadian Northwest Territories, and from New Brunswick and Quebec in the East, while Ontario had a very large contingent. The Secretary of the organization is Mr. G. C. Creelman, Supt. of Farmers' Institutes for Ontario, so the association is international in fact, as well as in name.

The addresses and discussions were altogether along the line of making institute work on this continent more effective in conveying practical information to farmers in the best methods of agriculture, and in lifting up to a higher plane the home and the social life of the people who live on farms. That a great deal was accomplished in this direction will be shown when the full report of the proceedings is published.

The delegates and their friends were entertained by the Provincial Department of Agriculture on June 25th to a visit to the Ontario Agricultural College, at Guelph, which our American friends enjoyed to the utmost. The next meeting will be held at St. Louis, in 1904, at a time to be fixed by the directorate.

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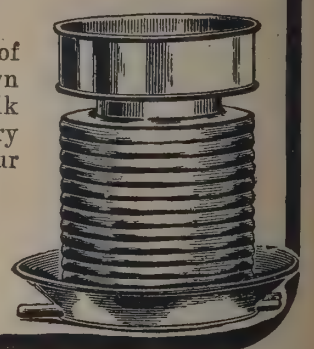
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The Daily Routine at the Buff Jersey Agricultural College.

ED. HOARD'S DAIRYMAN:—I must again call the attention of those who write me for information to the necessity of enclosing a stamp for reply if they expect one. If my ability to answer questions were guaged by the number of postal cards I receive daily I might feel flattered, but I long since passed that stage andonly feel the lack of the two-cent stamp to return an answer. I am more than willing to answer all questions asked me as fully as I am able,that is what I am on earth for, partly, so enclose that stamp next time.

Last spring Mr. Howie, of Elm Grove (which is just ferninst where I took my first lessons in the art of dairying) at the Dairymen's Convention held at Fond du-Lac, told us of the daily work at Sunny Peak Farm. He brought out the point that system was the feature of all the daily transactions. I am always interested in such statements and hope Mr. Howie's paper will be read and the lesson it teaches will result in much good. This matter is so important that I wish to emphasize it by giving the daily work that is accomplished at our own farm, and it is accomplished without any confusion or needless steps, all owing to perfect system. There are no hired men or girls to wait on, which relieves us of some work. This is a handicap to many, but system even in that case helps.One who has hired help, can have them systematize their evenings out and drawing their pay, so that he can accomplish a great amount of work afield while the hired help catches up with their sleep, and see that their horse and buggy is in order for the next trip.

The Faculty of our Agricultural College now numbers eleven and each one of them has his and her department to attend to. Each step in the day's work is done at fixed hours and all work for the best interests of the whole. In this way, work assumes the appearance of recreation, so rapidly is it turned off. Our day begins at 4:45 o'clock; the swine department foreman goes to the night pasture for the dairy herd; the Prof. of Dairy Husbandry goes to the barn that has the work horses and gives them their feed, he then goes to the cow barn and prepares it for the cows. The butter maker and her assistant (who is a "her" also) go to the creamery and arrange for separating and churning. The assistant poultry manager gets together the milk cans and pails while I am looking after fire under boiler etc; etc. means any number of things. It is now five o'clock, which is our milking hour night and morning every day in the year. The professors and their assistants all have their own individual cows and they milk them in same rotation and stalls every day. Each cow's milk is weighed and recorded on the milk sheets,the assistant poultry manager having to climb on the milk can shelf to reach it, but she gets there just the same. As soon as the milk is drawn it is taken to the creamery where it is passed through a No. 3 baby separator and the cream at once passed over a Champion aerator, then shipped or put in the cream vat while the separating is being done.

The cows are driven to the day pasture by the swineologist, the Dairy Professor gets teams ready for the fields. Our hog professor has by this time returned from pasture and fed the pigs and hogs and intermediate sizes, their skim milk, fresh, clean and warm skim milk that does not have to be pastuerized, sterilized or swill-barrelized, to make a fit drink for our aristocratic Berkshires.

The hour is now seven o'clock and the Domestic Science department claims our attention for thirty minutes, after which the Professors of dairy and pigs hasten to the corn fields,while the creamery managers hasten to the creamery to do the washing up of the milk pails and cans together with the churning of the cream and putting the butter in pound prints and these prints in 54 lb. boxes ready for shipping.

The old,reliable, family horse stands at the creamery door, hitched to a light but roomy wagon,to take cream and butter to the express office. This horse is just as safe for our Professor of pet stock to drive as one of her kittens would be. Now,as all of the morning's work is finished, I have three and one-half hours to devote to the corn field, which means three and one-half acres of corn cultivated, or as much as most farmers accomplish in a half a day, that begins at six o'clock and ends at twelve. Not because they are lazy, but because they work so hard they do not have time to learn better methods and get the best tools for their work.

With my light team walking along easily,and myself comfortably seated with an umbrella over me I am in a good position to use my thinker, but the thinks I think will never reach the fellows who don't enclose a stamp. But at eleven-thirty we leave the field and do not return before one-fifteen, and at four-forty-five p. m. our field work ends, with 25 and 30 acres of corn well worked.

Last week we cultivated 50 acres at the rate of one team for the whole field, in 44 hours. At four-thirty the "her" professors again begin to count in the work by getting up the cows, getting the creamery in order and other helps against the milking hour.

Five o'clock finds each member of the faculty giving practical demonstrations in the art of good milking and proving Buff Jersey's method to be a good one. The separating done and cream well iced, hogs fed, and horses turned in the cows' day pasture, while the cows occupy the pasture set aside for them at night, brings our day down to 6:30, which is the end of the work day. All of the day's work has been done well and every member of the faculty and family have gained some knowledge in the different occupations and experiments. The evening, while short, gives us time for reading the journal and bulletins and commenting on them. To illustrate how even the little folks get ideas, will give as an example of our youngest, who is in charge of the pet stock, which consists of cats, doves and chance crippled chicks, etc. There are some new kittens that are taking up her time just at this time and each milking hour she is at the barn with a dish and insists on getting milk from the same cow each time. She has heard us commenting on the problem of rearing babies on cows milk and the advisability of giving them the same cow's milk.

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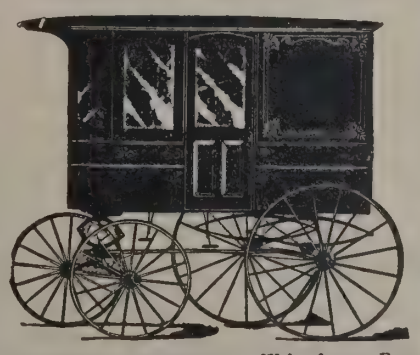
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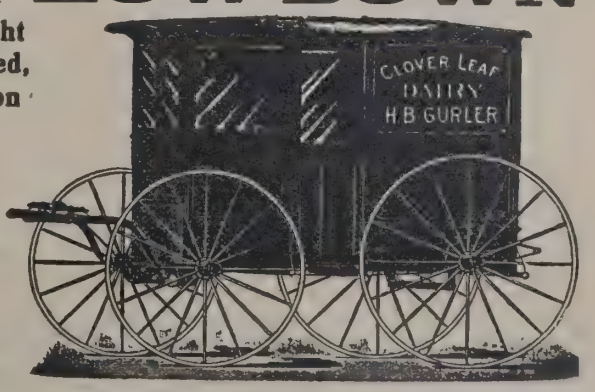
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Some of the Advantages and Disadvantages of the Whole Milk Creamery.

(Read before the Wisconsin Buttermakers' Convention, Waukesha, Wis., by M. H. GARDINER.)

MR. PRESIDENT, LADIES AND GENTLEMEN:—I do not know that the mere secretary of a creamery company has any real standing in a buttermakers' convention, so I will say at the start that I do not come here on the invitation of your able secretary to instruct, but have written this paper on some of the advantages and disadvantages of the whole milk creamery, merely to aid in getting the matter before the meeting for discussion. It is something which ought to have been written by an active buttermaker, for this convention is hardly the place to put forth any argument resting on theory, but I will say that my observations have been helped by the fact that I was an expert buttermaker in my younger days, and under the old dairy system, able to make butter selling for 32 cents per pound by the year, to city customers. For many years I have been secretary of the Darien Creamery, a medium sized, very successful creamery, with a $5,000 plant; so I have kept well in touch with butter and buttermaking.

It is generally admitted that the proof of the pudding is in the eating; so, likewise, a buttermaker's skill is measured by the quality of the goods he turns out. The average buttermaker usually stands between the devil and the deep sea, between the patrons who furnish the milk or cream, and his employer or employers, who are often these same patrons. He is expected to be a sort of necromancer, who, by touching any quality of milk or cream with the magic wand of his skill, can evolve from it the finest quality of butter, which shall grade and sell as "extras," and if for any reason he is unable to do this, he is declared a fraud and a failure. As I understand it, the object of the discussion today is to determine which of three methods of getting the butter fat of milk into the buttermaker's hands is economically best; for by that method, whichever it may be, the milk will bring the highest price to the producer. If, incidentally, this method could also be made best for the buttermaker, we should have the ideal system, and that is the system we are looking for. In my own opinion we are in a transition stage, and are going back eventually to the old cream gathering plan, with farm separator attachment; for I believe that this system will eventually prove most profitable to the producer, and whatever plan accomplishes that object wins. But I also think that there will be need of much teaching before the average creamery patron will be apt to follow this plan successfully.

The main advantage that I see in the whole milk creamery at the present time is, that the system, by placing the milk more directly under the control of the buttermaker, is conducive to the production of the best quality of butter. The producer is always more or less a judge of milk, and it is an easier matter for the buttermaker, by smell and taste, to point out its defects, and so educate the producer; and when such a man finds that his milk is sometimes rejected, or at least not satisfactory, and has the reason explained to him, he will, in most cases, try to do better. Thus, the whole milk creamery is a school, with the buttermaker as instructor, with whom the patron or his agent comes in daily contact, and the hint dropped here and there, or the wise word spoken in season, will slowly but surely affect the whole community. You all know that there are some men who have to be hit with a club before they can take a hint, and a buttermaker must use his discretion in such cases. I well remember the regeneration of one of my neighbors nearly 30 years ago, when the first cheese factory was started at Darien. The cheesemaker who was also proprietor, and had seen his month's make of cheese cut 2 cents per pound in price on account of their peculiar flavor, lost his usual suavity and told him with a good many blanks that unless he could bring milk to the factory that did not have to have the last quart or two in each can poured out on the other side of the wagon, he need not trouble himself to bring any more. The medicine was harsh but effective. I think that one of the main advantages of the whole milk creamery is in the bringing of patron and buttermaker into closer relations.

While it was not my intention, in jotting down these thoughts to be specific, but rather suggestive, leaving such matters for the discussion, allow me to turn aside for a moment to express my hearty commendation of Mr. Anderson's words last evening as to the necessity of the buttermaker being thoroughly fitted for his profession, I might almost say art. It used to be said that buttermakers, like poets, were born, not made; but that was when buttermaking was largely intuitive and there was little or no chance for getting instruction; but now all that is changed, and there is no excuse for a buttermaker to be incompetent. Your work is supplementary to that of the milk producer, and therefore you must not be ignorant of his work; for your calling forces you into the position of instructor, and the blind make poor leaders for the blind Most of you come from the farm, and have there learned something of the underlying principles of milk production, but you have only a smattering of such knowledge, and in order to visit your patrons in their homes, as you should, and to talk intelligently with them, you must thoroughly post yourself on feeds and feeding.

In your own particular line there is no excuse for ignorance; the state is doing much, and it will do more if you deserve it. Not only the state but the nation is proud of the corps of instructors, at Madison. They will gladly teach you what is known, and will find out, as far as they can, all that is knowable; for they are not only teachers, but are students themselves. With such advantages then as Wisconsin offers to her buttermakers, there can be no excuse for the close relations of buttermaker and patron not being highly beneficial to the latter.

When the milk has been delivered, and the patrons are awaiting each his turn for the skim milk, they are brought into close contact with one another; and in the discussions carried on, there is much to stimulate and encourage. Patron Smith is usually anxious to know how Jones, with just the same number of cows as he milks, can get a monthly check 25 per cent larger than his; while Brown is inquisitive to know if it is Tompkins' silage that enables him to bring six cans of milk now, when he used to bring but four. Thus, quantity and quality of milk, breeds and breeding of dairy cattle; feeds, feeding and general care,—all are discussed, and mixed with the usual neighborhood gossip, a miniature farmers' institute is in session every morning. This is all beneficial to patrons and to creamery. Another point is that the patron takes a greater interest in the success of

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GEO. C. HILL & SON, Rosendale, Wis.

Wasteland Guernseys
Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.
M. M. & F. J. HOLLINGSWORTH,
Landenberg, Chester Co., Pa.

GUERNSEYS FOR SALE.
Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.
JAS. H. BEIRNE, Oakfield, Wis.

GUERNSEYS FOR SALE
Bull two years old out of Count Topsy 24.27 lbs. butter 7 days. She won 1st prize at Wis State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality **F. W. TRATT, Whitewater, Wis.**

Old Homestead Guernseys.
Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.
Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL Perry, Lake Co., Ohio.

GUERNSEYS.
HADDON FARMS—Home of the noted GLENWOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. **E. T. GILL,** Haddonfield, N. J.

The Evergreen Farm Herd has for sale three or four A. J. C. C. heifers bred Also a few cows and some choice bull calves from two to six months old. Write for pedigrees and prices.
N. N. PALMER & SON, Brodhead, Wis.

VALLEY FARM Is offering some good bargains in young bulls from 1 mo. to 2 yr. old. Also B. P. Rock Cockerels, $1.25 each. Write
FRED STUBLEY,
Black Earth, Wis.

PROSPECT HILL JERSEY HERD.
Mature cows yearly records are from 405 lbs. to 740 lbs. butter. **YOUNG STOCK FOR SALE.** Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.
W. J. HUSSEY, Mt. Pleasant, O

FOR SALE GOLDEN LAD BLOOD, sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. **R. C. GREEN, Albion, Wis.**

BILTMORE JERSEYS
are great and presistant dairy workers and typical Jerseys. We ask comparison with any other herd for
YEARLY MILK & BUTTER YIELDS, SUBSTANCE AND FINISH.
The herd contains more prize winners at the leading exhibitions (including the Pan-American) than any other herd.
The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service as you cannot get it.
Also Headquarters for Large English Berkshires and Standard Poultry.
Apply to
BILTMORE FARMS,
BILTMORE, N. C.

HAZEL FERN HERD. A. J. C. C. Jerseys blood of St. Lambert, Melia Ann, Combination Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. **Estate W. S. Ladd, Portland, Oregon.**

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. **J. Q. EMERY & SON, Albion, Wis**

ROBINSWOOD JERSEY DAIRY is offering a few Reg. Jersey Bulls ready for service at from $25 to $50, sired by a grandson of Recorder, the only living son of Brown Bessie, out of good cows. Write, stating your wants, to
N. H. ROBINSON, Prop., Centralia, Wis.

FOR SALE.
JERSEY BULL, one year old. Good individual of the best breeding. Also 7 months bull from tested dam. Herd headed by Fontaine's Owl, 60436. Prices on application. Address,
J. F. EGERTON, Footville, Rock Co. Wis.

JERSEY BARGAIN.
REGISTERED YEARLING BULL, sire a son of Brown Bessie, winner of 30 and 90 days butter tests, Chicago, 1893. Dam traces to Eurotas (778 lbs. 1 yr.). Mary Anne of St. Lambert (867 lbs. 1 yr.), also Brown Bessie; fat tests showed 364 lbs. 1st. season, within year, and 15 lbs. 1 oz. (258 lbs. milk) in 1 wk; died of milk fever this (3d) calf. Thrifty, solid color.
E. E. STEVENS, North Madison, Ohio.

the creamery the closer he is brought in contact with it; and that his daily visits to the creamery effect him in a vastly greater degree than would the daily visit of the cream wagon to his farm.

The influence of the whole-milk creamery on the matter of good roads can hardly be overestimated, and I know of nothing that will convert a narrow, close-fisted, unprogressive man to the good roads idea, any quicker than to have to draw his milk in all weather to the creamery, for 365 days in the year; especially if he breaks down now and then, and has a good sized repair bill to pay. The broadening of a man's ideas even on the matter of good roads, prepares him for further advances in the creamery business; it is a part of his education.

There are two great disadvantages in the whole-milk system to be mentioned, the carting of the skim milk both ways, and its quality. As to the latter, the main fault has been in the adding of water to make it hold out; and in the winter season, which is the only time of year when it can be used to advantage for calf feeding, there is the trouble of warming it. The Darien creamery is co-operative to the extent of making the butter for all patrons on the same basis; but it is, strictly speaking, a pure stock-company. At the start, the Board of Officers determined that there should be no water added to the skim milk; and we knew that the patrons would not divide it equitably among themselves. We did not wish to bother with milk-weighers, check-pumps and other like methods, on account of the time wasted, and so hired a man for $12.00 per month, to be on hand each morning for 3 hours to divide the milk. It is now the eighth year of this system, and our patrons will have no other; it saves their own clothes, and they can send wives or children with the milk if they desire, while the man becomes expert in the filling of cans, saving time, and not slopping everything up. The skim milk vat is like the receiving vat, only much smaller, and is kept just as clean; and all buttermilk, as well as any skim milk left on hand, goes into the buttermilk tank. So, during the winter or cool season at least, our plan furnishes the skim milk in fairly good condition; though there is the trouble and expense of warming it. I am a breeder of Holstein-Friesian cattle, and am considered to have one of the best herds in the state; but my calves are raised on this skim milk, and I have not sold one in two years for less than $100.00. Of course I would prefer the warm skim milk from the farm separator, and only mention the matter to show that creamery skim milk need not be necessarily altogether bad.

But the carriage of the skim milk both ways! There is where the rub comes in the present system. I have made a careful computation of the average cost of this cartage at our creamery, and am firmly convinced that 2 cents per pound butter fat is rather below than above actual cost to our patrons; which would be about 2½ cents per pound of butter made. In addition to this I found that if the cream could be delivered into our cream vats in as good condition as we now get it there, there would be an average saving of a trifle over two-thirds of one cent per pound butter made, in our expense bills; so that with us the whole milk system costs for the delivery of the whole milk fully 3 cents per pound for every pound of butter made, and in addition the fuel used and trouble in warming the skim milk for calves in winter. I raise calves in the cool season, and in summer feed the milk to Poland China pigs; for in warm weather it can only be kept sweet a few hours after getting it home. The question then is as to whether it would be better for our patrons to change this system. There would be a saving per average cow of fully $5 on milk delivery, and I am sure that the increased value of the skim milk could not be less than 5 cents per 100 pounds, or $2 per average cow more; or taking both savings together, $7.00 per average cow. Out of this would have to come the cost of cream delivery, the loss of the butter milk, unless some plan of utilizing it for pig feeding near the creamery could be put in practical operation, and any loss that might ensue through the making of a lower grade of butter.

It is this last clause that troubles me. A butter maker has it hard enough at the best; and when I think of his being required daily to turn out a uniform product of butter of the highest grade from a mixture of 100 different lots of cream, in 100 different stages of ripeness, to say nothing of the possibility of 100 varieties of flavor and degrees of cleanliness, I am at a loss. The only hope of uniformity in such cream production that I can see, will come from education and training; for, as I mentioned before, that plan of getting the butter fat into the butter-maker's hands which pays best to the milk producer is the most desirable, and must win in the end, even though the butter turned out under it be not of the highest quality; and the butter maker should make it his main object to so educate his patrons in the production of butter fat, that the plan which is most economically productive for them shall also be conducive to his turning out the very highest quality of butter.

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA.

President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.

FEES FOR REGISTRY.

To MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.

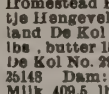
NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. ☞ All blanks furnished free.

Life Membership, $25.

Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.

Address F. L. HOUGHTON, Putney, Vt., for information relating to Registration of Pedigrees.

HOLSTEIN-FRIESIANS
FAIRVIEW HERD
We offer from this herd a few choice yearling bulls, also four very fine bull calves. Write describing what you want.
O. J. GODFREY, Pennellville, N. Y.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

HOLSTEIN-FRIESIAN BULLS
FOR SALE.
Ready for service; from A. R. O. animals; sired by Johanna Rue 2nd Paul De Kol, sire of 13 A. R. O. cows. Also young bull calves by same sire. THOS. CAINES, Supt.
ARCADIA, - MISSOURI.

TYRANENA HERD
100 HOLSTEIN-FRIESIANS 100
A. R. O. Stock For Sale.
Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62 Eight official records in pedigree that average 23 lbs. 5 oz Frank B. Fargo, Lake Mills, Wis.

WOODLAKE HERD.
Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN Station D., R. 1, Minneapolis, Minn.

Markham Manor Farms, Simonsville P. O. Andover, Vt.
Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Nether and Soldeme Clothilde. No. 18370, H. F. H. B. the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for description and price to J. A. THORNTON, Manager, Simmonsville, Vt.

FOR SALE 2 H. F. Bull Calves, 6 mo. old; sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.
M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

CLOVERDALE HERD
HOLSTEINS.
Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.
A. J. DAUGHERITY Streator, Ill.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148 Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.
WM. EVERSON & SONS, Lake Mills, Wis

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. All our choice pigs of 1902 farrowing have been sold. We are now taking orders for 1903 farrowing.
JOHN WHITE & SON, Adamstown, Md.

Did You Ever Keep a Record Of Your Cows?

IF SO, you have felt the need of a convenient, simple and handy Record Sheet. We have had so many requests for these Record Sheets that we concluded to get up one that would "fill the long felt want." We have a very simple and complete Record Sheet for 10 cows, one month, that is printed on heavy Manilla Paper, we can send postpaid at following prices:

Price 5c Each	6 for 20c	12 for 30c	25 for 50c

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We also have a one cow Record Sheet, heavy Manilla paper (one month) that we will mail postpaid

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HOARD'S DAIRYMAN.
FORT ATKINSON, WIS.

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Headed by Mercedes Mechthilde Pietertje, No. 25,795, oldest son of Mercedes Julips Pietertje, 75 O. I. C. White Pigs, both sexes, in pairs and trios, not related.
W. R. GATES, Fort Atkinson, Wis.

OAKLAND HERD HOLSTEINS
PREMIER SIRE Mutual Friend 3d's Paul
A son of Paul De Kol & Mutual Friend 3d, 21.84 lbs. butter, milk averaged 4.7% at 3 years. She has two A. R. O. daughters; 1 made over 20lbs. Must reduce herd at some price. State just what you want T. A. MITCHELL, Weedsport, N. Y.

BROOKSIDE HERD
HOLSTEIN-FRIESIANS
To reduce herd to capacity of pasture, will sell a limited number of A No. 1 young cows of high breeding and individually right, large producers, at $150 each; also 15 bull calves at bargain prices.
STEVENS BROTHERS, Lacona, N. Y.

4 BULL CALVES FOR SALE
Under 6 weeks, fine individuals from our Clyde Paul De Kol bull; Dam 24.38 lbs. butter in 7 days. And from tested cows, with good records, the price is right. W. B. SMITH & SON, Breeders Pure Holstein Cattle.
2488 W. Broad St., Columbus, O.

THE MAPLE'S HERD
offers good young cows with A. R. O. records in calf to Beryl Wayne De Kol Paul, No. 28785, whose dam Beryl Wayne has an official record of 27.87 pounds of butter in 7 days. Also four yearling bulls ready for service. Special bargains in heifer and bull calves.
JOHN C. GODFREY,
PENNELLVILLE, N. Y.

Holstein-Friesian Bull Calves
Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

HOME FARM HERD.
Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams 25.1 lbs. butter in seven days. Herd numbers 125 head.
BEST FAMILIES REPRESENTED.
Special prices on six or eight bulls of serviceable age. W. B. BARNEY & CO., Hampton, Ia.

STAR FARM HOLSTEINS.
Increase Butter Fat in Milk.
Do you want to increase the per cent. of butter fat in your dairy? The quickest, surest and least expensive way is to head your herd with a bull from a high testing dam.
Mercedes Julip's Pietertje Paul No. 29830 is a son of Mercedes Julip Pietertje No. 39480 her 1901 world's seven day butter record of 29 lbs. 7.5 ozs. butter made from 540.8 lbs. of milk with an average test of 4.025 per cent butter fat has never been equaled by any cow living or dead. She is the highest testing champion butter cow of the world. Mercedes Julip's Pietertje Paul is king of Sires. Females bred to him for sale. His bull calves from fall increase can be ordered now.
HORACE L. BRONSON, Cortland, N. Y.

ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.
GEO. T. McNEIL, Theresa, N. Y.

FOR SALE.
H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address W. H. JONES, Watertown, Wis. Rural Route No. 2.

MONONA FARM Offers for sale a few well bred Holstein-Friesian Bull Calves. MADISON, WIS. Also two Service Bulls at reasonable prices. The Monona Farm Herd is founded on the best stock of the De Kol, Netherland, and Clothilde families. Pense Johanna 29332 the head of the herd has 7 A. R. O. dams averaging 22 lbs. 3.7 oz. Junior sire Paul Calamity De Kol 31095.
THE MONONA FARM HERD.
Address. F. W. ALLIS, Madison, Wis.

Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

.....YOU MAY.....
BEGIN AT THE HEAD
to improve your dairy herd with a bull whose dam has official record of 18 lbs. 6.3 oz., sires dam 20 lbs. 8.8 oz. Individual right. Price Right.
McKAY BROS., Buckingham, Iowa.

HIGH-CLASS HOLSTEIN-FRIESIAN BULLS
and Bull Calves from A. R. O. dams and the best Advanced Registry sires. Cows all officially tested; I breed from no others. Correspondence from breeders and progressive dairymen invited. Malcolm H. Gardner, Darien, Wis.

HOLSTEINS
High Class Advanced Registry Stock only. Best butter families. Stock for sale.
Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.



T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.
Wm. O. Jackson & Sons, South Bend, Ind.

LOOK HERE.
34 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by Gem Pietertje Hengerveld Paul DeKol, or Sir Ormsby DeKol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days, average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd? McGEOCH HERD is located at Lake Mills, Wis., 56 miles west of Milwaukee. For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis. Residence: National Ave. near 40th. Phone, South 1601

SOUTH SIDE FARM, WHITE BEAR LAKE, MINN.
Holstein-Friesians.
Bulls in service, Prince Inka Pietertje De Kol 2d, A. R. O., 144, sire of 10 A. R. O. cows, and Daisy Van Beer's Pauline De Kol. 27610, whose dam has official record of over 22 lbs. in 7 days. Special prices on young bulls from A. R. O. cows. Also Yorkshire pigs of most approved breeding now fit to ship.

Holsteins That Produce Are The
HOLSTEINS THAT PAY
The kind we sell. Backed by the largest official butter records ever made. All ages, both sexes. Over 100 head to choose from.
BROOKSIDE STOCK FARM,
HENRY STEVENS & SON,
Box 208, Lacona, Oswego County, N. Y.

FOR SALE. H.-F. Bulls, ready for service from A. R. O. Cows and sired by Sir Jonanna DeKol, 25467 A. R. O. Butter record of dam, 21.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis.

Pennsylvania Pickings.

ED. HOARD'S DAIRYMAN:—We eastern farmers are up to our elbows in harvest. We have had the usual trouble of getting laborers, and the question that oftenest comes up when two or three of us are gathered together is: "What are we going to do for help?" And still the question goes unanswered. With all our trouble in harvesting them, our crops are fairly good. The late cold in the spring injured the rapidly growing wheat somewhat, while the cold and the subsequent dry weather made our hay fields objects for us to become self-commiserative over, but the rains that poured down upon us almost without ceasing during June, rejuvenated the grass fields marvelously and redeemed in part our harvest of hay.

There has been but little clover cut this year. The new seeding was almost universally a failure and as our clover usually lasts but one year, there was very little to cut with the timothy on the older sods. We have the unusual market condition of hay selling for more than the price of wheat bran. Not that bran is not entirely too high for profitable feeding, but that hay is at an altitude where it is immensely more profitably sold than fed. In fact, he is an improvident dairyman who feeds any timothy hay when its market price is any where near as high as it is now. With the many substitutes that can be grown as regular crops, and often as catch crops, any of them equal in feeding value to timothy, and many of them much superior, the necessity for feeding the more expensive, salable forage is removed. It is a fact too, that should be known by all farmers that timothy hay, as usually made, has been allowed to reach the stage where it carries a very low feeding value, as compared with its feed content if made into hay earlier in its growth.

As a substitute for timothy hay that I desired to sell, I have found it perfectly feasible to cut the timothy about July the first, and as soon thereafter as possible start the plow and as fast as the ground could be plowed and prepared, plant to fodder or hay corn, at the rate of about one bushel of seed per acre, in rows three feet apart, and keep well cultivated.

This corn will of course make no ears, retaining all its nutriment in its body, and makes a heavy yield of palatable and very nutritious hay.

When the growing season is long I often am able to cut this corn before frost, but when an unexpected frost anticipates me, I cut it at once. It is shocked after cutting, in shocks of large size, the corn being well set up and the shock securely bound. In such a shock the fodder cures a beautiful green and with a retention of aroma very grateful to the fastidious sensibilities of a well bred cow.

For feeding horses, I prefer this hay to timothy, but the primary object in producing it, aside from its intrinsic excellence, is in the fact that I am thus able to more than double my hay crop, making it possible to sell that which is salable and less valuable to feed, without in any measure depriving my stock of its free-born right to be well fed—the reverse of which is too often true for profitable dairying, when hay and grain bring good prices at market.

CRIMSON CLOVER IN IT.

Now, as a supplement to the above plan of making hay, if the season is favorable for its growing, I sow crimson clover in the hay corn at its last cultivation. This favorableness for the crimson clover is estimated from the amount of rain fall concurrent with the growth of the corn. As the cultivation of the corn is thorough and frequent, the seed bed is ideal for the clover. The ground is good, having sometime each year a coat of good manure and an application of a chemical fertilizer with each crop it produces. The clover is sown a peck per acre and harrowed in two inches deep. If an unlucky corn root gets broken it can go mend itself, as its owner does when he gets "broke."

The clover under these conditions rarely fails to grow and flourish, but if after the harvest of the corn I find it has failed, I harrow the ground once without disturbing the corn stubble, and sow two bushels of rye. Timothy rarely makes an aftergrowth worth anything as a hay crop, and by this plan I not only get my extra corn hay, but either in the clover or rye occupying the land through the fall and winter, I have an occupant much more highly valued than a timothy stubble. If the intention is to use the field thus managed for cured corn and stover the next year, the clover or rye is plowed down. If for ensilage corn, the clover or rye is cut for soiling as long as possible, when what is left is cut for hay and the plow started for corn.

I am making the experiment this season of sowing orchard grass with my crimson clover, and expect thereby to increase the yield of hay and improve its curing qualities somewhat.

ALFALFA.

My last experiment with this crop was a sowing I made Aug. 1st, last year, plowing the land after wheat. Some volunteer wheat came along with the first growth of alfalfa this spring and was cut with the alfalfa. The second cutting has been made this summer, and I expect to have one and perhaps two more. When I have sown alfalfa in the spring, I have been defeated by the growth of weeds crowding out the alfalfa. By sowing late I can encourage the sprouting of the weed seeds and destroy them by cultivating before sowing.

Mr. T. C. McIlvain, of this state, who sowed alfalfa about the same time I sowed mine last summer, is fully satisfied with the plan and recently showed me some sample plants that had grown 3½ feet tall.

There is no doubt that we can successfully grow alfalfa in Pennsylvania, but whether it shall be for us the harbinger of all that is good in farming and stock husbandry, that some claim it has been for them, remains for later demonstration.

DAIRY AND FOOD COMMISSIONERS.

This official, in Pennsylvania, is appointed by the governor, and as our present governor represents a pretty thorough change of administration, within party lines, everything of any consequence politically was cleared out. Pearson, as veterinarian, and Rothrock, as forester, were happily not removed, as their offices, under their superb administration of them, have not degenerated into politics. The director of farmers' institutes was ambitious to graduate into Secretary of Agriculture by the cocoon process, but had to be satisfied with remaining in the infant class. They tell us that a great educational work is possible by means of farmers' institutes. If this is true, and I am not questioning it, Pennsylvania farmers need all the good of it, and not seeing the good, they are right to complain, and should demand that the atrophied head of the work in this state be cut off.

The Dairy and Food Commissioner is supposed to hold his office by political tenure. Why this is so, we purveyors of food cannot understand; but a man may be a politician, or represent a political idea, and have an honest conception of the duties and obligations of his office. Thus our new Commissioner seems to be getting after dealers in oleo, and other things unfit for human eating, and making the way hard for the transgressor. There are those who say that the act creating this office provides that the one filling it shall be a man identified with dairying, or having a knowledge of the production of dairy foods, but these people belong to that disgruntled class that does not understand why these really important offices should have become political jobs, W. F. MCSPARRAN.

Prince Edward Island Dairying.

ED. HOARD'S DAIRYMAN:—All the cheese factories in the province, with three exceptions, are now under way for the season's work. Some of them began operations in early May, but the majority did not start this year until June 1st. The cold, backward spring is responsible for this, and, even as it is, when the present poor condition of the pasturage is noted,

The New 1903

REID HAND SEPARATOR



The 1903 Reid Hand Separator is the most exact milk skimmer ever made—it is simplest, fastest, lightest running, and affords most butter-producing material under all conditions. It creates a new source of revenue and maintains the income—

WEARS LESS, LASTS LONGEST

Every Reid Hand Separator is sent out under a positive guarantee, and is sold on its own merits. If you want a separator we will send a Reid on approval—work it ten days and if it does not excel all others return at our expense. Send for new catalogue and revised price list, mailed free.

A. H. REID, 30th and Market Sts., Philadelphia, Pa.

WE TAKE THE RISK

of your being satisfied, and glad you bought the cream separator that makes money for you.

THE AMERICAN

Is Sold On Trial.



The price makes it easy for every cow owner to buy. Run this separator and make money. The catalogue is free and we want you to have one. Write to-day.

American Separator Company,

Medal Winner at Paris Exposition. Box 1023 Bainbridge, N. Y.



THE

Iowa Dairy Separator.

AN UP-TO-DATE MACHINE REPLETE WITH PRACTICAL IDEAS.

It is built in the following sizes:

250, 350, 450, 600, 750 POUNDS PER HOUR

Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.

SEND FOR CATALOGUE NO. 60 AND PRINTED MATTER.

IOWA DAIRY SEPARATOR COMPANY, WATERLOO, IOWA.

Big Profit in Cows

is but a question of getting *all* the cream (butter fat) out of the milk. With the old setting system your loss is over 80 per cent greater than with a

NATIONAL Hand Separator



A valuable machine you can test in your own home or dairy

10 Days Free

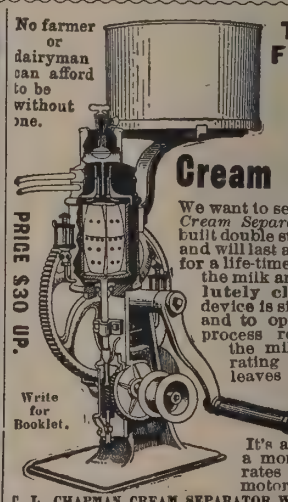
If you like—buy it; if you don't, we take it back and pay all expense—you have nothing to risk. Our catalogue gives full particulars.

National Dairy Machine Co., Newark, N. J.

No farmer or dairyman can afford to be without one.

TEN DAYS FREE TRIAL

THE ECLIPSE Cream Separator



PRICE $30 UP.

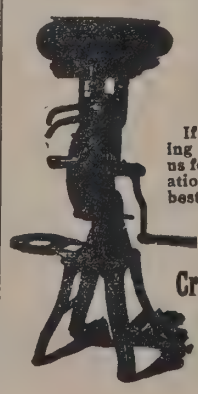
We want to send you an *Eclipse Cream Separator* to try. It is built double strength all through and will last and work perfectly for a life-time. It acts twice on the milk and skims it absolutely clean. Its interior device is simple, easy to wash and to operate. Its double process removes filth from the milk as well as separating the cream, and leaves both pure and sweet and fresh. It never gets out of order. It is guaranteed.

Write for Booklet.

It's a money maker and a money saver. It operates by hand, foot or motor power.

C. L. CHAPMAN CREAM SEPARATOR WORKS, ERIE, PA.

Notice to Dairymen



If you are thinking of buying a Cream Separator write us for Catalogue and information. We manufacture the best machine on the market.

Davis Cream Separator Co.,

54 to 64 N. Clinton St. CHICAGO, ILL.

WORLD CREAM SEPARATOR CO.

NEW OXFORD BALL BEARING Cream Separator

Sold on guarantee to be the best on the market. Catalog free.

WORLD CREAM SEPARATOR CO. 41 Main St., Council Bluffs, Ia.

CREAMERYMEN, DAIRYMEN and MILK DEALERS

Can be Promptly Furnished with anything they want at reasonable prices, if they will write me. MY CHILDS' PATENT MILK BOTTLE FILLER is the best on the market. Send for free catalog.

J. S. BIESECKER, 59 Murray St., New York City.

MILK WON'T SOUR If you use The Erie Can Refrigerators. An acknowledged Success. Booklet Free.

S. C. SULLIVAN, 425 W. 4th., Erie, Pa.

NO HUMBUG. Three in One.

Swine V, Stock Marker and Calf Dehorner. Stops swine from rooting. Makes 48 different ear marks. Extracts Horns. Price $1 50. Send $1 for trial. If it suits, send balance Pat'd May 6, 1902. Hog and Calf Holder only 75c.

FARMER BRIGHTON, FAIRFIELD, IOWA.

the opening on June 1st is by no means late for not a few of them.

The season keeps very backward, and pasturage has come on poorly. The hay crop bids fair to be a light one, though clover is bound to be a fine crop. The winter's snows fell early, and remained on the ground all winter and early spring, covering the ground as a blanket and in this way protected the clover roots. The prospect of a fine clover crop is indeed encouraging, though timothy and the pastures are poor and backward.

Some of the season's cheese has already been marketed at 11c. The first meeting of the Provincial Cheese Board will be held at Charlottetown this week. At this meeting an effort will be made to secure the services of Prof. Zufelt, who had charge of the dairy school here last winter, to assist Inspector Morrow in the work of inspection and instruction. This year it is expected that there will be more cheese and less butter manufactured than last year. Provincial cheese has a higher standing in the British markets than its butter, and the price of cheese is high. Only one new creamery has been opened in the province, that at Launching. The able and aggressive friend of the Prince Edward Island farmers, Rev. Father Burke, of Alberton, President of the Fruit Growers' Association, and first and foremost in all and everything for the benefit, progress and uplifting of the people, is out this week with a press bulletin, entitled "Improve Cheese and Butter". The bulletin is timely and to the point.

Father Burke concludes his timely bulletin by urging the buyers to help get at the root of the evil complained, and utters the truism, that it certainly pays no one to export bad cheese. He urges more and rigid inspection, and an extra man if possible. This the Dairy Associations are making an effort to do. He hopes to see the time very soon when not only Canada will be branded on the cheese, but also Prince Edward Island.

An important conference was held at Montreal lately between members of the Montreal Produce Merchants' Association and a number of cheese and butter buyers and makers of Ontario and Quebec. Prof. Ruddick, chief of the Dairy Division, had charge of the meeting. The purpose of the meeting was the necessity of a higher and more uniform standard in making and handling cheese and butter. There was practical unanimity among both buyers, makers and producers in accepting the following definition of terms, both in butter and cheese:

BUTTER.

Finest creamery butter shall be butter made in a creamery under the system known as the centrifugal or separator process.

Flavor—Sweet, clean and fresh.

Body—Good and uniform and not loose made or watery; must contain less than 16% moisture to conform to the law of England. With proper care none of our Canadian butter should contain more than 13% of moisture.

Color—Even and uniform; should be straw colored or pale, but not white or lardy.

Salt—Must not be over 3 per cent, unless especially arranged for.

Package—Boxes must be strong, well made of seasoned wood, properly parafined; of the uniform capacity of 56 lbs., clean and in good condition for shipping. When hooks are used, four hooks on each box. Tubs must be strong, neat and uniform in size. Pure vegetable parchment paper of not less than forty pounds to the ream must be used for lining all packages.

CHEESE.

Flavor—Clean and pure.

Body—Close, good and well cured.

Texture—Silky, solid and meaty.

Color—Good and uniform.

Finish—Of good shape, and fairly uniform in size, neat in finish, with good rinds and clean surfaces.

Boxes—Must be strong and close fitting.

There seems to be a general move all round and a strong determination for a more uniform standard in manufacture, and more care in the packing and shipping of the goods to market—a determination that cannot fail of bringing forth good fruit. J. A. M.

UNDER the title of "Finding his Work," is the following note describing what the son of a wealthy American is doing. There are many "sons" who are studying "art" and practicing the various overloaded professions who would make good and successful farmers, but they are driven into a profession because they think that is the passport to success, whereas it is usually the direct path to genteel poverty.

The son of an immensely wealthy American, having graduated from college, went to Paris to study art. He worked hard in the Paris studios for three years. One day he made up his mind that he would never be a great artist, and that he would rather be a successful farmer than a fairly successful painter. Now—although still a young man—he has a model farm covering 10,000 acres in Illinois. He knows every foot of it, what it should produce, and sees that it produces everything it should. He has built a magnificient house, in which not an ornament jars the finest taste. He goes to Europe every winter and studies European methods of scientific farming and cattle raising. He is developing the land as his fathers did before him. He employs scores of men; he helps the smaller farmers about him; he is likely to be a great factor in the development of the state during the next few years. And this is the story of a young American who works for the love of it, and who is a great success because, anxious to do things, he knew when he had not "found his work." —*The World's Work.*

"I've Lost Ten Pounds"

A man says. "Look at this." And he over-laps his coat to show how loose it is. There are some people who can lose *fat* to advantage, but the loss of flesh is one of the accepted evidences of failing health. As flesh-making processes begin in the stomach, so naturally when there is loss of flesh we look first to the stomach for the cause. And the cause is generally found to be disease of the stomach and digestive and nutritive tracts, resulting in loss of nutrition and consequent physical weakness.

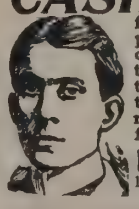


Doctor Pierce's Golden Medical Discovery restores the lost flesh by curing diseases of the stomach and other organs of digestion and nutrition and enabling the perfect digestion and assimilation of food from which flesh and strength are made.

"My wife was for five years troubled with indigestion of stomach and bowels, bloating and severe pain at times during the entire five years," writes Mr. J. Milton Unger, of McConnellsburg, Pa. "Her heart was affected, and she took a purgative every few days but only received temporary relief. She got very poor in flesh and I bought one bottle of Dr. Pierce's Golden Medical Discovery from our druggist and after taking it she said she felt like a new woman. Has no more trouble with stomach and bowels, and has no pain nor bloating. Has gained fifteen pounds in weight."

Dr. Pierce's Pleasant Pellets cure constipation and biliousness.

CASH FOR YOUR



farm, home, business, or other property (no matter where located or how large or small) may be obtained through me. Send description, state price, and get full particulars free. Est'd 1896. Highest references. Offices in 14 cities, from Boston to San Francisco.

W. M. OSTRANDER
1519 N. A. Building, Philadelphia

IOWA FARMS For Sale $45 to $65 Per Acre.

We offer improved Iowa farms close to church, school and town, with local telephone and rural mail delivery, soil rich, black loam, and level, at $45 to $65 per acre. We also have special bargains in North and South Dakota and Canada. If you wish to buy or sell land or city property anywhere, write to us for confidential terms. We make a specialty of long range sales, so no matter how far away you live, if interested, write us. We refund railway fare to parties who buy of us. Send for price list with pictures of farms.

THE JOHN M. CANNON LAND AGENCY, CRESCO, IOWA.

Special Offer of Fine Dairy Farm

ADJOINING RED WING, MINNESOTA.

174 ACRES—140 under high cultivation, balance good pasture and woodland. Has complete machinery for Dairy, with power, etc., and all machinery for cutting corn. Two large silos, sufficient to hold feed for 50 cows, and large barn to tie up 70 head. One new house—could not be built for less than $2,500; another good house for help. Large horse barn and granary. Improvements could not be duplicated for less than $7,500. Monthly receipts over $600. All for sale at $12,000.

H. A. CAMPBELL, 107 E. 4th St., St. Paul, Minn.

GOOD REASONS

why land buyers are attracted to Marathon County are: Because of the richness of the soil; abundance of water at little depth; fine grazing making it a very desirable location for cattle raising; excellent railroad facilities and competitive markets for dairy, farm and timber products. Central and Northern Wisconsin will be

THE COMING DAIRY SECTION

and has already made great strides in that direction, many fine herds have been established. If you want to Own Your Own Home now is the time to buy. Our lands are located in the northwestern part of Marathon County in a country well populated, near the prosperous village of Athens. For prices and further particulars address:

RIETBROCK LAND & LUMBER CO., ATHENS, WIS.

DAIRY AND STOCK FARM FOR SALE

667 ACRES, WAUSHARA CO., WIS.

Three miles from Wild Rose, C. & N. W. R. R. New barn, 34x136, cement floor; new silo 16x27; one barn, 30x40; 3 good houses; hog house; granary; tool house; good water; trout stream running through; "fine fishing;" adjoining two lakes; all fenced; level land. This place could be made into four good farms.

One new 10 horse Gasoline Engine; one new Ensilage Cutter, 10 ton per hour; one new Carrier; one De Laval Separator, new; one new Binder; one new Corn Cutter and Binder; one Seeder; one New Reaper and all other Farm Machinery.

Stocked with Guernseys. This place will be sold with or without stock and machinery, and will be sold at a bargain if taken soon. Address owner.

C. N. GARDNER, Saxeville P. O., Waushara Co., Wis.

Buy You a Ticket to CROOKSTON, MINN., and call upon

The Polk County Land & Loan Company

For choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.

360 acre farm, 4½ miles from Crookston, Minn., (a city of 7,000 inhabitants), and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 ft. square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm in under a high state of cultivation, and is well drained by a slight ravine running through the farm, merely sufficient for self drainage. The soil is a rich deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50,

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired, Price $19.00 per acre.

WISCONSIN

Farm Lands

$8 to $12 PER ACRE.

On terms to suit purchaser. We would like to show you the lands and can give you low railroad rates to come and look at them. This is the future dairying country of the Northwest.

Our lands are only 240 miles from Milwaukee with splendid markets on all sides. None of the land lies more than three and a half miles from the railway station. Write and find out about it. Yours very truly,

INTERIOR LAND CO.,
Janesville, Wis.

234 ACRE FARM FOR SALE

One-half mile from Janesville, Wis. New 12 room house, good barns, etc. Fine black soil. A great bargain and if taken at once the purchaser gets the rent. It is one of the best farms in the famous Rock River Valley and will be sold on easy terms to a good man.

WILSON LANE, Janesville, Wis.

Cream SEPARATORS All about them and other things for the dairy and creamery. A. H. REID, Philadelphia.

160 ACRE FARMS IN WESTERN CANADA FREE

Western Canada

The Vast Areas of this Remarkable Agricultural Country are attracting more attention than any other District in the World.



"The Granary of the World."
"The Land of Sunshine."
The Natural Feeding Grounds for Stock.

Area Under Crop in 1902—1,987,330 Acres.

Yield 1902—117,922,754 Bu.

Abundance of water. Fuel plentiful. Building material cheap. Good grass for pastures and hay. A fertile soil, a sufficient rainfall and a climate giving an assured and adequate season of growth.

Homestead Lands of 160 Acres FREE.

The only charge being $10 for entry. Close to Churches, Schools, etc. Railways tap all settled districts. Send for Atlas and other literature to Superintendent of Immigration, Ottawa, Canada; or to the authorized Canadian Government Agent—

T. O. CURRIE.
12 B. Callahan Bldg., Milwaukee, Wis.
J. M. MacLACHLAN,
307 Third Street, Wausau, Wis.

FOR SALE

My fine country home and dairy farm of 120 acres within 1¼ miles of Waukesha city limits and electric line. This farm is well watered and fenced, and well equipped with buildings painted and in good order; 10 acres wood lot, balance under plow and in high state of fertility. For particulars address

O. P. CLINTON, Waukesha, Wis.

425 ACRE STOCK FARM

In Outagamie County, Wis.

25 acres covered with hard wood timber; balance tillable; can be cultivated or used for pasture; near a fine market. Good house, fine stables, water plentiful; windmill and steel stock tank.

MILES & MYERS, C-100 MATTHEWS BUILDING, Milwaukee, Wis.

WISCONSIN FARMS

in Dunn, St. Croix, Barron, and Price counties make the best homes on earth; because, 1st., soil heavy; 2d., some timber, fuel cheap; 3d., springs and streams numerous; 4th, no blizzards or drouths; 5th., no sand or pine stumps; 6th, near the best northern markets; 7th., best dairy section known; 8th., no crop failures; 9th., successful settlement and all prosperous; 10th., corn, oats, wheat, rye, potatoes, tobacco, hay, etc., unexcelled in the United States.

If you want a Canadian home, we can, and will take you to the best locality in Manitoba or Assiniboia. Send for catalogue or come yourself. We sell on easy terms our own lands in Wisconsin and Canada. DUNN COUNTY LAND CO., Downing, Dunn County, Wisconsin, or 156 East 3d Street, Rooms 5 and 6, St. Paul, Minnesota.

The Value of the Skim Milk.

The New York *Farmer* reasons as follows on the question of whether it is always the farmers interest to sell his milk direct to the condensing establishments or take it to a good creamery:

Co-operative buttermakers, who can secure enough winter milk to make butter, ought to be in a position to beat even the Borden prices for milk in November, December and January.

Co-operators should bear in mind that the Borden price, which is called "net to the farmers," is not really "net" when it is compared with co-operative creamery returns. Suppose the Borden November price is $1.55 in the 26-cent zone, and $1.60 in the 29-cent and 32-cent zone, and that the co-operative creamery butter return is exactly the same figure in those zones.

Which is preferable and more profitable to the farmer? The condensary has absorbed the butter fat and the skim milk and returned $1.60 per hundred weight to the farmer.

The creamery has absorbed the butter fat and returned for it $1.60 per hundred weight of milk, and in addition to that return it has given the farmer back the skim milk, valued at 15 to 25 cents per hundred weight, for feeding, swelling his returns to $1.75 or $1.85 per hundred weight of milk.

This computation has been too often overlooked by producers.

The Borden price is for milk that is fitted to produce a large percentage of fine butter, whose market value is greater, in some cases, than the Borden price for the entire milk. For this reason the milk that commands the Borden price will command more than the Borden price when made into butter by its producers, who will have the skim milk to feed or to convert into casein.

Co-operative buttermakers, who make high-grade butter, can beat even the current Borden schedule of prices.

A California Feeding Query.

We have plenty of good alfalfa hay. Can get bran for $1.15 per 100 lbs.; cotton seed meal, at $2.25 per 100 lbs.; oil cake meal, at $2.15 per 100 lbs. If that will not make a ration, what would you advise getting, to get the best returns from the cows? And also will you please tell me if it is possible with the use of registered bulls to breed up common cows so that in time you can have a band of registered cows? If so, how long?
Chino, Cal. W. A. S.

Neither bran, cotton seed meal nor oil cake meal are especially called for in connection with good alfalfa hay. In California, we should be disposed to use either ground barley or oats, or a mixture of both, with possibly the addition of some bran, and should expect to feed, to cows fresh in milk, an average of about eight pounds per day, with all the the alfafla hay they would eat without waste.

It is not possible to develop stock eligible to registry in the manner suggested.

CONCERNING OUR ADVERTISERS.

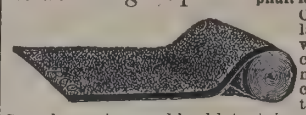
If you are interested in a post that can neither rot or burn up, write to the Janesville Cement Post Co., Janesville, Wis., for their circulars. They have a small ad in this issue. Write for the circulars,

Safety Appliances on Ensilage and Feed Cutters.

So many accidents have been reported in connection with the operation of ensilage blowers that too much care cannot be taken to see that every precaution has been observed by the manufacturers of these machines to ensure their safe operation. The Smalley Blowers, made by the Smalley Manufacturing Company, Manitowoc, Wis., are built with safety fly-wheel and pulley just the same as when carriers were used. The driving device is new. There is no wasted power and belt will not slip. All parts are made of best materials, frame is strong and the strain is no greater with blower attachment than when the ordinary carrier is used. The largest size machines will easily handle ten tons of ensilage in an hour, cut one-half inch, and elevate into any silo. Self-feed machines are made in six sizes and hand-feed in twelve sizes. An interesting catalogue telling all about these machines and full line of drag and circle saws, sweep tread powers, etc., will be sent free on request to the manufacturers.

The "Sweepstakes" Babcock Tester sent on approval, if satisfactory remit the price, $5 00, if not return by express at manufacturer's expense. This is the proposition made by M. A. Luther Bros. Co., Milwaukee, Wis., in their advertisement, this issue. A more liberal or fair proposition could not be submitted and it is pretty good evidence this firm is making a tester that is satisfactory in every way. There are hundreds of the readers of Hoard's Dairyman that should take advantage of this offer. No money advanced. The Tester sent you on 10 days trial to be remitted for if you want it. Don't let this opportunity go by; look up the ad. Let them know that you appreciate a liberal proposition like this from a reliable firm. Any reader of Hoard's Dairyman who has any reason to think he would like a Babcock Tester should accept this proposition.

BUY DIRECT FROM FACTORY, BEST
MIXED PAINTS
At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.

No Painting Required on Arrow Brand Asphalt Ready Roofing. Can be easily laid as the work only consists of nailing and cementing the joints.

Samples prices and booklet giving instructions for laying sent free, postpaid
ASPHALT READY ROOFING CO., 82 Pine St., New York.

NO MORE RUBBING, stooping or boiling of clothes. The "1900" Ball Bearing Washer will wash a large tubfull of clothes in 6 minutes. An hour's wash in 20 minutes. The washing is done sitting down. You can try it free of expense, freight prepaid, no advance payment. "1900" Washer Co., 219A State St., Binghamton, N. Y.

WRINGING WET Clothes dry is the reason for using any wringer. Saving clothes, buttons and money is the reason for using Horse-Shoe Brand Wringers. They are made with rolls of the finest Para Rubber. Every wringer is warranted. THE AMERICAN WRINGER CO., 99 Chambers Street, New York.



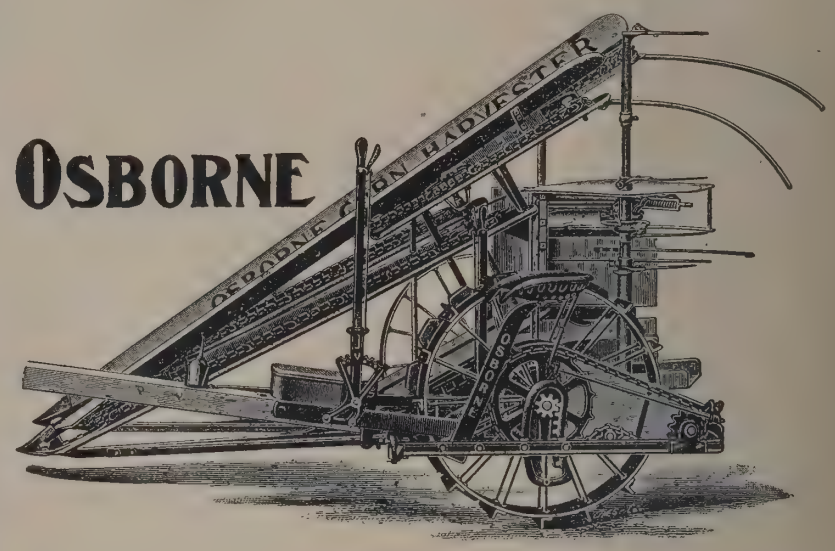
REVOLVERS
are noted for their absolute safety, accuracy and durability. *Avoid inferior Substitutes.* Sold direct where dealers will not supply.
HARRINGTON & RICHARDSON ARMS CO. Dept. 22, Worcester, Mass.
Makers of H. & R. Single Guns.
CATALOG FOR POSTAL.

FLIES? ORR'S FLY KILLER. No Other as Good.
1 gal. $1; 5 gal. $4; Sprayers 50c.
1 Doz. 1 gal. cans $8.00 1 Doz. 8pr. $4.00
The following well known live stock fanciers have used it two or three years each, and will tell you that Orr's is better than all others:
J. F. Converse & Co., Woodville, N. Y.
J. B. Buchanan, Hookstown, Pa.
J. E. Crider, Fredonia, Ky.
Bell Bros., Wooster, O.
J. S. Hamlin, East Bloomfield, N. Y.
D. J. Kennedy, Pittsburgh, Pa.
L. H. Martin, Alexandria, O.
J. H. Deckie, Mt. Vernon, O.
W. H. Miller, New Cumberland, W. Va.
Isaac Sprague, Wellesley Hills, Mass.
R. D. McGonigle, Ashley, O.
James Langhead, Wellsburg, W. Va.
Prof. J. E. St. John, Lansing, Mich.
R. W. Atkins, Tecumseh, Neb.
A. Provines, Auburn, Ind.
C. C. Crawford, Boyd's, Md.
D. M. McCollum, Wheatland, Wyoming.
J. H. Putnam, Litchfield, Conn.
S. H. Glick, Denbigh, Va.
G. M. Harter, Walker, Pa.
W. M. Thompson, Uniontown, Pa.
S. F. Barber, Harrisburg, Pa.
Also hundreds of others in these 13 States.
ORR & COOPER, Box 829, BEAVER, PA.



MORE MILK MORE MONEY! Cows will give 15 to 20 per cent more milk if protected from the torture of flie with
CHILD'S SO-BOS-SO KILFLY.
Kills flies and all insects; protects horses as well as cows. Perfectly harmless to man and beast Rapidly applied with Child's Electric Sprayer. 30 to 50 cows sprayed in a few minutes. A true antiseptic; keeps stables, chicken houses, pig pens in a perfectly sanitary condition.
Ask for Child's SO-BOS-SO or send $2 for 1-gal. can and Sprayer complete, Ex. pd. any point east of the Mississippi.
CHAS. H. CHILDS & CO., Sole Manufacturers, 15 LaFayette Street, Utica, N. Y.

D. M. Osborne & Co., St. Louis, Mo. Caledonia, Mo, June 1, 1903.
My Dear Sirs—I feel I honor my own judgment, and reflect only that which is justly due your corn harvester, when I say it is without doubt the best corn harvester on the market to-day. Last season I cut, on my own farm, 115 acres of corn, and a negro boy 16 years old managed the machine, drove the horses and did all the cutting, without one cent expense for repairs or breakage. The work could not be excelled. The corn was heavy and much of it down, and some full of weeds, but it made no difference to the machine. All corn looks alike to an Osborne Corn Harvester, and to Missourians your machine is peculiarly adapted, for it can most certainly "show them." I am, Yours very truly,
W. R. GOODYKAUNTZ,
Ex-Senator of Missouri.

OSBORNE


This Corn Book tells about Silos and Fodder. Book Free for the asking.

Scotia, N. Y., April 15, 1903.
D. M. Osborne & Co., Auburn, N. Y.
Dear Sirs—I am well pleased with the Osborne Corn Harvester I purchased of your agent, C. H. Bevis, last fall. It proved to be all it was commended. On account of the season, several places in our corn fields were deep mud, but where we cut there the machine worked just as good. The broad-faced steel drive-wheel is a great advantage on ground where it is soft. We used only two horses, and did the work easier than some of our neighbors did with three horses on another make of machine. It is certainly a very light runner. It is also a fine binder, never once having broken the twine, or missing to tie, thus using less twine than others, besides delay and trouble. I would say, in a word, that the machine is practically perfect. Very truly yours, CHARLES P. SANDERS.

KILLED BY THE FUMES.
You must kill the lice on the fowls some way. If you don't care to handle them singly, use our liquid
PRUSSIAN LICE KILLER.
Simply paint the roosts and drop boards with it. The fumes arise and kill the lice on fowl and pen. It catches them all to the last mite, and it takes the nit as soon as it comes to life. The fumes do the work. It is the perfect, easy method of protection and cure. But if you like the powder treatment better, don't forget the old reliable Prussian Lice Powder.
Enclosed please find 40 cents for another can of lice powder. We were well pleased with the first can, but we need and must have more.—H. F. Lake, Yankton, S. D.
Prices: Lice Killer, 50c and $1.00; 5 gallon can, $4.00. Lice Powder, 25c; by mail 40c. Remember also our famous Prussian Poultry Food. Get either of these from your dealer. If you don't find them write us at once. We will supply you and send you also our 68-page book.
PRUSSIAN STOCK FOOD & REMEDY CO., ST. PAUL, MINN.
Special Agents: Portland Seed Co., Portland, Oregon. H. W. Williams & Co., Ft. Worth, Texas.

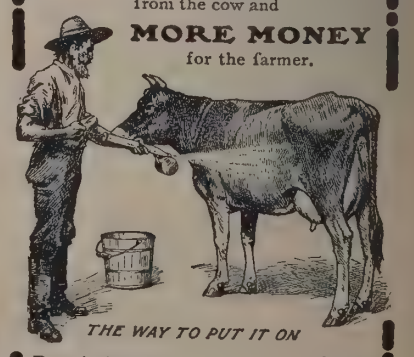
Goodwin's


T. D. Goodwin & Co.,
USE GOODWIN'S FLY KILLER this season and make your stock comfortable. Your cows will give 25 per cent more milk; your beef cattle will fatten with one-half the feed and your horses will do their work with ease. Goodwin's Fly Killer will protect stock from flies when in pasture as well as in stable. It's convenient, cheap, practical. It's a sure lice killer and will keep stables and hog pens in a sanitary condition. Prices: Gallon 75c; 5 gallons $3.00; 10 gallons $5.50. Good sprayer for applying same 50c, or send $1.00 for Sprayer and enough Fly Killer to protect 150 cows. Agents wanted. T. D. GOODWIN & CO., Columbia Station, Ohio.

Shoo-Fly THE ANIMALS' FRIEND


Kills every fly it strikes; keeps off the rest. Harmless to man or beast.
This cow was a terror to milk prior to using ½ cents worth of Shoo-Fly. Had it been used earlier, she would not have lost milk and flesh to the amount of $14.00. The other cow was protected early and continued to give 18 qts. of milk daily through fly-time
Shoo-Fly is the original stock protector used by the same dairy-men since 1885, after testing imitations. It prevents contagious abortion and other diseases, cures all sores, scratches, skin diseases, hoof ailments, etc. NO LICE in poultry house or any place it is sprayed. Beware of imitations that last only a few hours and make sores. If your dealer does not keep Shoo-Fly (made in Philadelphia, Pa.,) send us $1.00 for latest Improved Three Tube Sprayer and enough Shoo-Fly to protect 200 cows Cash returned if cows are not protected.
SHOO-FLY MF'G. CO. 1005 Fairmount Ave., Phila., Pa.
EDITOR knows from experience Shoo-Fly is O. K.


NEW IDEA FLY TRAP
Set this trap outside your kitchen door or dairy and you will have no more trouble. One in the stable will afford your cattle relief.
Catches 60,000 flies a day
11 in. diameter, 22 in. high. Ask your dealer. AGENTS make good money selling. Write for terms.
NEW IDEA FLY TRAP COMPANY,
Department H. Cicero Park, Ill.

Cow-Ease
(Trade Mark Registered.)
MEANS MORE MILK
from the cow and
MORE MONEY
for the farmer.

THE WAY TO PUT IT ON
Descriptive booklet will be sent free to any farmer on application to the sole manufacturers,
CARPENTER-MORTON COMPANY,
Boston, Mass., U. S. A.

Fat in Milk and Cream.

What difference, if any, do you make in 100 lbs. of butter fat delivered in milk, part of such being 24 hours old, te t 4%, and 100 lbs. butter fat delivered in cream testing 22½? P. K.
Cleghorn, Eau Claire Co., Wis.

One hundred pounds of butter fat would be equal to 2,500 lbs. of 4 per cent milk. In separating and churning this milk there would be a loss of 4.5 lbs. of fat and the average yield of butter would be 116⅔ lbs. with ⅙ overrun. One hundred pounds of butter fat in the form of 22.5 per cent cream would be equal to 444 lbs. cream. The loss in churning would be 0.7 lbs. and the butter fat would make 118 lbs. of butter. A hundred pounds of fat in the form of cream is worth from 2 to 3 per cent more than the same fat in the form of milk, on account of the loss of fat in the skim milk.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Barrenness.

I have a Jersey cow has only had one calf. She was very hard to get with calf the first time, going to different bulls 12 or 15 times. I have been having her served every month for the last year and am unable to get her with calf again. I had the neck of the womb opened and bred at once, but it was with the same results.
Dalton, Ga. J. B.

ANSWER.

Your cow has an unnatural condition of the organs of generation, which requires a personal examination, by a qualified veterinarian.

Foot Rot.

We have been having some trouble with our cows being lame. In the winter one cow got very lame in her front foot. We applied kerosene after thoroughly washing, and she came out all right. The trouble seems to start well up between the hoofs, and the foot looks raw and inflamed; the second case gathered and broke and has left the joint enlarged and stiff, and has almost ruined the cow. About two weeks ago another cow was taken. We applied kerosene.
Springport, Mich. L. E. L.

ANSWER.

This trouble is most prevalent in wet seasons, due to dirt and filth gathering between the claws, or walking through serrated grass, which causes wounds and sloughing. Pare the hoof, so that it will not retain any dirt or filth; wash the parts clean, and dust over the wounds, calomel full strength; over this apply a warm linseed poultice, and change twice daily until the swelling has disappeared. If animals are hard to handle, you may stand them in a solution of an antiseptic dip, from 15 minutes to half an hour, daily. See ad. in DAIRYMAN for dip.

Hen Lice.

We have a big barn on the farm with a plank floor, which is badly overrun with chicken lice. How can we kill lice on horses? C. de B.
Worthington, Minn.

ANSWER.

Mix in each bucket of whitewash one dram of corrosive sublimate, and whitewash the walls and ceiling of barn and hen-house; cover the floor with a thin layer of slacked lime.

Hen lice will not live on horses for any length of time. But you must never allow the hens to roost in the barn. It is also advisable to have a box of lime or ashes in the hen house for the hens to scratch in.

Skin Disease.

My cow has a skin disease on her udder and belly, of about a week's standing. The skin is rough and about three times its usual thickness, it being hard to bend, is not sensitive.

In two or three places just back of forward legs there oozes out a thin, corn colored liquid resembling a mixture of blood and water. M. A. V.
Hastings, Mich.

ANSWER.

Wash the parts clean with soap and warm water and apply a 4% solution of carbolic acid, twice daily, and give, the cow ½ oz. of Donovan's Solution in food, twice daily.

Warts on Teats.

Several of my cows have so many warts on their teats as to seriously interfere with milking. Those between the ages of two and four years seem to be affected most. E. W. McC.
Callao, Mo.

ANSWER.

See page 497, last issue.

Polks.

Please give me a cure for polks. J. H. W.
Pleasant Hill, Ore.

ANSWER.

Please give us symptoms of trouble and tell us what you mean by polks.

Failure to Come in Heat.

Have two cows that have failed to come in heat; fresh about April 1st. Will they come all right? Are in healthy condition; good pasture.
Chambersburg, Pa. A. H. B.

ANSWER.

It is possible that the cows are coming in heat at their regular periods, but you fail to notice them. If the bull accompanies them, they may be with calf.

Hole in Teat.

I have a cow with a hole in the side of her teat. Could you give me the analysis of peas and oat hay cut when the grain is in the milk. SUBSCRIBER.
Victoria, B. C.

ANSWER.

The opening might have been closed when it was fresh, with a stitch, or two. But if the trouble is of long standing, it is best to operate on her, when she is dry. Employ a qualified veterinarian.

(The doctor seems to have assumed that the hole in the side of the teat was caused from some laceration. Sometimes, however, conditions of this character are met with when there has been no accident, the hole being in fact, as it were, a rudimentary teat. In cases of this kind, when the cow is dry scarify the edges of the hole, with a knife or scissors or hot iron, bring them together with adhesive plaster and the wound in healing will close the opening.

Oat and pea hay is credited with 9.2 per cent digestible protein, 36.8 digestible carbohydrates and 1.2 per cent digestible fat.—Office Ed.)

Loss of Tails.

We have two cows who have lost the use of their tails. D. M.
Zanesville, O.

ANSWER.

It is necessary to have more of the history of your case in order to find the cause and offer a remedy.

Prolapsus of Vagina.

I have a cow that is troubled with what I suppose is inversion of the vagina. Sometimes a hard sack apparently full of water portrudes through the opening, and when I go to replace it she strains to make water, but cannot until it is pushed back.
Saginaw, Mich. E. W. M.

ANSWER.

The protruded parts may be replaced by hand, and the floor raised so that the cow stands at least six inches higher behind than in front. Give less bulky food so that the abdomen will not be overdistended, and press against the foetus. The trouble will subside when the calf is delivered. It will not interfere with parturition.

Horse Owners! Use
GOMBAULT'S

Caustic Balsam
A Safe, Speedy, and Positive Cure
The safest, Best BLISTER ever used. Takes the place of all liniaments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle, SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.* Every bottle sold is warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.
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Cured to stay cured. Never return. A radical departure. Cause eliminated. Constitution changed. **FREE** Nerves reconstructed. Splendid health. Over 52,000 patients. Good references. ("Reliefs," or change of climate, cannot cure..) Write for BOOK 41 F FREE, containing reports of many interesting cases. Address
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and Great sales are the talk of all who know of them. A fortune has been made by the patentee and the farmer in a short time. For seven months the sales were over $350 00 per day. Something good can't be gotten for nothing. By putting $500.00 and upwards into this business it will be the best paying investment we know of. Farmers using the machine say that they would not do without it for two, three, and ten times the price. Common farmer can handle it in a very paying way. We can prove the great selling qualities of this machine by bank account, the bankers themselves, and the farmer. Our plan is fair and honest. Best bank references. Car fare one way will be paid to responsible men whether they invest or not. Address
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MILK TUBES Patent Coin Silver 1¾" 50c. 2¾" 80c. Improved Teat Opener 75c. Dilating plug 25c. Postpaid on receipt of price.
G. .P Pilling & Son, 3d and Arch Sts., Phil.. Pa.


SPAVINS, Ring Bone, Splints, Curbs and all other forms of Lameness are quickly and permanently cured by using KENDALL'S SPAVIN CURE. $1 a bottle; 6 for $5. All druggists. Unequaled for family use. Book "A Treatise on the Horse" sent free. Address
DR. B. J. KENDALL CO., Enosburg Falls, Vt.

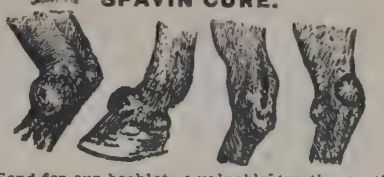


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Calf Scours Cured Hood Farm Calf Scour Cure and Digestive Powder do the work. Severest cases cured.
Each Remedy, $1; large (four times dollar sizes) $2.50. Sent to any railroad express point in U. S., 25c. extra. C. I. HOOD & CO., Lowell, Mass.
Mention this Paper.


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Can be successfully treated with Anti-Abortion Serum. Easily administered and permanently cures. Information free.
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Write for Pamphlet and Testimonials.
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Bone and Bog Spavin, Thoroughpin, Ringbone, (except low ringbone), Curb, Splint, Capped Hock, Windpuff, Shoe Boil, Weak and Sprained Tendon, and all lameness. Give explicit particulars as to your case. Give the veterinarian's diagnosis, if he is competent. Describe action, age, location of swellings and lameness and we will advise you frankly as to the possibilities of "Save-the-Horse. $5.00 per bottle. Written guarantee with every bottle under our seal and signature constructed solely to satisfy and protect you fully. Need of second bottle is almost improbable, except in rarest of cases. $5.00 at all druggists and dealers or sent express prepaid.
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ABORTION,
Retention of Placenta and Failure to Breed.
KELLOGG'S CONDITION POWDER is a positive cure for these diseases. Write for circular containing full information, references and price.
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Failing to Breed and to bring Cows to Heat. Sure Cure. In use 20 Years.

(Patent Applied For)
Hard Rubber *Safety* Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.
Dr. WM. HORNE, Janesville, Wis.



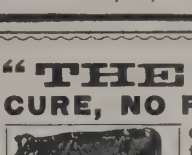
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Used Exclusively at Model Dairy
Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ⅓ lb 50c, 1⅓ lb $1.00, postpaid.
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Sure Cure for Abortion
and General Tonic for Cows. The only genuine sure cure and general tonic for cows now on the market. I guarantee, and refund your money, if not satisfactory.
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Used in the Dairy makes every condition perfectly Sanitary. Use it as a disinfectant, for cleaning all dairy utensils and cans, sprinkling floors and walls. Purifies and cleanses thoroughly. Also cures scours in calves and contagious abortion in cows. Keeps flies off cows at milking. Guaranteed. Agents wanted. 1 gal. $1.50; 5 gals. $6.75, prepaid. Larger lots at lower rates.
WEST DISINFECTING CO., Inc., 8 E. 59th. St, New York.

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BEST PREVENTIVE OF BLACKLEG.

Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each Blacklegoid (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. Blacklegoids are sold by druggists; *ask for them.*
Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.
PARKE, DAVIS & CO. - DETROIT, MICH.
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CURE "THE" COW
NO CURE, NO PAY

WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address
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CUTTERS and BLOWERS, "They Throw and Blow"

They require less power than any other blower because the wheel containing the knives also contains paddles which throw and fans which blow. A two-horse tread power will cut and elevate 4 tons of ensilage per hour, and a 10 h.p. engine 20 tons per hour. No chains, belts or cogs to slip and waste power. Also silos, horse powers, engines, carriers, saw machines, etc.

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Cutter and Shredder,

with **Wind Elevator.** Just think, it does everything, cuts hay, straw, ensilage, shreds fodder, and fills any heighth silo. Remember one and the same machine does it all. Sold on full guarantee. Write today for catalogue, etc.

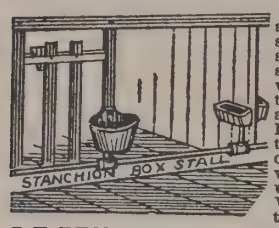
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First Lot at Wholesale. Can't break or rot, nice round rim, any size or shape. Write for circular of **Cow Basin,** Poultry and Stock Troughs. Who will be first. **D. H. BAUSMAN, Bausman, Lanc. Co., Pa.** We make Steel Swings. Fine Booklet Free.

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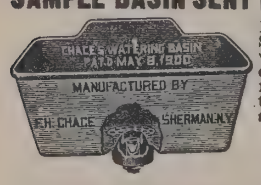
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A absolutely perfect. Soon pays the cost Cheapest because best.

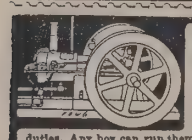
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Preservatives in the Cheese Vat—Starters.

ED. HOARD'S DAIRYMAN:—Can you tell me if the milk Preservaline that is on the market will keep milk sweet for cheese making, that is, if the Preservaline is put in the milk before the rennet? While the curd is usually all right the whey is too sour when boiled to raise the pot cheese. If it could be kept sweet two hours longer the cheese maker would have no further trouble.

Can good butter be made this hot weather without a starter, or is it absolutely necessary in order to make extras to keep to the starter. F. B.

Mongaup Valley, N. Y.

A cheese maker who uses preservatives in his milk is laying up much trouble for himself. The process of manufacturing cheese is a series of changes in the milk, brought on through the action of bacteria. Preservatives stop the action of all bacteria and the ripening of the curd and milk does not take place, and a raw curd and non-curing cheese is the results. We know nothing about local conveniences, but consider that if the whey was started heating as soon as drawn, it would obviate the trouble of rapid souring. If the whey was heated to 125 or 130, it would not kill the germs, but would keep them from growing and producing more acid. As to whether a starter should be used will depend on the quality of the milk. If it is clean, extras can be easily made, but as but little clean milk is brought to creameries during the summer months it is advisable to use a starter.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Wisconsin Buttermakers' Association.

ED. HOARD'S DAIRYMAN:—The Executive Board of the Wisconsin Buttermakers' Association held a meeting in Madison on June 27th. Professor E. H. Farrington was appointed to fill the vacancy on the Executive Committee, caused by the resignation of Mr. G. B. Winsor, who has left the state.

The Association was enabled to secure an appropriation of only $500.00 per year from the state, by the action of the last legislature. The officers will try and get as good results with this small allowance, as possible.

The date of the next convention was discussed, and it was decided to hold the next annual meeting on the first Tuesday, Wednesday and Thursday of February 1904. The place of holding the convention will be decided later, as there are several conditions to consider, and there are at least three cities that desire the meeting.

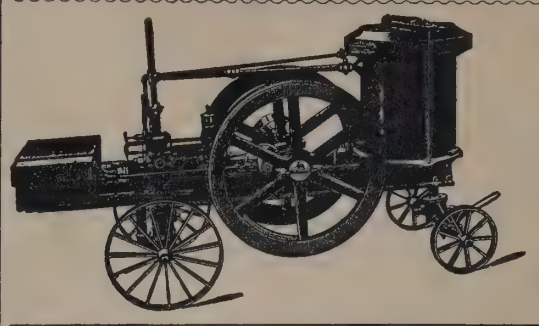
The report of the last convention will be mailed to the members before long. The printing of the same has been delayed by the stenographer who was employed during the convention at Waukesha. F. B. FULMER, Sec'y.

Ettrick, Wis.

TRADE MARK OTTO

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THE OTTO GAS ENGINE WORKS,
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Portable and Stationary, 3 to 25 H. P. Catalogue on Application.

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There are **GOOD SOLID REASONS** why our

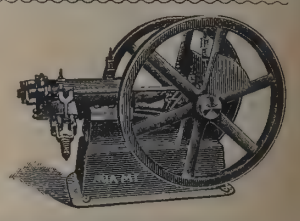
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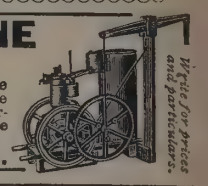


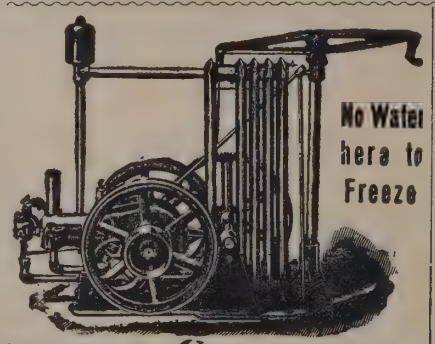
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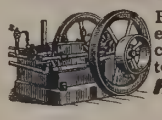


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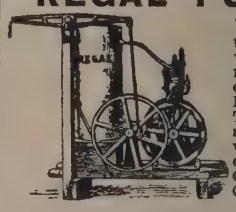
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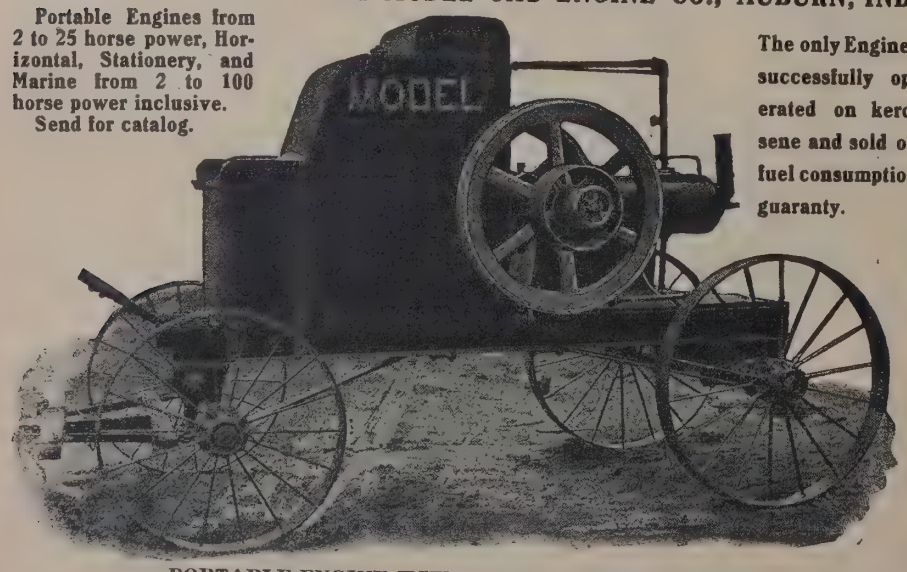
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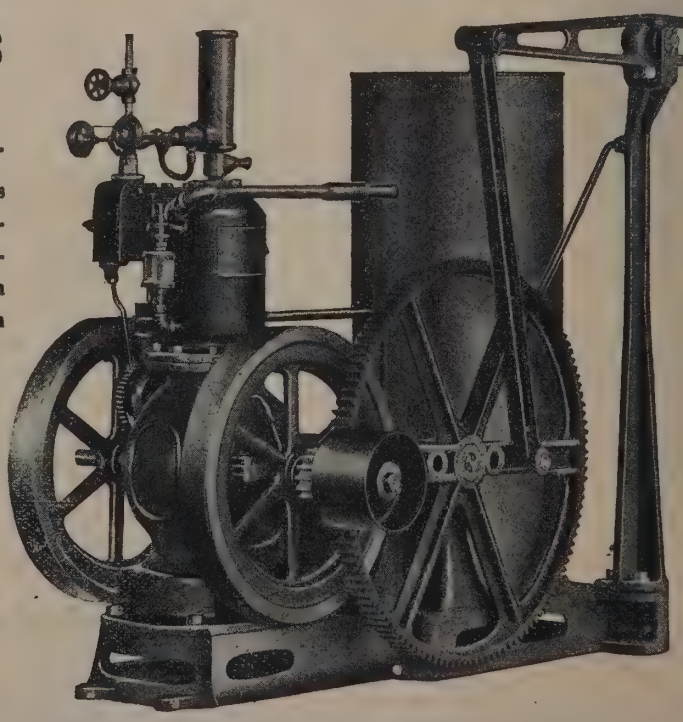
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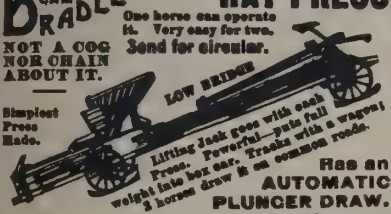
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Cutting and Curing Alfalfa.

ED. HOARD'S DAIRYMAN:—I see Mr. P. Clawson of Butler Co., O., has had a sorry time putting up his first cutting of alfalfa hay. Well, if we should put alfalfa up in Idaho as he did in Ohio, the result would be just the same. I have been putting up alfalfa for ten years and I never have been able to put up two crops alike, because I can't get all the conditions twice alike. What I mean by that is, the condition of the ground, whether it has just been watered or whether it is dry at time of cutting and that has very much to do with the condition of the alfalfa, and then the condition of the weather has everything to do with getting the crop up in good shape.

I don't like Mr. Clawson's sign for the proper time to commence cutting, he says: "Experience teaches me to cut it whenever it begins to turn yellow near the ground and drop the bottom leaves. Don't look for bloom if it will cut a swath." My observation is that when it begins to get yellow near the ground, it is a condition that is caused by other conditions. For instance, if the alfalfa is very thick and somewhat lodged and it is irrigated thoroughly and the weather is hot for a few days, it will not only get yellow but white near the ground. Celery would bleach under the same conditions.

It depends on what you want to feed alfalfa to as to when it wants to be cut. If one wants to feed it to his own cows for milk, it should be cut just as early the first time as it will cure well; but there is the trouble, we can't cure it as young in June as we can in September.

If we cut it before it blooms in June, it will most always cook rather than cure. So we usually let our first crop bloom before cutting, and feed it to horses and dry stock; but the second and third cuttings will cure out all right here, if cut before blooming. Mr. Clawson says that unless there is some other way to cure it besides in the cock or windrow, alfalfa will be a failure in the corn belt. My opinion is that there is only one other way, and that is in the silo.

Our best way to cure alfalfa is to rake as soon after cutting as we can gather clean; let it settle half a day in the windrow and then take a fork and bunch by hand, by putting three mower swaths in a bunch. Of course that depends on the size of the windrow, on how much hay one puts in a bunch. We put enough in a bunch so that a man can take it all up clean at one forkful when hauling. In this way, if it gets over dry before stacking, it will not waste very much.

I am perfectly aware that there are as many theories about cutting, curing and stacking alfalfa as there are men who grow it; so that what I have said can all be set aside, if it don't suit the fancy of any man who grows alfalfa.

Blackfoot, Idaho. E. A. DOUD.

Transfers of Guernsey Cattle.

BULLS.

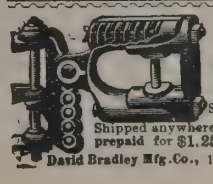
Boy Blood's Boy of Lewiston, 7543, Alfred G. Lewis to C. S. Bill, Hall's Corners, N. Y.
Blue Boy of Lewiston 7546, Seymour Van Santvoord to Alfred G. Lewis, Geneva, N. Y.
Captain Frau 8705, Ben Clark to Albert Dehnhoff Rusk, Wis.
Connor's Marshall 8710, Dr. E. P. Turner to P. J. Connor, Newmarket, N. H.
Gipsy's Don 8637, N. E. Smith to John H. Pells, Copake, N. Y.
Ira's Pet 8702, Geo. R. Schauber to Frank Whalen, Ballston Spa, N. Y.
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Totonka 8708, John Henry Livingston to J. Waldo Hart, Peekskill N. Y.
Xenia's Mingo 8482, A. R. Collins to Jacob Mitzel, Tremont City, Ohio.

COWS.

Chrysanthmum 13024, C. L. Richmond to Wm. F. Mayhew, Pittsgrove, N. J.
Mamilla 2nd. 16066, Tillie Prude 2nd. 16067, Mark Hughes to W. D. Hoard, Fort Atkinson, Wis.
Nada 6109, Ben Clark to J. M. Andrews, Marinette, Wis.
Questa 11385, Questa Bloom 16262, Henry K. Boyer to S. L. Murphy, Woodbine, Pa.
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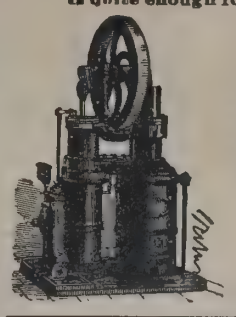
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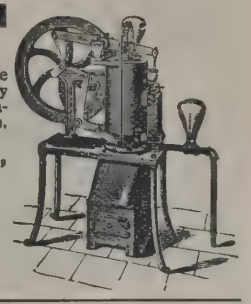
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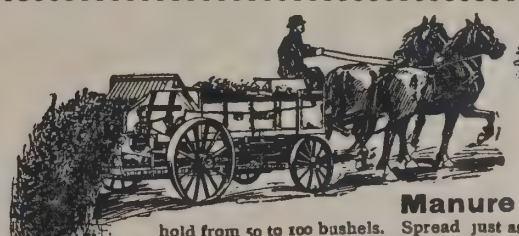


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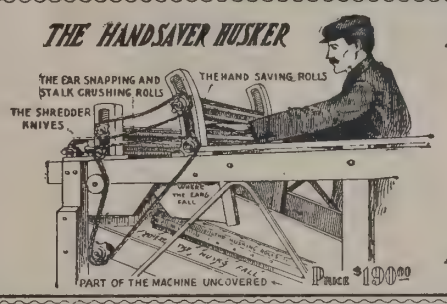
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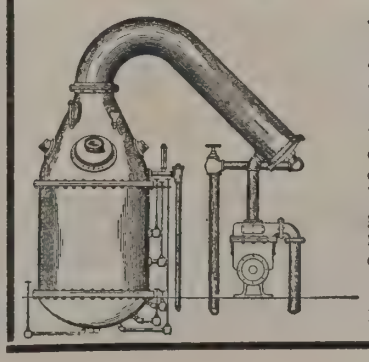
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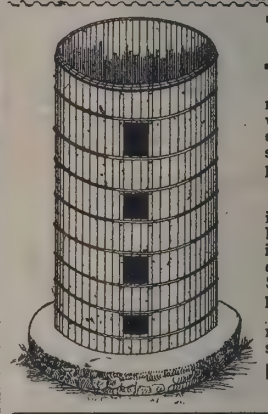
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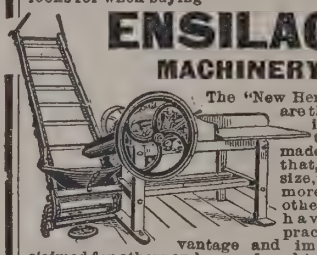
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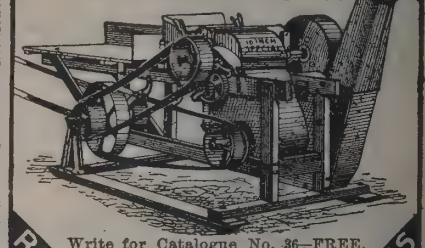
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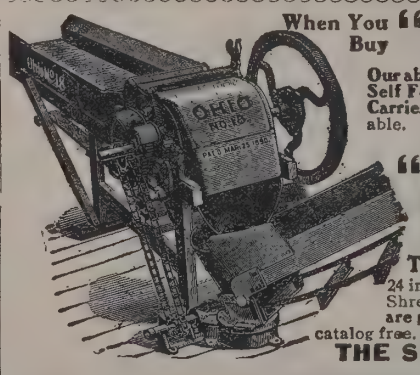


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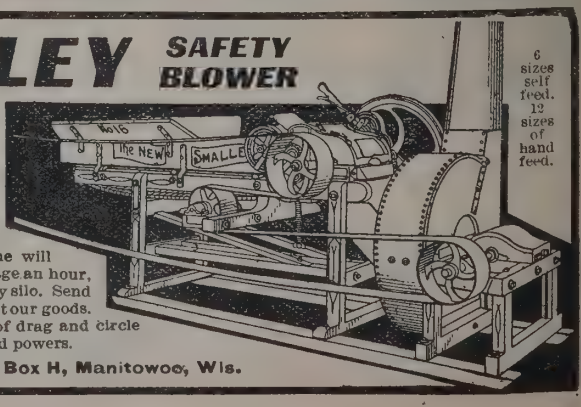
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CHR. HANSEN'S LACTIC FERMENT
To Ripen your cream, ensuring
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Inany tester except one built on up-to-date, scientific principles, and one that you know will do your work easily and accurately.

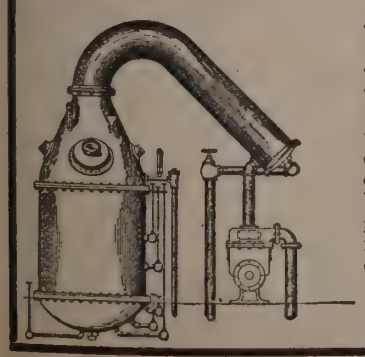
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Has no equal on the market in grace of deign, ease of operation and accuracy of result.

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The agent has no trouble in selling the **Sharples Tubular Hand Separator** after he once has a chance to show a customer



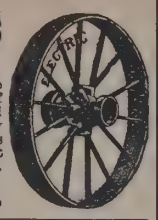
the difference between the **Tubular** and the old style "bucket bowl" machines. There are at least a dozen of the "bucket bowl" separators, all with different names, but all about alike; some with horse radish grater insides, some with cones, some with discs; all of them complicated, and hard to clean, and not much choice. There is but one **Tubular** and it is entirely different from other separators. Just notice the difference in the low down supply can of the **Tubular** as compared with other separators. Examine the small diameter, light simple bowl of the **Tubular**, so easy to clean. Take hold of the crank and see how much easier the **Tubular** turns than other separators. Don't overlook the automatic oiling device by means of which the **Tubular** is oiled; you don't find it on other separators. After all this take the Babcock test and see how much closer the **Tubular** skims than other separators.

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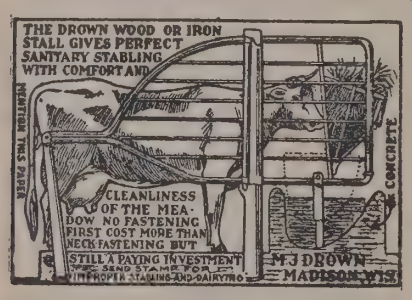


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NECESSITIES FOR PERFECT STANCHIONS
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Write for descriptive circular.
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A Steel Stanchion beats anything you ever saw fo. tying cattle. Lighter, stronger, neater. Swings on chains Not in the way when lying down. Agents wanted. Write for spe cial terms and prices. **Jas. Boyle, Mfr., Salem, O.**



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CATTLE STANCHION
The Most Practical
CATTLE FASTENER
ever invented.
Manufactured and For sale by
O. H. ROBERTSON,
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THE NEW PATENT
Cow Stall
AND FEED TROUGH.
This is the only Cow Stall with a centering hinge. Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars. R. A McLERY & CO., Palmyra, Wis.



Prescott's Swinging Swivel tanchion
Keeps Cows Clean.
Swings forward while getting up or lying down. Locks back while standing Full particulars free.
E. PRESCOTT,
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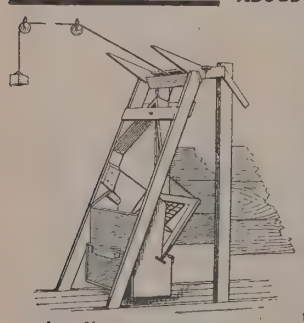
The BEST Cattle Fastening.
SMITH'S Self-Adjusting Swing Stanchion.
The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated Circular free. GLENORA MFG. CO., Glenora, Yates Co., N. Y.
Infringements will be prosecuted.

WILDER'S STANCHION



Being an improvement over Smith's. Lightest, strongest, quickest. safest stanchion made. Has steel latch and automatic lock. Becomes stationary when open. Animal cannot turn in it in backing out. Made of best seasoned hard wood. Pins for fastening with every stanchion. Send for testimonials.
J. K. WILDER & SON, Box 11, Monroe, Mich.

JUST OUT! UNDERHILL SELF ADJUSTING STALL



No Gutters
No Platforms
No fastenings
No Stables to clean
Cease trying to keep your cows clean. You can't do it. Give them a chance and they will do it themselves. This is the only way and the easy way. Write for circular telling what the cow has discovered to us. It is a great revelation.
Wm. M. UNDERHILL, Oconto, Wis.

Estimating the Per Cent of Fat in Milk from Yield of Butter.

ED. HOARD'S DAIRYMAN:—Will you be good enough to peruse the following and say if my method of arriving at a test for butter fat, in the absence of a Babcock tester, is sound? I have carefully ascertained the yield of butter from 300 lbs. of milk which I find is 13.125 lbs., this result was obtained from the mixed milk of 20 cows and taken in three tests of 100 lbs., each at intervals of 7 days, the milk in each case was passed through a De-Laval separator and churned. My cows are all natives, stall fed and in various stages of lactation, yielding 7 lbs. (from cows drying up) to 35 lbs. daily (in full milk.) The average daily yield of 20 cows now milking, is about 300 lbs. Daily ration about 100 lbs. of fresh cut green grass (Guinea grass) supplemented with grain feed averaging 5 lbs. per head divided in two feeds. Having ascertained the yield of butter to be 13.125 lbs. from the 300 lbs. of milk I have deducted the ⅛ overrun on butter fat which is the allowance I see named in the communication on page 320 of No. 14 HOARD'S DAIRYMAN. The proportion will therefore be:

Butter fat	11.667
Overrun	1.458
Butter	13.125

For comparison I have taken the summer dairy test of 11 cows by the University of Illinois and Maid Cloverdales record, reported on pages 316 and 317 of the same number.

	Total milk for one week.	*Average per cent of fat.*	*Total butter fat.*
Illinois test (11 cows	1567.2 lbs.	3.43	53.77 lbs.
Maid Cloverdale's record	334.7 lbs 1 week	2.99	10.022 lbs
Lyndhurst dairy Jamica, W.I.	300 lbs.	3.88	11.667 lbs

In this Island of perpetual sunshine, 2000 miles south of your State, the mean temperature is about 80° all the year round; our conditions of dairying must necessarily differ widely from yours but at the same, time the main principles are the same and it will be interesting to us to be able to make a comparison with the average northern dairies in order to ascertain the relative value of our feeds and feeding. A. H. PINNOCK.

Jamica, W. I.

In the nature of things, HOARD'S DAIRYMAN cannot have very many readers in the West India Islands, for the very good reason that dairying is not a common industry there, not to say a leading industry. It is fair to say, however, that the deficiency in number is somewhat compensated for in the zeal and intelligence of those who do make dairying more or less of a specialty. Unless we are greatly mistaken, therefore, the tens of thousands of dairy readers elsewhere will take a lively interest in the above.

Answering the specific inquiry submitted by him, we may say that his figures appear to be correct, assuming that the over-run does not exceed one-eighth, and this is probably as much as the general run of creameries can be expected to average. However, where conditions are all at the best, an overrun of one-sixth is quite possible, and therefore, this is the factor usually employed for estimating the butter product of a cow from the test of her milk. In other words, to ascertain the amount of butter a cow is capable of making, we add one-sixth to the amount of fat in her milk, and, therefore, if it was required to estimate the per cent of fat in the milk, we would deduct one-seventh from the total yield of butter.

Measuring Cream for Test.

Our creamery man measures the cream in a pipette and tests it once a week. It tests about 25 per cent. Are we losing, and how much?
Martintown, Wis. H. M. W.

We can't say as to how much loss there would be in testing cream by measuring with the pipette, as much depends on its physical condition. But that there is a loss there is little doubt. Cream should always be weighed for testing, and this especially so in consideration of the fact that the Wisconsin Legislature, last session, passed a law requiring that for testing cream the samples should always be weighed.



The Care of Blankets.

Never let blankets remain in service after they are soiled; dirt rots the fiber and invites moths. Because of the peculiar saw-tooth formation of wool hair it is necessary that a pure soap, made of the best materials, be used; a cheap soap, especially one which contains rosin, will cause the blanket to become hard by matting the fiber.

To Wash Blankets and Retain their Softness.

Dissolve shavings of Ivory Soap in boiling water, add cold water until nearly lukewarm. Immerse a blanket and knead with the hands; rinse in clean warm water in which also some Ivory Soap has been dissolved. Dry in a place that is neither very warm nor very cold.

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GRASS SEEDS, CLOVERS, FLAX SEEDS, LAWN GRASS, BEANS, PEAS, POP CORN, BIRD SEEDS, BUCKWHEAT, BAGS, ETC.
CHICAGO, ILL. BRANCH: MINNEAPOLIS, MINN.

QUALITY ELMCO MARK
Elmco Standard Middlings.
—ANALYSIS:—
Moisture 9.77 Crude Protein 19.13 Ether Extract 5.98
F. W. WOLL, Chemist, University of Wis., Agricultural Experiment Sta.
Guaranteed clean and pure. Free from ground screenings or any adulteration. Is richer feed than bran and is a great milk producer. Buy **Elmco Standard Middlings** and you buy the best.
LISTMAN MILL CO.,
Sole Manufacturers,
La Crosse, Wis.

Hoard's Dairyman

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Remit by draft on Chicago or New York, or Post Office orExpress Order (never by personal check), addressing Hoard's Dairyman, Fort Atkinson, Wis.

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Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

Entered at Fort Atkinson, Wisconsin, as second-class matter.

A Vermont Dairy Barn.

Ed. Hoard's Dairyman:—I have mailed you to-day a photograph of our round barn. It is not completed so I cannot send you a completed photograph yet, but will as soon as done. I will commence at the bottom and give you a description as near as I can and the photograph will show you how it is constructed.

Our concrete wall is 85 ft. in diameter and one in center of barn 20 ft. in diameter, 18 inches thick. The silo rests on this and is 60 ft. deep; hooped with wood hoops 6 inches wide and 6 inches thick at bottom, resting on wall and out side of silo studs and we have 122 studs, 3×6, 8 ft. long set on this hoop and another hoop of same size on top of these studs and our floor joists 3×10×32½ and 122 of them rest on this hoop and our floor comes on top of these joist.

We can stable 75 cows, having a feed alley 17 ft. wide, then comes the cows, 6½ ft. for cows and manger, then an 8 inch deep trench and 18 inches wide and the balance of room for a walk and for a manure carrier which will run overhead and carry the manure out into a manure house or dump into wagons. There will be three feed holes close to silo from floor above.

At the entrance of the barn above, we have a building 12×20 where we drive in, using 13 ft. for driveway and the balance for a gas engine for cutting corn, threshing and running cream separator. Under this part, we have a milk room 12×20 and can strain the milk in the stable and run it into the milk room.

As we drive into the barn we go directly to silo and around it and out. Have a bay for hay and grain, 25 ft. deep and 257 ft. around on outside. There will not be a stick of timber in the barn outside of silo. It is 22 ft. from sill to plate and the first rafters are 30 ft. long up to the hip, and it is 170 ft. around at hip. Here we have a round track and carrier for unloading hay. Our second rafters are 34 ft., running to peak of barn; there are 8 of them, the balance of rafters rest on silo plate and the cupola is 16 ft. in diameter and 11 ft. to plate with a hip roof on it the same as the barn. Our ventilators will be carried up into cupola where there are three lattice windows. I shall not complete the stable till after haying and harvesting, and I expect now to use the McLery stall made at Palmyra, Wis. and I will give you a photo of the barn as soon as completed.

Grand Isle, Vt. E. J. Parker.

The Horse's Teeth as Evidence of the Age After Eight Years.

Ed. Hoard's Dairyman:—After the age of eight years, the evidence which is afforded by the wear of the incisor teeth is much less definite and trustworthy than it is prior to that age, and an opinion has to be based on general observation, and in any case is not supposed to be absolutely accurate. The expression "about nine," or nine or ten years old, will be used very frequently, and sometimes a good judge will decline to be limited to a year or two in cases where the condition of the incisor teeth indicates that they have been subjected to exceptional wear from crib biting or some other cause.

At nine years old the marks in the central incisors, which at eight years are triangular, become more rounded in form, and are nearer the posterior boundaries of the teeth. The corner incisors are still more square than they were a year before, and the tusk is conical and blunted.

At ten years old the marks in the central incisors are commonly reduced to small round spots, and are quite close to the posterior edges of the teeth, which are beginning to assume the triangular form.

As a matter of fact only the upper corner incisors need be consulted for evidence of age, from ten to thirty, and the only mark to be looked for is a dark line or groove which commences to appear on the outer surface of each top corner incisor immediately below the gum, at ten years of age.

Careful observation of the upper corner incisors at ten years old will reveal the presence of a slight depression extending from the edge of the gum downwards about an eighth of an inch. This depression is really the end of a groove which exists in the fang of the tooth, and it is brought into view by the growth of the tooth, and the decrease in the depths of the alveolar cavity in which the tooth is lodged. As these processes go on, year by year more of the groove is seen, while the constant wear of the cutting surfaces of the incisors bring them nearer to the groove, and in about eleven years from its first appearance, it reaches from the gum to the cutting edges of the incisors. At the same time it will be seen by a close inspection of the top of the incisor close to the gum, that the groove is at an end; there is, in fact, no more of it to appear. The further growth of the tooth will expose the perfectly smooth surface of the fang and the combined effects of the wear at the bottom and the growth from the top will finally lead to the obliteration of the groove entirely.

This system is really the only method of judging the age above ten years, worthy of consideration. But it is quite certain that to use the system effectively experience on an extensive scale is necessary. Clearly, success depends entirely on keen observation of the condition of the groove in the corner incisors in reference to the gum at the top of the tooth, and the cutting surface at the bottom. The whole length of the tooth must be mapped out in imagination, and a certain length of groove marked for every year, thus allowing ten years for the groove to reach the whole length of the tooth. The fact of it having reached the middle of the tooth will be evidence that the age is about fifteen or sixteen. If the tooth be divided into four equal parts, the extension of the groove to the first line will mean between twelve and thirteen, and to the third line, between seventeen and eighteen years of age.

In adopting the foregoing descriptive method, the observer is left to exercise his ingenuity, and it is a very interesting inquiry when an aged horse whose age is known to the owner comes under observation.

It will be seen that no special skill is required in the application of this test. It is not necessary to secure the horse in any way, or even to open his mouth. The corner of the upper lip must be raised sufficiently to bring the top corner incisor into view. The rest is a mere matter of calculation.

When the groove has reached the bottom of the incisors, and the horse has attained the ripe age of twenty-one years, future observation must be directed to the top of the groove, viz.: the end nearest the gum, and the measurement now must relate to the distance between the gum and the top of the groove. Certain exceptions to the normal development of the teeth, and some irregularities and accidents may be expected to occur during the periods of temporary and permanent dentition,and from time to time various degrees of constitutional disturbance will be observed,which are, however, invariably referred to other causes, or left without any explanation. The process of "teething" in the human being, is always estimated as having an important bearing on the health of the sufferer; but there is a novelty in the idea that horses or others of the lower animals,experience any inconveniences from the eruption of, or changes in, the teeth, although it is known that these changes take place on a much more extensive scale than they do in the higher animal.

During the third year of a horse's life twelve new teeth, eight molars and four incisors are cut, and in the course of the fourth year there are sixteen new teeth, four incisors, eight molars, and four tusks which are all advancing at the same time, causing, as a matter of necessity, considerable irritation, and requiring more attention than is ever given during these periods.

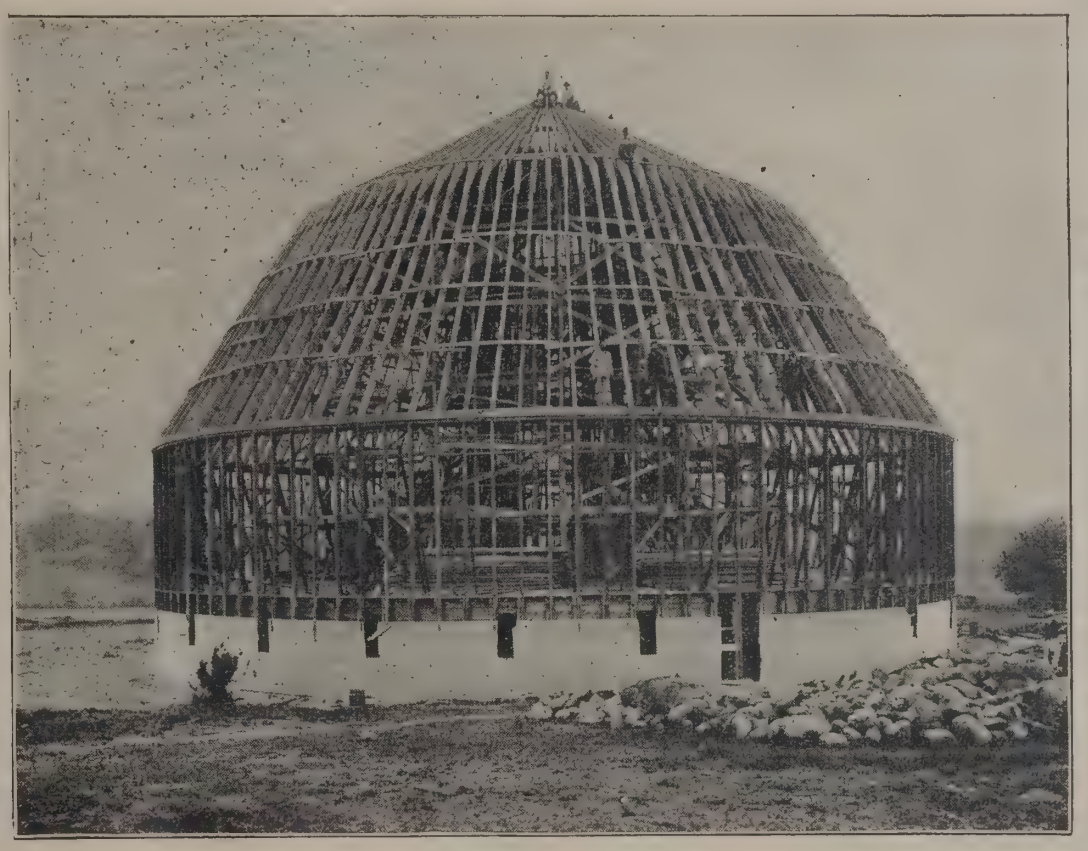
It is surprising that no investigation has been made into the diseases which are incidental to the process of teething in the horse, and it is not, therefore, possible to refer to any specified disorders which are met with during the third and fourth years; but irregular appetite. refusal of certain kinds of food, dropping half masticated food ("quidding") from the mouth, cough and sore throat, "lampas," and general loss of condition may quite consistently be referred to irritation and fever induced by cutting the teeth.

Disease in the structure of the teeth, so common in man, is rare in the horse, but not unknown to the observant veterinarian who has looked for it. Injury to the fang of a molar in the bottom jaw has led to the formation of alveolar abscess which has defied all kinds of treatment, because the real nature of the disorder has not been suspected, and a dead tooth has been allowed to remain in its cavity.

One of the most disastrous accidents which can happen to a horse's teeth is the loss of one of the molars from any cause, when the occurence has not been observed. The result is the growth of the tooth which formerly came in regular contact with the absent one, but it is now unchecked by any persistent pressure, and therefore continues to grow until it prevents proper closure of the mouth and renders mastication impossible.

The real difficulty in regard to dental irregularities is the frequent absence of any suspicion on the part of the owner of the horse out of condition, as to the cause of the derangement being in any way connected with the teeth, and his consequent neglect to call inveterinary assistance.

W. R. Gilbert.
Montreal, Canada.



A VERMONT DAIRY BARN.

Built by E. J. Parker, Grand Isle, Vt.

Handling Bad Bulls.

Ed. Hoard's Dairyman: — In your valuable paper of June 26th we read the inquiry made by T. F. V., concerning handling bad bulls. This is well answered and yet opens a wide field for inquiries as this gentleman, though a carpenter, is a pretty fair dairyman, making a net profit of $100 per cow. We need that carpenter in Humboldt county badly. We have a two-to-one better dairy country than where this carpenter lives, yet seldom do our dairymen average above $70 net to the cow.

We better quit talking profits though, and talk bull. Several men went to cemetery hill by the bull route in this county. The first and the last ones we will mention as a sort of example: J. B. Tilly, a lover of good blood, sent east for a Jersey blooded bull. He was a monster and a beauty; gentle as a kitten. A man whose work took him through the bull's pasture often, took an apple for the bull. One day he did not have the apple. The bull remonstrated; a quarrel ensued; the man was killed. Before dying Mr. Tilly asked the man if he had better shoot the bull. The man answered: "No. It was my fault." The bull never showed any dangerous proclivities after; lived ten years after, raising some great cows.

The last bull was a Jersey scrub, not fit to turn loose over night in the Sahara desert. Patrick Kelly was the gentleman's name. It got to be a by-word at the creamery, "Who is ahead this week,

(Continued on page 554.)

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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

DEATH OF A. H. BARBER.

In the death of A. H. Barber of Chicago, which occured at his residence in that city July 8th, the dairymen of the central north-west are deprived of a steadfast friend of many years service. He was in active business as a commission merchant and manufacturer of dairy goods for more than thirty years and by his ability and integrity won and retained the confidence and esteem of a wide circle of patrons and customers. In former years he was a frequent attendant at dairy conventions, where his genial nature and thorough knowledge of the market demands for dairy products made him not only a welcome guest but a much appreciated consellor.

The Editors of HOARD'S DAIRYMAN account his death a personal loss and claim a share in the sorrow which falls so heavily upon his family and those more directly connected with him in social and business relations.

WHO shall say in the future that the spirit of agricultural progress is not abroad in the South. The state of Mississippi has appropriated two mlllions of dollars for the promotion of Agricultural education among her farmers. The Senior Editor of the DAIRYMAN recalls with much pleasure the fact, that he has been favored in the past fifteen years with the privilige of attending four large Agricultural Conventions in that state, two at Jackson and two at Vicksburg. In everyone of these conventions he was impressed with the splendid mentality of the men and women who composed them. Where the people of a state are mentally hospitabel and welcome the truths of science and investigation with the purpose of making them their own, there thought, progress and prosperity will abide.

"RURAL School Agriculture, Bulletin No. 1, University of Minnesota, St. Anthony Park, Minnesota. Price 60c, or in lots of five or more, 50c, carriage prepaid."

This bulletin is a unique attempt to place in the hands of the rural school teacher detailed plans for leading the country pupils to study the things of the farm and the farm home, It was edited by Messrs. Hays, Robertson and Wojta, but was in part written by other members of the faculty of the Minnesota Agricultural College.

It coutains 237 exercises to be carried out by the pupils. Each exercise is complete in itself. It gives the object to be sought, the materials to be used, and the plan in detail which the teacher is to have the pupil carry out in doing the work of each experiment, The materials required are such as may be available at the school, or in the farm home, and it is this feature of clear and familiar illustration and explanation that makes this little book especially valuable. It will help every farmer and farm boy in the land.

THE GOOD FEEDER.

Take the patrons of any creamery and note those who carry away the largest checks for milk. Is it always those who have the largest number of cows? By no means. It is a very instructive thing to look over the milk sheet of a morning, and see what these different farmers are doing. It is a pity that the farmers themselves do not have a chance to do the same looking. If they could see for themselves just what the facts are, as between man and man, it would cure some of them of their foolish conceit. Our "Patron Investigation" has been stripping the cover off a little.

But this thing is true of every successful patron without fail:—*He is a good feeder*. Of course his good sense impels him to have a good cow to feed his stuff to, but that is only half of the proposition,and he knows it.

SHORT-HORNS AT ST. LOUIS NEXT YEAR.

We are very glad to learn that the Short-horn Breeders' Association has decided to enter the contest at St. Louis next year. Mr. H. H. Hinds of Stanton, Michigan, has been engaged to take charge of the Short-Horn herd during the Exposition. He had charge of the Short-Horns at Chicago in '93, and not a little of the credit earned by the Short-Horns at that Exposition was due to Mr. Hinds' careful attention.

It is probable, of course, that the Shorthorns will be entered in class C, which is to consist of cows entered for demonstrating all the products of the cow; namely beef and milk, with their calves judged for beef merits. The awards in this class will be based upon a scale of 40 points for the dairy performance of the cow, 35 points for beef conformation and gain in live weight during the demonstration, and 25 points on the quality and growth of the calf as a prospective butcher's beast.

The American Short-Horn Breeders' Association will bear all the expense of the demonstation made by Short-Horn men. All the owner of the cow will have to do will be to furnish the cow. The association will pay the freight to the exposition and return, and bear all the expenses during the demonstration. The association will also furnish suitable prizes for Short-Horn breeders who participate in the demonstration, which will be given in addition to the prizes awarded by the management ot the exposition. Short-Horn breeders desiring to participate in this test are requested to at once put themselves in communication with Secretary John W. Groves, Union Stock Yards, Chicago.

HOW TO KNOW A THING.

Certain farmers know how to do all ordinary dairy work. They have learned how by doing it from childhood. But they have never taken the trouble to know the *why* or make themselves acquainted with the underlying principles that govern the thing they are doing. As a natural consequence they never do the thing as well as it ought to be done, because they are not guided by a knowledge of the governing principle. A man tending a steam engine, who knows nothing of the laws and principles which govern the action of steam, is on the same footing with the farmer who is dealing with soils, plants, animals, stables and milk, and knows nothing of the principles which govern these several important things.

James W. Young of Tennessee says truly and well:

"It is not only necessary to know a thing, but to know it well and know the reasons for it. To know the reason helps wonderfully. A man then works with *intelligence*."

Ride through the country anywhere and you can pick out the farm at a glance, where the owner is a man of intelligence, one who studies to know the why and wherefore of the thing he is doing. In nothing is this kind of study more needed than in dairying where all are constantly dealing with the deeply hidden laws of animal life, maternity, bacterial action, sanitary laws, etc.

Very much of dairy farming is done as the Irishman said he played the violin. He was asked if he played by note. 'Divil a note," was the reply. "Do you play by ear?" "Divil an ear." "How, then, do you play?" "By main strength, begorra," was the answer. Suppose he had been asked if he did not think it would be better for him to learn to play by note and had replied: "I don't want any book music in mine," would he not have been in the same company as the dairy farmer is, who despises what he calls "book farming?"

A SIGNIFICANT CONTRAST.

As is well understood HOARD'S DAIRYMAN believes strongly in certain cardinal principals connected with dairy farming. Its editors and its most successful contributors follow those cardinal principles closely and faithfully in the conduct of their dairy farms. For instance, there is the great cardinal principle of a specially bred dairy cow for the dairy farm. The DAIRYMAN does not advocate any special breed, but it does insist that no dairy farmer can afford to breed his cows for any other purpose than the largest profit at the pail. It believes that when any other purpose comes in between the pail and the farmer, like that of beef, for instance, it results finally in lowering the best profit of the herd. It also muddles and confuses the intelligence of the farmer on the question of true dairy breeding. It takes him from the main highway and sets him down on a back cross-road. Dual-purpose breeding ideas end, finally, in scrub cows, lessened profits at the pail, and a down grade generally for the dairy farmer.

Go where we may throughout the land, we rarely, if ever, find first-class progressive dairy farmers, men who make the largest profits and do the best work, carrying on their business with dual-purpose herds. The great general rule everywhere is the true dairy bred cow for the first-class dairy farmer.

The dual-purpose cow is the result of a false idea of economy. The farmer who breeds cows with that idea and purpose, has left the main road. He has gone off after false gods. He puts a minor question—that of meat—in front of the major question—that of the highest profit in milk. Here is an illustration among the many thousands the creamery districts can show:

At Mondovi, Wis., are two creamery patrons among many others, Mr. Joseph Weller with a herd of twenty dual-purpose cows, and they are considered good ones at that. The other is a herd of 20 registered and high grade Jersey cows, owned by Walter L. Houser.

The Mondovi *Herald* states that for the month of June last, Mr. Weller received from the creamery, a check for $91.43, for the earnings of his 20 dual-purpose cows, at the pail. For the same month Mr. Houser received from the creamery for his 20 special dairy-purpose cows, a fraction over $169.00. Then comes besides,the earnings of either herd in the skim milk. That largely depends on the wit and wisdom of the man behind the cow, but it is hardly reasonable to suppose that the Weller herd earned any more from the skim milk than did the Houser herd.

Now here we have the question brought down to simple farm and creamery conditions. Which herd of cows is the most profitable for the dairy farmer? Which will earn the largest profit at the end of the year? Which system of breeding will give us the best cows for future work? Which of these two breeds of cows is the most economical in their work, taking the same food and turning out at the pail the largest net profit?

These are the questions that should govern. No man can afford to keep a class of cows for creamery work, that will end in producing such a difference as we see here. Be it remembered too, that the Houser herd received no grain; their sole food was grass, the same as the Weller herd. The difference in the earnings of the two herds for the single month of June, was $77.57. The expense of management, labor, etc., was the same. The difference in results, is due to the fact that Mr. Houser has held true to fixed principles, in his ideas of breeding a cow for the best profit in dairy farming.

One more question: How long will it take, at the rate the two herds are going, for Mr. Weller, with his more meat ideas, to catch up with Mr. Houser, with his more-milk-and-butter ideas?

CONCERNING MR. GROTE'S QUESTIONS AND COMMUNICATIONS.

Inasmuch as Mr. Grote insists that his questions have received unjust and unkind treatment by the editor, or sub-editor, of the DAIRYMAN, we can do no otherwise than print his communication in full, although, in our judgment it adds nothing whatever to the elucidation of the subject.

As the facts and figures for which Mr. Grote makes such insistent demand have been given over and over again in these columns, from year to year and month to month, as occasion arose, we have not found it necessary to tabulate and reprint them simply to convince Mr. Grote that the statements to which he takes exception are founded upon facts as well as upon reason.

Mr. Grote has evidently been a close reader of HOARD'S DAIRYMAN for many years, and he must therefore know that no paper has been more insistent, and no individuals more insistent, than HOARD'S DAIRYMAN and it editors, that the dairyman should raise on his farm, as far as he can profitably, the feed required for the proper maintenance of his cows and furnish them the raw material from to which to make milk in paying quantities; but we have never advocated the feeding of 40c oats when bran could be purchased at 20 dollars a ton or less. In other words,we have advocated that the farmer should exercise sound business judgment, and when he can exchange farm-grown feeds for commercial feeding stuffs at a profit, there is no reason why he should not do so. But Mr. Grote will search in vain for any statement direct or implied that the dairymen must of necessity depend upon purchased feeds to supplement farm grown roughage.

Many dairymen do depend upon purchased feed for this purpose. Some, because they believe they can obtain the necessary nutrients in this way, cheaper than they can raise them, and others, doubtless, without giving the problem, as connected with their own circumstances, careful investigation. This is true,probably,of every section of the country, and notably true, for example, of the Southern States, where the cow pea finds its

most congenial climatic conditions. The DAIRYMAN has called attention to this lack of forethought on the part of its Southern readers times without number, advising them over and over again that they should not depend, for example, upon cotton seed hulls for roughage, as so many of them do.

We beg to suggest to Mr. Grote that the burden of proof is upon him and not upon us. Speaking after the manner of lawyers, he indicts us, and then insists that we shall prove our innocence, whereas, the burden of proof rests upon him to show that we are guilty of the charge he brings against us.

In a way, in the communication which we print in this issue, he appears to accept this responsibility and submits several formulas for rations, but without any proof from experience by himself or others that rations compounded from these formulas would prove satisfactory.

If he has any evidence, for example, that 40 pounds of corn and cow pea silage, 10 pounds of fodder corn, and 10 pounds of alsike hay has ever proven a satisfactory and profitable ration, we shall be greatly obliged to have him submit it.

In making comparisons of the cost of the Illinois rations quoted and the formulas suggested by himself, Mr. Grote fails to note that in the Illinois rations, timothy hay is charged at $10 per ton, corn stover at $4 per ton, whereas he estimates fodder corn at $2 per ton, alsike hay at $4 per ton and corn stover and corn and cow pea silage each at $1 per ton. If he applied relatively the same prices that were used by our Illinois correspondent, the cost of his ration would be materially increased.

SACRIFICING THE MALE CALVES.

Speaking of the way dairy farmers sacrifice their calves to the veal market the *Breeder's Gazette* says:

If dairymen are as anxious to embark in the beef making industry as they are represented to be, it is difficult to understand why they persist in overcrowding the market with veal. This class of stock has sold recently from 50 cents to $1 below the range of prices a year ago, due to overloading the market. Things seem decidedly out of joint when such a complaint comes from the market place at a time when supplies for the feed lot are decidedly short. Doubtless some of the dairy calves now coming to market would not pay a profit on their feeding in ordinary years, but any calf, with average feeding capacity, should be able to show a profit if it can be kept growing nicely and turned toward laying on flesh. The supply of beef is already short enough, and for the matter of that it will soon be discovered, if it has not already been learned, that the number of dairy cows now in prospect is not sufficiently large to meet the needs of the next few years. There seems little philosophy or business sense in sacrificing a calf which promises to make either a fair beef or dairy animal.

In some particulars the *Gazette* is right and its criticism should apply to the farmers in those districts where butter is made. Where milk is produced for city consumption, or condensing purposes or for cheese making, very few calves are raised. Indeed it has become a noticeable fact that those districts that have the largest cow population, raise the fewest calves proportionately. It seems almost like a disgraceful thing to say, but it is true nevertheless, that not one dairy farmer in ten makes a serious study of the skim milk question, and the best methods of handling and feeding it. Neither will they make a serious study of the best methods of handling and raising calves. They don't seem to get it into their heads that a calf is a baby and needs the treatment and food that is fitted for babyhood. Sour skim milk is brought home from the creamery where no pains are taken to preserve it as fit food for calves, and the farmer dumps it into a sour, stinking barrel and feeds it from pails that are just as foul and reeking with harmful bacteria.

Did he but stop to think for one minute that this little bovine baby, if left with its mother, always gets its food in a perfectly pure, sweet condition, perfectly fitted for its baby stomach, he would see how wide of the mark all his methods are. As a consequence not one lot of calves in ten, even in our best dairy districts, will show right feeding and treatment. The farm separator will have to come, before the day of right calf feeding and raising is established.

There is no doubt whatever that if our dairy farmers would separate their milk on the farm and take the cream to the creamery, would build more silos, and grow a good supply of alfalfa, they could then easily carry four times the young stock on the farm that they now do. It is mighty poor economy and shows poor adaptation of methods, to sell a likely male calf for a dollar or so, when with a little study and good dairy intelligence, he could be turned as a steer at 15 months of age, at a good price and good profit. We have repeatedly made our skim milk worth 40 cents a hundred pounds by feeding it to calves, and grade calves at that.

Between what can be done in the way of good profit on the dairy farm, and what is done, is a mighty wide gap. Talk to the average farmer about closing this gap and he will tell you: "I don't want any book farming in mine." That is supposed to be a wonderfully wise answer, and his calves are specimens of the same wisdom.

THE MEANING OF THE WORD "SCIENCE."

A great many farmers get scared and draw themselves "into their holes," as the saying goes, the moment they hear the word "scientific" applied to any of the operations of farming.

It is hard to account for this prejudice or to say just what it means.

A great host of farmers have a strong prejudice against what they call "book farming," against what they call "scientific farming," against the professor and teacher in the Agricultural College, and against what is written in papers devoted to farming. No doubt all these books, papers and professors sometimes make mistakes, but is the farmer free from mistakes? No doubt the book or paper is not always "right down to bed rock" and "practical", but is the farmer always down to bed rock and practical?

It is a good thing in this world to start with a right definition. It acts like a chart to the navigator. One of the best definitions we have seen of what constitutes "science" in farming, is from "Campbell's Soil Culture." It says:

"The word "science" or "scientific" and its true application or meaning, is not generally well and clearly understood. Some seem to think it refers to something not intended for the common people and only to be enjoyed or recognized by our great scientists, such as astronomers, geologists, etc., but this is far from correct. It simply implies true or correct knowledge—to really understand a thing in its true and real sense. When a child comes to know mathematics from start to finish, he then becomes a scientist in the sense of a scientific mathematician. When a man learns how to husk corn so that he makes no false motions, every act or effort is directed to the best and quickest results and he is able to crib more corn from a field than any other man, he becomes a scientific corn husker, because he knows the best way to get the best and greatest possible results. So can the word be used in expressing a high degree of perfect knowledge in any subject we may consider, either in soil culture or any other branch of farm work, as well as bread-making and every other branch in domestic work.

There is one other point we wish to make and that is, a true scientist never reaches the point where he thinks he knows it all, but is ever reaching out for higher and more complete knowledge in and application of his special line, for in a close application to one line he becomes also a specialist. Thomas A. Edison, the great inventor, is a true example of both a scientist and specialist".

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

"I Can't Afford to Buy Stuff."

We were showing a bunch of young heifer calves to a neighbor, not long since, and he remarked: "How do you raise such nice calves?" We gave him our method, which was warm, fresh skim milk, right from the farm separator, twice a day, with a little blood meal mixed therein, a few oats and good pasture in summer, and alfalfa hay in winter. More than this we take great pains to keep the calves dry and clean.

He asked about the blood meal and we told him we purchased that of Armour & Co., and that we found it one of the finest feeds for young calves and pigs we had ever tried.

"Well" he said, "that may be all well enough for you, but I can't afford to buy stuff." We asked him how much more he would be willing to pay for the calves he saw before him, than he would for the ordinary run of calves, and he replied, "Oh, they are worth five dollars a head more."

Then we told him they had not consumed more than a dollar's worth each of the blood meal and oats, and asked would he be willing to give a dollar for five dollars?

The position taken by our neighbor is one quite common among dairy farmers. It is a mistaken idea of economy. The man would be willing to give five dollars more for our calves, but he would not pay out one dollar to make his own calves worth the same money.

There is altogether too much of this poverty-stricken notion among our farmers. It prevents them from owning good bulls, producing good cows, raising good calves, building good, healthy stables, and building silos. Many times it will make a farmer feed oats at $20 a ton, when he can sell his oats and buy good bran at $15. It warps the judgment and blinds the eye. He ought to be a free man; free to exercise the best judgment.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The Quotation Committee of the Elgin Board of Trade decided on 20 cents steady as the market price of butter,

There were no sales nor offerings. Resolutions concerning the death of A. H. Barber, of Chicago, were passed.

Former Markets	*Sold*	*Price*
July 13, 1903	0	20
July 14, 1902	0	21
July 15, 1901	0	19
July 16, 1900	0	19
July 17, 1899	96	18

New York

Output Elgin district, 827,700 ponnds.

New York steady 20½c; receipts, 9,608 tubs. H. C. B.

Elgin, Ill.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

When Corn Crop is Short What Shall go in the Silo.

My corn crop will be far short of filling the silo. Have plenty of good hay. Will it pay to fill the silo with it? A. E. R.
N. J.

It may do to put green clover in the silo if there is an over abundant crop, but we do not advise siloing timothy, red top or other grasses of similar character. Use the corn as far as it will fill and when winter comes feed sparingly, possibly not more than 20 pounds per day, and let well cured hay supply the balance of necessary roughage.

Construction of Hog Troughs.

Please publish plan of hog trough that will prevent the sows from dropping their excrement into the trough after eating. Have just lost two hogs, presumably from my hired help neglecting to clean the trough from excrement before feeding.
Quebec.

The only practicable system we have ever used in this connection, is to nail pieces of strong, hard wood across the top of the trough, say 16 inches apart. This interferes somewhat with the ease of cleaning the trough, but they will prevent the hogs from getting into the trough lengthwise, and also very considerably prevent fouling the same with excrement.

Moldy Cheese—Strong Cheese.

1. What is the cause of cheese moulding inside after being cut.
2. Why does some cheese become strong in much less time than other cheese? Or in other words the western cheese will not keep as long as the eastern and northern cheese. J. B. S.
Blockow, Mo.

1. Cheese molds when cut, on account of mold spores falling on the fresh, moist surface, and finding there a good seed bed and the proper material for their growth. It can sometimes be prevented by wrapping the cut cheese in a cloth, wet with alcohol or vinegar, and shutting it up in a jar.

The differences in the quality of the milk and the methods of making and storing account, for the cheese becoming strong. The geographical location of the cheese factory has nothing to do with the tendency of cheese to become strong. We have seen strong eastern cheese and mild western cheese and *vice versa*.

A Crib Silo.

Enclosed please find cut of crib silo. Please tell me through your paper what you think of it, and if it is practical to build as per cut. We can get hemlock much cheaper than white or yellow pine; the pieces would be 4 feet 9 inches long; spiked one spike each foot, and corners lapped and spiked. Would it hold? If so please tell us what you think about this plan. J. H. B.
Steamboat Rock, Iowa.

The diagram enclosed shows a 12-sided structure, and it is proposed to build it 18 feet in diameter and 30 feet high, made of 2×4 stuff, one laid upon the other, in the manner that bins in elevators are constructed. It is further proposed to cover the outside with number 2 stock boards and line the inside with number 2 white pine flooring.

There is no question but what this will make a strong and serviceable silo. In fact, it will be extra strong. The only question is as to durability, and this cannot be fully determined without trial. There is a chance that more or less of the moisture will penetrate the lining, and not having any ventilation, will cause it to decay and possibly communicate to the crib itself.

What Grain to Supplement Short Pasture

Will you kindly advise me what grains to purchase to supplement short pasture? Do not wish to feed any green feed as will need it all this winter. Our market affords corn meal, wheat bran, middlings, mixed wheat feed and gluten feed and meal. My cows are Jerseys and have freshened all along from January 1st until now.
Pierepont, N. Y. F. J. R.

Something, of course, will depend upon the character of the grass in the pasture and the amount of grazing that can be had. Ordinarily, the pasture grass contains an abundance of protein, and hence, the proper complement would be a feed containing only moderate amounts of protein. Ground corn would be most appropriate if it were not so concentrated. Ordinarily, we would recommend a mixture, half bran and half ground corn, the amount to be fed depending entirely upon the amount of nutriment furnished by the pasture and the ability of the cow to respond. If the pasture is pretty well dried up, affording but little protein, we should prefer to use gluten feed in place of the corn meal, or perhaps mixed wheat feed. Much, however, would depend upon the relative market prices of these products.

Ground corn contains 84.3% digestible nutrients; gluten feed, 80.1%; gluten meal, 78.9%; middlings, 73.4%; mixed wheat feed, 65.3; bran, 58%. This, of course, will enable this correspondent to determine which of the feeds named he can best afford to buy at the prices current in his market.

Cement or Wood Floors for Cows and Horses.

Which is the best floor for horses, a plank floor or a cement floor, and also for cows? What would it cost to lay a cement floor for a barn thirty-two (32) feet wide by fifty-four (54) feet long, that is for material, and how should it be laid? W. M.
Baraboo, Wis.

Opinions differ. The editors of this paper have never advocated the use of cement floors for either cows or horses. Under certain conditions, it is perhaps advisable to use a cement floor for cows, but never for horses. If used at all, there should be an abundance of bedding.

We must be excused from submitting estimates of cost, as the price of materials varies so widely in different localities. Prof. King, in his work entitled "Physics of Agriculture," gives the following estimate of the material required for 100 square feet of concrete floor four inches thick with one-half inch of facing: crushed rock 123 cubic yards, sand and gravel 73 cubic yards, cement 376 pounds. He adds: "Where crushed rock cannot be had, but gravel and plastering sand are available, a good floor can be made, but good cement must be used, using four of sand and gravel and one of cement."

Note and Comment.

Western Canada.—Creamery Conditions.—The Cow for the Country.—A Priest who Teaches Agriculture.—A Fine Outlook.

ED. HOARD'S DAIRYMAN:—Since I last commented and noted facts and fancies for "HOARD'S," the institute powers caught me up, and dropped me first in Hallock, Minn., on the very Manitoba line, once very far north, but now something like a gateway that lets one through into that vast British northwest, whose boundaries are not defined, more than it is more Red River valley for 1,500 miles away to the west and northwest, and of a most unknown northern boundary. It passes beyond the comprehension of an "easterner" to make comparisons out here. There is nothing out here to bound anything with, save some more of the same thing. It is dead level, away and away, prairie as far as you can see, and after an all-night's ride you look out in the morning to see again the scene of yesterday repeated all over. Winnepeg—old fort Garry of only forty years ago—is now a great wholesale city of 90,000 people, with every modern improvement of the age, and Edmonton, 600 miles still north of the line, a growing city with railroads, and to be a great city very soon. What train loads of people are hurrying into that great, new northwest, and with, by, and around them, are the land agents, speculators, promoters, and "sharks," acting as friends, guides, advisers, and custodians of "trust funds," as thousands of these crazy land seekers will find to their surprise, later on.

But what of the great valley itself, this side the line? This great inland, black soil sea, soon destined to be the habitation of a million of people, and yet 40 years ago a great unsettled prairie, home of Indian and buffalo; here and there a trader's post, and from north to south on the narrow sand ridge, 20 miles east of the Red river, ran the old trail from Fort Garry to St. Paul, over which went the wooden ox carts of the Hudson Bay Co., laden down with furs, and "general merchandise" up—though which is up or down is hard to decide, for the Red river runs north to Hudson Bay, and the Mississippi, paralleling it, runs south?

How it has all changed! A land of farms, villages, cities and electric lights, a land of much railways, telephones and school houses! A land of elevators, often five and six to a little town, and now, under the shadows of these elevators, the creamery is showing up, for on the east bank of the Red river are over fifty creameries and cheese factories; the first making butter so fine that it commands a premium of a cent in New York over the best quotations. Some of these creameries make 80 sixty-pound tubs a week, 5,000 pounds; and that in a locality, where they told me two years ago, "Don't talk dairy up here. This is a grain country; cows won't live in this climate." Well, they do, and Sam Haugdahl showed how to win first premiums, and now up there it is dairy and creamery. They wanted to hear, about good stables, silos, and how to make milk in the winter.

The valley looked better to us than two years ago. Then it was one flood after another, and gumbo tar was legal tender as currency everywhere; prairies were lakes, and almost any where was a river. Conditions were everywhere unfavorable for farm machinery that had been standing out of doors since the preceding fall. Now all was changed. There had been an absence of rain for weeks, and the crops were in sad need of a good soaking shower. The farmers were consoling themselves by asserting that the Red River soil would stand a lot of dry weather, which seemed to be a fact—in truth standing it better than were the crops. The drouth was telling where the good farmers lived. Over east of Crookston, where the Frenchmen who do not believe that manure injures land and put on stable manure, even to their pastures, they had magnificent crops. In some places they were offering up powerful smelling sacrifices to Jupiter Pluvius, by burning tons upon tons of manure—actually firing it—to cause rain, a habit they will outgrow sometime, and put it on the land to conserve moisture.

It is no use to say that the soil, even of the Red River valley, is possessed of a conservation of fertility, sufficient for all time, if grain growing is to be maintained. The great want of the Valley to day is rotation of crops with grasses and clovers live stock, fenced farms, and dairying with its double purpose of adding more live stock, and its steady money crop; not the one pay day in the year, that amounts simply to a transfer to the store keeper and machinery man, of the year's farm product.

Just now these farmers who are going into stock raising, and supplying creameries, are up "in the air" about the kind of stock they want, and they are getting no end of advice to get the combined cow, that is good both for milk and beef; that some beef and some milk, combined, equals the product of the strictly dairy cow. Still another theory, that some high in authority are going to prove the most profitable way, is to have a strictly well-bred dairy cow of some of the dairy breeds, and breed these cows two years to beef breed sires, and the third year to a dairy sire to maintain the dairy side of the proposition, and this third year raise the pure bred dairy heifers and keep up the dairy. Half of the cross bred heifers, they say, will be great milkers, and so the dairy will be maintained, the beef industry promoted, and all will be happy, except one Swede who remarked; "How am I going to sell the beef off from that cow to go with the milk?"

Some of these new creameries are models and up-to-date in every way. Few of them are promoted concerns, but co-operative from the start, and built and furnished at actual commercial cost; no skin game in it. They are nearly all run on the home separator plan, and the sale of separators in the northwest is remarkable. I was in a little away-out-on-the-prairie town, and the storekeeper said he had sold 16 separators this summer, to farmers who did not patronize the creameries. The character of the butter in these creameries, as a rule, was very fine, and if they can maintain the rule of demanding the delivery of sweet cream, there is little likelihood of much trouble. It will come, if at all, by too far apart deliveries of cream, with its consequent lack of uniformity. The now three-times a week delivery, and later on twice, may call for amendment, but certainly it would be hard to find finer butter than we came across up in this north country, made from the milk of these prairie grass fed cows, and creamed at home.

Over at Gentilly we were treated to a great surprise in the way of a cheese factory in that French settlement, the guiding genius of which is the resident parish priest, Father Eli Theilion. Here for several years a cheese factory has been in most successful operation, and is now taking in something like 7,000 lbs. of milk daily, which is made into the finest of full cream cheese, and is not only premium winners wherever shown, but

"ADVERTISEMENT."

"SUMMER FOOD"

Has Other Advantages.

Many people have tried the food Grape-Nuts simply with the idea of avoiding the trouble of cooking food in the hot months.

All of these have found something beside the ready cooked food idea, for Grape-Nuts is a scientific food that tones up and restores the sick stomach as well as repairs the waste tissue in brain and nerve centers.

"For two years I had been a sufferer from catarrh of the stomach due to improper food, and to relieve this condition I had tried nearly every prepared food on the market without any success until 6 months ago my wife purchased a box of Grape-Nuts thinking it would be a desirable cereal for the summer months.

We soon made a discovery, we were enchanted with the delightful flavor of the food and to my surprise I began to get well. My breakfast now consists of a little fruit; 4 teaspoonfuls of Grape-Nuts; a cup of Postum, which I prefer to coffee; graham bread or toast and two boiled eggs. I never suffer the least distress after eating this and my stomach is perfect and general health fine. Grape-Nuts is a wonderful preparation. It was only a little time after starting on it that wife and I both felt younger, more vigorous, and in all ways stronger. This has been our experience.

P. S.—The addition of a little salt in place of sugar seems to me to improve the food." Name given by Postum Co., Battle Creek, Mich.

Send for particulars by mail of extension of time on the $7,500.00 cooks contest for 735 money prizes.

ANOTHER PROP KNOCKED FROM UNDER HIM.

Our "would-be competitor" the De Laval Separator, in his efforts to counteract the fact that the U. S. Separator is the better skimmer, has tried various schemes to prop up his trembling frame and waining popularity.

He used to try the "Churnability" bluff, but this prop was knocked out long ago, then he howled about flushing the bowl with hot water, but the U. S. corrugated cups quieted him on that, and lately it has been the "cold skimming dodge" whenever he has run up against the U. S., but alas this also has been knocked from under him, so that now about all the prop he has to lean on is that of "bluff."

That readers may fully realize how little ground there is for advocating cold skimming, we give below a portion of an article that appeared in the June 18th issue of the Kansas Farmer headed "Abuse of a Hand Separator" by Prof. Edw. H. Webster, formerly of the Kansas Agricultural College and now one of the Government Dairy Inspectors:

"Other abuses were in time met with in the tendency of agents to follow methods that would be condemned anywhere else. One of the principles of separation understood by all creamerymen, is that the warmer the milk the more complete the separation. Yet agents will run cold milk through just to beat the other fellow. This is wrong for various reasons:

In the first place the milk should be skimmed warm in order to get the best separation of the cream.

It should be skimmed when warm in order to give the calves and pigs the warm skim-milk, and

It should be skimmed fresh from the cow in order that the cream may be quickly cooled to prevent the developement of bacteria.

Everything is against cold skimming and in favor of warm skimming, and the tendency of these contests is to give the farmers erroneous ideas in regard to the hand separator."

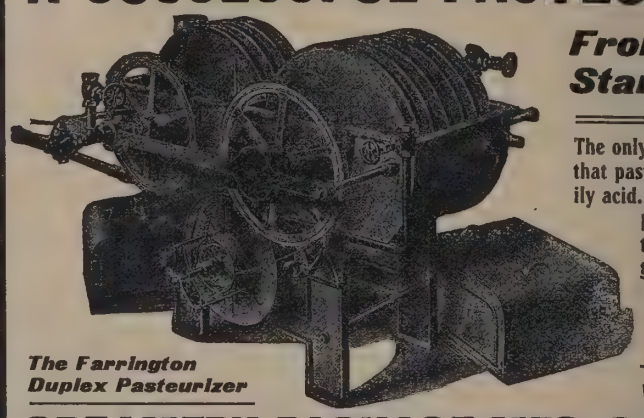
What further evidence is necessary to convince you that the De Laval has to depend on other things than its merits to sell its goods? Remember

THE U. S. HOLDS WORLD'S RECORD.

For further particulars as to the merits of the U. S. write for catalogue

VERMONT FARM MACHINE CO., Bellows Falls, Vt.

A SUCCESSFUL PASTEURIZER



The Farrington Duplex Pasteurizer

From Every Standpoint.

The only Pasteurizer made that pasteurizes milk heavily acid.

It makes good Butter — that makes good business.

Your Butter will score 8 points higher.

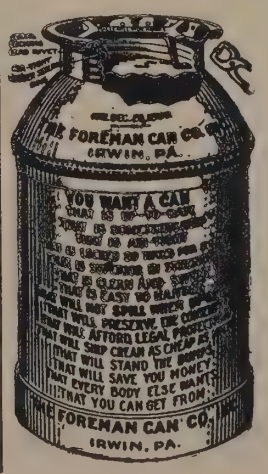
Write to the

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BRANCH HOUSES: Kansas City, Mo. Omaha, Neb. Minneapolis, Minn. St. Louis, Mo. Waterloo, Ia.

Canadian Branch: Cowansville, Quebec.

149 to 153 East Superior Street, **Chicago, Ill., U. S. A.**



We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity—1000 cans daily, which should enable us to fill all orders promptly.

Every can sold on a guarantee.

Write for Circular H.

CREAMERYMEN, DAIRYMEN and MILK DEALERS

Can be Promptly Furnished with anything they want at reasonable prices, if they will write me. My CHILDS' PATENT MILK BOTTLE FILLER is the best on the market. Send for free catalog.

J. S. BIESECKER,
59 Murray St., New York City.



Box 801, Atlanta, Ga.

SAW MILLS, 4 H. P. cuts 2,000 feet per day—All Sizes—Planers, Shingle Mills and Edgers with Patent Variable Friction Feed-Portable Grinding Mills, Water Wheels, Lath Mills, etc. Send for large Catalogue. Freight don't count.

DeLOACH MILL Mfg Co
114 Liberty St., N. Y.

which the experts score up to the very top. It was a great treat to hear the Rev. Father tell the history of that cheese factory, and its influence in building up the prosperity of the community about there, and how he had labored from first to last to make it a success; how he had been, and now is its president, salesman and clerk, and chief promoter, and at last had seen the full fruits of his exertions for the welfare of his congregation.

"Yes," said the father, in reply to some inquiries of mine, "I have preached other things than theology from the pulpit. There have been many exhortations about eradication of mustard, application of manure, fencing farms, how to do better dairying, better stables and farm topics, as an after topic of the sermon, for I think good farming is one of the means of promoting grace." As we looked over the farms, saw the herds of cows and bunches of steers and even sheep, and noted the fenced farms, splendid grain crops, clean culture, snug farm buildings and good barns, when ten years ago the finances of that locality were not promising, and now are a synonym of prosperity because of the influence of Father Theilion and the dairy boom, it was not a hard thing to do to give this robust country priest much credit for his efforts in both the Lord's spiritual and agricultural vineyard, and wish for more Father Theilions.

It was pleasant to note the great changes two years had brought to the valley. The wild, strenuous land rush was over; the agents mostly gone, and improvements were seen on every hand. How the little villages are growing! New farm houses and red barns greet the eye in all directions. Huge canal ditches are being cut to run the surface water to the Red river, and miles upon miles of smaller farm ditches are being cut to these outlets. It is hard to find any down hill. One ditch was cut to a surveyor's level, for five and a half miles to get a fall of four feet—the depth of the ditch. Roads are being graded everywhere, a regular dyke, high above the prairie, by the use of the great 20-horse graders, with their elevators; the idea being to keep the wheel tracks high and dry above the water level in rainy time. In dry time, gumbo makes an asphalt pavement of great excellence. It's when gumbo is half water, that the question is, to go or not to go.

There is a great future for that valley. The next twenty years, if fraught with the same spirit of progress, will see something akin to an inland empire up here, but it will be thoroughly American. It is wonderful how these people, so lately emigrants, have become imbued with Americanism, politics and all, and with shoulders to the wheel, are bound to do great things for the northwest. They want to know the latest and best, for strangers in a strange land, pioneering in truth, are wonderful apt students. When they have gotten the scheme of dairying in mind, and comprehend its principles, it will be far from a dual, or a general-purpose business that they will conduct, but will be a substantial 20th century enterprise, a credit to the valley and the state, and possibly a particularly good pattern for the eastern dairyman to copy after.

All things considered the summer institutes were a great success. The experiment station, at Crookston, co-operated in every way to contribute to the series. With the new barn, silos, and the like, dairying is to be made a feature of prominence at the station, and will be of great influence. Under the circumstances, dairying was made a special part of the meetings; Messrs. Hoverstadt, Trow, Griswold and Mrs. Robbins making united efforts to promote its adoption, and "yours truly" looked on and applauded.

Crookston, Minn. JOHN GOULD.

Notes from an Iowa Dairy Farm.

ED. HOARD'S DAIRYMAN:—Since visiting Fort Atkinson last April, we have done considerable thinking and a little work. Have thought it might be of interest to some, if we told something of what we have done and are now doing. Here it is: We have a little dairy, milk for city retail trade, make a little butter and cheese; sell all from our own wagons or depot at retail; been in the business three years, July 1.

We started out with wild hay, some millet and straw for rough feed in winter, with bran, corn and oats for grain, blue grass pasture for summer. Last year built one round silo, sixteen feet in diameter, thirty-five feet deep; twenty-four feet of staves, eleven feet in ground, cemented on the clay to top of ground, then stone wall for foundation; built in end of bank barn, running three feet below basement floor. We filled this silo with corn and second crop clover, corn frosted and last very dry. Mixed driest corn with clover cut when wet in morning, one load clover three of corn. Did not put in any water, came out all right, with no waste to speak of.

We built, or made over, an old ice house for another silo, nine feet in ground, ten feet above ground to eaves, making nineteen feet deep, eighteen feet wide and thirty-two feet long; filled with sorghum one-fourth, corn three-fourths, all frosted, cut both dry and wet, but most of corn was greener than sorghum. Used no water. All came out in fine shape, and made good feed.

We have in both silos at this time several tons of ensilage, but pastures in this section so good, do not feed ensilage at present. About one-third of the ensilage in square building, above the stone wall spoiled, below but very little. We do not consider square building the thing for silo and shall not use this one again, but build two round ones instead. I fed to cows, hogs and sheep. All liked the feed and did well.

For this year I have a variety of crops. First of all, I have seven acres of alfalfa, put in with oats, one bushel per acre, alfalfa 25 lbs. seed; on land sown last year to sorghum, disced, harrowed and manured before seeding, then harrowed. Have manured about one-third of piece since seeding; land fairly well drained.

At this time oats are nearly headed; alfalfa about eight to twelve inches high, with roots eight to twelve inches long. Oats would go about thirty bushels per acre if left to ripen. We shall cut as soon as berry begins to form.

We sowed about thirty acres with wheat one-half bushel, oats one-half bushel, barley one-half bushel, Canada peas, one bushel. Grain is now all in head. Peas not good stand only in spots, they being in pod and blossom. This is for hay. It would probably yield if threshed about forty bushels per acre.

Have sorghum drilled with corn planter, one peck per acre; kafir corn same, then have them mixed half and half, with

"ADVERTISEMENT."

COFFEE SENT HER

Back to the Country.

A young woman of Bradford, Vt., made her way to a good position in a big Boston store and gave it up because of sickness at home, but it all came out right at last and she tells the story this way: "Two years ago I had to leave a position as book-keeper in a Boston department store to go back home to take charge of the old place as Mother's health seemed shattered, and what do you suppose proved to be the cause that forced me to return?

I found her very weak, unable to sit up all day and with a dizzy feeling if she tried to move about. She had been advised to stop coffee drinking, but as she had used it from childhood it seemed as though nothing could take its place. I had settled down to stay at the farm when one day I got to thinking over the situation and concluded to try an experiment. I got a package of Postum Coffee. It was not cooked right the next morning and we were all disappointed. That was because we had tried to make it like coffee. Next morning I had Postum made according to directions and we were all delighted. In a few days you should have seen the change in Mother. Since that time we have never drank coffee and now we all drink Postum twice a day and sometimes three times and think it superior to coffee.

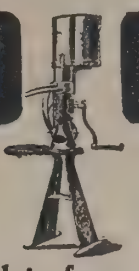
The change in Mother's health since she quit coffee and took up Postum has been wonderful. She is once more able to take the work again, quite well in fact, with no more weakness and nervousness, no more sour stomach, no more trouble of any kind. To cut a long story short she is now entirely well and I am going back to Boston in a few weeks, thanks to Postum." Name given by Postum Co., Battle Creek, Mich.

Ice cold Postum with a dash of lemon is a delightful "cooler" for warm days.

Send for particulars by mail of extension of time on the $7,500.00 cooks contest for 735 money prizes.

Empire Empire

Eight Years — Fifteen Cows



The Empire Way Makes Cows Pay.

1895 1896 1897 1898 1899 1900 1901 1902



How's This for a Record?

Emporia, Kans., Jan. 2nd, 1903.

Empire Cream Separator Co., Bloomfield, N. J.

Dear Sirs: Have used one of your **Empire** Cream Separators for the past eight years, during which time I have been milking at all times from twelve to fifteen cows. The cost for repairs in the eight years has been only seventy-five cents. I have had experience with other separators but consider the **Empire** superior to any other, as it never caused me any bother. It is easy to clean and has proven very durable. It does good work at all times. L. H. VAHSHOLTZ, Rural Route No. 4.

The Empire Cream Separator turns more easily, is more easily cleaned, does better work, and costs less for repairs than any other, because it is the **simplest separator made.** Don't buy a separator until you have investigated the merits of the Empire.

Send for our new book on Making Milch Cows Pay.

Empire Cream Separator Co., Bloomfield, N. J.

Western Office—FISHER BUILDING, CHICAGO.

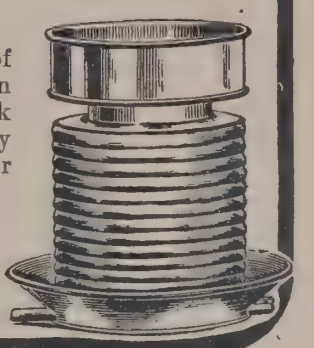
Eight Years — 75 cents for Repairs — Fifteen Cows

Milk Dealers' Supplies

Milk Aerators, Pasteurizers and Coolers
Ice Cream Cans and Tubs
Milk Bottles
Milk Shipping Cans
Milk Bottle Caps

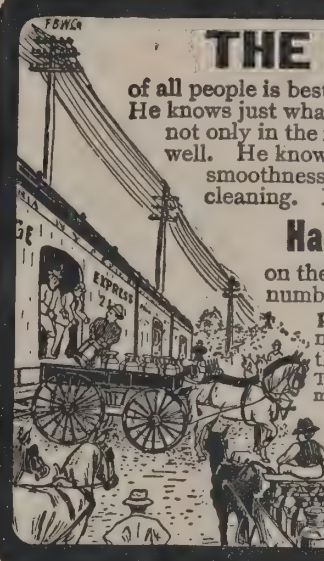


These are but a few of the many things of our own superior make for the milk dealer, dairyman and creamery man. Write at once for our free illustrated catalogue.



STURGES & BURN MFG. CO. CHICAGO.

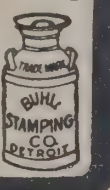
THE MILK SHIPPER



of all people is best fitted to judge of the merits of a milk can. He knows just what extreme hard wear a can is subjected to, not only in the milk car, but in the city delivery wagon as well. He knows what economy there is in toughness and smoothness, which mean wear, resistance and ease of cleaning. Because of this knowledge he

Has Set the Seal of His Approval

on the **Buhl Cans.** This is witnessed by the large number he has bought in the past and by his **repeated and ever increasing orders.** He never makes a mistake, because he has learned that any milk can stamped with the Milk Can Trade Mark is the best milk can for the money. **Remember** the Buhl is the only can in the world that is made with the BUHL "VICTOR" CAN BREAST and the BUHL "VICTOR" ROUND HANDLE. All dealers sell them. Ask for the **Buhl.** Look for the Milk Can Trade Mark. No other Can so good.



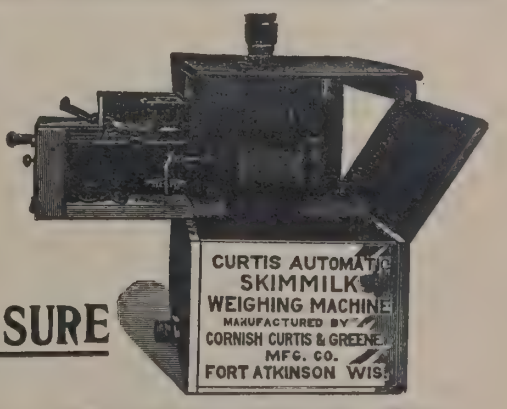
Buhl Stamping Co.,
212 West Larned Street, Detroit, Michigan.

Skim Milk

Often goes to the wrong man for the simple reason that the patrons have no standard of

WEIGHT or MEASURE

and the last man suffers.



☛ FULL DESCRIPTIVE CIRCULAR FREE.

Cornish, Curtis & Greene Mfg. Co.,

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for....
DE LAVAL ALPHA SEPARATORS.

Fort Atkinson, Wis.

half the seed above. Also have the sorghum with dent corn, half and half. Have also soy beans with corn, half and half, and soy beans alone. Also have cow peas, one-half bushel per acre in drills with corn planter.

The land for cow peas was manured before plowing, then harrowed well and planted, then harrowed well again. That for kafir corn the same, all now having been plowed with common corn plow twice and crossed with weeder twice, beans and peas all being in same field was gone over at same time in same way; some were broken off the first time over, when quite tender, but do not think they were damaged to the extent of good done by the weeder in loosening the ground in the row. The ground has been thoroughly packed with the frequent heavy rains so that now it is very hard and needs cultivation to loosen up the top.

Our piece of kafir corn did not show good stand, owing I think to being planted too deep, but still keeps coming;about one-sixth of crop showing.

The land on which all these crops are growing is light and quite sandy, rolling enough for good drainage. It is comparatively new land,much of it never had any manure, and none has ever been seeded to tame grass. Last year sorghum grew on one field and made about eight or nine tons per acre, after having been frosted. Have some clover of last year's seeding, very fine, on same land, also timothy.

Will say we had trouble in not being able to keep our milk clean enough for city bottling and have now adopted the absorbent cotton scheme which is giving good satisfaction.

This I think will be enough for our first introduction, but we may have more to say when we have siloed our peas, beans, sorghum, corn, etc.

Haying in this locality has been delayed by the incessant wet weather. Clover badly down. But for so many other silo crops our clover would have gone in before this. O. GATES.

Estherville, Iowa.

DAIRY MARKETS.

ELGIN, Ill., July 20—Butter—Remains firm at 20c a pound. Output for week, 827,700 pounds.

CHICAGO, Ill., July 20—Butter—Steady. Creameries, 15@20c; dairies, 12@18c.

Cheese—Steady.

Cattle—Prime beeves, 1,200 to 1,500 pounds, 5.40@5.65; choice to extra steers, 5.10@5.35; fair to good export and shipping steers, 4.80@5.10 medium beef steers, 4.50@4.75; plain beef steers 4.20@4.45; common to rough, 1,000 to 1,200 lbs. 3.90@4.20, good to choice, fat heifers, 4.10@4.85, good to choice feeders, 3.85@4.75; poor to plain stockers and feeders, 2.80@4.00; fair to good cows and heifers, 3.20@4.15; good cutting to fair beef cows, 2.30@3.10; common to good canning cows 1.60@2.25; bulls, poor to choice, 3.20@4.20; veal calves, good to fancy, 5.25@6.00; calves, common to fair, 3.00@5.10; corn-fed western steers, 4.00@5.35; Texas bulls and grass steers, 2.75@3.70; Texas steers, fair to common, 3.80@4.80.

Hogs-Good to prime heavy shipping 5.55@5.70; good to choice heavy packing 5.50@5.65; plain to choice heavy mixed 5.35@5.55; assorted light, 150 to 195 lbs. 5.60@5.80; thin to choice, 50 to 130 lbs. pigs 5.75@6.00; stags and rough lots, 3.00@5.75.

MILWAUKEE, Wis., July 20.—Butter—Creamery—extras, 20c; firsts, 17@18c; seconds, 15c, renovated 16@17c; Dairy, fancy, 17c; lines, fresh, 14@15c; packing stock, 13c; whey, 10@12c; grease, 5@6c.

Cheese—American, full cream—New Twins, 10½@11c; Young Americas, 11@11½c: Daisies, 11@11½c; Longhorns, 11½@12c; low grades, 8@9c; Limburger—Fancy, old, 10@10½c; low grades 6@8c; new, fancy, 9@10c; off goods, 7@8c; Swiss, old, drum, choice, 15½@16c; drum, No. 2, 13@14c; Block, choice, 14@14½c; block, No. 2, 12@13c.

Eggs—Strictly fresh laid, at mark, cases returned, 14c; dirties and seconds, 12c., checks, 10c.

MUSCODA, Wis., July 18—Cheese—Two hundred thirty-six boxes of Twins were offered. Eighty sold at 10c; 156 at 9⅞c.

FOND DU LAC, Wis., July 20.—Cheese—Sales of cheese today at dairy board were 189 Twins at 10½c; 132 Daisies at 10¾c; and 170 at 10⅞c; total offerings, 826 boxes; many passed the bids.

MANITOWOC, Wis., July 15—Cheese—The sales reported today were: 1,750 Daisies at 10¼c; 200 Twins at 10c; 700 Young Americas at 10¾c.

HORTONVILLE, Wis., July 9.—Cheese—The offerings today were 39 Cheddars, 816 Twins and 97 double Daisies. Sales: 39 Cheddars at 10½c; 195 Twins at 10⅜c, 364 at 10c; 40 double Daisies at 10¾c, 57 at 10⅞c. Market active.

PLYMOUTH Wis., July 14—Cheese—On the call 24 factories offered 3,614 boxes of cheese, all of which were sold as follows: 612 cases Longhorns at 11¼c, 50| at 11⅜c; 1,752| Daisies, at 10⅝c, 245 at 10¾c; 170 Twins at 10¼c; 90 at 10⅜c; 20 at 10. 645 Young Americas at 11⅛c, 30 at 11¼c. Market active and firm.

At last week's meeting of the Plymouth Board, it was decided to change the hour of meeting from four o'clock to 4:30, and the meetings will continue at that hour until further notice.



AIR FILTER ATTACHMENT

Makes Shephord's Aerator The Standard.

Pure filtered air from charged tank drives out animal odors and impurities while the milking goes on. No attendance, no extra vessel to clean, nothing but the can. Circulars free.

F. P SHEPHERD & CO., ELGIN, ILL.

Watering Lands

is not expensive if you employ the force of the natural stream. The



RIFE Hydraulic ENGINE

is run by natural forces and delivers a constant flow of water to any height at any distance. No attention. No expense. Made in sizes to fit all purposes. Write telling how far you wish to carry water, elevation, fall etc., and get complete plans and estimates. **All Engines sold on 30 days' FREE TRIAL.** Send for free catalogue.

RIFE ENGINE COMPANY, 126 Liberty St., New York.



SULKY AND GANG PLOWS

Light Draft, High Lift, Powerful Lifting Spring; Boy can handle it. Patented Stop carries the plow and lightens draft. Shipped in crate, set up and sharpened ready for use. Spring Clevis eases draft and saves harness. Automatic Lock on rear wheel. Celebrated "Garden City Clipper" bottoms used.

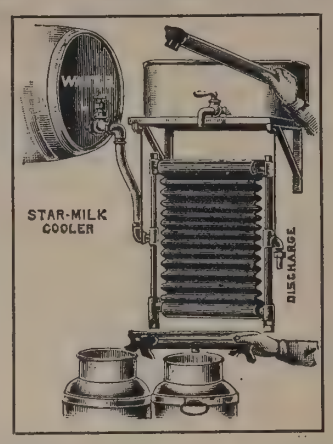
David Bradley Mfg. Co., 110 E. Broadway, Bradley, Ill.

BRANCH HOUSES: DAVID BRADLEY & CO., Council Bluffs, Iowa. BRADLEY, CLARK & CO., Minneapolis, Minnesota. BRADLEY, ALDERSON & CO., Kansas City, Missouri.

COLD COMFORT

Though the thermometer may register in the nineties, the Dairyman who uses a **Star Cooler** knows he need feel no anxiety for it can be depended upon to cool the milk down to within two deg. of the temperature of the water run through it.

What can be more reassuring than this.



This Cooler is of the best material and workmanship.

It can be furnished in all sizes from the "Baby" to the large Tubular.

Let us hear from you.

Send for our booklets relating to Cooling, Bottling, and Sterilizing Machinery.

STAR MILK COOLER CO., Haddonfield, N. J.



Do not Cool Your Milk

the old-fashioned way, with a dipper or a paddle, but get an up-to-date

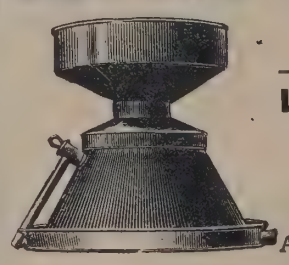
Milk Cooler-Aerator.

Saves Time, Labor, Patience and Money.

A Free Booklet; ask.

Champion Milk Cooler Co.,
67 Main Street, CORTLAND, N. Y.

Get the Best Milk Cooler



AND AERATOR.

LARGEST COOLING SURFACE
EASIEST TO CLEAN.

WRITE US FOR PRICES.

Ask for our new Thirtieth Annual Catalogue of Dairy Apparatus and Supplies.

OAKES & BURGER, Cattaraugus, N. Y.

Banner Lye

One can make ten pounds of the best hard soap or twenty gallons of soft soap without boiling or large kettles.

Dietz Lanterns

make the way plain in night work or travel. Always shed a strong, clear, white light, with no choking, sooting or smoking.

Over Sixty Years the Favorite.

Made in many styles and sizes for all purposes, as hand lanterns, driving lamps, post lamps for streets or front of country residences, church doors, etc. CATALOGUE SENT FREE.

R. E. DIETZ COMPANY, 94 Laight St., New York.
Established 1840

Fine Opening for an Experienced Dairyman.

FOR SALE

One-third interest or more in Spring Hill Dairy Farm, Concord, North Carolina, mile and half from city limits. Population with suburbs—twelve thousand.

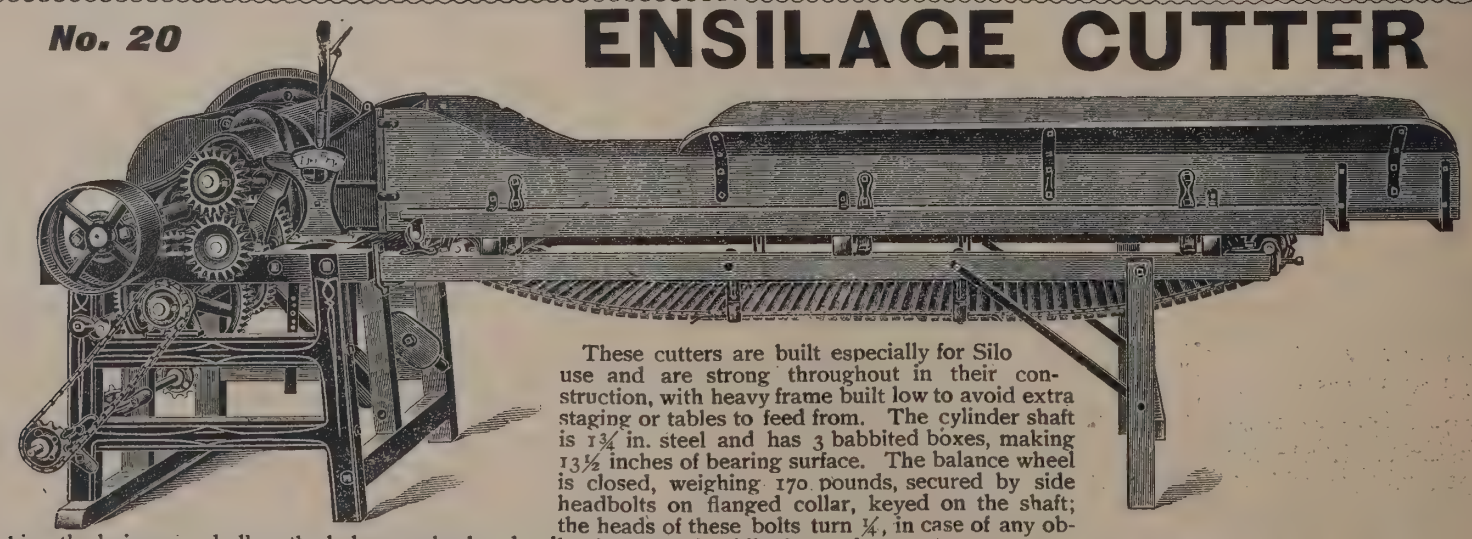
THE ONLY DAIRY

Has twenty-five Jersey and Holstein cows. Room for one-hundred. Finest opening in the south for an experienced, energetic young man with small means.

For full particulars address

JOHN A. SIMS,
CONCORD, N. C.

No. 20 ENSILAGE CUTTER



These cutters are built especially for Silo use and are strong throughout in their construction, with heavy frame built low to avoid extra staging or tables to feed from. The cylinder shaft is 1¾ in. steel and has 3 babbited boxes, making 13½ inches of bearing surface. The balance wheel is closed, weighing 170 pounds, secured by side headbolts on flanged collar, keyed on the shaft; the heads of these bolts turn ¼, in case of any obstruction reaching the knives, and allow the balance wheel and pulley free speed, while the strain on the knives is relieved at once. The traveling feed table is controlled by the reversible lever and is instantly stopped or reversed. The slats on these tables travel over a close bed, full length and are close together to prevent fine leaves getting into them and winding on the rollers, also guards over the chain links. The length of cut is easily adjusted from ⅜ to ⅝ and ⅞ inches by the gears on the shaft. We furnish chain elevators of any length desired, straight away or side delivery. Weight of Cutters with traveling table, 1600 pounds. Send for circulars.

I. B. ROWELL & CO.,
MENOMINEE FALLS, WIS.

SHEBOYGAN FALLS, Wis., July 15—Sixteen factories offered 1,432 boxes of cheese on the call board today and all sold as follows: 9 Twins at 10¾c; 343 cases Young Americas at 11⅜c; 136 cases Longhorns at 11⅜c; 568 at 11¼c. Market steady and firm.

SHEBOYGAN, Wis., July 15—The offerings on the call board today were 1,873 boxes of cheese; 304 Daisies passed bids of 10¾c, balance sold as follows: 28 boxes Twins at 10¾c; 384 Daisies at 10¾c, 77 at 10⅝c; 599 cases Young Americas at 11⅜c, 5 at 11c; 500 Longhorns at 11⅜c, 7 at 11¼c. Market strong.

BOSTON, Mass., July 20—Butter—Creamery, western, extra, 20c; western firsts, 20c; dairy, 16@20c; imitation creamery, 16½@17c; ladle, 15@16c; box and print, 16@22c.

Cheese—Choice, 9¾@10¼c.

Eggs—Nearby, 23@24c; western selected, 16c; fair to good, 14@15c; Illinois, 16c; western storage, 16½@17c.

Latest quotations for fancy creamery:—Baltimore 21½c, St. Louis 20½@21c, Buffalo 21c; St. Paul 19c; Minneapolis 19c; Cincinnati, 22c.

PHILADELPHIA, Pa., July 20—Butter—Market steady. Solids, 21c; nearby prints. 23c; western, 22c.

WASHINGTON, D. C. July 20—Butter—Market steady. Extras, 21c; firsts 20c; fancy renovated, 18c.

NEW ORLEANS, La., July 20—Butter—Market active and firmer. Extras, 21c; ladles, 16c. Receipts moderate.

NEWARK, N. J., July 20—Butter—Market steady at 20½c. Eggs 18½c for western extras.

TOPEKA, Kan., July 18—Butter Creamery butter, 20@21c; dairy, 17@18c.

Cheese—Longhorns, 11c; Twins, 10¾c: Prints, 11½c.

LIVERPOOL, July 18—Butter—Good United States steady, 75s.

Cheese—American finest, white 46s, do colored, 48s 6d.

WATERTOWN, N. Y., July 19—Cheese—Sales 7,000; 9⅜c for large; 9⅝ for small singles; 9½ for Twins.

CANTON, N. Y., July 19—Cheese — Offered 2.573 boxes of Twin cheese and 1,425 tubs of butter. Cheese sold at 9½c; butter at 20½c.

UTICA, N. Y., July 20—Cheese—There was no change in the market from last week, 9¾c for large, 9⅝c for small.

NEW YORK, July 20—Butter—Receipts, 9,608 pkgs.; market steady; state dairy, 14@20; extra creamery, 20½c; common to choice, 15½@20c. factory, 14@16½c; renovated, 13@18c; imitation creamery, 14@18c.

Eggs—Recipts, 11,553 pkgs.; market steady; state and Penn., firsts to extras, 17@18c; western extras, 18@18½c; western, seconds to firsts, 14@17c.

NEW YORK MARKET.

NEW YORK, July 18.—Butter—Receipts for the week, 67,168 packages. Exports for the week, 530 packages.

Receipts continue heavy and are largely in excess of one year ago. Trade, however, has been good, both for consumptive and speculative accounts, and we note sales of long lines of high scoring extras at 20¾@21c. The bulk of fancy creamery butter arriving sold at 20@20½c, while under grades were hard to move at 17@19c. The N. Y. State Dairy butter is coming poor, and lots that have accumulated are being offered at 16@17c. Some sales of fancy selectious of Delaware tubs at 20c, and really good tubs went at 18@19c. Outside of fine butter for table use, all grades are dull, in full snpply and prices in buyers, favor. We quote!

Creamery, extra, 20½c; medium, 19@20c; poor, 15@18c; Dairy, extra, 19@20c; medium, 17@18c; poor, 14@16c.

Cheese—Receipts for the week, 38,958 boxes. Exports, 2,678 boxes.

There was good, free trading all the week and best cheese were all taken on arrival. We note sales of fancy cheese at 10¼c; and oue parcel was reported as sold at 10⅜c. Skims of all grades are wanted. Sales in the interior of the State were mostly at 10½@10⅜c. We quote:

Full cream, extra, 10¼c; medium, 9½@10c; poor, 8@9c.

Eggs—Receipts for the week, 61,752 cases. Fancy fresh eggs are really scarce and wanted at long prices. Other grades are abundant and freely offered at 13@16c. We quote:

New York & Penn., strictly fresh laid, per dozen, 20@21c; Northern & Western, strictly fresh laid, 18@19c: all Sections, poor to good, 12@16c.

177 Chambers St. DAVID W. LEWIS & Co.

NEW YORK FERTILIZER MARKET.

Acid phosphate	60	@	67½
Phosphate rock, f. o. b. Char'n	5 00	@	7 00
Tenn	3 00	@	4 00
Bones, rough	₱ ton 16 50	@	17 50
ground	19 00	@	20 00
Bone meal	19		
Bone black, refuse	18 00	@	19 00
Potash, dbl. m're salt 48@53 per cent	1 12	@	1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons	25 00	@	30 00
sulph of basis, 90@98 per cent	2 11	@	2 18
90@98 per cent less than 25 tons	38 00	@	40 00
Potash muriate ₱100 lbs.	1 83	@	1 95
less than 25 tons	36 00	@	40 00
Kainit 25% S. of P.	₱ ton 9 30	@	9 50
less than 25 tons	9 50	@	10 50
Sylvinit, 35@37% P.	₱ unit 41	@	46
Nitrate of soda	2 00	@	2 05
Blood, Dried red	₱ unit 2 55	@	2 60
low grade	—	@	—
Concentrated tankage	15 00	@	16 00
Fish guano, dried	24 50	@	25 00
acidulated	22 00	@	23 50

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—Fancy dairy butter direct from maker. Also eggs and poultry. State price and how much you can ship per week. Address CHAS. S. OLIVER, McDonald, Pa.

Wanted—A man who thoroughly understands the handling of dairy cows and the making of first class butter. Married man preferred who has help to milk. Address JOHN M. PARKER, Echo, Wash.

Parties Wanting a good location for a Butter or Cheese Factory can find same at Hicksville, Ohio. Write to B. F. Casebeer there. 24-2

Angelus Herd Guernseys—For Sale—Bull Calf, superior breeding; price $50.00. Address MARCH, 39th & Western, Los Angeles, Cal. 23-tf

For Sale—Dairy Farm, 576 acres, about 75 head well bred Jersey cows and heifers, herd in good condition, 1 mile from growing town of five thousand, dairy well established and paying handsomely. Chronic illness requires sale, though sacrificed. Great bargain. Write for particulars. MRS. M. R. CARTER, Gainesville, Florida. 23-4.

Farm For Sale or Rent—A desirable stock and dairy farm in Winona Co., Minn., 13 miles below Winona, 2 miles from R. R. depot, 1,400 acres good land all fenced, well watered. There is on the farm a good 8-room dwelling house, two large barns, dairy building with churn, vats and implements for making butter, steam engine and 10 h. p. boiler, 75 cows, 450 high grade Shropshire ewes, 100 Angora gorts, young cattle and hogs. Running water in all the buildings. Will rent farm on shares with stock, or sell farm with or without stock. LLOYD BARBER, Winona, Minn. 23-3

Wanted—A good single man to take charge of dairy. Hollander preferred. C. M. BOTTEMA, Stockyards, Indianapolis, Ind. 23-2

For Sale—Seven miles east of Green Bay, Wis., one well equipped cheese factory and small grocery store. 6,500 pounds milk daily. Fine location for a wide-awake man. For full particulars write to W. P. KRATZ, R. 3, Green Bay, Wis. 23-4

Herdsman Wanted—One familiar with care and feeding of Holstein-Friesians. Good references and experience required. Address F. W. ALLIS, Monona Farm, Madison, Wis. 23-4

Macon County, Missouri. Farm For Sale.—80 acres good land, well fenced, plenty small fruits; two-story 8-room frame residence, front and rear stairs, large halls, cellar 16x32; barn 42x60 with 12x60 leanto. All in meadow and pasture. Residence within 100 yards of depot just outside corporate limits town of 600, 4 miles of coal mines two thousand miners. Place to start a creamery. Six are shipping cream 75 miles away. Price $75.00 per acre, one-third down balance 5%. Write for particulars. CHAS. H. MARMADUKE, Callao, Mo. 22-4

Two choice young Guernsey bulls for sale. MRS. A. W. LEHMANN, Neosha, Dodge Co., Wis. 12-sp

Wanted—At once, a working manager who has had experience in operating Southern dairies. to take charge of a large well equipped dairy. Married man preferred. Good salary for right man. Address R. L. PENICK, Montgomery, Ala. 24-2

Wanted—Reliable married man for farm work, capable of driving wagon on a small milk route. House and garden free. Small family preferred. Address, with references and salary expected, BOX 195, Ossining, N. Y. 24-2

For Sale—Cheap for cash, largest retail milk route in Sycamore, Ill. Rent 50 acre farm (good crops) buy milk, up-to-date machinery, four loads daily. Apply at once. GORE & INGERSOLL, Sycamore, Ill. 23-2

Knowing a Good Thing, and having it, is quite different. A great many people know that the Guernseys are in the lead of the dairy breeds. You can get pure bred bulls and grade heifers of A. H. HINMAN, Allensville, Wis. 24-2

Stock and Dairy Farm For Sale—¼ mile from city limits. 171 acres with milk route and telephone connections. Will sell with or without stock and personal property. For full particulars address THEO. GLOECKLER, Portage, Wis. 24-tf

Holsteins For Sale—24 splendid cows and 9 heifers, nearly all registered. Part of these cows are in calf to a son of Johanna Rue 3d. All in milk or soon to calve. C. C. LEWIS, Baldwin, Kan. 24 2

Are You Looking For Land?—We have it to sell; thousands of acres of fine land around Crandon, Wis., Forest Co. Hardwood land from which the saw-logs have been cut, but there are still many dollars' worth of good wood, bolts, pulp wood, etc., on every acre which goes with the land. Close to fine growing town, county seat. Good water, clay soil and near railroad. Prices and terms reasonable. Write me for maps and circular. Address L. T. CRABTREE, Crandon, Wis., Forest Co. 24-4

200 Acre Dairy Farm For Sale—1½ miles from town. 140 acres plowed. Good house, fair out-buildings, wind mill and tank, small fruit, lots of grass. Price $5,000; $3.000 cash, balance 4 years 6%. Also 25 milch cows on shares to buyer with separator. E. E. GOOD, Babcock, Wis. 24-4

Wanted—At once, two good men that can sell farm lands. We have the greatest crop on earth, and cheapest lands. Write at once. MOHALL STATE BANK, Mohall, N. D. 24-2

For Sale—7 Scotch Collie pups; one 3 months, light Sable, some white, worth $10.00 each, will sell for $5.00. Holstein bull calves, one 8 months old, dam has A. R. O. of 475 lbs. milk and 19 lbs. 14 oz butter in 7 days, $60 00 takes him. HENRY WALSH, Sheboygan Falls, Wis. 24-4

Wanted—A single man for farm. Must be a good milker. Steady wages, 27 dollars per month with board. (60 cows to three milkers,) C. H. CROOK, Ottawa, Ill.

Wants practical experiance in stock feeding. A strictly sober young man wants position on some up-to date stock or dairy farm. Wants steady job. Will work for right wages. Can furnish good reference as a steady worker. Present employment butter maker and creamery manager. Can come Aug. 1st, E. O. OLSON, Walbo, Minn. 24-2

Wanted—Thoroughly experienced young or middle aged man as working manager of dairy plant, (Radiotor Factory's Make), to take full charge. All necessary capital furnished for any amount of business you can bring it up to. State what share of profits you want as salary. Plant is in connection with other business. Run by steam, Is in New England, near Boston, Mass. Address, giving full particulars and referedce, G. T. W., care Hoard's Dairyman.

For Sale—12 h. p. traction engine and small engines $35.00 and up. THE BICKNELL HWD. CO., Janesville, Wis.

Want to Rent a creamery in eastern states, with some winter milk. Address with particulars F. B. 20, care Hoard's Dairyman. 24-2

For Sale—Cheese factory in Northern Wis., 5,000 lbs. of milk in best of season, at a bargain if taken at once. Address G. R., care Hoard's Dairyman. 24-3.

Wanted—An all around butter maker of 17 years experience having disposed of his creamery interests in the East desires a good steady position with a first class creamery where the services of a competent man are required. Use no liquors or tobacco. Guarantee highest prices always. Address J. F. ATHA, 1300 Sycamore St., Fremont, Ohio. 24-2

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 1901

98 PER CENT

Of the Creameries of America Now Use

DE LAVAL CREAM SEPARATORS

After Twenty Years of Experience and Trying Twenty Makes of Machines.

That is a Record which Speaks for Itself and also Means Something to the Inexperienced Buyers of.....

FARM CREAM SEPARATORS

Farm or Factory De Laval Catalogues May Be Had for the Asking.

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Randolph & Canal Sts., CHICAGO.
1213 Filbert St., PHILADELPHIA.
217-221 Drumm St., SAN FRANCISCO.

GENERAL OFFICES:
74 Cortlandt St., NEW YORK.

121 Youville Square, MONTREAL.
75 & 77 York Street, TORONTO.
248 McDermot Avenue, WINNIPEG.

For Sale—2-year-old Holstein bull; his dam is by a son of DeKol 2nd, who gave, under supervision of Cornell University, 536½ lbs. milk and 26.56 lbs. butter in 7 days, and his sire is by a son of Pauline Paul the champion butter cow of the world, 18,669 lbs milk and 1,153 lbs. butter in 1 year. Price $125. Speak quick. WIS. LIVE STOCK ASSOCIATION, Appleton, Wis. 22-sp

For Sale—Two granddaughters of Exile, 20 and 21 mo's. old; served. 3 solid color St. Lambert bulls. Three 4 and 6 mo's. old, sire a double Gr. son of St. Lambert Boy. sire of 54 tested cows. J. A. HERR, Lancaster, Pa. 21-4

A Registered Guernsey Bull 15 months old for sale. A very fine animal. Inquire of J. S. HUNTER, Pickett, Wis. 12-tf

Guernsey Bull Calves For Sale—All by Lilly Ella's Jeweller, whose dam, Lilly Ella, made 23.72 lbs. butter in seven days. If you want the best at a moderate price, address JOHN BARTH, 109 Clinton St., Milwaukee, Wis. 23-2

Wanted—First-class young man to take charge of a retail milk wagon. Must have some experience, be steady and industrious. Permanent employment to right man at $40 00 per month and board. References required. F. D. HUTCHINSON, Missoula, Mont. 23 2

Excursion Rates to Race Meet at Freeport, Ill.—Via the North-Western Line. Excursion tickets will be sold July 27, 28, 29 and 30, limited to return until Aug. 1, inclusive. Apply to agents Chicago & North-Western R'y. 23-2

Excursion Rates to Chautauqua Assembly at Sycamore, Ill.—Via the North-Western Line. Excursion tickets will be sold at reduced rates July 31 and Aug. 1, limited for return until Aug. 11, inclusive. Other dates of sale and limits on certificate plan. Apply to agents Chicago & North-Western R'y. 23-3

Low Excursion Rates to Rock River Assembly at Dixon, Ill.—Via the North-Western Line. Excursion tickets will be sold within a radius of 50 miles, at reduced rates on three dates, Aug. 1, 7 and 9, with favorable return limits. Other dates of sale on certificate plan from a more extended radius. Apply to agents Chicago & North-Western R'y. 23-3

Fine Dairy Farm for Sale—Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence. cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. T. S. TOMPKINS, Pasadena, Cal. 15-tf

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

Buff Jersey's latest book on Farm Stock and Dairy Work is full of practical things for practical people. The Silo, how to build and fill; ensilage, its value; soil, crops, variety and how to grow. Swine, poultry and many other subjects ably treated. Send 25c for copy. Monmouth, Ill. 47-tf

For Sale—A second hand, self-feeding, 16 inch Smalley Ensilage Cutter in good order, together with 56 feet of carrier, 18 feet of which was new last year Also a three horse Smalley Tread Power in good condition. The above will be sold cheap to make place for larger machinery. W. D. HOARD, Fort Atkinson, Wis. 20-tf.

For Sale—First-class dairy farm of 256 acres, one-half mile from city limits of River Falls, Wis. 245 acres in crop and pasture; balance woodland. Fine buildings, creek and spring with milk-house. Call, or address the owner, MARTIN MURPHY, River Falls, Wis. 21-4

Very Low Rates to California and Return—Via the Chicago & North-Western R'y August 1 to 14, to Los Angeles and San Francisco, with final return until October 15, inclusive, account National Encampment G. A. R. Three trains a day from Chicago to the Coast through without change. Daily and personally conducted tourist car excursions. Special G. A. R. train will leave Chicago 10:30 p. m., Tuesday, Aug. 11; DeKalb, 12:10 a. m., Wednesday, Aug. 12; Clinton, 3:50 a. m.; Cedar Rapids, 6:20 a. m.; Marshalltown, 8:25 a. m.; Boone, 10:30 a. m; arriving at Omaha, 2:00 p. m., leaving Omaha 3:30 p. m., and running via Denver, Colorado Springs, Pueblo and Salt Lake City. For itinerary, illustrated folder and full particulars, apply to Agents Chicago & North-Western R'y. 23-5

Very Low Rates to Pittsburg, Pa.—Via the North-Western Line. Excursion tickets will be sold Aug. 1, 2, and 3, with very favorable return limits, on account C. T. A. U. Convention. Apply to Agents Chicago & North-Western R'y. 23-3

Special Excursion Rates—The North-Western Line will sell low rate round-trip tickets to Fond du Lac and intermediate stations, good every Sunday until Sept. 27, 1903. Apply to agents Chicago & North-Western R'y. 21-7

Excursion Rates to Monona Lake Assembly at Madison, Wis.—Via the North-Western Line. Excursion tickets will be sold at reduced rates July 21 and 22, limited to return until August 7, inclusive. Other dates of sale on certificate plan. Apply to agents Chicago & North-Western R'y. 22-3

Very Low Excursion Rates to Musical Festival, American-Swedish Singers, at Minneapolis, Minn.—Via the North-Western Line. Excursion tickets will be sold at reduced rates July 20, 21 and 22, limited to return until July 27, inclusive. For particulars apply to Agents Chicago & North-Western R'y. 22-3

Special Excursion Rates—The North-Western Line will sell low rate round trip tickets to Lancaster and intermediate sections, good every Sunday until Sept. 27, 1903. Apply to agents Chicago & North-Western R'y. 23-5

Special Excursion Rates to Colorado, Utah and the Black Hills—Via the North-Western Line. Beginning June 1st excursion tickets will be sold to Denver, Colorado Springs, Pueblo, Salt Lake City, Hot Springs, Deadwood, Lead and Custer, S. D., etc., good to return until Oct. 31. A splendid opportunity is offered for an enjoyable vacation trip. Several fine trains via the North-Western Line daily. Apply to agents Chicago & North-Western R'y. 16-sp

Handling Bad Bulls.

(Continued from page 547)

Pat or the bull?" "Oh, Pat cleaned out the bull good." Next time it was the bull got Pat down and made it pretty hot for him.

One day Mr. Kelly rented his fine ranch to John Yermini, and the son from Switzerland not being of the fighting blood like the son from the Green Isle, or Canada, immediately got worsted. John came in limping, telling Mr. Kelly to take the bull away, as he would not keep the scrub. Mr. Kelly went out, threw a long rope over his horns and was leading the bull by the house. The gentleman's wife from behind a hedge said: "John, Pat ain't afraid of the bull." Mr. Kelly took his eye from the bull a moment to see where his wife's voice came from. It was a fatal moment. The bull made a lunge, caught the unfortunate man on his horn with a large gate post behind him, the horn went right in the abdomen. The dying man said: "Shoot the bull; send for Father Kennedy." It was all over. As we live so we die, whether fighting bulls or otherwise.

The reader can see it was the bull's faulty handling. Of course one man handles a bull safely that another man would get killed by. Yet this inquirer is a man who could, with a little coaching, handle any bull. As our editor says "the best way is to handle young." The experiment stations say: "Take the calf at four months old, put a very small inch ring in the nose. Use a trocar to do it, which makes an easier, quicker, more humane operation. Take ten minutes time each day as you would halter-break a colt. Have a stick with a brad in it when you say whoa, emphasize the word with a small jab. As soon as the command is obeyed quickly, feed a carrot or what you may have."

Right here is where the scientific part comes in, running from the point of conquering into subduing. Everything conquered is not safe while subdued it is. The Irish, Poles and Hungarians have been conquered some time, not subdued yet.

When you get a chance to purchase, or own, a valuable bull that has years or his horns, remove the horns first; have a large ring put in, not the common copper ring, they have a large brass ring as large as the end of a man's little finger.

This ring don't wear and cut them like the copper. Let a piece of rope be always in it long enough to tramp on, this slows the brute to tramp on his own nose, if he is too fresh or wishing to approach you first. Have a ten foot stick, one by two inches, get a bolt ¾ diameter 2 feet long, stick in the fire, or first fasten to your pole this bolt, warm good and red and go out to do business.

If he approaches with bellowing, pawing, just rub the bovine across his nose right and left quick, do not follow him up when he seems to be satisfied. Many spoil the conquering act by chasing into a corner and get a fight they cannot check. The lion and tiger tamer use this method. The writer is a wild horse and bull tamer, not on paper alone, and the one trying those methods will be rewarded. Remember, as soon as you get the conquering part get to work on the subduing part, give your animal what he likes to eat. You may first have him hungry to begin, this prevents sullenness.

Would the gentlemen that wrote about spraying aged cows, some time back, mention how he confined his cows while operating? B. A. F.

Arcata, Cal.

Price for Buttermaking.

[Paper read by C. J. Dodge at Wisconsin Buttermakers' Convention, Waukesha, Wis.]

At what price per pound can butter be economically made at creameries? There are so many factors to be considered in the question of the cost of making that a good many creamerymen are apt to lose sight of a part of them and laboring under the impression that they have considered them all are surprised at the end of the year, or of a series of years, to find their cash balance on the wrong side of the ledger. Creamerymen are human, the same as the farmers are. They often hate figuring and calculating and planning, but like an active, do-something life, as the farmer hates book keeping, but enjoys the active life he lives.

Now it seems to me that the creameryman has an absolute duty to himself and to his patrons in the matter of the book-keeping part. He must have a complete and accurate account of each day's receipts of milk, the amount of butter made from it, the number and size of packages made each day, the yield each day, the full account of the retail butter, and by full I mean the name of the party sold to, price, and any facts that afterward may be of service in settling a dispute that might otherwise arise. I think it always best to close this report with a record showing the part package left over,—as 12 lbs. solids and 20 prints. My reason for this latter entry is for the purpose of proving up the work the following day. A man as busy as a creameryman is, with 40 or more patrons after him, is liable to forget to make a record now and then. If now he has the closing record of the previous day, he can prove the accuracy of his work, and if he has a shortage, can think back and locate the man that got the butter that is not recorded. I have found this so valuable in my own experience that I have adopted it in all my creameries, having the weekly reports show the daily details.

All this may seem a little out of line with my subject perhaps, but it is not, for first of all the creameryman must know absolutely what his month's butter is going to bring before he can take the first step towards making his dividend. When he has that point established, he must first take out the making, and our question deals directly with this—what shall it be?

Now in all ordinary creameries, there are expenses that are constant, whatever may be the run. Taxes, rent, original cost, and interest on same, to a certain extent fuel, help. In other words, so far as these are concerned 1,000 or 6,000 lbs. daily is nearly the same as to expense. This rule does not apply to supplies of course. Then there is the question of cost of fuel, that is a varying factor in different places; some must burn $6 coal, some $7, some $3 coal; some must pay heavy taxes, some light; some are running a creamery worth $1,000, some worth $5,000, and the $1,000 building may be doing the business, and so it goes.

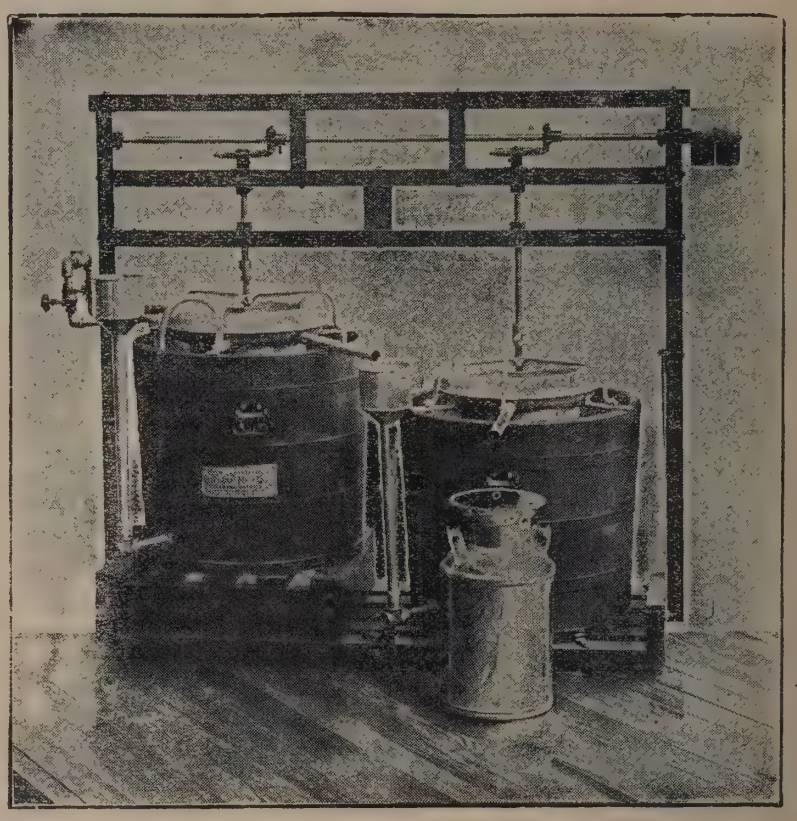
I have made a careful study of this question with the idea of doing full justice to all and after twelve years of experience I must say that the creameryman who attempts to make up for less than 3½c per lb., where the runs will not average 4,000 lbs. daily the year around, is taking grave chances. It is my opinion that most of the failures in the creamery business are due to haphazard work and not getting out the making, and I tell you, brother creamerymen, that it is not for your protection alone that you do this, but it is for the interest of your patrons as well. The surest way to kill the creamery industry in a community, is to have the creamery fail.

Perhaps some of you will say this does not help us in determining the absolute cost of making a pound of butter. This question puts me in mind of a scene in a play I saw when I was a kid and could laugh easy. A darky was propounding the end man a question—A ship was 200 ft. long, 30 ft. wide, 25 ft. deep; had 3 masts and could steam 15 knots an hour—the darky very impressively emphasized each detail of the problem in his characteristic way—"Den de questium is, sah, to figure dis all up and tell me de captain's name."

Now, it seems to me that the cost of making is about as hard to figure out as the captain's name was for the end man. I think, however, that assuming as a basis $50.00 help, $4.00 coal and $2,500.00 investment, with 10% interest on the same, the making can be safely and justly made on the basis of this: The factory must always pay the expenses of running when running less than 4,000 lbs. per day, the creameryman to get 3½ cents per lb. when running 4,000 lbs. per day, to 2½ cents when running 9,000 lbs., taking off 1 mill for each 500 lbs. increase in milk. With extreme prices of fuel the difference between the actual cost and the $4.00 price should be stood by the dividend. My reason for this is, that it is an extreme price, and creamery men, in making their calculations, could not foresee this heavy tax upon them, and it is not just to ask them to stand it.

There is another element in the cost of making that I have not mentioned. It is in the question of yields. Some factories have an average yearly churn yield as low as 4.20, others run as high as 4.80. It will at once be seen that here is an

A GREAT SUCCESS.



The Miller Cream Pasteurizer has a capacity of from 450 to 600 lbs. per hour.

Price $150 in Tin. $200 in Copper.

THE MILLER PASTEURIZING MACHINE CO.

CANTON, OHIO.



husker and shredder is a "Little Giant" when it comes to considering the amount of work it will do in a day. Every corn grower can well afford to own the McCormick "Little Giant" husker and shredder. The machine has capacity enough for several farms where two or more want to join together in the purchase. The stover from the McCormick is relished by the stock.

ADDRESS NEAREST

McCormick Branch House

EAU CLAIRE, GREEN BAY, MADISON, and MILWAUKEE, WIS.

element or factor that must enter largely into the cost of making. Then, too, there is the question of the ice and its cost. To some creameries this is a very small item; to others, it is a very heavy one. Then some creameries can pump their water from a shallow well, or perhaps may even have a flowing well. While others may have to pump it one or two hundred feet at an expense as heavy as the running of a separator. Then, again, one creamery is right at the station and at no expense for hauling to speak of. Another creamery at a country point may find this a very heavy and constant tax on the cost of making.

While I have suggested some of the more prominent factors that enter into the cost of making, I have no doubt that others will come to your mind and so I will close that others may add their experiences or ideas along this line.

Gassy Curds.

ED. HOARD'S DARYMAN:—I have been having for the last week nothing but pin holes. Can you tell me what causes it? The milk seems to come in all pretty good in the morning and works good till matted down to a one-half inch thick, then it commences to be just full of pin holes. I worked at it till eleven o'clock at night and by the time it is ready for the press I have them all worked out. I run from three quarters of a inch to one inch of acid in the whey and use a common starter. Now won't low land pasture cause this? I think it will. F. Y.

Weyauwega, Wis.

ANSWERED BY U. S. BAER, MADISON, WIS.

Judging from this maker's brief review as to the manner and time employed in ripening and maturing the milk and cheese curds, I would say that his process of developing the desirable fermentation is too slow, giving the undesirable the ascendency over the lactic acid germs which are the cheesemaker's best friends.

Gassy fermentations are almost sure to produce undesirable taints that pass over into the cheese, materially injuring its quality.

If the difficulty appears before the milk is set, the milk is said to be "gassy." Often it is delayed until the cooking process, when the curds rise to the surface of the whey. Such curds are termed "floaters."

Some curds develop gas in the early stages of matting; this we term "pin holes" in the curd.

In the case at point the appearance of gas is delayed until near the close of the process of manipulation, and we call it the "huffing" of the curd. All of these appearances, whether they occur in the milk, curd, or green cheese, are to be traced back to a faulty condition in the milk.

The application of the Wisconsin Curd Test to the milk supply of the factory will surely point out the detective milks containing the noxious germs that cause the above named abnormal fermentations. All such milk should be refused.

The extent and rapidity of the development of gas in the factory can be controlled in part by the cheesemaker, but it must be remembered that unless the factoryman is furnished with clean, pure milk, free from these taints and gas, he cannot hope to make a first-class article.

I would suggest the liberal use of a good, clean, commercial starter. It should be added to the first milk weighed into the vat and the steam applied so that the vat will be ready to receive the rennet as soon as the last batch of milk is received. By doing this, the lactic acid germs introduced through the starter, get an early start and overcome the undesirable taints and fermentations. I think it was Monrad who said that "starters like charity covers a multitude of sins."

Tainted or gassy milks, should be ripened lower than normal milks; to that point where the whey will be ready to remove in one and one-half hours from the time of adding the rennet. Curds from milk of this character will stand more acid in the whey. If properly formed, one-fourth inch string on the hot iron at time of dipping will aid in keeping the lactic acid in advance of the objectionable fermentation in the subsequent process of matting and piling.

Allowing a little more moisture in the curds up to the time of salting will also aid in the rapid development of the lactic acid.

One-fourth pound more salt per one hundred pounds of curd should be used than is customarily applied to normal curds, to expel the excess moisture, improve the flavor and give keeping qualities to the finished product.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

A Question on Skim Milk Value.

ED. HOARD'S DAIRYMAN:—The following inquiry has been received:

"Do you know of any experiments conducted to show the relative feeding value of skimmed milk, fed while still containing the animal heat, and skimmed milk that has been artificially warmed after having become cold? I don't want you to go to any trouble, but if you can put me on track of a station report describing such experiments, I will greatly appreciate it."

Chicago, Ill. F. B. W.

The correspondent raises a pretty fine point and one upon which no direct experiments have been made, so far as I am aware. If the skim milk be cooled well as it comes from the separator and be kept in a cool place, in a clean container, until it is artificially warmed again, there is no reason to believe that its feeding value would differ from that of skim milk fed while still retaining the animal heat. But that is a hypothetical case, one which would not be met in practice, for it would be too expensive to cool the milk artificially and heat it again. If the milk is allowed to cool gradually and kept at ordinary summer temperature, bacteria, which abound therein, will have just the right conditions for luxurious growth and the result is seen in the rapid souring of such milk. If the tank or cans, in which the skim milk is kept have not been cleaned well, the souring will, of course, take place so much the more rapidly. While partially sour milk has only a slightly lower feeding value than fresh milk, it is a less satisfactory food for all farm animals, except pigs, than milk fed fresh, and this holds true whether the milk is warm or cold when fed. For this reason skim milk is worth more to the feeder when fresh from the separator or soon after having been pasteurized, than at any later time. It it is also most convenient and cheapest to feed the skim milk that way, if it can be done, as it saves the expense of a second heating.

F. W. WOLL.

Wisconsin Experiment Station.

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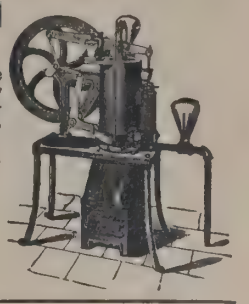
HALF ENOUGH WATER

Is quite enough for some people, but most people want water every day. If



RIDER or ERICSSON HOT AIR PUMPS

Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.



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May be kept ever so clean, your cattle may be pedigree stock and you may feed them in the most approved manner, but your patrons will never suspect these things if you deliver milk from a ramshackle wagon. An attractive milk wagon attracts trade; it's not a luxury, but a practical necessity.

The Koenig & Luhrs wagons are built for the business. They embody every convenience, are handsome in finish and general appearance, are made of good materials and are so well put together that they'll last for years. A quarter of a century's practical experience has taught us the "know how" of good wagon building. Are you considering a new wagon? It will pay you to get our catalog and prices before placing your order.

Koenig & Luhrs Wagon Co.,
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The National

LOW DOWN CUT-UNDER

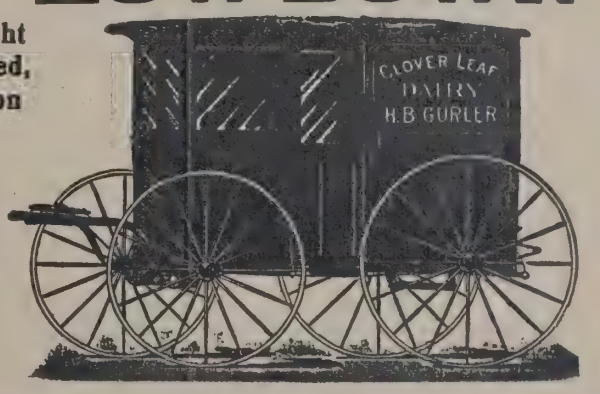
justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

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THE ONLY LOW-DOWN

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20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for catalogue, prices and terms Wagons for carrying Bottled Milk a specialty.



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BEST MILK WAGON ON EARTH.

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The Janesville Cement Post Co. has now ready for sale and immediate delivery a large supply of line fence posts, corner posts and hitching posts. Those desiring posts that will neither rot nor burn, but posts that will last forever, write for catalogue.

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ANOTHER BEAUTY.

Watch for the Next.



We know it will interest you. Write for our Form E catalogue showing many other styles.

THE O. ARMLEDER CO., Cincinnati, O.

NOW IS THE TIME TO SUBSCRIBE FOR HOARD'S DAIRYMAN.

Sunstroke of Horses.

(Newspaper Bulletin.)

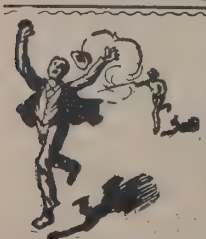
During periods of excessive heat, horses in the fields, or upon the streets, are liable to suffer from sunstroke or "overheating." Much may be done by the owner to lessen the likelihood of an attack. Seeing that affected horses are usually those that are sick or "soft," every possible means should be taken to prevent indigestion and fit the animal to withstand labor in hot weather. Horses under five years of age are more apt to suffer than seasoned. adult animals; hence should be worked lightly during hot weather, as should new purchases and horses being acclimated in a new location. Indigestion, the common forerunner of sunstroke, is indicated by dullness, sluggishness, thick urine, panting at light labor, sweating in stable and the changeable character of the manure, which is normal some days and again clay-colored, mucous-covered, or an undigested, offensive mass. When so affected it is extremely dangerous to work the animal in extra hot weather. Slight change of food, more care in feeding, rest and simple correctives are required in such cases, and preventive measures may be adopted as follows: Feed hay night and morning only; give drinking water before meals and in small sips often when at work; prefer clean, soft water to that rendered "hard" by the presence of lime salts which tend to derange the stomach; remove harness at noon and allow sufficient time for rest and mastication of food; groom skin thoroughly once daily; feed sound food; avoid corn in summer as it is heating; prefer sound, old oats, which repair waste of tissue and promote vim and endurance; avoid sudden changes of food and do not feed heated, green grass or clover; cleanse stable daily, ventilate perfectly, screen doors and windows, remove manure piles from vicinity of stable; feed fresh food each meal. Shade horse's head when at work; avoid heavy, wet sponge; if possible, do not work three horses abreast, as the middle horse suffers thereby and is the most liable to sunstroke; where such combination cannot be avoided, change horses often to afford as much relief as possible. Choose coolest hours for work and change teams often during sultry, moist weather when thunder storms are prevalent.

SYMPTOMS OF OVERHEATING.

Horse lags, requires urging, may pass soft manure and gas, sweats but dries off suddenly, becomes weak, staggers, pants, has dilated nostrils, red eyelids and lining of nostrils, anxious countenance, weak, rapid pulse, high fever, falls. In sudden attack may fall at once, show above symptoms and die in a few minutes or hours after period of madness or unconsciousness and loud snoring. Following bad attacks, brain becomes softened and animal stands with head jammed in corner; is blind, forgets to chew food and remains a "dummy," i. e., stupid, weak and useless in hot weather. Less severe attacks recovered from, unfit horse for work in warm weather.

TREATMENT.

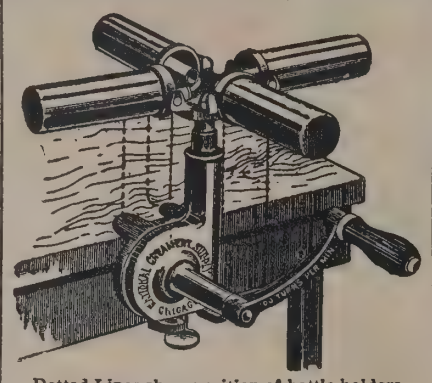
Do not bleed or allow bleeding to be done. Do not give aconite, belladonna, acetanilid—they are highly dangerous in amateur hands. Do not put ice-pack on the head—it tends to produce softening of the brain. Stop work immediately, remove harness, get horse into a shady place, under a tree where there is a breeze or draft of air. Administer half a pint of whisky in equal quantity of water, or two ounces of alcohol (not wood alcohol), well diluted with water, or two ounces of sweet spirits of nitre and one ounce of aromatic spirits of ammonia in



You Coward

You killed him behind his back! That's what YOU would say would'nt you if you saw such a scene as the picture shows? Did you ever stop to think that YOU may have killed someone? You may be sending death and sickness and misery to some happy home because the milk you sell or make into butter or cheese has absorbed diseased germs from your carelessness in not killing that bad odor. Would'nt you feel better to know you had invested $2.50 in a can of Kno Germ that is absolutely guaranteed to kill bad odors, and you had it ready the moment you notice the bad smell? A can of Kno Germ makes 800 gallons liquid odorless Disinfectant-six large barrels-costs you $2.50. Guaranteed by us and your regular supply house. Be ready and order TO-DAY, or send 5-cent stamp for sample can and test it. Sample makes 10 gal. liquid odorless, disinfectant. Splendid in the sick room. May save you doctor's bill, perhaps life. Don't put it off, write us now while you think of it. M. H. FAIRCHILD & BRO., 399 Michigan St eet, CHICAGO.

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Babcock Milk Tester



Dotted Lines show position of bottle holders when not in motion.

Has enclosed cut gears.
Swinging bottle-holders.
Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

DOES YOUR DAIRY PAY?

It costs no more to feed a profitable than an unprofitable cow.

NET PRICES:

No. 1,—2 bottle, complete for testing milk.... each $4 00
No. 2,—4 bottle, complete for testing milk.... each 5 00
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Prices include full directions for making test, bottle of acid, test bottle brush, acid measure, dipette and test bottles.

We are the great Dairy Supply House of the West. We carry an immense stock of all kinds of Butter and Cheese Making Apparatus and Supplies. Write for catalogues and circulars.

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IS THERE ANY REASON



why you should pay the dealer a large profit for selling you fence when you can buy the

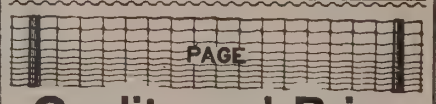
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direct from our factory at manufacturer's prices? There is no better farm fence made. Entirely interwoven—no ends to get loose and injure stock or ravel out. Many heights. Circulars and special discounts free.

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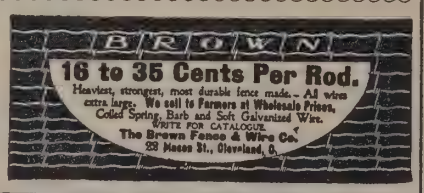
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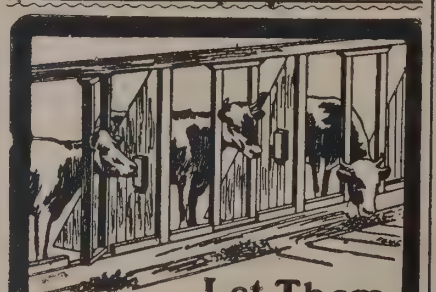
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Let Them Help Themselves.

They'll not take too much, and they'll get it as they want it. Don't force animals to eat salt when they don't require it, by mixing with food.

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are all salt, no impurities. Improve the quality and yield of milk. A modern convenience, always present, animals never neglected, and costs for each only about a nickle a month. See how they enjoy helping themselves when you place it within reach. For all stock. Buy of dealers or send for free booklet to

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THE AVERAGE MILKMAN'S COW			A WINTERGREEN HILL COW		
2920 quarts of milk at 5c.		$146.00	Gave over 6000 quarts in one year that was sold for 8c per quart		$480.00
Keeping	$35.00		Deduct for keeping	$ 65.00	
Expense of sale	33.80	68.80	Expense of sale	120.00	185.00
Net		$ 78.20	Net		$295.00

The Jersey is sometimes condemned as an insufficient milker for milkmen's use. It is not true, however, of such strains as are bred for deep milking qualities as well as richness. Above is the record of one of the deepest milking daughters of "Exile of St. Lambert, 13657," and the herd contains other heavy milkers. If you would improve your herd by a bull calf, buy him now while you can. A little book tells much about the subject. Write for it, and for bull sale list. See also advertisements on pages 514 and 536.

WINTERGREEN HILL FARM, Dept. A., Scottsville, N. Y.

THE BROWN BESSIE HERD Offers one bull 14 months old, sired by Recorder, 29239, the only living son of Brown Bessie and has 14 tested daughters. Dam, Relay, 70353, test 17 pounds 2 ounces. She a daughter of Diploma with 61 tested daughters. Also Berkshire Pigs of English and American selected stock.
H. C. TAYLOR, Orfordville, Wis.



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At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.

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The Large Improved Yorkshire is by all odds the best hog on the market today. Prolific, easy keeping, with desired size lacking in Small York. Boars, $20 to $8.

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AYRSHIRE BULLS
Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address,
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AYRSHIRE CATTLE of the BEST of BREEDING. Also Chester White Pigs, ready to book for season's trade. Young stock of both sexes. Prices reasonable. Come and see us.
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Rosendale Guernsey Herd
TUBERCULIN TESTED.
Sixty head of choice Guernseys headed by Coralette's Son, (see page 450) whose dam, Coralette made 479.7 lbs. fat in one year at 3½ years old, and was first prize cow at Wisconsin State Fair in 1896.
Some fine young bulls for sale.
GEO. C. HILL & SON, Rosendale, Wis.

Wasteland Guernseys
Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.
M. M. & E. J. HOLLINGSWORTH,
Landenberg, Chester Co., Pa.

GUERNSEYS.
HADDON FARMS—Home of the noted GLEN WOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

The Evergreen Farm Herd has for sale three or four A. J. C. C. heifers bred. Also a few cows and some choice bull calves from two to six months old. Write for pedigrees and prices.
N. N. PALMER & SON, Brodhead, Wis.

GUERNSEYS FOR SALE.
Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Trouperа Pride, Tops of Gold and Lord Yexa.
JAS. H. BEIRNE, Oakfield, Wis.

GUERNSEYS FOR SALE
Bull two years old out of Count Topsy 24.27 lbs. butter 7 days. She won 1st prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality F. W. TRATT, Whitewater, Wis.

Old Homestead Guernseys.
Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.
Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL Perry, Lake Co., Ohio.

VALLEY FARM Offers for sale a son of "King of St. Lambert's King" out of a daughter of "Gazilla's Fawn," dropped July 29th., 1900. Also have some young bulls. Write your wants to
FRED STUBLEY, Black Earth, Wis.

PROSPECT HILL JERSEY HERD.
Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. P. H. SCRIBNER, Rosendale, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.
W. J. HUSSEY, Mt. Pleasant, O

FOR SALE GOLDEN LAD BLOOD, sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

BILTMORE JERSEYS
are great and presistant dairy workers and typical Jerseys. We ask comparison with any other herd for
YEARLY MILK & BUTTER YIELDS, SUBSTANCE AND FINISH.
The herd contains more prize winners at the leading exhibitions (including the Pan-American) than any other herd.
The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service as you cannot get it.
Also Headquarters for Large English Berkshires and Standard Poultry.
Apply to
BILTMORE FARMS,
BILTMORE, N. C.

HAZEL FERN HERD. A. J. C. C. Jerseys blood of St. Lambert, Melia Ann, Combination, Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

ROBINSWOOD JERSEY DAIRY is offering a few Reg. Jersey Bulls ready for service at from $25 to $50, sired by a grandson of Recorder, the only living son of Brown Bessie, out of good cows. Write, stating your wants, to
N. H. ROBINSON, Prop., Centralia, Wis.

FOR SALE.
JERSEY BULL, one year old. Good individual of the best breeding. Also 7 months bull from tested dam. Herd headed by Fontaine's Owl, 60436. Prices on application. Address,
J. F. EGERTON, Footville, Rock Co., Wis.

one quart of water. Repeat in half above doses, hourly, until horse revives. Add four ounces of granulated hyposulphite of soda if he is bloated; tap with trocar and cannula high in right flank if bloating is excessive; and in bloated cases give rectal injections of soapy warm water hourly. High fever may be detected by hand in horse's mouth or use of thermometer in rectum. If it is 108 Fahr., or over, give one ounce saltpeter dissolved in pint water, in addition to stimulants prescribed above and repeat in six hours. From start of treatment keep cool, wet packs to poll of head and sprinkle entire body with cold water from a sprinkling can held a foot above body. A piece of ice may be placed in water thus used. If pressure water is at hand, tie hose to browband of bridle and allow gentle stream of cold water to flow constantly over patient's head. On recovery feed lightly upon bran mashes and a little grain, and allow rest for two weeks; do not work again in hot weather during season of attack. Where symptoms of brain-softening remain after attack, give one drachm iodide of potash three or four times daily in a little water, according to severity of symptoms, and continue cold, wet packs to head. Feed soft, light, easily digested food.

A. S. ALEXANDER, Veterinarian.

Wisconsin Agricultural Experiment Station, Madison, Wis.

A Correction.

ED. HOARD'S DAIRYMAN:—Through some mistake the figures $42.70 were given as one-third the value of the milk the cow gives. Instead of that it was the whole value. (Page 507 in DAIRYMAN of July 10th.) Also the word always was added. I wrote "Uses a registered bull but not always a registered bull." G. L. POOLE.

Ohio.

Ropy Milk.

Milk after setting 10 to 24 hours the cream becomes ropy. S. A. G.

Huntington, W. Va.

The above is a case of ropy milk, produced by a species of bacteria. To rid the dairy of it, a thorough cleaning is necessary. Everything connected with the handling of the milk should be scalded with boiling water containing washing soda. This may have to be done more than once, as the ropy milk bacteria is very resistent to heat. It may be also necessary to give the cow stables a cleaning and whitewashing.



Pioneer Brand
Parchment Paper

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Sheets for Print Wrapping, Box Linings, Circles and Tub Linings. Name or brand on sheets when ordered. Write for samples. Book, "Better Butter," free.

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Young Man
STRIKE *out for yourself*
with one of our Latest Well Drilling Machines. They are great money makers! Think it over and write for catalogue.
LOOMIS MACHINE CO., Tiffin, Ohio.

Hay Fever and Asthma
Cured to stay cured. Never return. A radical departure. Cause eliminated. Constitution changed. **FREE** Nerves reconstructed. Splendid health. Over 52,000 patients. Good references. ("Reliefs," or change of climate, cannot cure..) Write for BOOK 41 F FREE, containing reports of many interesting cases. Address
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HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA.
President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.
FEES FOR REGISTRY.
TO MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.
NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. All blanks furnished free.
Life Membership, $25.
Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.
Address F. L. HOUGHTON, Putney, Vt., for information relating to Registration of Pedigrees.


HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

HOLSTEIN-FRIESIANS
FAIRVIEW HERD
We offer from this herd a few choice yearling bulls, also four very fine bull calves. Write describing what you want.
O. J. GODFREY, Pennellville, N. Y.

HOLSTEIN-FRIESIAN BULLS FOR SALE.
Ready for service; from A. R. O. animals; sired by Johanna Rue 2nd Paul De Kol, sire of 13 A. R. O. cows. Also young bull calves by same sire. **THOS. GAINES, Supt.**
ARCADIA, - MISSOURI.

TYRANENA HERD
100 HOLSTEIN-FRIESIANS 100
A. R. O. Stock For Sale.
Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 83 lbs. 5 oz **Frank B. Fargo, Lake Mills, Wis.**

WOODLAKE HERD.
Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. **JOHN B. IRWIN** Station D., R. 1, Minneapolis, Minn.

Markham Manor Farms, Simonsville P. O. Andover, Vt.
Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Sclderne Clothilde. No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for description and price to **J. A. THORNTON, Manager, Simmonsville, Vt.**

FOR SALE 2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.
M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

CLOVERDALE HERD
HOLSTEINS.
Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.
A. J. DAUGHERITY Streator, Ill.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22126. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148 Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.
WM. EVERSON & SONS, Lake Mills, Wis.

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. All our choice pigs of 1902 farrowing have been sold. We are now taking orders for 1903 farrowing.
JOHN WHITE & SON, Adamstown, Md.

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IF SO, you have felt the need of a convenient, simple and handy Record Sheet. We have had so many requests for these Record Sheets that we concluded to get up one that would "fill the long felt want." We have a very simple and complete Record Sheet for 10 cows, one month, that is printed on heavy Manilla Paper, we can send postpaid at following prices:

Price 5c Each	6 for 20c	12 for 30c	25 for 50c

SIZE 10x16 INCHES

We also have a one cow Record Sheet, heavy Manilla paper (one month) that we will mail postpaid

Single Copy 5c	5 for 15c	10 for 25c	25 for 40c

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HOARD'S DAIRYMAN.
FORT ATKINSON, WIS.

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Headed by Mercedes Mechthilde Pietertje, No. 25,795, oldest son of Mercedes Julips Pietertje, 75 O. I. C. White Pigs, both sexes, in pairs and trios, not related.
W. R. GATES, Fort Atkinson, Wis.

OAKLAND HERD HOLSTEINS
PREMIER SIRE **Mutual Friend 3d's Paul** A son of Paul De Kol & Mutual Friend 3d, 21.84 lbs. butter, milk averaged 4.7% at 3 years. She has two A. R. O. daughters; 1 made over 20lbs, Must reduce herd at some price. State just what you want T. A. MITCHELL, Weedsport, N. Y.

BROOKSIDE HERD
HOLSTEIN-FRIESIANS
To reduce herd to capacity of pasture, will sell a limited number of A No. 1 young cows of high breeding and individually right, large producers, at $150 each; also 15 bull calves at bargain prices.
STEVENS BROTHERS, Lacona, N.Y.

4 BULL CALVES FOR SALE
Under 6 weeks, fine individuals from our Clyde Paul De Kol bull; Dam 24.38 lbs. butter in 7 days. And from tested cows, with good records, the price is right. W. B. SMITH & SON, Breeders Pure Holstein Cattle.
2488 W. Broad St., Columbus, O.

THE MAPLE'S HERD
offers good young cows with A. R. O. records in calf to Beryl Wayne De Kol Paul, No. 28785, whose dam Beryl Wayne has an official record of 27.87 pounds of butter in 7 days. Also four yearling bulls ready for service. Special bargains in heifer and bull calves.
JOHN C. GODFREY,
PENNELLVILLE, N. Y.

Holstein-Friesian Bull Calves
Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

HOME FARM HERD.
Headed by **COLANTHA 4TH'S LAD.** Official test of three nearest dams, 25.1 lbs. butter in seven days. Herd numbers 125 head.
BEST FAMILIES REPRESENTED.
Special prices on six or eight bulls of serviceable age. **W. B. BARNEY & CO.,**
Hampton, Ia.

STAR FARM HOLSTEINS.
Increase Butter Fat in Milk.
Do you want to increase the per cent. of butter fat in your dairy? The quickest, surest and least expensive way is to head your herd with a bull from a high testing dam.
Mercedes Julip's Pietertje Paul No. 29880 is a son of Mercedes Julip Pietertje No. 39480 her 1901 world's seven day butter record of 29 lbs. 7.5 ozs. butter made from 540.8 lbs. of milk with an average test of 4.025 per cent butter fat has never been equaled by any cow living or dead. She is the highest testing champion butter cow of the world. Mercedes Julip's Pietertje Paul is king of Sires. Females bred to him for sale. His bull calves from fall increase can be ordered now.
HORACE L. BRONSON, Cortland, N. Y.

ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.
GEO. T. McNEIL, Theresa, N. Y.

FOR SALE.
H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29828. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address W. H. JONES, Watertown, Wis. Rural Route No. 2.

HOLSTEIN ADVERTISEMENTS
Are numerous, as you have noticed by the many that appear on this page; but members of our herd and cows sold from here or sired by bulls we bred, won over 47½ per cent of the money offered in prizes by the H. F. Association for the largest official records of the year that just closed. Such a statement can be made of
ONLY ONE HERD
And our prices are no higher than others are asking. **THE STEVENS HERD,**
Henry Stevens & Son. Lacona, N. Y.

Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. **C. H. STEVENS, Jefferson, Wis.**

.....YOU MAY.....
BEGIN AT THE HEAD
to improve your dairy herd with a bull whose dam has official record of 18 lbs. 6.3 oz., sires dam 20 lbs. 8.8 oz. Individual right. Price Right.
McKAY BROS., Buckingham, Iowa.

HIGH-CLASS HOLSTEIN-FRIESIAN BULLS
and Bull Calves from A. R. O. dams and the best Advanced Registry sires. Cows all officially tested; I breed from no others. Correspondence from breeders and progressive dairymen invited. **Malcolm H. Gardner, Darien, Wis.**

HOLSTEINS
High Class Advanced Registry Stock only. Best butter families. Stock for sale.
Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.


T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.
Wm. O. Jackson & Sons, South Bend, Ind.

LOOK HERE.
34 cows and heifers in the **McGEOCH HERD** have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.32 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by **Gem Pietertje Hengerveld Paul DeKol,** or **Sir Ormsby DeKol** for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days, average per cent of fat 4.47. Are these the kind of **Holstein-Friesians** you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd? **McGEOCH HERD** is located at Lake Mills, Wis., 56 miles west of Milwaukee. For particulars address **H. B. Daggett, Mgr., Station A, Milwaukee, Wis.** Residence: National Ave. near 40th. Phone, South 1601

SOUTH SIDE FARM, WHITE BEAR LAKE, MINN.
Holstein-Friesians.
Bulls in service, Prince Inka Pietertje De Kol 2d, A. R. O., 144, sire of 10 A. R. O. cows, and Daisy Van Beer's Pauline De Kol, 27610, whose dam has official record of over 22 lbs. in 7 days. Special prices on young bulls from A. R. O. cows. Also Yorkshire pigs of most approved breeding now fit to ship.

THE MONONA FARM HERD
OF HOLSTEIN-FRIESIANS
Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 69.50 lbs. one day. Breeders and dairymen please write for prices.
F. W. ALLIS,
Monona Farm. Madison, Wis.

FOR SALE. H.-F. Bulls, ready for service, from A. R. O. Cows and sired by Sir Jonanna DeKol, 35467 A. R. O. Butter record of dam, 24.08 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis

A Creamery Patron's Record.

ED. HOARD'S DAIRYMAN:—You wish facts so I will send you the statement of patron No. 1 of the Oakwood Creamery, showing what seven cows returned one man who owned a farm of about one-hundred and thirty acres. His cows, as you see by his tests, are grade cows, yet their returns figure up surprisingly. As No. 1 has no silo he feeds for a grain ration, oats and corn, about two-thirds oats, and feeds liberally, aiming to feed about one lb. of grain to the hundred weight of cow, using corn stover and hay for roughage.

He thinks skim milk is worth to him fifteen cents per hundred lbs. for growing young animals, and a portion of his returns are obtained that way, for the creamery returns four-fifths of the milk taken to it. This man took to the creamery 41,886 lbs. of milk; his returns, according to what he considered his skim milk worth to him, was $40.25, quite an item. I think, from the growing animals I saw at his farm, he estimated his skim milk lower then it was worth to him, but I aim to give the facts just as they are given to me.

This man has always been a careful, pains-taking farmer, making it a point to grow the best crops possible; had never kept cows before, except for family use.

I wish to mention a home-made device I saw at his place to keep his milk cans when filled with milk from being molested. It was a small frame inclosed with poultry netting with a door hung on hinges. This was placed out in the yard away from the barn and from all ordors. The simple arrangement prevented all dogs, cats, and the like from approaching the cans while in use.

I give you his returns for the year: for butter $478.06; skim milk $40.25; calves sold $15.00; milk used in house, $25.00; making his returns per cow $79.75, or in other words more visible money returns than the other sales from the farm. He has no silo and never before made any special effort to know what a cow was worth to him, and does not know what a pound of butter cost him; never has tried to gain any special dairy knowledge but finds he must keep better posted in that line, therefore, subscribed for HOARD'S DAIRYMAN. A. D. B.

Aurelius, N. Y.

Continued Discussion.

"The teacher easily becomes imprisoned in yesterday's methods. He is too prone to look back for details instead of looking about him for present inspiration."—H. D., page 390.

ED. HOARD'S DAIRYMAN:—The controversy about the necessity of feeding concentrated purchased feed to dairy stock has been brought on by the unjust and unkind treatment of my questions by the editor or sub-editor of the DAIRYMAN. No question is settled until it is settled right and in accordance with the best evidence obtainable.

The editor makes two positive assertions:

1. A cow of pronounced dairy temperament cannot eat and digest enough roughage to furnish sufficient raw material from which to elaborate milk up to her capacity.

2. We think that cows will do fairly well on clover silage and clover hay alone, but better and with more profit if they have some grain in connection.—H. D., page 258.

I asked the editor politely to state on what facts and proofs he based these assertions, and requested him to give them to the readers of the paper in detail. Up to date no positive facts or proofs have been presented.

Every man makes mistakes, and if the editor has made assertions which he can not fully establish by facts and proofs, let him say so and the controversy is ended. A straight answer to a straight question is always the best policy.

It is evident that the editor is prejudiced in favor of feeding concentrated foods to milk cows. Let him prove to the readers of the DAIRYMAN that such feeding is for the benefit of the cows and that it gives the largest net income to the dairyman, and every reader will support his theory and advocate it.

Hedging behind such terms: "That farm grown grain crops are fully as concentrated as the general run of the so-called by-products, therefore, the facts apply as much to rations which can be raised on the farm, as to rations made up in part from purchased products," does not better the matter and proves nothing, as it is immaterial to the question at issue.

The question which has to be determined by facts and proofs is: Is it necessary for successful dairying to feed to the milk cows concentrated, purchased food, and can, by such feeding, the net income from the dairy be increased?

If the DAIRYMAN can furnish facts which prove that it is more profitable to the farmer to incur this extra expense, than to rely solely on produce raised on his farm, for the food for his stock, let him produce such facts. I contend that he cannot do this as I do not believe that such facts exist.

The DAIRYMAN has adopted the practice of most of our farmers, to do as their predecessors and ancestors did, and not to go to the trouble of ascertaining the truth.

In support of my position I inclose 8 rations. The first two are copied from page 466 of HOARD'S DAIRYMAN and the rations cost 15½ cents and contain respectively 11 and 8 lbs. concentrated food. Below I give 6 rations which the farmer can raise at a cost of 3½ to 6 cents per ration. Every one of the farmer rations is a balanced ration according to Prof. Haecker's teachings and contains more digestible nutrients than either of the rations costing 15½ cents. None of them is too bulky. The dry matter averages about 24 lbs. and the digestible nutrients about 14 lbs., while the protein in the rations is between 1.69 and 2.04 and can be increased by small additions of soy beans to any desired extent.

A FEW RATIONS FOR COMPARISON.

REPORT OF HERD 6, PAGE 466, FOR 1 & 2.

FOOD STUFFS.	Dry Matter.	Protein.	Carbo-hydrates.	Fat.
5 lbs. bran	4.42	0.545	2.005	0.170
5 lbs. corn meal	4.45	0.393	3.335	0.215
1 lb. gluten feed	0.90	0.233	0.507	0.027
5 lbs. timothy hay	4.34	0.140	2.170	0.070
12 lbs. corn stover	7.14	0.204	3.888	0.084
Total	21.25	1.517	11.905	0 566

Total nutrients 13.988. Nutritive ratio 1:8.743. Cost 15.5 cents.

5 lbs. bran	4.42	0.615	2.005	0.170
2 lbs. gluten feed	1.80	0.466	1.014	0.054
1 lb. oil meal	.91	0.293	0.327	0.078
15 lbs. timothy hay	13.02	0·420	6.510	0.210
Total	20.15	1.794	9.856	0.512

Total nutrients 12.162. Nutritive ratio 1:6.18. Cost 15.6 cents.

40 lbs. corn and bean silage	8.34	0.79	4.01	0.15
10 lbs. Minn. fodder corn	6 45	0.407	3.327	0.073
5 lbs. marsh hay	4.61	0 175	2.235	0.035
5 lbs. soy bean straw,	4.50	0.115	2.00	0.10
1 lb. soy beans	0.89	0.296	0.223	0.144
Total	24.79	1.783	11.895	0.502
If for the 5 lbs. marsh hay you substitute 5 lbs alsike hay	4.51	0.42	2.12	0.075
Total	24.69	2.028	11.78	0.542

Total nutrients 14.18, Nutritive ratio 1:7.4. Cost 5.5 cents.

Total nutrients 14.35. Nutritive ratio 1:6.45 Cost 6.5 cents.

40 lbs. corn and cow pea silage	8.34	0.79	4.01	0.15
10 lbs. fodder corn	6.45	0.407	3.327	0.073
10 lbs. alsike hay	9.02	0.84	4.24	0.150
Total	23.81	2 037	11.577	0.373

Total nutrients 13.987. Nutritive ratio 1:6.123. Cost 5 cents.

40 lbs. corn and cow pea silage	8.34	0.70	4.01	0.15
10 lbs. fodder corn	6.45	0.467	3.327	0.073
10 lbs. marsh hay	9.22	0.35	4.47	0.070
1 lb. soy beans	0.89	0.296	0.223	0.141
Totals	24.90	1.843	12.03	0.437

Total nutrients 14.31. Nutritive ratio 1:7.1. Cost 5.5 cents.

10 lbs. corn fodder	6.45	0.407	3.327	0.073
10 lbs. stover	5.95	0.17	3 24	0.07
5 lbs. oat straw	4.54	0.04	1.93	0.04
5 lbs. marsh hay	4.61	0.175	2.235	0.035
3 lbs. soy beans	2.67	0.882	0.669	0.432
Totals	24.22	1.700	11.401	0.650

Total nutrients 13.75. Nutritive ratio 1:7.6. Cost 6 cents.

10 lbs. corn fodder	6.45	0.407	3.327	0.073
10 lbs. stover	5.95	0.17	3 24	0.07
5 lbs. rye straw	4.65	0.03	2.03	0.02
10 lbs. soy bean hay	8.87	1.08	3.87	0.15
Totals	25.92	1.687	12.467	0.313

Total nutrients 14.467. Nutritive ratio 1:7.83. Cost 3.25 cents.

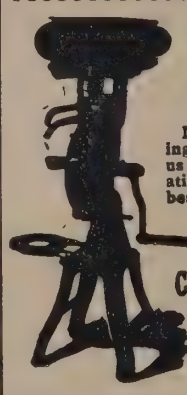
Why will you insist that the farmer shall pay 15½ cents per ration when he can raise on his farm a ration costing him only 5 cents, unless you can prove by facts and figures that it is necessary for the health of the cow to feed purchased concentrated food and that by feeding your purchased concentrated food you increase the product of the cow to such an extent that the income will be large enough to cover the extra expense and give compensation for extra work,



YOU DO THE TESTING
on your own farm and make sure you have a bargain and a money maker, when you buy the
AMERICAN CREAM SEPARATOR.
A friend to every man who owns a cow. A machine that is sold on its merits at a surprisingly low price. Get in touch with us. Write for our catalogue. It Is Free.
American Separator Company,
Won Medal at Paris in 1900. Box 1023 Bainbridge, N. Y.

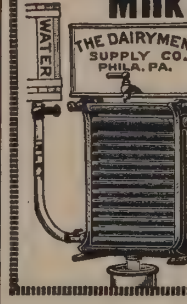


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AN UP-TO-DATE MACHINE REPLETE WITH PRACTICAL IDEAS.
It is built in the following sizes:
250, 350, 450, 600, 750 POUNDS PER HOUR
Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.
SEND FOR CATALOGUE NO. 60 AND PRINTED MATTER.
IOWA DAIRY SEPARATOR COMPANY, WATERLOO, IOWA.



Notice to Dairymen
If you are thinking of buying a Cream Separator write us for Catalogue and information. We manufacture the best machine on the market.
Davis Cream Separator Co.,
54 to 64 N. Clinton St.
CHICAGO, ILL.

WORLD CREAM SEPARATOR CO.
NEW OXFORD BALL BEARING Cream Separator
Sold on guarantee to be the best on the market. Catalog free.
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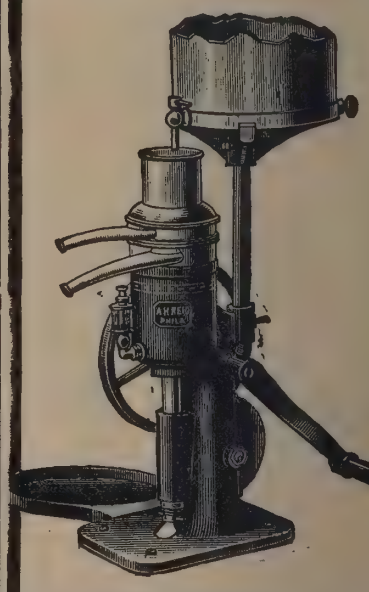
MELONEY'S Automatic Milk Cooler and Aerator
TRADE MARK BESTOV


Made of the best conducting material—sheet copper and coated with tin outside where the milk comes in contact. Cools milk quickly. Expels all animal odors and the smell of grass and garlic. Aerates it thoroughly. Can be easily cleaned. Fully guaranteed. Used by the most progressive dairymen. Send for catalogue "Bestov" dairymen's supplies.
Dairymen's Supply Co., Dept. Philadelphia, Pa.

Creasey Ice Breakers

Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right.
Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.
J. S. L. WHARTON, Mfr.,
17th Clearfield Sts. Philadelphia, Pa.

DON'T SEND A CENT Try a "1900" Washer for 30 days, free of all charges, freight prepaid both ways. The "1900" Ball Bearing Washer is the simplest, easiest machine ever made for washing clothes. Saves time, money and worry. Write at once to "1900" Washer Co., 219 A State St., Binghamton, N. Y.

Reid's Hand SEPARATOR


The "best" separator is that one which does its work most thoroughly and easily, that is built of strongest material, and that is most easily washed and kept in order.
First cost is a great point with a buyer, but ease of running, perfection of skimming and simplicity in washing are even greater considerations.
The **Reid Hand Separator** has but a single cylinder inside the bowl, and skims as closely as one-hundredth of one per cent. Indeed, some tests indicate "not a trace" of fat in the skim milk.
The Reid is perfectly planned and strongly built, and it literally "runs like a watch."
As to our guarantee of excellence, we make the strongest statement that can be expressed in words: **Money back (less freight) if the buyer is not satisfied.**
There is a new (free) booklet about the Reid Hand Separator.
Sizes run from 150 lbs. to 500 lbs. per hour.
A. H. REID
CREAMERY AND DAIRY SUPPLY CO.,
PHILADELPHIA, PA.

BUSINESS MANAGER wanted for company now organizing to manufacture Patented article for dairymen's use. Must invest $2,000 to $5,000. Fine opportunity. CAN REFRIGERATOR CO., 425 W. 4th St., Erie, Pa.

and increase above such extras the net income of the DAIRYMAN?

On your own motion you have publicly made your assertions. It is your duty to prove them or recall them. As editor and teacher of Dairy Science, I think you should collect, preserve and publish all the facts which justified you in your opinion to make the assertions. The subject is of sufficient importance to the whole dairy world to have it cleared up by thorough experiments, ascertaining the real facts and the truth. If by learning the truth the food cost for milk cows can be reduced to one-third, it may be possible to make dairying pay and even to raise beef at a profit.

Mauston, Wis. CHAS. H. GROTE.

Dairy Premiums at the Sioux City Interstate Fair, August 31, to September 5, 1903.

We wish to call the buttermakers' attention to the Interstate Live Stock Fair to be held in Sioux City, Iowa, August 31st. to September 5th (inclusive.) We would like to have a large attendance of buttermakers and dairymen and invite them to make their headquarters at the dairy hall, where nearly all of the leading supply houses and manufacturing companies will be represented. We also urge every buttermaker to compete for the premiums that are offered for dairy products. The premiums offered are as follows:

Creamery butter, $460.00 pro rata for butter scoring above 92. Besides the money premium, first prize will be awarded gold medal, second prize silver medal.

Dairy class, $50 pro rata for butter scoring above 90. First prize, gold medal, providing the score is 93 or above, second prize silver medal, providing the score is 92 or above.

Package butter, pro rata $35 for butter scoring above 91, and $5 additional for butter scoring highest. In this class, dairy butter as well as creamery butter can be entered, but it must be put up in a more convenient package for retail purposes. Earthen crocks are barred from all classes.

For the best four exhibits of cheese, each exhibit to consist of not less than five cheese, $25, $15, $10 and $5. respectively.

Professor McKay from the Iowa State College will act as judge. A stenographer will accompany the Professor and will take down notes about the defects of the exhibits and a letter, together with a score card, will be mailed to each exhibitor. The award of the judge, will be made on the following scale: Flavor 45, body 25, color 15, salt 10 and package 5.

No entry fee required, but each exhibitor must purchase an exhibitor's ticket which costs $2. When writing for exhibitor's ticket and entry blanks address, "Secretary Interstate Live Stock Fair, Sioux City, Ia. Write for entry blanks early.

It is our intention to have the exhibit as nearly uniform as possible, therefore we have put the standard package for the creamery class at 20 pounds and for the dairy class at 10 pounds. We advise the buttermakers to use a standard 20 pound ash tub, using three tins for fastening the cover. On the top of the cover, fasten a tag with your name and address marked plainly on it, then wrap your tub in several thicknesses of paper and ship it in a a 60 lb. tub. When your package is ready for shipment, address it to the Supt. of Dairy Dept., Fair Grounds, Sioux City, Ia. The butter should be shipped so as to arrive at Sioux City no later than Monday morning. No butter will be accepted later than Monday evening. The Herrick Refrigerator Co. of Waterloo, Ia., will furnish us with one of their elegant refrigerators, so buttermakers can rest assured that their butter is placed in a good refrigerator and it will even be to their advantage to ship it a few days before the fair opens, to have the buiter well chilled before it is scored.

We trust that every exhibitor will furnish an attractive appearing package. An ash tub will be made very attractive by scraping it with glass and then rubbing it with sand paper. We should always remember that the first impression the judge receives from a package, will have its effect on the final score. Use paper liners for your tubs and soak them in very strong brine before using them. Cut the butter even with the tub, a string is very desirable for the purpose. Do not leave any holes on the surface. Fold the side liner neatly over the butter and do not allow it to lap over more than about half an inch from the sides of the tub. When the side liner has been folded, a cloth circle is put on top and a sprinkle of dry salt is rubbed over the cloth. Be sure that there are no black specks in your salt and that there is no dust on the cover, when placing it on the tub. Write to the secretary for catalogue and entry blank

M. MORTENSEN,
Supt. of Dairy Dept.

To Purify Water in an Unused Well.

Will you or some of your readers please inform me through the colums of the DAIRYMAN how to purify the water of a well that has long been unused. It has been pumped dry, cleaned, and some lime put in but that is not sufficient.

Chaseville, N. Y. (MRS.) F. A. C.

The chances are, we think, that the water is contaminated before reaching the well. The sources of this contamination may be a considerable distance away, possibly several hundred feet; or it may be in the wall or behind it. In either event, there is no way known to us by which it can be purified.

This inquiry might well form the text for a long sermon on the danger lurking in wells. A well is a very convenient drainage outlet for the surrounding soil, and if there are any impurities in the soil, or privy vaults or cess-pools within reaching distance, they will be very sure in time to find outlets through the soil into a well. For a time, the fresh soil surrounding a well serves a very good purpose as a filter, but sooner or later, the soil gets saturated with filth, and instead of being a protection to the water it becomes itself a source of contamination. Creameries and cheese factories are frequently troubled by having their wells contaminated in this way.

What to do in cases of this kind is sometimes a very serious problem. Digging a new well, and stoning and bricking it up according to old customs, affords but temporary relief. A well cased up with sewer pipe or iron piping will prevent contamination much longer than a stone wall with open joints in the wall or one cased up with porous brick.

We earnestly advise this inquirer not to make us of the water in this well, however free it may appear to be from offensive taste or odors, until it shall have been thoroughly examined by some competent chemist in order to determine whether there is anything wrong with the water.



When the life of Mrs. Ruff was hanging in the balance she used Dr. Pierce's Favorite Prescription and was restored to health. Her experience made her the firm friend of the medicine that cured her.

Dr. Pierce's Favorite Prescription has no equal in its cures of womanly disease. It establishes regularity, dries the drains that weaken women, heals inflammation and ulceration and cures female weakness.

"Five years ago when my life was hanging in the balance, Dr. Pierce's Favorite Prescription was brought to my home," writes Mrs. Caroline Ruff, Director of German Orphan's Home, residing at 339 Rowena Street, Detroit, Mich. "I took it, and, it won me back to health. Ever since that time, I have been its firm friend. We frequently have mothers come to our 'Home' who are suffering with uterine troubles, inflammation, tumors and ulcerations. Our great remedy for a female trouble is Dr. Pierce's Favorite Prescription, and we have found nothing so far which would so quickly cure the disease, relieve inflammation and stop pains. It is a good friend to women."

Dr. Pierce's Common Sense Medical Adviser, in paper covers, is sent *free* on receipt of 21 one-cent stamps to pay expense of mailing *only*. Address Dr. R. V. Pierce, Buffalo, N. Y.

Special Offer of Fine Dairy Farm

ADJOINING RED WING, MINNESOTA.

174 ACRES—140 under high cultivation, balance good pasture and woodland. Has complete machinery for Dairy, with power, etc., and all machinery for cutting corn. Two large silos, sufficient to hold feed for 50 cows, and large barn to tie up 70 head. One new house—could not be built for less than $2,500; another good house for help. Large horse barn and granary. Improvements could not be duplicated for less than $7,500. Monthly receipts over $600. All for sale at $12,000.

H. A. CAMPBELL, 107 E. 4th St., St. Paul, Minn.

GOOD REASONS

why land buyers are attracted to **Marathon County** are: Because of the richness of the soil; abundance of water at little depth; fine grazing making it a very desirable location for cattle raising; excellent railroad facilities and competitive markets for dairy, farm and timber products. Central and Northern Wisconsin will be

THE COMING DAIRY SECTION

and has already made great strides in that direction, many fine herds have been established. If you want to **Own Your Own Home** now is the time to buy. Our lands are located in the northwestern part of Marathon County in a country well populated, near the prosperous village of Athens. For prices and further particulars address:

RIETBROCK LAND & LUMBER CO., ATHENS, WIS.

DAIRY AND STOCK FARM FOR SALE

667 ACRES, WAUSHARA CO., WIS.

Three miles from Wild Rose, C. & N. W. R. R. New barn, 34x136, cement floor; new silo 16x27; one barn, 30x40; 3 good houses; hog house; granary; tool house; good water; trout stream running through; "fine fishing;" adjoining two lakes; all fenced; level land. This place could be made into four good farms.

One new 10 horse Gasoline Engine; one new Ensilage Cutter, 10 ton per hour; one new Carrier; one De Laval Separator, new; one new Binder; one new Corn Cutter and Binder; one Seeder; one New Reaper and all other Farm Machinery.

Stocked with Guernseys. This place will be sold with or without stock and machinery, and will be sold at a bargain if taken soon. Address owner.

C. N. GARDNER, Saxeville P. O., Waushara Co., Wis.

Buy You a Ticket to CROOKSTON, MINN., and call upon

The Polk County Land & Loan Company

For choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.

360 acre farm, 4½ miles from Crookston, Minn, (a city of 7,000 inhabitants), and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 ft. square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm in under a high state of cultivation, and is well drained by a slight ravine running through the farm, merely sufficient for self drainage. The soil is a rich deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50,

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired. Price $19.00 per acre.

WISCONSIN

Farm Lands

$8 to $12 PER ACRE.

On terms to suit purchaser. We would like to show you the lands and can give you low railroad rates to come and look at them. This is the future dairying country of the Northwest.

Our lands are only 240 miles from Milwaukee with splendid markets on all sides. None of the land lies more than three and a half miles from the railway station. Write and find out about it. Yours very truly,

INTERIOR LAND CO.,
Janesville, Wis.

234 ACRE FARM FOR SALE

One-half mile from Janesville, Wis. New 12 room house, good barns, etc. Fine black soil. A great bargain and if taken at once the purchaser gets the rent. It is one of the best farms in the famous Rock River Valley and will be sold on easy terms to a good man.

WILSON LANE, Janesville, Wis.

Cream SEPARATORS All about them and other things for the dairy and creamery. **A. H. REID, Philadelphia.**



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Has Free Homes for Millions.

Upwards of 10,000 Americans have settled in Western Canada during the past five years. They are **Contented, Happy** and **Prosperous** and there is room still for **Millions.** Wonderful yields of wheat and other grains. The best grazing lands on the Continent. Magnificent climate, plenty of water and fuel. Good schools, excellent churches, splendid railway facilities.

FREE HOMESTEADS OF 160 ACRES

(the only charge being $10 for entry) in Manitoba, Assiniboia, Saskatchewan and Alberta. Send to the following for an Atlas and other literature as well as for certificate giving you reduced rates, etc. Superintendent of Immigration, Ottawa, Canada; or to the authorized agent of the Canadian Government—

T. O. CURRIE,
12 B. Callahan Bldg., Milwaukee, Wis.
J. M. MacLACHLAN,
307 Third Street, - Wausau, Wis.

FOR SALE

My fine country home and dairy farm of 120 acres within 1¼ miles of Waukesha city limits and electric line. This farm is well watered and fenced, and well equipped with buildings painted and in good order; 10 acres wood lot, balance under plow and in high state of fertility. For particulars address

O. P. CLINTON, Waukesha, Wis.

FINE FARMS IMPROVED, partly cleared and unimproved lands. We have in all of the Northern and Central Wisconsin Counties, Fine Stock, Dairy, and Grazing Farms. State what you want and we will meet the need.

HILES & MYERS, C-100 MATTHEWS BUILDING, Milwaukee, Wis.

WISCONSIN FARMS

In Dunn, St. Croix, Barron, and Price counties make the best homes on earth; because, 1st., soil heavy; 2d., some timber, fuel cheap; 3d., springs and streams numerous; 4th, no blizzards or drouths; 5th., no sand or pine stumps; 6th., near the best northern markets; 7th., best dairy section known; 8th., no crop failures; 9th., successful settlement and all prosperous; 10th., corn, oats, wheat, rye, potatoes, tobacco, hay, etc., unexcelled in the United States.

If you want a Canadian home, we can, and will take you to the best locality in Manitoba or Assiniboia. Send for catalogue or come yourself. We sell on easy terms our own lands in Wisconsin and Canada. **DUNN COUNTY LAND CO.,** Downing, Dunn County, Wisconsin, or 156 East 3d, Street, Rooms 5 and 6, St. Paul, Minnesota.

Dots From a Dixie Dairy.

Working Wet Soil—Corn Planting.

ED. HOARD'S DAIRYMAN:—There has been a cloud over the skies of this section of the "Sunny South," much of the time since last winter, and there has been water in the cloud, and much of it has fallen on this red clay soil. It is too wet to stir the soil a large part of the time, all farm work is delayed beyond the usual time, and planting being late, cultivating is late and as the rains still continue, the grass and the weeds grow on. In striking contrast to the unprecedented dry weather of last year, is this unsually wet season this year; but it seems to prove the truth of the saying "that one extreme follows another."

Continued wet weather is apt to tempt farmers to work the soil when it is too wet, and the result is, that this brick clay soil packs and turns up in clods, that repeated rolling and harrowing fail to pulverize; while if it is plowed when it is just right, it works up very nicely.

We began planting corn April 11, and haven't quite finished yet, nearly the middle of July. That is the advantage of so long a season, as it is claimed that corn will make fair silage, planted the first of August.

We have some very good corn in all stages of growth, up to nearly roasting ears. Our method has been to turn the land with a two-horse plow, harrow with cutaway harrow, rolling if necessary, and following with smoothing harrow, and planting with machine. Where stable manure was used, it was broadcasted before plowing, and two-hundred pounds acid phosphate and potash used per acre. Where there was no stable manure used, we drilled three-hundred lbs. of a complete fertilizer; other things being equal that fertilized with the stable manure seems to be leading. I don't say it to brag, but it is undoubtedly true that our corn is much better than a large portion of that around us, that is planted on as good soil, and in some cases at least is fertilized as well. There is of course reason for the difference, and I believe it is altogether due to a better system of tillage. Much of the corn, and the cotton too, for that matter, has been planted without the ground being turned at all, a furrow is run off with a scooter, or one-horse shovel plow, this is "bedded" by throwing a furrow into that from either side, and the corn planted in this "bed." The middles are broken out at any convenient time, and it seems that it often happens to be convenient to leave these until the corn is 10 or 12 inches high. Then when it is plowed, it is plowed with a "bull tongue" scooter, that cuts 4 or 5 inches deep close to the corn; the subsequent workings are with a cotton sweep, that doesn't cut too deep and seems to be a pretty good tool—if we didn't have a much better one in the Planet Jr. cultivator.

The corn is usually planted in rows 4 feet apart, and thinned out to one stalk every three feet. Of course, we can't expect a very large yield on a field planted in this way. It seems to me that the lack of proper plowing and harrowing the ground before planting, does not give the crop the opportunity to get at the plant food in the soil, that it should have. Again, the root pruning, which is practically what the first plowing is, cannot help it much. Again, in thinning out to such an extent, the corn never can shade the ground, consequently it is much more susceptible to a drouth, it seems to me, than if planted or allowed to stand a little thicker.

I am more than ever convinced that as good crops can be raised here as in the north, if modern tools and modern methods are applied, with a liberal coating of stable manure. There is no longer any question that successful farming cannot be done without stock raising as an adjunct, and there is certainly no form of stock-raising that will pay as well here as dairying. Cotton will always be King in the south, but when the farmers adopt the old cow as Queen, they will come pretty near having a "full house."

It is quite generally supposed that clover does not do very well in the south, but it certainly does in this section. I have seen two good fields of red clover in this county this season. One, as promising a field of clover as I ever saw anywhere, was on the farm of Dr. John Keller, who is said to be the best farmer in DeKalb Co., besides being a first-class veterinarian. We have about ten acres which is pretty fair, though it was late sown and the freeze in February hurt it some. However, we are cutting it the second time and shall get another good crop. We have been feeding it green to the cows, together with oat hay, with most excellent results. I believe the greatest trouble in raising clover here is a lack of thorough preparation of the ground. The possibilities of the soil of this section are hardly dreamed of. When we learn to depend less upon Providence and the weather man, and more upon the plow and harrow and cultivator, and, as I have said before, stable manure, then the harvests will be greater, and prosperous farmers more plenty.

M. E. B.

DeKalb Co., Ga.



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The Elgin Watch is the watch for those who use railroads as well as for those who run them.

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Take all the pains in the world to make your butter good—salt it with common salt and you'll have common butter that brings common prices. Salt it with

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"The Salt that's ALL Salt."

and you'll raise its standard to the highest prices. Write for book—"Just Salt"—it's free.

DIAMOND CRYSTAL SALT COMPANY, St. Clair, Mich.

CONCERNING OUR ADVERTISERS.

A GOOD STOCK BOOK.

One of the good books sent out free of charge by our advertisers is that of the Prussian Stock Food and Remedy Company of St. Paul, Minn. We cannot see why it should not appeal most strongly to every live stock owner, whether he keeps horses, cattle, sheep, hogs or poultry. Primarily its purpose is to bring to the attention of stock owners the valuable line of remedies which the company manufactures, as Stock Foods, Poultry Food, Heave Powders, Lice Powders, etc. The book is all the more valuable on that account, for all these preparations have proven their worth and have an established place with up-to-date owners. Leading breeders all over the country use and recommend Prussian Stock Food and Remedies. Mr. E. J. Hurst, breeder of Pure Bred Poland China Hogs, Hacy, Ind., owner of the $3000 Boar "Majestic Perfection" writes as to the Prussian Stock Food: "I have been using it since I started in the business of breeding hogs and I am highly pleased with it. I have been feeding it regularly and have never lost a hog by any disease. I think the Prussian Stock Food will do all that is claimed for it to do." The book is more than an advertisement of remedies. Much valuable information is gathered together in concise form and many hints are to be had as to the cause of past failures and valuable suggestions for the care and treatment of animals that may be well put into practice in the future. We believe our readers are failing to lay hold of a valuable privilege if they do not avail themselves of the offer in the advertisement and write and have the book forwarded to them. All that is necessary is to write how many head of stock you have.

Metal wheels for the low wagons are always to be considered a great convenience and the means of saving the strength of manual labor and the team. It always pays to save the team as well as the workmen. The grooved tire metal wheels are an improvement offered along with the other kind by the inventors and manufacturers, the Havana Metal Wheel Co., Havana, Ill., who are the largest manufacturers of steel farm wagon wheels in America. They guarantee all their wheels, and if one will write them for directions for measurement of his skein they can fit the skeins and furnish any sort of metal wheels needed.

Milk Bottle Caps are made by the Bavier Novelty Co., of Windsor, Conn., and they are advertising in this issue. They think they can interest any user of these caps, and only ask the opportunity to mail a catalogue. Write them.

Feeding Grain to Cows When at Pasture.

ED. HOARD'S DAIRYMAN:—I have noticed your reply to C. A. J., in DAIRYMAN for July 3, in relation to feeding grain to cows while at pasture, and think you are correct. Evidently there is very little time in summer when it will *not* pay to feed a certain amount of grain to good cows, on the average farm.

The past spring was very dry here, and in consequence the grass was fed very closely, even that which the cows would ordinarily reject. This dry spell, unusual at this time of year, lasted until about the 10th of June, before we commenced to have rain. We kept up the feed of grain on turning to pasture, and until after the rain commenced and the grass had gotten a good start, when it was gradually reduced and finally discontinued. The cows during this time did very well indeed, better than could have been expected under such conditions.

But strange to say it was not long after

SOUTH DAKOTA



THE thrifty housewives of South Dakota last year sold poultry and eggs to the value of more than $5,500,000, in addition to having their own tables well supplied with chicken and eggs. The total production of new wealth in the state for the year was about $120,000,000. There are splendid opportunities for success there to-day. A booklet that tells all about South Dakota sent for two cents' postage.

F. A. MILLER,
General Passenger Agent,
Chicago, Milwaukee & St. Paul Railway,
CHICAGO.

WRINGING WET Clothes dry is the reason for using any wringer. Saving clothes, buttons and money is the reason for using **Horse-Shoe Brand Wringers.** They are made with rolls of the finest Para Rubber. Every wringer is warranted. **THE AMERICAN WRINGER CO., 99 Chambers Street, New York.**

SAVE PAINT BILLS Instead of using Metal Roofing, which requires painting every two years, use **Arrow Brand Asphalt Ready Roofing** already surfaced with gravel, and which needs no painting.



ASPHALT READY ROOFING CO., 82 Pine Street, New York. Send for free samples.



Dana's White Metallic EAR LABELS

stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Samples free. **Agents Wanted.**

C. H. DANA, 55 Main St., West Lebanon, N. H.

GROOM YOUR CATTLE BY POWER

Our Improved Grooming Brushes, revolving 1200 times a minute, insure glossy coat, clean skin, active pores, health and beauty. Their use increases value of all stock. Indispensable for prize winning show cattle. Will groom 30 to 50 head an hour, and do it better than by hand. Get our Free Booklet and learn to groom your cattle, horses and all stock the best way.

CHICAGO FLEXIBLE SHAFT CO., 194 Ontario St., Chicago, Ill.

"COME in the evening or come in the morning, when you're looked for or come without warning"—



You'll always find your Tread Power ready for business. OF WHAT OTHER FARM MOTOR—Wind Steam or Gasoline—can this be said? A PERFECT GOVERNOR ensures absolutely even speed. Send for free catalogue.

St. Albans Foundry & Implement Co., St. Albans, Vt.

Our New Patent

and Great sales are the talk of all who know of them. A fortune has been made by the patentee and the farmer in a short time. For seven months the sales were over $350.00 per day. Something good can't be gotten for nothing. By putting $500.00 and upwards into this business it will be the best paying investment we know of. Farmers using the machine say that they would not do without it for two, three, and ten times the price. Common farmer can handle it in a very paying way. We can prove the great selling qualities of this machine by bank account, the bankers themselves, and the farmer. Our plan is fair and honest. Best bank references. Car fare one way will be paid to responsible men whether they invest or not. Address

CLARENCE RAGSDALE, Moberly, Mo.

Proprietor of Magic City Stock Farm.

the feeding of grain had been stopped before a shrinkage in milk was noted, and it has been sufficient to indicate quite conclusively that it has been enough to have paid for the usual amount of grain fed. In this case it certainly would have been better to have kept right along with the grain, as we have sometimes before practiced.

Some farmers that did not feed grain at all after turning to pasture say there was an increase in yield of milk after the rains commenced, but at first it must have been small.

I thought, certainly, that after a fresh growth of grass had started up it would be of superior quality, but this did not seem to be borne out by the facts. It is a difficult matter at all times to most perfectly adapt the feeding to the best requirements of the cow, as evidenced by the results, but the farmer should endeavor to do this to the best of his ability, and usually he will find his reward in so doing.

We were in hopes that the prices for butter had reached the lowest point several weeks since, but after advancing some two cents a pound, they have again receded to previous quotations, indicating a considerably larger make, but not yet low enough for export. It would seem that the surplus above current needs should now be placed in cold storage, thus relieving any undue pressure on the markets. The quality for this purpose could certainly be no better during the season. E. R. TOWLE.

Franklin Co., Vt.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Ringworm.

I have a calf which has a skin disease which resembles ringworm. Head and neck sore with skin much wrinkled. J. H. W.
Palmyra, N. Y.

ANSWER.

Wash the parts clean with soap and water and apply a solution of chloronaptholeum or zenoleum, according to directions on package.

Catarrh.

About three weeks ago one of our cows began to breathe hard and in a week or so there was a discharge from the nose, which lasted over a week. She still breathes hard, and her breath smells very bad. L. J. E.
Willmar, Minn.

ANSWER.

The labored breathing, discharge from the nose, and foeted breath, are indications of catarrh.

Steaming with medicated water, once daily, will help your case, also give tincture chloride of iron ½ to 1 oz., twice daily. If the animal coughs, you may apply an ammoniacal liniment to the throat, and over the frontal and nasal bones.

Lump Jaw.

I have a cow that has a swelling under the lower jaw, right between the forks and extending back under throat. It is very hard. Cow froths at mouth when chewing cud, and is losing flesh and failing on milk. T. W. H.
Wyalusing, Wis.

ANSWER.

The cattle have lump jaw, which may be removed surgically if the lump is not attached firmly to the bone. It is advisable to attend to this at once if you wish to avoid an infection of the balance of your herd.

Skin Disease.

I have a calf which very often licks its tongue out and around sides of mouth as though it itched.
Atlanta, Ga. J. A. S.

ANSWER.

See ringworm, this issue, and apply same treatment.

Bloody milk.

One patron's cow had been milking about 3 months and was apparently all right; when noticed one quarter commenced giving bloody milk and to get hard, and in a short time the other part of udder became affected and quit giving milk altogether. We also hear of other cows being affected, in the same way. Was it a case of garget?
Marion, Wis. M. B.

ANSWER.

When a cow gives bloody milk, there is usually a rupture of a blood vessel, which may have been caused by external violence, either by a calf, or otherwise. Your remedy is to remove the cause.

A Hard Milking Cow.

Is there any means of making a naturally hard milking cow milk easy? J. K. B.
Elk Mound, Wis.

ANSWER.

Your remedy is the teat bistoury by which you can make the opening in the teat as large as you please, without injurious results.

Breeding a Yearling.

Is there any way to get yearling heifers in calf from a heavy bull? C. H. G.
Mauston, Wis.

ANSWER.

If the heifer will come in heat, there is no reason why she should not breed. But if you wish to use a heavy bull, you may have trouble in delivering the large calf. In this case, it is best to give her a chance to develop more fully.

Salty and Stringy Milk

I have a cow that came in ten days ago, her milk is stringy and salty flavor. J. F. J.
Warren, Pa.

ANSWER.

Derangement of the digestive organs by feeding moldy or fermented food is usually the cause. Remove the cause and thoroughly clean and disinfect the stable and mangers. An ounce of hyposulphite of soda and a dram of ginger may be given in food three times, daily, until relieved.

Horse Owners! Use GOMBAULT'S



Caustic Balsam

A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.* Every bottle sold is warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O.

DR. GEORGE HOLLABUSH'S
Sure Cure for Abortion



and General Tonic for Cows. The only genuine sure cure and general tonic for cows on the market. I guarantee, and refund money if not satisfactory.
Dr. Geo. Hollabush, Ft. Atkinson, Wis.
Write for circular.

Make Cows Breed

Hood Farm Breeding Powder does it. Write for circulars telling how and why. Best remedy for failure to breed, failure to clean, irregularity in coming in season.

By mail, $1.15. Four times larger size to any railroad express point in U. S., $2.75. C. I. HOOD & CO., Lowell, Mass.



ABORTION

Can be successfully treated with **Anti-Abortion Serum.** Easily administered and permanently cures. Information free.

DR. ROBERTS VETERINARY REMEDY CO.,
530 Grand Ave., Waukesha, Wis.



Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.
Used Exclusively at Model Dairy
Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.
O. H. MFG. CO.,
Dept. H, Lyndon, Vt.

RUB ON
Painkiller
and the Rheumatism's gone.



Work Horses
need not be laid off for treatment if you use
Above trade mark on every box.
Bickmore's Gall Cure.
Cures while you work him of all **Harness, Saddle or Collar Galls, Scratches, Cuts, Cracks,** etc. Sold everywhere by dealers. Guaranteed. Money refunded if it fails. Sample mailed for 10 cents.
BICKMORE GALL CURE COMPANY, Box 515, Old Town, Me.

HORSE COLIC,



Distemper, Founder, Pneumonia, etc., as well as all forms of **Lameness, Contracted Cord, Curb, Splint, etc.,** are instantly relieved, and invariably cured by the use of
Tuttle's Elixir.
Satisfaction guaranteed or money refunded. **Used and endorsed by the Adams Express Company.** Used by leading breeders and turfmen everywhere. Has saved and cured many valuable horses. May do likewise for you.
TUTTLE'S FAMILY ELIXIR cures rheumatism, sprains bruises, etc. Kills pain instantly. Our 100-page book, "Veterinary Experience" **FREE.**
Dr. S. A. TUTTLE, 62 Beverly St., Boston, Mass.
Beware of so-called Elixirs—none genuine but Tuttle's. Avoid all blisters; they offer only temporary relief if any.



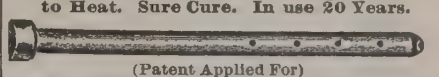
The Books are Free



Spavin Lump Jaw
You can cure Bone Spavin, Bog or Blood Spavin, Ringbone, Curb, Splint or any blemish hard or soft, Fistula, Poll Evil, Sweeny or Knee-Sprung, also Lump Jaw in cattle, with very little trouble or cost. Our two booklets tell you how and prove that you can do it, and we will guarantee you success in every case. Over 140,000 farmers and stockmen are doing it our way. If you have a case to cure write us and we will send you the books free.
FLEMING BROS., Chemists,
235 Union Stock Yards, Chicago, Ill.

ABORTION,
Retention of Placenta and Failure to Breed.
KELLOGG'S CONDITION POWDER is a positive cure for these diseases. Write for circular containing full information, references and price.
H. W. KELLOGG COMPANY, St. Paul, Minn.

ABORTION,
Failing to Breed and to bring Cows to Heat. Sure Cure. In use 20 Years.



(Patent Applied For)
Hard Rubber *Safety* **Milk Tubes and Dilating Plugs** to cure hard milkers and a teat **Bistoury.** Send for testimonials.
Dr. WM. HORNE, Janesville, Wis.

CHLORO NAPTHOLEUM DIP
Cures Contagious Abortion in cows; cures Scours in calves; keeps flies off cows so that they stand quietly and rest easy at milking. Used in the Dairy, makes every condition perfectly sanitary. Guaranteed. Agents wanted. 1 gal. $1.50; 5 gals. $6.75; prepaid. Larger lots at lower rates.
WEST DISINFECTING CO., Inc., 8 E. 59th. St., New York.

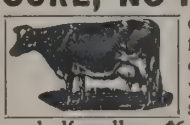
BLACKLEGOIDS
BEST PREVENTIVE OF BLACKLEG.



Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each **Blacklegoid** (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. **Blacklegoids** are sold by druggists; *ask for them.*
Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.
PARKE, DAVIS & CO. - DETROIT, MICH.
Branches: New York, Kansas City, Baltimore, New Orleans, Chicago; Walkerville, Ont.; Montreal, Que.; London, Eng.

CURE "THE" COW
NO CURE, NO PAY

WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address



DR. EATON J. CROSS,
152 Congress St., Troy, N. Y



"Just as good?" "Just as good!" Did you say? "Just as good as Veterinary Pixine!!" The dealer who tells you that is mistaken. He does not know.
FACTS AND TESTS PROVE IT!
Emery, Ky., April 9, 1903.
I feel it my duty to tell what Veterinary Pixine did for a horse of mine. He was cut with a knife between the fore legs three inches deep and two inches long, which every minute would gap open. I used several different kinds of remedy without success, even to having some stitches taken. Nothing did any good and it kept swelling and became feverish. I almost gave up hopes of getting him well. In the columns of the Ohio Farmer I observed your advertisement and, as it was the last chance, I purchased a box at the druggists and used it as directed and before the box was used up the cut was entirely well. I intend to keep a supply on hand for emergency cases if I have to pay a dollar a box for it. Please accept my thanks for the good I have received from its use, and if you choose you can use my name and testimony.
W. S. CAMPBELL.
This penetrating, stimulating, soothing, absorbing, antiseptic, healing ointment heals from beneath the surface by disinfecting the parts, subduing inflammation and stimulating healthy granulations, not by drying and scabbing, and stimulates growth of hair, natural color. Makes quick, clean and healthy cure; heals stinging, burning, chronic saddle and collar galls, hopple chafes, abscesses, caked bag, cow pox, and hoof rot. It penetrates, stimulates, sooths and heals while horse works. Money refunded if it fails.
Price, 2-oz. box 25c; 8-oz. box 50c; 5-lb. pkg. $4.00, at all druggists and dealers or sent prepaid.
TROY CHEMICAL CO., Troy, N. Y.
Also Manufacturers of **"Save-the-Horse"** Spavin Cure. **$5.00 a bottle.** Send for copy of guarantee and booklet.



NEWTON'S Heave, Cough, Distemper and Indigestion Cure. A veterinary specific for wind, throat and stomach troubles. *Strong recommends.* $1.00 per can. Dealers. Mail or Ex. paid.
Newton Horse Remedy Co., Toledo, Ohio.

Your Horse can work without pain while his **sore breast is healing** if you use
MOORE BROTHERS'
GALL POWDER
the most effective cure ever known for healing **sore shoulders, backs** and other skin abrasions; at druggists, or by mail $1.00.
MOORE BROTHERS, Veterinary Surgeons, Albany, N.Y. "Facts for Farmers and Breeders," sent free.

What Prof. Andrew Boss Says About Zenoleum Dip:
"We have used Zenoleum quite extensively during the past year as a sheep dip and as a disinfectant about the barns. We like it on account of the ease of preparation and the efficacy of the remedy." PROF. ANDREW BOSS, St. Anthony Park, Minn., Jan. 26, 1903.
Send for copies of **"Zenoleum Veterinary Advisor"** and **"Piggie's Troubles"** and see what others say about it. Books mailed free. Sample gallon of Zenoleum $1.50, express prepaid. **"The Great Coal Tar Carbolic Dip."** **ZENNER DISINFECTANT CO., 34 BATES STREET, DETROIT, MICHIGAN.** Five gallons $6.25, freight prepaid.

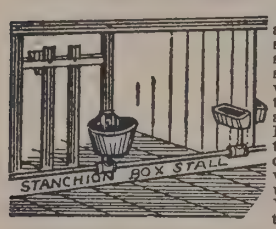


COW BASIN

SELF CLOSING LID.

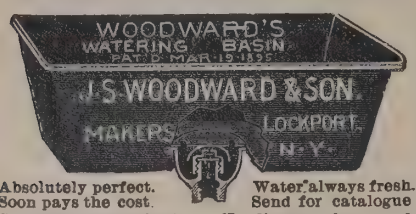
Pure white Porcelain. No rust, no filth, no splashing. **D. H. Bausman,** Bausman Lanc. Co., Pa. Iron, Pig, Chick, and Stock Troughs.

Water In The Stable a Necessity.



It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. **Why not use the Best?** Write for descriptive circular.

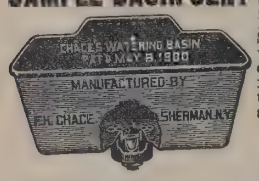
C. E. BUCKLEY & CO., Poughkeepsie, N. Y.



Absolutely perfect. Soon pays the cost. Cheapest because best.

Water always fresh. Send for catalogue No disease where used.

SAMPLE BASIN SENT ON APPROVAL.



Basins are fitted with **Self Closing** Cover which prevents all dirt and sediment from getting into them. Send for catalogue and price list

F. H. CHACE,
Sherman, N. Y.

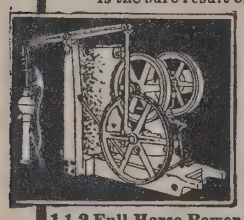
MILK TUBES

Patent Coin Silver 1¾" 50c. 2¾" 80c. Improved Teat Opener 75c. Dilating plug 25c.

Postpaid on receipt of price.
G. P Pilling & Son,
ad and Arch Sts., Phil., Pa.

A Steady Water Supply

is the sure result of the use of our



Webster "Handy Man"

Gasoline Engine.

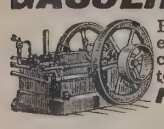
Walking beam pump jack attached. Fits any pump and suited to either deep or shallow wells. Best thing ever made for the purpose.

1 1-2 Full Horse Power. Pulley for belting to light machinery—grinding, separating cream, churning, spraying, irrigating, etc. **Simple, safe, efficient.** Fully guaranteed.

Catalog of Vertical and Horizontal Engines of all kinds. FREE.

WEBSTER MFG. CO., 1086 W. 15th St., Chicago, Ills.

GASOLINE ENGINES.



Buy direct from the manufacturer. The simplest, handiest and cheapest power known. Write to-day for our free catalogue.

H Canfield Eng. Works,
Binghamton, N. Y.

Chicago's New Milk Law—Strict Provisions Governing the Handling of Milk.

The Chicago City Council passed a milk ordinance at last week's meeting that will be signed by the mayor and become a city law.

Under this ordinance skim milk must be carried in cans that have been painted red. The ordinance provides that all cans, vessels and receptacles used in the handling of milk and cream, as well as all packages, refrigerators, or compartments of stores or other places where milk or cream is kept, shall be maintained clean and free from the presence of any article likely to contaminate sweetness of the fluids.

All cans, vessels, and receptacles must be sterilized with boiling water or live steam each time they are used.

All bottles in which milk is distributed must be cleaned and sterilized each time used, and the same treatment must be given all pouring cans, dippers, and other vessels used by peddling, at least once each day.

Shippers' cans can no longer be used for storing milk, but must be returned clean within thirty-six hours after being received by dealers. Heretofore, cans have been held so long at times that on return to shippers and dairymen, boiling in lye has been required to remove the fermenting material formed.

Violators of these rules are made liable to fines ranging from $5 to $200.

Under the same penalty, all vehicles used by distributers must bear signs stating the name and place of business as well as plates showing the license numbers. If any dealer attempts to dodge the "red can" and foist skimmed milk as the whole product on his customers, he meets the same penalty—a fine of $5 to $200. Any mixtures of milk, as whole milk with condensed milk or buttermilk, must be carried in cans especially marked. Impure or diluted milk found will be immediately destroyed; first offenses bringing a fine of from $5 to $100 and subsequent offenses drawing fines of $50 to $200. There are heavy fines provided for dealers being found in possession of or attempting to use preservatives.

In his address on "Dairying in Foreign Countries" before the New York farmers, Major Alvord has the following to say in regard to the readiness with which the European farmers buy outside feeds for their cows:

"Very skillful feeding may be observed in many of the dairying districts of foreign countries. The owners seem to know how to obtain the maximum product from their cows with the minimum expenditure of forage. From Norway to Italy and from Iceland to Siberia the poorest peasants do not hesitate to buy concentrated cattle foods when necessary to supplement home supplies. The purchases are made judiciously, and the feeding is equally so."

For the land's sake—use Bowker's Fertilizers. They enrich the earth and the men who till it.



GOOD INTENTIONS ALONE CANNOT PRODUCE GOOD MACHINERY. Most all manufacturers are honest, but lack the experience and equipment necessary to turn out a thoroughly first class engine. We are the founders of the Gas Engine industry in the United States; have been building **OTTO** engines for 27 years, and operate the largest and most complete plant in the country devoted exclusively to the building of Gas and Gasoline Engines. Which will you buy, **Otto Experience** or **Others' Experiments**

THE OTTO GAS ENGINE WORKS, Philadelphia, Pa.

HAVE YOU SEEN THE

Jack of All Trades

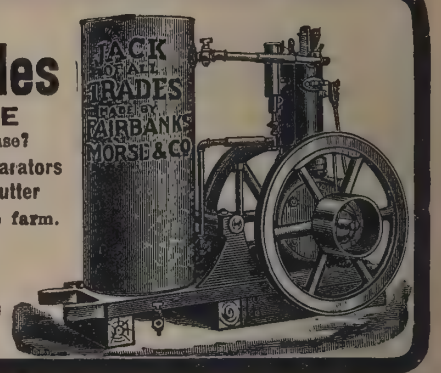
—A GASOLINE ENGINE

of the most modern type for farm use?

Pumps Water—Saws Wood—Runs Separators
Shells Corn—Grinds Feed—Churns Butter
And is adapted to many other jobs on the farm.
Saves Labor—Earns Money

Write for free descriptive catalogue "Ba."

Fairbanks, Morse & Company,
CHICAGO.

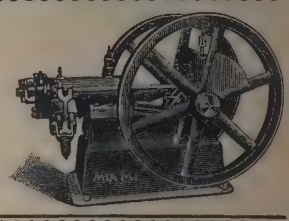


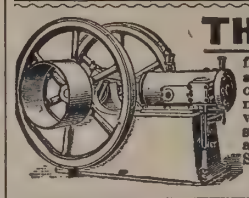
You would probably get a **CERTAIN AMOUNT OF SATISFACTION** out of any old kind of a gas or gasoline engine. But if you want one to give you better service than a steam engine, and as good service as an electric motor, and cheaper to run than either, get a

MIAMI GAS OR GASOLINE ENGINE.

Miami Engines, Horizontal, 5 to 65 H.P., 12 Sizes.
Woodpecker Engines, Horizontal, 2½ H.P., Special.

THE MIDDLETOWN MACHINE CO., Middletown, Ohio.
Write for Catalogue and nearest Agent.





THOMPSON-LEWIS Gasoline Engines

furnish the greatest possible power at the lowest possible cost in **time, labor, fuel and money.** They are so simple that anybody can run them without expert training or experience. Our **Volume Governor** gives uniform speed. Our **Acme Mixer** is the most positive and economical on the market. Our **Hand Starting Lever** starts engine with least effort. All bearings of **Iridium Bronze.** Best material and workmanship throughout. Many sizes from 4 (actual) h.p. up. Best for all farm work—cutting and grinding feed, sawing wood, pumping water, separating cream, churning, etc. Send for free catalog before you buy. It may save you time, money and annoyance.

J. THOMPSON & SONS MFG. CO., 113 BRIDGE STREET, BELOIT, WIS.



If you want a **Gasoline Engine**

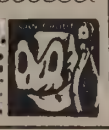
that will be always ready to start, safe, reliable convenient, economical and durable, buy a **FULLER & JOHNSON Frost Proof.** No bother with water nor expense of broken cylinder, no waiting for wind or weather. All sizes, stationary and portable. Send for descriptive catalogue to the manufacturers.

FULLER & JOHNSON MFG. CO., Madison, Wis.

FACTORY PRICES



NO HUMBUG. Three in One.

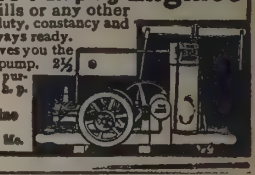


Swine V, Stock Marker and Calf Dehorner. Stops swine from rooting. Makes 48 different ear marks. Extracts Horns. Price $1.50. Send $1 for trial. If it suits, send balance. Pat'd May 6, 1902. Hog and Calf Holder only 75c.

FARMER BRIGHTON, FAIRFIELD, IOWA.

WEBER Jr. Gasoline Pumping Engines

excel windmills or any other power in amount of duty, constancy and cost of running. Always ready. A trifle for gasoline gives you the water 30 men could pump. 2½ full horse power for any purpose. All sizes up to 300 h. p. Write for free catalogue.



Weber Gas and Gasoline Engine Co.,
Box 176 Kansas City, Mo.

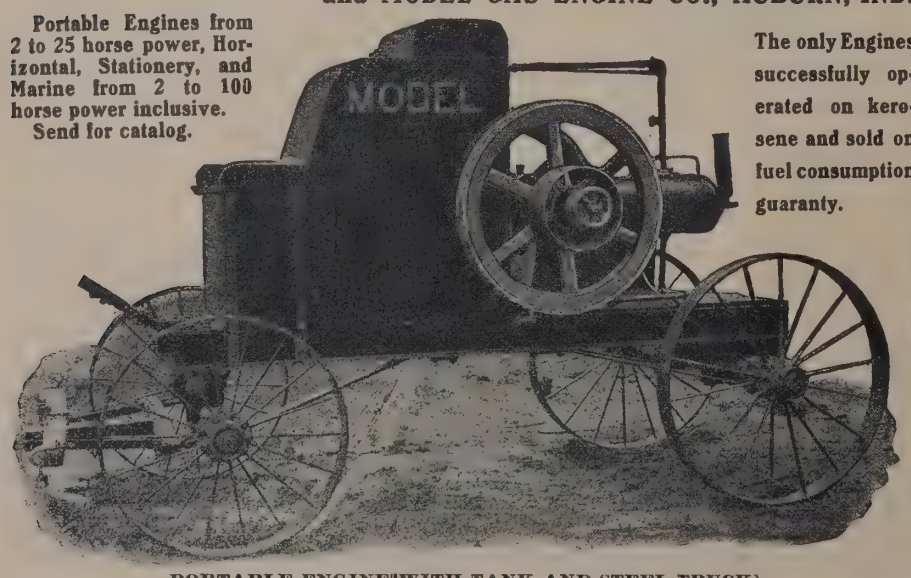
The Model Gas and Gasoline Engines

MANUFACTURED BY

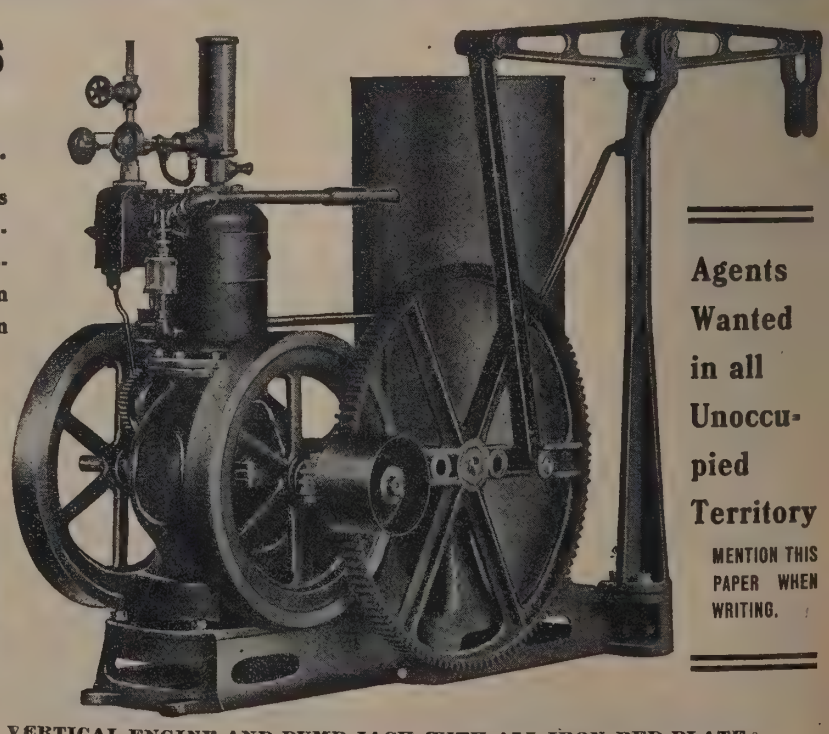
THE CENTRAL CITY IRON WORKS, STEVENS POINT, WIS..
and MODEL GAS ENGINE CO., AUBURN, IND.

Portable Engines from 2 to 25 horse power, Horizontal, Stationery, and Marine from 2 to 100 horse power inclusive. Send for catalog.

The only Engines successfully operated on kerosene and sold on fuel consumption guaranty.



PORTABLE ENGINE (WITH TANK AND STEEI TRUCK)



VERTICAL ENGINE AND PUMP JACK WITH ALL IRON BED PLATE.

Agents Wanted in all Unoccupied Territory

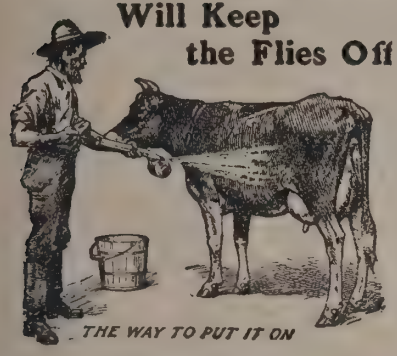
MENTION THIS PAPER WHEN WRITING.

It's a Sad Mistake

not to use some preparation to stop the dreaded fly-pest on cattle.

Cow-Ease

Will Keep the Flies Off



THE WAY TO PUT IT ON

quiet the creature and make milking a pleasure. It increases the flow of milk, too.

CARPENTER-MORTON CO., BOSTON.

Ask your dealer. If he hasn't got it, will send gallon can, express paid, for $1.00.

Rippley's Fly Remover



Instantly removes all flies, mosquitos, lice and other insects from cattle, horses and other animals sprayed with it. It is healing to any sore. Animals rest easy and feed quietly all day. Cows give ¼ more milk, which is a big saving. 1 gal. will protect 500 cows. Endorsed by the best class of people. Order at once and secure agency, you can sell hundreds of gallons. 1 gal., $1.10; 2 gal., $2.10; 5 gal., $4.50; 10 gal., $9.00. RIPPLEY'S Special Sprayer for applying same, 65c; 4 gal. Compressed Air Sprayer for applying same on large herds, $5.00; 5 gal., 5.50. Money refunded if not as represented. Our Breeders' Supply catalog mailed free; tells how $8.00 per head can be saved by using Fly Remover; ½ bbl. lots of 30 gal., $25; freight paid on 20 or 30 gal. lots.

Gentlemen:—For three years I have been experimenting with different things to keep flies off my cows, but not until I tried your Fly Remover and Compressed Air Sprayer was I successful. I used this last year and found that it costs less than one cent per week per cow. With your Compressed Air Sprayer it takes but a few minutes to put it on, and the result has been that my cows were free from flies, and during the year gave 6400 pounds of milk each, which made 324 pounds of butter per cow. I can heartily recommend it to all stock owners.—JOHN ARMSTRONG, President State Board of Agriculture, De Smet, S. D., June 4, 1901.

RIPPLEY HARDWARE CO., Box 20, GRAFTON, ILL.
Western Office, Watertown, S. D.

SHOO-FLY THE ANIMALS' FRIEND

Half cent's worth saves 3 quarts milk and much flesh. Kills every fly it strikes; keeps off the rest. Harmless to man or beast NO LICE in poultry house or any place it is sprayed. If your dealer does not keep it, send $1.00 for Improved Three Tube Sprayer and enough Shoo-Fly to protect 200 cows. Cash returned if cows are not protected.

SHOO-FLY MFG. CO., 1005 Fairmount Ave., Phila., Pa.
EDITOR knows from experience Shoo-Fly is O. K.



NEW IDEA FLY TRAP

Set this trap outside your kitchen door or dairy and you will have no more trouble. One in the stable will afford your cattle relief.

Catches 60,000 flies a day

11 in. diameter, 22 in. high. Ask your dealer. AGENTS make good money selling. Write for terms.

NEW IDEA FLY TRAP COMPANY,
Department H. Clinna Park, Ill.

FLIES? ORR'S FLY KILLER. No Other as Good.

1 gal. $1; 5 gal. $4; Sprayers 50c. 1 Doz. 1 gal. cans $8.00 1 Doz. Spr. $4.00

The following well known live stock fanciers have used it two or three years each, and will tell you that Orr's is better than all others:

J. F. Converse & Co., Woodville, N. Y.
J. B. Buchanan, Hookstown, Pa.
J. E. Crider, Fredonia, Ky.
Bell Bros., Wooster, O.
J. S. Hamlin, East Bloomfield, N. Y.
D. J. Kennedy, Pittsburgh, Pa.
L. H. Martin, Alexandria, O.
J. H. Deckie, Mt. Vernon, O.
W. H. Miller, New Cumberland, W. Va.
Isaac Sprague, Wellesley Hills, Mass.
R. D. McGonigle, Ashley, O.
James Langhead, Wellsburg, W. Va.
Prof. J. E. St. John, Lansing, Mich.
R. W. Atkins, Tecumseh, Neb.
A. Provines, Auburn, Ind.
C. C. Crawford, Boyd's, Md.
D. M. McCollum, Wheatland, Wyoming.
J. H. Putnam, Litchfield, Conn.
S. H. Glick, Denbigh, Va.
G. M. Harter, Walker, Pa.
W. M. Thompson, Uniontown, Pa.
S. F. Barber, Harrisburg, Pa.

Also hundreds of others in these 13 States.

ORR & COOPER, Box 829, BEAVER, PA.

Goodwin's



Use Goodwin's Fly Killer this season on your cows and horses and be rid of the fly pest. Cows give 25 per cent. more milk and horses are relieved. Gallon 75c, 5 gallons $3.00, 10 gallons $5.50. Sprayers 50c, or send $1.00 for sprayer and enough Fly Killer to protect 150 cows.

T. D. Goodwin & Co., AGENTS WANTED. Columbia Station, Ohio.

Notes of the Season in Southeastern New York.

ED. HOARD'S DAIRYMAN:—The spring and summer of 1903 in Delaware county, New York and adjacent counties will go on record as anomalous and without a parallel in many respects.

The oldest inhabitant, universally I think, concedes that never in his or her memory was a March known, that throughout the whole month so nearly perfect spring weather prevailed.

The first of April it looked as if an early growth of pasturage was almost assured, but cold, dry weather throughout that month and the following one, with frosty nights, brought about a complete change in conditions, and farmers, as a rule, began to feel badly discouraged from the prospects of the most serious shortage in the hay crop in many years.

In fact, many began to prophesy a complete failure and even a famine and all through May the cows were held on nearly or quite their winter rations of grain, as there was practically no growth in pasturage, except it might be on very limited areas on lands that were sufficiently moist to endure a long protracted drouth.

At the beginning of the first full week in June, however, a change came and with sufficient rainfall during the remainder of that month, to thoroughly soak the ground and fill up the shrunken streams, there has been an almost phenomenal growth of grass, and at the present date (July 6th) there is promise for nearly an average hay crop, though haying will be from two to three weeks later than in the ordinary season.

A large area has been planted to corn, millet, etc., as supplementary feeds and a great many new silos are being built throughout all this dairying region, for while the Bordens still continue to hold their restrictions against milk from ensilage fed dairies, the success of many of our co-operative creameries has encouraged the farmers to think and act more for themselves and they are disposed to assert an independence as to these feed restrictions, they would not have shown a few years since. Oats and potatoes are looking well and with a large acreage of the former crop as compared with recent years.

Corn is small and late in starting, due to the lack of warmth and sunshine during June, but July and August are our corn months here and with favorable weather during these two months there is a chance for a good crop of this cereal for this locality. E. J. BROWNELL.

Delhi, N. Y.

Pasteurizing Small Amounts of Cream.

ED. HOARD'S DAIRYMAN:—Have a cream separator and wish to sell my cream and ship by rail, 50 miles.

Can I pasteurize the cream, and which is the best machine for the work?

Grand Rapids, Mich. C. B. F.

Pasteurizing on a small scale without proper machinery is not practical. It can be done, but the results, unless an experienced man is operating, are not satisfactory. There must be plenty of cold water and ice in Michigan, and if the milk and cream are kept cold and proper attention is paid to cleanliness of stables, cows and milk utensils, there should be no trouble in getting the cream to the city, in a sweet condition. Raw cream is always better than pasteurized, and clean raw cream will keep sweet long enough for consumption.

As a matter of history the following is interesting to put on record:

A German scientist in 1859 demonstrated in a crude way, that such a thing as separating cream from milk by machinery was possible. In 1864 a brewer in Munich, Germany, invented a machine that raised cream in jars by means of centrifugal force. In 1870 a minister in Massachusetts made the first successful attempt to separate cream from milk. This was done by means of two glass jars attached to a spindle which revolved 500 times per minute. It required one hour to raise the cream. At about this time, LeFeldt & Lentsch of Brunswick, Germany, exhibited a machine in which was obtained a thick layer in twenty minutes, making 700 revolutions per minute. In 1877 a patent was granted to the last named parties for a machine to separate cream from milk by centrifugal force.

ARMSTRONG & McKELVY Pittsburgh.
BEYMER-BAUMAN Pittsburgh.
DAVIS-CHAMBERS Pittsburgh.
FAHNESTOCK Pittsburgh.
ANCHOR, ECKSTEIN Cincinnati.
ATLANTIC, BRADLEY, BROOKLYN, JEWETT, ULSTER, UNION New York.
SOUTHERN, SHIPMAN Chicago.
COLLIER, MISSOURI, RED SEAL, SOUTHERN St. Louis.
JOHN T. LEWIS & BROS CO Philadelphia.
MORLEY Cleveland.
SALEM Salem, Mass.
CORNELL Buffalo.
KENTUCKY Louisville.

IF there is an impression in the minds of any that Mixtures of White Lead and Zinc are better than Pure White Lead, it has been created by the manufacturers of the Mixtures, because a much larger profit can be made from the sale of these than by grinding and selling either White Lead or Zinc *pure*.

If interested in paint or painting, address

National Lead Co., 100 William Street, New York.

SAVES ITS COST ON THE FIRST CROP.

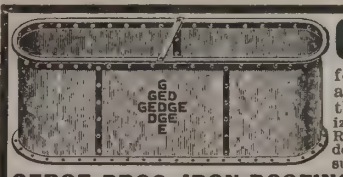
It spreads all kinds of manure, lime, salt, ashes, compost, etc., either broadcast or in rows. Does it better than it can possibly be done by hand.

Do you know of any other piece of machinery for use on the farm of which this can be truly said?



The Improved Kemp Manure Spreader

not only makes easy work of getting out the manure, but by the way in which it breaks it up and makes it fine, it more than trebles the value of the same. It will break up and spread evenly, manure that cannot be handled with a fork. It doesn't matter how hard, lumpy, caked, strawy, or stalky the manure is, this machine will spread it. It makes fine, well rotted manure go a long ways in top dressing wheat in the spring, meadow lands, pasture, etc. Being mounted on broad faced wheels, it can be handled on any kind of ground without serious cutting in or rutting. Can spread back and forth, as front wheels turn entirely under. Can be turned on the ground it stands on. 1903 machine has our new **Beater-Freeing Device, Apron-Returning Device** and numerous other improvements. Send for latest catalogue (free) and read about these and other advantages and also about **"How to Grow Big Crops."** Remember that the only original and genuine Kemp Manure Spreader is made by us and the patents thereon have been fully sustained by a recent decision of the U. S. Circuit Court. KEMP & BURPEE MFG. CO., BOX 46, SYRACUSE, N. Y.



GALVANIZED STEEL TANKS

for Stock, Storage, Towers, Dipping, Wagons, etc. Shapes and capacities to meet any want. Differ from all others in their perfection seams and keeping shape. Heavily galvanized. Call for "Gedge" or "Anderson" brand. Also make Metal Roofings and Sidings, Eaves Troughs, Conductor Pipes, etc. If your dealer does not handle, write us direct. We will see that you are supplied. Ask for Illustrated price list and discounts.

GEDGE BROS. IRON ROOFING COMPANY, BOX 482, ANDERSON, INDIANA.

Bran, Middlings, Feed, Flour

AND ALL KINDS OF...

Can load Mixed Cars.

Ask for Prices and mention this paper.

DAIRY FEED

E. S. WOODWORTH & COMPANY,
MINNEAPOLIS, MINN.

PURE OIL MEAL.

USE FOR MILCH COWS AND FATTENING STOCK.

Superior to corn, oats and hay. Ton lots $23.50; half ton $12.25; 500 pounds $6.75; 100 pounds $1.50. Put up in 100-lb. sacks f. o. b. Minneapolis. Cash with order.

This Meal is Guaranteed Absolutely Pure. We also manufacture Strictly Pure Linseed Oil.

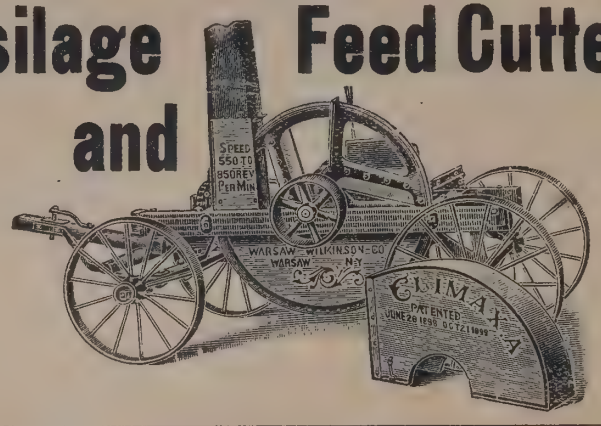
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When ordering mention this paper.

CLIMAX

Ensilage and Feed Cutters.



"THE COMPLETE MACHINE"

CLIMAX machines are original. They are not made over from old models, in an attempt to turn them into blowers, by adding a number of chains, belts, or other attachments. They are made to elevate by wind delivery, and every part is built with this end in view. They are sold under an absolute guarantee to do the work, and **never** fail.

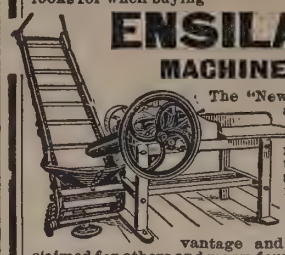
CLIMAX machines passed the experimental stage eight years ago. It has never been necessary to change any essential feature of the original pattern. We are still using the straight knives, with the shearing, inward cut; the elevating is still done with the same wheel as the cutting, requiring less power; the smooth reversing gear, which is positive and cannot break; the large feeding rollers, which won't choke, and the knife adjustment, which sets every knife at once and sets them **true**. All these have stood the test and cannot be had with any other machine.

The combination of simplicity, great strength, large capacity and few wearing parts, places the **CLIMAX** in the very front rank. When you have a binding guarantee as well, there should be no doubt regarding the machine. Catalogue for the asking.

WARSAW-WILKINSON CO., WARSAW, N. Y.

"NEW HERO"

excels in strength and effective working qualities and sells at a price that "fits the purse." It is the combination of these three features in the highest possible degree which a practical man looks for when buying



ENSILAGE MACHINERY.

The "New Hero" Cutters are the simplest in construction of any made; so strong that, size for size, they weigh more than any others; they have every practical advantage and improvement claimed for others and many found in no other; they are guaranteed to outlast and outwork others. Sizes, 9 in. to 26 in.; with or without self-feed table; shredder attachment if desired; swivel feed carrier. We make also a complete line of sweep and tread horse powers, shellers, huskers, feed grinders, wood saws, windmills, etc. Remember that Appleton quality is the standard of excellence, and write to-day for free catalog.

APPLETON MFG. CO.,
35 Fargo Street, Batavia, Ill., U. S. A.

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COMPLETE.

ROOFS,

Hoops, Lugs, Doors and Frames.

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Farm Crates from short stock in Silo and Tank construction.

SOLD CHEAP ALL ILLUSTRATED for the asking.

WILLIAMS MFG. CO.,
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SILO

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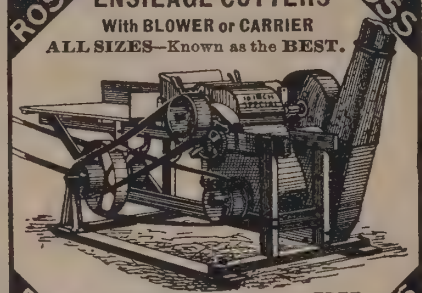
THE A. T. STEARNS LUMBER CO.,
BOSTON.

ENSILAGE CUTTERS

With BLOWER or CARRIER

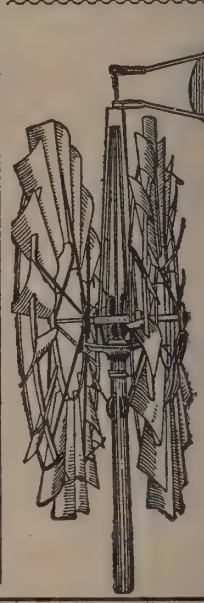
ALL SIZES—Known as the BEST.

ROSS ROSS



ROSS ROSS

Write for Catalogue No. 36—FREE.
Prof. Woll's Book on Silage 10c.
THE E. W. ROSS CO.
Springfield, Ohio.



DOUBLE POWER

WIND MILL

$1000 Reward

REVOLUTIONIZES WIND POWER.

2-14 ft. Wheels.
10 horse power

All the power you need for $1.00 per MONTH.

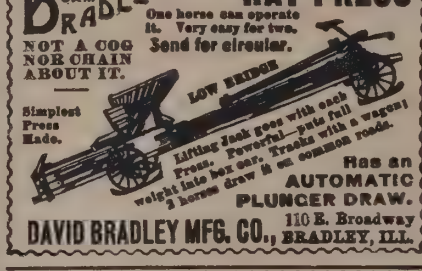
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Double Power Mill Co.,
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DOUBLE CAM BRADLEY STEEL HAY PRESS

One horse can operate it. Very easy for two.

NOT A COG NOR CHAIN ABOUT IT.

Send for circular.



Simplest Press Made.

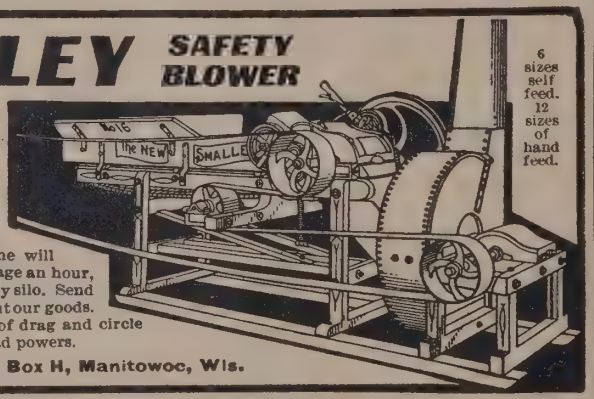
Has an AUTOMATIC PLUNGER DRAW.

DAVID BRADLEY MFG. CO., 110 E. Broadway BRADLEY, ILL.

SMALLEY SAFETY BLOWER

Only One Belt Required.

No lost power. No danger in operation. Belt cannot slip. Every part strong and of best material. No more strain on the *Smalley* machine when Blower is attached than with the ordinary carrier. Largest size machine will easily handle ten tons of ensilage an hour, cut ¾ inch and elevate into any silo. Send for 1903 catalogue, tells all about our goods. We also make complete line of drag and circle saw machines, sweep and tread powers.



6 sizes self feed. 12 sizes of hand feed.

SMALLEY MFG. CO., Box H, Manitowoc, Wis.

D. M. Osborne & Co., St. Louis, Mo. Caledonia, Mo, June 1, 1903.

My Dear Sirs—I feel I honor my own judgment, and reflect only that which is justly due your corn harvester, when I say it is without doubt the best corn harvester on the market to-day. Last season I cut, on my own farm, 115 acres of corn, and a negro boy 16 years old managed the machine, drove the horses and did all the cutting, without one cent expense for repairs or breakage. The work could not be excelled. The corn was heavy and much of it down, and some full of weeds, but it made no difference to the machine. All corn looks alike to an Osborne Corn Harvester, and to Missourians your machine is peculiarly adapted, for it can most certainly "show them." I am, Yours very truly,

W. R. GOODYKAUNTZ,
Ex-Senator of Missouri

"OHIO" STANDS FOR BEST

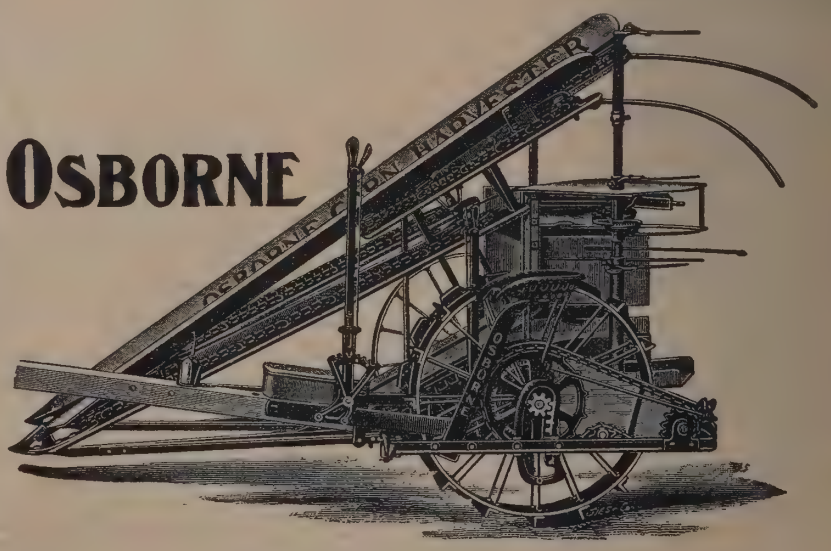
The 1903 "Ohio" Blower Elevators solve the blower problem. The best in the past, they are still further improved, and will unquestionably cut and elevate the most feed or ensilage for the power required. "Ohio" machines **work**, and our absolute guarantee goes with every machine. New **Patent Applied For** interchangeable Shredder Blade for all sizes. Everything complete in one machine.

To know all the good points you must have our new 1903 catalogue or ask the man who has an "Ohio." Thousands of "Ohio" machines have made thousands of satisfied owners. Self-feed increases capacity 33⅓% and saves 75% labor feeding.



The Silver Manufacturing Co.,
Established 1854. Salem, Ohio.

OSBORNE



This Corn Book tells about Silos and Fodder. Book Free for the asking.

Scotia, N. Y., April 15, 1903.

D. M. Osborne & Co., Auburn, N. Y.

Dear Sirs—I am well pleased with the Osborne Corn Harvester I purchased of your agent, C. H. Bevis, last fall. It proved to be all it was recommended. On account of the season, several places in our corn fields were deep mud, but when we cut there the machine worked just as good. The broad-faced steel drive-wheel is a great advantage on ground where it is soft. We used only two horses, and did the work easier than some of our neighbors did with three horses on another make of machine. It is certainly a very light runner. It is also a fine binder, never once having broken the twine, or missing to tie, thus using less twine than others, besides delay and trouble. I would say, in a word, that the machine is practically perfect. Very truly yours, CHARLES P. SANDERS.

BLIZZARD

Feed and Ensilage

Cutter



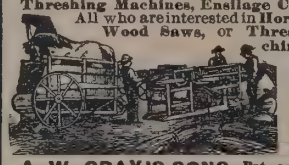
Does everything, cuts hay, straw, ensilage, shreds fodder and fills the silo to any height; all done by one machine. Sold on full guarantee. Write for catalogue.

Joseph Dick Agricultural Works, Box 20, Canton, Ohio.

HORSE POWERS

Threshing Machines. Wood Saw Machines.

GET THE BEST. Horse Powers for one, two, or three horses, for running **Wood Saws, Threshing Machines, Ensilage Cutters, etc.** All who are interested in **Horse Powers, Wood Saws, or Threshing Machines and Ensilage Cutters** are invited to write for fifty-page pamphlet. It's free.



A. W. GRAY'S SONS, Pat. and Sole Mfrs.
P. O. Box 86 Middletown Springs, Vt.

CORN HARVESTING

Done—Faster, Easier, Cheaper

by using the **BADGER CORN HARVESTER** than by any other known method. Do not wait, investigate now! Address **I. Z. MERRIAM, Whitewater, Wis.**

CUTTERS AND BLOWERS.

Built on the right principle. Without any air blast the ensilage would be thrown 15 feet. Only a light blast required to do the rest. "They throw and blow." Also horse powers, engines, silos, etc.

HARDER MFG. CO., Cobleskill, N. Y.

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HOARD'S DAIRYMAN.

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Devoted to Dairying and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., JULY 31, 1903. NUMBER 25

HAND SEPARATOR BUTTER always brings a good price. We make it a specialty. Why sell your cream when you can get from 15% to 20% more for butter? Save "the over-run" for yourself. Send for market quotations and make us a trial shipment.
C. H. WEAVER & CO., 128 South Water St. CHICAGO.
REFERENCE:—Any bank or wholesale house.

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs**
Liberal Advancements Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, New York



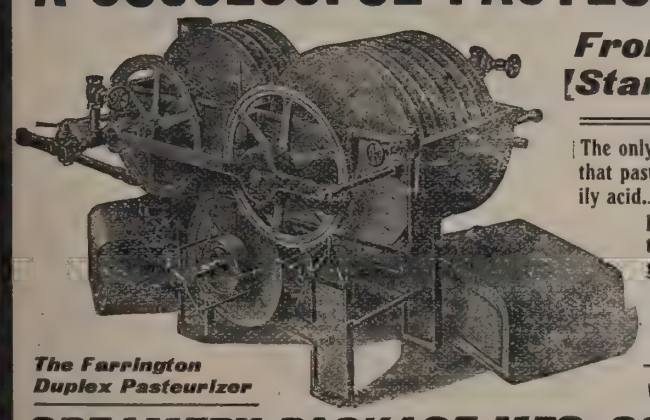
ASK YOUR DEALER IN DAIRY SUPPLIES FOR
CHR. HANSEN'S LACTIC FERMENT
To Ripen your cream, ensuring
Perfect Flavor, Uniformity and Keeping Qualities in your Butter.
—CHR. HANSEN'S LABORATORY, P. O. Box 1003, Little Falls, N. Y.—

HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, BOSTON.**
Medals—Bronze 1878 Silver, 1887, World's Fair, 1893.

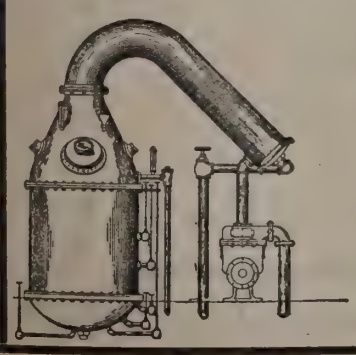


NEXT TIME An agent offers to sell you the Elgin tub, and ours is the one you want **ASK HIM** if the Elgin tub he is selling is the one made by Schmidt Bros. at the factory of the Elgin Butter Tub Company at Elgin, Ill.
THAT'S THE TEST that will enable you to get our tub instead of the so called "Elgin" "Elgin Style" tubs, etc., made by other companies.
ELGIN BUTTER TUB CO., ELGIN, ILL.
Schmidt Bros., Props.

A SUCCESSFUL PASTEURIZER
From Every Standpoint.



The only Pasteurizer made that pasteurizes milk heavily acid.
It makes good Butter — that makes good business.
Your Butter will score 8 points higher.
The Farrington Duplex Pasteurizer
Write to the
CREAMERY PACKAGE MFG. COMPANY
BRANCH HOUSES: Kansas City, Mo. Omaha, Neb. Minneapolis, Minn. St. Louis, Mo. Waterloo, Ia.
Canadian Branch: Cowansville, Quebec.
149 to 153 East Superior Street, **Chicago, Ill., U. S. A.**



Milk Condensing Machine I supply the most improved machinery and most successful processes for manufacturing all classes of condensed milk and evaporated cream. Factories built complete, put in operation and results guaranteed. If you are interested write for my new illustrated and descriptive catalogue. The only catalogue ever published on the subject.
R. R. ROGERS, Winthrop, Maine.
I am not associated with any person, firm or company.

All The Year Round

Just at this time when some of the cream separator manufactories are shut down entirely and others running with reduced forces the **Sharples Cream Separator Works,** the largest in the world, continues to run at full blast and to turn out more separators every day than some competitors build in a month. The demand for the famous **Sharples Tubular Dairy Separators** is as stable as the demand for bread and butter. At no time for the past six months have we been able to keep up with our orders, notwithstanding the fact that each day we complete and send out more separators than any competitor.



Every working day of the year finds us loading car after car of the **Tubular** separators. Why is this great demand? Because the **Tubular** is different from other separators---so different that we could not begin to tell the difference here. Write for our new catalogue No. 144.

The Sharples Co.,
28, 30 & 32 So. Canal St.
CHICAGO, ILL.

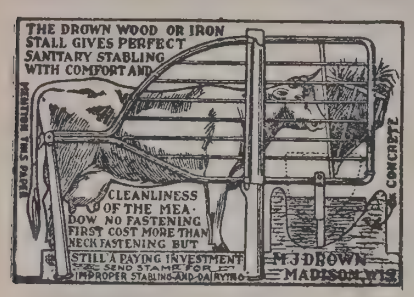
P. M. SHARPLES,
West Chester, Pa
U. S. A.

This Taylor Stanchion



is made of angle steel lined with hard wood on side next the animal's neck. **It is lighter, neater and stronger** than any other stanchion made. Swings on chain at top and bottom and admits of greatest freedom of motion. Cattle can lay with head on side. Easiest opened and closed. **Reliable Agents Wanted.** Write for special terms, prices, etc.

JAMES BOYLE, SALEM, O.



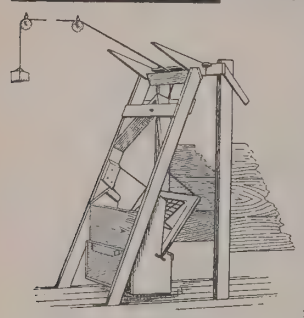


CHAIN-HANGING
CATTLE STANCHION
The Most Practical
CATTLE FASTENER
ever invented.
Manufactured and For sale by
O. H. ROBERTSON
Forestville, Conn.



WILDER'S
PATENT SWING STANCHIONS
Chain or Pin Fastened.
Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.
Safest, Strongest, Most Convenient fastening made. Cheapest to put in and save room in barn. Send for **Stanchion Catalog** to
J. K. WILDER & SONS, BOX 11, MONROE, MICHIGAN.

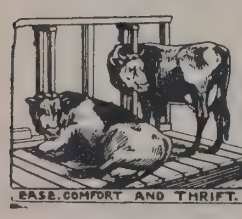
JUST OUT! UNDERHILL SELF ADJUSTING STALL



No Gutters
No Platforms
No fastenings
No Stables to clean
Cease trying to keep your cows clean. **You can't do it.** Give them a chance and **they will do it themselves.** This is the **only** way and the easy way. Write for circular telling what the cow has discovered to us. It is a great revelation.
Wm. M. UNDERHILL, Oconto, Wis.



THE NEW PATENT
Cow Stall
AND FEED TROUGH.
This is the only Cow Stall with a centering hinge. Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars. **R. A McLERY & CO., Palmyra, Wis.**



The BEST Cattle Fastening.
SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated circular free. GLENORA MFG. CO., Glenora, Yates county, N. Y.
Infringements will be prosecuted.

COOLING MILK FOR CITY TRADE.

There is a continuous complaint that in the summer, milk and cream shipped to the city does not keep well and there is much loss from souring even before it reaches the consumers. This result is of course due to bacteria contained in the dirt that falls into the milk during milking, and from contamination by poorly cleaned milk utensils.

Aside from the necessity of cleanliness much of the trouble would be prevented if due attention was paid to proper cooling of the milk as soon as it is produced. It is a custom among dairymen to put one or two cans in the watering tank and depend on the water in the tank to cool the milk sufficiently. How little dependence can be placed on this method is shown by some experiments at the Maryland Experiment Station of which the following is the conclusion:

The experiment shows that milk set in a tub or tank of water at 65 degrees, the milk having no previous cooling, could not be depended upon in warm weather to keep longer than twenty-four hours. The milk cooled immediately to the same temperature, kept from thirty to thirty-five hours. There would, of course, be considerable variation in the length of time the milk would keep when set in the water, depending on the character of the weather, whether it were cool or hot, as this would make considerable difference in the ultimate temperature of the water and milk. It is doubtful if, in ordinary weather, milk could be kept at this temperature for longer than twenty-four hours without an impractical amount of care bestowed in another way. The most important lesson to be gathered from this work is that a temperature of 65 degrees cannot be depended on to keep milk for a sufficient length of time to get into the city market without the shipping point is close to the city and the milk is shipped twice a day. This is important to producers, for they get careless about the temperature of the water that is used. Even if the well furnishes unusually cool water, if it is allowed to stand for any length of time during a hot day it will soon get above the danger point, and for this reason it is a necessity that the water be pumped fresh for the milk at the time that the milk goes into the tank. Of course, where running spring water is used this point does not need to be guarded against, but it is something that the man who uses well water and has no ice, needs to look after very closely.

Short-horns Will Be Represented in Dairy Test at St. Louis.

Association Will Bear All Expenses and Give Prizes.

It is proposed by the Louisiana Purchase Exposition to conduct a demonstration of the dairy and other qualities of the various breeds of pure-bred cows, including the dual-purpose breeds and their adaptability for dairying and beef production, illustrating in a practical way how economically the products of the cow can be obtained under given conditions. Each of the cattle breeders' associations has been invited to furnish cows for this purpose, and at a meeting of the directors of the American Short-horn Breeders' association held in Chicago recently it was decided to participate in the dairy demonstration, provided H. H. Hinds of Stanton, Mich., who had charge of the dairy test at the Columbian Exposition, could be secured to look after the Short-horn interests at St. Louis next year. This Mr. Hinds has agreed to do, and Chief of Department Coburn has been notified that the Short horn cow will be on hand, prepared to demonstrate her milk and beef qualities.

All entries from associations must be filed with the chief of the live stock department on or before July 1, 1903, and from individuals on or before Dec. 1, 1903. The demonstration will be divided into four classes—viz., A, B, C and D.

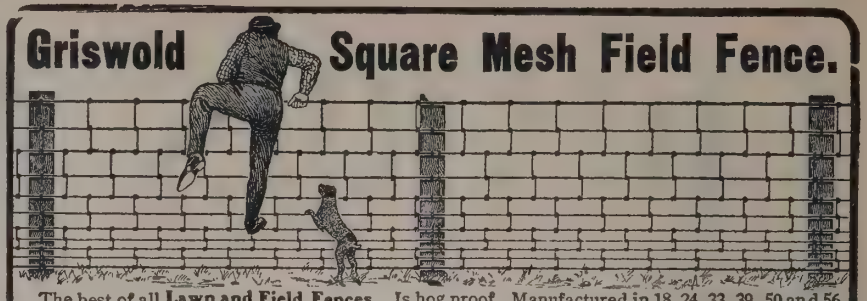
Class A will consist of cows entered for demonstrating the economic production of butter fat and butter.

(Continued on page 583.)



Prescott's Swinging Swivel tanchion
Keeps Cows Clean.
Swings forward while getting up or lying down. Locks back while standing Full particulars free.
E. PRESCOTT,
Beverly St., Boston, Mass

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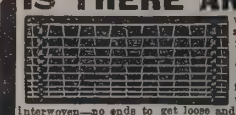


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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

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A Suggestion for Arranging a Large Stable.

Ed. Hoard's Dairyman:—We have just completed our new barn (for registered Ayrshire cattle) except cementing and putting in cow and horse stalls, and would like information regarding putting in of same. We have obtained much valuable information on different agricultural topics from your paper.

The accompaning plan will give some idea of the barn. It is built after the Shawver plank frame system. It is situated east and west, is 40 ft. 6 in. by 160 ft., on ground that is nearly level. We intend cementing it throughout and intend to put in the King system of ventilation. H. B. Smith.

Chateaugay, N. Y.

We give in figure 1, a reproduction, on a reduced scale, of the plan submitted by our correspondent for sub-dividing this large barn. It will be noticed that there is a hay bay on the west end, 20 feet wide, then a driveway or barn floor 16 feet wide, then stabling for cattle and horses 104 feet long, and at last a carriage house 20 feet wide. These measurements, however, take no account of the walls or partitions which reduce the available space to some extent.

Before submitting our own suggestions, it may be well to point out a few of the objections to the plan submitted, as they appear to us. Possibly, the most serious objection, according to our judgment, is the absence of any arrangement for driving through this barn from end to end; or any other way to get a wagon or sled in front of the cows for distributing feed, or in the rear for removing droppings.

The second objection, is the apparent absence of any convenient and expeditious way of getting the cattle either into or out of the stable. The plan seems to indicate that it was intended part of the cows should enter the stable from the so-called barn floor or driveway, and another part from the carriage room. It seems to us that such an arrangement is greatly lacking in convenience and in safety. Another objection is that the plan, as submitted, does not seem to provide any box stalls for bulls, cows or calves. Possibly, it may have been intended to use some of the space marked for cows for these purposes.

A fourth objection for us would be that the arrangements are for the cows to face inward. We would prefer to have them face outward, with feeding alleys in front and a central driveway for removing excrement. We are well aware that in this particular our views do not correspond with those of many others for whose judgment we have great respect; but when asked to submit suggestions, we must be guided largely by our own judgment and experience rather than by the judgment and experience of others.

As an incident to the objections suggested above, we may mention that there does not seem to be any convenient way of bringing these cattle into a common yard.

Without going into further detail, we submit a plan for sub-dividing this stable which seems to us to present a good many features that are improvements over the plan submitted by our correspondent.

It will be observed, as a very radical departure, that we omit the hay bay entirely. We do this, not alone to get an opening on the east end through which wagons can enter and leave, but for the further reason that the location of this hay bay brings the fodder so far away from many of the cows as to make a great deal of travel back and forth. We do not think this dispensing with the bay will be a very serious objection, as the loft over the stable will, in all probability, hold all the hay that may be required; and if it should not, we should much prefer to erect somewhere else a hay barn or even to stack the hay.

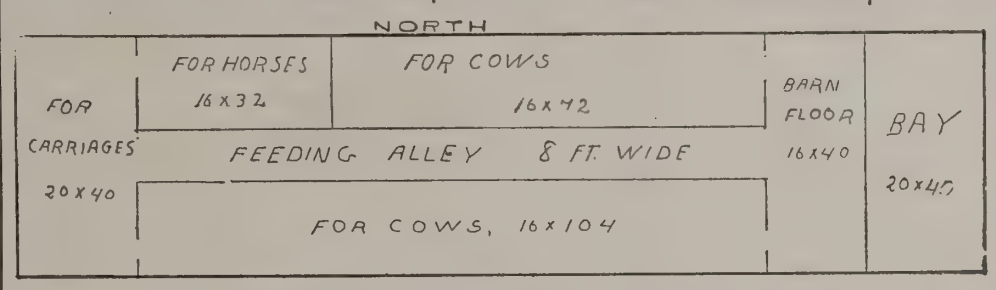


Fig. I—Stable Plan as submitted by owner. Dimensions, 40×160 feet.

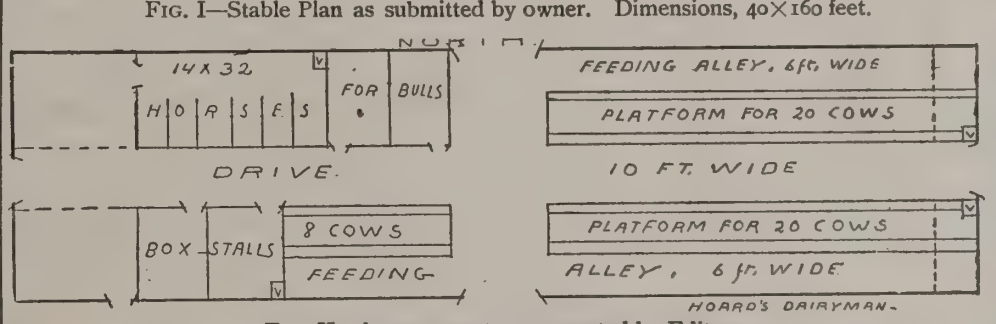


Fig. II—Arrangement as suggested by Editors.

Our next suggestion is to remove the barn floor or driveway from the location suggested and place it substantially in the center of the building. Thus located, it will afford a more convenient place for driving in with loads of hay and distributing it to either side, and what is of perhaps greater importance, a more convenient arrangement for allowing the cows to enter and leave their stalls. It also provides a convenient arrangement for storing the different qualities of hay in a manner so that they can be reached as occasion may require.

Our plan of sub-division gives the same number of lineal feet for cow stalls as found in the original plan, and in addi- provides four commodious box stalls for cows, calves and bulls. Our own judgment is that the number of box stalls should be increased, and to that end, we would provide for one or more on either side of the central alley at the east end of the barn.

Consistent with our own views, we also suggest that the cows shall face outward rather than inward, and that there should be a central driveway ten feet wide, with a door of same width in either end of the barn. On either side of this central driveway we would have a gutter about 18 inches wide and four inches deep on the sides next to the driveway, and coming up level with the concrete floor on the opposite side. Our standing platform for the cows would be 4½ feet wide, connecting with mangers two feet wide, and thus leaving a clear space of six feet in width for feeding alleys.

It may be all right to have a cement or concrete floor throughout the entire building, but we very much object to compelling cows or other animals to stand on such a floor. We, therefore, would cover the standing platform with 2-inch plank which will add very materially to the comfort of the stock.

We would locate ventilating shafts as shown in the diagram, one on either side of the driveway at the west end, about 3×4 feet in internal dimensions, running up into the loft and then brought together into a central flue reaching up through the ridge. Locate another flue, as shown, in the corner of the horse stable and another one in the corner of one of the box stalls. These flues can run up to the rafters and then be carried along between the rafters to unite in a common exit at the ridge.

It will doubtless be observed that neither in the original plan nor in our suggestion has any provision been made for storing feed or for stairways leading to the loft. These are very important and practically indispensable items, although ladders may take the place of stairways, but some arrangement should be made in the loft or elsewhere for bins for storing feed.

The Art of Milking.

There is no branch of dairying which has received so little attention and close thinking, whether on the part of the dairyman himself, or the scientists who are investigating dairy subjects, as the important item of drawing the milk from the cow. In a general way, we all know that the manner of milking has much to do with the profitableness of cow keeping. We all know that there are good milkers and poor milkers. but just why one person is a good milker and another is a poor milker, it has been deemed impossible to determine, and still more impossible to describe.

As in so many other matters, it has remained for little Denmark to take up this subject in a careful, painstaking, inquisitive way, and among other attempts to solve the milking problem, the Agricultural Society in the County of Svendborg, a couple of years ago, arranged a competition for writing a short and popular article about the work of milking. From among the manuscripts submitted, that of Mr. Jorg. Peterson, head master at the Agricultural College of Dalun at Tyen, got first prize, and some thousands of copies were printed for distribution in that little kingdom.

From a translation of this essay, for which we are indebted to one of our English exchanges, we select and condense as follows:

It is a general rule, appropriate to all living beings, that the use of an organ of the body promotes the development of that organ; this rule is thus also appropriate to the organ of the cow which we call the udder. The use of it is the milking, and in that we have the most important and best means of developing the udder of the cow, and at the same time also her milking power. But in order that the use of an organ may produce a higher development of it, it is also required that it will exert the organ. The exertion of the udder consists of milking it perfectly free from milk. The milker must take as an example the greedy calf, which sucks the very last drop of milk out of the teat. This causes an increase of blood to the glands of the udder, and this is evidently of the greatest importance, knowing that it is from the blood all material for further development and for more milk is got. But, above all, is evident the importance of clean milking young cows or heifers, the udders of which are still growing and developing. What a good milker has to do, is not only to get out all the milk that is in the udder, but also to do that in such a manner that the cow feels it as an enjoyment, and further to take care no dirt or impurities get into the milk.

Before beginning milking, the milker ought to speak kindly to the cow, pat her and caressingly smooth her along the belly and the udder. The milk pail is then placed under the udder on a certain side of a cow, and he takes, with full hand, hold of two of the teats, one fore and one hind teat to be preferred. The hands are alternately moved upwards to the udder by a gentle pressure, and then, also alternately, slowly and lightly, closed downwards round the teat. These grasping movements are continued till he perceives that the cow yields the milk, when the latter is got out of the udder in long, consistent streams; the movements of the hands are the same as at the beginning, only a little more vigorous. For every new movement the hand must make a pressure up against the udder, and, at the same time, the thumb and forefinger shall seize the part of the udder which is next above the teat, in order to get as much milk as possible from the part where the milk reservoir is the largest.

During this part of the milking the conscientious milker must give all his attention to his work, for every interruption in it means loss of milk. All noise and loud conversation must, therefore, be strongly forbidden during the milking, as disturbing to both cow and milker. When the first pair of teats no longer yield any milk, he proceeds in the same manner with the second pair. The milk must be squeezed, not pulled, from the teat. The latter must, therefore as before mentioned, be taken in the whole hand, which must not more than is absolutely necessary glide along the teat. "Streak-milking," by which the upper part of the teat is squeezed between the thumb and the fore-finger, or, worse still, between the fore-finger and the middle finger, and then the fingers, tightly pressed, drawn downwards, is very objectionable. It is disagreeable to the cow, irritates the skin of the teat, and may easily cause sores; but not only that, it may even cause bursting of the mucous membrane of the milk-cistern and thereby cause a serious illness in the udder. A hard-handed milking often causes perturbations in the secretion of milk; in that way a cow may, for instance, become hard milked; a teat may from the same cause easily be made quite useless, and a cow become what is called three-quartered.

But milking the cow is not yet completed. An effective after-milking must take place, by which the milker by means of suitable manipulations must work and knead the udder to press the last drops of milk out of the teats. A great many examples could be told about the influence of clean-milking upon the quantity and quality of both milk and butter. In Germany the experimeut has been tried of allowing one person to milk five cows during fourteen days, and then another person milk the same cows during the following fourteen days. The cows were fed and served during the whole time in quite the same way. The result, however, was that the second person on an average got about 2 kilograms (4 lbs. 6½ oz.) more milk per animal per day than the first one. At a similiar experiment made in America by Prof. Babcock, Wis-

(Continued on page 574)

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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

PRODUCING cream with the same per cent of fat from day to day, is one of the things that verges on the impossible. There are too many things that cause variations. The speed of the separator bowl affects the cream by making it richer as the speed increases. Equally, a slower motion makes a thin cream thinner. So where a hand separator is used, there is no guaranty that an even motion is kept up, and the uneven motion produces an uneven cream. If the separator is crowded with a full milk flow and then for a short time the supply is lessened, the result is first a thin cream and then a thick cream in small amount. The separator is not infallible in its cream product, and the fact should be recognized.

"DAY unto day uttereth speech and night unto night sheweth knowledge." Thus wrote the Psalmist several thousand years ago. Probably he did not have in mind the problem of dairy farming, but his words apply there as well as elsewhere.

The business of keeping cows is full of speech, if those who follow it have ears that are willing to listen; and it abounds in knowledge, if they will but seek for it.

How clearly Solomon understood the value of intelligence as a factor in successful farming, for he says in Proverbs: "I went by the field of the slothful, and by the vineyard of the man *void of understanding* and lo, it was all grown over with thorns, and nettles had covered the face thereof, and the stone wall thereof was broken down."

A more graphic description of shiftless farming has never been given.

IN noticing that a number of farmers near Grout City, Mo. had formed an association to be known as the United Dairymen of Missouri, New York *Produce Review* asks the very pertinent question: "Why don't they join the State Dairymen's Association?"

One of the most potent causes which have led to the development of the State of Wisconsin as a dairy state, has been the steady and united loyality which has been given to its State Dairymen's Association. Our dairy farmers have held together and worked together, thus securing liberal grants of money from the legislature, and thorough good work. Farmers as well as men in other vocation must learn how to work together. "United we stand, divided we fall."

BARLEY FOR DAIRY COWS.

How many dairymen have seriously experimented with the feeding of barley to their cows. The Wisconsin Experiment Station is on record in recommending it as very profitable feed. It taxes the land less than oats, is a surer crop and much better to seed timothy and clover with. There is a great lack of thorough experimental work in determining the feeding value of this truly valuable grain.

The South Dakota Experiment Station tried an experiment in feeding barley, and the grain called spelz to lambs. Twelve lambs were fed fifteen weeks on barley and another bunch of twelve were fed the same period on speltz. The lambs on speltz consumed 2,244 pounds of grain and gained 300 pounds. Those fed on barley consumed 2,318 lbs. of grain and gained 455 pounds. With speltz it took 7.47 pounds to produce a pound of gain. With the barley it took 5.9 lbs. for a lb. of gain. The DAIRYMAN would like to hear from any of its readers who have fed barley meal to their cows, as to their opinion of its value and efficiency as compared with oats.

A LESSON IN AGRICULTURAL DEVELOPMENT.

The American people are fond of calling themselves great. They have a right to this term if they mean the size of their country, the number of its inhabitants, their bravery and determination, or the spirit and purpose of American civilization. In all these things we are great. And we are great in some other things. We are great in the heedless, wicked waste of the stored up fertility of our farms, in our disregard as farmers of the teachings of science, in our foolish contempt of the wisdom that comes from study, thought and organization. We are great in our conceit that we have no need to learn of other nations concerning the conduct of our farms. In every other vocation of American life but the farmer, the white light of all the study, all the invention, all the improvement that is made in other nations beats full and strong on every effort. In manufacturing, a new invention in one country is soon taken advantage of in every other. The progress of chemistry, or indeed of any other science, is closely followed, and felt by every person engaged in that science all over the world. And so it is in law, medicine, literature, commerce. Each worker in these fields soon feels the effect of every advance made by his fellow worker even in the most distant parts of the earth.

The secret of this wonderful oneness is found in the influence of the printing press. Here is the heart of the universe, which sends new blood to all the members of the great body of human thought and interest everywhere.

These thoughts are prompted somewhat by reading in the May *Independent* of the achievements in agriculture and agricultural organization in Denmark, written by Baron de Stampenbourg. It is a wonderfully impressive story and shows with marvelous clearness how a small body of farmers, by working in intelligent unison, can greatly promote their welfare, and take possession of the markets of the world. We have room for only a brief mention of the many lessons this description by the Baron conveys.

In the first place, Denmark has no foreign policy; she does not concern herself with being an outside "world power." Every effort of the government and the people is directed to the development of her agriculture and other industries. Here are some of the results of that wise policy in the last five years.

Butter exports have increased from 1,000,000 to 20,000,000 pounds anually; fish exports from 750 pounds to 3,000,000 pounds; egg exports from 4,000,000 pounds to 20,000,000 pounds; meat exports have jumped from 500,000 pounds to 160,000,000 pounds. To equal this, in proportion, the United States would have to export five and a half billion pounds. The Baron says that the economic progress in Denmark is almost entirely due to the efforts of an enlightened farm peasantry through co-operation among themselves. "No arrogant trust" has arisen to dicate prices and blight competition; and no "community of interests has been allowed to create artificial values at the expense of the interests of the commonwealth."

More than five-sixths of the land belongs to the peasants. In the Baron's words: "You see every where small, well kept farms, with fields and meadows as scrupulously cultivated as if they were horticultural garden exhibits."

Now we come to the most interesting part of all. What has made of the Danish farm peasant such a mighty force for the regeneration of his country and the promotion of his own good fortune? We will let the Baron tell the secret in his own language:

"The success of the Danish peasant is due *first of all* to a splendid system of *rural high schools*, and a very practical plan of economic co-operation. The schools teach every branch of agricultural science in connection with a liberal scholastic curriculum, insuring a well rounded education. The schools are open to everybody, young and old, and not infrequently men of more than forty years of age attend the classes. The future farmer is taught the things he ought to know to be successful, * * *. The man who has been swinging a scythe all day may be found in some evening class studying forestry and creamery methods, and many employers allow farm hands to "knock off" work for a couple of hours in the afternoon to attend the high school of the township. These rural colleges have made out of the present generation of Danish peasants, the most enlightened, the most thoroughly instructed and the most permanently industrious of farming communities."

What a splendid picture! What intelligent farmers! What magnificent results! We wondered while reading this, if there could be found in all Denmark a single farmer who sneers at "book farming"; who despises the knowledge that agricultural books and papers and agricultural schools can give.

Denmark is the most advanced dairy community in the world. All the methods of farm and cattle management, machinery, methods of handling the milk, making the butter, and the commercial system of disposing of the same are the results of intelligent co-operation between the farmer and the student of dairy science. Then, besides, as we have seen, the Danish farmer takes care to provide that his children and himself shall have real agricultural country schools, where their minds, as well as their hands, can be developed and grow strong. The Baron closes this remarkable article in these words:

"A 'tight, little isle' forging quietly ahead, in the dogged belief that knowledge is power."

WARMTH AND VENTILATION.

We have a recent inquiry as to the best methods of ventilating a stock barn without interfering too seriously with the warmth of said barn. Of course, we could give no specific advice without knowing about the size of the barn and its general arrangement, but the concluding part of the query raises a question of general importance.

There is evidently more or less of a misconception in the minds of a great many people as to the effects of ventilation, when provided for in the proper manner. The truth is, that a properly ventilated apartment, whether it be in the dwelling house or the barn, is warmer in every way than the unventilated apartment. Some years ago, the present writer built quite a large chimney from the cellar bottom up through the center of the house and provided a small fireplace in the main living room which connected with two other rooms. At that time he was heating his house with stoves, and much to his surprise, he found that the one stove in the living room did more effective service in warming that and the connecting rooms than it had done before the large chimney was built. The reason for this was not far to seek. The fireplace not only drew off the cold air which inevitably is near the floor, but in doing this, it created a circulation throughout all the apartments and permitted the overheated air at the ceiling to come down.

The King system of ventilation applies this principle to stables. It provides for a large flue or shaft, with an opening at the floor, which draws off the coldest air there is anywhere in the stable. Fresh air, even in cold weather, is admitted at the ceiling, but before it reaches the floor, is warmed by the warmer air with which it comes in contact. The inlets for fresh air should be fairly well distributed so that the cold air may be admitted at different places; and, beside this, there should be a downward flue opening exteriorally not less than three feet lower than the opening on the interior. This is to prevent the warm air at the ceiling from escaping, and thereby compelling it to descend and take the place of the colder air drawn off by the ventilating flue.

It follows, therefore, that ventilation, instead of interfering with the warmth, actually contributes to it. The heat given off by a stable full of cows is more than sufficient to warm the stable, provided it be equably distributed. This it is the province of ventilation to do, in addition to the admission of fresh and pure air, and the withdrawal of the foul and cold air.

Estimating Butter.

The Jersey Bulletin, as its name implies, cannot well be an independent paper, and it was perhaps too much to expect that it would treat with respect or candor the recent decision of the Holstein-Friesian Association, in the matter of making up its records of tests, and the changes adopted to bring the future records of Holstein cows into accord with the opinions and practices of the experiment stations. Neither was it to be expected, perhaps, that it would correctly report the attitude of HOARD'S DAIRYMAN on this subject.

For example, in its issue of July 15th, it says "HOARD'S DAIRYMAN, particularly among newspapers, upheld by a few so-called 'scientific dairy authorities,' has continually abused Jersey men for not doing the very thing which has put the Holstein records beyond credence." Of course, as the *Bulletin* well knows, there is not a word of truth, not even a suggestion of truth, in such a statement. HOARD'S DAIRYMAN has never abused Jersey men. More than this, it has never advised Jersey men to follow the example of Holstein men in those particulars which have put Holstein records beyond credence. On the contrary, from the first, it has not failed to warn and reproach Holstein breeders for the unscientific and impracticable rules adopted by their Association for estimating the amount of butter a cow was capable of producing, as shown by the Babcock test. The persistency of its opposition to the practice of adding one-fourth to the amount of butter fat for estimating the possible yield of butter, has not only cost the paper very considerable patronage, both in its subscription and advertising departments, but what has been more keenly felt by the editors, the good will and sympathy of many personal friends,

However, in this respect, as in so many other respects, the paper has continued to hew to the line, and to proclaim the truth as it has been given to its editors to perceive and apprehend the truth. It does not care to boast, but a careful review of incidents leading up to the action of the Holstein-Friesian Association at its last annual meeting, will show that HOARD'S DAIRYMAN has been perhaps the most efficient factor in bringing about this action.

The editors of this paper do not claim to be infallible, but they are not such idiots as to advise Jersey breeders to adopt those Holstein practices which they are continually condeming.

HOARD'S DAIRYMAN is much gratified to observe that the American Jersey Cattle Club, notwithstanding the opposition of the *Jersey Bulletin* like the Holstein-Friesian Association, is adopting from time to time, suggestions made to it through its columns. It has recognized the Babcock test as a more just and unfailing arbiter than the churn for determining the butter making capacity of a cow, and today, a churn record not confirmed by the Babcock test, obtains little credence among Jersey breeders. Not only can the churn be so manipulated as to give the cow credit for more than she is justly entitled to, but quite as frequently perhaps, the churn cheats the cow, gives her less credit than she is entitled to. In the same issue of the *Jersey Bulletin* from which we have quoted above, there is a report of two cows tested, both by the Babcock and the churn. Butter from one cow contained 83.57% fat, the butter from the other cow contained 88.2% fat. Such variations as these by the churn are far greater than the variations in the Babcock test.

What HOARD'S DAIRYMAN has insisted upon is that the cow shall have credit for all the fat she puts into her milk and then when we want to express this in pounds of butter, that there shall be added one sixth to the fat, no more and no less, for it has been demonstrated over and over again that this is what the cow is entitled to.

Brewers Grains as a Feed for Milch Cows.

We are in receipt of frequent inquiries as to the effect of brewers grains upon the flavor and quality of milk. There seems to be no end to the number of times questions of this character can be repeated. Fed in reasonable amounts, when fresh from the brewery, or if kiln dried, there can be no possible objection to their use, and when they can be purchased at any fair price, there is no reason why dairymen should not use them. Twenty to thirty pounds, per day, of the wet grains, is perhaps as much as should be fed, and extreme care should be taken, not only that the grains are fresh and sweet, but that the receptacles for their storage and the boxes and mangers in which they are fed, should be kept scrupulously clean. Wet grains ferment very quickly, especially in warm weather. And if not stored in a tight receptacle, the liquid running from them not only produces a bad odor, but makes a breeding place for all manner of objectionable bacteria. Objections of this kind do not obtain where the kiln dried grains are fed, especially if they are dried before fermentation has set in.

TESTIMONY FROM INDIANA.

Every day the proof is growing stronger that HOARD'S DAIRYMAN was right when it said: "that success and good profit in dairy farming mainly depends on the man behind the cow." Some think it lies in the breed of cattle used, but that is only part of it. Others think it depends on the soil, or the location of markets, or many other things, all good in their place. But the fact still remains that with the best breeds of cattle, and on the best of soils and with excellent markets right at their door, there are plenty of men who do not make a success of dairy farming. *The man is not right.* If we were asked to describe the right sort of a man for this business, we would place first and foremost, that he should be a *teachable* man, a man who is hungry for sound knowledge and not so conceited in his own opinion, that he can not learn from others. It seems strange, but nevertheless it is true that there a great many men who cannot learn much of anything from what they read. They have never learned how. So, if they get a new idea, they must see it worked out. Some neighbor more enterprising than themselves must first demonstrate the thing for them. Of a different order of men is the writer of the following:

ED. HOARD'S DAIRYMAN:—I desire to say that HOARD'S DAIRYMAN is worth $1 each issue to me. I have gleaned what dairy knowledge I possess from it, and could not run my dairy successfully without it.

In two years time we have brought our herd up from an average production yearly of 180 pounds of butter per cow, to 310 pounds. HOARD'S DAIRYMAN showed us the way. Now we propose to build a silo and in another year we shall want a model barn.

We feel more than grateful to you for the great work you are doing, and know we voice the sentiments of thousands of farmers and dairymen.

Yours truly,
L. W. PAYNTER,
Campbellsbury, Ind.

EDUCATING THE PIG TO CLEANLINESS.

A private letter to the editor gives the following account of how German pigs are educated into cleanly habits:

"At Schladen I also saw a piggery where 400 head are brought from 40 to 200 pounds in four months. The small pigs are put into perfectly clean, cement floored, walled and ceiled pens, and the first thing is to educate them in cleanliness, which is done in the most simple manner, by merely placing a bit of fresh manure in a particular place, near the opening for removal. They are kept in a light litter of straw, and after four months are as clean as the day they were put in, without any cleaning."

The pig is naturally one of the cleanest of animals, although many farmers seem to think otherwise and act accordingly.

GROWING ALFALFA FOR SEED.

The following inquiry and answer on this subject—found in the *Breeder's Gazette*, will interest some of our alfalfa readers:

J. S. N., Lebanon, Ind., writes:

"I would like to know what crop of alfalfa makes the seed? I have been raising alfalfa for six years, but have never raised any seed, as I needed the hay and regarded the four crops of hay per year as worth more than the seed crop. This year I will not need four crops of hay from fifty acres of alfalfa, and I want to thresh a seed crop. I commenced cutting alfalfa June 11 and now, June 27, the second crop is about 15 inches high. I have 25 acres now in the barn and almost that much more to cut."

Kansas and Nebraska cut either the first or second crop for seed, preferring, I believe the second. It is cut when pods are about half colored, with a binder, but dropped off in bunches unbound. It cures in from one-half day to two days, is threshed in an alfalfa huller or clover huller, or even the ordinary threshing machine, although this does not get all the seed. Cost for threshing and cleaning is said to be about $1 per bushel. It yields from two to eight bushels per acre. The threshed straw is valuable for feed, although not as good as earlier cut hay. The seed crop, as with other plants, is said to be rather exhausting to the alfalfa.

CHAS. B. WING.
Champaign Co., Ohio.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Which Breed of Swine Most Prolific.

What breed of sows farrow the largest litters? We are of the opinion that the Chester White sows give larger litters than any other breed. Are we correct? Are there any conditions in breeding that govern large and small litters?
Waukesha, Wis. McM. BROS.

There are no statistics at hand that would justify the expression of any positive opinion as to which breed of swine is the most prolific, nor as to any conditions in breeding that govern large and small litters. Undoubtedly, proper care and feeding would have more or less influence in this respect. It has been noticed that swine fed for generations largely on corn and not given much exercise, incline to small litters, whereas, where there is a large variety of feed and a goodly proportion of protein, especially in the form of clover or alfalfa, for both males and females, there appears to be increasing fecundity.

Supplies for Babcock Test.

Are the Babcock testers as advertised in HOARD'S DAIRYMAN ready for use, and is all the material included for testing milk or cream? Will not cows vary in their test at different times of year on different feed? F. E. D.
Penn.

The Babcock tests advertised in this paper have all the appliances with them for making tests except that the purchaser must supply the sulphuric acid; but the test comes completely fitted with all the glassware necessary for its manipulation.

Cows will vary in tests, not only at different times of the year, but more or less, from day to day in the same week. The character of the feed does not make any appreciable difference in the test.

Cream Questions.

I am getting 32 quarts cream a day from my herd of cows, and use a U. S. separator. Cream is kept in a cool cellar about 60 degrees temperature. How long should I keep cream before churning? It varies from 4 to 6 lbs. butter to the 32 quarts of cream. It takes 1 hour to 1½ hours to churn. C. S. F.
Rouses Point, N. Y.

There is no specified time for the ripening of cream as it depends entirely on the temperature of the cream and its age. In creamery work the ripening is controlled by the temperature, and is so regulated that 24 hours are required to bring the cream to the proper ripeness. This is from 60° to 65° F., unless in very hot weather when it may be necessary to cool the cream below 60° F. to prevent too rapid ripening. The time required for churning, if the cream is properly ripened, would seem to indicate a thin cream, as is also shown by the yield. Cream containing 35% of fat, churns more easily and with less loss in the buttermilk than thin cream.

Only a Fair Yield.

I have a small dairy of grade Jerseys, (ten cows giving milk); during the month of June they gave 5971 lbs. of milk, testing 4.80% of butter fat. Does that show good results? They have good pasture and no grain. M. F.
Fair Haven, Vt.

These cows were averaging a trifle better than a pound of butter per day during the month of June. This must be considered a fair yield but in our judgment not hardly satisfactory to the modern dairyman. The presumption is that some of these cows are extra good ones and some of them decidedly inferior. We recommend M. F. to at once commence keeping a daily record of the milk yielded by each of his cows; have this milk tested from time to time and thus ascertain just what each cow is doing. Keep a regular book account with every cow, and if we are not greatly mistaken, he will find that some of his cows are considerably in debt to him, that they do not pay for board and care. Of course, such cows should be disposed of. There is no profit in keeping them and they should give place to better ones.

Silo on Low Ground.

Please advise me through colums of DAIRYMAN in regard to silo. I want to build one near barn; ground is lower where I want to build it and water settles into it. Would like to dig about four ft. into ground besides. Can grade around it so ground will be about level or sloping away from it. Would it be all right or ought it to have a drain leading from it or would it be better not to lower it into ground? Is 25 ft. deep enough to keep good ensilage? F. E. D.
E. Sharon, Pa.

We would not like to build a silo where water settles, and still more should we object going below the surface in such a place. Quite possibly, a silo might be built with a heavy grout bottom extending well under the wall and the outer surface of the wall thoroughly covered with cement, and in this way exclude water from coming into the silo; but our experience leads us to believe that it would be impracticable to exclude water by simply cementing the inside of the wall. It is very possible, of course, to let this silo extend four feet into the ground and build up the foundation with concrete, making a heavy concrete bottom and thus keep water out. There should be no drain from the bottom of a silo. As a rule, the material going into the silo should be sufficiently mature so that there should be no liquid at the bottom; but if there is, let it be there. The attempt to drain it off would be almost sure to admit more or less air and this would induce fermentation and decay.

Twenty-five feet depth makes a very satisfactory silo.

Does It Pay to Drive Cows a Half-Mile to Pasture.

Do you think it profitable to keep cows where you have to drive them ½ mile to pasture? If so would they not be better if kept in barn nights and fed some coarse fodder like green oats or corn fodder, or let out in small yard. F. L. D.
E. Sharon, Pa.

If cows are carefully driven, and not hurried or worried, a half mile to and from pasture ought not to interfere very materially with the yield of milk. We should much prefer not to drive them this distance twice a day, but should keep them in the barn or a small yard, nights, and let them have hay or green feed as might be most convenient and least expensive. A little hay is a decided advantage, even with good pasture.

Ice Water for Cows.

A Pennsylvania correspondent says he has to drive his cows about 100 rods to a creek and, in winter, the water is ice cold. His house and well (which is about 70 feet deep) are 200 feet from his barn, and he inquires whether he can put a tank in the attic over the kitchen stove for house purposes and let the surplus overrun through pipes to a tank in the barn, or whether he can pump directly from the well through pipes to the barn.

Most anything would be preferable to driving the cows this distance to the creek and letting them drink ice water, and some arrangements should be made for connecting the well with the barn. Of course, the connecting pipes should be put below frost, and we should prefer to have what is called a 3-way valve so that we could pump by windmill (or other power) to the house tank and the barn tank or directly above the well. One objection to pumping all the water first through the house is the constant, unnecessary noise of the water coming and going. With this 3-way valve, the simple turning of a rod directs the water just where one wants it. Keep the house tank well filled, but when full, turn the water off, and let it go to the barn or not pump at all. It is perhaps a little difficult to explain in words in a brief paragraph just how this is done, but almost any pump man will understand how to fix it so that it will work without any trouble. If the tank at the barn is in the open yard, by all means have a tank heater to warm the water when the cows want to drink. If the tank is located in the barn, especially if it is in the stable, the heat from the cows' bodies will keep the water fairly warm.

Getting Silage Out of a Pit Silo.

Will you kindly give an opinion as to the most efficient and economical method of getting ensilage out of a pit silo? W. N. B.
Fort Calhoun, Neb.

So much will depend upon the size and depth of the silo, and the amount of silage to be handled daily, that it is impracticable, without further information, to submit any serviceable suggestions.

As to Milk Coolers and Aerators.

J. J. G. of Spring Valley, Wisconsin, writes he is a young man and also young in the dairy business. He disposes of his milk at retail and has been thinking of getting a milk cooler and aerator. He asks us if we would advise him to do so, if the benefit would equal the expense.

So much depends upon circumstances that we hesitate to give specific advice in a case of this kind. When it comes to aerating, and cooling it at the same time, it is indispensable that this should be done in an atmosphere free from dust and odors. It is sometimes pretty difficult, if not impossible, to obtain such a place, and then it is much better to expose the milk as little as possible. If one does not have considerable milk to handle, the milk can be cooled and aerated to very good advantage by setting a common deep pail in cold water and dipping up and pouring back the milk for a little while. It there is much milk to be cooled, of course, one of the aerating coolers is desirable.

Alfalfa With the Yellows.

What can be done for an alfalfa field, sown this season in May, that looks yellow at the root? What was the cause of the young plants showing this from the first? The plants did not thicken up and grass has grown in a mat over the field. Will it come out right next year? Your correspondents speak of the owners of farms for rent, not taking an interest in having things handy for tenant. I want silo and up-to date conveniences, but my tenants neither use nor care for these things, with a 28 cow dairy. Here is an opening for an up-to-date tenant with a subscription to HOARD'S DAIRYMAN thrown in and recommendation to follow in the light of progressive dairymen. X. X.
Mich.

The lower leaves of the alfalfa plant, especially in wet seasons like the present are very apt to show the effect of the yellows. The cause is not known, but the best remedy is to cut the alfalfa at once.

Unless there are sufficient young plants under the grass to make a strong growth in the spring, which can only be told by examination, it will be necessary to turn the surface under deeply with a plow and reseed in the spring with a nurse crop.

Will a Shredder Pay?

In your issue of 10th inst., page 505, you quote from *Breeder's Gazette* a statement of James A. Parden that a ton of fodder will be produced in a cornfield with every 40 bushels or 2,800 lbs. corn. I am in the act of purchasing a harvester and a shredder, but I am greatly discouraged by this report. Forty bushels to the acre is a good yield of corn here; therefore we will hardly ever exceed a ton of dry stuff per acre if Mr. Parden is correct. Can you put me in touch with any farmers, who can give a more encouraging report of the tonnage of stover per acre. W. L.
Fort Smith, Ark.

The figures given by Mr. Parden in the extract published are probably very conservative. Prof. Henry in his work on "Feeds and Feeding" quotes from a report of the Pennsylvania Experiment station the yields of ears and stover from experiment stations in New Jersey, Connecticut, Wisconsin and Pennsylvania, showing an average of 4,415 pounds of ears, 3,888 pounds of stover. At this rate, an acre of corn yielding 2,800 lbs. of ears should yield 2,420 pounds of stover. It would seem that this is well worth preserving, but whether it would pay to invest in the shredder would depend very largely upon the necessity for being extra careful with roughage. If there is an abundance of hay, it would probably not pay to shred these stalks; otherwise, and especially where hay is dear, it would pay, and pay well. All the experiments so far tried go to show that fully one-third of the feeding value of the crop of corn is in the stover. Certainly, this is enough to lead a careful man to take extra pains to preserve it, and if he has not stock enough to eat it, it would be good policy to put more stock on the farm and not allow this valuable product to go to waste.

United States Government Whitewash.

I think that some time ago you published the formula which the United States Government used in preparing whitewash, but I fail to find it among the copies I have saved of your paper. Will you kindly publish it again? B. C. T.
Boonville, N. Y.

Take half a bushel of unslaked lime, slake it with boiling water, cover during the process to keep in steam, strain the liquor through a fine sieve or strainer and add to it a peck of salt previously dissolved in warm water, three pints of ground rice boiled to a thin paste and stir in while hot. Then add half a pound of Spanish whiting and one pound of glue previously soaked in cold water and then heated in a small pot hung in a larger one filled with water. Add five gallons of hot water to the mixture, stir well and let it stand a few days, covered as nearly air tight as possible. It can be colored by adding ochre, lamp-black, ground keel or bluing to suit. It should be applied hot, for which purpose it can be kept on a portable furnace.

Handling Clover for Seed.

Will you kindly inform me through the columns of your paper how to handle clover for seed in proper manner, as I have 12 acres of very promising clover going to seed and do not know much about the proper handling of it. T. J. R.
Clyde, Mo.

Only the second crop of clover is saved for seed, as the first crop usually comes on too early for the bumble bees to get in their work of pollenizing the flowers. Let the clover get good and ripe, mow it with an ordinary mower, let it lie on the ground for sometime, and when thoroughly dry on the ground, rake into windrows and after sometime there, if not wet with rain, haul to stack. Give the stack a good topping out with coarse grass or straw to shed the rain and thresh in the cold, clear days. Clover does not thresh well unless very dry. Damp days interfere very much with threshing. Clover does not shell readily, and hence it may be exposed in the field much longer than the ordinary grain crops.

Does it Pay to Thresh Oats?

Have ten acres of oats; which would be the more profitable, to have them threshed and ground into mill feed, or to rick them and this fall after I fill my silo, to have them run through the cutter. Think I can have them run through the cutter cheaper than I can get them threshed. Want the feed for cows. The mice never bother sheaf oats, which have been run through the cutter as they cannot make holes through it.
New Vienna, O. J. A. S.

Persons who have tried the plan of caring for oats as proposed by J. A. S. are enthusiastic in its support, claiming that it is not only a much cheaper way to handle the crop, but far more effective. The editors of this paper have never tried it, as they raise only oats enough to feed their horses and are beginning to think that even this does not pay.

Ashes and Lime for Alfalfa.

I am thinking of sowing five acres of alfalfa on gravelly ground. Would it do to use manure and ashes together? The land has some sorrel in it. Or would it be better to use lime in connection with manure? There is none raised in this section, so any suggestion would come good.
Mt. Vernon, N. Y. C. E. L.

The combination of ashes with stable manure would be all right, as the ashes would supply both lime and potash. We should prefer, however, not to apply them combined, but each separately. Also, if there is not now a fair supply of lime in the soil, add some lime to the ashes. The presence of sorrel may indicate a deficiency in lime.

New York Dairy Statistics.

A circular from the New York Department of Agriculture gives the following information on this subject:

The enforcement of the milk law is one attended with as many, if not more difficulties as any other with which this department is charged, on account of the volume of milk that has to be guarded, New York city last year taking for consumption over fourteen million forty-quart cans. The population of New York city being approximately three-sevenths of that of the state and assuming that people elsewhere consume practically the same amount of milk per capita, it would make the milk consumption of the state of New York practically thirty-three million forty-quart cans, to say nothing of the amount of milk delivered to butter and cheese factories for manufacture into butter and cheese. There are in the state of New York about sixteen hundred of such factories in which during the year 1900 there were made 126,658,672 pounds of cheese, and 39,183,311 pounds of butter. Estimating this butter and cheese in their equivalents in milk, and we would have the 39,183,311 pounds of butter manufactured approximately from 11,700,000 forty-quart cans of milk, and the 126,658,672 pounds of cheese manufactured approximately from 15,750,000 forty-quart cans of milk, making a total of 60,450,000 forty-quart cans of milk, the purity of which the agricultural law is to guard.

The butter and cheese manufactured in the State of New York for the year 1902 was as follows:

New York has 61 counties; dairy establishments are operated in 52 of them.

	No. of factories.	*Lbs. of butter.*	*Lbs. of cheese.*
Butter factories,.....	448	50,060,954	
Cheese factories.....	1,010		89,982,002
Factories making both butter and cheese.....	193	5,117,251	29,307,711
Milk stations.....	539	4,646,561	4,568,303
Condensaries..... ..	18	95,504	639,280
Total....	2,208	59,920,270	124,597,296

Increased number of pounds of butter over 1900..... 20,736,959
Decreased number of pounds of cheese as compared with 1900..... . 2,061,376

The United States Census of 1900 shows that the total number of pounds of cheese made in the United States was 298,344,654, and that 130,010,584 pounds were made in New York State. From these figures it would indicate that New York State made approximately one-half of the cheese made in the United States.

Dairy Sense and Purpose in Kansas.

ED. HOARD'S DAIRYMAN:—I would like to ask you some advice along the line of dairy work. I am the owner of something like seventeen hundred acres of land; in one farm I have 600 acres, I

THE U. S EXCELS ON ANY TEMPERATURE.

Our "would-be competitors" the DeLaval Separator Co., finding themselves badly beaten in the six weeks' tests of six different makes of Separators at the Kansas Agricultural College, as shown by the official Bulletin No. 123 issued May 26, 1903, in their efforts to break the force of so disastrous a defeat, have compiled a Bulletin of their own "getting up" purporting to be signed by several students, in which they try to make it appear that the DeLaval was not terribly beaten, as the Official Bulletin shows it was as follows:

Average test of skimmilk of DeLaval Separator .048
" " " U. S. " .033
U. S. excels DeLaval .015

Showing that the DeLaval Separator left 45 per cent. more butter fat in the skimmed milk than the United States.

Again in this "gotten up" Bulletin, our "would-be competitors" state that the U. S. Separator "choked up" on 39 lbs. of milk at 70 degrees of temperature and that the DeLaval ran 80 lbs. Every dairyman using a U. S. Separator knows that the U. S. will not "choke up" on 80 lbs. of good milk at 70 degrees, and that such statements are made in an attempt to break the rapidly gaining popularity of the

U. S. SEPARATOR.

We make the following proposition to any dairyman wishing to buy a separator, viz.: We will put a U. S. Separator into his dairy and agree that it will not "choke up" on 80 lbs. or twice 80 lbs. of milk in good condition at 70 degrees, provided he will pay for the separator if it does not "choke up."

The best authorities do not advocate separating at 70 degrees, but if Dairymen prefer to, the U. S. will do it when properly adjusted.

The U. S. Separator skims cleaner than any other separator on the market at any temperature from 70 degrees to 156 degrees at proper adjustment. The Official Bulletin No. 123 of Kansas Agricultural College, dated May 26, 1903, states that

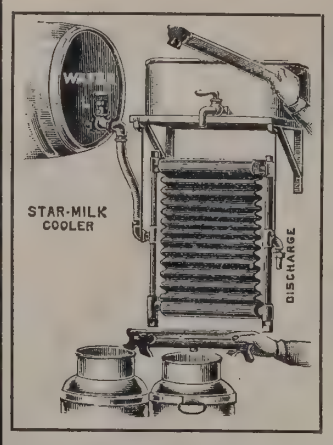
The U. S. Excelled all Others in tests of Skimmed Milk and in Minimum Total Loss.

THE U. S. SEPARATOR HOLDS WORLD'S RECORD.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.

WHEN YOU SEND IN YOUR RENEWAL, SPEAK TO A FEW OF YOUR NEIGHBORS AND HAVE THEM JOIN YOU. CLUB RATES: 2 Subscriptions, $1.50; 3 Subscriptions, $2.00; 4 Subscriptions, $2.50; 5 Subscriptions, $3.00.

You can attend to your crops with an easy mind if you use a



STAR COOLER

This machine can be depended upon to cool thoroughly without any agitation of either water or milk.

It not only cools but aerates and as it is made of copper, thoroughly tinned, it does not rust from the action of the water passing through it.

It is used for both milk and cream. You cannot fail to like it.

Send for Milk and Cream Cooler Booklet.

STAR MILK COOLER CO., Haddonfield, N. J.



Up-to-Date Dairymen

—USE A—

Milk Cooler-Aerator.

at the farm. The **CHAMPION** is simple, cheap, effective—it is the best there is. Our Booklet about it for the asking.

Champion Milk Cooler Co.,
67 Main Street, CORTLAND, N. Y.

would call it a very good stock farm, with plenty of good water and shade and also plenty of good land to farm, to raise all the feed needed on the farm. About 400 acres of this land is now in grass, some Kentucky blue grass, some clover and timothy and English blue grass, the rest in farm crops, corn, oats and other crops. Now, in another farm, I have 500 acres, very much the same kind of land and adapted especially for stock. The man that lives on this farm is thinking of trying a dairy herd; he now has high grade Short-horns, and some registered. We are three miles from a little town in which is a creamery owned by a syndicate. You will see that we could pasture quite a large number of head of cattle, on this farm. Now the price of butter fat is quite an object. I don't think the creamery will pay very good prices compared to what a city would.

This farm lies about 40 miles from Kansas City, Mo., on the line of the Santa Fe R. R., with good train service. First we have the pasture, the the shade and plenty of good water, land to grow all the feed to feed the stock and a large amount of pasture, Taking all this into consideration together with the raising of calves, stocking up the farm, I would like your best judgment as to the kind of a cow to start with. Would it be best to try the double-purpose cow, or take the straight dairy cow, such as the Jersey, Guernsey or Holstein? I see that each has some advantage. If one could get a good line of Short-horn cows that was good milkers, it might be that they would do well, taking into account the raising of the calves for beef, on the farm, then with some of the other breeds of dairy cattle. One is much surer to get good milking heifers in their herd than they would with more beefy inclined cattle. I am very anxious to get started right (By the way this man has been in the business heretofore and has had some little experience. The reason he changed his line of work was on account of help.) I have never been favorable to dairy bred stock, but it may be on account of not knowing their value for dairying. I think we would have our own separator and only sell the butter fat, retaining the milk for the feeding of calves, pigs, and use on the farm.

Under these conditions what kind of a cow would you recommend, as a profitable investment? I should like very much to have your opinion. If we were on a very small tract of land, I would not have much trouble about the kind of a cow, as it would be either the Jersey or Guernseys, but with the large tract of land it is a question. M. G. MILLER.

Olathe, Kansas.

We have never been able to see why first-class dairy ideas, first-class dairy cows, and all that means in modern good dairy sense, should not prove just as profitable in Kansas or any of the western states as they do in Wisconsin. There has been, as we view it, a great deal of foolish talk to the effect that the Kansas, or Nebraska, or Iowa dairy farmer could not afford to use specially bred dairy cattle because he has so much coarse forage to feed. As though this feed will not make its equivalent in milk and butter just as profitably as it will in beef!

If a Kansas man has a good creamery near at hand that will pay him what his butter fat is worth, there is no reason on earth why he should not make a first-class dairyman of himself and use first-class dairy cows, and dairy ideas.

If our correspondent desires to go ahead with the dairy idea, work it out for what it is really and practically worth, our advice would be first, to organize the farm for first-class dairy work, put up good barns and stables, built warm and *abundantly* lighted, and ventilated on the King system. If he can get good Short-horn cows of dairy form, which will hold out in their milking season 10 months, commence with them, but at the head of the herd place a *thoroughly* good Guernsey, Jersey, or Holstein bull, as his taste inclines. Select the best heifer calves from those mothers of the most pronounced dairy form. There will be less of the beefy tendency in them to overcome. Breed them back to their father when 15 months old. Hold steadily in the line of the breed you start with. Change bulls for another of same breed when it comes to breeding the granddaughters of the first sire. Cull out and sell for beef at what price you can get, all the unprofitable cows when they prove by their second season in milk that they will not produce 250 to 300 lbs. of butter a year. Keep right along on this line and our word for it, a first-class dairy farm in Kansas, run for the specific purpose of dairy results, will pay as well as it will in Wisconsin.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

A Profitable Dairy Farm.

$50 per head for Keeping Cows. $100 per Head in Gross Receipts.

Twenty-five cows maintained on ten acres of land.

Fifty dollars a head per year for maintenance.

One hundred dollars a year in receipts from each cow.

This is a record made by A. A. Wright, M. P. for South Renfrew, on one of the smallest dairy farms in the province.

"It is true," said Mr. Wright, when asked for the details behind the brief statement just given, "that I do not produce on the ten acres all the feed required for the twenty-five head which I keep. I rent about three acres of pasture land, but this is for the purpose of giving the cows exercise rather than for the amount of feed they obtain from the rented land. I also buy my hay, but it is cheaper to buy hay than produce it. Of course I buy my bran also, but this is done by all dairy farmers, no matter how much their holdings. The land which I own is mainly given to the production of corn and silage. I plant Longfellow and Leaming, and raise about 15 tons to the acre. The cost of maintaining my cows will vary from year to year, depending largely on the price of bran. Some years bran will cost $18 a ton, and in other years I can buy as low as $12. Taking the average of one year with another, however, the cost of feeding per head runs at about $50 and the average returns per cow will be $100 per year. The milk is sold in town at five cents a quart in summer and six cents in winter. I have three men at work all the time. My cows are all Jerseys. One of them gave 8,118 pounds of milk in a year, testing 4.2 per cent, but I unfortunately lost her with milk fever last year.

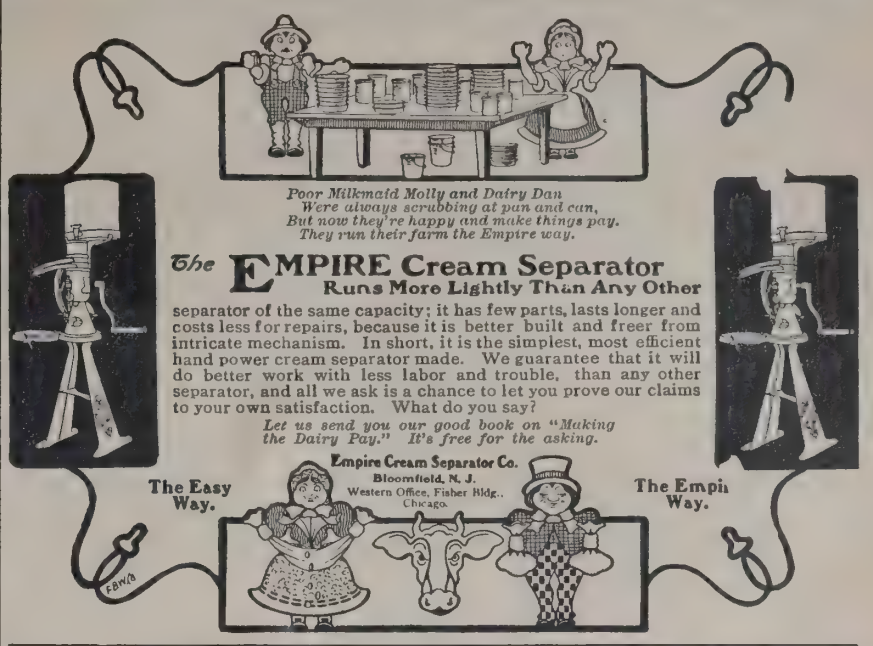
Nearly all of my cows, however, run six to eight thousand pounds per year, and none test under 4 per cent. I know just what each cow is giving, because I weigh the milk night and morning, and know at the end of a month how each cow in the dairy barn stands."

Mr. Wright was the chief promoter of the creamery located in the town of Renfrew, a creamery which has a capacity of a car of butter daily, and is making at the present time three to four thousand pounds per day. "That creamery," said Mr. Wright, "has been one of the most valuable institutions ever started in our part of the province. It has been running eight years now. Patrons are, at the present time, netting about 90 cents per 100 pounds for milk, which is fully double what they received before the creamery started. The largest patron will draw $2,000 a year, and the average receipt per patron will run about $100.

Hog production is an important side-line with our dairymen. One of the patrons of the Renfrew creamery, David Barr, Jr., will have as many as 10 hogs in his stable at a time.

"Our farmers are engaged both in dairying and beef production, but they do not as a rule use the same animal for both purposes. Those who make dairying their chief business, and who wish to turn off some fat cattle during the season, will buy beef calves from neighbors who are engaged mainly in dairying. Practically all the sires are pure-bred, of one type or another. The co-operative auction sales for the disposal of pure-bred animals have helped very materially in improving the class of stock in our section. Our county council has assisted these auction sales by giving grants to assist in meeting expenses.

"Partly as a result of dairying, but mainly owing to the industry and thrift of our people, farmers in South Renfrew are in an excellent position financially. It is a rare thing to find a man with a mortgage on his place, and there are plenty of farmers who are worth twenty-five to thirty thousand dollars."—*Sun.*



Get the Best Milk Cooler



AND AERATOR.

LARGEST COOLING SURFACE EASIEST TO CLEAN.

WRITE US FOR PRICES.

Ask for our new Thirtieth Annual Catalogue of Dairy Apparatus and Supplies.

OAKES & BURGER, Cattaraugus, N. Y.

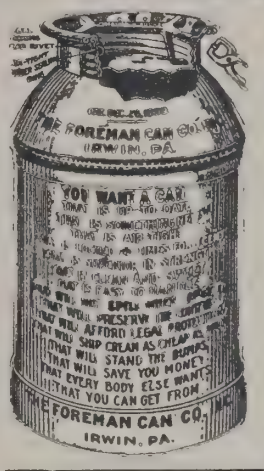
MELONEY'S Automatic Milk Cooler and Aerator

TRADE MARK BESTOV



Made of the best conducting material—sheet copper and coated with tin outside where the milk comes in contact. Cools milk quickly. Expels all animal odors and the smell of grass and garlic. Aerates it thoroughly. Can be easily cleaned. Fully guaranteed. Used by the most progressive dairymen. Send for catalogue "Bestov" dairymen's supplies.

Dairymen's Supply Co., Dept. Philadelphia, Pa.



We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity—1000 cans daily, which should enable us to fill all orders promptly.

Every can sold on a guarantee. Write for Circular H.

Dietz Lanterns—

make the way plain in night work or travel. Always shed a strong, clear, white light, with no choking, sooting or smoking.

Over Sixty Years the Favorite.

Made in many styles and sizes for all purposes, as hand lanterns, driving lamps, post lamps for streets or front of country residences, church doors, etc. CATALOGUE SENT FREE.

R. E. DIETZ COMPANY, 94 Laight St., New York.

Established 1840

CREAMERYMEN, DAIRYMEN and MILK DEALERS

Can be Promptly Furnished with anything they want at reasonable prices, if they will write me. My CHILDS' PATENT MILK BOTTLE FILLER is the best on the market. Send for free catalog.

J. S. BIESECKER,
59 Murray St., New York City.



The Distribution of Skim Milk.

It is known that the just complaints of creamery patrons on account of unfair distribution of skim milk are the bane of the separator creamery business. Further disputes among patrons, annoyances to managers, hindrances to the best work of buttermakers, watering the skim milk, and many other ills in the same train are unnecessary, since the

Barber-Coleman Check Pump

has for more than five years been successfully solving the problem in many different creameries. When a patron has dropped in his check he can pump the amount of skim milk called for by his check, less the percentage taken out as cream, so in like proportion to all other checks. Its measuring apparatus is just an ordinary pump which everyone understands and knows how to operate.

Cornish, Curtis & Greene Mfg. Co.,

General Sales Agents De Laval Alpha Separators,
FORT ATKINSON, WIS.

Buttermilk vs. Skim Milk for Hogs.

ED. HOARD'S DAIRYMAN:—Which is the most valuable feed for hogs, buttermilk, or skim milk fresh from separator? Also which stock of hogs will pay best, fed on milk? J. M. K.

Ducktown, Tenn.

The two milks are about equal in value. There is but little difference in the various improved breed of hogs so far as the result in feeding skim milk is concerned. But if you wish to get the largest returns from your milk, with any breed, feed it to young pigs of 25 to 125 lbs. weight, and feed with it middlings, corn meal, or boiled potatoes. With young pigs add a tablespoonful of blood meal daily for each pig.

Farmers' National Congress Program.

The following is the program of the Farmers' National Congress to be held at Niagara Falls, September 22, 1903.

1. Address of Welcome, Gov. B. B. Odell, Jr., New York.
2. Response, Hon. Harvie Jordan, Monticello, Ga.
3. President's Address.
4. "Sugar Supply of the United States," Maj. D. G. Purse, Savannah, Ga.
5. "Agricultural Conditions Understood to Exist in our Insular Possessions and the Possibilities in Their Development," Hon. Timothy L. Woodruff, Brooklyn, N. Y.
6. "History of Governmental Ownership of Public Utilities."
7. "Farm Products in the Markets of the World," O. P. Austin, Washington, D. C.
8. "Infectious and Contagious Diseases of Farm Animals and Their Effect on American Agriculture," Dr. D. E. Salmon, Washington, D. C.
9. "Diseases and Insect Pests of Plants and Their Effect on American Agriculture," Prof. F. M. Webster, Urbana, Ill.
10. "How Can We Enlarge Our Foreign Markets for Farm Products?" James Wood, Mt. Kisco, N. Y.
11. "Extension of the Facilities of Our Mail System," Aaron Jones, South Bend, Ind.

The Price of Milk in New York.

ED. HOARD'S DAIRYMAN:—Your last week's DAIRYMAN has an article from he *N. Y. Farmer*; they may reason as they have a mind to, but you certainly know better than to print it without a note from your able pen, as it is out of all reason for a creamery to pay such prices as quoted in this article (excepting a dairy here and there, we have one or two dairies that can and do compete net to the patron Borden prices.) We are in the 29th zone. *N. Y. Farmer* says Borden price $1.60 per 100 lbs. milk; creamery returns $1.60 and patron has skim milk, 15 cents, which equals $1.75. Profs. Farrington & Woll tell us that 100 lbs. of milk testing 4 9-10 will yield 5½ lbs. finished butter, this must sell for 29c, which equals $1.59½ net. Now, the creamery must be paid for making, etc., and that is generally 3c; therefore to net the farmer $1.60 the butter should be 32c per lb., and that on a 4 9-10 test, which is a test far beyond the average dairies of patrons to a creamery. F. B.

Mongaup Valley, N. Y.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The Quotation Committee decided on 18½c steady as the official price.

One hundred and fifteen tubs were offered by Moles and sold to Sherwin at 19 cents per pound.

Former Markets	*Sold*	*Official Price*
July 20, 1903	0	20
July 21, 1902	0	21
July 22, 1901	40	20
July 23, 1900	145	19
July 17, 1899	96	18

The output for this district is 806,400 lbs.; New York market steady; receipts, 13,897 tubs.

At the session of the board, one year ago to-day, 491 tubs were offered and 96 tubs sold at 17c. The Quotation Committee on that date reported the official market steady at 18 cents. H. C. B.

Elgin, Ill., July 27, 1903.

CONCERNING OUR ADVERTISERS.

TOPPING THE MARKET.

Cattle fed on shredded corn stover have repeatedly topped the live stock market in price. The great nutritive properties of shredded corn stover make it an ideal stock food, easily accessible to all farmers. The size and price of huskers and shredders, until recently, made it impossible for the small grower to secure a machine for the preparation of corn fodder. The advent of the Deering Two-Roll Husker and Shredder, which meets the wants of the individual farmer, placed it within the means of the small grower to enjoy all the benefits of shredded corn stover. The Deering Four-Roll Husker and Shredder is a strong, reliable machine designed especially for the large grower or a club of farmers. The scientific construction of the Deering shredder head makes the shredded stover produced by Deering machines especially wholesome and nutritious. Deering shredded corn stover is famous for its quality. It makes fat cattle.

DAIRY MARKETS.

CHICAGO, Ill, July 27—Butter—weak. Creameries, 14@19c; dairies, 13@17c.

Eggs—Easy, at mark, cases included, 11@22c.

Cheese—New stronger; Daisies, 11@11¾c; Twin, 10½c.; Young Americas, 11@11¾.

Cattle—Choice to fancy beeves, 1,200 to 1,500 lbs., 5.50@5.75; good to choice steers, 5.20@5.45, fair to good export and shipping steers, 4.90@5.15; medium beef steers, 4.40@4.75; plain beef steers 4.20@4.45; common to rough, 1,000 to 1,200 lbs. 3.90@4.20; good to choice, fat heifers, 4.10@5.00, good to choice feeders, 3.85@4.75; poor to plain stockers and feeders, 2.80@4.00; fair to good cows and heifers, 3.20@4.15; good cutting to fair beef cows, 2.80@3.10; common to good canning cows 1.60@2.25; bulls, poor to choice, 3.20@4.30; veal calves, good to fancy, 5.60@6.50; calves, common to fair, 3.00@5.50; corn fed western steers, 4.00@5.25; Texas bulls and grass steers, 2.75@3.85; Texas steers, fair to choice, 4.15@.10.

Hogs—Good to prime heavy shipping 5.40@5.55; good to choice heavy packing 5.20@5.40; plain to choice heavy mixed 5.15@5.35; assorted light, 150 to 195 lbs. 5.55@5.75; selected butcher weights, 5.45@5.90; thin to choice, 50 to 130 pound pigs, 5.50@5.90; stags and rough lots, 3.00@4.75.

MILWAUKEE, Wis., July 27.—Butter—Creamery—extras, 20c; firsts, 17@18c; seconds, 15c; process, 16@17c; Dairy, fancy, 17c; lines, fresh, 14@15c; packing stock, 13c; whey, 10@12c; grease, 5@6c.

Cheese—American, full cream—New Twins, 10½@11c; Young Americas, 11@11½c: Daisies, 11@11½c; Longhorns, 11½@12c; low grades, 8@9c; Limburger—Fancy, old, 10@10½c; low grades, 6@8c; new, fancy, 9@10c; off goods, 7@8c; Swiss, old, drum, choice, 15¼@16c; drum, No. 2, 13@14c; Block, choice, 14@14½c; block, No. 2, 12@13c.

Eggs—Strictly fresh laid, at mark, cases returned, 13@14c; dirties and seconds 12c., checks, 10c.

SHEBOYGAN FALLS, Wis., July 11—Cheese—Twenty factories offered 1,835 boxes of cheese on the Call Board today; 155 Daisies were withdrawn, balance selling as follows: 4 Twins at 10⅝c, 105 cases Young Americas at 11⅜c; 566 at 11¼c; 133 Daisies at 10⅞c; 35 cases Longhorns at 11½c; 511 at 11⅜c. Market active and firm.

SHEBOYGAN, Wis., July 22—Cheese—On the Call Board today 1,984 boxes of cheese were offered and sold, except 50 Daisies as follows: 37 boxes Twins 11⅜c; 738 Daisies, at 10⅞c; 221 cases Young Americas, at 11⅜ '320 at 11¼c; 479 cases Longhorns at 11½c, 130 at 11⅝c. Market strong and prices advanced on all makes.

FOND DU LAC, Wis., July 27.—Cheese—Total offerings on the Dairy Board today were 298 Twins and 467 Daisies with sales of 121 Twins at 10c. 46 do at 10½c, and 325 Daisies at 10⅞c; Market quiet.

MANITOWOC, Wis., July 22—Cheese — The sales reported on the Dairy Board to day were: 1,500 Daisies at 10½c; 700 Young Americas at 11 and 180 Twins at 10c.

SEYMOUR, Wis., July 21—Cheese—Offerings on the call board today were all sold as follows: 201 double Daisies at 10⅝c, 853 at 10½c, and 334 Twins at 10¼c.

HORTONVILLE, Wis., July 16.—Cheese—The offerings on the call board today were all sold as follows: 39 Cheddars at 10⅜c; and 295 Twins at 10⅜c. Market active.

PLYMOUTH Wis., July 21—Cheese—23 factories were represented on the call board to-day and offered 3,271 boxes of cheese, all of which sold as follows: 471 cases Longhorns at 11⅜c; 1,721 Daisies. at 10¾c; 100 at 10⅞c; 303 Twins at 10⅜c; 21 at 10½c; 572 Young Americas at 11¼c; 104 at 11⅛c. Market active and firm.

PHILADELPHIA, Pa., July 27—Butter—Market quiet. Solids, 20c; nearby prints, 22c; western, 21c.

WASHINGTON, D. C. July 27—Butter—Market weak. Extras, 20c; firsts, 19c; process, 17½c.

NEW ORLEANS, La., July 27—Butter—Market easier. Extras, 20½c. Receipts rather large.

TOPEKA, Kan., July 25—Butter—Creamery butter, 20@21c; dairy, 17@18c.

Cheese—Longhorns, 11c; Twins, 10¾c: Prints, 11½c.

BOSTON, Mass., July 27—Butter—Creamery, western, extra, 20½c; western firsts, 19@19½c; dairy, 16@19c; imitation creamery, 16@16½c; ladle, 14@15½c; box and print, 16@21c.

Cheese—Choice, 9¾@10¼c; Wisconsin Twins, 9¾c.

Eggs—Nearby, 24@25c; western selected, 15@16c; fair to good, 14@15c; Illinois, 15@16c; Michigan extra, 18½@19c.

LIVERPOOL, July 27—Butter—Good United States steady, 75s.

Cheese—American finest, white 46s. 6d; colored, 48s.

UTICA, N. Y., July 27—Market steady, with firm feeling. Eighty-four lots, 7,000 large, 9⅝c; small, 9⅞c.



Absolutely perfect. Soon pays the cost Cheapest because best.

Water always fresh. Send for catalogue No disease where used.

Water In The Stable a Necessity.



It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. Why not use the Best? Write for descriptive circular.

C. E. BUCKLEY & CO., Poughkeepsie, N. Y.

AS USUAL IN SCORING CONTESTS

WORCESTER SALT WINS

A six months' scoring contest recently concluded in Michigan, under the auspices of the State Agricultural College, was won by the Lotus Creamery Co. of Vicksburg, whose letter we quote:

"VICKSBURG, MICH., 6-1-03.

"WORCESTER SALT CO., NEW YORK.

"DEAR SIR: We are very much pleased over the idea that our buttermaker stands at the head in Michigan.

"We used Worcester Salt in the butter scored in the contest and are so well pleased with its qualities that no other salt stands a show with us.

"Mr. Stafford claims that the ease with which it dissolves, and its even strength and purity, make a vast improvement over other salts tried in rendering a good butter flavor.

[SIGNED] "Yours truly, O. O. BISHOP, Secretary."

Mr. Stafford is added to the long list of buttermakers who know

IT TAKES THE TO MAKE THE **BEST**

WORCESTER SALT COMPANY

168 DUANE STREET, NEW YORK.

Grit

Grit is a good thing in its place, but a bad thing in butter. Gritty salt—salt that's icy, insoluble, full of lime, chlorides and magnesium, is accountable for many exasperating difficulties of dairymen. It represents a loss of time, labor, money and patience, not always attributed to it. With DIAMOND CRYSTAL SALT—"*the Salt that's ALL Salt*"—your butter difficulties will disappear, and a gain in time, *money* and less labor result. Its dry, pure flakes dissolve quickly, imparting a rich flavor and keeping quality that find ready favor and highest market prices. "Just Salt" is a valuable booklet every dairyman should read. We send it free.

DIAMOND CRYSTAL SALT CO., ST. CLAIR, MICH.

Did You Ever Keep a Record Of Your Cows?

IF SO, you have felt the need of a convenient, simple and handy Record Sheet. We have had so many requests for these Record Sheets that we concluded to get up one that would "fill the long felt want." We have a very simple and complete Record Sheet for 10 cows, one month, that is printed on heavy Manilla Paper, we can send postpaid at following prices:

Price 5c Each	6 for 20c	12 for 30c	25 for 50c

SIZE 10x16 INCHES

We also have a one cow Record Sheet, heavy Manilla paper (one month) that we will mail postpaid

Single Copy 5c	5 for 15c	10 for 25c	25 for 40c

SIZE 6x15 INCHES

HOARD'S DAIRYMAN.

FORT ATKINSON, WIS.

SEEDS THE ALBERT DICKINSON CO.

.....DEALERS IN.....

GRASS SEEDS, CLOVERS, FLAX SEEDS, LAWN GRASS, BEANS, PEAS, POP CORN, BIRD SEEDS, BUCKWHEAT, BAGS, ETC.

CHICAGO, ILL. BRANCH: MINNEAPOLIS, MINN.

SAMPLE BASIN SENT ON APPROVAL.



Basins are fitted with Self Closing Cover which prevents all dirt and sediment from getting into them. Send for catalogue and price list

F. H. CHACE, Sherman, N. Y.



Iron Troughs

First Lot at Wholesale. Can't break or rot, nice round rim, any size or shape. Write for circular of Cow Basin, Poultry and Stock Troughs. Who will be first.

D. H. BAUSMAN, Bausman, Lanc. Co., Pa. We make Steel Swings. Fine Booklet Free.

CANTON, N. Y., July 25—Cheese — Offered 2,510 boxes of Twin cheese and 1,400 tubs of butter. Cheese sold at 9½c; butter at 20c.

WATERTOWN, N. Y., July 25—Cheese—Sales 7,000; 9⅛@9⅜c for large; 9⅝ @⅞ for small.

NEW YORK, July 27.—Cheese Receipts 7,996 pkgs: market steady to firm; small white and colored 10¼c; large colored, 10c; large white, 9⅞c

Butter—Receipts 13,897 pkgs; market steady at decline: state dairy 14@17½c; creamery extra, 19c; renovated, 14@17c; creamery, common to choice, 15@18½c; factory, 12@15c; imitation creamery, 15@17c.

Eggs—Receipts 8,494 pkgs; market firm; state and Pennsylvania first 15@18c; western extras, 19c; state and Pennsylvania, extras 19@20c; seconds to firsts.14@18c.

BALTIMORE MARKET.

BALTIMORE, Md., July 23—Butter—Owing to the ideal weather for butter making for the past week or ten days, the receipts since our last report have been liberal, while the market for the past week has ruled steady on all choice to fancy offerings; there is not that activity that characterized the market some few days since: the principal outlet just now is for local consumption, and as a rule the buyers discriminate very closely as regards quality; this week so far there have been but few speculators on the market, and what few that are, are in search of long lines, and nothing below the grade of firsts will command any attention at all, hence there is quite an accumulation of the under grades. Good to choice imitations are in moderate supply and good request. Ladles—The supply is fully equal to the requirements. Packing stock- All fresh and sweet arrivals are meeting fair sale, while poor cheesy stock is hard to sell. Prints and blocks—The supply is ample for present demands. The butter market at the close is quiet and barely steady.

Creamery Separator, extras, 21c; firsts, 20@20½c; seconds, 17@19c. Imitation Creamery, extras, 19c; firsts, 18@18½c; seconds, 16@17c. Ohio & Indiana Ladle, extras, 17c; firsts, 16c; second 13@15c. Creamery blocks (2-lb.) extras, 22c; firsts, 21c; seconds, 19@20c; Creamery prints (¼ lb) extras, 23c; firsts, 21@22c; seconds, 19@20c. Md. Va., & Penna. Prints, extras, 21c; firsts, 20c; seconds, 18@19c.

Cheese—The receipts are ample; demand irregular; market quiet and unsettled. Swiss—Our quotation are for new now, as the old stock is pretty well exhausted.

N. Y. State—Cheddars, fine, 10½@10¾c; choice, 10@10¼c; fair, 8¾@9¼c, Flats, fine, 10¼@10¾c; choice, 10@10¼c; fair, 9@9½c; Small, fine, 10¾@11c; choice, 10@10½c: fair, 9¼@9¾c; Ohio Flats, fine, 9@9½c; choice, 8@8½c; fair, 7@7½c; O. Picnic, fine, 9@9½c; choice, 8½@9¼c; fair, 7½@8c; Swiss Cheese, (domestic) fine, 13@13½c; choice, 11@12c; fair, 9@10c.

Eggs—The receipts of strictly fresh eggs are very light, and for this kind the demand exceeds the supply, while the receipts of so-called fresh are fully equal the requirements, as a few of this kind will go a long ways. Eggs should be closely candled at the starting point; by adopting this method, you will avoid a heavy loss at this end of the line. The market is firm and quite active for all choice offerings at 17½c.

301 Exchange Place. G. M. LAMB & BRO.

NEW YORK MARKET.

NEW YORK, July 25.—Butter— Receipts for the week, 67,099 packages. Exports for the week, 30 packages.

Creamery, extra, 19½c; medium, 18@19c; poor, 15@17c; Dairy, extra, 19c; medium, 16@18c; poor, 14@15c.

Cheese—Receipts for the week, 38,246 boxes. Exports, 2,503 boxes

Conditions about the same as last week; sales in the interior of this state, are fully up to quotations here, and most of the small cheese went into cold storage Export trade was light owing to the limited supply of large cheese. Skims, if very fine, sell readily, while all other grades hang and are lower in prices. We quote:

Full Cream, extra, @10½; medium, 10@10¼; poor, 7@9c;

Eggs—Receipts for the week, 53,610 cases.

Strong steady demand for strictly fresh stock caused a scarcity, and holders were obliged to take some of their April storage goods to fill shortage. Poor to fair stock, however, is very plentiful, and buyers make the price. We quote:

New York & Penn., strictly fresh, per dozen, 20@21c; Northern & Western, strictly fresh, 19@20c: all Sections, poor to good, 12@18c.

177 Chambers St. DAVID W. LEWIS & CO.

NEW YORK FERTILIZER MARKET.

Acid phosphate	60	@	67½
Phosphate rock, f. o. b. Char'n	5 00	@	7 00
Tenn	3 00	@	4 00
Bones, rough ℔ ton	16 50	@	17 50
ground	19 00	@	20 00
Bone meal	19		
Bone black, refuse	18 00	@	19 00
Potash, dbl. m're salt 48@53 per cent	1 12	@	1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons	25 00	@	30 00
sulph of basis, 90@98 per cent	2 11	@	2 18
90@98 per cent less than 25 tons	38 00	@	40 00
Potash muriate ℔ 100 lbs.	1 83	@	1 95
less than 25 tons	36 00	@	40 00
Kainit 25% S. of P. ℔ ton	9 30	@	9 50
less than 25 tons	9 50	@	10 50
Sylvinit, 35@37% P. ℔ unit	41	@	46
Nitrate of soda	2 00	@	2 05
Blood, Dried red ℔ unit	2 55	@	2 60
low grade	—	@	—
Concentrated tankage	15 00	@	16 00
Fish guano, dried	24 50	@	25 00
acidulated	22 00	@	23 50

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Guernseys Wanted—I want to purchase a few grade Guernsey heifers or cows due to come in this fall or winter. Please state what you have to offer and at what price. Address E. A. S. T., care Hoard's Dairyman.

For Lease—Farm of 375 acres adjoining Seattle, Wash. One of the finest places in state of Washington, well improved, good residence, modern buildings, complete equipment. Thirty dairy cows, 15 young stock. Best market for produce in U. S. Lessee must be competent, reliable and industrious. Will lease for 5% net annually. Address MILLER FREEMAN, Seattle, Wash.

Pedigreed Scotch Collie Pups, good drovers, at reasonable prices. R. C. SNAVELY, Hudson, Ill.

Herdsman Wanted—Single man not under 30 years of age, with several years experience; one acquainted with rearing and caring for Holsteins. References required. State wages required including reference. Steady place for right party. Address D, care Hoard's Dairyman. 25-tf

For Sale—the best milk business and all utensils for running same in a city of 40,000 people. Selling about 170 gal. per day—90 gal. retail, 60 wholesale and creaming 20 gal. Milk is bought from farmers who have furnished me for years. Milk costs 10c. per gal. in summer and 12c. in winter. Sells for 20c. in summer and 25c. in winter, retail, wholesale 15c. and 17½c.—cream 80c. and $1.00. A man with a family can make $250.00 a month. For full particulars address A. B. C. Care Hoard's Dairyman.

Want to buy—15 head of high grade or thoroughbred Holstein Cows from 2 to 7 years old. Must be good Milkers and have four good teats. Also one fullblood bull, all Holsteins. R. R. HUGHES, Rewey, Wis.

Angelus Herd Guernseys—For Sale—Bull Calf, superior breeding; price $50.00. Address MARCH, 39th & Western, Los Angeles, Cal. 23-tf

For Sale—Dairy Farm, 576 acres, about 75 head well bred Jersey cows and heifers, herd in good condition, 1 mile from growing town of five thousand, dairy well established and paying handsomely. Chronic illness requires sale, though sacrificed. Great bargain. Write for particulars. MRS. M. R. CARTER, Gainesville, Florida. 23-4.

Farm For Sale or Rent—A desirable stock and dairy farm in Winona Co., Minn., 13 miles below Winona, 2 miles from R. R. depot, 1,400 acres good land all fenced, well watered. There is on the farm a good 8-room dwelling house, two large barns, dairy building with churn, vats and implements for making butter, steam engine and 10 h. p. boiler, 75 cows, 450 high grade Shropshire ewes, 100 Angora gorts, young cattle and hogs. Running water in all the buildings. Will rent farm on shares with stock, or sell farm with or without stock. LLOYD BARBER, Winona, Minn. 23-3

For Sale—Seven miles east of Green Bay, Wis., one well equipped cheese factory and small grocery store. 6,500 pounds milk daily, Fine location for a wide-awake man. For full particulars write to W. P. KRATZ, R. 3, Green Bay, Wis. 23-4

Herdsman Wanted—One familiar with care and feeding of Holstein-Friesians. Good references and experience required. Address F. W. ALLIS, Monona Farm, Madison, Wis. 23-4

Macon County, Missouri. Farm For Sale.—80 acres good land, well fenced, plenty small fruits; two-story 8-room frame residence, front and rear stairs, large halls, cellar 16x32; barn 42x60 with 12x60 leanto. All in meadow and pasture. Residence within 100 yards of depot just outside corporate limits town of 600, 4 miles of coal mines two thousand miners. Place to start a creamery. Six are shipping cream 75 miles away. Price $75.00 per acre, one-third down balance 5%. Write for particulars. CHAS. H. MARMADUKE, Callao, Mo. 22-4

Wanted—At once, a working manager who has had experience in operating Southern dairies. to take charge of a large well equipped dairy. Married man preferred. Good salary for right man. Address R. L. PENICK, Montgomery, Ala. 24-2

Wanted—Reliable married man for farm work, capable of driving wagon on a small milk route. House and garden free. Small family preferred. Address, with references and salary expected, BOX 195, Ossining, N. Y. 24-2

Knowing a Good Thing, and having it, is quite different. A great many people know that the Guernseys are in the lead of the dairy breeds. You can get pure bred bulls and grade heifers of A. H. HINMAN, Allensville, Wis. 24-2

Stock and Dairy Farm For Sale—¼ mile from city limits. 171 acres with milk route and telephone connections. Will sell with or without stock and personal property. For full particulars address THEO. GLOECKLER, Portage, Wis. 24-tf

Holsteins For Sale—24 splendid cows and 9 heifers, nearly all registered. Part of these cows are in calf to a son of Johanna Rue 3d. All in milk or soon to calve. C. C. LEWIS, Baldwin, Kan. 24-2

Are You Looking For Land?—We have it to sell; thousands of acres of fine land around Crandon, Wis., Forest Co. Hardwood land from which the saw-logs have been cut, but there are still many dollars' worth of good wood, bolts, pulp wood, etc., on every acre which goes with the land. Close to fine growing town, county seat. Good water, clay soil and near railroad. Prices and terms reasonable. Write me for maps and circular. Address L. T. CRABTREE, Crandon, Wis., Forest Co. 24-4

200 Acre Dairy Farm For Sale—1½ miles from town. 140 acres plowed. Good house, fair out-buildings, wind mill and tank, small fruit, lots of grass. Price $5,000; $3,000 cash, balance 4 years 6%. Also 25 milch cows on shares to buyer with separator. E. E. GOOD, Babcock, Wis. 24-4

Wanted--At once, two good men that can sell farm lands. We have the greatest crop on earth, and cheapest lands. Write at once. MOHALL STATE BANK, Mohall, N. D. 24-2

For Sale—7 Scotch Collie pups; one 3 months, light Sable, some white, worth $10.00 each, will sell for $5.00. Holstein bull calves, one 8 months old, dam has A. R. O. of 475 lbs. milk and 19 lbs. 14 oz butter in 7 days, $60 00 takes him. HENRY WALSH, Sheboygan Falls. Wis. 24-4

Want's practical experiance in stock feeding. A strictly sober young man wants position on some up-to date stock or dairy farm. Wants steady job. Will work for right wages. Can furnish good reference as a steady worker. Present employment butter maker and creamery manager. Can come Aug. 1st, E. O. OLSON, Walbo, Minn. 24-2

Want to Rent a creamery in eastern states, with some winter milk. Address with particulars F. B. 20, care Hoard's Dairyman. 24-2

Choice Guernsey Bull Calves For Sale—or will exchange for one of equal breeding. E. M. FITZMAURICE, Berlin, Wis. 25 2

Wanted—Single man to take charge of milk room and separator in model dairy. Good wages to right man. Write A. H. BARROW, Roodhouse, Ill.

Wanted—A working foreman to take charge of and manage a modern dairy herd. Good wages to a good, steady man. Married man preferred. Write at once, addressing B. A. R., care Hoard's Dairyman.

Sale of Guernseys—Send for circular. Excellent bulls and bull calves at low prices. Clover Knoll Herd, M. SAGER, Mgr., Orangeville, Pa. 25-3

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A Registered Guernsey Bull 15 months old for sale. A very fine animal. Inquire of J. S. HUNTER, Pickett, Wis. 12-tf

Fine Dairy Farm for Sale—Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. T. S. TOMPKINS, Pasadena, Cal. 15-tf

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

Buff Jersey's latest book on Farm Stock and Dairy Work is full of practical things for practical people. The Silo, how to build and fill; ensilage, its value; soil, crops, variety and how to grow. Swine, poultry and many other subjects ably treated. Send 25c for copy. Monmouth, Ill. 47-tf

For Sale—My stock of groceries, flour, feed, salt and coal, with buildings and fixtures, boiler and engine. 4000 lbs. milk received daily. Home market for cheese; get 2½c per lb. for making; run the year around. No better place to make money to be found. Also my two story dwelling house, seven rooms, good cellar bricked and cemented sides and floor, three lots, nice lawn, large maple shade trees. Nice young orchard, apples, cherries, plums and peaches, besides other small fruit. Poor health only cause for selling. $6,000 buys it all, $4 000 down, one year's time on balance. On Iowa Central Ry. No drayage. Give possession any time to suit purchaser. No incumbrance. A. C. PAYNE, Jacobs, Iowa. 25-2

A First-class Creameryman wants an offer from either co-operative or private creamery in western Pa. or Ohio. 7 yrs. with stock and 7 yrs. at creamery work and butter making. Best of references. WM. H. APPLETON, Atlanta, Ga., care of Hoyt's Dairy. 25-2,

Position Wanted—As manager of large up-to-date farm. Years of practical experience in managing extensively operated dairy farms, gentlemen's estates. Strictly sanitary milk production. Highest references. Write, naming requirements and salary paid competent man. Address R. F., P. O. Box 417, St. Charles, Ill.

For Sale—One nearly new milk wagon made by O. Armleder Co. Address U. A. TOWNS, Bethany, Mo.

For Sale—At greatly reduced prices, several Empire Separators. Several sizes, some brand new, others slightly shop worn. Write at once. LOCK BOX "A", Council Grove, Kansas. 25-2

Farm Foreman and Manager position is desired by one 39 years of age and 20 years experience with Holsteins and Guernseys. Thoroughly familiar with modern dairying, solling, breeding, as well as exhibiting and selling pure bred stock. References furnished. Address W. A. R., care Hoard's Dairyman. 25-6

Wanted—Single man, good milker, to work in model dairy. Good wages to right man. Write A. H. BARROW, Roodhouse, Ill.

For Sale—A second hand, self-feeding, 16 inch Smalley Ensilage Cutter in good order, together with 56 feet of carrier, 18 feet of which was new last year Also a three horse Smalley Tread Power in good condition. The above will be sold cheap to make place for larger machinery. W. D. HOARD, Fort Atkinson, Wis. 20-tf.

For Sale—Cheese factory in Northern Wis., 5,000 lbs of milk in best of season, at a bargain if taken at once. Address G. R., care Hoard's Dairyman. 24-3.

Wanted—An all around butter maker of 17 years experience having disposed of his creamery interests in the East desires a good steady position with a first class creamery where the services of a competent man are required. Use no liquors or tobacco. Guarantee highest prices always. Address J. F. ATHA, 1300 Sycamore St., Fremont, Ohio. 24-2

Parties Wanting a good location for a Butter or Cheese Factory can find same at Hicksville, Ohio. Write to B. F. Casebeer there. 24-2

Excursion Rates to Chautauqua Assembly at Sycamore, Ill.—Via the North-Western Line. Excursion tickets will be sold at reduced rates July 31 and Aug 1, limited for return until Aug. 11, inclusive. Other dates of sale and limits on certificate plan. Apply to agents Chicago & North-Western R'y. 23-3

Low Excursion Rates to Rock River Assembly at Dixon, Ill.—Via the North-Western Line. Excursion tickets will be sold within a radius of 50 miles, at reduced rates on three dates, Aug. 1, 7 and 9, with favorable return limits. Other dates of sale on certificate plan from a more extended radius. Apply to agents Chicago & North-Western R'y. 23-3

Very Low Rates to California and Return—Via the Chicago & North-Western R'y August 1 to 14, to Los Angeles and San Francisco, with final return until October 15, inclusive, account National Encampment G. A. R. Three trains a day from Chicago to the Coast through without change. Daily and personally conducted tourist car excursions. Special G. A. R. train will leave Chicago 10:30 p. m., Tuesday, Aug. 11; DeKalb, 12:10 a. m., Wednesday, Aug. 12; Clinton, 3:50 a. m.; Cedar Rapids, 6:20 a. m.; Marshalltown, 8:25 a. m.; Boone, 10:30 a. m; arriving at Omaha, 2:00 p. m., leaving Omaha 3:30 p. m., and running via Denver, Colorado Springs, Pueblo and Salt Lake City. For itinerary, illustrated folder and full particulars, apply to Agents Chicago & North-Western R'y. 23-5

Very Low Rates to Pittsburg, Pa—Via the North-Western Line. Excursion tickets will be sold Aug. 1, 2, and 3, with very favorable return limits, on account C. T. A. U. Convention. Apply to Agents Chicago & North-Western R'y. 23-3

Special Excursion Rates—The North-Western Line will sell low rate round-trip tickets to Fond du Lac and intermediate stations, good every Sunday until Sept. 27, 1903. Apply to agents Chicago & North-Western R'y. 21-7

Special Excursion Rates—The North-Western Line will sell low rate round trip tickets to Lancaster and intermediate sections, good every Sunday until Sept. 27, 1903. Apply to agents Chicago & North-Western R'y. 23-5

The Art of Milking.

(Continued from page 567)

consin, three cows were milked during a week by one person A; the following by another person, B. From the milk A received during this week 11.8 kilograms butter was churned, while from the milk B got only 9.8 kilograms butter was produced, a difference thus of 2 kilograms.

This result is not only owing to the greater quantity of milk received, but, more still, to the fact that the last drawn milk is by far the richest. That this is the case anybody might easily ascertain for himself by pouring the very first and the very last drops of milk from the same teat into cream tubes. When comparing the tubes after the cream has risen, he will be surprised at the great difference in the thickness of the layers of cream; the milk first drawn looks, judging from the layer of cream, like good skimmed milk, the last milk drawn is more like thin cream. Through an experiment tried at an agricultural school in Denmark, it was found that the first streams of milk contained only 0.6 per cent fat, while the last strippings of milk from the same cow contained as much as 10.2 per cent of fat.

A thoroughly clean milking, therefore, is very important, not only as a means of developing the milking power of the cow, but also to produce richer milk. And the milker who does not give himself time thoroughly to milk the cow clean, either does not understand his duty or does not care to carry out his work conscientiously. It is important also how often the cow is milked daily. Some experiments concerning this question have also been tried, which show that the more times a day the cow is milked the more and the richer the milk she yields.



GUERNSEY BULL, HOMESTEAD'S GOLDEN DUKE, A. G. C. C., 6906.
Property of L. V. AXTELL, Perry, Ohio.

But whether one milks three times or only twice a day, the intervals between the milkings must, as far as possible, be of the same length. The cow is in a very high degree dependent on habit, and her udder works even and regularly. The milking hours, therefore, must be carefully observed, and the same persons must every time, in the same course, milk the same animal. If the milking is begun too late, the cow becomes uneasy, and the tension of the udder causes pain to the animal—in both cases loss of milk ensues. The fact that the quantity of milk is lessened by milking less frequently and less energetically is a thing of which one avails one's self when wanting to dry a cow. But even in this case it is a bad plan to clean strip the udder; it is by far preferable to milk less often, finally only once every other day, every third day, or more seldom still, till the cow gives so little milk that the milking might be dispensed with altogether. During the biestings period it must be considered not only wrong, but even dangerous often, and hard to milk such cows which show any disposition for milk fever. According to examinations made by a famous Danish veterinary surgeon, this disease is caused by an increased activity in the udder, which must be considered still further increased by energetic milking. But for these two periods, when the cow is being dried and when she gives biestings (first milk), she can scarcely be milked too hard (that is too often and too energetically).

The milker must pay great attention to the cleanly condition of the udder and the teats. If he observes knots or tenderness in the udder, sores on the teats, the milk-canal stopped up, or the milk having an unnatural appearance, etc., he must at once tell the foreman. Disease in udders and teats often being contagious, cows in that way infected must always be milked the last, and the milk from the affected part of the udder be put into a special vessel and destroyed, in order to hinder further spreading of the infection. The milk-canal in the teat is sometimes very tight (the cow being what is called hard-milked) or often shows an inclination to get stopped up.

To use a straw, or such like, to widen and "cleanse" the canal is very bad policy, because in that way inflammation of the corresponding part of the udder might easily follow. A teat which has a stopped milk-canal must first carefully be worked or kneaded between the palms of the hands, and then carefully milked clean. A heifer is often sensitive for the milking manipulation, and this sensitiveness will sometimes last until she gets older; in this case the milker must be still more kind and careful at the milking; and means of restraint or force must be used only in case of great necessity.

Worms in Horses.

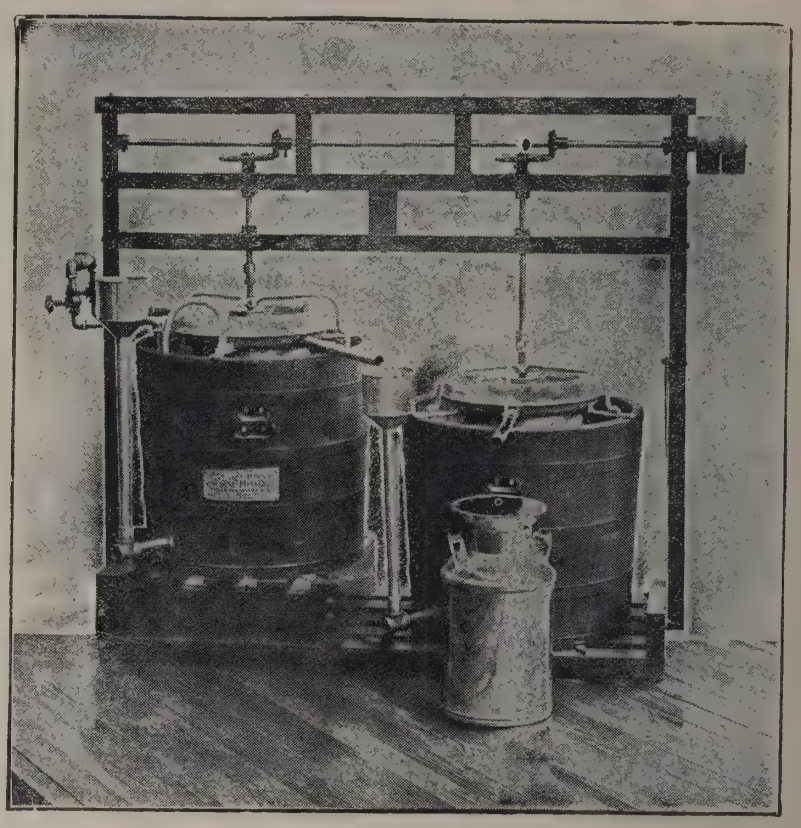
ED. HOARD'S DAIRYMAN:—Frequent inquiries are made as to the proper remedies for worms in horses, especially at this season of the year, when some of the internal parasites quit their hold, and are expelled from the intestinal canal, and thus brought to the notice of the attendant. Under any circumstances the discovery of a few worms naturally suggests the presence of others; but in the event of the horse from which the parasites have been expelled being in poor condition, or suffering from a cough or any common disorder, the worms are quite certain to be selected as the cause of the derangement, rightly in some instances, but more often without reason.

Parasitism is the normal condition of things in the natural world—utterly inexplicable, but, as to its realities intelligible enough. To abandon all forms of independent life, and attach itself to a higher organism for the sake of securing an easy subsistence is the part which the parasite has to play, and in fulfilling its destiny, it is not necessarily obnoxious to its host. Often, indeed, its presence is unsuspected, but in certain cases, the organs that are invaded, are of vital consequence—for example, the brain, lungs, liver and heart; and when, in the unconscious pursuit of its own object in supporting its own life, and perpetuating its species, the parasite penetrates the structures of these organs, the result is necessarily disaster.

Horses are liable to play the part of hosts to a somewhat numerous family of internal parasites, including both the flat and round worms. Of the first named, flat or tape worms, there are three varieties, all of which are interesting to the student, but have no significance as causes of disease. All of them are remarkable for shortness as compared with their breadth, all are unprovided with the usual tape worm hooks, and in the case of each variety, there is an uncompleted history to be worked out. Most of the specimens of the tape worm family have a recognized larval stage in the organism of one of the higher animals, but the larval stage of the three tape worms of the horse is entirely unknown. The other family of parasitic flat worms (flukes) infest the liver of the horse under exceptional conditions.

When horses, especially colts, are pas-

A GREAT SUCCESS.



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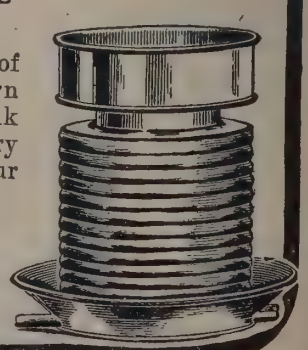
Buhl Stamping Company, 212 W. Larned Street, Detroit, Mich.

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Chicago, Ill., St. Paul, Minn., Kansas City, Mo.

tured on rotting lands they take up the larvæ of the fluke, as do sheep and cattle, but unless a considerable number are swallowed, or the animals are in weak health, no serious effects follow. The cases of colts dying of a disease in all respects like fluke rot of the sheep have been recorded in some of the great rot years; but as a rule, horses and cattle, although they are not exempt from the invasion of the fluke, do not suffer in consequence to anything like the extent sheep do.

Round worms are well represented in the intestines and stomach of the horse. The different bots inhabit the stomach as temporary parasites, while undergoing the development necessary to fit them for an independent life, when they attain the perfect insect state, and it is certainly true of them, that they generally pass the few months of their captivity without making their intrusion felt, or indeed, known, until they begin to quit their habitation for the outer world, which they will soon inhabit as perfect insects. Cases of perforation of the stomach by bots have been reported from time to time; but under ordinary conditions, bots do not cause any injury, beyong the loss of the fluids which they consume, and it is certain that they are found hanging in clusters from the interior of the stomach in perfectly healthy horses. In the beginning of summer the larvæ quit their hold of the mucous membrane to which they attach themselves, and are expelled. When they are seen in the dung, it is often considered desirable to give some sort of worm powders, and as the bots come away day by day, as they do when their time arrives to seek a new habitat, the remedy obtains the credit of effecting what is a perfectly natural process.

Premature expulsion of bots cannot be secured, as no medicine has been found, which will compel them to quit their hold.

A very large round worm infests the intestines, sometimes in enormous numbers, occasioning some irritation and perhaps diarrhœa. Attacks of colic are sometimes attributed to the presence of this worm, and it is easy to understand how their movements in the intestines may cause spasmodic contraction of the muscular coats of the canal, attended with pain. More serious are the effects caused by two vareities of strangles. The adult worms, which vary from one to two inches in length, bury their eggs in the mucous membrane, and the young worms form small red nodules in the cæcum and parts of the colon. Emerging from these nests, some of the young worms enter blood vessels and cause aneurism in different arteries.

Others remain in the intestinal canal and excite inflammation, which in many cases has ended fatally, in colts particularly. The intestines of horses also harbor another round worm, which is known as the whip worm, from the long lash like appendage which extends from the body. This structure is really the neck of the worm, although it is not unnaturally looked upon by the ordinary observer as the tail, which it certainly most resembles. This worm infests the terminal part of the intestinal canal, and lays its eggs on the exterior of the gut, where they may be seen as a yellow powder round the anus on horses which are infested by the worms.

Medicines for the expulsion of the round worms are numerous enough; turpentine is a favorite remedy in doses of one-half oz. to one oz., mixed with four to eight times the quantity of linseed oil. An old-fashioned system of treatment by mercury and antimony was at one time popular, and fairly successful when it was properly carried out. A ball containing half a drachm of calomel and the same quantity of tartrate of antimony was given every morning for three to six days, and was immediately followed by four or five drachms of aloes. But the most easily applied and simple plan of treatment is, 15 grains of santonin in a ball, with 3 drams of aloes, this dose to be repeated in four or five days. Treatment of tapeworm need not be considered so far as the horse is concerned, as the varieties of that worm which infest the animal are apparently not injurious, and, further, do not give any indications of their presence. W. R. GILBERT.

Montreal, Can.

Buff Jersey on Skim Milk.

ED. HOARD'S DAIRYMAN:—I am in receipt of many letters thanking me for the helps my articles in HOARD'S DAIRYMAN are giving to its readers. This is very pleasing to me as I am anxious to assist in any way possible. I take the liberty of giving in full a sample letter:

Middlefield, Ohio.

BUFF JERSEY—Dear Sir:—Some time ago I read of your method of using vaseline in milking, in HOARD'S DAIRYMAN, and at once gave it a trial. I would now hate to part with the practice. I made up my mind that anyone with so many clever ideas in their head could put out a book that would be of much value to a young man like me, so I enclose 25 cents in stamps for a copy. S. E. SWEET.

As I watch our cows either in the stable or pasture these days of fly torment I can not but feel thankful for the knowledge of, and the possession of, a repellent that keeps our cows comfortable. I have used this repellent for the past eight years and by repeated tests have found that the fly plague costs us a greater sum than any dairyman can afford. It has amounted with our herd to as much as 10 per cent in one day's test. Not only do we suffer the loss of milk, but also have our cows shrink in weight. I was very much surprised to hear such a veteran as my friend Gurler is, make the statement at the Wisconsin Dairymen's Association meeting that he never could see any difference in the milk yield of cows that were kept free from flies and those not. I never conducted an experiment along this line but what I got a shrinkage the first day the flies were allowed to torture the cows. And, laying aside the mere matter of gain or loss, the humane man will use the repellent to give his cows comfort alone.

The value of skim milk is often discussed in the farm journals, but the range of values as put by the writers are so wide apart the average feeder can not tell where he is at with his by-product. Skim milk, like ensilage, has a value not apparent to the chemist, or the day, week or month experiment conducted at our stations. In pig feeding we, who have largely depended on skim milk, find that we not only have a valuable feed to produce pounds of meat, but also have a health promoter and developer that makes our individual herds almost a breed in themselves. With us, in past four years, with a large amount of milk fed to Berkshires, we have as a result 100 hogs and pigs that are all strong of bone, long bodied, broad as to back, and show every indication of perfect health. There is not among these hogs one that is in the least out of condition. At this writing these hogs are getting less than two bushels of corn, they have 600 pounds of milk daily and are in rape so high that a 500-pound hog can not be seen in it.

The corn crop in this section is very backward. We have some that is tasselling and some not yet knee high. The prospect for filling our silos is poor, owing to the scarcity of help. Men are in demand in the hay and harvest fields at $2.00 per day, and at the price can not be had. Well, we can do the next best thing. Our College Faculty can put corn in the shock and then wait till all farming operations stop for winter, then run the corn through a husker and shredder. The shredded fodder we will place in a steam chest and steam well, enough for a day's feed. This way gives as good results as does ensilage. We know this from some years' practice. It is only a matter of cheap steam which we have with coal at two cents per bushel.

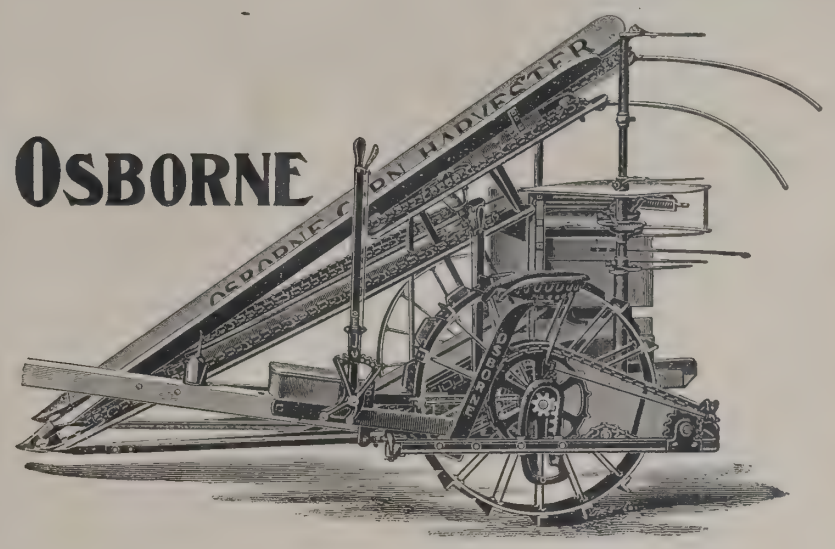
Monmouth, Ill. BUFF JERSEY.

D. M. Osborne & Co., St. Louis, Mo. Caledonia, Mo, June 1, 1903.

My Dear Sirs—I feel I honor my own judgment, and reflect only that which is justly due your corn harvester, when I say it is without doubt the best corn harvester on the market to-day. Last season I cut, on my own farm, 115 acres of corn, and a negro boy 16 years old managed the machine, drove the horses and did all the cutting, without one cent expense for repairs or breakage. The work could not be excelled. The corn was heavy and much of it down, and some full of weeds, but it made no difference to the machine. All corn looks alike to an Osborne Corn Harvester, and to Missourians your machine is peculiarly adapted, for it can most certainly "show them." I am, Yours very truly,

W. R. GOODYKAUNTZ,
Ex-Senator of Missouri.

OSBORNE



This Corn Book tells about Silos and Fodder. Book Free for the asking.

Scotia, N. Y., April 15, 1903.

D. M. Osborne & Co., Auburn, N. Y.

Dear Sirs—I am well pleased with the Osborne Corn Harvester I purchased of your agent, G. H. Bevis, last fall. It proved to be all it was commended. On account of the season, several places in our corn fields were deep mud, but when we cut there the machine worked just as good. The broad-faced steel drive-wheel is a great advantage on ground where it is soft. We used only two horses, and did the work easier than some of our neighbors did with three horses on another make of machine. It is certainly a very light runner. It is also a fine binder, never once having broken the twine, or missing to tie, thus using less twine than others, besides delay and trouble. I would say, in a word, that the machine is practically perfect. Very truly yours, CHARLES P. SANDERS.



The National

LOW DOWN CUT-UNDER

justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

THE NATIONAL WAGON COMPANY, Chillicothe, Ohio.

THE ONLY LOW-DOWN

Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the Market.



20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for catalogue, prices and terms Wagons for carrying Bottled Milk a specialty.

Shipman, Bradt & Co.,
Sole Manufacturers,
De KALB, - - Ill.

DAIRY CARTS



Also a full line of Truck and Barrel Carts. Strong durable and nicely finished. Write for our Cart Catalog; also for separate catalogs of Feed and Ensilage Cutters, Powers, Small Threshers and Saw Frames.
BELLE CITY MFG. CO.
60 Racine Junction, Wis.



WE LEAD THE WORLD

We are the largest manufacturers of Grooved and Plain Tire Steel Farm Wagon Wheels in America. We guarantee our patent Grooved Tire Wheels to be the best made by anybody anywhere. Write us.

HAVANA METAL WHEEL CO.
HAVANA, ILL.

ANOTHER BEAUTY.

Watch for the Next.



We know it will interest you. Write for our Form E catalogue showing many other styles.
THE O. ARMLEDER CO., Cincinatti, O.

$62.75



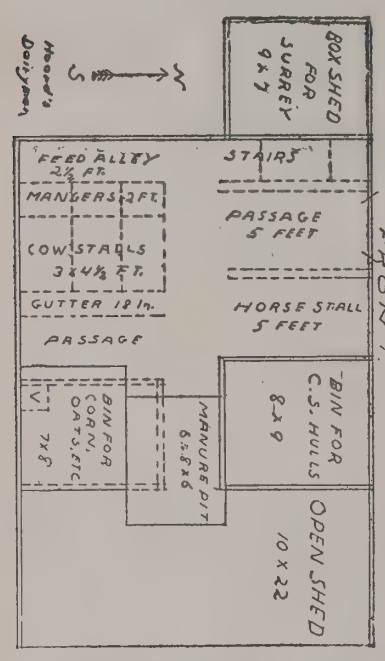
BEST MILK WAGON ON EARTH.
SOLD DIRECT TO CONSUMER ONLY.
Highest Grades—Lowest Prices—Guaranteed.
Shipped on Approval. Full line Buggies and Harness. Write for Catalogue and Prices.
SAVE DEALERS' PROFITS.
UNION BUGGY CO. Dept B. PONTIAC, MICH.

MILK TUBES

Patent Coin Silver 1¾" 50c. 2¾" 80c. Improved Teat Opener 75c. Dilating plug 25c. Postpaid on receipt of price.
G. P Pilling & Son,
ad and Arch Sts., Phil., Pa.

A Small Mississippi Barn Plan.

ED. HOARD'S DAIRYMAN:—I have been thinking more about my barn and send a ground plan, about which I would like some information. Do you think it would do to have manure pit where it is shown in plan, or would you advise me to floor the space between the bin and set the pit as indicated by dotted lines? I prefer not to have double door and a drive way as that would necessitate putting the floor above eleven or twelve ft. high, and I have in mind to put the floor 7½ or 8 ft. What would you advise? Where in this barn would be the most convenient place to put steps leading to upper floor? The ground in front is almost level clear across front of barn, so that a wagon can be driven in front and hay thrown into loft, and cotton seed hulls can be thrown in through an outside door to bin. Corn and oats will not give much trouble to deposit as not much will be used- By placing barn 15 feet to



right, I can have all of it on level ground. Would you advise putting it there? Teaching is my profession, but teachers require food for their families and themselves, and the only way to get the milk and butter part of it pure here, is to own your cows and do the milking yourself. I was reared on a farm and revert naturally to that life for an hour or two each day to attend my cows, my chickens, pigs and garden, together with a small orchard planted in oats, corn and peas, as they come in succession; all of which promotes my health, tends to economy and above all keeps my babies (twins) supplied with food that I know is pure as food can be had. M. L.

Clinton, Miss.

No one can but admire the arguments adduced by Prof. M. L., which induce him to engage in dairying on a small scale, and for ourselves, we feel certain that he will find a great deal of pleasure and a fair amount of profit from his undertaking.

We give below the outlines of the plan he submits for our consideration, and by use of dotted lines, submit our suggestions for sub-dividing the proposed structure. We would do away entirely with the proposed manure pit. A pit of the dimensions suggested would very soon fill up. We would much prefer to dispense with this, and scatter the manure from the horse and cow stalls in the open shed where the young stock, and possibly the older stock when out, will tread it down and keep it in the best sort of condition for fertilizing purposes. The building fronts to the north, and as will be seen, we suggested that the stairs be placed in the northwest corner of the building and we allow about 2½ feet for this stairway. A very convenient harness room and a bin for oats or other feed for the horse can be arranged for beneath the stairs. The present writer has such an arrangement in his own town barn and finds it to answer a very excellent purpose.

Next to this stairway comes a passage 5 feet wide for leading the horse in and out, and next to that, a stall for the horse 5 feet wide. On the opposite side, provision is made for three cows, with a feeding alley 2½ feet in front of them, and three feet space allowed for each animal. This encroaches somewhat, with a sufficiently wide passage behind cows, upon the bin for corn, oats, etc, but this can be extended as shown on the diagram, if, indeed, such a bin be considered a necessity. One trouble with the plan as shown, is that there is no floor space available for storage of various implements, which can be very conveniently kept in a barn. If at all practicable, we would therefore dispense with this bin for corn, oats, etc, and put such a bin in the upper story, over the place reserved for cotton seed hulls, perhaps. We locate the stair-way as shown, for the reason that the entrance to the loft should be in the same end (or side) of the barn that the hay is taken in at, and the scheme for feeding should be so arranged that the last forkful of hay put into the barn should be the first one to come out.

A Progressive Pennsylvania Dairyman.

Trouble with Silage and Cows.

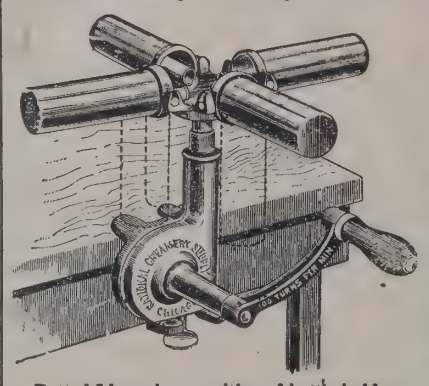
ED. HOARD'S DAIRYMAN:—As there seems to be no phase to the dairy question that you cannot give some information on, I will try and give an account of our doings in the dairy. We deliver our milk to a creamery, have it skimmed and the milk returned, and get pay for the butter fat according to Babcock test, but I want to write about the farm end of the business.

I am trying to keep up with the latest dairy methods by studying the DAIRYMAN and practicing its teachings. I am trying to improve the milking qualities of my cows by breeding to a full blood Ayrshire bull.

Thinking that the basement of my barn was not suitable for cows, I built an addition, 30×40 feet, against the end of the barn for a dairy stable; cow stalls along

BUY DIRECT FROM FACTORY, BEST
MIXED PAINTS
At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.

NATIONAL
Babcock Milk Tester



Dotted Lines show position of bottle holders when not in motion.

Has enclosed cut gears.
Swinging bottle-holders.
Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

DOES YOUR DAIRY PAY?
It costs no more to feed a profitable than an unprofitable cow.

NET PRICES:

No. 1,—2 bottle, complete for testing milk.... each .. $4 00
No. 2,—4 bottle, complete for testing milk.... each 5 00
No. 3,—2 bottle, complete for testing cream and milk, each 4 50
No. 4,—4 bottle, complete for testing cream and milk, each 5 50

Prices include full directions for making test, bottle of acid, test bottle brush, acid measure, dipette and test bottles.

We are the great Dairy Supply House of the West. We carry an immense stock of all kinds of Butter and Cheese Making Apparatus and Supplies. Write for catalogues and circulars.

National Creamery Supply Co.,
450-458 Illinois St.,
CHICAGO, U. S. A.

A MILK PROBLEM

THE AVERAGE MILKMAN'S COW			A WINTERGREEN HILL COW	
2920 quarts of milk at 5c.		$146.00	Gave over 6000 quarts in one year that was sold for 8c per quart	$480.00
Keeping	$35.00		Deduct for keeping	$ 65.00
Expense of sale	33.80	68.80	Expense of sale	120.00 185.00
Net		$ 78.20	Net	$295.00

The Jersey is sometimes condemned as an insufficient milker for milkmen's use. It is not true, however, of such strains as are bred for deep milking qualities as well as richness. Above is the record of one of the deepest milking daughters of "Exile of St. Lambert, 13657," and the herd contains other heavy milkers. If you would improve your herd by a bull calf, buy him now while you can. A little book tells much about the subject. Write for it, and for bull sale list. See also advertisements on pages 514 and 536.

WINTERGREEN HILL FARM, Dept. A., Scottsville, N. Y.

THE BROWN BESSIE HERD Offers one bull 14 months old, sired by Recorder, 29239, the only living son of Brown Bessie and has 14 tested daughters. Dam, Relay, 70353, test 17 pounds 2 ounces. She a daughter of Diploma with 61 tested daughters. Also Berkshire Pigs of English and American selected stock.
H. O. TAYLOR, Orfordville, Wis.



Let Them Help Themselves.
They'll not take too much, and they'll get it as they want it. Don't force animals to eat salt when they don't require it, by mixing with food.
COMPRESSED
Pure-Salt Bricks
are all salt, no impurities. Improve the quality and yield of milk. A modern convenience, always present, animals never neglected, and costs for each only about a nickle a month. See how they enjoy helping themselves when you place it within reach. For all stock. Buy of dealers or send for free booklet to
Belmont Stable Supply Co., Brooklyn, N.Y.

FARM BUILDINGS Covered with ARROW BRAND ASPHALT READY ROOFING are always tight and warm. Anyone can lay it. A hammer and knife are the only tools needed. Surfaced with sand or gravel and shipped direct from our factory. We make it and sell direct to you. Send for free samples and booklet.



ASPHALT READY ROOFING CO., 82 Pine St., New York

NORTH OAKS FARM, ST. PAUL, MINN.
(Jas. J. Hill, Proprietor.)
AYRSHIRE BULLS
Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address,
N. E. McKISSICK, Supt., Cardigan, Minn

AYRSHIRE CATTLE of the BEST of BREEDING. Also Chester White Pigs, ready to book for season's trade. Young stock of both sexes. Prices reasonable. Come and see us.
F. TSCHUDY & SONS, Monroe, Wis.

Rosendale Guernsey Herd
TUBERCULIN TESTED.
Sixty head of choice Guernseys headed by Coralette's Son, (see page 450) whose dam, Coralette made 479.7 lbs. fat in one year at 3½ years old, and was first prize cow at Wisconsin State Fair in 1896.
Some fine young bulls for sale.
GEO. C. HILL & SON, Rosendale, Wis.

Wasteland Guernseys
Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.
M. M. & E. J. HOLLINGSWORTH, Landenberg, Chester Co., Pa.

GUERNSEYS.
HADDON FARMS—Home of the noted GLEN WOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

The Evergreen Farm Herd has for sale three or four A. J. C. C. heifers bred Also a few cows and some choice bull calves from two to six months old. Write for pedigrees and prices.
N. N. PALMER & SON, Brodhead, Wis.

Old Homestead Guernseys.
Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.
Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL Perry, Lake Co., Ohio.

GUERNSEYS FOR SALE.
Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Trouperes Pride, Tops of Gold and Lord Yexa.
JAS. H. BEIRNE, Oakfield, Wis.

GUERNSEYS FOR SALE
Bull two years old out of Count Topsy 24.27 lbs. butter 7 days. She won 1st prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality F. W. TRATT, Whitewater, Wis.

VALLEY FARM Offers for sale a son of "King of St. Lambert's King" out of a daughter of "Gazilla's Fawn," dropped July 29th., 1900. Also have some young bulls. Write your wants to
FRED STUBLEY, Black Earth, Wis.

PROSPECT HILL JERSEY HERD.
Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.
W. J. HUSSEY, Mt. Pleasant, O

FOR SALE GOLDEN LAD BLOOD. sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

JERSEY BARGAIN.
REGISTERED YEARLING BULL, sire a son of Brown Bessie, winner of 30 and 90 days butter tests, Chicago, 1893. Dam traces to Eurotas (778 lbs. 1 yr.). Mary Anne of St. Lambert (867 lbs. 1 yr.), also Brown Bessie; fat tests showed 364 lbs. 1st. season, within year, and 15 lbs. 1 oz. (258 lbs. milk) in 1 wk; died of milk fever this (3d) calf. Thrifty, solid color.
E. E. STEVENS, North Madison, Ohio.

BILTMORE
JERSEYS
are great and presistant dairy workers and typical Jerseys. We ask comparison with any other herd for
YEARLY MILK & BUTTER YIELDS, SUBSTANCE AND FINISH.
The herd contains more prize winners at the leading exhibitions (including the Pan-American) than any other herd.
The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service as you cannot get it.
Also Headquarters for Large English Berkshires and Standard Poultry.
Apply to
BILTMORE FARMS,
BILTMORE, N. C.

HAZEL FERN HERD. A. J. C. C. Jerseys blood of St. Lambert, Melia Ann, Combination, Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis' 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

ROBINSWOOD JERSEY DAIRY is offering a few Reg. Jersey Bulls ready for service at from $25 to $50, sired by a grandson of Recorder, the only living son of Brown Bessie, out of good cows. Write, stating your wants, to
N. H. ROBINSON, Prop., Centralia, Wis.

FOR SALE.
JERSEY BULL, one year old. Good individual of the best breeding. Also 7 months bull from tested dam. Herd headed by Fontaine's Owl, 60436. Prices on application. Address,
J. F. EGERTON, Footville, Rock Co. Wis.

one side and end (cement floors with gutter) to accommodate 15 cows.

Silo is in the entry in front of cows, extending far enough above the roof to give 28 feet depth. Silo is 10 feet×10 feet with corners cut off. The foundation is hollow tile, 8 in.×8 in.×12 in., 2½ feet high, cemented on inside up to where it joins the wood, then double boarded horizontally with tar paper between; good matched lumber inside.

I have had it filled two seasons now and it does not keep very satisfactorily. I cover with wet chaff tramped down for a few days after filling, and yet it spoiled down two or three feet last year and this year it spoiled about the same from the top; then it came in good, clear out to the sides until it got nearly to the bottom, where it was nearly all spoiled; so bad that stock would not eat it, and there is a couple of feet of silage (or manure) in the silo yet. The corners are cut off with matched lumber 1 foot long, the opening closed at top and bottom.

The stable is double boarded with tar paper between; lighted with three windows, two on one side and one in the end; ventilated by dropping the windows in at the top six inches, with sides closed so as to give the air an upward draft and not direct on the cows.

I fed about a bushel of silage at a feed twice per day, with two pounds of old process oil meal per day, or four pounds wheat bran, or both oil meal and bran in connection with the silage; also what clover hay they would eat up clean; and yet they dried up in their milk, one three months and two others two months sooner than they ought to.

One cow's feet got sore and she dried up in milk and got poor in flesh in spite of all we could do for her. Another good cow acts strangely, although she does not seem sick, as she eats well all the time, but she goes around with her nose close to the ground and froths at the mouth and cannot control her actions, but walks with a staggering gait.

Our milk test for June is 5.1; price of butter fat, 18¼ cents per pound. Our milk averages over $1 per cwt., with skim milk to feed pigs and calves.

I think dairying is all right, and I think it all right to take a paper like HOARD'S DAIRYMAN, devoted to dairy interests, and would like to have your candid opinion in regard to my stabling, silo and cows; why they should not yield a profit under these conditions. D. G. S.

Clarion County, Pa.

We are at much loss, even to imagine what may have occasioned the damage to the silage. It is easy enough to think that possibly the trouble with the spoiled silage on top, results from the unusual small cross section of the silo. The friction on the sides of a small silo is comparatively much greater than on the sides of the larger silo. It is perhaps not much to be wondered at, especially if the silage was not well tramped, and the outer edges kept considerably higher than the middle, that the air may have penetrated for quite a little distance at the top; but we are surely at a loss to understand why there should be spoiled silage after passing through a considerable distance in good condition. Of course, there may have been more or less of an opening where the wooden part of the silo joins on the foundation, letting in enough air thus to insure fermentation and decay. In filling this silo again, look well to this connection, see that it is securely stopped with clay. Keep the silage well tramped, especially about the edges and corners, and when the filling is completed, put on five or six barrels of water.

We are equally at a loss to determine why these cows do not hold up in their milk. A bushel of silage with all the clover hay a cow will eat and the grain feed mentioned, ought to enable the cow to hold out in her milk. There must have been, in our judgment, other causes than anything connected with the feed, to occasion this shrinkage. The circumstance that the feet of one of the cows got sore and that another cow acts very strangely indicates that if there is a competent veterinarian anywhere within call, he should be requested to give the animals a thorough inspection.

Dairying With Good and Poor Cows.

ED. HOARD'S DAIRYMAN:—To a man whose business brings him in contact with dairymen all over the country—the number of poor dairy herds encountered and the still poorer methods of handling them, must be to a practical dairyman a matter of surprise and regret, more especialy when it is known that the gray matter of Hoard, Cobb, Gurler, Gould, Henry, Wing and others, can be rented through the DAIRYMAN, for a dollar a year.

To the thinking, systematic man who conducts dairying as a business, for the profit derived from it, the outlook is encouraging. To a man who keeps cows as a side line, in a shiftless, hap-hazard way, the business can never prove satisfactory.

An old story is told of Plato (not Jas. M. Plato) who having described man as a biped without feathers, Diogones placed a plucked rooster before him and said: "Behold Plato's man." The shiftless dairyman may be compared with a plucked rooster, if he ever grew feathenough to pluck.

Few men in any business or profession, have learned absolutely every thing pertaining to their calling;the wisest of them admit that they can learn more. While it is right and desirable for a man to be self-reliant and to have faith and confidence in his own powers and abilities, he should not be so set in his ideas as not to see his mistakes and rectify them.

Many dairymen are apt to carry the idea that their own herd is the best, and their product the best that can be turned out, and when they hear of a better herd and better products, are apt to treat it as a a fish story, instead of raising their standard. The fact is, that thorough judges of dairy cows and dairy products, are found only among those who are thoroughly trained as judges and taught in the making of the product. Whatever stock is kept by the farmer, the best and nothing else should be kept, or bred.

The difference in the expense of rearing the good and bad is nothing. The one is an honor to man's judgment and taste, the other dishonors his judgment and condemns and vitiates his taste and drains his purse. The one at any time may be converted into cash, the other is a moth that eats, but does not sell and can rarely bring its real cost.

The demand for good, selected dairy cows is not transient. It is permanent and is bound to continue so for years to come. In all purposes for which we require cattle, well bred stock must, in all cases, be resorted to for improvement. The first thing of importance in a dairy is good cows, backed by intelligent feeding and good care. A poor cow requires as much feed, often more than a good one, and the same care.

In a dairy of picked up cows, half of them may yield from 40 lbs. up and the other half from 40 lbs. down. Dairymen are apt to look at the general results of their dairy and not at the comparative differences and values in their cows. Half of the herd made the profit, the poor cows getting credit and saving themselves from the butcher where they ought to go. The same cash result would have been realized without them and the feed consumed and labor required could have been sold for a better price to better cows.

(Continued on page 580)

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA.

President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.

FEES FOR REGISTRY.

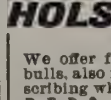
TO MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.

NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. ☞ All blanks furnished free.

Life Membership, $25.

Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.

Address F. L. HOUGHTON, Putney, Vt., for information relating to Registration of Pedigrees.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

HOLSTEIN-FRIESIANS

FAIRVIEW HERD

We offer from this herd a few choice yearling bulls, also four very fine bull calves. Write describing what you want.

R. F. D. 3. O. J. GODFREY, Fulton, N. Y

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. All our choice pigs of 1902 farrowing have been sold. We are now taking orders for 1903 farrowing.

JOHN WHITE & SON, Adamstown, Md.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148 Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.

WM. EVERSON & SONS, Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULLS FOR SALE.

Ready for service; from A. R. O. animals; sired by Johanna Rue 2nd Paul De Kol, sire of 13 A. R. O. cows. Also young bull calves by same sire. THOS. CAINES, Supt.

ARCADIA, - MISSOURI.

TYRANENA HERD

100 HOLSTEIN-FRIESIANS 100

A. R. O. Stock For Sale.

Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz Frank B. Fargo, Lake Mills, Wis.

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Headed by Mercedes Mechthilde Pietertje, No. 25,795, oldest son of Mercedes Julips Pietertje, 75 O. I. C. White Pigs, both sexes, in pairs and trios, not related.

W. R. GATES, Fort Atkinson, Wis.

OAKLAND HERD HOLSTEINS

PREMIER SIRE **Mutual Friend 3d's Paul** A son of Paul De Kol & Mutual Friend 3d, 21.84 lbs. butter, milk averaged 4.7% at 3 years. She has two A. R. O. daughters; 1 made over 20lbs.

Must reduce herd at some price. State just what you want T. A. MITCHELL, Weedsport, N. Y.

BROOKSIDE HERD

HOLSTEIN-FRIESIANS

To reduce herd to capacity of pasture, will sell a limited number of A No. 1 young cows of high breeding and individually right, large producers, at $150 each; also 15 bull calves at bargain prices.

STEVENS BROTHERS, Lacona, N. Y.

4 BULL CALVES FOR SALE

Under 6 weeks, fine individuals from our Clyde Paul De Kol bull; Dam 24.38 lbs. butter in 7 days. And from tested cows, with good records, the price is right. W. B. SMITH & SON, Breeders Pure Holstein Cattle. 2488 W. Broad St., Columbus, O.

THE MAPLE'S HERD

offers good young cows with A. R. O. records in calf to Beryl Wayne De Kol Paul, No. 28785, whose dam Beryl Wayne has an official record of 27.87 pounds of butter in 7 days. Also four yearling bulls ready for service. Special bargains in heifer and bull calves.

JOHN C. GODFREY, PENNELLVILLE, N. Y.

Holstein-Friesian Bull Calves

Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

HOME FARM HERD.

Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams, 25.1 lbs. butter in seven days. Herd numbers 125 head.

BEST FAMILIES REPRESENTED.

Special prices on six or eight bulls of serviceable age. W. B. BARNEY & CO., Hampton, Ia.

STAR FARM HOLSTEINS.

Increase Butter Fat in Milk.

Do you want to increase the per cent. of butter fat in your dairy? The quickest, surest and least expensive way is to head your herd with a bull from a high testing dam.

Mercedes Julip's Pietertje Paul No. 29830 is a son of Mercedes Julip Pietertje No. 30480 her 1901 world's seven day butter record of 29 lbs. 7.5 ozs. butter made from 540.8 lbs. of milk with an average test of 4.025 per cent butter fat has never been equaled by any cow living or dead. She is the highest testing champion butter cow of the world. Mercedes Julip's Pietertje Paul is king of Sires. Females bred to him for sale. His bull calves from fall increase can be ordered now.

HORACE L. BRONSON, Cortland, N. Y.

ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.

GEO. T. McNEIL, Theresa, N. Y.

FOR SALE.

H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address W. H. JONES, Watertown, Wis. Rural Route No. 2.

FOR SALE 2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.

M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

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Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.

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Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN Station D., R. 1, Minneapolis, Minn.

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Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for description and price to J. A. THORNTON, Manager. Simmonsville, Vt.

HOLSTEIN ADVERTISEMENTS

Are numerous, as you have noticed by the many that appear on this page; but members of our herd and cows sold from here or sired by bulls we bred, won over 47½ per cent of the money offered in prizes by the H. F. Association for the largest official records of the year that just closed. Such a statement can be made of

ONLY ONE HERD

And our prices are no higher than others are asking. THE STEVENS HERD, Henry Stevens & Son. Lacona, N. Y.

Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

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BEGIN AT THE HEAD

to improve your dairy herd with a bull whose dam has official record of 18 lbs. 6.3 oz., sires dam 20 lbs. 8.3 oz. Individual right. Price Right.

McKAY BROS., Buckingham, Iowa.

HIGH-CLASS HOLSTEIN-FRIESIAN BULLS

and Bull Calves from A. R. O. dams and the best Advanced Registry sires. Cows all officially tested; I breed from no others. Correspondence from breeders and progressive ddirymen invited. Malcolm H. Gardner, Darien, Wis.

HOLSTEINS

High Class Advanced Registry Stock only. Best butter families. Stock for sale.

Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.



T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.

Wm. O. Jackson & Sons, South Bend, Ind.

LOOK HERE.

34 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by Gem Pietertje Hengerveld Paul DeKol, or Sir Ormsby DeKol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days, average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd? McGEOCH HERD is located at Lake Mills, Wis., 56 miles west of Milwaukee. For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis. Residence: National Ave. near 40th. Phone, South 1691

SOUTH SIDE FARM, WHITE BEAR LAKE, MINN.

Holstein-Friesians.

Bulls in service, Prince Inka Pietertje De Kol 2d, A. R. O., 144, sire of 10 A. R. O. cows, and Daisy Van Beer's Pauline De Kol. 27610, whose dam has official record of over 22 lbs. in 7 days. Special prices on young bulls from A. R. O. cows. Also Yorkshire pigs of most approved breeding now fit to ship.

THE MONONA FARM HERD

OF HOLSTEIN-FRIESIANS

Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 69.50 lbs. one day. Breeders and dairymen please write for prices.

F. W. ALLIS, Monona Farm. Madison, Wis.

FOR SALE. H.-F. Bulls, ready for service. from A. R. O. Cows and sired by Sir Jonanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis

The McAdam & von Heyne Sale.

ED. HOARD'S DAIRYMAN:—The sale of the McAdam & von Heyne herd of Holsteins, at Deansboro, Oneida Co., N. Y., at the Brotherhood Stock Farm, July 15, 1903, was a notable one, both because of the reputation of the stock that was offered for sale, and because of the prices that were paid. Among the cows were Mecedes Julip's Pietertje, which for some time previous to Sadie Vale Concordia's test of last winter, held the world's highest record for butter by an official seven-day test, and Sadie Vale, herself, the cow that now stands in that enviable position. There was also the noted sire, Sadie Vale Concordia's Paul de Kol, whose eleven nearest dams are said to have records that average 23 lbs., 6 oz. of butter in seven days. These, in addition to the numbers of other very attractive animals, made a collection that was able to bring together most of the leading Holstein breeders of the east, and even called men from well into the west.

The sale commenced at about eleven o'clock in the presence of a large and interested group of breeders and farmers. It was estimated that fully five hundred were present at the sale. The utmost good nature prevailed, and at times the bidding was quite spirited. The whole herd of seventy-three animals was sold in about six hours' time.

After a few of the lesser important sales had been made, Sadie Vale Concordia was brought into the ring. Everybody was now on the tiptoe of expectation, but the bidders were cautious. The first bid was for $1,000, by Mr. Matteson. Advances for a hundred or two were rather slow, then followed a brisk rise to $1,800. From this point on it became a toilsome endeavor to advance the price. Only a few bidders were in the race, and finally, this world-renowned cow was struck off to L. J. Fitzgerald, of Courtland, N. Y., for $2,200.

She has always been a New Yorker, having formerly been a member of the Yoemans' herd, at Walworth, where she made an excellent record for herself. Since being purchased by Messrs. Mc Adam and von Heyne, she has been subjected to an official test, as is known by all high grade breeders of Holsteins. That test is reported at 30 pounds, 2 ounces of butter in seven days; 123 pounds, 10.7 ounces in thirty days; 220 pounds, 8.4 ounces in sixty days. The official part of this test is I believe confined to the seven days as reported, although other official tests were made coming within a fraction of the highest seven days.

It should probably be mentioned that these records are based upon the old method, known as the eighty per cent butter fat test. Translating this to conform it to the new rules of the Association, as was done by HOARD'S DAIRYMAN last spring, it would read 28 pounds, 9.6 ounces of standard butter. Sadie Vale Concordia is the world's champion and the price paid for her is the highest ever paid for a Holstein cow. If she lives till the 28th day of October she will be eleven years old. Had she been a few years younger it is probable that a higher price might have been paid.

Mr. Fitzgerald is to be congratulated on becoming the owner of so notable a cow; the breeders of New York that such a cow has been bred and is retained within the state; and the Holstein breeders that they possess the world's champion cow by official test. It might be of interest to state in passing that the son of Sadie Vale by Beryl Wayne's Paul DeKol was purchased by H. Stevens & Son a few months ago for $4,000, to be delivered when six months old. Sadie Vale was served April 26th to Sadie Vale Concordia's Paul DeKol.

Following this sale was one of Sadie Vale Concordia 2nd, born August 22, 1900, to Stevens Bros. for $400; of Sadie Vale Concordia's Beryl, born January 30th, 1802, for $550 to H. A. Moyer; of Sadie Vale Concordia's Granddaughter, born August 16th, 1902, to Mr. Fitzgerald for $355. Mr. A. N. McGeoch, Milwaukee, then bought America De Kol Pauline for $355, after which followed another one of the chief attractions, the sale of Sadie Vale Concordia's Paul deKol. Three years ago this animal sold for $250 it is said. The bid of $300 was first made, but ran up rapidly amid some enthusiasm, and when Mr. Fitzgerald called $2,300, the announcement was greeted with applause. That price brought this excellent sire to Courtland with his noted mother.

There was a little surprise expressed regarding Mr. Fitzgerald's purchases, but he quietly remarked that he had played "second fiddle" long enough. Mr. Fitzgerald is not so old a breeder of Holsteins as some others in the state, but he has had many years of experience as a breeder of horses and cattle, and he had a choice collection of Holsteins previous to the purchases made by him at this sale. Breeders are likely to hear from him in the future. A few other sales were made, after which, the auctioneer announced a lunch on the lawn.

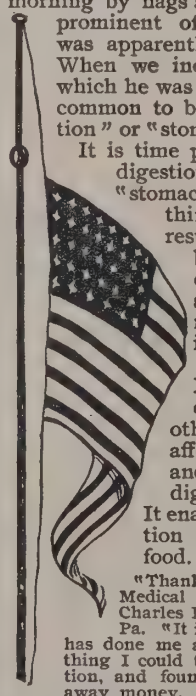
In addition to the gentlemen named, there were present Henry Stevens, the president of the Holstein-Friesian Association, who has been a breeder of Holsteins for twenty-seven years and is one of the very oldest breeders in the country. With him were his three sons, two of them now in business by themselves, as Stevens' Bros., and a younger son who is in the firm of H. Stevens and Son. Also O. N. Kellogg and H. L. Bronson of Courtland, W. A. Matteson of Utica, F. C. and W. C. Hunt of Syracuse, T. A. Mitchel of Weedsport, Mr. Moyer and Mr. Averill of Syracuse, Frank W. Ames of Morristown, S. Burchard of Hamilton and Frank Peer of Holland Patent. There were many others, greater or lesser lights in the Holstein breeders' world, many names that it was difficult to get in the crowd. Among those from out of the state were H. B. Daggett of Wisconsin, M. Cortelyou of New Jersey, F. J. Tompkins of California, James Graham of Patterson, F. P. Knowles of Massachusetts, J. V. Shugart of Indiana, and Geo. Rice of Canada. The Illinois Experiment Station was represented by Prof. Frazer, and Cornell University by Prof. Wing. Many of the gentlemen named in these lists were heard from at intervals during the day.

During the recess for luncheon it became evident that opinions had been very different as to the price at which Sadie Vale would be sold, while in the morning the best judges had been disposed to keep strictly their own counsels. Some thought the price enormous, while others had expected to see her go at a number of hundred dollars higher, even as high as four thousand being the estimate of some.

When the sale was called in the afternoon and a few animals had been disposed of at moderate prices, Mercedes Julips

AT HALF MAST.

Sometimes we are greeted in the morning by flags at half-mast for some prominent official who yesterday was apparently in perfect health. When we inquire the ailment by which he was stricken it is not uncommon to be told "acute indigestion" or "stomach trouble."



It is time people learned that indigestion or any form of "stomach trouble" is not a thing to trifle with. The result may not be fatal, but there can be no condition of diseased stomach which does not carry with it physical loss and weakness.

Dr. Pierce's Golden Medical Discovery cures indigestion and other forms of disease affecting the stomach and its allied organs of digestion and nutrition. It enables the perfect digestion and assimilation of food.

"Thanks to Dr. Pierce's Golden Medical Discovery," writes Mr, Charles H, German, of Lehighton, Pa. "It is the only medicine that has done me any good. I tried everything I could think of to cure indigestion, and found I was only throwing away money. Then I heard of Doctor Pierce's Golden Medical Discovery and tried a bottle of it, and to my joy found it was doing me good. I used six bottles of it, and am now cured. It is the *best medicine on earth.*"

This grand remedy does its work in a thorough manner; it gives the health that is all health; the strength that is solid, substantial and lasting; not flabby fat, not false stimulus, but genuine, complete, renewed vitality and life force.

Accept no substitute for "Golden Medical Discovery." There is nothing "just as good" for diseases of the stomach, blood and lungs.

Dr. Pierce's Pleasant Pellets cure constipation and its consequences.

The New 1903



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The 1903 Reid Hand Separator is the most exact milk skimmer ever made—it is simplest, fastest, lightest running, and affords most butter-producing material under all conditions. It creates a new source of revenue and maintains the income—

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Every Reid Hand Separator is sent out under a positive guarantee, and is sold on its own merits. If you want a separator we will send a Reid on approval—work it ten days and if it does not excel all others return at our expense. Send for new catalogue and revised price list, mailed free.

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It does its work so well that we dare sell it on approval. The price is low enough to make it a big winner for you the first year. Write for free catalogue.

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Iowa Dairy Separator.

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It is built in the following sizes:

250, 350, 450, 600, 750 POUNDS PER HOUR

Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.

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Davis Cream Separator Co.,
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WORLD CREAM SEPARATOR CO.

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BALL BEARING

Cream Separator

Sold on guarantee to be the best on the market. Catalog free.

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and let it prove its worth right in your own dairy. *You take no risk*—we assume it *all*. If it does not meet your expectations, send it back—we pay the costs. Our catalogue tells more—write for it, it's free.

National Dairy Machine Co., Newark, N. J.

CEMENT POSTS.

The Janesville Cement Post Co has now ready for sale and immediate delivery a large supply of line fence posts, corner posts and hitching posts. Those desiring posts that will neither rot nor burn, but posts that will last forever, write for catalogue.

JANESVILLE CEMENT POST CO.
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IS THE STANDARD
STEAM PUMPS, AIR LIFTS,
GASOLINE ENGINES
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THE AMERICAN WELL WORKS
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"1900" BALL BEARING WASHER

sent free, without advance payment, freight prepaid both ways on 30 days trial. Mr. Geo. N. Burnet, Ashtabula, O., says, "Have done 1200 washings and is good for 1200 more. Beats them all, and have tried 8 different machines." Write at once to "1900" Washer Co., 219A State St., Binghamton, N. Y.

Pietertje was brought into the ring. Her official record made while in Minnesota as the property of T. J. Tompkins, owner of the South Side Farm, was 29 pounds, 5.7 ounces of butter in seven days. This was then the highest official record ever made, and the championship she held till last winter, when Sadie Vale took it from her. It was stated, though unofficially, that she has given 90 pounds of milk a day for seven days, which averages slightly better than 4 per cent of butter fat. If she can do that on an official test, she will win back her laurels from Sadie Vale.

The Mercedes cow is smaller by probably 200 pounds than her successful rival, but her udder and the veins are truly wonderful. Her milk-producing "machinery" must be of the finest order. She is younger by some years than Sadie Vale, and will be eight years old the 10th of next October. She walked leisurely around the ring while the auctioneer recounted her favorable points, seeming to take rather less seriously the gravity of the situation, perhaps realizing that she had a somewhat lesser responsibility than had her associate, Sadie Vale. It was remarked that she was once purchased at $200. The first bid was for $500. There was some spirit manifested in the bidding, but the last few hundred came slowly, but $2,000 was finally called by W. T. Housinger of West Chazy, New York, and she was sold to him at that figure. She was bred June 8 to Sadie Vale Concordia's Paul de Kol.

At one time during the sale of Mercedes, just as Col. Jones, the auctioneer, was looking in the opposite direction and threateningly announcing "down she goes," the cow demurely stopped and laid down on the planer shavings which carpeted the ring. This, of course, brought out a general laugh, and a remark: "There, Colonel, you have talked her to death."

Following this sale was that of Mercedes Julip's Pietertje 2d, to F. E. Gans of Utica, for $665, and Mercedes Julip's Pietertje's Granddaughter, to L. J. Fitzgerald, for $400. The three generations were brought into the ring together for an exhibit, and it was one worth seeing. Frank Peer of Holland Patent, bought Canary Mercedes Johanna de Kol, for $495, and Sir Pietertje Posh, born Nov. 20th, 1900, was sold at $675, to F. E. Gans. There appeared to be general surprise that this bull did not bring more money, as he is a fine animal, and has a fine record back of him.

Mr. Fitzgerald bought several other fine animals at good prices. Mr. Daggett made some excellent selections at very good prices as did the Stevens and Mr. Tompkins. There were a number of good young animals that went at moderate prices and many of them, it appeared, were purchased by farmers to put into their dairy herds. Nothing went at less than $25 and not more than three or four went at less than $50. Perhaps a dozen or fifteen sold at prices between $50 and $100, and twenty-five or more between one hundred and two hundred dollars. At the time our train left it was impossible to get an average for the entire sale, but of sixty or over, that it was possible to get, the average was enough above $300 to make it probable that the entire average could not have been much, if any, below that sum.

Col. Cary M. Jones of Iowa, the auctioneer appeared equal to every emergency, and kept the people in excellent humor. He appeared to be conversant with the reputation and breeding of the animals.

Mr. McAdam put forward the animals and sold without reserve. He is entitled to much credit for having made so notable a collection in so short a time. In some ways it seems unfortunate that the herd should be broken up, but this is offset somewhat by the fact that the animals have gone into good hands. Mr. von Heyne has had the good fortune to be associated with men who have owned many famous Holsteins. He has proved himself to be an excellent judge in the matter of feeding for high records and in handling the animals preparatory to and during the test. It is understood that the firm of McAdam & von Heyne will now be dissolved as Mr. McAdam has so much other business that he wishes to sell his farm and give up cattle breeding. H. H. L.

N. Y.

About Seeding to Alfalfa.

ED. HOARD'S DAIRYMAN:—Was much interested in an article in last week's DAIRYMAN in regard to alfalfa raising on the Editor's farm. Have about made up my mind to make a trial, although repeated failure of others in this town to get a stand has discouraged me heretofore. Would like advice on the following:

Have a piece of new seeding of about two acres which lays on side hill in rear of barn facing the east, which I mowed July 1st. A splendid second crop of clover is coming on and my plan is to plow this clover under and seed to alfalfa next spring, with 1½ bushels of oats as nurse crop.

1. Should I plow deep or shallow?
2. Should the clover be plowed under this fall or allowed to lie down and turned under in the spring?
3. Will the second crop of clover plowed under every third year keep the land up without applying stable manure?

Sherburne, N. Y. H. J. K.

We are of the opinion that it will not pay to plow down this second crop of clover, but rather, if it is not wanted for forage, to let it ripen and save the seed. Probably, the most valuable part of the clover plant for manurial purposes is below the surface of the ground. In other words, the roots of the plant contain probably more fertilizing value than the crop above the ground.

Answering the specific inquiries submitted we would say, (1.) Do not plow deeper than has been the custom, but if the soil is not fairly porous, it would be a good plan to run a sub-soil plow in each furrow, but not turn the deeper soil to the surface.

(2.) Subject to what has been said above about plowing down the clover, we should prefer to plow this soil in the fall, let it become fairly well compacted, and then in the spring, go on with the disk harrow, a digger or some implement of that kind, and make a well pulverized seed bed about two inches deep.

(3.) It is probable that the plowing down of the second crop of clover every third year will furnish the soil with sufficient nitrogen, but it will add nothing to the phosphoric acid and potash which are essential for the growth of crops. Some soils are abundantly supplied with these elements and practically need nothing but nitrogen. Others are very deficient, especially in potash.

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why land buyers are attracted to Marathon County are: Because of the richness of the soil; abundance of water at little depth; fine grazing making it a very desirable location for cattle raising; excellent railroad facilities and competitive markets for dairy, farm and timber products. Central and Northern Wisconsin will be

THE COMING DAIRY SECTION

and has already made great strides in that direction, many fine herds have been established. If you want to **Own Your Own Home** now is the time to buy. Our lands are located in the northwestern part of Marathon County in a country well populated, near the prosperous village of Athens. For prices and further particulars address:

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Three miles from Wild Rose, C. & N. W. R. R. New barn, 34x136, cement floor; new silo 16x27; one barn, 30x40; 3 good houses; hog house; granary; tool house; good water; trout stream running through; "fine fishing;" adjoining two lakes; all fenced; level land. This place could be made into four good farms.

One new 10 horse Gasoline Engine; one new Ensilage Cutter, 10 ton per hour; one new Carrier; one De Laval Separator, new; one new Binder; one new Corn Cutter and Binder; one Seeder; one New Reaper and all other Farm Machinery.

Stocked with Guernseys. This place will be sold with or without stock and machinery, and will be sold at a bargain if taken soon. Address owner.

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For choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains

360 acre farm, 4½ miles from Crookston, Minn, (a city of 7,000 inhabitants), and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 ft. square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x44. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm in under a high state of cultivation, and is well drained by a slight ravine running through the farm, merely sufficient for self drainage. The soil is a rich deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50,

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired. Price $19.00 per acre.

FOR SALE

My fine country home and dairy farm of 120 acres within 1¼ miles of Waukesha city limits and electric line. This farm is well watered and fenced, and well equipped with buildings painted and in good order; 10 acres wood lot, balance under plow and in high state of fertility. For particulars address
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In midst of fine agricultural district in Marathon county, Wis. One acre of land, dwelling house and factory; also machinery and tools. A fine paying investment for capital employed. Owner obliged to sell; reasons given. Price $2,000.
HILES & MYERS, C-100 MATTHEWS BUILDING, Milwaukee, Wis.

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IOWA FARMS For Sale $45 to $65 Per Acre.

We offer improved Iowa farms close to church, school and town, with local telephone and rural mail delivery, soil rich, black loam, and level, at $45 to $65 per acre. We also have special bargains in North and South Dakota and Canada. If you wish to buy or sell land or city property anywhere, write to us for confidential terms. We make a specialty of long range sales, so no matter how far away you live, if interested write us. We refund railway fare to parties who buy of us Send for price list with pictures of farms.
THE JOHN M. CANNON LAND AGENCY, CRESCO, IOWA.

Cream SEPARATORS.

All about them and other things for the dairy and creamery.
A. H. REID, Philadelphia.



Western Canada

Land of the Sunshine, Grain Growing, Mixed Farming.

The Reason Why

more wheat is grown in Western Canada in a few short months, is because vegetation grows in proportion to the sunlight.

Area Under Crop in Western Canada 1902—1,987,330 Acres. Yield 1902—117,922,754 Bu.

Abundance of water and fuel. Building material cheap. Good grass for pasture and hay. A fertile soil. A sufficient rainfall and a climate giving an assured and adequate season of growth. All these conditions are found in Western Canada.

160 Acre Homesteads FREE

The only charge being $10 for entry. Send to the following for an Atlas and other literature, showing location of lands in Western Canada, and also for certificate giving you reduced freight and passenger rates, etc. The Superintendent of Immigration, Ottawa, Canada; or to the authorized agent of the Canadian government—

T. O. CURRIE,
12 B. Callahan Bldg., Milwaukee, Wis.
J. M. MacLACHLAN,
307 Third Street. - Wausau, Wis.

WISCONSIN Farm Lands

$8 to $12 PER ACRE.

On terms to suit purchaser. We would like to show you the lands and can give you low railroad rates to come and look at them. This is the future dairying country of the Northwest.

Our lands are only 240 miles from Milwaukee with splendid markets on all sides. None of the land lies more than three and a half miles from the railway station. Write and find out about it. Yours very truly,

INTERIOR LAND CO.,
Janesville, Wis.

WISCONSIN FARMS

in Dunn, St. Croix, Barron, and Price counties make the best homes on earth; because, 1st., soil heavy; 2d., some timber, fuel cheap; 3d., springs and streams numerous; 4th, no blizzards or drouths; 5th., no sand or pine stumps; 6th, near the best northern markets; 7th., best dairy section known; 8th., no crop failures; 9th., successful settlement and all prosperous; 10th., corn, oats, wheat, rye, potatoes, tobacco, hay, etc., unexcelled in the United States.

If you want a Canadian home, we can, and will take you to the best locality in Manitoba or Assiniboia. Send for catalogue or come yourself. We sell on easy terms our own lands in Wisconsin and Canada. **DUNN COUNTY LAND CO.,** Downing, Dunn County, Wisconsin, or 156 East 3d Street, Rooms 5 and 6, St. Paul, Minnesota.

Dairying With Good or Poor Cows.

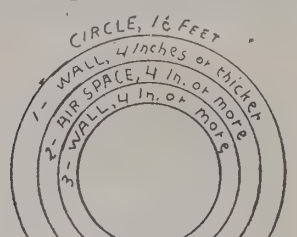
(Continued from page 577)

While it is always safe to buy a good cow, dairymen should as far as possible replenish their stock with calves from their best cows and a good bull. If the dairy is carefully selected, the annual decrease and change will be small so that the calves raised need be but few and more carefully selected and cared for. Some strains of the same blood are noted for their propensity to fatten, some for dairy qualities, size, beauty of color, form and marking, etc., and the dairyman who depends solely upon buying, has not only to take these things into consideration, but he will find that, however honest and conscientious a seller may be, he is not, as a rule, very communicative on the bad qualities of the animals he condescends to sell. J. H.

Oswego, N. Y.

A Silo Plan.

ED. HOARD'S DAIRYMAN:—I send you a sketch of a silo, covering all that is wanted in a silo. I have had a dairy and milk wagon for a number of years without a silo, but have had to give it up, and am again to build one in the spring. After coming to that conclusion, I com-



menced to look for a perfect silo and could not find one to my notion. I believe this will be a success, so much so I have applied for patent on the tools for laying it. Every foot you lay up, after you have got a good foundation, we put a No. 9 wire in outside wall clear around, which makes a hoop; also across the air space is wire bent Z as in the circle, making the wall very strong. G. E. M.

Albion, Mich.

Act Regarding Labeling Cheese and Butter is to be Enforced.

Will Stop Practice of Falsely Marking Butter and Cheese for Interstate Commerce.

There is trouble ahead for those who deal in wrongly labeled cream cheese or creamery butter, making it in one state and placing it on the market in another state as an article of interstate commerce.

Congress legislated against that pratice in 1902, but the law has not been enforced. Now the Secretary of Agriculture is convinced it should be made operative. He has co-operated with the Attorney General to that effect with excellent results, and there will be "things doing" for violators of the law from this time on. Violation is a misdemeanor, punishable by fine from $500 to $1,000.

Although there is no disposition on the part of Secretary Wilson to make this law a burden, he is determined that some of the glaring evils which might be obviated by its application shall cease.

To this end he has submitted several hypothetical cases, on food products wrongly labeled as to place of manufacture to Attorney General Knox, who has responded by rendering just the construction that was wanted.

And not only has the attorney general made the application as to goods manufactured in this country, but he has construed the law as being in connection with the act giving the department of agriculture authority over foreign food products which may be brought to this country, and then labeled falsely regarding the place of their orgin.

Since the passage of the 1902 law, which is called the Sherman law, many food manufacturers have submitted their labels to the department of agriculture for ruling as to whether statements made on them were violation of this law.

In a package containing sixty labels of various food products submitted by a manufacturer last week, every one, with but one exception, was declared to be in violations of the law.—*Washington Correspondence.*

For the land's sake—use Bowker's Fertilizers. They enrich the earth and the men who till it.

Warranted Pickle for Pork.

ED. HOARD'S DAIRYMAN:—After reading for some time the practical and up-to-date DAIRYMAN, we were somewhat surprised at the old-time recipe you gave the Down South Dairyman for meat. Here is a recipe we have tried for several years for curing meat for family use and guarantee it for our climate (southeastern Indiana), and do not see why it would not be just as good for a much warmer one.

For 100 pounds pork: 10 lbs. salt, 2¼ lbs. brown sugar, 2 oz. pepper, 2 oz. soda, 2 oz. saltpetre.

Pack meat in barrel. Boil and skim brine. When cool, cover meat. Weight it down and be sure it is all covered. Add pepper after skimming. Let remain in brine four to five weeks, or until salt enough. Smoke and let hang in an open dry place. Rub well with powdered borax and no insect will ever bother it.

Some use almost the same recipe, but rub it on the meat dry. We prefer the brine, then the meat is covered immediately.

We like this meat much better than the sugar cured on the market; often keeping hams until harvest.

Vevay, Ind. (MRS.) G. C.

We are much obliged to Mrs. C. for the foregoing recipe for curing pork. We shall not hesitate to try it ourselves this fall, and doubtless, many of our readers will preserve the recipe for use. Meantime, if other readers would follow the example of Mrs. C. and give their brethren the advantage of some of these well-tried formulas for various purposes, they would be doing for others as they would have others do for them.

Testing Cream.

ED. HOARD'S DAIRYMAN:—A patron is selling three cans of separator cream every week. If sent to local creamery they make what they call a composite test twice a month. If sent to a cold storage company, they make a separate test of each can as received. Both claim that their plan is the most correct way of testing. Both claim to use the Babcock test. Now which is right? And which is best for the patron? Both, of course, pay on basis of butter fat as shown by test. N. S. F.

Berlin, N. D.

Both methods of sampling and testing cream mentioned may be used correctly for determining the amount of fat in the different shipments of cream. The accuracy of the results depends entirely on the



Pioneer Brand
Parchment Paper
is the buttermakers, sure protection. A pure vegetable parchment with no smell to impart, shuts out foreign odors and preserves delicate flavors.
Sheets for Print Wrapping, Box Linings, Circles and Tub Linings. Name or brand on sheets when ordered. Write for samples. Book, "Better Butter," free.
The Paterson Parchment Paper Co.,
No. 87 8th St., Passaic, N. J.

Creasey Ice Breakers



Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right. Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.
J. S. L. WHARTON, Mfr.,
17th Clearfield Sts. Philadelphia, Pa.

ARMOUR'S BLOOD MEAL Cures Scours in Calves.
First proved by the Kansas Agricultural Experiment Station, and since corroborated by thousands of leading stockmen who have used it without a single failure. Equally effective for the diarrhea of all animals.
PREVENTS weak bones, paralysis of the hind legs and "thumps" in pigs; "big head" of foals; "rickets" of all young animals; abortion due to incomplete nutrition, and a host of other troubles.
A Potent Food for Work Horses, Dairy Cows, Poultry.
Write us for booklet giving valuable information about **Blood Meal** and our other feeding products. Consult us free of charge regarding stock diseases.
THE ARMOUR FERTILIZER WORKS,
Chicago. Omaha. Baltimore. Atlanta. Jacksonville.

ILLUSTRATION.



THIRTY-FOUR POINTS FOR A MANURE SPREADER.

In the large catalogue, 10 by 14 inch pages, of the Smith Manure Spreader Comany, of Chicag the very first page may well hold the reader's attention for a considerable time, it being given up e tire to "thirty-four reasons why you should have a Great Western Endless Apron Manure Spreader This matter of course was intended to apply to the Great Western Spreader. The array of reaso presents a strong case, conclusive, we think, of the whole matter. Many of the reasons, howeve are general and apply equally well to any good spreader, and as such are worthy of careful study every farmer who is interested in the mechanical distribution of manure, whether he has any pred position toward the Great Western Spreader, or not. The matter of spreading manure by machine has received a good deal of attention within the last year or two. The necessity has been presented strong lights, but we think not too strong. A remarkable feature about it is that there seems to be b one side to the discussion. Wherever a spreader has been tried, users are unanimous in the opini that the manure spreader is one of the most necessary and valuable pieces of machinery ever invent for the farmer's use. Among spreaders, it goes without saying that in our opinion this Great Weste Spreader is one of the most valuable in the field. It was not the original spreader. Coming late, was able to remedy the short comings and defects of other machines, employing ideas that were go and obviating weaknesses, thus taking high rank from the start. The advertisement has been runni for a considerable time in our columns. Once before we had a word to say, editorially, in favor of most prominent features. To appreciate its true value to the farmer we can do nothing better th commend readers to a study of the "thirty-four reasons" mentioned above, and the detailed descri tions and full page illustrations which follow in the catalogue. This catalogue may be had free charge by writing the Smith Manure Spreader Co. at the address given in the advertisement.

HUSK YOUR CORN, SHRED YOUR FODDER, SELL YOUR HAY
A corn crop may be profitable without saving the fodder, but IT WILL BE TWICE AS PROFITABLE IF IT IS SAVED. The new method of handling corn saves the entire crop. The new way is to run all the corn through the
JANNEY COMMON SENSE CORN HUSKER and FODDER SHREDDER
If you feed corn hay you can sell all your meadow hay.
You can also bale and sell your surplus corn hay; big demand. You may add further to your profits by husking and shredding for your neighbors. Pays better than a threshing machine and costs less. Eight years in the field. More in operation than any other.
JANNEY MFG. CO.
OTTUMWA, IOWA
DEPT. D.



It husks the corn shreds the der into "corn ha Corn hay is the equa feeding value of timothy hay. Ask dealer or write us Husker Catalog.

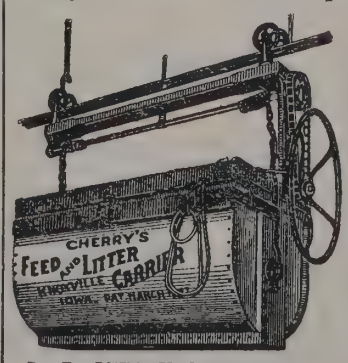


BELLE CITY Fee and Ensilage Cutte



With Blower Attachment. Fan attached to knife wheel and blows feed or ensila through any length pipe with less pow than any other blower. Full line Tread and Sweep Po ers, Root Cutters, Sa Frames, Bel City Three er et
Send for Catalogue.
Silo and ensila treatise sent free you mention this pap
BELLE CITY MFG. CO., Racine, Wis.

Cherry's Perfected Barn Equipments.



Manure Carrier, Feed Carrier, Grain Elevator, Barn Door Fixtures, and Hay Tools. Send for Illustrated Catalogue and Price List to.....
D. B. CHERRY & CO., Knoxville, Iowa.

GROOM YOUR CATTLE BY POWE
Our Improved Grooming Brushes, revolving 1200 times a minute, insure glossy coat, clean skin, active pores, health and beauty. Their use increases value of all stock. Indispensable for prize winning show cattle. Will groom 30 to 50 head an hour, and do it better than by hand. Get our Free Booklet and learn to groom your cattle, horses and all stock the best way.
CHICAGO FLEXIBLE SHAFT CO.,
194 Ontario St., Chicago, Ill.

You Can Depend On
H. & R. REVOLVERS
CATALOGUE FREE.
HARRINGTON & RICHARDSON ARMS CO.,
DEPT. 22, WORCESTER, MASS.

carefulness with which the work is done. The two systems of sampling and testing are something like two ways of measuring cordwood, one of which may be to measure each load as it is delivered, and another to allow the loads to accumulate until one large pile is made and then measure it.

Taking a composite sample of cream and testing twice a month is less work than testing each lot of cream as it is delivered, but I think that both methods may be used in a satisfactory way for determining how much butter fat the cream patron delivers to the buyer. The cream producer may keep a check on the method of testing his cream, by investing a small amount of money and time in a Babcock tester at the farm.

E. H. FARRINGTON.

Madison, Wisconsin.

Alfalfa for Pigs in Oklahoma.

Potatoes for Swine.

ED. HOARD'S DAIRYMAN:—In last week's DAIRYMAN I saw a letter from a man in which he says he fed pigs on one pound of corn per day and all the green alfalfa they cared to eat, and that they made a gain of ⅙ of a pound per day.

I had three sows running on alfalfa pasture and they farrowed 20 pigs the 15th of last December. They have never been taken off the alfalfa. I fed the sows twenty pounds of corn per day, or one pound per each pig, till the pigs were taken off. Since the pigs were taken off I have fed them one pound of corn each per day. When the pigs were 210 days old they weighed 120 pounds, a gain of 4-7 of a pound per day.

I have about 200 bushels of potatoes that are too small for the market. What are they worth cooked and fed to my hogs with corn at 50 cents per bushel.

Shawnee, O. T. J. J. J.

The evidence is accumulating very rapidly that alfalfa is to be the rival of corn in the production of pork, and the wise farmer and dairyman will give this subject his earnest consideration.

Experiments conducted at the Wisconsin Station showed that boiled potatoes fed in connection with skim milk had about one-fourth the feeding value of corn which was also fed in connection with skim milk. Therefore, when corn is worth 50 cents per bushel, potatoes should be worth one-fourth as much, less whatever it may cost to cook them.

Wetting Ripe Corn for Silage.

A Great Success Reported from Missouri—Relative Values of Bran and Middlings from Spring and Winter Wheat.

ED. HOARD'S DAIRYMAN:—We think you asked the result of watering silage when put up as per your advice last year. We watered rather more, we think, than you instructed and are so well pleased with the result that we want to do the same way this season. Our corn was ripe enough to crib when put into silo. We will let it ripen again before putting it up this fall. We want no nicer, bright ensilage, and if we change and put corn up greener it might disappoint us.

Last year was our first experience with silos. We put up a cement one 16×35 feet, costing $450.00, with cement scarce and very high priced. We are sorry we did not build several years ago, and wish we had another for summer and fall use.

Kindly give difference in feeding value between by-products of spring and winter wheat for milk cows.

Foss, Mo. A. E. M. & BRO.

When it is considered that HOARD'S DAIRYMAN has fifty thousand or more readers, and that among this number a goodly percentage are interested in silos and silage, communications like the above assume a practical value that can not be estimated, much less calculated to a certainty.

If not asking too much of these correspondents, we would be glad to have them give us in detail the manner in which they constructed their cement silo, laying especial emphasis on the manner of arranging the forms and providing for the openings.

There is no material difference in the feeding value of the by-products from spring and winter wheat. Such difference as there is, according to the analyses, is in favor of spring wheat.

The Silo Roof, Is it Necessary?

ED. HOARD'S DAIRYMAN:—You said in a recent issue of the DAIRYMAN that the best keeping silage you ever had was in a silo without a cover. Would you recommend that plan in Middle Georgia? We have usually a good deal of rain during the winter. I commenced today to build a silo after the plan of Mr. Meroney of Dark Mills, Tenn., that is 8 ft. in the ground and 14 ft. above. If I can build without a roof, it will save ⅓ of the cost of the structure. C. M. S.

Penfield, Ga.

It is true that the best silage the writer ever had came from a silo that was without a roof from the time it was filled, about September 1, until Thanksgiving, a period of nearly three months. During this time we had an unusual amount of rain, and, in common with our neighbors, we expected to find a large amount of decayed silage. Shortly after the roof was put on we commenced to feed the silage and were most agreeably disappointed to find but a few inches of spoiled silage at the top and when this was removed, very excellent silage all the way down. In this latitude, with occasional heavy snow storms and continuous cold through the winter, we consider some sort of a cover to a silo well nigh indispensable, but for the Georgia winter there would seem to be but slight necessity, if any, for a permanent roof over the silo. At all events we should not hesitate to try it for one season at least, and, if during such trial, the rains seem to injure the silage, build a temporary covering that would shed the greater part of the water.

DON'T PUT OFF

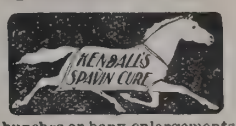
Seeing your friends and having them join in for a good club of subscribers.

The Result of the Oleo Law.

W. W. Jermane, Washington, correspondent of *Minneapolis Journal* has sent that paper an article showing the good results of the oleo law, in which he says:

"Statements sent out in the press dispatches from Washington to the effect that the manufacture of oleomargarine has been increasing in the past few months, and that the output will soon be equal to that of last year, are not borne out by a careful analysis of the returns to the internal revenue bureau. As a matter of fact, the high water mark of production for the current fiscal year was reached in December and January, in which months more than 8,000,000 lbs. were produced. Since that time there has been a gradual falling off, in April, the last month for which the returns have been made public, reaching only 6,250,000 pounds. Friends of the oleomargarine bill which became a law last session claimed that by forcing the manufacturers and dealers to sell their product for what it really is, and not for butter, a decrease in the output, as compared with previous years, would result, and this appears to have been realized. The total output for the ten months ending April 30, 1903, was 64,986,181 pounds, as against 99,362,803 pounds for the corresponding period of the preceding fiscal year, when the old law was in operation, and all oleo, colored and uncolored, was taxed at the uniform rate of 2c a pound. The decrease in production is, therefore, 34,456,622 pounds, or 34.6 per cent. Taking it altogether, the new oleomargarine law, from the standpoint of protection to the consumer, may be said to be a success."

Used Ten Years



For Spavins, Ringbone, Splints, Curbs, and all forms of **Lameness,** bunches or bony enlargements.

Washington, D. C., Nov. 20th, 1902.

Dr. B. J. Kendall Co.,

Gentlemen:—Please send me a copy of your "Treatise on the Horse and his Diseases." We have **used your Kendall's Spavin Cure for ten years** and gladly testify to its merits.

Yours truly, JUSTUS C. NELSON.

As a liniment for family use it has no equal. **Price $1; 6 for $5.** Ask your druggist for **KENDALL'S SPAVIN CURE;** also **"A Treatise on the Horse,"** the book free, or address

DR. B. J. KENDALL CO., ENOSBURG FALLS, VT.



Lump Jaw
Spavin
Ringbone
Fistula
Poll Evil
Knee-Sprung



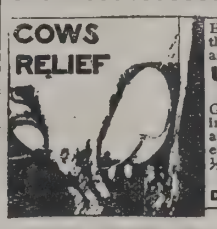
Cure Them All

You can cure all these diseases and blemishes easily, thoroughly and inexpensively. You can also cure Curb, Splint, Sweeny and soft enlargements of every description. If you have any such cases to treat, write us. We will send you two big booklets giving you all the information you need. No matter how old the case or what has failed, we will guarantee a cure by the methods the books tell of—methods now employed by over 140,000 farmers and stockmen. Write today.

FLEMING BROS.,
Chemists,
228 Union Stock Yards, Chicago, Ill.

After Abortion Cows should be injected with Hood Farm Breeding Powder. Used in connection with Hood Farm Abortion Cure it is the best means of preventing abortion.

Two sizes of each, $1 and $2.50. To any railroad express point in U. S., 25 cents additional. C. I. Hood & Co., Lowell, Mass.



Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.

Used Exclusively at Model Dairy

Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.

O. H. MFG. CO.,
Dept. H, Lyndon, Vt.

Hay Fever and Asthma

Cured to stay cured. Never return. A radical departure. Cause eliminated. Constitution changed. **FREE** Nerves reconstructed. Splendid health. Over 52,000 patients. Good references. ("Reliefs," or change of climate, cannot cure..) Write for BOOK 41 F FREE, containing reports of many interesting cases. Address

DR. HAYES, Buffalo, N. Y.

"SAVE-THE-HORSE"
TRADE MARK
SPAVIN CURE.



Send for our booklet—a valuable treatise on the injuries and diseases of horses and tells why

"SAVE-THE-HORSE" WILL POSITIVELY AND PERMANENTLY CURE

Bone and Bog Spavin, Thoroughpin, Ringbone, (except low ringbone), Curb, Splint, Capped Hock, Windpuff, Shoe Boil, Weak and Sprained Tendon, and all lameness. Give explicit particulars as to your case. Give the veterinarian's diagnosis, if he is competent. Describe action, age, location of swellings and lameness and we will advise you frankly as to the possibilities of "Save-the-Horse. **$5.00** per bottle. Written guarantee with every bottle under our seal and signature constructed solely to satisfy and protect you fully. Need of second bottle is almost improbable, except in rarest of cases. **$5.00** at all druggists and dealers or sent express prepaid.

TROY CHEMICAL CO., TROY, N. Y

BARREN COWS CURED.

Write for Pamphlet and Testimonials.

Oldest and Best Treatment Extant.

MOORE BROS., V. S., Albany, N. Y.



ABORTION

Can be successfully treated with **Anti-Abortion Serum.** Easily administered and permanently cures. Information free.

DR. ROBERTS
VETERINARY REMEDY CO.,
531 Grand Ave., Waukesha, Wis.

ABORTION,

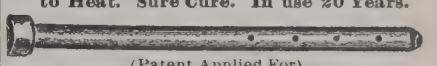
Retention of Placenta and Failure to Breed.

KELLOGG'S CONDITION POWDER is a positive cure for these diseases. Write for circular containing full information, references and price.

H. W. KELLOGG COMPANY, St. Paul, Minn.

ABORTION,

Failing to Breed and to bring Cows to Heat. Sure Cure. In use 20 Years.



(Patent Applied For)

Hard Rubber *Safety* **Milk Tubes and Dilating Plugs** to cure hard milkers and a teat **Bistoury.** Send for testimonials.

Dr. WM. HORNE, Janesville, Wis.

DR. GEORGE HOLLABUSH'S

Sure Cure for Abortion



and General Tonic for Cows. The only genuine sure cure and general tonic for cows on the market. I guarantee, and refund money if not satisfactory.

Dr. Geo. Hollabush, Ft. Atkinson, Wis.
Write for circular.

CHLORO NAPTHOLEUM DIP

Used in the Dairy makes every condition perfectly Sanitary. Use it as a disinfectant, for cleaning all dairy utensils and cans, sprinkling floors and walls. Purifies and cleanses thoroughly. Also **cures** scours in calves and contagious abortion in cows. Keeps flies off cows at milking. Guaranteed. Agents wanted. 1 gal $1.50; 5 gals. $6.75, prepaid. Larger lots at lower rates

WEST DISINFECTING CO., Inc., 8 E. 59th. St., New York.

CURE "THE" COW

NO CURE, NO PAY



WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address

DR. EATON J. CROSS,
152 Congress St., Troy, N. Y.

Horse Owners! Use
GOMBAULT'S
Caustic Balsam



A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.* **Every bottle sold is warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.**

THE LAWRENCE-WILLIAMS CO., Cleveland, O.

BLACKLEGOIDS

BEST PREVENTIVE OF BLACKLEG.



Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each **Blacklegoid** (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. **Blacklegoids** are sold by druggists; *ask for them.*

Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.

PARKE, DAVIS & CO. - DETROIT, MICH.

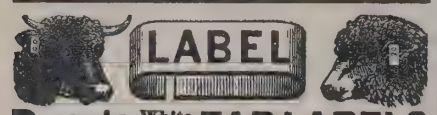
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Our New Patent

and Great sales are the talk of all who know of them. A fortune has been made by the patentee and the farmer in a short time. For seven months the sales were over $350.00 per day. Something good can't be gotten for nothing. By putting $500.00 and upwards into this business it will be the best paying investment we know of. Farmers using the machine say that they would not do without it for two, three, and ten times the price. Common farmer can handle it in a very paying way. We can prove the great selling qualities of this machine by bank account, the bankers themselves, and the farmer. Our plan is fair and honest. Best bank references. Car fare one way will be paid to responsible men whether they invest or not. Address

CLARENCE RAGSDALE,
Moberly, Mo.
Proprietor of Magic City Stock Farm.

CHILLS ILLS AND DOCTORS' BILLS **Painkiller** PERRY DAVIS CURES THEM ALL

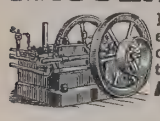


Dana's White Metallic EAR LABELS
stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Samples free. **Agents Wanted.**
C. H. DANA, 55 Main St., West Lebanon, N. H.



The "STAY THERE"
Aluminum Ear Markers
are the best. Being made of aluminum they are **brighter, lighter, stronger and more durable** than any other. Fit any part of the ear. Nothing to catch on feed trough or other obstacle. Your name, address and any series of numbers on each tag. **Sample tag,** catalogue and prices **mailed free.** Ask for them. Address
WILCOX & HARVEY MFG. CO., 196 Lake St., Chicago, Ills.

GASOLINE ENGINES.



Buy direct from the manufacturer. The simplest, handiest and cheapest power known. Write to-day for our free catalogue.
H Canfield Eng. Works,
Binghamton, N. Y.

FACTORY PRICES



Milked the Cow Six Years.

A Holstein Which Gave Milk Six Years Continuously—Too Little Care taken of Cows by Farmers—Coloring not Needed.

There is too little care taken of the general run of the farmers' cows to make good butter. Governor Hoard has been drumming this into the heads of the people for years, and it is a sad reflection that no greater progress is made. It is no reflection on Governor Hoard. On the contrary, it is a reflection on the intelligence and carelessness of the farmer. No matter how much is said, how many examples given, the ordinary owner of a cow goes on in the same old rut. Demonstrations are made every day by scientific owners of cows, showing how much more the animals will produce if they are properly cared for. The experimental stations of the varions states, are constantly showing what cows will do under good treatment.

To the ordinary business man it seems strange that a certain system can be shown time and again to the ordinary owner of cows, which system is unquestioned and which, if practiced, will produce better results, and not have it adopted. Practical buttermakers, men who have grown rich because they did treat, feed and care for the cow right, are always telling what can be done, and the cow owner goes right along in the same old, unbusiness like methods.

PROGRESS IS SLOW.

Governor Hoard declares that progress is being made, but it is slow. The various tests which are given every week in the dairy schools and elsewhere are of benefit, but the trouble is the cow owners do not give these the attention which they should.

Dr. E. F. Brush of Mount Vernon, N. Y., is one of the scientific cow men of this country. He raises cows for their milk and food properties. On his farm he has a factory to produce koumiss, a milk food for children and weak people. He was the man who sent some of this food to President McKinley, when he was ill in Buffalo, but even Dr. Brush's food could not overcome the assassin's bullet. Dr. Brush is considered an authority by those who know him. His experiments are many, but he is modest and does much good which is not known. For instance he demonstrated that a cow, with her ovaries removed, could be milked six years. He did this on his farm in Mount Vernon, and it is the only record of the kind in this country. The cow was of the Holstien herd, of which the doctor is very proud.

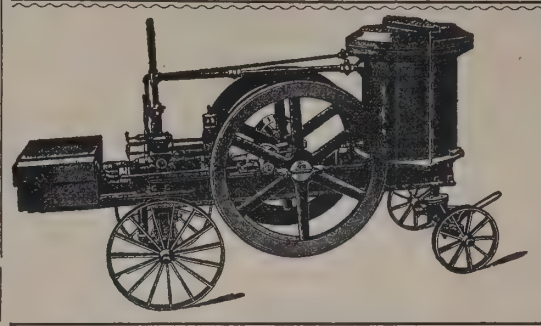
A RECORD BREAKER.

This cow was not permitted to eat all the grass she wanted, but was kept on a balanced ration the year around. During the summer she was given a certain quantity of grass, but was regulated more carefully than many mothers regulate the food of their children.

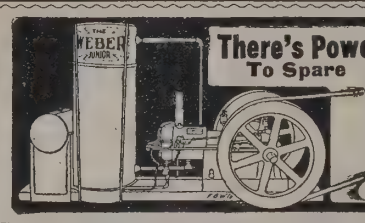
So far as the writer can learn, this is the longest record for a cow to give milk continuously. The other record is one of three years, but this is double that time.—*Fruit and Produce News.*



GOOD INTENTIONS ALONE CANNOT PRODUCE GOOD MACHINERY. Most all manufacturers are honest, but lack the experience and equipment necessary to turn out a thoroughly first class engine. We are the founders of the Gas Engine industry in the United States; have been building **OTTO** engines for 27 years, and operate the largest and most complete plant in the country devoted exclusively to the building of Gas and Gasoline Engines. Which will you buy, **Otto Experience** or **Others' Experiments**
THE OTTO GAS ENGINE WORKS, Philadelphia, Pa.

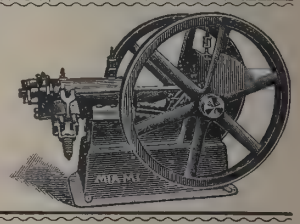


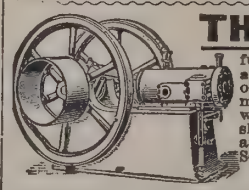
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Portable and Stationary, 3 to 25 H. P.
Catalogue on Application.
KINNARD-HAINES CO.
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There's Power To Spare at most every duty you will put it at. It's always ready and it costs but a few cents per day with the **WEBER JR. GASOLINE ENGINE.**
It stands for the highest efficiency reached in small engine building. It is safe, long lasting, easily handled, adapted to **Pumping, Sawing, Churning, Separating Cream, Grinding** and a host of like duties. It has no wind caprices. Always dependable. Generates 2½ horse power. Investigate it. Other sizes up to 300 h. p. Illustrated catalogue mailed free. Write for it to-day.
Weber Gas & Gasoline Engine Co., Box 176, Kansas City, Mo.

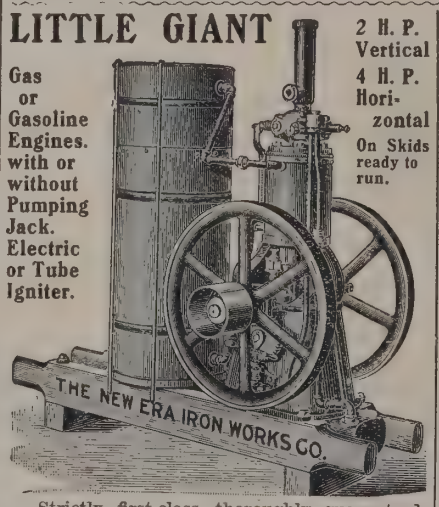
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It is a very easy thing for one engine to use from $75 to $300 more fuel per year, than one more correctly designed and built. Our
Miami Gas and Gasoline Engines
represent the highest fuel economy and the longest life.
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furnish the greatest possible power at the lowest possible cost in **time, labor, fuel and money.** They are so simple that any body can run them without expert training or experience. Our **Volume Governor** gives uniform speed. Our **Acme Mixer** is the most positive and economical on the market. Our **Hand Starting Lever** starts engine with least effort. All bearings of **Iridium Bronze.** Best material and workmanship throughout. Many sizes from 4 (actual) h.p. up. Best for all farm work—cutting and grinding feed, sawing wood, pumping water, separating cream, churning, etc. Send for free catalog before you buy. It may save you time, money and annoyance.
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LITTLE GIANT
Gas or Gasoline Engines. with or without Pumping Jack. Electric or Tube Igniter.
2 H. P. Vertical
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On Skids ready to run.



Strictly first-class—thoroughly guaranteed. Write for catalog describing full line, 2 to 80 H. P.
THE NEW ERA IRON WORKS CO.
No. 57 Dale Ave. DAYTON, OHIO.

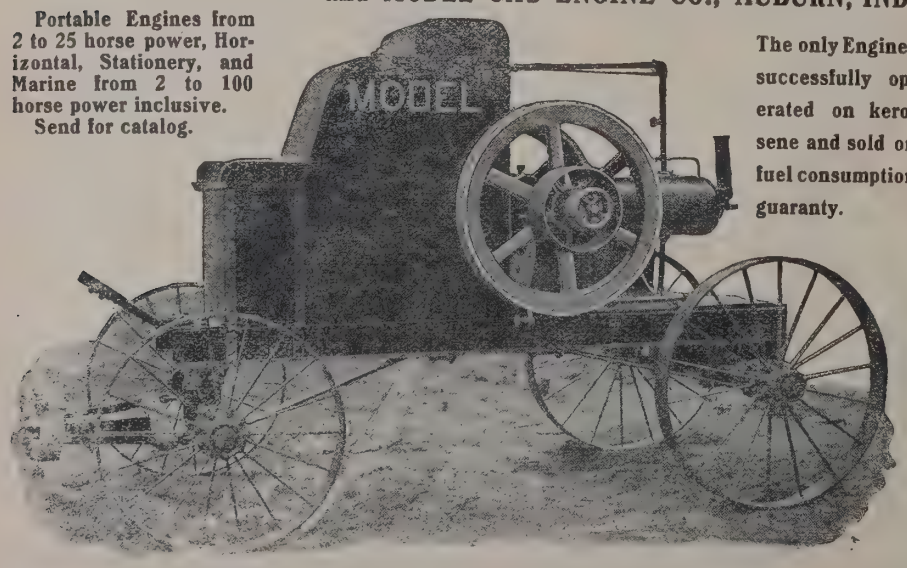


If you want a..... **Gasoline Engine**
that will be always ready to start, safe, reliable convenient, economical and durable, buy a **FULLER & JOHNSON Frost Proof.** No bother with water nor expense of broken cylinder, no waiting for wind or weather. All sizes, stationary and portable. Send for descriptive catalogue to the manufacturers.
FULLER & JOHNSON MFG. CO., Madison, Wis.

The Model Gas and Gasoline Engines

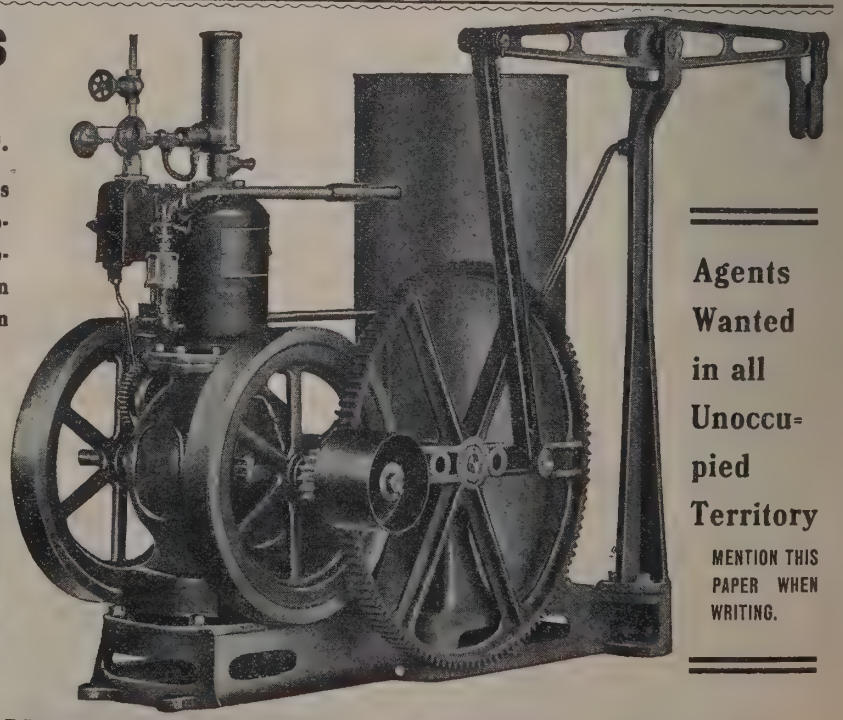
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THE CENTRAL CITY IRON WORKS, STEVENS POINT, WIS.. and MODEL GAS ENGINE CO., AUBURN, IND.

Portable Engines from 2 to 25 horse power, Horizontal, Stationery, and Marine from 2 to 100 horse power inclusive. Send for catalog.



The only Engines successfully operated on kerosene and sold on fuel consumption guaranty.

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VERTICAL ENGINE AND PUMP JACK, WITH ALL IRON BED PLATE

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MORE MILK MORE MONEY! Cows will give 15 to 20 per cent more milk if protected from the torture of flies with

CHILD'S SO-BOS-SO KILFLY.

Kills flies and all insects; protects horses as well as cows. Perfectly harmless to man and beast Rapidly applied with **Child's Electric Sprayer.** 30 to 50 cows sprayed in a few minutes. A true antiseptic; keeps stables, chicken houses, pig pens in a perfectly sanitary condition.

Ask for Child's SO-BOS-SO or send $2 for 1-gal. can and Sprayer complete, Ex. pd. any point east of the Mississippi.

CHAS. H. CHILDS & CO., Sole Manufacturers, 15 LaFayette Street, Utica, N. Y.

Cow-Ease

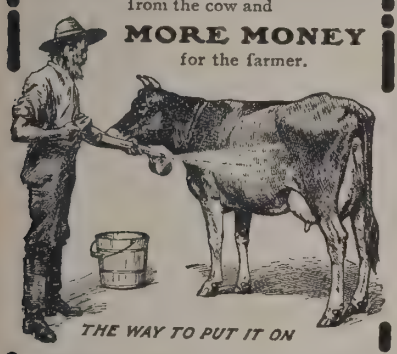
(Trade Mark Registered.)

MEANS MORE MILK

from the cow and

MORE MONEY

for the farmer.



THE WAY TO PUT IT ON

Descriptive booklet will be sent free to any farmer on application to the sole manufacturers,

CARPENTER-MORTON COMPANY, Boston, Mass., U. S. A.

Shoo-Fly

THE ANIMALS' FRIEND



Kills every fly it strikes; keeps off the rest. Harmless to man or beast.

Trade Mark

This cow was a terror to milk prior to using ½ cents worth of **Shoo-Fly.** Had it been used earlier, she would not have lost milk and flesh to the amount of $14.00. The other cow was protected early and continued to give 18 qts. of milk daily through fly-time

Shoo-Fly is the original stock protector used by the same dairy-men since 1885, after testing imitations. It prevents contagious abortion and other diseases, cures all sores, scratches, skin diseases, hoof ailments, etc. **NO LICE** in poultry houses or any place it is sprayed. Beware of imitations that last only a few hours and make sores. If your dealer does not keep **Shoo-Fly** (made in Philadelphia, Pa.,) send us $1.00 for latest Improved Three Tube Sprayer and enough **Shoo-Fly** to protect 200 cows Cash returned if cows are not protected.

SHOO-FLY MF'G. CO. 1005 Fairmount Ave., Phila., Pa.

EDITOR knows from experience Shoo-Fly is O. K.

Goodwin's



Use Goodwin's Fly Killer this season on your cows and horses and be rid of the fly pest, Cows give 25 per cent. more milk and horses are relieved. Gallon 75c, 5 gallons $3.00, 10 gallons $5.50. Sprayers 50c. or send $1.00 for sprayer and enough Fly Killer to protect 150 cows.

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FLIES? **ORR'S FLY KILLER. No Other as Good.** 1 gal. $1; 5 gal. $4; Sprayers 50c.

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"COME in the evening or come in the morning, when you're looked for or come without warning"—



You'll always find your Tread Power ready for business. **OF WHAT OTHER FARM MOTOR—** Wind Steam or Gasoline—can this be said? **A PERFECT GOVERNOR** ensures absolutely even speed. **Send for free catalogue.**

St. Albans Foundry & Implement Co., St. Albans, Vt.

Short-horns Will be Represented in Dairy Tests at St. Louis.

(Continued from page 566)

Class B will consist of cows entered for demonstrating the economic production of milk for all purposes relating to dairying.

Class C will consist of cows entered for demonstrating all the products of the cow—viz., beef and milk, with their calves judged for their beef merits.

Class D will consist of cows entered for demonstrating the greatest net profit in the production of market milk on the basis of quantity and quality of milk of a given standard.

The committee to whom was referred the subject of a standard, or the conditions to govern the demonstration, recommended that the awards be based on the following dairy and beef elements:

1. The dairy performance of the cow in the yield of products as determined in the dairy demonstration at the exposition.

2. The beef conformation of the cow and her gain in live weight during the demonstration.

3. The beef merit as shown in the quality and growth of the calf and as a prospective profitable butcher's beast.

The points and their values considered by the judges in making the awards will be as follows:

	Percent.
1—Dairy performance of cow	40
2—Beef points of cow	35
3—Beef points of calf	25
Total	100

The committee who formulated the conditions was composed of H. H. Hinds, American Short-Horn Breeders' Association; Charles D. Nixon, Brown Swiss Cattle Breeders' Association; J. J. Richardson, American Jersey Cattle Club.

B. O. COWAN, Asst. Sec.

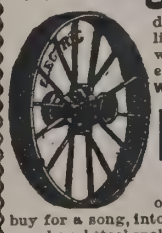
Chicago, Ill.

The Bull, "Combination."

An inquiry comes to us from a reader in Indiana, asking who is the present owner of the bull, Combination, if he is living.

The old bull, Combination, was registered and given the number 4389, indicating that he must have been dropped twenty or more years ago. Ten years ago his granddaughters, won renown at the World's Fair, in Chicago.

A Wagon's Worth



depends upon its convenience and life. The life depends upon the wheel. You get every convenience of the **Modern Low Handy Wagon** and double its life by using

ELECTRIC Metal Wheels

For a few dollars you turn your old running gears or one you can buy for a song, into a new wagon. Straight or staggered oval steel spokes. The stoutest wheel you can buy. **Any height, fit any wagon.** No repairs, no rutting, light draft, long service. Let us send you free catalog to show you how it saves you money.

Electric Wheel Company., Box 130 Quincy, Illinois.



SPRING CLEVIS Saves Team, Harness and Implements. Send for descriptive matter.

Shipped anywhere in United States, charges prepaid for $1.25 cash with the order.

David Bradley Mfg. Co., 110 E. Broadway, Bradley, Ill.



SENT out under positive guarantee. Money refunded if not satisfactory. No bolting food. Perfect digestion. All tinned—no rust.

KEYSTONE CALF FEEDER

Patented under No. 721,584. Used in about forty experiment stations. Mass. Ag'l College writes as follows: Mr. M. T. Phillips, Dear Sir:—I write to say that the Calf Feeder is giving excellent satisfaction. We have found it to be all we could ask for in a feeder. It is easily cleaned and appears to be durable. Yours truly, E. A. JONES, Supt. Complete with extra nipple, $1.50, express prepaid. Circulars free.

M. T. PHILLIPS, POMEROY, PA.

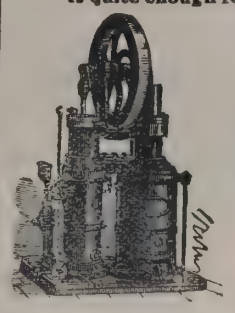


SAW MILLS, 4 H. P. cuts 2,000 feet per day—All Sizes—Planers, Shingle Mills and Edgers with Patent Variable Friction Feed-Portable Grinding Mills, Water Wheels, Lath Mills, etc. Send for large Catalogue. Freight don't count.

Box 801, Atlanta, Ga. **DeLOACH MILL Mfg Co 114 Liberty St., N. Y.**

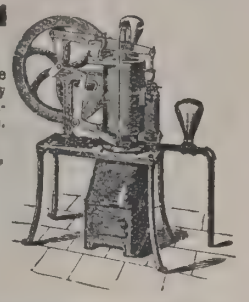
HALF ENOUGH WATER

is quite enough for some people, but most people want water every day. If



RIDER or ERICSSON HOT AIR PUMPS

Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 35,000 in daily use. Catalogue "B 5" on application to nearest store.



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SAVES ITS COST ON THE FIRST CROP.

It spreads all kinds of manure, lime, salt, ashes, compost, etc., either broadcast or in rows. Does it better than it can possibly be done by hand.

Do you know of any other piece of machinery for use on the farm of which this can be truly said?

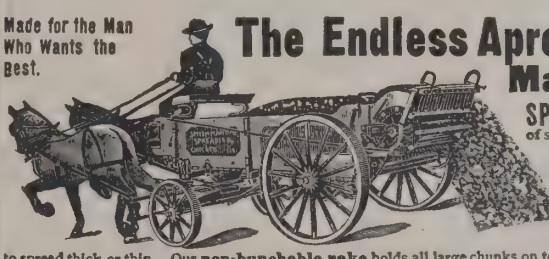


The Improved Kemp Manure Spreader

not only makes easy work of getting out the manure, but by the way in which it breaks it up and makes it fine, it more than trebles the value of the same. It will break up and spread evenly, manure that cannot be handled with a fork. It doesn't matter how hard, lumpy, caked, strawy, or stalky the manure is, this machine will spread it. It makes fine, well rotted manure go a long ways in top dressing wheat in the spring, meadow lands, pasture, etc. Being mounted on broad faced wheels, it can be handled on any kind of ground without serious cutting in or rutting. Can spread back and forth, as front wheels turn entirely under. Can be turned on the ground it stands on. 1903 machine has our new **Beater-Freeing Device, Apron-Returning Device** and numerous other improvements. Send for latest catalogue (free) and read about these and other advantages and also about **"How to Grow Big Crops."** Remember that the only original and genuine Kemp Manure Spreader is made by us and the patents thereon have been fully sustained by a recent decision of the U. S. Circuit Court.

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Made for the Man Who Wants the Best.



The Endless Apron Great Western Manure Spreader.

SPREADS and **pulverizes** all kinds of manure, fresh, well rotted, mixed, full of straw or cornstalks, sheep manure. No matter how tough, we guarantee our spreader to spread it so evenly that one load will do more good than three spread by hand. **Endless Apron** is always ready to load. **No turning back** after each load is spread. **Front wheels** cut under and machine can be turned in its own length. **REGULATED** motion to spread thick or thin. Our **non-bunchable rake** holds all large chunks on top of beater until they **are thoroughly pulverized. Combined Hood and End Gate** keeps manure away from beater while loading and acts as wind hood in spreading. **LIGHTEST DRAFT** ever produced on a manure spreader, because front and rear wheels track and the load is nearly equally balanced on front and rear axles which brings load up close to horses. **Send for free illustrated catalogue** giving full description and how to apply manure to secure best results. **Saves time, labor, money.**

SMITH MANURE SPREADER CO., 59 N. JEFFERSON ST., CHICAGO, ILL.



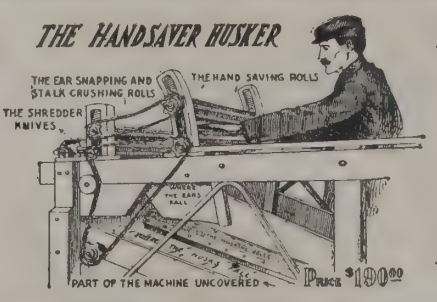
New American Manure Spreaders

hold from 50 to 100 bushels. Spread just as thin or thick, fine or coarse, as ground requires Don't have to stop team to make change. Most substantial, largest capacity, lightest draft.

Send today for Booklet B.

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YOU CAN'T GET HURT

HUSKS 50 BUSHELS PER HOUR

SNOW WON'T BOTHER

ASK ABOUT OUR 2 WHEEL WIND MILL

AND ALL IRON WOOD SAW

ADDRESS

DOUBLE POWER MILL CO.

APPLETON, WIS.

3 FEEDS TO THE ROUND SELF FEEDER **2 PROFITS IN HAY BALING**

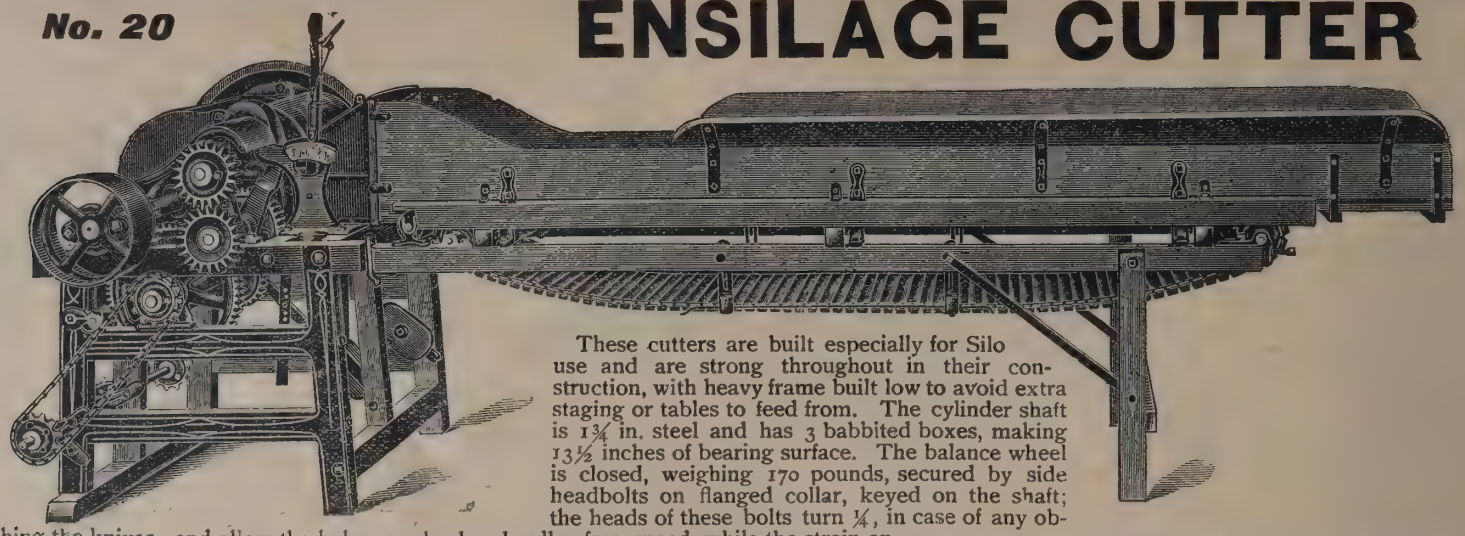


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WRITE TODAY FOR OUR FREE CATALOGUE

No. 20

ENSILAGE CUTTER

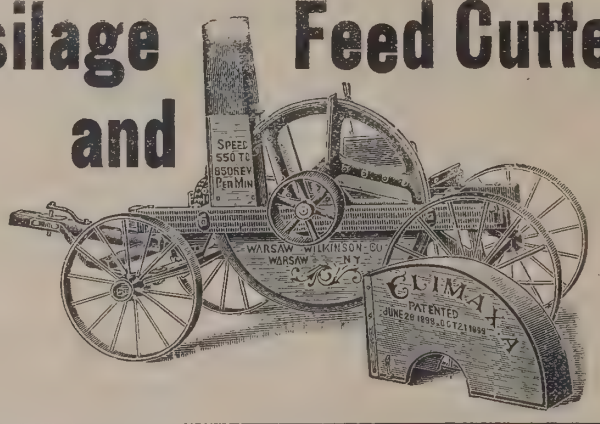


These cutters are built especially for Silo use and are strong throughout in their construction, with heavy frame built low to avoid extra staging or tables to feed from. The cylinder shaft is 1¾ in. steel and has 3 babbited boxes, making 13½ inches of bearing surface. The balance wheel is closed, weighing 170 pounds, secured by side headbolts on flanged collar, keyed on the shaft; the heads of these bolts turn ¼, in case of any obstruction reaching the knives, and allow the balance wheel and pulley free speed, while the strain on the knives is relieved at once. The traveling feed table is controlled by the reversible lever and is instantly stopped or reversed. The slats on these tables travel over a close bed, full length and are close together to prevent fine leaves getting into them and winding on the rollers, also guards over the chain links. The length of cut is easily adjusted from ⅜ to ⅝ and ⅞ inches by the gears on the shaft. We furnish chain elevators of any length desired, straight away or side delivery. Weight of Cutters with traveling table, 1600 pounds. Send for circulars.

I. B. ROWELL & CO.,
MENOMINEE FALLS, WIS.

CLIMAX

Ensilage and Feed Cutters.



"THE COMPLETE MACHINE"

CLIMAX machines are original. They are not made over from old models, in an attempt to turn them into blowers, by adding a number of chains, belts, or other attachments. They are made to elevate by wind delivery, and every part is built with this end in view. They are sold under an absolute guarantee to do the work, and **never** fail.

CLIMAX machines passed the experimental stage eight years ago. It has never been necessary to change any essential feature of the original pattern. We are still using the straight knives, with the shearing, inward cut; the elevating is still done with the same wheel as the cutting, requiring less power; the smooth reversing gear, which is positive and cannot break; the large feeding rollers, which won't choke, and the knife adjustment, which sets every knife at once and sets them **true**. All these have stood the test and cannot be had with any other machine.

The combination of simplicity, great strength, large capacity and few wearing parts, places the **CLIMAX** in the very front rank. When you have a binding guarantee as well, there should be no doubt regarding the machine. Catalogue for the asking.

WARSAW-WILKINSON CO., WARSAW, N. Y.

The Old Way—Kicking Corn With Knife Fastened to Boot



FARMERS DON'T KICK NOW!

Their corn is cut with

DEERING IDEAL CORN BINDERS

Deering Corn Binders gather all of the corn. They do not waste. They are constructed on the grain binder principle; the corn is bound while in a horizontal position in the same manner as a sheaf of wheat. They do not knock off ears.

Deering Corn Binders, Corn Shockers, Huskers and Shredders

are money-makers for the farmer. Ask the nearest Deering agent for a "Deering Corn Annual."



The New Way—DEERING CORN BINDER in the Field

BLIZZARD

Safe, Strong and Efficient.

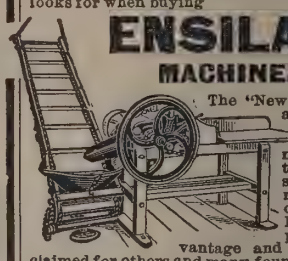


Cuts and Shreds all kinds of Dry and Green Fodder and elevates it to any desired height through a **PNEUMATIC TUBE.** No sprocket, no link belt, no elevator buckets, web, slats, etc. **Saves power, breakage and annoyance.** It cuts various lengths; **any capacity you want.** Call at your dealer's and examine it or write us for circulars and descriptive matter. &c

Joseph Dick Agricultural Wks., Box 20, Canton, Ohio.

"NEW HERO"

excels in strength and effective working qualities and sells at a price that "fits the purse." It is the combination of these three features in the highest possible degree which a practical man looks for when buying



ENSILAGE MACHINERY.

The "New Hero" Cutters are the simplest in construction of any made; so strong that, size for size, they weigh more than any others; they have every practical advantage and improvement claimed for others and many found in no other; they are guaranteed to outlast and outwork others. Sizes, 9 in. to 26 in.; with or without self-feed table; shredder attachment if desired; swivel feed carrier. We make also a complete line of sweep and tread horse powers, shellers, huskers, feed grinders, wood saws, windmills, etc. Remember that Appleton quality is the standard of excellence, and write to-day for free catalog.

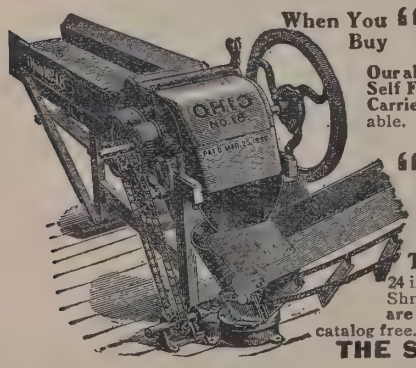
APPLETON MFG. CO.,
85 Fargo Street, Batavia, Ill., U. S. A.

IF YOU WANT A

SILO

Write us for information.

THE A. T. STEARNS LUMBER CO.,
BOSTON.



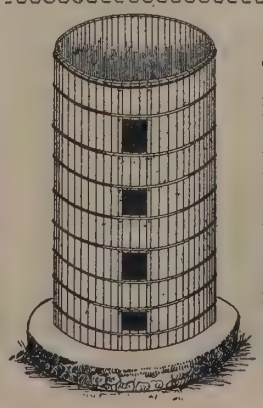
When You Buy **"OHIO" Ensilage Cutters you buy Satisfaction.**

Our absolute guarantee goes with this, our New "Ohio" Self Feed Ensilage Cutter and New Metal Bucket Swivel Carrier. It is made to be the best thing of its kind procurable. Self-feed increases capacity 33⅓% and saves 75% labor feeding.

"OHIO" Means Greatest Capacity, Least Power Required.

The man who owns one says so. All sizes, 11 to 24 in. Profit by the experience of others and get the best. Shredder blades to fit all sizes. **1903 "Ohio" Blowers are powerful machines.** Write today. Latest illustrated catalog free. Modern Silage methods 10 cents. Established 1854.

THE SILVER MFG. CO., SALEM, OHIO.



TIME!

Its time for dairymen to act if they want the benefits of a silo this season. You should place your order

NOW

if you want the best, and the best is always the cheapest, especially in Silos. Write us for prices and circular. If you are in the market we can save you money.

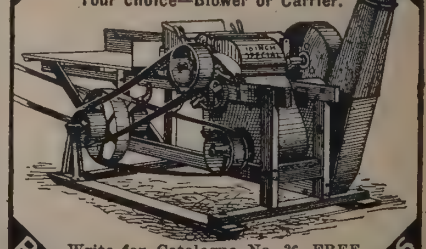
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ENSILAGE MACHINERY

ROSS ROSS

When you buy the ROSS you buy the best

Your choice—Blower or Carrier.



Write for Catalogue No. 36—FREE.
Prof. Woll's Book on Silage 10c.

THE E. W. ROSS CO.
Springfield, Ohio.

ROSS ROSS

CORN HARVESTING

Done—Easier, Easier, Cheaper by using the **BADGER CORN HARVESTER** than by any other known method. Do not wait, investigate now! Address **I. Z. MERRIAM, Whitewater, Wis.**

WRINGING WET Clothes dry is the reason for using any wringer. Saving clothes, buttons and money is the reason for using **Horse-Shoe Brand Wringers.** They are made with rolls of the finest Para Rubber. Every wringer is warranted. **THE AMERICAN WRINGER CO., 99 Chambers Street, New York.**

SILOS SAVE the entire crop

in the best feeding form. Ours are all round. No corners nor angles to admit air and mould and rot the silage. We make them of Cypress, White Pine and White Hemlock. Four styles and 200 sizes. Fit every requirement. Nothing so good, nothing so cheap. We make all kinds of machinery for filling Silos. **Catalog free.**

Harder Manufacturing Co., Cobleskill, N. Y.

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HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

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VOLUME XXXIV. FORT ATKINSON, WIS., AUGUST 7, 1903. NUMBER 26

HAND SEPARATOR BUTTER always brings a good price. We make it a specialty. Why sell your cream when you can get from 15% to 20% more for butter? Save "the over-run" for yourself. Send for market quotations and make us a trial shipment.
C. H. WEAVER & CO., 128 South Water St. CHICAGO.
REFERENCE:—Any bank or wholesale house.

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs**
Liberal Advancements Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, New York



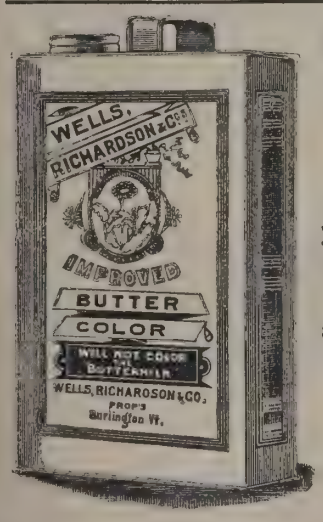
ASK YOUR DEALER IN DAIRY SUPPLIES FOR
CHR. HANSEN'S LACTIC FERMENT
To Ripen your cream, ensuring
Perfect Flavor, Uniformity and Keeping Qualities in your Butter.
CHR. HANSEN'S LABORATORY, P. O. Box 1003, Little Falls, N. Y.

HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, BOSTON.**
Medals—Bronze 1878 Silver, 1887, World's Fair, 1893.



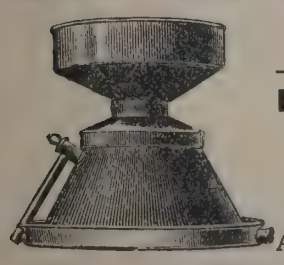
NEXT TIME An agent offers to sell you the Elgin tub, and ours is the one you want ***ASK HIM*** if the Elgin tub he is selling is the one made by Schmidt Bros. at the factory of the Elgin Butter Tub Company at Elgin, Ill.
THAT'S THE TEST that will enable you to get our tub instead of the so called "Elgin" "Elgin Style" tubs, etc., made by other companies.
ELGIN BUTTER TUB CO., ELGIN, ILL.
Schmidt Bros., Props.

THE KIND THAT HAS NO MUD.



Wells, Richardson & Co.'s
Improved Butter Color
Has stood the test for many years, and users of color know that it can always be relied upon. It is the BEST and therefore the CHEAPEST COLOR on the market.
For Sale By All First-Class Supply Houses.

Get the Best Milk Cooler



AND AERATOR.
LARGEST COOLING SURFACE EASIEST TO CLEAN.
WRITE US FOR PRICES.
Ask for our new Thirtieth Annual Catalogue of Dairy Apparatus and Supplies.
OAKES & BURGER, Cattaraugus, N. Y.

FOUR BIG REASONS

Why you should Give the

Dairy Tubular Separator

A Trial.

The Cream You Get
IS all there is to get. Practically the last drop is wrung from the milk. No other separator skims as clean. The Tubular machine will cut in two any record for close skimming that any other machine can possibly make even under the most favorable conditions. Its Tubular quantity. Try it.

The Saving You Effect
IS great, is not half so hard to operate or clean as gravity appliances or other separators. No cream is wasted, no ice needed. Saves time to haul to the creamery. Skimmilk is in the best condition for feeding. Its Tubular economy. Try it.

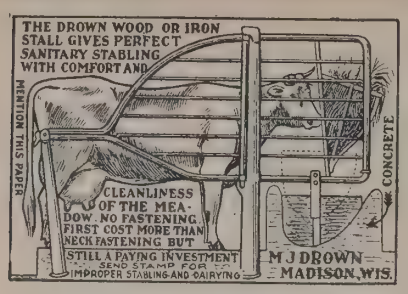


The Butter You Make
IS easier churned, superior in quality, cleaner, sweeter, untainted by gravity processes or "Discy flavor" from the hard to clean cones, discs, or vanes found in all other separators, keeps better and brings higher prices. Its Tubular quality. Try it.

The Profit You Net
IS increased by getting more cream, stopping the ice bill, saving half the labor, making fewer trips to creamery, getting more for cream or butter, raising better calves, pigs and poultry at less cost. Its Tubular efficiency. Try it.

Free Catalogue
144
Tells How and Why

The Sharples Co. P. M. Sharples
28, 30 & 32 So. Canal St. West Chester, Pa.
CHICAGO, ILL. U. S. A.





CHAIN-HANGING
CATTLE STANCHION
The Most Practical
CATTLE FASTENER
ever invented.
Manufactured and For sale by
O. H. ROBERTSON,
Forestville, Conn.



The BEST Cattle Fastening.
SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated circular free. GLENORA MFG. CO., Glenora, Yates county, N. Y.
Infringements will be prosecuted.

Scott's "Perfect" Cow Stanchion

SWINGING
SELF-CLOSING
SELF-LOCKING
3
NECESSITIES FOR PERFECT STANCHIONS

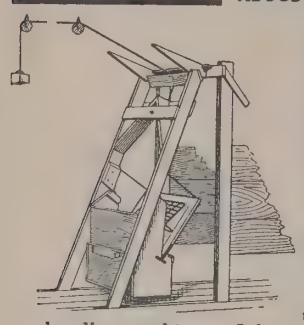
Made of hard wood—strong and durable. Price $1.00. Satisfaction guaranteed.

Write for descriptive circular.

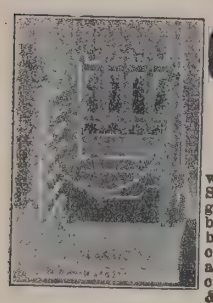
B. C. SCOTT, 212 Beach St., Bridgeport, Conn.

A Steel Stanchion beats anything you ever saw for tying cattle. Lighter, stronger, neater. Swings on chains Not in the way when lying down. Agents wanted. Write for special terms and prices. **Jas. Boyle, Mfr., Salem, O.**

JUST OUT! UNDERHILL SELF ADJUSTING STALL

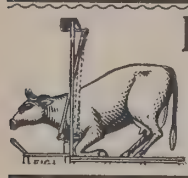


No Gutters
No Platforms
No fastenings
No Stables to clean
Cease trying to keep your cows clean. You can't do it. Give them a chance and they will do it themselves. This is the only way and the easy way. Write for circular telling what the cow has discovered to us. It is a great revelation.
Wm. M. UNDERHILL, Oconto, Wis.



HE NEW PATENT
Cow Stall
AND FEED TROUGH.

This is the only Cow Stall with a centering hinge. Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars. **R. A McLERY & CO., Palmyra, Wis.**



Prescott's Swinging Swivel Stanchion
Keeps Cows Clean.
Swings forward while getting up or lying down. Locks back while standing Full particulars free.
E. PRESCOTT,
Beverly St., Boston, Mass

WILDER'S STANCHION



Being an improvement over Smith's. Lightest, strongest, quickest, safest stanchion made. Has steel latch and automatic lock. Becomes stationary when open. Animal cannot turn in it in backing out. Made of best seasoned hard wood. Pins for fastening with every stanchion. Send for testimonials.
J. K. WILDER & SON, Box 11, Monroe, Mich.

CEMENT POSTS.
The Janesville Cement Post Co. has now ready for sale and immediate delivery a large supply of line fence posts, corner posts and hitching posts. Those desiring posts that will neither rot nor burn, but posts that will last forever, write for catalogue.
JANESVILLE CEMENT POST CO.
Janesville, Wis.

The Dairy Farmer as an Example of Prosperity.

[FRANK W. HOARD, Business Manager of HOARD'S DAIRYMAN, in *Agricultural Advertising*.]

"Let me say first, that the dairy farmer is the most successful and, as a class, the most progressive farmer in the country. I realize that some will say that this statement is too sweeping, but I believe it is only just and fair to say it, and anyone who will closely analyze agricultural work and agricultural people will accept the statement without discount.

"In saying this I am drawing a distinction between the farmer who keeps a few cows and the farmer who makes dairying the business of the farm. I mean those who are running a dairy of from 15 to 100 cows. To do one's own judgment justice, the fact should be considered that a well equipped dairy farm carries in personal property alone often from five to ten thousand dollars, and the property interest, together with the gumption that accumulates it, is a pretty fair guaranty that the dairyman is a business man on the farm. He is a farmer that is doing things. He is not dreaming his way to prosperity.

"It seems to me that there could be nothing plainer to fair reasoning than that the man in dairying is progressive and far above the average in intelligence. He is forced to deal with animal life along broad and liberal lines of thinking, and to be successful he must be on a higher plane of thought and work than can be accorded the man that simply farms because he seems unfit for anything else, and farms in the easiest way, mentally. It is true that all progressive farmers are not in dairying.

"There are a good many reasons why a dairyman is successful, that are, in a sense, merely the result of his being a brainy farmer. The dairyman is what you might call an intense farmer. He gets more dollars out of the same acres, and one reason for this is that by the constant and liberal fertilizing that dairying permits, his land is constantly growing towards its highest point of production. He feeds the products of his farm instead of carting them off to the warehouse. He is not simply a producer of raw material, but a manufacturer of a finished product. He is not idle from harvest to seeding, but business is going on winter and summer ever at the "old stand." He is making money, and it means more or better cattle, larger barns and a better home. He is not going without, or going in debt if he buys the improvements that are suggested by progressive farm management, neither is he going without the comforts of home that progressive men want. He is prosperous and lives and runs his business just as prosperous men in other lines live and manage their business. He belongs with those men who succeed in this world by doing with things, not without things. He is a man big enough to see that $100 or $200 for a good sire in his herd is good business. He is broad enough to know that wise expenditure can be economy.

"I believe he is one of the best for agricultural advertisers, because he is a farmer that is looking for the best. He is listening for the argument of quality—that's what he is continually being schooled in. There is no work on the farm that punishes so severely for ignorance or poor judgment, as dairying. Unwise and haphazard breeding ruins the dairy herd; poor feed, or wrong kind of feed, or indifferent feeding, means heavy loss in milk. Carelessness anywhere in handling the product, makes great loss; in fact, everywhere in dairying, the reward of success comes only with the exercise of thorough, intelligent work.

"He is the cash buyer and buys just as cash buyers always do. He is influenced by advertising, first, because being an intelligent man and a close thinker, from a sense of self-protection, he reads only the best papers, whose advertising breeds confidence, not distrust; and, secondly, he is a man that wants the best things and knows that to have his judgment right he must study manufacturers and their goods. He is progressive enough to want to know the best ways, methods and devices. Indeed, he is a man that wants, and advertising always interests such a man.

"The up-to-dateness of these people is, I think, nicely illustrated in the fact that over 50 per cent of the subscribers to HOARD'S DAIRYMAN forward their subscriptions and carry on their correspondence with this office on their own

(Continued on page 603.)



To Clean Carpets.

If you have a carpet that looks dingy and you wish to restore it to its original freshness, make a stiff lather of Ivory Soap and warm water and scrub it, width by width, with the lather. Wipe with a clean damp sponge. Do not apply more water than necessary.

The vegetable oils of which Ivory Soap is made, and its purity, fit it for many special uses for which other soaps are unsafe and unsatisfactory.

SEEDS THE ALBERT DICKINSON CO.
DEALERS IN
GRASS SEEDS, CLOVERS, FLAX SEEDS, LAWN GRASS, BEANS, PEAS, POP CORN, BIRD SEEDS, BUCKWHEAT, BAGS, ETC.
CHICAGO, ILL. BRANCH: MINNEAPOLIS, MINN.

QUALITY ELMCO MARK

ELMCO BRAN

—ANALYSIS:—
Moisture 10.03 Crude Protein 16.71 Ether Extract 4.80
F. W. WOLL, Chemist, University of Wis., Agricultural Experiment Sta

Is guaranteed pure and free from ground screenings or any adulteration. In feeding **ELMCO BRAN** you obtain always satisfactory results. The milk is rich, and butter made from the cream of such milk is not bitter. This is untrue of Bran mixed with ground screenings. It costs a trifle more to get pure Bran, but it pays better in the long run. If you buy **ELMCO BRAN** you buy the best.

Manufactured only by LISTMAN MILL CO.,
La Crosse, Wis.

Hoard's Dairyman

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

W. D. HOARD COMPANY, Publishers.

W. D. HOARD, Editor.

G. W. BURCHARD, Associate Editor.

FRANK W. HOARD, Business Manager.

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Subscriptions in United States, Canada and Mexico $1.00 per year; 6 months 50 cents; 3 months 25 cents.

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All countries in the Postal Union $2.04 a year; not in the Postal Union $2.56. Includes postage.

Correspondents must not expect us to acknowledge the receipt of letters containing remittances for subscriptions. The receipt of the Dairyman is sufficient notification that the money has been received. The label on the paper will show date to which subscription is paid. In case of renewals if date on lable is not changed within two weeks after remittance is sent, inform us at once.

Remit by draft on Chicago or New York, or Post Office orExpress Order (never by personal check), addressing Hoard's Dairyman, Fort Atkinson, Wis.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

Entered at Fort Atkinson, Wisconsin, as second-class matter.

A Grade Jersey Record.

Ed. Hoard's Dairyman:—Enclosed find report of my little dairy for past year. This includes all cows kept on the place except three, one bought and two two-year-olds; neither have finished their year yet.

Nos. 4 and 6 need special mention. No. 6 has given in the past four years 27,167.7 lbs. of milk containing 1,321.53 lbs. fat. Her best year was 1901 when she gave 7810.4 lbs. of milk, containing 401.73 lbs. fat.

No. 4 gave in the same time, 24,105 lbs. of milk containing 1,248.56 lbs. fat. Her best year was also 1901, when she gave 6,900.8 lbs. milk, containing 375.41 lbs. of fat,

Both of these cows are half blood Jerseys. Have been tested from seven to ten times a year, the sample made up each time from six milkings. Following is the record of my herd:

NUMBER.	Age.	Lbs. of milk.	Lbs. of fat.	Cost of feed.
2	4	5926.3	283.45	$31.00
3	4	5631.1	260.39	31.63
4	8	6069.2	315.55	29.36
5	7	5774.7	274.99	28.00
6	7	6803.5	327.03	27.53
7	3	6805.3	324.31	36.10
8	2	4539.6	236.59	27.70
9	3	3622.3	191.07	22.25
10	7	5274.1	273.03	29.00
Average.		5605.12	276.25	

Lbs. of butter at 12% overrun, 2564.77 at 25c. $641.19
Total cost of feed 262.59

$378.62

Average net profit..... $ 42.06

Kankakee, Ill. M. L. S.

Mr. Wheaton's Canadian Dairy Notes.

A New Method of Marketing Dairy Products—The Nova Scotia Travelling Dairy—The Season's Cheese Make—Crop Outlook—Canadian Fairs.

Ed. Hoard's Dairyman:—The members of the Ottawa Dairy Board of Trade have inaugurated a new feature in the marketing and selling of cheese that may not be without interest to the cheese fraternity of Canada.

For sometime the factories represented on the Ottawa Board have objected to selling cheese subject to Montreal inspection. They claim that after the cheese leaves the factories they are at the mercy of the buyer, who can, if he wishes, find some imaginary fault with the quality and put in a claim for a reduction in the price agreed upon before the goods were shipped. One or two instances of this kind are reported this season, and the factorymen at a meeting recently held, adopted a new method by which they will retain control of their output until the cash is paid over.

The plan is this: The factories having cheese for sale, are to ship it into cold storage in Ottawa on the day previous to that upon which the market is held. On market day the cheese will be inspected by the buyers, and when sold, will become the property of the purchaser only when he has paid over to the salesman the full amount of the sale.

This plan has not been working sufficiently long to enable one to judge how it is going to work out. The railways have agreed to an arrangement of rates by which the total freight charges will be little, if any, higher than if shipped direct from the factories to Montreal, and it looks as if the scheme would work out very well. It will depend largely upon the promptness of factorymen in shipping out their cheese and the willingness of the buyers to submit to this new order of things. Should the buyers unite and organize a boycott of the Ottawa market, the factorymen would have no other course than to return to the old way.

This new plan, however, has much to commend it to both buyer and salesmen alike. To have all the cheese in a district brought to one point for inspection, should effect a large saving in the buyers' expense account. In many districts also, the curing rooms are not what they should be, and the quality of the cheese might be very much improved, if put into cold storage a couple of weeks after it is made. Many a well made cheese has been spoiled by being kept too long in some badly ventilated and over-warm curing room. Such conditions could be overcome by factories shipping out regularly every two weeks, to some central cold storage, where the cheese could be kept in good condition until sold.

The factories supplying cheese to the government cool curing rooms had this feature pretty well demonstrated in 1902. So pleased were they with the arrangement that these rooms are filled almost to over-flowing, this year. It is an idea that could be worked out in connection with any cheese market, and might help solve some of the many difficulties connected with the buying and selling of cheese.

Though we have heard little of the old difficulties at the Cheese Boards, this season, there is no good reason for believing that they have not been settled to the satisfaction of all concerned. So long as the market is active and prices are good, things run along comparatively smooth. But let the market take a sudden drop, and some buyer rejects a lot of cheese, that would pass inspection on a rising market, and the trouble begins. This could be remedied by having the cheese brought to a central cold storage on market day, and the money paid over and the transaction closed as soon as the sale is made.

This movement of the Ottawa Dairy Board of Trade should, therefore, commend itself to the favorable consideration of factorymen all over the country. If worked out properly it should save both salesman and buyer much annoyance, and place the buying and selling of cheese, on a more stable basis.

For the past two seasons the Nova Scotia Government has operated a traveling dairy in that province. Miss Laura Rose, instructor in the home dairy at the Ontario Agricultural College has had charge of this work. The work has proven most satisfactory and this season two traveling dairies are in operation, one in charge of Miss Rose, and the other in charge of her sister. Nova Scotia farmers and their wives are thus receiving the best training in the management of the home dairy that Ontario can give. And from what we can learn of the quality of the dairy butter of that province, this instruction is badly needed.

There is room for a large development of the butter industry in that province. There are only 35 creameries and cheese factories in operation, and the total output of the creameries is only about $100,000 worth a year, which is not sufficient to supply the local markets.

The prospects for a large make of cheese and butter the balance of the season in Canada, are bright. Never, perhaps, in the history of Canadian dairying, have the pastures, taking the country as a whole, been better at this season. In Ontario especially, there is abundance of grass and little if any supplementary feed will be needed for some time. In eastern Ontario and extending through Quebec and into the Maritime Provinces, the severe drought of May and early June caused pastures to dry up considerably, forming a serious menace to the milk flow. But copious rains late in June and in July have improved matters wonderfully, and the outlook is most hopeful for a large make.

In Eastern Ontario and some parts of Quebec where the dairy is largely the mainstay of the farmer, a drouth leads to serious consequences. When a farmer cannot secure his usual return from the dairy, and the hogs kept in connection with it, he is in a bad way. The renewal of the pasture, therefore, means much in the districts referred to, and it is to be hoped the supply of succulent feed will continue.

In central and western Ontario, though dairying forms an important part of the farmer's operations in many districts, he follows a more varied system of farming and consequently is not so seriously affected when the grass supply fails.

The general crop outlook for Canada this year is most encouraging, while some localities are a little behind, not for many a year have the prospects for a good average yield been so bright. Especially is this true of Ontario, which will have a banner year. In Quebec and the Maritime Provinces a fair average yield of all cereals is expected. In the west the outlook is encouraging, though reports from Southern Manitoba indicate a big shortage in the wheat yield because of a severe drouth, which is largely local in character. In Western and Northern Manitoba, a good average yield is expected, while the territories will show up much better. The acreage under crop in the west has been largely increased this season, and the total output will probably largely exceed that of last year, which was a banner one.

A difficulty that is hampering farming operations in Ontario very much is the scarcity of farm help. In many sections enough help cannot be secured to do the necessary work of cultivating and cleaning the root crop. Farmers in some districts are reported to be plowing up turnips and similar crops, because they cannot get help to clean and cultivate them. This is rather a serious condition of affairs that will have to be remedied in some way if the best possible results from agricultural pursuits are to be realized.

The big annual fairs for which Canada is so much noted, will soon be here. The Winnipeg fair is under way this week and promises to be a success. At Toronto, will be held, from Aug. 27 to Sept. 13, a Dominion exhibition. For this exhibition, the Dominion government has made a grant of $50,000 to be given in prizes and in equalizing freight rates from the outlying provinces. The outlook at present is that this exhibition will be one of the greatest of its kind ever held on this continent. New buildings have been provided and many new features added. The display of live stock and agricultural products will be exceptionally large and if the people of the United States wish to see gathered at one point the very best thatCanada can produce, they should visit Toronto early in September.

Toronto, Canada. J. W. Wheaton.



GRADE JERSEYS.

Property of M. L. Shuffler, Kankakee, Ill.

University of Wisconsin College of Agriculture.

Ed. Hoard's Dairyman:—The coming term of the Short Course in Agriculture, which begins Monday, November 30th, and closes March 5th, promises to surpass all previous terms in attendance and character of the work outlined. Applications for registration are coming in rapidly; no less than one hundred and fifty are already enrolled in the first and second year classes.

The erection of the new Agricultural building with all modern conveniences and the additional instructional facilities added this year will materially strengthen the work in the Short Course.

Young men desiring to take the course should register in advance, in order to be assured that a place in the classes will be retained for them. Students are accepted in the order of their applications. No entrance examinations required and no tuition charged to residents in Wisconsin.

The new circular, describing the Short Course in Agriculture, is now ready for distribution and can be obtained by sending request to R. A. Moore,
Madison, Wisconsin.

Timothy Seed Wanted.

The Cornell Agricultural Experiment Station desires to secure samples of ripened heads of timothy from as many different sources as possible. It is the purpose of this Experiment Station to enter upon the breeding of timothy on an extended scale. It invites farmers having good fields of timothy to send heads which represent fairly the best of their fields. Freak heads, or heads from plants grown under unusual conditions, are not wanted.

Drop half a dozen heads, more or less, in an envelope, mark thereon plainly the name and address of the sender, and mail to Cornell College of Agriculture, Ithaca, N. Y.

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DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own ight who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

WORLD'S FAIR SCORE CARD FOR BUTTER.

The management of the Dairy Department of the Louisiana Purchase Exposition have adopted the following scale of points for scoring the butter made on the exposition grounds, from the milk of cows entered in the competition for determining the capacity of the different breeds as dairy animals.

Flavor	30
Aroma	15
Grain	25
Color	15
Salt	10
Package	5
Total	100

This is practically the same scale of points which was used at the World's Fair in Chicago and has been used by the different associations where butter has been entered for competition, except that the 45 points heretofore allowed for flavor have been divided, 15 being given to aroma and only 30 to flavor proper.

Although this change was advocated by a good many persons prominent in dairy matters in the different states, it is a question with us whether it would not have been better for comparative purposes to have retained the old scale of points. Aroma and flavor are so closely related in butter that it is difficult, if not impossible, to separate them. In fact, there are those who contend that aroma is all there is to flavor. In other words, it is impossible to have good flavor without there is good aroma; and conversely, it is impossible to have good aroma unless there is also good flavor.

CONCERNING THE NUTRITIVE EFFECT OF SKIM MILK.

Wm. Porter Peck, writing in the *New York Times* on "Bad Food *versus* Longevity," makes this observation:

"If a baby, a puppy or a kitten be fed on milk that has been deprived of its cream it will for a time appear not to thrive, but after a while it will be healthy and vigorous and will continue so until the food is discontinued. Now, on the other hand, if the baby or young animal be fed on cream only, it will die of starvation as certainly, though not so quickly, as if fed nothing at all. If the milk be deprived of half of the normal percentage of any of its most important *mineral* contituents, there will be partial starvation, or a lessening of vitality, which is a condition favorable to the development of disease."

There are two important hints conveyed in the above statement which the dairy farmer should absorb and make use of. They accord thoroughly with our own observations in the feeding of skim milk:

(1) That the mineral and nitrogenous portions of the milk which create the brain, nerves, muscle, hair, skin and bones of the young animal are all contained in the skim milk. The cream contains the fat which produces only heat and stimulates to bodily action.

(2) That one of the most important considerations to be thought of when feeding this skim milk to these young things, is that it shall be pure, free from hurtful germs as much as possible, and that it shall be taken into their stomachs as near as can be at the same temperature and freshness that it comes from the mother.

If farmers would only work more thoroughly towards the last condition they would soon have a very much enlarged idea of the feeding value of skim milk.

WHAT IS THE VALUE OF SKIM MILK?

Three things chiefly govern in answering this question which is constantly being submitted to the DAIRYMAN.

(1) The condition of the skim milk, its freshness, sweetness and purity. We believe that skim milk from a centrifugal farm separator, fed sweet and fresh within an hour after it is separated, night and morning, is worth double in its feeding effect and value, what ordinary skim milk is worth, when separated either by deep setting, open setting, or the common skim milk of the creamery. In this connection it should not be forgotten that an important part of the nutritive value of milk as a food lies in its purity. Freshly separated skim milk is in its best form in this respect, if it is fed in clean vessels.

(2) The second important consideration that governs value, is the *age* and character of the animals it is fed to.

In hog feeding, for instance, it is important to feed skim milk to young pigs rather than old hogs, if the largest profit is expected. A pig weighing 50 to 100 pounds, will make nearly double the profit from skim milk that the same animal will when weighing 150 to 200 lbs. Here comes in also, the question of the kind of animals it is fed to. In our own experience we find the highest profit in feeding our skim milk, freshly separated on the farm, to registered and grade heifer calves. A likely, three-quarter-grade heifer calf at 8 months of age, will have consumed about 4,000 pounds of skim milk. With it should be fed, say 50 cents worth of blood meal, a dollar's worth of oats, and the same value in good hay or pasture. The returns in cash will be found considerably greater than if the milk is fed to pigs of the same value to start with.

(3) Now we come to the most important equation of all—the man who feeds it.

So much depends on the knowledge and understanding of the farmer. Has he made any special study of how to feed skim milk? Does he know that if fed to hogs in conjunction with some other food, say, middlings, corn meal, boiled potatoes, etc., that the value is greatly enhanced? This point was finely illustrated by an experiment made by C. P. Goodrich of this city. He found that a hundred pounds of good skim milk would make five pounds of pork when fed alone. Also that a bushel of shelled corn would make 10 pounds of pork when fed alone. But he found to his surprise that if the skim milk and corn meal were mixed and fed together, the gain from the union was *20 per cent.* Then, besides, there is an understanding of the value of cleanliness of pails and other feeding utensils. This is particularly important with calves. Many a calf has sickened and gone wrong because of the filthy condition of the feeding pail.

All these considerations are important if we get the last full profit out of our skim milk.

In Europe the farmers have a much higher idea of the feeding value of skim milk than is entertained by the farmers of the United States. The Belgian farmers fix the value of this important food at 33 cents per 100 pounds. But this value is attained by the fact that the Belgian farmers are thoroughly well posted in the art of feeding and developing young animals. This is a great consideration. Not long since a very successful dairy farmer said to us:

"The more I study this business of dairying the stronger is my conviction that the key-note to the whole question lies in developing the calf. If a man goes wrong there he is apt to be wrong most everywhere."

There is a world of truth in that statement and it is easy to see what a bearing it has on the profit a man gets from his skim milk.

THE FARM SEPARATOR.

Bro. Monrad, of the New York *Produce Review*, thinks there is danger in the farm seperator idea and says:

"Leaving all theories aside about what *can* be done, the fact remains that by removing the co-operative spirit, the local pride in our creamery, and the stimulating effect of personal contact with an ambitious, well posted butter maker we remove a potent factor in the production of the best butter."

We do not know what evidence, in *fact*, Bro. Monrad may have for his very positive assertion as to the ill effects of farm separators on the spirit of co-operation, but we can say from observation in this, Jefferson county, Wis. for 30 years, that the creamery idea has evils of its own. We have spoken of this before. The evil is that creamery patrons are very apt to lose their sense of personal responsibility. They do not see clearly that the quality and condition of *their* milk is an important factor in the making of good butter at the creamery. The creamery stands between them and the very useful market education that every dairy farmer needs.

We must see clearly the *effect* of our own actions on our fortunes, if we learn well what to do. Let us state facts. In 1874 there were a thousand and more farmers in this county who were making butter in private dairies and shipping it on commission to Chicago and other markets every week. Our local paper published every week a long string of names of these farmers, giving the prices they received for their butter as shown by the account-sales they handed in. The commission merchant was telling the shipper every week of his mistakes, his carelessness, his neglect, all of which told on the price he got for his butter. Every farmer was interested in educating himself to be a first class dairyman. They were anxious to read and study on the art of keeping cows *rightly*, breeding good cows, and the making of fine butter.

But the introduction of the central creamery has changed the mental attitude of hundreds of these farmers. They have grown careless and indifferent. They no longer stand squarely responsible for what they do. The creamery has somehow lowered their standard of personal responsibility, personal education in the acquirement of dairy information. Some of them say this: "What is the use of my taking all this pains with my milk, cows or stables? My neighbors will not do the right thing any way and so we may as well all go together"

There is a less desire to read and keep well posted on dairy matters among these creamery patrons, than there was when they were individual butter makers. To that extent the influence of the creamery has been bad. The creamery owners did not care to go to the bother of trying to keep the patrons up to the mark, as long as they got nothing for it, so far as *they* could see.

Now, the question is, will not the introduction of the Farm Separator System force the patron to see more clearly his own responsibilities? Will it not compel him to note more carefully the effect of his carelessness, and indifference? He has a good deal more to do with the final result than he did before. He is a cream maker now, not a milk maker simply. It will be easier for him to see when the cream is in off conditton than it was with the milk. His failure to do his share of the combined work as it should be done, can be brought home to him more clearly. Under such conditions will he not learn better than before how to co-operate?

THE VALUE OF THE BALANCED RATION.

Taken as they run, probably not one in a hundred of the men in the country who keep cows and call themselves dairy farmers, believe a word in this talk of the balanced ration. They have heard it at conventions and farm institutes, and read it in HOARD'S DAIRYMAN, or some other paper, and in both cases they have turned away from the thought with steadfast skepticism.

What is known as the scientific idea of feeding cows is looked on with contempt by the average dairy farmers, and this state of things will last as long as this generation of "average" farmers live.

But very few of them ever become converted to the truth, as the patient men of science have found it. It is sufficient to prejudice a great many "cow men" at once if you mention the word "science".

But with the on coming boys on the farm, there is some hope. They have no prejudice against the man who has patiently investigated the feeding problem until he has learned something other men don't know and yet ought to know.

For instance, there is the balanced ration idea. It means simply feeding the cow with food of such kinds and balanced in such proportions each, to each, that she will make the most milk for the least cost. Last winter, during the very high prices of all cattle foods, when even timothy hay was selling in the Fort Atkinson market for $17 and $18 a ton, we had a talk down at the hay market with a dairy farmer who keeps 50 cows. He was buying timothy hay at about the same price he could buy bran. We suggested that timothy was not a very good milk food and that bran would balance up the ration a good deal better.

He turned on us suddenly and said: "Hoard, do you know that there are not 25 farmers in this county who believe a blamed word you say on this balanced ration business?" We inquired why they did not believe it? That it was believed and taught by men, for instance like Prof. Henry who had spent more time and real study in studying into the truth of this thing than all the farmers in Jefferson county. Why should they not look into the matter, not stand clear away from it and declare it don't exist. He said he *had* investigated it. "How have you investigated it?" we asked. "Why I have kept and fed cows for 20 years; don't you think I know something about cows and how to feed them?" was his answer. We replied that he had certainly had a good chance to know what he was about, but our faith had been a good deal shaken since we saw him buying timothy hay for nearly the same price he could buy bran for; that did not look as if he had read much or studied much into the relative value of timothy and bran.

Then he cooled down a little and we

asked him to take home a few hundred pounds of bran on his load of hay and try the cows, say for two weeks, one week on timothy, what they would fairly eat, and the next week two-thirds as many pounds of bran a day in place of the timothy. He could then say he had looked into the question, made an experiment, had investigated it as scientific men have to before they can say they know all about it.

He agreed to do it. His report was something like this: "Well I've tried the bran and timothy experiment as you wanted me to and I wouldn't have believed there was the difference between them as you said."

We then asked him if he didn't think it was worth while for a man keeping a dairy of cows to know something of the principles of feeding and the comparative value of feeds, so that he might save himself from buying timothy hay in place of bran? He smiled a faint smile and said he "guessed there was something in it." How many farmers there are who are like him, despising knowledge and the truth and paying twice as much for error.

Plan for Convenient and Substantial Barn Wanted To be Built of Lumber as Cheaply as Possible for 100 Cows. No Basement.

ED. HOARD'S DAIRYMAN:—I would like a plan for barn for 100 cows. We have a milk farm near this city and while we are now milking only 30 cows, I want to build sufficiently large for 100 cows. The building will be wholly on top of ground with no basement. It will be built of lumber and I wish to put it up as cheaply as possible and yet have it convenient and substantial. I want room for considerable fodder in loft. If you have not plans, can you refer me to some one who has a modern barn? I am a subscriber and some time ago saw a plan in the DAIRYMAN, but have misplaced the paper.

Hoping to see your representative here in October at the the Buttermakers' Convention, I am, yours, B. H. Lien.

Sioux Falls, So. Dak.

The futility of ready made plans is pretty well exemplified in the foregoing communication. It will seldom happen that another man will have occasion to build a barn like the one for which a plan is sought as above. A barn to accomomodate one hundred cows is necessarily a large structure, so large that very few farmers need so much room, and most of those who do, instead of asking for a barn that can be cheaply constructed, will be more concerned to find opportunities for expending, rather than saving, money.

We regret that our correspondent did not call for an economoical barn as well as for one convenient and substantial. There is perhaps no greater mistake made by dairymen in constructing barns than a disregard of true economy. In fact, it is a common error to confound economy with withholding expenses Many times, true economy is subserved by increasing expenditure.

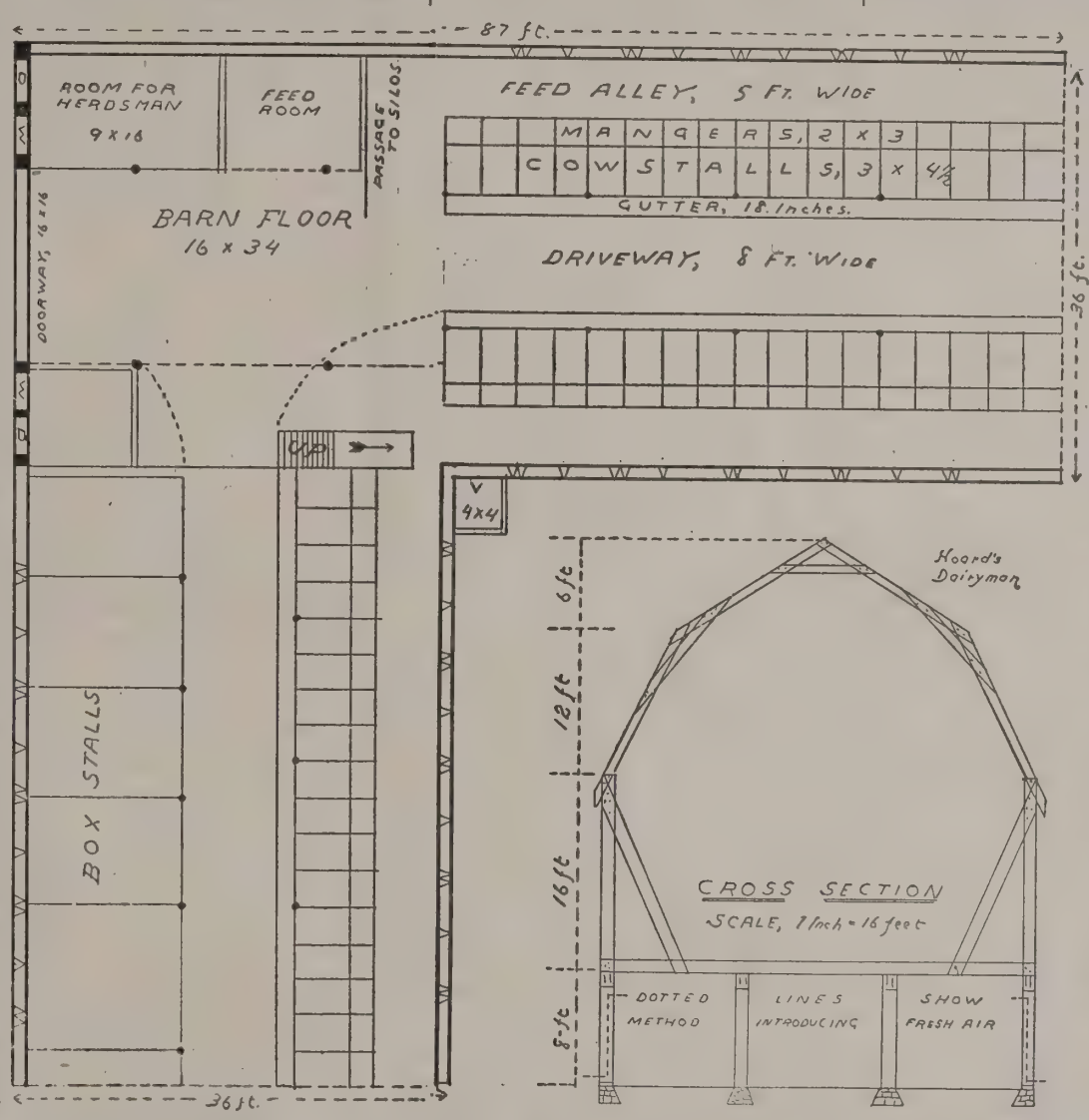
It is always and everywhere economical, in planning for the care of cows, to make their comfort and health the first consideration. In the latitude of Sioux Falls, warmth and ventilation, are indispensable requisites in a stable for dairy cows but warmth and ventilation cannot be secured without the expenditure of more money than would be required to build a mere shell. Therefore, in the plans and suggestions which follow, we have had more regard for true economy than for mere cheapness.

This barn is to be situated on level ground and the whole structure is to be above the surface. Therefore, one of the first questions to be decided is whether a long, steep drive-way and bridge shall be constructed for delivering hay and grain into the second story, or shall provision be made for driving in on a level and elevating the hay and distributing it with the hay fork, operated by power. We have adopted the latter plan in the illustrations which follow.

If possible, this barn should be located so as to face north and west, thus giving opportunity for a yard sheltered from the north and west winds. Thus located, we suggest a driveway in the northwest corner. We have located the doors opening to the west, but if more convenient, the barn floor could be turned quarter round and the doors opened to the north without disturbing the general arrangement.

Not to over-burden our columns, in the sketch submitted, provision is made for only 48 cows, but it is one of the advantages for this style of barn, that the stables may be extended both to the east and to the south to accomodate any number of cows without at all interfering with the general arrangement or convenience.

The plan, as drawn, shows the interior width of the stables to be 34 feet, which allows a feeding alley on either side 5 ft. wide. If it was not contemplated to extend these stables in the future, the width of these alleys might be reduced to 4 ft., but where the length of the stable is to be 100 feet or more, a wider alley will be found enough more convenient to justify the additional expense. The stalls shown



in the plan are 3 feet wide. This affords sufficient room for medium sized cows, but if cows weigh 1,000 pounds or more, stalls should be from 3 to 6 inches wider. No matter what kind of tie or fastening is adopted, there should be partitions so that each cow may have a stall. This not only serves to promote the comfort of the individual cow, but prevents her from stepping upon or injuring her neighbor on either side. As will be seen from the cut, we devote one entire side of one wing to box stalls. This, probably, will appear to most people studying the plan as an unnecessary provision, but in practice, it will be found none too much. In the first place, accomodations must be found for two or more bulls. They should have quarters in proximity to the balance of the herd and not set away in some isolated and dark corner. In a stable for 48 cows, there should be not less than three comfortable box stalls for cows about to freshen, and what room, if any, remains, will be none too much for the young calves.

The cross section of one of these wings, as shown in the illustration, is our suggestion in regard to the construction of this barn, Abundant room for storage of hay and fodder is provided, and it is believed, that the plan suggested, combines the greatest strength and least cost. The first story, or stable part of the structure, is to be built by itself, the same as the walls are built. First construct a low foundation wall just sufficient to bring the timber part of the structure well above the surface of the ground and lay on this for sills, two thicknesses of 2 x 8 plank. On these sills set 2 x 8 studding 16 inches on centers and on top of these, two thicknesses of 2 x 8 to carry the joists for the upper floor. Set posts, as shown on the floor plan, to support the girders running through the center, on either side of the central driveway. Make these girders of 2x 12 lumber securely nailed together, breaking joints. If of full thickness, our judgment is, that three of these plank will afford sufficient strength, as they will make a timber 6 inches wide by 12 in. deep, and carrying strength is more dependent on depth than width of girder. The superstructure may be made of 2 x 6 studding, set like the joists 16 inches on centers, and braced, or rather tied, as shown, every 12 feet, where the studding and joists should be doubled, the tie running between them. Where the rafters join to make the curb roof, a brace is nailed across as shown, and at the top, a collar-beam. This form of roof not only adds greatly to the storage capacity of the structure, but it adds much to its strength. It is in fact largely a self-supporting arch.

Observe that provision is made in the walls of the first story, or stable, for the introduction of fresh air, by having an opening outwardly, at or near the ground, passing up between the studding and opening in the stable at the ceiling. The entire structure should be sheathed on the outside, with boards running diagonally across the studs and connecting and tying the upper story and the lower one. Over this, for the stable, place best quality of building paper, and cover the whole with such form of siding as the owner may prefer. The interior of the stable, both sides and ceiling, should be covered with a good quality of matched flooring, so that practically no air can enter the the stable, except as it comes through the ventilating flues. The location of these flues, as well as of windows, is indicated on the walls of the ground plan, by the letters v and w. The inlets for fresh air should be covered with wire netting on the outside and provided with slides on the inside, so that the amount of air admitted, may be regulated as the occasion demands. Use good sized windows, remembering that it is practically impossible to admit too much light in a stable.

The only remaining feature to which it seems necessary to call especial attention, is the large ventilating flue, or shaft, located in the angle where the wings come together. Make this of the size shown. Make large openings at the bottom, on either side into the stable, and also just under the ceiling, with gates or slides to close or open at will. This shaft should be practically air tight, throughout its entire length, and reach up well above the ridge of the barn to insure a good draft.

With these explanations, it is believed the diagrams published will enable any competent workman to go on with the construction of such a building, and we are confident that when so constructed, it will prove to be convenient, substantial and economical.

Raising Corn Fodder.

ED. HOARD'S DAIRYMAN:—I note in your issue of July 17, an article on raising corn fodder. W. B. J. has about my idea, drawn from about the same experience. In the same issue, page 538, we have another opinion, right to the opposite, from W. B. J. Now what is the new beginner to think, and who is he to follow? Now this is the reason of this article.

Many men after being fairly successful with some crop, rush into print, feeling sure that their way is the only one, when perhaps the next time he tries the same thing, it is a failure. W. J. B. took the intelligent way to find out why his cows rejected the corn butts and was not satisfied, after being repeatedly told by the Experiment Stations, that there was greater feeding value below the ear than above it. From my own experience, I find a stalk of corn can be pretty nearly divided in three parts, the top to the ear, the butt from the ear down, and the ear, then comes palatableness. When we sit down to our own meals, as a rule we leave the most palatable food to the last that we may be induced to take more food.

We should aim to have the cow eat the whole stalk and there is but one way to do that, and that is to have it all alike, and there is but one way to do, that is, to feed when in the right condition or put in the silo in the right condition, and where all are mixed together, according to my experience, one has the cheapest and most palatable milk-producing food obtainable. While in a time of short feed for both horses and cattle W. F. McSparran's method might be profitable, but I would not want to follow his plan except as a catch crop and then expect to get one of little value, but better than a short supply, or none at all.

Now, the real value of our agricultural press to some men, leaves others in doubt, and I have found it best to always go slow. Perhaps what may appear to some farmers to be of value to them, I could see no profit in my situation. I

(Continued on page 592)

Pennsylvania Pickings.

The Cow Trade.

ED. HOARD'S DAIRYMAN:—There is I believe no better large butter market in this country than Philadelphia, and one would think we in the south-eastern part of the state would be the very past masters of all that is good and modern in progressive dairying. But such is not the case. It is easy to be "nearest the church, the farthest from grace."

It is true, we have some fine dairies where we have such a multitude of them. We have some good cows among the thousands we own. We are able to make a living off our farms and herds and as that may be more than many of us think we deserve, our toleration of poor cows and poor methods may be accounted for. We are educated and intelligent, we have schools and churches, and are generally regarded as prosperous. We never get out of work nor the common run of us out of debt. We read—somewhat. The daily paper is in evidence everywhere. We have plenty of magazines and papers of literature, fashion and home-making, but when it comes to reading about our own business of farming, we draw the line at that. We know all the papers say of how the politicians are or are not farming us, but we will not be guilty of reading about our business.

Farming is too old a calling to have to drop into new ways. Of course, once a year, like the first of April, the farmer's institute comes around and we are gravely told after it has gone that seventy per cent of us have attended, and like Oliver Twist asked for more. Strange isn't it?—how inviolate figures maintain their veracity when so many ax-grinders juggle with them!

But cows? we raise very few of the cows with which we are afflicted. I don't know who raised them guess they growed. We kept them constantly moving, by buying and selling. I attended a public sale of an assorted lot of these cows the other day and made some observations. There were some pretty good looking cows in the collection, but cow looks are deceptive, or why were good looking cows being sold? Many of them were poor representatives of a noble family, or families for all families and tribes contributed either to the collection or the individuals.

The best claim many of them had to life was in the calves they mothered for the making of good veal. It is interesting to note how frequently a good calf will sell a poor cow, and indeed when sales are plentiful the one calf often sells a number of poor cows.

At this sale a cow of the Holstein persuasion was brought to the hammer. The seller said, "Now, gentlemen, this is a fine Holstein and a great milker. The man from whom I bought her quit attending the creamery and intended to keep this cow for a family cow, but he found her milk would not make butter—now here's just the cow for you creamery men."

CREAMERIES.

Now, Mr. Editor, you would not think that after all these years of his neglect of us that the creamery shark would float into our midst. Well, that's another of your mistakes, Mr. Editor, for he is here. He has his proposition with him, the fish have bitten and the creamery is being built. His proposition as I can gather it after a diligent search, is, in the rough, that forty-six farmers each put up a hundred dollars and for it he will build, equip and put into operation a creamery outfit that will be a thing of beauty and an everlasting profit, and turn it over to the forty-six farmers aforesaid. It is guaranteed to pay an 8% dividend, 17 cents a hundred for skim milk and "more for butter than they have ever received."

One of the fishes who hadn't quite bitten yet, told me that the guaranty covered 31 cents for butter, also; and inas-much as the market quotation for butter at this time is 23 cents, the bait is attractive enough for almost any fish to bite at.

There are queer ideas abroad about the profits of creameries. They are usually entertained by fellows who are not in them or are only started in. In the DAIRYMAN of July 10, I have read, copied from another paper, a formula for getting a creamery. The usual $4500 was part of it and it was to be run co-operatively. The cost of the creamery and salary paid were not to exceed $4500.

There was no provision, that I found, how long this salary was to be paid out of this sum, but suppose it was till some stock holder who wanted to run things and was not allowed to do so would refuse to play and break up the game. It was promised, however, that if the business were rightly managed, it would pay for the creamery in a few years.

So, therefore, this creamery business must be a prodigiously remunerative one, that the manufacture of the product of 400 cows will pay salary, wages, repairs, taxes, insurance, 6% interest on a $4,500 plant, and in addition pay the entire cost in a few years. Verily, it is no wonder that the festive promoter can go out among the farmers and pull their nether limbs. W. F. MCSPARRAN.

Pa.

Treatment of Fractures in Cattle.

ED. HOARD'S DAIRYMAN:—Broken bones in cattle and horses are generally believed to be incurable, or not worth treatment, and among non-scientific horse owners, it is supposed that a broken bone will not unite, that equine nature is different from all others, and that a fracture will not in reality undergo those physiological processes which in other animals lead to repair.

Cases having come under my own observation lead me to offer a few remarks on the subject of fractures in the animals of the farm, under which description most of the domestic animals are included; and I would rather say animals on the farm, and not the horse doing town work, as the whole conditions are altered, and the fractures that the town practitioners may consider quite hopeless, and recommend immediate slaughter, may, on the farm, and under other conditions be worth treatment which may result in success.

It is with the impression strongly fixed in my mind that a great many animals are slaughtered unnecessarily, that I bring before my readers a subject so old, yet of ever-recurring interest, as there will always be fractures, and the more discriminating owners, will make the least sacrifices and incur only the minimu mof loss.

Twice in one day have heifers with broken limbs come under my observation, and would have been slaughtered, producing but a nominal sum from the butcher, who rarely makes the mistake of over estimating the value of an animal, the owner of which is compelled to sell; indeed, this attitude of the butcher or buyer is one of the reasons why treatment of fractures should be more often attempted in the case of farm stock.

Without entering into the technicalities of the different fractures, or using the language of the schools, I may point to a few situations, and to some kinds of fractures, which may be worth treatment. As previously stated, the conditions under which animals live are so widely different that a case one man might keep

"ADVERTISEMENT."

WAITED 30 YEARS

For the Proper Food.

A man who was a semi-invalid for 30 years got well in about a month when he found the right food. He says: "When I was 19 years of age I had a severe attack of typhoid fever, and after almost starving to death I was left in a pitiable condition.

"My nervous system was so shattered that I had to walk with a cane for six months after I got on my feet and my stomach was terribly distended. This was thirty years ago and since that time I have never known health although I had tried doctor after doctor, until six months ago I saw an article about Grape-Nuts that impressed me so I thought I would try it.

So I gave Grape-Nuts a trial, more as something to eat than with any idea it would help me. My improvement commenced immediately and has kept right up until now. I have used seven packages and I feel like another person. I am in better health than I have been since boyhood and am strong and contented. Grape-Nuts food helped me after everything else failed and I look on this as an evidence of the great power of proper food." Name given by Postum Co., Battle Creek, Mich.

Send to the Co. for particulars by mail of extension of time on the $7,500.00 cooks contest for 735 money prizes.

THE U. S EXCELS ON ANY TEMPERATURE.

Our "would-be competitors" the DeLaval Separator Co., finding themselves badly beaten in the six weeks' tests of six different makes of Separators at the Kansas Agricultural College, as shown by the official Bulletin No. 123 issued May 26, 1903, in their efforts to break the force of so disastrous a defeat, have compiled a Bulletin of their own "getting up" purporting to be signed by several students, in which they try to make it appear that the DeLaval was not terribly beaten, as the Official Bulletin shows it was as follows:

Average test of skimmilk of DeLaval Separator .048
" " " U. S. " .033
U. S. excels DeLaval .015

Showing that the DeLaval Separator left 45 per cent. more butter fat in the skimmed milk than the United States.

Again in this "gotten up" Bulletin, our "would-be competitors" state that the U. S. Separator "choked up" on 39 lbs. of milk at 70 degrees of temperature and that the DeLaval ran 80 lbs. Every dairyman using a U. S. Separator knows that the U. S. will not "choke up" on 80 lbs. of good milk at 70 degrees, and that such statements are made in an attempt to break the rapidly gaining popularity of the

U. S. SEPARATOR.

We make the following proposition to any dairyman wishing to buy a separator, viz.: We will put a U. S. Separator into his dairy and agree that it will not "choke up" on 80 lbs. or twice 80 lbs. of milk in good condition at 70 degrees, provided he will pay for the separator if it does not "choke up."

The best authorities do not advocate separating at 70 degrees, but if Dairymen prefer to, the U. S. will do it when properly adjusted.

The U. S. Separator skims cleaner than any other separator on the market at any temperature from 70 degrees to 156 degrees at proper adjustment. The Official Bulletin No. 123 of Kansas Agricultural College, dated May 26, 1903, states that

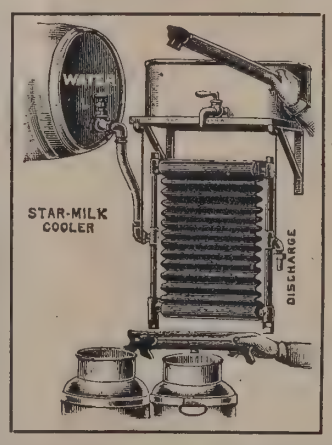
The U. S. Excelled all Others in tests of Skimmed Milk and in Minimum Total Loss.

THE U. S. SEPARATOR HOLDS WORLD'S RECORD.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.

WHEN YOU SEND IN YOUR RENEWAL, SPEAK TO A FEW OF YOUR NEIGHBORS AND HAVE THEM JOIN YOU. CLUB RATES: 2 Subscriptions, $1.50; 3 Subscriptions, $2.00; 4 Subscriptions, $2.50; 5 Subscriptions, $3.00.

Are You in the Market for a Milk Cooler?



If so, why not purchase the Star?

Can be used with water at an elevation, or with water below level of cooler.

Will cool cream as well as milk; can be used with any size or style separator..

Is constructed of copper, tinned on the outside. Will last a lifetime.

There is no agitation required of either water or milk.

Send for Cooler Booklet which will give you the list prices and capacities of our full line of Milk and Cream Coolers.

STAR MILK COOLER CO., Haddonfield, N. J.



High and Low.

High in excellence, low in price;
High in popularity, low in stature;
High in saving powers, low in cost to operate—the

Champion Milk Cooler-Aerator

Get our Booklet about it.

Champion Milk Cooler Co.,
67 Main Street, CORTLAND, N. Y.

and treat successfully would entail a heavy loss on another.

The horse, while having the greatest value, is the worst subject for treatment, and for several reasons. He is not a good patient, he does not remain in a recumbent attitude long enough together, as does the ruminating animal; he does not get up and down on three legs so well as a bullock, sheep or pig; and if the fracture be on a hind extremity the wasting of the abdomen is so great that he becomes a wreck.

Again, owners are not satisfied like surgeons to the humans, to see the patients out again with the assistance of crutches, or a walking stick, nor can he congratulate him on being only a little lame. It is necessary that the horse should be as sound as before the accident and as capable of labor, and here we have a difficulty that does not apply to the ox, pig, sheep, or even dog, since the latter can do a good deal of work on three legs.

In all cases of fracture or dislocation, the services of a veterinary surgeon should be obtained if possible; but in some places these are unattainable, and there are cases where the animal is not of sufficient value to requisition a professional man from a distance of some miles.

It is surprising, in these days of technical education, how very few of the farming class recognize the bones of animals, or have the least idea of their position—such ignorance is now inexcusable.

In offering advice to my readers, it is assumed that they have a general idea of the outlines of anatomy, and know the relative position of the different bones, which will enable them to judge of what bone is broken, and to discriminate between a fracture and a dislocation. It may be taken as a broad rule, that in a fracture there will be elongation of the limb, and in dislocation, shortening of it, while the deformity resulting will depend greatly upon the seat of the injury.

A fractured bone that is well covered with muscle, and having the broken ends in apposition, is a hopeful one. Many simple fractures of the humerus or armbone, and of others of the "long round" class, will unite well enough in the case of animals other than the horse, or in such as are not destined for labor. It will not be worth while to treat a fat or forward in flesh bullock for such an accident, but a youngster or poor "store" of no value to slaughter, will often make a fair beast, if given time. Bones such as the humerus, femur, etc., are not in a position to be benefitted by splints or surgical appliances, but the old fashioned plan of applying either a blister or charge is not without its advantages.

Taking the case of the humerus (shoulder) for instance, the swelling caused by a blister, produces for a time, the equivalent of a pad between the skin and the seat of the fracture, and the additional soreness induces the patient the more quickly to take care of it. Herein, individuals differ greatly. One will from the first exercise the greatest care in getting up and down, while another will be always getting into trouble, and causing fresh injury to retard the process of reunion.

I have said many bones will unite "well enough," by which it should be understood that they will be restored sufficiently to enable the bullock or the pig to feed, or be fatted for the butcher, or the cow or ewe, the sow or favorite bitch to be retained for breeding, although some deformity remains, which is not fatal to the animal's welfare.

If a long bone is broken into a joint, that is to say, in the direction of its length, and not transversely, it may not be worth treatment, as much fever and possibly suppuration of the joint may follow, nor will it be worth while, as a rule, to treat a fracture with wound, where the bone is either shattered into a number of fragments, and is protruding through the skin. There are breakages below the knee and hock, especially among young stock, that are very hopeful, if promptly taken in hand, and the injured limb put into such splints as can be obtained.

Nearly every amateur can be relied on to select splints sufficiently strong, and to make them secure enough, though he have nothing but a hedgerow, or the bark of a tree, from which to choose his appliances, but the fault he commonly commits, and which the trained surgeon avoids, is putting on anything that will cause damage, when the inevitable swelling follows. It is not sufficient that the broken ends of a bone he brought into apposition and the limb supported in its proper position, but the parts should first receive a padding of some compressible material that will minimize the risk of sores, and do away with the necessity of removing the splint too soon.

If the hedge surgeon (no offence meant) has no better material to choose, he may find a coat lining, or spare a sock, with which to build a foundation for his splints. As in the days of muzzle-loading guns, the inside of hats and caps and coats provided many a wad in cases of emergency, and leaves have been resorted to for the same purpose, and so they may be as surgical aids today. W. R. G.

Montreal, Can.

Ropy Milk.

Concerning this trouble which is caused by an outside germ which gets into the milk after it is drawn, Prof. Farrington recommends the following:

The best way to overcome this trouble is to carefully wash the cow's udder and brush her legs, afterwards drying both with a clean towel; then the milker should wash his hands, thoroughly steam the pail into which he milks, and after throwing away the first streams of milk drawn, milk the cow with dry hands into this clean pail. The milk should be protected as carefully as possible from dust and then strained into the cans, in which it is to be transported, or in which it is set for cream rising. The strainer cloth, carrying cans and separator, if one is used, should be given an extra washing and scalding in order to destroy any of these germs, which have been the cause of the ropy milk. There is no doubt that this trouble may be overcome in this way, and the success one has in doing it will depend entirely on how carefully he protects the milk from the germs, which must get into the milk after it is drawn from the cow.

THE LARGEST HAND SEPARATOR CREAMERY WEST OF CHICAGO.

It is asserted that the co-operative creamery at West Salem, Wis., is the largest creamery west of Chicago using farm separators, measuring by the amount of daily, weekly, monthly and yearly output of butter. The following figures are of interest:

In one day it has turned out 5,760 lbs. butter; in two days, 9,760 lbs. From Jan. 1, 1902 to July 1, 1902, 6 months, it made 402,627 lbs. butter. From Jan. 1, 1903 to July 1, 1903, the amount made was 467,905 lbs., a gain over last year of 65,278 lbs. For the month of June, 1903 the output was 113,919 lbs.; the last week in June the make was 25,300 lbs. Nearly every patron uses a farm separator and the cream is gathered in wagons.

"ADVERTISEMENT."

CHANGE

Quit Coffee and Got Well.

A woman's coffee experience is interesting. "For two weeks at a time I have taken no food but skim milk, for solid food would ferment and cause such a pressure of gas and such distress that I could hardly breathe at times, also excrutiating pain and heart palpitation and all the time I was so nervous and restless.

From childhood up I had been a coffee and tea drinker, and for the past 20 years I have been trying different physicians but could only get temporary relief. Then I read an article telling how some one had been cured by leaving off coffee and drinking Postum and it seemed so pleasant just to read about good health I decided to try Postum in place of coffee.

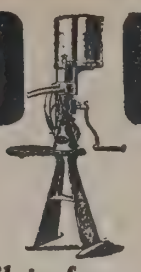
I made the change from coffee to Postum and such a change there is in me that I don't feel like the same person. We all found Postum delicious and like it better than coffee. My health now is wonderfully good.

As soon as I made the shift from coffee to Postum I got better and now all of my troubles are gone. I am fleshy, my food assimilates, the pressure in the chest and palpitation are all gone, my bowels are regular, have no more stomach trouble and my headaches are gone. Remember I did not use medicines at all—just left off coffee and drank Postum steadily." Name given by Postum Co., Battle Creek, Mich.

Send to the Co. for particulars by mail of extension of time on the $7,500.00 cooks contest for 735 money prizes.

Empire Empire

Eight Years — Fifteen Cows



The Empire Way Makes Cows Pay.

1895 1896 1897 1898 1899 1900 1901 1902



How's This for a Record?

Emporia, Kans., Jan. 2nd, 1903.

Empire Cream Separator Co., Bloomfield, N. J.

Dear Sirs: Have used one of your **Empire** Cream Separators for the past eight years, during which time I have been milking at all times from twelve to fifteen cows. The cost for repairs in the eight years has been only seventy-five cents. I have had experience with other separators but consider the **Empire** superior to any other, as it never caused me any bother. It is easy to clean and has proven very durable. It does good work at all times. L. H. VAHSHOLTZ, Rural Route No. 4.

The Empire Cream Separator turns more easily, is more easily cleaned, does better work, and costs less for repairs than any other, because it is the **simplest separator made.** Don't buy a separator until you have investigated the merits of the Empire.

Send for our new book on Making Milch Cows Pay.

Empire Cream Separator Co., Bloomfield, N. J.

Western Office—FISHER BUILDING, CHICAGO.

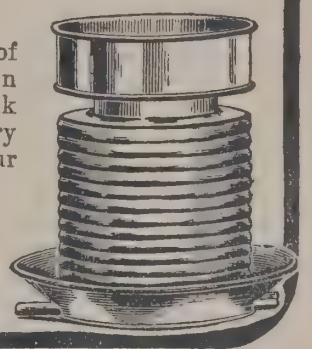
Eight Years — 75 cents for Repairs — Fifteen Cows

Milk Dealers' Supplies

Milk Aerators, Pasteurizers and Coolers
Ice Cream Cans and Tubs
Milk Bottles
Milk Shipping Cans
Milk Bottle Caps



These are but a few of the many things of our own superior make for the milk dealer, dairyman and creamery man. Write at once for our free illustrated catalogue.



STURGES & BURN MFG. CO.
Chicago, Ill., St. Paul, Minn., Kansas City, Mo.



Buhl Factory Cans

represent the same maximum of superiority found in all cans bearing our famous Milk Can Trade Mark. They are made to be the **neatest, cleanest, strongest** and **most wear resisting** cans upon the market. It will pay you to know more about **Buhl Cans. Remember** the Buhl is the only can in the world that is made with the **Buhl "Victor" Can Breast** and the **Buhl "Victor" Round** handle that cannot cut the hands. We shall be pleased to mail you special circulars and other matter, which contain the helpful, money saving information you should have. When you read this you will know why there are more **Buhl Factory Cans** in use than of all other makes combined. Write us direct about cans and we will tell you where you can get them.



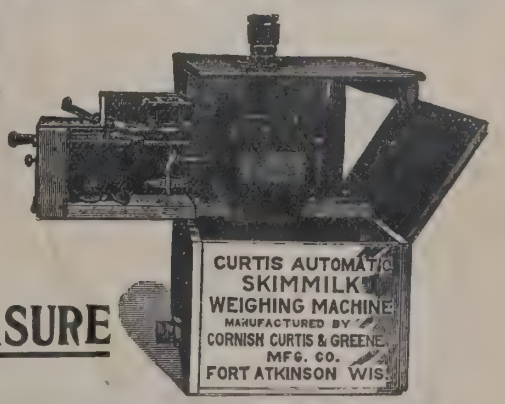
BUHL STAMPING CO.,
212 W. Larned St.,
DETROIT, Mich.

Skim Milk

Often goes to the wrong man for the simple reason that the patrons have no standard of

WEIGHT or MEASURE

and the last man suffers.



☛ **FULL DESCRIPTIVE CIRCULAR FREE.**

Cornish, Curtis & Greene Mfg. Co.,

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for....
DE LAVAL ALPHA SEPARATORS.

Fort Atkinson, Wis.

Raising Corn Fodder.

(Continued from page 589)

would suggest that every man be governed by his own environments and must try for himself to see what is of the most value to him. The year of 1903 is to be one of high cow feed, especially in the eastern states, and the great value of such papers as HOARD'S DAIRYMAN is not half appreciated.

Just think then, how much they are like a dairy separator. They must take the whole milk and give us the cream. Now, if this comes close to skim milk, why chuck it out and give us that that has a higher per cent of fat in it. Just one word more in regard to W. F. McSparran's article. I would like to ask, why should the offices for agriculture in Pennsylvania or any other state be controlled by politics? But such is a fact. But how are we to help it? The word politics sounds dirty to most farmers' ears, and I think it is about as it sounds, and while we are hustling about to secure our crops the politician is doing his work for another term, and the farmer like the under dog, that he is, must put up with the crumbs that fall to him, and be patted on the back by some institute speaker this winter and told what a noble calling his is. How is it when they ask for anything from their legislators? "O, you must wait until another year," or, "I will see what can be done," and next winter the same old institute speaker tells the same old story.

A. D. B.

Auburn, N. Y.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Skim Milk for Poultry.

ED. HOARD'S DAIRYMAN:—Skim milk will yield larger returns if fed to chickens than if fed to hogs. Furthermore chickens are easier to care for and you get quicker returns.

Keep thoroughbred chickens, for they will lay better and bring a better price when taken to market. Keep a strict account with your poultry. If you doubt the above statement about the larger returns, it can be easily proven.

A CHICKEN CRANK.

Milwaukee, Wis.

Whitewash for Barn.

Will you please publish in your paper a good recipe for making whitewash for a dairy barn? I wish to apply whitewash with whitewashing machine.

L. D. W.

Greenwood, Ill.

A good whitewash can be made by slacking ½ bushel of lime in warm water and enough cold water to make it thin enough to spread well. Add to the mixture ½ peck of salt, and stir until dissolved. Strain through fine sieve. This can be put on with a brush or more quickly with a spray pump if the surface is rough. A Vermorel nozzel is often used to spread whitewash, with good results.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—President Newman called the meeting to order as usual, and the minutes of July 27 were read and approved.

The Quotation Committee reported 18½c firm as the official price. No sales nor offerings.

Former Markets.	*Sold.*	*Offical Price.*
July 27, '03	155	18½
" 28, '02	10	20
" 29, '01	0	20
" 30, '00	124	19
" 31, '99	241	17⅛

New York market steady at 19 cents; receipts, 10,373 tubs; output, Elgin district, 798,400 pounds.

H. C. B.

Elgin, Ill., Aug. 1, '03.

DAIRY MARKETS.

ELGIN, Ill., Aug. 3—Butter ruled firm on the Board of Trade to-day, selling at 18¼c a pound. Sales for the week were 798,4 0 lbs.

CHICAGO, Ill., Aug. 3—Butter—Extras, per lb. 18½c; firsts, 16½@17½c; seconds, 14@15½c; dairies, 12½@17c; process butter, 16½c; packing stock, 10@12c; ladles, 14c.

Eggs—prime firsts, at mark, cases included, 16c; miscellaneous receipts, at mark, cases returned, 10@10½c; at mark, cases included, 10½@12½c; fresh gathered extras, 18c.

Cheese—Twins, per lb., 10@10½c; Longhorns, 1.@11½c; Daisies, new, 11@11¾c; Swiss, 11@11½c; Young Americas, new, 11@11¾c; Brick, 9c.

Cattle—All grades of cattle met with a good demand and prices ruled strong to 10c higher, with the advanced mostly on finished steers of all weights Three lots or five loads averaging 1,197 @1,593 lbs. sold at $5.65, being as high as any cattle have sold here in over three montds. Fourteen loads averaging 1,393@1,521 lbs. sold at $5.60, with a good many at $5.35@5.50. Most of the 1,150@1,350 lb. steers sold at $4.80@5.30. Very few beef steers sold below 4.50, with a few as low as 3.70. Distilling steers sold at 5.25@5.40. About 2,500 grass westerns in rather poor flesh sold at 3.75@4 65 for steers and 2.75@3.75 for cows and heifers. Texas steers sold at 3.50@4.10. Native butchers and canning stock steady at last week's decline. Stockers and feeders sold at 2.25@4,25.

Hogs—The general hog market was active and mostly 5c higher than Saturday's closing. Both packers and shippers bought freely, and everything sold from first hands. Receipts about reached expectations, being estimated early at 35,000 and later at 32.000. The quality was better than the close of last week, yet only fair for Monday. The average weight was heavy again, and last week's average was the heaviest since last September, or 242 lbs. Some light sold at 5.70, with best 210 lb. butchers at 5.50 and choice 260 lbs, averages at 5.40. The average cost price for the day was 5.13.

PLYMOUTH Wis., July 28—Cheese—21 factories offered 2,822 boxes, of which 83 Americas were passed on. The balance sold as follows: 432 Longhorns at 11⅜c; 50 Longhorns at 11¼c; 1,138 Daisies at 10¾c; 381 Daisies, 10⅞c; 82 Twins at 10¼c; 151 Twins at 10⅜c; 448 Americas at 11¼c; 57 Americas at 11⅜c. Market active and firm.

MUSCODA, Wis., July 25—Cheese—Sales today were 50 Twins at 10¼c, and 129 at 10½c.

SEYMOUR, Wis., July 28—Cheese—The sales to-day were: 219 Twins at 10½c; 4 at 10c; 65 double Daisies at 10⅜c, and 708 at 10¼c.

BRILLION, Wis., July 23.—Sales today were: 435 Twins at 10¼c, 20 at 10⅜c, 425 Daisies, at 10⅞c 619 at 10¾c, 50 cases Young Americas, at 11c, and 132 Cheddars at 10¼c.

HORTONVILLE, Wis., July 23.—Cheese—The offerings on the call board today were all sold as follows: 49 Cheddars at 10⅜c; and 56 double Daisies at 10½c, and 725 Twins at 10⅜c. Market active. Next meeting will be held Thursday Aug. 6.

SHEBOYGAN FALLS, Wis., July 29—Cheese—Seventeen factories offered 1,763 boxes of cheese on the Call Board today. 35 cases Longhorns were withdrawn; balance sold as follows: 73 cases Young Americas at 11¾c, 533 at 11¼c; 351 Daisies at 10⅞c; 38 at 10¾c; 134 cases Longhorns at 11⅝c; 124 at 11½c; 176 at 11⅜c. Market steady and firm. The eight offerings indicate a large falling off in the flow of milk.

SHEBOYGAN, Wis., July 29—Cheese—The offerings on the Sheboygan Dairy Board to-day were 1,719 boxes, of which 101 were passed. The sales were: 42 Twins at 10¼c; 545 Daisies at 10¾c; 75 Longhorns at 11½c; 45 at 11¼c; 445 at 11⅜c; 181 Young Americas at 11¼c; 277 at 11⅛c. Market was firm.

MANITOWOC, Wis., July 29— Cheese —Sales on the Cheese Board today were: 200 boxes Twins at 10c; 800 Young Americas at 11c; 1,700 Daisies at 10¼c.

MARSHFIELD, Wis., July 24—Cheese—Ten factories offered 735 boxes of cheese and all sold as follows: 447 Twins at 10½c, 235 Daisies at 10⅝c, and 20 double Daisies at 10¼c.

APPLETON, Wis., July 23—Cheese—Eighteen factories offered 1,029 boxes of cheese and all sold as follows: 59 Cheddars at 10½c, 148 at 10⅜c, 172 Twins at 10½c, and 650 at 10⅜c.

Latest quotations for fancy creamery:—New Orleans. 19½c; Baltimore, 19½@20c; Cincinnati, 20½c; Buffalo, 19c; St. Paul, 18c; Minneapolis, 18c; Milwaukee, 18½c.

NEW ORLEANS, La., Aug. 3—Butter—Extras, 19½c; ladles, 15c.

Eggs—16c; fair demand.

NEWARK, N. J., Aug. 3—Butter — Market steady at 19c.

Eggs—19c for extras.

LIVERPOOL, Aug. 3 —Butter—Good United States steady, 75s.

Cheese—American finest, white 45s. 6d; colored, 47s.

CREAMERYMEN, DAIRYMEN and MILK DEALERS

Can be Promptly Furnished with anything they want at reasonable prices, if they will write me. MY CHILDS' PATENT MILK BOTTLE FILLER is the best on the market. Send for free catalog.

J. S. BIESECKER,
59 Murray St., New York City.



It Depends On the Wrapping

whether butter comes sweet to the table. If you would shield yours from the deleterious odors it encounters—you know how quickly butter absorbs odors—and preserve its own delicate flavors, wrap the prints and line boxes and tubs with

Pioneer Brand Parchment Paper.

It's the ideal butter preserver. Pure vegetable parchment, no smell, no taste. Name of brand printed on sheets so it will not discolor, if desired. But there are parchments and so-called parchments. See that yours is the **Pioneer Brand.** Write us for free samples and book, "Better Butter."

The Paterson Parchment Paper Co.,
37 Eighth Street,
Passaic, N. J.

ARMSTRONG & McKELVY	Pittsburgh.
BEYMER-BAUMAN	Pittsburgh.
DAVIS-CHAMBERS	Pittsburgh.
FAHNESTOCK	Pittsburgh.
ANCHOR, ECKSTEIN	Cincinnati.
ATLANTIC, BRADLEY, BROOKLYN, JEWETT, ULSTER, UNION	New York.
SOUTHERN, SHIPMAN	Chicago.
COLLIER, MISSOURI, RED SEAL, SOUTHERN	St. Louis.
JOHN T. LEWIS & BROS CO	Philadelphia.
MORLEY	Cleveland.
SALEM	Salem, Mass.
CORNELL	Buffalo.
KENTUCKY	Louisville.

CONSIDERING the cost of labor, of applying it, and its great covering capacity, Pure White Lead is not only the cheapest Paint in the first cost, but because of its extreme durability is by far the cheapest in the end.

Furthermore, no scraping or burning will be required when repainting becomes necessary.

If interested in paint or painting, address,

National Lead Co., 100 William Street, New York.

SAVES ITS COST ON THE FIRST CROP.



It spreads all kinds of manure, lime, salt, ashes, compost, etc., either broadcast or in rows. Does it better than it can possibly be done by hand.

Do you know of any other piece of machinery for use on the farm of which this can be truly said?

The Improved **Kemp Manure Spreader**

not only makes easy work of getting out the manure, but by the way in which it breaks it up and makes it fine, it more than trebles the value of the same. It will break up and spread evenly, manure that cannot be handled with a fork. It doesn't matter how hard, lumpy, caked, strawy, or stalky the manure is, this machine will spread it. It makes fine, well rotted manure go a long ways in top dressing wheat in the spring, meadow lands, pasture, etc. Being mounted on broad faced wheels, it can be handled on any kind of ground without serious cutting in or rutting. Can spread back and forth, as front wheels turn entirely under. Can be turned on the ground it stands on. 1903 machine has our new **Beater-Freeing Device, Apron-Returning Device** and numerous other improvements. Send for latest catalogue (free) and read about these and other advantages and also about **"How to Grow Big Crops."** Remember that the only original and genuine Kemp Manure Spreader is made by us and the patents thereon have been fully sustained by a recent decision of the U. S. Circuit Court. **KEMP & BURPEE MFG. CO., BOX 46, SYRACUSE, N. Y.**



ROBBER COWS.

Some cows rob the owner of the feed they eat, and of the profit of the rest of the herd. They have little or no butter fat in their milk. Find them out and send them to the block.

THE **"Sweepstakes"** **Babcock Milk Tester**

Will do it. Runs on ball bearings, 2 and 4-Bottle sizes with necessary glassware. Strong, convenient.

WRITE FOR CIRCULAR AND PRICES.

We handle everything in the Dairy and Creamery line..

Creamery Package Manufacturing Co.,
1, 3 and 5 W. Washington St., Chicago.
BRANCHES: Kansas City, Mo.; Minneapolis, Minn.; Waterloo, Iowa; Omaha, Neb. St. Louis, Mo. and Cowansville, Quebec.



We want every dealer in and user of **MILK BOTTLE CAPS** to receive our catalogue. We can supply your wants at prices that are right. Write us.

BAVIER NOVELTY CO., WINDSOR, CONN.

Creasey Ice Breakers



Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right. Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.

J. S. L. WHARTON, Mfr.,
17th Clearfield Sts. Philadelphia, Pa.

ST. LOUIS, Aug. 3.—Butter—Quiet; creamery, 14@19¼c; dairy, 13@16c.
Eggs—Higher, 15c loss off.

KANSAS CITY, Aug. 3.—Eggs—firm; Missouri and Kansas, cases returned, 11½c doz.; New No. 2. white wood cases included, 12c.
Butter—Creamery, 15@17c; dairy, 15c.

PHILADELPHIA, Pa., Aug.3 —Butter—Market steady, fair demand; extra creamery,19¾c; nearby prints,22c. Eggs—Fresh western firm,good demand fresh nearby, 18½c, loss off; western, 18½c; southwestern. 16@17; southern, 15¼@16c.

Cheese—Steady, fair demand; New York full ceeams, choice new, 10¼@10½c; fair to good new, 9½@10c.

BOSTON, Mass., Aug 3—Butter—Creamery, western,extra, 19½@20c; western firsts, 18@18½c; dairy,15@18½c; imitation creamery, 15@15½c; ladle, 14½@15c; box and print, 15@20½c.
Cheese—Choice, 9½@10¾c; Wisconsin Twins, 9½@10¼c.
Eggs—Nearby, 26@27c; western selected, 17@17½c; fair to good, 14c; Illinois,15@17c.

NEW YORK, Aug. 3—Creamery extra, 19c; state dairy tubs extras, not quoted; firsts, 16½@17c.
Cheese—Market a shade firmer on fancy small sizes, but otherwise remains unchanged. Sate full cream small fancy, 10⅜c; dy large colored fancy, 10c.
Eggs—Market firm for all grades, but values still irregular owing to wide range of quality. Near by fancy selected white 22c; western extras, 19c.

UTICA, N. Y., July 29—The sales today were as follows: Eighty-four lots, 6,941 boxes.
Ruling on large and general, 9¼c; ruling on small, 9½c. Butter 24 pks. at 20½c, 33 at 21c, 700 1-lb. prints at 22c. Cnrb sales 1,000 large at 9⅝c, 1,400 small at 9¾@9⅞c.

CANTON, N. Y., Aug. 3 —Cheese — Offered 2,369 boxes of cheese and 1,325 tubs of butter. Cheese sold at 9⅝c; butter at 19⅝c.

WATERTOWN, N. Y., Aug. 3—Cheese—Sales 7,000; 9¾@9¾c for large white; 9½@9¾c for large colored; 9¾@10c for small Singles and Twins.

BALTIMORE MARKET.

BALTIMORE, Md., July 30—Butter—While the general receipts continue liberal there is no increase in the receipts of extra creamery, but on the contrary the receipts of this grade are gradually growing lighter. Now that the prices have been hammered down to bed rock, there has been a very good demand prevailing so far this week both from speculators and the local jobbers. Hence, all attractive offerings have met ready sale. Stock that will grade strictly first has also been in good request, while the under grades are accumulating quite rapidly. Imitations—The supply is quite equal the demand, which is confined exclusively to fancy marks. Ladles—While in rather moderate receipt the supply is sufficient for the requirements. Packing Stock continues in ample supply. The demand is principally for fresh, sweet stock; defective stock is dull sale. Blocks and Prints are in quite liberal receipt; there is a wide range in values. The market at the close rules quite active and steady to firm on all desirable offerings, while off grades are dull and values uncertain.
Creamery Separator,extras,19½@20c;firsts,18½@19c;seconds, 16@17c. Imitation Creamery, extras, 18c; firsts, 17@17½c; seconds, 14@16c. Iowa & N. W. Ladle, extras, 16½c; firsts, 15½@16c; seconds 14c; Ohio & Indiana Ladle,extras, 16c; firsts,15@15¼c; seconds 13@14c. Creamery blocks (2-lb.)extras, 21c; firsts, 19@20c; seconds, 17@19c;Creamery prints(½ lb) extras,21½@22c;firsts, 20@21c;seconds,17@18c. Md. Va., & Penna. Prints, extras, 20c;firsts, 18@19c; seconds, 15@18c: renovated extras, 18@19c: firsts, 16@17c. secons, 15c.
Eggs—The receipts of strictly fresh full-bodied eggs have continued very light, and for this quality there is a quick demand at outside prices. While on the other hand a large proportion of our supply has been coming from central and southwestern sections and are showing more or less effects of the hot weather that has prevailed throughout those sections. The market at the close today rules firm on all choice to fancy offerings at 17½ cents. Be sure to grade and candle closely before shipping your eggs.
Cheese—The receipts are ample; demand irregular; market quiet, but very firm. Swiss—Our quotation are for new stock.
N. Y. State—Cheddars, fine, 10¾@11c ; choice, 10¼@10½c; fair, 9@9½c, Flats, fine, 10¾@11c; choice, 10¼@10½c; fair, 9@9½c; Small, fine, 11@11¼c; choice, 10½@10¾c: fair, 9¾@10c; Ohio Flats, fine, 9¾@10c; choice, 9@9¼c; fair, 8¾@8¾c;O. Picnic, fine,10@10¼c; choice, 9¼@9¾c; fair, 8½@9c; Skims,fine,6½@7;choice, 6@6¼c; fair 4½@5½c; Swiss Cheese, (domestic) new. fine, 13@13½c; choice, 11@12c; fair, 9@10c.
G. M. LAMB & BROS.
301 Exchange Place.

NEW YORK FERTILIZER MARKET.

Acid phosphate	60	@	67½
Phosphate rock, f. o. b. Char'n	5 00	@	7 00
Tenn	3 00	@	4 00
Bones, rough ℔ ton	16 50	@	17 50
ground	19 00	@	20 00
Bone meal	19		
Bone black, refuse	18 00	@	19 00
Potash, dbl. m're salt 48@53 per cent	1 12	@	1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons	25 00	@	30 00
sulph of basis, 90@98 per cent	2 11	@	2 18
90@98 per cent less than 25 tons	38 00	@	40 00
Potash muriate ℔ 100 lbs	1 83	@	1 95
less than 25 tons	36 00	@	40 00
Kainit 25% S. of P. ℔ ton	9 30	@	9 50
less than 25 tons	9 50	@	10 50
Sylvinit, 35@37% P. ℔ unit	41	@	46
Nitrate of soda	2 05	@	2 10
Blood, Dried red ℔ unit	2 55	@	2 60
low grade	—	@	—
Concentrated tankage	15 00	@	16 00
Fish guano, dried	25 00	@	25 25
acidulated	23 00	@	23 50

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—One 30 inch French burr geared feed mill in best running order; also one Western Mill corn sheller, capacity from 5 to 75 bushels per hour, nearly new. Reason for selling, too large for this place. JOHN ZIEGLEY, Valley, Wis. 26-tf

Two choice young Guernsey bulls for sale. MRS. A. W. LEHMANN, Neosha, Dodge Co., Wis. 12-sp

Wanted—An experienced man competent to take entire charge of poultry and Collie departments upon a large stock farm. Splendid opportunity to grow into a permanent, responsible and remunerative position; state age, experience, references and salary expected. Address "STOCK FARM," care Hoard's Dairyman, Fort Atkinson, Wis. 26-2

Creamery For Sale—In section where the field for milk is good. Has from 8 to 10 thousand daily patronage. Plenty of power, good water, good machinery, two Springer separators. Will be sold for $1,600.00. A splendid opportunity for a good man. For further information address C. F. SWEET, Greenfield, Pa.

Young Man, for past 11½ years with the De Laval Separator Works, and quite competent of maintaining and repairing all styles of Alpha machines, is open for engagenents. PETERSON, Oak St., Poughkeepsie, N. Y.

Wanted—To rent with privilege of buying, a farm with established retail milk route within short distance of thriving town. JOHN F. FENTON, Fox Chase, Pa. 26-sp

Wanted—A man to take second place in butter factory. Must be steady and plain with figures. Address RINGWOOD BUTTER CO., Ringwood, Illinois. 26-4

For Rent—On or about Sept. 1, a dairy farm of 140 acres, located in southern Michigan, adjoining one of the most prosperous towns in State. Keep from 25 to 35 cows; milk sold from my wagon at wholesale and retail. A beautiful dwelling house of 12 rooms, basement barn 40×80, also other buildings, and a silo with a capacity of 100 tons. Will rent this farm to a responsible man either for cash or on shares. Address DAIRY FARM, care Hoard's Dairyman. 26 2

Wanted—An experienced butter maker to buy one-fourth or one-half interest in creamery and run the same in good location. Address T. G. FISHER, 48 W. 2d St., Fond du Lac, Wis. 26-3

Wanted—To correspond with a competent cheese maker. H. P. SHERWIN, Dixon, Mo.

Holstein Bull Calves—One thoroughbred, four high grade, 3 to 5 months old, all handsome, healthy, fine growers, the produce of my carefully selected dairy herd. For sale at reasonable prices. H. N. HILLS, Harcourt Farms, Gambier, Oh. 26-2

Wanted—A man who tharoughly understands the handling of dairy cows and the making of first class butter. Married man preferred who has help to milk. Address JOHN M. PARKER, Echo, Mont.

For Sale—Large English Berkshire boars of choicest breeding. JERRY VOSBURG, Neenah, Wis. R. F. D. No. 9. 26-4

For Sale—Holstein bull 3 years. His dam, Zanca De Kol A. R. O. 23½ lbs. She by De Kol 2d's Paul De Kol. Sire, Pauline Paul 2d's Count, grandson of Pauline Paul. Price $100.00. Also a few choice young cows and bull calves sired by him at overstocked prices. Address E. S. ROBINSON, Forestville, N. Y, R. D. No. 6.

For Sale—960 acres of land in the best dairy county of the great dairy state of South Dakota. 640 acres under fence. Good buildings, inexhaustable supply of pure water. $15.00 per acre. Would sell stocked or partly stocked with good grade Short horn cattle if desired. WELLS F. PIDGE owner. No agents. Highmore, Hyde Co., S. D.

Herdsman Wanted on 50 Cow Dairy—Good milker, unmarried, steady and to understand calf and hog feeding. IVAR JOHNSON, Fremont, Neb. 26 3

Herdsman Wanted—Single man not under 30 years of age, with several years experience; one acquainted with rearing and caring for Holsteins. References required. State wages required including reference. Steady place for right party. Address D, care Hoard's Dairyman. 25-tf

Angelus Herd Guernseys—For Sale—Bull Calf, superior breeding; price $50.00. Address MARCH, 39th & Western, Los Angeles, Cal. 23-tf

For Sale—Dairy Farm, 576 acres, about 75 head well bred Jersey cows and heifers, herd in good condition, 1 mile from growing town of five thousand, dairy well established and paying handsomely. Chronic illness requires sale, though sacrificed. Great bargain. Write for particulars. MRS. M. R. CARTER, Gainesville, Florida. 23-4.

Herdsman Wanted—One familiar with care and feeding of Holstein-Friesians. Good references and experience required. Address F. W. ALLIS, Monona Farm, Madison, Wis. 23-4

Macon County, Missouri Farm For Sale.—80 acres good land, well fenced, plenty small fruits; two-story 8-room frame residence, front and rear stairs, large halls, cellar 16x32; barn 42x60 with 12x60 leanto. All in meadow and pasture. Residence within 100 yards of depot just outside corporate limits town of 600, 4 miles of coal mines two thousand miners. Place to start a creamery. Six are shipping cream 75 miles away. Price $75.00 per acre, one-third down balance 5%. Write for particulars. CHAS. H. MARMADUKE, Callao, Mo. 22-4

Stock and Dairy Farm For Sale—¼ mile from city limits. 171 acres with milk route and telephone connections. Will sell with or without stock and personal property. For full particulars address THEO. GLOECKLER, Portage, Wis. 24-tf

Are You Looking For Land?—We have it to sell; thousands of acres of fine land around Crandon, Wis., Forest Co. Hardwood land from which the saw-logs have been cut, but there are still many dollars' worth of good wood, bolts, pulp wood, etc., on every acre which goes with the land. Close to fine growing town, county seat. Good water, clay soil and near railroad. Prices and terms reasonable. Write me for maps and circular. Address L. T. CRABTREE, Crandon, Wis., Forest Co. 24-4

200 Acre Dairy Farm For Sale—1½ miles from town. 140 acres plowed. Good house, fair out-buildings, wind mill and tank, small fruit, lots of grass. Price $5,000; $3.000 cash, balance 4 years 6%. Also 25 milch cows on shares to buyer with separator. E. E. GOOD, Babcock, Wis. 24-4

For Sale—7 Scotch Collie pups; one 3 months, light Sable, some white, worth $10.00 each, will sell for $5.00. Holstein bull calves, one 8 months old, dam has A. R. O. of 475 lbs. milk and 19 lbs. 14 oz. butter in 7 days, $60 00 takes him. HENRY WALSH, Sheboygan Falls, Wis. 24-4

Choice Guernsey Bull Calves For Sale—or will exchange for one of equal breeding. E. M. FITZMAURICE, Berlin, Wis. 25-2

For Sale—A fine St. Lambert Bull Calf, choice breeding. J. G. HALDEMAN ESTATE, Thompsontown, Pa.

For Sale—Cheese factory in Northern Wis., 5,000 lbs. of milk in best of season, at a bargain if taken at once. Address G. R., care Hoard's Dairyman. 24-3.

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 1901

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DE LAVAL

Is Not the Only

CREAM SEPARATOR

but it is the only PERFECT SEPARATOR and its many Patent-Protected INVENTIONS AND IMPROVEMENTS render it easily

IN A CLASS BY ITSELF.

As much better than OTHER CREAM SEPARATORS as the best of them are better than GRAVITY SKIMMING SYSTEMS.

A DE LAVAL Catalogue—with a world of Separator information—is to be had for the asking.

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GENERAL OFFICES:
74 Cortlandt St., NEW YORK.

121 Youville Square, MONTREAL.
75 & 77 York Street, TORONTO.
248 McDermot Avenue, WINNIPEG.

A Registered Guernsey Bull 15 months old for sale. A very fine animal. Inquire of J. S. HUNTER, Pickett, Wis. 12-tf

Fine Dairy Farm for Sale—Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence. cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. T. S. TOMPKINS, Pasadena, Cal. 15-tf

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

Buff Jersey's latest book on Farm Stock and Dairy Work is full of practical things for practical people. The Silo, how to build and fill; ensilage, its value; soil, crops, variety and how to grow. Swine, poultry and many other subjects ably treated. Send 25c for copy. Monmouth, Ill. 47-tf

For Sale—My stock of groceries, flour, feed, salt and coal, with buildings and fixtures, boiler and engine. 4000 lbs. milk received daily. Home market for cheese; get 2½c per lb. for making; run the year around. No better place to make money to be found. Also my two story dwelling house, seven rooms, good cellar bricked and cemented sides and floor, three lots, nice lawn, large maple shade trees. Nice young orchard, apples, cherries, plums and peaches, besides other small fruit. Poor health only cause for selling. $6,000 buys it all, $4,000 down, one year's time on balance. On Iowa Central Ry. No drayage. Give possession any time to suit purchaser. No incumbrance. A. C. PAYNE, Jacobs, Iowa. 25-2

A First-class Creameryman wants an offer from either co-operative or private creamery in western Pa. or Ohio. 7 yrs. with stock and 7 yrs. at creamery work and butter making. Best of references. WM. H. APPLETON, Atlanta, Ga., care of Hoyt's Dairy. 25-2,

For Sale—At greatly reduced prices, several Empire Separators. Several sizes, some brand new, others slightly shop worn. Write at once. LOCK BOX "A", Council Grove, Kansas. 25-2

Farm Foreman and Manager position is desired by one 39 years of age and 20 years experience with Holsteins and Guernseys. Thoroughly familiar with modern dairying, soiling, breeding, as well as exhibiting and selling pure bred stock. References furnished. Address W. A. R., care Hoard's Dairyman. 25-6

Sale of Guernseys—Send for circular. Excellent bulls and bull calves at low prices. Clover Knoll Herd, M. SAGER, Mgr., Orangeville, Pa. 25-4

For Sale—A second hand, self-feeding, 16 inch Smalley Ensilage Cutter in good order, together with 56 feet of carrier, 18 feet of which was new last year Also a three horse Smalley Tread Power in good condition. The above will be sold cheap to make place for larger machinery. W. D. HOARD, Fort Atkinson, Wis. 20-tf.

We Have Them—You Want them. A few choice pure bred Guernsey bulls and grade heifers. A. H. HINMAN, Allenville, Wis. 26-4

Wanted—A thoroughly experienced veterinary to take charge of stock in the different departments upon a large stock farm; permanent position to the right man; state age, experience, references, salary expected. Address VETERINARY, care of Hoard's Dairyman, Fort Atkinson, Wis. 26-2

Very Low Rates to California and Return—Via the Chicago & North-Western R'y August 1 to 14, to Los Angeles and San Francisco, with final return until October 15, inclusive, account National Encampment G. A. R. Three trains a day from Chicago to the Coast through without change. Daily and personally conducted tourist car excursions. Special G. A. R. train will leave Chicago 10:30 p. m., Tuesday, Aug. 11; DeKalb, 12:10 a. m., Wednesday, Aug. 12; Clinton, 3:50 a. m.; Cedar Rapids, 6:20 a. m.; Marshalltown, 8:25 a. m.; Boone, 10:30 a. m; arriving at Omaha, 2:00 p. m., leaving Omaha 3:30 p. m., and running via Denver, Colorado Springs, Pueblo and Salt Lake City. For itinerary, illustrated folder and full particulars, apply to Agents Chicago & North-Western R'y. 23-5

Special Excursion Rates—The North-Western Line will sell low rate round-trip tickets to Fond du Lac and intermediate stations, good every Sunday until Sept. 27, 1903. Apply to agents Chicago & North-Western R'y. 21-7

Special Excursion Rates—The North-Western Line will sell low rate round trip tickets to Lancaster and intermediate sections, good every Sunday until Sept. 27, 1903. Apply to agents Chicago & North-Western R'y. 23-5

Special Excursion Rates to Colorado, Utah and the Black Hills—Via the North-Western Line. Beginning June 1st excursion tickets will be sold to Denver, Colorado Springs, Pueblo, Salt Lake City, Hot Springs, Deadwood, Lead and Custer, S. D., etc., good to return until Oct. 31. A splendid opportunity is offered for an enjoyable vacation trip. Several fine trains via the North-Western Line daily. Apply to agents Chicago & North-Western R'y. 16-sp

Devil's Lake, the Famous Summer Resort—Excellent hotels, good boating, fishing and bathing, ample train service and special low summer rates via the Chicago & North-Western R'y to this admirable summer resort. A delightful place to spend your mid-summer vacation. Write for printed matter to W. B. Kniskern, Passenger Traffic Manager, Chicago. For rates. tickets, etc., apply to agents Chicago & North Western R'y. 26-3

Very Low Rates to California, Oregon, Washington and Return—Via the Chicago & North-Western R'y August 1 to 14, with final return until October 15, inclusive, account National Encampment G. A. R., at San Francisco and Trans-Mississippi Commercial Congress, Seattle. Three trains a day from Chicago to the Coast through without change. Daily and personally conducted tourist car excursions. Special G. A. R. train will leave Chicago 10:30 p. m., Tuesday, Aug. 11; DeKalb, 12:05 a. m., Wednesday, Aug. 12; Clinton, 2:15 a. m.; Cedar Rapids, 4:25 a. m.; Belle Plaine, 5;13 a. m.; Tama, 5:37 a. m.; Marshalltown, 6:04 a. m.:Ames, 7:05 a. m.; Boone, 8:30 a. m.; arriving Omaha, 2:00 p. m., leaving Omaha 3:30 p. m. and running via Denver, Colorado Springs, Pueblo and Salt Lake City. For itinerary, illustrated folder and full particulars, apply to agents Chicago & North-Western R'y.

Meadow Fescue.

[Press Bulletin.]

Meadow fescue, *Festuca elatior pratensis*, usually known by the name of "English blue-grass" in Kansas, was introduced from Europe, but is now widely cultivated in the United States, and has become thoroughly naturalized, being found wild in some localities on the roadsides and in pastures and meadows. There seems to be no good reason for calling it "English blue-grass," other than that the grass is grown largely in England as a meadow and pasture grass, supplying, perhaps, in a measure in that country the use which the Kentucky blue-grass has in the United States. Meadow fescue is a tufted grass, more spreading in habit than orchard-grass, but not so rank and rapid a grower. It attains its best development the second or third year after sowing. In some of its features it resembles Kentucky blue-grass, the leaves have a bluish tint and the stems are rather stiff and wiry, but the panicle or head is narrower or less open than that of the blue-grass. It flowers later than the blue-grass, but the blades start early in spring. The quantity of foliage is not great but the grass is rich in nutritive matter, and well liked by stock, both as pasture and hay. It has generally been considered better for hay than for pasture because of its habit of growing in tufts, but in Kansas, in the localities where it is most successfully grown, it is considered an excellent pasture grass. Quoting from a Kansas grower, J. S. Gilmore, Fredonia, Kan., in the Twelfth Biennial Report of the Kansas State Board of Agriculture: "It furnishes more pasturage than any other of the tame grasses (not including alfalfa), comes early and lasts almost as late as any, and cattle thrive on it; it stands extreme cold and dry weather well, it restores and improves the soil, and does not require, like most tame grasses, the best land on the farm for a start and prosperous growth."

Meadow fescue is grown successfully in the area south of the Kansas river and extending westward from the Missouri line about a hundred miles. "The grass has been grown at this Station (120 miles west of the Missouri line) since 1879." It winter-killed in the winter of 1885-86 and apparently has suffered more than orchard grass from drouth. As a pasture grass orchard-grass has stood better than meadow fescue at this Station and furnishes more and better pasture. When cut for hay, yields of one to one and one-half tons per acre have been secured.

"Meadow fescue thrives best on the richest and heaviest soils, although it is grown principally on the slopes and uplands." In eastern Kansas it will do well on any land which will produce profitable corn crops.

In Kansas the grass is grown chiefly for its seed. Kansas is said to produce 75 per cent of the seed crop of the United States. Johnson county leads in the production of seed. The seed finds a ready sale in the European countries, where it is sown for meadow and pasture. The price is regulated by the supply and the foreign demand and has ranged from two to eight cents per pound. The largest seed crop produced in Kansas was harvested in 1896, and was estimated at 3,360,000 pounds. The yields of seed for the first three or four years after seeding average 6 to 12 bushels per acre (24 lbs. per bushel) although yields of 15 to 20 bushels per acre have been reported. In from three to five years the grass makes a less vigorous growth and the yield of seed decreases. The practice is to break the sod at the end of the fourth year and rotate with corn and other crops for a few years before seeding down again.

PREPARING THE SEED-BED.

It pays to carefully prepare the seed-bed in sowing any kind of grass seed, and the following suggestions will apply to alfalfa and other grasses as well as meadow fescue. The ground should be plowed several weeks or months before seeding time, and cultivated at intervals to clear it of weeds, conserve the soil moisture and put the soil in the best possible condition to sprout the seed and start the young plants. The seed-bed should be finished with a level, mellow surface, but with a rather compact subsurface, in order that the seed may be evenly covered and come in close contact with the moist soil. The seed should not be covered more than an inch to an inch and a half deep.

It is possible to prepare an excellent seed bed without plowing. Wheat or oat stubble disked soon after harvest and disked and harrowed at intervals until September 1 makes a good seed bed for fall sowing. For spring sowing, corn or kafir corn ground prepared by double disking and leveled with a float or harrow is usually preferable to spring plowing.

If it is necessary to plow just before seeding, the ground should be firmed by the use of the subsurface packer, float or roller. The disk harrow may be made to do the work of the subsurface packer in part by setting the disks rather straight and weighing the harrow.

SEEDING.

"The quantity of seed recommended to plant per acre varies from a peck to three pecks, when prodncing seed is the main object, and from one bushel to three bushels when pasturing alone is sought." On a well prepared seed bed in a favorable season, a practical method is to sow broadcast and to harrow once lightly to cover the seed. Many favor drilling, and this is perhaps the surer method of getting a good catch in the average season. The danger in planting with the drill is in getting the seed too deep, but if the ground is level and not loosened too deeply, the depth of seeding can be properly regulated.

Many practice fall seeding with good success, but it is not advisable to seed in the fall unless there is sufficient moisture in the soil to sprout the seed at once and insure the early growth of the young plants. A good catch of grass is more apt to be secured by the average farmer in the average season from early spring seeding, because the natural conditions are favorable for the germination of the seed. On the other hand, "a fall start brings a seed crop a year sooner and the grass gets dominant in advance of the weeds." There is slight danger of winter-killing if the grass starts well and the seed bed was prepared with a moderately firm subsurface. With a deep, loose seed bed, freezing and heaving out is much more apt to occur. Plant good, clean seed. The best seed is the cheapest to buy.

HARVESTING.

Meadow fescue should be cut for hay soon after the blooms fall. It is ready to cut for seed as soon as the heads turn brown, before the seed begins to shatter. This occurs right after wheat harvest. The usual method is to harvest with a self-binder and shock the same as wheat

Sleeplessness

Is akin to insanity. Many a woman realizes this as she lies awake hour by hour, peopling the darkness with phantoms, starting at the creaking of the bed or the rustle of the bedclothes.



Such symptoms in general point to disease of the delicate womanly organs, and a constant drain of the vital and nervous forces. This condition cannot be overcome by sleeping powders. The diseased condition must be cured before the consequences of disease are removed.

Dr. Pierce's Favorite Prescription cures the womanly diseases which cause nervousness and sleeplessness. It is the best of tonics and invigorants, nourishing the nerves, encouraging the appetite and inducing refreshing sleep.

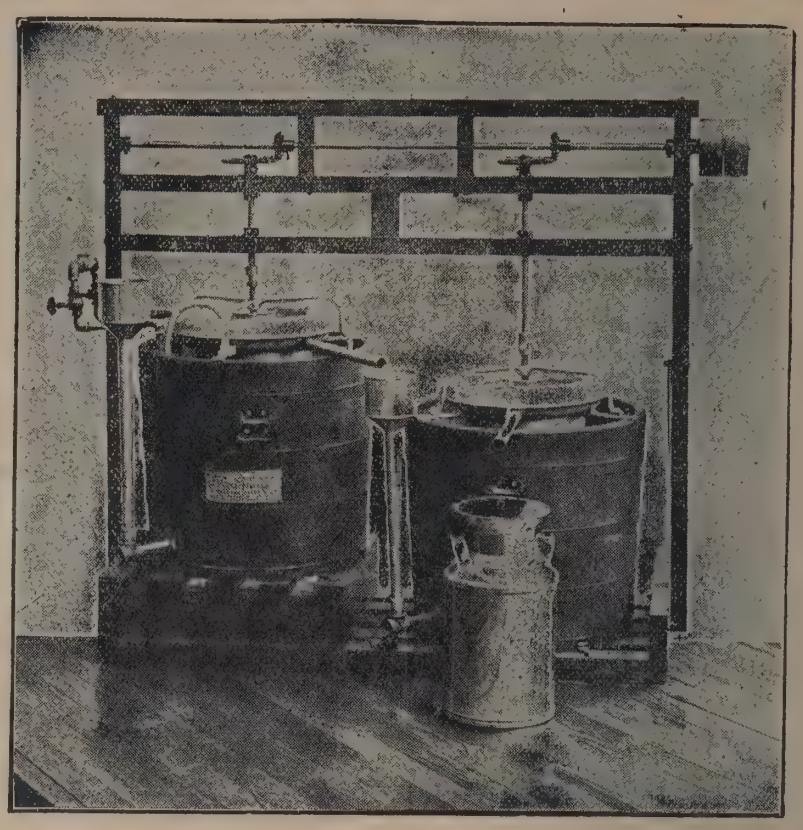
$500 Reward for Women Who Cannot be Cured.

Proprietors and makers of Dr. Pierce's Favorite Prescription now feel fully warranted in offering to pay $500 in legal money of the United States for any case of Leucorrhea, Female Weakness, Prolapsus, or Falling of Womb, which they cannot cure. All they ask is a fair and reasonable trial of their means of cure.

"My wife was sick for over eight years," writes Albert H. Fulte, Esq., of Altamont, Grundy Co., Tenn. "She had uterine disease and was treated by two physicians and got no relief. At last I read about Dr. Pierce's medicines and we decided to try his 'Favorite Prescription,' I sent to the drug store and got one bottle and the first dose gave ease and sleep. She had not slept any for three nights. Being sure that it would cure her I sent for five more bottles and when she had taken the sixth bottle she was sound and well."

Dr. Pierce's Pleasant Pellets should be used with "Favorite Prescription" whenever a laxative is required.

A GREAT SUCCESS.



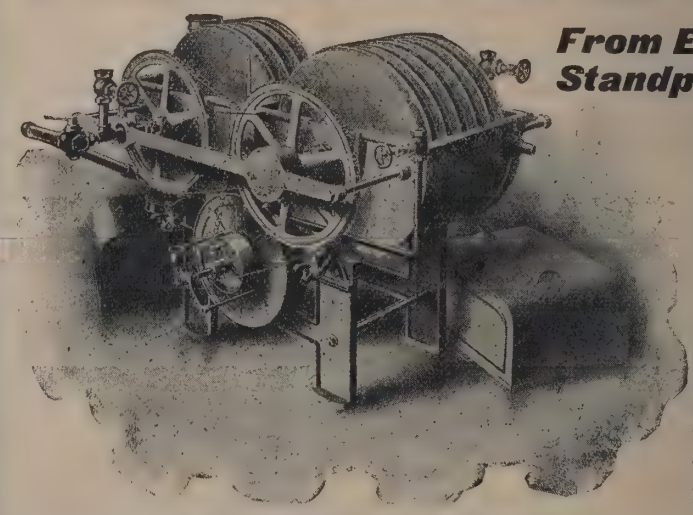
The Miller Cream Pasteurizer has a capacity of from 450 to 600 lbs. per hour.

Price $150 in Tin. $200 in Copper.

THE MILLER PASTEURIZING MACHINE CO.

CANTON, OHIO.

A SUCCESSFUL PASTEURIZER



From Every Standpoint.

The only Pasteurizer made that pasteurizes milk heavily acid.

It makes good Butter — that makes good business.

Your Butter will score 8 points higher.

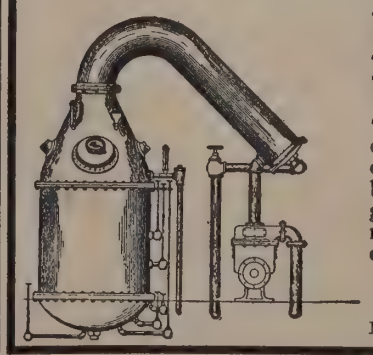
The Farrington Duplex Pasteurizer.

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Canadian Branch: Cowansville, Quebec.

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Milk Condensing Machine

I supply the most improved machinery and most successful processes for manufacturing all classes of condensed milk and evaporated cream. Factories built complete, put in operation and results guaranteed. If you are interested write for my new illustrated and descriptive catalogue. The only catalogue ever published on the subject.

R. R. ROGERS, Winthrop, Maine.
(Formerly of Detroit, Mich.)

I am not associated with any person, firm or company.

or oats. The crop may be stacked or thrashed out of the shock, with the ordinary separator. The seed is usually sold at once, but may be safely kept in dry bins or in sacks.

OTHER GRASSES VS. MEADOW FESCUE.

The fact that meadow fescue has proven to be a profitable crop when grown for seed has perhaps caused it to be valued more highly as a pasture and hay grass than it really deserves. Although no good comparative tests have been recorded, yet the general use of the grass at this Station has shown it to be inferior to orchard grass, both as a hay and pasture grass. It does fairly well for pasture when sown with orchard grass, the two grasses making a better sod than does orchard grass alone. For pasture, it is usual to sow about fifteen pounds each of orchard grass and meadow fescue with three or four pounds of red clover per acre.

Brome grass (*Bromus inermis*) has only been grown at this Station in a field way for four years. It has been cut for hay and seed and is being used for pasture the present season. As far as it has been tried, it is far superior to meadow fescue, both as a hay and pasture grass. It is more productive, more hardy, a better drought-resister, thrives in wet weather too, makes a better sod, stock eat it readily, and it is practically equal in feeding value to the meadow fescue. I have little hesitation in recommending it for planting for all parts of the state, as far west as Ellis county. It will doubtless thrive best in northern counties of the state. At the Fort Hays Branch Station, Superintendent Haney, reports a poor catch and crop from sowings made last fall. The spring sowings are much better. At this Station both fall and spring sowings have succeeded well. *Bromus inermis* may be sown broadcast, on land prepared as described above, at the rate of 18 to 20 pounds of good seed per acre.

A. M. TEN EYCK.

Manhattan, Kan.

Importance of Pure Water for Milch Cows.

Typhoid fever has often been ascribed to a contaminated milk supply. As during the summer and fall when this disease prevails cows are frequently forced to get their drinking water from sloughs and stagnant ponds which may be contaminated with the germs of typhoid fever, it is important to know whether such germs find their way into the milk supply through the cow or by contamination of the milk after it is drawn from the cow. This matter has been the subject of very careful investigation by E. F. Pernot, of the Oregon Experiment Station, who administered various germs, including that which causes typhoid fever, to a cow and examined the milk and excreta obtained, for the presence of the germs. It was found "(1) that a pure culture of typhoid bacilli mixed with water and given to the cow to drink did not pass into the milk; (2) that they did not pass from the cow alive with the excreta; and (3) that they did not pass from the cow alive with the urine. * * * Although the results in this experiment have been negative in transmitting the germs from polluted water to the milk supply through the cow, it does not follow that the danger from cows using such water does not exist."

As cows frequently stand in the water to escape flies or to cool themselves, and their udders may thus become contaminated with the polluted water, investigations were made to determine to what extent germs in this way enter the teats and contaminate the milk. "The cow used in this work was a Jersey about 4 years old, with fair-shaped udder, good teats of medium size, reasonably easy to milk." The teats were dipped in water containing the germs and allowed to dry naturally. After the lapse of several hours milk was drawn and examined for the germs, but none was found, showing "that they were not taken into the udder by capillary attraction through the teat orifice." * * *

There is no doubt that there is a great variation in the teats of different milch cows. A teat possessing a weak sphincter muscle is imperfectly closed at its extremity and must necessarily be more accessible for bacteria to enter through the duct and invade the contents of the udder, while another teat having good muscular contracting power, would be less likely to admit germs. Yet it seems almost impossible that any moist muscular orifice could so contract as to shut out an organism of such minute dimensions, especially those like typhoid, which are actively motile.

It is generally believed that micro-organisms gain access to the milk in the cow's udder through the teat, but in this case they did not, although the result might not be the same with all cows.

Even if it should be proven that milk is not contaminated in this way, the danger is not removed, because the body of a cow which has been wading in impure water is itself a source of contamination, since it is impossible to milk such a cow "without particles of material falling into the milk and carrying with it innumerable germs. This we know occurs to such an extent that it is customary to strain the milk to remove the particles of foreign matter. When a bacteriological study is made of this sediment the number and kinds of these germs found are truly surprising. If all the germs thus entering the milk would remain in the sediment it would be all right, but unfortunately, dropping into the milk with this foreign matter, the germs are liberated through constant agitation incident to milking. As warm milk is a very suitble material for germs to grow in, especially typhoid-fever germs, the number which would multiply in twelve hours from the few introduced at the time of milking would be enormous and dangerous." On this point, R. H. Forbes, of the Arizona Station, says:

When a cow wades belly deep into a filthy pool festering in the heat and fouled with excretions, her milk will inevitably suffer. Not only will the foul odors of the water she drinks be imparted in some measure to the milk, but millions of bacteria, adhering to her hair and udder, will, when she is dried off and milked, find their way as dust into the milk pail. Quick souring of milk in warm weather and undesirable changes in butter and cheese, caused by bacteria, result.

It would seem that these are sufficient reasons why cows should be prevented from having access to foul water, but there is the additional reason of danger to the health of the animal from disease germs which may be present.

Although these are dangers that it is well worth while to guard against, it is evident, as Mr. Pernot points out, "that outbreaks of typhoid fever occur which, if the cause were carefully traced, would be found to come not from the milk as it leaves the cow, but from vessels which had been washed with contaminated water," and he calls attention to the fact that "since the advent of the cream separator, which is usually driven by steam power, steam has been used to clean all the utensils in the dairy. Not only is it efficient for this purpose, but as a germ destroyer there is nothing better, because it penetrates to the bottom of the seams and heats the metal to such a degree as to kill dangerous germs."—*U. S. Farmers' Bulletin.*

D. H. Otis, Professor of Animal Husbandry at the Kansas State Agricultural College, has resigned his position, to become manager of the Doming Ranch at Oswego, Labette County, Kansas, at a salary of $2400 per annum, with free house rent, fuel, garden, cow, chickens and horse and buggy. Professor Otis will take up his new duties as soon as he can complete the bulletin work he has on hand.

Our whole terrestial being is based on time and built of time. CARLYLE



ELGIN TIME is the world's time - ELGIN watches the world's timekeepers

Every Elgin Watch is fully guaranteed. All jewelers have Elgin Watches. "Timemakers and Timekeepers," an illustrated history of the watch, sent free upon request to

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Farm Lands

$8 to $12 PER ACRE.

On terms to suit purchaser. We would like to show you the lands and can give you low railroad rates to come and look at them. This is the future dairying country of the Northwest.

Our lands are only 240 miles from Milwaukee with splendid markets on all sides. None of the land lies more than three and a half miles from the railway station. Write and find out about it. Yours very truly,

INTERIOR LAND CO.,
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GOOD REASONS

why land buyers are attracted to Marathon County are: Because of the richness of the soil; abundance of water at little depth; fine grazing making it a very desirable location for cattle raising; excellent railroad facilities and competitive markets for dairy, farm and timber products. Central and Northern Wisconsin will be

THE COMING DAIRY SECTION

and has already made great strides in that direction, many fine herds have been established. If you want to Own Your Own Home now is the time to buy. Our lands are located in the northwestern part of Marathon County in a country well populated, near the prosperous village of Athens. For prices and further particulars address:

RIETBROCK LAND & LUMBER CO., ATHENS, WIS.

FOR SALE

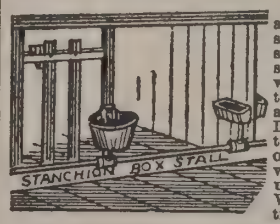
My fine country home and dairy farm of 120 acres within 1¼ miles of Waukesha city limits and electric line. This farm is well watered and fenced, and well equipped with buildings painted and in good order; 10 acres wood lot, balance under plow and in high state of fertility. For particulars address
O. P. CLINTON, Waukesha, Wis.

WISCONSIN FARMS

in Dunn, St. Croix, Barron, and Price counties make the best homes on earth; because, 1st., soil heavy; 2d., some timber, fuel cheap; 3d., springs and streams numerous; 4th, no blizzards or drouths; 5th., no sand or pine stumps; 6th., near the best northern markets; 7th., best dairy section known; 8th., no crop failures; 9th., successful settlement and all prosperous; 10th., corn, oats, wheat, rye, potatoes, tobacco, hay, etc., unexcelled in the United States.

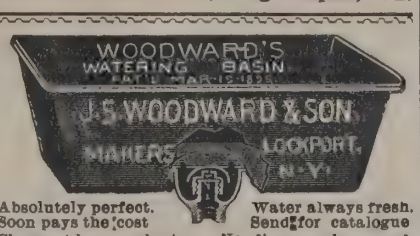
If you want a Canadian home, we can, and will take you to the best locality in Manitoba or Assiniboia. Send for catalogue or come yourself. We sell on easy terms our own lands in Wisconsin and Canada. DUNN COUNTY LAND CO., Downing, Dunn County, Wisconsin, or 156 East 3d, Street, Rooms 5 and 6, St. Paul, Minnesota.

Water In The Stable a Necessity.



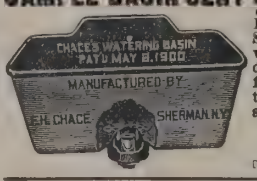
It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. Why not use the Best? Write for descriptive circular.

C. E. BUCKLEY & CO., Poughkeepsie, N. Y.



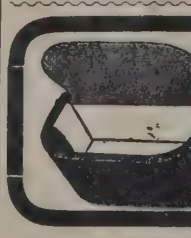
Absolutely perfect. Water always fresh.
Soon pays the cost Send for catalogue
Cheapest because best. No disease where used.

SAMPLE BASIN SENT ON APPROVAL.



Basins are fitted with Self Closing Cover which prevents all dirt and sediment from getting into them. Send for catalogue and price list

F. H. CHACE,
Sherman, N. Y.



COW BASIN
SELF CLOSING LID.

Pure white Porcelain. No rust, no filth, no splashing.
D. H. Bausman, Bausman Lane Co., Pa. Iron, Pig, Chick, and Stock Troughs.

160 ACRE FARMS IN WESTERN CANADA FREE



Western Canada

The Vast Areas of this Remarkable Agricultural Country

are attracting more attention than any other District in the World.

"The Granary of the World."
"The Land of Sunshine."
The Natural Feeding Grounds for Stock.

Area Under Crop in 1902—1,987,330 Acres.
Yield 1902—117,922,754 Bu.

Abundance of water. Fuel plentiful. Building material cheap. Good grass for pastures and hay. A fertile soil, a sufficient rainfall and a climate giving an assured and adequate season of growth.

Homestead Lands of 160 Acres FREE.

The only charge being $10 for entry. Close to Churches, Schools, etc. Railways tap all settled districts. Send for Atlas and other literature to Superintendent of Immigration, Ottawa, Canada; or to the authorized Canadian Government Agent—

T. O. CURRIE,
12 B. Callahan Bldg., Milwaukee, Wis.
J. M. MacLACHLAN,
307 Third Street, Wausau, Wis.

Buy You a Ticket to CROOKSTON, MINN., and call upon

The Polk County Land & Loan Company

For choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.

360 acre farm, 4½ miles from Crookston, Minn, (a city of 7,000 inhabitants), and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 ft. square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm in under a high state of cultivation, and is well drained by a slight ravine running through the farm, merely sufficient for self drainage. The soil is a rich deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a 320 acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50.

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired, Price $19.00 per acre.

FINE DAIRY FARM WAUKESHA CO., WIS.

We offer 274 acres of which 125 acres are under plow, 104 acres oak timber. Good orchard, fine dwelling house and other dwellings. Excellent soil in first class condition. Well watered for stock.
MILES & MYERS, C-100 MATTHEWS BLDG., MILWAUKEE, WIS.

Intense Cultivation and Large Hay Crops.

ED. HOARD'S DAIRYMAN:—I have just completed cutting my first crop of hay. Commenced July 6th, ended July 21st, 15 days. Last year, first crop was 64 tons, 874 pounds of dry hay; this year, first crop was 55 tons, 729 pounds, nine tons less than last year. The loss was due mostly to three causes: First, lack of intense cultivation before seeding of six acres in Sept. 1901, on account of cloud burst which washed most all of the intensely cultivated soil off the field ten days before seeding. Second, a two months' drought in spring. Third, the fertilizer was spread six weeks without rain. These three causes cut the volume down so that the average product was but 7,840 pounds, a little less than four tons per acre. The ⅞ acre, seeded now 14 years, cutting 26 first and second crops before this year, a total of 104¾ tons, yielded this year, first crop, 12,410 lbs., making the total product in 27 crops, one seeding, 14 years, 111 tons, with the second crop now growing. Last year the two crops were 8½ tons this year they will exceed 9 tons. The average per acre this year on this field, first crop, is 7 tons, 176 lbs., and on the ⅝ acre adjoining, 7 tons, 80 lbs. While the sum total is less, yet a portion of my field is heavier than ever before, notwithstanding my fertilizers lay bleaching 6 weeks in the sun without rain.

Much has heretofore been said about the weight of my hay, whether put in the barn dry or otherwise, and also what green grass in drying would shrink. I have made some tests this year with the following results. I have taken from several sections, 5 square feet of grass and found the following results: 4 lbs., 2 oz., mostly all timothy, produced when dry 25½ oz., or 13,638 lbs. to the acre; 4 lbs., 5 oz., mostly all red top, when dry produced 20 oz., or 10, 880 lbs. to the acre; 4 lbs., 6 oz. timothy and red top mixed, 25 9-16 oz., or 13,706 lbs. to the acre. In another section, mostly red top, 4¾ lbs. produced when dry, 25¾ oz., or 14,021 lbs. to the acre. Another section, 4 lbs., 5 oz. a little less red top, 25½ oz., or 13,638 lbs. to the acre. Still another section, 2 lbs. mixed, when dry gave 9 9-10 oz., or 5,206 lbs. to the acre. I have kept track of the weights of the hay on these several sections per acre and they made but a few pounds more to the acre when dried out than indicated by the samples.

The directors of the Connecticut Agricultural College wish to have me save a few specimens of hay from my field to exhibit at the St. Louis Exposition in 1904, which I have done.

I have no doubt, however, that many will be surprised at the height of the grass. Judging from many of the thousands of letters that I have received in the last few years, many suppose that six tons of hay or more to the acre means tall, coarse grass, but it is exactly the reverse. It means a dense growth of fine grass. Five to six hundred spears to the square foot, forty to forty-five inches in height, will make six to seven tons to the acre. Every six inches in height of my grass containing five to six hundred spears to the square foot, will produce a ton of dry hay to the acre, and it will be as fine as silk.

Intense cultivation and care is the only thing that will make big crops of hay. If you send to me, George M. Clark, a two-cent stamp, I will send you a grass circular that will tell you how six tons of dry hay to the acre can easily be made. I have written more than 20,000 letters in the last two years and sent out one or more of my grass circulars with each letter to tell my friends how. I have led the way, but am glad to say now that many are beating me; still the good work goes on.

There has been an impression among the farmers that this theory of intense cultivation and resulting large hay crops, so often spoken of by me, was introduced for the sole purpose of benefitting the Cutaway Harrow Co. To all such, I wish to say that as early as 1872, twenty years before the Cutaway Harrow Co. was ever thought of, the Higganum Mfg. Co. commenced the manufacture of drag plows, both regular and reversible, and I as president and at the head of the mechanical department, made and completed over four hundred different sizes and styles of drag plows. In the completion and test of these plow patterns, I used 16 acres of this old, rocky land to test the strength of these plows.

The old Higganum Mfg. Co. made at one time over eighty thousand drag plows per year, and in testing these new plows on that rocky land came the finding of the benefit of intense cultivation. With the aid of such men as J. H. Hale, Mortimer Whitehead and other advanced agriculturists the science of intense cultivation had been growing gradually, long before the Cutaway Harrow Co. was started or ever thought of. In fact, it has been but a few years that I have allowed my name to appear in connection with the business of the Cutaway Harrow Co., or any other Co. for the reason that people would say: "All Clark is after is to push the Cutaways."

It was not until Professor Albert E. Cook, Professor of English in Yale College, who corrected the English in my grass circular, said that I should by all means allow my name to appear in connection with the Cutaway Harrow Co., that I allowed it to so appear.

This is the origin of intense cultivation and large hay crops. Whether the Cutaway Harrow Co. lives or dies they have come to stay. GEORGE M. CLARK.

Higganum, Conn.

Here We Have It.

ED. HOARD'S DAIRYMAN:—After reading through an issue of your paper I wonder why so many persons are fooled into taking a periodical filled with such nonsense—so-called book dairying, so many theories and so much tom-foolery in general—gotten up by men paid by you, Mr. Editor.

I wish I could afford to board you a while. If I could I'd have you come to this section and talk with our dairymen, and if you did not go home calling me blessed, and regretting that your attention was not called to this matter sooner, I would be willing to make you a present of the best cow to be found in this section. And I want to say right here that we have some good ones—cows that bring in their owners as high as $40 annually. Of course they won't all do this well. You couldn't expect it. And these cows don't cost their owners over $35 per year for their keep. This leaves the owner as you will readily see $5, just for interest on cost of cows, milking, feeding and other necessary work.

Mr. Editor, you may know more about silage, balanced rations, pasteurization, Babcock testers, dairy form, etc., than



Cattle Stanchions.
Simplest, safest, strongest, most easily adjusted swinging stanchion made with steel latch and automatic lock, locking itself when closed. Is stationary when open, and animal cannot turn it in backing out. Made from best selected hardwood, well finished. Send for circulars and prices. Made only by
The Toledo Plow Co., Toledo, O., Div. H.

ARROW BRAND Asphalt Ready Roofing can be laid on top of old shingles without tearing off the old roof. Send for free samples.

ASPHALT READY ROOFING CO., 82 Pine Street, New York.

BUY DIRECT FROM FACTORY, BEST MIXED PAINTS
At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.

NORTH OAKS FARM, ST. PAUL, MINN.
(Jas. J. Hill, Proprietor.)
AYRSHIRE BULLS
Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address,
N. E. McKISSICK, Supt., Cardigan, Minn

AYRSHIRE CATTLE of the BEST of BREEDING. Also Chester White Pigs, ready to book for season's trade. Young stock of both sexes. Prices reasonable. Come and see us.
F. TSCHUDY & SONS, Monroe, Wis.

GUERNSEYS FOR SALE.
Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yeza.
JAS. H. BEIRNE, Oakfield, Wis.

PURE OIL MEAL. USE FOR MILCH COWS AND FATTENING STOCK.
Superior to corn, oats and hay. Ton lots $23.00; half ton $12.00; 500 pounds $6.50; 100 pounds $1.50. Put up in 100-lb. sacks f. o. b. Minneapolis. Cash with order.
This Meal is Guaranteed Absolutely Pure. We also manufacture Strictly Pure Linseed Oil.
NORTHERN LINSEED OIL CO.,
MINNEAPOLIS, MINN.
When ordering mention this paper.

Bran, Middlings, Feed, Flour
AND ALL KINDS OF...
Can load Mixed Cars.
Ask for Prices and mention this paper.
DAIRY FEED
E. S. WOODWORTH & COMPANY,
MINNEAPOLIS, MINN.

A MILK PROBLEM

THE AVERAGE MILKMAN'S COW		
2920 quarts of milk at 5c.		$146.00
Keeping	$35.00	
Expense of sale	33.80	68.80
Net		$ 78.20

A WINTERGREEN HILL COW		
Gave over 6000 quarts in one year that was sold for 8c per quart		$480.00
Deduct for keeping	$ 65.00	
Expense of sale	120.00	185.00
Net		$295.00

The Jersey is sometimes condemned as an insufficient milker for milkmen's use. It is not true, however, of such strains as are bred for deep milking qualities as well as richness. Above is the record of one of the deepest milking daughters of "Exile of St. Lambert, 13657," and the herd contains other heavy milkers. If you would improve your herd by a bull calf, buy him now while you can. A little book tells much about the subject. Write for it, and for bull sale list. See also advertisements on pages 514 and 536.
WINTERGREEN HILL FARM, Dept. A., Scottsville, N. Y.

THE BROWN BESSIE HERD Offers one bull 14 months old, sired by Recorder, 29239, the only living son of Brown Bessie and has 14 tested daughters. Dam, Relay, 70353, test 17 pounds 2 ounces. She a daughter of Diploma with 61 tested daughters. Also Berkshire Pigs of English and American selected stock.
H. C. TAYLOR, Orfordville, Wis.

Rosendale Guernsey Herd
TUBERCULIN TESTED.
Sixty head of choice Guernseys headed by Coralette's Son, (see page 450) whose dam, Coralette made 479.7 lbs. fat in one year at 3½ years old, and was first prize cow at Wisconsin State Fair in 1896.
Some fine young bulls for sale.
GEO. C. HILL & SON, Rosendale, Wis.

Wasteland Guernseys
Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.
M. M. & E. J. HOLLINGSWORTH, Landenberg, Chester Co., Pa.

GUERNSEYS.
HADDON FARMS—Home of the noted GLEN WOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

Old Homestead Guernseys.
Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.
Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL Perry, Lake Co., Ohio.

GUERNSEYS FOR SALE
Bull two years old out of Count Topsy 24.27 lbs. butter 7 days. She won 1st prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality F. W. TRATT, Whitewater, Wis.

VALLEY FARM Offers for sale a son of "King of St. Lambert's King" out of a daughter of "Gazilla's Fawn," dropped July 29th., 1900. Also have some young bulls. Write your wants to
FRED STUBLEY, Black Earth, Wis.

PROSPECT HILL JERSEY HERD.
Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

FOR SALE GOLDEN LAD BLOOD. sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

8 COWS With records of over 14 lbs. butter in 7 days out of 15 in milk. Write us what you want in the line of JERSEYS.
Herd is headed by Fontaine's Owl, 60436. Address
J. F. EGERTON, Footville, Rock Co., Wis.

FOR SALE. Two A. J. C. C. Bulls ready for service; also some younger ones. Cows and heifers in calf to richly bred bulls. Write for pedigrees and prices. We have a few Berkshire Boar Pigs from unregistered sows left; cheap.
N. N. PALMER & SON, Broadhead, Wis.

BILTMORE JERSEYS
are great and presistant dairy workers and typical Jerseys. We ask comparison with any other herd for
YEARLY MILK & BUTTER YIELDS, SUBSTANCE AND FINISH.
The herd contains more prize winners at the leading exhibitions (including the Pan-American) than any other herd.
The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service as you cannot get it.
Also Headquarters for Large English Berkshires and Standard Poultry.
Apply to
BILTMORE FARMS, BILTMORE, N. C.

HAZEL FERN HERD. A. J. C. C. Jerseys blood of St. Lambert, Melia Ann, Combination, Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

ROBINSWOOD JERSEY DAIRY is offering a few Reg. Jersey Bulls ready for service at from $25 to $50, sired by a grandson of Recorder, the only living son of Brown Bessie, out of good cows. Write, stating your wants, to
N. H. ROBINSON, Prop., Centralia, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.
W. J. HUSSEY, Mt. Pleasant, O

the dairymen of this section, but it is evident from what I have read in the DAIRYMAN that you lack a knowledge of the essentials of practical, common sense dairying. You don't seem to know anything about keeping cows upon corn stover, nubbins, timothy hay (it doesn't pay to grow clover) straw, ice water and a board fence on stormy days for shelter; but instead, you would have your readers grow clover (worth on the market about half as much as good timothy,) put up silos, buy high priced concentrates, etc., etc. Dairymen of this section have ideas of their own. They are independent, thinking men. They have original ideas of their own.

The farmers (the progressive ones) make money keeping bulls. They don't run to some breeder of "fancy" cattle and pay a big price for a bull with a pedigree, when they can, by watching, pick up a nice yearling of a neighbor for about $20. With a large number of cows in a neighborhood at 50 cents each, a bull soon pays for himself, and the owner gets the use of him upon his own herd practically for nothing. By this method the dairyman is liable to get more $40 producers. I suppose Friend Gallup, of Lime Creek, who had a short article in the DAIRYMAN some time ago, won't agree with all I have to say, for I have heard that he went to the expense of buying a Holstein bull last fall; then this spring bought two cows of the same breed. But he may live to see his mistake, as I have seen mine.

I have heard more right-down, practical, dairy wisdom in a few minutes' talk with some of my neighbors than I could get by a half day's reading of dairy literature. Before moving into this neighborhood, I had heard so much about HOARD'S DAIRYMAN that I decided to subscribe for it. Then I had been led to believe that to be really up-to-date I must study such books as Warring's Chemistry of the Farm, King's Physics of Agriculture, Woll's Book on Silage, Henry's Feeds and Feeding and a lot of other books, besides a stack of station reports, bulletins, etc., a foot or two high.

Now I see how badly I was duped. I can learn more in a few minutes' talk with my neighbors, than in ten times this amount of time spent poring over the above mentioned literature. You will see many good dollars and much valuable time have been wasted. Before learning where I was at, I tried to persuade some of my friends to subscribe for HOARD'S DAIRYMAN, but they were not to be fooled as I had been.

Another thing I almost forgot to mention. It may seem of little importance, but 'tis quite important after all. Last winter I helped a neighbor milk his cows. One cow I started to milk gave thick, ropy milk. I called my neighbor's attention to this, when he said, as the milk was going to the factory, it made no difference. Now, Mr. Editor, you would probably tell your readers such milk was unfit to use. Just think of the pin money a pint of such milk twice a day from 25 or 30 cows, part of each year, would bring the dairyman. And if each one of your subscribers could be induced to waste this milk, see what a large amount of money would be thrown away.

I did not intend to make this article so long, but I guess 'twill be just as well, for undoubtedly the editor has become so thoroughly grounded in his way of thinking upon dairy matters, that nothing less would induce him to change his views.

Now, Mr. Editor, please read this carefully, then publish in the DAIRYMAN, so that your readers may be thinking these matters over while you are bringing your dairy teachings down to a more practical basis.

Another thing I almost forgot to mention. After helping the neighbor referred to, milk his cows, I ventured to remark that some of them hardly paid their board. Here again, my theories caused my humiliation.

This man was no exception to the general run of dairymen in this section and was not apt to be led by some one's theories to put more into his cows than he could get out. He was feeding about 15 pounds of shredded stover per cow, each night, and about the same amount of whole stover scattered about the yard each morning. Then the cows could eat all the straw they wanted to. But as the latter was valued only at its manurial worth what straw the cows ate was clear gain.'

You will see at a glance that these cows were costing their owners considerably less than 4 cents per day. These cows were all fed alike. Another thing I have learned. A thousand pound cow won't eat any more than a ten hundred pound cow, so what's the use of bothering to feed each cow differently.

Now, Mr. Editor, with all your knowledge of protein, carbohydrates, crude fibre, ether extract, scientific feeding and what not, can you feed cows more economically than this herd was fed? Nit! Now, isn't it plain that the weight of evidence is against book farming, theoretical dairying and all kindred fads? And to be consistent you must surely change your mode of instructing your fellow dairymen through your paper.

If this does not find its way to the waste basket I may in a future article give your readers some of the things I thought I learned from my books, pamphets, papers, bulletins, station reports, etc. J. D. P.

Mich.

Alfalfa Experience in Wisconsin.

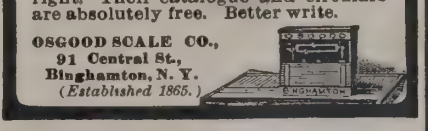
ED. HOARD'S DAIRYMAN:—I have just finished putting in my second crop of alfalfa, and, as I owe my success, thus far, to knowledge obtained from your valuable paper, I feel under obligations to give the benefit of my experience to others, who may be thinking of trying it. You published, during the winter of 1902, an article from the pen of C. P. Goodrich, which was my guide. In the article referred to, he told us to sow the seed with oats at the rate of one and a half bushels per acre. My land is very rich and the oats grew exceedingly rank. I cut them for hay July 23. At that time the alfalfa plants were very feeble and in spots where the oats had lodged, there seemed to be none left alive. It grew rapidly, however, and was knee high by the middle of September. It came through the winter all right, and was ready to cut the 8th of June. I had three large two-horse-wagon-loads of beautiful hay, from the acre and a quarter and just six weeks from the first cutting, I cut it again. The second crop yielded nearly the same as the first, at least three tons, secured without a drop of rain and no loss of leaves. Should I sow any more, as I doubtless shall, I think I would sow the alfalfa alone. I am not sure but the cover crop would be all right on poorer land, but with me it would certainly have been better not to have sown the oats. They grew more than three feet high and shaded the alfalfa so as to weaken it, and in places kill it out entirely. A. S. C.

Ripon, Wis.

No You Don't, Young Man!

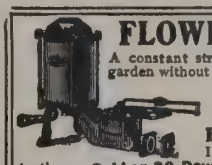
No more guessing for me. I put in a new **Osgood Steel Trussed Lever Stock Scale** this spring, and now I sell my cattle at my weight at the farm. They treated me right. Their catalogue and circulars are absolutely free. Better write.

OSGOOD SCALE CO.,
91 Central St.,
Binghamton, N. Y.
(Established 1865.)



FLOWING WATER.

A constant stream in your house, barn or garden without running expense by using the



RIFE
Hydraulic Engine.
It never stops. Requires no attention. **Sold on 30 Days Trial.** Send for free book.
RIFE ENGINE CO., 126 Liberty St., New York.

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA.

President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.

FEES FOR REGISTRY.

TO MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.

NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. ☞ All blanks furnished free.

Life Membership, $25.

Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.

Address F. L. HOUGHTON, Putney, Vt., for information relating to Registration of Pedigrees.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22123. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 26148 Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.
WM. EVERSON & SONS, Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULLS FOR SALE.

Ready for service; from A. R. O. animals; sired by Johanna Rue 2nd Paul De Kol, sire of 13 A. R. O. cows. Also young bull calves by same sire. **THOS. GAINES, Supt.**
ARCADIA, - MISSOURI.

TYRANENA HERD
100 HOLSTEIN-FRIESIANS 100
A. R. O. Stock For Sale.

Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz **Frank B. Fargo, Lake Mills, Wis.**

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Headed by Mercedes Mechthilde Pietertje, No. 25,795. oldest son of Mercedes Julips Pietertje, 75 O. I. C. White Pigs, both sexes, in pairs and trios, not related.
W. R. GATES, Fort Atkinson, Wis.

OAKLAND HERD HOLSTEINS

PREMIER SIRE **Mutual Friend 3d's Paul** A son of Paul De Kol & Mutual Friend 3d, 21.84 lbs. butter, milk averaged 4.7% at 3 years. She has two A. R. O. daughters, 1 made over 20lbs. Must reduce herd at some price. State just what you want. T. A. MITCHELL, Weedsport, N. Y.

BROOKSIDE HERD
HOLSTEIN-FRIESIANS

To reduce herd to capacity of pasture, will sell a limited number of A No. 1 young cows of high breeding and individually right, large producers. at $150 each; also 15 bull calves at bargain prices.
STEVENS BROTHERS, Lacona, N.Y.

4 BULL CALVES FOR SALE

Under 6 weeks, fine individuals from our Clyde Paul De Kol bull; Dam 24.38 lbs. butter in 7 days. And from tested cows, with good records, the price is right. W. B. SMITH & SON, Breeders Pure Holstein Cattle.
2488 W. Broad St., Columbus, O.

THE MAPLE'S HERD

offers good young cows with A. R. O. records in calf to Beryl Wayne De Kol Paul, No. 28785, whose dam Beryl Wayne has an official record of 27.87 pounds of butter in 7 days. Also four yearling bulls ready for service. Special bargains in heifer and bull calves.
JOHN C. GODFREY,
PENNELLVILLE, N. Y.

Holstein-Friesian Bull Calves
Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

HOME FARM HERD.

Headed by **COLANTHA 4TH'S LAD.** Official test of three nearest dams, 25.1 lbs. butter in seven days. Herd numbers 125 head.
BEST FAMILIES REPRESENTED.
Special prices on six or eight bulls of serviceable age. **W. B. BARNEY & CO., Hampton, Ia.**

STAR FARM HOLSTEINS.
Increase Butter Fat in Milk.

Do you want to increase the per cent. of butter fat in your dairy? The quickest, surest and least expensive way is to head your herd with a bull from a high testing dam.

Mercedes Julip's Pietertje Paul No. 29830 is a son of Mercedes Julip Pietertje No. 39480 her 1901 world's seven day butter record of 29 lbs. 7.5 ozs. butter made from 540.8 lbs. of milk with an average test of 4.025 per cent butter fat has never been equaled by any cow living or dead. She is the highest testing champion butter cow of the world. Mercedes Julip's Pietertje Paul is king of Sires. Females bred to him for sale. His bull calves from fall increase can be ordered now.
HORACE L. BRONSON, Cortland, N. Y.

ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.
GEO. T. McNEIL, Theresa, N. Y.

FOR SALE.

H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address **W. H. JONES, Watertown, Wis.** Rural Route No. 2.

FOR SALE 2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.
M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

CLOVERDALE HERD
HOLSTEINS.

Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.

A. J. DAUGHERITY Streator, Ill.

Woodlake Herd.

Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. **JOHN B. IRWIN,** Station D., R. 1. Minneapolis, Minn.

MARKHAM MANOR FARM,
Simonsville P. O., Andover, Vt.

Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde. No. 18370, H. F., H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for discription and price to **J. A. THORNTON,** Manager, Simmonsville, Vt.

HOLSTEIN ADVERTISEMENTS

Are numerous, as you have noticed by the many that appear on this page; but members of our herd and cows sold from here or sired by bulls we bred, won over 47½ per cent of the money offered in prizes by the H. F. Association for the largest official records of the year that just closed. Such a statement can be made of
ONLY ONE HERD
And our prices are no higher than others are asking. **THE STEVENS HERD,**
Henry Stevens & Son. Lacona, N. Y.

Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. **C. H. STEVENS, Jefferson, Wis.**

....YOU MAY....
BEGIN AT THE HEAD
to improve your dairy herd with a bull whose dam has official record of 18 lbs. 6.3 oz., sires dam 20 lbs. 8.8 oz. Individual right. Price Right.
McKAY BROS., Buckingham, Iowa.

FOR SALE CHEAP The exceptionally well bred H.-F. bull Duke Mercedes De Kol, 3 yrs. old, sure and kind, can be bought for $100, or about half price, because his owner can use him no longer. Dam, g-dams, sisters, aunts, cousins, A. R. O.; making a wonderful showing. For further information and photo address
MALCOLM H. GARDNER, Darien, Wis.

HOLSTEIN-FRIESIANS
FAIRVIEW HERD

We offer from this herd a few choice yearling bulls, also four very fine bull calves. Write describing what you want.
O. J. GODFREY, Fulton, N. Y

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. All our choice pigs of 1902 farrowing have been sold. We are now taking orders for 1903 farrowing.
JOHN WHITE & SON, Adamstown, Md.

HOLSTEINS

High Class Advanced Registry Stock only. Best butter families. Stock for sale.
Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.



T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.
Wm. O. Jackson & Sons, South Bend, Ind.

SOUTH SIDE FARM, WHITE BEAR LAKE, MINN.
Holstein-Friesians.

Bulls in service, Prince Inka Pietertje De Kol 2d, A. R. O., 144, sire of 10 A. R. O. cows, and Daisy Van Beer's Pauline De Kol. 27610, whose dam has official record of over 22 lbs. in 7 days. Special prices on young bulls from A. R. O. cows. Also Yorkshire pigs of most approved breeding now fit to ship.

THE MONONA FARM HERD
OF HOLSTEIN-FRIESIANS

Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 69.50 lbs. one day. Breeders and dairymen please write for prices.
F. W. ALLIS,
Monona Farm. Madison, Wis.

FOR SALE. H.-F. Bulls, ready for service. from A. R. O. Cows and sired by Sir Jonanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis

PURE BRED SHORTHORNS
CHOICE BULLS FOR SALE.

Also Cows and Heifers bred to Clay Buttercup, 196861, a descendant of the Clay Family, champions at the World's Fair dairy test.
GEO. WENHAM, Fort Atkinson, Wis.

White Grubs.

ED. HOARD'S DAIRYMAN:—The insects popularly known as "white grubs" or *Lachnosterna. Sp.* are very numerous this year and are damaging pastures, hay fields and lawns. These grubs are the larvæ of one or two species of May beetles (June bugs), which fly about dwellings during the warm evenings of May.

LIFE HISTORY.

The beetles appear during the early part of May and soon after the females deposit their eggs among the roots of grasses and other succulent plants. The eggs soon hatch and the young grubs begin to feed on the roots. During the latter part of summer the grubs reach maturity and construct rude chambers or cocoons in which they transform into perfect beetles. The beetles do not leave the ground until the following spring, when the same round of life is repeated. Some species of white grubs require two years to mature.

APPEARANCE OF THE GRUBS.

If the grubs are present in sufficient number, the root system of the plant is completely devoured and the plants die. The eating capacity of these grubs is enormous. A single grub will devour more than its own weight of food in a day. The presence of the grubs, which is not noticeable until considerable damage has been done, is indicated by the gradual withering and drying up of the sod. The top layer of the sod, to the depth of about two inches, is separated from the rest of the roots so that it may be rolled up like a blanket.

Ordinarily the grubs are not present in sufficient number to cause noticeable damage, being kept in check by parasites and birds. The ravages by this pest is now at its height in many places and within a short time the grubs will be full-grown and enter into the pupa stage, after which they do not feed on the roots. Whether the presence of the grubs this year will cause an epidemic next year, depends upon weather conditions and parasites.

REMEDIES.

Since the grubs feed under ground, the application of Paris green and other arsenious poisons is not practicable. Infested pastures and meadows should be fall-plowed, rather shallow, and harrowed a few times before the winter sets in so as to expose the insects to the winter weather. It is not advisable to plant badly infested land to corn, especially if it has been plowed in the spring. Clean culture is the most effective way of fighting this insect.

TREATMENT OF LAWNS.

Infested lawns may be treated as follows: Dissolve five pounds of common brown laundry soap in a barrel of water and apply the solution to the infested lawn, thoroughly saturating it. Then water thoroughly to carry the solution further down. The remedy will not kill the grubs if they have already constructed their chambers. Where the grass is killed before the pest is discovered, do not disturb the surface,—first kill the grubs, then sow lawn grass seed, rake the sod lightly and water when the top becomes dry. In the fall apply a liberal dressing of barn-yard manure. The grass seed may be sown any time provided the soil is kept moist.

E. P. SANDSTEN, Horticulturist.
Wisconsin Agricultural Experiment Station, Madison, Wis.

TRANSFERS OF GUERNSEY CATTLE.

BULLS.

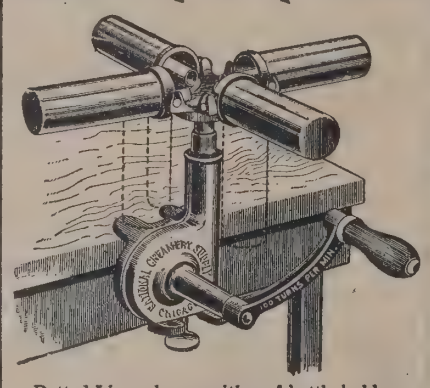
Allso 8742, George H. Weston to E. W. Gilman. Norridgewock, Me.
Billy of Ledyard 8715, Wm. H. Gould to S. M. Ells, Biglow, N. Y.
Boxwood 8722 H. W. Barbour to E. R. Wolcott, Wethersfield, Conn.
Butternut of Geneva 8696, Est. N. K. Fairbank to John B. Irwin, Minneapolis, Minn.
Ben Milton 7578, Geo. C. Hill & Son to Haskell Institute, Lawrence, Kan.
Comus of Ledyard 8716, Wm. H. Gould to B. J. Dodge, Verona, N. Y.
Colonel of Brookside 8726, Geo. D. Telfer to Wm. J. Heid, Fort Atkinson, Wis.
Dasher of Fenimore 8425, Edw. S. Clark to E. V. Salisbury, Oxford, N. Y.
Dan Hayes 8214, L. F. Whitcomb to H C. Harmon, Asfield, Mass.
Dido's Aeneas 8675, Est. N. K. Fairbank to O. T. Remington, Elk Mound, Wis.
Directum 8521. Ezra Michener to Frank Jennings, Jamesburg, N. J.
Duke of Westby 8748, Mrs. Mary Herron to J. J. F. Winters, Sparta, Wis.
Elmwell Leader 8732, David C. White to R. C Stewart. South Peacham, Vt.
Economic of Pinhurst 8532, Charles L. Hill to A. H. Hinman, Neenah, Wis.
Tredinocks of Homestead 8725, L. V. Axtell to Chas. A. Strickland, Jamestown, N. Y.
Glenwood Boy of Loudville 8723, O. W. Sanford & Son to Henry M. Parsons & Son, Loudville, Mass.
Goldheels 8321, C. R. Myer to O. B. Wilber, Greenwich, N. Y.
Gold Tip 7332, Marion G. Hathaway to Wills A. Seward, Budds Lake, N. J.
Golden Morning 4th. 8444, L. Hill to Nels Martenson, Hutchinson Minn.
J. W. G. of Homestead 8724, L. V. Axtell to J. W. Grute, Milledgeville, Pa.
Jewell of Whitehall 8221, H. A. & A. S. Bartholomew to Redfield Proctor, Proctor, Vt.
Kingmond 8519, Ezra Michener to A. S. Coon, Preston Hollow, N. Y.
Lero 8746, L. L. Loberg to John Gilbertson, Nelsonville, Wis.
Maximilian of Ypsilanti 8714, John C. Chalmers to Judson Newton, Ypsilanti, Mich.
Milo Wilkes 8740, Thomas S. Michener to Arthur Chapman, Doylestown, Pa.
Otto of Fern Ravine 8212. Fred Vogel Jr. to T. S Stewart, Waukesha, Wis.
Poindexter 8520, Ezra Michener to Thomas S. Michener, Michener, Pa.
Prince Harry of Topsfield 8736, The Seer of Topsfield 8735, Henry F. Sears to George Mixter, Hardwick, Mass.
Queen's Gold Boy 8717, Est. M. W. Seagar to J. B. Palmer, Norwich, Conn.
Rex of Regina 8730, J. E. Thurston to James H Perry, Garratsville, N. Y.
Radiator 7936, James Logan Fisher to Robert M. Littlefield, Afton, N. Y.
Reuben of Fenimore 8718, Vido of Fenimore 8429, Edward S. Clark to R. H. Plumb, Buffalo, N. Y.
Sorograf 8674, Est. N. K. Fairbank to Geo. D. Telfer, Ft. Atkinson, Wis.
Ted Wayland 7839, L. F. Whitcomb to Clarence H. Read, Florida, Mass.
Trevose Sire 8738, W. H. Ridge to Est. James Moore, Bridgewater, Pa.

COWS.

Arronette 16054, Lady Frances of Belle Vernon 16052, The Belle Vernon Farms Dairy Co. to Harry Yates, Buffalo, N. Y.
Clara May 15456, George Howland to Wm. M. Tice, Norwich, Mass.
Cheweet 15460, George Howland to Thomas E. Cox, Lynnfield, Mass.
Coquette of Daisydale 16309, Suzetta of Daisydale 16309, Wm. H. Taylor to Frank Jennings, Jamesburg. N. J
Duchess Ovid 13577, J. A. Beidler to Harry Yates, Buffalo, N. Y.
Esther of Homestead 16251, L. V. Axtell to J. W. Grute, Milledegeville, Pa.
Fanny Wilcox 15059, Ezra Michener to F. M. Smith, Jr., Ivy Depot, Va.
Isaleigh Charlotte 12380, Henry D. Mott to K. G. McKay, Heath Bell, N. S.
Lady Naomi 9913, Naomi's Beauty 9914, E. T. Gill to Conn. Agr'l College, Storrs, Conn.
Lucille of Paxtang 8729, Miss I. S. Wilhelm to Mrs. E. R Strawbridge, Moorestown, N. J.
Lucile Y. 16291, C. A. Carmichael to Harry Yates, Buffalo, N. Y.
Little Jean S. 10812, Mrs. McKinley 13814, Pride of Sharon 10433, Howard Gould to Kathrine Gould, Port Washington, N. Y.
Miss Columbia 15458, George Howland to T. E. Cox, Lynnfield, Mass.
Oneita E. 16305, Roberta S. 16304, J. D. Powers to F. A. W. Kieckhefer, Milwaukee, Wis.
Queen Guinevere 5159, Est. M. W. Seager to J. B. Palmer, Norwich, Conn.
Spodey 16217, Henry Winke to R. Tratt, Whitewater, Wis.
Sallie Ward 16327, Mrs. Mary Herron to H. M. Bonsack, La Crosse, Wis.

Peterboro, N. H. WM. H. CALDWELL, Secretary.

NATIONAL
Babcock Milk Tester



Dotted Lines show position of bottle holders when not in motion.

Has enclosed cut gears.
Swinging bottle-holders.
Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

DOES YOUR DAIRY PAY?

It costs no more to feed a profitable than an unprofitable cow.

NET PRICES:

No. 1,—2 bottle, complete for testing milk.... each $4 00
No. 2,—4 bottle, complete for testing milk.... each 5 00
No. 3,—2 bottle, complete for testing cream and milk, each..... 4 50
No. 4,—4 bottle, complete for testing cream and milk, each..... 5 50

Prices include full directions for making test, bottle of acid, test bottle brush, acid measure, dipette and test bottles.

We are the great Dairy Supply House of the West. We carry an immense stock of all kinds of Butter and Cheese Making Apparatus and Supplies. Write for catalogues and circulars.

National Creamery Supply Co.,
450-458 Illinois St.,
CHICAGO, U. S. A.



THE
Iowa Dairy Separator.

AN UP-TO-DATE MACHINE
REPLETE WITH PRACTICAL IDEAS.

It is built in the following sizes:

250, 350, 450, 600, 750 POUNDS PER HOUR

Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.

SEND FOR CATALOGUE NO. 60 AND PRINTED MATTER.

IOWA DAIRY SEPARATOR COMPANY, WATERLOO, IOWA.



From Cow To Cream

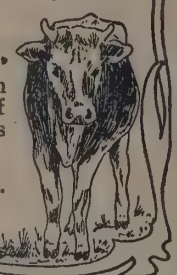
is but a short journey on the farm that runs the

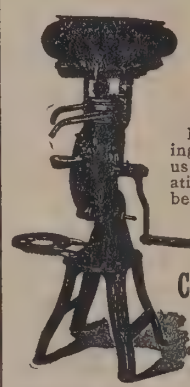
AMERICAN Cream Separator,

the one that gets the profits, and runs without an expert. We let you test it yourself and return if it is not a money maker for you. The price makes it easy to buy. Write now for free catalogue.

American Separator Co., Box 1028 Bainbridge, N. Y.

Awarded Medal at Paris Exposition.





Notice to Dairymen

If you are thinking of buying a Cream Separator write us for Catalogue and information. We manufacture the best machine on the market.

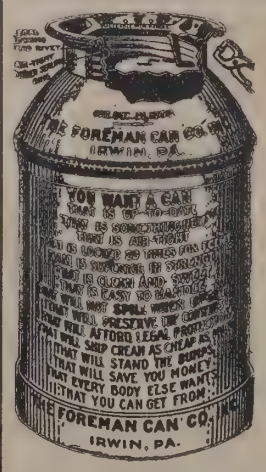
Davis Cream Separator Co.,
54 to 64 N. Clinton St.
CHICAGO, ILL.



NEW OXFORD
BALL BEARING
Cream Separator

Sold on guarantee to be the best on the market. Catalog free.

WORLD CREAM SEPARATOR CO. 41 Main St., Council Bluffs, Ia.



We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity—1000 cans daily, which should enable us to fill all orders promptly.

Every can sold on a guarantee. Write for Circular H.

Spain's Churn



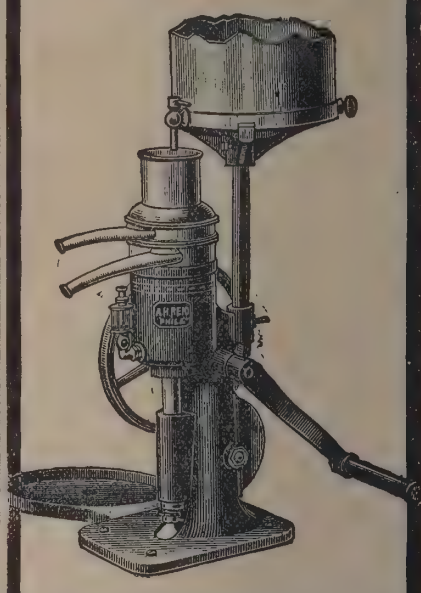
Hand made of thoroughly seasoned white cedar. Has large opening. Never gets water soaked or sours. Easy to clean. Simple to operate. A 30 years' test has proved it the best. Everything for the dairy or creamery—automatic milk scales, glass jars, butter workers, printers, shipping boxes, etc. Send for illustrated catalog of "Bestov" dairy supplies.

TRADE MARK BESTOV

DAIRYMEN'S SUPPLY CO., Dept. Philadelphia, Pa.

DON'T BREAK YOUR BACK washing clothes 52 times a year. Get a "1900" washer and save labor, time and money. You need not send a cent or pay freight. It is sent absolutely free, freight prepaid on 30 days trial. A word to the wise is sufficient. Write at once to "1900" Washer Co., 219A State St., Binghamton, N. Y.

Reid's Hand SEPARATOR



The "best" separator is that one which does its work most thoroughly and easily, that is built of strongest material, and that is most easily washed and kept in order.

First cost is a great point with a buyer, but ease of running, perfection of skimming and simplicity in washing are even greater considerations.

The **Reid Hand Separator** has but a single cylinder inside the bowl, and skims as closely as one-hundredth of one per cent. Indeed, some tests indicate "not a trace" of fat in the skim milk.

The Reid is perfectly planned and strongly built, and it literally "runs like a watch."

As to our guarantee of excellence, we make the strongest statement that can be expressed in words: **Money back (less freight) if the buyer is not satisfied.**

There is a new (free) booklet about the Reid Hand Separator.

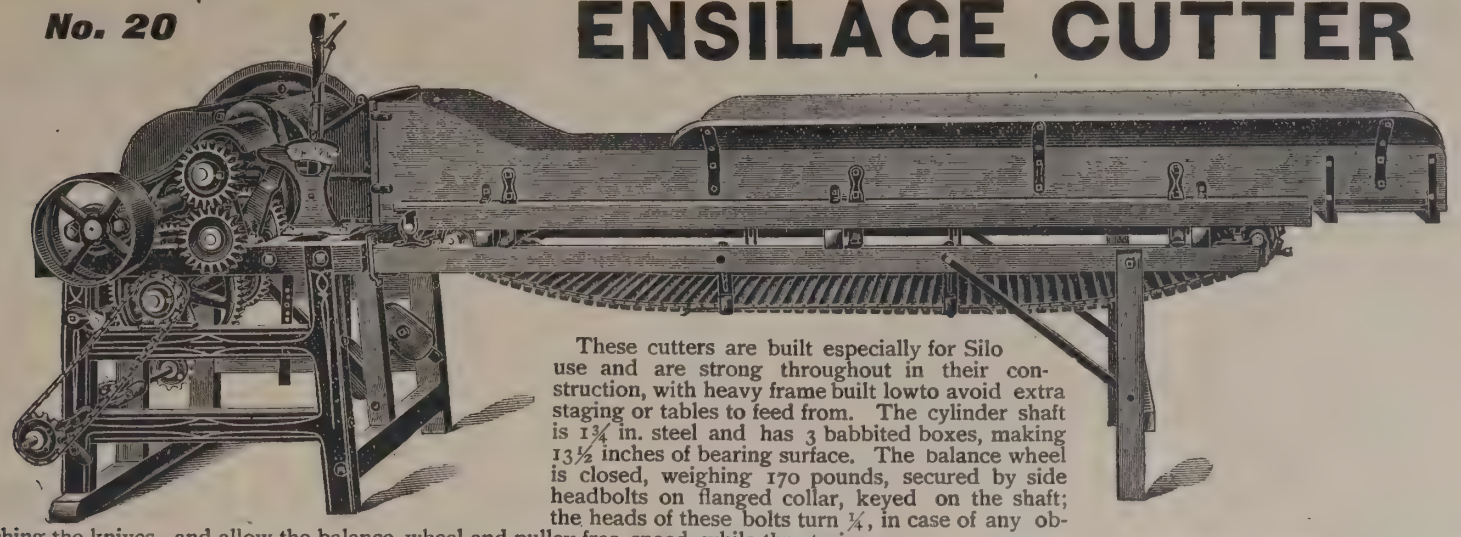
Sizes run from 150 lbs. to 500 lbs. per hour.

A. H. REID
CREAMERY AND DAIRY SUPPLY CO.,
PHILADELPHIA, PA.

BUSINESS MANAGER wanted for company now organizing to manufacture Patented article for dairymen's use. Must invest $2,000 to $5,000. Fine opportunity. CAN REFRIGERATOR CO., 425 W. 4th St., Erie, P

No. 20

ENSILAGE CUTTER



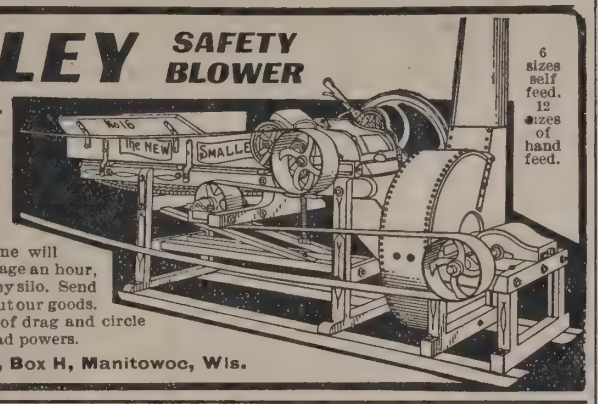
These cutters are built especially for Silo use and are strong throughout in their construction, with heavy frame built lowto avoid extra staging or tables to feed from. The cylinder shaft is 1¾ in. steel and has 3 babbited boxes, making 13½ inches of bearing surface. The balance wheel is closed, weighing 170 pounds, secured by side headbolts on flanged collar, keyed on the shaft; the heads of these bolts turn ¼, in case of any obstruction reaching the knives, and allow the balance wheel and pulley free speed, while the strain on the knives is relieved at once. The traveling feed table iscontrolled by the reversible lever and is instantly stopped or reversed. The slats on these tables travel over a close bed, full length and are close together to prevent fine leaves getting into them and winding on the rollers, also guards over the chain links. The length of cut is easily adjusted from ⅜ to ⅝ and ⅞ inches by the gears on the shaft. We furnish chain elevators of any length desired, straight away or side delivery. Weight of Cutters with traveling table, 1600 pounds. Send for circulars.

I. B. ROWELL CO.,
MENOMINEE FALLS, WIS.

SMALLEY SAFETY BLOWER

Only One Belt Required.

No lost power. No danger in operation. Belt cannot slip. Every part strong and of best material. No more strain on the *Smalley* machine when Blower is attached than with the ordinary carrier. Largest size machine will easily handle ten tons of ensilage an hour, cut ¾ inch and elevate into any silo. Send for 1903 catalogue, tells all about our goods. We also make complete line of drag and circle saw machines, sweep and tread powers.



6 sizes self feed. 12 sizes of hand feed.

SMALLEY MFG. CO., Box H, Manitowoc, Wis.

WE GUARANTEE that under the same conditions as to power and speed applied, condition of corn, etc.,

The Appleton Corn Husker

will do more and better work than any other machine of like character and corresponding size on the market; that it is simpler in construction; easier in every way to operate; easier and safer to feed and to require less power for successful operation. The proof of these claims is sent for the asking. We make also a complete line of sweep and tread horse powers, shellers, ensilage and fodder cutters, feed grinders, wood saws, windmills, etc. **Remember that Appleton quality is the standard of excellence.**



2-Roll, 4-Roll, and 6-Roll, Down or Mounted.

Write to-day for free Catalogue.

APPLETON MFG. CO., 35 Fargo St., Batavia, Ills.

SAVE THE WHOLE CORN CROP

A corn crop may be profitable without saving the fodder, but it will be twice as profitable if it is saved. The new method of handling corn saves the entire crop. The new way is to run all the corn through

JANNEY'S PATENTED HUSKING PIN — IT TAKES OFF THE SHUCK

JANNEY COMMON SENSE CORN HUSKER and FODDER SHREDDER

If you feed corn hay you can sell all your meadow hay. You can also bale and sell your surplus corn hay; big demand. You may add further to your profits by husking and shredding for your neighbors. Pays better than a threshing machine and costs less. Eight years in the field; more in operation than any other.



Best made. It husks all the corn and shreds the fodder into "corn hay." Corn hay is the equal in feeding value of best timothy hay Ask your dealer or write us for Husker Catalog.

JANNEY MFG. CO.
OTTUMWA, IOWA
DEPT. D.

Does Saving **ONE or TWO MEN**

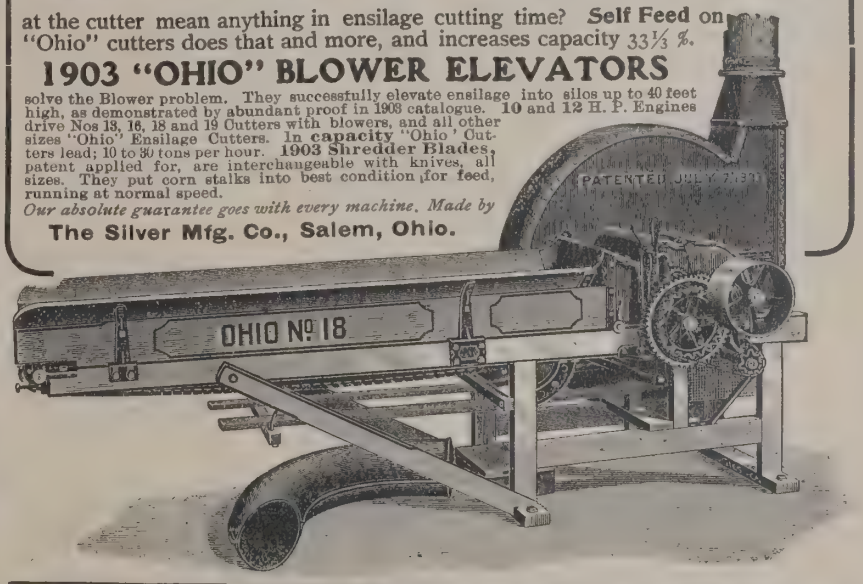
at the cutter mean anything in ensilage cutting time? **Self Feed on "Ohio" cutters does that and more, and increases capacity 33⅓ %.**

1903 "OHIO" BLOWER ELEVATORS

solve the Blower problem. They successfully elevate ensilage into silos up to 40 feet high, as demonstrated by abundant proof in 1903 catalogue. 10 and 12 H. P. Engines drive Nos 18, 16, 18 and 19 Cutters with blowers, and all other sizes "Ohio" Ensilage Cutters. In **capacity** "Ohio" Cutters lead; 10 to 30 tons per hour. **1903 Shredder Blades,** patent applied for, are interchangeable with knives, all sizes. They put corn stalks into best condition for feed, running at normal speed.

Our absolute guarantee goes with every machine. Made by

The Silver Mfg. Co., Salem, Ohio.



IF YOU WANT A

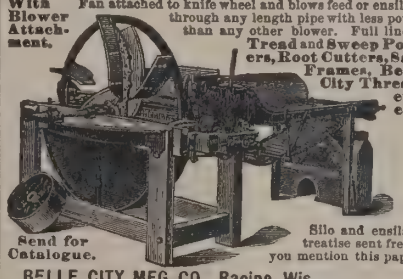
SILO

Write us for information.

THE A. T. STEARNS LUMBER CO., BOSTON.

BELLE CITY Feed and Ensilage Cutter

With Blower Attachment. Fan attached to knife wheel and blows feed or ensilage through any length pipe with less power than any other blower. Full line of **Tread and Sweep Powers, Root Cutters, Saw Frames, Belle City Threshers etc.**



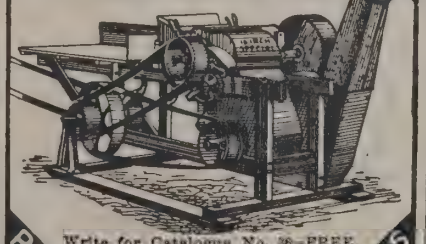
Send for Catalogue. Silo and ensilage treatise sent free if you mention this paper.

BELLE CITY MFG. CO., Racine, Wis.

ROSS ENSILAGE CUTTERS

With BLOWER or CARRIER

ALL SIZES—Known as the BEST.



Write for Catalogue No. 36—FREE. Prof. Woll's Book on Silage 10c.

THE E. W. ROSS CO. Springfield, Ohio.

BLIZZARD

"Everybody knows, or should know, of the old reliable **Blizzard.** The **Original** successful

Cutter and Shredder,

with **Wind Elevator.** Just think, it does everything, cuts hay, straw, ensilage, shreds fodder, and fills any heighth silo. Remember one and the same machine does it all. Sold on full guarantee. Write today for catalogue, etc.

JOSEPH DICK AGRICULTURAL WORKS, Box 20, CANTON, OHIO.

DOUBLE CAM BRADLEY STEEL HAY PRESS

One horse can operate it. Very easy for two. Send for circular.

NOT A COG NOR CHAIN ABOUT IT.



Simplest Press Made.

Lifting Jack goes with each Press. Powerful—puts full weight into box car. Tracks with a wagon; 2 horses draw it on common roads.

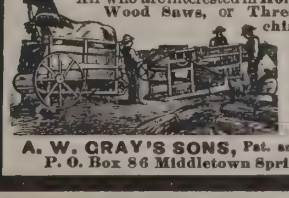
Has an AUTOMATIC PLUNGER DRAW.

DAVID BRADLEY MFG. CO., 110 E. Broadway **BRADLEY, ILL.**

HORSE POWERS

Threshing Machines. Wood Saw Machines.

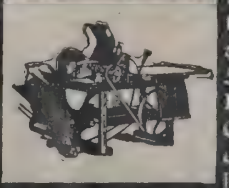
GET THE BEST. Horse Powers for one, two, or three horses, for running **Wood Saws, Threshing Machines, Ensilage Cutters, etc.** All who are interested in **Horse Powers, Wood Saws, or Threshing Machines and Ensilage Cutters** are invited to write for fifty-page pamphlet. It's free.



A. W. GRAY'S SONS, Pat. and Sole Mfrs. P. O. Box 86 Middletown Springs, Vt.

"ST. ALBANS" LINE

Ensilage Cutters; Ensilage and Stalk Shredders; Blowers and Chain Carriers; Tread Powers; Sweep Powers; Threshing Machines; Circular and Drag Saw Frames, Etc.



Handsome Catalogue Free. Send for it.

ST. ALBANS FOUNDRY AND IMPLT. CO., St. Albans, Vt.

GROOM YOUR CATTLE BY POWER

Our Improved Grooming Brushes, revolving 1200 times a minute, insure glossy coat, clean skin, active pores, health and beauty. Their use increases value of all stock. Indispensable for prize winning show cattle. Will groom 30 to 50 head an hour, and do it better than by hand. Get our Free Booklet and learn to groom your cattle, horses and all stock the best way.

CHICAGO FLEXIBLE SHAFT CO., 194 Ontario St., Chicago, Ill.

Dietz Lanterns

make the way plain in night work or travel. Always shed a strong, clear, white light, with no choking, sooting or smoking.

Over Sixty Years the Favorite.

Made in many styles and sizes for all purposes, as hand lanterns, driving lamps, post lamps for streets or front of country residences, church doors, etc. CATALOGUE SENT FREE.

R. E. DIETZ COMPANY, 94 Laight St., New York.

Established 1840

Ensilage Cutters "They Throw and Blow." Pneumatic. "Silo Fillers." **Blowers.**

These machines cut and elevate with the same wheel at the same time. This wheel has paddles which throw and fans which blow. Without the fans the paddles would throw the ensilage 15 feet high. A light blast of air in addition will blow it to any height. No chains, belts or cogs to slip and waste power. A two-horse tread power will cut and elevate 4 tons per hour, a 10 h. p. engine 20 tons per hour. The easiest running and safest cutters and blowers made. Also cutters and carriers, shredders, silos, engines, horse powers, saw machines, etc. Send for catalogues.

HARDER MFG. CO., COBLESKILL, N.Y.

WRINGING WET Clothes dry is the reason for using any wringer. Saving clothes, buttons and money is the reason for using **Horse-Shoe Brand Wringers.** They are made with rolls of the finest Para Rubber. Every wringer is warranted. **THE AMERICAN WRINGER CO., 99 Chambers Street, New York.**

Quack Grass in Alfalfa.

ED. HOARD'S DAIRYMAN:—Have any of your staff had experience with alfalfa on land which was infested with witch grass? In a recent number of the *Breeder's Gazette*, W. J. Spillman states that in Texas alfalfa will thrive in a field infested with Johnson grass and that the latter will gradually disappear.

If alfalfa will grow in witch grass, I believe that it will be of great value to many of us here in Maine. H. L. S.

East Dixfield, Maine.

We know of no way of getting rid of witch grass, except by removing it bodily, root and branch from the land. Plow the soil, harrow and rake off the roots and burn them. This may have to be done more than once, as every piece of root will start a new and vigorous plant. Repeated plowing will kill it off in a dry season, but in the average year, only removing the roots will bring success.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

CONCERNING OUR ADVERTISERS.

FLIES CAUSE LOSS OF MILK AND FLESH.

For the next 60 days you will see cows and horses standing in fence corners, under trees and in pools of water, switching their tails and fighting the horrible torments of flies. It will be money profitably invested if you will protect your stock and horses by spraying them with some reliable Fly Repellant. Many of our subscribers have used Rippley's Fly Remover, manufactured by the Rippley Hardware Co., Grafton, Ill., and they claim that their cows give at least 25 to 35% more milk and their horses work and drive better and increase in flesh after being sprayed with the above preparation. You surely cannot invest money to a better advantage at the same time giving relief to your stock, than to use some reliable fly repellant.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Swelling on Udder.

I have a heifer that has a swelling on the rear of her bag. This morning I milked her, what I could get and rubbed the bunch forward. She has not been served yet. Did you ever have such a case? M. H.

Windsor, Conn.

ANSWER.

If the swelling has been there for some time and continues to be hard, it most likely contains pus or blood serum, which may be opened with the knife and the contents let out. The cavity should be washed clean, and tincture of iodine injected into same. This will absorb the sack and prevent it from refilling, On the other hand, if the swelling is soft you may paint it once daily with the tincture, which will tend to absorb the exudate.

A Strange Disease.

For some weeks past a large proportion of the young cattle in wild pastures, viz., marsh grass and brush land have been afflicted with a disease of the eyes. A pouch or swelling covers the eye,

For the land's sake—use Bowker's Fertilizers. They enrich the earth and the men who till it.



THE ANTI-BUTTING
And Fighting Halter.

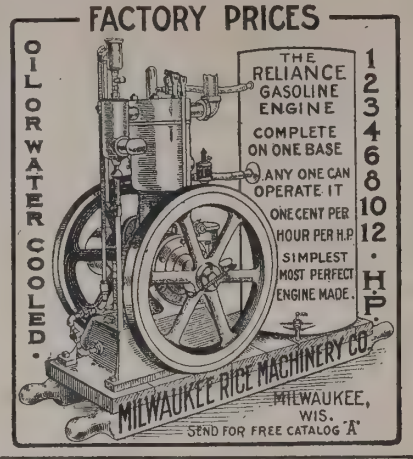
For hornless cattle that are given to butting and fighting, and making all kinds of trouble with their heads, shoving gates, doors, and fences.

It is a most excellent thing for bulls that are inclined to be cross, and is especially adapted to young bulls when they begin to rub their heads against posts and trees and corners of buildings, taking their first lessons in the mischief and deviltry they learn to do so well with their heads when they are older.

Write for circular and price list. It will cost you nothing to know more about it, and where you can get it when you need it.

Address
WILLIAMS ST. DAIRY CO.,
FINDLAY, OHIO.

FACTORY PRICES



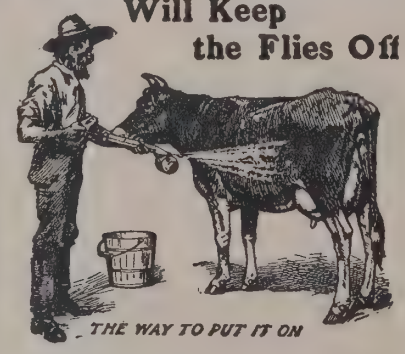
CHIPPEWA COUNTY FARM FOR SALE 240 acres, 160 acres cleared, 100 acres under plow, balance pasture. Pure running water, rich soil, fine buildings. Well equipped with everything necessary for a first class stock farm, and this farm is in the coming dairy and stock county in the state. For particulars write HILES & MYERS, C-100 MATTHEWS BUILDING, Milwaukee, Wis.

"GUM AND OIL OF PINE"
for Lice and
FLIES ON CATTLE.
Harmless and very effective. Can be diluted with Kerosene Oil without injury to stock. Applied with cloth or sprayer. Single Gal. 70c; Two Gals. $1.30; Five Gals. $3.00; Thirty Gals. $15.00.
BAY VIEW CREAMERY CO., Traverse City, Mich.

FLIES? ORR'S FLY KILLER. No Other as Good.
1 gal. $1; 5 gal. $4; Sprayers 50c.
ORR & COOPER, Box 829, BEAVER, PA.

SHOO-FLY THE ANIMALS' FRIEND
Half cent's worth saves 3 quarts milk and much flesh. Kills every fly it strikes; keeps off the rest. Harmless to man or beast. NO LICE in poultry house or any place it is sprayed. If your dealer does not keep it, send $1.00 for Improved Three Tube Sprayer and enough Shoo-Fly to protect 200 cows. Cash returned if cows are not protected.
SHOO-FLY MFG. CO., 1005 Fairmount Ave., Phila., Pa.
EDITOR knows from experience Shoo-Fly is O. K.

It's a Sad Mistake
not to use some preparation to stop the dreaded fly-pest on cattle.
Cow-Ease
Will Keep the Flies Off


THE WAY TO PUT IT ON

quiet the creature and make milking a pleasure. It increases the flow of milk, too.

CARPENTER-MORTON CO., BOSTON.
Ask your dealer. If he hasn't got it, will send gallon can, express paid, for $1.00.

Rippley's Fly Remover



instantly removes all flies, mosquitos, lice and other insects from cattle, horses and other animals sprayed with it. It is healing to any sore. Animals rest easy and feed quietly all day. Cows give ¼ more milk, which is a big saving. 1 gal. will protect 500 cows. Endorsed by the best class of people. Order at once and secure agency, you can sell hundreds of gallons. 1 gal., $1.10; 2 gal., $2.10; 5 gal., $4.50; 10 gal., $9.00. RIPPLEY'S Special Sprayer for applying same, 65c; 4 gal. Compressed Air Sprayer for applying same on large herds, $5.00; 5 gal., 5.50. Money refunded if not as represented. Our Breeders' Supply catalog mailed free; tells how $8.00 per head can be saved by using Fly Remover; ½ bbl. lots of 30 gal., $25; freight paid on 20 or 30 gal. lots.

Gentlemen:—For three years I have been experimenting with different things to keep flies off my cows, but not until I tried your Fly Remover and Compressed Air Sprayer was I successful. I used this last year and found that it costs less than one cent per week per cow. With your Compressed Air Sprayer it takes but a few minutes to put it on, and the result has been that my cows were free from flies, and during the year gave 6400 pounds of milk each, which made 324 pounds of butter per cow. I can heartily recommend it to all stock owners.—JOHN ARMSTRONG, President State Board of Agriculture, De Smet, S. D., June 4, 1901.

RIPPLEY HARDWARE CO., Box 20, GRAFTON, ILL.
Western Office, Watertown, S. D.

The Old Way—Kicking Corn With Knife Fastened to Boot



FARMERS DON'T KICK NOW!
Their corn is cut with
DEERING IDEAL CORN BINDERS
Deering Corn Binders gather all of the corn. They do not waste. They are constructed on the grain binder principle; the corn is bound while in a horizontal position in the same manner as a sheaf of wheat. They do not knock off ears.
Deering Corn Binders, Corn Shockers, Huskers and Shredders
are money-makers for the farmer. Ask the nearest Deering agent for a "Deering Corn Annual."



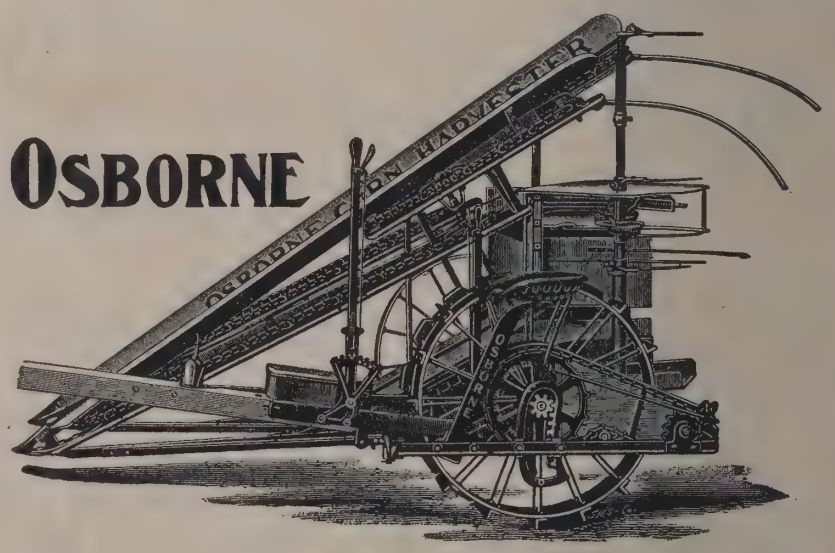
The New Way—DEERING CORN BINDER in the Field

D. M. Osborne & Co., St. Louis, Mo. Caledonia, Mo, June 1, 1903.

My Dear Sirs—I feel I honor my own judgment, and reflect only that which is justly due your corn harvester, when I say it is without doubt the best corn harvester on the market to-day. Last season I cut, on my own farm, 115 acres of corn, and a negro boy 16 years old managed the machine, drove the horses and did all the cutting, without one cent expense for repairs or breakage. The work could not be excelled. The corn was heavy and much of it down, and some full of weeds, but it made no difference to the machine. All corn looks alike to an Osborne Corn Harvester, and to Missourians your machine is peculiarly adapted, for it can most certainly "show them." I am, Yours very truly,

W. R. GOODYKAUNTZ,
Ex-Senator of Missouri.

OSBORNE



This Corn Book tells about Silos and Fodder. Book Free for the asking.

Scotia, N. Y., April 15, 1903.

D. M. Osborne & Co., Auburn, N. Y.

Dear Sirs—I am well pleased with the Osborne Corn Harvester I purchased of your agent, C. H. Bevis, last fall. It proved to be all it was commended. On account of the season, several places in our corn fields were deep mud, but where we cut there the machine worked just as good. The broad-faced steel drive-wheel is a great advantage on ground where it is soft. We used only two horses, and did the work easier than some of our neighbors did with three horses on another make of machine. It is certainly a very light runner. It is also a fine binder, never once having broken the twine, or missing to tie, thus using less twine than others, besides delay and trouble. I would say, in a word, that the machine is practically perfect. Very truly yours, CHARLES P. SANDERS.

RIPPLEY'S Granite Churns and Steel Carts
are the Cheapest as they Last Longest and Save Labor.

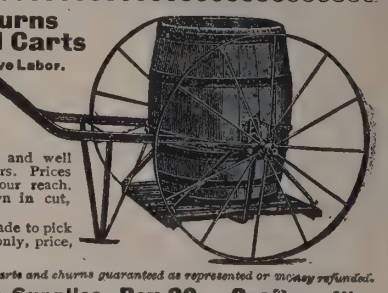


OUR GRANITE CHURNS are made of heavy 3 coat enamel, all parts removable, can be used as a cream jar, will not rust nor corrode, butter will not stick to them. Easy to clean. Churns butter in 5 to 10 minutes.

Sizes & Prices,	Cash with Order.
2 Gal. to Churn	2 Gal. $6.50
5 " " "	3 " 7.00
8 " " "	4 " 8.00
10 " " "	5 " 9.50
14 " " "	8 " 12.00

No. 6 STEEL CART with platform attachment, for carrying milk cans, baskets, bbls., etc. Strong and well built, lasts for years. Prices make it within your reach. Complete as shown in cut, $6.50.

Less platform, made to pick up and haul bbls. only, price, $5.00.



5 per cent discount allowed if you order a churn and cart. Carts and churns guaranteed as represented or money refunded.

RIPPLEY HARDWARE CO., Mfrs. Breeders' Supplies, Box 20, Grafton, Ills.

Goodwin's



T. D. Goodwin & Co.,

USE GOODWIN'S FLY KILLER
this season and make your stock comfortable. Your cows will give 25 per cent more milk; your beef cattle will fatten with one-half the feed and your horses will do their work with ease. Goodwin's Fly Killer will protect stock from flies when in pasture as well as in stable. It's convenient, cheap, practical. It's a sure lice killer and will keep stables and hog pens in a sanitary condition. Prices: Gallon 75c; 5 gallons $3.00; 10 gallons $5.50. Good sprayer for applying same 50c, or send $1.00 for Sprayer and enough Fly Killer to protect 150 cows. Agents wanted. T. D. GOODWIN & CO., Columbia Station, Ohio.

entirely obscuring the sight, continuing for more than two weeks. The animals affected apparently graze and drink as usual, without noticeable shrinkage in weight. Have not heard anyone speak of any discharge from the eye. The disease thus far has been limited to young stock.

Chippewa Falls, Wis. MRS. L. E.

ANSWER.

Your trouble appears to be contagious, (judging from your description), and requires the immediate action of the State Veterinarian, whose duty it is to promptly stamp out or prevent the spread of such diseases, for which he is drawing a good annual salary from the state. Have your local Board of Health notify him again, and if he does not respond please report to this department.

Foot Rot.

Will you please give me the best reciept for fouls in cows. C. E. M.

Heart Lake, Pa.

ANSWER.

Foot rot, or otherwise know as fouls, see page 541 of the DAIRYMAN.

Red Water.

We have a disease among the cows in this portion of the country known among cow keepers as red water. Cows affected begin to lose flesh and run down; sometimes last a year and longer. I have one, three years old, milking with second calf, on which it has made an appearance.

Portage, Wash. B. B.

ANSWER.

This is an albuminous disease of the kidneys. The colored condition of the urine is due to the presence of the coloring matter of the blood in the urine.

Cows calving when thin and in a weak condition, are predisposed to this disease. Grass containing acids, may cause it. Make a change in feed or pasture, and give nitrogenous food, and begin at least a week before calving time, so that they will be stronger and prepared to meet the heavy drain on the system, as the disease usually developes when the cow gives the largest flow of milk. You may give a quart of raw linseed oil, and follow this with a tablespoonful of tincture of iron twice daily.

Cholera, Perhaps.

I have lost 70 young pigs. Begins with a cough, hard breathing; some bleed at nose, act dull and stupid; some loose at bowels, others constipated; does not attack old hogs as yet. C. T. O.

Chicago, Ill.

ANSWER

Judging from your brief description, your hogs have cholera. If this is the case, you should at once remove all the healthy animals from among the herd, and thoroughly clean and disinfect quarters in which there have been none of the affected ones, nor should they be allowed to come in contact with each other. There is but little hope if an animal is once affected, but you may, in this way, prevent the disease, from doing further damage among the healthy animals.

DON'T LAY OFF

a horse merely because he has a sore back, neck or shoulder. Treat him according to directions with

BICKMORE'S GALL CURE.



Guaranteed to cure all **Harness, Collar or Saddle Galls** while you work the horse or money refunded. Equally good for **Scratches, Grease Heel, Cuts, Speed Cracks**; etc. Best thing known for **Chapped, Cracked or Torn Teats** on cows. Send 10 cents for a sample and satisfy yourself. All dealers sell it.

BE SURE AND WORK THE HORSE

BICKMORE GALL CURE CO., Box515, Old Town, Me.

Leg and Body Wash.



When it comes to stiffness and soreness of muscles, tendons, etc., nothing equals

Tuttle's Elixir

for restoring normal conditions. Apply to the body as a mild sponge bath and put on light blanket. Sponge the legs and put on light bandages.

Used and Endorsed by Adams Express Company.

Tuttle's American Condition Powders

—A specific for impure blood and all diseases arising therefrom.

TUTTLE'S FAMILY ELIXIR cures rheumatism, sprains, bruises, etc. Kills pain instantly. Our 100-page book, "Veterinary Experience," **FREE.**

Dr. S. A. TUTTLE, 62 Beverly St., Boston, Mass.

Beware of so-called Elixirs—none genuine but Tuttle's. Avoid all blisters; they offer only temporary relief, if any.

LumpJaw Spavin Curb Splint Sweeny

Cure Them

Lump Jaw in cattle, Fistula and Poll Evil in horses, and almost every blemish that a horse can have, even bad Bone Spavin, Ringbone and Knee-Sprung, can be readily cured by anybody. We want to tell you how to do it, prove that you can do it, and guarantee you success in doing it. Two big booklets explaining everything sent free. Write now.

Fleming Bros., Chemists, 225 Union Stock Yards, Chicago, Ill.

Calves That Scour

Get run down, even if they do not die. Hood Farm Calf Scour Cure and Digestive Powder, used in connection, cure scours promptly; keep calves from shrinking.

$1 and $2.50. Sent to any railroad express point in U. S., 25c. extra. C. I. HOOD & Co., Lowell, Mass.

Our New Patent

and Great sales are the talk of all who know of them. A fortune has been made by the patentee and the farmer in a short time. For seven months the sales were over $350.00 per day. Something good can't be gotten for nothing. By putting $500.00 and upwards into this business it will be the best paying investment we know of. Farmers using the machine say that they would not do without it for two, three, and ten times the price. Common farmer can handle it in a very paying way. We can prove the great selling qualities of this machine by bank account, the bankers themselves, and the farmer. Our plan is fair and honest. Best bank references. Car fare one way will be paid to responsible men whether they invest or not. Address

CLARENCE RAGSDALE,
Moberly, Mo.
Proprietor of Magic City Stock Farm.

YORKSHIRES.

The Large Improved Yorkshire is by all odds the best hog on the market today. Prolific, easy keeping, with desired size lacking in Small York. Boars, $20 to $8.

E. E. STEVENS,
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Cream SEPARATORS.

All about them and other things for the dairy and creamery.

A. H. REID, Philadelphia.



Warranted to give satisfaction.

GOMBAULT'S
CAUSTIC BALSAM

A safe, speedy and positive cure for

Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a **HUMAN REMEDY** for **Rheumatism, Sprains, Sore Throat,** etc., it is invaluable.

Every bottle of **Caustic Balsam** sold is Warranted to give satisfaction. Price **$1.50** per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

THE LAWRENCE-WILLIAMS COMPANY, Cleveland, Ohio.



"Just as good?" "Just as good!" Did you say? "Just as good as Veterinary Pixine!!" The dealer who tells you that is mistaken. He does not know.

FACTS AND TESTS PROVE IT!

Emery, Ky., April 9, 1903.

I feel it my duty to tell what Veterinary Pixine did for a horse of mine. He was cut with a knife between the fore legs three inches deep and two inches long, which every minute would gap open. I used several different kinds of remedy without success, even to having some stitches taken. Nothing did any good and it kept swelling and became feverish. I almost gave up hopes of getting him well. In the columns of the Ohio Farmer I observed your advertisement and, as it was the last chance, I purchased a box at the druggists and used it as directed and before the box was used up the cut was entirely well. I intend to keep a supply on hand for emergency cases if I have to pay a dollar a box for it. Please accept my thanks for the good I have received from its use, and if you choose you can use my name and testimony.

W. S. CAMPBELL.

This penetrating, stimulating, soothing, absorbing, antiseptic, healing ointment heals from beneath the surface by disinfecting the parts, subduing inflammation and stimulating healthy granulations, not by drying and scabbing, and stimulates growth of hair, natural color. Makes quick, clean and healthy cure; heals stinging, burning, chronic saddle and collar galls, hopple chafes, abscesses, caked bag, cow pox, and hoof rot. It penetrates, stimulates, sooths and heals while horse works. Money refunded if it fails.

Price, 2-oz. box 25c; 8-oz. box 50c; 5-lb. pkg. $4.00, at all druggists and dealers or sent prepaid.

TROY CHEMICAL CO., Troy, N. Y.

Also Manufacturers of "Save-the-Horse" Spavin Cure. **$5.00 a bottle.** Send for copy of guarantee and booklet.

FOUL ODOR INSURANCE $2.50

A Five Pound Can of KNO GERM makes 300 gals. liquid ODORLESS disinfectant. Kills bad odors instantly, leaving air pure and odorless. Costs only $2.50. Guaranteed by us and your supply house.

M. H. FAIRCHILD & BRO.....CHICAGO

Hay Fever and Asthma

Cured to stay cured. Never return. A radical departure. Cause eliminated. Constitution changed. **FREE** Over 52,000 patients. Good references. ("Reliefs," or change of climate, cannot cure..) Write for BOOK 41 F FREE, containing reports of many interesting cases. Address

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CHLORO NAPTHOLEUM DIP

"Chloro-Naptholeum is unexcelled for the purpose intended. Dipping our young calves in a solution immediately freed them from all parasites. As a preventative for contagious abortion we have recommended this as a successful remedy." J. Q. EMERY & SON, Albion, Wis. Chloro-Naptholeum Dip is guaranteed. Agents wanted. 1 gal. $1.50; 5 gals. $6.75 prepaid. Larger lots at lower rate.

WEST DISINFECTING CO., Inc., 8 E. 50th. St., New York.

BLACKLEGOIDS

BEST PREVENTIVE OF BLACKLEG.



Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each **Blacklegoid** (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. **Blacklegoids** are sold by druggists; *ask for them.*

Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.

PARKE, DAVIS & CO. - DETROIT, MICH.

Branches: New York, Kansas City, Baltimore, New Orleans, Chicago; Walkerville, Ont.; Montreal, Que.; London, Eng.

CURE "THE" COW

NO CURE, NO PAY



WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address

DR. EATON J. GROSS,
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NEWTON'S Heave, Cough, Distemper and Indigestion Cure. A veterinary specific for wind, throat and stomach troubles. *Strong recommends.* $1.00 per can. Dealers. Mail or Ex. paid. Newton Horse Remedy Co., Toledo, Ohio.

Your Horse can work without pain while his **sore breast is healing** if you use **MOORE BROTHERS'**

GALL POWDER

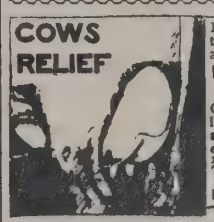
the most effective cure ever known for healing **sore shoulders, backs** and other skin abrasions; at druggists, or by mail $1.00. MOORE BROTHERS, Veterinary Surgeons, Albany, N.Y. "Facts for Farmers and Breeders," sent free.



ABORTION

Can be successfully treated with **Anti-Abortion Serum.** Easily administered and permanently cures. Information free.

DR. ROBERTS
VETERINARY REMEDY CO.,
532 Grand Ave., Waukesha, Wis.



Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.

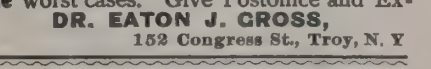
Used Exclusively at Model Dairy

Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.

O. H. MFG. CO.,
Dept. H, Lyndon, Vt.

ABORTION,

Failing to Breed and bring Cows to Heat. Sure Cure. In use 20 Years.



(Patent Applied For.)

Hard Rubber Safety Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.

DR. WM. HORNE, Janesville, Wis.

..ABORTION..

RETENTION OF PLACENTA AND FAILURE TO BREED.

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Is a positive cure for these diseases. Write for circular containing full information, references and price.

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DR. GEORGE HOLLABUSH'S

Sure Cure for Abortion



and General Tonic for Cows. The only genuine sure cure and general tonic for cows on the market. I guarantee, and refund money if not satisfactory.

Dr. Geo. Hollabush, Ft. Atkinson, Wis.

Write for circular.

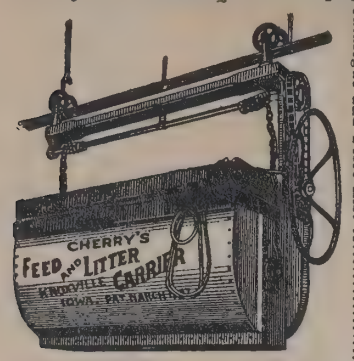
What Dr. Alexander, Prof. of Hygiene Chi. Vet. College, Instr. in Vet. Science Wis. Univ. Says About Zenoleum Dip:

"I use Zenoleum in my practice and in my Scotch Collie breeding kennels because, from long experience, I have found it perfectly reliable, standard in manufacture and effective in a host of ways. For the same reasons I confidently recommend it to stock owners who write to me for advice. It emulsifies beautifully with water, making a solution which has neither sediment nor scum and is a trustworthy disinfectant, antiseptic, deodorizer, parasiticide and vermifuge. A hundred uses are found for it on every stock farm, and it has proven indispensable in my veterinary hospital. Especially valuable in outbreaks of hog cholera, skin diseases, lice and scab, and I advise its daily use where contagious abortion is prevalent among cattle." A. S. ALEXANDER, V.S., Evanston, Ill.

Send for copies of **"Zenoleum Veterinary Advisor"** and **"Piggie's Troubles"** and see what others say about it. Books mailed free. Sample gallon of Zenoleum $1.50, express prepaid.

"The Great Coal Tar Carbolic Dip." **ZENNER DISINFECTANT CO., 34 BATES STREET, DETROIT, MICHIGAN.** Five gallons $6.25, freight prepaid.

Cherry's Perfected Barn Equipments.



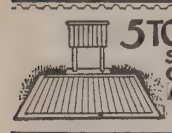
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Is the cheapest and most practical device for taking away manure from stables, carrying ensilage, feed, grain, etc., etc. No trouble to put them up; no trick to work them; leaves barn yard free from posts; dump in yard or on wagon; turns curves and switches. An inexpensive money saver. Write for illustrated catalogue and full particulars.
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SENT ON TRIAL FREE.
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2-HORSEPOWER
GASOLINE ENGINE, $70

We have in stock 150 2-Horsepower absolutely new, modern type, guaranteed engines. Our price with pumping jack..... **$75**
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Also Machinery, such as **Saw Mills, Engines, Boilers, Pumps, etc.** Write for Free Catalogue No. 20
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If you want a..... **Gasoline Engine**

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The Result of Purchased Feeds.

ED. HOARD'S DAIRYMAN:—Seeing so much in your paper about feeding dairy cows, and one item in particular (Mr. Grote's), thought that my experience with purchased feeds might help to show him the profit that can be made when the farm produces practically nothing. The following table shows the results.

	Feed bill.	Cows in milk.	Milk qt.	Phila. prices.	Values.
April.....	$37.65	20	3165	4c	$126.60
May	37.52	22	4670	4c	186.80
June.....	43.28	22	4860	4c	192.40
July.....	31.04	20	3500	3½c	123.50
August.....	32.80	20	3240	3½c	116.90
September.	33.26	18	3280	3¾c	123.60
October....	33.74	18	3119	4c	124.76
Novemher.	28.30	17	3340	4½c	145.80
December..	34.70	15	3058	4½c	137.61
January....	35.55	14	3100	3½c	108.50
February ..	38.50	14	2420	4c	96.80
March.....	40.00	15	2436	4c	97.44
	$426.34		40188		$1580.71

Cost to produce (purchased feed only) $1.06 per 100 qts.

This farm contained 130 acres from which was raised twenty-five tons of hay; five acres of oats threshed seventy-nine bushels and about three tons of straw. The pasture was six-year-old sod until Aug 1st then pastured on the new grass field. They only pastured during the day until Aug 1st, when they were near the barn and the fences were better. With the thermometer about zero we drove the cows across the fields of snow, if any, to water after cutting the ice possibly 8 to 12 in. thick. Under these conditions the feed purchased did not show the profit that was possible; had they been handled like I suppose Mr. Grote's are there would have been several dollars more profit.

The feeds were bran, hominy meal, Quaker dairy feed, King gluten meal, cotton seed meal and dried distillers grains. We also had about 1,000 bushels of corn stover the farm raised, which we cut and feed dry. The dairy—twenty-two head, all grades, mostly Jerseys; three aborted when about five months along, and one cow I never saw fresh. While others may show a larger profit when they use some home grown feed to help out, I believe this is getting very near the limit under the conditions. This covers work at Coaterville, Pa.

Clayton Station, Mo. H. D. D.

Three Meals a Day.

As an indication of the value of HOARD'S DAIRYMAN to a farmer who is willing to mix brains with his work, the following bit of testimony seems eminently pertinent:

J. A. S., of New Vienna, Ohio, in submitting an inquiry which is answered elsewhere in this issue, adds the following paragraph: "Success to HOARD'S DAIRYMAN! Before I took the paper, dairying was just about to drive me to the poor house, but since taking and studying it, my wife is able to get three meals a day.



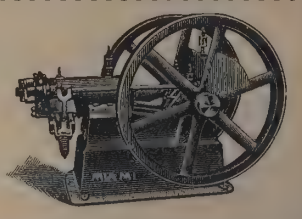
GOOD INTENTIONS ALONE CANNOT PRODUCE GOOD MACHINERY. Most all manufacturers are honest, but lack the experience and equipment necessary to turn out a thoroughly first class engine. We are the founders of the Gas Engine industry in the United States; have been building **OTTO** engines for 27 years, and operate the largest and most complete plant in the country devoted exclusively to the building of Gas and Gasoline Engines. Which will you buy, **Otto Experience** or **Others' Experiments**

THE OTTO GAS ENGINE WORKS, Philadelphia, Pa.

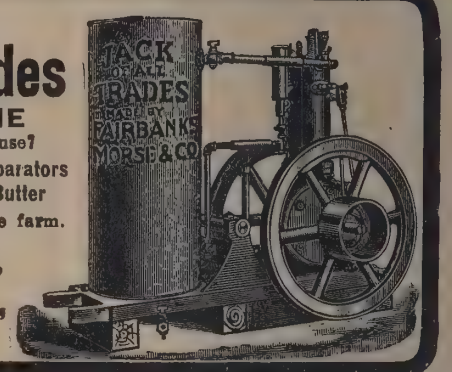
There are **GOOD SOLID REASONS** why our
MIAMI GAS OR GASOLINE ENGINE
has earned its fine reputation.

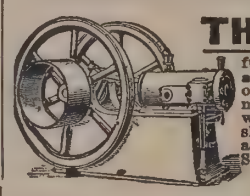
All its parts are built to perform their functions properly and to keep on doing so WITHOUT WEARING OUT.
Miami Engines, Horizontal, 5 to 65 H.P., 12 Sizes.
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—A GASOLINE ENGINE
of the most modern type for farm use?
Pumps Water—Saws Wood—Runs Separators
Shells Corn—Grinds Feed—Churns Butter
And is adapted to many other jobs on the farm.
Saves Labor—Earns Money
Write for free descriptive catalogue "Ba."
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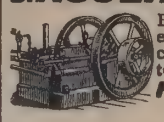




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are the outgrowth of 19 years of engine building. Not approached for strength, safety, simplicity or width of duty. Valuable for a score of farm duties. Any boy can run them. 2½ full horse power at less than 5 cts. per hour. Tested and ready for action upon arrival. Made to fit farmers' needs. Other sizes up to 200 h. p. Write for free catalogue.
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3 Cts. an Hour is all it costs to run the **Webster** Vertical Gasoline Engine at full power. Ideal engine for grinding, shelling, cutting ensilage, pumping, sawing, etc. Develops **8 Full Horse Power.** Guaranteed fully. We send you illustrated engine catalogue free.
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LITTLE GIANT
2 H. P. Vertical
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On Skids ready to run.
Gas or Gasoline Engines. with or without Pumping Jack. Electric or Tube Igniter.

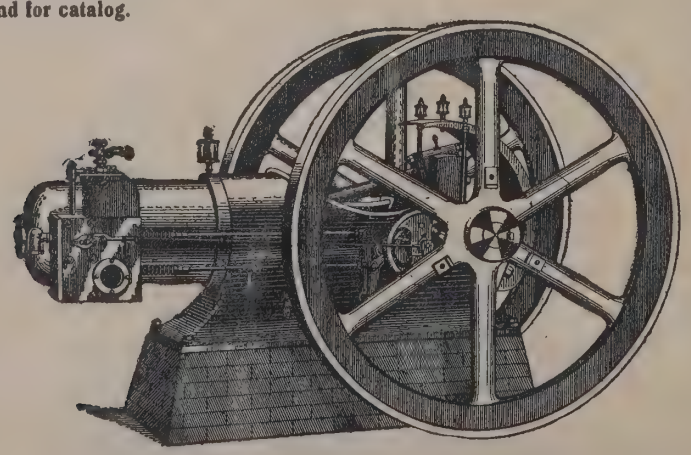


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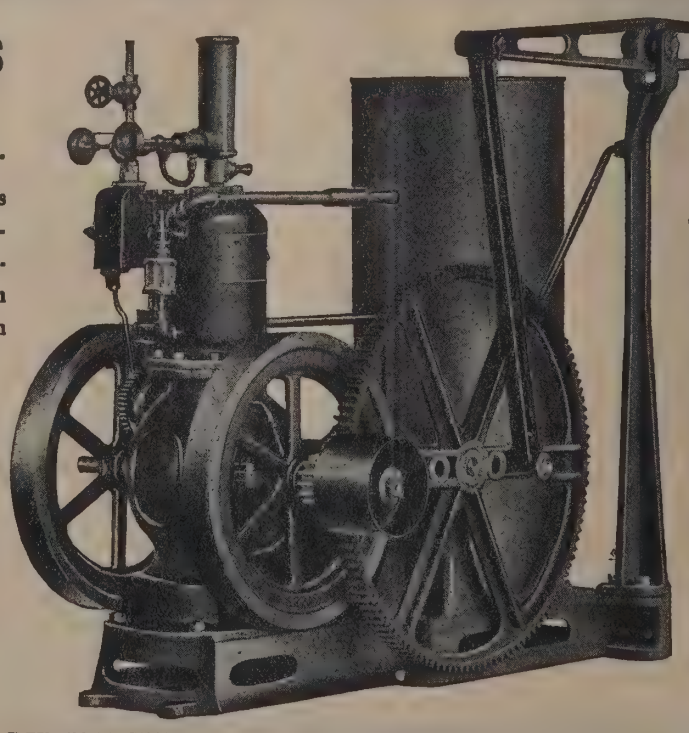
The Model Gas and Gasoline Engines
MANUFACTURED BY
THE CENTRAL CITY IRON WORKS, STEVENS POINT, WIS..
and MODEL GAS ENGINE CO., AUBURN, IND.

Portable Engines from 2 to 25 horse power, Horizontal, Stationery, and Marine from 2 to 100 horse power inclusive.
Send for catalog.

The only Engines successfully operated on kerosene and sold on fuel consumption guaranty.



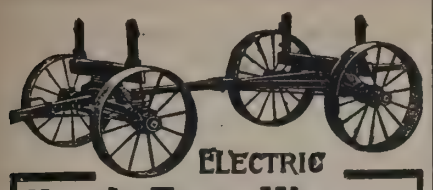
40 H. P. HORIZONTAL STATIONARY ENGINE.



VERTICAL ENGINE AND PUMP JACK WITH ALL IRON BED PLATE.

Agents Wanted in all Unoccupied Territory

MENTION THIS PAPER WHEN WRITING.



ELECTRIC

Handy Farm Wagons

make the work easier for both the man and team. The tires being wide they do not cut into the ground; the labor of loading is reduced many times, because of the short lift. They are equipped with our famous Electric Steel Wheels, either straight or stagger spokes. Wheels any height from 24 to 60 inches. White hickory axles, steel hounds. Guaranteed to carry 4000 lbs. Why not get started right by putting in one of these wagons. We make our steel wheels to fit any wagon. Write for the catalog. It is free.

ELECTRIC WHEEL CO., BOX 130, QUINCY, ILL.



Let Them Help Themselves.

They'll not take too much, and they'll get it as they want it. Don't force animals to eat salt when they don't require it, by mixing with food.

COMPRESSED

Pure-Salt Bricks

are all salt, no impurities. Improve the quality and yield of milk. A modern convenience, always present, animals never neglected, and costs for each only about a nickle a month. See how they enjoy helping themselves when you place it within reach. For all stock. Buy of dealers or send for free booklet to

Belmont Stable Supply Co., Brooklyn, N.Y.

To add weight and winning flavor to your butter, salt it with

DIAMOND CRYSTAL SALT

"The Salt that's ALL Salt."

Quickly dissolves, becoming a part of the butter. Not washed out in the working like common salt. Send for free book—"Just Salt."

DIAMOND CRYSTAL SALT COMPANY, St. Clair, Mich.



WE LEAD THE WORLD

We are the largest manufacturers of Grooved and Plain Tire Steel Farm Wagon Wheels in America. We guarantee our patent Grooved Tire Wheels to be the best made by anybody anywhere. Write us.

HAVANA METAL WHEEL CO.

HAVANA, ILL.

ANOTHER BEAUTY.

Watch for the Next.



We know it will interest you. Write for our Form E catalogue showing many other styles.

THE O. ARMLEDER CO., Cincinnati, O.

The Dairy Farmer as an Example of Prosperity.

(Continued from page 586)

printed business letter heads. They are business farmers, owning fine herds of high-grade or registered dairy cattle.

"Let us take Jefferson county, Wisconsin, the home of HOARD'S DAIRYMAN, as an example. It is 24 miles square and has a population of about 40,000. In 1870, its agriculture had reached its lowest ebb. Farmers had engaged in wheat raising until they had so reduced the native fertility of their land that the average crop of wheat was eight bushels per acre. The farms were heavily mortgaged to the extent of 60 per cent of their assessed valuation, and their average value was $20 per acre.

"The farmers of Jefferson county took up dairying. Today, this is in many respects the wealthiest county, agriculturally speaking, in the state. It has met Holland's boast, and has a cow to every inhabitant. Its cows earn annually nearly two millions of dollars. The bankers of this little county have on deposit over $2,000,000 belonging to the farmers.

"The census reports give some astonishing figures and squarely illustrate what I have in this article contended, that the dairy business places a community financially in position where they can be liberal patrons of advertisers. In 1870 the census reports gave the total value of agricultural products of Jefferson county as a million and a quarter dollars; in 1900 on the same land, the value of the agricultural products was over five million dollars. Is there any agricultural advertiser who would contend that Jefferson county would be as good a field for him in its condition of 1879 as it is in 1900, when it is earning nearly $4,000,000 more? There is no mystery in this, no juggling with figures; of course, better markets will account for some of the increase, but the major portion has no other cause than dairying.

"Let the agricultural advertiser think back to the hard times of '93 and '94. If he closely analyzed his business and advertising at that time, he found good dairy sections standing out to him as would an oasis to the traveler in the great Sahara. Years ago, when many of the present agricultural advertisers left the farm, dairying meant a few pounds of butter to be swapped weekly at the country store for calico and groceries. But there has been a great change in agriculture. Farming is becoming specialized like most every other line of business, and any man on the farm who has the brains, backed by get-up-tiveness to make a success, is fighting it out usually on some one line. If he is a thinker, he can hardly avoid it.

"Dairying is attractive to the progressive thinker on the farm, because it gives him a field where his brains can earn the money. It is the intelligence he exercises in the feeding and breeding of his stock, and how he handles their product that makes success, and this is constant study; it is not simply a case of keeping the weeds out between the rows and getting ahead of frost. This is why, I say, the unprogressive man on the farm does not take up dairying, and that those who are in dairying are progressive men.

"To the agricultural advertiser, the dairy farmer certainly presents an unusually rich field. When he compares them with the average farmer they look like a 'sifted and sorted people,' they are the owners of the fine barns and farms on which are seen the large herds of fine dairy cattle, with the appearance of thrift, comfort and prosperity pervading the whole place. That's the dairy farmer, and that's the farmer that the business man envies as he passes through agricultural communities. They are not existing on so much land as simply pensioners in the soil. Intellectually and financially, they can be found among the best of every community.

"When a farmer goes into dairying and stock raising, he at once measures his business by higher standards. It means better buildings on his farm, better fences, better breeding, better feeding, better homes, better machinery, better equipment everywhere and a better man."

Painkiller PERRY DAVIS'

The world-known household remedy for cuts, burns, bruises—cramps, diarrhœa and all bowel complaints

Watering the Herds

WITH the fencing of the ranges has come the need for an artificial water supply upon the great stock farms of the West. That cattle may thrive and fatten for the market, it is absolutely essential that this supply be both *constant* and *abundant*. The picture shows a typical scene upon many of the largest ranches, where the **HOT AIR PUMP** is delivering its supply into the storage tank, whence it is drawn off daily as required, in any volume up to 100,000 gallons. No driving of the herds to some distant river is required, thus much expense is saved and the cattle drink quietly, as nature dictates, at an *ever ready* and *abundant* supply. Descriptive Catalogue sent free on application.

Rider-Ericsson Engine Co.

Remember, the Hot Air Pump is Automatic, requires no skilled attention, and is the cheapest form of constant water supply now known.

35 Warren St., New York.
40 Dearborn St., Chicago.
40 N. 7th St., Philadelphia.
239 Franklin St., Boston.
692 Craig St., Montreal, P. Q.
22 Pitt St., Sydney, N. S. W.
Teniente-Rey 71, Havana, Cuba.



THE ONLY LOW-DOWN

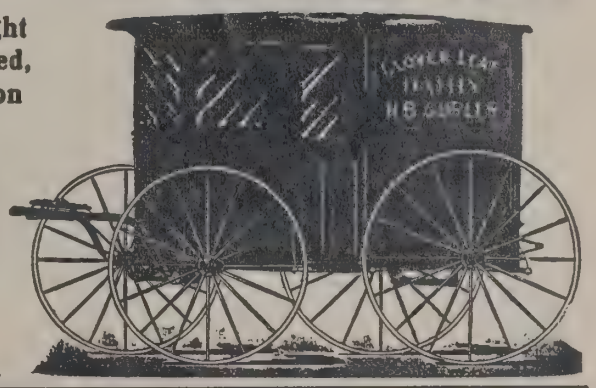
Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the Market.

20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for catalogue, prices and terms Wagons for carrying Bottled Milk a specialty.

Shipman, Bradt & Co.,

Sole Manufacturers,

De KALB, - - Ill.





The National

LOW DOWN CUT-UNDER

justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

THE NATIONAL WAGON COMPANY, Chillicothe, Ohio.



SAW MILLS, 4 H. P. cuts 2,000 feet per day—All Sizes—Planers, Shingle Mills and Edgers with Patent Variable Friction Feed-Portable Grinding Mills, Water Wheels, Lath Mills, etc. Send for large Catalogue. Freight don't count.

Box 801, Atlanta, Ga. DeLOACH MILL Mfg Co 114 Liberty St., N. Y.

$62.75



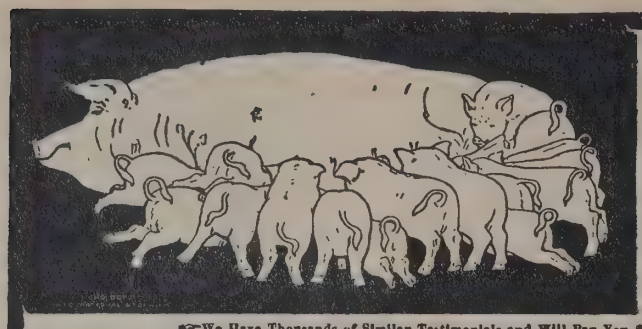
BEST MILK WAGON ON EARTH.

SOLD DIRECT TO CONSUMER ONLY.
Highest Grades—Lowest Prices—Guaranteed. Shipped on Approval. Full line Buggies and Harness. Write for Catalogue and Prices.

SAVE DEALERS' PROFITS.

UNION BUGGY CO. Dept B. PONTIAC, MICH.

MILK TUBES Patent Coin Silver 1¾" 50c. 2¾" 80c. Improved Teat Opener 75c. Dilating plug 25c. Postpaid on receipt of price. G. P Pilling & Son, 3d and Arch Sts., Ph l., Pa.



MY SOW RAISED 15 FINE PIGS

Newman, Ill., April 3, 1903.

International Stock Food Co.

DEAR SIRS:—I have been a feeder of **"International Stock Food"** for over 3 years. I have a sow, perfectly white, 3 years of age, weighs 375 or 400 lbs. She is very lengthy in build and has been fed **"International Stock Food"** from the time she could first eat. She was bred to a Poland-China boar and two days ago she had 15 nice, plump pigs. Ten of them are white and five black. The pigs are in good flesh and doing nicely. **"International Stock Food"** is a great preparation for hogs and pigs. Yours truly, JOHN OLIVER EAGLER.

☞We Have Thousands of Similar Testimonials and Will Pay You $1000 Cash to Prove That They Are Not Genuine and Unsolicited.☜

We own "International Stock Food Farm," which is located 12 miles from Minneapolis and contains 650 acres. We feed "International Stock Food" every day to all our WORLD CHAMPION STALLIONS, DAN PATCH 1:59 1/5 and DIRECTUM 2:05¼; to our YOUNG STALLIONS, BROOD MARES, COLTS, WORK HORSES, CATTLE and HOGS. "INTERNATIONAL STOCK FOOD" ☞3 FEEDS FOR ONE CENT☜ is Prepared from Roots, Herbs, Seeds and Barks and Won the Highest Medal at Paris Exposition in 1900 as a High-Class vegetable, medicinal preparation to be fed to stock in small amounts as an addition to the regular feed. It is a Great Aid in Growing or Fattening stock because it increases the appetite and Aids Digestion and Assimilation so that each animal obtains more nutrition from the grain eaten. We positively guarantee that its use will make you extra money over the usual Plan of Growing and Fattening stock. "International Stock Food" can be fed in safety to Horses, Cattle, Sheep, Goats, Hogs, Colts, Calves, Lambs or Pigs. It is Absolutely Harmless even if taken into the Human system. You insist on eating medicinal ingredients with your Own food at every meal. Salt is a stomach tonic and worm medicine, Pepper is a powerful stimulating tonic, Mustard is a remedy for dyspepsia, Vinegar is a diuretic. You eat these medicinal ingredients almost with every mouthful of your food, and it is proven that these Medicines promote health and strength for people and improve their digestion. "International Stock Food" contains pure vegetable medicinal ingredients that are just as safe and as necessary an addition to the regular feed of your stock if you desire to keep them in the best possible condition. "International Stock Food" is endorsed by Every High-Class Farm Paper. It purifies the blood, stimulates and permanently strengthens the entire system so that disease is prevented or cured. "International Stock Food" is sold on a "Spot Cash Guarantee" by Fifty Thousand Dealers throughout the World. ☞Your Money will be Promptly Refunded in Any case of failure. It will make your Calves or Pigs grow Amazingly and has the largest sale in the World for keeping them healthy. ☞Beware of the many Cheap and Inferior Imitations. No Chemist can separate all the Different powdered Roots, Herbs, Barks and Seeds that we use. Any One claiming to do so Must be an Ignoramus or a Falsifier.

WHAT PEOPLE SAY ABOUT THIS BOOK.

INTERNATIONAL STOCK FOOD CO., EAU CLAIRE, WIS.

Dear Sirs:—I received your "International Stock Book" and was more than pleased with it. It is worth more than $10.00 to me. Very truly yours, RICHARD J. MORRISSEY.

INTERNATIONAL STOCK FOOD CO., ODESSA, MO.

Dear Sirs:—Your "International Stock Book" duly received, and it is the best thing of its class that I have ever seen. There is a volume of useful articles in it from start to finish. Respectfully, GEO. W. NULL.

A $3000.00 STOCK BOOK FREE

IT CONTAINS 183 LARGE ENGRAVINGS OF HORSES, CATTLE, SHEEP, POULTRY, ETC.

The Cover of this Book is a Beautiful Live Stock Picture ☞Printed in Six Brilliant Colors. Size of the book is 6½ by 9½ inches. It cost us $3000 to have our Artists and Engravers make these Engravings. It describes common Diseases, and tells how to treat them. It also gives Description, History and Illustrations of the Different Breeds of Horses, Cattle, Sheep, Goats, Hogs and Poultry. It contains Life Engravings of many very noted Animals, and also testimonials. The Editor Of This Paper Will Tell You That You Ought To Have This Stock Book In Your Library For Reference. ☞It Contains a Finely Illustrated Veterinary Department That Will Save You Hundreds of Dollars.

WE WILL MAIL IT TO YOU ABSOLUTELY FREE, ☞Postage Prepaid.

We Will Pay You $10.00 Cash if book is not as described. Write us at once, letter or postal card, and ANSWER THESE 2 QUESTIONS:

1st.—Name This Paper. 2d.—How Much Stock Have You?

We Employ Over 300 People and have Hundreds of Thousands of Testimonials. Refer to Any Bank in Minneapolis.

INTERNATIONAL STOCK FOOD CO., Minneapolis, Minn., U. S. A.

Largest Stock Food Factory in the World. Capital Paid in, $1,000,000. 600,000 Feet of Space in Our New Factory.



WIND MILL

$1000 Reward

REVOLUTIONIZES WIND POWER.

2-14 ft. Wheels.

10 horse power

All the power you need for $1.00 per MONTH.

Address

Double Power Mill Co.,

Appleton, Wisconsin

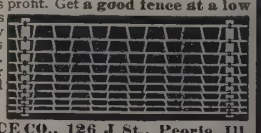
WE SAVE YOU MONEY

on every rod of fencing you buy from us. Why? Because we sell you the

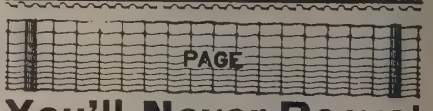
ADVANCE FENCE

Direct From the Factory at Wholesale.

Dealers cannot buy it any cheaper than you can. We save you the middle man's profit. Get a good fence at a low price. No loose ends to unravel. All closely interwoven. Cross wires cannot slip. Write at once for our circulars and special discounts.



ADVANCE FENCE CO., 126 J St., Peoria, Ill.



You'll Never Regret

buying The PAGE for your fall fencing. It lasts

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

GRISWOLD WIRE FENCE

Square Mesh, Dimond Mesh Fence, Plain, Galvanized, Barbed, or Telephone Wire. Write for illustrated catalog and price list.

DILLON-GRISWOLD WIRE CO., Sterling, Ill.

NOW Is the time to Subscribe for HOARD'S DAIRYMAN.

CLIMAX

Ensilage and Feed Cutters.



"THE COMPLETE MACHINE"

CLIMAX machines are original. They are not made over from old models, in an attempt to turn them into blowers, by adding a number of chains, belts, or other attachments. They are made to elevate by wind delivery, and every part is built with this end in view. They are sold under an absolute guarantee to do the work, and **never** fail.

CLIMAX machines passed the experimental stage eight years ago. It has never been necessary to change any essential feature of the original pattern. We are still using the straight knives, with the shearing, inward cut; the elevating is still done with the same wheel as the cutting, requiring less power; the smooth reversing gear, which is positive and cannot break; the large feeding rollers, which won't choke, and the knife adjustment, which sets every knife at once and sets them **true**. All these have stood the test and cannot be had with any other machine.

The combination of simplicity, great strength, large capacity and few wearing parts, places the **CLIMAX** in the very front rank. When you have a binding guarantee as well, there should be no doubt regarding the machine. Catalogue for the asking.

WARSAW-WILKINSON CO., WARSAW, N. Y.

SULKY AND GANG PLOWS

Light Draft, High Lift, Powerful Lifting Spring; Boy can handle it. Patented Step carries the plow and lightens draft. Shipped in crate, set up and sharpened ready for use. Spring Clevis eases draft and saves harness. Automatic Lock on rear wheel. Celebrated "Garden City Clipper" bottoms used.



David Bradley Mfg. Co., 110 E. Broadway, Bradley, Ill.

BRANCH HOUSES: DAVID BRADLEY & CO., Council Bluffs, Iowa. BRADLEY, CLARK & CO., Minneapolis, Minnesota. BRADLEY, ALDERSON & CO., Kansas City, Missouri.



THERE are many instances where corn stover has been scientifically tested and found to actually contain more nutriment than timothy hay. Stock relish the corn stover; then why not save this part of your crop, and feed your cattle; and, if need be, sell your hay.

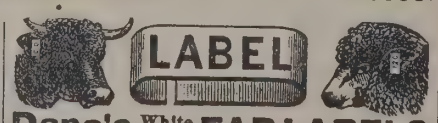
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EAU CLAIRE, GREEN BAY, MADISON and MILWAUKEE, WIS.

Steel Water Tanks

for stock, storage, dipping, wagons, etc., of shapes and capacities to meet every farm need. Best line galvanized ware made, including roofings and sidings, eaves troughs, conductors, ridge capping, etc. Sold by prominent dealers everywhere. When you buy insist on getting the "Gedge" or "Anderson" brand. If not there write us. We'll see you supplied.

Gedge Bros. Iron Roofing Co., Box 482, Anderson, Ind.



Dana's White Metallic EAR LABELS

stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Samples free. Agents Wanted.

C. H. DANA, 55 Main St., West Lebanon, N. H.

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HOARD'S DAIRYMAN.

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Devoted to Dairying and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., AUGUST 14, 1903. NUMBER 27

HAND SEPARATOR BUTTER always brings a good price. We make it a specialty. Why sell your cream when you can get from 15% to 20% more for butter! Save "the over-run" for yourself. Send for market quotations and make us a trial shipment.
C. H. WEAVER & CO., 128 South Water St. CHICAGO.
REFERENCE:—Any bank or wholesale house.

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs**
Liberal Advancements Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, New York



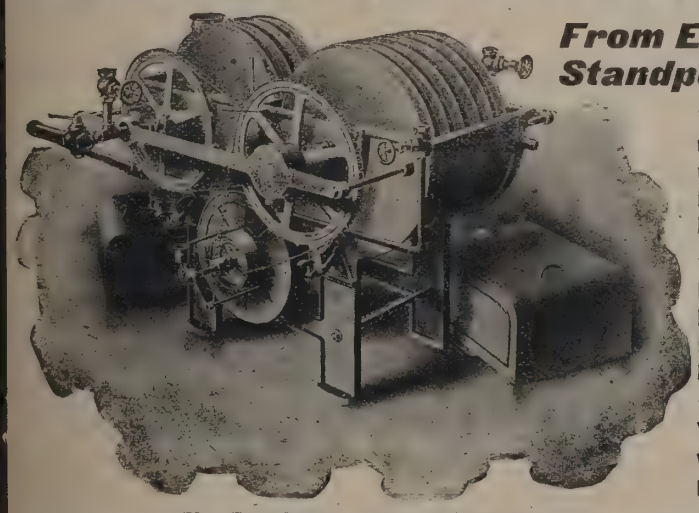
ASK YOUR DEALER IN DAIRY SUPPLIES FOR
CHR. HANSEN'S LACTIC FERMENT
To Ripen your cream, ensuring
Perfect Flavor, Uniformity and Keeping Qualities in your Butter.
CHR. HANSEN'S LABORATORY, P. O. Box 1003, Little Falls, N. Y.



NEXT TIME An agent offers to sell you the Elgin tub, and ours is the one you want ***ASK HIM*** if the Elgin tub he is selling is the one made by Schmidt Bros. at the factory of the Elgin Butter Tub Company at Elgin, Ill.
THAT'S THE TEST that will enable you to get our tub instead of the so called "Elgin" "Elgin Style" tubs, etc., made by other companies.
ELGIN BUTTER TUB CO., ELGIN, ILL.
Schmidt Bros., Props.

HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, BOSTON.**
Medals—Bronze 1878 Silver, 1887, World's Fair, 1893.

A SUCCESSFUL PASTEURIZER



From Every Standpoint.

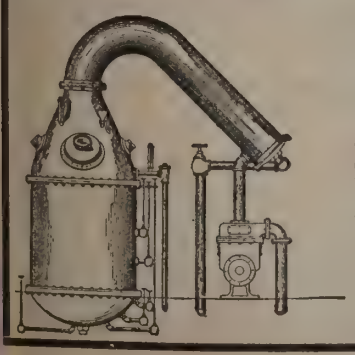
The only Pasteurizer made that pasteurizes milk heavily acid.

It makes good Butter—that makes good business.

Your Butter will score 8 points higher.

The Farrington Duplex Pasteurizer.

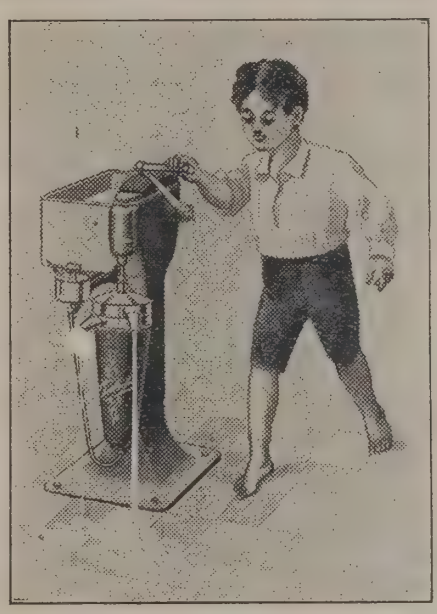
CREAMERY PACKAGE MFG. COMPANY
BRANCH HOUSES: Kansas City, Mo. Omaha, Neb. Minneapolis, Minn. St. Louis, Mo Waterloo, Ia.
Canadian Branch: Cowansville, Quebec.
149 to 153 East Superior Street,
Chicago, Ill., U. S. A.



Milk Condensing Machine I supply the most improved machinery and most successful processes for manufacturing all classes of condensed milk and evaporated cream. Factories built complete, put in operation and results guaranteed. If you are interested write for my new illustrated and descriptive catalogue. The only catalogue ever published on the subject.
R. R. ROGERS, Winthrop, Maine.
(Formerly of Detroit, Mich.)
I am not associated with any person, firm or company.

THE TUBULAR
Separates the Separators

YOU learn what a man or machine CAN DO by knowing what that man or machine IS DOING. You base your conclusions on facts---not talk.

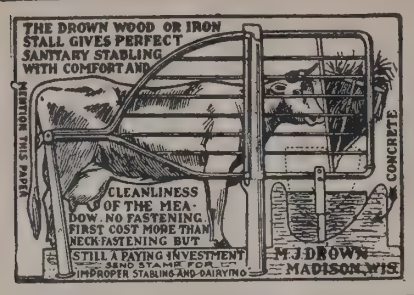


THERE is a machine that has revolutionized dairying—it is a cream separator. There is a machine that has revolutionized cream separators—it is the Sharples Dairy Tubular Separator.

THE Tubular is unlike any other separator ever made! It's a "Right Now" machine—an "Izzer"—that has made "Has Beens" of all other separators—a machine of great merit—of strong reputation—in use by thousands of farmers and dairymen. It has proved its ability to skim cleaner, turn easier, clean quicker and better, wear longer, need fewer repairs, than any other separator, and do it every day, too. It's a Tubular Bowl—three simple pieces—all other separators have bucket bowls full of troublesome parts.

WRITE FOR FREE CATALOGUE NO. 144.
Tells All About Tubulars.

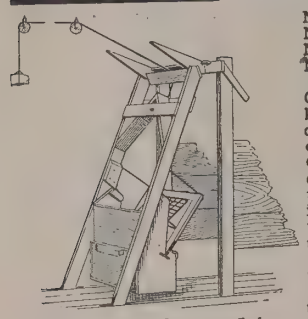
The Sharples Co., 28, 30 & 32 So. Canal St. CHICAGO, ILL.
P. M. SHARPLES, West Chester, Pa. U. S. A.



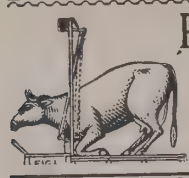


CHAIN-HANGING
CATTLE STANCHION
The Most Practical
CATTLE FASTENER
ever invented.
Manufactured and For sale by
O. H. ROBERTSON,
Forestville, Conn.

JUST OUT! **UNDERHILL SELF ADJUSTING STALL**



No Gutters
No Platforms
No fastenings
No Stables to clean
Cease trying to keep your cows clean. **You can't do it.** Give them a chance and **they will do it themselves.** This is the **only** way and the **easy** way. Write for circular telling what the cow has discovered to us. It is a great revelation.
Wm. M. UNDERHILL, Oconto, Wis.



Prescott's Swinging Swivel Stanchion
Keeps Cows Clean.
Swings forward while getting up or lying down. Looks back while standing. Full particulars free.
E. PRESCOTT,
Beverly St., Boston, Mass



WILDER'S
PATENT SWING STANCHIONS
Chain or Pin Fastened.
Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.
Safest, Strongest, Most Convenient fastening made. Cheapest to put in and save room in barn. Send for **Stanchion Catalog** to
WILDER-STRONG IMPLEMENT CO., 11 Monroe, Mich.

This Taylor Stanchion



is made of angle steel lined with hard wood on side next the animal's neck. **It is lighter, neater and stronger** than any other stanchion made. Swings on chain at top and bottom and admits of greatest freedom of motion. Cattle can lay with head on side. Easiest opened and closed. **Reliable Agents Wanted.** Write for special terms, prices, etc.
JAMES BOYLE, SALEM, O.



The BEST Cattle Fastening.
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A New York Dairy County.

ED. HOARD'S DAIRYMAN:—It is generally conceded that Delaware county stands first in the state of New York as a dairy county. There may be another that surpasses in quantity of products, though I have not the statistics at hand to prove it, but in proportion to area, Delaware is ahead even in this respect. When it comes to the question of returns per cow, the quality of the milk and the general conditions for successful dairying it may be doubted whether another region of equal area can be found that possesses characteristics equally favorable for the dairy industry. It was the privilege of the writer recently to make a trip into that section, going well over into the Catskill region. At this time I will mention only a few of the features that impressed me. The lofty hills and the hillsides, where are springs of such abundance, both as to numbers and the volume of flow, are matters of general knowledge. It seems to me that the source of these springs must be in the dense forests which for miles crown the hilltops, and make the region one of picturesque grandeur.

Here is essentially the home of the Jersey cow, and here she has champions without stint. For miles along these hillsides one sees no other. Not all are thoroughbred, but nearly all are high bred, and many are eligible for registry. It was in another territory not twenty miles away that a locally noted dealer in cattle told me a few months ago that he had purchased and sold thousands of grade and full blood Jerseys in years past, but that now he can scarcely sell a Jersey. His market, however, is in the east where milk is sold for city consumption, and without regard to richness.

In this neighborhood where I visited, an Ohio dealer came last fall and took out 500 or more of these Jerseys, and shipped them to his state. Trust a Buckeye granger to know a good thing when he sees it. The cows are of good size and strong, and are good milkers. My friend has probably no more than an average herd, but when I saw him, his twenty cows were averaging slightly over four hundred pounds of milk a day, the feed being fairly good pasture and nothing more. It is only recently that the creamery has invaded the interior of the county to which I refer.

It was my pleasure to call upon the gentlemanly foreman and part owner of one of these creameries, Mr. Geo. Polly, of Andes. The milk is all purchased on the test, the price being one cent per pound below the highest New York quotations for the butter, calculating upon the test with a 12 per cent overrun; that is, after the test has been made, 12 per cent is added to the amount of fat, as shown by the test. There are only about fifty patrons, but the daries are large and the receipts of milk ran up close to twenty thousand pounds per day.

The sheet of tests for the first ten days in June was shown me from which I calculated an average of 4.56 per cent of butter fat. Some of the patrons told me that they got more pounds of butter to their credit at the creamery, last year, than they obtained the year previous by working the milk up at home; besides, they received better prices. All this, in spite of the fact that there is no railroad within twelve miles, and all goods have to be transported by teams over the hills. Usually skim milk is sold back to the dairyman here at ten cents per can, but to encourage raising good calves for cows, the milk was sold back till June first, this year, at 5 cents per can. The future interests of the dairyman and of the creameryman lie along the same lines.

H. H. L.

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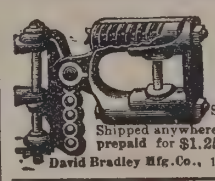
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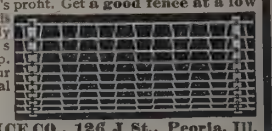
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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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A Model Dairy Barn.

Temporary Home of the Louisiana-Purchase Fair Jerseys.

Following is a descri ption of the farm and buildings which Mr. A. O. Austen has placed at the disposition of the American Jersey Cattle Club as "training quarters" for the cows selected to represent the Jersey breed at the Louisiana Purchase Exposition in St. Louis, next year. The illustrations are from photographs sent us, and we may be pardoned for calling attention to the circumstance that the general plan and arrangement follow substantially the suggestions made in the Dairyman for constructing dairy barns, with the exception that we do not approve the concrete platform for the cows to stand and lie on, and we suggest to Mr. Graves that he cover this platform with plank.

On one ot the most beautiful farms in Illinois, at Jerseyville, in Jersey county, is a herd ot the best Jersey cattle in the world. The animals are the property of individual members of the American Jersey Cattle Club, and they are assembled because they are the best qualified to make up the herd that will represent the Jersey breed in the great dairy demonstration planned by Chief F. D. Coburn for the World's Fair in St. Louis in 1904.

No athlete who was ever conditioned for an event requiring the development of strength, endurance and skill ever received greater care and more intelligent attention than is being bestowed on this herd of full blood Jersey cows at Jerseyville. When the great test begins at St. Louis, at the opening of the Louisiana Purchase Exposition on April 30, 1904, the herd will have been in constant training for a full year.

Only 25 cows will participate in the test. The greatest possible care was taken in selecting the animals for this herd, and the committee in choosing had at their disposal any of the 250,000 registered Jersey cows in America Even more changes may be made in the personnel of the herd. If a cow should become ill conditioned or should develop some malady, it will be removed from the herd. J. J. Richardson, the chairman of the committee, is now touring Europe, and will visit the famed Jersey Island and other European points, where he will make further selections if suitable candidates be found.

When the Louisiana Purchase Exposition Company announced the large prizes for the breed of cattle that would make the best dairy test, the American Jersey Cattle Club determined to show every strong point possessed by the Jerseys. Many millionaires are members of the club and they resolved that cost should not stand in the way of anything that would be of value to a perfect showing.

To get together the herd, selections were made from widely different sections. Maine contributes one and Oregon another, and many intermediate points furnished still others. Were they to arrive in St. Louis just a short time before the exposition they would not be acclimated nor at their best. Therefore an assembly place near St. Louis was a necessity.

Mr. A. O. Auten, of Evanston, Ill., proposed lending the club one of his farms, near Jerseyville. Ill., and the offer was accepted. This farm, comprising 400 acres, adjoins the cityof Jerseyville on the south, and is, ideal. A handsome residence, formerly occupied by Mr. Auten and his family, is just outside the city limits and adjoins 10 acres of splendid pasture. This is now occupied by the family of Mr. C. T. Graves, a well known breeder of Jersey cattle, at Maitland, Mo., who was selected to manage the great enterprise. He moved to Jerseyville early in 1903, and began his campaign.

First he planned a new cow stable for the reception of the fine cattle when they should begin to arrive. The stable was completed early in July, and it is probable that not another barn in the world is as complete in every respect as this. The structure fronts the south. The barn is square, with stable wings on the north and east ends. The north wing has stalls for 24 cows, and the east wing has stalls for 12 cows and six large box-stalls.

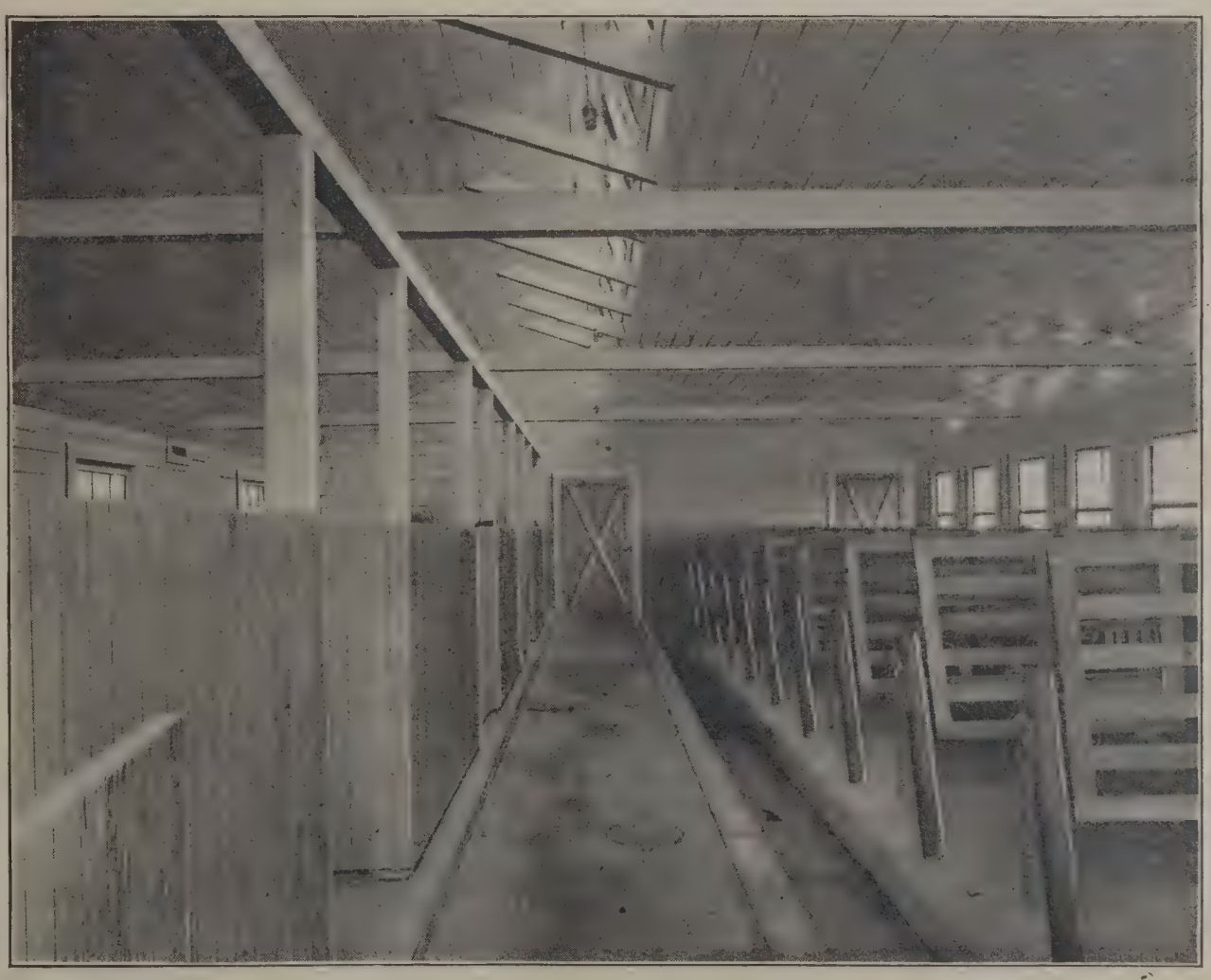
Mr. Graves designed the barn and stables, and they are marvels of convenience and cleanliness. An electric power plant is in a separate building, and the entire premises are lighted with electric lights. The barn and stables have numerous windows, all of which are perfectly screened. Electric fans are scattered throughout and the air is kept in constant motion.

Cleanliness and perfect sanitation were ever in Mr. Graves' mind. No unpleasant odors can be detected and the stables are always scrupulously clean. The cows are ranged in stalls that extend the length of the wings. Their heads are at rows of windows where they always get fresh air. The floors are all concrete. Between the rows of cows is a broad granitoid passage way and a gutter sloping to the center, affords perfect and natural drainage. The floors of the stalls are also of concrete, and they are covered thick with clean straw, for bedding.

The mangers are also concrete. They are of new construction. The walls all slope to the point nearest the cow's head, and while the tendency is for the animal to push the food away from her, it always falls back into the manger, in front of her nose. A gate is at the cow's head. This gate is so arranged that it may be put forward or back so as to fit the cow's length, and keep her rear feet just at the edge of the gutter. A chain at the back passes under the hollow of the animal's legs and prevents her from backing off the floor of the stall, into the gutter.



Buildings at Jerseyville, Ill., when the Jersey Herd is Being Prepared for the St. Louis Fair.



Interior of one of the Stables, Showing Arrangement of Stalls.

The stalls are simply a series of folding gates, and all of the 12 stalls, or as many of them as are needed, may be instantly converted into one big stall. The side gates swing either to the right or left, and may be folded up into a groove over the manger. When the cow is in the stall, however, the partition is strong and rigid. The cows may be led out at either end of the stalls. Then the hose may be turned on and the floors flooded in a short while. The drainage is so perfect that the water runs off readily, and the floor dries quickly. In the floors of the passage way, between the rows of cows, are large round openings in the

(Continued on page 614)

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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

A FACT IN THE CURING OF CHEESE.

Many people like new, uncured cheese. They are not aware of the indigestible character of such cheese. The following statement, which is scientifically true, will illustrate the point we are making concerning the superior digestibility of well cured cheese. This statement is made by Prof. Vivian formerly of the Wisconsin Experiment Station.

"When the cheese is first made, the casein or curd, is in perfectly insoluble condition, no part of it being soluble in water. In the space of about a year, however, half of this casein has been converted into a condition which is soluble in water. In other words it has been digested, for we find upon chemical analysis that the changes taking place are very much such changes as will take place in the stomach and intestines— that is the true digesting, and we have the digestive products. Cheese should never be eaten that has not been well cured, for if eaten in such condition it is apt to cause very serious derangement of the digestion.

A SPLENDID GUERNSEY COW.

Mr. J. P. Welsh, of Bloomsburg, Pa., sends us a statement of the yearly record of his Guernsey cow, Mary Marshall 5th No. 11814. This cow was dropped April 3, 1899. Her dam was the renowned Mary Marshall, the cow that won the grand prize over 50 competitors of all breeds at the Pan-American, in Buffalo. The sire was Manager 3399, one of the noted bulls of the breed.

Mary Marshall 5th completed her year's record under the official supervision of the Pennsylvania Experiment Station, April 30, 1903. During the year she gave 9,306.3 lbs. of milk, which yielded 474 lbs. butter fat, equivalent to 554 lbs. of butter.

Concerning her make up and form the owner says: "Mary Marshall shows her breeding in her remarkable dairy form. She is large and vigorous and rich in color. Her skin is remarkably yellow. She has thin thighs, high cut flanks, sharp withers, a very prominent spinal and pelvic development, a broad, well defined escutcheon, and an unusually large udder."

An interesting fact is contained in the statement that Mr. Welsh makes, that this cow produced all this milk and butter fat on the same feed as was given to the remainder of the herd of 30 cows. Herein is seen the value of good dairy blood. This cow took her feed and by virtue of the superior organization of her dairy machinery she produced the phenomenal record as given. In other words, she extracted from her feed three times as much butter fat as ordinary cows do.

The same law applies in trotting horses. The horse that can trot a mile in 2:10 does not eat double the feed that the horse does that trots in 4:20. Herein lies the true philosophy for the dairy farmer to consider. He should train his thought and perception to breed as closely to the dairy line as he can, in order that he may secure cows that will extract the largest amount of butter fat, or milk, or cheese, from his feed.

INTERESTING DATA ON THE RELATIVE VALUE OF MILK TO THE COST OF CHEESE.

Prof. Van Slyke, the noted chemist of the New York Experiment Station, made the following statement at the Ohio Dairy Convention last winter:

"In general it costs less to produce a pound of cheese in the case of rich milk than in poor milk. I will give you some data on this point. At our Experiment Station at Geneva, N. Y., we spent some years in studying the relative value of several breeds of cows with reference to the production of cheese. Here are some of the figures we obtained. These results represent the average of several individual cows for one period of lactation:

	Holstein.	*Ayrshire.*	*Guernsey.*	*Jersey.*
Per cent fat	3.36	3.60	5.30	5.60
Cheese yield per cow	755 lbs.	681 lbs.	703 lbs.	685 lbs.
Cost of cheese per lb	6¾ cts.	7¼ cts.	6½ cts.	6½ cts.
Profit per cow	$12.02	$7 00	$13.87	$13.42
Relative profit	172	100	198	192

THE FARM SEPARATOR SYSTEM.

The following from Prof. McKay is suggestive:

"Many think this is a backward step toward the old gathered cream system. Whether this is true or not, it is evident that a lot of educating will have to be done in caring for the cream on the farm to bring the quality up to the whole milk system."

Well, who knows but what right there lies the crowning value of the farm separator system? It imposes the necessity for more and better knowledge on the farmer. The present system has relieved him of all sense of responsibility for the outcome in the market. The whole milk creamery has stepped in between the farmer and the market. He can hardly see what the effect of his action and management will be. The creamery proprietor and the buttermaker do not feel that it is their business to educate him. In most instances he does not see that he needs to put himself to any trouble or expense to educate himself. If he was making butter on the farm and sending it to the city on commission, then the market would educate him right quickly. It would show him at once the market value of keeping in touch with all useful knowledge on this dairy question.

The serious weakness of the present creamery system lies in its deadening effect on the mental interest and growth of the farmer who supplies it with milk.

If the farm separator will work a reform in this particular; if it will stimulate or compel the creamery proprietor and butter maker to do more than they have been doing to spread dairy knowledge among the farmers; if it will compel the farmer himself to see his serious need of better knowledge, more intelligent methods, and a broader, more enlightened judgment, then surely it should be hailed with delight and adopted with alacrity.

Anything that will break up the deep crust of indifference to their own advancement which prevails among so many farmers who play at keeping cows, will soon correct its own evils, and advance the cause of intelligent dairy farming immensely. We think the farm separator will aid largely in doing this, for the farmer not only produces the milk as he did before, but he makes the cream, which brings him one step nearer bearing the burden of responsibility for the character of the butter—and that cannot help proving a great educator.

Milk Testing Inquiries.

ED. HOARD'S DAIRYMAN:—The following inquiries have been received:

"I am hauling milk to a cheese factory and we are paid by the test. I am not satisfied with my tests and would like some information in regard to the subject of testing milk,

1. Does animal heat, if left in the milk, have any influence on the test?

2. Is the same amount of acid required in each sample of milk regardless of the conditions of the milk?

3. If cows are milked very early and late so that they give two-thirds of the milk in the evening, is it an unusual thing for this morning and evening milk to vary one per cent?

4. Can you burn the butter fat in the sample by using too much acid?"

Browntown, Wis. J. D. M.

1. I have never heard before that the animal heat in milk has any effect on the test. I do not see how it is possible for such a thing to influence the test and do not believe that it is worth considering. Very soon after milking the milk cools down to the temperature of the air, and it is usually not warm enough to have any influence on the test. If, however, the milk is very warm, having a temperature somewhere between eighty and one hundred degrees, this may make the action of the acid on the milk so intense that the fat, when it is separated, will be somewhat burned and have black specks mixed through it. This may be avoided in such a case by simply cooling the milk so that it has a temperature near sixty when the acid is mixed with it.

2. The same amount of acid is ordinarily used for testing all kinds of milk. There is no objection to this when the acid is of the proper strength. If it is a little weak, good tests may be obtained by using a slight excess of acid; when the acid is too strong, use less than the 17.5 c. c., measured by the acid cylinder.

3. I do not think there is often so much difference as one per cent between the test of morning and evening milk, when it is a mixture of the milk from a herd of cows. The difference in test of morning and night's milk is influenced mostly by the length of time between milkings. At some seasons of the year cows are milked very late at night and early the next morning so that through the night there may be only about ten hours between milkings, while through the day the cows are in pasture fourteen hours between milkings. This difference in time will have some effect on the test of the milk, the higher tests usually being found in the smaller quantity of milk, which in this case is the morning's milk. Such a variation as this will be greater in the milk of single cows than in the milk of herds. This is due to the fact that some cows are very sensitive to surroundings, and their milk test responds to the changes which may happen, such as weather conditions and rough treatment.

4. The butter fat in the test may be burned by using too much acid. This is due to the strong action which the acid has on the fat. The quantity ordinarily recommended is about right for dissolving everything in the milk but the fat, without attacking the fat in any way, but when more acid than this is used, the fat itself is partially charred by the excess. It is such an easy matter to get acid of the right strength (sp. gr. 1.82) that there is no good excuse for any one having tests that show burnt fat in them.

E. H. FARRINGTON.

Wisconsin Dairy School.

As to Oats and Cow Feed.

ED. HOARD'S DAIRYMAN:—In your answer to J. A. S., on page 570, you say that you are beginning to think that oats are too expensive to raise for horse feed.

I always imagined that an intensive dairyman like yourself depended mostly on oats as concentrates for his cows. I am very young in the cow business, but am in it to learn, and want to get the most advanced ideas on everything. Your answer as above stated, struck me as though you must have some different way of feeding and raising feed than the ordinary dairyman, and therefore would appreciate it very much if you will outline, showing what you grow mostly for cow feed, and in what way and manner you are feeding it.

You may think that I want to pry into your private business. I will leave that for you to decide. Your answer to my questions I am sure will be much appreciated by many of your readers, as a great many rely very much upon your action and practice. W. W.

Woodland, Wis.

The editors of HOARD'S DAIRYMAN have never fed oats as a part of the ration for milch cows, because, in their opinion, other feeds were considered more economical. In an experiment conducted at the Wisconsin Station, oats proved to be 10% more valuable, pound for pound, than bran for producing milk. An experiment at the Colorado Station showed that there was no practical difference in feeding value between Colorado oats and Colorado bran. Theoretically, oats contain about 66% of digestible nutrients as against 58% in bran. This would give oats a trifle more than 10% higher feeding value than bran for milch cows, but almost invariably, in this part of the country, at least, oats are worth in market from 20% to 25% more than bran.

In answer to the inquiry as to what the editors grow for cow feed, and in what way and manner they are feeding cows, we may say that we are more and more convinced that for the latitude and climate of Wisconsin, corn for silage and alfalfa for hay must constitute the greater part of the home-grown ration for cows. To this may be added for grain, either bran and barley, or barley and gluten feed, or distillers dried grains, or whatever else the market makes most profitable to use.

A Bit of Good Experience and Reasoning in Calf Feeding.

ED. HOARD'S DAIRYMAN:—While I never felt like taking issue with "the authorities" about feeding calves, it was always a mystery to me why oil meal, hay-tea and other foods rich in protein were recommended as substitutes for the fat taken from whole milk. 'Tis pretty easy to imagine that whole cow's milk is pretty nearly an ideal calf food—a well balanced ration. After removing the greater part of the fat the nitrogenous ingredients of the milk are certainly in excess. Then to add such foods as mentioned to the skim milk only makes matters worse. Acting upon this theory the writer determined to substitute flax seed meal for oil meal. This, it seemed, would in a measure at least, take the place of the fat removed by the separator and make a feed more nearly like whole milk. The flax seed meal was made into a thick jelly and added to the separator milk, which had been previously warmed to 98° to 100° according to the weather, at the rate of about one-half tablespoonful at first for each calf.

This quantity was gradually increased as the calves grew older.

I made no comparative tests to determine the relative value of the different feeds, but out of a bunch of 50 or more calves, we lost none and all kept thrifty with little trouble with scours, etc. Each calf got from three to four quarts of separator milk twice a day. We had to vary the quantity slightly to be able always to supply our customers with milk. Each calf was fed separately in a pail which was washed and rinsed in hot water after each feed. The milk was not poured into a long wood trough, and the calves, strong and weak, fast drinkers and slow drinkers, allowed to fight it out among themselves. Such a trough after several week's use during the summer would be a revelation to a tan yard dog. But I did not start out to tell how some other folk feed calves. I should like to know if I fed those calves as I ought.

They grew well and kept thrifty, but the question is, might different methods have produced better results.

Mich. J. D.-PRICKETT.

Location of Barn Buildings.

The report of the Illinois Experiment Station for 1903 contains some valuable material on dairy conditions and suggestions for their improvement. The location of barn buildings is discussed and cuts showing favorable and poor locations re given as follows:

In the production of clean milk no one thing is of more importance than keeping the cows out of the mud. Many yards into which dairy cows are turned each day for their drink and exercise, are knee deep with mud and manure during the winter and spring, if not nearly the entire year. In summer when the cows are on pasture they would keep comparatively clean were they not obliged to wade through a filthy yard in going to the stable.

In locating a dairy barn care should be taken to have a gentle slope from the barn in at least one direction, affording good natural drainage for both barn and yard. If the barn is already built and poorly located, draining and grading will do much to remedy the evil. In most cases it would take but a small amount of labor with plow and scraper, when the ground is in suitable condition to handle, to give the surface of the yard a slope from the barn sufficient to carry off the surface water. Even if dirt has to be hauled in from outside the yard to accomplish this, it will not be expensive. Tile drainage alone under a yard is not sufficient as the tramping of the cattle soon puddles the surface, preventing the water from passing down to the tile.

After the grading is done the yard should be covered with gravel or cinders. By putting the coarser in the bottom and the finer on top, a good hard yard can be obtained and at a comparatively small expense where material of this kind is available. If this cannot be done in one year, it is of the utmost importance that a beginning be made by grading and gravelling a portion of the yard next the barn, so that the cows may have some place on which to get out of the mud and filth. By grading a part of the yard each year and applying a thick coat of gravel or cinders to the graded part, the entire yard will, in a few years, be in good condition. When gravel does not contain enough clay to pack hard, a small amount of clay should be mixed with the top layer. It will then form a firm surface.



A Poorly Located Barn. The pond should be drained and barn yard graded to slope gently from the barn.

A portion of the yard should be bedded, thus affording the cows a place to lie in the open air on pleasant days. If straw is scarce the cleanest of the soiled bedding from the stable will answer for this purpose. When the straw and manure on this bedded portion of the yard become too deep and soft, it should be hauled into the field and the bedding commenced again on the solid yard.

It is advisable to haul the manure directly to the field from the barn, but if this is not feasible, it should be removed at least 100 feet from the barn. In no case should it be allowed to accumulate against or near the dairy barn and no swine pen should be nearer then 200 feet on account of the odors being readily absorbed by milk.



A Well Located Dairy Barn.

Making Firm Bacon.

Prof. J. H. Grisdale, of the Ontario Experimental Union, who has conducted many experiments in order to arrive at satisfactory conclusions as to the proper methods of producing firm bacon, said in a recent address:

The feeding of pigs for the production of first-class bacon is an art which it is hopeless to attempt to discuss profitably in ten minutes. There are, however, certain feeds, certain requirements, and certain conditions which influence more or less strongly the quality of the product, so far as firmness is concerned, and to these I would direct your attention.

To begin, let me urge that those who confound "soft pork" with "fat pork" disabuse their minds of this mistake and remember always that the "fat hog" is the "firm hog" quite as frequently as is the hog that bears a thinner layer of fatty tissue.

Yet, again, do not infer that certain breeds always produce "soft pork." So far as breed influence on firmness is concerned I think I am right in saying that any one of the common breeds is as good as any other of the same. Some breeds, such as Duroc Jersey, and Poland China, doubtless tend to produce short, thick sides. These may, however, be quite as firm as the most perfect Wiltshire side ever grown.

The influence of locality or climate is one that has come in for more or less consideration, but so far as we can ascertain by experiment, is a factor of very small importance; in fact, quite negligible, save in so far as it influences the kind of food fed the pig. Certain sections are noted for a good quality of bacon, but doubtless because of certain feeds peculiar to that district, while other sections produce large quantities of soft pork, no doubt because of certain feeds commonly fed there.

The most common causes of soft pork, so far as we can find out by experiment, observation, and inquiry, are:

1. Feeding pigs too rapidly from birth to the required weight. This rushing process, while it does not always give bad results, frequently produces soft sides, and not seldom are the carcasses both "soft" and "thick."

2. "Feeding off," or rather, selling when under weight or before maturity, our experiments have shown very clearly, is the one almost certain indication of softness. Generally speaking, also, the degree of immaturity may be taken as the measure of the softness; that is, the further from maturity, the softer the flesh is likely to be.

3. Improper feeding. Pigs fed on any ration not conducive to health, or fed in any way not favorable to thriftiness, are almost certain to yield a large percentage of "softs" while properly fed hogs will yield a high percentage of "hards." In brief, I think I am perfectly safe in saying that 99 per cent of properly fed and properly cared for pigs will produce firm meat.

Properly cared for pigs means pigs under conditions conducive to health and thrift. Airy, roomy, light quarters are the right sort. If space is an expensive consideration, as it usually is, especially in winter, then let the small space be well ventilated, well lighted and kept clean. Large runs are not necessary where the other conditions are provided.

Feeds.—The most important factor in the production of firm bacon is, undoubtedly, the food.

The preparation is, apparently, a matter of minor consideration so far as influence upon firmness of flesh is concerned, save in so far as it affects the health of the animal.

The rate of feeding is of more or less importance, as indicated above, since "rushed" pigs produce more or less "softs."

The kind of feed is the thing. Corn fed alone produces a very large percentage of "softs." Corn fed with a small proportion of skim milk or whey gives much better results. After the skim milk or whey constitutes 10 or 15 per cent of the dry matter of the ration, the proportion does not appear to greatly matter. Just incidentally, the addition of such an amount of skim milk or whey cheapens production materially. Roots, clover steamed or green, rape or grass may take the place of skim milk with corn and give results nearly as good. A small proportion of corn with the cereals, oats or barley, or with peas, does not appear to have a very injurious effect.

Barley is unsurpassed as a feed for the production of firm bacon. Oats, also, are most excellent. Peas produce good results, and mixed with other grains are exceedingly valuable.

In conclusion, skim milk or whey are almost infallible guaranties of firm pork. The cereals and peas properly fed constitute an almost faultless ration. Corn may be fed, but must have some counteracting food along with it or it will give bad results.

Handling Clover Seed.

ED. HOARD'S DAIRYMAN:—Noticing your article, "Handling Clover Seed," page 570; clover seed does not shell, but the heads break off, and no crop needs careful handling more than clover seed. Cut it with self rake reaper and when dry take it up with barley forks. Don't tramp around much on the load. Cover the stack with boards. G. H. S.

Dane, Wis.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

White Specks in Butter.

For some time past we have found small white specks in with the butter after churning. They resemble broken bits of chalk, being perfectly white, but mash easily in the fingers into a dry paste. There is a wide variation in the amount of this foreign matter present in different churnings. A. B. C.
Pattsgrove, Pa.

The white specks may be due to two causes: First, allowing the cream to dry on the surface, and round the edge during ripening, and second, allowing the cream to become over ripened. The dried cream forms small lumps of casein which do not break up during churning and show white in the butter. The excess of acid formed from over ripening, throws the casein down in lumps which also show as soft, white bits of casein in the butter. The first trouble can be prevented by covering the cream during ripening and the second by churning at shorter intervals. Cream should never be allowed to get over ripened, as the butter from such cream is always of low quality.

A Silo Query.

I would like to ask which would be the best for silo, 2×4, or two thicknesses of flooring with paper between. J. B. P.
Ada, Mich.

If one is building a stave silo, he better use the 2×4 lumber rather than the two thicknesses of flooring.

Butter from Cream of Different Percents of Fat.

Will yon tell me through your paper how much butter 15, 20 and 25 per cent cream will make?
N. Hannibal, N. Y. E. A. P.

Counting the overrun at 18%, 100 lbs. of 15% cream will make 16.7 lbs.; 20% cream, 23.6 lbs.; 25% cream, 29.5 lbs. of butter. The above figures are merely approximate, depending on the thoroughness of churning and working the butter. The creamery results may be a little over or under the above figures.

Buttermilk for Swine.

Can buttermilk be fed to hogs to advantage? If it can, please reply, stating the best way. Age of hog best adapted. Would you use any grain, or allow hogs to run to clover? E. B. S.
Winona, Minn.

Certainly buttermilk can be fed to hogs to advantage, but for the best profit, there should go with every 3 to 5 pounds of the buttermilk, one pound of grain, preferably wheat middlings or ground corn. Thus fed, a hundred pounds of buttermilk is worth half as much as a bushel of corn. The greatest profit in feed of any kind comes from feeding it to young animals, whether calves, lambs or pigs. A clover pasture is always in order for swine of any age, but clover and buttermilk would not make the most profitable combination. Add the middlings or corn.

The Babcock Test.

Would like to ask a question. Can an unexperienced person obtain good results with the Babcock tester? Is there any danger with handling the acid? Where can I obtain a bulletin on the Babcock tester? Wm. J. M.
Pleasanton, Kans.

If the user will follow carefully the directions sent with the test there will be no difficulty in testing milk accurately. The acid used is a strong corrosive and will eat clothes or flesh if allowed to come in contact with them, but there is no danger with careful handling. Send to the Wisconsin Experiment Station for a bulletin on the Babcock test.

Regarding Mr. Grote's Rations.

Ed. Hoard's Dairyman:—I was interested in Mr. Grote's caustic criticism of your "two, positive assertions," as he terms them, as contained in the communication entitled: "Continued Discussion," as published in your issue of July 24th, and his great magnanimity as shown by the statement that if the editor would acknowledge he was wrong and apologize the controversy would be ended.

Now, there is not a practical dairyman of experience but what knows that every word contained in the two quotations is strictly true in every sense. A deep milking cow will not eat enough of roughage or ordinary fodder, as contained in the rations submitted by him, especially the last two to keep her full flow of milk, but will shrink every time unless fed some of the more concentrated foods. I have proved this to my own satisfaction, more than once, by actual experiment and experience.

I commenced peddling or delivering milk in 1863 and have had charge of some of the best dairy herds in Maine and Massachusetts since that time, and have been quite a close observer, and my experience has been invariably that one-half of the quantity of coarse feed with the equivalent in value of the other half in some good concentrated food like gluten meal, cotton seed meal fed in connection with good wheat bran, will give better results in every way—more milk, more cream, better condition of stock. In other words, I had rather have five tons of good hay with the equivalent of five other tons value in bran, cotton seed meal or gluten feed, than ten tons of the best hay that was ever fed by itself; and when you go to substitute marsh hay, oat straw, rye straw or fodder corn, the idea is simply preposterous. If any one doubts this, let them try the experiment of feeding this roughage as enumerated in the first assertion, or clover silage and clover hay alone as contained in the second assertion, and change to feeding one-half the value in some concentrated food and he will not be long in doubt as to which is the most palatable to the cow and gives the best results as to filling the milk pail. Then let him leave off the grain ration and feed his roughage or dry hay, or even silage, and see how quick he will note the difference in the flow of milk, and how quick old Mooley will call for her grain ration. This, as I understand it is, just the point contained in the articles specified and Mr. Grote in his last article is neither fair, honorable, nor just in his criticism.

The editor of the Dairyman has never said anything adverse to raising all the soiling crops possible upon the farm, both for green soiling and silage. On the contrary, has always advocated and urged it, as no one knows better than Mr. Grote does. But the point of the whole matter is, the editor believes that when pastures become dry and dead and we all have to fall back on hay, silage, corn fodder, etc., a good grain ration does fill the bill, helps fill the milk pail as well as the purse, and I venture to say this is practiced by more than nine-tenths of the thoroughly up-to-date practical dairyman throughout the land. When he states the editor insists upon purchasing grain or

"ADVERTISEMENT".

A BACK NUMBER.

The Milk and Egg Diet.

Starving the patient who has a sick stomach, is an out of date treatment and no longer necessary with the predigested and nourishing food Grape-Nuts that the weakest stomach can handle and grow strong upon.

There is plenty of proof of this: "I had suffered from stomach trouble for six years and for most of the last two years had been confined to my bed, the trouble having become chronic in spite of the very best medical attention. I had always been a coffee drinker but for the past year I could not drink it at all because it made me so nervous I could not sleep and my appetite was almost entirely gone.

Then some friend advised me to try the predigested food Grape-Nuts and about three months ago I did so and since that time my improvement has been so rapid that my customers and friends are astonished and every day someone remarked upon my changed condition. I have gained 15 pounds, sleep well, my appetite is good and my digestion is perfect. Where I have lived on milk and light diet for years I now eat most anything I want and don't suffer any inconvenience either. The way Grape-Nuts food has built up my stomach and strengthened my nervous system particularly is just wonderful.

I drink your food drink Postum too and no longer feel the want of coffee. There is absolutely no doubt that leaving off coffee and using Grape-Nuts and Postum has brought me out of my bed from an invalid back to fine health." Name given by Postum Co., Battle Creek, Mich.

"There's a reason" and that reason is plain to anyone who will spend a few minutes investigating in the interest of health.

Send to the Co. for particulars by mail of extension of time on the $7,500.00 cooks contest for 735 money prizes.

THE U. S EXCELS ON ANY TEMPERATURE.

Our "would-be competitors" the DeLaval Separator Co., finding themselves badly beaten in the six weeks' tests of six different makes of Separators at the Kansas Agricultural College, as shown by the official Bulletin No. 123 issued May 26, 1903, in their efforts to break the force of so disastrous a defeat, have compiled a Bulletin of their own "getting up" purporting to be signed by several students, in which they try to make it appear that the DeLaval was not terribly beaten, as the Official Bulletin shows it was as follows:

Average test of skimmilk of DeLaval Separator	**.048**
" " " U. S. "	**.033**
U. S. excels DeLaval	**.015**

Showing that the DeLaval Separator left 45 per cent. more butter fat in the skimmed milk than the United States.

Again in this "gotten up" Bulletin, our "would-be competitors" state that the U. S. Separator "choked up" on 39 lbs. of milk at 70 degrees of temperature and that the DeLaval ran 80 lbs. Every dairyman using a U. S. Separator knows that the U. S. will not "choke up" on 80 lbs of good milk at 70 degrees, and that such statements are made in an attempt to break the rapidly gaining popularity of the

U. S. SEPARATOR.

We make the following proposition to any dairyman wishing to buy a separator, viz.: We will put a U. S. Separator into his dairy and agree that it will not "choke up" on 80 lbs. or twice 80 lbs. of milk in good condition at 70 degrees, provided he will pay for the separator if it does not "choke up."

The best authorities do not advocate separating at 70 degrees, but if Dairymen prefer to, the U. S. will do it when properly adjusted.

The U. S. Separator skims cleaner than any other separator on the market at any temperature from 70 degrees to 156 degrees at proper adjustment. The Official Bulletin No. 123 of Kansas Agricultural College, dated May 26, 1903, states that

The U. S. Excelled all Others in tests of Skimmed Milk and in Minimum Total Loss.

THE U. S. SEPARATOR HOLDS WORLD'S RECORD.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.

WHEN YOU SEND IN YOUR RENEWAL, SPEAK TO A FEW OF YOUR NEIGHBORS AND HAVE THEM JOIN YOU. CLUB RATES: 2 Subscriptions, $1.50; 3 Subscriptions, $2.00; 4 Subscriptions, $2.50; 5 Subscriptions, $3.00.

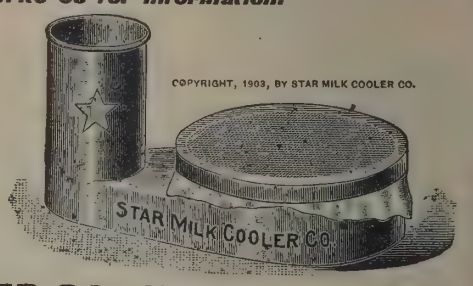
STAR SANITARY DAIRY PAIL

and STAR TRAP CLOTH STRAINER



These articles are satisfactory both from a practical and bacteriological standpoint. Pails are seamless. Strainers do good work and do not choke up. First class in every particular.

Write Us for Information.



STAR MILK COOLER CO., Haddonfield, N. J.



EASY. It is easy to go on losing money by taking care of milk in the old way, that is, by not taking care of it: But it is easy, too, to take proper care of your milk with a

Champion Milk Cooler-Aerator

The Champion is pre-eminently the easy Cooler—easy to buy, easy to take care of, easy to use.

A Booklet for the asking.

Champion Milk Cooler Co.
67 Main Street, CORTLAND, N. Y.

concentrated food, he is not treating the question fairly or honorably as nothing was mentioned in the articles of the kind.

A word as to the cost of the rations enumerated by him and I will close.

In Nos. 1 and 2, he chooses timothy hay, which everyone knows is not a good milk producer, but in his rations is particular to include silage and alsike hay, but let that go and let us see what his rations would cost here in Massachusetts and how his theory would apply here. During the past year, good average feeding hay has been bought for $16 to $20 per ton; swamp or marsh hay, $10 to $12; call it $16 and $10. Conservative men estimate 3 pounds silage equivalent to 1 of hay. Estimating on this basis, how does it stand?

40 lbs. corn and bean silage=13 lbs. hay	.08
10 lbs. fodder corn	1
5 lbs. marsh hay @.005	2.5
5 lbs. soy bean straw	1
1 lbs. soy beans	2
	14.5

No. 2.

Substituting alsike for marsh hay, add	2
	16.5

No. 3.

40 lbs. cow pea silage	8
10 lbs. alsike hay	8
10 lbs. fodder corn	1
	17c

No. 4.

40 lbs. corn and cow pea silage	8
10 lbs marsh hay	5
10 lbs. fodder corn	1
1 lb. soy beans	2
	16c

Nos. 5 and 6 are not deserving of consideration, for you would not get enough milk to pay for labor of feeding and milking, and no dairyman of average common sense would think of feeding same unless he wished to dry them off. So let every good, sensible, up-to-date farmer raise all the good silage (the more ears of corn in it the better for the grain), he is capable of doing, with peas and oats, soy beans and cow peas, Hungarian and millet and fodder corn for green soiling; and when you see the milk supply falling off, give your cows a good, fair feed of bran and cotton seed, or gluten, and see how quick old Mooley will appreciate it and respond by increasing her flow of milk.

Remember one thing: It is the good, generous feeder that gets the best results every time, and the better the feed the better the results. D. C. K.

Spencer, Mass.

Accurate Records Better than Guess Work.

Peas and Oats and Pea Vines for Silage.

ED. HOARD'S DAIRYMAN:—Will you please sent me 4 or 5 dozen sheets of your paper for 10 cows to keep the milk records. I have weighed my milk for 2 years and I find I know when a cow pays better than by the guess plan.

It was dry here until July 1st and since then it has been quite wet. Most of the crop looks pretty well. I was by one piece of peas and oats today that are very stout and thought if we had a silo and could put them in with safety, what a lot of splendid feed we could have next winter. We raise lots of potatoes in this county, but it is a hard, uncertain business, there is so much to contend with—bugs, rust, weeds, rot and help, so I have a few cows to help me out.

Mr. Goodwin has put in a pea canning factory and I suppose there will be lots of pea vines for the silo. Will they keep all right? Your paper is a help to me and I hope to get more good as the days go by. F. E. D.

Caribou, Me.

Peas and oats and pea vines make good silage, and we have reports of very excellent success with them.

It is a great mystery to us why thousands of other dairymen do not keep accurate records of the milk yield of their individual cows. It has been demonstrated over and over again that even the most careful dairymen, and the best judges of cows, are frequently deceived. Even so careful and exact a man as Mr. Gurler, of Illinois, after taking extraordinary pains to weed out all the poor cows, in a lot of fifty found four that brought him in debt for feed and labor. The average profit for these fifty cows was $19.98 each, but among the number there was one in debt to him $11.00, another $6.80, another $5.34, another $1.15 and one other made a profit of only 44 cents, while the four best cows in the lot made an average profit of $53.77 each.

We venture to say that there is not one herd in ten, where there are twelve or more cows, that does not have one or more cows that it would be profitable to kill outright. Excellent spring balances can be bought for $5 or less, and the time required to weigh the milk, both night and morning, is less than one minute per cow. Who is there then that cannot afford to keep records?

Cement Bottom for Silo.

ED. HOARD'S DAIRYMAN:—In the DAIRYMAN of July 31st. F. E. D. is advised that it is quite possible to build the bottom of a silo in wet ground, of cement, to keep out the surface water. I know that cement reservoirs are built in the ground and where the supply of water is ample, the seepage through the cement does no harm. Cement will absorb water the same as brick. I have seen it tried to build a vault in the ground of cement to keep the water out. In less than a week the water rose in the vault so it was 2 feet deep and on a level with the surface water in the earth.

My house has a cellar full size of house. The foundation at bottom of cellar is a cement wall 12 inches high. On this are 2x4 studding sheeted with inch boards on the outside. Outside of these boards is a 3-inch wall of cement. The cement wall is painted with asphaltum, then the earth is graded in so the yard slopes away from the house. The dampness from the earth does not seem to affect the wooden part of the cellar wall.

Pentwater, Mich. S. E. R.

Butter Makers Attending the Sioux Falls Convention.

ED. HOARD'S DAIRYMAN:—All Wisconsin butter makers who intend going to Sioux Falls to attend the National Convention, will confer a favor by sending a postal card notice of their intention to the undersigned, before Sept. 1, 1903.

Etterick, Wis. F. B. FULMER.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

"ADVERTISEMENT."

CAN'T HELP IT

Coffee Nerves Always On Edge.

The easy way to get rid of coffee nerves on edge is to quit the coffee and drink well made Postum Food Coffee in its place.

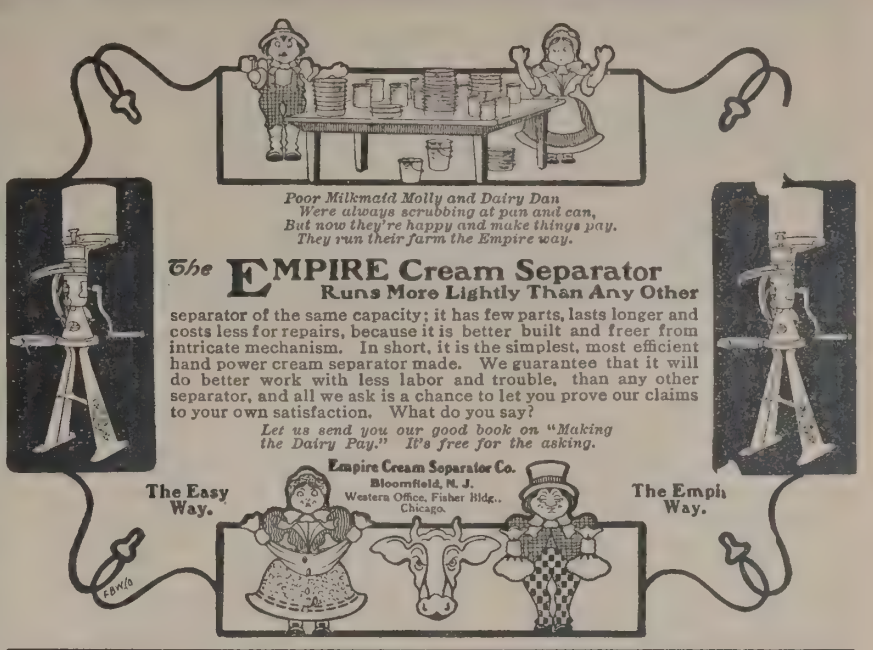
When the Postum is thoroughly boiled it furnishes a rich tasting food drink and it is then easy and pleasant to shift from the drug to the food coffee.

A Washington lady says: "For a long time I suffered so from nervous headache and was so weak and worn out all the time that I was hardly able to do my housework. Every little thing worried me so, and the noise of my two little children almost drove me wild. I tried my best to be kind and patient with them but it seemed the harder I tried the crosser I grew until I was discouraged almost to despair. I had been using coffee three times a day for about 12 years. Several months ago I read an article in a religious paper telling about Postum Food Coffee and I made up my mind coffee was causing my trouble.

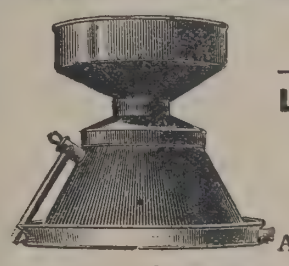
"So I shut down on the coffee, which was easy when I used Postum. My headaches grew more painful at first but I was not surprised at this and was determined to let coffee alone and give Postum a fair trial. In a few days Postum had driven most of the drug effects of coffee out of my system. The headaches grew less and finally stopped altogether and for the past three months I have been a different person. The headaches are all gone, my strength is coming back, nerves are steady and I feel rested in place of tired all the time.

"I know it was coffee that caused all the trouble and I am certain that Postum is rapidly repairing all the wrongs that coffee caused. I always tell people when recommending Postum to be sure to make it according to directions; don't forget to boil it fifteen minutes." Name given by Postum Co., Battle Creek, Mich.

Send to the Co. for particulars by mail of extension of the time on the $7,500.00 cooks contest for 735 money prizes.



Get the Best Milk Cooler



AND AERATOR.

LARGEST COOLING SURFACE
EASIEST TO CLEAN.

WRITE US FOR PRICES.

Ask for our new Thirtieth Annual Catalogue of Dairy Apparatus and Supplies.

OAKES & BURGER, Cattaraugus, N. Y.

Did You Ever Keep a Record Of Your Cows?

IF SO, you have felt the need of a convenient, simple and handy Record Sheet. We have had so many requests for these Record Sheets that we concluded to get up one that would "fill the long felt want." We have a very simple and complete Record Sheet for 10 cows, one month, that is printed on heavy Manilla Paper, we can send postpaid at following prices:

Price 5c Each	6 for 20c	12 for 30c	25 for 50c

SIZE 10x16 INCHES

We also have a one cow Record Sheet, heavy Manilla paper (one month) that we will mail postpaid

Single Copy 5c	5 for 15c	10 for 25c	25 for 40c

SIZE 6x15 INCHES

HOARD'S DAIRYMAN.
FORT ATKINSON, WIS.



The Distribution of Skim Milk.

It is known that the just complaints of creamery patrons on account of unfair distribution of skim milk are the bane of the separator creamery business. Further disputes among patrons, annoyances to managers, hindrances to the best work of buttermakers, watering the skim milk, and many other ills in the same train are unnecessary, since the

Barber-Coleman Check Pump

has for more than five years been successfully solving the problem in many different creameries. When a patron has dropped in his check he can pump the amount of skim milk called for by his check, less the percentage taken out as cream, so in like proportion to all other checks. Its measuring apparatus is just an ordinary pump which everyone understands and knows how to operate.

Cornish, Curtis & Greene Mfg. Co.,

General Sales Agents De Laval Alpha Separators,
FORT ATKINSON, WIS.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The official market was reported 19c; steady.

	Offerings.	*Bid.*	
Winslow	40	19	Holmes, Aurora
Shannon	35	19	" "
Palo	30	19	" "

No sales. Former markets were:

Former Markets.	*Sold.*	*Official Price.*
Aug. 3, '03	0	18½
" 4, '02	0	20
" 5, '01	0	20
" 6, '00	0	19½
" 7, '99	55	18

Output Elgin district, 737,538 pounds. New York 19½ cents; steady; receipts, 8,163 tubs. H. C. B.

Elgin, Ill., Aug. 11, '03.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

DAIRY MARKETS.

ELGIN, Ill., Aug. 10—Butter advanced ½c a pound on the board of trade today, selling at 19c, as compared with 18½c a week ago. Sales in the district were 737,700 pounds.

CHICAGO, Ill., Aug. 10—Butter—Steady; Creameries, 14@18½c; dairies, 13@17c.

Eggs—Firm, at mark, cases included, 12@14c.

Cheese—New, easy; Daisies, 11@11½c; Twins, 10@10½c.; Young Americas, 11@11½.

Cattle—Choice to fancy beeves, 1,200 to 1,500 lbs., 5.40@5.60; good to choice steers, 5.10@5.30, fair to good export and shipping steers, 4.65@5.10; medium beef steers, 4.30@4.65; plain beef steers 4.10@4.30; common to rough, 1,000 to 1,200 lbs 3.60@3.90; good to choice, fat heifers, 4.10@4 90; good to choice feeders, 3 75@4 40; poor to plain stockers and feeders, 2.40@3.50; fair to good cows and heifers, 3.20@4.35; good canning to fair beef cows, 2.80@3.20; common to good canning cows, 1.50@2.25; bulls, poor to choice, 2.40@4.35; veal calves, good to fancy, 6.25@7.00; calves, common to fair, 3.00@5.75; corn fed western steers, 4.00@5.35; Texas bulls and grass steers, 2.75@3.85; Texas steers, fair to choice, 3.75@4.75; western range steers, 3.25@4.50; western range cows and bulls, 2.00@3.60.

Hogs—Good to prime shipping 5.60@5.75; good to choice heavy packing, 5.35@5.55; plain to choice heavy mixed, 5.30@5.50; selected butcher weights, 5.55@5.75; assorted light, 150 to 195 lbs., 5.70@5.85; thin to choice, 50 to 150 lb. pigs, 5.70@6.00; stags and rough lots, 3.00@4.75.

Sheep—Choice to prime native wethers, 3 65@3.90; fair to good mixed lots, 3.50@3.75; fair to prime yearlings, 3.75@4.25; ewes, fair to fancy, 3.00@3.50; plain ewes and breeding stock, 3 00@3.60; culls and tail end stock, 2.00@3.00; native lambs, poor to fair, 3.50@5.25; native lambs good to choice, 5.25@6.00; western lambs, 4.50@5.65.

MILWAUKEE, Wis., Aug 10.—Butter—Creamery—extras, 18½c; firsts, 16@17c; seconds, 14@15c; whey, 10c; Dairy, fancy, 16c; lines, fresh, 13@14c; packing, 12@12½c; grease, 5@6c.

Cheese—American, full cream—New Twins, 10½@11c; Young Americas, 11½@12c; Daisies, 11@11¼c; Longhorns, 11¼@12c; low grades, 8@9c; Brick, new, fancy, 9½@12c; low grades, 9@10c; Limburger—Fancy, 9¼c; low grades, 7@8c; new, fancy, 9@10c; off goods, 7@8c; Swiss, old, drum, choice, 15¼@16c; drum, No. 2, 13@14c; Block, choice, 13@13½c; block, No. 2, 11@12c.

Eggs—Strictly fresh laid, at mark, cases returned, 13@14c; dirties and seconds. 12c., checks, 10c.

MANITOWOC, Wis., Aug. 5— Cheese —The sales were: 150 Twins at 10c; 1,500 Daisies at 10½c; and 750 cases Young Americas at 11c.

SEYMOUR, Wis., Aug. 4—Cheese—The offerings were all sold as follows: 79 Twins at 10¼c; 280 at 10⅛c; 237 double Daisies at 10¼c; and 550 at 10⅜c.

BRILLION, Wis., July 30.—Sales were: 512 Twins at 10¾c, 535 Daisies, at 10⅞c: 286 at 10¾c, 125 cases Young Americas, at 11c, and 136 Cheddars at 10⅜c.

FOND DU LAC, Wis., Aug. 10—Cheese—Sales on the dairy board today: 391 Twins, 10c; 350 Daisies, 10¾c. Market quiet.

APPLETON, Wis., July 30—Cheese—Eighteen factories offered 178 Cheddars and 906 Twins; all sold as follows: 178 Cheddars at 10½c, 282 Twins at 10⅜c, 543 at 10¼c; 51 at 10½c and 30 at 10c.

MUSCODA, Wis., Aug. 1—Cheese—Offerings were 325 boxes of Twin cheese. of which 80 were withdrawn and the balance sold as follows: 60 at 10¼c; 40 at 10 3-16c; and 145 at 10⅜c.

MONROE, Wis., Aug. 1—Green county cheese quotations as made by cheese board Aug. 1 are: Round Swiss, 12¼@12½c; Block, 12c: Brick 9½c; Limburger, 8½@9c.

MARSHFIELD, Wis., July 31—Cheese—Eighteen factories offered 1,541 boxes of cheese and all sold as follows: 726 Twins at 9¾c, 775 Daisies at 10⅜c; 20 cases Longhorns at 10½c, and 20 Cheddars at 9¾c.

PLYMOUTH Wis., Aug. 4—Cheese—Nineteen factories offered 2,365 boxes of cheese and all sold as follows: 477 cases Longhorns at 11½c; 107 at 11⅜c; 168 Daisies at 11c; 853 at 10⅞c; 173 Twins at 10¼c; 548 Americas at 11⅜c; 44 at 11¼c. Market active.

Latest quotations for fancy creamery:—Baltimore, 19½@20c: St. Louis, 19@19¼c; Cincinnati, 20½c; St. Paul, 18c; Minneapolis, 18c;

NEW ORLEANS, La., Aug 10—Butter—Extras steady and active at 19c. Held ladles, 15c. Eggs, 16¼c.

TOPEKA, Kan., Aug. 7—Butter—Creamery butter, 19@20c; dairy, 16@17c.

Cheese—Longhorns, 11c; Daisies 11c; Daisy Twins, 10¾c.

PHILADELPHIA, Pa., Aug. 10—Butter—Market firm. Solids, 20c; nearby prints, 22c; western, 21c.

NEWARK, N. J., Aug. 10—Butter—Market firm at 19½c.

Eggs—Firm at 18½c for firsts; extras, 20c.

BOSTON, Mass. Aug. 10-Butter-Creamery western extra, 19½@20½c; western firsts, 18¼c; dairy, 15@18c½; Imitation creamery, 15@15¼c; ladle, 13½@15c; box and print, 15@21c

Cheese—Choice, 9½@10¼c; Wisconsin Twins, 9½@10¼c; Oleo fat, 8½@9c.

Eggs—Nearby, 26@27c; western selected, 18c@18½c; fair to good, 14@15c; Illinois, 16c@16½c.

NEW YORK, Aug 10—Butter—Receipts, 8,163 pkgs.; market steady to firm; state dairy, 14@17½; extra creamery, 19¼c; common to choice, 15@19c.

Cheese—Receipts, 3,034 pkgs; market active and firmer; small fancy, 10½c; good to choice, 9½@10¼c.

Eggs—Receipts, 7,222 pkgs.; market firm; state and Pennsylvania, fancy mixed, 21c; state and Pennsylvania, seconds to firsts, 16@19c; western extras, 19@20c; western, seconds to firsts, 16@18½c.

UTICA, N. Y., Aug. 10—Market steadier with firmer feeling: 87 lots of 7,500 boxes offered; 3,000 large, 9¼c; 4,500 small. 10c.

CANTON, N. Y., Aug. 10 —Cheese — Offered 2,366 boxes of cheese and 1,319 tubs of butter. Cheese sold at 9¾c; butter at 19¾c.

WATERTOWN, N. Y., Aug. 10—Cheese—Sales 7,200; 9½@9⅝c for large ; 9¾@10c for small.

NEW YORK MARKET.

NEW YORK, Aug. 8—Butter—Receipts for the week, 59,662 packages.

All fresh creamery butter was in quick demand extra sold to best trade at 19¼@19½c, and out-of-city dealers were liberal buyers of all grades creamery at prices ranging from 17 to 19½ cts, and the market closes firm with many orders going over unfilled on account of scarcity of fancy, fresh goods. New York State dairy was mostly of inferior quality, and sold in lots at 15@17 cts, with a few fancy selected tubs selling at 18@19 cts. Low grades butter are dull and prices nominal. We quote:

Creamery, extra, 19@19½c medium, 17½@18¼c; poor, 14@17c; Dairy, extra, 18½@19c; medium, 15@17c: poor, 12@14c.

Cheese—Receipts for the week, 33,918 boxes. Exports, 2,814 boxes

The market is about the same as last week. Trade was active and receivers had no trouble disposing of fancy cheese on arrival at full prices: we quote sales of finest, small cheese at 10⅝@10¾ cts, and large ones at 10¼@10½cts. With stocks all taken at the close. Skims were not so quick as last week. prices were easier and some stock goes over unsold. We quote:

Full Cream, small, extra, 10⅝@10¾; medium, 10@10½; poor, 7@9c. Full cream, large, extra, 10⅜@10½c; medium, 10@10¼c; poor, 7@9c.

Eggs—Receipts for the week, 51,949 cases.

Not enough new laid eggs arriving to supply the trade, this style of egg is wanted and buyers are willing to pay the advance. Poor stock and so called fresh eggs taken out of freezers are in full supply and regular prices.

New York & Penn., strictly fresh, per dozen, 21@22c; Northern & Western, strictly fresh, 20c: all Sections, poor to good, 14@19c.

177 Chambers St. DAVID W. LEWIS & Co.

LIVERPOOL, Aug. 10 —Butter—Good United States steady, 75s.

Cheese—American finest, white quiet, 46s.; colored 47s. 6d.

BALTIMORE MARKET.

BALTIMORE, Md., August 6—Butter—Favorable weather for butter making and continued liberal receipts have had a rather depressing effect on the trade in general, hence we cannot see but little if any change in the condition of the market as noted in our last issue. Extras and firsts continue in fairly good demand, particularly long lines, while seconds are in heavy supply and there is very little inquiry for them at all. Imitations. while in moderate receipt, the supply of the kind is ample for the requirements. Ladles are in fair receipt; the arrivals show the usual variation in quality at this particular season, hence the wide range in values. Packing stock: while in less liberal receipt, the supply is about equal the demand, which is confined almost exclusively to fresh sweet stock; all defective lots are slighted. Blocks and prints while in quite liberal supply, all desirable invoices meet prompt sale. At the close of the general market today, there was a moderate trade, but it was limited (with but a few exceptions) to the local consumptive demand; the prices on the finer grades rule steady, while under grades are moving out slowly at uncertain values.

Creamery Separator, extras, 19½@20c; firsts, 18½@19c; seconds, 16@17c. Imitation Creamery, extras, 18c; firsts, 17@17½c. Creamery blocks (2-lb.) extras, 21c; firsts, 19@20c; seconds, 17@18c; Creamery prints (¼ lb) extras, 21½@22c; firsts, 20@21c; seconds, 17@18c. Md. Va., & Penna. Prints, extras, 20c; firsts, 18@19c; seconds, 15@17c: renovated extras, 18@19c: firsts, 16@17c, seconds, 15c.

Egg--There are but few strictly fancy eggs arriving in the current receipts; all offerings of this description meet quick sale at 17⅛ cents, while the supply of heated and other defective stock is ample for the requirements; prices are governed entirely by the quality of the stocks, hence the wide range.

Cheese—The receipts are ample; demand very moderate; market quiet.

N. Y. State—Cheddars, fine, 10¾@11c; choice, 10¼@10½c; fair, 9@9¾c, Flats, fine, 10¾@11c; choice, 10¼@10½c; fair, 9@9½c; Small, fine, 11@11¼c; choice, 10½@10¾c: fair, 9½@10c; Ohio Flats, fine, 9¾@10c; choice, 9@9¼c; fair, 8¼@8½c; O. Picnic, fine, 10@10¼c; choice, 9½@9¾c; fair, 8½@9c; Swiss Cheese, (domestic) new. fine, 13@13½c; choice, 11@12c; fair, 9@10c.

G. M. LAMB & BROS.

301 Exchange Place.

NEW YORK FERTILIZER MARKET.

Acid phosphate		60	@ 67½
Phosphate rock, f. o. b. Char'n		5 00	@ 7 00
Tenn		3 00	@ 4 00
Bones, rough	₱ ton	17 00	@18 00
ground		19 00	@20 00
Bone meal		20 00	23 00
Bone black, refuse		18 00	@19 00
Potash, dbl. m're salt 48@53 per cent		1 12	@ 1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons		25 00	@30 00
sulph of basis, 90@98 per cent		2 11	@ 2 18
90@98 per cent less than 25 tons		38 00	@40 00
Potash muriate ₱100 lbs		1 83	@ 1 95
less than 25 tons		36 00	@40 00
Kainit 25% S. of P	₱ ton	9 30	@ 9 50
less than 25 tons		9 50	@10 50
Sylvinit, 35@37% P	₱ unit	41	@ 46
Nitrate of soda		2 05	@ 2 10
Blood, Dried red	₱ unit	2 55	@ 2 60
low grade		—	@ —
Concentrated tankage		15 00	@16 00
Fish guano, dried		25 00	@25 25
acidulated		23 00	@23 50

Flavor

The market value of butter is unquestionably its flavor, and its flavor is unquestionably affected by the quality of the salt used. Prize winning butter makers always use DIAMOND CRYSTAL SALT—"*the Salt that's ALL Salt*"—to insure that *winning flavor*. Its pure, dry flakes quickly dissolve—assimilate *evenly* through the butter, and add a keeping quality that is inestimable. No waste—no grit—no mottled effect. The only salt in the world that's all salt. Dairymen will find our illustrated booklet "Just Salt" contains valuable hints. We send it free.

DIAMOND CRYSTAL SALT CO., ST. CLAIR, MICH.

AS USUAL IN SCORING CONTESTS

WORCESTER SALT WINS

A six months' scoring contest recently concluded in Michigan, under the auspices of the State Agricultural College, was won by the Lotus Creamery Co. of Vicksburg, whose letter we quote:

"VICKSBURG, MICH., 6-1-03.

"WORCESTER SALT CO., NEW YORK.

"DEAR SIR: We are very much pleased over the idea that our buttermaker stands at the head in Michigan.

"We used Worcester Salt in the butter scored in the contest and are so well pleased with its qualities that no other salt stands a show with us.

"Mr. Stafford claims that the ease with which it dissolves, and its even strength and purity, make a vast improvement over other salts tried in rendering a good butter flavor.

[SIGNED] "Yours truly, O. O. BISHOP, Secretary."

Mr. Stafford is added to the long list of buttermakers who know

IT TAKES THE BEST TO MAKE THE BEST

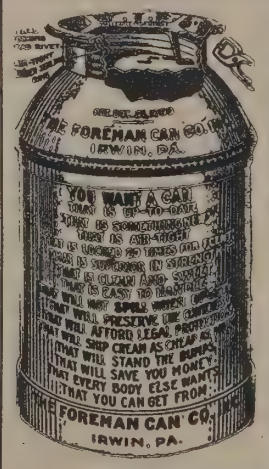
WORCESTER SALT COMPANY

168 DUANE STREET, NEW YORK.

3 FEEDS TO THE ROUND — SELF FEEDER — 2 PROFITS IN HAY BALING

ADMIRAL HAY PRESS CO., BOX 34 KANSAS CITY, MO.

WRITE TODAY FOR OUR FREE CATALOGUE



We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity—1000 cans daily, which should enable us to fill all orders promptly.

Every can sold on a guarantee. Write for Circular H.



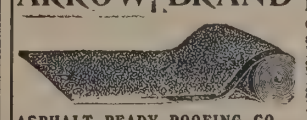
Pioneer Brand Parchment Paper

is the buttermakers, sure protection. A pure vegetable parchment with no smell to impart, shuts out foreign odors and preserves delicate flavors.

Sheets for Print Wrapping, Box Linings, Circles and Tub Linings. Name or brand on sheets when ordered. Write for samples. Book, "Better Butter," free.

The Paterson Parchment Paper Co., No. 87 8th St., Passaic, N. J.

ARROW BRAND Asphalt Ready Roofing



Can be very advantageously applied on Silos, Farm Buildings or Sheds by any handy man. Send for free samples.

ASPHALT READY ROOFING CO., 82 Pine Street, New York.

$3 a Day Sure

Send us your address and we will show you how to make $3 a day absolutely sure; we furnish the work and teach you free, you work in the locality where you live. Send us your address and we will explain the business fully, remember we guarantee a clear profit of $3 for every day's work, absolutely sure. Write at once. ROYAL MANUFACTURING CO., Box 1110, Detroit, Mich.

OUR LATEST TRIUMPH

The five highest scoring tubs of butter at the Ames contest for June and the three highest scoring tubs of butter at Lake Crystal, Minn., were made by our customers. Don't be bashful about sending for free samples and instructions for the prize winning culture. Send all orders to O. Douglass Improved Boston Butter Culture Company, 25 John St., Boston, Mass.

CATTARAGUS, N. Y. Aug. 6 —Cheese—The ruling on the cheese market to-day was, large colored, 10; small colored. 10⅝.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Collies for Sale—from prize winners. Write for price and particulars. FRANK KIRK, 189 Black Hawk St., Aurora, Ill.

For Sale—45 acre dairy farm at Ft. Atkinson, Wis. Good buildings and other improvements. See or write D. C. CONVERSE. 27-4

Butter-Maker—Would like position in city or village creamery convenient to good school. 15 years experience. References. F. W. MYERS, Lake Mills, Wis.

Wanted—An experienced man competent to take entire charge of poultry and Collie departments upon a large stock farm. Splendid opportunity to grow into a permanent, responsible and remunerative position; state age, experience, references and salary expected. Address "STOCK FARM," care Hoard's Dairyman, Fort Atkinson, Wis. 26 2

For Sale—One 30 inch French burr geared feed mill in best running order; also one Western Mill corn sheller, capacity from 5 to 75 bushels per hour, nearly new, Reason for selling, too large for this place. JOHN ZIEGLEY, Valley, Wis. 26-tf

For Rent—On or about Sept. 1, a dairy farm of 140 acres, located in southern Michigan, adjoining one of the most prosperous towns in State. Keep from 25 to 35 cows; milk sold from my wagon at wholesale and retail. A beautiful dwelling house of 12 rooms, basement barn 40×80, also other buildings, and a silo with a capacity of 100 tons. Will rent this farm to a responsible man either for cash or on shares. Address DAIRY FARM, care Hoard's Dairyman. 26 2

Wanted—An experienced butter maker to buy one-fourth or one-half interest in creamery and run the same in good location. Address T. G. FISHER, 48 W. 2d St., Fond du Lac, Wis. 26-3

Holstein Bull Calves—One thoroughbred, four high grade, 3 to 5 months old, all handsome, healthy, fine growers, the produce of my carefully selected dairy herd. For sale at reasonable prices. H. N. HILLS, Harcourt Farms, Gambier, Oh. 26-2

For Sale—Large English Berkshire boars of choicest breeding. JERRY VOSBURG, Neenah, Wis. R. F. D. No. 9. 26-4

Herdsman Wanted on 50 Cow Dairy—Good milker, unmarried, steady and to understand calf and hog feeding. IVAR JOHNSON, Fremont, Neb. 26 3

Herdsman Wanted—Single man not under 30 years of age, with several years experience; one acquainted with rearing and caring for Holsteins References required. State wages required including reference. Steady place for right party. Address D, care Hoard's Dairyman. 25-tf

Stock and Dairy Farm For Sale—¼ mile from city limits. 171 acres with milk route and telephone connections. Will sell with or without stock and personal property. For full particulars address THEO. GLOECKLER, Portage, Wis. 24-tf

Are You Looking For Land?—We have it to sell; thousands of acres of fine land around Crandon, Wis., Forest Co. Hardwood land from which the saw-logs have been cut, but there are still many dollars' worth of good wood. bolts, pulp wood, etc., on every acre which goes with the land. Close to fine growing town, county seat. Good water, clay soil and near railroad. Prices and terms reasonable. Write me for maps and circular. Address L. T. CRABTREE, Crandon, Wis., Forest Co. 24-4

For Sale—7 Scotch Collie pups; one 3 months, light Sable, some white, worth $10.00 each. will sell for $5.00. Holstein bull calves, one 8 months old, dam has A. R. O. of 475 lbs. milk and 19 lbs. 14 oz butter in 7 days, $60 00 takes him. HENRY WALSH, Sheboygan Falls, Wis. 24 4

A Registered Guernsey Bull 15 months old for sale. A very fine animal. Inquire of J. S. HUNTER, Pickett, Wis. 12-tf

Fine Dairy Farm for Sale—Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. T. S. TOMPKINS, Pasadena, Cal. 15-tf

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

Buff Jersey's latest book on Farm Stock and Dairy Work is full of practical things for practical people. The Silo, how to build and fill; ensilage, its value; soil, crops, variety and how to grow. Swine, poultry and many other subjects ably treated. Send 25c for copy. Cloth bound book $1 00. Monmouth, Ill. 47-tf

Farm Foreman and Manager position is desired by one 39 years of age and 20 years experience with Holsteins and Guernseys. Thoroughly familiar with modern dairying, soiling, breeding, as well as exhibiting and selling pure bred stock. References furnished. Address W. A. R., care Hoard's Dairyman. 25-6

Sale of Guernseys—Send for circular. Excellent bulls and bull calves at low prices. Clover Knoll Herd, M. SAGER, Mgr., Orangeville, Pa. 25-4

For Sale—A second hand, self-feeding, 16 inch Smalley Ensilage Cutter in good order, together with 56 feet of carrier, 18 feet of which was new last year Also a three horse Smalley Tread Power in good condition. The above will be sold cheap to make place for larger machinery. W. D. HOARD, Fort Atkinson, Wis. 20-tf.

We Have Them—You Want them. A few choice pure bred Guernsey bulls and grade heifers. A. H. HINMAN, Allenville, Wis. 26 4

For Sale—No. 3 Keystone drilling machine in first-class shape. Address JAMES A. GORDON, Oxford, N. Y.

Position Wanted—As manager of large up-to-date farm. Years of practical experience in managing extensively operated dairy farms, gentlemen's estates. Strictly sanitary milk production. Highest references. Write, naming requirements and salary paid competent man. Address R. F., P. O. Box 417, St. Charles, Ill.

Wanted Experienced dairyman and feeder for herd of registered Jerseys. Must be proficient in all lines and single. Address G. E. N., care Hoard's Dairyman.

For Sale—$40.00 one Mikado separator, 275 lbs. capacity, in good condition. GEO. A. BUCKSTAFF, Oshkosh, Wis. 27-2

Improved Large Yorkshires—If you are interested and want to start right drop a line to W. H. FISHER, Spahr Bldg, Columbus, O., for a "Tale of the Pig." 27-4

Wanted—Registered Jerseys and Guernseys. Offer in exchange French Coach stallion and mare, 2 and 4 years old Bred in the purple and fancy. G. VALENTINE, Genesee, Wis.

315 Pound Herd For Sale—24 cows 3 to 5 years of age; all of them either full stock or grade, "Tormentor Jerseys." Will calve this fall by "King's Daughters King" No. 57677, A. J. C. C., now heading the herd. These cows averaged 305 lbs. of butter last year, and will reach 320 lbs. this year for the entire herd. I will submit my books to bank of Hardinsburg, Hardinsburg, Ky., or to the First State Bank of Irvington. Ky., or to E. H. Shellman & Co., bankers, of Irvington, Ky., if necessary to prove this record. No defective udders or teats. No kickers or jumpers in the herd. Cows good size and in perfect trim for business. Write me for extended advertisement of my farm, dairy herd and implements, and you will know why I am offering these things. Also write to either of the above banks for my reliability and standing, or to Col. I. B. Nall, State Com. of Agri., Frankfort, Ky. The 24 cows and my "King of St. Lambert" bull, no kin to any of herd, (25 head) at low price of $1,500 00 f. o. b. cars this place. DR. P. W. FOOTE, Irvington, Ky.

For Sale—The best milk business and all utensils for running same in a city of 40,000 people. Selling about 170 gal. per day—90 gal. retail, 60 wholesale and creaming 20 gal. Milk is bought from farmers who have furnished me for years. Milk costs 10c. per gal. in summer and 12c. in winter. Sells for 20c. in summer and 25c. in winter retail, wholesale 15c. and 17½c.—cream 80c. and $1.00. A man with a family can make $250.00 a month. Good reasons for selling. For full particulars address A. B. C., care Hoard's Dairyman.

Wanted—Young man of character and ability with one or more years experience in creamery, capable of making gilt edge butter under direction. Opportunity for advancement. Address O. L. Y., care Hoard's Dairyman. 27-2

A First-class Creameryman wants an offer from either co-operative or private creamery in western Pa. or Ohio. 7 yrs. with stock and 7 yrs. at creamery work and butter making. Best of references. WM. H. APPLETON, Plainfield, Ill. 27-3

Position Wanted—By a single man 29 years of age, as herdsman on a first-class dairy or stock farm. Reference furnished and required Can come at once. Address C. MILLER, Box 144, Ottawa, Ill.

For Sale—Registered Jerseys. Cows deep, rich milkers due in Aug and Sept. Young bulls, heifers and heifer calves. Prices within reach of any dairyman. 100 head to select from. STOUGHTON & BURNHAM, Montague, Mass. 27-2

Farm for Sale—Owner will sell on favorable terms one of the best 240-acre farms in Minnesota, near a thriving Minnesota town. Good buildings, nice neighborhood, no crop failures. Splendid opening for stockman. Write L. N. MOSS, Decorah, Iowa. 27-4

Ayrshires For Sale—I have for sale two excellently bred registered Ayrshire bulls each one year old, both from the two best cows in my herd. Also a bull calf a month old of equal excellence in breeding. For sale at reasonable prices. ED. FINN, Whitewater, Wis. 27-2

Chicago Centennial, September 26th to October 1st—The passenger department of the Chicago & North-Western R'y is distributing an edition of a pamphlet which contains a synopsis of the plans of the Entertainment Committee for the celebration of the 100th Anniversary of the white settlement of Chicago, and setting forth the outline of a very attractive programme indeed. The train service between Chicago and the west and northwest via the North-Western Line is such as to place all points within easy reach of Chicago. Arrangements for low rates will be announced later

Very Low Rates to Deadwood and Lead, S. D.—Via the North-Western Line. Excursion tickets will be sold Sept 2, 3, 4. 5, and 6, with very favorable return limits, on account International Mining Congress App'y to Agents Chicago & North-Western R'y. 27-4

Excursion Tickets to County Fair at Woodstock, Ill.—Via the North-Western Line, will be sold at reduced rates Aug. 24 to 28, inclusive, limited to return until Aug. 29, inclusive. Apply to Agents Chicago & North-Western R'y. 27-3

Wanted—A thoroughly experienced veterinary to take charge of stock in the different departments upon a large stock farm; permanent position to the right man; state age, experience, references, salary expected. Address VETERINARY, care of Hoard's Dairyman, Fort Atkinson, Wis. 26-2

Very Low Rates to California and Return—Via the Chicago & North-Western R'y August 1 to 14, to Los Angeles and San Francisco, with final return until October 15, inclusive, account National Encampment G. A. R. Three trains a day from Chicago to the Coast through without change. Daily and personally conducted tourist car excursions. Special G. A. R. train will leave Chicago 10:30 p. m., Tuesday, Aug. 11; DeKalb, 12:10 a. m., Wednesday, Aug. 12; Clinton, 3:50 a. m.; Cedar Rapids, 6:20 a. m.; Marshalltown, 8:25 a. m.; Boone, 10:30 a. m; arriving at Omaha, 2:00 p. m., leaving Omaha 3:30 p. m., and running via Denver, Colorado Springs, Pueblo and Salt Lake City. For itinerary, illustrated folder and full particulars, apply to Agents Chicago & North-Western R'y. 23-5

Special Excursion Rates—The North-Western Line will sell low rate round-trip tickets to Fond du Lac and intermediate stations, good every Sunday until Sept. 27, 1903. Apply to agents Chicago & North-Western R'y. 21-7

Special Excursion Rates—The North-Western Line will sell low rate round trip tickets to Lancaster and intermediate sections, good every Sunday until Sept. 27, 1903. Apply to agents Chicago & North-Western R'y. 23-5

Devil's Lake, the Famous Summer Resort—Excellent hotels, good boating, fishing and bathing, ample train service and special low summer rates via the Chicago & North-Western R'y to this admirable summer resort. A delightful place to spend your mid-summer vacation. Write for printed matter to W. B. Kniskern, Passenger Traffic Manager, Chicago. For rates tickets, etc., apply to agents Chicago & North Western R'y. 26-3

"Dog-Days" and Cream Separator Fakirs

Every "dog-day" season one of our old time "tin-can" creamer would-be competitors, of late years making a separator of which it is said that its only good feature is its sacrilegiously taken name—the "U. S."—, is seized with a new advertising spasm of some kind and a desire to buy newspaper space for use in imaginary self-comparison of itself with the DE LAVAL, in which new fake it usually grows worse from week to week until the DE LAVAL stoops to notice its fairy stories.

First it was so-called Experiment Station fake "skim-milk records"; then a false representation of a Paris Exposition award and a still more false one of the DE LAVAL machines not having received the Grand Prize; then a garbled report of the Buffalo Exposition skim-milk tests and much lying about the awards made there. And so it has gone for some years.

Now the latest fit of rabies of which this disciple of Ananias is the victim is brazenly advertising that his machine can't skim cool milk because of quickly clogging up with it, while he pleads that it is wickedly cruel of the DE LAVAL agents to remind buyers of separators that there are frequent occasions when this is both convenient and necessary, and that the practical separator must be capable of it, though only the DE LAVAL is with good results.

Those who may read the advertisements of our envious little "teaser" should always keep these fundamental facts in mind: The DE LAVAL machines received the only Regular Award at Chicago, the only Grand Prize at Paris, and the only Gold Medal at Buffalo. They have done the best work and are held to be the best separators in every Experiment Station in Europe and America. They are used by 98 per cent. of the experienced creamery users of separators throughout the world—and their sales are ten times all other makes combined, while with a 50 per cent. greater output every year for twenty years there has never been a year yet in which the DE LAVAL manufacturers could meet the demands upon them.

This is a record of stone-wall facts which any of our pigmy would-be competitors are perfectly welcome to stand up and measure themselves alongside or butt their shortcomings into whenever they may be foolish enough to attempt it.

If any reader may not understand why a DE LAVAL SEPARATOR is as much better than the best of its imitators and followers are better than gravity systems a DE LAVAL catalogue to be had for the asking will make the reasons plain.

The De Laval Separator Co.

Randolph & Canal Sts., **CHICAGO.**

1213 Filbert St., **PHILADELPHIA.**

9 & 11 Drumm St., **SAN FRANCISCO.**

GENERAL OFFICES: 74 Cortlandt St., **NEW YORK.**

121 Youville Square, **MONTREAL.**

75 & 77 York Street, **TORONTO.**

248 McDermot Avenue, **WINNIPEG.**

A Model Dairy Barn.

(Continued from page 607)

floor, connected by a pipe which carries away all impurities in the atmosphere.

While the cow stables are one story high, with a high roof, and a row of ventilating windows in the top, the barn is two stories high. There are series of shutes through which the several kinds of food may be sent to the ground floor. There all the food is weighed and prepared. There is also a hospital room where an ailing animal may be kept and treated.

After the milking is done in the barn, the milk is taken to the creamery, a small building in front of the barn. Here again the floors are of concrete. The cement walls have received seven coats of paint, the last being enamel, and all the corners have been so rounded as to leave no lurking place for dirt or germs. The warm milk is poured into a separator and the rich yellow cream pours from the separator into scrupulously cleaned tin vessels which are transferred to a refrigerator where they are kept until the cream is ready for the churn or the market. The skimmed milk gushes from another spout and is kept separate. In the creamery is another mysterious machine, called a tester. About one gill of milk from each cow is poured in a bottle and the bottle placed in the machine. Some acid is added and when the electric current is turned on the machine sends the bottles whirling with amazing speed. The quality of the milk, just how much butter fat and other products, is accurately determined.

A big sterilizing oven is also a prominent fixture. Here all of the vessels used in the creamery are placed and steam heat from the engine is turned on. The oven attains a heat of 250 degrees, sufficient to kill any stray germ that might have fastened on any part of any vessel.

All of these buildings and their equipment are merely preliminary, however, to the great test that will be made at St. Louis during the exposition, Mr. Graves has had an architect draw plans for a stable that is to be built on the World's Fair grounds, that will be the home of the Jerseys until the close of the exposition. This stable will embrace all of the improvements tested at Jerseyville, and more. The same sanitary precautions will be taken, the floors, stalls, gutters will be modeled after those of the Jerseyville stable. The World's Fair stable, however, will be octagonal, with the stalls in a circle around the office of Mr. Graves and the room where the testing and measuring will take place.

In all former dairy tests at international expositions the stables have not been open to the public. Here a 15-foot promenade extends almost all around the stalls, and the visitor may see each one of the cows entered in the test as she stands in the stall. The animal will face the visitor, and her name and pedigree may be learned. Besides the 25 cows entered in the test, there will be a reserve herd of 15 cows, and some of the most valuable Jersey bulls in the world. The bulls and some of the cows will be kept in box stalls. A wire netting, extending to the ceiling, will separate the public promenade from that part of the stable where the cows are confined. No one will be permitted behind the screen save those connected with the exhibit, and the judges.

Every ounce of food given each cow will be carefully weighed and a record kept. This is also true of the water drunk by the animals.

A large silo will be built adjoining the stable. This will be round, 18½ feet in diameter and 40 feet high, built of California red wood and will hold 200 tons of silage, which will be fed during the test. A field of 20 acres of corn is growing on a farm near Clayton, Mo., and in August this will be cut and taken to the World's Fair grounds, where the entire corn will be passed through feed cutters and pressed into the great silo. This will take the place next summer of the green food that the cows would get if they were on the pasture. Alfalfa for food will be brought from Colorado, and only the choicest meal and other foods will be fed.

All feeding and milking will be done in the stables, and the milk will be turned over to the Dairy Department, which will erect a model dairy in the Palace of Agriculture. Here the milk will be converted into butter and cheese, and a careful record of each cow's part in the test will be kept. Representatives of members of the Shorthorn, Guernsey, Holstein and other clubs will be at all times permitted to enter the barn and inspect it.

With the herd will be Flying Fox, the famous Jersey bull owned by Thomas W. Lawson, of Boston. Mr. Lawson paid $7,500 for the animal, and has refused an offer of $15,000 for him. Flying Fox Imported is another high grade bull that will be with the herd. This animal was born on the Isle of Jersey and is owned by H. N. Higginbotham, of Chicago, who was president of the Columbian Exposition. Another fine bull that is already with the herd, is Merry Maiden's Third Son, owned by H. C. Taylor, of Orfordville, Wis.

Among the prominent Jersey cattle breeders who have made entries, are C. I. Hood, of Lowell, Mass., and George Vanderbilt of the Biltimore, N. C., estate.

The following cows are already at Jerseyville:

Lady Perfection 2d, 128,278 and Harriet J. of St. Lambert 153,512, Frank J. Hart, Cleveland, O.

Lassie Easter Pogis, 143,523, H. C. Young, Lincoln, Neb.

East Lake Girl 121,127, R. A. Sibley, Rochester, N. Y.

Senone 14,523, Wm. Stupful, Council Bluffs, Iowa.

Aaron's Queen 155,591, July Blossom 2d, 137,680 and Adelphia Melia Ann 162,521, Frank B. Queeney, Belvidere, N. Y.

Loretta D. 141,708, F. H. Scribner, Rosendale, Wis.

Dorinda Darling 146,249, Wm. M. Clark, Lincoln, Neb.

Prize Mays Duchess 132,476, George H. J. Sisson, Jr., Pottsdam, N. Y.

Blossom of Florence 164,109 H. F. Probert, Jackson, Mich.

Zaza of Menlo 147,312 and Gertie Alexander 151,395, The Ladd Estate, Portland, Oregon.

Diploma's Brown Lassie 164,877, J. J. Richardson, Davenport, Iowa.

Chief's Rosebud 169,987, F. H. Olin, Perry, N. Y.

Bridget's Pride 121,466, Dr. R. W. Thomas, St. Joseph, Me.

Portia of Prospect 138,783, W. H. Silverthorn, Paynesville, O.

Very Much More 140,733, Ben Ames, Mt. Vernon, O.

Bea of Lawn 121,532 and Zelda of Lawn 134,153, A. O. Aulen, Evanston, Ill.

Seekonks Pride 134,309 and Millie au Claire, John F. White, Mt. Morris, N. Y.

The amount of money involved in this Jersey exhibit is enormous. Many thousands of dollars were expended in fitting up the preliminary home at Jerseyville, and a much larger sum will be spent in the construction of the permanent home on the World's Fair grounds at St. Louis. The feed for the cattle will cost another fortune. It would be hard to fix a value on the herd itself, but on the market it would bring more than one fortune. Mr. Lawson has refused $15,000 for the fine bull at the head of his private herd and many of the cows would bring fabulous prices were they placed on the market.

Some Milk Questions.

ED. HOARD'S DAIRYMAN:—I have just gone into the retail milk business, and if you will answer the following questions you will do me a great favor.

1. What gives milk the sweet, pleasant taste? I take milk of five farmers, and the milk that analyzes next to the lowest in butter fat and solids, is the sweetest and most agreeable to the taste, yet pretty poor in quality.

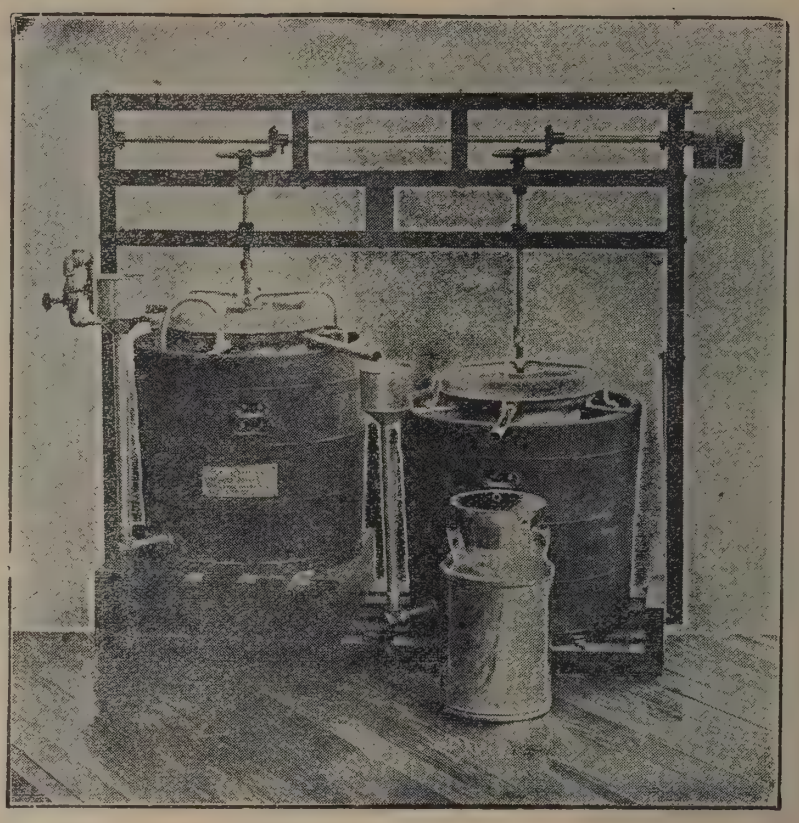
2. What do large cities in general do with their surplus milk? Here the farmers make too much milk in spring and early summer, and not enough later on. Who generally stands the loss, the farmer or peddler? I should think the farmers and peddlers would form a stock company and build a creamery and make into butter and cheese the surplus milk, and not force it on the market and thus cut prices in order to sell it, and, therefore, would like to know what is done in other places.

3. Is it an established fact that a cow will make as good milk on swale hay, as on the best of feed, the only difference being in the quantity?

4. Two of my farmers fed ensilage, and in March and April the milk had a bad smell and taste due to the ensilage. Could that be prevented?

5. What should be the size and cost of an ice house to properly care for the

A GREAT SUCCESS.



The Miller Cream Pasteurizer has a capacity of from 450 to 600 lbs. per hour.

Price $150 in Tin. $200 in Copper.

THE MILLER PASTEURIZING MACHINE CO.

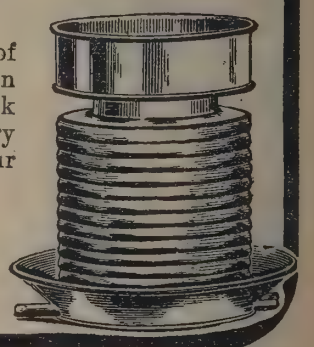
CANTON, OHIO.

Milk Dealers' Supplies

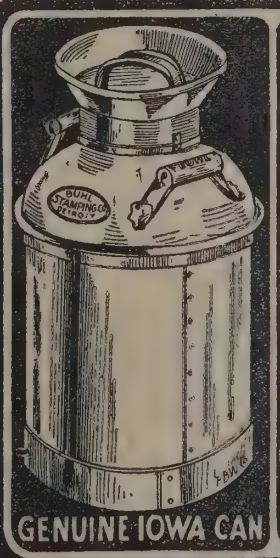
Milk Aerators, Pasteurizers and Coolers
Ice Cream Cans and Tubs
Milk Bottles
Milk Shipping Cans
Milk Bottle Caps



These are but a few of the many things of our own superior make for the milk dealer, dairyman and creamery man. Write at once for our free illustrated catalogue.



STURGES & BURN MFG. CO.
Chicago, Ill., St. Paul, Minn., Kansas City, Mo.



Truth to Tell

There are no other milk cans made that can equal in wearing qualities the genuine

BUHL CANS

They are tinned to stay tinned, and put together to stand years of hard service. Other cans crack easily, become dented, and being lightly tinned soon rust and go to pieces. Not so with the "Buhl Factory," "Improved Elgin" and "Genuine Iowa." They will outlast any other cans on the market, and are thoroughly and quickly cleaned, **Remember**, the Buhl is the only can in the world that is made with the **Buhl "Victor" Can Breast** and the **Buhl "Victor" Round Handle.** As there are many inferior imitations of this can, we stamp all ours with the **Milk Can Trade Mark.** Look for it. Sold by all live dealers. Ask about them, or write us direct.



BUHL STAMPING COMPANY,
212 W. Larned St., Detroit, Michigan.

milk and for domestic purposes of a dairy of 30 cows?

6. Which is the best milk from a medical standpoint, the richest or the poorest, or some way between in butter fat, I mean 3, 4, 5, or 6% milk?

Worcester, Mass. A. D. P.

Milk has a sweet and pleasant taste because it is clean and sweet; has not been allowed to become contaminated with dirt, nor kept at a temperature that will allow the growth of lactic acid bacteria. Fresh milk always tastes sweet, but the sweet taste disappears, owing to the growth of bacteria that both use up the milk sugar and substitute other and less pleasant tasting compounds.

The disposal of the excess of milk in the city trade depends on its quality and condition. If it is sour it is returned to the producer, who stands the loss. This is especially the case when the city dealer is handling milk on a small scale and has no conveniences for handling his surplus. In Boston the surplus is separated and the cream made into butter, and this is also the case in cities where the wholesale dealer handles sufficient milk to make it profitable. As a rule, the milk peddler does not obtain his milk directly from the farmer but from the wholesale dealer.

In many cases the milk is shipped on order each day from a creamery or receiving station and thus an attempt is made to not over supply the market; but in the milk business, as in most other things, there is a tendency for every one to look out for himself and shift the loss, if possible, onto the other fellow, who, in most cases, is the producer. It will be always possible to do this shifting, partially, if not wholly, so long as the majority of milk is produced in summer and the producers are a thinly scattered body.

If by good, is meant the quality of the milk, in regard to fat content, swale hay will produce a good quality of milk, but of course much less in amount. Milk cannot be produced without feed and a cow cannot eat sufficient swale hay to return any but a small flow of milk, but there is no reason to suppose that the quality will not be good unless the amount fed is so small as to bring the cow down to the starvation point.

Ensilage will not taint the milk if the barn and surroundings are kept clean and free from decaying material and provided the ensilage is of good quality, not mouldy or decayed. The finest quality of milk can, and is being produced on ensilage, but clean stables and cows are part of the process. Many times tainted milk comes from allowing the milk to stand in unclean stables, where it rapidly takes up any odor that may be present. Feed good ensilage after milking and there will be no trouble from odor.

A cubic foot of ice weighs 60 lbs.; you will need for cooling and packing 100 pounds per day. From this you can calculate the size of the ice house needed.

As a food, from a medical point of view, a milk containing a large per cent of fat is too rich and liable to cause stomach trouble. Probably under 4% fat is the best for feeding purposes.

Building a Cement Silo.

ED. HOARD'S DAIRYMAN:—As you request, we will try to give you the plan in detail for erecting cement silos. There may be better plans, but we got up one 16 x 30, that we are proud of.

We employed a bricklayer to oversee the work, but he was inexperienced in concrete work and not one of us who worked at it, had concreted any or seen a silo.

We leveled off the ground and marked our circle with a piece of board, with a spike in the end, then excavated about 5½ feet, till we struck hard pan. We then set our form or crib for the inside, which was made in two sections of 6 in. boards, cut 3 ft. and nailed to 2 circles marked and cut out of 1 inch pine boards, and set the form in the excavation, using the bank, of course, for the outside form, which sloped from 21 inches at bottom, to 18 inches at the top of the ground. Then we brought our outside form into use, which was made in 6 sections, out of 4 inch strips, cut 3 ft. long. We would fill the forms (3 ft. all around) and let them remain till next morning, and then raise and fill again. We built a square frame on inside to scaffold on, and a strong scaffold on the outside. We hoisted with one horse all material dry, and mixed it on the scaffold and threw it in with shovels, as mixed. The outside of the wall tapered to 8 inches at top, which required cutting out of the form each time it was raised.

We used Portland cement, clean sand and screened gravel. Before the wall tapered till it was too thin, we used several loads of flat rocks laying them carefully in the concrete.

Four openings are sufficient in a 30 ft. silo begun 5 ft. below top of ground. We made a frame out of 2 inch plank as wide as the wall is thick for jambs, less 2 in. the thickness of the 2x4 in. facing, which is nailed to jambs on inside. The 2x4 makes a groove or indenture around the opening in which to set doors out of the way of silage settling. Set this frame in the forms where an opening is wanted. We sealed up the openings with brick and lime mortar back of the wooden doors. We think openings 20x30 in. in clear are plenty large.

We did all our work with farm hands except the brick layer and he was just about as green on this job as the balance of us. We, however, got up a silo that we are proud of. It cost some more than a wooden one, but it looks as though it might be in use long after we have all joined the great majority.

If we have omitted anything that would be of benefit to any reader of the DAIRYMAN in building, and they will write us, we will take pleasure in answering and give any information we can.

A. E. MILLER & BRO.

Foss, West Va.

Brass Bull Ring Wanted.

ED. HOARD'S DAIRYMAN:—Will B. A. F. please tell through the DAIRYMAN where the large, brass bull ring, mentioned by him on page 554, July 24th issue, can be found? I have long been dissatisfied with the common copper ring, and wished for something more secure.

Brockton, N. Y. F. A. S.



WE LEAD THE WORLD

We are the largest manufacturers of Grooved and Plain Tire Steel Farm Wagon Wheels in America. We guarantee our patent Grooved Tire Wheels to be the best made by anybody anywhere. Write us.

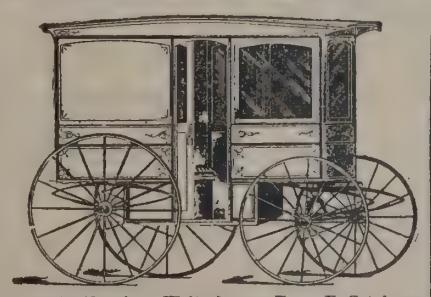
HAVANA METAL WHEEL CO.

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PRICE TALKS WITH QUALITY BACK OF IT.

ONLY $129

TERMS—⅓ Cash and balance 1, 2, 3, and 4 months notes or 5 per cent discount for cash



We make 10 styles. Write for our Form E. Catalogue and Price List.

THE O. ARMLEDER CO., Cincinnati, O.



BEST MILK WAGON ON EARTH.

SOLD DIRECT TO CONSUMER ONLY.

Highest Grades—Lowest Prices—Guaranteed. Shipped on Approval. Full line Buggies and Harness. Write for Catalogue and Prices.

SAVE DEALERS' PROFITS.

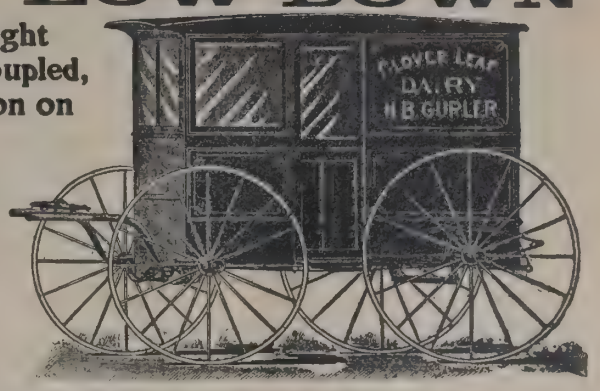
UNION BUGGY CO. Dept B. PONTIAC, MICH.

THE ONLY LOW DOWN

Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the market.

20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished.

Send for catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.



Shipman, Bradt & Co.

Sole Manufacturers.

DE KALB, - ILLINOIS.



The National

LOW DOWN CUT-UNDER

justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

THE NATIONAL WAGON COMPANY, Chillicothe, Ohio.

GOOD REASONS

why land buyers are attracted to **Marathon County** are: Because of the richness of the soil; abundance of water at little depth; fine grazing making it a very desirable location for cattle raising; excellent railroad facilities and competitive markets for dairy, farm and timber products. Central and Northern Wisconsin will be

THE COMING DAIRY SECTION

and has already made great strides in that direction, many fine herds have been established. If you want to **Own Your Own Home** now is the time to buy. Our lands are located in the northwestern part of Marathon County in a country well populated, near the prosperous village of Athens. For prices and further particulars address:

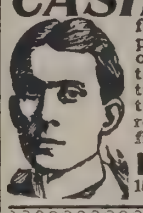
RIETBROCK LAND & LUMBER CO., ATHENS, WIS.

FOR SALE

My fine country home and dairy farm of 120 acres within 1¼ miles of Waukesha city limits and electric line. This farm is well watered and fenced, and well equipped with buildings painted and in good order; 10 acres wood lot, balance under plow and in high state of fertility. For particulars address

O. P. CLINTON, Waukesha, Wis.

CASH FOR YOUR



farm, home, business, or other property (no matter where located or how large or small) may be obtained through me. Send description, state price, and get full particulars free. Est'd 1896. Highest references. Offices in 14 cities from Boston to San Francisco.

W. M. OSTRANDER

1519 N. A. Building, Philadelphia

IOWA FARMS For Sale $45 to $65 Per Acre.

We offer improved Iowa farms close to church, school and town, with local telephone and rural mail delivery, soil rich, black loam, and level, at $45 to $65 per acre. We also have special bargains in North and South Dakota and Canada. If you wish to buy or sell land or city property anywhere, write to us for confidential terms. We make a specialty of long range sales, so no matter how far away you live, if interested write us. We refund railway fare to parties who buy of us. Send for price list with pictures of farms.

THE JOHN M. CANNON LAND AGENCY, CRESCO, IOWA.

WISCONSIN

Farm Lands

$8 to $12 PER ACRE.

On terms to suit purchaser. We would like to show you the lands and can give you low railroad rates to come and look at them. This is the future dairying country of the Northwest.

Our lands are only 240 miles from Milwaukee with splendid markets on all sides. None of the land lies more than three and a half miles from the railway station. Write and find out about it. Yours very truly,

INTERIOR LAND CO.,

Janesville, Wis.

NOW Is the time to Subscribe for **HOARD'S DAIRYMAN.**

160 ACRE FARMS IN WESTERN CANADA FREE



Western Canada Has Free Homes for Millions.

Upwards of 10,000 Americans have settled in Western Canada during the past five years. They are **Contented, Happy** and **Prosperous** and there is room still for **Millions.** Wonderful yields of wheat and other grains. The best grazing lands on the Continent. Magnificent climate, plenty of water and fuel. Good schools, excellent churches, splendid railway facilities.

FREE HOMESTEADS OF 160 ACRES

(the only charge being $10 for entry) in Manitoba, Assiniboia, Saskatchewan and Alberta. Send to the following for an Atlas and other literature as well as for certificate giving you reduced rates, etc. Superintendent of Immigration, Ottawa, Canada; or to the authorized agent of the Canadian Government—

T. O. CURRIE,

12 B. Callahan Bldg., Milwaukee, Wis.

J. M. MacLACHLAN,

307 Third Street, - Wausau, Wis.

Buy You a Ticket to CROOKSTON, MINN., and call upon

The Polk County Land & Loan Company

For choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.

360 acre farm, 4½ miles from Crookston, Minn., (a city of 7,000 inhabitants), and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 ft. square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm in under a high state of cultivation, and is well drained by a slight ravine running through the farm, merely sufficient for self drainage. The soil is a rich deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50,

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired. Price $19.00 per acre.

Buff Jersey's Notes in the Northwest.

ED. HOARD'S DAIRYMAN:—Last week I took an outing of a few days. My line of travel took me through Iowa, Minnesota and Wisconsin. My object was to study the crop conditions through these states so as to be better prepared for institute work this fall and winter. I find, to keep well posted, institute workers must not only keep well up in their own lines of work, but must also know and see what others are doing. My specialty being corn, I had a good opportunity of studying the plant in the several states under various methods of culture and climatic conditions. Thirty years ago I helped to raise a crop of corn in St. Croix county, Wisconsin. At that time the crop was not called such so far north. It was called a patch, and patch methods of cultivation were used. Today they have fields there and up-to-date methods are in vogue, not only in the culture but in the harvesting as well. The plant has been bred and acclimated so that the present crop compares favorably with the crops we raise in this, the corn belt.

Last spring I was told at the Dairymen's Convention at Fond du Lac that the farmers in the northern counties of Wisconsin raised from 10 to 15 tons of ensilage to the acre. I was a little inclined to doubt the statement at that time. I reasoned that that yield was about as much as we got in this latitude, and could not see how such yields could be produced so far north. But it is a fact, no doubt. I saw corn all over St. Croix and Pierce counties, that will make as much ensilage per acre as we will have this year. But I am sorry to say it will not be put in silos at all, for I could learn of but one silo in Pierce county, and that out of use, and St. Croix county was but little better.

The lack of stock it seems to me is the weak spot in this section of country. A friend of mine in St. Croix county, who has 160 acres of good land, has two pigs and five or six cattle. It is not for want of feed, for oats, barley, and all kinds of hay crops do well there. The clovers are extra fine. Thirty years ago we were told that clover could not be raised there; too cold for it. Today the second crop is better than we raised in our first crop in this section.

I found through Iowa great variations in crop conditions. The corn crop was from six inches high in some fields, to tasseling and shooting ears in others, while large tracts of land were vacant, owing to excessive wet weather at time of the planting season.

Minnesota conditions were similar. I could see the lack of sufficient help all through Iowa, Minnesota and Wisconsin. In Iowa and Southern Minnesota I saw the harvest fields with only the binders at work in them; no men could be hired to shock the grain, and in talking with the farmers I was told that the amount of wages paid did not relieve the situation; the men were not in the country.

I saw 21 concrete silos at one place; they were 18 feet in diameter and 80 feet high, and what do you think, Brother Hoard, the chumps who own them don't know what they are good for. They were using them to store wheat, barley and oats in. I read their sign and it said they were the Minneapolis Concrete Elevator Co. Well, I suppose from their point of view I would be the chump if I filled the structures with the product I think them best adapted to.

In visiting River Falls, Wis, where in 1871-2 I attended school, I tried to locate some of my old schoolmates, and out of an attendance of 110 at that time, I found only two left in the town.

This trip rounds out my study of crop conditions and local requirements from Texas to St. Paul in the past few years, and the knowledge I have gained will be of value to me in presenting my subjects in the institute room, or to the readers of the various journals I may write for.

Monmouth, Ill. BUFF JERSEY.

Eye Disease of Cattle.

ED. HOARD'S DAIRYMAN:—So-called "pink-eye" properly termed "contagious ophthalmia" has appeared among cattle in this and other states and presents the following effects:

SYMPTOMS.

Adult, young cattle and calves first show swelling of the eyelids accompanied by weeping. Redness of membranes of eyelids and "haw" becomes apparent; creamy discharge follows and in three or four days a clouded spot shows in center of eye and gradually spreads until "sight" of eye becomes milk colored. Changing from milk color to pearl tint, eye may become yellow, bulge, show blood-shot streaks, form an abscess and burst leaving a ragged ulcer, or commence to clear up and finally recover. Slight ulcers may heal by granulation, but extensive ruptures and ulcers often lead to loss of sight. Fever and some loss of appetite is present, especially in young cattle, for a week or more from time of first attack and dairy cows may shrink in milk production.

TREATMENT.

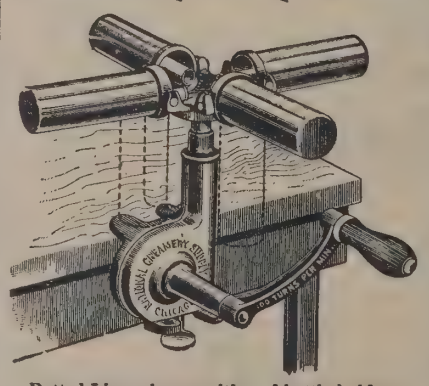
The disease being "catching" and doubtless due to a germ which leads to its spread from one animal to another, affected cattle should be separated from unaffected; eyes of latter should be washed once or twice a week with a solution of two drachms of boracic acid in a pint of water as a possible preventive, and pastures bordering on rivers, ponds and sloughs should be abandoned, as the disease seems most liable to attack cattle grazing on such low, wet ground. Place affected cattle in a darkened shed or stable. Give each adult animal a one pound dose of Epsom salts with one ounce of saltpeter and one ounce of ground ginger root in two quarts of warm water, as one dose, and follow with a tablespoonful of saltpeter twice daily in drinking water, or soft food. Young cattle should have the same medicine in smaller doses, according to age and size. While under treatment do not

DO YOU INTEND to buy a farm this Fall? If so, write and tell us what you want, giving size, purpose, and price you wish to pay. We have dairy and stock farms; also fine grazing lands, and fine farms for general farming. We can suit you.
HILES & MYERS, C-100 MATTHEWS BUILDING, Milwaukee, Wis.

MILK TUBES Patent Coin Silver 1¾" 50c 2¾" 80c. Improved Teat Opener 75c. Dilating plug 25c Postpaid on receipt of price. G. P Pilling & Son, d and Arch Sts., Ph l., Pa

BUY DIRECT FROM FACTORY, BEST
MIXED PAINTS
At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N Y.

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Dotted Lines show position of bottle holders when not in motion.

Has enclosed cut gears.
Swinging bottle-holders.
Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

DOES YOUR DAIRY PAY?
It costs no more to feed a profitable than an unprofitable cow.

NET PRICES:

No. 1,—2 bottle, complete for testing milk.... each $4 00
No. 2,—4 bottle, complete for testing milk.... each 5 00
No. 3,—2 bottle, complete for testing cream and milk, each 4 50
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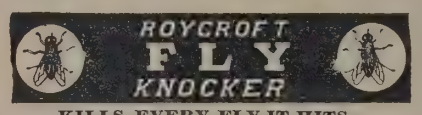
Prices include full directions for making test, bottle of acid, test bottle brush, acid measure, dipette and test bottles.

We are the great Dairy Supply House of the West. We carry an immense stock of all kinds of Butter and Cheese Making Apparatus and Supplies. Write for catalogues and circulars.

National Creamery Supply Co.,
450-458 Illinois St.,
CHICAGO, U. S. A.

ARMOUR'S BLOOD MEAL Cures Scours in Calves.
First proved by the Kansas Agricultural Experiment Station, and since corroborated by thousands of leading stockmen who have used it without a single failure. Equally effective for the diarrhea of all animals.
PREVENTS weak bones, paralysis of the hind legs and "thumps" in pigs; "big head" of foals; "rickets" of all young animals; abortion due to incomplete nutrition, and a host of other troubles.
A Potent Food for Work Horses, Dairy Cows, Poultry.
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THE ARMOUR FERTILIZER WORKS,
Chicago. Omaha. Baltimore. Atlanta. Jacksonville.

THE BROWN BESSIE HERD Offers one bull 14 months old, sired by Recorder, 29239, the only living son of Brown Bessie and has 14 tested daughters. Dam, Relay, 70353, test 17 pounds 2 ounces. She a daughter of Diploma with 61 tested daughters. Also Berkshire Pigs of English and American selected stock.
H. C. TAYLOR, Orfordville, Wis.



KILLS EVERY FLY IT HITS.
It keeps off the rest and is harmless to man and beast. MAKES MILKING IN FLY TIME EASY. Every gallon guaranteed. Send $1.00 for Spray Pump and half gallon can, or $1.00 for full gallon without pump. THE BROWN CHEMICAL CO., Cleveland, Ohio.

NORTH OAKS FARM, ST. PAUL, MINN.
(Jas. J. Hill, Proprietor.)
AYRSHIRE BULLS
Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address,
N. E. McKISSICK, Supt., Cardigan, Minn

AYRSHIRE CATTLE of the BEST of BREEDING. Also Chester White Pigs, ready to book for season's trade. Young stock of both sexes. Prices reasonable. Come and see us.
F. TSCHUDY & SONS, Monroe, Wis.

GUERNSEYS FOR SALE.
Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.
JAS. H. BEIRNE, Oakfield, Wis.

Rosendale Guernsey Herd
TUBERCULIN TESTED.
Sixty head of choice Guernseys headed by Coralette's Son, (see page 450) whose dam, Coralette made 479.7 lbs. fat in one year at 3½ years old, and was first prize cow at Wisconsin State Fair in 1896.
Some fine young bulls for sale.
GEO. C. HILL & SON, Rosendale, Wis.

Wasteland Guernseys
Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.
M. M. & E. J. HOLLINGSWORTH, Landenberg, Chester Co., Pa.

GUERNSEYS.
HADDON FARMS—Home of the noted GLEN WOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

Old Homestead Guernseys.
Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.
Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL Perry, Lake Co., Ohio

GUERNSEYS FOR SALE
Bull two years old out of Count Topsy 24.27 lbs. butter 7 days. She won 1st prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality F. W. TRATT, Whitewater, Wis.

BULL CALVES
From cows with a weekly butter test of 19 lbs. 10 oz., a Babcock test of 789 9-10 lbs. in a year; 48 lbs. 6 oz. of milk in one day, 11713 lbs. in a year, are seldom offered. The Sale List referred to on pages 514, 536, 556, and 576 contains such a calf, and another from a daughter of a full sister to the above cow. If needing new blood in your herd write now, asking for Sale List A 19.
WINTERGREEN HILL FARM, SCOTTSVILLE, N. Y.

FOR SALE GOLDEN LAD BLOOD. sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. E. C. GREEN, Albion, Wis.

8 COWS With records of over 14 lbs. butter in 7 days out of 15 in milk. Write us what you want in the line of JERSEYS.
Herd is headed by Fontaine's Owl, 60436. Address
J. F. EGERTON, Footville, Rock Co., Wis.

FOR SALE. Two A. J. C. C. Bulls ready for service; also some younger ones. Cows and heifers in calf to richly bred bulls. Write for pedigrees and prices. We have a few Berkshire Boar Pigs from unregistered sows left; cheap.
N. N. PALMER & SON, Broadhead, Wis.

BILTMORE JERSEYS
are great and presistant dairy workers and typical Jerseys. We ask comparison with any other herd for
YEARLY MILK & BUTTER YIELDS, SUBSTANCE AND FINISH.
The herd contains more prize winners at the leading exhibitions (including the Pan-American) than any other herd.
The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service as you cannot get it.
Also Headquarters for Large English Berkshires and Standard Poultry.
Apply to
BILTMORE FARMS,
BILTMORE, N. C.

HAZEL FERN HERD. A. J. C. C. Jerseys blood of St. Lambert, Melia Ann, Combination, Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis' 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

ROBINSWOOD JERSEY DAIRY is offering a few Reg. Jersey Bulls ready for service at from $25 to $50, sired by a grandson of Recorder, the only living son of Brown Bessie, out of good cows. Write, stating your wants, to
N. H. ROBINSON, Prop., Centralia, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.
W. J. HUSSEY, Mt. Pleasant, O

JERSEYS FOR SALE FOUR SOLID COLOR BULL CALVES 3, 4, 5, and 7 months old. Sire a Double Grandson of St. Lambert Boy, sire of 54 tested cows.
J. ALDUS HERR, Route 4. Lancaster, Pa.

VALLEY FARM Offers for sale a son of "King of St. Lambert's King" out of a daughter of "Gazilla's Fawn," dropped July 29th., 1900. Also have some young bulls. Write your wants to
FRED STUBLEY, Black Earth, Wis.

PROSPECT HILL JERSEY HERD.
Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

JERSEY BARGAIN.
REGISTERED YEARLING BULL, sire a son of Brown Bessie, winner of 30 and 90 days butter tests, Chicago, 1893. Dam traces to Eurotas (77[illegible] lbs. 1 yr.) Mary Anne of St. Lambert (867 lbs. 1 yr.), also Brown Bessie; fat tests showed 364 lbs. 1st. season, within year, and 15 lbs. 1 oz. (258 lbs. milk) in 1 wk ; died of milk fever this (3d) calf. Thrifty, solid color.
E. E. STEVENS, North Madison, Ohio.

feed grain, but give soft and green food; allow all the cold water animals will take.

At the commencement of an attack, puff between eyelids, by means of a clean insect powder bellows a mixture of equal parts of finely powdered calomel and boracic acid; or cover eyes with soft cloth to be kept wet with a 1-2,000 solution of bichloride of mercury (corrosive sublimate). This treatment may prove sufficient in a majority of cases, but should the disease persist and aggravate, substitute for above lotion, one consisting of a drachm each of sulphate of zinc and fluid extract of belladonna leaves, with 20 drops of carbolic acid in a quart of clean, soft water, with which to keep cloth over eyes continually wet. When inflammation subsides, should eye remain milky-appearing, paint once daily with 1-1,000 solution of bichloride of mercury or 3% solution of boracic acid. In bad cases which are tardy in responding to treatment give—except to pregnant cows—one drachm of iodide of potash, twice daily, for adult animal, and from ten to twenty grains for calves and yearlings, continuing its use for one week. Ragged ulcers may with benefit be painted with a solution of three grains of nitrate of silver in an ounce of distilled water two or three times a week. Lastly, quarantine animals bought at stockyards, shipped in, or from infected herds.

A. S. ALEXANDER,
Veterinarian.
Wis. Ag'l Exp. Sta., Madison, Wis.

The City Man and the Farmer.

ED. HOARD'S DAIRYMAN:—A few weeks ago, we saw what we considered at the time a very unjust criticism of the farmer in an editorial in the daily *Milwaukee Sentinel*. The editor in the first place showed his total ignorance of the average farmer by saying that farmers were reaping the rewards of the present prosperity without being willing to pay the advanced price in wages, and they demand long hours of labor.

As to the one thing, reaping the rewards of the present prosperity, if the editor will go over the records he will see that wheat is not one cent higher than it was 10 or 15 years ago, that the price the farmer gets for his meat, with the single exception of pork, is no higher. There is only one thing there, a demand for all he can produce that makes his income one iota larger, but he must pay the advance in machinery, help and his own living expenses, which make great inroads in that increased income the editor speaks of.

As to working out of reason, if the editor was living on a farm he would have known that hay was not hay that had been left to repeated rains and showers; that wet and soaked grain did not bring the top market; that his crops were not like a merchant; that the sun made a day's work that must be accomplished. We felt when we read it that we had not the material to answer the article, but we have now, and we think we can show to the reading world that the working man is surely digging his own pitfall.

This last week we had the privilege and great pleasure of visiting that genial host, Mr. Hope, the manager of the Mr. McK. Twombly's herd of Guernseys. What splendid cows! Many of them being tested for the advanced registry, giving from 40 to 50 pounds of milk a day, generously responding to the excellent care given them. Here is Mr. Hope, with beautiful homes for any one; with all the money needed to make farm life a success; with nature's beauty all around; with cattle in barns, cleaner than the homes that many a man and woman live in; living within an hour's ride of New York, Brooklyn, Jersey City, Newark, where men and women beg on the street, and live in sweat shops, and packed in rooms that Mr. Hope would not put a hog in; paying the best of wages; giving them the best food; working them only as they work anywhere, and his constant cry is: "What shall I do to get the necessary help to run the place, either indoors or out."

If I were a young woman and had my bread to earn, I would not be afraid to go into Mrs. Hope's kitchen or any other such place and do the cooking and feel that I would be just as well treated, just as kindly used if I did my work well, as though I was in someone's office or behind a counter, and I know I should be no less a lady in one place than the other.

If I were a young man and had to dig my living behind counters or had to peg it out of law books as a second-rate lawyer or doctor, I would far rather make my living tending a nicely-cared-for animal, taking pride in the work I could do, making a way for myself on someone's fine farm. The whole thing, that farmers abuse their help, do not give them liberty enough, is the worst kind of nonsense and when it comes from men who edit such papers as the daily *Sentinel*, it only shows their ignorance of the labor question and returns received by our farmers. The farmer is paying his just portion of the labor in more ways than one, and all he asks is just returns for the money invested, the same as any other business man

Neosho, Wis. EVA LEHMAN.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

The Elwell Kitchen Cabinet

SOLD ON APPROVAL



We shall not attempt to describe it here but invite you to send for our new booklet.

"THE LABORATORY OF THE HOME."

It puts the work of the kitchen upon a business basis—everything handy, sanitary, dust-proof and mouse-proof; easy to keep fresh and clean. Booklet tells why.

Thousands of our cabinets sold—eight styles. Every home-maker wants one. Write to-day for booklet. A postal card will do.

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NO MORE RUBBING, stooping or boiling of clothes. The "1900" Ball Bearing Washer will wash a large tubfull of clothes in 6 minutes. An hour's wash in 20 minutes. The washing is done sitting down. You can try it free of expense, freight prepaid, no advance payment. "1900" Washer Co., 219A State St., Binghamton, N. Y.



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President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.

FEES FOR REGISTRY.

TO MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.

NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. ☞ All blanks furnished free.

Life Membership, $25.

Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.

Address F. L. HOUGHTON, Putney, Vt., for information relating to Registration of Pedigrees.

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34 cows and heifers in the **McGEOCH HERD** have been **officially tested** with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs. of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs. of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by **Gem Pietertje Hengerveld Paul De Kol,** or **Sir Ormsby De Kol** for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days; average per cent of fat 4.47. Are these the kind of **Holstein-Friesians** you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd?

For particulars address **H. B. Daggett, Mgr., Station A, Milwaukee, Wis.** Residence: National Ave., near 40th. Phone, South 1601.



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FOR SALE 2 young Holstein-Friesian Bull Calves—1 ready for service—both fine individuals. (Registered). Write for price or come and see. S. H. TATHAM, Outville, Licking Co., Ohio.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 5148 Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.
WM. EVERSON & SONS, Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULLS FOR SALE.

Ready for service; from A. R. O. animals; sired by Johanna Rue 2nd Paul De Kol, sire of 13 A. R. O. cows. Also young bull calves by same sire. **THOS. CAINES, Supt.**
ARCADIA, - MISSOURI.

TYRANENA HERD

100 HOLSTEIN-FRIESIANS 100

A. R. O. Stock For Sale.

Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62 Eight official records in pedigree that average 25 lbs. 5 oz. **Frank B. Fargo, Lake Mills, Wis.**

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Headed by Mercedes Mechthilde Pietertje. No. 25,795, oldest son of Mercedes Julips Piete tje. 75 O. I. C. White Pigs, both sexes, in pairs and trios, not related.
W. R. GATES, Fort Atkinson, Wis.

OAKLAND HERD HOLSTEINS

PREMIER SIRE **Mutual Friend 3d's Paul** A son of Paul De Kol & Mutual Friend 3d, 21.84 lbs. butter, milk averaged 4.7% at 3 years. She has two A. R. O. daughters, 1 made over 20 lbs. Must reduce herd at some price. State just what you want. T. A. MITCHELL, Weedsport, N. Y.

BROOKSIDE HERD

HOLSTEIN-FRIESIANS

To reduce herd to capacity of pasture, will sell a limited number of A No. 1 young cows of high breeding and individually right, large producers, at $150 each; also 15 bull calves at bargain prices.
STEVENS BROTHERS, Lacona, N. Y.

JUST BULL CALVES

We have three, that are individually fine. They are bred right, have been fed right, and the price is right.
Ohio's Famous Herd. Holstein-Friesian Cattle. **W. B. SMITH & SON.**
2488 W Broad St, Columbus, O.

MAPLES STOCK FARM, PENNELLVILLE, N. Y.
Second Annual Offering
80 HEAD OF HIGH CLASS REGISTERED

HOLSTEIN-FRIESIANS

AT AUCTION, OCT. 14, 1903,
at Fulton Fair Grounds, Fulton, N. Y. Catalogues ready Oct. 1. Write for one. Address R. F. D. 3 **John C. Godfrey, Fulton, N. Y.**

Holstein-Friesian Bull Calves

Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

HOME FARM HERD.

Headed by **COLANTHA 4TH'S LAD.** Official test of three nearest dams 25.1 lbs. butter in seven days. Herd numbers 125 head.

BEST FAMILIES REPRESENTED.

Special prices on six or eight bulls of serviceable age. **W. B. BARNEY & CO.,**
Hampton, Ia.

STAR FARM HOLSTEINS.

Increase Butter Fat in Milk.

Do you want to increase the per cent. of butter fat in your dairy? The quickest, surest and least expensive way is to head your herd with a bull from a high testing dam.

Mercedes Julip's Pietertje Paul No. 29830 is a son of Mercedes Julip Pietertje No. 39480 her 1901 world's seven day butter record of 29 lbs. 7.5 ozs. butter made from 540.8 lbs. of milk with an average test of 4.025 per cent butter fat has never been equaled by any cow living or dead. She is the highest testing champion butter cow of the world. Mercedes Julip's Pietertje Paul is king of Sires. Females bred to him for sale. His bull calves from fall increase can be ordered now.
HORACE L. BRONSON, Cortland, N. Y.

ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.
GEO. T. McNEIL, Theresa, N. Y.

FOR SALE.

H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address W. H. JONES, Watertown, Wis. Rural Route No. 2.

FOR SALE 2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.
M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

CLOVERDALE HERD

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Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.

A. J DAUGHERITY Streator, Ill.

Woodlake Herd.

Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. **JOHN B. IRWIN,** Station D., R. 1, Minneapolis, Minn.

MARKHAM MANOR FARM,

Simonsville P. O., Andover, Vt.

Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 18870, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for discription and price to **J. A. THORNTON,** Manager, Simmonsville, Vt.

HOLSTEIN ADVERTISEMENTS

Are numerous, as you have noticed by the many that appear on this page; but members of our herd and cows sold from here or sired by bulls we bred, won over 47½ per cent of the money offered in prizes by the H. F. Association for the largest official records of the year that just closed. Such a statement can be made of

ONLY ONE HERD

And our prices are no higher than others are asking. **THE STEVENS HERD,**
Henry Stevens & Son. Lacona, N. Y.

Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. **C. H. STEVENS, Jefferson, Wis.**

FOR SALE CHEAP The exceptionally well bred H.-F. bull Duke Mercedes De Kol, 2 yrs. old, sure and kind, can be bought for $100, or about half price, because his owner can use him no longer. Dam, g-dams, sisters, aunts, cousins, A. R. O.; making a wonderful showing. For further information and photo address
MALCOLM H. GARDNER, Darien, Wis.

HOLSTEIN-FRIESIANS INDIVIDUALITY, PERFORMANCE, BREEDING. You need it all. Write or come. 100 head. **McKAY BROS.,** Buckingham, Ia.

HOLSTEIN-FRIESIANS

FAIRVIEW HERD

We offer from this herd a few choice yearling bulls, also four very fine bull calves. Write describing what you want.
R. F. D. 3. O. J. GODFREY, Fulton, N. Y.

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. All our choice pigs of 1902 farrowing have been sold. We are now taking orders for 1903 farrowing.
JOHN WHITE & SON, Adamstown, Md.

HOLSTEINS

High Class Advanced Registry Stock only. Best butter families. Stock for sale.
Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.



T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.
Wm. O. Jackson & Sons, South Bend, Ind.

SOUTH SIDE FARM, WHITE BEAR LAKE, MINN.

Holstein-Friesians.

Bulls in service, Prince Inka Pietertje De Kol 2d, A. R. O., 144, sire of 10 A. R. O. cows, and Daisy Van Beer's Pauline De Kol. 27610, whose dam has official record of over 22 lbs. in 7 days. Special prices on young bulls from A. R. O. cows. Also Yorkshire pigs of most approved breeding now fit to ship.

THE MONONA FARM HERD

OF HOLSTEIN-FRIESIANS

Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 469.50 lbs. one day. Breeders and dairymen please write for prices.
F. W. ALLIS,
Monona Farm. Madison, Wis.

FOR SALE. H.-F. Bulls, ready for service, from A. R. O. Cows and sired by Sir Jonanna DeKol, 25467 A. R. O. Butter record of dam, 21.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs C. A. SCHROEDER, West Bend, Wis.

PURE BRED SHORTHORNS

CHOICE BULLS FOR SALE.

Also Cows and Heifers bred to Clay Buttercup, 125861, a descendant of the Clay Family, champions at the World's Fair dairy test.
GEO. WENHAM, Fort Atkinson, Wis.

Managing the Dairy Cow.

ED. HOARD'S DAIRYMAN:—Time and again we are being called upon to pay more attention to the health, food and selection of this animal, but it is very seldom that we hear anything in reference to an equally important department of dairy knowledge—that is the management of the cow itself This branch should be most interesting to all dairymen, for, as he manages her so will the results be. In our country the dairyman has very little to guide him in arranging for better results. He has no dairy experts advising him, no practical school to attend, no one to show him where he may easily avoid undue loss. The consequence is, that the great majority of them are quite content to plod along the best way they can.

It is a noticeable fact that if more care was exercised and more interest paid to the work in the dairy, a great deal more could be accomplished by the average dairyman than is usually the case. Considering the stronghold this industry has obtained in this country, it is astonishing to find how very few dairy farmers have any idea of the individual value of their cows, and how unconcerned they are in regard to the treatment of their cows. Any person who has had experience with cows will admit, I think, that each animal has an individuality of its own, and that they differ in temper and manner, quite as much as some of their owners.

There are some that will also admit that the method in which she is bailed and handled has a marked affect upon her milk yield, but the number that carry on their milking operations in accordance with this rule is very small indeed. A general rule that exists with the majority of dairymen, is to yard their cows up as quickly as it is possible and proceed with the milking in the same boisterous fashion, the one and only object being to get the unfortunate animals through their hands as quickly as they can.

The cows are bustled into the bails and very frequently helped along with the leg rope, then their legs are pulled as far back as they will go and the milk dragged away in a brutal manner. After this process is concluded, the bail door is opened and a sharp cut across the back dismisses the unfortunate cow till the next milking.

Taking into consideration that the one object of every dairyman is to secure the largest possible yield from his cows, he should strive to find out the best means obtainable to secure this. In the first place, it is a very unwise plan to allow cows to stand too long in the milking yards. Taking an average time of two hours both morning and evening, means four hours every day waste of feeding time, besides causing unnecessary discomfort to a great many of the animals; this trouble would not become so serious a matter, but for the fact common to most herds, that the same cows are invariably left till last. If the herd would only mix and take their chance, the average time that a cow was detained in the milking yard would be greatly reduced.

It is always a noticeable fact in milking that some animals will simply rush the bails, while others appear quite the opposite, and hang back to the very last. This difficulty can be greatly overcome by having two or three receiving yards, and alternately working them into the milking yard. The proper management of a dairy herd requires one to be always on the alert, and take advantage of every opportunity that prevails and will likely to prove beneficial and economical in the management.

CLASSING THE COWS.

I have an instance before me of a trial or test, I should say, that one progressive farmer put his dairy herd to, to find out exactly which of his cows was the best, or which of them was actually returning a profit or just returning her cost and food. Each animal's milk was weighed after every milking, and the amount of food she ate was charged against her at market rates.

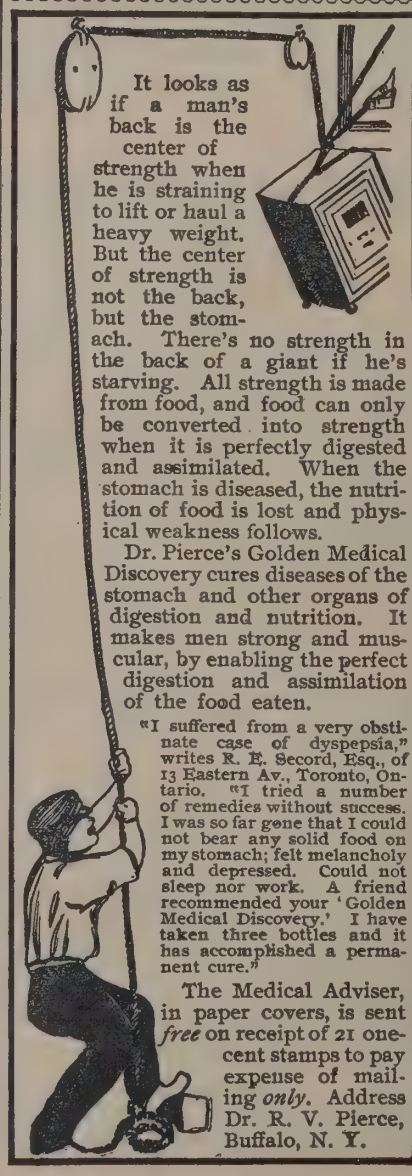
The result obtained from this undertaking was that about one-third of the milking herd proved profitable, one-third just cleared expenses, while the remaining third were being milked at a loss. This being a true state of affairs on one dairy, the question may be asked, what is the state of affairs on a great many of our dairies, where the milk yield is largest, during the hotter months, and during the winter months, the cows are just kept alive with artificial food? Every dairyman knows, or at least should know that he has animals that yield twice or perhaps even three times the amount of others, and eat no more food; and why are such animals kept, knowing perfectly well that they are being handled at a loss? These should be immediately weeded out and put on good pastures where they can be fattened for the butcher.

It is far better to keep twenty cows that yield a profit, than to keep thirty, twenty of which are yielding profit, while the other ten are being milked at a loss. A great deal is always being said in reference to the farmer raising the proper sort of cows, but the important question of raising calves is oftentimes entirely neglected. Frequently dairymen pay little attention to the dam of the calf he intends keeping, so long as it is a heifer one. Cows that have defects, are just as likely to transmit the evil to her offspring as the diseased animal.

This is one of the principal causes in producing defects that are continually coming before our notice in so many dairies. The selection of the animals, which you intend breeding from, for the purpose of increasing your herd, should be made with great care. The animal that is possessed of any defect, should not be retained to breed from, as far as it concerns the future herd, The very best that can be obtained by careful judgment, are in no way too good. Another matter that is well worth our earnest consideration, is the class of sire used. He should have descended from a breed that is noted, as the influence of the sire means a great deal in reference to building up a herd.

Great improvements cannot be made in the dairy without the most perfect specimens of sire and dam are selected. A good cow is very often more severely taxed than should be the case. She is looked upon to fill the milk cans satisfactorily, notwithstanding the fact that she is imposed on in many ways, such as short rations, and at some periods of the year being half frozen, while at other periods being almost burned by the hot sun, and to cap all, being raced into the milking yards by a pack of mongrels.

It is astonishing in this country to notice the quantity of dogs required on almost every dairy farm. Nearly every dairyman must have at least three or four dogs, and frequently I have noticed dairymen standing near the yards and



It looks as if a man's back is the center of strength when he is straining to lift or haul a heavy weight. But the center of strength is not the back, but the stomach. There's no strength in the back of a giant if he's starving. All strength is made from food, and food can only be converted into strength when it is perfectly digested and assimilated. When the stomach is diseased, the nutrition of food is lost and physical weakness follows.

Dr. Pierce's Golden Medical Discovery cures diseases of the stomach and other organs of digestion and nutrition. It makes men strong and muscular, by enabling the perfect digestion and assimilation of the food eaten.

"I suffered from a very obstinate case of dyspepsia," writes R. E. Secord, Esq., of 13 Eastern Av., Toronto, Ontario. "I tried a number of remedies without success. I was so far gone that I could not bear any solid food on my stomach; felt melancholy and depressed. Could not sleep nor work. A friend recommended your 'Golden Medical Discovery.' I have taken three bottles and it has accomplished a permanent cure."

The Medical Adviser, in paper covers, is sent *free* on receipt of 21 one-cent stamps to pay expense of mailing *only*. Address Dr. R. V. Pierce, Buffalo, N. Y.

The New 1903 REID HAND SEPARATOR



The 1903 Reid Hand Separator is the most exact milk skimmer ever made—it is simplest, fastest, lightest running, and affords most butter-producing material under all conditions. It creates a new source of revenue and maintains the income—

WEARS LESS, LASTS LONGEST

Every Reid Hand Separator is sent out under a positive guarantee, and is sold on its own merits. If you want a separator we will send a Reid on approval—work it ten days and if it does not excel all others return at our expense. Send for new catalogue and revised price list, mailed free.

A. H. REID, 30th and Market Sts., Philadelphia, Pa.

THE Iowa Dairy Separator.



AN UP-TO-DATE MACHINE REPLETE WITH PRACTICAL IDEAS

It is built in the following sizes:

250, 350, 450, 600, 750 POUNDS PER HOUR

Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.

SEND FOR CATALOGUE NO. 60 AND PRINTED MATTER.

IOWA DAIRY SEPARATOR COMPANY, WATERLOO, IOWA.

WE TAKE THE RISK

of your being satisfied, and glad you bought the cream separator that makes money for you.

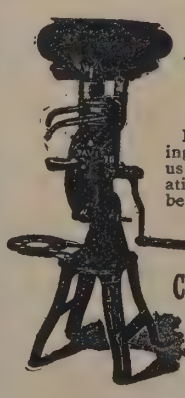
THE AMERICAN Is Sold On Trial.



The price makes it easy for every cow owner to buy. Run this separator and make money. The catalogue is free and we want you to have one. Write to-day.

American Separator Company,

Medal Winner at Paris Exposition. Box 1023 Bainbridge, N. Y.



Notice to Dairymen

If you are thinking of buying a Cream Separator write us for Catalogue and information. We manufacture the best machine on the market.

Davis Cream Separator Co.,

54 to 64 N. Clinton St. CHICAGO, ILL.

A Valuable Cow

You can add value to any cow with a

National Hand Separator

because it will save over 80 per cent. of the loss resulting from the old method of setting. It will separate warm or cold milk, light or heavy cream, and skim *clean*. We send the National and let it prove its worth right in your own home dairy.

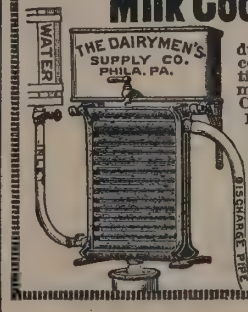
10 DAYS' USE FREE.

Costs nothing if you don't buy—costs nothing if you do, for it pays its cost in what it saves. Send for catalogue.

National Dairy Machine Co. Newark, N.J.

MELONEY'S Automatic Milk Cooler and Aerator

TRADE MARK BESTOV



Made of the best conducting material—sheet copper and coated with tin outside where the milk comes in contact. Cools milk quickly. Expels all animal odors and the smell of grass and garlic. Aerates it thoroughly. Can be easily cleaned. Fully guaranteed. Used by the most progressive dairymen. Send for catalogue "Bestov" dairymen's supplies.

Dairymen's Supply Co., Dept. Philadelphia, Pa.

NEW OXFORD BALL BEARING Cream Separator

Sold on guarantee to be the best on the market. Catalog free.

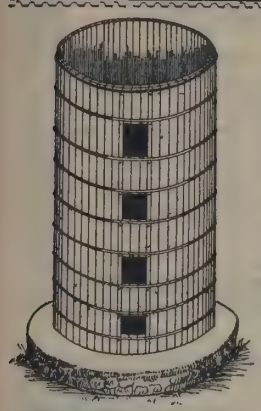
WORLD CREAM SEPARATOR CO. 41 Main St., Council Bluffs Ia.

BUSINESS MANAGER wanted for company now organizing to manufacture Patented article for dairymen's use. Must invest $2,000 to $5,000. Fine opportunity. CAN REFRIGERATOR CO., 425 W. 4th St., Erie, P

Cream SEPARATORS.
All about them and other things for the dairy and creamery.
A. H. REID, Philadelphia.

CREAMERYMEN, DAIRYMEN and MILK DEALERS
Can be Promptly Furnished with anything they want at reasonable prices, if they will write me. My CHILDS' PATENT MILK BOTTLE FILLER is the best on the market. Send for free catalog.
J. S. BIESECKER,
59 Murray St., New York City.

IF YOU WANT A
SILO
Write us for information.
THE A. T. STEARNS LUMBER CO.,
BOSTON.

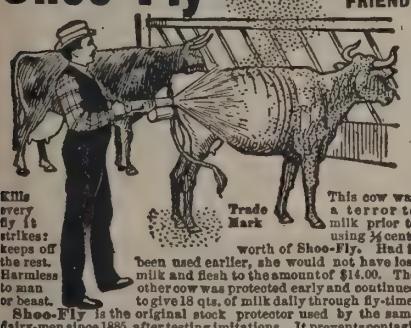


TIME!
Its time for dairymen to act if they want the benefits of a silo this season. You should place your order
NOW
if you want the best, and the best is always the cheapest, especially in Silos. Write us for prices and circular.
If you are in the market we can save you money.
INDIANA SILO CO.,
Anderson, Ind.

"GUM AND OIL OF PINE"
for Lice and
FLIES ON CATTLE.
Harmless and very effective. Can be diluted with Kerosene Oil without injury to stock. Applied with cloth or sprayer. Single Gal. 70c; Two Gals. $1.30; Five Gals. $3.00; Thirty Gals. $15.00.
BAY VIEW CREAMERY CO., Traverse City, Mich.

FLIES? ORR'S FLY KILLER.
No Other as Good.
1 gal. $1; 5 gal. $4; Sprayers 50c.
ORR & COOPER, Box 829, BEAVER, PA.

Shoo-Fly THE ANIMALS' FRIEND



Kills every fly it strikes: keeps off the rest. Harmless to man or beast.
Trade Mark
This cow was a terror to milk prior to using ¼ cents worth of Shoo-Fly. Had it been used earlier, she would not have lost milk and flesh to the amount of $14.00. The other cow was protected early and continued to give 18 qts. of milk daily through fly-time
Shoo-Fly is the original stock protector used by the same dairy-men since 1885, after testing imitations. It prevents contagious abortion and other diseases, cures all sores, scratches, skin diseases, hoof ailments, etc. **NO LICE** in poultry house any place it is sprayed. Beware of imitations that last only a few hours and make sores. If your dealer does not keep **Shoo-Fly** (made in Philadelphia, Pa.,) send us $1.00 for latest Improved Three Tube Sprayer and enough **Shoo-Fly** to protect 200 cows Cash returned if cows are not protected.
SHOO-FLY MF'G. CO. 1005 Fairmount Ave., Phila., Pa.
EDITOR knows from experience Shoo-Fly is O. K.



MORE MILK MORE MONEY! Cows will give 15 to 20 per cent more milk if protected from the torture of flies with
CHILD'S SO-BOS-SO KILFLY.
Kills flies and all insects; protects horses as well as cows. Perfectly harmless to man and beast Rapidly applied with **Child's Electric Sprayer.** 30 to 50 cows sprayed in a few minutes. A true antiseptic; keeps stables, chicken houses, pig pens in a perfectly sanitary condition.
Ask for Child's SO-BOS-SO or send $2 for 1-gal. can and Sprayer complete, Ex. pd. any point east of the Mississippi.
CHAS. H. CHILDS & CO., Sole Manufacturers,
15 LaFayette Street, Utica, N. Y.

intrusting the operation of mustering to his dogs, which usually bring them along at a hard gallop. But, as I have previously stated, some people strive to get through the milking operations, heedless of the treatment they are subjecting their cows to. This sort of thing does not pay, for cows are not composed of cast-iron, and the better care that is exercised in regards to the management of the cow, the better will the returns be.

JUDGING CALVES.

Many owners of dairy herds would give more attention to grading up their stock if they were capable of judging in a reasonable degree of accuracy whether a heifer calf would eventually develop into a good milch cow. The only really reliable way to obtain a first class dairy herd, is to breed it, unless, of course a man can command a very large amount of capital, in which case he is in a position to buy only tested cows. In breeding, disappointments often occur, and the progeny of a first class sire and dam often proves a failure as a milker, but in the majority of cases if only thoroughly reliable cows, that are known to have descended from renowned stock, are used and crossed with a sire whose reputation is also good, the results must, in a great many cases, prove satisfactory.

Any person who is closely connected with stock knows perfectly well that breeding often turns out very unsatisfactory. But if a man gives in because the results turn out disappointing at times—well, he is not a true stock man, and can never expect to have a reputation as a stockbreeder. In choosing calves, to my idea, there is no outward signs that are perfectly reliable to be able to convince us that a calf will turn out a good milker. The best and only plan is to select the offspring from those cows that have a reputation as milk producers, and in a great many cases, at any rate, the results will prove satisfactory. Whatever the cross may be that is chosen for the dairy, it must be borne in mind that the use of a pure bred sire is absolutely necessary to obtain the most satisfactory results.

To my mind, one of the weakest points in the management of a dairy is the use of inferior sires. Then again, a great many dairymen breed from their heifers far too young. A two-year-old heifer is quite young enough to put to the bull. However, it is not possible to lay down a hard and fast rule in regard to this matter. When a heifer is brought into milk at two years old it is advisable that she remain in milk for as long a period as possible; as it is better to induce the milk flow for as long a period as possible, on the assumption that what the young heifer is taught she will continue to do.

RIGHT BREED.

In choosing the best cows to keep, attention should be given not only to its capacity for milk, butter, cheese or beef, or a combination of any two or more of them, but also its suitability to the condition under which it is to be placed. Thus the Ayrshire, Shorthorn, Holstein and the Jersey have each their places in dairying, apart from their capacity for producing milk butter and cheese. Jerseys are noted for their yield of butter fat in proportion to milk. The Ayrshire is particularly adapted for the production of cheese, their milk containing a high percentage of casein. Shorthorns of a milking type are very hard to beat, both for yield and test, and they are particularly adapted for crossing with other breeds, infusing a great deal of vigor in the cross bred. In estimating the value of cows for the dairy, the size of cattle and the quantity of milk they now produce per head are considerations, and the cost at which the milk is produced per gallon is another feature worthy of note. But there are few dairymen, although they compete in the sale of their milk, have anything more than a very faint idea of what each gallon of milk or pound of butter costs them.

AUSTRALIA.

MILKING.

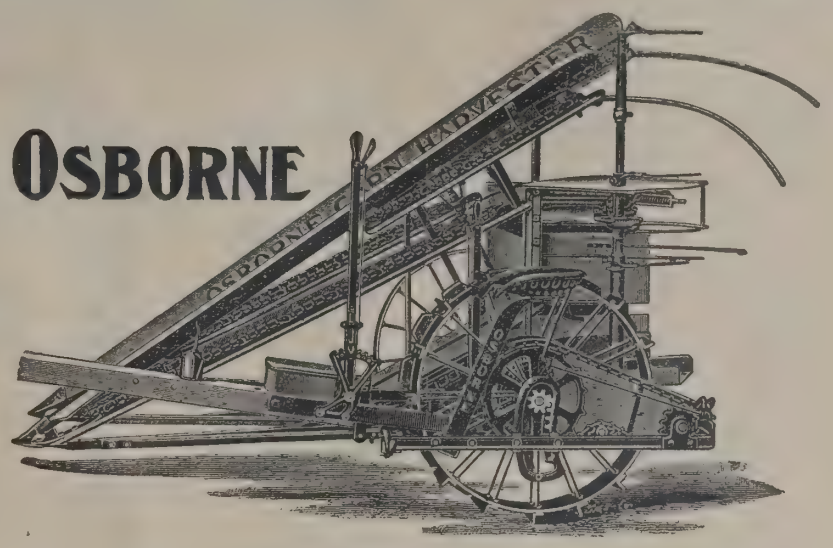
ED. HOARD'S DAIRYMAN:—In reading the article, "The Art of Milking," it brought to mind an experiment I had in the amount of milk given by cows when milkers were changed. I had one man do the feeding and cleaning barns, etc. Whenever a milker was absent it fell to the lot of the feeder to milk those cows, and the feeder would almost always get from one to two lbs. more from each cow at each milking.

This set me to watching how these

D. M. Osborne & Co., St. Louis, Mo. Caledonia, Mo., June 1, 1903.

My Dear Sirs—I feel I honor my own judgment, and reflect only that which is justly due your corn harvester, when I say it is without doubt the best corn harvester on the market to-day. Last season I cut, on my own farm, 115 acres of corn, and a negro boy 16 years old managed the machine, drove the horses and did all the cutting, without one cent expense for repairs or breakage. The work could not be excelled. The corn was heavy and much of it down, and some full of weeds, but it made no difference to the machine. All corn looks alike to an Osborne Corn Harvester, and to Missourians your machine is peculiarly adapted, for it can most certainly "show them." I am, Yours very truly,
W. R. GOODYKAUNTZ,
Ex-Senator of Missouri.

OSBORNE



This Corn Book tells about Silos and Fodder. Book Free for the asking.

Scotia, N. Y., April 15, 1903.
D. M. Osborne & Co., Auburn, N. Y.
Dear Sirs—I am well pleased with the Osborne Corn Harvester I purchased of your agent, G. H. Bevis, last fall. It proved to be all it was commended. On account of the season, several places in our corn fields were deep mud, but when we cut there the machine worked just as good. The broad-faced steel drive-wheel is a great advantage on ground where it is soft. We used only two horses, and did the work easier than some of our neighbors did with three horses on another make of machine. It is certainly a very light runner. It is also a fine binder, never once having broken the twine, or missing to tie, thus using less twine than others, besides delay and trouble. I would say, in a word, that the machine is practically perfect. Very truly yours, CHARLES P. SANDERS.

THE OLD WAY A COLONIAL HUSKING BEE



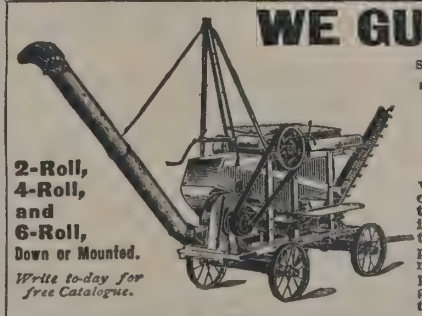
When She Found a Red Ear
at the old-time husking bee, a penalty was exacted.
It was great sport for the boys and girls.

DEERING HUSKERS AND SHREDDERS

have stopped the sport but have saved mints of money for the modern farmer. **DEERING** two-roll and four-roll shredders fill every requirement of the large or small farmer, double his profit, and ease his labor. THEY ARE MODERN, UP-TO-DATE MACHINES
Write or ask your nearest dealer for a "Deering Corn Annual" and post upon the **IDEAL LINE** of corn binders, corn shockers, huskers and shredders.



THE NEW WAY DEERING HUSKER and SHREDDER



WE GUARANTEE that under the same conditions as to power and speed applied, condition of corn, etc.,
The Appleton Corn Husker
will do more and better work than any other machine of like character and corresponding size on the market; that it is simpler in construction; easier in every way to operate; easier and safer to feed and to require less power for successful operation. The proof of these claims is sent for the asking. We make also a complete line of sweep and tread horse powers, shellers, ensilage and fodder cutters, feed grinders, wood saws, windmills, etc. Remember that Appleton quality is the standard of excellence.
2-Roll, 4-Roll, and 6-Roll, Down or Mounted.
Write to-day for free Catalogue.
APPLETON MFG. CO., 35 Fargo St., Batavia, Ills.

SEEDS THE ALBERT DICKINSON CO.
.....DEALERS IN.....
GRASS SEEDS, CLOVERS, FLAX SEEDS, LAWN GRASS, BEANS, PEAS, POP CORN, BIRD SEEDS, BUCKWHEAT, BAGS, ETC.
CHICAGO, ILL. BRANCH: MINNEAPOLIS, MINN.

cows were milked, the treatment, etc. Finding nothing wrong in the milkers' methods, I came to the conclusion that the cows were simply rewarding the feeder, knowing him to be the one who fed them and who was around them at all hours of the day, became attached to him as though he were their calf. Since then I have arranged to have each milker feed his own cows and the results warrant the change. So now, I wonder, have the other experimenters had my experience and the feeder been rewarded by the cows and praised by his employer for being the better milker. UNCLE ABE.

Brownsville, Tex.

CONCERNING OUR ADVERTISERS.

REPORT OF A LIPPING TEST.

Made with Chloro-Naptholeum Dip at Atwood, Colorado, June 11, 1903. Dip used cold; ratio, 1 gal. dip to 33 gals water. Report rendered by C. B Goddard, Sterling, Colorado, one month after the dipping. A. B. Holl dipped nine head of cattle. Cured. E. Rowe, dipped one cow. Cured. Henry Witmer, dipped 8 head cattle. Thinks them cured.

The two reports following were received in June from the breeders whose names appear.

"Cattle dipped May 20th at Atwood, Colo., by Dr. Norgaard, in Chloro-Naptholeum Dip, now show that they are free from lice and itch and cleaning off in nice condition." Wilder Jones.

"Three weeks after dipping 38 head of colts and horses which were very lousy and in bad condition they are entirely free from lice and in fine shape. I only dipped once in Chloro Naptholum Dip, at Atwood, Colo., May 20." G. C. Brown

Chloro-Naptholeum Dip is doing wonders wherever used. Such of our readers as desire facts of interest regarding the health and growth of their stock are invited to write for books and testimonials to the West Disinfecting Co., 8 E. 59th St., New York, and same will be sent them at once.

The Roycroft Fly Knocker advertised by the Brown Chemical Co., of Cleveland, O., is one of the best remedies to get rid of flies that there is on the market, and price reasonable. The company is responsible and readers interested should write them.

Be sure that your wife sees the Elwell Kitchen Cabinet ad on another page. This is positively one of the greatest labor savers that could be put into a kitchen. Just drop a card to Elwell Kitchen Cabinet Co., 926 5th Ave. S. E., Minneapolis, Minn., for circulars.

Which is More Profitable, Making Butter or Shipping Cream?

Please tell me through the DAIRYMAN which is generally the more profitable, making butter or shipping cream? If you have any readers who are shipping cream to Buffalo, N. Y., I would be pleased to have them tell all how they handle their cream, what prices are received, and also name some good, responsible parties to deal with. I have a herd of ten cows and want to secure a cream trade if profitable. F. H. L.

Arkport, N. Y.

Parties in Wisconsin who ship cream to Milwaukee to dealers, receive about the same price for the fat in the cream that they would receive if the cream was made into butter, and claim that the expense and labor connected with shipping is somewhat less than the expense and labor in making and marketing the butter.

Will New York readers in the vicinity of Buffalo kindly note the inquiry, as above, specially directed to them?

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Swollen Udder.

I have a cow that has a tendency to have one quarter of her udder swell occasionally. She will come up at night with one quarter caked hard and perhaps by morning it will be nearly or quite gone, but the milk will be ropy.

If a cow is giving a good flow of milk, is in good condition and on good pasture, what is the object of drying her off six or eight weeks before she is due to calve? Will she give enough more milk the next year to make up the loss? What is the most approved way of drying off a persistent milker? S. H. M.

Decatur, Mich.

ANSWER.

The cow is very likely squeezing the udder while lying on it in the pasture or stable, which accounts for the swelling. Narrow and uncomfortable stalls are sometimes the cause. Remove the cause.

It is a well established fact that a cow, to do her best, must have a rest between periods, and if it is not given before calving, she will take it in a lessened flow of milk during her next lactation period.

Obstructed Teat.

I have a cow that has a small lump about the size of a pea in one of her teats, that moves up and down when milking and when it is at the end of teat the milk will not come and I have to push it up to top of teat before milk will come again. I also have a cow that had a calf 16 months ago and was bred two months ago, that at times has a swollen place on one quarter of her udder and the milk at that time is too yellow and sometimes stringy. Sometimes the udder is all right for a few weeks and then the rising comes again, and comes and goes at intervals. J. B. L.

McDonough, Ga.

ANSWER.

1. See obstructed teat this issue.

2. The swelling of this quarter is probably due to some bruise, which reoccurs whenever the cow lays on th-



Pigs At Weaning Time

Stand a chance of slow development for a time. Grain or sour milk is harder to digest than the milk of the dam. The digestive organs require special aid at this time. As the feeding period of the hog is short—and the shorter the better—it is expedient to strengthen and build strong every digestive organ while the pig is young.

Dr. Hess Stock Food, the great hog tonic, makes pigs grow fast, healthy and strong: expels worms, aids digestion and assimilation and causes all of the nutrition to be applied to bone and muscle building. Stewart, the great American authority on feeding, says:—"The mother is supposed to impart to the young her own digestive system." It is, therefore, important that even sows should be fed this scientific compound that they may impart perfect digestion to the offspring. A penny's worth feeds 8 hogs. Feed Dr. Hess Stock Food regularly as directed disinfect the pens and feeding places with Instant Louse Killer, and we guarantee that your hogs will be free from disease. E. C. BURLINGAME Co., Walla Walla, Wash., write: "Enclosed find check for $25.00. Please send us 500 lbs. of Dr. Hess Stock Food. We want something to start our young pigs when they are being weaned. We used 300 lbs. lately and liked it very much."

Dr. Hess Stock Book FREE

A complete treatise on stock and poultry diseases, written by Dr. Hess (M. D., D. V. S.) and sent free, postage paid, if you will write Dr. Hess & Clark, Ashland, Ohio, and say what stock you have—how many head of each kind; what stock food you have fed, and mention this paper.

Prof. W. S. Goss, Dean of Talladega, Ala., College, says of it:—"I think Dr. Hess' Book a little gem. I shall keep it near me for reference."

DR. HESS Stock Food

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Dr. Hess Stock Food is sold on a written guarantee, 100 lbs. for $5.00 (except in Canada and Pacific Slope) smaller quantities at slight advance. Fed in a small dose.

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Dr. HESS & CLARK, Ashland, Ohio.

Also manufacturers of Dr. Hess Poultry Pan-a-ce-a and Dr. Hess Healing Powder.

Instant Louse Killer Kills Lice.

Water In The Stable a Necessity.



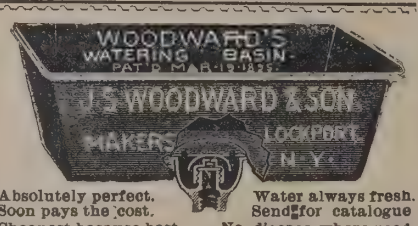
It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. **Why not use the Best?** Write for descriptive circular.

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by using our wheels, which we furnish painted any color desired, with boxes set so they will fit your buggy or carriage perfectly, ready to put on the vehicle and drive away. We will fit the wheels with any standard make of rubber tires, if desired, and show you **FREE** how you can paint the vehicle any color just as well as if done by a professional carriage painter. We guarantee the wheels for one year and warrant the spokes not to get loose in the hub and the rims not to split.

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University Dairy School will operate a Working Dairy Exhibit.

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MADISON, WIS.

quarter, which accounts for the highly colored milk, as it most likely contains some blood. Remove the cause and nature will do the rest.

Catarrh.

Young calves start with a running nose, and then ends, into a hacking cough which comes from their lungs. SINTON DAIRY CO.
Colorado Springs, Colo.

ANSWER.

Your calves are troubled with catarrh of the anterior air chambers, which involves the throat. Make a liniment of equal parts of turpentine and raw linseed oil and rub over the face and throat, once daily. Apply it warm. Give the following twice daily: Camphor, one-half oz.; fluid extract belladonna, 2 drs.; fluid extract glycyrrhiza pulverized, 1 oz.; hydrastis pulverized, 1 oz.; gentian root, 1 oz. Add honey enough to make a paste and give a teaspoonful on the tongue at each dose.

Goitre.—Inflamed Gland.

Will you give me a remedy for bunches on calf's throat size of a small hen's egg.
Cow has swelling at the end of jaw. It extends up within two or three inches of the ear. It is not hard It sometimes affects her breathing. She eats well. Is the milk fit for use? O. T. R.
Eau Claire, Wis.

ANSWER.

The calves have enlarged thyroid glands known as goitre. These are not dangerous and will disappear of their own accord, especially if they are as small as you mention. Painting them with tr. iodine will hasten their disappearance.

The enlargement appears to be an inflamed parotid gland, which does not affect the milk. Apply the following ointment:

Ung. hydrargyrum fort., 4 oz.; powdered curcurimus, 3 oz.; oil of gaultheria, 2 dr. Rub well once daily.

Obstructed Teat.

I have a young Jersey heifer; first calf. One teat is obstructed. Only a tablespoonful of milk can be drawn. O. D. B.
La Porte, Ind.

ANSWER.

Your remedy is the teat bistoury. Cut the obstructed portion (after inserting your instrument through it), in four opposite directions; then milk frequently. The flow will keep the teat open.

Excessive Salivation.

A young Jersey cow in good condition, milking well and in good health, chews cud, seems to be excessively slimy in the mouth. The slime runs steadily from her mouth in a stream. It has been like this for two months. It smells like her breath would when she is just throwing up the cud; but if it lies on the stable floor becomes very sour.
Salt Spring Island, B. C. C. E. A.

ANSWER.

Excessive salivation is almost invariably a sign of irregular or faulty teeth. Have the teeth examined, and you will discover the cause, which if removed, will remedy the trouble,

A Buller.

I have a Jersey cow that was fresh about 15 months ago, and was said to have been served soon after, but did not catch. For past few months have had her in pasture with a very fine bull. This cow is constantly mounting other cows when they are in heat, and tries to fight bull off, but never gets in heat herself. J. W. G.
Leland, N. C

ANSWER.

Cows in this condition are commonly known as bullers. They will constantly ride other cows when in heat, but when they come in heat themselves, will not allow the bull to mount them. Take close notice when she comes in heat, then suddenly take her to a strange bull, with whom she is not familiar, and she can often be induced to allow the service. Sometimes it may be necessary to force her. It is always best not to keep her fat.

Ring Worm.

I have got a lot of calves that have had the ringworm. They have got a dry cough and they eat well and the more they eat the weaker they get and then they die. I also have a cow that sucks herself. J. McC.
Enumclaw, Wash.

ANSWER.

No. 1. Apply Chloro-Naptholeum or Zenoleum as directed on package for this purpose.

No. 2. Apply a calf weaner to the nose and she will not care to suck her self.

Warts.

I have a 3-year-old heifer which has warts on inside of both fore legs between knee and body. One got as large as a teacup about the shape of a round turnip. I corded this and took it off, but soon other little ones started near by and are growing. C. H. D.
Pharsalia, N. M.

ANSWER.

The safest way to remove them is with a knife. Take them out completely and cover the parts with carbonate of soda.

Skin Trouble.

I have a cow 10 years old; has always appeared well and hearty. Last winter the hair came off from her in spots from the size of a dime to a dollar all over body and neck. Very little hair has grown in this summer, and she is as spotted as last winter. She will freshen in four weeks. Would you consider milk suitable for family use?

One of my yearling heifers died recently. All cattle feed on range here and can help themselves to all kinds of feed—some poison ivy and poison oak. One morning I noticed heifer seemed fuller than usual and a little inactive, but she ate and went on range that day, next morning still fuller and breathing hard, would not lie down. I drenched twice during day with salts and oil, but could get no passage of account. What passed was black and thin. She was swelled full at night and suffering. I tapped paunch, but it relieved her very little. Post mortem revealed little—small stomach and bowels natural, paunch all right excepting it contained too much fluid of some kind. G. A. C.
Citronelle, Ala.

ANSWER.

1. It is quite likely that the hair will come again when she sheds in the fall. It does not affect the milk.

2. Might have been obstruction. The above description answers quite well to an obstruction in the digestive tract, perhaps intersusception, which may have escaped your notice when opening, or possibly a gut-tye, for which there is no known remedy which has proven successful in the cow.

Acute Indigestion.

My heifer that calved in June, was taken suddenly and appeared to have brain trouble, jumped trembled and ran in fence, then would act as though feeding, but no feed where she was. Seemed to be trying to lick her left side and turned round constantly, but acted as though her tongue was paralyzed. Kept stepping with front feet and lifted left hind foot against belly. Gave her remedy for indigestion and she recovered, but would like to know if that was her trouble.
Corydon, Pa. L. R. S.

ANSWER.

Your heifer had acute indigestion, which very often brings about the symptoms above mentioned. Your treatment was in the right direction.

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A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from **Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING.** *Impossible to produce scar or blemish.* Every bottle sold is warranted to give satisfaction Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.
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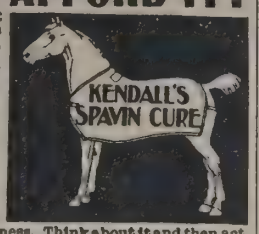
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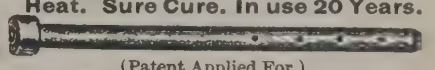


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Failing to Breed and bring Cows to Heat. Sure Cure. In use 20 Years.



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Hard Rubber Safety Milk Tubes and Dilating Plugs to cure hard milkers and a teat **Bistoury.** Send for testimonials.
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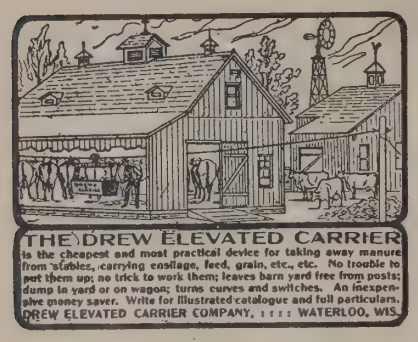
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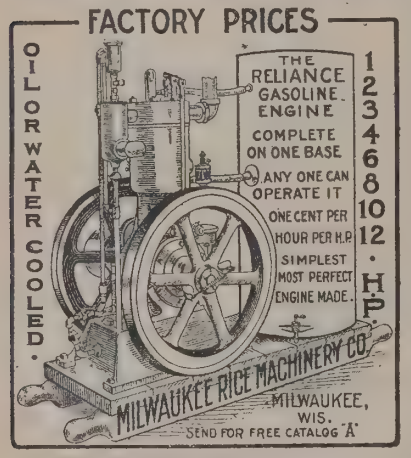
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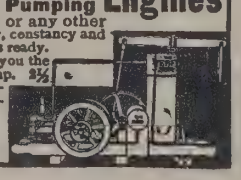
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To Keep Milk Sweet.

Didn't Know the Law was Loaded.

We read very often of accidents, some fatal and others serious, from the careless handling of fire-arms, and the excuse most frequently given is, "I didn't know it was loaded." Something similar to this happened to a Pennsylvania subscriber, who writes us as follows:

"I am sorry to tell you the bad news that a whole lot of us got pinched to the amount of $63 and some cents, for adding a little preservative to the milk. What would you advise me to do to keep my milk sweet for twenty-four hours, without going to the expense of buying a machine? I cannot afford to buy a machine. It surely hit me hard.

"Would you advise me to stop feeding malt (brewers' wet grains), on account of being against the laws of our state?"

Laws, whether good or bad, should be observed. That which they forbid should be avoided; that which they command, should be complied with. Laws against the use of preservatives in milk are good laws, necessary laws, laws for the protection of the health and lives of people who use milk, and especially of children and infants. Laws forbidding the feeding of brewers grains do not commend themselves to our judgment, but where they exist they should be obeyed until they are repealed or modified.

To keep milk sweet for twenty-four hours without the use of any machine or preservative is comparatively a simple proposition. In the first place, all the milk vessels must be thoroughly cleaned, and cleanliness means something more than the absence of visible dirt. Pails and cans must not only be washed, using washing soda instead of soap, but after the most thorough washing possible, they should be thoroughly scalded, not simply with warm water, but with water that is boiling hot. And when it comes to milking, the udders and flanks of the cows should be thoroughly brushed and then dampened. The brushing and the dampening should be so thorough and complete, that nothing in the shape of dirt, or hair, or black specks of any kind should show on the surface of the milk. After drawing the milk in this way and into pails thus cleaned and scalded, remove it at once from the barn and all other contaminating surroundings and cool it. Get some narrow, deep pails to hold the milk, set them in cold water, and as the milk is cooling, stir it every few minutes. Milk thus drawn from the cow and kept at 50 degrees temperature will keep sweet for twenty-four hours or longer.

We have answered the concluding question about feed. If the law says "Do not feed wet grains," simply obey the law and feed something else.

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Seeing your friends and having them join in for a good club of subscribers.



GOOD INTENTIONS ALONE CANNOT PRODUCE GOOD MACHINERY. Most all manufacturers are honest, but lack the experience and equipment necessary to turn out a thoroughly first class engine. We are the founders of the Gas Engine industry in the United States; have been building **OTTO** engines for 27 years, and operate the largest and most complete plant in the country devoted exclusively to the building of Gas and Gasoline Engines. Which will you buy, **Otto Experience** or **Others' Experiments**

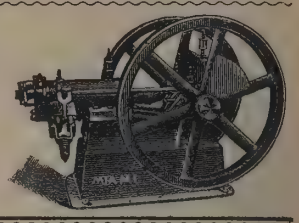
THE OTTO GAS ENGINE WORKS, Philadelphia, Pa.

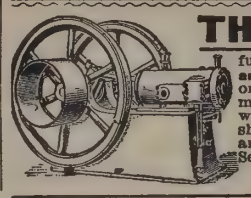
You would probably get a **CERTAIN AMOUNT OF SATISFACTION** out of any old kind of a gas or gasoline engine. But if you want one to give you better service than a steam engine, and as good service as an electric motor, and cheaper to run than either, get a

MIAMI GAS OR GASOLINE ENGINE.

Miami Engines, Horizontal, 5 to 65 H.P., 12 Sizes.
Woodpecker Engines, Horizontal, 2½ H.P., Special.

THE MIDDLETOWN MACHINE CO., Middletown, Ohio.
Write for Catalogue and nearest Agent.

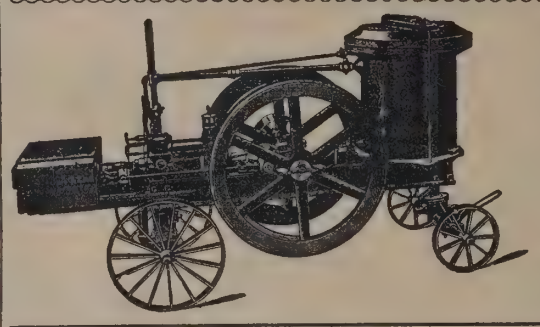




THOMPSON-LEWIS Gasoline Engines

furnish the greatest possible power at the lowest possible cost in **time, labor, fuel and money.** They are so simple that any body can run them without expert training or experience. Our **Volume Governor** gives uniform speed. Our **Acme Mixer** is the most positive and economical on the market. Our **Hand Starting Lever** starts engine with least effort. All bearings of **Iridium Bronze.** Best material and workmanship throughout. Many sizes from 4 (actual) h.p. up. Best for all farm work—cutting and grinding feed, sawing wood, pumping water, separating cream, churning, etc. Send for free catalog before you buy. It may save you time, money and annoyance.

J. THOMPSON & SONS MFG. CO., 113 BRIDGE STREET, BELOIT, WIS.



FLOUR CITY GASOLINE ENGINES

Portable and Stationary,
3 to 25 H. P.
Catalogue on Application.

KINNARD-HAINES CO.
MINNEAPOLIS, MINN.

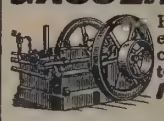


2-HORSEPOWER
GASOLINE ENGINE, $70

We have in stock 150 2-Horsepower absolutely new, modern type, guaranteed engines. Our price with pumping jack.....**$75**
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Also Machinery, such as **Saw Mills, Engines, Boilers, Pumps,** etc. Write for Free Catalogue No. 20

CHICAGO HOUSE WRECKING CO.
West 35th and Iron Streets, Chicago.

GASOLINE ENGINES.



Buy direct from the manufacturer. The simplest, handiest and cheapest power known. Write to-day for our free catalogue.

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If you want a.....

Gasoline Engine

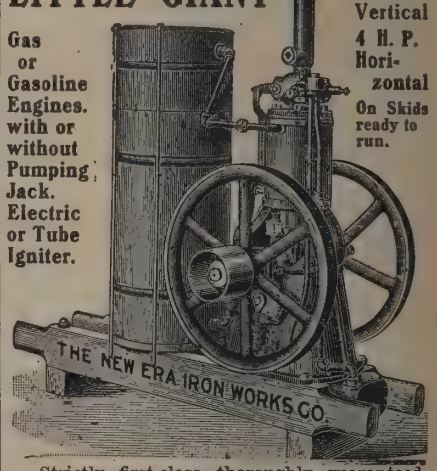
that will be always ready to start, safe, reliable convenient, economical and durable, buy a **FULLER & JOHNSON Frost Proof.** No bother with water nor expense of broken cylinder, no waiting for wind or weather. All sizes, stationary and portable. Send for descriptive catalogue to the manufacturers.

FULLER & JOHNSON MFG. CO., Madison, Wis.

LITTLE GIANT

Gas or Gasoline Engines. with or without Pumping Jack. Electric or Tube Igniter.

2 H. P. Vertical
4 H. P. Horizontal
On Skids ready to run.



Strictly first-class—thoroughly guaranteed. Write for catalog describing full line, 2 to 80 H. P.

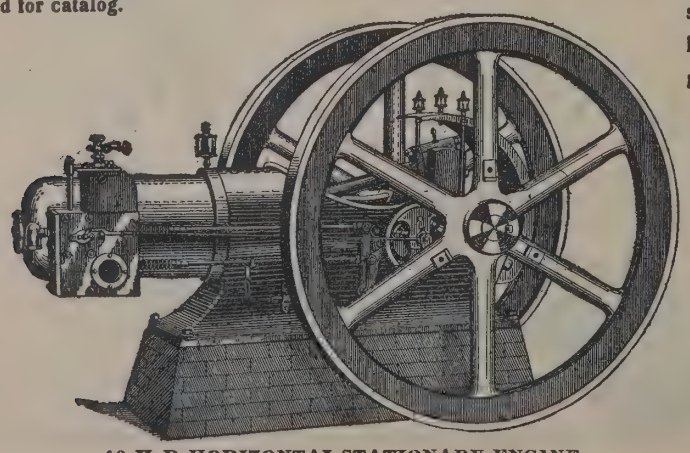
THE NEW ERA IRON WORKS CO.
No. 57 Dale Ave. DAYTON, OHIO.

The Model Gas and Gasoline Engines

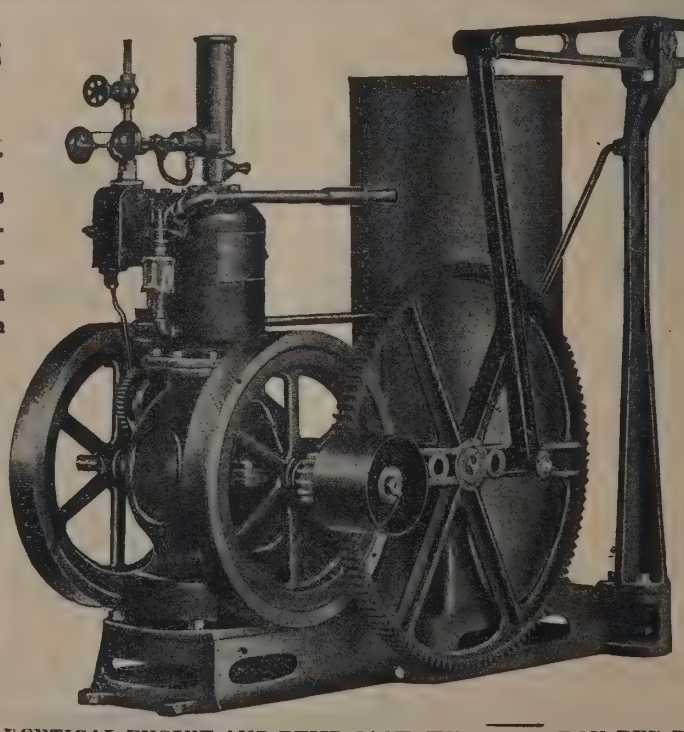
MANUFACTURED BY
THE CENTRAL CITY IRON WORKS, STEVENS POINT, WIS..
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Portable Engines from 2 to 25 horse power, Horizontal, Stationery, and Marine from 2 to 100 horse power inclusive.
Send for catalog.

The only Engines successfully operated on kerosene and sold on fuel consumption guaranty.



40 H. P. HORIZONTAL STATIONARY ENGINE.



VERTICAL ENGINE AND PUMP JACK, WITH ALL IRON BED PLATE.

Agents Wanted in all Unoccupied Territory

MENTION THIS PAPER WHEN WRITING.



ELECTRIC Metal Wheels

will give you a new wagon and a lifetime's service out of your old running gears. They are the modern great service wheel. Made to fit any wagon, adapted to every duty. Straight or staggered oval steel spokes, broad tired, any height desired. You will be through with repairs and save money, fields and labor of horse and man. Write at once for our catalogue. It's free for the asking.

ELECTRIC WHEEL CO.,
BOX 130 Quincy, Illinois.



Let Them Help Themselves.

They'll not take too much, and they'll get it as they want it. Don't force animals to eat salt when they don't require it, by mixing with food.

COMPRESSED
Pure-Salt Bricks

are all salt, no impurities. Improve the quality and yield of milk. A modern convenience, always present, animals never neglected, and costs for each only about a nickle a month. See how they enjoy helping themselves when you place it within reach. For all stock. Buy of dealers or send for free booklet to

Belmont Stable Supply Co., Brooklyn, N.Y.



The "STAY THERE"
Aluminum Ear Markers

are the best. Being made of aluminum they are **brighter, lighter, stronger and more durable** than any other. Fit any part of the ear. Nothing to catch on feed trough or other obstacle. Your name, address and any series of numbers on each tag. **Sample tag,** catalogue and prices **mailed free.** Ask for them. Address

WILCOX & HARVEY MFG. CO.,
186 Lake St., Chicago, Ills.

Dana's White Metallic EAR LABELS

stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Samples free. **Agents Wanted.**
C. H. DANA, 55 Main St., West Lebanon, N. H.

Dietz Lanterns

make the way plain in night work or travel. Always shed a strong, clear, white light, with no choking, sooting or smoking.

Over Sixty Years the Favorite.

Made in many styles and sizes for all purposes, as hand lanterns, driving lamps, post lamps for streets or front of country residences, church doors, etc. CATALOGUE SENT FREE.

R. E. DIETZ COMPANY, 94 Laight St., New York.
Established 1840

DOUBLE CAM BRADLEY STEEL HAY PRESS

One horse can operate it. Very easy for two.
NOT A COG NOR CHAIN ABOUT IT.
Send for circular.



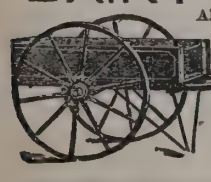
Simplest Press Made.

Lifting Jack goes with each Press. Powerful—puts full weight into box car. Tracks with a wagon; 2 horses draw it on common roads.

Has an AUTOMATIC PLUNGER DRAW.

DAVID BRADLEY MFG. CO., 110 E. Broadway BRADLEY, ILL.

DAIRY CARTS



Also a full line of Truck and Barrel Carts. Strong, durable, and nicely finished. Write for our Cart Catalog; also for separate catalogs of Feed and Ensilage Cutters, Powers, Small Threshers and Saw Frames.

BELLE CITY MFG. CO.
60 Racine Junction, Wis.

LIGHTNING WELL MACHY
IS THE STANDARD
STEAM PUMPS, AIR LIFTS, GASOLINE ENGINES
WRITE FOR CIRCULAR
THE AMERICAN WELL WORKS
AURORA, ILL. - CHICAGO. - DALLAS, TEX.

5 TON WAGON SCALE $35.00
SENT ON TRIAL FREE.
CATALOGUE FREE.
AMERICAN SCALE COMPANY
519 MASS. BLDG. KANSAS CITY, MO.

Northern Vermont Farming.

Results of Attention to Business and Determination to Succeed.

ED. HOARD'S DAIRYMAN:—We have some good farmers here in the northern part of the state, and as we belong to Franklin county, that is largely devoted to dairy interests, there is naturally a little emulation among the farmers to see who will do the best.

One of these enterprising farmers is James C. Towle of Berkshire, P. O. Enosburg Falls—a relative of the writer, but nevertheless, a man full of energy, and a praiseworthy determination to succeed in the occupation inherited from his ancestors. He has a farm large enough for all practical purposes, and which, under his management, is improving from year to year.

Notwithstanding the very dry time we had here up to June 10, the worst ever known, the crops generally are looking well and promise good returns. The yield of hay will hardly be up to the average, but the deficiency will be fully made up by the excellent crops of corn and oats, or peas and oats, of which some are raised and much liked.

On this farm there are 55 head of cattle of all ages, 32 of which are cows. The cattle are practically full blood Jersey and 11 are registered. The foundation stock came from that part of the state well known to the DAIRYMAN—Pomfret, celebrated for the excellence of its Jerseys—from the herd of Mr. F. L. Davis, Secretary of our State Dairymen's Association. The herd is headed by a bull tracing back to Hood's Farm "Mint" strain, and he by "Diploma."

There has already a good start been made in way of improvement, which it is the intention to keep up by sires of the best butter strains, and the results are already becoming apparent in the increased yield of product. The animals are of solid color, light fawn, and possess much uniformity and substance.

The butter is made on the farm and up-to-date fixtures are in use. One-half of the product is put in pound prints for the home trade and the rest in 30 lb. tubs is shipped to Boston.

Last year, 30 cows gave an average of 300 lbs., which sold for 24 cts. a pound, the season through; a very good price indeed, making the gross income per cow $72.

This was a very satisfactory record, but he is working for and expecting to do better this year, as thus far the figures are ahead of last year.

The cows commence to come fresh in milk in the fall and butter is made the year round. At time of visit the cows were averaging a little over one pound a day. For several years has had a silo, but last year, owing to the almost failure of the crop, it was not filled. With good ensilage the past winter the cows must have done still better at the pail. Has fed grain all summer, from 2 to 4 quarts of bran and gluten, and the cows have held out well in yield of milk and butter; proving that in his case there is being good returns for cost of grain.

This year the milk from each cow is being weighed and once a month a test is made whereby he expects to find whether he has any cows in his herd that are not paying expenses. It will be interesting to learn the results at the close of the year.

A new silo, 16×20 feet and 30 feet in height, is being built adjoining the barn on the outside. It is practically an eight-sided building, the corners being cut off so as to measure three feet on the inside. It will be thoroughly built, commodious and convenient for use. Twelve acres of corn are growing, from which the silo is to be filled.

A large portion of a heavy oat crop will be made into hay. A feed each of silage, grass hay and oat hay, with a proper allowance of grain, it is calculated along with good stables, plenty of water and the needed attention, will enable the cows to do their best another winter. Calves and pigs are grown on the skim milk.

An only son, a graduate of our state Agricultural College, is much interested in farming, and is expected, by and by, to take the father's place and carry on the work so auspiciously begun. It is perhaps unnecessary to add that father and son both take much interest in agricultural affairs, and that HOARD'S DAIRYMAN is a welcome and prized visitor in their home.

E. R. TOWLE.

Franklin Co., Vt.

For the land's sake—use Bowker's Fertilizers. They enrich the earth and the men who till it.

HALF ENOUGH WATER

Is quite enough for some people, but most people want water every day. If

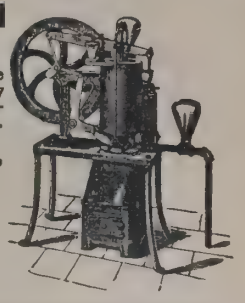


RIDER or ERICSSON HOT AIR PUMPS

Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.

Rider - Ericsson Engine Co.,

35 Warren St., NEW YORK.
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40 Dearborn St., CHICAGO.
40 N. 7th St., PHILADELPHIA.
Teniente Rey, 71 HAVANA.
22 Pitt St., SIDNEY, N. S. W.



Made for the man who wants the best.

Cover Three Times the Ground and Spread 15 Times as Fast as by Hand with the



Great Western Endless Apron Manure Spreader.

And when the job is done it is done to a purpose. The manure does not lie over the field in chunks to waste away, but whatever its character, **coarse, lumpy, strawy, caked, fresh, lime, plaster, etc.,** it is pulverized and evenly distributed, so that every particle enters the soil to nurture plant life. Compared with other spreaders it is **THE MACHINE OF MANY SPECIAL FEATURES.** Endless apron makes it always ready to load. Spreads thick or thin as desired, 3 to 25 loads per acre. Regulated while in motion. Front axle cuts under and turns on the ground it stands on. Chunks held on beater by non-bunchable rake until pulverized. Combined hood and end gate keeps manure from beater while loading and acts as hood in spreading. Broad tires, meadows and grain fields are top dressed without rutting. Light draft, strong and durable. **FULL GUARANTEE** with every machine. Write for our large catalogue. It tells how to secure best results from the manure pile and shows how the **Great Western** has mastered the matter of spreading. Mailed free.

SMITH MANURE SPREADER CO., 59 N. JEFFERSON ST., CHICAGO, ILL.



New American Manure Spreaders

hold from 50 to 100 bushels. Spread just as thin or thick, fine or coarse, as ground requires. Don't have to stop ...m to make change. Most substantial, largest capacity, high draft.

Send today for Booklet B.

American Harrow Co
Detroit, Mich.

SAVES ITS COST ON THE FIRST CROP.

It spreads all kinds of manure, lime, salt, ashes, compost, etc., either broadcast or in rows. Does it better than it can possibly be done by hand.

Do you know of any other piece of machinery for use on the farm of which this can be truly said?

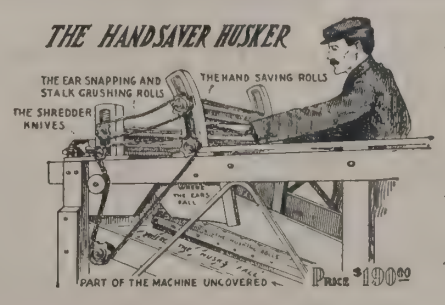


The Improved Kemp Manure Spreader

not only makes easy work of getting out the manure, but by the way in which it breaks it up and makes it fine, it more than trebles the value of the same. It will break up and spread evenly, manure that cannot be handled with a fork. It doesn't matter how hard, lumpy, caked, strawy, or stalky the manure is, this machine will spread it. It makes fine, well rotted manure go a long ways in top dressing wheat in the spring, meadow lands, pasture, etc. Being mounted on broad faced wheels, it can be handled on any kind of ground without serious cutting in or rutting. Can spread back and forth, as front wheels turn entirely under. Can be turned on the ground it stands on. 1903 machine has our new **Beater-Freeing Device, Apron-Returning Device** and numerous other improvements. Send for latest catalogue (free) and read about these and other advantages and also about **"How to Grow Big Crops."** Remember that the only original and genuine Kemp Manure Spreader is made by us and the patents thereon have been fully sustained by a recent decision of the U. S. Circuit Court.

KEMP & BURPEE MFG. CO., BOX 46, SYRACUSE, N. Y.

THE HANDSAVER HUSKER



YOU CAN'T GET HURT

HUSKS 50 BUSHELS PER HOUR

SNOW WON'T BOTHER

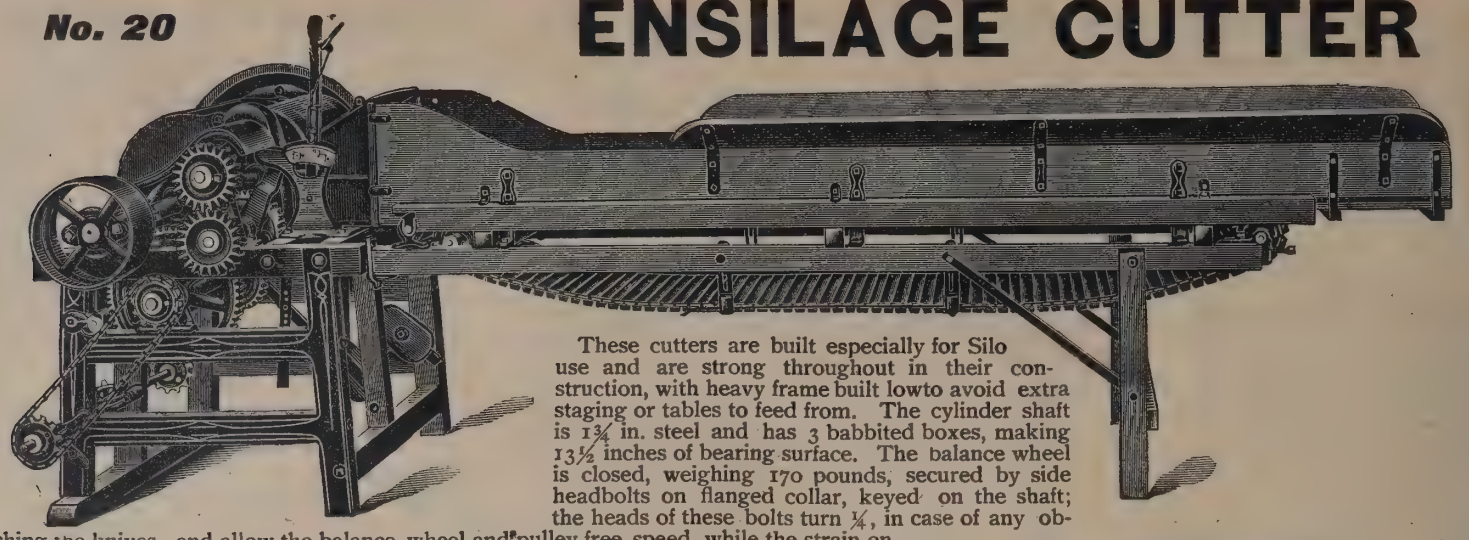
ASK ABOUT OUR **2 WHEEL WIND MILL** AND **ALL IRON WOOD SAW**

ADDRESS

DOUBLE POWER MILL CO.
APPLETON, WIS.

No. 20

ENSILAGE CUTTER

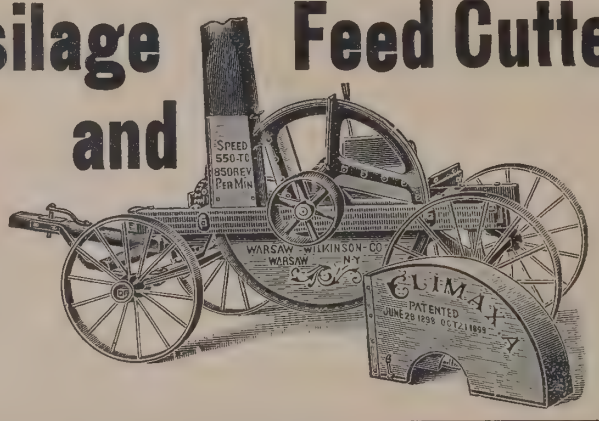


These cutters are built especially for Silo use and are strong throughout in their construction, with heavy frame built lowto avoid extra staging or tables to feed from. The cylinder shaft is 1¾ in. steel and has 3 babbited boxes, making 13½ inches of bearing surface. The balance wheel is closed, weighing 170 pounds, secured by side headbolts on flanged collar, keyed on the shaft; the heads of these bolts turn ¼, in case of any obstruction reaching the knives, and allow the balance wheel and pulley free speed, while the strain on the knives is relieved at once. The traveling feed table is controlled by the reversible lever and is instantly stopped or reversed. The slats on these tables travel over a close bed, full length and are close together to prevent fine leaves getting into them and winding on the rollers, also guards over the chain links. The length of cut is easily adjusted from ⅝ to ⅝ and ⅞ inches by the gears on the shaft. We furnish chain elevators of any length desired, straight away or side delivery. Weight of Cutters with traveling table, 1600 pounds. Send for circulars.

I. B. ROWELL CO.,
MENOMINEE FALLS, WIS.

CLIMAX

Ensilage and Feed Cutters.



"THE COMPLETE MACHINE"

CLIMAX machines are original. They are not made over from old models, in an attempt to turn them into blowers, by adding a number of chains, belts, or other attachments. They are made to elevate by wind delivery, and every part is built with this end in view. They are sold under an absolute guarantee to do the work, and **never** fail.

CLIMAX machines passed the experimental stage eight years ago. It has never been necessary to change any essential feature of the original pattern. We are still using the straight knives, with the shearing, inward cut; the elevating is still done with the same wheel as the cutting, requiring less power; the smooth reversing gear, which is positive and cannot break; the large feeding rollers, which won't choke, and the knife adjustment, which sets every knife at once and sets them **true.** All these have stood the test and cannot be had with any other machine.

The combination of simplicity, great strength, large capacity and few wearing parts, places the **CLIMAX** in the very front rank. When you have a binding guarantee as well, there should be no doubt regarding the machine. Catalogue for the asking.

WARSAW-WILKINSON CO., WARSAW, N. Y.

WILDER'S WHIRLWIND

ENSILAGE CUTTERS



Run with Less Power than any Other Cutter.

Have adjustable Cutting Heads and adjustable Table Knives. Solid Balance Wheel with knives and fans attached.

TWO or FOUR KNIVES, or Shredder attachments as preferred. Stop and reverse levers.

Furnished with plain or self feed table.

Read a sample of the many testimonials which we received last year:

CENTRAL DAIRY FARM, Farmington, Ga., Aug. 28, 1902.

GENTLEMEN: The Whirlwind has arrived. Allow me to say you have given it the right name. I had an old 6 H. P. engine to run it with, and it was an old one, having considerable lost motion. When I placed the Whirlwind in motion I had great doubts about my little worn out engine giving power enough, but when I placed the belt on and began to run it I had great fear it would blow the top of my silo off. I never bought a machine that gave such perfect satisfaction. You do not say half as much good about it as it deserves.

Yours very respectfully, JAMES D. PRICE.

We have also a full line of Cylinder Cutters and Shredders with blowers or chain carriers.

Write for catalogue of the MOST complete line of Ensilage and Feed Cutting Machinery made.

WILDER-STRONG IMPLEMENT CO., MONROE, MICH.

HUSK YOUR CORN, SHRED YOUR FODDER, SELL YOUR HAY

A corn crop may be profitable without saving the fodder, but IT WILL BE TWICE AS PROFITABLE IF IT IS SAVED. The new method of handling corn saves the entire crop. The new way is to run all the corn through the

JANNEY'S PATENTED HUSKING PIN — IT TAKES OFF THE SHUCK

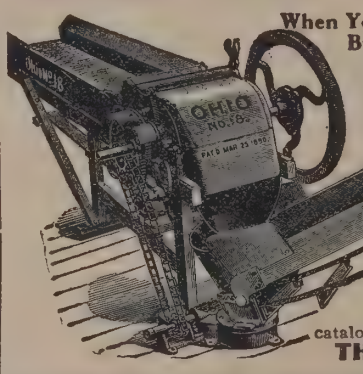
JANNEY COMMON SENSE CORN HUSKER and FODDER SHREDDER



If you feed corn hay you can **sell all your meadow hay.** You can also bale and sell your surplus corn hay; big demand. You may add further to your profits by husking and shredding for your neighbors. Pays better than a threshing machine and costs less. Eight years in the field. More in operation than any other.

JANNEY MFG. CO.
OTTUMWA, IOWA
DEPT. D.

BEST MADE It husks all the corn and shreds the fodder into "corn hay." Corn hay is the equal in feeding value of best timothy hay. Ask your dealer or write us for Husker Catalog.



When You Buy **"OHIO" Ensilage Cutters you buy Satisfaction.**

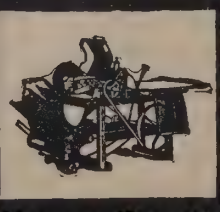
Our absolute guarantee goes with this, our New "Ohio" Self Feed Ensilage Cutter and New Metal Bucket Swivel Carrier. It is made to be the best thing of its kind procurable. Self-feed increases capacity 33⅓% and saves 75% labor feeding.

"OHIO" Means Greatest Capacity, Least Power Required.

The man who owns one says so. All sizes, 11 to 24 in. Profit by the experience of others and get the best. Shredder blades to fit all sizes. **1903 "Ohio" Blowers are powerful machines.** Write today. Latest illustrated catalog free. Modern Silage methods 10 cents. Established 1854.

THE SILVER MFG. CO., SALEM, OHIO.

"ST. ALBANS" LINE



Ensilage Cutters; Ensilage and Stalk Shredders; Blowers and Chain Carriers; Tread Powers; Sweep Powers; Threshing Machines; Circular and Drag Saw Frames, Etc.

Handsome Catalogue Free. Send for it.

ST. ALBANS FOUNDRY AND IMPLT. CO.,
St. Albans, Vt.

BLIZZARD

Feed and Ensilage Cutter



Does everything, cuts hay, straw, ensilage, shreds fodder and fills the silo to any height; all done by one machine. Sold on full guarantee. Write for catalogue.

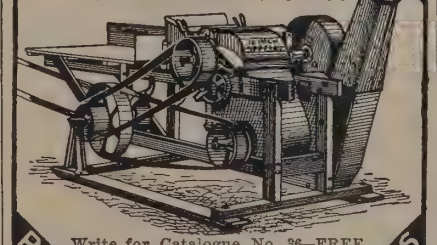
Joseph Dick Agricultural Works, Box 20, Canton, Ohio.

ENSILAGE MACHINERY

ROSS ROSS ROSS ROSS

When you buy the ROSS you buy the best

Your choice—Blower or Carrier.



Write for Catalogue No. 36—FREE.
Prof. Woll's Book on Silage 10c.
THE E. W. ROSS CO.
Springfield, Ohio.

BELLE CITY Feed and Ensilage Cutter

With Blower Attachment. Fan attached to knife wheel and blows feed or ensilage through any length pipe with less power than any other blower. Full line of **Tread and Sweep Powers, Root Cutters, Saw Frames, Belle City Threshers etc.**



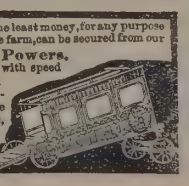
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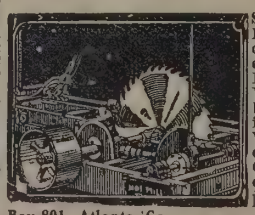
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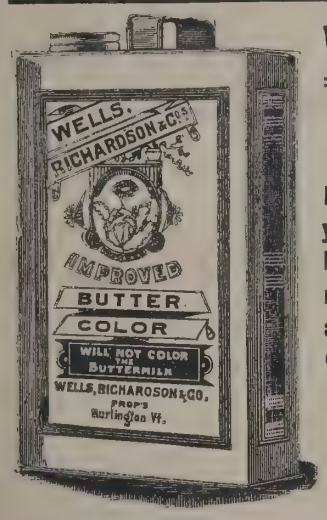
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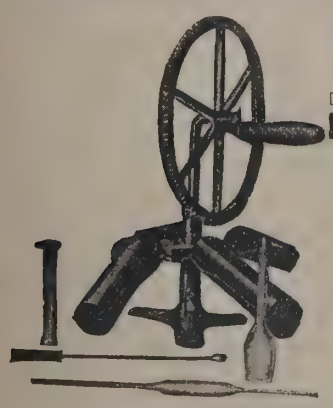
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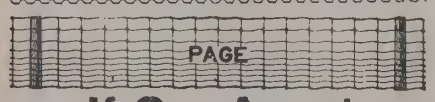


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Handling the Bull.

ED. HOARD'S DAIRYMAN:—A young man in this county was gored by a valuable Jersey bull so that he died. After that event the animal was dehorned, and we wonder why people take such risks, but such is the case. Twenty-five years have passed since the writer has been old enough to handle stock, and I am convinced that a bull is not a trusty animal at any time, not even when dehorned. They should have firm, kind treatment from the very first, no one being allowed to fool with them, or teach them any tricks when young.

Our experience in buying has been that rarely one can be led or handled with any comfort. We have kept a number of Jerseys until they were three to five years of age. All were gentle and good to lead. Some of them we gave exercise, two or three hours a day, by having a long, light chain fastened to the ring in their nose and other end to an old mowing machine wheel, which could be easily moved to fresh feed in the lot. We take a pitchfork in hand when we lead them, as a safeguard, not to use unless orders are disobeyed, then not to abuse, but that they may know what is expected.

A marked example of the results of abuse was shown by a Polled Durham, which was gentle for me to lead with a halter, yet a man who a part of the time cared for him and seemed to think such animals needed much kicking, could not manage him, and in taking the bull to the station after he was sold, abused him so that he was unfit to ship; the animal subsequently showed his dislike to the man, by bellowing every time he passed near in the stable.

Last year being a very wet season, the weeds got the start of our corn so that the feeding season found us with only fifteen feet in our silo, when we should have had twice that amount of ensilage from same ground. Not wishing to reduce the number of cows, or to buy hay, we studied how to feed, writing HOARD'S DAIRYMAN for balanced ration; also had bulletins from different stations. We weighed, measured, estimated, fed and watched results. We not only wintered thirty-one head of cattle in excellent condition (and three horses), but made, from Dec. 16, to last of April, while creamery was closed, over 500 lbs. of butter, which customers wanted faster than could get it, at 25 cents. Still have little old hay and 100 bushels of oats on hand, and have had the satisfaction of taking the most milk to creamery of any patron, where amount supplied has exceeded 7,000 lbs. daily at highest point.

Necessity has compelled us to learn how to supply protein feed on the farm. The best we have been able to raise is Canada peas with oats, which we are now feeding. Early in June we turned into a newly seeded piece of timothy and clover; after that, mowed clover and fed until peas blossomed. Oats sown at different times will last till early millet, corn and soy beans. The latter, grown from Michigan seed, at present are quite promising, though this is our first trial with them.

Thanks for the help received from HOARD'S DAIRYMAN. It pays a farmer in money and pleasure to study his business. F. I. C.

Orwell, Pa.

Breeding for Sex.

A subscriber at Red Deer, Alberta, in sending for a copy of King's Physics of Agriculture and Mrs. Jones' Dairying for Profit, adds to his letter as follows:

"Some dairymen near here, who consider that they know, have had a run of steer calves. Surrounding, ordinary mortals have about half steers and half heifers. The dairymen say their run of steers is owing to the extra care and attention their cattle get. Is there any sense in this contention?

There may be more "sense in this contention" than we have been accustomed to think, but there has been too little close observation along these lines to warrant any positive conclusions one way or the other. It is quite a general complaint among breeders of high class cattle that there is a super-abundance of males and it is possible that the lack of exercise and extra care and feed given to the sires is responsible for these results.



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There are a score of things about the house that you will not undertake to clean. You fear that they would be ruined by soap and you intend to send them to an expert cleaner, an idea that comes down from a time before pure soap was made. The manufacturers of Ivory Soap are constantly asked if they know how beautifully this or that material can be cleaned with Ivory Soap. The uses of Ivory Soap are too numerous to be told; with it anything may be cleaned that will stand the application of water. You can be your own expert cleaner.

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Three Generations of Holsteins and Their Records.

ED. HOARD'S DAIRYMAN:—The accompanying photographs representthree of the young Holsteins at the University of Wisconsin. The cow, Alma Marie 3rd, was purchased as a two-year-old heifer for $74. As will be noticed from the cut shown, she is a small and very much refined Holstein. She has for the past four years given the following amounts of milk and butter:

In 1899 she gave 9102.6 lbs.of milk and 292.93 lbs. of butter fat, or 342 lbs. of butter, yielding a profit over cost of feed $31.34; also gave birth to the heifer, Alma Marie Josephine shown in the accompanying photograph.

In 1900 her record was 10811.4 lbs. of milk, 360.57 lbs. of fat, or 420 lbs. of butter, yielding a net profit of $50.14; also a bull calf that sold for $45.

In 1901 she gave 13732 lbs. of milk containing 432.98 lbs. of fat, or 505 lbs. of butter and a profit of $48.74; also a bull calf that sold for $50.

In 1902 she gave 10195 lbs. of milk containing 313.66 lbs. of fat, or 366 lbs. of butter, yielding a net profit of $48.10 and a fine heifer calf.

The photograph of the heifer, Alma Marie Josephine, shows her in her two-year-old form. This heifer has recently been awarded first prize in the seven-day official tests for Holstein heifers three years old, and in addition was awarded third prize in the economic production tests for heifers in this class. During the seven days of her official test she consumed 32 lbs. of hay, 760 lbs. sugar beets, 21.4 lbs. ground corn, 17.31 lbs. oil meal, 17.37 lbs. gluten meal, 42.8 lbs. of bran and 21.5 lbs. of ground oats. The total value of feed consumed during the week was $1.82. She gave 417.3 lbs. of milk, which averaged 3.77 per cent fat, or a total of 15.74 lbs. of fat, equivalent to 18.36 lbs. of butter. As a two-year-old heifer she dropped a heifer calf that is now merging into cowhood and is very promising. She made in her two-year-old form, a yearly record of 9658.4 lbs. of milk, containing 340.28 lbs. of butter fat, or 397 lbs. of butter, returning a profit over cost of feed of $46 47.

A representative of the third generation of this family is seen in the last calf of Alma Marie Josephine, shown in the photograph at six months of age, and represents one of the highest types of a strongly bred Holstein bull calf.

W. L. CARLYLE.

Experiment Station, Madison, Wis.

Treatment of Anthrax by Antiseptics.

ED. HOARD'S DAIRYMAN:—Apart from being used as a disinfectant, carbolic acid has, among many veterinarians, come into extensive use as an internal remedy for anthrax and other contageous diseases of animals, notably cattle plague, pleuro-pneumonia, and foot and mouth disease.

In dealing with outbreaks of anthrax, a difficulty is experienced in estimating the value of any system of preventive or curative treatment, for reasons which I will presently show. Meanwhile, I may remark that laboratory experiments which demonstrated the destructive action of certain agents on disease producing microbes, rendering them inert, so far as can be ascertained, by inoculation and cultivation, do not necessarily point the way to cure or prevention.

It is interesting and instructive to immerse a certain quantity of virus in antiseptic solutions of different degrees of potency, and then to inoculate the virus into an animal, or into a test tube of culture material, and observe the result; but it by no means follows that the same result will follow the use of the agents thus proved as microbe killers, for prevention of disease in an infected herd or flock. The conditions are obviously entirely different. Instead of the antiseptic being brought in direct contact with the microbe, it has to be introduced into the animal's stomach, become absorbed, and carried the round of the circulation, undergoing, probably, unexpected changes during its course, which may seriously disturb its normal action.

Anthrax is, perhaps, of all animal plagues the most difficult to deal with. Firstly, it should be implanted in the mind of the farmer, the obvious risk of the extension of the affection by the common and reckless mode of dealing with carcasses of animals found in a field, or in a shed, and it will be convenient now to consider what means should be adopted for the protection of the remaining animals which have been exposed to contact with the virus of the disease.

It cannot be doubted that removal of the herd from the part of the farm where the first case occurred is, as a rule, desirable; indeed unless the circumstances are very exceptional, necessary. Next, the use of antiseptics is certainly to be advocated, and at this point occurs the trouble about estimating results. Anthrax, it may be observed, has a very remarkable record. It may cease after one or two animals have been attacked, or it may clear the whole of the stock—horses, cattle, sheep, pigs and dogs—off a farm in a short time. I remember well such an attack as this in the west of England some ten years since, when the fatal cases reached the extraordinary number of sixty cattle, nine sheep and seven horses.

This is the more extraordinary when we consider the supposed average loss in cases of anthrax is a little over two animals in each outbreak.

Within a short time after this, another outbreak occurred not far away when only one animal was lost.

Statistics and every day experience, go to prove that extensive outbreak, of anthrax are not only exceptional, but are also almost always the result of what may be termed unintelligible neglect of common and obvious precautions.

What can be said, for instance, of cutting the throat of an animal dying, or just dead, of anthrax in an open field or cattle yard, taking the hide off, dragging it across the meadow to a convenient place to keep it until it can be disposed of, and throwing the carcass onto a manure heap, or giving it to the pigs? The whole procedure, which has come under my observation repeatedly, amounts to a vast experiment in inoculation, an experiment, I may add, which has proved in most cases remarkably successful.

The above few remarks on the disease exhibit its salient characters in their sharply defined contrasts, and explains the remark which has been made as to the difficulty of assessing the value of preventive measures. In fact, the chances are in favor of any preventive measures being credited unjustly with success, on account of the frequent cessation of the disease after the first two or three cases, and if the plan were adopted of dealing with every carcass as if it were known that the animal had died with anthrax, serious losses from the disease would become even more exceptional than they are now.

It will not be denied that in the adoption of preventive measures, it is better to do too much than too little and after removing animals from the place where the disease began it will be well to give antiseptics with the view of rendering the system an unfavorable soil for the growth of the microbe,

Some years ago a common remedy was the hyposulphite of soda, which checks fermentation and is harmless and tasteless as well as soluble; easily, therefore, given in the drinking water. It will only be necessary to mix once or twice a day a sufficient quantity to allow every head of cattle to get four ounces per day. A fourth of the quantity for sheep or pigs will be sufficient, and the remedy may be used daily for a week or more without risk or injury.

Carbolic acid is more active as an antiseptic, and cannot be used so freely. A thoroughly practical man has stated that for abortion in cows he gave the remedy in a mash, mixing ¼ of an ounce of ordinary carbolic acid with the hot water with which he made the mash, gradually increasing the quantity of the acid until it reached ½ ounce, which was the largest dose the cows would take in their food. This plan is perhaps the most easy for giving the agent. I should however advise a dose of 1 dr. of the acid, gradually increased to 2 drs.; a fourth of the quantity being given to sheep and pigs, and continued daily for a week.

Montreal, Canada. W. R. GILBERT.



Holstein Cow, Alma Marie 3d.



Holstein Heifer, Alma Marie Josephine, Daughter of Alma Marie 3d.



Holstein Bull Calf, Son of Alma Marie 3d.

Durhams and Shorthorns.

A Vermont subscriber asks whether Durhams and Shorthorns are identical, or constitute two distinct breeds. Durham is a local, or provincial name for what are known in the books and markets as Shorthorns. There is a well recognized breed of hornless cattle known as Polled Durhams. These cattle have all the characteristics of the regular Shorthorns except the horns.

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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

A CHECK TO FRAUD AND DISHONESTY.

No law in recent times has so effectively proven its necessity and beneficence as that one enacted eighteen months ago, for the purpose of taxing the fraud out of oleomargarine. The millionaire manufacturers of oleo contended that they were engaged in a legitimate business, catering to the wants of the laboring people of the United States, by furnishing them a cheap and healthful substitute for butter; that there was no fraud or dishonesty in their transactions; that the consumer was fully advised of the character of the product, and greatly preferred it to ordinary butter. On the other hand, dairymen and dealers in butter, and great numbers of butter consumers, represented to Congress that the larger proportion of oleo manufactured in this country was palmed off upon the ultimate consumer as the genuine product of the dairy, and at a price out of all proportion to its cost; that it was of no benefit to the wage earner or any other ultimate consumer, but that the enormous profits connected with its manufacture and sale were about equally divided between the manufacturers and the dishonest dealers, grocers and the proprietors of hotels, eating houses and lunch counters.

The law taxing colored oleomargarine 10c. a pound, went into effect July 1, 1902, and Secretary Knight, of the National Dairy Union, has tabulated the effect of this law upon the production and consumption of oleomargarine for the twelve months ending June 30, 1903. The figures show the following astounding, significant and satisfactory results:

	Pounds.
Oleo made during the year, ending June 30, 1902	126,315,427
Oleo made during the year, ending June 30, 1903	71,211,244
Decrease in one year under the 10c tax	55,104,183

The decrease in the production of oleomargarine for twelve months was therefore 44% of the out-put for the preceding year; but this tells only a part of the story. Of the 71,000,000 pounds of oleomargarine produced during the year ending June 30, 1903, there were 68,490,800 pounds reported as uncolored, leaving less than 3,000,000 pounds made and sold in the semblance of butter. The uncolored oleomargarine, deprived of all pretense that it was butter, had to be sold for what it was, and at a price fairly well proportioned to the cost of production and distribution. At a very moderate estimate, this was a saving to the ultimate consumers of from 6 to 10c. per pound, or somewhere between $4,000,000 and $6,800,000. This sum, therefore, represents the savings to the laboring men of the country in the one item of purchasing a substitute for butter, and, of itself, fully justifies the enactment of the law by Congress.

It follows, of necessity, that the withdrawal of 55,000,000 pounds of oleomar- has increased the demand for butter, and notwithstanding the largely increased make, has added an average of 1½c per pound to the wholesale price of butter, or say, $3.75 to the annual income from every dairy cow, under free and honest competetition; and free and honest competition is all that the dairymen of the country have ever asked for or have any right to expect.

In the nature of the case, it has been impossible during the first year of the law, to impose and collect the tax of 10c a pound upon all colored oleomargarine, and there is, therefore, every reason to expect that the current year will show a much larger decrease in the consumption of the colored product, and a still larger demand for genuine butter.

ALFALFA NOTES FROM THE HOARD'S DAIRYMAN FARM.

Last spring we commenced feeding alfalfa hay to the work horses, three teams, on the HOARD'S DAIRYMAN farm. These horses had a large amount of work to do in the way of plowing and planting over 50 acres of corn, 15 acres of barley and about the same amount of oats, as well as other miscellaneous work. They have also worked at the cultivation of the corn and have done their share of the work in the harvesting of two crops of alfalfa on 32 acres. We have watched with considerable interest the effect of the feeding of alfalfa to these horses. The grain ration was early cut down to about half of what we usually feed, and we find that these horses have kept in finer condition than ever before. They are inordinately fond of the alfalfa, eating up the coarse stalks to the last vestige and their mangers are emptied very quickly. Care is taken not to give them all they will eat as they will gorge themselves on it if allowed so to do.

We believe it to be the most valuable hay that can be had for farm horses and all working teams.

A few weeks since we commenced feeding the cows alfalfa hay night and morning while they were in the stable for milking. Although they run on a very flush blue grass pasture, the cows take hold of the alfalfa hay eagerly, and there has been a noticeable gain in the milk, even in cows that have been giving milk for 9 months. The more we feed and study this plant the more are we astonished that farmers in the northern and eastern states had not taken hold of it and studied out how to raise it years ago. We mentioned quite briefly, a few weeks since, the fact of our wintering nine brood sows from last November to April first on alfalfa hay alone and their drink, the latter consisting of water and what little skim milk was left after feeding a large stock of calves. We did this in the belief that such food would show in the character of the pigs. In this we were not disappointed, for we never before had as good success in the farrowing season. The nine sows brought us 78 pigs and 75 are living today and thriving finely. They get fresh mown alfalfa twice and three times a day with skim milk, middlings and soaked corn. In the lot are 35 sows, which we will keep, over for breeding purposes, wintering them as we did their mothers, on alfalfa hay. We estimate that the feed cost of wintering a full grown sow weighing 200 pounds in this way, will not exceed a dollar and a half. This becomes a very important item in the cost of making pork and particularly so, in view of the almost certain prospect of a short crop of corn. We have never found any combination for producing milk that will equal in cheapness and efficiency corn silage and good alfalfa hay. Farmers who have tried alfalfa with poor success should not get discouraged. It is too valuable a forage plant to give up without a long and thorough trial. Let us remember that almost every degree of latitude has to be worked out to methods that belong to that climate. The present sea- in Wisconsin has been very wet, and the finest success has been had on the highest ground, if the land was fertile enough to give the plants ample support. We have found nothing in the way of a fertilizer that equals wood ashes. The plant is very fond of potash and we believe alfalfa growers in the middle west, as well as in the east, will find it very profitable to give their alfalfa fields a dressing at least once a year, either of sulphate or muriate of potash if they can not obtain the carbonate in the form of wood ashes. The season has been an exceedingly trying one in which to make alfalfa hay yet we have suceeded very well through the use of cotton cloth hay caps. There is a marked difference in the quality of the hay cured in cocks from that cured in the hot sun in windrows as farmers usually cure their hay. But every grower should always remember to move the cocks a few feet on to fresh ground every 48 hours else the alfalfa under them will be badly smothered. It pays to take a great deal of pains in the growing of alfalfa and the making of the hay as the following analyses will show.

Wheat bran analyzes in digestible protein					12.6 per ct
Alfalfa	"	"	"	"	11 per ct
Red clover	"	"	"	"	6 8 per ct
Timothy	"	"	"	"	2.8 per ct

The above analyses shows why our horses needed so little grain when fed on alfalfa. It also shows how tremendously mistaken a great many people are in their estimate of the value of timothy hay. As will be seen, alfalfa in good condition is within one per cent as rich a food as wheat bran.

There is a splendid field here for the intelligent dairy farmer to conquer, and it will pay him a hundred fold to read and post himself all he can in this matter.

About Tests.

There is, and there always will be, more or less disappointment and complaint possible from patrons about the test of their milk at the creamery or cheese factory. Sometimes, there may be abundant cause for complaint, for buttermakers and cheesemakers, even with the best intentions, may sometimes make mistakes, and we regret to say, that there may be buttermakers and cheesemakers who do not always have the best intentions.

But, even under the most favorable conditions, tests will vary, and, more often than otherwise perhaps, no sufficient explanation can be given for this variation. A Minnesota buttermaker, Mr. B. B. Scripture, of the Pleasant Valley Creamery, writes to *The Dairy Record* on this subject as follows:

At the end of each month we are asked many times: "What is the matter with my test?" It is several points lower than last month.

They should ask themselves this question: What have I done to lower my test?

I will mention a few of the things that will make the test vary.

Sometimes the whole herd is excited by some unusual noise, or possibly the dog was sent after them at milking time. Or, it may be they came in contact with the hard side of the milking stool. These things will lower your test every time.

Treat your cows kindly and induce them to come up at milking time of their own free will; it is a good plan to give them a handful of feed each time they come in the barn. They will soon learn that you are their friend, and they will pay you well for your extra trouble.

Sometimes we forget, when we are in a hurry, that the last part of the milk is the richest in butter fat. It also has a tendency to dry your cows up when not milked dry. Milk regularly, feed and water as near the same time each day as possible; keep your cows comfortable every day in the year; all these things will increase the flow of milk, and have a tendency to raise your test.

Sometimes we haul milk to the factory in large cans, and to prevent the milk from slopping out, a cloth is used between the cans and milk, and by the time it reaches the factory the cloth is saturated with cream.

During warm weather and when the roads are rough the cans that are not full, are so badly churned when they reach the factory it is impossible to get a fair sample of the milk; always fill your cans full. In the winter some of us forget to cover our cans and find when we reach the factory that the cream is frozen into the bottoms of the covers. We pour in the remainder of the milk and then ask the buttermaker: "What makes my test drop off so sudden."

The last point that I will mention, but not least, and possibly some of us never thought about is, part of the year we may be milking cows that are very poor testers, and the rest of the year the majority of them may be extra good cows and still give a good flow of milk.

The cows of Minnesota average about 150 pounds of butter per year, scarcely enough to pay for the feed. Where does the profit come in? I think it is time that we brace up and get out of that old rut that our fathers have been in for years.

Some will say how are we to know our poor cows from our best ones. My advice to you is this: Talk the matter over with your buttermaker and tell him how you are situated, and ask him if he will test your herd, providing you weigh and sample each cow's milk at each milking for seven days; after this is done it will be quite easy to decide which are the profitable cows, and if you continue to do this for several years and sell your poor cows and raise your heifers from your best cow, you will soon have a herd that will make you a good profit, and one that any dairy farmer can well feel proud of.

Feeding Dairy Cows.

Speltz, Barley and Corn Compared.

Part II of Bulletin 81 (June, 1903), of the South Dakota Agricultural Experiment Station, reports some experiments in feeding dairy cows. Fifteen cows of the college herd were divided into three lots of five each, and after the preliminary feeding period of about two weeks, lot 1 was fed ensilage and grain for 27 days; lot 2, bromus inermis hay and grain, and lot 3, alfalfa and grain. After another interval of about two weeks, lot 1 was fed hay, ensilage and speltz; lot 2, hay, ensilage and corn, and lot 3, hay, ensilage and barley, and in the third period, lot 1 received barley in the place of speltz, lot 2 speltz in place of corn, and lot three corn in place of barley.

We do not think these short feeding periods, with an interval of two weeks between changes, are very conclusive, and much less conclusive when the cows were fed as these cows were, first, all the grain they would eat, and after that, whatever hay and ensilage they would consume, taking back and weighing whatever was refused. Such feeding as this, without a chemical analysis of the excrement, is really no fair test of the cows or of the feed. For in almost every case, and especially in this South Dakota experiment, the internal evidence points very strongly to a lot of matter passing through the cows undigested. The time has come, we think, when our experiment stations should be altogether more particular and complete in conducting and reporting their experiments.

Following is the summary of conclusions drawn by the authors from their experiments:

1. Ensilage is more palatable than either alfalfa or bromus inermis hay.

2 It required less grain to produce a pound of butter fat when ensilage was fed as the sole roughage ration than with any other lot.

3. By feeding all of the ensilage the

cows would eat, a pound of butter fat was produced cheaper than with either alfalfa or bromus inermis hay.

4. Bromus inermis hay, when fed in conjunction with the same kind of a grain ration as was the alfalfa hay, produced a pound of butter fat one and sixty-one hundredths cents cheaper, and twenty-seven hundredths cents more than the lot receiving ensilage.

5. A change from a succulent to a dry feed is not advisable. as the loss in the quantity of butter fat and in the weight of the cows was greater than with the changes that were made in the lots getting the hays.

6. It required two pounds more of speltz to produce a pound of butter fat than it did barley or corn under the same conditions.

7. The per cent of butter fat is governed by the breed and not by the feed.

8. Fresh cows produced a pound of butter fat with less grain than did those that were further advanced in the period of lactation.

9. During periods B and C it required one-third more grain to produce a pound of butter fat with the beef-bred cows than it did with the dairy-bred cows.

Cream and Cream Testing.

ED. HOARD'S DAIRYMAN:—Several in this vicinity have been using hand separators and taking the cream to factory. The factory insists on having 25% to 35% cream. They test our cream with the same pipette used for milk. I brought my cream down to 20% and got about ⅓ more money, but they refuse to take my cream unless I raise the test. They claim they would be losers on cream under 25%. If you will kindly settle this question you will be doing a great favor to a number of men who want only what is right.

Kilbourn, Wis. E. F. G.

It is all right for a factory to insist on having cream that will test 25% fat or more, but it is all wrong to take the samples with a pipette of any kind. Moreover it is contrary to the law in Wisconsin to use a pipette for this purpose, and if the factory mentioned does not stop this practice right away the Dairy and Food Commissioner of the state will see that they are prosecuted and fined for disregarding the law.

When cream is properly tested and correct samples are taken it will make no difference to the patron whether he makes cream testing 40% fat or 20%.

Pennsylvania Pickings.

ED. HOARD'S DAIRYMAN:—Some times I have to go away from home. It is a great hardship and nuisance for a thoroughbred countryman to have to ride in cars and move and have his being in cities in summer time. Such a tribulation was mine last week. My car ride was through one of the most progressive agricultural sections in the state, and that means in the nation, and making a virtue of necessity, I composed myself for some observations upon farming conditions.

One of my special views was as to the condition of pastures for cows. The section is notably a dairy section. I contend that a dairy cow on pasture at this season of the year simply cannot secure a full feed. In the spring when grass is abundant, growing, and abounding with life and life elements, it is possible for a cow to meet her food demands with no more expenditure of energy than she may enjoy as wholesome exercise. But as the grass ages with the advancing season, becoming both scarcer and less digestible, with the heat of the sun and the discomfort of pestiferous flies, her securing enough nourishment to supply the needs of her animal economy, with sufficient surplus to maintain an uninterrupted milk flow, becomes very doubtful, if not impossible, so that as a safeguard against an inevitable shrinkage of milk at this season of the year, the cow must be supplied in comfort at the stable with the food lacking at pasture.

On this ride I knew I would see many herds at pasture and my thought was to see if such a pasture as would give reasonable assurance of supplying the cow's needs could be seen. I knew I wouldn't see such and I didn't. No doubt, many of the herds were liberally fed on commercial feeds in addition to the scant pasturage, but I saw very little evidence of any provision having been made to cut down the necessity of the boughten feed by the growing of soiling crops.





Transforming a Barnyard.

The above cuts show the comparison between a dirty, ill kept yard where the cows stand knee-deep in mud and manure, and one that has been put in proper shape. A dairyman may produce dirty milk amid clean surroundings, but he certainly cannot make clean milk with dirty surroundings, and clean milk has an increased cash value over the unclean article. The cuts are from the Illinois Experiment Station Report.

COMMERCIAL AND OTHER FEEDS.

The best profits must come to the general dairyman by his producing as far as possible the food his animals need. I think it will be found profitable, under all ordinary circumstances at least, for him to supplement his home products with the purchased ones, but the latter should always be the help and never the dependence. And while I am a strenuous advocate of liberal feeding of cows, even when on good pasture, I very much doubt if one may do it profitably by the extensive use of commercial feeds, by reason of the fact that at pasture one may not save all the manure to apply where it will do the most good.

THE SOIL'S SHARE.

Our most careful eastern farmers are coming more and more to have regard for the proper treatment of their soils, and to recognize the fact that animal husbandry must have a secure place in our agricultural economy. It is an easy matter by the extravagant use of commercial fertilizers to sink in them the small profit of a medium crop. It is quite as easy also to absorb a dairy profit by too heavy feeding of boughten feeds even to pretty good cows; while feeding any kind of feeds to poor cows can mean nothing but loss.

Certainly, therefore, where proper consideration is given to the maintenace of the land's productivity a moderate use of commercial feeds given to profitable animals, from which the excrement is all saved and immediately applied to the land, is in the line of wise farming. And in our eastern farming a judicious and intelligent use of commercial manure in connection with the farm animal wastes will more than pay their cost.

AN EXCEPTION.

At the end of this journey I have mentioned was the farm of my friend who keeps two cows to the acre, buying only the concentrated part of their rations and saving all the manure with the jealous care of a man who fully appreciates its value and necessity for his farming.

He uses no commercial manure, nor does he need to, but he with his method, which is after all only a concrete application of advanced science to farming, is conspicuous and alone in his achievement.

OATS.

Our oat harvest in this part of the world was remarkable. We grew fine heavy straw, which in many fields rusted badly; and when we came to harvest the crop it was found the grain had not developed—nothing but husks It was generally mown and raked up as hay; and some farmers who bale and sell their oat straw will bale this crop without threshing. W. F. MCSPARRAN.

Pennsylvania.

Pink Eye and Milk Flow.

ED. HOARD'S DAIRYMAN:—Enclosed find communication from Dr. Roberts, which is self explanatory.

The local physician advised that inasmuch as young stock affected recover in due time, without treatment, it would only be needful to treat milch cows. Said he thought he could shorten the period of its duration about one-half. One man had two cows, another has six affected.

The disease checks the flow of milk quickly, and it is doubtful if they will be profitable milkers until fresh again.

The time is comparatively short until the stock will all be brought to the barns, and then I fear there will be trouble, if nothing more is done than recommended. The disease is undoubtedly pink eye, and contagious. MRS. L. ELLIS.

Chippwa Falls, Wis.

The symptons you describe are those of a disease commonly called pink eye. While it is contagious, it is very seldom fatal, and if properly treated, seldom leaves the animal blind.

I would advise you to call in a qualified veterinrian, as this disease does not come under my jurisdiction. E. D. ROBERTS.

Janesville, Wis.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Fat in Milk and Yield of Cheese.

I am sending you exact copies of my cheese factory statements for May 1902 and 1903. Will you please explain why with a 4.7 test it takes more milk for a pound of cheese than it did last year with a 4.2 test? How many pounds of butter would the 4.7 test give me and what would it have to bring a pound to make it as profitable as cheese? A skimming station near here allows an overrun of 3%. Is this the general allowance? What is oil meal worth a ton in comparison with wheat bran? I only sent 3 cows in May this year, one a two-year-old heifer. Your paper is O. K.

1902.

Amount of milk May	1826
Test	4.2
Pounds cheese made	199

1903.

Milk furnished in May	2360
Test	4.7
Pounds cheese made	250

Wolcott, N. Y. D. W.

Surely, this inquirer did not expect that we could explain why milk testing 4.7% fat should yield less cheese than milk testing only 4.2% fat. The inquiry would have to be proposed and the investigation made much nearer to the factory. Several reasons might be assigned and yet the real reason not stated. Possibly, the milk did not work as well this year as last year. Possibly, the condition of the pastures may have accounted for the decreased yield. It was noted during a severe drought in Wisconsin a few years ago, that milk contained a very appreciable amount less casein than common. It may have been that some of the patrons brought gassy milk, which mixed with the other milk, not only made gassy curd, but caused an appreciable quantity, both of the fat and the casein, to run off in the whey.

One hundred pounds of milk testing 4.7% fat, manipulated under the best possible conditions, separator and churn wasting only the minimum amount of fat in the skim milk and the butter milk, might yield 5.48 pounds of butter. This butter would have to sell for 20.3 cents per pound to equal the yield of cheese reported which sold at 10½ cents per pound.

The overrun in manufacturing butter at a creamery varies from 12 to 16%. In other words, the amount of butter will be from ⅛ to ⅙ more than the total fat in the milk.

Oil meal contains 78% of digestible units and bran 58%. But oil meal, in addition to its nutritive properties, has certain dietetic effects that cannot be well estimated. Perhaps as accurate an estimate as could well be made, would be to say that oil meal is worth at least 50% more than bran.

Tar Paper Lining for Stable Floors.

On page 417 of DAIRYMAN the editor states that he used tarred paper for lining stable floor. Did he place the paper below the plank floor, and did it prevent the moisture from passing through? Would it make the floor over basement stable sufficiently tight to keep stock on it? C. H. G.
Mauston, Wis.

A more careful reading of the article on page 417 shows that common tar paper was not recommended, either for lining silos or stable floors, but a special quality of building paper manufactured by the Standard Paint Co., 100 Williams St., New York City. The common tar paper is very quickly rotted by the acids in silos and stables, whereas, the paper referred to is comparatively, if not completely, acid proof.

In lining his stable floor, the Senior editor laid down a double floor, placing this special quality of paper between the planks, and has had no trouble with liquids going through.

Ration for a South Carolina Cow.

Will you do me the favor to give me a balanced ration for my Jersey cow? She is of the lean milk producing build and puts her feed into milk. She is a hotel cow and the object in view is to increase the flow of her milk and not to sell it for profit. She weighs about 850 pounds. Feed stuffs here cost as follows: Corn meal 90 cents bu.; wheat bran $1.25 per 100 lbs.; cotton seed meal, $1.40 per 100 lbs.; cotton seed hulls, 45 cents per 100 lbs.; baled hay, $1.10 per cwt.; country hay, 75 cents per cwt. My cow has no pasturage or green stuff at all. The country hay is not as nutritious as your northern hay and its true feeding value is probably very small. Its chiefly crab grass; no clover nor anything like that. I will certainly appreciate the information. W. L. B.
Gaffney, S. C.

Crab grass hay, if cut at proper season and properly cured, should have a higher feeding value than the ordinary run of baled hay shipped from the north, but it is pretty hard lines to condemn a cow to a constant diet of dry hay, no matter how good, and grain. If to be had at any reasonable cost, we recommend this inquirer to procure some linseed oil meal and feed from one to two pounds per day. This will have a tendency to correct the bad effects of a constant diet upon hay and cotton seed products. In connection with this linseed oil meal, one might feed two pounds of cotton seed meal and four pounds of good wheat bran, with hay *ad libitum*. If it should be deemed expedient to feed a larger allowance of grain, add in the proportions above given, and with every mess of grain, feed a large teaspoonful of salt. An occasional "bran mash" would be a welcome relief from the terrible monotony of constant dry feed. Possibly, our correspondent may not understand what is meant by the term "bran mash." This is simply scalded bran well seasoned with salt, but not made into a thin slop.

Hop Clover.

I inclose you sample of grass. Seems to grow something like white clover. I find it spreading in my pasture, especially on the hill side.
Cairo, Ill. N. B. T.

As near as can be determined without the blossom, the sample sent is hop clover, or Trifolium Agrarium. We do not know as this ever becomes a pernicious weed, as the clovers usually die out after a while, and this plant probably has the same habit.

Effect of Plowing Under Rye.

If you sow rye where you have cut a crop of corn this fall and plow it under in the spring, other things being equal, could we expect a good crop of silage, and do you use fertilizers in your practice, and what amount per acre?
Norwich, Vermont. R. C. & SONS.

The plowing under in the spring of rye, sown the previous fall, has proven very advantageous with us, not that this has added any fertility to the soil, as plowing under clover or other leguminous crops which gather nitrogen from the air would have, because in the case of the rye, there was nothing plowed under that did not come from the soil. But the plowing under of this rye does add very materially to the amount of humus in the soil and greatly improves its texture—in both respects, adding very materially to its drought resisting qualities and probably dissolving out and rendering more available some of the mineral constituents already in the soil.

Ensilage Corn Too Thick.

Will ensilage corn, three to seven feet high, be of any use to feed cows for milk? My plan is to drive a narrow one-horse sled between the rows and pull out the surplus corn and feed it to the cows. The drill was set to drop eight inches apart, but very often two grains dropped instead of one. What distance apart should the stalks be? It is Virginia ensilage and grows from 12 to 16 feet high in this section. Will feed a little gluten feed anyway. G. P.
Ohio.

This immature corn will of course have some feeding value, but if the pastures are as luxuriant in Ohio as they are in Wisconsin at the present time, there will be very slight demand for forage of this kind. In ordinary years, we would not

"ADVERTISEMENT".

WON'T MIX.

Bad Food and Good Health Won't Mix.

The human stomach stands much abuse, but it won't return good health if you give it bad food.

If you feed right you will feel right, for proper food and a good mind is the sure road to health. "A year ago I became much alarmed about my health for I began to suffer after each meal, no matter how little I ate," says a Denver woman. "I lost my appetite and the very thought of food grew distasteful, with the result that I was not nourished and got weak and thin. My home cares were very heavy for beside a large family of my own I have also to look out for an aged mother. There was no one to shoulder my household burdens and come what might I must bear them and this thought nearly drove me frantic when I realized that my health was breaking down.

I read an article in the paper about someone with trouble just like mine being cured on the food Grape-Nuts and acting on this suggestion I gave Grape-Nuts a trial. The first dish of this delicious food told me I had struck the right thing. My uncomfortable feelings in stomach and brain disappeared as if by magic and in an incredibly short space of time I was again myself. Since then I have gained 12 pounds in weight through a summer of hard work and realize I am a very different woman, all due to the splendid food Grape Nuts." Name given by Postum Co., Battle Creek, Mich.

Trial will prove.

THE U. S EXCELS ON ANY TEMPERATURE.

Our "would-be competitors" the DeLaval Separator Co., finding themselves badly beaten in the six weeks' tests of six different makes of Separators at the Kansas Agricultural College, as shown by the official Bulletin No. 123 issued May 26, 1903, in their efforts to break the force of so disastrous a defeat, have compiled a Bulletin of their own "getting up" purporting to be signed by several students, in which they try to make it appear that the DeLaval was not terribly beaten, as the Official Bulletin shows it was as follows:

Average test of skimmilk of DeLaval Separator	**.048**
" " " U. S. "	**.033**
U. S. excels DeLaval	**.015**

Showing that the DeLaval Separator left 45 per cent. more butter fat in the skimmed milk than the United States.

Again in this "gotten up" Bulletin, our "would-be competitors" state that the U. S. Separator "choked up" on 39 lbs. of milk at 70 degrees of temperature and that the DeLaval ran 80 lbs. Every dairyman using a U. S. Separator knows that the U. S. will not "choke up" on 80 lbs. of good milk at 70 degrees, and that such statements are made in an attempt to break the rapidly gaining popularity of the

U. S. SEPARATOR.

We make the following proposition to any dairyman wishing to buy a separator, viz.: We will put a U. S. Separator into his dairy and agree that it will not "choke up" on 80 lbs. or twice 80 lbs. of milk in good condition at 70 degrees, provided he will pay for the separator if it does not "choke up."

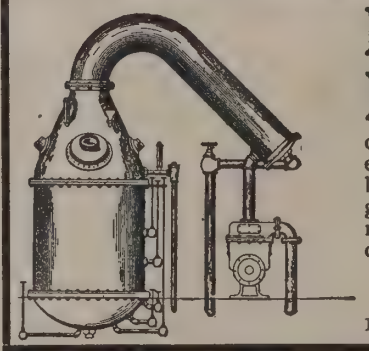
The best authorities do not advocate separating at 70 degrees, but if Dairymen prefer to, the U. S. will do it when properly adjusted.

The U. S. Separator skims cleaner than any other separator on the market at any temperature from 70 degrees to 156 degrees at proper adjustment. The Official Bulletin No. 123 of Kansas Agricultural College, dated May 26, 1903, states that

The U. S. Excelled all Others in tests of Skimmed Milk and in Minimum Total Loss.

THE U. S. SEPARATOR HOLDS WORLD'S RECORD.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.



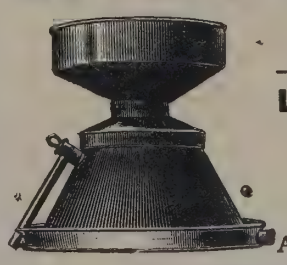
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OAKES & BURGER, Cattaraugus, N. Y.



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Saves Time, Labor, Patience and Money.

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67 Main Street, CORTLAND, N. Y.

hesitate to say that it would have very considerable value, but it may be a question, whether for this year, it would not be better to let the corn stand and harvest it for silage.

Quack Grass.

Quack grass is getting to be a farm pest, for its manner of growth and tenacity of life makes it exceedingly difficult to kill. The following method of eradication is given by Mr. F. Henry, in *Northwestern Farmer*.

Quack or twicth grass, is getting a strong hold all over the Northwest. Very few localities are free from it and a great many farms are getting over-run with it. While I should be very careful not to let it get a foothold on a farm that is clean, I should not be discouraged if I had it to contend with. Now I do not mean to say that if you have it in any considerable quantites that you will ever be likely to get entirely rid of it, for I never saw a field of any considerable extent, entirely cleared from it. I do know, however, that it can be so handled and kept in check, that good crops can be raised continually. The question on farms that have it to contend with is, how can it be dealt with so as to keep it in check. If a field was well taken with it, I should plow it quite shallow, as soon as the grain crop could be removed and harrow it down as smoothly as possible. At this season of the year the ground is usually quite dry. If the work is well done, a great many of the roots will be destroyed. I should plow it again quite deeply just before it froze up. By turning the roots to the surface at that time, when the weather is too cold for them to start, a great many more will be killed by the frosts of winter. As soon as the weather warms up in the spring and the ground gets in good condition to cultivate, I should work it up thoroughly, and keep it up at least once a week, until it is time to plant either corn or potatoes. I should prefer potatoes, as I want to keep it to hoed crops for two years, and I do not want to follow corn with corn. By keeping the crop thoroughly cultivated, you will not only get a very good crop of corn or potatoes, but will have the quack pretty well under control by autumn.

The dryer the season the more thoroughly you can do the work. About all the quack you will see in the fall will be in the potato row and if they are dug with a machine the roots will be sifted to the top in digging and very little will be left to contend with the following season. Now I should treat the quack just as I should any other enemy in battle; follow up the first victory and put the enemy to a total rout. I should plow the field again as late as possible after the potatoes were dug and begin the next spring as the season previous by starting the cultivator as soon as the soil worked good and keeping it up at close intervals until corn planting time. I should cultivate the corn very thoroughly and by the end of this second season I would have the quack so thoroughly subdued that it would be in fine shape for a crop of small grain. I should prefer to sow wheat or barley as oats would be likely to lodge badly. To make a good job, still better would be to seed it down to clover and if a good catch was secured the following year the clover would smother out what little would remain after two years of cultivated crops, for nothing can grow under a dense shade of clover. I have seen a field of quack well subdued in one season by keeping the ground thoroughly worked until the middle of June and then sowing to buckwheat. The buckwheat so thoroughly shades the ground as to smother the quack. It will not do, however, to follow buckwheat with corn.

ROTATE.

If a farm that has quack is rotated with potatoes, corn and clover and only an occasional small grain crop sowed and that as a nurse crop with the clover and thorough cultivation practiced, not much trouble will be experienced with quack grass, and the extra cultivation that the soil gets to eradicate the quack, will serve to liberate plant food and insure big crops every year, even if the year is not the most favorable. Do not try to handle too large a field of quack at a time. Take what you can handle properly and work it thoroughly and you will succeed. Take twice what you can work well and you will fail and want to sell out and move west. What you cannot handle properly put into pasture until the time comes when you can handle it. It is not apt to get worse by pasturing it, and it yields most excellent feed. I have noticed in my pasture that the stock keep it eaten very closely where other grasses are passed over by the stock, and allowed to go to seed.

Getting Silage Out of a Pit Silo.

ED. HOARD'S DAIRYMAN:—I am sorry that in making my inquiry as to getting silage out of a pit silo I failed to give enough information. The silo is 24 ft. wide and thirty ft. deep. There will be from 40 to 60 cows in the barn, and the calculations are to feed 15 pounds twice daily or from 20 to 25 pounds once daily. This means that 600 pounds is the least we will want at any one feed, and the probabilities are that we will want nearly a thousand pounds at a feed. In this case the use of a team is easily arranged as we always have a team near the silo at that time of day. If you know of any practical method to be used in this case, we would be glad to hear through the colums of the DAIRYMAN.

Of course I know this letter is too long to print in full, but I wanted to make sure you understood the situation, so you could "boil it down." W. N. B.

Fort Calhoun, Neb.

A silo 30 feet in the ground presents more than one serious problem. In the first place, it should not be forgotten that there is more or less danger of the accumulation of carbon dioxide, and one should not go down in such a pit without taking some precaution to stir up the air and thus facilitate the escape of this deadly gas. This can be done by lowering the boxes or baskets used for elevating the silage into the pit and drawing them up rapidly two or three times.

Probably, the most successful way for elevating this silage would be to purchase and rig up one of the litter carriers which are advertised in our columns and arrange with a set of pulleys and a windlass for lowering and elevating the same and transferring it to an overhead track leading into the feeding alleys. We should much prefer the use of a windlass for this purpose rather than to be under the necessity of using a team. One might use, in place of the litter carrier, some two bushel baskets which could be lowered into the pit, there filled and drawn up over a single pulley and then carried by hand into the feeding alley.

"ADVERTISEMENT."

ABOUT COMPLEXIONS

Food Makes Them Good or Bad.

Saturate the human body with strong coffee and it will in time show in the complexion of the coffee drinker.

This is caused by the action of coffee on the liver, thus throwing part of the bile into the blood. Coffee complexions are sallow and muddy and will stay that way until coffee is given up entirely.

The sure way to recover rosy cheeks and red lips is to quit coffee and drink Postum Food coffee which makes red blood. "I had been for more than 20 years an inveterate coffee drinker and it is absolutely true that I had so completely saturated myself with this drug that my complexion toward the last became perfectly yellow and every nerve and fibre in me was affected by the drugs in coffee.

"For days at a time I had been compelled to keep to my bed on account of nervous headache and stomach trouble and medicines did not give me any relief. I had never consulted a physician in regard to my headaches and terrible complexion and I only found out the cause of them after I commenced the use of Postum which became known to me through Grape-Nuts. We all liked the food Grape-Nuts and it helped us so we thought Postum must certainly have merit and we concluded to try it. We found it so delicious that we continued the use altogether although I never expected it to help my health.

After a few months my headaches were all gone and my complexion had cleared wonderfully, then I knew that my troubles had been caused by coffee and had been cured when I left off coffee and drank Postum in its place." Name given by Postum Co., Battle Creek, Mich.

Postum will change the blood of any coffee drinker and rosy cheeks and health take the place of a yellow skin and disease.

Empire  **Empire**

Eight Years — Fifteen Cows

1895 1896 1897 1898 1899 1900 1901 1902

The Empire Way — *Makes Cows Pay.*



How's This for a Record?

Emporia, Kans., Jan. 2nd, 1903.

Empire Cream Separator Co., Bloomfield, N. J.

Dear Sirs: Have used one of your **Empire** Cream Separators for the past eight years, during which time I have been milking at all times from twelve to fifteen cows. The cost for repairs in the eight years has been only seventy-five cents. I have had experience with other separators but consider the **Empire** superior to any other, as it never caused me any bother. It is easy to clean and has proven very durable. It does good work at all times. L. H. VAHSHOLTZ, Rural Route No. 4.

The Empire Cream Separator turns more easily, is more easily cleaned, does better work, and costs less for repairs than any other, because it is the **simplest separator made.** Don't buy a separator until you have investigated the merits of the Empire.

Send for our new book on Making Milch Cows Pay.

Empire Cream Separator Co., Bloomfield, N. J.

Western Office—FISHER BUILDING, CHICAGO.

Eight Years — **75 cents for Repairs** — Fifteen Cows

Milk Dealers' Supplies

Milk Aerators, Pasteurizers and Coolers
Ice Cream Cans and Tubs
Milk Bottles
Milk Shipping Cans
Milk Bottle Caps

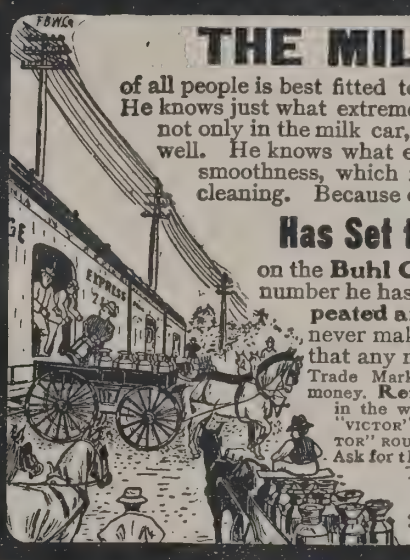


These are but a few of the many things of our own superior make for the milk dealer, dairyman and creamery man. Write at once for our free illustrated catalogue.



STURGES & BURN MFG. CO.
Chicago, Ill., St. Paul, Minn., Kansas City, Mo.

THE MILK SHIPPER



of all people is best fitted to judge of the merits of a milk can. He knows just what extreme hard wear a can is subjected to, not only in the milk car, but in the city delivery wagon as well. He knows what economy there is in toughness and smoothness, which mean wear, resistance and ease of cleaning. Because of this knowledge he

Has Set the Seal of His Approval

on the **Buhl Cans.** This is witnessed by the large number he has bought in the past and by his **repeated and ever increasing orders.** He never makes a mistake, because he has learned that any milk can stamped with the Milk Can Trade Mark is the best milk can for the money. **Remember** the Buhl is the only can in the world that is made with the BUHL "VICTOR" CAN BREAST and the BUHL "VICTOR" ROUND HANDLE. All dealers sell them. Ask for the **Buhl.** Look for the Milk Can Trade Mark. No other Can so good.



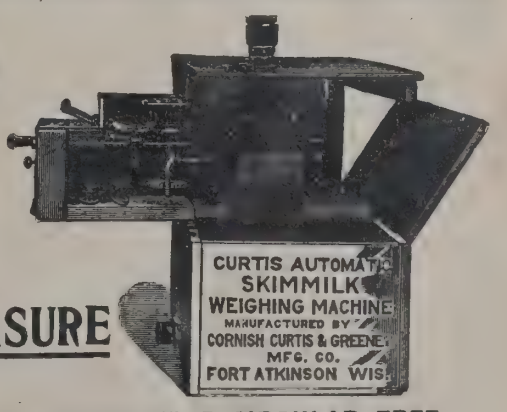
Buhl Stamping Co.,
212 West Larned Street, Detroit, Michigan.

Skim Milk

Often goes to the wrong man for the simple reason that the patrons have no standard of

WEIGHT or MEASURE

and the last man suffers.



☛ **FULL DESCRIPTIVE CIRCULAR FREE.**

Cornish, Curtis & Greene Mfg. Co.,

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for....
DE LAVAL ALPHA SEPARATORS.

Fort Atkinson, Wis.

Ensilage Blowers and Patents.

ED. HOARD'S DAIRYMAN:—Can you tell me through columns of DAIRYMAN, whether I can rig an ordinary fan and pipe to my ensilage cutter for filling silo without buying one of the ready made machines, and not infringe on any one's patent? In other words, is the process itself, of filling by the "blow method" patented? I have a regular chain and slat carrier to my cutter and have used it to good advantage, but now in changing my power to stationary engine, I find I must have cutter stand directly at side of silo, and I want to try the tube and fan arrangement.

And, by the way, what about our friend, J. D.P.in Aug.7 number of DAIRYMAN, pages 596 and 597? Is he all there, as they say? where he tells how those cows of his neighbors were starved down to 4 cents per day; that almost hit me, and I am resolved to take the hint and feed more grain and keep the rations better balanced. I weigh my milk and use the Babcock occasionally. Hope for separator soon. J. B.

Windham Co., Conn.

We cannot say whether J. B. can "rig an ordinary fan and pipe to his ensilage cutter" so as to make it work successfully, but nothing is more certain than that a "principle" cannot be patented. Only new devices, or new combinations of old devices for accomplishing results are patentable. Therefore, the "blow method" as such is not patented.

J. D. P seems to have been "all there" and all right, so far, at least, as J. B. is concerned, and there are others who might profitably take the hint which is but thinly veiled in the communication referred to.

Cause of Spoilt Silage.

ED. HOARD'S DAIRYMAN:—In reply to D. G. S., page 576, HOARD'S DAIRYMAN, regarding his silo, would like to state in addition to reply by the editor, that those corners are probably a fatal mistake unless those 1 foot long boards are doubled and felted between till they are perfectly air tight. Again, I suspect outside water has gotten into the bottom of pit. A silo must be gas tight as well as air tight, so that the carbonic acid gas will not be allowed to escape at bottom.

My silo is 10×20ft.×25ft. deep. It is double boarded and felted between above foundation, but inside, matched boards are vertical and lap down over wall, both sills and boards imbedded in cement. I had trouble with the corners above wall and simply made a trough of six-inch boards, carefully joined and securely nailed in corners, which is entirely successful. I cover my ensilage (which is thoroughly matured glazed corn), with tar paper and barn boards, and weight with green fence posts or any other convenient weight of about two tons. The ensilage comes out good to the felt excepting one cart load from edges and corners. E. B.

Colora, Md.

CONCERNING OUR ADVERTISERS.

There is ad. in this issue of the Cuttaway Harrow Co. implements. This firm manufacture a line of implements that every reader of HOARD'S DAIRYMAN should be interested in. Write them for circulars.

One of the best mail boxes made is the Signal Box made by the Signal Mail Box Co., Joliet. Ill. They are making a proposition now that will be interesting to any one wanting a good mail box. Find their ad. in this issue and write them.

DAIRY MARKETS.

ELGIN, Ill., Aug. 17—Butter—Butter prices on the board of trade this afternoon were unchanged from last week. The official price was fixed at 19c a pound. The week's sales in the Elgin district were 730,138 pounds.

CHICAGO, Ill., Aug. 17—Butter—19c; firm.

Eggs—Extras, 20c: prime firsts, 18c.

Cattle—Choice to fancy beeves, 1,200 to 1,500 lbs., 5.30@5.60; good to choice steers, 5.10@5.25, fair to good export and shipping steers, 4.60@5.00; medium beef steers, 4.30@4.50; plain beef steers 4.00@4.25; common to rough, 1,000 to 1,200 lbs. 3.60@3.90; good to choice, fat heifers, 4.00@4 80; good to choice feeders, 3.75@4.40; poor to plain stockers and feeders, 2.40@3.50; fair to good cows and heifers, 3.20@4.35; good cutting to fair beef cows, 2.80@3.16; common to good canning cows, 1.50@2.20; bulls, poor to choice, 2.40@4.25; veal calves, good to fancy, 6.25@7.00; calves, common to fair, 3.00@5.75: corn fed western steers, 4.00@5.35; Texas bulls and grass steers, 2.75@3.85; Texas steers, fair to choice, 3.75@4.75; western range steers, 3.25@4.60; western range cows and bulls. 2.00@3.60.

Hogs—Good to prime shipping 5.40@5.55; good to choice heavy packing, 5.10@5.35; rough and common heavy mixed, 5.00@5.25; assorted light, 150 to 195 lbs., 5.60@5.80; selected butcher weights, 5.45@5.70; thin to choice, 50 to 150 lb. pigs 4.75@5.65; stags and rough lots, 2.75@4.65.

MILWAUKEE, Wis., Aug 17.—Butter—Creamery—extras, 19c; firsts, 16@17c; seconds, 14@15c; whey, 10c; Dairy, fancy, 16c; lines, fresh, 13@14c; packing, 12@12½c; grease, 5@6c.

Cheese—American, full cream—New Twins, 10½@11c; Young Americas, 11½@12c: Daisies, 11 @11½c; Longhorns, 11½@12c; low grades, 9@10c; Brick, new, fancy, 9@9½c; low grades, 7@8c; Limburger—Fancy, 9@9½c; low grades, 7 @8c; new, fancy, 9@10c; off goods, 7@8c; Swiss, old, drum, choice, 15½@16c; drum, No. 2, 13@14c; Block, choice, 13@13½c; block, No. 2, 11@12c.

Eggs—Strictly fresh laid, at mark, cases returned, 14@14½c; do, loss off, 15½c; dirties and seconds. 12c., checks, 10c.

SHEBOYGAN, Wis., Aug. 12—Cheese—On the Call Board today 1,364 boxes of cheese were offered and sold, as follows: 408 Daisies, 10⅞c; 45 cases Young Americas, at 11½c; 318 at 11c; 63 Longhorns at 11¼c, 533 at 11½c. Market steady.

SHEBOYGAN FALLS, Wis., Aug. 12—Cheese—21 factories offered 1,96' boxes of cheese on the Call Board today. Bids were passed on 175 boxes and the balance sold as follows: 507 cases Young Americas at 11½c, 170 Daisies at 10⅞c; 120 at 10¾c; 27 cases Longhorns at 11¼c, 915 at 11¼c; '38 at 11½c. Market steady.

PLYMOUTH Wis., Aug 11—Cheese—twenty-three factories offered 2,999 boxes and all sold as follows: 558 cases Longhorns at 11¼c; 137 at 11⅜c; 1,507 Daisies at 10⅞c; 20 at 10¾c; 111 Twins at 10¾c; 63 at 10½c. 476 Young Americas at 11c; 27 at 10⅜c.

SEYMOUR, Wis., Aug. 11 —Cheese—The offerings were 739 boxes of cheese. 111 Twins sold at 10⅝c; 628 double Daisies at 10⅜c; and 110 withdrawn.

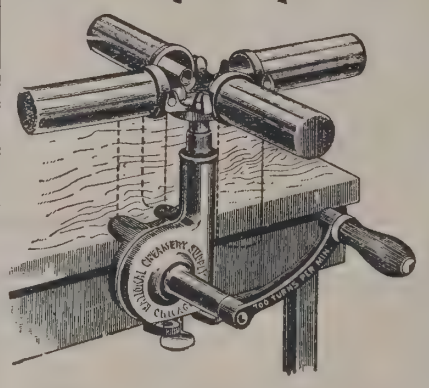
APPLETON, Wis., Aug. 6 —Cheese—Eighteen factories offered 1017 boxes; all sold as follows: 70 Cheddars at 10⅜c, 39 Twins at 10¾c, 699 at 10⅝c; and 209 at 10c.

FOND DU LAC, Wis., Aug. 17—Sales of cheese on the dairy board today were 277 Twins at 9¾c, and 365 Daisies at 10¾c. Market active.

MUSCODA, Wis., Aug. 8 —Cheese—Offerings were 450 boxes of Twins and all sold at 10½c.

MANITOWOC, Wis, Aug. 12 — Cheese — The sales reported were: 1,650 Daisies at 10⅝c; 900 cases Young Americas at 11c, and 165 Twins at 10c.

NATIONAL
Babcock Milk Tester



Dotted Lines show position of bottle holders when not in motion.

Has enclosed cut gears.
Swinging bottle-holders.
Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

DOES YOUR DAIRY PAY?

It costs no more to feed a profitable than an unprofitable cow.

NET PRICES:

No. 1,—2 bottle, complete for testing milk.... each $4 00
No. 2,—4 bottle, complete for testing milk.... each 5 00
No. 3,—2 bottle, complete for testing cream and milk, each..... 4 50
No. 4,—4 bottle, complete for testing cream and milk, each..... 5 50

Prices include full directions for making test, bottle of acid, test bottle brush, acid measure, dipette and test bottles.

We are the great Dairy Supply House of the West. We carry an immense stock of all kinds of Butter and Cheese Making Apparatus and Supplies. Write for catalogues and circulars.

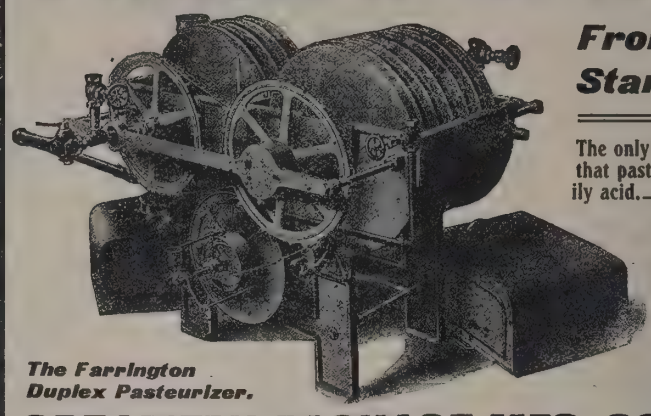
National Creamery Supply Co.,
450-458 Illinois St.,
CHICAGO U. S. A

GET ONE FREE



THE SIGNAL MAIL BOX
(Bates-Hawley Patent) is the original Rural Service Box. Especially commended by P. M. Gen'l. Full govt. size. Only complete box which meets every need Write to-day for handsome booklet and our Free Offer
SIGNAL MAIL BOX CO., 867 Benton St.
JOLIET, ILL.

A SUCCESSFUL PASTEURIZER



From Every Standpoint.

The only Pasteurizer made that pasteurizes milk heavily acid.

It makes good Butter—that makes good business.

Your Butter will score 8 points higher.

The Farrington Duplex Pasteurizer.

Write to the
CREAMERY PACKAGE MFG. COMPANY
BRANCH HOUSES: Kansas City, Mo. Omaha, Neb. Minneapolis, Minn. St. Louis, Mo Waterloo, Ia.
Canadian Branch: Cowansville, Quebec.
149 to 153 East Superior Street,
Chicago, Ill., U. S. A.

STAR SANITARY DAIRY PAIL
and STAR TRAP CLOTH STRAINER



These articles are satisfactory both from a practical and bacteriological standpoint. Pails are seamless. Strainers do good work and do not choke up. First class in every particular.
Write Us for Information.



STAR MILK COOLER CO., Haddonfield, N. J.

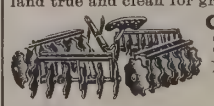
GRISWOLD WIRE FENCE
Square Mesh, Dimond Mesh Fence, Plain, Galvanized, Barbed, or Telephone Wire. Write for illustrated catalog and price list.
DILLON-GRISWOLD WIRE CO., Sterling, Ill.

We Will Have a Man
FROST BEST CHEAPEST
from the office at the State Fair, to meet agents and friends, as well as show others the superior points of Frost Fence, Steel Gates, Etc. Cut this "ad" out and take it with you and get a souvenir.
The Frost Wire Fence Co., Cleveland, Ohio

Clark's Tools for Large Hay Crops



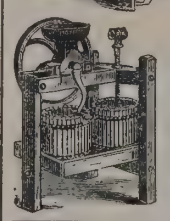
CLARK'S REVERSIBLE
Bush Plow and Harrow
Cuts a track 5 ft. wide, 1 ft deep. Death to bushes, witch grass. Kills any bush, grass, rose or plant that grows. Can plow a newly cut forest, stump or bog land, leaves the land true and clean for grain or any crop.



Clark's Dbl. Action Cutaway Harrow
Moves 15000 Tons of Earth a Day.

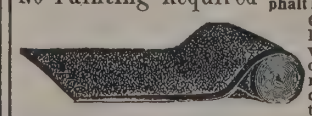


Clark's 8 foot Smoothing Harrow.
Will smooth an acre as true as a mill pond in twenty minutes.

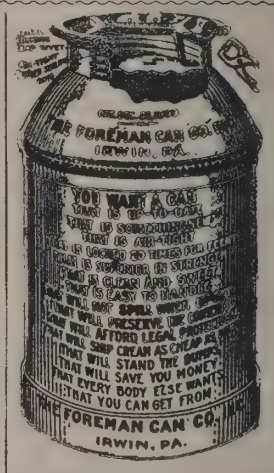


Clark's Cider Mills,
For horse, hand or steam power. From five gallons to eight barrels. Perfect Grinders. Will grind seventy-five bushels per hour easy.
Send for Circulars.
The Cutaway Harrow Co.
Higganum, Conn., U. S. A.

No Painting Required on Arrow Brand Asphalt Ready Roofing.



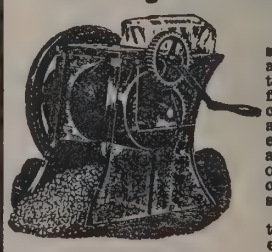
Can be easily laid as the work only consists of nailing and cementing the joints.
Samples. prices and booklet giving instructions for laying sent free, postpaid
ASPHALT READY ROOFING CO., 82 Pine St., New York.



We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity—1000 cans daily, which should enable us to fill all orders promptly.

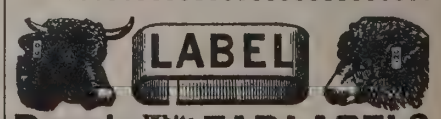
Every can sold on a guarantee.
Write for Circular H.

Creasey Ice Breakers



Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right.
Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.
J. S. L. WHARTON, Mfr.,
17th Clearfield Sts. Philadelphia, Pa.

Cream SEPARATORS.
All about them and other things for the dairy and creamery.
A. H. REID, Philadelphia.



Dana's White Metallic EAR LABELS
stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Samples free. Agents Wanted.
C. H. DANA, 55 Main St., West Lebanon, N. H.

BRILLION, Wis. Aug., 6.--Sales were 222 Twins at 10½c. 373 at 10c; 175 Daisies, at 10⅞c: 734 at 10¾c, 182 cases Young Americas, at 11c, 71 Cheddars at 10½c; and 167 at 10c.

Latest quotations for fancy creamery:—Balti, more, 20@20½c: St. Louis, 19@19½c; Cincinnati 21c; Buffalo, 19½@20c; St. Paul, 18½c; Minneapolis, 18½c.

PHILADELPHIA, Pa., Aug. 17—Butter—Market steady. Solids, 19½c; nearby prints, 21c; western 20c.

WASHINGTON, D. C., Aug. 17—Butter—Market steady. Fancy creemery, 20c; choice firsts, 19c; renovated, 17½c.

NEW ORLEANS, La., Aug. 17—Cheese—Market firm. Extras, 20½c; ladles, 14½@15c.

TOPEKA, Kan., Aug. 14-Butter -Creamery butter, 20@21c; dairy, 17@18c.
Cheese—Longhorns, 11c; Daisies 11c; Twins, 10¾c. Prints, 11½c.

BOSTON, Mass. Aug. 17-Butter-Creamery western extra, 20@20½c; western firsts, 18½c; dairy, 15@18c½; imitation creamery, 15@15½c; ladle, 13½ @15c; box and print, 15@21c
Cheese—Choice, 9½@10½c; Wisconsin Twins, 9½@10½c; Ohio flat, 9c.
Eggs—Nearby, 27c; western extras, 20c; poor to fair, 14@15c; Illinois, 16c@17c.

LIVERPOOL, Aug. 17 —Butter—Good United States nominal.
Cheese—American finest, white quiet, 48s.; colored 49s. 6d.

CANTON, N. Y., Aug. 15 —Cheese — Offered 2,240 Twin cheese and 1,395 tubs of butter. Cheese sold at 10c; butter at 19¼c.

WATERTOWN, N. Y., Aug. 15—Cheese—Sales 6,500; 9¾@9⅞c for large ; 10@10⅛c for small.

UTICA, N. Y., Aug. 17—Cheese—The cheese market stiffened on New York advices today, large colored selling at 10c; large white, 9¾c, and small colored and white at 10½c.

NEW YORK, Aug 17—Butter—Receipts, 10,079 pkgs.; market steady; state dairy, 14@ 17½; extra creamery, 19c; common to choice, 15@19½c.
Cheese—Receipts, 1,491 pkgs; market steady; state full creamery, fancy, small colored, 10¼c; small white 11¼c; large colored 10c; large white, 9¾c.
Eggs—Receipts, 10,152 pkgs.; market firm; state and Pennsylvania, fancy mixed, 21c; state and Pennsylvania, seconds to firsts, 16@19c; western extras, 19@20c; western, seconds to firsts, 16 @18½c.

NEW YORK MARKET.

NEW YORK, Aug. 15—Butter—Receipts for the week, 55,325 packages.
Exports for the week, 1,675 packages.
Price for finest creamery butter was put up a half cent on Monday and dropped back to the old price, say 19 cents on Friday. Why this change, would be hard to explain.
Market started in with good demand from all quarters and extra fresh creamery was quickly taken at 19¼c, and buyers were looking for more; at the close of the week 19c was the quoted price. while sales of fancy goods were at 19½c, Under grades fresh creamery were in demand at 16 to 18c. New York State Dairy, when fancy and fresh, is salable at 18c, but most of the stock arriving is ordinary and packed in all styles of packages and has sold to packers and bakers at 14 to 16c. There was a trifle more business done in ladles; sales of best current makes reported at 14¾ to 15c, and active at 13 to 13½c. Nothing doing in renovated butter. We quote:

Creamery, extra, 19c: medium, 18@18¾c; poor, 15@17c; Dairy, extra, 18c; medium, 15 @17c; poor, 13@14c.
Cheese—Receipts for the week, 36,167 boxes. Exports, 4,530 boxes
Market is the same as last week, more buyers than sellers and best full cream cheese wanted at our outside quotation. Skims are having better enquiry and prices are firmer. We quote:
Full Cream, small, extra, 10¾c; medium, 9 @10; poor, 7@8c. Full cream, large, extra, 10¼@10¾c; medium, 9@10c; poor, 7@8c.
Eggs—Receipts for the week, 55,451 cases.
Fancy stock is scarce and wanted, and under grades are selling better and stocks are well cleared at the close. We quote:
New York & Penn., finest marks, per dozen. 21@22c; Northern & Western, finest marks, 20c: all Sections, poor to fine, 13@18c.
177 Chambers St. DAVID W. LEWIS & Co.

BALTIMORE MARKET.

BALTIMORE, Md., August 13—Butter—At the time of our last issue, the market though steady in the finer grades, was by no means active, and ruled to a certain extent in the buyer's favor, but towards the close of last week (say Friday and Saturday), although prices were not advanced, there was a much better feeling prevailing, and all attractive stock was in good request. So far this week, with quite a perceptible falling off in the receipts of extras and firsts, there has been considerable trading, and prices on these grades have been advanced from a half to one cent per pound; seconds for the time being seem to be a back number, but as a rule holders are showing no disposition whatever to force sales. Imitations of the kind continue in moderate supply and demand. Ladles—All fresh sweet stock finds ready sale, while defective stock is very dull. Packing stock continues in rather light receipt; there is prompt sale awaiting fresh sweet arrivals. Blocks and Prints—The supply of desirable quality, though moderate, is about equal the requirements The general market at the close presents a firm appearance, and many predict still higher prices on all stock of desirable quality in the near future.
Creamery Separator, extras, 20@20½c; firsts, 18½@ 19½c; seconds, 16@18c. Imitation Creamery, extras, 18c; firsts, 17@17½c; seconds, 15@16c. Creamery blocks (2-lb.) extras, 22c; firsts, 20@21c; seconds, 17@18c. Creamery prints (¼ lb) extras, 23c; firsts, 21@22c; seconds, 17@19c. Md. Va., & Penn. Prints, extras, 20@21c; firsts, 19c; seconds, 16@18c.
Eggs—The receipts of eggs so far this week are very light, and only a very small proportion of the arrivals show strictly choice quality; for this class of stock there is a quick demand at top quotations, while heated and other undesirable stock is moving slowly, and in many instances the loss off is quite heavy; the market rules firm on all attractive offerings at 18½ cents.
Cheese—The receipts are ample; demand moderate; market quiet but steady.
N. Y. State—Cheddars, fine, 10¾@11c; choice, 10½@10½c; fair, 9@9½c, Flats, fine, 10¾@ 11c; choice, 10¼@10½c; fair, 9@9½c; Small, fine, 11@11¼c; choice, 10½@10¾c: fair, 9½@10c; Ohio Flats, fine, 9¾@10c; choice, 9@9¼c; fair, 8¼@8½c; O. Picnic, fine, 10@10¼c; choice, 9½@9¾c; fair, 8½@9c; Swiss Cheese, (domestic) new, fine, 13@13½c; choice, 11@12c; fair, 9@10c.
G. M. LAMB & BROS.
301 Exchange Place.

NEW YORK FERTILIZER MARKET.

Acid phosphate	60	@	67½
Phosphate rock, f. o. b. Char'n	5 00	@	7 00
Tenn	3 00	@	4 00
Bones, rough ₱ ton	17 00	@	18 00
ground	19 00	@	20 00
Bone meal	20 00	@	23 00
Bone black, refuse	18 00	@	19 00
Potash, dbl. m're salt 48@53 per cent	1 12	@	1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons	25 00	@	30 00
sulph of basis, 90@98 per cent	2 11	@	2 18
90@98 per cent less than 25 tons	38 00	@	40 00
Potash muriate ₱ 100 lbs	1 83	@	1 95
less than 25 tons	36 00	@	40 00
Kainit 25% S. of P. ₱ ton	9 30	@	9 50
less than 25 tons	9 50	@	10 50
Sylvinit, 35@37% P. ₱ unit	41	@	46
Nitrate of soda	2 25	@	2 30
Blood, Dried red ₱ unit	2 55	@	2 60
low grade	—	@	—
Concentrated tankage	15 00	@	16 00
Fish guano, dried	25 00	@	25 25
acidulated	23 00	@	23 50

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale at a Bargain—Our E. W. Ross No. 261 Ensilage Cutter, 26-inch knife, automatic feed, capacity limited to the amount you get to the machine. 56 feet angle carrier. This machine is in good state of repair and is a snap for the money. Price, $100. Address A. J. DAUGHERITY, Streator, Ill. 28 2t

Wanted—To purchase second hand combined churn and butter worker. Must be in first-class condition. Send terms to JOHN L. BURCH, Boyds, Md. 28-3

For Sale—480 acres, 200 level, 160 acres Gov't land can be added by using homestead right, making 640 acres in one piece. A well equipped dairy of 30 cows, with gas engine; 40 acres fine grove, plenty water in grove. Good buildings, very rich soil; called the finest outfit in the county. Will give possession any day and give ones own time to pay for last half if ten years; terms at 6 per cent. I mean business. $9600 is the price, you will say its worth $14000. Address F. A. I. R, care of Hoard's Dairyman.

Wanted—A first-class manufacturer of condensed milk. Applicant must give references and wages wanted. Address CALIFORNIA CONDENSED MILK CO., Hanford, Kings county, California, Box 8.

For Sale—A fine St. Lambert Bull Calf, choice breeding. J. G. HALDEMAN ESTATE, Thompsontown, Pa.

For Sale—3 Golden Lad Bull Calves, sired by Golden Lad of St. Ouen, a 50% Golden Lad; dams large milkers and extra butter cows. These calves will be sold at a low price, considering breeding. It costs but little for transportation charges on a four-weeks-old calf and in twelve months you have a thoroughbred ready for business Address THE SEARS AND NICHOL DAIRY CO., Chillicothe, Ohio. 28-4

For Sale—At a bargain adjoining city of Decorah, Iowa, 454 acre dairy farm, stock and machinery complete. Watered by never failing springs. Good farm buildings including two large silos. Established city milk and cream trade for the product of 100 cows. For price address J. C. BEARD, Decorah, Iowa. 28-6

Cash—For your 2d hand carrier for silage cutter, any width, any length Write what you have. G. L. STEWART, Dane, Wis. 28-tf

Milkers Wanted—Wages $20 00 per month and board. Address KEYES FARM AND DAIRY CO., 3685 Olivet St., St. Louis, Mo.

For Sale—One 2,500 lb. De Laval separator, one receiving vat, one heating vat, two 60 gal. weigh cans, one 216 bottle sterilizer, one bottle washer and one rotary pump. DALLASTOWN CRY. CO., Dallastown, Pa.

Wanted—Competent man with wife, and without children preferred, to take dairy business on shares. We furnish hay, pasture, utensils, separator, worker, etc. Will give half produced from cows including calves and hogs. 25 to 30c. year round for butter. W. W. PRIEST, Ferguson, Mad. Co., Mont. 28-3

I offer my U S. Separator No. 2½, used 6 mos., a No. 3 Wizzard churn and worker combined, and a 5 horse engine. Reason for selling is a change in business. All in first-class shape and does good work. Will sell separator or churn without engine. E. E. EASTMAN, Plymouth, Wis. 28-4

Buff Jersey has just issued the third edition of The Dairyman, Stock Breeder and Farmer's Hand Book. This work of 100 pages is full from cover to cover with up-to-date helps for progressive people on the farm and ranch. The chapter on Silos and Ensilage the most complete ever published There are 20 cuts and illustrations used to assist in making the reading matter plain. Buff Jersey is well known to the DAIRYMAN readers as an able instructor in all things agricultural, so his book will be in demand. Sent post paid for 75c' BUFF JERSEY, Monmouth, Ill. 47-tf

Wanted—To rent with privilege of buying, a farm with established retail milk route within short distance of thriving town. JOHN F. FENTON, Fox Chase, Pa. 26-8p

Two choice young Guernsey bulls for sale. MRS. A. W. LEHMANN, Neosha, Dodge Co., Wis. 12-8p

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

Farm Foreman and Manager position is desired by one 39 years of age and 20 years experience with Holsteins and Guernseys. Thoroughly familiar with modern dairying, soiling, breeding, as well as exhibiting and selling pure bred stock. References furnished. Address W. A. R., care Hoard's Dairyman. 25-6

Sale of Guernseys—Send for circular. Excellent bulls and bull calves at low prices. Clover Knoll Herd, M. SAGER, Mgr., Orangeville, Pa. 25-4

For Sale—A second hand, self-feeding, 16 inch Smalley Ensilage Cutter in good order, together with 56 feet of carrier, 18 feet of which was new last year Also a three horse Smalley Tread Power in good condition. The above will be sold cheap to make place for larger machinery. W. D. HOARD, Fort Atkinson, Wis. 20-tf.

We Have Them—You Want them. A few choice pure bred Guernsey bulls and grade heifers. A. H. HINMAN, Allenville, Wis. 26-4

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NEW YORK.

For Sale—Registered Jerseys. Cows deep, rich milkers due in Aug. and Sept. Young bulls, heifers and heifer calves. Prices within reach of any dairyman. 100 head to select from. STOUGHTON & BURNHAM, Montague, Mass. 27-2

Farm for Sale—Owner will sell on favorable terms one of the best 240-acre farms in Minnesota, near a thriving Minnesota town. Good buildings, nice neighborhood, no crop failures. Splendid opening for stockman. Write L. N. MOSS, Decorah, Iowa. 27-4

Ayrshires For Sale—I have for sale two excellently bred registered Ayrshire bulls each one year old, both from the two best cows in my herd. Also a bull calf a month old of equal excellence in breeding. For sale at reasonable prices. ED. FINN, Whitewater, Wis. 27-2

For Sale—45 acre dairy farm at Ft. Atkinson, Wis. Good buildings and other improvements. See or write D. C. CONVERSE. 27-4

For Sale—One 30 inch French burr geared feed mill in best running order; also one Western Mill corn sheller, capacity from 5 to 75 bushels per hour, nearly new. Reason for selling, too large for this place. JOHN ZIEGLEY, Valley, Wis. 26-tf

Wanted—An experienced butter maker to buy one-fourth or one-half interest in creamery and run the same in good location. Address T. G. FISHER, 48 W. 2d St., Fond du Lac, Wis. 26-3

For Sale—Large English Berkshire boars of choicest breeding. JERRY VOSBURG, Neenah, Wis. R. F. D. No. 9. 26-4

Herdsman Wanted on 50 Cow Dairy—Good milker, unmarried, steady and to understand calf and hog feeding. IVAR JOHNSON, Fremont, Neb. 26 3

Herdsman Wanted—Single man not under 30 years of age, with several years experience; one acquainted with rearing and caring for Holsteins. References required. State wages required including reference. Steady place for right party. Address D, care Hoard's Dairyman. 25-tf

Stock and Dairy Farm For Sale—¼ mile from city limits. 171 acres with milk route and telephone connections. Will sell with or without stock and personal property. For full particulars address THEO. GLOECKLER, Portage, Wis. 24-tf

A Registered Guernsey Bull 15 months old for sale. A very fine animal. Inquire of J. S. HUNTER, Pickett, Wis. 12-tf

Fine Dairy Farm for Sale—Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence. cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. T. S. TOMPKINS, Pasadena, Cal. 15-tf

For Sale—Creamery and cheese factory. Also for sale a 5-year-old standard bred stallion and a 6-year old standard bred mare. Would like a partner in the cheese making and butter making business with $1,000 capital. Address S. M H., care Hoard's Dairyman. 28-2

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

For Sale—$40.00 one Mikado separator, 275 lbs. capacity, in good condition. GEO. A. BUCKSTAFF, Oshkosh, Wis. 27-2

Improved Large Yorkshires—If you are interested and want to start right, drop a line to W. H. FISHER, Spahr Bldg, Columbus, O., for a "Tale of the Pig." 27-4

Wanted—Young man of character and ability with one or more years experience in creamery, capable of making gilt edge butter under direction. Opportunity for advancement. Address O. L. Y., care Hoard's Dairyman. 27-2

A First-class Creameryman wants an offer from either co-operative or private creamery in western Pa. or Ohio. 7 yrs. with stock and 7 yrs. at creamery work and butter making. Best of references. WM. H. APPLETON, Plainfield, Ill. 27-3

Very Low Rates to Deadwood and Lead, S. D.—Via the North-Western Line. Excursion tickets will be sold Sept. 2, 3, 4, 5, and 6, with very favorable return limits, on account International Mining Congress Apply to Agents Chicago & North-Western R'y. 27-4

Excursion Tickets to County Fair at Woodstock, Ill.—Via the North-Western Line, will be sold at reduced rates Aug. 24 to 28, inclusive, limited to return until Aug. 29, inclusive. Apply to Agents Chicago & North-Western R'y. 27-3

Devil's Lake, the Famous Summer Resort—Excellent hotels, good boating, fishing and bathing, ample train service and special low summer rates via the Chicago & North-Western R'y to this admirable summer resort. A delightful place to spend your mid-summer vacation. Write for printed matter to W. B. Kniskern, Passenger Traffic Manager, Chicago. For rates tickets, etc., apply to agents Chicago & North Western R'y. 26-3

Excursion Rates to Annual Regatta, Inland Lake Yachting Association and Fiftieth Aniversary of Oshkosh, Wis.—Via the North-Western Line. Excursion tickets will be sold at reduced rates Aug. 24, 25 and 26, limited to return until Aug. 31, inclusive. Apply to Agents Chicago & North-Western R'y.

Modern Woodmen Picnic at Waukesha Beach, Wis.—The North-Western Line will sell excursion tickets at reduced rates Aug. 26 and 27, limited to return until Aug. 28, inclusive. Apply to Agents Chicago & North-Western R'y.

Excursion Rates to County Fair at Evansville, Wis.—Via the North-Western Line. Excursion tickets will be sold at reduced rates Aug. 31 to Sept. 4, inclusive, limited to return until Sept. 5 inclusive. Apply to Agents Chicago & North-Western R'y. 28-2

Excursion Rates to County Fair at Madison, Wis.—Via the North-Western Line. Excursion tickets will be sold at reduced rates Aug. 31 to Sept. 4, limited to return until Sept. 5, inclusive. Apply to Agent Chicago & North-Western R'y. 28 2

Excursion Tickets to County Fair and Reunion of 95th Illinois Infantry at Belvidere, Ill.—Via the North-Western Line, will be sold at reduced rates Aug. 31 to Sept 4, inclusive, limited to return until Sept. 5, inclusive. Apply to agents Chicago & North-Western R'y. 28-2

Note and Comment.

Ventilation—Siloing Millet—The Farmer's Schools—Rain, Heat and Flies—Milk Producers' Organization—Milk Prices—Value of Fodder Corn for Feeding.

ED. HOARD'S DAIRYMAN:—Note is made of what the editor recently said about ventilation in cow stables, and we comment thereon to say, that when the ventilators were put into our stables, a far more uniform and somewhat higher temperature was noticed, and maintained through the winter. It was surprising to note that the temperature in the stable was not influenced to any great extent by outside conditions incident to sudden, and severe falls of temperature. Six degrees was the greatest change registered by the thermometer in the stable, and there was a corresponding uniformity in the yields of milk. The varying yield of milk, in the ordinary stable, is a pretty good barometer of outside conditions, but in the warm, well ventilated stable, with air draft shaft, they part company. The moral is: put in a wooden box air shaft, with a length of not less than 30 ft., extending in any event above the ridge of the barn, with a damper in it, and see the change it will make in a stable.

I am written to about a plan of siloing millet, and what is your opinion about it? We once filled a pit with millet, and the output of the pit was in keeping with the condition of the millet as it went in. That which was wilted, to any extent, spoiled and moulded, about in proportion to its dryness. The millet which was forked into the pits, fresh from the mower, made pretty good silage, some extra fine. That which was fairly ripe, did not keep nearly so well, as that which was just coming into the milk stage of the seeds. I am of the belief that if this millet had been run through an ensilage cutter, and sliced into ½ inch lengths, and wet down as it went into the silo, it would have made good silage, but I am joining this belief with the clover silage experience, that both had better be hayed, making them when pretty green into large cocks of 5 and 6 hundred weight each, and let them cure out for ten days before putting into stack, or mow. Up-to-date corn is the only real, reliable article to bank on for silage.

In a recent issue of the DAIRYMAN, Gov. Hoard remarks, that "the farmer sends his children to the poorest school in the land and has little disposition to make it better than it is." Granted in some sections, and too many of them, but if the Editor will come to the Western Reserve of Ohio we will gladly, in 30 exclusively rural townships, show him as many centralized schools where the farmer boys and girls are getting the best education that can be given to boys and girls, up to the very doors of the college, where these graduates can enter the freshman class and escape the preparatory year by presentation of their centralized school diplomas. True, there is as yet no agricultural course in these centralized schools, but on the farms where the owners have the spirit to abolish the district schools, and in the one school have a modern up-to-date course of study and a pride in that school, one will find a spirit of improvement in agriculture, that counts for a good deal in making for "science" on the farm. Prof. Robertson of Ontario has been over here, and filled his head with measures of useful fact and information from these "Yankee schools" and has returned to adopt the principle in the establishing of thousands of the "consolidated" schools in Canada, and going us one better by making an agricultural course part of the plan of advance study, and we will have great satisfaction in copying from his added plans.

We have demonstrated that the farmer boys and girls *can* have as good an education at home, as the city or village boy, with his *street* experience and knowledge of the world left out; so when Prof. Robertson has gotten his ag'l graft "worked in" and successfully, we will copy his amendment and then see the educated farmer boys and girls stay on the farm. I am hoping that this new plan, of centralizing the rural schools, and getting the best of teachers, giving the best general education possible at the home, will soon become universal, and then what you say "The farmers want the schools poor and cheap" will no longer obtain, and the thing will be reversed "that the farmer will soon pay more to educate his own children, than he does now to educate professionals" and the country school will become the foundation from whence shall spring our immediate, and future, National greatness.

We are having no end of rain and dog day weather that refuses to coincide with Bro. Hicks' almanac, and the haying languishes, and the oat cutting is upon us, and a swarm of horn flies beclouds the sun, so to speak. Pastures are very good, but the silage corn is pretty spotted as to height, but as to weeds, in many fields there seems to be much uniformity. It is pretty hard to tell what prices are for milk. Some factories paid 70 cents for the last ten days of July; some more; and the milk retailers of the city are charging 7 cents a quart for their two cents a quart milk. As between city and country, there seems a growing disposition to organize the producers and "hang together," a little more strenuously. The northeastern corner of the state, where milk goes by the train load to Pittsburg, is well organized, and the producers and dealers are to have a great union meeting in Pittsburg Sept. 1st and agree on something definite, and see if there is not more money in conciliation and mutual co-operation, than in the methods of the past, and "yours truly" is going down to hold the crock of cream, while the sparring goes on.

The trolley roads that enter Cleveland from all directions, and in the past have carried milk into the city at a much less price than the steam roads, have now boosted their price to two cents a gallon, a half cent more than the steamers, and with much loss to themselves, and much gain to the creameries. Of course, this started the cry of famine, and up went the retail price of milk to 8 cents per quart, but not the country prices. There is to be a lot of adjustment to go on this coming fall between farmer and city dealer, and it would not be surprising to see the gap between 2 cents a quart and 7 and 8 cent milk, shortened up from the bottom way. With feeds high, silage corn an uncertain quantity, help scarce and high and a little disposed to be saucy, and Tom L. worrying your uncle Mark a little, the farmers are more disposed than ever to have fair play, and what may happen is a little uncertain as to future milk prices. Some are awaiting with a little impatience to see, or hear, something in regard to our new dairy commissioner who now has been in office some six months, but the enemies of the dairy are so quiet and little disposed to "pester the saints" that in the words of the poet, "Nothing seems doing." It seems almost too good to be true that we have arrived so near the millennium that the dairy needs no official help, no crooked ways to be made straight, no light thrown across one's pathway necessary, and that the duties of the office of commissioner consist only in issuing an official report at the end of the year.

I am always interested in what is going on in Northern Minnesota, and notably the efforts there to make use of the greatest of all plants the "corn-straws." While up there a few weeks ago it seemed as if the farmers were to be defeated, as the crop, owing to lack of rain, looked so very backward, but by a recent western farm paper I note that corn in the north, in feeding value, is not to be measured by its development, but by its age; "that a field of corn 60 days from planting,

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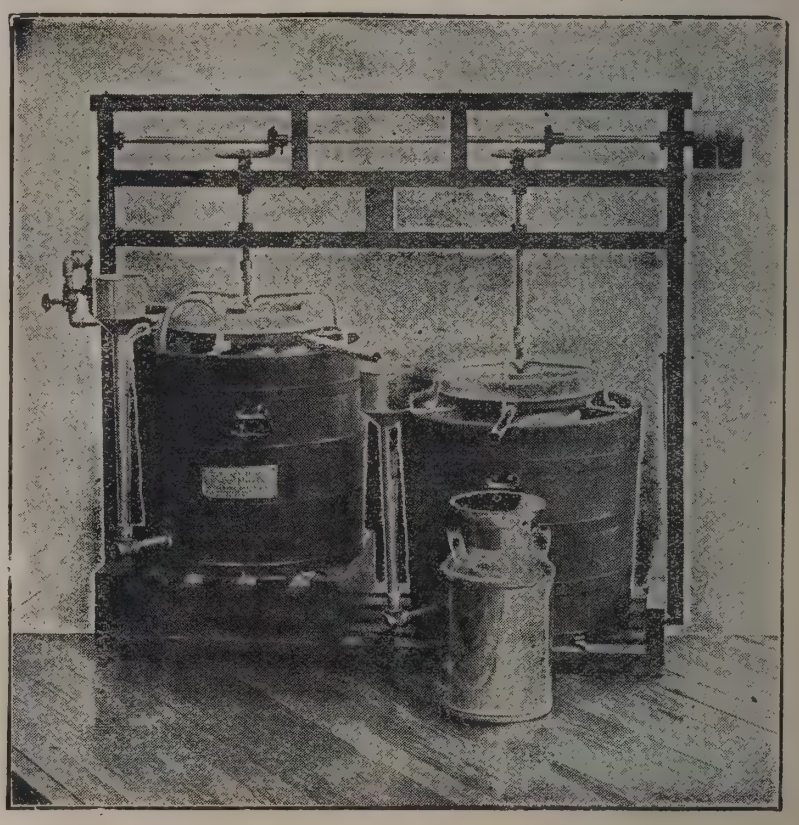
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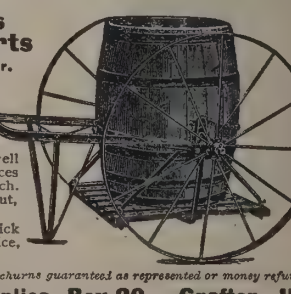
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3 Gal.	to Churn	2 Gal.	$6.50
5 "	" "	3 "	7.00
8 "	" "	4 "	8.00
10 "	" "	5 "	9.50
14 "	" "	8 "	12.00

No. 6 STEEL CART with platform attachment, for carrying milk cans, baskets, bbls., etc. Strong and well built, lasts for years. Prices make it within your reach. Complete as shown in cut, $6.50.

Less platform, made to pick up and haul bbls. only, price, $6.00.



5 per cent discount allowed if you order a churn and cart. Carts and churns guaranteed as represented or money refunded.

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without an ear in sight, contained as much nutriment as did corn in southern latitudes at 90 days and fully eared at that." This seems too good to be true. and will I fear have to be taken for the truth by cattle in the far northwest this coming winter; but will it be as filling? This is a variation of the older assertion, that corn drilled so thick that it fails to ear, will actually carry more food nutrients and more protein, than a field of well nubbined silage corn.

Last year, owing to our cold, wet summer, silage corn failed to ear to any great extent, and the common report was that it was much below the feeding qualities in former years, when there was heavy earing. Its awfully consoling to hear that a small stalk with little ear, has more available nutriment than a big stalk with much leaves and large ear. Is it a fact that nutriment of leaf and stalk is more available and easier of digestion than that of the ears? All these are important matters and of great value if demonstrated, and if what is true of the more northern latitudes is as true of the natural corn belt, if it is, then the thing for we 42°-parallelers to do, is to plant small corn, put it into the silos about the 20th of August, and the rest of the season ride about in our automobiles, visit the resorts,and evenings cut coupons off from our bonds. JOHN GOULD.

Ohio.

Silos and Ensilage.

Water for Dry Silo Corn.

ED. HOARD'S DAIRYMAN:—Some five or six years ago I built a building after a plan I saw in the DAIRYMAN, and divided it in the center, making two silos of about 100 tons capacity each. The plan called for the frame going horizontally around, and spiked together with corners inside cut off, which I did not do, and I wish to say that the silo has never sprung out of shape. It was boarded double inside with tar or wax paper between and clapboarded on outside onto up and down slats, of 3 or 4 inches in width.

Now for the experience; one of my neighbors who had a silo told me my corn was so ripe (it was all glazed and fit to cut for the old way of harvesting and husking) that if I did not put on some water it would heat and dry out, or,as we call it,"fire fang" and be worthless. He did not say how much to put on, and I calculated that the heat would be great, and it would need quite an amount. Therefore I put forty barrels on each silo of 100 tons. I had very fine ensilage, and feeding two bushel baskets to each cow per day, with all the grain that grew on the stalks, they improved in flesh and gave a good supply of milk. The milk was fine and there was no taste of ensilage, either in milk or butter made.

A friend of mine, who put his in the silo in the milk stage of the corn had to stop feeding his ensilage, because of the milk tasting so that his customers would not take it. We have continued to let the corn ripen, and wet it when put into silo, with the exception of one year my son thought he would not wet it, and the consequence was that we lost several tons of ensilage, and it was largely in the square corners, which I could hardly account for, but while inside mending the bottom of the silo last year (by the way 7½ feet of the silo is in the ground, or as low as bottom of cellar where cows are tied up) I had some water left and as I stood there I threw it up against the hemlock siding inside, and was surprised to see how quickly it dried off, and then it came to me that the dry siding drawing so much moisture from the ensilage and double the amount in the square corners was the source of the loss of so much ensilage in the square corners being lost as is complained of every year. I concluded to try an experiment on last year's ensilage, when put in, and put on 60 barrels of water to each silo, and put fully one-half of it into the corners and against the siding. The result was all I could ask, not a bushel of spoiled ensilage. Rather than put on less water, I would put a barrel to a ton of ensilage.

I expect to be called a crank and was told I was a fit subject for the insane hospital when I first put forty barrels on to each silo. I hope some one will try it and convince themselves as well as others. If any further evidence is needed it can and will be furnished upon request.

I would suggest to all that have silos to thoroughly saturate them with water or wet the ensilage and let the tramping of the silage go as it will be heavy enough to take care of itself. N. S. W.

Clarendon, Vt.

YOUR CHANCE OF A LIFE-TIME

TO SEE THE WORLD FAMOUS STALLION

Dan Patch 1:59¼ AT Minnesota State Fair

MONDAY, AUGUST 31st, 1903

HE WILL GO THREE HEATS AND IS EXPECTED TO BREAK THE RECORD

THE ONLY APPEARANCE OF DAN PATCH IN THE NORTHWEST

AS HE HAS MANY ENGAGEMENTS IN THE LARGER EASTERN CITIES

Biggest and Best Day of the Fair Two Other Fast Races on Monday, 2:12 Trot and 2:40 Pace

It is a scene of a lifetime to see McHenry, the noted driver, bring Dan Patch down the stretch at such a terrific gait. Dan Patch is undoubtedly the greatest horse that has ever appeared on earth. His intelligence is almost human. Wherever he appears society ladies throng his stall, and he is the great favorite of all the children.

THE FAIR WILL BE ALL READY MONDAY MORNING. EXTREMELY LOW RATES GO IN EFFECT SAT., AUG. 29th

COME MONDAY AND SEE DAN PATCH BEAT THE RECORD



BEST MILK WAGON ON EARTH.

SOLD DIRECT TO CONSUMER ONLY. Highest Grades—Lowest Prices—Guaranteed. Shipped on Approval. Full line Buggies and Harness. Write for Catalogue and Prices.

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Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the market.



20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished.

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The National

LOW DOWN CUT-UNDER

justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

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SAW MILLS, 4 H. P. cuts 2,000 feet per day—All Sizes—Planers. Shingle Mills and Edgers with Patent Variable Friction Feed-Portable Grinding Mills, Water Wheels, Lath Mills, etc. Send for large Catalogue. Freight don't count.

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why land buyers are attracted to Marathon County are: Because of the richness of the soil; abundance of water at little depth; fine grazing making it a very desirable location for cattle raising; excellent railroad facilities and competitive markets for dairy, farm and timber products. Central and Northern Wisconsin will be

THE COMING DAIRY SECTION

and has already made great strides in that direction, many fine herds have been established. If you want to Own Your Own Home now is the time to buy. Our lands are located in the northwestern part of Marathon County in a country well populated, near the prosperous village of Athens. For prices and further particulars address:

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is used to bring water to your house, barn or lawn by the



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My fine country home and dairy farm of 120 acres within 1¼ miles of Waukesha city limits and electric line. This farm is well watered and fenced, and well equipped with buildings painted and in good order; 10 acres wood lot, balance under plow and in high state of fertility. For particulars address

O. P. CLINTON, Waukesha, Wis.

WISCONSIN

Farm Lands

$8 to $12 PER ACRE.

On terms to suit purchaser. We would like to show you the lands and can give you low railroad rates to come and look at them. This is the future dairying country of the Northwest.

Our lands are only 240 miles from Milwaukee with splendid markets on all sides. None of the land lies more than three and a half miles from the railway station. Write and find out about it. Yours very truly,

INTERIOR LAND CO.,

Janesville, Wis.

Buy You a Ticket to CROOKSTON, MINN., and call upon

The Polk County Land & Loan Company

For choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains

360 acre farm, 4½ miles from Crookston, Minn , (a city of 7,000 inhabitants), and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 ft. square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm in under a high state of cultivation, and is well drained by a slight ravine running through the farm, merely sufficient for self drainage. The soil is a rich deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a 320 acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50,

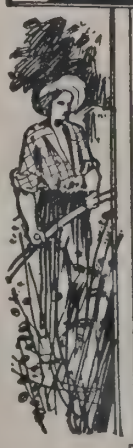
160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired. Price $19.00 per acre.

160 ACRE FARMS IN WESTERN CANADA FREE

Western Canada

Land of the Sunshine, Grain Growing, Mixed Farming.

The Reason Why



more wheat is grown in Western Canada in a few short months, is because vegetation grows in proportion to the sunlight.

Area Under Crop in Western Canada 1902—1,987,330 Acres.

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Abundance of water and fuel. Building material cheap. Good grass for pasture and hay. A fertile soil. A sufficient rainfall and a climate giving an assured and adequate season of growth. All these conditions are found in Western Canada.

160 Acre Homesteads FREE

The only charge being $10 for entry. Send to the following for an Atlas and other literature, showing location of lands in Western Canada, and also for certificate giving you reduced freight and passenger rates, etc. The Superintendent of Immigration, Ottawa, Canada; or to the authorized agent of the Canadian government—

T. O. CURRIE,

12 B. Callahan Bldg., Milwaukee, Wis.

J. M. MacLACHLAN,

307 Third Street, Wausau, Wis.

Mr. Wheaton's Canadian Dairy Notes.

Syndicate Work in Western Ontario.—The Season's Quality of Cheese.—Causes of off Flavor in Cheese.—Advice as to Remedies.

ED. HOARD'S DAIRYMAN:—Mr. Geo. H. Barr, Chief Instructor for the Dairymen's Association of Western Ontario has been appointed Superintendent of the Western Dairy School, Strathroy, Ont., to succeed Arch. Smith, resigned. Mr. Barr is one of the best cheesemakers in Ontario, and has also a reputation as a first-class buttermaker. No better selection for this important position could have been made, and we may look forward to a successful season at Strathroy, this winter. The school will open on December 1st next.

Dairy syndicate work in Western Ontario is progressing favorably. A noticeable improvement has been effected in the appearance of the factory, the makers vying with each other as to who shall have the finest appearing factory. Rivalry in this particular will lead to improvement elsewhere. And it has done so. The cheese made at the syndicate factories has undergone a marked improvement in appearance. Even if nothing more were done the first year, this would pay for the cost of this new movement. No matter how fine the cheese may be in point of quality, they will not command the highest price unless they are uniform in size, and neat, clean and tidy in appearance. Many makers neglect this end of the making business, and are content if the cheese bore well and the flavor is clean. They are surprised afterward if their product does not sell as high or please the buyer as well as the cheese of a neighboring factory. All these little things count in the making of the finest cheese.

Improvement in the appearance of the factory and of the cheese should not stop here. It should lead to improvement in the quality of the product. And so it does. But this is not detected as quickly as improvement on the outside. However, this syndicate work is reaching deeper than the surface and by the end of the season some very favorable reports will be forthcoming as to the general improvement in the quality of the product made in the factories receiving instruction from Supt. Barr and his corps of instructors.

Strange as it may seem, the season so far has not been the best for making the finest quality of cheese. In July many makers had bad flavors to contend with, which made this special instruction all the more necessary. While grass has been plentiful, the weather comparatively cool, and conditions, one would think, generally favorable, makers have not found it smooth sailing especially during the past month.

Often, the bad flavors which develop under seemingly favorable conditions are the most difficult to cope with. They are out of the ordinary and thus baffle the maker because of their newness and the necessity for new methods of procedure in dealing with them. Here is where the competent and observing instructor can do good work and test his ability to give assistance in a time of trouble.

There are four syndicates, with an instructor over each, in Western Ontario, and one cheese instructor and two butter instructors in addition, who visit factories on application. This part of the province is therefore better served this year than it has ever been in the way of instruction and a marked improvement in the general quality of the product may be looked for.

Reports from eastern Ontario syndicates are also satifactory. In the east, as we have noted in previous letters, there are over twenty syndicates, under the superintendancy of Chief Instructor G. G. Publow. All the factories are in touch with his work and improvement all along the line is expected. The work, however, cannot be accurately guaged until the close of the season. Like in the west the patrons are quite in sympathy with the movement and are helping it along wonderfully well.

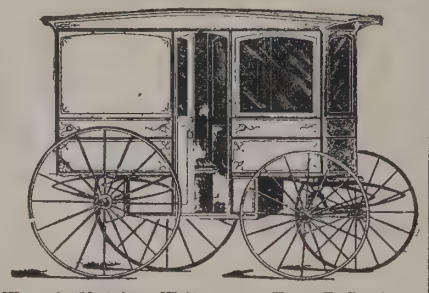
They have bad flavors to contend with in eastern Ontario also, Mr. Publow has found considerable difficulty in handling a bad flavor, which so affects the curd as to prevent its breaking down and leaving small oblong holes. In the milk this is detected as a hot, bitter flavor that is hard to get rid of.

Samples of curd affected by this flavor were sent to Dr. Connell, Bacteriologist, Queen's University, Kingston, for examination. He reports the flavor to be derived from a yeast growth, but is at a loss to decide the source from which it comes. He thinks, however, that like the trouble located by Prof. Harrison of Guelph last year, it may come from trees in the vicinity of the milking yard or near where the milk is kept. As it would be difficult under these conditions to get at the source of this infection, every care should be taken to prevent its propagation in the milking utensils and around the factories. This can be done by thoroughly cleansing and scalding all milk cans and milk pails

PRICE TALKS WITH QUALITY BACK OF IT.

ONLY **$129**

TERMS—⅓ Cash and balance 1, 2, 3, and 4 months notes or 5 per cent discount for cash



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Manure Carrier, Feed Carrier, Grain Elevator, Barn Door Fixtures and Hay Tools. Send for illustrated Catalogue and Price List to.....

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MIXED PAINTS

At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.

YORKSHIRES.

The Large Improved Yorkshire is by all odds the best hog on the market today Prolific, easy keeping, with desired size lacking in Small York. Boars, $20 to $8.

E. E. STEVENS, R. F. D., North Madison, Lake Co., Ohio

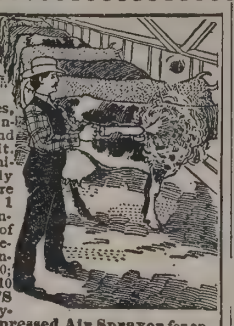
Painkiller CURES CRAMPS & COLIC PERRY DAVIS'

THE BROWN BESSIE HERD

Offers one bull 14 months old, sired by Recorder, 29239, the only living son of Brown Bessie and has 14 tested daughters. Dam, Relay, 70353, test 17 pounds 2 ounces. She a daughter of Diploma with 61 tested daughters. Also Berkshire Pigs of English and American selected stock.

H. C. TAYLOR, Orfordville, Wis.

Rippley's Fly Remover



instantly removes all flies, mosquitos, lice and other insects from cattle, horses and other animals sprayed with it. It is healing to any sore. Animals rest easy and feed quietly all day. Cows give ¼ more milk, which is a big saving. 1 gal. will protect 500 cows. Endorsed by the best class of people. Order at once and secure agency, you can sell hundreds of gallons. 1 gal., $1.10; 2 gal., $2.10; 5 gal., $4.50; 10 gal., $9.00. RIPPLEY'S Special Sprayer for applying same, 65c; 4 gal. Compressed Air Sprayer for applying same on large herds, $5.00; 5 gal., 5.50. Money refunded if not as represented. Our Breeders' Supply catalog mailed free; tells how $8.00 per head can be saved by using Fly Remover; ½ bbl. lots of 30 gal., $25; freight paid on 20 or 30 gal. lots.

Gentlemen:—For three years I have been experimenting with different things to keep flies off my cows, but not until I tried your Fly Remover and Compressed Air Sprayer was I successful. I used this last year and found that it costs less than one cent per week per cow. With your Compressed Air Sprayer it takes but a few minutes to put it on, and the result has been that my cows were free from flies, and during the year gave 6400 pounds of milk each, which made 324 pounds of butter per cow. I can heartily recommend it to all stock owners.—JOHN ARMSTRONG, President State Board of Agriculture, De Smet, S. D., June 4, 1901.

RIPPLEY HARDWARE CO., Box 20, GRAFTON, ILL. Western Office, Watertown, S. D.

"GUM AND OIL OF PINE" for Lice and

FLIES ON CATTLE.

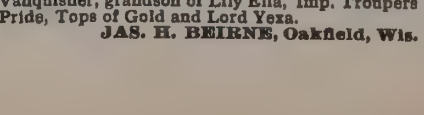
Harmless and very effective. Can be diluted with Kerosene Oil without injury to stock. Applied with cloth or sprayer. Single Gal. 70c; Two Gals. $1.30; Five Gals. $3.00; Thirty Gals. $15.00.

BAY VIEW CREAMERY CO., Traverse City, Mich.

FLIES? ORR'S FLY KILLER. No Other as Good.

1 gal. $1; 5 gal. $4; Sprayers 50c.

ORR & COOPER, Box 829, BEAVER, PA.



KILLS EVERY FLY IT HITS.

It keeps off the rest and is harmless to man and beast. MAKES MILKING IN FLY TIME EASY. Every gallon guaranteed. Send $1.00 for Spray Pump and half gallon can, or $1.00 for full gallon without pump. THE BROWN CHEMICAL CO., Cleveland, Ohio.

NORTH OAKS FARM, ST. PAUL, MINN. (Jas. J. Hill, Proprietor.)

AYRSHIRE BULLS

Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address,

N. E. McKISSICK, Supt., Cardigan, Minn

AYRSHIRE CATTLE of the BEST of BREEDING. Also Chester White Pigs, ready to book for season's trade. Young stock of both sexes. Prices reasonable. Come and see us.

F. TSCHUDY & SONS, Monroe, Wis.

Florham Guernseys.

The herd is made up of representative animals of both home and foreign breeding.

BULL CALVES,

from large producing dams for sale. Apply to J. L. HOPE, Supt., Florham Farms, Madison, N. J.

Old Homestead Guernseys.

Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.

Especially low prices, standing of herd considered. No catalogue. State what you want.

L. V. AXTELL Perry, Lake Co., Ohio.

GUERNSEYS FOR SALE

Bull two years old out of Count Topsy 24.27 lbs. butter 7 days. She won 1st prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality F. W. TRATT, Whitewater, Wis.

GUERNSEYS FOR SALE.

Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.

JAS. H. BEIRNE, Oakfield, Wis.

BULL CALVES.

From cows with a weekly butter test of 19 lbs. 10 oz., a Babcock test of 739 9-10 lbs. in a year; 48 lbs. 6 oz. of milk in one day, 11718 lbs. in a year, are seldom offered. The Sale List referred to on pages 514, 536, 556, and 576 contains such a calf, and another from a daughter of a full sister to the above cow. If needing new blood in your herd write now, asking for Sale List A 19.

WINTERGREEN HILL FARM, SCOTTSVILLE, N. Y.

Rosendale Guernsey Herd

TUBERCULIN TESTED.

Sixty head of choice Guernseys headed by Coralette's Son, (see page 450) whose dam, Coralette made 479.7 lbs. fat in one year at 3½ years old, and was first prize cow at Wisconsin State Fair in 1896.

Some fine young bulls for sale.

GEO. C. HILL & SON, Rosendale, Wis.

Wasteland Guernseys

Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.

M. M. & E. J. HOLLINGSWORTH, Landenberg, Chester Co., Pa.

GUERNSEYS.

HADDON FARMS—Home of the noted GLEN WOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

FOR SALE GOLDEN LAD BLOOD. sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

8 COWS With records of over 14 lbs. butter in 7 days out of 15 in milk. Write us what you want in the line of JERSEYS. Herd is headed by Fontaine's Owl, 60436. Address J. F. EGERTON, Footville, Rock Co., Wis.

FOR SALE. Two A. J. C. C. Bulls ready for service; also some younger ones. Cows and heifers in calf to richly bred bulls. Write for pedigrees and prices. We have a few Berkshire Boar Pigs from unregistered sows left; cheap.

N. N. PALMER & SON, Broadhead, Wis.

BILTMORE JERSEYS

are great and presistant dairy workers and typical Jerseys. We ask comparison with any other herd for

YEARLY MILK & BUTTER YIELDS, SUBSTANCE AND FINISH.

The herd contains more prize winners at the leading exhibitions (including the Pan-American) than any other herd.

The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service as you cannot get it.

Also Headquarters for Large English Berkshires and Standard Poultry.

Apply to

BILTMORE FARMS, BILTMORE, N. C.

HAZEL FERN HERD. A. J. C. C. Jerseys blood of St. Lambert, Melia Ann, Combination, Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

ROBINSWOOD JERSEY DAIRY is offering a few Reg. Jersey Bulls ready for service at from $25 to $50, sired by a grandson of Recorder, the only living son of Brown Bessie, out of good cows. Write, stating your wants, to N. H. ROBINSON, Prop., Centralia, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25. W. J. HUSSEY, Mt. Pleasant, O

JERSEYS FOR SALE FOUR SOLID COLOR BULL CALVES 3, 4, 5, and 7 months old. Sire a Double Grandson of St. Lambert Boy, sire of 54 tested cows.

J. ALDUS HERR, Route 4. Lancaster, Pa.

VALLEY FARM Offers for sale a son of "King of St. Lambert's King" out of a daughter of "Gazilla's Fawn," dropped July 29th., 1900. Also have some young bulls. Write your wants to

FRED STUBLEY, Black Earth, Wis.

PROSPECT HILL JERSEY HERD.

Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

after use and looking well after the sanitary surroundings of the factory.

In some sections of the East this bitter flavor is very widespread and is seriously affecting the quality of the product. It is not so noticeable in new cheese, but when the cheese becomes older this bitter flavor becomes most marked, injuring the sale of the product. Patrons of factories n the infected districts should pay strict attention to the milk. All cans carrying whey home should be well looked after.

Prof. Harrison, in the case of the bitter flavor prevalent in Western Ontario last summer, gave it as his opinion that the infection was carried through the whey tanks; 81 out of 82 samples of milk taken from cans that had been used for carrying whey, showed the infection. In the exception, the farmer had not used his cans for hauling the whey.

A trouble of this kind in any factory is like a contagious disease in the neighborhood and it is every patron's business to see that the disease is stamped out and the infection is not carried from one to another. One patron's neglect may affect the whole neighborhood and ruin the reputation of the factory. Hence the importance of strict adherence to duty in everything pertaining to the care and handling of milk.

A flavor of this kind is something the maker is in no way to blame for. If he exhausts all his ingenuity in a fruitless endeavor to counteract its injurious effect upon the quality of the cheese he should not be held responsible for any loss that may result, as some patrons think he should be.

Instructor Publow advises the makers in the infected factories, if an attempt is made to have them make good the loss from this bad flavored cheese, to go out on strike. Such a procedure would mean a serious loss to some body, but it would be no more than patrons deserve who would try to hold makers responsible for something that they themselves are wholly to blame for.

Dr. Connell advises cooling milk to at least 65° or better to 60°. This is quite in line with what we have been advocating for the past few years. A few years ago it was not thought advisable to cool milk to a low temperature for cheese making. But experience has shown, that milk at a low temperature will withstand the growth of many of these lower forms of life, which cause bad flavors in milk. It will pay every patron to cool his milk to the temperature advised by Dr. Connell. The milk should be aerated where the atmosphere is pure, before being cooled. Don't stir it near the barnyard fence or in close proximity to the hog pen. Do it in a place where the air is pure and do it quickly. Then set it in cold or ice water to cool to the required temperature. If all milk were cooled in this way, the maker would have more control over the product. He could use a "starter" with the right flavor and carry on the process of making in a more satisfactory way.

Some valuable reports have been received by the supt. of the consolidated cool curing station at Woodstock, from cheese recently shipped. Hodgson Bros. cheese exporters, Liverpool, state that the cool cured cheese arrived in Liverpool in much better condition than the ordinary cured cheese. It was also of superior quality and better in every respect. The ordinary cheese was sold at a figure one-sixth less than the cool cured article. Had the market not been very brisk the ordinary cheese would not have sold as well.

The same firm report that there is a prejudice in England against paraffining cheese. which it will take sometime to overcome. They state that it undoubtedly prevents shrinkage and preserves the quality of the cheese.

Some favorable reports are forthcoming this season from England as to the quality of Canadian butter. It is said to be giving good satisfaction. The quantity made so far is away below that of last year and our exports will be much lighter. J. W. WHEATON.

Toronto, Can.

An Unfruitful Bull.—Grass for Nebraska Pastures.

ED. HOARD'S DAIRYMAN:—Which grass will produce the best pasture for dairy cows on extreme sandy soil.

We have a Jersey registered bull, six years old, who is very slow in service and not at all sure. M. O. W.

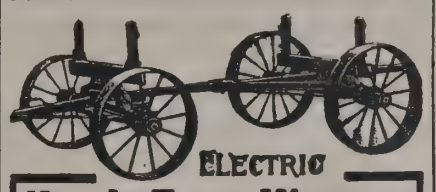
Norfolk, Neb.

The best advice we can give is to get a younger bull as yours is old enough to retire from service, but if you do not care to do this, you may give the bull more physical work, so that his constitution will grow stronger.

(The office editors are not sufficiently acquainted with Nebraska conditions to answer the question as to the best kind of grass for pasture on extreme sandy soils there, and therefore advise that the question be submitted to the Agricultural Experiment Station of that state.)

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Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.

Address F. L. HOUGHTON, Putney, Vt., for information relating to Registration of Pedigrees.

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WM. EVERSON & SONS, Lake Mills, Wis.

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To reduce herd to capacity of pasture, will sell a limited number of A No. 1 young cows of high breeding and individually right, large producers, at $150 each; also 15 bull calves at bargain prices.

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Do you want to increase the per cent. of butter fat in your dairy? The quickest, surest and least expensive way is to head your herd with a bull from a high testing dam.

Mercedes Julip's Pietertje Paul No. 29830 is a son of Mercedes Julip Pietertje No. 39480 her 1901 world's seven day butter record of 29 lbs. 7.5 ozs. butter made from 540.8 lbs. of milk with an average test of 4.025 per cent butter fat has never been equaled by any cow living or dead. She is the highest testing champion butter cow of the world. Mercedes Julip's Pietertje Paul is king of Sires. Females bred to him for sale. His bull calves fro n fall increase can be ordered now.

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HOLSTEIN ADVERTISEMENTS

Are numerous, as you have noticed by the many that appear on this page; but members of our herd and cows sold from here or sired by bulls we bred, won over 47½ per cent of the money offered in prizes by the H. F. Association for the largest official records of the year that just closed. Such a statement can be made of

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And our prices are no higher than others are asking. THE STEVENS HERD, Henry Stevens & Son. Lacona, N. Y.

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Bulls in service, Prince Inka Pietertje De Kol 2d, A. R. O., 144, sire of 10 A. R. O. cows, and Daisy Van Beer's Pauline De Kol. 27610, whose dam has official record of over 22 lbs. in 7 days. Special prices on young bulls from A. R. O. cows. Also Yorkshire pigs of most approved breeding now fit to ship.

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FOR SALE. H.-F. Bulls, ready for service, from A. R. O. Cows and sired by Sir Jonanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs C. A. SCHROEDER, West Bend, Wis

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GEO. WENHAM, Fort Atkinson, Wis.

Observations Among Swedish Creameries.

Paper read at the Wisconsin Buttermakers' Convention, Waukesha, by R. Elliot.

I am somewhat afraid that a paper on this subject will not be of a great interest to Wisconsin Creamerymen, as advanced and modern creamery methods in countries in which the butter making industry has become one of importance, must necessarily be more or less similar. Before I proceed to point out some differences between American and Swedish methods, I should like to give you a few data regarding the history of the creamery industry in Sweden.

In the beginning of last century milking cows was considered a necessary evil rather than a source of profit. One of the first books dealing exclusively with the manufacture of butter was published in the year 1802, by a Dr. J. Anderson. He advocated a shallow pan system and a temperature of 50 to 56° F. for the creaming of milk. The cream was not to be removed before the milk was sour and partly coagulated. It is curious to note, that even a hundred years ago a good many things were known regarding the properties of milk. He points out the thinness of the foremilk and the richness of the strippings and also that the milk loses a great deal of its creaming quality if it is not set immediately after it is drawn from the cow. He also mentions that when milk is mixed with water, before it is set, it will cream more readily, but the quality of the cream will be impaired. He was of the opinion that butter could not be obtained unless the cream were sour. He says: "If it is attempted to churn cream before it is sour, churning must be continued until the proper degree of ripeness or sourness is obtained or the butter will not come. The dairyman should therefore keep the cream until it is quite thick and sour and it may be kept for several weeks without injuring the quality of the butter."

He recommends washing the butter, but in other respects his method is extremely crude.

About the year 1840 the Holstein method was introduced. It was practically the shallow setting method, but attempts were made to keep the milk sweet while creaming and it was set in underground cellars, well ventilated and built for that purpose.

About 1846 it was found that good butter could be made from sweet cream.

The shallow pan system with various modifications was used up to between 1860 and 1870 when a method, claimed to be invented by a Mr. Swartz, about the year 1864, gradually began to displace the previous methods, namely the ice system. About this time the first large creameries appeared, and from 1870 up to the time when the continuous separator was invented, the deep setting, or, as it was called, the ice system, was used almost exclusively. In 1887 Dr. De Laval, of Stockholm, solved the problem of a continual separation of cream and from that time the creamery industry has grown by leaps and bounds, greatly aided by liberal government appropriations for instruction, as well as by a great activity on the part of the different experiment stations in Denmark and Sweden.

Creameries in a modern sense, did not exist in the country until about 1870. Between 1850 and 1860 attempts had been made to establish so-called village or district creameries. They were a kind of proprietary creameries, but as the ice and deep setting systems were not known then, the product was of a very inferior quality, and these creameries were often shut down for want of support, as the farmers could do about as well with the cream by handling it at home.

Therefore these creameries disappeared, and after the introduction of the cold setting system, creameries operated by companies or private owners came into existence. Co-operative creameries were started between 1885 and 1890 and have increased in number every year since then, while the number of proprietary creameries is decreasing year by year.

With regard to the character of the creamery buildings in Sweden, I may say that they are without exception built of stone or brick. They would never think of erecting a frame building with wooden floors for a creamery over there. The buildings are stone and brick throughout, the outside walls often being very thick. The partitions between the different rooms are also of brick and stone. Cement floors are seldom seen; flat, smooth, square, or rectangular, stone slabs with cemented joints being generally used.

The engine and boiler room is of course separated from the making rooms. There is generally a tendency to divide the building into several separate rooms for the different processes and stages of manufacture. Thus, you will generally find a separator and intake room, also separate rooms for churning, ripening cream, working butter, etc.

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The separating temperature used to range between 84 and 100, F. and the De Laval people used to recommend this temperature as giving the best results with their machine. Later we have learned, however, that a more effective separation may be obtained at a somewhat higher temperature. The skim milk from the separator flows into a tank, from where it is pumped into the cheese vats in another part of the building to be made up into skim milk cheese, or, if intended to be used as food, it is pumped into a pasteurizing machine, pasteurized and quickly cooled down. The pasteurizing apparatus for both cream and skim milk are of the continuous type. The cream is supposed to be retained in the pasteurizer for 20 minutes. The capacity of the pasteurizer is, of course, adjusted to the quantity of the cream handled at the creamery, so that the cream is pasteurized, cooled down and ready to be warmed up to ripening temperature shortly after separating is over.

Practically, all high grade butter intended for the British markets is made from pasteurized cream. I do not think that you will find a single creameryman there who does not believe in pasteurizing. Although not enforced by law in Sweden, as it is in Denmark, it is nevertheless general as they have found out that it pays. The pasteurizing temperature is generally in the neighborhood of 185° F., which would seem to us here to be unnecessarily high. To enable them to use such a high temperature, they cool the cream rapidly to a very low temperature, preferably below 40° F. I have sometimes found butter over there to have a cooked flavor, caused by a high pasteurizing temperature, especially when the cream was not cooled down rapidly to a low temperature. A slightly cooked flavor, however, is not considered to be

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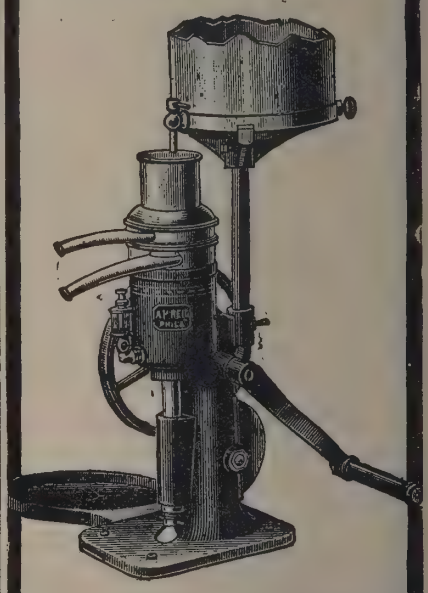
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Chain or Pin Fastened.

Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.

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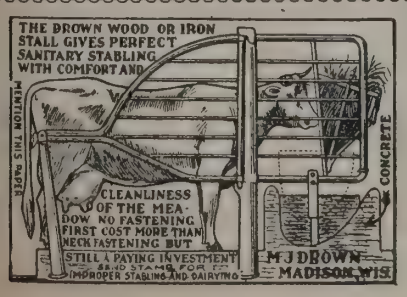


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O. H. ROBERTSON, Forestville, Conn.



a very serious fault and will often disappear after a few days. It is claimed that a high pasteurizing temperature and a rapid and thorough cooling will more effectively remove objectionable flavors from the cream, especially feed taints.

When the cream is all pasteurized and in the cream vat it has generally a temperature of 45° F. and must therefore be warmed up somewhat before culture is added. The Swedish method of ripening cream differs considerably from the American method. They believe in a low ripening temperature, a small per cent of starter and give the cream 18 to 20 hours to ripen. I do not know that this method is to be preferred to the one practiced here, viz., a high temperature, 10% to 20% of starter and 4 to 5 hours for ripening. There has been considerable controversy regarding the two methods in Sweden and personally I think that the American method is a handier one. It is claimed, however, that by ripening at a low temperature a better body in the butter is obtained, but probably there is not much in it as just about as good butter is made here by the American method.

The churn used in Swedish creameries is the Holstein churn, which would, no doubt, seem antiquated to an American. It is stationary, barrel shaped, somewhat wider at the top than at the bottom and has an upright, revolving dasher. When churned, the butter is taken out with sieves and washed in a barrel or vat containing pure cold water. It is then put into a trough and allowed to drain. The combined churn is beginning to come in now, however, and will no doubt in time displace the Holstein churn in most of the large creameries.

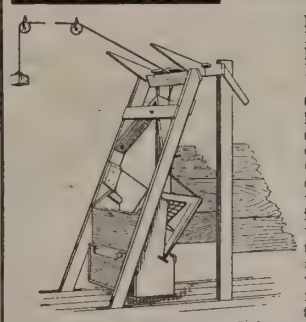
A worker similar to the Mason is used and the butter is generally salted on the worker. When it is partly worked it is taken out and placed in ice boxes and left for about two hours. It is then finished on the worker and packed. Swedish and Danish butter is packed in casks made of beech holding about 112 lbs. each.

The butter is never stored or held at the creamery, but is shipped to the buyer at least once a week so that it reaches the British market when it is about 10 days old. An ordinary ice cooled room will, therefore, give all the refrigeration that is needed because the summers are not as hot as they are here, and owing to the substantial character of the buildings and the material employed, the rooms never get very warm. The windows are whitewashed in the summer and this helps to keep the rooms cool.

There is considerably more help employed in a creamery over there than here and consequently everybody has ample time to do his work well. Except

(Continued on next page.)

JUST OUT! UNDERHILL SELF ADJUSTING STALL



No Gutters
No Platforms
No fastenings
No Stables to clean

Cease trying to keep your cows clean. **You can't do it.** Give them a chance and **they will do it themselves.** This is the only way and the easy way. Write for circular telling what the cow has discovered to us. It is a great revelation.

Wm. M. UNDERHILL, Oconto, Wis.

A Steel Stanchion beats anything you ever saw for tying cattle. Lighter, stronger, neater. Swings on chains Not in the way when lying down. Agents wanted. Write for special terms and prices. **Jas. Boyle, Mfr., Salem, O.**



The BEST Cattle Fastening.

SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated circular free. GLENORA MFG. CO., Glenora, Yates county, N. Y.

Infringements will be prosecuted.



Prescott's Swinging Swivel Stanchion

Keeps Cows Clean.

Swings forward while getting up or lying down. Looks back while standing Full particulars free.

E. PRESCOTT, Beverly St., Boston, Mass



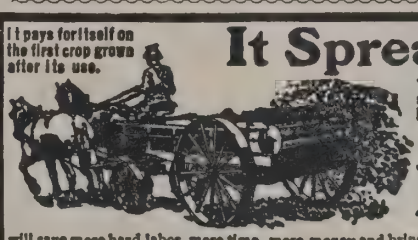
Watering the Herds

WITH the fencing of the ranges has come the need for an artificial water supply upon the great stock farms of the West. That cattle may thrive and fatten for the market, it is absolutely essential that this supply be both *constant* and *abundant*. The picture shows a typical scene upon many of the largest ranches, where the **HOT AIR PUMP** is delivering its supply into the storage tank, whence it is drawn off daily as required, in any volume up to 100,000 gallons. No driving of the herds to some distant river is required, thus much expense is saved and the cattle drink quietly, as nature dictates, at an *ever ready* and *abundant* supply. Descriptive Catalogue B5 sent free on application.

Rider-Ericsson Engine Co.

Remember, the Hot Air Pump is Automatic, requires no skilled attention, and is the cheapest form of constant water supply now known.

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40 Dearborn St., Chicago.
40 N. 7th St., Philadelphia.
239 Franklin St., Boston.
692 Craig St., Montreal, P. Q.
22 Pitt St., Sydney, N. S. W.
Teniente-Rey 71, Havana, Cuba.



It pays for itself on the first crop grown after its use.

It Spreads Manure,

wet, dry, lumpy, caked, strawy, full of corn stalks, etc., better than it can possibly be done by hand. Spreads lime, ashes, salt, compost, etc.

THE IMPROVED

Kemp Manure Spreader

will save more hard labor, more time, more money and bring about better results than any other machine that can be employed on the farm. It trebles the value of even a small amount of manure. It is the only thing that can successfully top dress wheat in the spring, meadow lands, pastures, etc. Can be hauled onto any land easily and without injury to land, as wheels have broad tires. Can be turned on the ground it stands on, as front wheels turn entirely under. It is strong and durably made of good material and with ordinary care will last indefinitely. Greatly improved for 1903. Send for new illustrated catalogue and "How to Grow Big Crops"—Free. Remember that the only original and genuine Kemp Manure Spreader is made by us and the patents thereon have been fully sustained by a recent decision of the U. S. Circuit Court.

KEMP & BURPEE MANUFACTURING CO., BOX 46, SYRACUSE, N. Y.

PURE OIL MEAL. USE FOR MILCH COWS AND FATTENING STOCK.

Superior to corn, oats and hay. Ton lots $23.00; half ton $12.00; 500 pounds $6.50; 100 pounds $1.50. Put up in 100-lb. sacks f. o. b. Minneapolis. Cash with order.

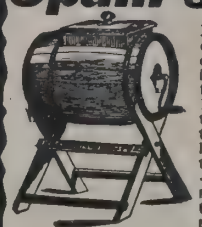
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NORTHERN LINSEED OIL CO.,

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Hand made of thoroughly seasoned white cedar. Has large opening. Never gets water soaked or sours. Easy to clean. Simple to operate. A 30 years' test has proved it the best. Everything for the dairy or creamery—automatic milk scales, glass jars, butter workers, printers, shipping boxes, etc. Send for illustrated catalog of "Bestov" dairy supplies.

DAIRYMEN'S SUPPLY CO., Dept. Philadelphia, Pa.

TRADE MARK BESTOV



We want every dealer in and user of

MILK BOTTLE CAPS

to receive our catalogue. We can supply your wants at prices that are right.

Write us.

BAVIER NOVELTY CO., WINDSOR, CONN.

in the smallest creameries there is an engineer to attend to engine and boiler. He generally cleans and puts the separators together also, but does not run them. As a rule the manager does not do much hard work round a creamery. He sees that everybody is doing his share of the work properly, attends to the ripening of the cream, book keeping, etc.

The farmers generally take pretty good care of the milk, especially in dairy sections, and the milk is, in most cases, delivered every day, Sundays included. It is to be hoped that this custom will be abolished when the farmers have learned the simple art of caring for their milk. The milk cans hold about 12 gallons (50 litres) and in a good many creameries they are washed with soda solution every time, rinsed and steamed before they are returned. The milk is generally drawn to the creameries in loads.

In some co-operative creameries the skim milk is returned to the patrons, but in most cases it is made up into skim milk cheese, for which there is a great demand.

With regard to the basis of paying for the milk, I reget to have to say that the old pooling system in many places still prevails, at least it did four years ago. The DeLaval Lactocrite was found to be too complicated and difficult to manipulate. The butyrometer, which was invented over there somewhat later, is simpler and is used in a few places. A few creameries use the Gerber test. Where the pooling system is practiced in a co-operative creamery, the profits are divided according to the quantity of milk each shareholder sends to the creamery.

The creameries vary considerably in size. There is quite a number of small creameries, although most of these are very well equipped. There is, however, a strong tendency towards centralization and combination of smaller plants into large establishments. This has long been advocated by dairy authorities, and the number of large central creameries is increasing.

When God divided the waters from the dry land he appears to have forgotten Sweden. At least that is the explanation, given by some, of the fact that about one-tenth of the entire area of Sweden is water. All over the country are innumerable rivers and creeks and thousands of lakes, large and small, ranging in area from 2,400 square miles to half an acre. In such a well watered country it is evident that little difficulty is experienced in finding suitable locations for creameries with regard to water supply and drainage facilities.

There are a number of well equipped dairy schools in the country maintained by the government. They have a 12 months' course and a certain standard of education is required for entrance as well as one year's practical experience in creamery work.

Home dairying or butter making on the farm is not taught in any of the dairy schools, nor is it at all encouraged. It is generally recognized that the factory system is the only right one and wherever there is a creamery the farmers support it. Farm butter making in creamery sections is condemned, and justly so, as it is estimated that the country would lose between 5 and 10 cents for every pound of butter made on the farm.

The hand separator has not gained much ground in Sweden, and there is no likelihood of its doing so for a long time to come, as the present system is giving good satisfaction.

The country is divided into 25 dairy districts and the government maintains a competent instructor and inspector in each. It is his duty to go wherever his services are demanded within his district, at a very small cost to the party who needs him. The DeLaval separator company also maintains a dairy expert who is constantly on the road and ready to give his assistance to any buttermaker in trouble, and the importance of instruction by competent men in the different branches of dairying is well recognized as well as admirably cared for.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Disease Among Young Stock.

On one year and year and one-half old calves there are spots on any part of the body, varying in size from a ten cent piece to a silver dollar or larger, with no hair, rough or rusty, slightly raised (only slightly) dirty dandruff in color. Do not appear to be warts.

Some animals have white film come over the

ARMSTRONG & McKELVY Pittsburgh.
BEYMER-BAUMAN Pittsburgh.
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USE *Pure White Lead* and *Pure Linseed Oil* and you will know exactly what you are getting—absolutely the best and most economical paint in existence. Employ a responsible, practical painter to apply it and the result will be satisfactory.

If interested in paint or painting, address

National Lead Co., 100 William Street, New York.

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SEPTEMBER
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Added facilities for a Great Dairy Show.
New Dairy Building 55x132 feet.
Room for Exhibits of Machinery. Enlarged Refrigerators for Butter and Cheese.
University Dairy School will operate a Working Dairy Exhibit.
For Premium List or information, address
JOHN M. TRUE, Sec.,
MADISON, WIS.

SEEDS THE ALBERT DICKINSON CO.
.....DEALERS IN.....
GRASS SEEDS, CLOVERS, FLAX SEEDS, LAWN GRASS, BEANS, PEAS, POP CORN, BIRD SEEDS, BUCKWHEAT, BAGS, ETC.
CHICAGO, ILL. BRANCH: MINNEAPOLIS, MINN.

21 STRONG REASONS
WHY IT WILL PAY YOU TO BUY A FARM IN THE GREAT BLUE GRASS COUNTRY OF NORTHERN WISCONSIN.

1. The soil is rich and productive. Everywhere there is a clay subsoil to retain the moisture.
2. The climate is very uniform—neither extreme of heat or cold.
3. The seasons are regular and there is never a crop failure.
4. There is an abundance of wood for building and fuel, which need only to be cut.
5. Taxes are very low compared with other sections.
6. It is the best agricultural country known for a man of small means to get rich.
7. It is better to own a low-priced farm than to owe for a high-priced farm.
8. You can own a home in this section for what you now pay out for rent in one year.
9. Everything grown in the west can be grown on these lands.
10. There is an unsurpassed market for all farm products throughout the year.
11. Truck farming is very profitable in this section.
12. No better fruit country in the northwest. All northern varieties are wonderfully successful.
13. The best place in America to raise horses, mules, cattle, sheep and hogs.
14. The water supply is the best. The country is full of clear running streams and springs
15. Cereal crops average more bushels per acre than in other northern states. This may be said particularly as to oats, the average yield being from 60 to 80 bushels per acre.
16. Grasses and clovers for grazing or hay grow luxuriantly, far better than they do in southern Wisconsin, Iowa, Minnesota or the Dakotas.
17. No swamps in this section—no malaria, no chills, no fever, no cyclones, no hail or destructive storms.
18. Fish and game in abundance. It is the sportman's paradise.
19. Lumbering and manufacturing interests offer ample employment at good wages whenever desired, both winter and summer.
20. Thousands of settlers are moving into northern Wisconsin, and in consequence land is increasing in value very fast.
21. The best class of people are among the settlers, which include principally Americans, Germans and Scandinavians.

DON'T PAY RENT, but come up and let us sell you a farm which will cost you but little more than the rent of a good farm in the older agricultural districts. Not only that, but a farm that will grow in value every day. Write us to-day for full particulars concerning these lands, and arrange to look them over at the earliest possible moment. They cannot fail to interest you if you want to get a home of your own. Mention HOARD'S DAIRYMAN.
WISCONSIN BLUE GRASS LAND CO., Baldwin, Wis.


Let Them Help Themselves.
They'll not take too much, and they'll get it as they want it. Don't force animals to eat salt when they don't require it, by mixing with food.
COMPRESSED
Pure-Salt Bricks
are all salt, no impurities. Improve the quality and yield of milk. A modern convenience, always present, animals never neglected, and costs for each only about a nickle a month. See how they enjoy helping themselves when you place it within reach. For all stock. Buy of dealers or send for free booklet to
Belmont Stable Supply Co., Brooklyn, N.Y.

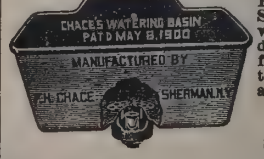

SULKY AND GANG PLOWS
Light Draft, High Lift, Powerful Lifting Spring; Boy can handle it. Patented Stop carries the plow and lightens draft. Shipped in crate, set up and sharpened ready for use. Spring Clevis eases draft and saves harness. Automatic Lock on rear wheel. Celebrated "Garden City Clipper" bottoms used.
David Bradley Mfg. Co., 110 E. Broadway, Bradley, Ill.
BRANCH HOUSES: DAVID BRADLEY & CO., Council Bluffs, Iowa. BRADLEY, CLARK & CO., Minneapolis, Minnesota. BRADLEY, ALDERSON & CO., Kansas City, Missouri.

Water In The Stable a Necessity.

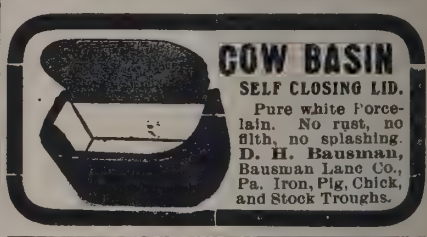

It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. Why not use the Best? Write for descriptive circular.
C. E. BUCKLEY & CO., Poughkeepsie, N. Y.



Absolutely perfect. Soon pays the cost Cheapest because best.
Water always fresh. Send for catalogue No disease where used.

SAMPLE BASIN ESNT ON APPROVAL.


Basins are fitted with Self Closing Cover which prevents all dirt and sediment from getting into them. Send for catalogue and price list
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COW BASIN
SELF CLOSING LID.
Pure white Porcelain. No rust, no filth, no splashing.
D. H. Bausman, Bausman Lane Co., Pa. Iron, Pig, Chick, and Stock Troughs.

WAUKESHA COUNTY FARM
FOR SALE---39 acres on pretty little lake, 4 miles from Oconomowoc; 100 rods lake frontage. Good dwelling, large barn. Fine neighborhood. Write us for particulars.
HILES & MYERS, C-100 MATTHEWS BUILDING, Milwaukee, Wis.

DAIRY FARM FOR SALE
At ANN ARBOR near DETROIT, MICH. A thorough dairy farmer with capital can learn of a handsome investment by addressing subscriber.
A 575 Acre Dairy Farm near Ann Arbor, Mich., university town, can be had at a reasonable figure. It can be made to produce from eight to ten thousand dollars worth of milk yearly, and sale for this will be assured by the present owner. The farm's equipment in the way of modern dairy barns, silos, for 100 cows, milk and ice houses, together with homestead and tenant houses is complete. For particulars inquire by mail or call at
TOWAR'S WAYNE CO. CREAMERY,
71 Grand River Ave, DETROIT, MICH.

NOW Is the time to Subscribe for HOARD'S DAIRYMAN.

eyes, and in some instances a raised speck on the pupils. A DAIRYMAN SUBSCRIRER.
Wisconsin.

ANSWER.

If the trouble is general, it appears to be a contagion which requires a personal examination. Employ a qualified veterinarian.

Altered Secretion.

We are having some trouble with our cows in this way: The udder will become very hard and feverish from one milking to the next. The milk is like muddy water. This will last from one to four days and sometimes longer. C. E. P.
Du Bois, Pa.

ANSWER.

Altered secretion is almost invariably due to errors in feeding or impure water. Ascertain the cause and remove it. You may also give each cow so affected a full dose of physic, Epsom salts preferred.

Brain Trouble.

Had a valuable calf seven months old die today. First I noticed he was turning round and round as if to bite his tail. He frothed at the mouth. In about five minutes he was down and ten more he was dead. I cut paunch and stomach open, but could find nothing abnormal. M. L. C.
Bloomingdale, Ohio.

ANSWER.

Your calf died from brain trouble, which may have been a parasite within the brain. This is why you did not find anything abnormal in the paunch and other organs. As a rule this disease is incurable.

To Prevent Milk Fever.

I have cows coming in next month and would like to know if there is any way to prevent milk fever; is there anything to do to them before they have calves? G. A. S.
Stitzer Wis.

ANSWER.

The best known preventive for milk fever, is not to feed heavy before the cows come in. If you wish to crowd the cows, do it after they have calved. It is also advisable to keep the bowels open before calving, but do not deplete the animals with physic.

Navicular Troubles.

Ihave a horse that was taken lame in right hind leg six about weeks ago, there is no swelling or enlargement or heat that we can find. He does not limp much when he walks, but is very lame when trotting or going up hill.
Rockland, N. Y J. W. J.

ANSWER.

If you are sure there is no enlargement in either of the joints, we should attribute the lameness to navicular trouble. Blister the coronet and fetlock joint with a 1 to 4 cantherides ointment once daily, for three days in succession; rest the fourth and wash off with soap and warm water the fifth day. When dry apply fresh hog's lard to the blistered surface, this may be repeated in two weeks if not successful.

Spasmodic Colic.

One heifer has been in milk now, for 6 weeks. At time of calving, for three days, she acted as though she was in great pain. The symptoms were the same as a horse with the colic and now she has spells at short intervals of the same kind. She eats all right between spells, but when the spells are on she refuses her feed. There is no discharge of any kind, she appears all right only when she has those spells.

The calf three weeks old and is not able to stand up yet. The calf is fully developed in every way and apparently in perfect health. Good appetite and always knows when it is time for the cow to come up. The calf sucks all right only a man has to hold him up. Bowels are in perfect order. Calf is getting fat and growing fast. He is willing to get up, in fact he tries hard.

What is the cause of the so called Jack sores? The sores come on the knees and in front of the hock joint. The joints swell very badly and have large, raw running sores. The one in question has a sore on the hock for over a year, it is at its worst now. The jack walks as though it pained him to raise the leg up high. N. H. C.
Maberly, Mo.

ANSWER.

1. When the spells come on give the following dose: Cannabis indica ½ oz; henbane, 2 drs.; tincture of ginger, 1½ oz.; aromatic spirits of ammonia, 1½ oz.; salicylic acid, 2 drs. Give at one dose in a quart of water and repeat in one hour if necessary.

2. Try to induce the calf to stand on its feet as much as possible while he sucks the cow, and apply hand rubbing to the legs while he stands, to make it gain the necessary strength in the legs. Also rub the legs twice or three times daily with diluted alcohol.

Tuberculosis, Perhaps.

Have had several calves die lately, and upon opening one found ulcers or mattery sores on the lungs, ranging in size from a nail head up to the size of a dollar and upon opening them yellow matter would come out. The calves gradually lose appetite, and finally die. H. B.
Redlands, Cal.

ANSWER.

Have the entire herd tuberculin tested. The above conditions are indications of tuberculosis.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from **Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING.** *Impossible to produce scar or blemish.*

Every bottle sold is warranted to give satisfaction Price **$1.50** per bottle. Sold by druggists, or sent by express, **charges paid,** with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland O.

The Best Horse



is liable to "go lame" at any time. **Curbs, Splints, Spavins** and other forms of **Lameness** yield readily and are cured permanently by

Tuttle's Elixir

Used and Endorsed by Adams Express Company.

Used internally it is infallible for Colic, Distemper, Founder, Pneumonia, etc.

Tuttle's American Condition Powders

—A specific for impure blood and all diseases arising therefrom.

TUTTLE'S FAMILY ELIXIR cures rheumatism, sprains, bruises, etc. Kills pain instantly. Our 100-page book, "Veterinary Experience," FREE.

Dr. S. A. TUTTLE, 62 Beverly St., Boston, Mass.

Beware of so-called Elixirs—none genuine but Tuttle's.

Avoid all blisters; they offer only temporary relief, if any.

Good News to Stock Owners

Just the information that you must have to successfully treat Fistula, Poll Evil, Sweeny, Knee-Sprung, Curb, Splint, Spavin, Ringbone and all blemishes hard or soft, also Lump Jaw in cattle.



Bone Spavin Ringbone Lump Jaw



Certain and inexpensive methods fully described in our two big booklets, which we send free if you have a case to treat. Over 140,000 farmers rely upon these same methods. Write for the books.

FLEMING BROS., Chemists, 338 Union Stock Yards, Chicago, Ill.

DYSPEPSIA Cure guaranteed or money returned. Tasteless tablets, handy package, month's treatment fifty cents. Hundred page family medicine book for 2c stamp. Dept. B. **Modern Medicine Co.,** Benton Harbor, Mich.

Hay Fever and Asthma

Cured to stay cured. Never return. A radical departure. Cause eliminated. Constitution changed. **FREE** Over 52,000 patients. Good references. ("Reliefs," or change of climate, cannot cure..) Write for BOOK 41 F FREE, containing reports of many interesting cases. Address

DR. HAYES, Buffalo, N. Y.

THE NORTH-WESTERN LINE C.&N.W.RY.

Special Reduced Excursion Rates

Will be in effect from all points on the Chicago & North-Western Railroad for the occasions named below:

Deadwood and Lead, S. D, Sept. 7 to 11, International Mining Congress.

Ogden and Salt Lake City, Utah, Sept. 15 to 18, National Irrigation Congress.

Baltimore, Md., Sept. 21 to 26, Soverign Grand Lodge, I O O. F.

Denver, Colorado Springs, Pueblo, Oct. 7 to 11, Brotherhood of St. Andrew.

For information as to rates, dates of sale, etc., of these or other occasions, call upon the ticket agent of the North-Western Line.

Cows Made to Breed

Inject with Hood Farm Breeding Powder when they fail to breed, do not clean, are irregular; also after abortion. Of greatest value to breeders and stock owners. Dollar size by mail, $1.15; large size, four times more, to any railroad express point in U.S. $2.75. C. I. Hood & Co., Lowell, Mass.



Cure For Galls

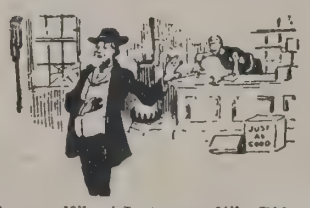
While you work the horse.

Above trade mark on every box.

It's BICKMORE'S

Dealers selling it everywhere are authorized to refund money if it fails to cure all **Galls, Scratches, Cracks, Wire Cuts,** etc. The standard horse remedy for many years. Sample 10c.

BICKMORE GALL CURE CO., Box 515, Old Town, Me.



"Just as good?" "Just as good!" Did you say? "Just as good as Veterinary Pixine!!" The dealer who tells you that is mistaken. He does not know.

FACTS AND TESTS PROVE IT!

Emery, Ky., April 9, 1903.

I feel it my duty to tell what Veterinary Pixine did for a horse of mine. He was cut with a knife between the fore legs three inches deep and two inches long, which every minute would gap open. I used several different kinds of remedy without success, even to having some stitches taken. Nothing did any good and it kept swelling and became feverish I almost gave up hopes of getting him well. In the columns of the Ohio Farmer I observed your advertisement and, as it was the last chance, I purchased a box at the druggists and used it as directed and before the box was used up the cut was entirely well. I intend to keep a supply on hand for emergency cases if I have to pay a dollar a box for it. Please accept my thanks for the good I have received from its use, and if you choose you can use my name and testimony.

W. S. CAMPBELL.

This penetrating, stimulating, soothing, absorbing, antiseptic, healing ointment heals from beneath the surface by disinfecting the parts, subduing inflammation and stimulating healthy granulations, not by drying and scabbing, and stimulates growth of hair, natural color. Makes quick, clean and healthy cure; heals stinging, burning, chronic saddle and collar galls, hopple chafes, abscesses, caked bag, cow pox, and hoof rot. It penetrates, stimulates, soothes and heals while horse works. Money refunded if it fails.

Price, 2-oz. box 25c; 8-oz. box 50c; 5-lb. pkg. $4.00, at all druggists and dealers or sent prepaid.

TROY CHEMICAL CO., Troy, N. Y.

Also Manufacturers of "Save-the-Horse" Spavin Cure. **$5.00 a bottle.** Send for copy of guarantee and booklet.



DEATH TO HEAVES Guaranteed

NEWTON'S Heave, Cough, Distemper and Indigestion Cure. A veterinary specific for wind, throat and stomach troubles. *Strong recommends.* $1.00 per can. Dealers. Mail or Ex. paid. Newton Horse Remedy Co., Toledo, Ohio.

Your Horse can work without pain while his **sore breast is healing** if you use **MOORE BROTHERS' GALL POWDER** the most effective cure ever known for healing **sore shoulders, backs** and other skin abrasions; at druggists, or by mail $1.00. MOORE BROTHERS, Veterinary Surgeons, Albany, N.Y. "Facts for Farmers and Breeders," sent free.



ABORTION

Can be successfully treated with **Anti-Abortion Serum.** Easily administered and permanently cures. Information free.

DR. ROBERTS VETERINARY REMEDY CO.,

534 Grand Ave., Waukesha, Wis



COWS RELIEF

Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers

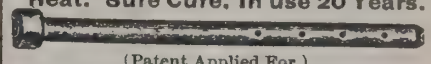
Used Exclusively at Model Dairy

Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.

O. H. MFG. CO., Dept. H, Lyndon, Vt.

ABORTION,

Failing to Breed and bring Cows to Heat. Sure Cure. In use 20 Years.



(Patent Applied For.)

Hard Rubber Safety Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.

DR. WM. HORNE, Janesville, Wis.

..ABORTION..

RETENTION OF PLACENTA AND FAILURE TO BREED.

KELLOGG'S CONDITION POWDER

Is a positive cure for these diseases. Write for circular containing full information, references and price.

H. W. KELLOGG CO., St. Paul, Minn.

DR. GEORGE HOLLABUSH'S

Sure Cure for Abortion



and General Tonic for Cows. The only genuine sure cure and general tonic for cows on the market. I guarantee, and refund money if not satisfactory. Dr. Geo. Hollabush, Ft. Atkinson, Wis. Write for circular.

CHLORO NAPTHOLEUM DIP

"**Chloro-Naptholeum** is unexcelled for the purpose intended. Dipping our young calves in a solution immediately freed them from all parasites. As a preventative for contagious abortion we have recommended this as a successful remedy." J. Q. EMERY & SON, Albion, Wis. Chloro-Naptholeum Dip is guaranteed. Agents wanted. 1 gal. $1.50; 5 gals. $6.75 prepaid. Larger lots at lower rate.

WEST DISINFECTING CO., Inc., 8 E. 50th. St., New York.

BLACKLEGOIDS

BEST PREVENTIVE OF BLACKLEG



Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each **Blacklegoid** (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. **Blacklegoids** are sold by druggists; *ask for them.*

Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.

PARKE, DAVIS & CO. - DETROIT, MICH

Branches: New York, Kansas City, Baltimore, New Orleans, Chicago; Walkerville, Ont.; Montreal, Que.; London, Eng.

CURE "THE" COW

NO CURE, NO PAY



WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address

DR. EATON J. CROSS,
152 Congress St., Troy, N. Y.

What Alex. Galbraith, Clyde Horse Breeder Janesville, Wis., Says About Zenoleum Dip:

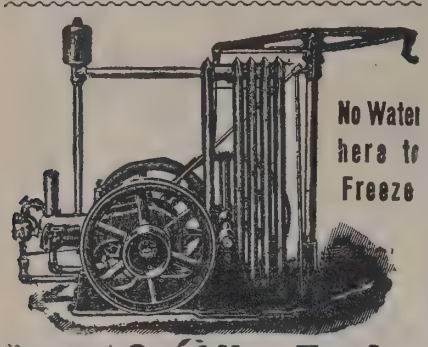
We are pleased to say that we have always found Zenoleum to be effective and in every way as good as represented.

January 29, 1903. Yours respectfully, ALEX. GALBRAITH & SON, Janesville, Wisconsin.

Send for copies of "Zenoleum Veterinary Advisor" and "Piggie's Troubles" and see what others say about it. Books mailed free. Sample gallon of Zenoleum $1.50, express prepaid. Five gallons $6.25, freight prepaid.

"The Great Coal Tar Carbolic Dip." ZENNER DISINFECTANT CO., 34 BATES STREET, DETROIT, MICHIGAN.

DON'T SEND A CENT Try a "1900" Washer for 30 days, free of all charges, freight prepaid both ways. The "1900" Ball Bearing Washer is the simplest, easiest machine ever made for washing clothes. Saves time, money and worry. Write at once to "1900" Washer Co., 219 A State St., Binghamton, N. Y.



If you want a..... **Gasoline Engine**

that will be always ready to start, safe, reliable convenient, economical and durable, buy a **FULLER & JOHNSON Frost Proof.** No bother with water nor expense of broken cylinder, no waiting for wind or weather. All sizes, stationary and portable. Send for descriptive catalogue to the manufacturers.

FULLER & JOHNSON MFG. CO., Madison, Wis.

FACTORY PRICES

OIL OR WATER COOLED.



1 2 3 4 6 8 10 12 · H.P.

You Can Save

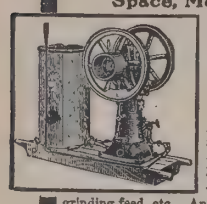
Space, Money and Time

by the use of the

Webster

Vertical Gasoline

Engine.



Costs only 2 to 3c per hour to run. It requires but little floor space. Handiest little engine in the world for cutting wood, pumping water, grinding feed, etc. Anyone can operate it. 3 actual (not estimated) h. p. Safe, sure, easy running, no jolting, jarring, getting out of order. Absolutely simple, entirely self-contained. Our catalog describes our full line of horizontal and vertical engines. Sent free.

Webster Mfg. Co., 1086 W. 15th St., Chicago, Ill.

GASOLINE ENGINES.



Buy direct from the manufacturer. The simplest, handiest and cheapest power known. Write to-day for our free catalogue.

H Canfield Eng. Works,

Binghamton, N. Y.

How to Detect Trouble with the Separator.

In reply to an inquiry about a separator running rough, vibrating, shaking or pounding, as one might term it, Mr. B. D. White answers in *The Dairy Record* as follows:

It would be difficult to answer your questions without an examination of the machine, but the first thing to do is to ascertain whether or not the bearing bushings, tread wheel and pin, also spindle and point are worn, or soft rubber ring. If any of these parts are worn they should be replaced by new ones. The separator must be level and not drawn down on the rubber cushions too tight. If you know that all the parts are in proper condition, then the bowl is either out of balance, or the spindle is bent, and in either case it would be advisable to send it to the shop. From the description of the kind of vibration, I should say the upper bearing was worn, or the machine was not level. If the vibrations are slow, the machine is either out of level, the bearing worn, or a soft rubber ring, but if the vibrations are quick and short, that is, the machine is thrown off the center every turn of the bowl, then it is out of balance, or has a bent spindle.

TO FIND OUT WHERE THE TROUBLE IS

Run the machine up to speed, then bring the thnmb or finger nail lightly in contact with the spindle at several points, first just below the upper bearing, then part way down, then just above the spindle head, then on the side of the spindle head. Below that, it would be best to use a lead pencil, bringing it in contact at one or two points. One will easily be able to tell where the vibrations are. If the machine runs smooth at all points except near the upper bearing, then the trouble is all in the bowl, or upper bearing, and the way to tell whether that is worn, or the rubber ring is soft, before putting on the covers, take hold of the top of the bowl and work it back and forth. If there is space between the bearing and the spindle, there will be a pound; if there is not, but the bowl moves easily, then the rubber ring is too soft.

By going over the machine carefully, it is possible for any one to tell what is the trouble.

As He Views the "Dairyman."

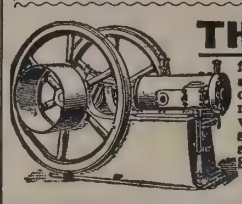
ED. HOARD'S DAIRYMAN:—Please find enclosed postal note to renew my subscription. I could not afford to be without the paper. Have done all I could to induce my neighbors to subscribe for it but so far have not been very successful. I consider HOARD'S DAIRYMAN the best farm paper published. As an advertising medium it has no equal. By using a small space in your paper I sold a farm and cheese factory in less than a year. The factory was sold to a man in Ohio and the farm to a man from North Dakota. You see the DAIRYMAN has been my "long suit" the past year.

Marion, Wis. L. D. CHURCHILL.



GOOD INTENTIONS ALONE CANNOT PRODUCE GOOD MACHINERY. Most all manufacturers are honest, but lack the experience and equipment necessary to turn out a thoroughly first class engine. We are the founders of the Gas Engine industry in the United States; have been building **OTTO** engines for 27 years, and operate the largest and most complete plant in the country devoted exclusively to the building of Gas and Gasoline Engines. Which will you buy, **Otto Experience** or **Others' Experiments**

THE OTTO GAS ENGINE WORKS, Philadelphia, Pa.



THOMPSON-LEWIS Gasoline Engines

furnish the greatest possible power at the lowest possible cost in **time, labor, fuel and money.** They are so simple that any body can run them without expert training or experience. Our **Volume Governor** gives uniform speed. Our **Acme Mixer** is the most positive and economical on the market. Our **Hand Starting Lever** starts engine with least effort. **All bearings of Iridium Bronze.** Best material and workmanship throughout. Many sizes from 4 (actual) h.p. up. Best for all farm work—cutting and grinding feed, sawing wood, pumping water, separating cream, churning, etc. Send for free catalog before you buy. It may save you time, money and annoyance.

J. THOMPSON & SONS MFG. CO., 113 BRIDGE STREET, BELOIT, WIS.

THE QUESTION OF FUEL ECONOMY IS A VERY SERIOUS ONE.

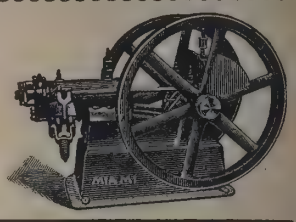
It is a very easy thing for one engine to use from $75 to $300 more fuel per year, than one more correctly designed and built. Our

Miami Gas and Gasoline Engines

represent the highest fuel economy and the longest life.

Miami Engines, Horizontal, 5 to 65 H.P., 12 Sizes.

Woodpecker Engines, Horizontal, 2½ H.P., Special.



THE MIDDLETOWN MACHINE CO., Middletown, Ohio.

Write for Catalogue and nearest Agent.

HAVE YOU SEEN THE

Jack of All Trades

—A GASOLINE ENGINE

of the most modern type for farm use?

Pumps Water—Saws Wood—Runs Separators

Shells Corn—Grinds Feed—Churns Butter

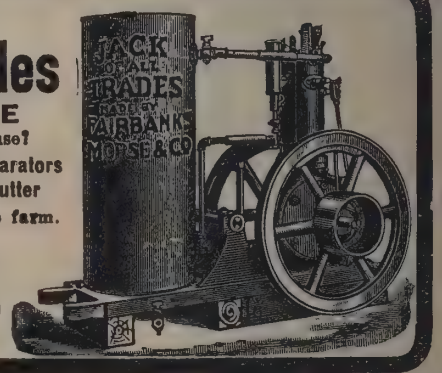
And is adapted to many other jobs on the farm.

Saves Labor—Earns Money

Write for free descriptive catalogue "Ba."

Fairbanks, Morse & Company,

CHICAGO.





2-HORSEPOWER

GASOLINE ENGINE, $70

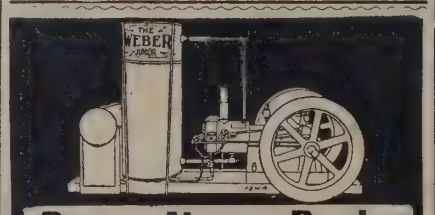
We have in stock 150 2-Horsepower absolutely new, modern type, guaranteed engines. Our price with pumping jack..... **$75**

Without pumping jack... **70**

Also Machinery, such as **Saw Mills, Engines, Boilers, Pumps,** etc. Write for Free Catalogue No. 20

CHICAGO HOUSE WRECKING CO.

West 35th and Iron Streets, Chicago.



Power Always Ready.

Up to 2½ horse, full measure, at less than a nickle an hour with the

WEBER JR. Gasoline ENGINES.

Operating costs no more than lighter engines at light duties. Simple, safe, dependable, adapted to no end of duties. For pumping and like work, a few cents worth of gasoline per day does the work of 30 men. Tested and ready for action on arrival. Anybody can run them. Other sizes up to 300 h. p. Catalogue free.

Weber Gas & Gasoline Engine Co.,

Box 176 Kansas City, Mo.

LITTLE GIANT

2 H. P. Vertical

4 H. P. Horizontal

On Skids ready to run.

Gas or Gasoline Engines. with or without Pumping Jack. Electric or Tube Igniter.



Strictly first-class—thoroughly guaranteed. Write for catalog describing full line, 2 to 80 H. P.

THE NEW ERA IRON WORKS CO.

No. 57 Dale Ave. DAYTON, OHIO.

The Model Gas and Gasoline Engines

MANUFACTURED BY

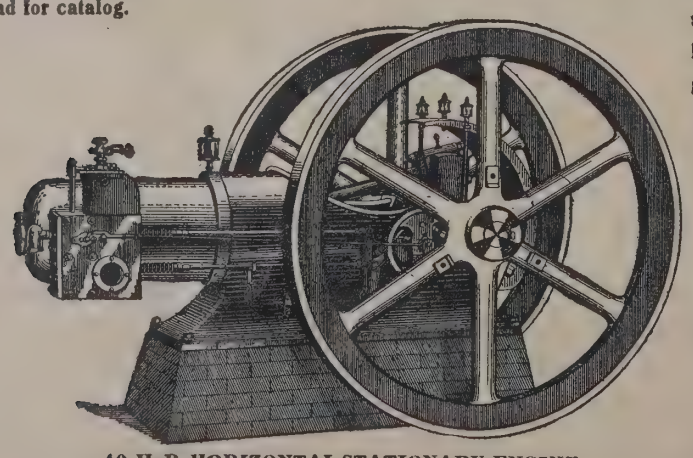
THE CENTRAL CITY IRON WORKS, STEVENS POINT, WIS.,

and MODEL GAS ENGINE CO., AUBURN, IND.

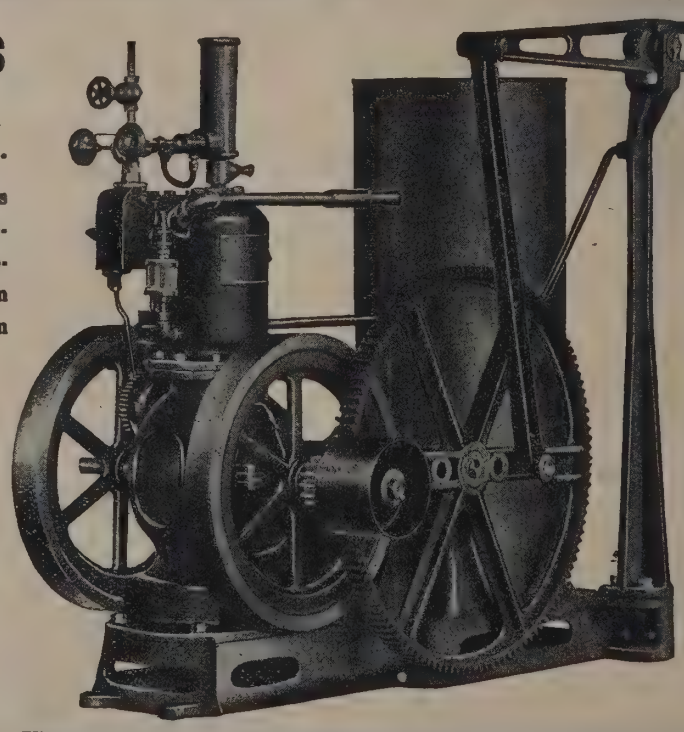
Portable Engines from 2 to 25 horse power, Horizontal, Stationery, and Marine from 2 to 100 horse power inclusive.

Send for catalog.

The only Engines successfully operated on kerosene and sold on fuel consumption guaranty.



40 H. P. HORIZONTAL STATIONARY ENGINE.



VERTICAL ENGINE AND PUMP JACK WITH ALL IRON BED PLATE.

Agents Wanted in all Unoccupied Territory

MENTION THIS PAPER WHEN WRITING.

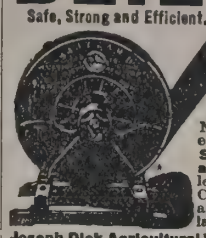
Ensilage Cutters "They Throw and Blow." Pneumatic. "Silo Fillers." Blowers.

These machines cut and elevate with the same wheel at the same time. This wheel has paddles which throw and fans which blow. Without the fans the paddles would throw the ensilage 16 feet high. A light blast of air in addition will blow it to any height. No chains, belts or cogs to slip and waste power. A two-horse tread power will cut and elevate 4 tons per hour, a 10 h. p. engine 20 tons per hour. The easiest running and safest cutters and blowers made. Also cutters and carriers, shredders, silos, engines, horse powers, saw machines, etc. Send for catalogues.

HARDER MFG. CO., COBLESKILL, N.Y.

BLIZZARD

Safe, Strong and Efficient.

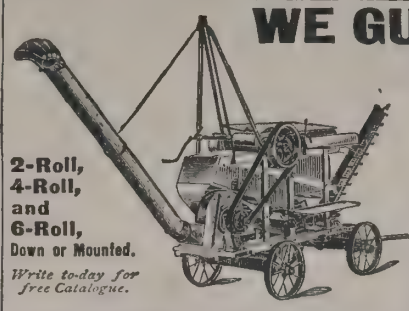


Cuts and Shreds all kinds of Dry and Green Fodder and elevates it to any desired height through a PNEUMATIC TUBE. No sprocket, no link belt, no elevator buckets, web, slats, etc. Saves power, breakage and annoyance. It cuts various lengths; any capacity you want. Call at your dealer's and examine it or write us for circulars and descriptive matter, &c

Joseph Dick Agricultural Wks., Box 20, Canton, Ohio.

WE GUARANTEE

that under the same conditions as to power and speed applied, condition of corn, etc.,



The Appleton Corn Husker

2-Roll, 4-Roll, and 6-Roll, Down or Mounted.

Write to-day for free Catalogue.

will do more and better work than any other machine of like character and corresponding size on the market; that it is simpler in construction; easier in every way to operate; easier and safer to feed and to require less power for successful operation. The proof of these claims is sent for the asking. We make also a complete line of sweep and tread horse powers, shellers, ensilage and fodder cutters, feed grinders, wood saws, windmills, etc. Remember that Appleton quality is the standard of excellence.

APPLETON MFG. CO., 35 Fargo St., Batavia, Ills.

Quick, Convenient Corn Cutting

is accomplished with the Scientific Corn Harvester. It saves the crop from field waste and frostbite; does the work of a score of hand workers. Safeguards for man and horse. Too simple to get out of order; too strong to break.

Scientific Corn Harvester

cuts any desired height. Built for the hardest kind of work, but is so low in price any farmer can afford to have one. Illustrated catalogue of Mills, Shellers and Farmers' Tools will be mailed free.



THE FOOS MANUFACTURING CO. Springfield, Ohio.

Does Saving ONE or TWO MEN

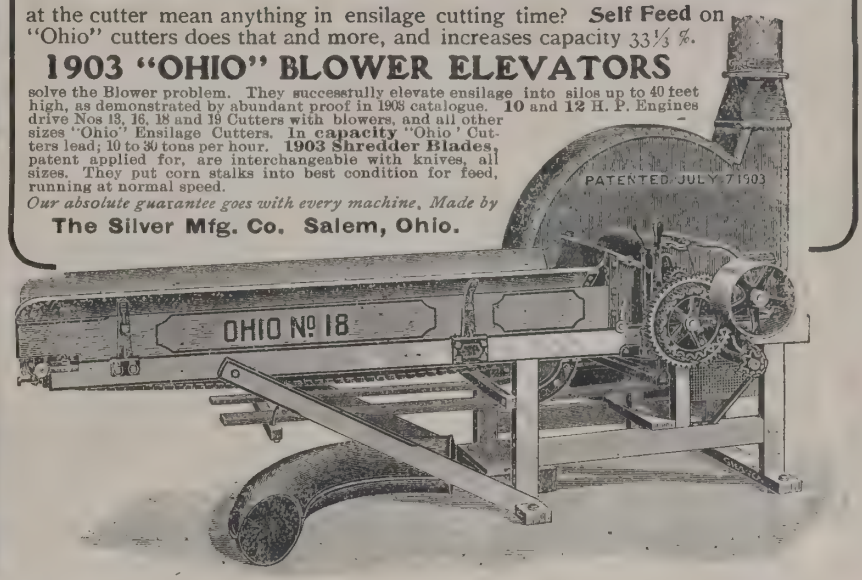
at the cutter mean anything in ensilage cutting time? Self Feed on "Ohio" cutters does that and more, and increases capacity 33⅓ %.

1903 "OHIO" BLOWER ELEVATORS

solve the Blower problem. They successfully elevate ensilage into silos up to 40 feet high, as demonstrated by abundant proof in 1903 catalogue. 10 and 12 H. P. Engines drive Nos 13, 16, 18 and 19 Cutters with blowers, and all other sizes "Ohio" Ensilage Cutters. In capacity "Ohio" Cutters lead; 10 to 30 tons per hour. 1903 Shredder Blades, patent applied for, are interchangeable with knives, all sizes. They put corn stalks into best condition for feed, running at normal speed.

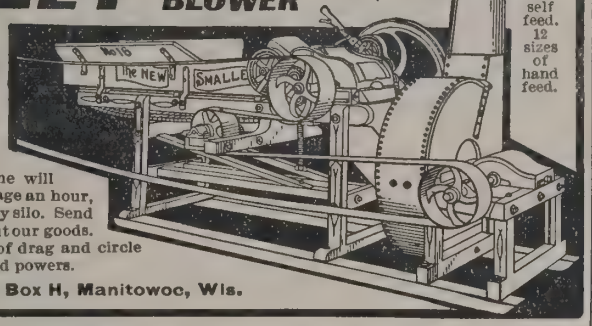
Our absolute guarantee goes with every machine. Made by

The Silver Mfg. Co. Salem, Ohio.



SMALLEY SAFETY BLOWER

6 sizes self feed. 12 sizes of hand feed.



Only One Belt Required.

No lost power. No danger in operation. Belt cannot slip. Every part strong and of best material. No more strain on the *Smalley* machine when Blower is attached than with the ordinary carrier. Largest size machine will easily handle ten tons of ensilage an hour, cut ⅜ inch and elevate into any silo. Send for 1903 catalogue, tells all about our goods. We also make complete line of drag and circle saw machines, sweep and tread powers.

SMALLEY MFG. CO., Box H, Manitowoc, Wis.

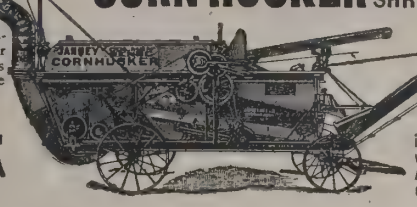
SAVE THE WHOLE CORN CROP

A corn crop may be profitable without saving the fodder, but it will be twice as profitable if it is saved. The new method of handling corn saves the entire crop. The new way is to run all the corn through

JANNEY'S PATENTED HUSKING PIN — IT TAKES OFF THE SHUCK

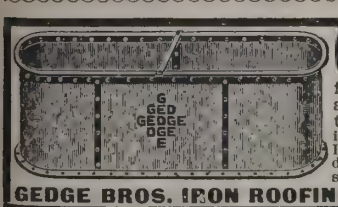
JANNEY COMMON SENSE CORN HUSKER and FODDER SHREDDER

If you feed corn hay you can sell all your meadow hay. You can also bale and sell your surplus corn hay; big demand. You may add further to your profits by husking and shredding for your neighbors. Pays better than a threshing machine and costs less. Eight years in the field; more in operation than any other.



Best made. It husks all the corn and shreds the fodder into "corn hay." Corn hay is the equal in feeding value of best timothy hay Ask your dealer or write us for Husker Catalog.

JANNEY MFG. CO. OTTUMWA, IOWA DEPT. D.



GALVANIZED STEEL TANKS

for Stock, Storage, Towers, Dipping, Wagons, etc. Shapes and capacities to meet any want. Differ from all others in their perfection seams and keeping shape. Heavily galvanized. Call for "Gedge" or "Anderson" brand. Also make Metal Roofings and Sidings, Eaves Troughs, Conductor Pipes, etc. If your dealer does not handle, write us direct. We will see that you are supplied. Ask for Illustrated price list and discounts.

GEDGE BROS. IRON ROOFING COMPANY, BOX 482, NDERSON, INDIANA.

WILDER'S WHIRLWIND ENSILAGE CUTTERS



Run with Less Power than any Other Cutter.

Have adjustable Cutting Heads and adjustable Table Knives. Solid Balance Wheel with knives and fans attached.

TWO or FOUR KNIVES, or Shredder attachments as preferred. Stop and reverse levers.

Furnished with plain or self feed table.

Read a sample of the many testimonials which we received last year:

CENTRAL DAIRY FARM, Farmington, Ga., Aug. 28, 1902.

GENTLEMEN: The Whirlwind has arrived. Allow me to say you have given it the right name. I had an old 6 H. P. engine to run it with, and it was an old one, having considerable lost motion. When I placed the Whirlwind in motion I had great doubts about my little worn out engine giving power enough, but when I placed the belt on and began to run it I had great fear it would blow the top of my silo off. I never bought a machine that gave such perfect satisfaction. You do not say half as much good about it as it deserves.

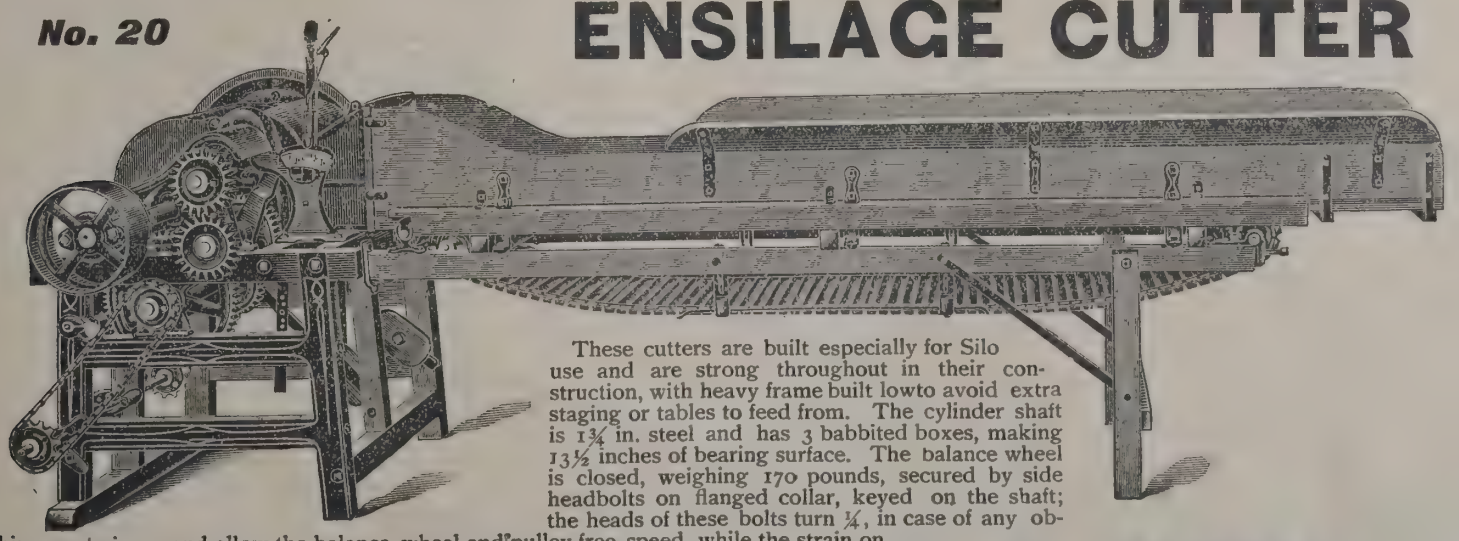
Yours very respectfully, JAMES D. PRICE.

We have also a full line of Cylinder Cutters and Shredders with blowers or chain carriers.

Write for catalogue of the MOST complete line of Ensilage and Feed Cutting Machinery made.

WILDER-STRONG IMPLEMENT CO., MONROE, MICH.

No. 20 ENSILAGE CUTTER



These cutters are built especially for Silo use and are strong throughout in their construction, with heavy frame built low to avoid extra staging or tables to feed from. The cylinder shaft is 1¾ in. steel and has 3 babbited boxes, making 13½ inches of bearing surface. The balance wheel is closed, weighing 170 pounds, secured by side headbolts on flanged collar, keyed on the shaft; the heads of these bolts turn ¼, in case of any obstruction reaching the knives, and allow the balance wheel and pulley free speed, while the strain on the knives is relieved at once. The traveling feed table is controlled by the reversible lever and is instantly stopped or reversed. The slats on these tables travel over a close bed, full length and are close together to prevent fine leaves getting into them and winding on the rollers, also guards over the chain links. The length of cut is easily adjusted from ⅜ to ⅝ and ⅞ inches by the gears on the shaft. We furnish chain elevators of any length desired, straight away or side delivery. Weight of Cutters with traveling table, 1600 pounds. Send for circulars.

I. B. ROWELL CO., MENOMINEE FALLS, WIS.



INTERNATIONAL STOCK FOOD

GROWTH OF MY PIGS WAS MARVELOUS

MOUNTAIN GROVE, Mo., December 7, 1902.

International Stock Food Co., Minneapolis, Minn.

GENTLEMEN:—I have tested **"International Stock Food"** for Horses, Cows, Calves and Hogs and it gave marked results in every case. I had a horse with the farcy, swollen as thick as my hand all over the belly and after two weeks' feeding of **"International Stock Food"** he was sound and well. All my teams have done remarkably well and are fat. My cows also show a large gain in milk and flesh, and it caused the finest growth on a jack colt that I ever saw. My fattening hogs have done the best I ever had hogs do and **the growth of my pigs and shoats was simply marvelous.** A stockman remarked that my thoroughbred hogs were the finest he ever saw. I never expect to be without **"International Stock Food"** for my stock as it makes me extra money.

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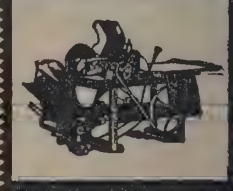
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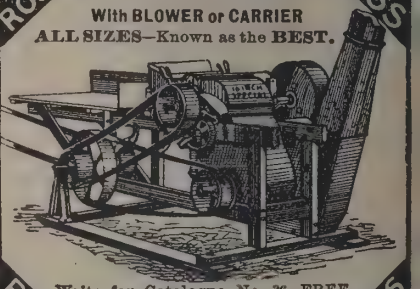
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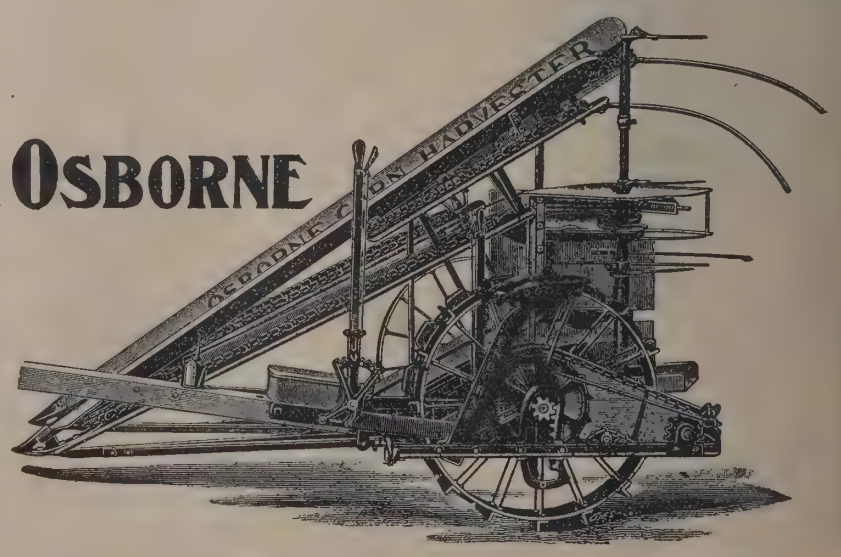
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VOLUME XXXIV. FORT ATKINSON, WIS., AUGUST 28, 1903. NUMBER 29

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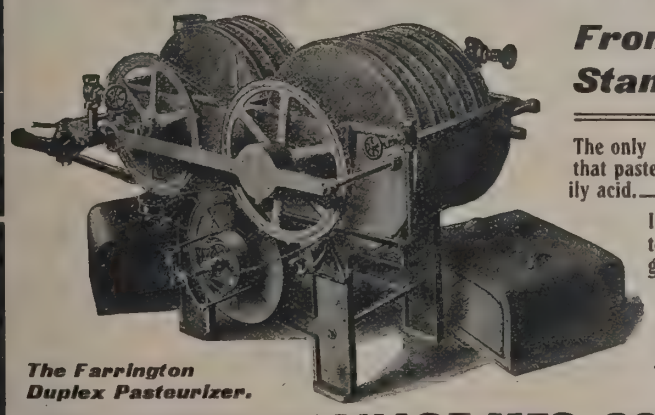
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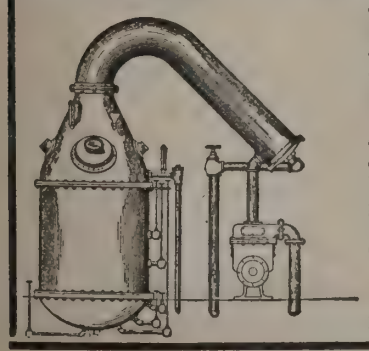


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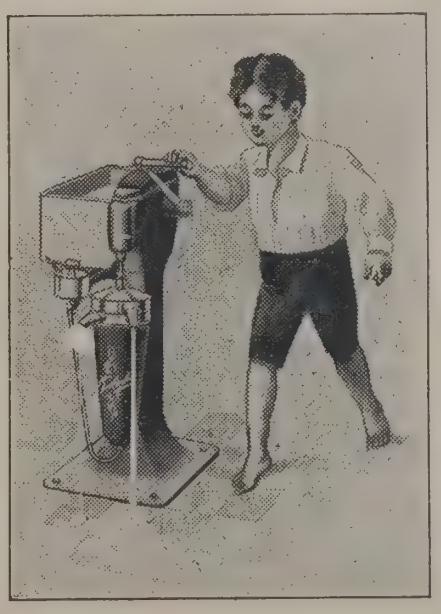
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WHAT'S Chopped Cream?

It's the product of old style, top-heavy separators—the kind with a bucket bowl which looks like an inverted potato masher. You'll know them—they have a big head on a slender stem. The stories the manufacturers tell about them are as full of impossible promises as the bowls are full of antiquated nuisances.

These inside contraptions—called discs, cones, vanes, pie plates, graters, etc.,—were introduced by the manufacturers in a frantic attempt to make their machines skim decently. Look into a bucket bowl—it will amaze and amuse you. They are curious things—hard to use and harder to clean. They try a man's patience—whip, cut, chop, churn and taint the cream—produce inferior butter.

You can avoid all these troubles and waste of power, cream and repair money by using the only separator that's different.



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Rennet Tablets for Scours.

ED. HOARD'S DAIRYMAN:—When we began to raise high grade Jersey calves, we were subject to considerable annoyance and loss on account of that scourge of calf life commonly called scours. The remedies usually employed were of no benefit, and after much experimenting it occurred to me that the ailment being the result of indigestion, the use of predigested food would be a reasonable solution of a difficult proposition. Accordingly I procured a box of rennet tablets, such as are used for cheese making, and used them as follows:

Presuming that the animal retained some digestive powers, I added to the milk to be fed one-half the amount required to form a curd. Thus, if one tablet is sufficient for 50 pounds of milk for cheese making, it will suffice for 100 lbs. of milk for calf feeding, and 1-16 of said tablet (approximately) is the proportion required to add to 6 pounds (3 quarts) of milk, which is the average amount given to our calves at three to four weeks old. The rennet is dissolved in cold water, as per the directions accompanying the package and added to the warm milk at the moment of feeding.

If the animal seems to be in pain, I add a few drops of laudanum, not to exceed 15, and a level teaspoonful of powdered ginger root, simply as an alleviator. The milk is fed warm from the hand separator, in clean pails, and at regular hours.

We have practically no trouble of this kind now.

As I intimated at the beginning of this article, it arose at first from overfeeding, the Jersey babies being more delicate than the larger, hardier breeds we had handled previously.

I was led to try this form of remedy by my personal experience with pre-digested (peptonized) milk, and by my observations of its beneficial effects upon others who were afflicted with certain forms of indigestion. (MRS.) L. E.

Chippewa Falls, Wis.

A good illustration of the old proverb that "an ounce of prevention is better than a pound of cure" and also of the fact that woman's care, judgment and personal experience count for much good to bovine mothers and babies.

Siloing Whole Corn.

I am tempted to try putting corn in in bundles as I have no roof and will not have until after filling. I could put up a temporary track and use a sling carrier which I have, part the load by means of stakes in the rack, and put the slings on these stakes.

I think that in winter if there was any trouble in getting it out one could use a hay knife and cut it as much as necessary.

I liked G. M. Clark's article on grass in the current issue and sent for his circular. Success to the DAIRYMAN. G. L. S.

Dane, Wis.

It is quite possible to make good silage from corn in bundles, but they must be carefully laid down, as in stacking wheat or oats, and special pains taken to make the outer edges as solid as possible. To make successful silage, practically all the air must be excluded. It is difficult enough to do this when the bundles are laid in carefully, but when thrown in miscellaneously, it will be quite impossible. A silo is practically a large fruit jar and the housewife's practices in canning fruit, and especially in excluding the air, must be as closely followed as circumstances will permit.

We fear there would not be much success in attempting to cut well settled silage with a hay knife. We have done it sometimes in our old silo, cutting down a strip at a time, as we used to cut the hay down in the barn, but it did not prove very successful, and was a very laborious job.

Milking Machines.

Can you put me on track of a milking machine that is a success? I have seen one that is self operating after using the air pump 2 or 3 minutes, but have not been able to see it work and cannot find where it is manufactured or what it is called.

Oxford, N. Y. A DAIYRMAN.

A perfectly successful milking machine is yet somewhere in the future, we fear. There are machines at present, which, according to reports, seem to do very good work, at least for a time, but apparently, the manufacturers themselves have not sufficient confidence in their success to justify advertising and pushing sales with guaranty of satisfaction.

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Entered at Fort Atkinson, Wisconsin, as second-class matter.

Prof. Henry at the Georgia State Dairymen's Association.

Ed. Hoard's Dairyman:—Last week the writer attended the annual meeting of the Georgia State Dairymen's Association, held at the seat of the state university, Athens. Athens is a beautiful city of ten thousand people. The university is doing a most useful work. Being over one hundred years of age, many interesting events are molded into its history.

There is always a zeal and earnestness characterizing a new human enterprise which is often lacking in things of the same kind when age creeps on. In attending the meeting of the Georgia dairymen one is impressed with the intense earnestness and eagerness of the members for help and hints. No matter how well one may have done, he does not seem satisfied, but wishes to know more and to do better. This earnestness and eagerness and zeal impressed me strongly as I looked into the faces of these intelligent, progressive people. What could have charmed me more at this meeting than to hear oft repeated the name of "Hoard's Dairyman" and the name of its proprietor. These are household words with Georgia dairymen. No man is so loved and revered by the dairymen of the southland as is W. D. Hoard. When one mentions Wisconsin the people immediately speak of "Hoard."

The dairy interests of Georgia are, as yet, not large. The cotton crop made by the negro and the mule is the subject of conversation with nineteen people out of twenty, and yet one can see great possibilities for dairying in north Georgia. I wish I could impress upon the minds of Dairyman readers some of the things I saw in my visit to the farm of Mr. W. L. Williamson, President of the State Dairy Association, Harmony Grove, north Georgia. The country there is elevated, giving pure, cool water in the wells. While cotton is generally grown, dairying is certainly a general possibility. Mr. Williamson, a dozen or so years ago, took possession of a worn out cotton plantation, and began dairying in a small way. Today he has about eighty head of splendid Jerseys, mostly registered. His cows are large, and show vigor and good constitution. At the time of my visit they were grazing on a well-knit Bermuda grass pasture.

Do northern readers generally know that until comparatively recent times the south as a whole has been without a sod grass? From Washington to Florida and from Florida to Texas there has been no grass which would make a close-knit sod like our blue grass. The limestone region of Kentucky and Tennessee is the only exception—blue grass flourishes there. But there came to the south in some unknown way a stranger grass which is destined to work a revolution of untold value. Bermuda grass (the southerners call it "Bermooda") is a fine, delicate grass which spreads not by seeds in the southland, but by runners, much as does the strawberry plant. These runners joint every four or five inches and will travel from one to three yards in a season. The Bermuda grass is spread over the fields by digging up the sod, chopping it into bits with the spade and burying these little pieces lightly in squares from two to three feet each way. In a year or two the whole field is covered, for this grass never ceases growing and spreading. The land of north Georgia is less fertile than the good lands of southern Wisconsin.

Many of the fields have been so long cultivated in cotton that the fertility is largely exhausted. Some of these lands will not bring over six or eight bushels of corn if planted to that crop without fertilizer. Indeed, there are lands which will hardly bring any corn at all. But the Bermuda grass seems to pay no attention to fertility as measured by other plants, but spreads and grows as though every condition were favorable. Mr. Williamson knows the value of Bermuda grass and is getting large returns from it. On good land a single acre would easily keep a cow during a long pasture season. I found his stable large, airy and very clean. The cows are kept in Bidwell stalls, and have individual drinking vessels. The manure is carefully saved and usually spread on the fields as fast as made. Sorghum is one of the great forage and hay crops. A field near the stable was turning out several large two-horse wagon loads of dry sorghum forage to the acre—about as much as we could produce in Wisconsin on land that sells for several times as much per acre.

In the South corn is planted one stalk in a place, the rows being four to five feet wide. The stalks are from 18 inches to three feet apart in the row. The poorer the soil the farther apart the stalk must be planted. If planted too closely, the corn leaves roll up, turn yellow, and a poor stalk without even a "nubbin" on is produced. Planted rightly and nourished fairly well, the stalks grow about 30 or 40 per cent taller than with us. Georgia corn does not average over 12 bushels per acre, but Mr. Williamson can grow from 20 to 40 bushels—and this too on a farm which a few years ago would produce practically nothing.

Two Jersey bulls were fastened in an out-of-door pasture in a manner that interested me greatly. A heavy wire was drawn about ten feet high between two trees a couple of hundred feet apart. From this wire another twelve or fourteen feet long led to the ring in the bull's nose. Thus secured the bull could walk back and forth between the two trees, having quite a strip of grass to feed on. How much better than to keep him in a box stall or shut him up in a prison-like bull pen made of planks close together. In such prisons the creature cannot see out and this tends to make him wild and ferocious the same as does chaining a dog to the kennel.

Butter at the Williamson farm is made in a creamery, the churning room of which is located in a well lighted cellar. This and an abundance of pure, soft water keep the butter cool so that no ice is used. Another favorable factor is feeding cotton seed meal, which tends to make the butter "stand up." I should not fail to mention that Mr. Williamson weighs the milk of every cow in the stable at each and every milking throughout the year. Twice a month samples are taken for analysis. For a year the fat has averaged 5.1 per cent for the whole herd. For about four summer months his butter brings 21 cents per pound wholesale, and the rest of the year 26 cents per pound. Milk wholesales for about 20 cents per gallon, or say five cents per quart.

Best of all, among the good things seen at the Williamson farm, were the two sons, both interested in dairy matters. These boys had on their denim suits and were busy at work with the stock. This stands in strange contrast with many of the southerners, who think that gentlemen should have soft hands, wear high-priced clothing, and do little or nothing in the way of manual labor. The future of young men who will travel the path of these young men is bright, and one can predict the outcome as certainly as that the sun will set at even-tide. One of the sons said: "Father is always reading Hoard's Dairyman," and one can see the effects of its teaching in many directions. One point of great interest on these farms was its great betterment from the devastating work of cotton culture. Cotton growing means not a weed left in the field, and the same crop—cotton—year after year on the same land.

In the south it rains more than with us here in the north, and the soil tends to melt away. Where the land is at all uneven, great gullies are washed through the fields. The soil is red from the iron it contains, and these red gashes in the earth can be seen miles away in many cases. They are a feature that gives one the horrors. Japan clover and Bermuda grass will grow on the sides and bottoms of these gashes and trap the earth as it washes down, causing the depressions to fill with earth a few inches each season. All this will be done if the planter will only allow these crops to do their work. Mr. Williamson has aided nature and now drives the plow and wagon over places that were deep with gullies a few years ago. A beautiful, productive farm is being built up where, a few years ago, was a worn-out plantation. Let any northern man who thinks of locating in the south, and is hesitating as to what can be done, visit Mr. Williamson's farm, and he will soon be convinced of what is possible. Flies bother the cows far less than I had expected; indeed, there was not one fly pestering these cows where there were twenty discernible on herds observed from the car window when Wisconsin was reached.

My visit to the Williamson farm was in company with that prince of entertainers and old-time mutual friend, Col. I. H. Wade, now of Cornelia, Ga. As Industrial Agent of the Great Southern Railway, Col. Wade has done an enormous work in building up southern manufactories. His interest in dairy matters is as intense now as it was in the days when he owned a magnificent Holstein herd in North Dakota, two decades ago. Many northern cattle men will remember Colonel Wade's exhibits of stock at the various state fairs.

I accompanied Colonel Wade to his pleasant home at Cornelia, Hebersham county, northeast Georgia. Here is an almost mountainous region possessing a peculiar charm. I was captivated at once with what I saw. Peach growing attracts the most interest just now, and what luscious fruit they grow here in the mountain air. I brought home specimens, four of which placed side by side covered a foot space. But this region is equally a dairy region. Cattle will flourish here to a surprising degree. I saw little patches of Bermuda grass, of an acre or two, that were supporting two to three cows comfortably during the long pasture season. The pure, wholesome air, the cool, numerous springs and brooks running through every farm impressed upon me that nature had meant this not for a land of peaches and other fruits alone, but for cattle as well.

Lands are very low priced. One plantation with a fine house, having a grand view of the Great Blue Ridge Mountains and some good land with beautiful brooks and enticing springs of pure, cold, soft water was offered at about $13 a acre. Lands still covered with trees can be had for half that sum. Georgia people are anxious for northern capital and northern enterprise. In the region of which I speak the colored people are few, the white people neighborly. It is certainly a region well worthy of thought from those who wish to seek a milder climate than can be found in the north. The Georgians are warm-hearted, hospitable people. Among the choicest memories of my life will be my visit during the summer of 1903 to Athens and north Georgia.

W. A. Henry,
Wisconsin College of Agriculture.



GUERNSEY COW, ARMOREL 2d OF HADDON.
Property of Haddon Farms, Haddonfield, N. J.

Crumbly Cheese and its Causes.

A reader at New Washington, Ind., writes as follows:

I am having some complaint about my cheese crumbling so very much in cutting it. I make nothing except full cream, fancy goods and I aim to make them rich as I can. Could you give me the cause of it, or a remedy for it? An answer through the Dairyman might be of benefit to others, as I am sure it would be to me.

Wishing to submit a full and authoritative answer to this inquiry, it was referred to Prof. U. S. Baer, of the Wisconsin Dairy School and for several years one of the travelling cheese instructors employed by the Wisconsin Dairymen's Association. His reply below covers the whole subject and, as suggested by the inquirer, may prove serviceable to other cheesemakers who may sometimes have similar trouble.

Ed. Hoard's Dairyman:—In answer to the question asked by your Indiana correspondent, would say that there are several causes for cheese crumbling under the knife. The most common cause is too high acid in the manufacture, which injures the texture, giving the cheese a dry, short, mealy body.

Cheese too highly salted will be dry and crumble easily in cutting.

Curds firmed at too high temperatures or where insufficient quantities of rennet are used to break down the cheese properly, will be tough and corky while new, but dry, loose and brittle when cured.

High rennet cheese, ripened at high temperatures, invariably develop a rough, mealy, salvy texture.

The finest cheese curds, produced from the choicest milks, made up in the most skillful manner, will cure into a miserable, loose, open-bodied product if placed in a curing room at temperature above 60° F. for any length of time.

While flavor stands first in importance, the texture of a cheese comes next. The texture as shown on the trier or the knife should be smooth not fuzzy. If the cheese is new, the piece should bend a little before breaking. When fully cured a piece broken from the cheese should not crumble off, but show a surface smooth as flint, and is termed "a meaty-bodied cheese."

When pressed between the fingers it should not be stiff, curdy, gritty or mealy, but mold up like wax, smooth and silky with a full, close, creamy body. When held between the eye and the light the color should be straight, uniform and clear, or slightly translucent.

An uncolored cheese should be of a light amber color. If it is a dead, chalky white, it is so because excess acid has cut the color out of it.

U. S. Baer,
Wisconsin Dairy School.

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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own ight who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

JOHN C. Godfrey, Pennellville, New York, announces an auction sale of Holstein-Friesians to take place at Fulton Fair Grounds, September 17th, 1903.

BREAKING A HEIFER TO MILK—TO PREVENT KICKING AND HOLDING UP THE MILK.

There are many ways of doing the same thing on a dairy farm. No man can absolutely say his way is the best, for the circumstances may differ slightly, and we know of old, that "circumstances alter cases." But the question of breaking a heifer to be a kind, gentle milker, and give down her milk easily and regularly, is a "circumstance" we all desire greatly to come to pass. When the contrary happens, and heifers are often contrary, then any man's experience is valuable to consider. We may say that there is one thing or "circumstance" that should always exist: patience and uniform kindnee. It will always help out the problem very greatly if the heifer has been well and frequently handled before calving. In that little book, "Thirty Years Among Cows," (thousands of which have been sold from this office), the author, N. B. White, tells of his experience and methods in the education of heifers to become tractable milkers.

When he starts in with a heifer, he aims to make her forget her calf as soon as possible, and transfer her attachment to the milker. To prevent her taking on the habit of kicking and moving about when being milked, he uses a leather strap a little longer than a hold-back strap to a harness. This is put twice around the hind legs above the gambrel and buckled. The heifer will struggle a little at first, but will soon give up. This method enables the milker to accustom the heifer to be milked with both hands from the start. When she is thoroughly broken, the use of the strap can be discontinued.

Another good way we have found, is to draw the head of the heifer up rather high, fasten it there and proceed with the milking. It is hard for an animal to kick when the head is held high. In the same connection, Mr. White speaks of overcoming the bad habit of holding up the milk, which is a frequent thing with cows. He reasons that this first proceeds from some mental disturbance. It is quite apt to occur with heifers when they are separated at first from their calf. Anything that will cause them to forget their trouble will bring down the milk. To do this he puts a little savory hay or bran before the heifer when he commences to milk her, and the work is done. When once the habit of being milked is established, then the feeding at milking time may be discontinued. As a rule, dairymen are opposed to the practice of having feed before the cow while she is being milked. Yet we know of some very successful dairy farmers who make a practice the year round of filling the manger or rack with hay regularly before milking time. They claim that it quiets and contents the cows, and causes them to give down their milk much better. We think there is no doubt about the latter fact, for several times in our own experience with cows that held up their milk, a little feed at milking time would correct the difficulty with certainty.

WHEN TO BREED HEIFERS.

With those who value size principally in their cows, the theory and practice is not to breed until the heifer is 20 or 24 months old. There is no doubt that the heifer will make a larger growth under ordinary treatment if bred at such age, but there is danger in this method in our estimation, of promoting a beefy tendency in the heifer. With dairy cattle, the main purpose is to promote as much as possible, a predisposition to milk giving. For this purpose we breed for milk, feed for milk, and in the care and handling we give the animal, we endeavor to promote the milk giving function all we can, consistent with health and constitution. It has been noticed by close observers, that if heifers, or cows even, become too fleshy they are apt to fail in breeding, or if they do conceive and have a calf, there occurs some how, a "set back" to their full and free milking function. "Fat and fertility are at the antipodes of each other" says the author of "The Transmission of Life."

When heifers are kept till they are two-years of age before being bred, they are quite apt to contract a fleshy habit or tendency. But, if the process of gestation is going on with them at the same time, it counteracts the flesh making tendency, and establishes the milking temperament within them. It is true that the bad results of late breeding in checking the milking tendency are not near as apparent in thorough-bred dairy cattle, as they are in dual-purpose or beef cattle The reason for this is that the "dairy temperament" is more thoroughly established in them, by long heredity in that direction, and so holds them more steadily to the central purpose for which they are bred. But there is a constant tendency to "reversion" in the very best of families.

So if we keep alive and strong the dairy temperament, we should start the heifer in that road, as soon as she is 15 months of age. What we are after in this matter of breeding dairy cattle is to constantly establish and enlarge the dairy individuality of our animals. We like to feel that all our methods of breeding, feeding and handling are doing their best to make of each heifer, if possible, a little better cow than her mother. That is the road of dairy progress. Branching off from it and leading away from the great central purpose are other paths, such as "dual-purpose," the "color-craze," and an uneconomic demand for "size," etc.

A writer in the *Jersey Bulletin* of July 29, speaking on this question, says:

"We like them (the heifers) to drop their calves at two years of age. Would prefer them to freshen at twenty months than to go over two years. Heifers bred ever so early with us give from 28 to 32 lbs. per day, and improve generally until the third calf. To be sure they will not get their full growth until they are four or five years old, and possibly may never be quite so large as if they dropped first calf at three years, but most of us know that size does not stand for every thing in a Jersey cow."

Sufficient size, say 900 to 1,000 pounds, can be attained more surely by seeing to it that the heifer is kept growing and thrifty from the time she is born.

One of the finest feeds for conditioning and promoting growth in heifers and young cows is alfalfa. The first 12 months of the calf tells the story of its subsequent growth almost invariably. Fresh skim milk, separated on the farm, fed morning and night, with a spoonful of blood meal and a pint of oats, followed by what good alfalfa hay it will eat, and dry, clean quarters, will make a heifer fully large enough to breed at 15 to 17 months of age, and we believe she will make all the better cow for being started in the way of maternity at that age.

MR. A. SLAUGHTER'S IDEAS ABOUT DAIRY BARNS.

At the Ohio Dairy Convention last winter Mr. Slaughter paid his respects to the average dairy barns of Ohio as follows:

"It is true there are many conditions which enter into the complex subject of the production of milk; there are many things which enter into the environment of the cow. Her home—the barn which is built for her—is just about as suitable for her domicile as I would be to be a judge of the Supreme Court of the United States. These barns are built with no thought of any sanitary drainage, or ventilation, or anything else that would tend to enhance the health of the cow. They are simply built because they are cheap. You will find them all over the country * * * *.

If you should visit some of the barns which I have visited within the last year—barns belonging to men who thought they had one of the finest barns in the country—and in the morning open the door and step in and be met with the stench that comes belching from the interior, you would not be surprised that the cows do not do their best."

Mr. Slaughter's description is not over drawn. Not only in Ohio are there such barns, but we may say that in every dairy state in the Union, a healthy, well ventilated barn is a tremendous exception to the rule. It is a reproach to the common sense, to the humanity, and to the intelligence of any farmer to persistently keep cows in such barns. But more than that, it is an open indictment of his business sense. The farmer who thinks his cows will do their work as profitably in such barns as they will in one where they can breathe pure air shows that he does not understand the forces he is dealing with. He forces his cows to live in a barn which will poison their bodies, reduce their vigor, and make them an easy prey to disease. Is it reasonable to suppose that cows in such conditions will turn out as much milk as they would in pure air?

Yet, for small cost any man can put the King system of ventilation in his stable and automatically furnish his cows as pure air as they breathe in the open field. The HOARD'S DAIRYMAN barn has room for the housing of fifty cows. It cost about $350 extra to put in the King system. Shut the barn up tight at night and open it after twelve hours, in the morning, and it will be difficult to discover the ordinary odor of a stable there. The foul air is drawn off constantly by the big three feet square shaft in the center, and the fresh air is pouring in from thirty openings on three sides all the time.

Take a stable with fifty cows and compute how much foul, poisonous air they will deposit in such a room over night if it be kept warm. If it is not a warm stable there will be great loss in milk. Now this foul air being heavier than common air, sinks to the floor. The cows lie down in it, but are soon distressed for breath and get up again. They are not given the rest they need and they take revenge by cutting down in the milk return. Meantime the owner, blind to all knowledge on this subject, is pouring in costly food to his cows and wondering why he does not make more money.

The plainest common sense would seem to dictate that every farmer should give his cows just as pure air in winter as they get in summer if he expects them to do profitable work. We can poison ourselves or our animals just as effectually by foul air as we can by foul water or food.

CONCERNING THE DANGER OF IMPURE MILK.

As a rule the farmers who produce milk do not give much thought or study to the scientific side of milk production. With most men, milk is milk, the same as a cow is a cow. Yet if we get at the great body of facts that concern milk, we must have recourse to scientific study. While milk in its pure state, is one of the most beneficent of foods, it can be easily made one of the most dangerous of poisons, a conveyor of disease and death. The miscroscope and the study of the germ theory has unfolded to the student a vast domain of knowledge which the ordinary milk producer knows nothing of, nor is he likely to, if he rejects all information that comes to him, or is unwilling to learn or believe what men of science tell him.

"Every man gives of his own measure," and to know how much he will give we have only to take his measure. The man who cares nothing about informing himself concerning the scientific side of his business, especially when that business is the production of food for others, is not safe to be trusted with other people's lives. It is for this reason that it has been found necessary to organize boards of health, enact strict laws and thus compel the milk producer to come within certain rules in the handling of his milk. And yet a vast amount of unhealthy milk finds its way to market.

John D. Rockerfeller lost a little grandson, John Rockerfeller McCormick, through scarlet fever conveyed by milk which was infected with the germs of this disease.

Mr. Rockerfeller at once devoted a portion of his great wealth to the founding of what is known as the Rockerfeller Institute for Medical Research, at New York. It has long been known that the mortality among children in the cities is out of proportion with the deaths in the country. The Rockerfeller Institute set to work to learn why this is. The first report of this institution has been made and from the same we cull the following which is taken from investigations concerning the milk that goes to New York city.

"Milk from carefully groomed cows in clean stables, when taken under the best precautions now possible, cooled immediately to below 40° F., and kept at that temperature during the transportation, by proper icing, and sent by express trains to the city, although handled with every precaution against contamination, contains, when it reaches the consumer, from 10,000 to 100,000 bacteria in each teaspoonful. This for the best milk.

MILLIONS OF BACTERIA FOUND.

"Now, what of the worst milk? During last summer the milk sold in the groceries of the tenement districts contained, as shown by the examination made by the bacteriologist, from 4,000,000 to 600,000,000 in each teaspoonful, and just such milk as this was fed last summer to many infants in New York.

"The germs which cause various infectious diseases, such as typhoid fever, scarlet fever, diphtheria, tuberculosis, etc., live and some rapidly multiply in milk. Every year a number of outbreaks of these diseases occur, which have been traced to milk contaminated by ignorant or careless milkmen, who have infected their milk by their dirty hands or the dirty water, or in other careless ways.

WORST PRODUCT NEAR CITY.

"If milk is transported long distances great precautions are taken to preserve it, while if transported from adjacent counties, hardly any attention at all is paid to it. Thus it comes about that some of the worst milk delivered in New

York is brought from the nearest places.

"The worst conditions were found along the line of the Harlem road. Fully 10 per cent of the milk carried by the Harlem road during the hottest months was never iced at all. Milk handled in this way in hot weather is often so changed that it is unfit to be sold."

"The health departments of the state and city should have the right to inspect farms, the report says, and demand those things which are necessary in order to produce a wholesome milk and to exclude contagious disease.

CERTIFICATION THE SOLUTION.

"Milk certification at the present time seems to be a solution of some of the difficulties in this problem. Such an assurance is now provided in a certificate issued by the City Medical society, which is given in two forms. When they find it possible to assure themselves that milk is produced under wholesome conditions they grant to such a dealer permission to employ a label: "Inspected by the Milk Commission of the Medical Society of the County of New York."

"For those persons who can afford to pay somewhat more for their milk, a still finer grade is provided. Not only are the conditions detailed above carried out, but the cows are groomed, the udders are washed, and the men wear clean garments during milking. All utensils are sterilized and regular inspection by experts is continued. The jars containing the milk have on them a label: Certified by the Milk Commission of the Medical Society of the County of New York."

July Record of a Scrub Herd.

ED. HOARD'S DAIRYMAN:—Your reply to M. F., Fairhaven, Vt., July 31st, was unsatisfactory and unkind. The correspondent in my opinion, is doing quite well with his cows. This herd of 10 cows gave 5,971 pounds of 4.8% milk in the month of June, on pasture without grain, an average 19.9, or probably 20 lbs. of milk per day, equivalent to one pound butterper cow per day. If there are many other herds doing better under such conditions, I would like to know about them.

If the Editor's herd is doing better, even with a fair grain ration, taking the average of the herd, we would like to have the statement, in black and white, out their own salvation in the pastures. If, Mr. M. F., your herd is not up to modern requirements, console yourself with the fact that there are more than 900 other cow keepers in every 1,000 who are not doing as well.

No doubt by this time M. F. is feeding some sort of meal ration and his cows are yet producing for him some 19 to 20 lbs. of 4.8 per cent milk daily. My advice therefore, is for M. F. to stick by those 10 cows, and as the pasture dries up, supplement heavily with fresh cut green feed and a daily grain ration of 5 to 10 pounds, given morning and evening, and no mistake he will tell the readers of HOARD'S DAIRYMAN, next May, that his 10 cows brought him a good, annual profit.

I am considered, myself, a fairly good dairyman and my cows do very little better than this. My six cows, during the month of July, just passed, have but a small mess of milk.

During the month of July we obtained a total for the month, from our six cows, of 3,815 pounds milk; average 4.6 per cent butter fat. While this is by no means phenomenal, it is a good, satisfactory yield and much better than 99 out of every hundred factory patrons we know of, and not very much better than our friend, M. F., of Fairhaven, Vt.

Probably if M. F. fed and attended to his cows as well as we do, he would do even better. This, mind you, is a record for thoroughbred scrubs. Our friend, M. F. has grade Jerseys. We doubt if there is the tenth part of an ounce of Jersey, Guernsey, Holstein and Aryshire blood coursing in the veins of our six cows. They are pure bred scrubs, if such they may be called. I have nothing to say against those dairymen who are chasing after pure bred dairy animals, only this, if little more attention was given to calf rearing and to the dairy, and to feed and care of the cows, when they come in milk, there would not be such a scramble after this fetish of pure bred dairy animals.

They tell us that milk giving is a nervous function, not a physical one. Then why should any particular ration have the monopoly of milk giving. We never learned that the bovine mothers of North Germany, of Jersey or of Ayrshire, possessed any superior milking or motherly qualities over their sisters of Aberdeen, Galloway, Durham, etc, and we don't believe they have. Milk giving is a maternal function, and no one breed, herd and locality possesses it in either the bovine or human races. Give me the calf from a deep milking mother, I care not her breed, and I will make a good milk cow of her, irrespective of breed and nationality. I am now able to give a detailed report of our July record and it is as follows:



A Comparatively Cheap Dairy Barn, yet one of the Best Lighted, Best Ventilated and Most Sanitary in Illinois.

JULY MILK RECORD, JULY 1-31.

Cow	Description.	Pounds milk.	Pounds fat.	Equivalent Butter, lbs.
No. 1.....	24 months	682	29.14	34.
" 2.....	6 years	1,054	44.02	51.
" 3.....	5 years	806	32.24	37.6
" 4.....	Stripper	279	16.12	18.8
" 5.....	15 years	589	29.42	34.3
" 6.....	2nd calf	434	24.18	28.2
6.....	——	3,844	175.17	204.
Per cow, per month.....		640	29 19	34.
Per cow, per day., ...		20.7	.94	1.1

When we consider the makeup of this herd we are quite satisfied with their output. No. 6 is the only cow we are in doubt about. She is now in her second calf and ought to be giving more milk than she is giving. However, her milk is very rich in fat, and if we find her to prove a persistent milker she stays. If she dries up easy we shall have to get clear of her. Our old 15-year-old cow is doing well. She is very thin in flesh, however, seems to put all her food into the milk pail, and if she does not get on flesh pretty soon we shall have fears that she will not winter. Our No. 1 is worthy of more than passing notice. Only yet 24 months old, she bids fair to be a phenomenal cow, and shows in a striking manner the virtue of oats—dry oats—as milk food.

This little heifer has never yet ate any other grain than whole oats; in fact, she will not take kindly to any other. She has been getting oats since she was five months old, and she has gotten oats every day since. She is a daughter of No. 2. The grandmother was butchered last fall at 16 years of age and was a good cow. While butchering her we found a calf in course of development. We made a mistake in killing this fine old cow, as she was by no means worn out. The old cow however, breeds on, in her daughter, No. 2, and granddaughter, No. 1, notwithstanding that she was a scrub, pure and simple, without admixture of any recognized breed. J. A. M.

P. E. I.



Portion of barn on right is a stable for 36 cows. No provision for light or ventilation. Openings shown are covered with boards in winter. Mud-hole in yard. Marks on barn show where manure has been piled.—Report Illinois Experiment Station.

and he is certainly warranted in looking down from his high pinnacle upon the army of less progressive dairymen. Yes brother M. F. do not be alarmed. Your cows are doing quite well, and you need not be in haste to bring the butcher along, to weed and decimate your very good working herd.

No doubt many of those ten cows are some months in lactation, some perhaps twelve months or more. No grain is being fed to those cows. They simply eke milked but an average of a little better than 21 lbs. per day of milk of the same quality as M. F.'s, 4.8 per cent, and I am satisfied they are doing well enough for July heat and flies, though getting a semi-daily meal ration of 5 to 8 pounds.

Here is my July statement. Consider first, however, that in this herd of six cows one cow was 15 years of age, and shows it, and another 24 months, while another is a stripper cow some 30 months in lactation and naturally gives

American Short-Horn Herd Book.

We have received Vol 55 American Short-Horn Herd Book containing pedigrees of bulls numbered from 194184 to 198415 inclusive, also pedigrees of 7191 cows. The book is now ready for general distribution the price $3.00 or $3.30 prepaid. Vol 56 is now in the hands of the printer and pedigrees are now being filed for Vol 57.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Cost of Producing Milk.

I would like to have some information as to the cost of producing milk. I notice that some writers claim that about two cents per quart is cost of production. If that is true how can farmers afford to dispose of milk at a dollar per hundred or thereabout? I am informed that dairy communities are prosperous, etc., but at above price it seems a very small margin of profit.

Probably this is an old discussed question, but I, being a new subscriber, have not seen discussion of the subject in your paper if there has been any. C. M. W.

Hortonville, Ind.

At the Wisconsin Dairymen's Convention, last winter, Mr. Gurler exhibited a table showing the cost to him of keeping his cows and the amount of milk produced. A stable of 50 cows showed a milk production of 5,708 lbs. per cow, the cost of feed was $41.06 per cow, making the feed cost of milk to him a trifle less than 72 cents per 100 pounds. The best four cows in this stable of 50 cows produced 9,098 pounds of milk each, and the cost of feed was $44.95 per cow, making the food cost of milk just about 50 cents per 100 pounds. The four poorest cows averaged 3,020 pounds of milk and cost of feed was $33.96 per cow, making the food cost of milk with these poorest more than $1 per hundred pounds.

It is, however, not to be forgotten that the feed was charged to these cows at market prices—such as was bought, at what it cost delivered at the barn, such as was raised, at what it would bring in market, and no account was made of the benefit to be obtained from the residual manurial value of these feeds in keeping up the fertility of his farm. This is an item too frequently forgotten by dairymen. It shows, however, very distinctly in the difference there is in the producing capacity of farms where stock is kept to consume what is raised on the farm and some purchased feed in addition, and those where all the hay and grain is sold off in the public market.

It is estimated that this manurial value of feeds is more than ample to offset the expense in time and labor of caring for a herd of cows and their product. Therefore, if a man, by keeping cows, can sell his grain to them, and make their product yield him what his grain would sell for in the market, he is doing quite as well as he would not to keep cows. Indeed, he is doing better, for he saves the expense of hauling his grain and hay to market. Whatever his cows pay him over and above the market value for his feeds is so much added profit.

It should not be forgotten, however, that there is no excuse for keeping cows that do not more than pay market prices for the feed they consume. The best four cows in Mr. Gurler's stable enabled him to sell his feed at more than double the current market price for feeds last year when all kinds of feed were so high in price. Mr. Gurler keeps 200 or 300 cows in order to supply the demand for his certified milk in Chicago. In the nature of the case, he has to buy a great many of these cows, and some of them turn out poorly as shown above, but he keeps a record of what each cow produces, and one may be very sure he does not keep a cow the second year that does not promise to pay him well for the feed she consumes. Every dairyman should keep a record with every cow, know just what she is doing, and then he can dispose of the poorer cows and give the better ones a chance to show a better average.

Fall Seeding of Alfalfa.

I have a five-acre piece of land from which I will soon thresh a crop of oats and would like to seed to alfalfa. Would you advise me to sow this fall or wait till spring? If I wait till spring will it be best to sow with or without a nurse crop? How would it be to broadcast field peas now and plow under four inches deep, then plow under next spring and seed to alfalfa? L. D. W.

Greenwood, Ill.

Under ordinary conditions, we do not think it would be safe in Illinois or Wisconsin to attempt to seed alfalfa in August or September, but this season is so much of an exception, the ground is now so thoroughly soaked with water, that possibly the seed would germinate at once and get sufficient growth of root to withstand the winter. However, we should much prefer to follow the suggestion of sowing the field to peas now and turning them under in the spring early and then seeding to alfalfa without a nurse crop.

There is one consideration concerning seeding to alfalfa in Illinois which perhaps should be mentioned, and that is, the absence in many places of the proper alfalfa bacteria and lime in the soil. We have little or no difficulty of that kind in Wisconsin, but the Illinois Experiment Station has warned the people of Illinois several times on these points. However, if our inquirer has been successful with peas and clover, we should not hesitate to try alfalfa, even without inoculating the soil with bacteria and adding lime, although lime and potash are always in order on an alfalfa field.

A Question in Ventilation.

In putting in the ventilators to take out the bad air in a stable could the box or flue be carried up to the ceiling and then carried on a slant to the outside of the building and then to five or six feet above the eaves? Wou.d the draft be all right in this case? D.

Conn.

There would seem to be no reason why a ventilating shaft built as suggested should not prove satisfactory in operation, particularly, if built on the south side of the barn where it will get the benefit of the sun's rays to assist in creating a draft. The ventilating shaft connected with the Senior Editor's barn is entirely outside, in the angle formed by the south and east wings of the stable. So, in the present case, we should prefer to have this shaft all on the outside, doing away with the bend.

Value of Sunflowers for Silage.

Please answer through your columns the value of sunflowers to mix with corn for silage. W.S.K.

Philadelphia. N. Y.

There is no published data upon which to base an estimate of the value of sunflowers for silage. Some years ago, Prof. Robertson in Canada grew a combination of corn, horse beans and sunflower heads for silage, and very acceptable results were reported from feeding this combination. We have heard nothing of it in recent years and the presumption is that it was not found so much superior to simple corn silage as to justify the extra labor. More recently, one of our Ohio readers reported harvesting sunflowers, heads and stalks, and mixing them with corn in his silo. His opinion on this first trial was favorable to the mixture, but whether he has continued to use it or not, we are not advised. Still later, a New York reader tried the same experiment. At the time he wrote us, the silage was keeping well, but he had not fed any of it. We requested him to make a report after feeding and also that he send a sample of it to the New York Experiment Station for analysis, but we have heard nothing further from him. We are, therefore, without any evidence justifying an opinion for or against the use of sunflowers with corn in the silo. If any of our readers can furnish this evidence, they would be doing their brethren as well as the editors a great favor.

Testing Bran for Adulteration.

Kindly state in an issue of the DAIRYMAN the simplest way to test bran for adulteration.

Pittsburg, Pa. Z. H.

Bran is usually tested under the microscope for adulteration. An ordinary magnifying glass would probably suffice

"ADVERTISEMENT."

GOT TO

Have Sharp Brains Nowadays or Drop Back.

The man of to-day, no matter what his calling, needs a sharp brain and to get this he needs food that not only gives muscle and strength but brain and nerve power as well.

A carpenter and builder of Marquette, Mich., who is energetic and wants to advance in his business read an article about food in a religious paper and in speaking of his experience he said: "Up to three years ago I had not been able to study or use my thinking powers to any extent. There was something lacking and I know now that it was due to the fact that my food was not rebuilding my brain.

About this time I began the use of the condensed food Grape-Nuts and the result has been I can think and plan with some success. It has not only rebuilt my brain until it is stronger and surer and more active but my muscles are also harder and more firm where they used to be loose and soft and my stomach is now in perfect condition. I can endure more than twice the amount of fatigue and my night's rest always completely restores me. In other words I am enjoying life and I attribute it to the fact that I have found a perfect food." Name given by Postum Co., Battle Creek, Mich.

THE U. S EXCELS ON ANY TEMPERATURE.

Our "would-be competitors" the DeLaval Separator Co., finding themselves badly beaten in the six weeks' tests of six different makes of Separators at the Kansas Agricultural College, as shown by the official Bulletin No. 123 issued May 26, 1903, in their efforts to break the force of so disastrous a defeat, have compiled a Bulletin of their own "getting up" purporting to be signed by several students, in which they try to make it appear that the DeLaval was not terribly beaten, as the Official Bulletin shows it was as follows:

Average test of skimmilk of DeLaval Separator	**.048**
" " " U. S. "	**.033**
U. S. excels DeLaval	**.015**

Showing that the DeLaval Separator left 45 per cent. more butter fat in the skimmed milk than the United States.

Again in this "gotten up" Bulletin, our "would-be competitors" state that the U. S. Separator "choked up" on 39 lbs. of milk at 70 degrees of temperature and that the DeLaval ran 80 lbs. Every dairyman using a U. S. Separator knows that the U. S. will not "choke up" on 80 lbs. of good milk at 70 degrees, and that such statements are made in an attempt to break the rapidly gaining popularity of the

U. S. SEPARATOR.

We make the following proposition to any dairyman wishing to buy a separator, viz.: We will put a U. S. Separator into his dairy and agree that it will not "choke up" on 80 lbs. or twice 80 lbs. of milk in good condition at 70 degrees, provided he will pay for the separator if it does not "choke up."

The best authorities do not advocate separating at 70 degrees, but if Dairymen prefer to, the U. S. will do it when properly adjusted.

The U. S. Separator skims cleaner than any other separator on the market at any temperature from 70 degrees to 156 degrees at proper adjustment. The Official Bulletin No. 123 of Kansas Agricultural College, dated May 26, 1903, states that

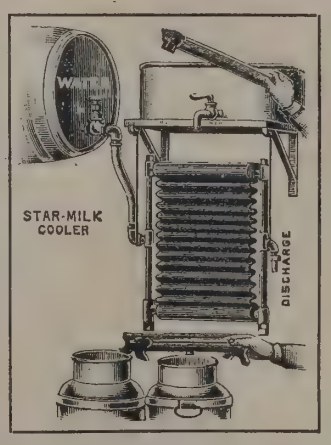
The U. S. Excelled all Others in tests of Skimmed Milk and in Minimum Total Loss.

THE U. S. SEPARATOR HOLDS WORLD'S RECORD.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.

WHEN YOU SEND IN YOUR RENEWAL, SPEAK TO A FEW OF YOUR NEIGHBORS AND HAVE THEM JOIN YOU. CLUB RATES: 2 Subscriptions, $1.50; 3 Subscriptions, $2.00; 4 Subscriptions, $2.50; 5 Subscriptions, $3.00.

STAR MILK AERATOR & COOLER



Will cool milk down to within 2 deg. of the water run through it in the hottest weather.

No agitation required of either milk or water. Every particle of milk flows over 40 inches of surface in the smallest size coolers. Send for illustrated Booklets of our Cooling, Filling, and Bottling Apparatus.

TRY OUR APPARATUS

You Will Be Well Pleased

STAR MILK COOLER CO., Haddonfield, N. J.



Up-to-Date Dairymen

—USE A—

Milk Cooler-Aerator.

at the farm. The **CHAMPION** is simple, cheap, effective—it is the best there is. Our Booklet about it for the asking.

Champion Milk Cooler Co.

67 Main Street, CORTLAND, N. Y.

to detect many of the grosser forms in which bran may be adulterated.

Harvesting and Feeding Mangels.

I have grown a small crop of "Giant Feeding Mangles", or "Half Sugar Beets" for feeding milk cows, in winter.

Please let me know through the DAIRYMAN, best time to harvest, best method of taking care of them till winter, and best way of preserving them in winter. J. M. W.

Bethpage, Tenu.

"Giant Feeding Mangels" and "Half Sugar Beets" are probably fanciful, and to a degree, misleading appellations devised by enterprising (?) seed men to secure trade. Ordinary mangels, given half a chance, will grow to giant size and they always contain more or less saccharine matter.

All the same, mangels make a very acceptable addition to the rations for milch cows. As a general rule, in this climate, they are left in the ground where they grow until the approach of cold weather. They are then harvested, trimmed and stored either in pits, as potatoes are buried, or in cellars. It is not safe to store them in large piles as they give off so much heat that they will soon commence to decay. We should suppose that in the latitude of Tennessee, it would be sufficient to make long, narrow piles and cover more or less thickly with straw,—simply enough to prevent freezing.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers

Clean Dairy Products.

ED. HOARD'S DAIRYMAN:—I want to record a circumstance coming within my immediate notice lately, to show how great is the need of watchfulness on the part of the consumer to keep dairy products pure and wholesome. We were stopping in a neighboring large village and my wife bought a bottle of cream. It was placed in a dish of water, there being no ice at hand, and left in a west window that was sunny late in the day. The water was not changed at all frequently and yet she tells me that the cream remained sweet from Tuesday till Friday.

Of course there is but one construction to be placed on the case. The cream had been doped heavily, or it would have been sour the next day after it was placed in the window. I do not believe the farmer is guilty of much of this sort of fraud. It is not in his line and he would usually scorn to do anything of the sort, especially when he knew that it injures the quality of milk or cream to put preservatives into it, and the practice has been put under the ban of the law. We must look to the dealer for a thing of this sort. He thinks he needs preservatives, for whenever he gets in a lot of milk in sultry or muggy weather he must stand complaints of sour milk unless he is especially careful or makes use of preservatives. The temptation is great and it is so easy to say that there is no harm in the practice. I have been in the milk trade and I am quite well aware of the way such matters are too often regarded.

New York state, at least, is looking after the milk business pretty closely, considering the circumstances, but it is a task and requires tireless vigilance to keep the trade in line. I am convinced though that the examinations should be exerted for the most part along the line of excluding ordinary dirt quite as much as anything, for that is a very vulnerable side of the business and unless there is some influence exerted all the time from the side of the consumer and the authorities, the tendency towards carelessness is yielded to more than one who has not been in the business would suppose. It is, of course, in winter that the danger is greatest and it is very great unless the greatest care every day is added to good permanent arrangements in the stables, guarding against dirt. It is so easy to get used to anything that obtrudes itself in one's way that we forget to be watchful.

Another and quite different dairy case came under my notice lately. It comes in the line of habit, though, and old-formed associations and ruts that we all get into unless there is someone to shake us out of them. A farmer of the old sort, whose instincts and training had not furnished him with the faculties fine enough to manage a dairy, found himself a few years ago with a dozen or more cows very badly run down. He had run short of feed and appears to have discovered that his cows would actually suffer if no worse, unless something was done. A neighbor with a fine herd and the best of reputation for dairy expertness came across the cows and bought them all.

It was with the buyer an experiment to see what could be done with such a kind of hopeless case. Under the new treatment the cows soon began to gain flesh and most of them were soon giving considerably more milk than they had done. By summer they were all in good condition again, as they had been treated as part of the general herd. It is true that a few of them failed to come up in their milk very much, either being too far gone or not being natural milkers and they had to be weeded out, but the others not only did well, but some of them ranked well up with the best of the older herd, without much regard to breed, some being native.

The herd was kept together some years and then the other end of the experiment was tried. The slip-shod dairyman bought his herd, or what there was left of it, which ought to have been the best of it, back again. I suppose that the reader will say that he had in the meantime been watching the situation and learning where he had failed and where the other management had been better than his. Well, it may be that he did learn some things, but that has not been recorded yet.

I asked the other dairyman how he came out on the second trial and was astonished on being told that the herd was already in just about the same condition that it had been when Farmer No. 2 took hold of it. There was the same lack of feed, system and care as before, and the same lack of profit. So I must say, as I have said often, that it is to the new farmer as a rule that we must look for revolutionizing agriculture and its branches. The new farming is so different from the old, and old ways are held so tenaciously that the change required is too great usually. JOHN CHAMBERLIN.

Erie County, N. Y.

"ADVERTISEMENT".

SUBURBANITES.

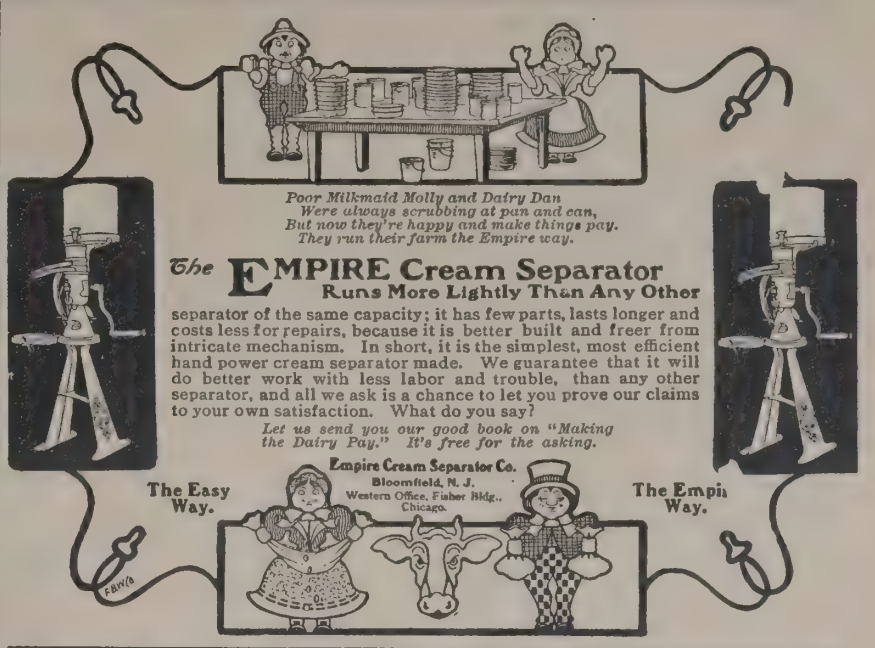
Breakfast on Coffee, a Roll and a Rush for the Train.

The commuter who bolts down a few mouthfuls of food and hurries to catch the train usually catches dyspepsia as well.

The "coffee and roll" road to ill health is not necessary for there is an easy pleasant way to get back to health and shake off all the coffee diseases by shifting to Postum Food Coffee. "For a number of years I was a business woman rising early and swalling a roll aud a cup of coffee just in time to catch a train. A feeling of nausea or palpitation and a continual dullness in the eyes and head invariably followed my coffee breakfasts until one day a good angel in the guise of a woman friend bade me try Postum Food Coffee in place of coffee.

"Always trying to be progressive in my daily life I accepted the advice and the result was I found Postum a delicious clear coffee colored beverage suited to the stomach and satisfying to the appetite. After using Postum faithfully for a month I was surprised at the result in my health. All symptoms of dyspepsia or nervousness had disappeared and because of this marked benefit I reasoned that if such a simple and inexpensive remedy could prove such benefit in my case why was it not my duty to let other sufferers know about Postum. So I began to try to help my friends and I have helped many to shake off sickness by recommending Postum in place of coffee.

There was one who was a victim of nervous dyspepsia and who craved coffee to such an extent that he invariably drank it in spite of medical advice not to do so and I could not persuade him to change, so I got his wife to give him Postum in the morning for a few days without saying anything to him about it. The result was really wonderful. He did not detect the change but noticed that he got over his indigestion. Then we told him the truth about it and now he takes his Postum regularly and is so far relieved of his nervousness that his physician predicts a speedy cure. He likes the Postum just as well as he used to love the coffee." Name given by Postum Co., Battle Creek, Mich.



Did You Ever Keep a Record Of Your Cows?

IF SO, you have felt the need of a convenient, simple and handy Record Sheet. We have had so many requests for these Record Sheets that we concluded to get up one that would "fill the long felt want." We have a very simple and complete Record Sheet for 10 cows, one month, that is printed on heavy Manilla Paper, we can send postpaid at following prices:

Price 5c Each	6 for 20c	12 for 30c	25 for 50c

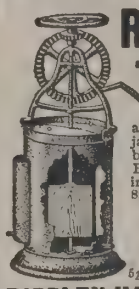
SIZE 10x16 INCHES

We also have a one cow Record Sheet, heavy Manilla paper (one month) that we will mail postpaid

Single Copy 5c	5 for 15c	10 for 25c	25 for 40c

SIZE 6x15 INCHES

HOARD'S DAIRYMAN.
FORT ATKINSON, WIS.



RIPPLEY'S Granite Churns and Steel Carts

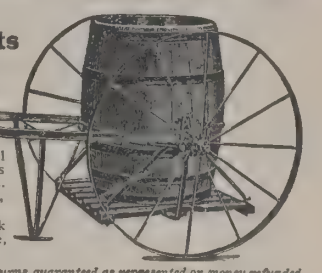
are the Cheapest as they Last Longest and Save Labor.

OUR GRANITE CHURNS are made of heavy 3 coat enamel, all parts removable, can be used as a cream jar, will not rust nor corrode, butter will not stick to them. Easy to clean. Churns butter in 5 to 10 minutes.

Sizes & Prices,	Cash with Order.
3 Gal. to Churn 2 Gal.	$6.50
5 " " " 3 "	7.00
8 " " " 4 "	8.00
10 " " " 5 "	9.50
14 " " " 8 "	12.00

No. 6 STEEL CART with platform attachment, for carrying milk cans, baskets, bbls., etc. Strong and well built, lasts for years. Prices make it within your reach. Complete as shown in cut, $6.50.

Less platform, made to pick up and haul bbls. only, price, $5.00.



5 per cent discount allowed if you order a churn and cart. Carts and churns guaranteed as represented or money refunded.

RIPPLEY HARDWARE CO., Mfrs. Breeders' Supplies, Box 20, Grafton, Ills.

MILK TUBES Patent Coin Silver 1¾" 50c. 2¾" 80c. Improved Teat Opener 75c. Dilating plug 25c. Postpaid on receipt of price. G. P Pilling & Son, 2d and Arch Sts., Phila., Pa.

WRINGING WET Clothes dry is the reason for using any wringer. Saving clothes, buttons and money is the reason for using **Horse-Shoe Brand Wringers.** They are made with rolls of the finest Para Rubber. Every wringer is warranted. **THE AMERICAN WRINGER CO., 99 Chambers Street, New York.**



The Distribution of Skim Milk.

It is known that the just complaints of creamery patrons on account of unfair distribution of skim milk are the bane of the separator creamery business. Further disputes among patrons, annoyances to managers, hindrances to the best work of buttermakers, watering the skim milk, and many other ills in the same train are unnecessary, since the

Barber-Coleman Check Pump

has for more than five years been successfully solving the problem in many different creameries. When a patron has dropped in his check he can pump the amount of skim milk called for by his check, less the percentage taken out as cream, so in like proportion to all other checks. Its measuring apparatus is just an ordinary pump which everyone understands and knows how to operate.

Cornish, Curtis & Greene Mfg. Co.,

General Sales Agents De Laval Alpha Separators,
FORT ATKINSON, WIS.

CONCERNING OUR ADVERTISERS.

A Notable Stock Remedy.

If one will but stop to consult his own experience, considering how frequently his own stomach and digestive organs are out of order and in need of some corrective, he will readily see how the same necessities should arise in live stock. It is to meet just this special need of the animal that the popular Prussian Stock Food is prepared and so liberally advertised in our columns. That it is most effective for the purpose, there are legions to testify and none to deny who have given it a fair trial. Some of our readers may be credulous because it is called a Food, and from the fact that the pail in which it is sold for $3.50 contains some 1200 feeds. Its purpose must not be misunderstood. Those who read carefully the advertisements know that its purposes are plainly stated to be to condition stomach and bowels, beget appetite and digestion, assimilation, etc. Whatever accomplishes these things contributes mightily to the well being of the animal, whether it is being kept for work, for milk, for beef or other purpose. In all the advertisements of this preparation, which are over the signature of the manufacturer, the Prussian Stock Food and Remedy Co., St. Paul, Minn., mention is made of a 68 page stock book, which is mailed free, and which plainly sets forth the ends and puoposes of this now popular remedy. The book being free, we assume that the greater portion of our readers being stock owners, are already in possession of it. Such as are not should do so now. It may throw light on many stock troubles heretofore not understood and be of benefit in the future. All the company requires is to write them how many head of stock you have to secure the book.

Thirty-two Weeks Quarantine Off.

Hood Farm, Lowell, Mass., writes that the 32 weeks quarantine in Massachusetts, on account of the foot and mouth disease, is raised. While there was not any trouble at Hood Farm, or in the immediate vicinity, and they are outside the inner quarantine, they felt that on account of their valuable stock, it was wise to take every precaution against the introduction of the disease into their herd. Therefore they felt obliged to stop visitors from going over the farm as heretofore. In many cases it was with great reluctance that permission to inspect the stock was refused, especially when persons come from a distance, and were not familiar with the new rule. The quarantine imposed a great loss upon Hood Farm as during all this time they could not sell and ship stock outside of Massachusetts. They announce that now that the quarantine is off, they will be pleased to welcome visitors, and all will receive the usual courteous attention.

There is a fine opportunity offered a hustling, practical dairyman in the advertisement of J. B. Olinger, Unionville, Mo. On account of age Mr. Olinger feels that he is unable to manage the farm longer and offers it for sale. It is situated four miles from the county seat. It is a nicely improved dairy farm. Investigate if interested. Ad in this issue.

The Drew Elevated Carrier Co., of Waterloo, Wis., have met with unusual success before the dairymen of the country in the past two years with the Drew Carrier. There is no question but what these carriers are a great economy in labor and in fact the modern dairy barn is hardly well equipped without it. This firm have enjoyed an exceptionally nice business from the readers of Hoard's Dairyman and just recently by the increase of their business have been forced into new and much larger quarters.

DAIRY MARKETS.

ELGIN, Ill., Aug. 24—Butter—Butter sold at 19¼c a pound on the board of trade, as compared with 19c a week ago. Sales in this district for the week were 624,000 pounds.

CHICAGO, Ill, Aug. 17—Butter—Firm; creameries, 14@19c; dairies, 13@17c.

Eggs—Steady; at mark, cases included, 14@15½c

Cheese—Steady; daisies, 11@11¼; Twins, 10@11c.

Cattle—Choice to fancy beeves, 1,200 to 1,500 lbs., 5.65@5.90; good to choice steers, 4.85@ ; fair to good export and shipping steers, 4.85@5.30; medium beef steers, 4.50@4.80; plain beef steers 4.15@4.40; common to rough, 1,000 to 1,200 lbs. 3.70@4.10; good to choice, fat heifers, 3.85@4 75; good to choice feeders, 2.40@3.50; fair to good cows and heifers, 3.60@4.00; good cutting to fair beef cows, 2.40@3.10; common to good canning cows, 1.50@2.20; bulls, poor to choice, 2.40@4.25; calves, choice to fancy, 6.25@7.00; corn fed western steers, 4.00@5.35; Texas bulls and grass steers, 2.90@3.85; western range steers, 3.35@4.60; western range cows and bulls, 2.00@3.60.

Hogs—Good to prime shipping, 5.60@5.82½; good to choice heavy packing, 5.20@5.45; rough and common heavy mixed, 4.90@5.15; assorted light, 150 to 195 lbs., 5.95@6.20; poor to choice light mixed, 5.50@6.10; thin to choice, 50 to 150 lb. pigs 4.90@6.20; stags and rough lots, 3.00@5.00.

MILWAUKEE, Wis., Aug 24.—Butter—Creamery—extras, 19c; firsts, 16@17c; seconds, 14@15c; whey, 10c; Dairy, fancy, 16c; lines, fresh, 13@14c; packing, 12@12½c; grease, 5@6c.

Cheese—American, full cream—New Twins, 10½@11c; Young Americas, 11½@12c: Daisies, 11@11½c; Longhorns, 11¼@12c; low grades, 8@9c; Brick, new, fancy, 9@9½c; low grades, 6@8c; Limburger—New, fancy, 9@9½c; off goods, 7@8c; Swiss, old, drum, choice, 12@12¼c; drum, No. 2, 10@11c; Block, choice, 11@11½c; block, No 2, 9@10c.

Eggs—Strictly fresh laid, at mark, cases returned 14@14½c; do, loss off, 16c; dirties and seconds 12c., checks, 10c.

FOND DU LAC, Wis., Aug. 24—Cheese—Offerings on the Dairy Board today were 475 Twins and 322 Daisies, with bids at 9¼c for Twins and 10½c for Daisies, and no sales.

SHEBOYGAN, Wis., Aug. 19—Cheese—On the Call Board today 1,632 boxes of cheese were offered and sold, as follows: 290 Daisies, 10¾c; 390 do at 10⅝c; 113 cases Young Americas, at 11¼c; 253 do at 11½c; 171 Longhorns at 11½c 415 do at 11c. Market steady.

SHEBOYGAN FALLS, Wis., Aug. 19—Cheese—20 factories offered 1,777 boxes of cheese on the Call Board today and all sold as follows: 70 cases Young Americas at 11⅛c, 483 do at 11c; 259 Daisies at 10⅝c; 965 cases Longhorns at 11c. Market steady and firm.

MARSHFIELD, Wis., Aug. 14—Cheese—Sales aggregated 1,240 boxes; 806 Twins at 9⅜c; 10 singles at 9¾c; 232 Daisies at 10¾c; 10 cases Longhorns at 10¾c.

MUSCODA, Wis., Aug. 17—Cheese—Transactions were 802 Twins sold at 10c; 50 at 10 1-16c, and 50 withdrawn,

SEYMOUR, Wis., Aug. 18—Cheese—The sales to day were 335 Twins 9¾c; 417 double Daisies at 10¾c; 148 at 10½c; and 131 withdrawn.

APPLETON, Wis., Aug. 17—Cheese—Eighteen factories offered 1621 boxes, all sold. 12 Cheddars at 10½c, 120 at 10½c: 223 Twins at 10¾c, 666 at 10⅞c;

MANITOWOC, Wis., Aug. 19—Cheese—Sales reported to the Dairy Board were: 140 Twins at 9¾c; 900 Young Americas at 10¾c, and 1,800 Daisies at 10½c.

BRILLION, Wis. Aug., 13.—Sales today were 231 Twins at 9¾c, 605 Daisies, at 10⅝c: 568 at 10¾c, 74 cases Young Americas, at 10¾c, and Cheddars at 9¾c.

PLYMOUTH Wis., Aug. 18—Cheese—twenty-six factories offered 3,398 boxes and all sold as follows: 685 Longhorns at 11c; 1,035 Daisies at 10¾c; 439 at 10⅝c; 250 Twins at 10c; 623 Young Americas at 11c; 60 at 11⅛c. Market active and firm.

Latest quotations for fancy creamery:—Baltimore, 20@20½c: St. Louis, 19@20c; Cincinnati, 21c; Buffalo, 19½@20c; St. Paul, 18½c; Minneapolis, 18½c.

BOSTON, Mass. Aug. 2—Butter—Creamery western extra, 20@20½c; western firsts, 19c; dairy, 15@18c½; imitation creamery, 15@15½c; ladle, 13½@15c; box and print, 15@21c

Cheese—Choice, 9½@10½c; Wisconsin Twins, 9½@10½c; Ohio flat, 9@9¼c.

Eggs—Nearby, 27c; western selected, 19@21c; poor to fair, 15@16c; Illinois, 17c@17½c.

NEW ORLEANS, La., Aug 24—Butter—Market steady, good demand. Extras selling at 20@20½c.

WASHINGTON, D. C., Aug. 24—Butter—Market firm. Extras at 20c; firsts, at 19½c; renovated, 17c.

NEWARK, N. J., Aug. 17—Butter — Market steady.

Eggs—19¼c for fair eggs; 19¾c for firsts; 21c for extras.

TOPEKA, Kan., Aug. 22—Butter—Creamery butter, 19@21c; dairy, 17@18c.

Cheese—Longhorns, 11c; Twins 10¾c; Daisies, 11c; Prints, 11½c.

LIVERPOOL, Aug. 24—Butter—Good United States steady 75s.

Cheese—American finest, white 49s. 6d; colored 51s.

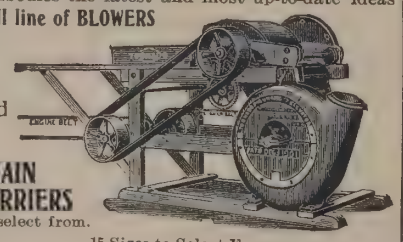
NEW YORK, Aug. 24—Butter—Receipts, 9,717 pkgs.; market quiet; state dairy, 14@18c; extra creamery, 19¾c; Packing stock, 12@14½c; common to choice, 18@19½c.

Cheese—Receipts, 1,885 pkgs; market quiet state full creamery, fancy, small colored, 10¾c; small white 10¼c; large colored 10c; large white 9¾c.

Eggs—Receipts, 8,339 pkgs.; strong; state and Pennsylvania, fancy mixed, 21c; state and Pennsylvania, seconds to firsts, 17@19½c; western extras, 20@21c; western, seconds to firsts, 18@19½c.

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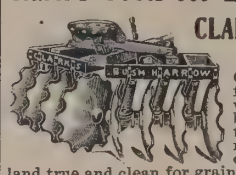
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MASSILLON, - OHIO.

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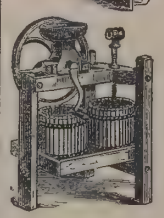
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Cuts a track 5 ft. wide, 1 ft deep. Death to bushes, witch grass. Kills any bush, grass, rose or plant that grows. Can plow a newly cut forest, stump or bog land, leaves the land true and clean for grain or any crop.



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Will smooth an acre as true as a mill pond in twenty minutes.



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For horse, hand or steam power. From five gallons to eight barrels. Perfect Grinders. Will grind seventy-five bushels per hour easy.

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Made single or double. One or two furrows five to ten inches deep; 14 inches wide. For two or four horses. Light draft. No side draft. No similiar plow made.

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HIGGANUM, CT., U. S. A.

BUTTER FOR UNCLE SAM

THE CONTINENTAL CREAMERY COMPANY
TOPEKA, KANSAS

Has been awarded the contract to supply the United States Navy with half a million pounds of butter for the ensuing year.

For this purpose only the best quality of butter is used, and its keeping quality must be made of the very best, owing to the fact that the entire year's supply must be made within a few months and it is carried through all conditions of climate.

The government has made a thorough study of supplying butter to suit the requirements of the Navy and as a result it has laid down some very exacting standards to which those who bid for these contracts must comply. One of the few concerns who can fulfill these requirements is the Continental Creamery Co. and it was awarded this contract, which is the biggest single order for butter ever filled.

This company produces the greatest quantity of fancy creamery butter in the world, all of which is made from pasteurized cream. Surely it knows something about making good butter. It also knows from actual experience and the investigations of its chemists, that one of the factors in making good butter is

WORCESTER SALT--IT USES NO OTHER

FOR SALE BY ALL CREAMERY SUPPLY HOUSES.

WORCESTER SALT COMPANY
168 DUANE STREET, NEW YORK.

Weight

Salt that makes weight makes money for the butter maker. DIAMOND CRYSTAL SALT—"*the Salt that's ALL Salt*," made weight for one creamery at the rate of $8,000 a year in additional profit. The secret is simply this: Whatever weight you add in DIAMOND CRYSTAL SALT, *you obtain in increased weight of butter*. Its pure, dry flakes dissolve completely and become a part of the butter, instead of being washed out, or adhering to the worker rolls, like common, gritty, flinty salt. Our illustrated booklet "Just Salt" is just the thing for dairymen. Free on request.

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"1900" BALL BEARING WASHER
sent free, without advance payment, freight prepaid both ways on 30 days trial. Mr. Geo. N. Burnet, Ashtabula, O., says, "Have done 1200 washings and is good for 1200 more. Beats them all, and have tried 8 different machines." Write at once to "1900" Washer Co., 219A State St., Binghamton, N. Y.

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All about them and other things for the dairy and creamery.
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OUR FREE STOVE CATALOGUE shows a picture of our Newark, Ohio, stove foundry, THE LARGEST STOVE FACTORY IN THE WORLD, where we make every kind of RANGE, COOK AND HEATING STOVES, which we sell direct to users at LESS THAN ONE-HALF the prices charged by others. OUR FREE STOVE CATALOGUE pictures, describes and prices every kind of stove we make, explains our liberal pay after received terms, our 30 days' free trial offer, our safe delivery guarantee, our quality and durability guarantee and also carries with it the most astonishingly LIBERAL OFFER ever heard of. Just to give you a little idea of the wonderful values we are offering we show two popular stoves taken at random from our big assortment as shown in our free Stove Catalogue.



$3.98 buys this handsome NEW 1904 MODEL OAK HEATER, Burns wood or coal and is one of the handsomest oak heaters made, beautiful rococo cast iron base, top and front, best sheet steel body, very elaborate nickel plated ornamentations and trimmings, including side rails, bands, top, handsome urn, medallions, checks, drafts, etc. OUR FREE STOVE CATALOGUE shows a very large picture of this and an endless variety of other direct draft and DOUBLE HEATER WOOD AND COAL HEATING STOVES.

$4.85 buys this handsome COOK STOVE, latest 1904 model, one of the latest and best cook stoves made; highest grade casting, large oven shelf, oven door kicker, nickel medallions and trimmings, heavy covers and centers. Our free Stove Catalogue shows a very large picture of this and an endless variety of other cast iron cook stoves and cast and steel ranges at correspondingly low prices.



Our big $11.98 nickel trimmed steel range is the greatest steel range value ever offered. Our $13.95 reservoir nickel trimmed steel cook stove and our big 500-pound reservoir high shelf range, which we sell at $15.95 ARE THE EQUAL OF RANGES THAT SELL ELSEWHERE AT DOUBLE THE PRICE.

Our free Stove Catalogue shows large pictures and complete descriptions of all the stoves we make, explains our liberal terms, 30 days' free trial proposition, our guarantees, etc., and carries with it the most liberal stove offer ever named. Don't buy a stove anywhere until you see our free Stove Catalogue. Simply write us a LETTER or on a POSTAL CARD SAY "send me your free Stove Catalogue," AND IT WILL GO TO YOU BY RETURN MAIL, POSTPAID, FREE. Address,
SEARS, ROEBUCK & CO., CHICAGO.

PHILADELPHIA, Pa., Aug. 24—Butter—Market steady. Solids 20c; nearby prints 21c; western 20c.

LITTLE FALLS, N. Y., Aug. 17—Cheese—Sales: 100 boxes large colored at 9¼c; 16 lots (1,456 boxes) small white at 9¼c; 8 lots (425 boxes) do 9¼c; 23 lots (2,058 boxes) small colored at 9¾c; 5 lots (251 boxes) do, at 9½c; 7 lots (508 boxes) do, 9¾c; 14 lots (875 boxes) white Twins at 9¾c; 5 lots (304 boxes) do, at 9½c.

UTICA, N. Y., Aug. 24—Cheese—New Yorkers seemed anxious for cheese today. No change in the price of last week.

WATERTOWN, N. Y., Aug. 22—Cheese—Sales 7,500; 9¾@9⅞c for large ;10@10¼c for small; bulk at 10.

CANTON, N. Y., Aug. 22—Cheese — Offered 2,092 Twin cheese and 1,315 tubs of butter. Cheese sold at 9⅞c; butter at 20c.

NEW YORK MARKET.

NEW YORK, Aug. 22—Butter—Receipts for the week, 58,201 packages.

Exports for the week, 1,060 packages.

Arrivals were heavier than last week, and about 6,000 tubs in excess of the corresponding week one year ago, yet prices for extra creamery were advanced 1c per pound at the close and all grades of table butter were in sympathy. Home trade were only moderate buyers, but speculators were conspicuous in the market, and lots of 50 to 100 tubs were quick taken at 19½c, and fair to good creameries were in demand at 17@19c.

New York State Dairy is in light receipt and fancy tubs are salable at 19c; mixed lots of poor to good sell at 15@17c. A little more doing in ladle butter this week at better prices. Market closes with less animation and speculators show no disposition to fol'ow the advanced prices. We quote:

Creamery, extra, 20c; medium, 18@19¼c; poor, 15@17c; Dairy, extra, 19c; medium, 16@18c; poor, 14@15c.

Cheese—Receipts for the week, 38,362 boxes. Exports, 5,393 boxes.

Prices are a trifle easier and receivers more willing to do business than last week. We note sales of fancy small cheese at 10½@10¾c and large colored goods at 10@10¼c.

Part skimmed cheese sold at 8@9c for very finest, while under grades found buyers at 6@7½c. We quote:

Full Cream, small, extra, 10¼c; medium, 10@10¼c; poor, 7@9¼c. Full cream, large, extra, 10¼c; medium, 9¾@10c; poor, 7@9c.

Eggs—Receipts for the week, 28,137 cases.

There is a scarcity of strictly fancy fresh eggs and prices for this kind of stock are higher. We quote:

New York & Penn., strictly fresh, per dozen, 22@23c; Northern & Western, strictly fresh, 20@21c; all Sections, poor to good, 14@18c.

177 Chambers St. DAVID W. LEWIS & CO.

BALTIMORE MARKET.

BALTIMORE, Md., August 20—Butter—Owing to the very strong windup of last week's market, a very good many were of the opinion that higher prices would prevail this week, but so far their expectations have not been realized. Although the receipts of Creamery Extras are daily growing lighter, there have been but few speculators on the market this week, hence the supply of extras, though light, is about equal the requirements of the consumption trade; firsts have been moving out fairly well, while seconds are neglected entirely. Imitation Creamery—While in moderate supply, has been moving quite slow, as the quality is rather indifferent. Ladles—The kind that are being offered is meeting with slow sale, for the simple fact that the stock is running very irregular, both in body and flavor. Packing stock is in fair receipt, all fresh, sweet lots continue in good demand, while sour is dull sale even at reduced prices. Blocks and Prints—The demand is fully equal to the offerings of all desirable stock. Although at the close of today's business, the market rules steady to firm, on all attractive offerings there is not that activity that characterized last week's market.

Creamery Separator, extras 20@20½c; firsts 18¼@19½c; seconds, 16@18c. Imitation Creamery, extras, 18c; firsts, 17@17¼c; seconds, 14@16c. Iowa & N.W. Ladle, extras, 16½c; firsts, 15@15½c; seconds, 13c; Creamery blocks (2-lb.) extras, 21@22c; firsts, 20c; seconds, 17@18c. Creamery prints (¼ lb) extras, 22@23c; firsts, 21c; seconds, 17@19c. Md. Va., & Penn. Prints, extras, 20@21c; firsts, 19c; seconds, 16@18c.

Eggs—With continued light receipts, especially of desirable stock, and an active demand, the market rules firm at 20c on all desirable offerings.

Cheese—The receipts are ample; demand moderate; market quiet but steady. Swiss—The supply of the new make is quite sufficient for the demand.

N. Y. State—Cheddars, fine, 10¾@11c; choice, 10¼@10½c; fair, 9@9¾c, Flats, fine, 10¾@11c; choice, 10¼@10½c; fair, 9@9½c; Small, fine, 11@11¼c; choice, 10½@10¾c: fair, 9¼@10c; Ohio Flats, fine, 9¾@10c; choice, 9@9¼c; fair, 8¼@8½c; O. Picnic, fine, 10@10¼c; choice, 9¼@9¾c; fair, 8½@9c; Swiss Cheese, (domestic) new, fine, 13@13½c; choice, 11@12c; fair, 9@10c.

G. M. LAMB & BROS.

301 Exchange Place.

NEW YORK FERTILIZER MARKET.

Potash, dbl. m're salt 48@53 per cent	1 12	@ 1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons	25 00	@30 00
sulph of basis, 90@98 per cent	2 11	@ 2 18
90@98 per cent less than 25 tons	38 00	@40 00
Potash muriate ₩ 100 lbs.	1 83	@ 1 95
less than 25 tons	36 00	@40 00
Kainit 25% S. of P. ₩ ton	9 30	@ 9 50
less than 25 tons	9 50	@10 50
Sylvinit, 35@37% P. ₩ unit	41	@ 46
Nitrate of soda	2 20	@ 2 30
Blood, Dried red ₩ unit	2 55	@ 2 60
low grade	—	@ —
Concentrated tankage	15 00	@16 00
Fish guano, dried	25 00	@25 25
acidulated	23 00	@23 50

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—Experienced thoroughgoing and reliable dairy farmer who can furnish his own help, to work dairy farm of 160 acres. Good house and outbuildings, fine dairy barn, cement floors, silo, modern conveniences. Must be intelligent feeder and handler of stock. 40 cows in dairy, young cattle, hogs. Will pay salary or share. Reply, giving references and salary expected. H J. YOUNGS, Stillman Valley, Ill. 29-2

Wanted—A working foreman to manage farm and help build up a first class herd of Jersey cattle. Married man without children preferred. F. E. HANFORD, Mason City, Iowa.

For Sale—1 Empire No. 5 separator. In use now but too small. Also two Guernsey bulls of good quality six months old. C. W. WALLINE, Cambridge, Ill. 29-2

A Registered Guernsey Bull 15 months old for sale. A very fine animal. Inquire of J. S. HUNTER, Pickett, Wis. 12-tf

Improved Large Yorkshires—If you are interested and want to start right, drop a line to W. H. FISHER, Spahr Bldg, Columbus, O., for a "Tale of the Pig." 27-4

A First-class Creameryman wants an offer from either co-operative or private creamery in western Pa. or Ohio. 7 yrs. with stock and 7 yrs. at creamery work and butter making. Best of references. WM. H. APPLETON, Plainfield, Ill. 27-3

Stock and Dairy Farm For Sale—¼ mile from city limits. 171 acres with milk route and telephone connections. Will sell with or without stock and personal property. For full particulars address THEO. GLOECKLER, Portage, Wis. 24-tf

For Sale at a Bargain—Our E. W. Ross No. 261 Ensilage Cutter, 26-inch knife, automatic feed, capacity limited to the amount you get to the machine. 56 feet angle carrier. This machine is in good state of repair and is a snap for the money. Price, $100. Address A. J. DAUGHERITY, Streator, Ill. 28 2t

Wanted—To purchase second hand combined churn and butter worker. Must be in first-class condition. Send terms to JOHN L. BURCH, Boyds, Md. 28-3

We Have Them—You Want them. A few choice pure bred Guernsey bulls and grade heifers. A. H. HINMAN, Allenville, Wis. 26 4

For Sale—At a bargain adjoining city of Decorah, Iowa, 454 acre dairy farm, stock and machinery complete. Watered by never failing springs. Good farm buildings including two large silos. Established city milk and cream trade for the product of 100 cows. For price address J. C. BEARD, Decorah, Iowa. 28-6

Cash—For your 2d hand carrier for silage cutter, any width, any length Write what you have. G. L. STEWART, Dane, Wis. 28-tf

Wanted—Competent man with wife, and without children preferred, to take dairy business on shares. We furnish hay, pasture, utensils, separator, worker, etc. Will give half produced from cows including calves and hogs. 25 to 30c. year round for butter. W. W. PRIEST, Ferguson, Mad. Co., Mont. 28-3

I offer my U S. Separator No. 2½, used 6 mos., a No. 3 Wizzard churn and worker combined, and a 5 horse engine. Reason for selling is a change in business. All in first-class shape and does good work. Will sell separator or churn without engine. E. E. EASTMAN, Plymouth, Wis. 28-4

Guernsey Bull For Sale—Fair Jeweller, No 8365, two years old, excellent individual. Also some bull calves. All at low prices. Herd headed by Sir Bonny. A. R. COLLINS, Xenia, Ohio.

For Sale or Trade—One Ohio No. 19 ensilage cutter with self feed table and 42 feet swivel carrier, used only one season, 12 h. p. portable engine in good condition, one 2 h. p. Payne boiler and engine on trucks, 1 2 inch rotary force pump nearly new, one No. 6 Simplex combined churn and worker, one 24 bottle Facile Turbine Babcock tester with glass ware used but few times. J. H. GRIFFIN, Moira, N. Y.

For Sale—Holstein-Friesian bull 2 years old, sure, remarkably kind, large, in show condition, is sold for absolutely no fault. Dam, Clothilde Lunde Artis. 39867, won 2d in Pan-American 7 day butter contest. Sire, DeKol 2d's Butter Boy 3d, 23260. Will make a reasonable price to quick buyer. E. W. WINSOR, Farmingdale, N. J.

Position Wanted—By an honest and industrious man as partner in milk business. Write quick to "GORE," Sycamore, Ill.

Wanted—Competent house-keeper on farm. Elderly woman, single, widow or married. If married, man can work on farm if competent as manager. No objection to one or two children old enough and willing to work. Permanent position, good wages. Will arrange house. CARL MUTH, Sheboygan, Wis. Howard Road, 2 miles from city. 29-2

For Sale—A 2-months' old bull calf. Sire, Bisson's Guenon Lad, 64579. His grand sire sold for $3,500. Dam, Wardmaes Glory, 167024. Will sell cheap. Write for particulars. C. A. ROBINSON, Kirksville, Mo. 29-2

Wanted—To rent with privilege of buying in 2 years, a herd of 10 well bred young Jersey cows of high test and large milking capacity. For further information address JOHN H. MOWRY, Sherwood, Mich.

I Desire Position as butter maker or creamery manager in the West. Am 22 years old and was raised in the creamery business. Can turn out product of finest quality. W. H. LANDES, Bath, Pa.

Two Men Wanted—One for delivering bottled milk in city and one for dairy and barn work. Must be good milkers and have good references Wages $35.00 per month and board. Steady job to good men. Address G. C. DICKSON, Grand Forks, N. Dak. 29-2

For Sale—Fine 4 months' old grade Guernsey heifer $25.00, also bull calf one month old from thoroughbred but not registered Guernsey cow. Sire, Carl P. V., 6540. Price $25 00. Address GILBERT HICKCOX, Box H, Whitefish Bay, Wis. 29-3

Wanted—First-class man capable of taking charge of 25-acre farm, country place. Must be an expert in raising crops, vegetables, fruit, poultry and cows. Married; not more than one child. Wife to make butter and help with poultry. Write stating references and wages wanted to H. I., care Hoard's Dairyman. 29-4

Wanted—Two good men. One to work with cows and chickens, the other to do general farm work. Must be single, sober, and honest. Wages $25.00 per month and board year round. R. H. POSTEN, Oconomowoc, Wis., Box 419.

Dairy Complete—16 fine cows, milk route, 160 acres, large amount of timber, some excellent garden and berry land, abundance of water. In short time nearly all feed required can be raised on place. New barn, milk house, large hen house, horse stable and wagon shed. Income $220 to $240 per month. Can easily be doubled. On account of recent death in family will sell at very reasonable price. Address DAIRY, Box 244, Northport, Wash. 29-2

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Farm for Sale—Owner will sell on favorable terms one of the best 240-acre farms in Minnesota, near a thriving Minnesota town. Good buildings, nice neighborhood, no crop failures. Splendid opening for stockman. Write L. N. MOSS, Decorah, Iowa. 27-4

For Sale—45 acre dairy farm at Ft. Atkinson, Wis. Good buildings and other improvements. See or write D. C. CONVERSE. 27-4

For Sale—One 30 inch French burr geared feed mill in best running order; also one Western Mill corn sheller, capacity from 5 to 75 bushels per hour, nearly new. Reason for selling, too large for this place. JOHN ZIEGLEY, Valley, Wis. 26-tf

For Sale—Large English Berkshire boars of choicest breeding. JERRY VOSBURG, Neenah, Wis. R. F. D. No. 9. 26-4

Herdsman Wanted—Single man not under 30 years of age, with several years experience; one acquainted with rearing and caring for Holsteins. References required. State wages required including reference. Steady place for right party. Address D, care Hoard's Dairyman. 25-tf

For Sale—Creamery and cheese factory. Also for sale a 5-year-old standard bred stallion and a 6-year old standard bred mare. Would like a partner in the cheese making and butter making business with $1.000 capital. Address S. M. H., care Hoard's Dairyman. 28-2

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

Buff Jersey has just issued the third edition of The Dairyman, Stock Breeder and Farmer's Hand Book. This work of 100 pages is full from cover to cover with up-to-date helps for progressive people on the farm and ranch. The chapter on Silos and Ensilage the most complete ever published. There are 20 cuts and illustrations used to assist in making the reading matter plain. Buff Jersey is well known to the DAIRYMAN readers as an able instructor in all things agricultural, so his book will be in demand. Sent post paid for 75c BUFF JERSEY, Monmouth, Ill. 47-tf

Wanted—Single man on large dairy. Only good milkers need apply. F. W. ADAMSON, Lake Bluff, Ill. 4-tf.

Farm Foreman and Manager position is desired by one 39 years of age and 20 years experience with Holsteins and Guernseys. Thoroughly familiar with modern dairying, soiling, breeding, as well as exhibiting and selling pure bred stock. References furnished. Address W. A. R., care Hoard's Dairyman. 25-6

For Sale—A second hand, self-feeding, 16 inch Smalley Ensilage Cutter in good order, together with 56 feet of carrier, 18 feet of which was new last year Also a three horse Smalley Tread Power in good condition. The above will be sold cheap to make place for larger machinery. W. D. HOARD, Fort Atkinson, Wis. 20-tf.

For Sale—3 Golden Lad Bull Calves, sired by Golden Lad of St. Ouen, a 50% Golden Lad; dams large milkers and extra butter cows. These calves will be sold at a low price, considering breeding. It costs but little for transportation charges on a four-weeks-old calf and in twelve months you have a thoroughbred ready for business Address THE SEARS AND NICHOL DAIRY CO., Chillicothe, Ohio. 28-4

Wanted—Experienced stenographer and clerk for a large stock farm. Must be familiar with stock and pedigrees. State age, experience, references, salary expected. Address "STENOGRAPHER," care of Hoard's Dairyman. 29-2

Fine Dairy Farm for Sale—Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. T. S. TOMPKINS, Pasadena, Cal. 15-tf

Very Low Rates to Deadwood and Lead, S. D.—Via the North-Western Line. Excursion tickets will be sold Sept 2, 3, 4, 5, and 6, with very favorable return limits, on account International Mining Congress. Apply to Agents Chicago & North-Western R'y. 27-4

Excursion Tickets to County Fair at Woodstock, Ill.—Via the North-Western Line, will be sold at reduced rates Aug. 24 to 28, inclusive, limited to return until Aug. 29, inclusive. Apply to Agents Chicago & North-Western R'y. 27-3

Excursion Rates to County Fair at Evansville, Wis.,—Via the North-Western Line. Excursion tickets will be sold at reduced rates Aug. 31 to Sept. 4, inclusive, limited to return until Sept. 5. inclusive. Apply to Agents Chicago & North-Western R'y. 28-2

Excursion Rates to County Fair at Madison, Wis.,—Via the North-Western Line. Excursion tickets will be sold at reduced rates Aug. 31 to Sept. 4, limited to return until Sept. 5, inclusive. Apply to Agent Chicago & North-Western R'y. 28-2

Excursion Tickets to County Fair and Reunion of 95th Illinois Infantry at Belvidere, Ill.,—Via the North-Western Line, will be sold at reduced rates Aug. 31 to Sept 4, inclusive, limited to return until Sept. 5, inclusive. Apply to agents Chicago & North-Western R'y. 28-2

Radisson on the Chippewa—A new town in Sawyer County, Wis., on the North-Western Line, located on both the Chippewa and Couderay rivers, in the center of a most fertile and promising hardwood district. This is an exceptionally promising country for landseekers, while sportsmen will find it an ideal place for camping. The many lakes and streams afford excellent muscallonge, bass and pike fishing, while the woods are full of deer. If looking for a new location, don't fail to see this new country. For map and full particulars write to T. W. Teasdale, General Passenger Agent C. St. P. M. & O. Ry., St. Paul, Minn. 29-3

Home Visitors' Excursion Tickets to Indiana and Ohio—Via the North-Western Line, will be sold at reduced rates on four Tuesdays, Sept. 1, 8, 15 and October 6, limited to return within 30 days from date of sale. For particulars as to territory to which excursion tickets may be sold, etc., apply to agents Chicago & North-Western Ry. 29-sp

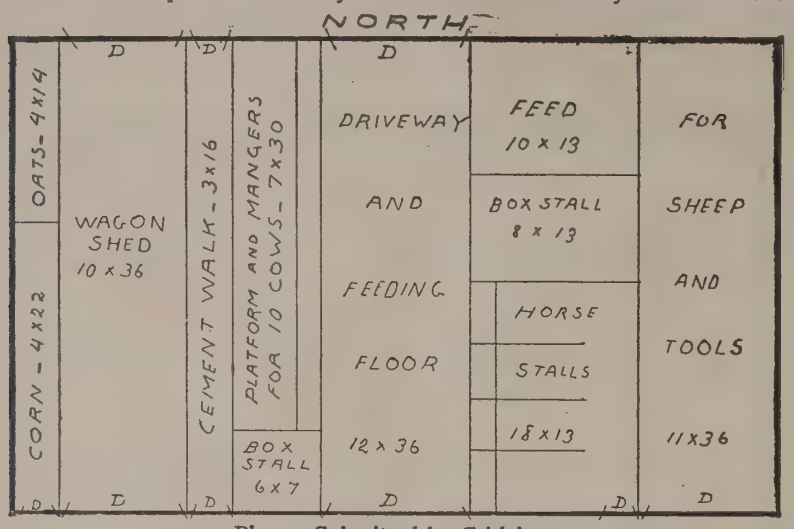
Excursion Rates to the Centennial Celebration at Chicago—Via the North-Western Line. Excursion tickets will be sold at reduced rates September 28, 29 and 30, limited to return until October 2, inclusive. For further particulars apply to agents Chicago & North-Western R'y. 29-5

Stable for Cows, Horses and Sheep.

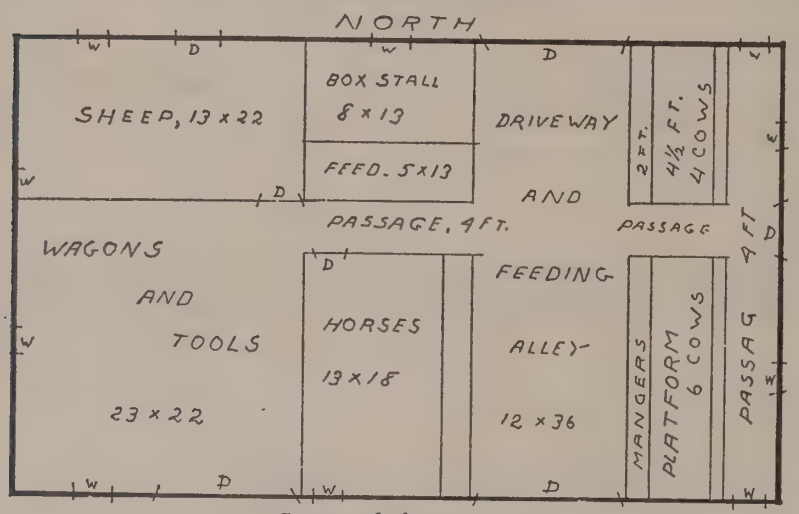
ED. HOARD'S DAIRYMAN:—I intend putting up a barn on 110 acres of land, about ½ being pasture and would like a barn for 10 cows, 3 or 4 horses and 25 or 30 sheep. I will be pleased to have your criticism on plan on opposite side of this paper. Is it all right to use building blocks for foundation? What would such a barn cost in your locality by using the best of pine and covering with slate roof? I appreciate very much the valuable instruction I receive from your paper. A SUBSCRIBER.

Franklin County, Ohio.

It is a much easier proposition to suggest defects in the plan submitted by our correspondent than it is to submit an entirely satisfactory rearrangement of the stable floor in his proposed structure.



Plan as Submitted for Criticism.



Suggested Arrangement.

The plan proposed appears to us to be largely objectionable because of the difficulty of getting from one division to another, and especially, that no provision is made for getting into the horse stable or the cow stable from the feeding floor. This objection might be obviated in part, if not entirely, by using one of the horse stalls and the small box stall for cows, as a passage way, but even in that event, the space behind the cows is much too narrow. Four feet for this purpose, besides a gutter at the rear of the cows, is as little as ought to be thought of. Further than this, we suggest that the proposed plan has altogether too many doors and practically no windows.

If we were to subdivide and rearrange this structure for ourselves, without giving any attention to a probable increase in the number of cows, we would use the east end of the barn for the cow stable, making the entrance as shown, and devoting to this purpose not less than twelve feet in width. Next to this would be the driveway and feeding alley, which we have marked on the plan as twelve feet wide, but might better be two feet wider. The passage from this feeding alley between the horse stable and the feed bin is necessary in order to carry hay to the sheep pen. If it were not for this, we would locate the passage ways on the south side. As will be seen from the diagram, we do away with a good many doors and substitute windows.

The widening of the cow stable and the allowance for sides, ends and partitions makes it impossible to provide in this structure for the corn and oats. This is not much to be regretted. The corn crib might better be an entirely separate structure, and the bin for oats could well be placed in the northeast corner on the second floor.

We cannot answer the question as to cost, but would certainly not use wooden blocks of any kind for the foundation.

Meeting of the Eastern Guernsey Breeders' Association.

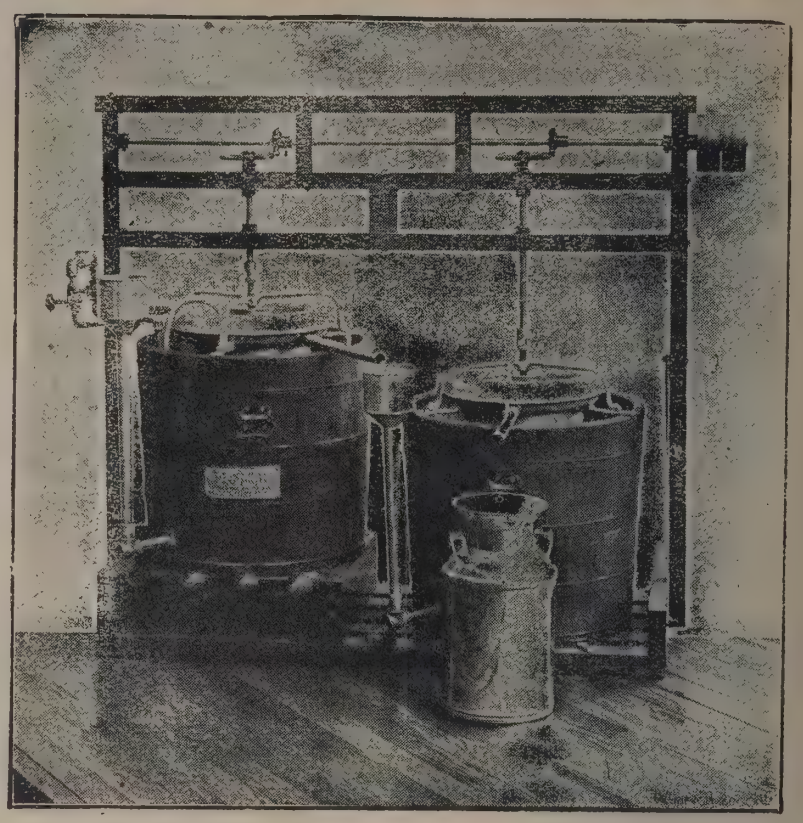
ED. HOARD'S DAIRYMAN:—The Eastern Guernsey Breeders' Association met at Haddon Farms, the home of Hon. E. T. Gill, Haddonfield, N. J., on Friday, July 24, 1903. The President, Hon. Anthony Higgins of Wilmington, Del., being absent in Europe, the first Vice President, Mr. E. T. Gill, took the chair.

The minutes of the previous meeting were read and adopted, after which the names of the following breeders were proposed for membership: Lucius J. Shepard, Farm School, Pa.; James M. McCamant, New London, Pa.; Penrose Larkin, Lyndell, Pa.; Herbert Warden, Doylestown, Pa.; E. J. Tyson, Floradale, Pa.; Thomas Briggs, Newtown, Pa.; Walter Janncey, Broadaxe, Pa.; B. H. F. Shreve, Philadelphia, Pa,; Joseph Evans, Marlton, N. J.; Ezra Evans, Marlton, N. J.; C. B. Case, Trenton, N. J.; Wm. H. Borden, Swedesboro, N. J.; Wm. I. Tomlinson, Kirkwood, N. J.; R. T. Woodward, Cream Ridge, N. J.; R. T. Ridgway, Cream Ridge, N. J.; John Tyler, Saleno, N. J.; S. H. Gardiner, Ashland, N. J.; P. H. McCormick, Bel Air, Md. The chairman appointed Ezra Michener, E. J. Hollingsworth and E. T. Price a committee on membership.

Ezra Michener, of Michener, Bucks county, Pa., then read a very excellent paper upon, "The Advantages of a Good Bull to the Breeder." He said in part, "A great many breeders do not realize the absolute necessity, if they expect to be successful in their work, of having a good bull to head their herd. A very great many of our best cows and bulls have the blood of imported Sir Champion, 38 back of them.

I think Imp. Alexander 327 was one of the very best bulls ever in this section of the country. He was the sire of Euphe-

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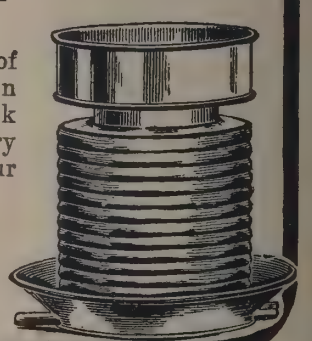
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mia 2005, record 15 lbs. of butter in 7 days, Aldine 1211, one of the Chicago cows that stood 12th in rank among the Guernseys at the beginning of the six months' test, and for the last month advanced to 5th position, and made 489 lbs. of butter in the year. Hinda Rose 2089, another daughter, made 12½ lbs. in 7 days and Miss Woodford 2447, 13½ lbs. as a three-year-old, and had she not met with a misfortune would have made Brown Bessie and Merry Maiden think there was a yellow and white ghost after them, and close enough too, to grapple with them at any moment.

Mary Marshall 5604, the winner at the Pan-American, was a granddaughter of this bull as is also Miss Rita 8506, 489 lbs. in a year and No. 39 in the Advanced Register. The bulls that trace to him were equally good and their decendants take very high rank, noticeably, McQueen 1788 who was the sire of Mary Marshall.

The more good cows and good bulls we have back of our breeding, the more sure we are of success. We are getting awake to the fact that we can improve our cattle more quickly by using good bulls, as the bull may give us ten good heifers, while the cow will give us but one.

I think the most practical way to select a good bull is to look up the performances of his ancestors, and if you find that he is backed up by great animals on both sides,—and the more of them the better—pin your faith to him and use him long enough to find out if he is a success, and if he proves worthy, keep him and breed his daughters back to him and thus intensify his good qualities."

When Mr. Michener had finished, the paper was very ably discussed by Prof. Welsh, E. T. Gill, S. I. Murphy, and C. B. Case. The question for discussion: "How shall we treat our cows, that they may make creditable butter records, without impairing the future usefullness?" was opened by Prof. J. P. Welsh. He said: "We should begin with the great, great, grandmother of a cow. Blood will tell. There is a great deal in the rearing of a calf. Calves that should develop into great cows may be so reared that they will come out scrubs. They should be kept growing and healthy, that they may become large cows and develop large udders. A heifer, when she comes in milk, should be fed a good ration as long as she will make milk.

Mary Marshall 5th, record, 9306.3 lbs. of milk and 474.5 lbs. of butter fat as a 3 year-old, never missed a feed and grew all the time she was making her record, and was in better shape for making a record at the end than at the beginning of the year."

E. T. Gill, Dr. M. E. Conard, Dr. Marshall, B. H. F. Shreve, Mrs. E. W. Strawbridge, and Dr. Charles Seltzer spoke upon the question in a very able and instructive manner. The noon hour having arrived, the host announced that lunch was waiting and the meeting adjourned, After all had partaken of the bountiful repast which Mrs. Gill had prepared, the members and their friends proceeded to the barn to view the cattle and the dairy building. The latter is a model of convenience, being fitted up with every improvement necessary to the production of a superior grade of milk.

But the greatest attraction was the noted herd of Guernseys. This is one of the very best herds of the breed in this country, including as it does the famous Glenwood Girl family, which is acknowledged by all to be one of the best, if not indeed the best family of Guernseys in the world. Besides having great butter records, this family has vigor and constitution rarely equaled and not surpassed by any cattle of any breed.

At the head of the herd are Glenwood's Mainstay 6067, and Sir Primrose 5528. Glenwood's Mainstay is a splendid individual and has great breeding. He is by Mainstay 3789, who is a son of the noted Sheet Anchor 2934 and that great cow Rutilla's Daughter 6670, record 637.51 lbs. of butter in a year. His dam is Glenwood Girl 6th 9113, record 667.5 lbs. in a year, the greatest of the family of which she is one.

The calves sired by Glenwood's Mainstay are extremely fine; the heifers show a remarkable development of udder and teats and are large and growthy. Sir Primrose is also a very good bull, he was bred by Geo. C. Hill & Son of Rosendale Wis. His sire Vicount 2117 was by the noted bull Bonny Boy and his dam is Primrose's Tricksey 7236, record 592.16 lbs. in a year.

Mr. Gill is raising a young bull for future use, whom he calls, "Great Combination." He is out of Glenwood Girl 6th 9113 and by Glenwood Boy of Haddon who in turn is out of Glenwood Girl 2nd, record 593.5 lbs. in a year, and by Pat of Haddon 3919, No. 1 Adv. Reg. who was the sire of several great cows. As the afternoon wore away the members and guests departed for their homes. The meeting was full of enthusiasm from beginning to end and all felt that they had enjoyed a pleasant and profitable day. We look forward to another treat in October when the Club will meet with Mr. Edward T. Price at his farm at Broadaxe, Pa.

M. M. HOLLINGSWORTH, Sec.
Landenberg, Pa.

Hand Separator Cream.

ED. HOARD'S DAIRYMAN:—The pessimistic views held by some of our creamerymen regarding the effect of the hand separator system as regards quality of the product because the controling (?) factor as to the quality being taken away from the buttermaker, I would beg to state, having had considerable experience with the hand separator, that while the quality of cream, same as we find in quality of milk delivered, is liable to be below the standard that it should be, the butter maker has it however, at his own discretion to put the responsibility where it belongs.

In the first place, every thing being equal, the farmer can take better care of a small quantity of cream than ten times that amount of milk, to say nothing about the purification which takes place during separation, thereby enhancing keeping quality; especially so if the separating is done before the animal heat has disappeared, thereby averting all danger of taking up any bad odors that will be taken up when the temperature is even, or below the surrounding atmosphere. As it is generally known, milk does not take up odors until it reaches the temperature, or below, of its surroundings.

When, as above stated, the responsibility is placed where it belongs, the quality of cream will be equal, or better than the quality of milk as now delivered.

HOW TO DO IT.

Grade the cream, and pay according to quality delivered. With the acid test there cannot be much trouble to show the farmer the condition of his cream, same as he can be shown in a few minutes by the Babcock test, the value of his milk. When it involves the all sensitive spot, the pocket, the majority will see to it that carelessness on their part is brought to a minimum.

I was in a creamery today where several thousand pounds of butter are made every day, wholly from hand separator cream, some of it being shipped nearly two hundred miles, and found as good quality as I have ever seen at this season of the year in a whole milk creamery.

The pleas for the whole milk system are so insignificant, and the advantages for the hand separator system so great, that one might as well try to stop the tide of the ocean as to try to stop what Nebraska and Kansas have learned to be of the greatest advantage to all concerned—the hand separator system.

Lincoln, Neb. J. FRED SCHLAPPI.



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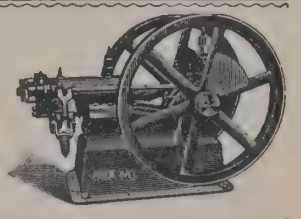


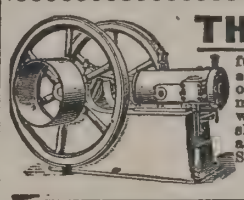
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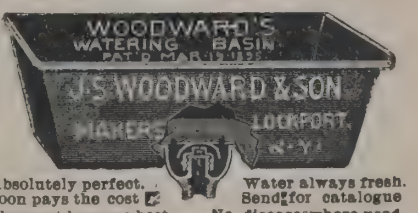


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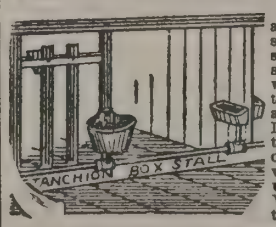


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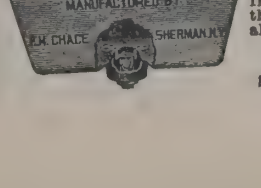
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With the Georgia Dairymen.

ED. HOARD'S DAIRYMAN:— The Georgia Horticultural Society, the Ga. Agricultural Society and the Ga. Dairymen's Association, met in Athens, Aug. 3rd. to 7th inclusive. A small but enthusiastic audience, responded to President Williamson's call to order, on the afternoon of the 4th. The President's address was a very able paper. He said in part, that it was a fact worthy of congratulation, that the Georgia Dairymen's Association, had survived for nine years. He spoke of the necessity of farming with live stock in the South, and believed dairying had advantages over other live stock raising. He quoted statistics to show why so many young men were leaving the farms, and declared that farm laborers were the poorest paid of any laborers in the United States, and he could not blame the young men for leaving the farm, neither did he consider it so detrimental to the farm interests in general and said, "If more cultured people would leave the farms and go to the cities, it would lessen competition in an over-crowded calling, raise the price of farm products and increase farm wages.

He also condemned the policy of wealthy men who buy farms, and compete wtth the farmer who is farming his own land. President Williamson is a man who makes no statement without careful consideration, and his statements, some of them though, somewhat pessimistic and opposed to the arguments of many agriculturists, are worthy of careful thought.

Mr. G. W. Holmes, of Madison, read a paper on "Practical Dairying," which he interpreted to mean, profitable dairying. "The first essential is a good cow, then good barns that are light, and in winter warm and well ventilated, and in summer cool, with two rows of cows facing each other, platform sloping, and all arranged for the comfort and cleanliness of the cows; bedding with a light sprinkling of chaff.

Something for the cows can be planted every month in the year, and the cows do better, "he believes in a change of food, feeds as much green food as possible, and changes it every few days, if convenient." In the discussion that followed, Mr. Holmes advised sowing turnips for fall and winter, also vetches with oats, wheat, barley or rye. He considers vetches to be more liable to stand the winter than the grain; never has failed getting a crop; sows about 3 pounds to the acre, with the afore-mentioned grains.

Some one inquired about rape, and some one in the audience, had raised it successfully. Prof. Henry of Wisconsin, spoke of its value as a forage crop and advised the farmers of Georgia to raise it.

Prof. Johnson of the State Agricultural College, at Athens, spoke on the subject of "Forage Crops," he was followed by Prof. Newmans of Clemson College. The two speakers strongly advised the farmers to raise a greater variety of forage crops, that may be raised in this section. Prof. Johnson reiterated the statement of Mr. Holmes that something may be grown every month in the year, but advised the farmers to plant more corn and make ensilage; he invited the dairymen to visit the College grounds where there were small plots of soy beans, cow peas and sorghum, sown together. This latter was recommended, though it seems to the writer to be unsatisfactory, as they do not mature together, however, this may not be a serious objection; velvet beans also were making a good growth.

Prof. Newman advised the raising of hay of all kinds except crab grass. He said that impoverished the soil too much. He spoke highly of alfalfa and told of fields that he knew of, that were over 25 years old and still yielding several tons in a season. He said in the south it is better to sow the seed in drills in the fall and cultivate it. He advised raising the clovers for hay, and told of the crop that was raised in DeKalb Co. on a single acre, and a single cutting for which the owner refused $90 in the field.

Prof. Henry inquired as to the price of hay in the markets and the prospects for raising it. Considerable discussion followed and the concensus of opinion seemed to be that if from one to four tons of hay could be raised per acre, worth $20 per ton, on land that can be bought for from $10 to $40 per acre, that there ought to be money in farming, and that it would be to the financial advantage of southern farmers to quit raising cotton and raise hay.

Prof. Newman spoke of the advantages of hog raising in the south, the great variety of forage crops and root crops that may be raised here. In addition to the forage crops that have been mentioned for cattle, and which are equally as good for the pig, may be mentioned, Spanish peanuts, sweet potatoes and turnips. These forage crops may be gathered by the hogs by building a portable fence of woven wire. This may be made by fastening the wire to small oak posts, then rolling wire and posts up together. It can easily be transported, post holes driven and the fence set up quickly.

Dr. Jago, of Athens, read an instructive paper on Milk Fever. He advised the Schmidt treatment and gave details. Dr. Jago laid special emphasis on the injunction to farmers not to give medicine to the cows after the disease has progressed far enough to cause paralysis of the throat, as the medicine then goes to the lungs and causes pneumonia.

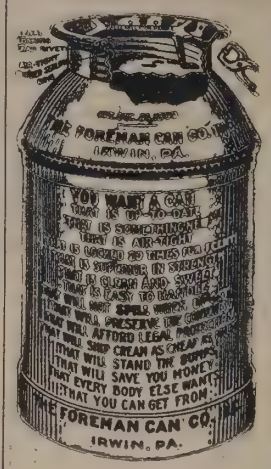
The Secretary read a paper by B W. Hunt, of Eatonton, on "The Importance of Adding Phosphate to the Cattle Rations of the South." Mr. Hunt has found in his practical dairy work that young cattle and colts do much better on clay soil if phosphate of lime is added in small quantities to their daily rations. It is his belief that there is a lack of lime in the soil which should be supplied. He also feeds it to animals before they drop their young.

At the evening session, Prof. W. A. Henry of Wisconsin, spoke on The Development of Agricultural Education in the Northern United States. The summer school for teachers is now in session at Athens, and many of the teachers were present, and Porf. Henry directed a part of his address to them. He told how the great Agricultural Colleges of Wisconsin, Minnesota, Illinois and other states had grown from small beginnings to their present size and power. He told how, until the short course in dairying and in agriculture was established, they made almost no progress; now it is possible for a young farmer to attend a winter school without interfering with his farm work. Two winters completes the short course.

The graduates of these short courses are in good demand at remunerative salaries, thus offering a congenial occupation in a line of work where there is little competition and endless opportunities for accomplishing more in the world's progress than in the overcrowded professions. Many of the students go back to the farms; some of them run in debt for land, improve it and pay for it. The prosperity of the country has greatly increased, and from a county, which a few years ago was growing poor, raising wheat, it has become, by raising live stock, a diversification of crops, and the application of brains to farm methods, one of the most prosperous sections of the country. Land has grown high, and consequently taxable property has increased. Prof. Henry urged the south as a business proposition to make appropriation for its agricultural colleges and schools. The Governor of Wisconsin has made the statement that for every dollar the state has spent to further agricultural education it has received back ten.

Wednesday morning, Prof. Henry again

THE BROWN BESSIE HERD Offers one bull 14 months old, sired by Recorder, 29239, the only living son of Brown Bessie and has 14 tested daughters. Dam, Relay, 70353, test 17 pounds 2 ounces. She a daughter of Diploma with 61 tested daughters. Also Berkshire Pigs of English and American selected stock.
H. C. TAYLOR, Orfordville, Wis.



We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity—1000 cans daily, which should enable us to fill all orders promptly.
Every can sold on a guarantee. Write for Circular H.

BUY DIRECT FROM FACTORY, BEST
MIXED PAINTS
At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.


STEEL TUBULAR FENCE POSTS.
Absolutely indestructible. A permanent Fence Post suitable for fields, farms, pastures, etc. Made of a one-piece hollow tube. Costs no more than the ordinary cedar post. We have all kinds of wire for sale. Write for Free Catalogue No. 20 CHICAGO HOUSE WRECKING CO. West 35th and Iron Streets, Chicago.

NOW Is the time to Subscribe for HOARD'S DAIRYMAN.

NORTH OAKS FARM, ST. PAUL, MINN.
(Jas. J. Hill, Proprietor.)
AYRSHIRE BULLS
Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address,
N. E. McKISSICK, Supt., Cardigan, Minn

AYRSHIRE CATTLE of the BEST of BREEDING. Also Chester White Pigs, ready to book for season's trade. Young stock of both sexes. Prices reasonable. Come and see us.
F. TSCHUDY & SONS, Monroe, Wis.

Florham Guernseys.
The herd is made up of representative animals of both home and foreign breeding.
BULL CALVES,
from large producing dams for sale. Apply to J. L. HOPE, Supt., Florham Farms, Madison, N. J.

Old Homestead Guernseys.
Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.
Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL Perry, Lake Co., Ohio.

GUERNSEYS FOR SALE
Bull two years old out of Count Topsy 24.27 lbs. butter 7 days. She won 1st prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality F. W. TRATT, Whitewater, Wis.

GUERNSEYS FOR SALE.
Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.
JAS. H. BEIRNE, Oakfield, Wis.

GUERNSEYS.
HADDON FARMS—Home of the noted GLEN WOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

BULL CALVES
From cows with a weekly butter test of 19 lbs. 10 oz., a Babcock test of 739 9-10 lbs. in a year; 48 lbs. 6 oz. of milk in one day, 11713 lbs. in a year, are seldom offered. The Sale List referred to on pages 514, 536, 556, and 576 contains such a calf, and another from a daughter of a full sister to the above cow. If needing new blood in your herd write now, asking for Sale List A 19.
WINTERGREEN HILL FARM, SCOTTSVILLE, N. Y.

Rosendale Guernsey Herd
TUBERCULIN TESTED.
Sixty head of choice Guernseys headed by Coralette's Son, (see page 450) whose dam, Coralette made 479.7 lbs. fat in one year at 3½ years old, and was first prize cow at Wisconsin State Fair in 1896.
Some fine young bulls for sale.
GEO. C. HILL & SON, Rosendale, Wis.

Wasteland Guernseys
Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.
M. M. & E. J. HOLLINGSWORTH, Landenberg, Chester Co., Pa.

FOR SALE GOLDEN LAD BLOOD, sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

FOR SALE. Two A. J. C. C. Bulls ready for service; also some younger ones. Cows and heifers in calf to richly bred bulls. Write for pedigrees and prices. We have a few Berkshire Boar Pigs from unregistered sows left; cheap.
N. N. PALMER & SON, Broadhead, Wis.

BILTMORE JERSEYS
are great and presistant dairy workers and typical Jerseys. We ask comparison with any other herd for
YEARLY MILK & BUTTER YIELDS, SUBSTANCE AND FINISH.
The herd contains more prize winners at the leading exhibitions (including the Pan-American) than any other herd.
The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service as you cannot get it.
Also Headquarters for Large English Berkshires and Standard Poultry.
Apply to
BILTMORE FARMS, BILTMORE, N. C.

HAZEL FERN HERD. A. J. C. C. Jerseys blood of St. Lambert, Melia Ann, Combination, Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

ROBINSWOOD JERSEY DAIRY is offering a few Reg. Jersey Bulls ready for service at from $25 to $50, sired by a grandson of Recorder, the only living son of Brown Bessie, out of good cows. Write, stating your wants, to
N. H. ROBINSON, Prop., Centralia, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.
W. J. HUSSEY, Mt. Pleasant, O

JERSEYS FOR SALE
FOUR SOLID COLOR BULL CALVES
3, 4, 5, and 7 months old. Sire a Double Grandson of St. Lambert Boy, sire of 54 tested cows.
J. ALDUS HERR, Route 4. Lancaster, Pa.

VALLEY FARM Offers for sale a son of "King of St. Lambert's King" out of a daughter of "Gazilla's Fawn," dropped July 29th., 1900. Also have some young bulls. Write your wants to
FRED STUBLEY, Black Earth, Wis.

PROSPECT HILL JERSEY HERD.
Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

JERSEY BARCAIN.
REGISTERED YEARLING BULL, sire a son of Brown Bessie, winner of 30 and 90 days butter tests, Chicago, 1893. Dam traces to Eurotas (778 lbs. 1 yr.), Mary Anne of St. Lambert (867 lbs. 1 yr.), also Brown Bessie; fat tests showed 364 lbs. 1st. season, within year, and 15 lbs. 1 oz. (258 lbs. milk) in 1 wk; died of milk fever this (3d) calf. Thrifty, solid color.
E. E. STEVENS, North Madison, Ohio.

THE BREAK DOWN
is usually in the wheel. They receive the strain and wear. They dry out, spokes and felloes rot, tires come loose. Get the service out of wheels you do out of gears by using
Electric Metal Wheels.



You have a wagon for a life time. Electrics are the staunchest, tightest, easiest running wheels made. Straight or staggered oval steel spokes, cast in the hub, hot riveted in tire. Broad tires, no rutting, light draft, any height, fit any wagon.
Write for free illustrated catalogue on Electric Wheels and Handy Wagons.
ELECTRIC WHEEL CO., Box 130, Quincy, Ills.

SAVE PAINT BILLS Instead of using Metal Roofing, which requires painting every two years, use Arrow Brand Asphalt Ready Roofing already surfaced with gravel, and which needs no painting.



ASPHALT READY ROOFING CO., 82 Pine Street, New York. Send for free samples.

spoke, his subject being; "The Rational Feeding of Dairy Cattle." He first briefly outlined the basic principles of feeding animals, then urged the farmers to grow all the home grown feeds possible, and supplement them with cotton seed meal; showing how it was possible to feed meal to cows and have three-fourths of its value left in the fertilizer.

Considerable discussion took place in regard to the amount of meal that it is safe to feed a cow, some considering more than three or four pounds per day dangerous, others feedng more, with no apparent injury; some believed it to be a very dangerous feed for calves; others had never seen any ill effects from it. Col. Redding, Director of the Experiment Station, spoke briefly of The Relation of the Experiment Station to Dairying. Col. Wade read a paper on The Model Dairy Cow.

Prof. Willoughby, dairyman at the station, read a paper on Cheapening the Cost of Milk and Butter. Prof. Willoughby urged the necessity of reducing the cost of production without impairing the product. The old officers were re-elected: president, W. D. Williamson, Harmony Grove; sec., M. L. Duggan, Sparta; treas., T. W. McCallister, Lavinia. The meeting adjourned to meet next year at Tallulah Falls. M. E. BEMIS.

Scottdale, Ga.

Silage vs. Corn Fodder.

ED. HOARD'S DAIRYMAN:—Will the fellows who contend that we get no more out of our silos than we put in them, explain why the steers at the Kansas Experiment Station sold for 25 cents more per hundred than did the steers in the same experiment that got only dry feeds, and why Armour Co., in the slaughter test, reported that the silage steers had just the right amount of fat well placed and were fine enough to sell in any class of dressed beef, while the dry fed steers dressed out deficient in fat poorly placed? And why the ensilage fed steers gained 100 lbs. for 715 lbs. of grain consumed, while the dry fed steers required 733 lbs. of grain per 100 lbs. gain, a saving of 18 lbs. of grain per cwt. in favor of the ensilage fed cattle? This saving of grain plus the 25 cents per cwt. in the selling price in favor of the ensilage fed cattle, we are told by Prof. Otis made a saving of 52.62 cents per hundred pounds of gain. He then makes an estimate of the value of an acre of corn that will yield ten tons of ensilage per acre and finds that it is worth $32.90 if fed as per above.

Have we any records showing such results from such a corn crop handled in any other way? If so, I would like to know of it.

Now what did the Kansas Station put in their silo? Just ten tons of green corn that would have husked out 40 bushels of grain if allowed to ripen. This grain would sell in Manhattan for 30 cents per bushel or $12 per acre, leaving a value of $20 to be accounted for in the stalks. Now the cured stalks would weigh two tons and are worth, say, $5 per ton, or $10 for the acre, so what about the $10.90 yet to be accounted for? Did or did not the silo add something to what was put in?

Every dairyman that has silos knows full well he gets a good deal more out of his cows per acre of corn crop fed, than he ever did from his corn fodder, so he can credit the gain to the silo or cows, just as he pleases. I prefer to give the silo the credit.

Some days ago our herdsman turned the Jerseys on the rape patch after milking them at night, allowing them to remain there for about one and one-half hours each time. The result is that we are now getting a gain of 40 lbs. of milk daily and the gain not yet stopped. These cows are in two good pastures of white clover day and night, but the change of feed pleases them very much.

The rape pasture we are using for our Berkshire hogs covers less than three acres, but with nearly 100 hogs and pigs on it it shows no lack of feed. Our pigs ninety days old weigh 91 lbs. and 95 lbs. each, while the sows are in good flesh.

Last week I went over in Iowa and took some pictures of some Buff Jersey silos. At one place, where a one-hundred-ton silo was put up last fall, I was told that another one would be put up at once. This man was induced to build a silo greatly against his will. He did not believe they were of any particular advantage, but now he is one of the strongest advocates of them that I know of.

Monmouth, Ill. BUFF JERSEY.

Improving the Dairy Herd.

ED. HOARD'S DAIRYMAN:—The improvement of the dairy herd depends in a great measure upon the sire. The cow may be posessed of the highest points of excellence, but her good qualities will not be sufficient unless mated properly, to transmit to her progeny. A cow may be easily tested, by the Babcock machine, and also by her milking capacity and be discarded if these are not satisfactory, but no such test can be applied to the sire. He must be tested first, by his ancestry; second, by his offspring; and third, by his form.

The sire, if intended to build up and improve the dairy herd, should come, first of all from a dam posessing fine milking capacity and one that was also a good breeder—that is, she should have been one that transmitted her good qualities in a marked degree—and if the sire to whom she was bred had good ancestry, also, then with such ancestry there is a reasonable hope that the offspring from such a sire will be all that is desired. Third, his dairy characteristics, or form should conform somewhat to the general outline or type of dairy sire, although these points are not to be wholly relied upon. The skin of the sire should be fine, soft and rich colored; good width of hips, depth of hind part, deep ribs, large chest capacity are the principal points.

Having such a sire possessing all requisites as far as known for good breeding, the supreme test is to watch the development of the calves into the milking stage. If the females of his get develop into or possess the virtues of the ancestry—then it will be safe to retain him as leader, but not otherwise. An inferior sire will undo the work of generations of improvement in the dairy herd; discard him.

PRACTICAL.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA.

President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.

FEES FOR REGISTRY.

TO MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.

NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. ☞All blanks furnished free.

Life Membership, $25.

Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.

Address F. L. HOUGHTON, Putney, Vt., for information relating to Registration of Pedigrees.

HOLSTEINS IN CALIFORNIA

ST. ANSELMO, MARIN COUNTY

250 HEAD IN THE HERD

Sires are sons of Mercedes Julip Pietertje, Colantha 4th Belle Korndyke, Fay Barnham Princess Wayne 7th. A fine lot of bull calves

R. M. HOTALING,

Rialto Building San Francisco, Cal.

LOOK HERE

34 cows and heifers in the **McGEOCH HERD** have been **officially tested** with the following results: 10 cows average 20.28 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs. of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs. of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by **Gem Pietertje Hengerveld Paul De Kol**, or **Sir Ormsby De Kol** for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days; average per cent of fat 4.47. Are these the kind of **Holstein-Friesians** you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd?

For particulars address **H. B. Daggett, Mgr., Station A, Milwaukee, Wis.** Residence: National Ave., near 40th. Phone, South 1601.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

Bulls For Sale.

Two choice bulls ready for service and some fine bull calves from good testing dams. Sire: Paul Clyde, son of Paul DeKol. Dam's record 24.88 lbs. in 7 days. Write C. A. SNOW & SONS, Athens, Ohio.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148 Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.

WM. EVERSON & SONS, Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULLS FOR SALE.

Ready for service; from A. R. O. animals; sired by Johanna Rue 2nd Paul De Kol, sire of 13 A. R. O. cows. Also young bull calves by same sire. **THOS. GAINES, Supt.**

ARCADIA, - MISSOURI.

TYRANENA HERD

100 HOLSTEIN-FRIESIANS 100

A. R. O. Stock For Sale.

Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz **Frank B. Fargo, Lake Mills, Wis.**

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Offers 3 yearling bulls and 10 yearling heifers, sired by a grandson of Sadie Vale's Concordia. Cows and heifers bred to oldest son of Mercedes Julip's Pietertje, No. 39480. Chester White Pigs in pairs and trios, not related.

W. R. GATES, Fort Atkinson, Wis.

OAKLAND HERD HOLSTEINS

PREMIER SIRE **Mutual Friend 3d's Paul** A son of Paul De Kol & Mutual Friend 3d, 21.84 lbs. butter, milk averaged 4.7% at 3 years. She has two A. R. O. daughters, 1 made over 20 lbs.

Must reduce herd at some price. State just what you want. T. A. MITCHELL, Weedsport, N. Y.

BROOKSIDE HERD

HOLSTEIN-FRIESIANS

To reduce herd to capacity of pasture, will sell a limited number of A No. 1 young cows of high breeding and individually right, large producers, at $150 each; also 15 bull calves at bargain prices.

STEVENS BROTHERS, Lacona, N. Y.

JUST BULL CALVES

We have three, that are individually fine. They are bred right, have been fed right, and the price is right.

Ohio's Famous Herd. Holstein-Friesian Cattle. **W. B. SMITH & SON.**

2488 W Broad St, Columbus, O.

MAPLES STOCK FARM, PENNELLVILLE, N. Y.

Second Annual Offering

80 HEAD OF HIGH CLASS REGISTERED

HOLSTEIN-FRIESIANS

AT AUCTION, OCT. 14, 1903,

at Fulton Fair Grounds, Fulton, N. Y. Catalogues ready Oct. 1. Write for one. Address R. F. D. 8 **John C. Godfrey, Fulton, N. Y.**

Holstein-Friesian Bull Calves

Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

HOME FARM HERD.

Headed by **COLANTHA 4TH'S LAD.** Official test of three nearest dams, 25.1 lbs. butter in seven days. Herd numbers 125 head.

BEST FAMILIES REPRESENTED.

Special prices on six or eight bulls of serviceable age. **W. B. BARNEY & CO., Hampton, Ia.**

THE STEVENS HERD Contains at the present time the young bull, Vale, with the largest official backing of any bull ever born. Several half-brothers and sisters to Vale, and a large number of cows and heifers bred to his sire, whose official backing is larger than that of any other bull ever in service. A cow that stands unequaled by any other that ever lived, in the official work of herself and daughters. The only cow ever officially tested for six months. Eighteen cows and heifers with official 7-day butter records averaging, by the 80 per cent. factor, over 20 lbs. each. Thirty animals whose dams have made official 7-day butter records averaging over 20 lbs. each. Why not get our prices before buying?

HENRY STEVENS & SON,

Brookside Stock Farm. Lacona, Oswego Co., N. Y.

ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.

GEO. T. McNEIL, Theresa, N. Y.

FOR SALE.

H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 23628. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address **W. H. JONES, Watertown, Wis.** Rural Route No. 2.

FOR SALE 2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.

M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

CLOVERDALE HERD

HOLSTEINS.

Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.

A. J. DAUGHERITY Streator, Ill.

Woodlake Herd.

Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN, Station D., R. 1. Minneapolis, Minn.

MARKHAM MANOR FARM,

Simonsville P. O., Andover, Vt.

Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 18870, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for discription and price to **J. A. THORNTON,** Manager, **Simmonsville, Vt.**

FIRST CLASS BULL

Offered at reasonable price by South Side Farm, White Bear, Minn. Born Dec. 1, 1899. Sired by Baron Pauline De Kol with 8 A. R. O. daughters, and tracing three times to De Kol 2d. Our bull's dam has A. R. O. record of over 22 pounds, under five years, and during week's official test milk averaged over 40 per cent. fat. Fine conformation, nicely marked, superior handler, large veins and rudimentaries, gentle, vigorous, and sure. Other bulls ready for service.

STAR FARM HOLSTEINS

SPECIAL OFFERING: Six of the choicest Johanna bull calves from official butter record dams and A. R. sire.

Also a few choice heifer calves, yearlings and 2-year olds; latter bred to Mercedes Julip's Pietertje Paul.

150 HEAD TO SELECT FROM

Special prices on cows in carload lots. Prices reasonable for quality. Liberal terms of payment.

HORACE L. BRONSON, Cortland, N. Y.

Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. **C. H. STEVENS, Jefferson, Wis.**

FOR SALE CHEAP The exceptionally well bred H.-F. bull Duke Mercedes De Kol, 3 yrs. old, sure and kind, can be bought for $100, or about half price, because his owner can use him no longer. Dam, 9 dams, sisters, aunts, cousins, A. R. O.; making a wonderful showing. For further information and photo address

MALCOLM H. GARDNER, Darien, Wis.

HOLSTEIN-FRIESIANS INDIVIDUALITY, PERFORMANCE, BREEDING. You need it all. Write or come. 100 head. **McKAY BROS., Buckingham, Ia.**

HOLSTEIN-FRIESIANS

FAIRVIEW HERD

We offer from this herd a few choice yearling bulls, also four very fine bull calves. Write describing what you want.

O. J. GODFREY, Pennellville, N. Y.

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. All our choice pigs of 1902 farrowing have been sold. We are now taking orders for 1903 farrowing.

JOHN WHITE & SON, Adamstown, Md.

HOLSTEINS

High Class Advanced Registry Stock only. Best butter families. Stock for sale.

Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.



T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.

Wm. O. Jackson & Sons, South Bend, Ind.

THE MONONA FARM HERD

OF HOLSTEIN-FRIESIANS

Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 69.50 lbs. one day. Breeders and dairymen please write for prices.

F. W. ALLIS,

Monona Farm. Madison, Wis.

FOR SALE. H.-F. Bulls, ready for service, from A. R. O. Cows and sired by Sir Jonanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis

PURE BRED SHORTHORNS

CHOICE BULLS FOR SALE.

Also Cows and Heifers bred to Clay Buttercup, 126851, a descendant of the Clay Family, champions at the World's Fair dairy test.

GEO. WENHAM, Fort Atkinson, Wis.

Keeping up the Milk Flow in August.

ED. HOARD'S DAIRYMAN:—Keeping up the milk flow in August is pretty difficult. With heat, dry pastures and, last, but by no means least, flies. The first week of August with me was very hot and dry, and we were put to our trumps to keep the milk up to a respectable showing. The complaint was general among our neighbors that the milk was reducing terribly, and they suffered much more than did we. Our loss of milk during the first week of August was 31 pounds off the preceding week, 66 pounds from the week before and 81 pounds less than the maximum weekly yield of the year, which is not a bad showing at all for the first week of August. August is supposed to be one of the worst milk months in the year. The pastures which were green in June and well into July, are in August, seared and yellow, devoid of nutriment and distasteful to the cows. Unless one has plenty of pasture, of various topography, it is useless to depend upon pasture in August. Green crops and a big feed of meal is the only dependence for August milk.

Cows which have not been receiving daily meal rations are the ones that show the greatest falling off in August. It is not the feed of oats that Cresceus gets on the morning of the race that supports him in the contest against the seconds on the race day. It is the culmination of good care and feeding for months back that gives the great horse the power to hold up his phenomenal speed. It is the same with the milk flow of a good milk cow (a great milk cow has usually as much potential nervous energy as a Creceus.) It is not altogether the feed she gets today that sustains her in the milk-flow of today. It is the cumulative strength of previous months, laid by to be drawn on as needed, that sustains the well cared for milk cow in times of heat, drought, short pastures and flies.

Here then comes the necessity of preparing for war in times of peace. Along in June, when pastures are good and the milk flow satisfactory, the dairyman thinks it needless expenditure to feed meal. He may feed meal at this time, and find that the milk flow is not very much increased, and he therefore decides that it does not pay to feed costly meal at this time. Meantime the cow, if a good one, is giving unselfishly, every pound of nutriment she so industriously gathers, and more, into the milk-pail, retaining nothing for the strength and support of her own body, or to fortify herself against a time of drought and flies. When this time comes, the cow is unable to withstand the untoward conditions.

It is now too late to make up by feeding meal however heavily, for extra feeding all at once, will not bring up the milk flow. This is the reason that the milk flow at the cheese and butter factories, falls so low in August. As a general thing three-fourths of the patrons feed no grain or meal to their cows during the early summer, and it is only when they see the milk reducing every day, that they will begin at all to feed grain, and then it is too late.

Green, slushy food, as peas and oats, corn, etc., is a poor substitute for grain, to restore the cow's vitality and sustain her through the trying month of August. It will not do it. Green food of some kind is of course necessary and indispensable, but it should not be depended on entirely. It should only be fed in conjunction with a good meal ration. We believe ground oats one of the best summer feeds, if it can be obtained at a reasonable figure. This is what I have been feeding myself, this summer. I was able to get ground oats, delivered at my railway station, for $20.00 per ton. Bran I could not get for less than $24.50 delivered at my station, so feeding bran this summer is pretty dear feed, and almost prohibitive. I am able however, to get cracked corn, slightly damaged, delivered for $20.00 per ton also, and this mixed with ground oats, makes a tip top feed for any animal.

It is only by watching the markets however, that I am able to get those snaps in feed. Most dairymen do not do this. Many of them hardly take a daily paper, and they know nothing of those bargains in feeds. Of course it is hardly to be wondered at that our factory patrons do not feed much, if any mill feed to their cows. With bran at almost $25 and other feeds in proportion, one requires to have great faith in his cows, and also in the virtue of good feed, to invest at those prices. At one time I argued that the milk flow could be kept up on nothing but green food stuffs alone, in conjunction with pasture, and without the use of any meal at all. I know better now, that this cannot be done.

If cows are expected to keep their flow of milk, the feeding of ground feed is imperative. To some of our cows we are feeding these days, ten pounds of oats and corn per day. We have fed scarcely any green food as yet. We have pasture at various stages of growth, which answers so far. During the hot days of this week, we had our cows for a part of the day in the wood pasture, where no animal has taken a bite of it this summer. The cows appreciated the shade as well as the white clover and soft grasses in the shade of the trees and brush, and by the use of a liberal sprinkling of kerosene, we managed to stay, to some extent, the ravages of the flies.

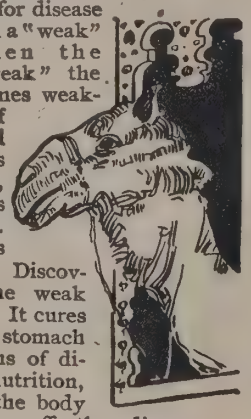
We find a great difference in the effect the flies have on different cows. Some of our cows the flies appear to have little affect upon, while others seem to be pestered to death by them. The strongest and most robust cows are the least affected, while the older and weaker, and those of more delicate constitution, appear greatly affected. The fly appeared to have no perceptible affect on a few of our cows, that is in the milk flow, while others if not protected from the fly in some way, would appear to dry up entirely. An application of kerosene spray each morning appears to arrest the ravages of the pest, and makes the cow fairly immune.

Only two of our cows seem to be helped by the application of fly repellent. The other more vigorous and thick skinned cows do not appear to give any more milk because of a spray of repellent in the morning. Those two cows, however, did they not get an application of repellent, would diminish greatly in their milk.

In a word, then, we have been able to keep the milk flow up to a respectable average only by much care and attention—by the cumulative affects of meal feeding all summer, and by increasing the daily meal ration since the month came in; by changing pastures to suit the atmospheric conditions, weather, etc.; watching closely that the cows get a fill under any and every circumstance, and

THE CAMEL'S HEAD.

"Where the camel's head goes his body follows," says an Oriental proverb. It's the same way with disease. A small opening will give it an entrance and when disease once has a place in the body a large number of ills may follow it.



The opening for disease is often found in a "weak" stomach. When the stomach is "weak" the body also becomes weakened by lack of nutrition, and disease attacks the heart, liver, lungs, kidneys and other organs.

Dr. Pierce's Golden Medical Discovery makes the weak stomach strong. It cures diseases of the stomach and other organs of digestion and nutrition, and so enables the body to resist or throw off other diseases.

Men and women who are sick are invited to consult Dr. Pierce, by letter, *free*, and so obtain without charge the opinion of a specialist on their ailments. All correspondence strictly confidential. Address Dr. R. V. Pierce, Buffalo, N. Y.

"For the past two years I have been a very sick woman," writes Mrs. Chesley, of 108 Woodland Ave., Cleveland, Ohio. "I tried medicines from doctors and to no avail. At last I decided to try Dr. Pierce's Golden Medical Discovery. When I started I was all run-down and had a very unpleasant taste in my mouth. Was choked up, and at times it was very hard for me to breathe. I had severe headaches and cutting pains in my knee joint. Was so weak I could not attend to my work nor walk up or down stairs without the assistance of my brother or some friend. I am now taking the fourth bottle, and am happy to say I feel like myself again. I can go up and down stairs and perform my duties as well as any one. Everything seems to be brighter, and I can assure you that life is worth living."

Accept no substitute for "Golden Medical Discovery." There is nothing just as good for dyspepsia or debility.

Biliousness is cured by the use of Dr. Pierce's Pleasant Pellets.

The New 1903

REID HAND SEPARATOR



The 1903 Reid Hand Separator is the most exact milk skimmer ever made—it is simplest, fastest, lightest running, and affords most butter-producing material under all conditions. It creates a new source of revenue and maintains the income—

WEARS LESS, LASTS LONGEST

Every Reid Hand Separator is sent out under a positive guarantee, and is sold on its own merits. If you want a separator we will send a Reid on approval—work it ten days and if it does not excel all others return at our expense. Send for new catalogue and revised price list, mailed free.

A. H. REID, 30th and Market Sts., Philadelphia, Pa.



THE

Iowa Dairy Separator.

AN UP-TO-DATE MACHINE REPLETE WITH PRACTICAL IDEAS

It is built in the following sizes:

250, 350, 450, 600, 750 POUNDS PER HOUR

Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.

SEND FOR CATALOGUE NO. 60 AND PRINTED MATTER.

IOWA DAIRY SEPARATOR COMPANY, WATERLOO, IOWA.



A Cream Separator is valuable according to the amount of money it makes for you.

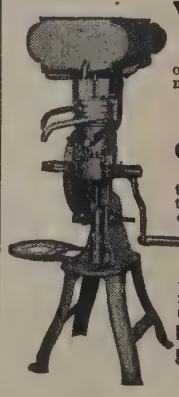
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AMERICAN SEPARATOR COMPANY,

Awarded Medal at Paris, 1900. **Box 1023 Bainbridge, N. Y.**



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Every reader of this paper who owns a few cows to send for our new catalog of

DAVIS

Cream Separators

Sent free upon request. It will tell you why the Davis Separators are money makers for their owners.

THEY ARE GUARANTEED to separate THOROUGHLY and QUICKLY. Dairymen and farmers find the "Davis" the most economical piece of machinery on the farm. Let us send you full particulars about it

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Throwing Butter Away

by the old method of skimming milk is rank folly. With a **National Cream Separator** you can save 80 per cent. of the butter-fat you are now throwing away. It separates warm milk, and milk of a temperature as low down as 65 degrees, light or heavy cream and skims practically *clean*. We send it

Free for 10 Days

trial. Let you test it—see for yourself the saving it makes. If not satisfactory send it back—we pay all costs. Catalogue free.

National Dairy Machine Co., Newark, N. J.

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Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right.

Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.

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NEW OXFORD

BALL BEARING

Cream Separator

Sold on guarantee to be the best on the market. Catalog free.

WORLD CREAM SEPARATOR CO. 41 Main St., Council Bluffs Ia.

AMERICAN CATTLE DOCTOR Orange Judd edition gives symptoms and cure for all diseases of cattle. Many valuable prescriptions. 359 pages $1.00 post. paid. **S. C. SULLIVAN CO., ERIE, PA.**

that they get a fill also of water twice a day at least.

Before a maximum amount of milk can be expected the cows must fill themselves with feed of some kind. That should be patent to every one. We cannot make bricks without straw. A cow giving 25 pounds milk daily, needs to eat 75 pounds pasture grass or its equivalent. If the cow is only able to secure during the hot dry month of August, but 50 pounds grass or its equivalent, no one should be surprised if that cow gives but 15 pounds of milk a day. That's all she can get out of 50 pounds grass anyway, and if she gives more milk than this, she must draw on her own body, which is a costly piece of business coming on winter. Seventy-five pounds of August pasture grass will not produce 25 pounds of milk though, because the nutriment, is not in the August grass. If 75 pounds of June grass are required to produce 25 lbs. 4 per cent milk, it will take fully 85 to 90 pounds of August grass to do the same thing, and we doubt if any common cow can assimilate that much dryish grass, hence the necessity of supplementary food, if the milk flow is to be kept up.

Prince Edward Island. J. A. M.

Transfers of Guernsey Cattle.

BULLS.

Aguinaldo's Pride 8752, E. R. Morrison to Wm. H. Townsend, Lincoln University, Pa.
Archie 8707, Experimental Farms to Thos. A. Mc Kay, Denmark St., N. S.
Bay View 8458, Fred Vogel, Jr., to Chas. Pittelkow, Milwaukee, Wis.
Bellson 8627, Fred Rietbrock to John Kochne, Athens, Wis.
Bradford Chief 8776, Shook Bros. to H. G. Wright, East Canton, Pa.
Capstan 8682, F. Lothrop Ames to George W. Knapp, Stoneham, Mass.
Crease's Prize 8759, Charles C. Haines to Albert Haines, Masonville, N. J.
Colonel Sellers 8762, Arthur W. Blanchard to F. N. Farnum, Bernardston, Mass.
Dodge of Ledyard 8105, Wm. H. Gould to R. L. Drummond, Auburn, N. Y.
Imp. Duke of Cornwall 7644 and; Nora's Royal 8668, Sydney Fisher to A. J. W. Loader, St. Albans, Vt.
Dakota's Duke 6443, Rice Bros. to Henry G. Breese, Hoosick, N. Y,
Furlough Hector 8761, J. Pierpont Morgan to Geo. J. Gould, Arkville, N. Y.
Glenwood Boy of Haddon 4605, Est. E. R. Strawbridge to Mrs. E. W. Strawbridge, Moorestown, N. J.
Gen. Richard Rose Bud 7740, L. L. Davis to Emil H. Ek, Cokato, Minn.
Gold Prince 8774, M. B. Rowe to Thomas V. Richardsou, Phoenix, Md,
Glenoble 8777, James M. Codman to W. E. C. Eustis, Milton, Mass.
Happy Hooligan 8592, Christ. Muth to Wm. Wiegert, Cato, Wis.
Jerry of Westby 8773, Mrs. Mary Herron to W. J. Dawson, LaCrosse, Wis.
Joab 8775, D. W. Clark to Newton Clough, Brownfield, Me.
Joe Powell 6852, S. C, & T. R. Greene to C. H. Lockwood, Oswego, N. Y.
Keyzer 8749, John F. Buker to E. J. Miller, Auburn, Me.
Klondike of Guernsey Hill 8754, S. P. Boles to J. W. Magee, Wellsburg, W. Va.
Klondike of Guernsey Hill 8754, J. W. Magee to W. R. Harvey, Bloomingdale, Ohio.
Klondike of Guernsey Hill 8754, W. R. Hervey to John J. Gault, Fernwood, Ohio.
Monadnock's Rutilas Sheet Anchor 8432, Wm. B. Rice to C. Morton Smith, Fern Rock, Philadelphia, Pa.
Prince of the Willows 8760, E. C. Patten to Geo. L. Minot, Belgrade, Me.
Ponkapog 8768, George Mixter to Augustus Hemenway, Canton, Mass.
Springfield's Count 8751, Wm. H. Caldwell to Walter B. Allen, No. Springfield, Vt.
Sir Gem of Glenview 8465, Walter McMonagle to Thomas Goudge, Halifax, N. S.
Sunlit Morning 8728, Est. N. K. Fairbank to Ben Clark & Son, Whitewater, Wis.
Sir Henry of Homestead 8782, John C. Higgins to L. V. Axtell, Perry, O.
Superior of Homestead 8785, L. V. Axtell to Adariel Bartlett Perry, O.
Teddy King 8764, Daniel C. Brown to James B. Palmer, Norwich, Ct.
Vera's Conqueror 5472, E. Rigg Brow to T. D. Blaikie, Great Village, N. S.
Wallace M. 8781, C. C. Holton to W. W. Merriman, Northfield, Mass.

Cows.

Atlantis of Pinehurst 14525, Auricula 2nd 12209, Christine of Pinehurst 13940, Coralie of Pinehurst 13057, Economy 6745, Felice of Pinehurst 14526, Jedetta 11966, Lorna of Pinehurst 13994, Marcia of Pinehurst 13094, Merta of Pinehurst 13059, Robinson's Princess 9839, Selma of Pinehurst 14521, Stranford's Princess 11740, Est. E. R. Strawbridge to Mrs. E. W. Strawbridge, Moorestown, N. J.
Annie Perkins of Pinehurst 13054, Layyah of Pinehurst 13055, Aurica of Pinehurst 16335, Mrs. E. W. Strawbride to E. T. Gill, Haddonfield, N. J.
Alice of Poplar Grove 16345, Clare of Poplar Grove 3d 16343, Ida W. 10346, Lillie of Poplar Grove 16344, J. L. McCormick to W. W. Preston, Bel Air, Md.
Bella of Eastview 14658, E. Rigg Brow to T. D. Blaikie, Great Village, N. S.
Adventuress of Homestead 16411, Claude of Homestead 16412, L. V. Axtell to J. M. Johnston, Chesterland, O.
Chrysanthemum 13024, Wm. F. Mayhew to Edgar C. Moore, Woodstown, N. J.
Cazenovia Daisy 12685, P. L. Dwight to N. E. Smith, Hartford Mills, N.Y.
Country Girl of Paxtang 14615, Little Miss Sunshine of Paxtang 16289, Sultana 2d of Paxtang 11250, Sunbeam of Paxtang 14619, I. S. Wilhelm to J. P. Welsh, Bloomsburg, Pa.
Etgel Mainstay 16356, Honor Glint 15666, Olive Rebecca 15781, Rose Locker 15780, Est. G. A. Seager to C. L. Sisson, Almond, N. Y.
Evelina A. 12396, Jess of Charlton 2d 15355, Tritoma of Hillcrest 16373, G. B. Tallman to Harry Yates, Buffalo, N. Y.
Fad's N. V. P. Dandy's Lena 16342, N. E. Smith to John H. Pells, Copake, N. Y.
Faucette's Pretty Maiden 13837, J. M. Johnston to G. B. Tallman, Perry, N. Y.
Fredena 12447, James Forsyth to Mrs. Charles Brown, Landing, N. J.
Glenwood Girl of Elm Place 15836, Penwyn's Blanche 16374, G. B. Tallman to Wm. F. Gable, Wyebrooke, Pa.
Goldhaya 16175, Gold Luckie 16176, Ida of Alva 9583, Ready Eunice 15181, Ready Ida 15179, Royal Donsie 16178, Royal Goldida 16177, Sea Foam 5649, Sydney Fisher to A. J. W. Loader, St. Albans, Vt.
Homestead's Golden Belle 16396, Lady Peg 16394, John C. Higgins to L. V. Axtell, Perry, Ohio.
Ida W. 16346, Phillys of Poplar Grove 13498, Preston M. Wallis to J. L. McCormick, Bel Air, Md.
Kaloolah 4th 8796, W. G. Rappleye to C. H. Lockwood, Oswego, N. Y.
Louise of Fern Ravine 15893, Fred Vogel, Jr., to Charles Pettelkow, Milwaukee, Wis.
Lady Ferndale 16348, P. A. Hogan to S. I. Murphy, Woodbine, Pa.
Lilly's Choice 12400, and Yolande W. 14374, G. B. Tallman to W. G. Markham, Avon. N. Y.
Patience of Baltimore 9607, Louis McLane to S. M. Shoemaker, Stephenson, Md.
Queen Ovid 15600, G. B. Tallman to Lyman Blair, Greenville, Me.
Traveller's Lass 16354, Albert Haines to E. T. Gill, Haddonfield N. J.
Traveller's Queen 16355, Albert Haines to E. T. Gill, Haddonfield, N. J.
Tritoma of Elm Place 16227, Wm. & G. B. Tallman to G. B. Tallman, Perry, N. Y.

Wm. Caldwell, Secr'y.

Peterboro, N. H., Aug. 10, 1003.

Handling Manure.

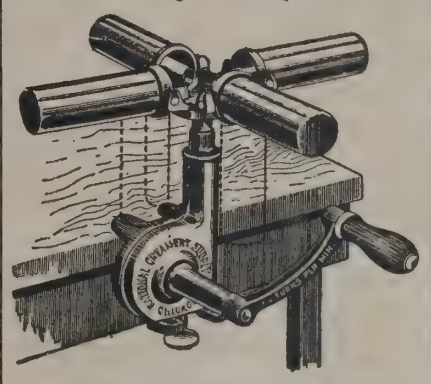
ED. HOARD'S DAIRYMAN:—In my letter of some weeks ago I did not mean to be understood that I thought manure was any better for lying in the cellar through the winter, but it was better to be there than on the ground where you are to raise crops the next year. That has been our experience and with these methods practiced we have nearly doubled our hay crop in the past four years. We must have cut two tons of hay per acre this season.

Do you, Mr. Editor, draw out your manure every day, rain or shine, Sundays and holidays. If not what do you do with it on these days and how do you save all your liquid manure.

Williamstown, Vt. R. G. DAVIS.

There are very few days in the year when the manure is not drawn from our stables and spread upon the ground. When it is too inconvenient to do this the accumulation of a day or few days may be piled in the yard and hauled away as opportunity offers. The liquid is gathered with the solid and hauled away in tight boxes.

NATIONAL
Babcock Milk Tester



Dotted Lines show position of bottle holders when not in motion.

Has enclosed cut gears.
Swinging bottle-holders.
Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

DOES YOUR DAIRY PAY?

It costs no more to feed a profitable than an unprofitable cow.

NET PRICES:

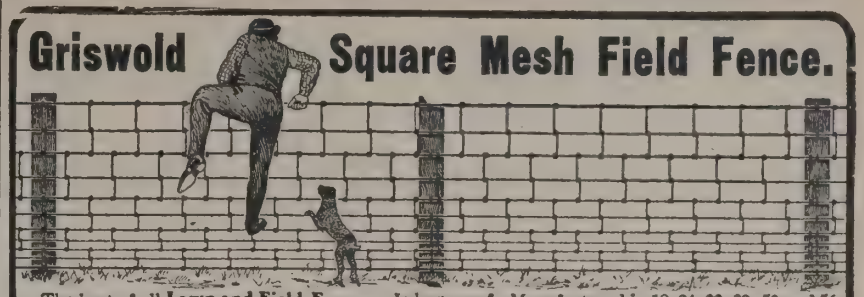
No. 1,—2 bottle, complete for testing milk.... each $4 00
No. 2,—4 bottle, complete for testing milk.... each 5 00
No. 3,—2 bottle, complete for testing cream and milk, each..... 4 50
No. 4,—4 bottle, complete for testing cream and milk, each..... 5 50

Prices include full directions for making test, bottle of acid, test bottle brush, acid measure, dipette and test bottles.

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The best of all **Lawn and Field Fences.** Is hog proof. Manufactured in 18, 24, 33, 39, 50 and 56 inch heights; in 20 and 40 rod rolls. The narrow widths can be supplemented to any height desired by Barbed or Plain wire, or two strand twisted Cable wire. Manufacturers of **Diamond Mesh Fence. Plain, Galvanized, Barbed or Telephone Wire. Wire Nails and Hay Bale Ties.** Write for illustrated catalogues and price lists. **Dillon-Griswold Wire Co., Sterling, Ill.**



WILDER'S PATENT SWING STANCHIONS
Chain or Pin Fastened.

Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.

Safest, Strongest, Most Convenient fastening made. Cheapest to put in and save room in barn. Send for Stanchion Catalog to **WILDER-STRONG IMPLEMENT CO., 11 Monroe, Mich.**

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Heaviest, strongest, most durable fence made. All wires extra large. *We sell to farmers at wholesale prices.* Coiled Spring, Barb and Soft Galvanized Wire.
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Cleveland, O.

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For Unruly Stock
no fence equals The PAGE. It's so much stronger
PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

WE SAVE YOU MONEY
on every rod of fencing you buy from us. Why? Because we sell you the
ADVANCE FENCE
Direct From the Factory at Wholesale.
Dealers cannot buy it any cheaper than you can. We save you the middle man's profit. Get **a good fence at a low price.** No loose ends to unravel. All closely interwoven. Cross wires cannot slip. Write at once for our circulars and special discounts.



ADVANCE FENCE CO., 126 J St., Peoria, Ill.



THE NEW PATENT
Cow Stall
AND FEED TROUGH.

This is the only Cow Stall with a centering hinge. Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars.
R. A. McLERY & CO., Palmyra, Wis.

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Take a rest. Meet us on the State Fair Ground, and see our heavy hard spring wire fence. Will wear three times as long as woven fabrics. Thousands of miles constructed within the past seven years. Send for catalogue. THE FROST WIRE FENCE CO., Cleveland, Ohio.



WARRINER'S CHAIN HANGING STANCHION.
CLEAN, SAFE, COMFORTABLE.
MFG. BY W. B. CRUMB, Forestville, Conn.



Prescott's Swinging Swivel tanchion
Keeps Cows Clean.
Swings forward while getting up or lying down. Locks back while standing. Full particulars free.
E. PRESCOTT,
Beverly St., Boston, Mass



Foster Steel Stanchion
made entirely of steel and malleable iron. **Unlike all others.** Affords greatest freedom and motion and always holds the animal. Hung on chains—moves all ways. **Lightest, strongest, most convenient** and easiest to open and close.
GOOD SELLER—BIG PROFITS.
One agent sold 75 first day, Another sold 200 first week. **We want responsible agent in every Dairy Community.** Send for circular number 30.
FRANK H. BATTLES, Seed Grower,
Rochester, New York.



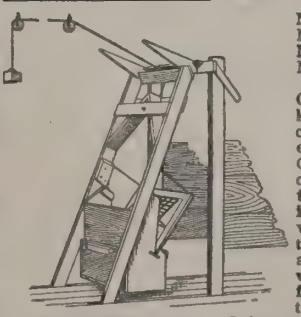
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CATTLE STANCHION
The Most Practical
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JUST OUT! **UNDERHILL SELF ADJUSTING STALL**



No Gutters
No Platforms
No fastenings
No Stables to clean

Cease trying to keep your cows clean. You can't do it. Give them a chance and they will do it themselves. This is the only way and the easy way. Write for circular telling what the cow has discovered to us. It is a great revelation,
Wm. M. UNDERHILL, Oconto, Wis.

This Taylor Stanchion



is made of angle steel lined with hard wood on side next the animal's neck. It is lighter, neater and stronger than any other stanchion made. Swings on chain at top and bottom and admits of greatest freedom of motion. Cattle can lay with head on side. Easiest opened and closed. **Reliable Agents Wanted.** Write for special terms, prices, etc.
JAMES BOYLE, SALEM, O.



Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The official market was declared firm at 19½ cents. Sixty-five tubs were offered, but there were no sales.

New York, 19¾c; steady. Output, Elgin district, 724,318.

Former Markets.	Sold.	Official Price.
Aug. 17, '03	0	19
" 25, '02	0	19
" 26, '01	336	20
" 27, '00	65	21½
" 28, '99	131	20

Elgin, Ill., Aug. 25, '03. H. C. B.

Most Profitable Disposition of Milk.

ED. HOARD'S DAIRYMAN:—Would like a little information on skim milk *vs.* condensor.

A. lives twelve miles from a condensor and is not a No. 1 butter maker, but is willing to learn and accept information from those that do know how. B. lives four miles further from condensor and claims he can make more by shipping to condensor and it costs him 15 cents per hundred to get his milk delivered, while it costs A. 12 cents.

A. has a good market 12 miles distant for all the good butter he can make. Now if A. works his raw product up at home and has all of the by-product to use, is A. ahead or not? UMPQUA.

Auburn, Wash.

We should think it would be far more profitable for A. to make up his milk at home, and thus save the greater part of the 12 cents per hundred pounds for transportation, and have, in addition, the skim milk for feeding purposes.

Causes of Tainted Milk.

The Swiss scientist, Dr. Gerber, gives the following causes of bad or tainted milk:

1. Poor, decayed fodders, or irrational methods of feeding.
2. Poor, dirty water used for drinking water or for the washing of utensils.
3. Foul air in cow stable, or the cows lying in their own dung.
4. Lack of cleanliness in milking; manure particles on udder.
5. Keeping the milk long in too warm, poorly ventilated and dirty places.
6. Neglecting to cool the milk rapidly, directly after milking,
7. Lack of cleanliness in the care of the milk, from which cause the greater number of milk taints arise.
8. Poor transportation facilities.
9. Sick cows, udder diseases, etc.
10. Cows being in heat.
11. Mixing fresh and old milk in the same can.
12. Rusty tin pails and tin cans.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Twin Calves.

One of my Guernsey cows has just given birth to twin bull calves. I am told they will be worthless as breeders. Is that true or only a theory? This cow did not clean out and I had the afterbirth taken out 48 hours afterwards. Was that the proper thing to do?

We cannot get one of our cows to eat as she should. The veterinarian who examined her said she ought to have a tonic, but I don't like to give it to her. It does not seem natural to drug an animal. A SUBSCRIBER.

Milwaukee, Wis.

ANSWER.

No. 1. There is no reason why the bulls should be worthless as breeders if they are otherwise in good health. The theory that they will not breed, is without foundation, but where the calves are of opposite sex the heifer is seldom a breeder.

No. 2. We are of the opinion that a good tonic would be indicated in your case.

Mange.

We have some cattle that have mange or barn itch; will Cooper's dipping powder injure the cattle, as it is the only dip handled in our town? G. W. P.

New Sharon, Ia.

ANSWER.

Any of the coal tar preparations, will cure mange.

The writer uses zenoleum, but is not familiar with the action of Cooper's dipping powder.

Barreness.

What can I do for a cow that will not breed on account of the closing of the mouth of the womb?

Ferndale, Cal. C. C.D.

ANSWER.

If the womb is closed by an abnormal growth, it must be removed surgically, but this is not always the case when a cow is barren. The neck of the womb is naturally so constructed as to make it

"ADVERTISEMENT"

SCOURS IN CALVES.



SCOURS in calves can usually be traced to improper food or to improper feeding. The natural food of the young calf is liquid, and when solid substances are suddenly substituted derangement of the bowels is apt to follow which will result in diarrhœa. Hence the necessity of changing food from liquid to solid substances gradually.

Water in which hay has been steeped, and bran, middlings, and flaxseed meal added, forms a good substitute, as it is easily digested and very nutritious. Separated milk is almost wholly deprived of the fat, and a little flaxseed meal should be added to replace that taken from whole milk.

Milk that is allowed to stand for awhile not only forms acid, but also numerous cryptogamic growths such as mould, which are extremely poisonous and deleterious to the digestive mucous membranes, and is almost sure to result in scours.

Treatment.—The remedy in such cases is to avoid as far as possible irritating substances. It is much better to give milk in smaller quantities and more frequently. Milk that is excessively sour should be carefully avoided, or given in small amounts frequently.

Milk tanks should be thoroughly cleansed with scalding water and some alkali, such as bicarbonate of soda. As a remedy for scours, prepared chalk, 2 ounces; powdered ginger, 2 ounces; powdered opium, 2 drams, and peppermint water enough to make a pint, given in from one to two tablespoonful doses two, three or four times a day, gives excellent results. Before the administration of astringents, such as the above, it is often of great value to give a dose of caster oil, olive oil or raw flaxseed oil, from two to four ounces, to remove irritating substances from the digestive tract.

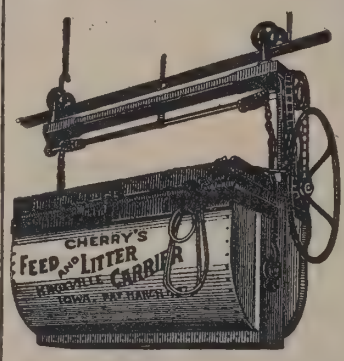
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No unprofessional manufacturer can equal it. 100 pounds, $5.00 (except in Canada and Pacific Slope); smaller quantities at a slight advance; fed in small dose; sold on written guaranty. For every disease and condition for which Dr. Hess Stock Food is not recommended, a little yellow card in every package entitles you to a letter of advice and a special prescription from Dr. Hess free of charge.

Dr. Hess has written a book on the diseases of stock and poultry—the only complete treatise for farmers and stockmen. Consulted and commended by leading veterinarians.

Write and state what stock you have—and how many head of each, what stock food you have fed, also mention this paper. Address Dr. Hess & Clark, Ashland, Ohio, and you will receive one of these valuable books free, postage paid.

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1 McCormick Corn Harvester. 1 McCormick Husker and Shredder. The above were used only one season. Bought of the McCormick Harvesting Machine Co. in 1902. Also 1 Kemp Manure Spreader. References Exchanged. Address BOX G., Morristown, New Jersey.

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On account of age and infirmity I will sell my farm of 204 acres four miles of Unionville, Putnam Co., Mo., sixty head of grade Jersey cows and heifers, a two horse power boiler and engine, one No. 5. U. S. Separator, one 100 gallon churn and butterworker with other dairy implements.

For particulars address

J. B. OLINGER, Unionville, Mo.

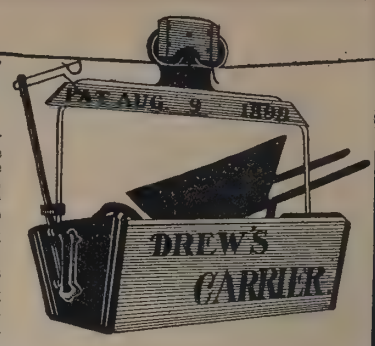
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DREW ELEVATED CARRIER

will carry the manure from the stables to any point in the barnyard, drop it, return automatically, ready for another load.

It is self operating—it turns curves and switches—dumps its load in yard or wagon. Besides carrying manure you can use it to convey ensilage, feed, grain, potatoes, cans of milk, from one point to another. It works so simple and easy that any man or boy can run it.



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carries labor off from the farm—it is the farmer's labor and money saver. No trouble to put them up—no trouble after they are up.

It leaves barnyard free from posts—keeps the barnyard clean and free from litter. Get one and

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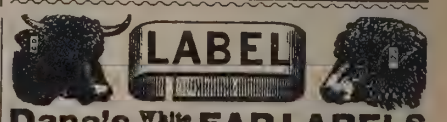
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186 Lake St., Chicago, Ills.

appear entirely closed to the layman. This may be the case with your cow. A change in bulls often is sufficient. If the animal is fat, her flesh should be reduced to a normal condition. Plenty of exercise is needed.

Stricture in Teat.

I have a young cow with first calf. The calf is three weeks old, and ever since calving her two front teats refuse to pass the milk without putting a tube up in them, until about a week ago, when one got all right; but the left one is as bad now as at first. After we pull the tube out there seems to be no lumps in the teat, the trouble seems to lie about ½ inch from point of teat. GEO. W. I.
La Grange, Ky.

ANSWER.

The cow has a stricture in the teat which prevents the milk from coming down. Your remedy is the teat bistoury which will give immediate relief.

Lump Jaw.

I have a fine grade Holstein yearling heifer that had a bunch come on her jaw about six weeks ago. It is hard now and almost as large as a quart bowl. J. D. V. R.
Oxford, New York.

ANSWER

The lump may be dissected out if it is not attached to the bone. Some dairy men have destroyed them by opening the lump freely and injecting into the cavity within tincture of iodine full strength.

To Hurry the Period of Oestrum.

I wish to ask you what to feed a cow so as to hurry the rut or heat. I have been told rye.
Ackerville, Wis. A. L.

ANSWER.

Any of the grains rich in protein will hasten the period of oestrum if fed moderately so as not to overload the digestive organs. If you wish to feed rye, it is well to add wheat bran to the ration so that the food will not lie too solid in the stomach.

Abscess.

I have a two year-old heifer that has two swellings on the left hind leg at hock joint, one about 2 inches above the other First noticed, about one week or 10 days ago; one swelling has broken and discharged some pus, other not broken yet; size about that of an egg. SUBSCRIBER.
Toulon, Ill.

ANSWER.

The enlargements appear to be abcesses which are not dangerous. They may be opened and the pus squeezed out and the cavity syringed with tincture of iodine. After this, wash clean with soap and water daily and apply an antiseptic dressing.

Ringbone.

What will cure a ringbone? M. C. A.
LaMoure, N. D.

ANSWER.

The most reliable remedy is to have it properly fired. Employ a qualified veterinarian.

Bloody Milk.—Specks in Butter.

What is the cause of cows giving bloody milk? What is the cause of white specks in butter and how can they be avoided?
Deer Lodge, Mont. J. F. L.

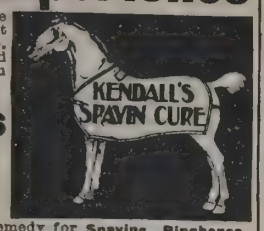
ANSWER

Local injuries to the udder are usually the cause of this trouble. Sometimes the severe bunting by the calf is responsible; at other times the cows squeeze the udder by lying down, especially when the udder is exceptionally large and the cow is compelled to lie in a narrow stall. Violence of any kind to the udder are the common causes. Your remedy is to remove the cause.

White specks in butter are caused either by the cream drying on the surface and thus causing a small lump of casein that cannot be broken up by the churn, or by allowing the cream to become too sour, thus causing the coagulation of the casein in lumps with the same result as first mentioned. Cream that is properly ripened and not allowed to dry on the surface will not leave specks in the butter.

One Experience

with a lame horse is enough. You lost money on that one. You will never need to do so again if you will use



Kendall's Spavin Cure

the old reliable remedy for **Spavins, Ringbones, Splints, Curbs, etc.,** and all forms of **Lameness.** Cures without a blemish as it does not blister. **Price $1; six for $5.** As a liniment for family use it has no equal. Ask your druggist for **KENDALL'S SPAVIN CURE,** also **"A Treatise on the Horse,"** the book free, or address

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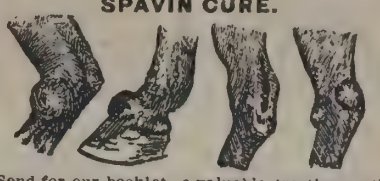
Ogden and Salt Lake City, Utah, Sept. 15 to 18. National Irrigation Congress.

Baltimore, Md., Sept. 21 to 26, Soverign Grand Lodge, I O O. F.

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Oldest and best Treatment Extant.
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Expels the terror of caked bag, the annoyance of sore teats and dread of hand milkers.

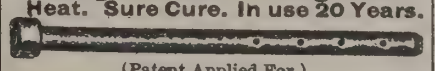
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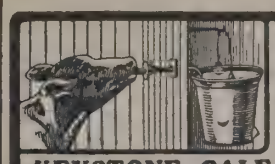
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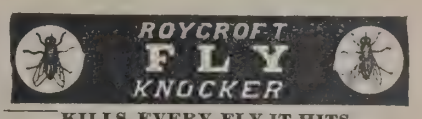
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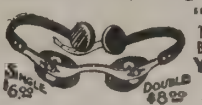
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WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address

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Some Jersey Records Quoted.

Was the "Dairyman" Unfair ?

ED. HOARD'S DAIRYMAN:—It seems to me that your comments on "highest butter records", in reply to "G" of Middletown, Del., in your issue of July 10, are not exactly fair to the Jersey breed. The Jersey butter records are passed over with a rather sceptical referenee to the reported butter test of Princess 2d (46 lbs.12 oz. in 7 days.) There are other great Jerseys whose butter tests may not be open to criticism in a less degree and perhaps in no greater degree than the "butter" (fat estimate) records reported by our good friends of the Holstein fraternity. The following are other recorded official 7-day butter tests of the American Jersey Cattle Club: Oxford Kate, 39 lbs. 12 ozs.; Mary Anne of St. Lambert, 36 lbs. 12¼ ozs., having a previous official test of 27 lbs. 9¼ ozs.; Oonan of Riverside, 34 lbs, 3 ozs., and in this test an analysis of the butter is reported showing 85.68 fat, 12.78 moisture, 1.05 casein, ash 0.49; Ethleel 2d,30 lbs. 15 ozs.; Ida of St. Lambert, 30 lbs. 2½ ozs. There are numerous private butter tests equally large.

It is not altogether true that seven day tests are not a reliable indication of the real dairy worth of a cow as an all-the-year-round worker. The writer has been the owner of nine tested Jersey cows, and all are, or were in their prime, great year-round workers. Of the officially tested cows above mentioned, Mary Anne of St. Lambert has a record of 867 lbs., 14¾ oz- of butter in one year. Matina of Riverside, owned by the writer and having a recorded seven-day butter test of 27 lbs., 13 oz., milked in 35 days 1,885 lbs., 1 oz., from which 111 lbs., 12½ oz. of butter was churned. Inez of Riverside, also owned by the writer and having a recorded seven-days butter test of 26 lbs., 1½ oz., milked in 21 days 1,309 lbs., 4½ oz., from which 71 lbs., ½ oz. of butter was churned. No one seeing these grand cows and their magnificent udders would doubt their capacity for year-round work, notwithstanding their high records for seven-day tests.

The Jersey is in my opinion the leading butter breed, with the Guernseys next.

Lake Co., Ohio. E. E. STEVENS.

If our correspondent had read the inquiry which preceeded the comments to which he refers, he would have seen that we were not called upon to do otherwise than we did, namely, give the highest record claimed by the different breed associations. We could, therefore, do no otherwise than cite the "record" of the Jersey cow, Princess 2d, and in doing this, we could not, in justice to ourselves, even by silence, let it be concluded that this record had the confidence of Jersey breeders as a whole. There was nothing unfair in this to the Jersey breed. Neither was it unfair to say that "seven-day tests are not a reliable indication of the real dairy worth of the cow as an all-the-year-around worker." It is not true, as a general proposition, that the cows making the largest seven day records have the largest yearly records, and it is notorious that many a cow making but a moderate seven day record, as such records go, will round out the year with records well up to the front, if not the very highest. It was this latter aspect of the case, however, that we had in mind in writing the comment referred to.

As we did not either affirm or deny the validity of the reported record of Princess 2d, but merely stated what we believed to be current opinion, so, now, we do not feel called upon to express any opinion as to the other records quoted.

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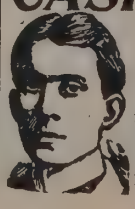
and has already made great strides in that direction, many fine herds have been established. If you want to **Own Your Own Home** now is the time to buy. Our lands are located in the northwestern part of Marathon County in a country well populated, near the prosperous village of Athens. For prices and further particulars address:

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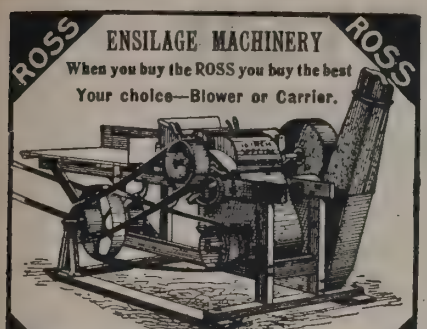


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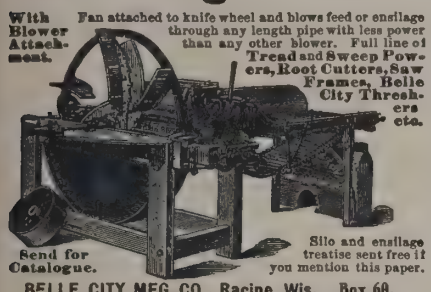
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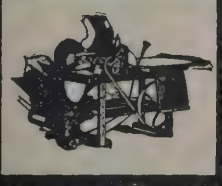


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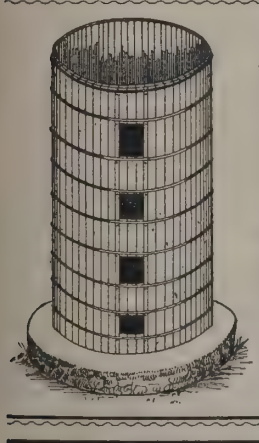
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Barley carries approximately 78% of digestible units, bran 58% and corn 84%. On this basis, for merely nutritive purposes, when corn is worth 50c per bushel, barley would be worth about 42c. Compared with bran at $13.00 a ton, barley when ground would be worth about $17.80 a ton. We cannot, however, be governed entirely as to the value of the feeds by the total digestible nutrients. For example, the residual manurial value of bran is $4.74 per ton, while that of corn is only $2.24. Again, bran carries a much higher percentage of protein than either corn or barley, and where one needs to purchase or use protein, he can usually get it cheaper in bran than in barley or corn or oats, and more frequently than otherwise, the farmer in buying feeds, should aim to get cheap protein.

Barley is a most excellent feed for all kinds of animals and for all purposes. It makes excellent feed for swine, especially where one is desirious of making the highest quality of meat. It makes more solid pork than corn and seems to give a better flavor. Barley is extensively used as a horse feed in California and gives most excellent satisfaction.

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These records are made under the careful supervision of our agricultural experiment stations. The representatives of the stations weigh the milk and ascertain the amount of fat it contains, and the Superintendent of Advanced Registry determines the equivalent butter on the basis of 85.7 per cent fat to the pound.

During the period above named reports of 22 cows have been approved, all of which have made seven-day records and one a thirty-day record, as follows:

Eke DeKol 52139 at 3 years, in 30 days: Milk 1,743 lbs., fat 53,103 lbs., equivalent butter 61 lbs., 15.3 oz.: best seven days, commencing 8 days after calving: Milk 424.6 lbs, fat 13.771 lbs., equivalent butter 16 lbs. 1.1 oz.

Winnie Wartena Netherland 37630, at 9 years: Milk 567.8 lbs., fat 19.493 lbs., equivalent butter 22 lbs., 11.9 oz. Food consumed: Oil meal 35 lbs., corn and cob meal 73 5 lbs., brewers grains "dried" 63 lbs., beet refuse molasses 21 lbs. and pasturage.

Regis Princess of Wayne's DeDol 43870 at 6 years: Milk 439.5 lbs., fat 16.254 lbs., equivalent butter 18 lbs. 15.4 oz. Owner Averill & Gregory, Syracuse, N. Y.

Nutula 2d, 43384, at 10 years: Milk 488.3 lbs., fat 15.400 lbs, equivalent butter 17 lbs., 15.5 oz. Owner, McKay Bros., Buckingham, Ia.

Akkrummer 3d's Pietertje 40861, at 7 years: Milk 437.8 lbs., fat 15.249 lbs., equivalent butter 17 lbs., 12.7 oz.

Small Hopes Aaggie DeKol 46214 at 5 years: Milk 440.1 lbs., fat 15.170 lbs., equivalent butter 17 lbs., 11.2 oz.

Aaggie Idaline Nell 44400, at 8 years: Milk 424.6 lbs., fat 15.001 lbs., equivalent butter 17 lbs. 8 oz.

Aaggie Grace's Pietertje Netherland 38354, at 8 years: Milk 466.1 lbs., fat 14.185 lbs., equivalent butter 16 lbs., 8.8 oz.

Dichter's Alemena 40257, at 7 years, commencing 103 days after calving: Milk 414.6 lbs., fat 12.101 lbs., equivalent butter 14 lbs., 1.9 oz. Owner, O. J. Godfrey, Pennellville, N. Y.

Colantha 4th's Johanna 48577, at 4 years; Milk 526.9 lbs., fat 17.282 lbs., equivalent butter 20 lbs., 2.6 oz.

Johanna Colantha 48578 at 4 years: Milk 483.3 lbs., fat 17.147 lbs., equivalent butter 20 lbs., 0.1 oz.

Clothilde Nettie Burke 48690, at 4 years: Milk 495.2 lbs., fat 13.084 lbs., equivalent butter 15 lbs., 4.2 oz.

Duchess Piebe DeKol 52348, at 3 years: Milk 509.7 lbs., fat 15.839 lbs., equivalent butter 18 lbs., 7.7 oz.

Lady May Greenwood 2d 64666 at 3 years: Milk 357.9 lbs., fat 11.318 lbs., equivalent butter 13 lbs., 3.3 oz.

Melva Parthenea 50025, at 3 years: Milk 346.1 lbs., fat 10.893 lbs., equivalent butter 12 lbs., 11.3 oz.

Adaline Dinola Hengerveld DeKol 53007—3 years: Milk 367.9 lbs., fat 10.776 lbs., equivalent butter 12 lbs, 9.2 oz.

Leda Hengerveld DeKol 53489 at 2 years, commencing 242 days after calving: Milk 239.1 lbs., fat 9.156 lbs., equivalent butter 10 lbs., 10.9 oz. Owner, McKay Bros. Buckingham, Ia.

A. L. P. N. DeKol 3d 56481—2 years: Milk 282.4 lbs, fat 8.780 lbs., equivalent butter 10 lbs., 3.9 oz.

Ruby Burke DeKol 56068—2 years, 5 months, commencing 77 days after calving: Milk 331.3 lbs, fat 8.769 lbs., equivalent butter 10 lbs., 3.7 oz.

Jewel Raphaella DeKol 55006—2 years, 6 months, commencing 208 days after calving: Milk 290.8 lbs., fat 8.455 lbs., equivalent butter 9 lbs., 13.8 oz.

Mutual Daisy DeKol 60208—1 year, 9 months, commencing 31 days after calving: Milk 261.7 lbs., fat 8.361 lbs., equivalent butter 9 lbs., 12.1 oz. Owner, W. C. Hunt, Liverpool, N. Y.

Prairie Flower Netherland Mechthilde 61263—2 years, 2 months, 22 days: Milk 271.3 lbs., fat 8.312 lbs., equivalent butter 9 lbs., 11.2 oz.

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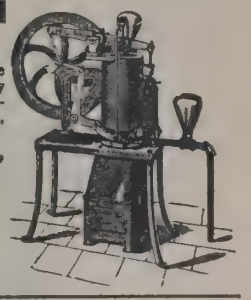
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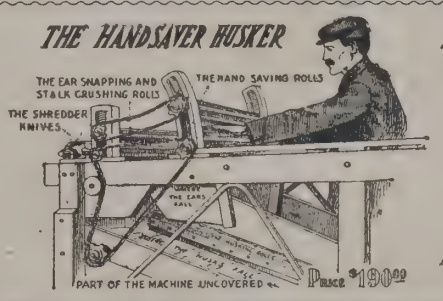
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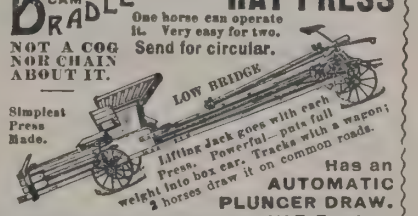
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ENSILAGE CUTTER

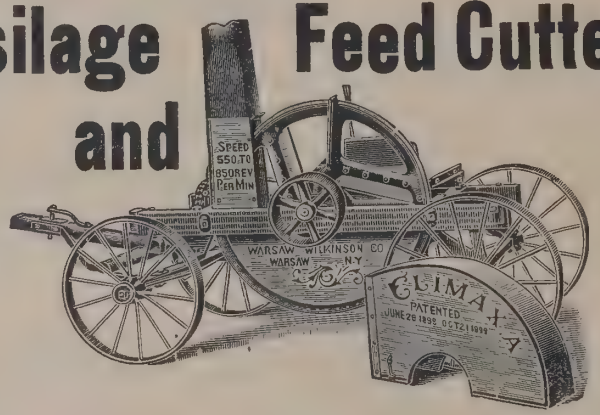


These cutters are built especially for Silo use and are strong throughout in their construction, with heavy frame built lowto avoid extra stagnig or tables to feed from. The cylinder shaft is 1¾ in. steel and has 3 babbited boxes, making 13½ inches of bearing surface. The balance wheel is closed, weighing 170 pounds, secured by side headbolts on flanged collar, keyed on the shaft; the heads of these bolts turn ¼, in case of any obstruction reaching the knives, and allow the balance wheel and pulley free speed, while the strain on the knives is relieved at once. The traveling feed table is controlled by the reversible lever and is instantly stopped or reversed. The slats on these tables travel over a close bed, full length and are close together to prevent fine leaves getting into them and winding on the rollers, also guards over the chain links. The length of cut is easily adjusted from ⅜ to ⅝ and ⅞ inches by the gears on the shaft. We furnish chain elevators of any length desired, straight away or side delivery. Weight of Cutters with traveling table, 1600 pounds. Send for circulars.

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MENOMINEE FALLS, WIS.

CLIMAX

Ensilage and Feed Cutters.



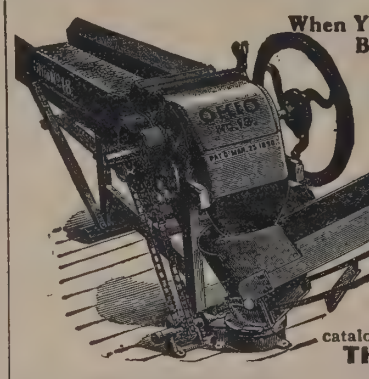
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CLIMAX machines are original. They are not made over from old models, in an attempt to turn them into blowers, by adding a number of chains, belts, or other attachments. They are made to elevate by wind delivery, and every part is built with this end in view. They are sold under an absolute guarantee to do the work, and **never** fail.

CLIMAX machines passed the experimental stage eight years ago. It has never been necessary to change any essential feature of the original pattern. We are still using the straight knives, with the shearing, inward cut; the elevating is still done with the same wheel as the cutting, requiring less power; the smooth reversing gear, which is positive and cannot break; the large feeding rollers, which won't choke, and the knife adjustment, which sets every knife at once and sets them **true.** All these have stood the test and cannot be had with any other machine.

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APPLETON MFG. CO., 35 Fargo St., Batavia, Ills.

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Run with Less Power than any Other Cutter.

Have adjustable Cutting Heads and adjustable Table Knives. Solid Balance Wheel with knives and fans attached.

TWO or FOUR KNIVES, or Shredder attachments as preferred. Stop and reverse levers.

Furnished with plain or self feed table.

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Yours very respectfully, JAMES D. PRICE.

We have also a full line of Cylinder Cutters and Shredders with blowers or chain carriers. Write for catalogue of the MOST complete line of Ensilage and Feed Cutting Machinery made

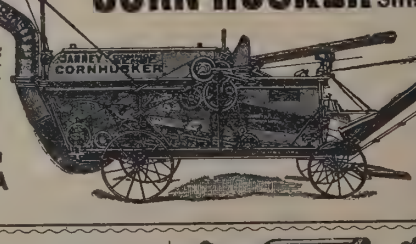
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Successors to J. E. WILDER & SONS.

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A corn crop may be profitable without saving the fodder, but IT WILL BE TWICE AS PROFITABLE IF IT IS SAVED. The new method of handling corn saves the entire crop. The new way is to run all the corn through the

JANNEY'S PATENTED HUSKING PIN — IT TAKES THE CORN OFF THE SHUCK

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If you feed corn hay you can sell all your meadow hay. You can also bale and sell your surplus corn hay; big demand. You may add further to your profits by husking and shredding for your neighbors. Pays better than a threshing machine and costs less. Eight years in the field. More in operation than any other.

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run easier and yield more power than any other. Suited to *Cutting, Sawing, Pumping, Threshing*—all farm uses. Also Threshers, Engines, Cutters, Saw Machines, Round Silos, etc. Catalogue free.

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Devoted to Dairying and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., SEPTEMBER 4, 1903. NUMBER 30

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W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs**
Liberal Advancements Made on Consignments.
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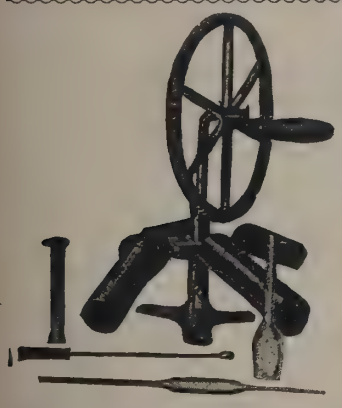
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To Ripen your cream, ensuring
Perfect Flavor, Uniformity and Keeping Qualities in your Butter.
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Medals—Bronze 1878 Silver, 1887, World's Fair, 1893.

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Ask for our new Thirtieth Annual Catalogue of Dairy Apparatus and Supplies.
OAKES & BURGER, Cattaraugus, N. Y.

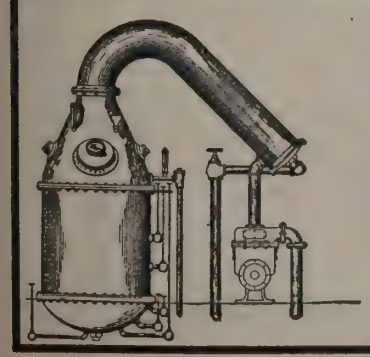


ROBBER COWS.

Some cows rob the owner of the feed they eat, and of the profit of the rest of the herd. They have little or no butter fat in their milk. Find them out and send them to the block.

THE
"Sweepstakes"
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Will do it. Runs on ball bearings, 2 and 4-Bottle sizes with necessary glassware. Strong, convenient.
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Milk Condensing Machine I supply the most improved machinery and most successful processes for manufacturing all classes of condensed milk and evaporated cream. Factories built complete, put in operation and results guaranteed. If you are interested write for my new illustrated and descriptive catalogue. The only catalogue ever published on the subject.
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WISE dairymen don't waste cream—they can't and make dairying pay! They all finally decide to buy a dairy cream separator that will get all the cream—that will make money for them.

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THEY find two kinds of separators—the Tubular Bowl, simple, swift, sure—and the old style bucket bowl, full of troublesome, uncertain parts, hard to use, hard to clean, sure to cause worry and work. Is it strange they like the

Tubular Separator The Best

When they see how perfect it is?

UNLIKE the antiquated bucket bowls used in all other separators, the Tubular bowl is small in diameter, free from discs, cones, wings, sieves, strainers, etc.—is quickly, easily and thoroughly cleaned without hurting the hands—and is guaranteed to skim cleaner, turn easier, wear longer than any other separator made. You'll know it by the low supply can and handsome design.

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P. M. SHARPLES, West Chester, Pa. U. S. A.

Popping of lamp-chimneys is music to grocers.

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If you use a wrong chimney, you lose a good deal of both light and comfort, and waste a dollar or two a year a lamp on chimneys.

Do you want the Index? Write me.

MACBETH, Pittsburgh

Ensilage Cutters "They Throw and Blow." Pneumatic. "Silo Fillers." **Blowers.**

These machines cut and elevate with the same wheel at the same time. This wheel has paddles which throw and fans which blow. Without the fans the paddles would throw the ensilage 15 feet high. A light blast of air in addition will blow it to any height. No chains, belts or cogs to slip and waste power. A two-horse tread power will cut and elevate 4 tons per hour, a 10 h. p. engine 20 tons per hour. The easiest running and safest cutters and blowers made. Also cutters and carriers, shredders, silos, engines, horse powers, saw machines, etc. Send for catalogues.

HARDER MFG. CO., COBLESKILL, N.Y.

AN ACRE OF CORN

"Corn is King." Its wonderful possibilities practically developed in the newest and latest Silage work;

"MODERN SILAGE METHODS."

An entirely new and practical work on Silos, their construction and the process of filling, to which is added complete and reliable information regarding Silage and its composition; feeding and a treatise on rations, being a Feeders' and Dairymens' Guide.

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II—Building the Silo. V—Feeding Silage.
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212 pages of **plain, practical information for practical men.** Contains just the things you have wanted to know and could not find elsewhere. *Copyrighted* 1903. Postpaid for 10 cents, stamps or coin.

THE SILVER MFG. CO., Salem, Ohio.

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SILO

Write us for information.

THE A. T. STEARNS LUMBER CO., BOSTON.

RUBEROID

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FOR INSULATING SILOS

WATER PROOF, AIR TIGHT
They keep Silage dry, cool and healthful. Send for Booklet H.

THE STANDARD PAINT COMPANY
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Write for Free Catalogue No. 20 on material bought from Sheriffs' and Receivers' Sales. **CHICAGO HOUSE WRECKING CO., W. 35th and Iron Sts., Chicago.**

California Experience With Alfalfa.

Good Results Without Grain.

ED. HOARD'S DAIRYMAN:—Inclosed please find postal order to renew my subscription to your valued and interesting paper. We (my family and myself) have been reading it for several months and we would miss it very much if we did not get a copy each week. And there has not been a month since we have been receiving the paper, but what we have had value received for a year's cost.

While I will admit there are some topics that may not interest the average California dairyman—such as warm barns, saving manure, silos and ventilating barns—there is not a person who owns or handles two cows or more but what can well afford to take HOARD'S DAIRYMAN and get good value for the money expended.

Here in Kern county we have more than an even chance in the dairy business as this country is the home of alfalfa. We have good, green alfalfa ten months in the year to run our cows on and plenty of good alfalfa hay the rest of the time. The most of us feed hay all of the time in connection with the pasture, and I think it pays.

A few weeks ago I read Mr. Clawson's letter in your paper. He thought Butler Co., Ohio, was the place to grow alfalfa. I am not wishing to argue the question with Mr. Clawson, for I was raised in Butler Co., Ohio, and know its agricultural value, but here are a few figures that speak for Kern Co., California, and I can support them. Fifty-five acres of alfalfa were mowed 5 times during the summer. The stock used to put up the hay, fed from the stacks and then the man sold the hay. It was measured on the land and he was paid for three hundred and eighty tons of alfalfa hay, that being one year's crop off the 55 acres.

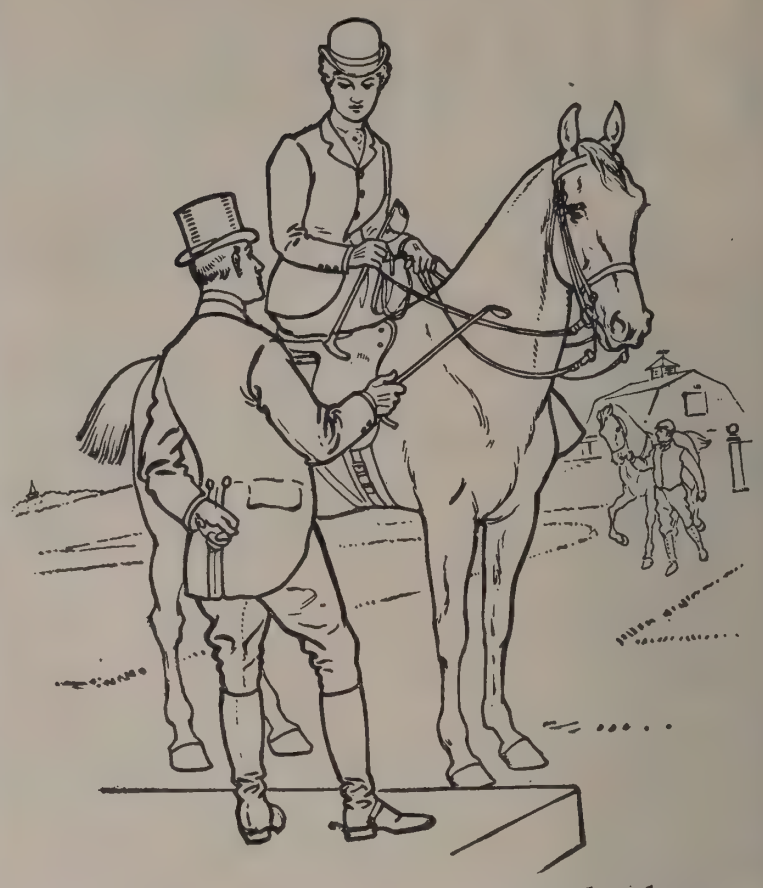
Now, as to the dairy business. I am young at it; we began last September with 16 cows, and I must say that about all that I have learned about the cow business, I have learned from your paper and I am still in the field after more knowledge. I am in favor of the Jersey or Guernsey for our line of business, which is producing butter fat. We separate here on the ranch and the creamery wagon comes every morning and takes the cream to town to the creamery. Our cows are grade Jerseys and were quite poor when we bought them last September. They began to freshen in November and during the months of December, January February and March the cows we milked, 14 in number, earned an average of $7.50 per head, per month, from the creamery, besides the calves and skim milk, and had no feed but alfalfa hay and what they could get in the pasture, no grain.

Now in regard to silos for Kern Co. I hardly believe they would pay here, as labor is high and when a cow has good growing alfalfa to run on and plenty of good hay, if some grain was added, it seems to me that they ought to respond. I am going to try feeding Hungarian millet with my alfalfa hay this winter. What do you think of it as feed, in connection with alfalfa? J. G. S

Bakerfield, Kern Co., Cal.

The editors do not accord Hungarian hay, or any of the millets, special favor. They make excellent catch crops in times of emergency. When intended for hay, abundance of seed should be used, and cutting should commence as soon as the plants begin to come into blossom, in order to prevent the formation of the hard and indigestible seed.

A more serious problem is presented by our correspondent's intimation that dairymen in his section do not need to concern themselves with the question of "saving manure." This is a great mistake. Continual cropping will exhaust the richest soils.

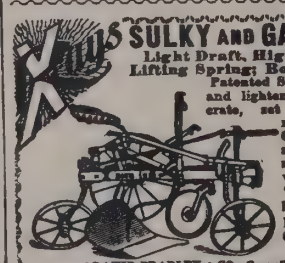


Gall sores and blisters cause the horse much pain. They come from heat and friction under the collar or saddle. The parts should be carefully cleansed with a pure soap that will not smart. Ivory Soap with warm water, is excellently adapted to this purpose. This soap is peculiarly efficient where it comes in contact with sores, as it is mild and pure. While cleansing thoroughly, it also soothes and heals.

MILK TUBES Patent Coin Silver 1¾" 50c. 2¾" 80c. Improved Teat Opener 75c. Dilating plug 25c. Postpaid on receipt of price. G. P Pilling & Son, 2d and Arch Sts., Ph l., Pa.

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David Bradley Mfg. Co., 110 E. Broadway, Bradley, Ill.

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Elmco Mixed Feed

—ANALYSIS:—

Moisture 10.23 Crude Protein 17.90 Ether Extract 5.13

F. W. WOLL, Chemist, University of Wis., Agricultural Experiment Sta

Blended in uniform and exact proportions for stock and dairy use; consists of pure Bran, coarse Shorts and Red Dog Flour, blended so perfectly that the full benefit of each grade of feed in just the right proportion is obtained, and better than is possible if mixed by hand. **Elmco Mixed Feed** produces rich milk.

Manufactured only by LISTMAN MILL CO., La Crosse, Wis.

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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Remit by draft on Chicago or New York, or Post Office orExpress Order (never by personal check), addressing Hoard's Dairyman, Fort Atkinson, Wis.

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Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

Entered at Fort Atkinson, Wisconsin, as second-class matter.

Two Iowa Silos.

Ed. Hoard's Dairyman:—I have read so much about silos, the building and the filling, also the different kinds, that I thought it might be of interest to give the readers of the Dairyman a little of real experience in the construction and filling of the much needed silo.

The picture I send you is a cut of two silos owned by Mr. Thomas of Ft. Dodge, Ia., and as I was foreman for him at the time these silos were built, I can give a plain description of them,

When I first took charge of Mr. Thomas's dairy, he had but one silo,only 12 feet square, and as his dairy was rapidly growing, I induced him to put up two silos that would be a credit to his farm. These silos are built as follows:

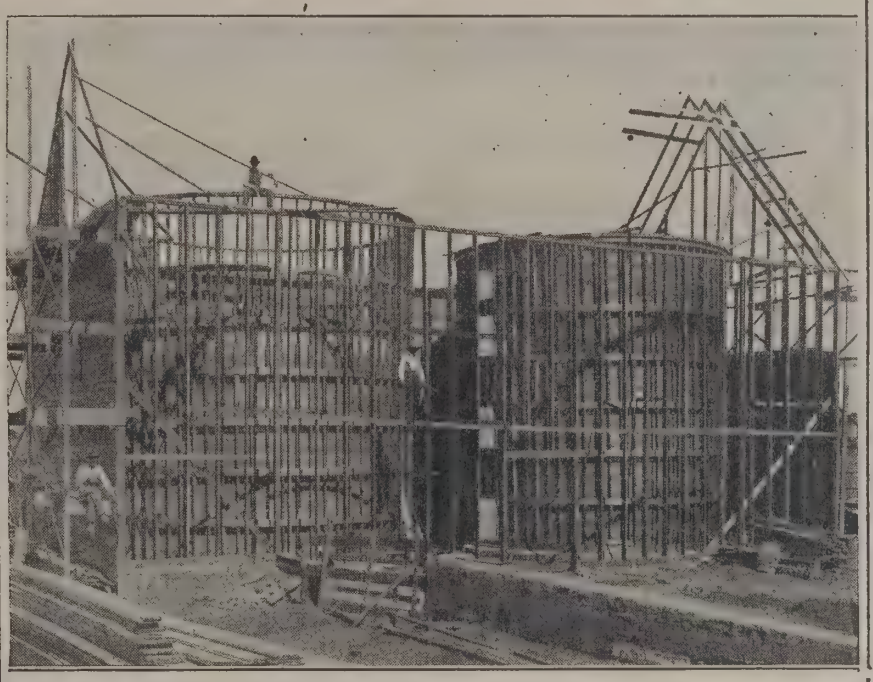
First I had a pit dug 5 feet deep and 25 feet in diameter. We then built a 12-inch brick wall laid in cement and plastered both inside and out with cement. Then on top of the wall we placed a double circle made of 2x6 pine; on this, we set up 2x4 studding 24 feet long. These studding were placed 1 foot apart, and on top of the studding we placed another circle, which was put up when only a few studding were placed. On the outside of the studding, we put a band of boards ½ inch by 6, making it double so as to break joints; these bands, as you will see, are 4 feet apart, and are put on merely to hold building in position. On inside of studding we first lined with boards ½x6 in., then we put on tarred paper; on top of the paper,we nailed patent lath and covered all with a good coat of cement plaster, commencing at top and finishing at bottom. The floor is also cemented, thus making it water and rat proof. The doors are placed far enough apart to insure easy access for feed. It is the intention of Mr. Thomas to whitewash the inside of each silo with a very thin coat of cement to fill any cracks, should there be any. The silos are covered by a building 30x62 feet, forming a (T), to the end of the barn, which we extended, as the wall can be seen in front of the silos, which makes the barn 200 ft. long, 40 ft. wide and 24 ft. high, with litter carriers, and also a carrier to take in silage. The barn will hold 150 cows, which I think is about as near complete in the way of feeding as one could wish, although more breathing space would not be objectionable.

E. L. English,
New Castle, Pa.

Dairy Cows.

Ed. Hoard's Dairyman:—The quantity of milk yielded by a cow depends primarily on her milk yielding capacity. The question of food is only a secondary consideration but yet of vital importance, while the general management of the cow has a beneficial or adverse effect, according to whether it is correct or otherwise, on the milk yield. Other factors that also influence the milk yielding capabilities of the cow are the age of the animal, the yield generally being greatest after the animal has had her third calf, and, secondly, the time of the period of lactation; at the commencement of this, a larger quantity of milk is yielded than towards the end, as the cow dries off.

The operation of milking itself also influences the quantity of milk; a good milker will draw a larger quantity of milk from a cow than an inexperienced milker. The last point is frequently being overlooked, although it is a very important one. More especially in the case with young cows, great stress should be laid on having them milked by an experienced milker, and that the milking is not performed in a slip-shod manner. In a large herd of dairy cows, the extra quantity of milk obtained by employing good and experienced milkers, as compared with careless ones, is not inconsiderable. If a fair wage is paid, one is in a position to employ only the very best



The cut shows two silos, each 24×30 feet with cemented walls and cement floors, costing about $600.00. Property of Z. W. Thomas, Fort Dodge, Ia.

of workmen, and the extra expense entailed in paying good men is more than counterbalanced by the extra quantity of milk obtained. In some countries, the cows are milked three times a day, and we are told that a larger quantity of milk is obtained than if milked twice. But, for many reasons, this method is impracticable. In the first place it must be remembered that considerable more expense and labor is involved; and the manner in which we feed our cows, renders it quite impossible for such a method to be carried into practice and in many cases it is doubtful whether the additional quantity of milk covers the extra expense incurred. All these various factors mentioned as influencing the milk yield in a beneficial or adverse manner, are, however, of minor importance.

As already pointed out, the question of milk yield of a cow depends chiefly on her inherent milk yielding capacity. This is a hereditary quality, and, such being the case, the milk yielding capacity of a herd of dairy cows can largely be increased by careful selection and breeding. In herds where a large milk yield is desired, special attention must therefore be paid to the drafting into the herd only those heifers which have been bred from the best, or, at any rate, good milkers. The heifer calves from poor or indifferent milkers, should on no account be retained, as they will have inherited the poor milking qualities of their mothers.

By selecting the heifers as just described, and continuing this process for a sufficient length of time, the average milk yield of a herd will be considerably increased. It is not sufficient, however, to insure that the dams of the calves retained for drafting into the herd are good milkers. Earnest attention should be paid to the class of sires that is used in the dairy herd. The sire should, if possible, be bred from a deep milking strain. This point is one of great importance, but very often entirely neglected. A great many dairymen pay little or no attention to this matter, but use any kind of an animal so long as he can get calves; this characteristic is usually more prominent with mongrels than with animals of good breeding.

In some instances, the selection as regards the dam of the heifers retained for placing in the herd, is judiciously carried out, but little, or no attention is bestowed on the question whether the bull used for serving the cows comes from a deep milking strain and, besides this, has a heavy milker for its dam. On the contrary, not unfrequently entirely unsuitable bulls are used in our dairy herds—bulls, it is true, which perhaps have pedigrees as long as one's arms, and which would please almost any judge, but whose services in a dairy herd had better be dispensed with. The use of a bull whose immediate female ancestors were, or are, poor milkers, in a dairy herd, is much more to be deprecated than the breeding from a poor milking cow and retaining her produce.

It must be remembered that the bull influences the milking qualities of all the heifers in the herd. This evident fact is frequently overlooked entirely. Unless, therefore, the breeding of the bull used for service in the herd is attended to, little and uncertain progress can be made in the improvement of the milking capacities of the heifers bred, and which are eventually drafted into the dairy herd. In fact, by breeding from a bull descended from a poor milking strain, the benefit accuring from retaining for breeding purposes only good milkers is to a greater or lesser extent negatived, according to the degree of prepotency of the bull. Only if both parents are descended from good milkers can it be expected that the progeny will be good milkers.

Breeding from a good milker whose parentage is unknown will not invariably produce calves which later on will also give a large milk yield. Breeding from animals whose parentage is unknown, and which are cross-bred, must at the best of times, be only guess work, and very uncertain and unsatisfactory in its results. We may possess a cow which is a heavy milker, yet her heifer calves may altogether fail to possess the same desirable quality. As a rule, however, it will be found that good milking cows produce equally good milking heifers, provided they have been bred to a suitable bull, as pointed out above.

This is due to the fact that deep milking generally comes from good milking families, and that their milk yielding capacity is an inherited quality, and not of accidental appearance; if it were not so, it would not for certain be transmitted to the offspring. In selecting the cow from which to breed heifer calves for drafting into the herd, the best test of their usefulness and suitability is, of course, to keep a careful record of their daily milk yield. In fact, it is absolutely necessary to follow this plan if satisfactory results are to be obtained, although it cannot be denied that some extra trouble is involved thereby. At the same time, the benefit resulting from knowing the actual milk record of each individual cow in the herd amply justifies the extra trouble and labor entailed. In all cases, it is the most satisfactory and simplest way to weigh the milk.

A simple machine for this purpose is found in the market at the present time. It is an evident fact that good milch cows possess certain outward signs, which to some extent aid us in forming an opinion as to their suitability for the dairy. Yet this point is of minor importance. An accurate result as to the milking capacities of a cow can only be gained by keeping a milk record. The characteristics of a good milch cow are, of course common, to a greater or lesser extent, to all cows belonging to dairy breeds or crossbred cows produced by crossing the former. Although we are able to distinguish to some extent by means of the outward conformation, a cow that is likely to be a fairly good milker from one which is a poor milker, yet it is impossible to say, by judging from the outward appearance of a cow and the size of her udder, etc., whether she will yield 500 gallons or 1,000 gallons per annum. This fact can only be established by carefully recording her daily yields.

The size of the bag is, of course, one of the principal points on judging of the usefullness of a cow for dairy purposes. Size, however, is not the only point; texture is also of importance. By no means are the size and texture of the bag an infallible guide as to the milk yielding capacity of a cow, although it is not infrequently assumed to be so.

The shape and size of the udder, of course, varies in different breeds; even amongst the various dairy breeds uniformity in regard to this point does not exist. On the contrary, the dairy breeds of this and other countries possess udders of different type. As an example, the typical udder of an Ayrshire may be seen, which is quite different to that of a dairy Short-horn cow, although both may be good milkers.

The size of the milk veins is also an indication of good milkers. Other characteristics which invariably indicate good dairy cows are the following: A wedge shaped body, a smallish head, comparative narrowness of the body in front and wideness behind, large roomy belly, wide and projecting hips, and a skin of good texture. A dairy cow is not, however, a good milker because she possesses these characteristics. It should be the other way about—that is to say, because a cow is a good milker, therefore she possesses those points we are accustomed to look for in a dairy cow. In breeding dairy cows, stress must therefore be laid on the actual milk yield. If this is done, the outward points which characterize the build of a good milker will not fail to put in an appearance.

To breed dairy cattle from their outward conformation alone,is entirely wrong and can never tend to improve the herd, as far as milk yielding capacity is concerned. As pointed out at the commencement of this article, the feeding of cows is of secondary importance when compared with the individual milk yielding capacity of a cow. At the same time, the question of feeding is a very important one, and its importance cannot be over estimated. Putting it briefly, I may say that only those cows will respond to liberal feeding by giving an increased quantity of milk, which are really good milkers and possess good milk yielding capacities. Cows, on the other hand, which are not naturally deep milkers, can never be made so by feeding.

In their case the food supplied would not be converted into milk, but stored up in the body in the form of fat. In discussing the above points I only considered the case of dairy herds where the production of milk is the sole object. Where cows are bought and drafted into the dairy herd and later on sold to the butcher when they cease to give satisfaction, other points in regard to feeding must be considered.

Australia.

Prof. Haecker advocates the inspection of cream, and the rejection of all that which is not good at central plants the same as at local creameries, and the professor is right.

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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

NATIONAL DAIRY UNION MATTERS.

Owing to a press of other duties, W. D. Hoard has resigned his position as President of the National Dairy Union.

Chas. Y. Knight, Secretary and Treasurer, requests HOARD'S DAIRYMAN to announce that a complete financial report showing receipts and expenditures of the National Dairy Union to date, will be made as soon as the books can be audited.

BUFF Jersey of Monmouth, Ill., has issued the third edition of his book on Practical Dairying. As the work of a practical dairyman and farmer, the book is to be commended. There is much practice and little theory in it. It contains much valuable material on the dairy herd, its feed, care and management; stables; calf rearing and management; building and filling silos; soiling crops, refrigerators, feeding and care of swine, etc. When a farmer has made a success on certain lines, his advice is proportionately valuable and the book will be a help to anyone, be he a beginner or an old hand, who wishes methods that have been tried. The price is 75 cents, postpaid.

EFFECT OF SALT ON THE COLOR OF BUTTER.

Prof. G. L. McKay, of Iowa, illustrates this point as follows:

"If you were to take three samples of butter from the same churning, add no artificial coloring, salt the one lot a half ounce, the second an ounce, and the third one and one-half ounces, the third lot will be higher in color than the first lot."

This shows the importance of considering the amount of color to be used in connection with the amount of salt per pound.

SAVE ALL THE FODDER.

It is evident that there is going to be a heavy demand for hay from the east. In that event we would earnestly advise all readers of the DAIRYMAN to save all the corn fodder they can. Very much of the corn in the west will be good for nothing except for fodder. But if it is carefully saved, there will be a chance to sell some of the hay, and a cash crop obtained in that way.

The man that is saving of his fodder, and saves it when in the best feeding condition, generally has the bulge on good luck.

ADVICE THAT WAS MUCH APPRECIATED.

Just before we were about to address the New York Dairymen's Association, at Olean, two years ago, we shook hands with a kindly-faced, sturdy old New York dairyman who gave us the following advice:

"Speak your mind and conviction squarely. Don't be afraid to talk to us just as you think. Call a spade a spade. We can stand it. If you are right we will feel it and know it. What we need in these times is plain, faithful talk that don't leave us a peg to hang on where we are wrong."

There was was a brave, earnest man; a hard thinker and worker in his chosen sphere of life. Politicians are never made of such stuff, but real statesmen always are. It takes high courage to face the truth about ourselves, and that is the reason there are so many self-loving cowards.

KEEPING COWS CLEAN.

In that little book "Thirty Years Among Cows," by N. B. White, are many nuggets of cow wisdom. The chapter on keeping cows clean, should be read about once a week, by every cow keeper in the land. There is an old saying that: "Familiarity breeds contempt." It must be the familiarity some men have with cows, that makes them so indifferent and contemptuous about keeping them clean. And yet cleanliness is the most important of all considerations, whether we consider the health of the cow or the quality of her product. Some men rarely have a sick cow; others are having sickness among their cattle all the time. Care and cleanliness makes healthy cows, and *healthy* cows, are much more profitable. Some of the sayings of Mr. White in the above mentioned chapter, are worth remembering. Here is one of them:

"When a boy goes to school, he begins to learn the first day; but I had been in this cow school more than twenty years before I began to learn ahything about keeping cows clean in the stable."

Last April a half dozen farmers from Illinois came in a body to inspect the barn and stables of the Senior Editor of this paper. They saw 43 cows, many of them with white flanks and thighs, that had been in the stable 20 hours out of 24 every day since the early part of the November previous. These men expressed great surprise at the absolute freedom of all manure or even manure stains, on the bodies of these cows. They asked how often we washed and groomed our cows, and they looked very incredulous, when told that the cows were never washed and rarely ever brushed. Each of these men used the stanchion plan for tying their cows. But they admitted that they had received an object lesson on keeping cows clean, that would not soon be forgotten. Like Mr. White they had been to school for years, but had learned nothing.

Here is another of Mr. White's sayings:

"In the Northern states, for six months in the year, one-half of the cows have their sides covered with manure, some portion of which goes into the milk pail every day."

And thousands of farmers, with cows answering that description, will tell you their "cows are clean enough," and their milk cans when emptied at the creamery, will show enough manure in the bottom to make a cow ashamed of her owner. And such are these men's ideas of what is clean and wholesome. Surely, "familiarity breeds contempt."

MORE ZEAL THAN WISDOM.

For several days the Chicago papers have been filled with articles on the milk question. It seems that the Board of Health of that city have been investigating the milk supply. They found it low in butter fat and other milk solids; too low in fact for the health and welfare of the children of that city.

Being without practical knowledge on dairy questions the Board rushed off into a raid on the Holstein breed of cattle, asserting that they give milk too low in solids for human nutrition, and so we see numerous articles in the papers bearing the caption "The Holstein Cow Must Go," The Holstein Cow Condemed," etc. Chief Milk Inspector, Thomas F. Grady, Irishman like, proposes to hit a head wherever he sees it, whether good sense accompanies his blows or not, and so he has started out ten young doctors as milk inspectors. It is not likely one of these doctors knows a thing practically about milk, about methods of testing, or even very much about the nutritive value of milk. The dairy farmers who supply milk to the people of Chicago are to be raided by a Board of Health of very deficient cow knowledge; led by a milk inspector who if he is correctly reported is simply an uninformed breed crank, and a lot of callow medics who wouldn't know a Jersey or Ayrshire or Holstein from the veriest scrub.

The difficulty with the milk supply of Chicago is not one of breed but rather because of inefficient laws and administration. No matter what the breed the milk is taken from, unless the authorities pursue a rigid system of inspection by competent men, and not a bunch of half fledged doctors, the people will be likely to buy their milk. Average Holstein milk tests about 3 per cent. That makes very good milk. It is not worth as much commercially or in a nutritive sense as five per cent milk but it will do very well and there is no sense or reason in holding the Holstein breed of cattle responsible for the dishonesty of dealers and certain milk producers. The Chicago Board of Health in this matter are showing more zeal than sound judgment.

RIGHT TO THE POINT.

That was a broad, sensible argument that was put forth by a farmer in Northern Wisconsin the other day, in a meeting that was called to consider the building of a creamery. He said:

"I want a creamery here for several reasons. (1) For the purpose of having a central school house in our midst to teach us all what we ought to do in this business of dairying. We are all too ignorant of what we ought to know on this question, and if we can get a good creamery here it will teach us. (2) I want a creamery here to rescue honest milk from honest cows from making dirty butter that goes into dirty grease boxes, in dirty store cellars and is traded off at last to make process butter of. Our farmers get a low, dirty price for all this dirty butter. It is an outrage on the cows, a serious loss to us in money, and I for one am heartily ashamed of it. I don't want to help along the process butter business any more."

The Ideal Cow Aimed at on Robinswood Farm.

Her Structure as Outlined by a Scale of Profit.

[Dr. J. M. W. KITCHEN in *Jersey Bulletin*.]

The following will be read with interest by all earnest students of the dairy cow, for the reason that it presents the ideal or standard that Dr. Kitchen, himself an earnest student, carries in his mind as a guide in the breeding and selecting of his cattle. It will be noticed that the Doctor studies the dairy cow from his knowledge of the physiology of the maternal functions, which constitute the real foundations of all intelligent judgment on such questions: He says:

I await with considerable impatience the collection and collation of sufficient accurate data that will confirm my various personal beliefs as to dairy cattle ideals that are the outcome of my observations; and that will enable me to alter my ideals in consonance with scientific information relating to breeding matters. Until such information is at hand, I must hold to my belief that it is a very good cow that without being oversized, or without forced feeding, will produce 350 to 400 lbs. of butter a year (15 per cent overrun), and who also throws healthful progeny of equal productive powers to herself, for six or eight years of her life. I do not believe that a 600-lb. two-year-old heifer that will produce 6,000 lbs. of rich milk in her two-year-old form will win out in comparison with the first named style of cow. I challenge anyone to show that such an immature producer has ever existed that threw desirable progeny, or that was a profitable cow in the long run. A thin-milk cow might do it; but not one that runs so much of her digested nutriment off through her udder as a small sized, rich milk producer would, if producing such a large quantily of milk.

Now as to my ideas in regard to a scale of points, the four great and most important features of a good butter cow, and in proportionately important sequence, are:

1st. A very large development of the intestines, liver, pancreas and other abdominal organs, except the stomach, which would be relatively rather secondary in this development as compared with that of the specialized milk cow; i. e., a cow producing a large flow with small fat percentage.

2d. Sparsely developed general muscular and bony systems. The bony system being fine to moderately coarse, according to the nature of the pasturing work to be done. The general muscular system to be very spare in every type; because no good dairy cow ought to be overworked in securing her living at pasture.

3d. A highly developed spinal and sympathetic nervous system. A large development of the nerve centers of these systems is needed to secure a sufficiently long and full flow of blood to the udder during the milking process; this being affected by the so-called inhibitory influences whereby the muscular coats of the arteries are relaxed.

4th. A mammary development that shall be large in relation to the general weight of the animal.

It is a uselessly excessive general weight that counts high in the cost of food of support. The other points in a cow are of lesser importance, and should be rated accordingly. A cow does not need a large lung development, as in the case of the horse. We don't run our cows, or at least ought not to do so. Nor do we put a big amount of work on her in a short time. The cow's work is spread out during the twenty-four hours; and hence does not require extraordinary size of lungs. Her heart wants to be strong enough to drive her blood strongly throughout her whole body, and if she and her ancestors get a sufficient amount of exercise it will be all right. The longer her stabling season, the stronger should be her heart action, to counteract tubercular and other germinal diseases. Therefore, great chest development is not a *sine qua non* in the dairy cow. The wedge shape frame is all right.

I herewith append a scale of points that will give a somewhat fair idea of the valuations that I consider should be attached to each group of features:

SUGGESTED STRUCTURAL IDEAL, AND SCALE OF POINTS.

Head (4 points): Small and lean, Eyes full, prominent and placid. Jaw strong. Muzzle large and broad. Nostrils large and open. Face straight, broad between the eyes, narrow between the horns. Horns small and incurved.

NECK (2 Points:) Thin, rather long, clean cut throat and not heavy at shoulders (ewe-necked.)

WITHERS AND CHEST (2 Points): Thin from side to side. Sharply wedge shaped, with apex of wedge at top.

SPINE (10 Points): Large and level between shoulders and rump. Vertebrae well apart; spinous processes prominent. Pelvic arch markedly prominent. Spine carried level from pelvic arch to setting on of tail.

TAIL (1 Point): Thin, long, reaching hock, with a good switch, hanging free from thighs.

BONY FRAMEWORK (10 Points): Fine to medium in weight. Pelvis broad across the loins. Ribs well rounded, with large interspaces. Angular points of the frame prominent.

BARREL (25 Points): Long; abdomen broad and deep at flank. Flank highly arched.

LEGS (1 Point): Short, or of moderate length.

APPROXIMATE WEIGHT (10 Points): At 2 years old, 600 lbs. At 3 years old, 700 lbs. At 4 years old, 800 lbs. At 5 years old, 900 lbs.

GENERAL MUSCULAR SYSTEM (20 Points): Very sparsely fleshed and free from fat. Thighs incurved (cat-hammed); shoulders thin. General lack of beefy points.

UDDER (15 Points): Capacity large in proportion to general weight of body. Shape approximating that of a globe. Quarters symmetrical, carried well up behind and full in front. Teats rather large, graspable with the whole hand, squarely placed and set moderately wide apart; hanging perpendicular. Milk veins prominent and tortuous; milk holes large.

I do not suppose that it would be possible to formulate any arithmetical scale of points that would be scientifically ideal. Nor do I see any need of such a formula. No cow should be judged, in my opinion, apart from her individual

functional powers and her innate hereditary tendencies.

The matter of color should not be considered; disposition, general appearance as to constitution, and condition of hide, should be classed with a functional rating. A dished face is not a merit in a cow. The nasal cavities should be large and straight. Most so-called dished faces are really only so in appearance because of the prominence of muzzle and eyes.

In rating the bull structurally, allowance must be made for heavier form at the head end of the animal and a lesser development at the pelvis. Still he must be the antithesis of the beef bull. His milk veins should be conspicuous, and his rudimentaries at least moderately large, and should be squarely placed and set well apart.

Such a formulation as a scale of points is not entirely satisfactory to me, and I have never seen one that was. This scaling would evidently not suit those who bank on fancy points. But such points are matters of taste, while the rating I have given would be a fairer preliminary to an entrance to an advanced registry, if a scale of points rating is to be considered as a requisite to such entry.

Criticism will of course be directed to the rating I have given the udder; but if the other more highly rated characteristics are marked, I should not worry much over the udder if it only looked poor, for the milk will be likely to be poured out through the udder even if it is not in the fashionable form of the Island creations of this day. So many beautiful, symmetrical udders are being sent over to us in this day that I am beginning to think that a very large amount of udder work has not been demanded of the ancestry of the young things carrying such beautiful mammary appendages. Otherwise we would see more udder distortions among their descendants.

One statement of the Doctor's puzzles us a little to know just what he means. It is found in the paragraph, in the scale under the head "BARREL," where he says: "Abdomen broad and deep at flank; flank highly arched." We would say, how can the flank be "deep" and at the same time "highly arched?" This confusion arises from the habit of calling the whole of the lower belly line the "flank."

HOARD'S DAIRYMAN has for years used the word flank as applying only to that portion of the belly, just forward of the stifle. When of proper shape it forms a sort of archway to the udder. The beef outline drops this arch way down to the lower line of the belly, thus shutting out almost entirely all side view of the udder.

The Doctor's ideas of the structural build of the dairy cow are in very close accord with those entertained by the DAIRYMAN.

White Whey in Cheese Making.

ED. HOARD'S DAIRYMAN:—I am losing considerable white whey after milling. What is the cause it, and what is the remedy to overcome it? I thought too fast working curd and too much acid was the cause of it, but in my case it don't prove to be true. A. N. F.

Pomona, Mich.

In the superfluous flow of white whey after the milling or grinding of the curd, much butter fat is lost. The fat liquifies and escapes with the whey. This being true, I shall treat the question as one of loss of fat rather than loss of white whey.

There are several causes for this loss of fat; a good deal, for instance, is lost in the whey at this time of the year when the milk is often times far advanced or over ripe, requiring fine cutting and rapid heating to high temperature in order to secure the cook prior to the development of the acid. Another cause is, if when the whey is drawn off, the curd is not in a proper condition—that is, if it is still soft, insufficiently cooked or firmed and charged with whey—there will surely be a loss of fat, as the fat is not really detached in the intersticies of the curd, and that under the action of the lactic acid or acids, (as chemists tell us that other acids are formed after the development of lactic acid), the condition of the curd changes and its texture weakens to such a degree that it cannot resist the action of the curd mill and at the same time retain the fat.

I have noted from observation that some makers experience an additional loss of fat by grinding the curd at too high a temperature. They will dip the curd that has been firmed at 98 to 100° F. in the whey, and after racking, by means of placing hot water under the racks or turning live steam directly into the vat under a tight fitting canvass cover, maintain this temperature, or even raise it two or three degrees above the firming temperature used, holding it at this heat up to the time of grinding. The curd when too hot, is not firm enough and instead of being cut is torn apart, thus putting the texture in bad shape, and to this is added the influence of the too great heat, which softens the curd; thus the loss of fat in such cases, will be easily appreciated.

Still another cause, and perhaps the most common cause for the loss of fat, is due to bad milk; milk that has not been properly cared for at the farm, and delivered at so low a temperature as to defy detection until having been warmed up in the vat, resulting in bad flavor and gassy curds. This is important to the milk producer, and he should bear in mind that badly cared for milk, always occasions a loss of yield.

Among the precautions to be observed is that the curd is invariably in a good condition of firmness and elasticity, also that the pieces or cubes are distinct from each other, at the time of drawing off the whey.

There are two methods of rapidly hardening the curd at this stage of the process; one is by vigorous hand stirring at the time of racking the curd, which invariably means a loss of fat; the other and preferable method is to draw the whey down near the curd, and by the extra heating of the curd in the remaining whey just previous to racking, the action of the rennet npon the curd is stimulated, and the whey is expelled without the harsh treatment of much hand stirring, and without loss of butter fat.

A uniform temperature of from 96° to 98° F. should be maintained during the process of matting and maturing up to the time of milling or grinding, when the curd should be cooled to at least 92° or 94° F., before going through the curd cutter.

Knife mills that have clean, sharp cutting surfaces, cutting the curd into uniform cubes should always be used in preference to any style of peg mill. Curd ground with knife mills requires but little handling or stirring at this particular stage, while peg mills tend not only to bruise and tear the curd, but liberate the butter fat, and require almost constant stirring, up to the time of salting, in order to keep it from matting back into one mass, and to insure an even distribution of the salt.

We should constantly keep in mind that the butter fat is largely freed from the effect of the casein, which holds it mechanically, and that by too much hand stirring and manipulation of the curd at the time of racking, grinding and salting we are continually liberating this fat; but by careful handling in every part of the process, and by cooling the curds previous to grinding, we fix the butter fat and retain the moisture and fat in their proper positions. U. S. BAER.

Wisconsin Dairy School.



A good cheap stable for 14 cows. This stable 16×42 feet was built in 1897. The material cost $1,200 and the work was done by owner. Interior of stable shown in cut below.



All this stable needs to make it sanitary is a tight floor overhead, the interior whitewashed, ventilators and more windows. All this could be done at an expense not to exceed $30.00.—Illinois Experiment Station.

AN intelligent (?) milk inspector of Chicago has discovered that white clover is responsible for the sour milk that is common in Chicago this summer. The reasoning is very clear: Chicago has much sour milk, Wisconsin and Illinois, the sources of the milk, have a heavy growth of white clover; the relation is obvious!

THE large creameries which churn a large quantity of cream at a time have considerable advantage over those which churn a small quantity. It has been found by experiment that the larger the amount of butter at a single churning the greater will be the overrun. Smaller amounts of butter do not absorb as much water proportionally as do the larger.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Ice House.

Please answer through your paper plans for an ice house, viz: Drainage, ventilation and side walls using unmatched, white oak boards, size 14x16x13 ft. What does 1 cubic foot of ice weigh? Also how to make a pond in a sandy loam bottom that will not leak. Your paper comes regularly.
W. Va. S. P. B. & S.

A porous soil makes the best drainage for an ice house. Where this cannot be had, drain pipes or tile must be used, but these must be securely trapped in order to prevent the air coming through the pipes and reaching up to the bottom of the ice. This so-called trap is simply a bend in the pipe a little deeper than the diameter. This being constantly full of water, prevents the air from entering. At the bottom of the ice house place some poles or scantling and cover well with straw so as to lift the ice a little above the ground.

For ventilation, build a cupola in the roof about two feet in diameter. This may be of wood with slatted sides with a roof, or it may be of galvanized iron with sufficient space between the top and the sides to allow the warm air to escape.

While unmatched boards do not make the best covering for an ice house, they may be made to answer a very good purpose by filling in the space between the outside covering and the inside ceiling with saw dust. This space should be nearly or quite a foot in thickness.

It will be found a pretty difficult matter to make a pond in sandy loam that will hold water. The only way to do it would be to get a very considerable quantity of clay and spread over the entire surface, thoroughly wet and then mix and puddle the same and let it settle.

A cubic foot of ice will weigh approximately 57½ pounds.

A Round Barn.

I am thinking of building a round barn on my farm and would like to have your opinion on such a form of barn. Can a hay fork be easily arranged in such a barn? Could you refer me to parties who are using this form of barn? G. H. C.
Storm Lake, Iowa.

It is undeniable that a round barn presents many admirable features, but whether these on the whole outweigh some disadvantages is with us, as yet, an unsolved problem. They are economical, both in lumber and labor, affording more storage and stable capacity for a given expenditure than any other form. There is no difficulty whatever in putting up a circular track for hay fork to run on so that hay may be delivered wherever wanted. See illustration of a round barn in process of construction in Vermont on page 547. There is a barn of this character on the King farm, easily reached from either Fort Atkinson or Whitewater, and this is, so far as we are advised, the only structure of this kind within reasonable distance of our inquirer.

Wood Covering for Cement Floors.

I note that you recommend two inch plank over cement floor under cows. Would there be any objection to using inch boards instead of planks? How would you provide for securing planks to floor when constructing same? A. C.
Arcadia, Wis.

The probabilities are that inch boards would make a fairly satisfactory covering for a cement stable floor, but it is doubtful if two floors of this kind would outlast one floor made of two inch plank. With plank it would probably be unnecessary to do more than lay them down loose, or a batten might be nailed across at intervals where the partitions between cows should stand.

Butter Fat in Buttermilk.

I am leaving two spaces of fat on a two-neck Ohlsson bottle, and have 1,400 lbs. of buttermilk. How many lbs. of butter do I lose daily.
Dannemora, N. Y. BUTTERMAKER.

The fat left in the buttermilk probably amounts to about three pounds, which indicates very close churning.

Directions for Testing Cream.

Will you please tell me where I can get directions for testing cream. Is the dairy size turbine separator a success? I am under the impression that the speed is hard to control. Is that the case? C. L. D.
Bowling Green, Ky.

You will find full directions for cream testing in Testing Milk and its Products by Farrington & Woll. It can be obtained from this office for $1.00 postpaid. We have heard no complaints concerning the turbine tester; they are accurate when properly used.

Mr. Grote's Rations.

ED. HOARD'S DAIRYMAN:—It has indeed afforded me great satisfaction to read the article by Mr. Grote on page 558. Isn't it strange that people will keep following old fogyish ideas, and to do their work in the most laborious and expensive way, simply because their forefathers did their work in that way.

HOARD'S DAIRYMAN has ever since its existence preached the idea of buying high-priced concentrates, not as a matter of economy, nor simply because such concentrated by-products were on the market and had to be bought and fed, but simply because no one had ever taken the pains to figure out a cheaper home-grown ration.

Mr. Grote, as a result of his discovery and scientific investigation, is surely destined to become the greatest of men among kine. A genius that can figure out a five-cent ration that will equal or excel the old-time 15-cent stuff is surely entitled to a place in the front rank, among the few really great men of modern times.

HOARD'S DAIRYMAN should in all justice to its patrons lock up the office, and turn over the key to this son of toil from Mauston, Wis., and make suitable apology to the subscribers for their past misguidance.

It is a remarkable fact that providence always affords relief at the proper time. Had Mr. Grote lived and made this phenomenal discovery years ago, the millers of the country would have been compelled for want of buyers, to throw their bran, shorts, middlings, etc., into the river, which would have resulted in a great loss. But now, and in the future, since fuel is so very scarce, all this can be utilized to good advantage.

I fancy now I can see the farmers of the wheat-growing prairie states, ever and anon lifting the huge bucket of bran to the top of the stove and throwing a few handfulls on the smoldering fire to keep their measly forms from freezing while the winter lasts and the coal strike is on.

But please do not waste time on such thoughts but think of the future dairyman who smiles as he stuffs his cows with a 5c ration of such simple feeds as corn stover, marsh hay, oat straw, with possibly a sprinkling of corn and bean silage or alsike hay.

Mr. Grote has proven, beyond the shadow of a doubt, that these named feeds in the manner that he has proportioned them in his recent article contains as much and even more nutriments than those which have been continually thrust before the dairymen's shrunken countenance by the dry and monotonous formulas of HOARD'S DAIRYMAN. The logic in that article will refute all probable contradiction.

HOARD'S DAIRYMAN might hint at his

"ADVERTISEMENT."

FOUND OUT.

What a Mother Found Out About Food.

A mother found out what a change of food can do for a whole family, from the nursing baby to the adults, in this way: "Twice during the summer months my baby was taken violently ill and was very slow getting over the attacks. His former diet of cow's milk alone ceased to agree with him so I combined it with an expensive infant's food but he soon became very much constipated.

"Then I shifted to Grape-Nuts food and found that this was just what baby needed, adding it to his milk after softening in hot water. Baby has thrived upon this food and is now healthy and strong and chubby as any mother could ask which you know is saying a great deal.

"It did not take me long to find out that a saucer of Crape-Nuts and cream is just what is needed by the tired nervous mother and I have also proved to my own satisfaction that when the children are old enough to chew Grape-Nuts it is far better for them than oat meal or any other mushy food for it develops their teeth and helps their digestion and their minds seem much brighter and more active too.

"Truly here is a wonderful food and one for the entire family." Name given by Postum Co., Battle Creek, Mich.

There's a reason.

Look in each package for a copy of the famous little book, "The Road to Wellville."

1,200,000

U.S. CREAM SEPARATORS

This seems a great number of separators. Does it not? It is a great number, but these figures are as easy to make as smaller ones—and, as our "would-be competitors" make their figures

400,000

and we sell three separators to their one, the reader can see our figures are within the FACTS—

POUGHKEEPSIE, N. Y., March 1, 1902.

Fifteen years ago last October we started our creamery on the co-operative plan recommended by your agent, fitting the building with machinery from your Company, and using the Cooley Creamers for the patrons. We have run on this same plan for all these years until Sept. 1899, when we put in separators. Our patrons are using more than three to one of the U. S. Separators over all other makes, and we believe the U. S. Separator to be the best on the market.

We are still working the cream gathering plan, and believe it to be the best for the rural districts, where unavoidably some of the patrons are a long distance from the creamery. We are satisfied with it, because we believe it to be the best and the cheapest. No farmer can afford to hitch up and carry his own milk, even if he live within half a mile of the creamery, if he can get it done, as we have this year, **at the average cost to each patron per day of 9 cents, and some years for less.**

H. R. HOYT, President La Grange Creamery.

Bear in mind that the main factory of the De Laval Co. is at Poughkeepsie, and that that company boasted that no other separator could be sold in their county.

Send for illustrated circulars

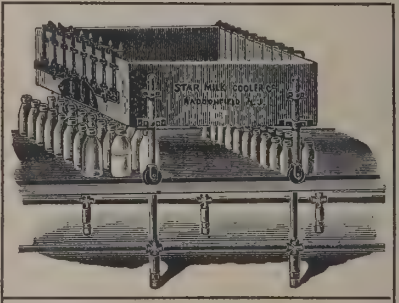
For Western Customers, we transfer our separators from Chicago, La Crosse, Minneapolis, Sioux City, and Omaha. Address all letters to Bellows Falls, Vt.

VERMONT FARM MACHINE CO., BELLOWS FALLS, VT.

WHEN YOU SEND IN YOUR RENEWAL, SPEAK TO A FEW OF YOUR NEIGHBORS AND HAVE THEM JOIN YOU. CLUB RATES: 2 Subscriptions, $1.50; 3 Subscriptions, $2.00; 4 Subscriptions, $2.50; 5 Subscriptions, $3.00.

A LITTLE PICTURE of A BIG FILLER

This machine has heavy galvanized iron case lined with copper, tinned inside. All working parts are burnished brass; all joints are ground. There is no rubber used in the construction of this filler. Capacity 40 gallons. Made with 8 quart spindles, or 16 quart spindles, or 18 spindles, (8 quarts at one end and 10 pints at the other.)



Star Milk Cooler Co., Haddonfield, N. J.

This illustration shows the Bottle Filler on a stone table, but our Fillers can be adapted to be used with any style of table. That is, a Star Metal Case can be ordered with a Wooden, All Metal, Skeleton, or Stone Table as desired. These Bottle Fillers are great labor savers as you can readily see.

Send for Bottle Filler Booklet.



High and Low.

High in excellence, low in price;
High in popularity, low in stature;
High in saving powers, low in cost to operate—the

Champion Milk Cooler-Aerator

Get our Booklet about it.

Champion Milk Cooler Co., 67 Main Street, CORTLAND, N. Y.

rations being less digestible, but to offset that kind of weak argument he has already given his rations enough more nutrients to make due allowance for all possible discrepancy in that direction.

The only danger that I can see in connection with the new formula, if practiced by all dairymen, which it undoubtedly will be, is that a great many, who have in the past been feeding short rations on account of enormous feed cost, will underestimate the value of their cheap home grown feeds at first; but when, in time, they see the enormous profits from such cheap feeds they will become enthusiastic and in trying to crowd their cows will overfeed them simply because the feed is cheap. The consequence of which will be a ruined lot of cows.

Of course we must all learn and adapt ourselves to the new order of things. In fact no great advantage has ever been gained without some slight disadvantage; and cases are on record where the disadvantages have outranked the advantages. Be this as it may, however, I hope to see the time when cows will be so liberally fed on cheap, home grown feeds, that their increased nourishment, will so stimulate their milk organs, that the act of milking will hardly be necessary. But the simple act of shoving the bucket under the cow, and a little rattling of the bucket at the same time, accompanied by a few kind words(oaths) from the gentle milker, will excite the udder into action, and stream forth its creamy juice, so that only a few strippings at the latter part of the milking, will have to be taken by hand.

Possibly my imagination has been a little too hasty in the above, but I really believe we are on the eve of great transformation in the dairy business. God speed the day when it may come and *long live the Grote*!

Hubbard, Or. M. S. SHROCK.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers

Losses in Manure Value.

In 1899-1901, three series of steer feeding experiments were made, comparing the gains obtained from animals kept without tying in a box stall, and from those tied as usual in the ordinary stalls, the former being watered in the stall, the latter turned out daily to water. The results, reported in Bulletins 53 and 57, show that by the former method a very large saving in cost of attendance is secured, without any decrease in the gain of live weight, or any disadvantage as respects the quantity of food required to produce it. The relative economy of the two methods is, however, not fully demonstrated until the value of the resultant manures is known; for these differ materially in the conditions of their preservation. The manure from the box stall was formed upon a cement floor, and was kept under the animals, compacted by their trampling, until the close of the experiment; that from the animals tied in the stalls and watered in the barnyard was, on the contrary, daily removed and stored in a compact heap under conditions closely approximating those of a covered manure shed, except that it was not subject to trampling by the stock.

The fertilizing constituents in food and litter, less those used in forming new animal tissue, were compared with those recovered in the two manures. The comparison is especially interesting, because of the increasing use of the covered shed method in Pennsylvania.

First—The trampled manure, suffered little loss of fertilizing constituents, though less than two-fifths of the dry matter of food and litter was recovered in the manure.

Second—The covered shed manure lost one-third of its nitrogen, one-fifth of its potash and one-seventh of its phosphoric acid. Only one-third of the dry matter of food and litter was recovered in the manure. The potash and phosphoric acid losses must be explained by seepage of liquid manure into the clay floor. The loss of nitrogen is, however, chiefly due to volatilization of carbonate of ammonia.

Third—The money value of the fertilizer constituents lost by the second as compared with the first method is equivalent to $2.50 for each steer stabled for six months.

Fourth—Therefore, manure, if prepared upon a tight floor and with such proportion of litter that it can be trampled into a compact mass, loses very little, if any, of its fertilizer constituents, so long as the animals remain upon it. This method of preserving steer manure is, therefore, distinctly superior to that of the covered shed, though the latter method may not always exhibit as great loss as that observed in this experiment.—*Bulletin 63, Pa. Exp. Sta.*

A Stable Plan Considered.

ED. HOARD'S DAIRYMAN:—I have just begun a barn for my cows and wish some advice as to arrangement of interior. My main part is 48 ft. by 28 ft. I had planned it as follows, viz:

A feeding alley on either side, then platforms for cows and a central drive way. On the west end I have a lean-to for four horses with driveway connecting with cow barn driveway. Since planning the above I have been advised that instead of having driveway through the center, that by putting in manure carriers I could have room for two rows of cows and a row of calves, thereby gaining a nice place for calves.

Now would it be advisable to put in carriers instead of driveway? Any advice that you may give will be appreciated and I will look for the next issue of the DAIRYMAN with more interest than ever.

The ground floor on the east end will be some 12 inches above the ground while the west end will be about level with the ground on account of slope of ground which gives room for carriers to run out over wagon. I have planned to put my hay in barn with a hay fork from east end of barn. Could I arrange hay fork and manure carriers on same end?

Becker, Minn. J. C. WAGNER.

We suppose the dimensions given above represent the extreme width and length of the outside. If so, one must deduct at least one foot and possibly more in order to arrive at the available interior width. After doing this, we do not see how it would be possible, even by dispensing with the driveway and substituting a litter carrier, to find room for a row of calves. More than this, we do not think it desirable to do away with the central driveway, even though litter carriers might be used, as there is nothing gained by over-crowding.

The only way in which arrangements for using a litter carrier could be made without interfering with unloading hay, as suggested, would be to have a section of the track for the litter carrier made removable. It would not be a very difficult undertaking to do this.

"ADVERTISEMENT".

A NEW ROUTE.

The Road to Wellville.

It is by change of diet that one can get fairly on the road to health after years of sickness, for most ill health comes from improper feeding.

What a boon it is too shake off coffee sicknes and nervouss headaches as some can if determined upon.

One woman accomplished it in this way: "A few years ago I suffered terribly from sick and nervous headaches being frequently confined to my bed two or three days at a time the attacks coming on from one to four times in every month. I tried medicines of all kinds, but could get no real relief until my parents finally persuaded me to quit the use of coffee altogether and try Postum Food Coffee. It had come to a point where I was so utterly miserable that I was willing to make any reasonable trial.

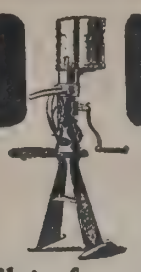
A person couldn't believe what followed but the results speak for themselves; that was two and a half years ago and I have never tasted coffee since I use Postum not only for its delicious flavor but more for the good it has done me. All of my troubles disappeared as if by magic and I have for the past two years been doing all the work for my family of six. I seldom have even a slight headache and I would not give up my Postum and go back to coffee now unless I deliberately intended to commit suicide.

"All my neighbors it seems to me now use Postum in place of coffee and some of them have been doing so for several years with splendid results from the health point of view." Name given by Postum Co., Battle Creek, Mich.

Look in each package for a copy of the famous little book, "The Road to Wellville."

Empire Empire

Eight Years Fifteen Cows



The Empire Way Makes Cows Pay.

1895 1896 1897 1898 1899 1900 1901 1902



How's This for a Record?

Emporia, Kans., Jan. 2nd, 1903.

Empire Cream Separator Co., Bloomfield, N. J.

Dear Sirs: Have used one of your **Empire** Cream Separators for the past eight years, during which time I have been milking at all times from twelve to fifteen cows. The cost for repairs in the eight years has been only seventy-five cents. I have had experience with other separators but consider the **Empire** superior to any other, as it never caused me any bother. It is easy to clean and has proven very durable. It does good work at all times. L. H. VAHSHOLTZ, Rural Route No. 4.

The Empire Cream Separator turns more easily, is more easily cleaned, does better work, and costs less for repairs than any other, because it is the **simplest separator made.** Don't buy a separator until you have investigated the merits of the Empire.

Send for our new book on Making Milch Cows Pay.

Empire Cream Separator Co., Bloomfield, N. J.

Western Office—FISHER BUILDING, CHICAGO.

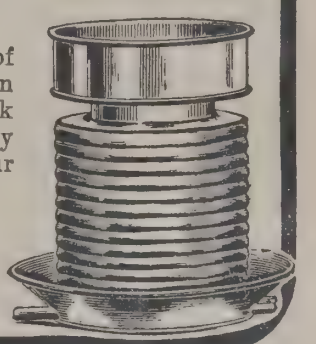
Eight Years 75 cents for Repairs Fifteen Cows

Milk Dealers' Supplies

Milk Aerators, Pasteurizers and Coolers
Ice Cream Cans and Tubs
Milk Bottles
Milk Shipping Cans
Milk Bottle Caps



These are but a few of the many things of our own superior make for the milk dealer, dairyman and creamery man. Write at once for our free illustrated catalogue.



STURGES & BURN MFG. CO.

Chicago, Ill., St. Paul, Minn., Kansas City, Mo.



Buhl Factory Cans

represent the same maximum of superiority found in all cans bearing our famous Milk Can Trade Mark. They are made to be the **neatest, cleanest, strongest** and **most wear resisting** cans upon the market. It will pay you to know more about **Buhl Cans. Remember** the Buhl is the only can in the world that is made with the **Buhl "Victor" Can Breast** and the **Buhl "Victor" Round** handle that cannot cut the hands. We shall be pleased to mail you special circulars and other matter, which contain the helpful, money saving information you should have. When you read this you will know why there are more **Buhl Factory Cans** in use than of all other makes combined. Write us direct about cans and we will tell you where you can get them.



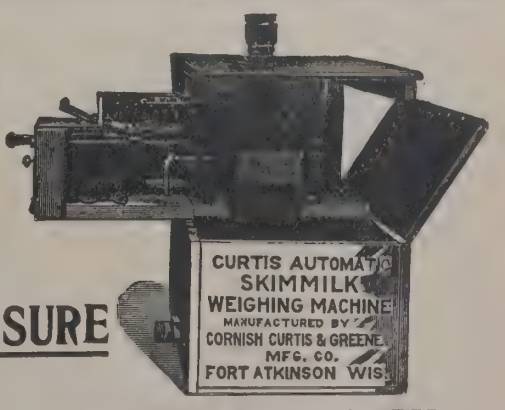
BUHL STAMPING CO.,
212 W. Larned St.,
DETROIT,
Mich.

Skim Milk

Often goes to the wrong man for the simple reason that the patrons have no standard of

WEIGHT or MEASURE

and the last man suffers.



☛ **FULL DESCRIPTIVE CIRCULAR FREE.**

Cornish, Curtis & Greene Mfg. Co.,

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for....
DE LAVAL ALPHA SEPARATORS.

Fort Atkinson, Wis.

Frosted Corn for the Silo.

ED. HOARD'S DAIRYMAN:—In all my replies to inquiries regarding the corn situation, I have told the silo men to have every thing ready so as to cut the corn the morning it is cut with the frost, providing it is not ripe enough before: it will be better so than cut immature before frost. I found corn in this locality last week that is now in good condition for the silo. It was planted May 7th. BUFF JERSEY.

Monmouth, Ill.

Oats and Peas for Silage.

On my farm at Forestville this county we have filled a fifty ton silo with oats and peas. What do you know of such silage? Will it keep well and prove good feed? We cut it in direct from the mower and had three men tramping in the silo. It was put up in first-class order, being at the proper stage, I think. During the noon hour it got wilted a little so we ran water on it as it went up the carrier.

Corn in this county is very small, being late in planting, and it looks very doubtful about farmers getting enough to fill their silos. E. J. S.

Chautauqua Co., N. Y.

We are without personal experience with peas and oats for silage, but a great many readers of the DAIRYMAN have reported such experience, and so far as we now recall this form of silage has given universal satisfaction.

Guernsey Breeders Will Meet at Wisconsin State Fair.

ED. HOARD'S DAIRYMAN:—As has been our custom for three or four years the Guernsey breeders will have supper together, on the State Fair grounds at Milwaukee, Tuesday evening, September 8th, and after supper will informally discuss the Guernseys judged during the day.

It is expected that the judge, Mr. H. C. Taylor, will give us his impressions of them.

We hope as many as possible will plan to attend. CHAS. L. HILL.

Rosendale, Wis.

DAIRY MARKETS.

ELGIN, Ill., Aug. 31—Butter—Firm; official market, 19¼c: offerings to-day, 300 tubs; all sold at 19¼c; output for the week, 718,526 lbs.

CHICAGO, Ill., Aug. 31—Butter—Steady; creameries, 14@19c; dairies, 13@17c.

Eggs—Firm; at mark, cases included, 14½@16½c

Cheese—Steady; daisies, 10@10½; Twins, 9½@10c: Young Americas, 11@11¼c.

Cattle—Choice to fancy beeves, 1,200 to 1,500 lbs., 5.75@6.10; good to choice steers, 5.40@5.70; fair to good export and shipping steers, 4.85@5.30; medium beef steers, 4.50@4.80; plain beef steers 4.25@4.50; common to rough, 1,000 to 1,200 lbs. 3.70@4.20; good to choice, fat heifers, 3.85@4 75; good to choice feeders, 3.75@4.35; poor to plain stockers and feeders, 2.40@3.50; fair to good cows and heifers, 3.00@4.00; good cutting to fair beef cows, 2.40@3.10; common to good canning cows, 1.50@2.30; bulls, poor to choice, 2.40@4.25; calves, choice to fancy, 6.00@6.75; calves, common to fair, 3.00@5.75: corn-fed western steers, 4.00@5.35; Texas bulls and grass steers, 2.90@3.85 Texas steers, fair to choice, 3.75@4.65; western range steers, 3.25@4.60; western range cows and bulls, 2.00@3.60.

Hogs—Good to prime shipping, 5.60@5.82; good to choice heavy packing, 5.20@5.45; rough and common heavy mixed, 4.75@5.45; assorted light, 150 to 195 lbs., 5.85@6.15; good to choice butcher weights, 5.70@5.90; poor to choice light mixed, 5.45@5.95; thin to choice, 50 to 130 lb. pigs 4.80@6.15; stags and rough lots, 2.75@4.80.

MILWAUKEE, Wis., Aug 31.—Butter—Creamery—extras, 19c; firsts, 16@17c; seconds, 14@15c; whey, 10c; Dairy, fancy, 16c; lines, fresh, 13@14c; packing, 12@12½c; grease, 5@6c.

Cheese—American, full cream—New Twins, 10½@11c; Young Americas, 11½@12c: Daisies, 11@11½c; Longhorns, 11½@12c; low grades, 8@9c; Brick, new, fancy, 9@9½c; low grades, 6@8c; Limburger—New, fancy, 9@9½c; off goods, 7@8c; Swiss, old, drum, choice, 12@12¼c; drum, No. 2, 10@11c; Block, choice, 11@11½c; block, No 2, 9@10c.

Eggs—Strictly fresh laid, at mark, cases returned 14@14½c; do, loss off, 16c; dirties and seconds 12c., checks, 10c.

SHEBOYGAN, Wis., Aug. 31—Cheese—1,617 cases were offered on the Dairy Board, which sold, excepting 19 Longhorns as follows: 15 Daisies, at 10¾c; 469, 10⅞c; 310 Young Americas, 11c; 165, at 11⅛c; 61 Longhorns, at 10⅞c; 578, at 11c.

SHEBOYGAN FALLS, Wis., Aug. 31—Cheese—19 factories offered 1,549 boxes of cheese on the Call Board today and all sold as follows: 135 cases Young Americas at 11⅛c, 359 at 11c; 201 Daisies at 10¾c; 844 cases Longhorns at 11c, and 10 at 10¾c. Market steady.

MUSCODA, Wis., Aug. 22—Cheese—Sales today were 1,214 Twins at 9½c; and 27 withdrawn.

SEYMOUR, Wis., Aug. 25-Cheese—The sales were 619 double Daisies at 10¾c; 83 Twins 9¾c; 31 at 9½c; and 35 withdrawn. Adjourned for two weeks.

MANITOWOC, Wis., Aug. 26—Cheese—The sales reported were: 51 Twins at 9¼c; 755 Daisies at 10½c and 905 Young Americas at 10¾c,

PLYMOUTH Wis., Aug. 25—Cheese—twenty-three factories offered 2,442 boxes and all sold as follows: 517 Longhorns at 11c; 75 at 11½c; 1,000 Daisies at 10⅝c; 78 at 10¾c; 129 Twins at 10c; 40 at 9¾c; 303 Americas at 11c; 290 at 11½c. 10 at 10½c. Market active and firm.

MARSHFIELD, Wis., Aug. 31—Cheese—Fourteen factories offered 870 boxes; 417 Twins sold at 9⅝c; 327 Daisies at 10½c; 6 Cheddars at 9⅝c. □



We want every dealer in and user of

MILK BOTTLE CAPS

to receive our catalogue. We can supply your wants at prices that are right. Write us.

BAVIER NOVELTY CO.,
WINDSOR, CONN.

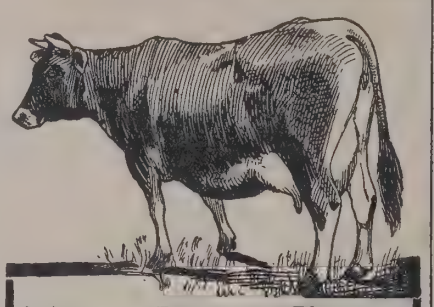
STAR BRAND

MOLASSES FEED

ANALYSIS:
PROTEIN 21 FAT 3

For Dairy Cattle and Horses. If your dealers do not keep it write us for prices and sample.

M. C. RANKIN & CO.,
Herman Bldg. Milwaukee, Wis.



The Best Cow

you ever owned would be a better cow both in general condition and milk yield if fed a regular ration of

Alma Dried-Molasses Beet-Pulp

When pasture is insufficient or altogether lacking this Food supplies just the needed elements to maintain the maximum yield of milk. It is better than bran and costs less.

Let us send you our printed matter which tells how careful we are to have it proportioned just right and absolutely clean. See, too, what others think about it.

Alma Dried-Molasses Beet-Pulp is unlike many patent "stock-foods." It is a natural product and contains no drugs or other injurious ingredients.

Sanitary Milk Co., Grand Rapids, Mich., writes: "Send a second carload. We find it as a milk producer better than bran."

If you are feeding stock for the market you will find **Alma Dried-Molasses Beet-Pulp** fed with grain the best fattener, because it increases the appetite, aids digestion and assimilation.

Do not confuse this with wet beet pulp which freezes and ferments, or with common dried pulp containing no additional sugar. It takes 16 tons of wet pulp to make one ton of our Food and it keeps indefinitely. The genuine Alma Dried Molasses Beet Pulp contains 72 times as much sugar as wet pulp, and nearly 5 times as much as common dried pulp.

Write to-day for prices, directions for feeding, analysis by U. S. Government expert, etc. Address

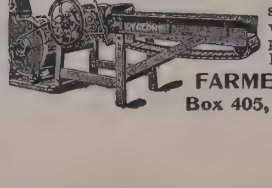
Dept. 6, Alma Sugar Company.
Alma, Michigan.



Gas Engine Excellence

is best represented in the **Buick** Engines---the reason why we make more small engines than any other manufacturer. Are you thinking about an engine to do the cream separating, churning, pumping, feed cutting or other farm work? Do you want guaranteed workmanship and up-to-date construction! If so, it's going to pay you to get our catalog H before buying.
THE BUICK MFG. CO., Detroit, Mich

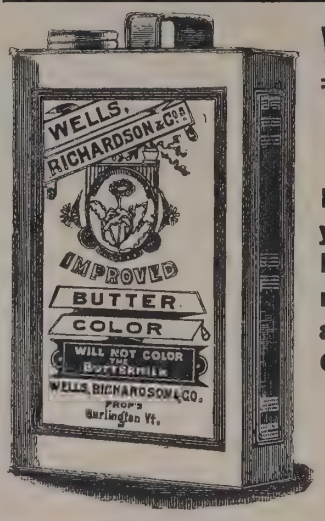
CYCLONE FEED AND ENSILAGE CUTTER
With TRAVELING TABLE and BLOWER



Guaranteed to cut split, shred and elevate ensilage 50 feet perpendicular height. For catalog address

FARMERS MFG. CO.
Box 405, Sebring, Ohio

THE KIND THAT HAS NO MUD.



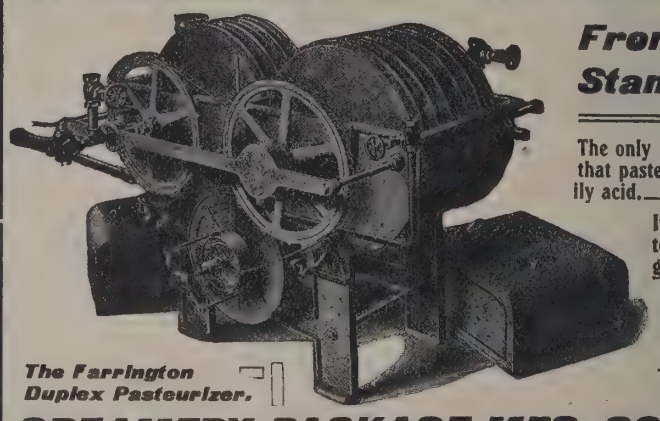
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Improved Butter Color

Has stood the test for many years, and users of color know that it can always be relied upon. It is the BEST and therefore the CHEAPEST COLOR on the market.

For Sale By All First-Class Supply Houses.

A SUCCESSFUL PASTEURIZER



From Every Standpoint.

The only Pasteurizer made that pasteurizes milk heavily acid.

It makes good Butter—that makes good business.

Your Butter will score 8 points higher.

The Farrington Duplex Pasteurizer.

Write to the

CREAMERY PACKAGE MFG. COMPANY

BRANCH HOUSES: Kansas City, Mo. Omaha, Neb. Minneapolis, Minn. St. Louis, Mo Waterloo, Ia.

Canadian Branch: Cowansville, Quebec.

149 to 153 East Superior Street, **Chicago, Ill., U. S. A.**

PURE OIL MEAL. USE FOR MILCH COWS AND FATTENING STOCK.

Superior to corn, oats and hay. Ton lots $23.00; half ton $12.00; 500 pounds $6.50; 100 pounds $1.50. Put up in 100-lb. sacks f. o. b. Minneapolis. Cash with order.

This Meal is Guaranteed Absolutely Pure. We also manufacture Strictly Pure Linseed Oil.

NORTHERN LINSEED OIL CO.,
MINNEAPOLIS, MINN.

When ordering mention this paper.

Does Saving **ONE or TWO MEN**

at the cutter mean anything in ensilage cutting time? **Self Feed** on "Ohio" cutters does that and more, and increases capacity 33⅓ %.

1903 "OHIO" BLOWER ELEVATORS

solve the Blower problem. They successfully elevate ensilage into silos to any height, as demonstrated by abundant proof in 1903 catalogue. 10 and 12 H. P. Engines drive Nos. 13, 16, 18 and 19 Cutters with blowers, and all other sizes "Ohio" Ensilage Cutters. In capacity "Ohio" Cutters lead; 10 to 30 tons per hour. **1903 Shredder Blades**, patent applied for, are interchangeable with knives, all sizes. They put corn stalks into best condition for feed, running at normal speed.

Our absolute guarantee goes with every machine. Made by

The Silver Mfg. Co., Salem, Ohio.



FOND DU LAC, Wis., Aug. 31—Cheese—Sales at Dairy Board today were 359 Twins at 9⅝c; 452 Daisies, at 10⅝c; 80 at 10⅝c. Market active.

HORTONVILLE, Wis., Aug. 20.—Cheese—The offerings were 78 Cheddars, 1,300 Twins and 66 double Daisies. Sales were as follows, less than half the Twins being sold: 78 Cheddars at 10c; 66 double Daisies at 10¼c, 454 Twins at 10c; 173 at 9⅞c. Market moderate.

NEW YORK, Aug. 31—Butter—Receipts, 9,433 pkgs.; market firm; state dairy, 14@18c; extra creamery, 19¾c; Packing stock, 12@14½c; creamery common to choice, 18@19½c.

Eggs—Receipts, 10,316 pkgs.; market firm; state and Pennsylvania, fancy mixed, 23c; state and Pennsylvania, seconds to firsts, 19@21c; refreigerated 17½@19c; western, seconds to firsts, 18@21c.

Cheese—Receipts, 4,321 pkgs; market quiet; state full cream, fancy, small colored, 10¼c; small white 10¼c; large colored 10c; large white 9¾c.

WATERTOWN, N. Y., Aug. 31—Cheese—Sales 8,000; 9⅝@9⅞c for large ;10c for small sizes.

CANTON, N. Y., Aug. 31—Cheese — Offered 2,180 boxes Twin cheese and 1,292 tubs of butter. Cheese sold at 10c; butter 20c.

UTICA, N. Y., Aug. 31—Cheese—Sales: 6,500 boxes large colored, 1,800 white, 9⅞c; 3,500 small, 10⅛c; market unchanged.

NEW YORK MARKET.

NEW YORK, Aug. 29—Butter—Receipts for the week, 51,932 packages.

Exports for the week, 400 packages.

Notwithstanding the official quotation was lowered a quarter of a cent a pound on Monday, trade was good all the week, and sales were readily made of extra creamery at the old quotation, twenty cents, and this style butter is in light offering and firm at the close. Best firsts found plenty of buyers at 19@19½c, and under grades of creamery had better inquiry at 16@18c.

New York State Dairy in very light supply; fancy quality, sold at 18@19¼c, and odds ends of poor to good grades cleaned up at 15 to 17c.

Creamery, extra, 20c; medium, 19@19½c; poor, 15@18c; Dairy, extra, 18@19c; medium, 15@17c; poor, 14@15c.

Cheese—Receipts for the week, 40,644 boxes. Exports, 3,635 boxes..

The market was less active this week and price slower and always in buyers' favor. Full creams, both large and small, sold at 10¼@10½c. Skimmed cheese were hard to dispose of unless of very finest quality, and some poor to good stock was carried over unsold. We quote:

Full Cream, extra, 10½c; medium, 10@10¼c; poor, 8@9¼c.

Eggs—Receipts for the week, 44,710 cases.

Continued light receipts and a steady active demand caused a farther advance in price, and an absolute scarcity of strictly fancy eggs at the close. We quote:

New York & Penn., strictly fresh, per dozen, 23@24c; Northern & Western, strictly fresh, 21@22c; all Sections, poor to good, 16@20c.

177 Chambers St. DAVID W. LEWIS & Co.

NEW ORLEANS, La., Aug 31—Butter—Receipts liberal; demand fair; extras, 20c; firsts, 19c.

Eggs—19c.

TOPEKA, Kan., Aug. 29—Butter—Creamery butter 19@21c; dairy, 17@18c.

Cheese—Longhorns, 11c; Twins 10¾c; Singles, 11c; Prints, 11½c.

WASHINGTON, D. C., Aug. 31—Butter—Market firm. Extras 20¼c; Fancy firsts 19½c; renovated, 17c.

PHILADELPHIA, Pa., Aug. 31—Butter—Market firm Solids 20c; nearby prints 21c; western 20c.

NEWARK, N. J., Aug. 31—Butter — Market steady at 19¾.

Eggs—Extras 22c; firsts, 21c firm.

BOSTON, Mass. Aug, 31—Butter—Creamery western extra, 20@20¾c; western firsts, 19c; dairy, 15@19c; imitation creamery, 15@15½c; ladle, 13½@15c; box and print, 15@21½c.

Cheese—Choice, 9½@10½c; Wisconsin Twins, 9½@10½c; Ohio flat, 9@9¼c.

Eggs—Nearby, 28c; western selected, 20@22c; poor to fair, 16@17c; Illinois, 18c@19c.

BALTIMORE MARKET.

BALTIMORE, Md., August 27—Butter—There has been no material change in the situation during the past week. The reports from the dairy sections are that the supplies of milk and cream owing to the prevailing hot weather are gradually getting lighter. Such being the case, we may look for a continued decrease in the receipts of extras from this time on. The quality of the stock arriving, while not up to the standard, in many instances is about as good as one could expect under the existing weather conditions. The demand which is almost exclusively for consumptive purposes continues fairly good, all things being considered. Imitation creamery and ladles are in ample supply for the requirements. Packing stock is in moderate receipt, while the demand is quite good, especially for desirable stock. Blocks and prints—The supply is about equal to the demand. At the close of to-day's market, although the feeling in general was about steady, there was a conspicuous absence of any signs of activity.

Creamery Separator, extras, 20@20½c; firsts, 18½@19½c; seconds, 16@18c. Imitation Creamery, extras, 18c; firsts, 17c; seconds, 14@16c. Creamery blocks (2-lb.) extras, 21@22c; firsts, 20c; seconds, 17@18c. Creamery prints (½ lb) extras, 22@23c; firsts, 21c; seconds, 17@19c. Md. Va., & Penn. Prints, extras, 20@21c: firsts, 19c; seconds, 16@18c.

Eggs—A very firm feeling has prevailed since our last issue, and prices have been further advanced owing to continued light receipts of desirable stock and a very active demand, hence the market is kept quite bare of all good to choice offerings. At the close of the market to-day, the situation was firm and healthy at 22 cents.

Cheese—The receipts ample; demand moderate; market unsettled: and lower prices are looked for in the near future.

N. Y. State—Cheddars, fine, 10¾@11c; choice, 10¼@10½c; fair, 9@9½c, Flats, fine, 10¾@11c; choice, 10¼@10½c; fair, 9@9½c; Small, fine, 11@11¼c; choice, 10½@10¾c: fair, 9½@10c; Ohio Flats, fine, 9¾@10c; choice, 9@9¼c; fair, 8¼@8½c; O. Picnic, fine, 10@10¼c; choice, 9½@9¾c; fair, 8½@9c; Swiss Cheese, (domestic) new, fine, 13@13¼c; choice, 11@12c; fair, 9@10c.

301 Exchange Place. G. M. LAMB & BROS.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Two choice young Guernsey bulls for sale. MRS. A. W. LEHMANN, Neosha, Dodge Co., Wis. 12-sp

For Sale—480 acres, 200 level, 160 acres Gov't land can be added by using homestead right, making 640 acres in one piece. A well equipped dairy of 30 cows, with gas engine; 40 acres fine grove, plenty water in grove. Good buildings, very rich soil; called the finest outfit in the county. Will give possession any day and give ones own time to pay for last half if ten years; terms at 6 per cent. I mean business. $9600 is the price, you will say it is worth $14000. Address F. A. I. R., care of Hoard's Dairyman. 30-tf

Guernsey Bulls for Sale—I have a few young Guernsey Bulls for sale at Moderate price, ranging from six months to one year old. These animals are from highly bred sires and mothers of good size and well reared. Good bargains here. W. D. HOARD, Fort Atkinson. Wis. 30-tf

For Sale—Good cheese factory and machinery in Outagamie county, Wis. 6000 lbs. milk daily. Inquire of FRED HADLER, Route 3, Appleton, Wis. 30-tf.

Position Wanted—By a Hollander who is an all round dairyman and a first-class cheese maker. Had one course at Mich. A. C. Address JOS. HELKEMA, Bloomingdale, Mich.

Position Wanted—By an experienced dairyman as herdsman or to take charge of a retail milk wagon. Would prefer place in northwest. A No. 1 references. Address J. R. J., Box 273, Three Oaks, Mich. 30-2

Jersey Cows for Sale—Having sold my milk route and intending to retire from the milk business I offer for sale 25 head of High Grade Jerseys, ranging in age from 4 to 6 years. Three cows are descendants of the once famous herd owned by Congressman H. C. Adams. late Dairy and Food Commissioner of Wisconsin. They are of the St. Lambert blood and all solid colors. 20 are milking, balance coming in soon. Willl be sold cheap if taken together as I want to make room for other stock. Come and see them or write for particulars. Farm 3 miles south of Madison on Fish Hatchery road. WILLIAM McKEE, R. D., No. 5, Madison, Wis. 30-2

Wanted—To rent with privilege of buying, a farm with established retail milk route within short distance of thriving town. JOHN F. FENTON, Fox Chase, Pa. 26-sp

Several pedigreed Collie pups left; cheap if taken soon. R. C. SNAVELY, Hudson, Ill.

An Experienced, temperate man wanted to run boiler, engine and separator, bottle milk, etc., and feed calves and pigs. Wages $35.00 per month and board. Address R. F. PARKER, Southville, Mass. 30-2

For Sale—One 2,500 lb. De Laval separator, one receiving vat, one heating vat, two 60 gal. weigh cans, one 216 bottle sterilizer, 100 gal. pasteurizer, one bottle washer and one rotary pump. DALLASTOWN CRY. CO., Dallastown, Pa. 30-2

Dairy and Milk Route for Sale—35 choice Jersey and Holsteins, 50 gal. route, good wagon and team, plenty of cans and bottles. Write at once. W. F. BLACK, Loveland, Colo.

A Registered Jersey Bull, Cadet's Recorder, No. 61695, three years old, a fine animul. Inquire of E. O. RICE, Portage, Wis. 30-3

Dollars are made with good dairy stock. For choice purebred Guernsey bulls and grade heifers write A. H. HINMAN, Allenville, Wis. 30-4

Wanted—Experienced thoroughgoing and reliable dairy farmer who can furnish his own help, to work dairy farm of 160 acres. Good house and outbuildings, fine dairy barn, cement floors, silo, modern conveniences. Must be intelligent feeder and handler of stock. 40 cows in dairy, young cattle, hogs. Will pay salary or share. Reply, giving references and salary expected, H. J. YOUNGS, Stillman Valley, Ill. 29-2

For Sale—1 Empire No. 5 separator. In use now but too small. Also two Guernsey bulls of good quality six months old. C. W. WALLINE, Cambridge, Ill. 29-2

Improved Large Yorkshires—If you are interested and want to start right, drop a line to W. H. FISHER, Spahr Bldg, Columbus, O., for a "Tale of the Pig." 27-4

For Sale at a Bargain—Our E. W. Ross No. 261 Ensilage Cutter, 26-inch knife, automatic feed, capacity limited to the amount you get to the machine. 56 feet angle carrier. This machine is in good state of repair and is a snap for the money. Price, $100. Address A. J. DAUGHERITY, Streator, Ill. 28-2t

Wanted—To purchase second hand combined churn and butter worker. Must be in first-class condition. Send terms to JOHN L. BURCH, Boyds, Md. 28-3

For Sale—At a bargain. adjoining city of Decorah, Iowa, 454 acre dairy farm, stock and machinery complete. Watered by never failing springs. Good farm buildings including two large silos. Established city milk and cream trade for the product of 100 cows. For price address J. C. BEARD, Decorah, Iowa. 28-6

Wanted—Competent man with wife, and without children preferred, to take dairy business on shares. We furnish hay, pasture, utensils, separator, worker, etc. Will give half produced from cows including calves and hogs. 25 to 30c. year round for butter. W. W. PRIEST, Ferguson, Mad. Co, Mont. 28-3

Two Men Wanted—One for delivering bottled milk in city and one for dairy and barn work. Must be good milkers and have good references Wages $35.00 per month and board Steady job to good men. Address G. C. DICKSON, Grand Forks, N. Dak. 29-2

For Sale—Fine 4 months' old grade Guernsey heifer $25.00, also bull calf one month old from thoroughbred but not registered Guernsey cow. Sire, Carl P. V, 6540. Price $25 00. Address GILBERT HICKCOX, Box H, Whitefish Bay, Wis. 29-3

Wanted—First-class man capable of taking charge of 25-acre farm, country place. Must be an expert in raising crops, vegetables, fruit, poultry and cows. Married; not more than one child. Wife to make butter and help with poultry. Write stating references and wages wanted to H. I., care Hoard's Dairyman. 29-4

Dairy Complete—16 fine cows, milk route, 160 acres, large amount of timber, some excellent garden and berry land, abundance of water. In short time nearly all feed required can be raised on place. New barn, milk house, large hen house, horse stable and wagon shed. Income $220 to $240 per month. Can easily be doubled. On account of recent death in family will sell at very reasonable price. Address DAIRY, Box 244, Northport, Wash. 29-2

A Good Pointer on CREAM SEPARATORS

From the "Nebraska Dairyman" Lincoln, Neb.

A Valuable Token of Esteem from a Son to Father and Mother and a Display of Good Judgment.

Our friend, J. M. Betts of Broken Bow, Neb., sends us the following:—

"Our esteemed citizen, Frank Norton, and his wife are the recipients of a very fine present from their son Frank Lee Norton, of Racine, Wis., who is manager of the J. I. CASE THRESHING MACHINE COMPANY. The father and mother being extensive farmers and have many milch cows, wrote the son that 'as all the neighbors were getting cream separators, they thought that they, to be in line with them, should purchase one. The son, on receipt of the letter, immediately purchased a DE LAVAL SEPARATOR and shipped it to them, writing to them as follows: 'My Dear Father and Mother: I have examined the different makes of cream separators and send you the one that I consider the very best; it costs a little more than some others, but the difference in price is more than made up in quality.' "

A De Laval Catalogue may be had for the asking.

The De Laval Separator Co.,

Randolph & Canal Sts., CHICAGO.
1213 Filbert Street, PHILADELPHIA.
9 & 11 Drumm St., SAN FRANCISCO.

General Offices: 74 CORTLANDT STREET, NEW YORK.

121 Youville Square, MONTREAL.
75 and 77 York St., TORONTO.
248 McDermot Avenue, WINNEPEG.

Farm for Sale—Owner will sell on favorable terms one of the best 240-acre farms in Minnesota, near a thriving Minnesota town. Good buildings, nice neighborhood, no crop failures. Splendid opening for stockman. Write L. N. MOSS, Decorah, Iowa. 27-4

For Sale—45 acre dairy farm at Ft. Atkinson, Wis. Good buildings and other improvements. See or write D. C. CONVERSE. 27-4

For Sale—One 30-inch French burr geared feed mill in best running order; also one Western Mill corn sheller, capacity from 5 to 75 bushels per hour, nearly new, Reason for selling, too large for this place. JOHN ZIEGLEY, Valley, Wis. 26-tf

Herdsman Wanted—Single man not under 30 years of age, with several years experience; one acquainted with rearing and caring for Holsteins. References required. State wages required including reference. Steady place for right party. Address D, care Hoard's Dairyman. 25-tf

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

Buff Jersey has just issued the third edition of The Dairyman, Stock Breeder and Farmer's Hand Book. This work of 100 pages is full from cover to cover with up-to-date helps for progressive people on the farm and ranch. The chapter on Silos and Ensilage the most complete ever published There are 20 cuts and illustrations used to assist in making the reading matter plain. Buff Jersey is well known to the DAIRYMAN readers as an able instructor in all things agricultural. so his book will be in demand. Sent post paid for 75c BUFF ERSEY, Monmouth, Ill. 47-tf

For Sale—Bull calf sired by Recorder 29239, and tested dam 16 lb. 2 oz. Sold at a sacrifice. JOS. KORDO, Big Stone, S. D. R. 1. 30-tf

Farm Foreman and Manager position is desired by one 39 years of age and 20 years experience with Holsteins and Guernseys. Thoroughly familiar with modern dairying, soiling, breeding, as well as exhibiting and selling pure bred stock. References furnished. Address W. A. R., care Hoard's Dairyman. 25-6

For Sale—A second hand, self-feeding, 16 inch Smalley Ensilage Cutter in good order, together with 56 feet of carrier, 18 feet of which was new last year Also a three horse Smalley Tread Power in good condition. The above will be sold cheap to make place for larger machinery. W. D. HOARD, Fort Atkinson, Wis. 20-tf.

I offer my U. S. Separator No. 2½, used 6 mos., a No. 3 Wizzard churn and worker combined, and a 5-horse engine. Reason for selling is a change in business. All in first-class shape and does good work. Will sell separator or churn without engine. E. E. EASTMAN, Plymouth, Wis. 28-4

Wanted—Competent house-keeper on farm. Elderly woman, single, widow or married. If married, man can work on farm if competent as manager. No objection to one or two children old enough and willing to work. Permanent position, good wages. Well arranged house. CARL MUTH, Sheboygan, Wis. Howard Road, 2 miles from city. 30-2

For Sale—A 2-months' old bull calf. Sire, Bisson's Guenon Lad, 64579. His grand sire sold for $3,500. Dam, Wardmaes Glory, 167024. Will sell cheap. Write for particulars. C. A. ROBINSON, Kirksville, Mo. 29-2

Wanted—Experienced stenographer and clerk for a large stock farm. Must be familiar with stock and pedigrees. State age, experience, references, salary expected. Address "STENOGRAPHER," care of Hoard's Dairyman. 29-2

Fine Dairy Farm for Sale—Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence. cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. T. S. TOMPKINS, Pasadena, Cal. 15-tf

For Sale—3 Golden Lad Bull Calves, sired by Golden Lad of St. Ouen, a 50% Golden Lad; dams large milkers and extra butter cows. These calves will be sold at a low price, considering breeding. It costs but little for transportation charges on a four-weeks-old calf and in twelve months you have a thoroughbred ready for business. Address THE SEARS AND NICHOL DAIRY CO., Chillicothe, Ohio. 28-4

Very Low Rates to Deadwood and Lead, S. D.—Via the North-Western Line. Excursion tickets will be sold Sept. 2, 3, 4, 5, and 6, with very favorable return limits, on account International Mining Congress. Apply to Agents Chicago & North-Western R'y. 27-4

Radisson on the Chippewa—A new town in Sawyer County, Wis., on the North-Western Line, located on both the Chippewa and Couderay rivers, in the center of a most fertile and promising hardwood district. This is an exceptionally promising country for landseekers, while sportsmen will find it an ideal place for camping. The many lakes and streams afford excellent muscallonge, bass and pike fishing, while the woods are full of deer. If looking for a new location, don't fail to see this new country. For map and full particulars write to T. W. Teasdale, General Passenger Agent C. St. P. M. & O. Ry., St. Paul, Minn. 29-3

Very Low Rates to Ogden and Salt Lake City, Utah—Via the North-Western Line. Excursion tickets will be sold Sept. 12, 13 and 14, with very favorable return limits, on account of annual meeting National Irrigation Congress. Apply to agents Chicago & North-Western R'y. 30-2

Excursion Rates to the Centennial Celebration at Chicago—Via the North-Western Line. Excursion tickets will be sold at reduced rates September 28, 29 and 30, limited to return until October 2, inclusive. Send stamp to W. B. Kniskern, Passenger Traffic Manager, Chicago, or call on Ticket Agent for copy of handsome Chicago Centennial Folder, issued by the North-Western Line, profusely illustrated, giving an outline of the program for Celebration Week, a brief reference to Chicago's early history and the relation of The North-Western Line to the industrial progress of the city. For further particulars apply to Agents Chicago & North-Western R'y. 30 4

Excursion Rates to Lodi Union Fair at Lodi, Wis.—Via the North-Western Line. Excursion tickets will be sold at reduced rates Sept. 7 to 10, inclusive. limited to return until Sept. 11, inclusive. Apply to agents Chicago & North-Western R'y.

Excursion Rates to County Fair at Freeport, Ill.—Via the North-Western Line. Excursion tickets will be sold at reduced rates Sept. 7 to 12, inclusive, limited to return until Sept. 14, inclusive. Apply to agents Chicago & North-Western R'y.

Economy in Production.

ED. HOARD'S DAIRYMAN:—What is the most economical way to make milk, butter and beef? This is one of the greatest economical questions that today faces the farmer.

One of the important lines of activity of fifty-four Agricultural Experiment Stations which are supported in the United States by national and state funds, is that of experiments upon the economical feeding of live stock. These experiments range all the way from simple trials of different feeds to elaborate physiological studies of the fundamental principles of nutrition.

Prominent among investigations in the latter class are those now in progress at the Pennsylvania Station, located at State College, Pa., where the most extensive and elaborate apparatus in existence for this purpose has recently been completed. This apparatus is called by the double name of Respiration-Calorimeter, to indicate its double function. Its construction was begun in 1898 by the Director of the Station, Dr. H. P. Armsby, and his associate, Mr. J. A. Fries, with the co-operation of the Bureau of Animal Industry of the United States Department of Agriculture, and a full scientific account of the first series of experiments is now in the printer's hands. The apparatus is identical in principle with the one originated by Profs. Atwater and Rosa, of Wesleyan University, at Middletown, Ct., for experiments on men, having been modified in details and enlarged so as to permit of experiments on cattle. The construction and testing of the apparatus occupied nearly three years. It is housed in a special building, and the total cost of apparatus and building was fully $15,000.

As its name indicates, it is at once a respiration apparatus, by means of which the amounts of the various gases given off by the animal can be determined, and a calorimeter to measure the heat produc- in the body. Its essential part is a double-walled chamber, about six by ten feet, and eight feet high, containing a comfortable stall for the animal. The walls of this chamber are double, the inner one being of sheet copper and the outer one of zinc, with an air space between. The door through which the animal enters and the smaller one through which feed is given it, close air-tight, shutting off the animal entirely from the world outside except as he can see it through the double plate glass window.

During an experiment, a ventilating current of pure, dry air at a uniform temperature is drawn through the chamber by an apparatus called a meter-pump, specially designed and built for this purpose by Mr. Frederick Hart, of Poughkeepsie, N. Y. The meter-pump not only pumps the air, but measures it and automatically takes two duplicate samples for analysis. The air as it enters is likewise sampled by another apparatus, and all these samples are analyzed. By comparing the results it is easy to tell what the animal in the chamber has added to the air, and thus to weigh his breath even more exactly than Sir Walter Raleigh did the smoke from his pipe in his famous wager with Queen Elizabeth.

The "copper box" in which the animal stands is surrounded by two wooden boxes, each box being eight inches larger than the one inside it. There is thus a four-inch air space all around the inner, metallic chamber and another one between the inner and outer wooden casings. By means of complicated electrical devices, the temperature of these air spaces can be regulated with the utmost nicety. When in use, they are kept at exactly the same temperature as the air inside the inner, metallic chamber where the animal is, the temperature of the chamber being measured by delicate electrical thermometers. As a result, none of the heat which the animal gives off can escape through the walls of the chamber, and by a similar adjustment the air is made to enter and leave the chamber at the same temperature, and so carry off no heat.

If this were all, the interior of the chamber would soon become unbearably hot. To prevent this, cold water is circulated through copper pipes to take up the heat, the action being just the reverse of that of a hot water radiator. By proper adjustment of the current the temperature of the chamber may be kept so nearly the same that a variation of as much as one-thirtieth of a degree Fahrenheit is exceptional. In this way, all the heat is, so to speak, concentrated in the water. The temperature of this water as it enters and leaves the copper pipes is taken every four minutes with thermometers reading to one-fiftieth of a degree. The difference shows how much it has been warmed by the heat it has taken up, and this multiplied by the weight of the water passing through the cooling pipes gives the total quantity of heat produced.

The animal is usually put into the Calorimeter between one and two o'clock in the afternoon. The next few hours are occupied in the final adjuttment of the apparatus and at exactly six o'clock to the second, the experiment is begun and continues without interruption for forty-eight hours. During this time there are never less than three men on duty and at times seven and eight. When it is considered that in addition all the various samples of feed and excreta have to be analyzed by the chemists of the Station, and that observations taken every four minutes through several forty-eight hour experiments, yield almost literally "acres of figures" for the computer, some idea can be had of the amount of labor which must be expended in such investigations.

The general idea of the experiments is to study the food as the fuel of the animal body, supplying energy to drive the vital machinery, somewhat as the coal supplies energy to drive the locomotive.

A weighed sample of the food in question is first burned completely in oxygen under a pressure of about 300 pounds to the square inch, in a small bomb of gun-steel known as a bomb-calorimeter, and the heat produced is accurately measured. This gives the total fuel value of the food. As the food is used in the body, however, a considerable part of it is not burned completely and this, of course, cuts down its value to the animal. Part of these unburned or partially burned products are contained in the visible excreta. Another important part is found in the combustible gases which are given off by cattle and which are determined in the experiments with the respiration-calorimeter. It has been commonly assumed that practically only one such gas is excreted, viz., marsh gas. In the first series of experiments with the respiration-calorimeter, the

"ADVERTISEMENT."

THE VALUE OF CHARCOAL

Few People Know How Useful It is in Preserving Health and Beauty.

Nearly everybody knows that charcoal is the safest and most efficient disinfectant and purifier in nature, but few realize its value when taken into the human system for the same cleansing purpose.

Charcoal is a remedy that the more you take of it the better; it is not a drug at all, but simply absorbs the gases and impurities always present in the stomach and intestines and carries them out of the system.

Charcoal sweetens the breath after smoking, drinking or after eating onions and other odorous vegetables.

Charcoal effectually clears and improves the complexion, it whitens the teeth and further acts as a natural and eminently safe cathartic.

It absorbs the injurious gases which collect in the stomach and bowels; it disinfects the mouth and throat from the poison of catarrh.

All druggists sell charcoal in one form or another, but probably the best charcoal and the most for the money is in Stuart's Absorbent Lozenges; they are composed of the finest powdered Willow charcoal, and other harmless anti-septics in tablet form or rather in the form of large, pleasant tasting lozenges, the charcoal being mixed with honey.

The daily use of these lozenges will soon tell in a much improved condition of the general health, better complexion, sweeter breath and purer blood, and the beauty of it is, that no possible harm can result from their continued use, but on the contrary, great benefit.

A Buffalo physician in speaking of the benefits of charcoal, says: "I advise Stuart's Absorbent Lozenges to all patients suffering from gas in stomach and bowels, and to clear the complexion and purify the breath, mouth and throat; I also believe the liver is greatly benefitted by the daily use of them; they cost but twenty-five cents a box at drug stores, and although in some sense a patent preparation, yet I believe I get more and better charcoal in Stuart's Absorbent Lozenges than in any of the ordinary charcoal tablets."

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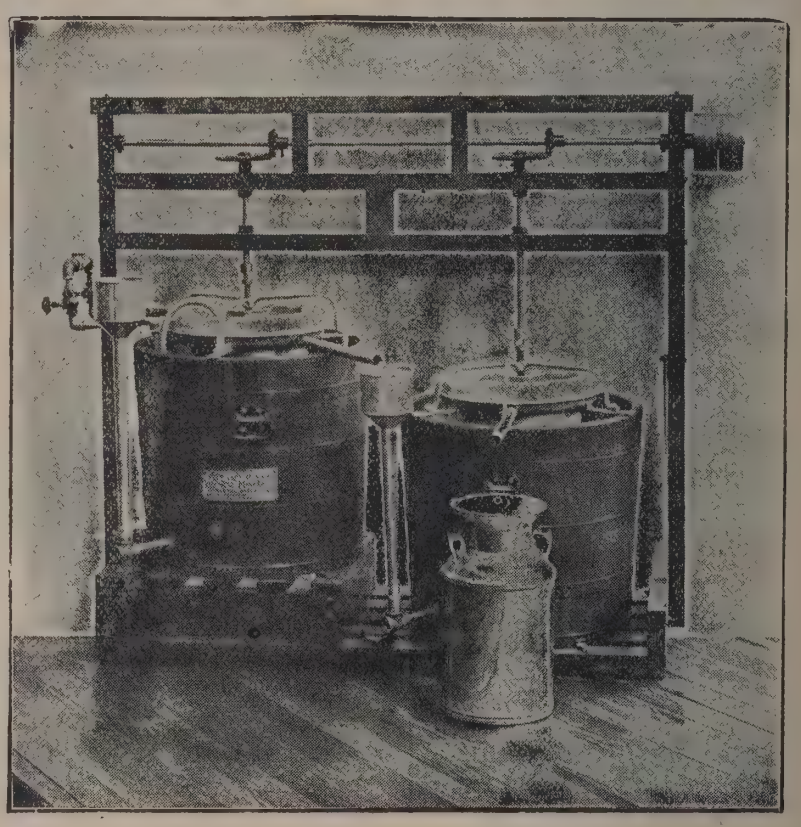
CONSUMERS should bear in mind that there are many brands of White Lead (so called) which are claimed to be "just as good" or better than Pure White Lead, which contain little, if any, White Lead, but are simply mixtures of Zinc, Whiting and Barytes, or other cheap, inferior materials.

Make sure that the brand is right. Those named in list are genuine.

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The Miller Cream Pasteurizer has a capacity of from 450 to 600 lbs. per hour.

Price $150 in Tin. $200 in Copper.

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CANTON, OHIO.



RIPPLEY'S Granite Churns and Steel Carts

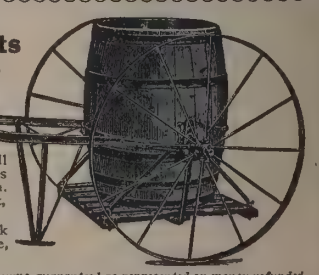
are the Cheapest as they Last Longest and Save Labor.

OUR GRANITE CHURNS are made of heavy 3 coat enamel, all parts removable, can be used as a cream jar, will not rust nor corrode, butter will not stick to them. Easy to clean. Churns butter in 5 to 10 minutes.

Sizes & Prices.	Cash with Order.
3 Gal. to Churn 2 Gal.	$6.50
5 " " 3 "	7.00
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No. 6 STEEL CART with platform attachment, for carrying milk cans, baskets, bbls., etc. Strong and well built, lasts for years. Prices make it within your reach. Complete as shown in cut, $6.50.

Less platform, made to pick up and haul bbls. only, price, $5.00.



5 per cent discount allowed if you order a churn and cart. Carts and churns guaranteed as represented or money refunded.

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Dietz Lanterns—make the way plain in night work or travel. Always shed a strong, clear, white light, with no choking, sooting or smoking.

Over Sixty Years the Favorite.

Made in many styles and sizes for all purposes, as hand lanterns, driving lamps, post lamps for streets or front of country residences, church doors, etc. CATALOGUE SENT FREE.

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CREAMERYMEN, DAIRYMEN and MILK DEALERS

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J. S. BIESECKER,
59 Murray St., New York City.

ratio of hydrogen to carbon in these gases was determined. The theoretical ratio for pure marsh gas is 1: 2.976. The average of fifteen experiments gave the ratio of 1: 2.983, or practically the theoretical figure, thus furnishing the first direct proof of the correctness of the assumption.

After taking account of the unburned products of the food, it would seem that the remainder would represent its value as fuel for the organism, and this has quite generally been assumed to be the case, just as, after deducting the waste in ashes and flue gases we have the fuel value of the coal burned under the boiler of a locomotive. One of the objects of the first experiments made with the new apparatus was to test this current view (the so-called law of isodynamic replacement), which has the backing of some eminent authorities. The results showed that it at least requires very material modification.

Of the total fuel value of a sample of hay (after first deducting the unburned wastes) only 63 per cent, was found to be of direct use to the animal. This was gotten at by first feeding a very light ration and finding how much heat the animal produced by burning up its own flesh and fat. This amounted to 2578 Calories. (A Calorie is the amount of heat required to warm 1 Kilogram—2.2 lbs—of water 1 deg. Centigrade.) Then a weighed amount of hay was added to the ration. Its fuel value, after taking into account all unburned wastes, was 2840 Calories. If the food was simply the fuel of the body, this should have saved the burning of an equivalent amount of the tissues of the animal. But instead of this it effected a saving of only 1787 Calories, or about 63 per cent.

The rest of the fuel value of the food, represents the energy that had to be expended on the hay in preparing its ingredients for use in the body, that is, the work of digestion and assimilation. It is what it costs to put the coal under the boiler, and while a necessary expenditure, the energy which it costs, could not be used for the other purposes of the body but escape as heat, and since the animal already had enough heat to keep him warm, it was simply gotten rid of as quickly as possble.

Experiments are being made upon other feeding stuffs to tests their behavior in this respect, with the expectation that important differences will be shown between different feeds. At present, the only available basis for comparing such feeds, is their digestibility, or in some cases their fuel value. There is no doubt, however. that the different feeds require very different amounts of energy for their digestion, and that consequently equal amounts of digestible matter, or equal fuel values, may have very different nutritive values. It is the purpose of these investigations to trace out these differences and to substitute accurate determinations of the real nutritive value for approximate and more or less erroneous figures now available. Like all fundamental work, it is slow and laborious, but if successful, it lays the foundations for a more economical, because more intelligent, production of beef, mutton, pork, milk, butter, etc. C. L. GATES.

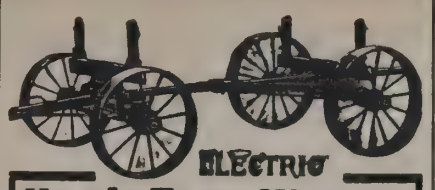
Bellefonte, Pa.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Cost of Pasteurizing.

Experiments conducted at the Royal Experiment Station in Copenhagen prove that if a pasteurizer is properly constructed and properly operated it will require about 90 lbs. of steam for heating 1,000 pounds of milk, from 90 to 185 degrees F., says M. Mortenson. If we figure that it takes one pound of coal to produce four pounds of steam, to produce ninety pounds of steam will then require 23 pounds of coal. Figuring coal at $4 per ton and our butter yield 4½ pounds butter to 100 pounds milk, makes the cost of pasteurizing one pound of butter about one-tenth of a cent. This expense, however, is reduced considerably by pasteurizing the cream and skimmed milk separately. The cream is reduced to such a small amount that the expense per pound will be very little. For pasteurization of skimmed milk the exhaust steam can be used; this is also more satisfactory to the patrons, as milk when pasteurized after skimming is warm enough to scald the cans and the milk keeps sweet longer.



ELECTRIC

Handy Farm Wagons

make the work easier for both the man and team. The tires being wide they do not cut into the ground; the labor of loading is reduced many times, because of the short lift. They are equipped with our famous Electric Steel Wheels, either straight or stagger spokes. Wheels any height from 24 to 60 inches. White hickory axles, steel hounds. Guaranteed to carry 4000 lbs. Why not get started right by putting in one of these wagons. We make our steel wheels to fit any wagon. Write for the catalog. It's free.

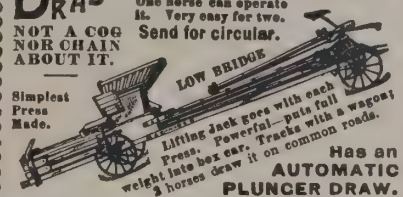
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One horse can operate it. Very easy for two.

NOT A COG NOR CHAIN ABOUT IT.

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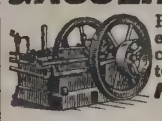
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GET THE BEST. Horse Powers for one, two, or three horses, for running Wood Saws, Threshing Machines, Ensilage Cutters, etc. All who are interested in Horse Powers, Wood Saws, or Threshing Machines and Ensilage Cutters are invited to write for fifty-page pamphlet. It's free.



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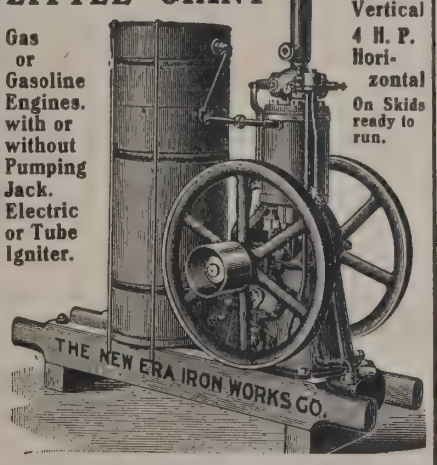
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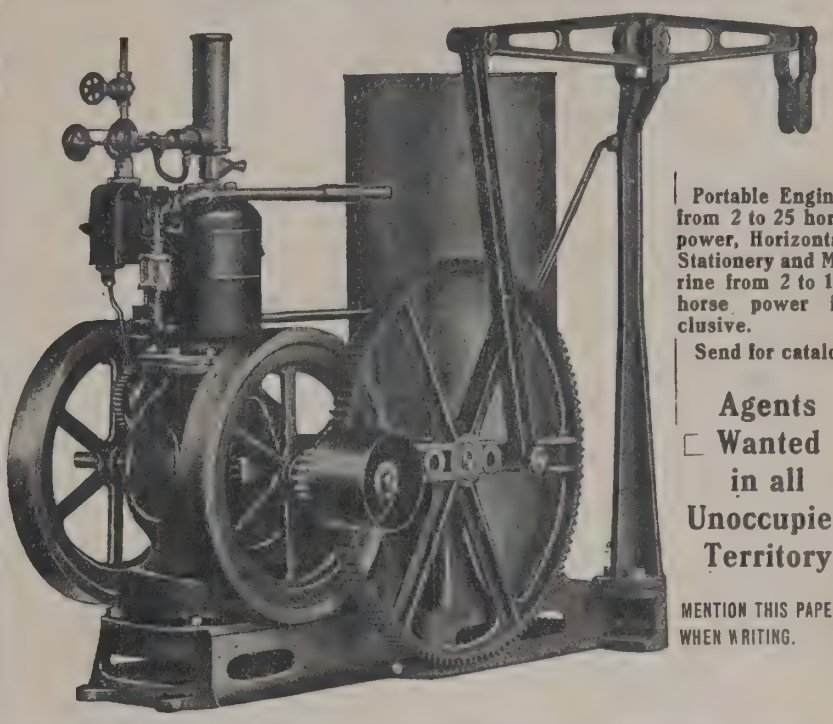
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HAVE YOU SEEN THE

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of the most modern type for farm use?

Pumps Water—Saws Wood—Runs Separators

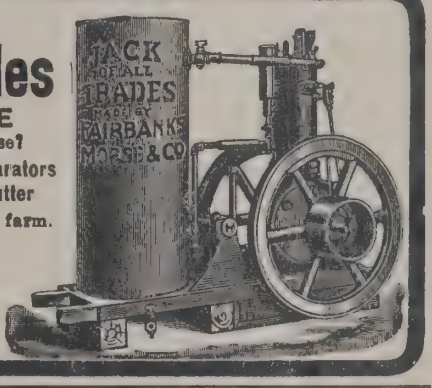
Shells Corn—Grinds Feed—Churns Butter

And is adapted to many other jobs on the farm.

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Write for free descriptive catalogue "Ba."

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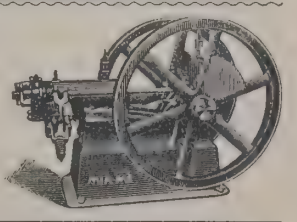


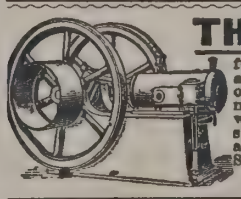
You would probably get a CERTAIN AMOUNT OF SATISFACTION out of any old kind of a gas or gasoline engine. But if you want one to give you better service than a steam engine, and as good service as an electric motor, and cheaper to run than either, get a

MIAMI GAS OR GASOLINE ENGINE.

Miami Engines, Horizontal, 5 to 65 H.P., 12 Sizes.
Woodpecker Engines, Horizontal, 2½ H.P., Special.

THE MIDDLETOWN MACHINE CO., Middletown, Ohio.
Write for Catalogue and nearest Agent.





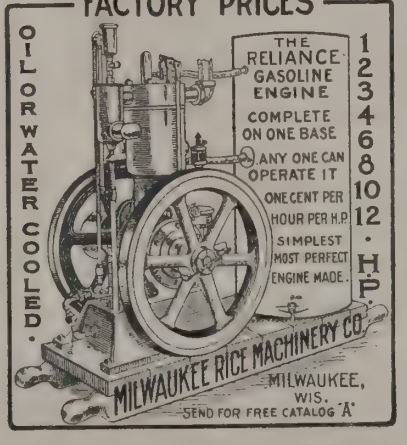
THOMPSON-LEWIS Gasoline Engines

furnish the greatest possible power at the lowest possible cost in time, labor, fuel and money. They are so simple that any body can run them without expert training or experience. Our **Volume Governor** gives uniform speed. Our **Acme Mixer** is the most positive and economical on the market. Our **Hand Starting Lever** starts engine with least effort. All bearings of **Iridium Bronze.** Best material and workmanship throughout. Many sizes from 4 (actual) h.p. up. Best for all farm work—cutting and grinding feed, sawing wood, pumping water, separating cream, churning, etc. Send for free catalog before you buy. It may save you time, money and annoyance.

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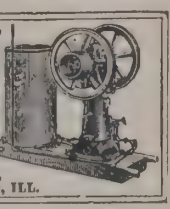
FACTORY PRICES

OIL OR WATER COOLED.



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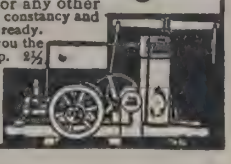
3 Cts. an Hour is all it costs to run the **Webster** Vertical Gasoline Engine at full power. Ideal engine for grinding, shelling, cutting ensilage, pumping, sawing, etc. Develops **3 Full Horse Power.** Guaranteed fully. We send you illustrated engine catalogue free.



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excel windmills or any other power in amount of duty, constancy and cost of running. Always ready. A trifle for gasoline gives you the water 30 men could pump. 2½ full horse power for any purpose. All sizes up to 800 h. p. Write for free catalogue.



Weber Gas and Gasoline Engine Co., Box 176 Kansas City, Mo.

When Shall Corn be Harvested for Silage?

A very serious and unusual problem confronts the dairymen in many sections of the country this season. The corn crop is very late and it is almost certain that many fields will not mature before frost comes. In this immediate vicinity, except on the very lowest ground, corn has made a fair growth of stalk, and in some places, the ears are fairly well developed, but they are yet from two weeks to twenty days behind the usual time for ripening, and a killing frost, almost any time now, would not be unusual. The question, therefore, which confronts us is, shall we cut this corn into the silo before it has properly matured, so as to escape frost, or shall we delay, hoping that a change in the weather may bring the corn to maturity. So far as the editors of this paper are concerned, they will prefer to let the corn be frosted rather than cut it into the silo before it is properly matured. It has been, as we believe, fully demonstrated that frosted corn may be made into good silage. We should endeavor to cut the corn as soon after the killing frost comes as possible, and if we could not put it all into the silo immediately, shock it up in the field and draw it to the silo when convenient.

In this connection, we republish a communication from Mr. J. G. Reine of Vernon County, Wisconsin, originally published on page 62, April 24th of the present year.

GOOD SILAGE FROM FROSTED AND DRY CORN—HOW IT WAS DONE.

ED. HOARD'S DAIRYMAN:—I put up a Kalamazoo silo, 16x27, last season, but didn't get it completed so as to fill it before the frost cut the corn. I had to cut and shock the corn in order to save the feed. Well, my power didn't get here in time, so the corn set in the field six weeks before I got to filling. I finished about the fifth day of November, and I have splendid silage. The cows don't leave a bit of it. There was some spoiled at the doors.

The way I filled was this: We had our cutter, which was a No. 3 Belle City with a 35-feet carrier, and run it with a 5 H. P. Weber gasoline engine. The cutter set up on a platform just the height of the rack on trucks; then I took a large oil barrel and set it on a bench by the side of cutter, put a nipple in the barrel with faucet and a nozzle of a sprinkling pot on the end of it; then I used a long rubber hose and connected it on the pipe at the water tank, then set the wind mill to pumping and that kept the barrel full of water. Then when we were cutting we would open the faucet and let water in the barrel. This wet it in good shape. My neighbors all said I was crazy and that it would all spoil and I would have lots of manure to haul out, but, to their surprise, I have got good feed.

Vernon Co., Wis. J. G. Reine.

This communication, as will be seen, is not only direct testimony as to the practicability of putting frosted corn into the silo in expectation that good silage will result, but it is fully as explicit in its description of the manner of handling the corn, so as to produce good silage.

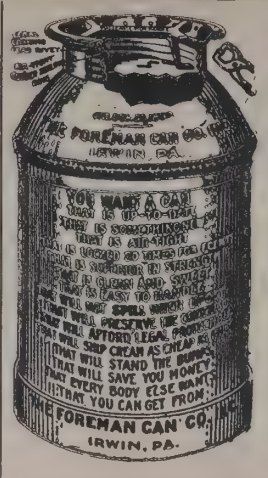
Musty Oats—Aborting Cows—Barley and Wheat Straw.

ED. HOARD'S DAIRYMAN:—I have 400 to 500 bushels of oats similar to sample enclosed, which heated in the bin. I cannot sell them and propose feeding, (of course chopped), to dairy stock. Do you think this unwise? It is with me the only way to use them. I have no pigs to feed them to and cannot get any.

2. Cow 9 years old, slipped calf in pasture 4 weeks ago; first case in herd; no known reason; 7 months gone in calf; isolated her at once in small paddock. She frets very much at being alone. Will it now be safe to let her go with the rest of cows again? Still, at intervals a slight discharge of matter. Want to fatten her off for beef, but can do nothing while she frets.

3. Pure bred Shorthorn cow; 5 years old; running to pasture all summer; calved in Feb., rather fat; bulling and served every three weeks since. What treatment do you recommend?

4. Shall have a rather large quantity of wheat and barley straw next winter.



We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity—1000 cans daily, which should enable us to fill all orders promptly.

Every can sold on a guarantee.

Write for circular H.

BUY DIRECT FROM FACTORY, BEST

MIXED PAINTS

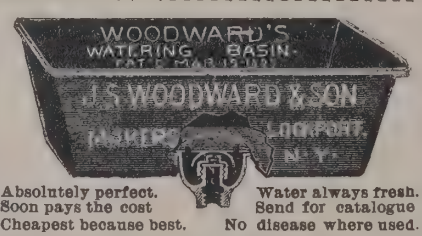
At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.

Water In The Stable a Necessity.



It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. Why not use the Best? Write for descriptive circular.

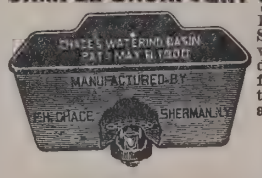
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Absolutely perfect. Soon pays the cost Cheapest because best.

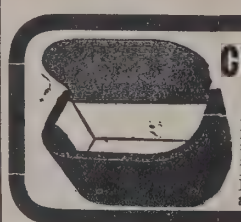
Water always fresh. Send for catalogue No disease where used.

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Basins are fitted with Self Closing Cover which prevents all dirt and sediment from getting into them. Send for catalogue and price list

F. H. CHACE, Sherman, N. Y.



COW BASIN

SELF CLOSING LID.

Pure white Porcelain. No rust, no filth, no splashing. D. H. Bausman, Bausman Lane Co., Pa. Iron, Pig, Chick, and Stock Troughs.

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You take no risk in dealing with us. This is the most liberal offer ever made by a fence factory. Write at once for our catalogue giving special discounts for large quantities. Address ADVANCE FENCE CO., 126 St., Peoria, Ill.

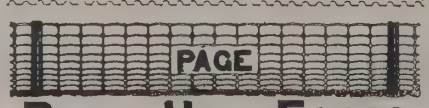
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holds the whole litter. It's closer woven.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

GRISWOLD WIRE FENCE

Square Mesh, Dimond Mesh Fence, Plain, Galvanized, Barbed, or Telephone Wire. Write for illustrated catalog and price list.

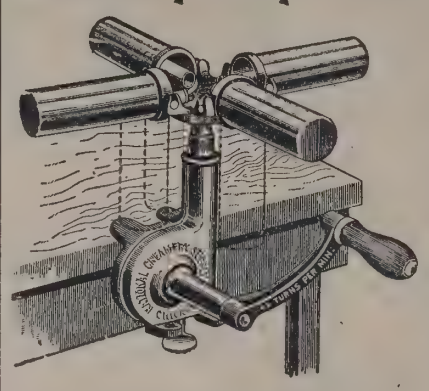
DILLON-GRISWOLD WIRE CO., Sterling, Ill.

THE BROWN BESSIE HERD

Offers one bull 14 months old, sired by Recorder, 29239, the only living son of Brown Bessie and has 14 tested daughters. Dam, Relay, 70353, test 17 pounds 2 ounces. She a daughter of Diploma with 61 tested daughters. Also Berkshire Pigs of English and American selected stock.

H. C. TAYLOR, Orfordville, Wis.

NATIONAL Babcock Milk Tester



Dotted Lines show position of bottle holders when not in motion.

Has enclosed cut gears.
Swinging bottle-holders.
Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

DOES YOUR DAIRY PAY?

It costs no more to feed a profitable than an unprofitable cow.

NET PRICES:

No. 1,—2 bottle, complete for testing milk.... each $4 00
No. 2,—4 bottle, complete for testing milk.... each 5 00
No. 3,—2 bottle, complete for testing cream and milk, each 4 50
No. 4,—4 bottle, complete for testing cream and milk, each 5 50

Prices include full directions for making test, bottle of acid, test bottle brush, acid measure, dipette and test bottles.

We are the great Dairy Supply House of the West. We carry an immense stock of all kinds of Butter and Cheese Making Apparatus and Supplies. Write for catalogues and circulars.

National Creamery Supply Co.,

450-458 Illinois St., CHICAGO U. S. A.

Cream SEPARATORS.

All about them and other things for the dairy and creamery.

A. H. REID, Philadelphia.

NORTH OAKS FARM, ST. PAUL, MINN. (Jas. J. Hill, Proprietor.)

AYRSHIRE BULLS

Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address,

N. E. McKISSICK, Supt., Cardigan, Minn

AYRSHIRE CATTLE of the BEST of BREEDING. Also Chester White Pigs, ready to book for season's trade. Young stock of both sexes. Prices reasonable. Come and see us.

F. TSCHUDY & SONS, Monroe, Wis.

Florham Guernseys.

The herd is made up of representative animals of both home and foreign breeding.

BULL CALVES,

from large producing dams for sale. Apply to J. L. HOPE, Supt., Florham Farms, Madison, N. J.

Old Homestead Guernseys.

Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.

Especially low prices, standing of herd considered. No catalogue. State what you want.

L. V. AXTELL Perry, Lake Co., Ohio.

GUERNSEYS FOR SALE

Bull two years old out of Count Topsy 24.27 lbs. butter 7 days. She won 1st prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

GUERNSEYS FOR SALE.

Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.

JAS. H. BEIRNE, Oakfield, Wis.

GUERNSEYS.

HADDON FARMS—Home of the noted GLEN WOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

BULL CALVES

From cows with a weekly butter test of 19 lbs. 10 oz., a Babcock test of 739 9-10 lbs. in a year; 48 lbs. 6 oz. of milk in one day, 11713 lbs. in a year, are seldom offered. The Sale List referred to on pages 514, 536, 556, and 576 contains such a calf, and another from a daughter of a full sister to the above cow. If needing new blood in your herd write now, asking for Sale List A 19.

WINTERGREEN HILL FARM, SCOTTSVILLE, N. Y.

Rosendale Guernsey Herd

TUBERCULIN TESTED.

Sixty head of choice Guernseys headed by Coralette's Son, (see page 450) whose dam, Coralette made 479.7 lbs. fat in one year at 3½ years old, and was first prize cow at Wisconsin State Fair in 1896.

Some fine young bulls for sale.

GEO. C. HILL & SON, Rosendale, Wis.

Wasteland Guernseys

Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.

M. M. & E. J. HOLLINGSWORTH, Landenberg, Chester Co., Pa.

FOR SALE GOLDEN LAD BLOOD. sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

FOR SALE. Two A. J. C. C. Bulls ready for service; also some younger ones. Cows and heifers in calf to richly bred bulls. Write for pedigrees and prices. We have a few Berkshire Boar Pigs from unregistered sows left; cheap.

N. N. PALMER & SON, Broadhead, Wis.

BILTMORE JERSEYS

are great and presistant dairy workers and typical Jerseys. We ask comparison with any other herd for

YEARLY MILK & BUTTER YIELDS, SUBSTANCE AND FINISH.

The herd contains more prize winners at the leading exhibitions (including the Pan-American) than any other herd.

The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service as you cannot get it.

Also Headquarters for Large English Berkshires and Standard Poultry.

Apply to

BILTMORE FARMS, BILTMORE, N. C.

HAZEL FERN HERD. A. J. C. C. Jerseys blood of St. Lambert, Melia Ann, Combination, Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis' 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

ROBINSWOOD JERSEY DAIRY is offering a few Reg. Jersey Bulls ready for service at from $25 to $50, sired by a grandson of Recorder, the only living son of Brown Bessie, out of good cows. Write, stating your wants, to N. H. ROBINSON, Prop., Centralia, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.

W. J. HUSSEY, Mt. Pleasant, O

JERSEYS FOR SALE FOUR SOLID COLOR BULL CALVES 3, 4, 5, and 7 months old. Sire a Double Grandson of St. Lambert Boy, sire of 54 tested cows.

J. ALDUS HERR, Route 4. Lancaster, Pa.

VALLEY FARM Offers for sale a son of "King of St. Lambert's King" out of a daughter of "Gazilla's Fawn," dropped July 29th., 1900. Also have some young bulls. Write your wants to

FRED STUBLEY, Black Earth, Wis.

PROSPECT HILL JERSEY HERD.

Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

Which is the least valuable to use for bedding for cows and horses?

Red Deer, Alberta. C. A. J. S.

1. The sample of oats received, while decidedly "musty," is not so seriously injured, in our opinion, as to make the feeding of this grain seriously objectionable. Moreover, a thorough winnowing before grinding will probably remove a portion of this taint. After all, the only positive information must come from actual trial. If, after winnowing and grinding, the oat chop appears to be objectionable, try steaming or scalding with or in boiling water.

2. Disinfect the vagina daily, or as often as may be necessary to prevent the discharge, with a wash containing one part bi-chloride of mercury (corrosive sublimate) in five thousand parts of water (1 to 5,000), and wash the vulva and surrounding parts with same.

3. This may be a case similar to the foregoing, or it may be a matter of an acidy condition. Try some of the preparations advertised in the DAIRYMAN to overcome "failure to breed" or disinfect vagina with a solution of permanganate of potash—15 grains to quart of water.

4. Waving the objections to the barley beards, barley straw has a feeding value nearly 20 per cent greater than wheat straw.

CONCERNING OUR ADVERTISERS.

PASTURE ALL THE YEAR.

Every farmer, breeder and stock grower would like to have summer pasture for his stock the year around. A food that seems to very nearly equal fresh pasture is the Alma Dried-Molasses Beet Pulp which our readers will find advertised on another page of this issue. It has been thoroughly tested by leading dairymen, breeders and feeders of all kinds of stock. Write the manufacturer for full information. Address Dept. 6, Alma Sugar Co., Alma, Mich.

The advertisement of the Wisconsin Blue Grass Land Co., located at Baldwin, Wis., ought to interest, and seriously too, hundreds of the readers of HOARD'S DAIRYMAN. Their ad tells a good deal about the advantages of their lands and there is no question but what they have propositions to offer that will make money for those who accept. Northern Wisconsin has been for past few years, and is now, settling up very rapidly. There are no better farming lands any where than can be picked up here at low price per acre, and the market conditions are excellent. The price of these lands is bound to raise rapidly, and to-day there are hundreds of sections where land is worth from twenty-five dollars to seventy-five dollars per acre, when ten years ago it was sold around five dollars per acre. Any reader of HOARD'S DAIRYMAN who is not satisfied with his present location and would like to better his condition, is making a mistake not to investigate these lands that are advertised in the DAIRYMAN. There are several advertisements of same nature as one we refer to. They are worthy of more than the simply reading.

ONE-ARMED FARMERS.

This is no joke, for since the introduction of power machinery there are many farmers minus a hand or arm. But whether with only one arm or both, all farmers will be interested in the ad. of Toledo Plow Co., which appears elsewhere in this issue. These people are extensive manufacturers of all kinds of farm implements, but one of their specialties is cattle stanchions which they are selling at the present time on special delivered prices. These stanchions are made with a steel latch and can be easily operated with one hand. When the stanchion is open, it is locked securely so that as the cattle come in, there is no adjusting of the stanchion needed, and they can be closed with one hand. They swing freely and noiselessly with every movement of the head. Write these people to-day for free circulars and prices. Cold weather is coming and the barn should be made ready for winter's use. Address Toledo Plow Co., Dept. H, Toledo, Ohio.

A good word for the Milking Instrument advertised by Moore Bros., Albany, N. Y.:

COWS UDDERS SAVED.

Moore Bros. V. S., Albany, N. Y. Gentlemen—In regard to the Safety Milking Instrument will say that if it was in the hands of every dairyman or breeder, there would be thousands of cows udders saved each year that are now lost. I cannot recommend it too highly. Yours truly, HENRY STEVENS, Brookside Herd, Lacona, N. Y.

Every DAIRYMAN reader is interested in the ad. of M. G. Rankin & Co., Milwaukee, Wis., of Molasses Feed. These people are just placing this feed upon the market at a price, considering its feeding value, that makes it very attractive. Don't pass this by but look up the ad. Write them for information and price.

Spain's Churn



Hand made of thoroughly seasoned white cedar. Has large opening. Never gets water soaked or sours. Easy to clean. Simple to operate. A 30 years' test has proved it the best. Everything for the dairy or creamery—automatic milk scales, glass jars, butter workers, printers, shipping boxes, etc. Send for illustrated catalog of "Bestov" dairy supplies.

TRADE MARK BESTOV

DAIRYMEN'S SUPPLY CO., Dept. Philadelphia, Pa.

$1.00 BIG 500-POUND STEEL RANGE OFFER.

If you can use the best big 500-pound steel range made in the world, and are willing to have it placed in your own home on three months' free trial, just cut this notice out and send to SEARS, ROEBUCK & Co., Chicago, and you will receive free by return mail a big picture of the steel range and many other cooking and heating stoves, you will also receive the most wonderful $1.00 steel range offer, an offer that places the best steel range or heating stove in the home of any family, such an offer that no family in the land, no matter what their circumstances may be, or how small their income, need be without the best cooking or heating stove made.

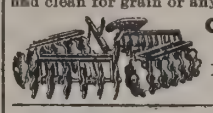
Clark's Tools for Large Hay Crops

CLARK'S REVERSIBLE



Bush Plow and Harrow

Cuts a track 5 ft. wide, 1 ft. deep. Connects the sub-soil water. It is an excellent machine for covering in sugar cane. Strength guaranteed. Can plow a newly cut forest, stump, bush or bog land, leaves the land true and clean for grain or any crop.



Clark's Dbl. Action Cutaway Harrow

Moves 15000 Tons of Earth a Day.



Clark's 8 foot Smoothing Harrow.

Will smooth an acre as true as a mill pond in twenty minutes.

Clark's Rev. Sulky Disk Plow



Made single or double. One or two furrows five to ten inches deep; 14 inches wide. For two or four horses. Light draft. No side draft. No similiar plow made. When Clark's grass tools are used as directed in his grass circular, we, the O. H. Co., guarantee them to kill wild mustard, charlock, hard hack, sunflower, milk weed, morning glory, Russian thistle or any other foul plant that grows, or money refunded. Now is the time to commence work for next year's seeding to grass.

Clark's Root Cutter.



TWO SIZES. Cuts 1 or 2 bushels per minute, for fowl or beast. Gouge cutters never choke or clog. Price $7 to $15.

SEND FOR CIRCULARS.

THE

CUTAWAY HARROW CO.,

HIGGANUM, CT., U. S. A.

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA.

President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.

FEES FOR REGISTRY.

TO MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.

NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. All blanks furnished free.

Life Membership, $25.

Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.

Address F. L. HOUGHTON, Putney, Vt., for information relating to Registration of Pedigrees.

HOLSTEINS IN CALIFORNIA

ST. ANSELMO, MARIN COUNTY

250 HEAD IN THE HERD

Sires are sons of Mercedes Julip Pietertje, Colantha 4th Belle Korndyke, Fay Barnham Princess Wayne 7th. A fine lot of bull calves

R. M. HOTALING,

Rialto Building San Francisco, Cal.

LOOK HERE

34 cows and heifers in the **McGEOCH HERD** have been **officially tested** with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs. of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs. of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by **Gem Pietertje Hengerveld Paul De Kol,** or **Sir Ormsby De Kol** for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days; average per cent of fat 4.47. Are these the kind of **Holstein-Friesians** you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd?

For particulars address **H. B. Daggett, Mgr., Station A, Milwaukee, Wis.** Residence: National Ave., near 40th. Phone, South 1601.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

Bulls For Sale.

Two choice bulls ready for service and some fine bull calves from good testing dams. Sire: Paul Clyde, son of Paul DeKol. Dam's record 24.88 lbs. in 7 days. Write C. A. SNOW & SONS, Athens, Ohio.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148 Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.

WM. EVERSON & SONS, Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULLS FOR SALE.

Ready for service; from A. R. O. animals; sired by Johanna Rue 2nd Paul De Kol, sire of 13 A. R. O. cows. Also young bull calves by same sire. **THOS. CAINES, Supt.**

ARCADIA, - MISSOURI.

TYRANENA HERD

100 HOLSTEIN-FRIESIANS 100

A. R. O. Stock For Sale.

Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz **Frank B. Fargo, Lake Mills, Wis.**

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Offers 3 yearling bulls and 10 yearling heifers, sired by a grandson of Sadie Vale's Concordia. Cows and heifers bred to oldest son of Mercedes Julip's Pietertje, No. 29480. Chester White Pigs in pairs and trios, not related.

W. R. GATES, Fort Atkinson, Wis.

OAKLAND HERD HOLSTEINS

PREMIER SIRE **Mutual Friend 3d's Paul**

A son of Paul De Kol & Mutual Friend 3d, 21.84 lbs. butter, milk averaged 4.7% at 3 years. She has two A. R. O. daughters, 1 made over 20 lbs. Must reduce herd at some price. State just what you want. T. A. MITCHELL, Weedsport, N. Y.

BROOKSIDE HERD

HOLSTEIN-FRIESIANS

To reduce herd to capacity of pasture, will sell a limited number of A No. 1 young cows of high breeding and individually right, large producers, at $150 each; also 15 bull calves at bargain prices.

STEVENS BROTHERS, Lacona, N. Y.

JUST BULL CALVES

We have three, that are individually fine. They are bred right, have been fed right, and the price is right.

Ohio's Famous Herd. Holstein-Friesian Cattle. **W. B. SMITH & SON.**

2488 W Broad St, Columbus, O.

MAPLES STOCK FARM, PENNELLVILLE, N. Y.

Second Annual Offering

80 HEAD OF HIGH CLASS REGISTERED

HOLSTEIN-FRIESIANS

AT AUCTION, OCT. 14, 1903, at Fulton Fair Grounds, Fulton, N. Y. Catalogues ready Oct. 1. Write for one. Address R. F. D. 3 **John C. Godfrey, Fulton, N. Y.**

Holstein-Friesian Bull Calves

Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

HOME FARM HERD.

Headed by **COLANTHA 4TH'S LAD.** Official test of three nearest dams, 25.1 lbs. butter in seven days. Herd numbers 125 head.

BEST FAMILIES REPRESENTED.

Special prices on six or eight bulls of serviceable age. **W. B. BARNEY & CO., Hampton, Ia.**

THE STEVENS HERD Contains at the present time the young bull, Vale, with the largest official backing of any bull ever born. Several half-brothers and sisters to Vale, and a large number of cows and heifers bred to his sire, whose official backing is larger than that of any other bull ever in service. A cow that stands unequaled by any other that ever lived, in the official work of herself and daughters. The only cow ever officially tested for six months. Eighteen cows and heifers with official 7-day butter records averaging, by the 80 per cent. factor, over 20 lbs. each. Thirty animals whose dams have made official 7-day butter records averaging over 20 lbs. each. Why not get our prices before buying?

HENRY STEVENS & SON, Brookside Stock Farm. Lacona, Oswego Co., N. Y.

ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.

GEO. T. McNEIL, Theresa, N. Y.

FOR SALE.

H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29828. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address W. H. JONES, Watertown, Wis. Rural Route No. 2.

FOR SALE 2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.

M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

CLOVERDALE HERD

HOLSTEINS.

Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.

A. J. DAUGHERITY Streator, Ill.

Woodlake Herd.

Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. **JOHN B. IRWIN,** Station D., R. 1. Minneapolis, Minn.

MARKHAM MANOR FARM,

Simonsville P. O., Andover, Vt.

Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde, No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for discription and price to **J. A. THORNTON,** Manager, Simmonsville, Vt.

FIRST CLASS BULL

Offered at reasonable price by South Side Farm, White Bear, Minn. Born Dec. 1, 1899. Sired by Baron Pauline De Kol with 8 A. R. O. daughters, and tracing three times to De Kol 2d. Our bull's dam has A. R. O. record of over 22 pounds, under five years, and during week's official test milk averaged over 40 per cent. fat. Fine conformation, nicely marked, superior handler, large veins and rudimentaries, gentle, vigorous, and sure. Other bulls ready for service.

STAR FARM HOLSTEINS

SPECIAL OFFERING: Six of the choicest Johanna bull calves from official butter record dams and A. R. sire.

Also a few choice heifer calves, yearlings and 2-year olds; latter bred to Mercedes Julip's Pietertje Paul.

150 HEAD TO SELECT FROM

Special prices on cows in carload lots. Prices reasonable for quality. Liberal terms of payment.

HORACE L. BRONSON, Cortland, N. Y.

Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. **C. H. STEVENS, Jefferson, Wis.**

FOR SALE CHEAP The exceptionally well bred H.-F. bull Duke Mercedes De Kol, 3 yrs. old, sure and kind, can be bought for $100, or about half price, because his owner can use him no longer. Dam, g-dams, sisters, aunts, cousins, A. R. O.; making a wonderful showing. For further information and photo address

MALCOLM H. GARDNER, Darien, Wis.

HOLSTEIN-FRIESIANS INDIVIDUALITY, PERFORMANCE, BREEDING. You need it all. Write or come. 100 head. **McKAY BROS., Buckingham, Ia.**

HOLSTEIN-FRIESIANS

FAIRVIEW HERD

We offer from this herd a few choice yearling bulls, also four very fine bull calves. Write describing what you want.

O. J. GODFREY, Pennellville, N. Y.

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. All our choice pigs of 1902 farrowing have been sold. We are now taking orders for 1903 farrowing.

JOHN WHITE & SON, Adamstown, Md.

HOLSTEINS

High Class Advanced Registry Stock only. Best butter families. Stock for sale.

Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.



T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.

Wm. O. Jackson & Sons, South Bend, Ind.

THE MONONA FARM HERD

OF HOLSTEIN-FRIESIANS

Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 469.50 lbs. one day. Breeders and dairymen please write for prices.

F. W. ALLIS,

Monona Farm. Madison, Wis.

FOR SALE. H.-F. Bulls, ready for service, from A. R. O. Cows and sired by Sir Jonanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis

PURE BRED SHORTHORNS

CHOICE BULLS FOR SALE.

Also Cows and Heifers bred to Clay Buttercup, 125861, a descendant of the Clay Family, champions at the World's Fair dairy test.

GEO. WENHAM, Fort Atkinson, Wis.

Care in the Keeping of Cream.

ED. HOARD'S DAIRYMAN:—This is a very important question and one that each and every cream patron should be interested in, for it will mean dollars and cents to the most careful farmer; for cream now should, and eventually will, sell on the market according to quality and grade, as any other farm product.

Cream even more so than milk will become sour and tainted if not cared for properly, and when in this condition it is utterly impossible for the butter maker to make first-class butter, and if each and every patron would observe a few general principles of care with their cream the grade of butter will be higher and of a better quality.

And now first of all, let us begin at the beginning:

First. The milking place. It should be clean and healthful, as well as all the milk utensils that are used. The best of care should be taken in cleaning and airing the separator, for it is like any other machine; it must be clean to do the best of work.

Second. After the milk is milked it should be removed from the stable or from about the cows, so that it will not collect the cowy odor which is in the air, and then before separating, it should be strained properly. The best strainer is a wire strainer with a band attached so that several thicknesses of muslin may be fastened beneath the gauze. The gauze will catch the largest of the filth, while the cloth will catch the smaller particles that have passed through the gauze, and, moreover, the better the straining the purer and sweeter will be the milk.

Third. Separate at once after straining as the milk is then in the best possible condition for separating. The skim milk will also be in the best condition for feeding purposes if the separating is done while the milk is still warm, for the milk then is as it would be if taken from the cow and given direct to the calf.

Fourth. And now comes the careful work of the farmer. He should strive to keep his cream in the best possible condition for a first grade of butter. Soon after separating, the cream should be cooled as quickly as possible, as bacteria grow and develop very rapidly at skimming temperature. The first cooling should be done in "shot gun" cans. These cans are about 24 inches in height and 8 inches in diameter. These tall cans tend to give a greater cooling surface than a much shorter and thicker would. The can of cream should be set in a tub of cold well water, and the cream stirred continually until cold. (Please don't go by guess as to whether the cream is cooled or not, when 25 cents will buy you a thermometer, and then you will know what you are doing). From the result of stirring, the cream will cool faster and will help to aerate it so that it may lose some of its bad odors. After it has become cooled in this way, lower it into a well with a cloth tied about the top of the can and keep it there until time to deliver.

Always keep the different separatings separate for at least eight hours. Then if the cream has been attended to properly, they may be mixed together without any very bad results.

Here is a caution that should be strictly attended to: "Never allow the warm cream to be mixed with the cold," for in so doing, the cream will become sour and tainted, and thus cause an inferior grade of butter.

You may ask if the cellar or cave is not a good place for cream. It is the general belief of all dairymen that cream should never be kept in the cellar, or caves. Nine out of ten cellars and caves have very peculiar odors, which are imparted to the cream, and cream thus affected can never be purified, thus making an inferior grade of butter.

To try the patience and nerves of a buttermaker send him cream that is contaminated with foreign odors, and see how quickly he will reject it.

Every farmer will find the well the best place for cooling and keeping his cream cool and sweet and free from odors. A properly constructed well with an arrangement for raising and lowering the cream cans is far superior to any refrigerator or ice box that is on the market. And also another thing to take into consideration is, that after you have the well once arranged there is no additional expense, while an ice box or a refrigerator must be supplied with ice every day.

And now, always remember it is very important that the farmer take the best possible care of his cream, that he may receive the best results for his work.

Fifth. Patron should have set days on which he is to deliver his cream at the station, and do it early in the morning, or as early as possible. When he takes the cream from its cooling place, it is then in the proper condition for hauling, therefore, to keep it in that condition, a heavy, wet blanket should be placed over the cans, and then over the wet blanket, a dry or waterproof covering should be placed. This course will not permit any evaporation, and the cream will then reach the station in a fine, cool sweet, condition.

Patrons will find it more profitable to get their cream to the station in as sweet a condition as possible. The more sour the cream, the more acid has developed in same, and the acid makes it hard to get an accurate test of the cream.

Cream in such conditions is hard for the buttermaker to handle and he cannot get the proper results therefrom.

In the case the patron ships his cream, he should get his cans of cream to the depot in as cold a condition and as near train time as possible, and never ship where cream will have to stand at the depot over a night or a day, or where same will have to be in transit a day, or over night.

KEEP WELL IN MIND THESE POINTS.

Keep every thing used in the handling of milk and cream clean, well washed, scalded and aired for purification.

Milk rapidly, strain well, and at once separate the milk, and cool the cream without delay, and strictly keep same separate for six or twelve hours in a well, adapted for the purpose.

Never put cream in the cellar or cave, where there is any foreign odor or smell.

Never mix warm fresh cream with the already cooled cream.

Never put a tight cover on cream, except when necessary for delivering of the same.

Always keep a cloth tied over the cans when cooling, as this will keep the air from the cream and will keep the flies and other foreign particles out.

In the summer months put a wet blanket over cans, and a dry one over the wet one; this prevents radiation of heat.

Carefully follow the above points, and

A Woman's Prayer

It is notable that in the despondency caused by womanly diseases, there seems to many a suffering woman no way of escape from pain except at the price of life itself. It would be sad to record such a story of struggle and suffering except for the fact that in such dire distress many a woman has found a way back to health and happiness by the use of Dr. Pierce's Favorite Prescription. The one and only remedy for leucorrhea, female weakness, prolapsus, or falling of the womb, so absolutely specific and sure in curing these common ailments of women, as to warrant its makers in offering to pay, as they hereby do, the sum of $500 reward for a case of the above maladies which they cannot cure.



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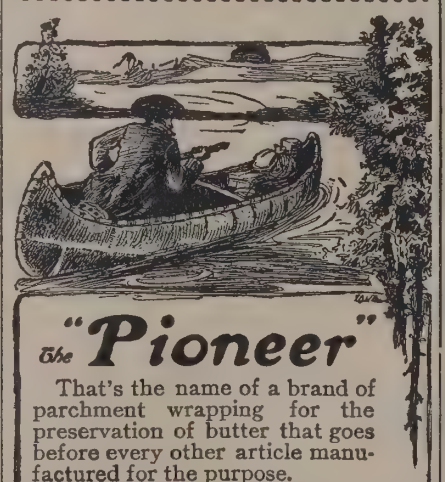
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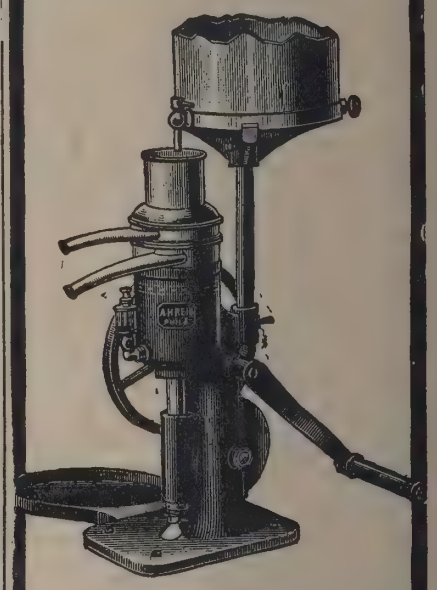
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Doctors Disagree — Poor Cows — Making Beef.

ED. HOARD'S DAIRYMAN:—Our Doctor Wiley, of the Agricultural Department at Washington, is reported to have said in relation to using injurious preservatives in food products. "There may be occasions of emergency or exigency by which the use of a chemical preservative is rendered imperative. The short period over which such an emergency would extend would not seriously endanger the health of the consumer were he to eat food for a brief period containing any one of the principal preservatives in common use."

That strikes me, a layman, as rather a remarkable statement to come from an authority who is supposed to be also somewhat a guardian of the public health. Usually the fellow who injects the preserving poison into the beef or pork or lamb, or adds it to canned corn, peas or mushrooms has no notion nor care whether his product will be eaten to-morrow or next month, and unless the poison gathers virulence by age, it is difficult to understand how the earlier or later taking of it will make much difference.

Dr. John Marshall, of the University of Pennsylvania, says:

"Salicylic acid not only produces indigestion, but dyspepsia, rheumatism and other ailments result therefrom. There is no doubt that some of these preservatives are accountable for a great deal of illness and the law prohibiting their use should be rigidly enforced. I felt the evil effects of salicylic and boracic acid fully eight days after I had taken them. If that is the case of the one special test I made, what must be the result on the system of their constant use in these impure food products?"

POOR COWS.

We all seem agreed on the unfortunate evil of the poor cows in our dairy sections. They are accorded universal condemnation, but to my mind there are two fruitful sources that encourage or are responsible for their undiminishing numbers.

In many of our old established creamery neighborhoods, creameries are easily found that have never adopted the Babcock test in buying milk. What can be more encouraging to the keeping of any old thing of a cow so she gives a lot of milk? What encouragement is there for a dairyman to build up a rich milking herd of cows that pay more attention to quality than mere quantity, when his milk goes into the general pool and is paid for at an average where all the poor milk is counting against him?

It is a hard matter for a man so situated to grow away from his environment, so he sinks into it and his good cow aspirations are never developed. A pure bred dairy sire is generally as much out of place in such a community as a preacher at a political meeting.

It is strange to contemplate, too, that the unuse of the Babcock is almost always due to the prejudice of the dairymen themselves. This seems a parallel to the old farmers who didn't "want no winders in his stable—made it look so durned dirty."

Another probably more blameworthy cause of our poor cows, is the teaching of the advocate of the dual-purpose animal. The cow that makes a lot of butter and milk, that will raise a fine, big calf, and in due time go to the butcher, and make such choice cuts of beef that even her memory is a sweet savor— such an animal is very attractive to the farmer aud would be of immense value to him, if he could get her, but he never gets her and the no-purpose cows that result from the vain endeavor to produce the other kind, are living testimonials to the misleading teaching of misguided teachers.

MAKING BEEF.

Beef making is a different animal function, from butter making.

The cow that is an adept at the latter, is generally a failure at the former. I believe if one so wishes, he can carry on both the butter making and beef making on the one farm, but two seperate animals are needed. Where the two lines are conducted separately and intelligently, they can both be made to pay. There is not often any profit in uniting them.

There are many cases where a few steers fattening, would be a useful object lesson to the feeder of them and the cows. He might learn to feed the cows enough. I have heard many and many a steer feeder complain that his cattle were not eating enough. I have never heard a cow feeder say it. I have seen cows that could have said it if they could have talked.

Pa. W. F. MCSPARRAN.

Red Spots in Cheese.

HOARD'S DAIRYMAN:—What is the cause of red spots coming on cheese, some in a few days after making and some not for two weeks? The shelves are kept clean and well scraped; cheese are full cream and not the least bit spotted inside, and fine flavor; do not use coloring; have had them get that way for three seasons, in the fore part of season. At first I thought it must be the shelves, but think not now, because I use canvas to cover the curd, and they get red and the stuff on them looks like coloring matter which I scrape off and leave the cloths white.

2. What is the effect of soda (put into milk to keep it sweet) on cheese? I believe some of my patrons are using it, but I do not know how to detect it.

Pa. SUBSCRIBER.

The cause of the red spots on cheese is due to the growth of a fungus belonging to the molds, which has the power of producing this red pigment. This fungus grows only on the surface of the cheese and therefore does not affect the inside. It however, discolors the exterior and may even stain the bandages to such an extent as to seriously impair the appearance of the cheese. The growth of this mold is naturally modified very much by the environment in which the germ is placed, and one of the conditions which is favorable for the growth of this fungus is a moderately warm temperature accompanied with a high degree of moisture in the air of the room.

These mold spores are more or less widely distributed and therefore if the moisture condition of the room is suitable for their growth they most always develop. Something can be done towards repressing them by washing the cheese in an antiseptic wash, such as a solution of boracic acid or a dilute solution of formaldehyde. It is better, however, to hold the trouble in abeyance by control of the moisture content of the curing rooms and if the rooms are well ventilated and not too high in humidity the conditions do not favor the development of these molds.

The addition of soda to milk is sometimes made to prevent the souring changes from occuring as rapidly as they would otherwise do. The addition of soda, however interferes with the action of the rennet in milk and it is therefore undesirable to have such substances in milk that is going to be used for cheese making or for any other purposes of dairy manufacture. There is no test that I know of that can be applied by the factory operator which will enable him to detect the very small quantities of this antiseptic. If sufficient quantity is added a distinct taste of lye is noted when the milk is tested, but this only occurs if a super-abundance of the antiseptic is employed. H. L. RUSSELL.

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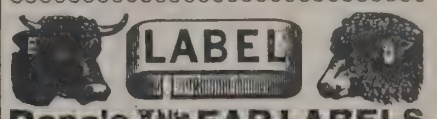
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VETERINARY.

Queries in this department answered by Dr. A. H. Hartwig, Watertown, Wis.

Cow Pox.

A cow at first has hard lumps on inside of teats, which soon make the outside of the teat sore. When one teat seems to get better, sores will break out on other teats? J. H.
Delaware, Or.

ANSWER.

Your description answers to that of cow pox. Wash the parts clean after each milking, and milk the cows so affected last of all. When thoroughly cleansed with soap and water, dry and apply iodine ointment.

Swollen Udder.

Cow's bag has been very swollen at the last 3 calvings and it does not go away after 10 to 14 days as it does on other cows, but lasts for a long time after, making it very hard to milk her. It extends to the back of bag and between hind teats, it goes up about eight inches above teats and nearly forward to fore teats. The other part of bag is soft and nice, but back teats are also stiff, short, swelled and seems to hurt cow when she has to be milked. D. E. H.
Englewood, Ill.

ANSWER.

The swelling can be avoided somewhat if you milk your cow before calving, just enough to relieve her. You may also rub the udder with warm lard, rubbing it well with the flat of your hand; or you may use lanolin instead of lard. If after calving, the swelling appears in spite of the above treatment, you may continue the external treatment and give the following internally: Fluid extract of poke root, ½ ounce; acetate of potash, 2 ounces; water enough to make a quart. Give this dose twice daily until swelling disappears.

Holding Up Her Milk.

Have a valuable cow that began last year to hold up her milk. No reason can be assigned; in good condition. J. McC.
Snohomish, Wash.

ANSWER.

There is no medical treatment for such a case, if the cow is in good condition as you state. The nutrition is likly going into fat. The only remedy would be to keep on milking, and rubbing the udder with the flat of the hand to induce the udder to become more active.

[The office editors suggest that a trial be made in this case of giving the cow something good to eat just as you commence milking. This will tend to pacify the cow, and do away with the nervousness that results in the suppression of the milk.]

Verminous Bronchitis.

Calves have a choking cough. I have lost two, and more are bad. The calves seem to cough and choke and stager and sometimes fall flat.
Also a remedy to kill lice on calves.
Arago, Oregon, J. B. M.

ANSWER.

Your calves have verminous bronchitis; the worms are known as strongylus micrus, which, when in a sexual condition, are located in the trachea and bronchial tubes. The eggs and embryo are developed in the ducts, some of which are expelled by coughing, and continue to grow in pools and swamps. The larvæ are ordinarily taken up with the water and food. Infection of the animals usually occurs in spring, and is very common during rainy years, but may disappear altogether during dry years. It has never been recognized in animals kept permanently stabled. The prophylaxis of verminous bronchitis consists in avoiding wet pastures, and access to pools where infected animals have been allowed to drink. The disease is combatted by medical fumigations, but the most effective treatment is as follows: olive oil, 3 oz.; essence of turpentine, 3 oz.; carbolic acid ½ dram; fetid animal oil ⅓ dram; mix and inject into the trachae 5 drams per day, for three consecutive days.

No. 2. Lice on calves can be destroyed by soaking the calves with a solution of Zenoleum, or any of the coal tar preparations.

Gravel In Hoof.

I have a horse that was graveled about one year ago. It broke at top of hoof and has healed over, but left scar and she is still lame. It is not tender to the touch; foot is not out of shape, but it is hard where it broke and a little larger there just above the hoof.
How much cream, 22% butter fat, from a cow that will make 10 lbs. butter per week?
Pueblo, Colo. H. D. P. R.

ANSWER.

If a graveled hoof has been neglected, it usually leaves the wall of the hoof in



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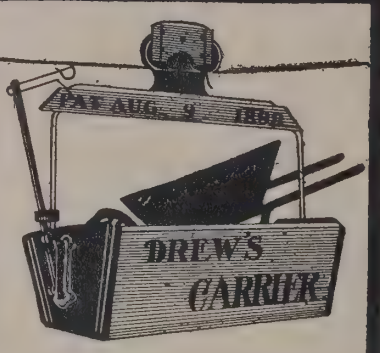
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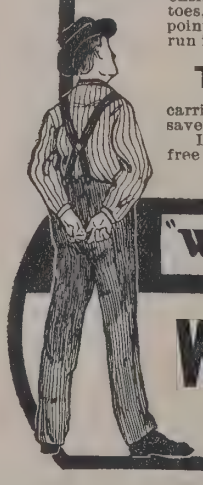
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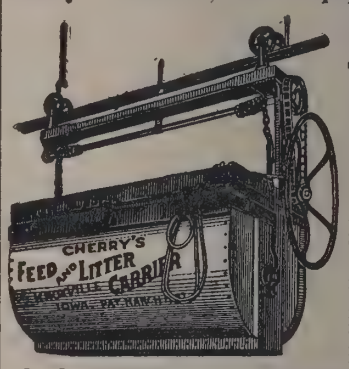
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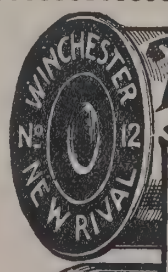
SEEDS THE ALBERT DICKINSON CO.

.....DEALERS IN.....

GRASS SEEDS, CLOVERS, FLAX SEEDS, LAWN GRASS, BEANS, PEAS, POP CORN, BIRD SEEDS, BUCKWHEAT, BAGS, ETC.

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WINCHESTER



"NEW RIVAL"

Loaded Black Powder Shells shoot stronger and reload better than any other black powder shells on the market, because they are loaded more carefully and made more scientifically. Try them. They are

THE HUNTER'S FAVORITE

THE NORTH WESTERN LINE C.&N.W.RY.

Special Reduced Excursion Rates

Will be in effect from all points on the Chicago & North-Western Railroad for the occasions named below:

Deadwood and Lead, S. D., Sept. 7 to 11, International Mining Congress.

Ogden and Salt Lake City, Utah, Sept. 15 to 18, National Irrigation Congress

Baltimore, Md., Sept. 21 to 26, Soverign Grand Lodge, I. O. O. F.

Denver, Colorado Springs, Pueblo, Oct. 7 to 11, Brotherhood of St. Andrew.

For information as to rates, dates of sale, etc., of these or other occasions, call upon the ticket agent of the North-Western Line.

Detroit, Mich., Oct. 16th to 22nd, Christian Church National Conventions.

San Francisco and Los Angeles, Cal. Oct. 20th to 23rd, American Bankers' Convention.

bad shape, which may be the cause of lameness. The hoof is usually hard and brittle. Poultice the hoof with a warm linseed poultice twice daily for three or four days. After this apply axle grease or tallow to prevent the hoof from drying out. Then the enlargement may be blistered with a fly blister of 1 to 4 strength.

Ten pounds of butter should contain 8.25 lbs. of fat, and this will make 37.5 lbs. of 22% cream.

Holding Up Milk.

What is the best way to keep a cow from "holding up" milk, and inflamed udder? I have a cow with calf four months old and I have taken calf away, and have had lots of trouble with her bag and teats. I used camphor, mutton suet and bathed it three times a day with hot water and alt, and she is getting better, but one teat has no milk hardly.

I see where some writer from Vermont says $72 was a good average for a cow in twelve montss, will he tell me how much it costs to feed one for that time, as we sell 900 gallons of milk from a cow at 30 cents, and it costs $7 per month to feed her. This is our average. F. G. M.

Newberne, N. C.

ANSWER.

It is quite likely that your heifer was holding the milk for her calf and after forgetting the calf she will cease doing so. You should not apply camphor to a cow's udder unless you wish to dry her up, as this agent tends to retard the milk flow. Using salt in your fomentations is also a mistake, as it tends to make the udder sore. Hot water alone is sufficient for the fomentation, after which the parts should be rubbed dry and warm. Unsalted lard applied with plenty of hand rubbing. The quarter from which she gives but little milk should be milked as often as possible in order to keep it alive and active.

[See also answer to J. McG.]

Disease Among Cows.

I have been buying some cows from Mississippi and Alabama, and in some instances they take sick in a few days after arrival with a disease similar to bloody murrian and die in a short time. Gretna, La. J. S.

ANSWER.

Please describe disease and we will attempt to diagnose your case and suggest a remedy.

Impotency.

Please give me a remedy for impotency in a bull, caused I think by being poorly wintered and over worked. C. K. R.

Angola, Kan.

ANSWER.

Increase the feed rations and keep him away from cows for a month or two. Give the following tonic: Dried sulphate of iron, 2 oz.; powdered gentain root, 2 oz.; powdered nux vomica, 1½ oz.; nitrate of potash, 1½oz. Mix and give a large teaspoonful three times daily in food.

After Abortion Cows should be injected with Hood Farm Breeding Powder. Used in connection with Hood Farm Abortion Cure it is the best means of preventing abortion.

Two sizes of each, $1 and $2.50. To any railroad express point in U. S., 25 cents additional. C. I. Hood & Co., Lowell, Mass.

$5,000 Reward.



Anybody can secure that amount who will prove that any letter or endorsement which we publish in any way, relative to the merits of

Tuttle's Elixir

is spurious or untruthful. It needs nothing but the truth to support it. It is undoubtedly the best veterinary remedy known to man.

Used and Endorsed by Adams Express Company.

Tuttle's American Condition Powders

—A specific for impure blood and all diseases arising therefrom

TUTTLE'S FAMILY ELIXIR cures rheumatism sprains, bruises, etc. Kills pain instantly. Our 100-page book "Veterinary Experience." FREE.

Dr. S. A. TUTTLE, 62 Beverly St., Boston, Mass

Beware of so-called Elixirs—none genuine but Tuttle's. Avoid all blisters; they offer only temporary relief. If any

Ten Dollars a Day

or more may be lost by the idleness of a horse from sore neck, shoulders or like trouble, just when his services are most needed.

Bickmore's Gall Cure



is guaranteed to cure the most stubborn case of Harness or Collar Gall, Scratches, Grease Heel, Speed Crack, etc., while you work the horse. For sale at all dealers who are authorized to refund your money if it does not do just as we say. Sample sent for 10 cents. Write while you have it in mind.

BE SURE AND WORK THE HORSE.

BICKMORE GALL CURE CO., Box 515, Old Town, Me.



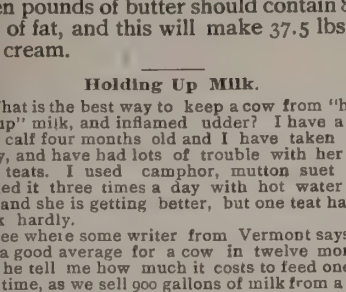
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Spavin Lump Jaw

You can cure Bone Spavin, Bog or Blood Spavin, Ringbone, Curb, Splint or any blemish hard or soft, Fistula, Poll Evil, Sweeny or Knee-Sprung, also Lump Jaw in cattle, with very little trouble or cost. Our two booklets tell you how and prove that you can do it, and we will guarantee you success in every case. Over 140,000 farmers and stockmen are doing it our way. If you have a case to cure write us and we will send you the books free.

FLEMING BROS., Chemists, 22 S Union Stock Yards, Chicago, Ill.



Warranted to give satisfaction.

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CAUSTIC BALSAM

A safe, speedy and positive cure for

Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a HUMAN REMEDY for Rheumatism, Sprains, Sore Throat, etc., it is invaluable.

Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

THE LAWRENCE-WILLIAMS COMPANY, Cleveland, Ohio.

BEFORE YOU BUY Write to Hiles & Myers C-100 Matthews Bldg., Milwaukee, Wis., for descriptions. We have fine farms for all purposes in Marathon, St. Croix, Barron, Polk, Pierce, Taylor, Clark, Wood, and other counties. Fertile soil; well watered. Low prices.

CHILLS ILLS AND DOCTORS' BILLS Painkiller PERRY DAVIS CURES THEM ALL

HEAVES and HORSES.

There is no more effective and speedy cure for the much dreaded Heaves, Cough, Distemper and Indigestion in horses than

PRUSSIAN HEAVE POWDERS

Earle Johnson of Ovlatt, Mich., writes that he bought a heavy pony for $25.00, cured it with Prussian Heave Powders, and sold it and its mate for $125.00. Your dealer probably has it. If not, write to us. Price, 50 cents; sent by mail, 60c. We will forward it and send you at same time our 68-page book free if you ask it.

PRUSSIAN REMEDY COMPANY, ST. PAUL, MINN.

Special Agents:

PORTLAND SEED CO., Portland, Oregon.
H. W. WILLIAMS & CO., Ft. Worth, Texas.

FOUL ODOR INSURANCE $2.50

A Five Pound Can of KNO GERM makes 300 gals. liquid ODORLESS disinfectant. Kills bad odors instantly, leaving air pure and odorless. Costs only $2.50. Guaranteed by us and your supply house.

M. H. FAIRCHILD & BRO.....CHICAGO

FARM BUILDINGS Covered with ARROW BRAND ASPHALT READY ROOFING are always tight and warm. Anyone can lay it. A hammer and knife are the only tools needed. Surfaced with sand or gravel and shipped direct from our factory. We make it and sell direct to you. Send for free samples and booklet.



ASPHALT READY ROOFING CO., 82 Pine St., New York



"Just as good?" "Just as good!" Did you say? "Just as good as Veterinary Pixine!!" The dealer who tells you that is mistaken. He does not know

FACTS AND TESTS PROVE IT!

Emery, Ky., April 9, 1903.

I feel it my duty to tell what Veterinary Pixine did for a horse of mine. He was cut with a knife between the fore legs three inches deep and two inches long, which every minute would gap open. I used several different kinds of remedy without success, even to having some stitches taken. Nothing did any good and it kept swelling and became feverish I almost gave up hopes of getting him well. In the columns of the Ohio Farmer I observed your advertisement and, as it was the last chance, I purchased a box at the druggists and used it as directed and before the box was used up the cut was entirely well. I intend to keep a supply on hand for emergency cases if I have to pay a dollar a box for it. Please accept my thanks for the good I have received from its use, and if you choose you can use my name and testimony.

W. S. CAMPBELL.

This penetrating, stimulating, soothing, absorbing, antiseptic, healing ointment heals from beneath the surface by disinfecting the parts, subduing inflammation and stimulating healthy granulations, not by drying and scabbing, and stimulates growth of hair, natural color. Makes quick, clean and healthy cure; heals stinging, burning, chronic saddle and collar galls, hopple chafes, abscesses, caked bag, cow pox, and hoof rot. It penetrates, stimulates, soothes and heals while horse works. Money refunded if it fails.

Price, 2-oz. box 25c; 8-oz. box 50c; 5-lb. pkg. $4.00, at all druggists and dealers or sent prepaid.

TROY CHEMICAL CO., Troy, N. Y.

Also Manufacturers of "Save-the-Horse" Spavin Cure. $5.00 a bottle. Send for copy of guarantee and booklet.



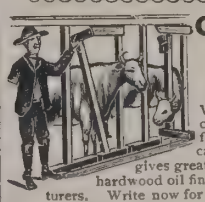
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The Safety MILKING INSTRUMENT is far superior to the old-fashioned MILK TUBE.

Price $1 by mail, prepaid. Circulars Free.

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Only One Hand needed to stanchion Cattle if you have our **Steel Latch Stanchion**

When open is locked ready for cattle to come in; closed, it swings freely. Best dairy cattle tie because comfortable and quiet; gives greatest freedom. Made of selected hardwood oil finished. We are the sole manufacturers. Write now for circulars and delivered prices.

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The Large Improved Yorkshire is by all odds the best hog on the market today. Prolific, easy keeping, with desired size lacking in Small York. Boars, $20 to $8.

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"Chloro-Naptholeum is unexcelled for the purpose intended. Dipping our young calves in a solution immediately freed them from all parasites. As a preventative for contagious abortion we have recommended this as a successful remedy." J. Q. EMERY & SON, Albion, Wis. Chloro-Naptholeum Dip is guaranteed. Agents wanted. 1 gal. $1.50; 5 gals. $6.75 prepaid. Larger lots at lower rate.

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CURE "THE" COW

NO CURE, NO PAY



WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address

DR. EATON J. GROSS

152 Congress St., Troy, N. Y.

BLACKLEGOIDS

BEST PREVENTIVE OF BLACKLEG.

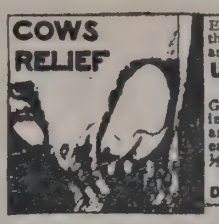


Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each Blacklegoid (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. Blacklegoids are sold by druggists; *ask for them.*

Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.

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Expels the terror of caked bag, the anneyance of sore teats and dread of hard milkers.

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Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.

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Can be successfully treated with Anti-Abortion Serum. Easily administered and permanently cures. Information free.

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Sure Cure for Abortion



and General Tonic for Cows. The only genuine sure cure and general tonic for cows on the market. I guarantee, and refund money if not satisfactory. Dr. Geo. Hollabush, Ft. Atkinson, Wis. Write for circular.

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RETENTION OF PLACENTA AND FAILURE TO BREED.

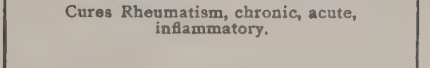
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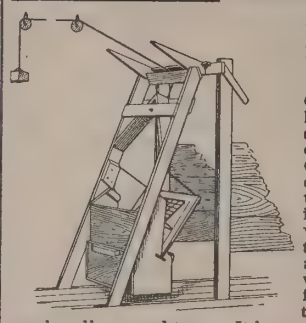
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made entirely of steel and malleable iron. **Unlike all others.** Affords greatest freedom and motion and always holds the animal. Hung on chains—moves all ways. **Lightest, strongest, most convenient** and easiest to open and close.
GOOD SELLER—BIG PROFITS.
One agent sold 75 first day, Another sold 200 first week. **We want responsible agent in every Dairy Community.** Send for circular number 30.
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CLEAN, SAFE, COMFORTABLE.
MFG. BY W. B. CRUMB, Forestville, Conn.

A Steel Stanchion beats anything you ever saw fo. tying cattle. Lighter, stronger, neater. Swings on chains Not in the way when lying down. Agents wanted. Write for special terms and prices. **Jas. Boyle, Mfr., Salem, O**

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No Gutters
No Platforms
No fastenings
No Stables to clean

Cease trying to keep your cows clean. **You can't do it.** Give them a chance and **they will do it themselves.** This is **the only** way and **the easy way.** Write for circular telling what the cow has discovered to us. It is a great revelation.
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Scott's "Perfect" Cow Stanchion.

SWINGING
SELF-CLOSING
SELF-LOCKING
3
NECESSITIES FOR PERFECT STANCHIONS

Made of hard wood—strong and durable. Price $1.00. Satisfaction guaranteed.

Write for descriptive circular.

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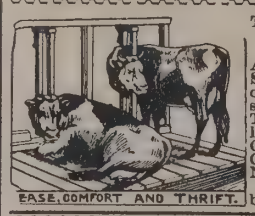


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Simplest, safest, strongest, most easily adjusted swinging stanchion made with steel latch and automatic lock, locking itself when closed. Is stationary when open, and animal cannot turn it in backing out. Made from best selected hardwood, well finished. Send for circulars and prices. Made only by
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Prescott's Swinging swivel tanchion
Keeps Cows Clean.
Swings forward while getting up or lying down. Locks back while standing. Full particulars free.
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The BEST Cattle Fastening.
SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated circular free. GLENORA MFG. CO., Glenora, Yates county, N. Y.
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The Most Practical **CATTLE FASTENER** ever invented.
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A better stove or range than you can get from any other source. A saving of from 25% to 40% in price. Prompt shipment from factory to user. Factory prices—no dealers' profits. Freight prepaid by us. 360 days approval test. Guarantee backed by $20,000 bank bond.



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are manufactured by us in our own factory. We know they are all right "clear through." Don't confuse them with cheap mail order goods.

We are the only stove manufacturers in the world selling their entire product direct from their own factory to the user.

There isn't a better stove or range at any price
and by eliminating all dealers' and middlemen's profits we save you easily 25% to 40%. Moreover we give you a 360 Days Approval Test. If your purchase is not satisfactory in every way, return the goods at our expense. We have a complete line of ranges, cook stoves and heaters for fuel of all kinds. All stoves blacked, polished and ready for business.



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Send for catalog No. 163 and prices, freight prepaid.
THE KALAMAZOO STOVE CO.,
Manufacturers,
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ROYCROFT FLY KNOCKER
KILLS EVERY FLY IT HITS.
It keeps off the rest and is harmless to man and beast. MAKES MILKING IN FLY TIME EASY. Every gallon guaranteed. Send $1.00 for Spray Pump and half gallon can, or $1.00 for full gallon without pump. **THE BROWN CHEMICAL CO., Cleveland, Ohio.**

FLIES? **ORR'S FLY KILLER.**
No Other as Good.
1 gal. $1; 5 gal. $4; Sprayers 50c.
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WHY IT WILL PAY YOU TO BUY A FARM IN THE GREAT BLUE GRASS COUNTRY OF NORTHERN WISCONSIN.

1. The soil is rich and productive. Everywhere there is a clay subsoil to retain the moisture.
2. The climate is very uniform—neither extreme of heat or cold.
3. The seasons are regular and there is never a crop failure.
4. There is an abundance of wood for building and fuel, which need only to be cut.
5. Taxes are very low compared with other sections.
6. It is the best agricultural country known for a man of small means to get rich.
7. It is better to **own** a low-priced farm than to **owe** for a high-priced farm.
8. You can own a home in this section for what you now pay out for rent in one year.
9. Everything grown in the west can be grown on these lands.
10. There is an unsurpassed market for all farm products throughout the year.
11. Truck farming is very profitable in this section.
12. No better fruit country in the northwest. All northern varieties are wonderfully successful.
13. The best place in America to raise horses, mules, cattle, sheep and hogs.
14. The water supply is the best. The country is full of clear running streams and springs
15. Cereal crops average more bushels per acre than in other northern states. This may be said particularly as to oats, the average yield being from 60 to 80 bushels per acre.
16. Grasses and clovers for grazing or hay grow luxuriantly, far better than they do in southern Wisconsin, Iowa, Minnesota, or the Dakotas.
17. No swamps in this section—no malaria, no chills, no fever, no cyclones, no hail or destructive storms.
18. Fish and game in abundance. It is the sportman's paradise.
19. Lumbering and manufacturing interests offer ample employment at good wages whenever desired, both winter and summer.
20. Thousands of settlers are moving into northern Wisconsin, and in consequence land is increasing in value very fast.
21. The best class of people are among the settlers, which include principally Americans, Germans and Scandinavians.

DON'T PAY RENT, but come up and let us sell you a farm which will cost you but little more than the rent of a good farm in the older agriculturial districts. Not only that, but a farm that will grow in value every day. Write us to-day for full particulars concerning these lands, and arrange to look them over at the earliest possible moment. They cannot fail to interest you if you want to get a home of your own. Mention HOARD'S DAIRYMAN.

WISCONSIN BLUE GRASS LAND CO., Baldwin, Wis.

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At **ANN ARBOR** near **DETROIT, MICH.** A thorough dairy farmer with capital can learn of a handsome investment by addressing subscriber.

A 575 Acre Dairy Farm near Ann Arbor, Mich., university town, can be had at a reasonable figure. It can be made to produce from eight to ten thousand dollars worth of milk yearly, and sale for this will be assured by the present owner. The farm's equipment in the way of modern dairy barns, silos, for 100 cows, milk and ice houses, together with homestead and tenant houses is complete. For particulars inquire by mail or call at
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FOR SALE

On account of age and infirmity I will sell my farm of 204 acres four miles of Unionville, Putnam Co., Mo., sixty head of grade Jersey cows and heifers, a two horse power boiler and engine, one No. 5. U. S. Separator, one 100 gallon churn and butterworker with other dairy implements.
For particulars address
J. B. OLINGER, Unionville, Mo.



WILDER'S PATENT SWING STANCHIONS
Chain or Pin Fastened.
Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.
Safest, Strongest, Most Convenient
fastening made. Cheapest to put in and save room in barn. Send for Stanchion Catalog to
WILDER-STRONG IMPLEMENT CO., 11 Monroe, Mich.



THE NEW PATENT
Cow Stall
AND FEED TROUGH.
This is the only Cow Stall with a centering hinge. Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars.
R. A. McLERY & CO., Palmyra, Wis.

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Farm No. 1 consists of 90 acres with frontage on a fine lake where there is excellent fishing and game. This lake is one of a chain of lakes on which you can travel for twenty-three miles. Has two-story house with eight rooms. Two-story log barn. Ice house and ten acres cleared. For sale at a bargain. One mile and a half from the railroad.

Farm No. 2. One-half mile from the railroad. 100 acres or more if desired, five acres cleared. Two-story, eight room house. Glass chicken house. First-class hog pen. Plenty of timber on land for own use, and quite a quantity of saw timber. We have besides this 16000 acres of unimproved land. Heavy black soil. All lies in Central Wisconsin. Low priced Excellent markets. Will grow any kind of crop and produce immense results. Excellent water supply. Splendid markets and a local demand for everything that is raised. None of the land lies more than three miles and a half from the railroad.

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Will furnish names of people who have bought from us who have made big success. Can furnish lands in either small or large quantities. Can furnish reduced rates to see the lands. Easy terms to suit the convenience of the purchaser. As safe and desirable an investment as government bonds. Write in for maps and any information you may desire.
INTERIOR LAND CO., Janesville, Wis.

I Can Sell Your Farm

or other real estate, **no matter where it is or what it is worth.** Send description, state price, and learn my wonderfully successful plan. **W. M. OSTRANDER,**
North American Building, Philadelphia

Buy You a Ticket to CROOKSTON, MINN., and call upon

The Polk County Land & Loan Company

For choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.

360 acre farm, 4½ miles from Crookston, Minn, (a city of 7,000 inhabitants), and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 ft. square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm in under a high state of cultivation, and is well drained by a slight ravine running through the farm, merely sufficient for self drainage. The soil is a rich deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50,

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired. Price $19.00 per acre.

FOR SALE!

1 McCormick Corn Harvester. 1 McCormick Husker and Shredder. The above were used only one season. Bought of the McCormick Harvesting Machine Co. in 1902. Also 1 Kemp Manure Spreader. References Exchanged.
Address BOX G., Morristown, New Jersey.

"ADVERTISEMENT."

THE ROOT OF THE MATTER

He Cured Himself of Serious Stomach Trouble By Getting Down to First Principles

A man of large affairs in one of our prominent eastern cities by too close attention to business, too little exercise and too many club dinners, finally began to pay nature's tax, levied in the form of chronic stomach trouble; the failure of his digestion brought about a nervous irritability making it impossible to apply himself to his daily business and finally deranging the kidneys and heart.

In his own words he says: "I consulted one physician after another and each one seemed to understand my case, but all the same they each failed to bring about the return of my former digestion, appetite and vigor. For two years I went from pillar to post, from one sanitarium to another. I gave up smoking, I quit coffee and even renounced my daily glass or two of beer, but without any marked improvement.

"Friends had often advised me to try a well known proprietary medicine, Stuart's Dyspepsia Tablets and I had often perused the newspaper advertisements of the remedy but never took any stock in advertised medicines nor could believe a fifty-cent patent medicine would touch my case.

"To make a long story short I finally bought a couple of packages at the nearest drug store and took two or three tablets after each meal and occasionally a tablet between meals, when I felt any feeling of nausea or discomfort.

"I was surprised at the end of the first week to note a marked improvement in my appetite and general health and before the two packages were gone I was certain that Stuart's Dyspepsia Tablets were going to cure completely and they did not disappoint me. I can eat and sleep and enjoy my coffee and cigar and no one would suppose I had ever known the horrors of dyspepsia.

"Out of friendly curiosity I wrote to the proprietors of the remedy asking for information as to what the tablets contained and they replied that the principal ingredients were aseptic pepsin (government test), malt diastase and other natural digestives, which digest food regardless of the condition of the stomach."

The root of the matter is this, the digestive elements contained in Stuart's Dyspepsia Tablets will digest the food, give the over-worked stomach a chance to recuperate and the nerves and whole system receive the nourishment which can only come from food; stimulants and nerve tonics never give real strength, they give a fictitious strength, invariably followed by reaction. Every drop of blood, every nerve and tissue is manufactured from our daily food, and if you can insure its prompt action and complete digestion by the regular use of so good and wholesome a remedy as Stuart's Dyspepsia Tablets, you will have no need of nerve tonics and sanitariums.

Although Stuart's Dyspepsia Tablets have been in the market only a few years yet probably every druggist in the United States, Canada, and Great Britain now sells them and considers them the most popular and successful of any preparation for stomach trouble.

French Canadian Cattle.

Will you please write me how the French Canadian cattle compare with the Jersey cattle for milk and butter?

Would you think it advisable to cross a grade Jersey dairy with a thorough-bred French Canadian? G. W. K.

Delaware Co., N. Y.

We cannot answer inquiries of this character by letter, even though stamps may be enclosed for return postage, as was the case in this instance. If we should undertake to answer inquiries by letter, there would be little or no time remaining that we could devote to editorial duties proper. Hence, in undertaking to answer inquiries at all, we are governed by the presumption that the answers may be of more or less general interest to a large number of our readers. The present inquiry is a good illustration of this fact. It is fair to assume that there may be a great many readers who want to know something about the French-Canadian cattle.

The only time that these cattle have been brought into prominent public notice was at the Pan-American Exposition in 1901. It was there demonstrated that they were very economical producers of butter fat. The probabilities are that this breed originated from very early importations of Jersey cattle by the French settlers in what is now the Province of Quebec. They are of small size, and have for many generations been subjected to the somewhat scanty fare and rigorous climate of that province, and have thus acquired their distinctive breed characteristics. They are not large producers and cannot be made large producers, but they have the ability to use feed very economically indeed.

One serious popular objection to Jerseys is their medium or small size. The use of French-Canadian sires on grade Jerseys would be apt to intensify this objection. Otherwise, we see no objection to such a cross on grade cows.

Sorghum for Silage.

Have not enough ensilage corn to fill silo but have about 4 acres of cane. How would it do for ensilage? H. R.

Postville, Iowa.

We have never used sorghum (cane) for ensilage, but a goodly number of our readers have reported its use and great satisfaction therewith. Whenever it is practicable, it is better to mix the sorghum with corn as it goes into the silo, rather than have to feed at one time all corn silage, and at some other time all sorghum silage.

ILLUSTRATION

THE LIFE OF THE METAL WHEEL.



The progressive farmer values the "Low-Down" and Metal Wheels. It is only necessary to know the constantly growing demand for these wagons entire, and especially wheels made to fit the ordinary farm wagon, to judge of their value in the harvest field (when wooden wheels are going to pieces just at the busiest season); to recognize their worth in the hay field or the barn-yard, where one must "pitch up" unnecessarily high on account of high wooden wheels; or understand the value both to land and team, of a wide tire that will stay "on top", as the farmer is compelled to travel over his fields when the ground is soft. The question of price and durability is important in determining what kind of metal wheels one would purchase. The life of a metal wheel depends almost entirely on the method of fastening the spoke into the tire. Experience and practical tests have demonstrated that where they come loose is in the tire; hence the problem has been a substantial fastening of the spoke to the tire. With the plain tire the weight of the load must all fall upon the head of each spoke, tending to loosen it, and to lend a jolting motion to the vehicle. With the plain tire too, it is next to impossible to use a "rub-lock", as is often necessary in a hilly country; so working to overcome these objections, 'necessity became the mother of invention", again, and the grooved tire here illustrated, has come into the manufacture of metal wheels, making the wheel more durable, protecting the heads of the spokes, permitting the use of the rub-lock on a smooth surface and removing the jolting motion, making the most durable common-sense metal wheel that has ever yet been put on the market. The Havana Metal Wheel Co., Havana, Ill., are the exclusive manufacturers of the grooved tire wheels, and will gladly send catalogue and particulars of same, on postal card application.

Watering the Herds

WITH the fencing of the ranges has come the need for an artificial water supply upon the great stock farms of the West. That cattle may thrive and fatten for the market, it is absolutely essential that this supply be both *constant* and *abundant*. The picture shows a typical scene upon many of the largest ranches, where the **HOT AIR PUMP** is delivering its supply into the storage tank, whence it is drawn off daily as required, in any volume up to 100,000 gallons. No driving of the herds to some distant river is required, thus much expense is saved and the cattle drink quietly, as nature dictates, at an *ever ready* and *abundant* supply. Descriptive Catalogue B3 sent free on application.

Rider-Ericsson Engine Co.

35 Warren St., New York.
40 Dearborn St., Chicago.
40 N. 7th St., Philadelphia.
239 Franklin St., Boston.
692 Craig St., Montreal, P. Q.
22 Pitt St., Sydney, N. S. W.
Teniente-Rey 71, Havana, Cuba.

Remember, the Hot Air Pump is Automatic, requires no skilled attention, and is the cheapest form of constant water supply now known.



Made for the Man Who Wants the Best.

The Great Western Endless Apron Manure Spreader.



This Machine will be Exhibited in Operation on the Fair Grounds at the Wisconsin State Fair

at Milwaukee, Sept. 7 to Sept. 11, inclusive. It will be shown spreading the manure just as it does in the field. The exhibit will be in charge of experienced manure spreader men who will be thoroughly competent to explain all details and answer all questions, and will take pleasure in doing so. The president of the company, Mr. F. S. Smith, will be present all of the time and will take great pleasure in meeting and talking with the prosperous Wisconsin farmers. Don't fail to see this exhibit. It will be of more real value to you than anything you will see during the fair.

REMEMBER The Great Western is the only Endless Apron Manure Spreader. You will realize how much this means when you see it in operation. Should you be unable to attend the fair, write for large illustrated catalogue. It fully illustrates and describes the machine. Mailed free.

SMITH MANURE SPREADER CO., 59 N. JEFFERSON ST., CHICAGO, ILL.



WIND MILL

$1000 Reward

REVOLUTIONIZES WIND POWER.

2-14ft. Wheels.
10 horse power

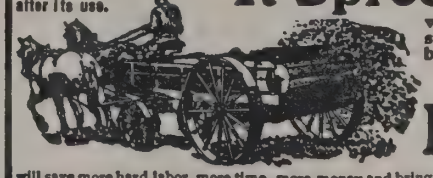
All the power you need for $1.00 per MONTH.

Address
Double Power Mill Co.,
Appleton, Wisconsin

It pays for itself on the first crop grown after its use.

It Spreads Manure,

wet, dry, lumpy, caked, strawy, full of corn stalks, etc., better than it can possibly be done by hand. Spreads lime, ashes, salt, compost, etc.



THE IMPROVED

Kemp Manure Spreader

will save more hard labor, more time, more money and bring about better results than any other machine that can be employed on the farm. It trebles the value of even a small amount of manure. It is the only thing that can successfully top dress wheat in the spring, meadow lands, pastures, etc. Can be hauled onto any land easily and without injury to land, as wheels have broad tires. Can be turned on the ground it stands on, as front wheels turn entirely under. It is strong and durably made of good material and with ordinary care will last indefinitely. Greatly improved for 1903. Send for new illustrated catalogue and "How to Grow Big Crops"—Free. Remember that the only original and genuine Kemp Manure Spreader is made by us and the patents thereon have been fully sustained by a recent decision of the U. S. Circuit Court.

KEMP & BURPEE MANUFACTURING CO., BOX 46, SYRACUSE, N. Y.

DON'T BREAK YOUR BACK washing clothes 52 times a year. Get a "1900" washer and save labor, time and money. You need not send a cent or pay freight. It is sent absolutely free, freight prepaid on 30 days trial. A word to the wise is sufficient. Write at once to "1900" Washer Co., 219A State St., Binghamton, N. Y.



5 TON WAGON SCALE $35.00
SENT ON TRIAL FREE.
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AMERICAN SCALE COMPANY
519 MASS. BLDG. KANSAS CITY, MO.



5 LBS. PER DAY IS AN EXTRAORDINARY GAIN

ROCKPORT, KANSAS, Nov. 21, 1902.

International Stock Food Co., Minneapolis, Minn.

DEAR SIRS:—Your **"International Stock Food"** is all you claim for it. We have the nicest pigs and hogs that we ever had. Tested it on one old sow that was very poor from suckling pigs. She could hardly make a shadow. We took the pigs away and fed her **"International Stock Food"** in her feed and I do really believe that she put on 5 pounds of flesh per day. Yours truly, M. C. JERBY.

☞We Have Thousands of Similar Testimonials and Will Pay You $1000 Cash to Prove That They Are Not Genuine and Unsolicited.☜

We own "International Stock Food Farm," which is located 12 miles from Minneapolis and contains 650 acres. We feed "International Stock Food" every day to all of our WORLD CHAMPION STALLIONS, DAN PATCH 1:59 1/4 and DIRECTUM 2:05 1/4; to our YOUNG STALLIONS, BROOD MARES, COLTS, WORK HORSES, CATTLE and HOGS. "INTERNATIONAL STOCK FOOD" ☞ 3 FEEDS FOR ONE CENT ☜ is Prepared from Roots, Herbs, Seeds, and Barks and Won the Highest Medal at Paris Exposition in 1900 as a High-Class vegetable, medicinal preparation to be fed to stock in small amounts as an addition to the regular feed. It is a Great Aid in Growing or Fattening stock because it increases the appetite and Aids Digestion and Assimilation so that each animal obtains more nutrition from the grain eaten. We positively guarantee that its use will make you extra money over the usual Plan of Growing and Fattening stock. "International Stock Food" can be fed in safety to Horses, Cattle, Sheep, Goats, Hogs, Colts, Calves, Lambs or Pigs. It is Absolutely Harmless even if taken into the Human System. You insist on eating medicinal ingredients with your Own food at every meal. Salt is a stomach tonic and worm medicine, Pepper is a powerful stimulating tonic, Mustard is a remedy for dyspepsia, Vinegar is a diuretic. You eat these medicinal ingredients almost with every mouthful of your food, and it is proven that these medicines promote health and strength for people and improve their digestion. "International Stock Food" contains pure vegetable medicinal ingredients that are just as safe and as necessary an addition to the regular feed of your stock if you desire to keep them in the best possible condition. "International Stock Food" is endorsed by Every High-Class Farm Paper. It purifies the blood, stimulates and permanently strengthens the entire system so that disease is prevented or cured. "International Stock Food" is sold on a "Spot Cash Guarantee" by Fifty Thousand Dealers throughout the World. ☞Your Money will be Promptly Refunded in Any case of failure. It will make your Calves or Pigs grow Amazingly and has the largest sale in the World for keeping them healthy. ☞Beware of the many Cheap and Inferior Imitations! No Chemist can separate all the Different powdered Roots, Herbs, Barks and Seeds that we use. Any One claiming to do so Must be an Ignoramus or a Falsifier.

WHAT PEOPLE SAY ABOUT THIS BOOK.

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Dear Sirs:—I received your "International Stock Book" and was more than pleased with it. It is worth more than $10.00 to me. Very truly yours, RICHARD J. MORRISSEY.

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Dear Sirs:—Your "International Stock Book" duly received, and it is the best thing of its class that I have ever seen. There is a volume of useful articles in it from start to finish. Respectfully, GEO. W. NULL.

A $3000.00 STOCK BOOK FREE

IT CONTAINS 183 LARGE ENGRAVINGS OF HORSES, CATTLE, SHEEP, POULTRY, ETC.

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We Employ Over 300 People and have Hundreds of Thousands of Testimonials. Refer to Any Bank in Minneapolis.

INTERNATIONAL STOCK FOOD CO., Minneapolis, Minn., U. S. A.

Largest Stock Food Factory in the World. Capital Paid in, $1,000,000. 600,000 Feet of Space in Our New Factory.

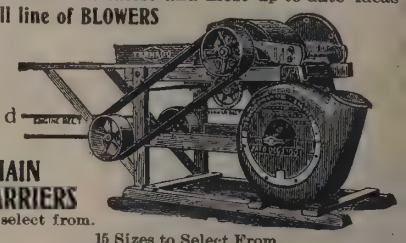
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TORNADO ENSILAGE MACHINERY

Embodies the latest and most up-to-date ideas

Full line of BLOWERS



and CHAIN CARRIERS to select from.

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Ensilage Cutters, Ensilage and Stalk Shredders, Blowers and Chain Carriers, Tread Powers, Sweep Powers, Threshing Machines, Circular and Drag Saw Frames, Etc.

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SAVE THE WHOLE CORN CROP

A corn crop may be profitable without saving the fodder, but it will be twice as profitable if it is saved. The new method of handling corn saves the entire crop. The new way is to run all the corn through



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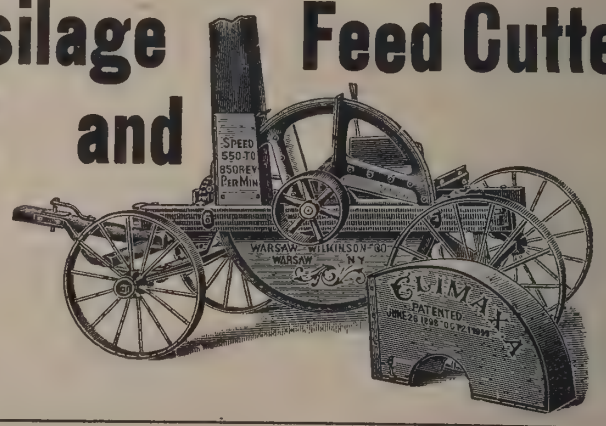
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Best made. It husks all the corn and shreds the fodder into "corn hay." Corn hay is the equal in feeding value of best timothy hay. Ask your dealer or write us for Husker Catalog.

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CLIMAX

Ensilage and Feed Cutters.



"THE COMPLETE MACHINE"

CLIMAX machines are original. They are not made over from old models, in an attempt to turn them into blowers, by adding a number of chains, belts, or other attachments. They are made to elevate by wind delivery, and every part is built with this end in view. They are sold under an absolute guarantee to do the work, and **never** fail.

CLIMAX machines passed the experimental stage eight years ago. It has never been necessary to change any essential feature of the original pattern. We are still using the straight knives, with the shearing, inward cut; the elevating is still done with the same wheel as the cutting, requiring less power; the smooth reversing gear, which is positive and cannot break; the large feeding rollers, which won't choke, and the knife adjustment, which sets every knife at once and sets them **true.** All these have stood the test and cannot be had with any other machine.

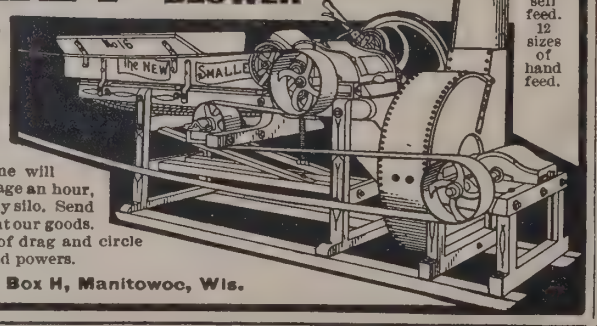
The combination of simplicity, great strength, large capacity and few wearing parts, places the **CLIMAX** in the very front rank. When you have a binding guarantee as well, there should be no doubt regarding the machine. Catalogue for the asking.

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SMALLEY SAFETY BLOWER

Only One Belt Required.

No lost power. No danger in operation. Belt cannot slip. Every part strong and of best material. No more strain on the *Smalley* machine when Blower is attached than with the ordinary carrier. Largest size machine will easily handle ten tons of ensilage an hour, cut 1/2 inch and elevate into any silo. Send for 1903 catalogue, tells all about our goods. We also make complete line of drag and circle saw machines, sweep and tread powers.

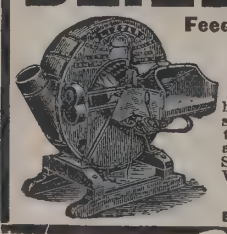


6 sizes self feed. 12 sizes of hand feed.

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BLIZZARD

Feed and Ensilage **Cutter**



Does everything, cuts hay, straw, ensilage, shreds fodder and fills the silo to any height; all done by one machine. Sold on full guarantee. Write for catalogue.

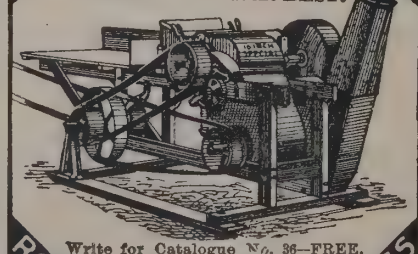
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ALL SIZES—Known as the BEST.

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SAW MILLS, 4 H. P. cuts 2,000 feet per day—All Sizes—Planers. Shingle Mills and Edgers with Patent Variable Friction Feed-Portable Grinding Mills. Water Wheels, Lath Mills, etc. Send for large Catalogue. Freight don't count.

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$3 a Day Sure Send us your address and we will show you how to make $3 a day absolutely sure; we furnish the work and teach you free, you work in the locality where you live. Send us your address and we will explain the business fully, remember we guarantee a clear profit of $3 for every day's work, absolutely sure. Write at once.

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is without question the engine for the farm or country residence. Pumps more water than any ram and does it without attention. Never stops. It pumps 30 ft. high for every foot of fall.

Sold on 30 Days' Trial.

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Steel Water Tanks

for stock, storage, dipping, wagons, etc., of shapes and capacities to meet every farm need. Best line galvanized ware made, including roofings and sidings, eaves troughs, conductors, ridge capping, etc. Sold by prominent dealers everywhere. When you buy insist on getting the "Gedge" or "Anderson" brand. If not there write us. We'll see you supplied.

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VOLUME XXXIV. FORT ATKINSON, WIS., SEPTEMBER 11, 1903. NUMBER 31

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REFERENCE:—Any bank or wholesale house.

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs**
Liberal Advancements Made on Consignments.
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ASK YOUR DEALER IN DAIRY SUPPLIES FOR
CHR. HANSEN'S LACTIC FERMENT
To Ripen your cream, ensuring
Perfect Flavor, Uniformity and Keeping Qualities in your Butter.
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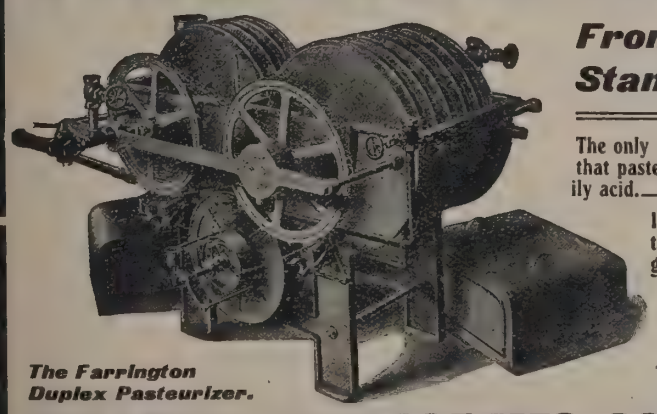
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Medals—Bronze 1878 Silver, 1887, World's Fair, 1893.

Get the Best Milk Cooler AND AERATOR.

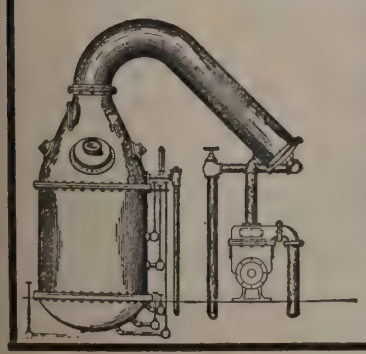


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EASIEST TO CLEAN.
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Ask for our new Thirtieth Annual Catalogue of Dairy Apparatus and Supplies.
OAKES & BURGER, Cattaraugus, N. Y.

A SUCCESSFUL PASTEURIZER



From Every Standpoint.
The only Pasteurizer made that pasteurizes milk heavily acid.
It makes good Butter—that makes good business.
Your Butter will score 8 points higher.
The Farrington Duplex Pasteurizer.
Write to the
CREAMERY PACKAGE MFG. COMPANY
BRANCH HOUSES: Kansas City, Mo. Minneapolis, Minn. St. Louis, Mo Waterloo, Ia.
Canadian Branch: Cowansville, Quebec.
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Chicago, Ill., U. S. A.



Milk Condensing Machine I supply the most improved machinery and most successful processes for manufacturing all classes of condensed milk and evaporated cream. Factories built complete, put in operation and results guaranteed. If you are interested write for my new illustrated and descriptive catalogue. The only catalogue ever published on the subject.
R. R. ROGERS, Winthrop, Maine.
(Formerly of Detroit, Mich.)
I am not associated with any person, firm or company.

Convenient Separators

No dairyman or farmer wants a complicated—hard to use—hard to care for machine about the farm. Such machines are not convenient—not sufficiently simple and easy to operate.

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ED.—HOARD'S DAIRYMAN:—On page 549, you speak of feeding "blood meal" to young calves and pigs. How much do you give at a feed, and how old are they when you begin? Do you cook or steam it?

Is this blood meal the same as the fine black meal sold by grain dealers, for feeding poultry, called animal meal, a product of the slaughter houses?

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Transfers of Guernsey Cattle.

BULL.

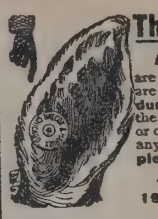
Bobs of Eastview 7517, E. Riggbrow to H. W. Corning, Yarmouth, N. S.
Cornata's Cheif 8319, Fred Clausing to Daemarich Bros., Pittsville, Wis.
Dandy Chimes 8388, Ezra Michener to Mary Elleu Bisson, Solebury, Pa.
Duke of Canton 8801, B. F. Nutting to Frank Tupper, Canton, N. Y.
Gough 8790, C. A. Griscom to B. F. Clide, Bryn Mawr, Pa.
Golden Ben of Paxtang 8792, Miss I. S. Wilhelm to C. B. Codreau, West Chester, Pa.
Harwick Senator 8821, George Mixter to Dr. H. F. Sears, Topsfield, Mass.
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Reiber's Prince 8806, Howard Reiber to Dr. W. T. Phillipy, Carlisle, Pa.
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Titian's Beauty 8074. Fred Clausing to Jacob Bauernfeind, Milwaukee, Wis.
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Yellow Butternut 8803, H. D. Griswold to Dederic Wehrs, Burn, Wis.

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Blue Blood's Elite of Lewiston 16452, Paxtang's Beauty of Lewiston 16454, Paxtang's Hermosa of Lewiston 16453, Alfred G. Lewis to Stephen Walker, Buffalo, N. Y.
Calista of Whitehall 14432, Gurexa 10008, H. A. & A. S. Bartholomew to A. S. Bartholomew, Whitehall, N. Y.
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Patience of Baltimore 2nd 16451, Louis McLane to S. M. Shoemaker, Stevenson, Md.
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Sweet Eva Lena 11229, Howard Reiber to Henry Tippery, Callensburg, Pa.

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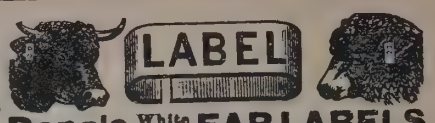
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Note and Comment.

Putting Doors in a Wooden Hooped Silo—Preserving Milk in Ohio-Cheese Troubles in Canada—The Producer and the City Milk Dealer.

ED. HOARD'S DAIRYMAN: — "Yours Very truly" seems to be fated to be misunderstood, and the wooden hoop business is apparently a case of his undoing. H. E. T., of Mich, askes me to tell him just how he can put doors in a wooden hooped silo, when it has double boarding. Well, never mind the out siding. Make the outside man-hole 8 inches wider than the inside one. Have the inside man-hole 20 inches wide, and reach from hoop to hoop. In other words when you ceil up, stop when you get within 20 inches from where you started. That will make a continuous barred door with the hoops. Take some 2x4 inch stuff, and cut them just long enough to go in flatwise between two hoops, one on each side of the man-hole, push them in so that the man-hole will be only 18 inches wide. Toe-nail them at top, and bottom to the hoops, and nail the edges of the lining of the silo to these perpendicular 2x4's and you have a door-way with side jambs.

Make a door to fit this hole, long enough to reach from the center of one hoop, to the center of the one above; the hoops making the cross jambs of the door. When you fill the silo, hang a strip of tarred paper over the door-way on the inside, covering the doors, and out onto the sides a few inches, and you have a man-hole door in place and air tight. For the outside, make, or not as you wish, a door without turn hinges. Do not close up the space between the 2x4's and the out siding leaving this space 1x16 inches for a ventilator. Is this clear neighbor?

Since my last, two things have broken loose in dairy circles. The state commissioner has picked up a whole lot of milk venders who have been aiding their milk to keep sweet longer than Prof. Babcock's enzymes dictate, and they have found that Horace Ankeney "do live;" and have been paying into the public treasury, each, $100 and costs; and along with them not a few hotel and restaurant keepers who have forgotten to place conspicuously the 18-inch square sign, "oleo used here," pink, straw or natural color, a thing the most of them have forgotten to do. In fact, there has never before been any necessity for the bogus fellows to observe anything but paying the express charges on their Chicago butter (?) and claiming that it was made on order by Deacon Silas Cummin' up t' Bass Lake. It is now announced that order is to come out of our long night of official darkness, and we are to find out if we can how it is that we have lost $5 a head on all of our cattle, when increasing sales (?) prove that the people are preferring white oleo to the best butter. That beats the separator advertisements.

Reference to Bro. Wheaton's letter in the DAIRYMAN breaks me all up, and I fear that the bad flavors that are so troubling the Government over there, will lead to a state of affairs that exists in the States, being compelled to eat one's own cheese, and have it come to more than if exported. We had supposed that carrying whey home in the milk cans was an obsolete practice in the province, but that 81 out of 82 still cling to this practice, explains why the Dominion Government has to build cheese refrigerators, and freeze cheese solid before they can be exported. Possibly, if the patrons were to deliver frozen milk, the makers would find as Mr. Wheaton says, "that milk at this low temperature will withstand the growth of many of these lower forms of life which cause bad flavors in milk." Over here, all these troubles are easy to locate, as they are directly charged to Mark Hanna, the Tariff, or Imperialism. It would seem with four syndicates, besides Dan Derbyshire and A. McLaren, that bad flavors might be kept out of Ontario, and the old time prestige of the cheese industry regained. Better annex the American idea of making cheese so good that it will be eaten at home, and Wheaton's next letter will be as bright as as an X-ray.

A big effort is to be made early in September by the milk farmers about Cleveland to co-operate for once, and see if something like a fair price cannot be had for milk the coming winter,—18 cents for an 8½ lb. gallon. It is said that the dealers concede 17, but some one has figured out that it costs 13½ cents to produce a gallon of milk, and that the farmer ought to have as much profit on his gallon sold, as the peddler on his quart. Feeds are up, and wages too, and the only way that the farmer sees to get his share of the 8-cents-a-quart milk, is for once to "hang together" and demand fair prices, for it seems none of the city dealers are afraid of a plethora of riches, or a disposition to bestow any great amount of their goods upon the poor.

Most of the city dealers have not returned yet from their summer outing in Europe, so the day of the meeting to settle prices will be held Sept. 4th. One thing the farmers should insist upon, and that is, that the city dealer should be licensed, and his rig tagged; dirty, impure, doctored and low grade milk should be made a matter of instant confiscation, and throwing into the sewer; and milk depot venders, hotel and eating house keepers should come under the inspector's law, and stop this skim-milk-for-coffee side play; and the milk sold shall be pure, clean, up to standard, from cow to final consumer. There is a lot of horse play going on, which the "old hayseed' gets the blame for, and if there is no remedy, stop the shipments. "Oh," says one, "what shall we do with our milk?"

Yesterday, I attended a farmers' meeting, and the milk situation came up as a side, behind-your-hand conversation, and this is the sum of it: "If we can't get fair prices, let us build a creamery near the shipping station, run it ourselves, as a body. If they buy our milk, buy it of the farmers' company, and deal with it, and not as single patrons. If they won't pay good prices make it into butter and cheese, and still deal company as against company."

What is the matter with that proposition? Up in Lewis Co., New York, I found some of these co-operative concerns, with nice little creameries built at a railroad station, and yet not one of them had ever been run, but they were kept ready to run, at an hour's notice, whenever the great New York syndicate attempted to put milk down below a living rate. Of course the interest on such a plant is $150 per year, but a cent on a gallon for 15,000 lbs. of milk means $1.50 a day, and that alone soon returns the interest lost.

It is somewhat natural for the dairyman to count his business connections as an abounding source of woes, and may be he does have low prices, and some poor cows, and is not allowed to skim, water, or doctor his milk, before *he* sells it; but his only way out, is to co-operate in a way that he can make himself felt, and have two strings to his bow; then he can catch the city dealer either going or coming, and if he is honest himself and does not demand the earth, it looks as if he could hold his own, and live uprightly.

Ohio. JOHN GOULD.



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The Season and the Schools.

ED. HOARD'S DAIRYMAN: — It is sometime since I sharpened my pencil to write for your valuable pages, although I have read them weekly. We have experienced a very peculiar season in this section, but it has worked out well in the end. Last April when the snow left us, we found grass and pasture had wintered well, and every indication was favorable for a large hay crop. The ground pulverized up well, and oats were gotten in in good shape early in April, and farmers were hopeful.

We had all read of a rain that lasted 40 days and 40 nights, but 40 days and 40 nights without rain enough to spoil a new spring bonnet in May and June, was something entirely new to us. Pastures and meadows lost their verdure and turned gray. Oats and corn failed to germinate and conditions did indeed look serious, and the nervous, pessimistic farmer was ready to throw up the job. The first sprinkle of rain came the 8th of June and from that on we had no lack of moisture, and the complexion of all nature changed, with the result that we have harvested the largest hay crop and of the best quality we have had in years. We are harvesting more than an average crop of oats, and potatoes are immense although not a very large acreage as cut seed failed to come up well, and some soils dried so hard it was impossible to plow and cultivate.

All crops have been about three weeks late, and corn, where it has a good stand, is looking fine and gives promise of an immense crop, but we must have a favorable September and we hope for it, and we sometimes get it. We have corn that was planted the 14th of June that will harvest a mature crop with fair weather, without frost by September 20. The insect pest, potato bugs, grasshoppers and also cattle flies have been a very light crop. The foliage on trees never looked richer than it has this season, with no visible worm or insect enemy. Dairies have produced large quantities of milk.

Our dairy, with ample pasture of a variety of grasses—mostly blue grass and white clover—gave us the lowest test for the month of July, at the creamery, we have ever had. They tested one per cent lower than last November. We don't know whether it is the dairy, or the Babcock tester, or the man behind the bottles. We can see no reason for it. No change in the dairy except the addition of six heifers that freshened in February and May. I don't like to be hasty in judgment, but it looked as though some one had blundered.

I notice in your issue of Aug. 21, our friend, John Gould, of Ohio, speaks of the great advantages of the centralized schools. They may be all right in Ohio, but in this locality they have their disadvantages, especially for the primary classes. We have here in Sandy Hill a high school that is rated second to none in the state, with an attendance of nearly 800 scholars. There are usually about 75 that drive in from the country. Every June time when the graduating class lines up, more than one-half of the graduates are from those few that come in from the country, which fact leads me to believe that the little red school house on the cross roads is a pretty good place for a primary commencement. In some localities here they are discontinuing their district schools and in many cases to the detriment of the community.

In some instances they leave large families of children three or four miles from school with no way of getting there except to walk. Sometimes a conveyance is furnished, commonly called the "kid wagon." I followed one of those conveyances a couple of miles last fall, which perhaps was as good as the driver could afford to furnish for the pay he was getting. He was driving an old skate of a hungry looking team hooked to an old canvass covered wagon nearly destitute of robes or blankets, crowded in with a lot of big, rough boys. The moral atmosphere of that wagon for a little girl 8 to 12 years old, was just about equal to that of a concert hall on the Bowery, beside being cold and uncomfortable.

We see boys starting in here from the country, their pants reaching near their ankles and their neckties climbing over their collars, and called buckwheats by the village boys. They enter a class outnumbering them nearly 10 to 1, and are quite apt to come in at the finish the valedictorian of the class. We don't claim lack of ability in the village boys, but the fact goes to show that the little red school house is a good primary.

Sandy Hill, N. Y. FRANK SHELDON.

Purifying the Cream.

During the last three years, considerable effort has been made to find a means by which the odor and taste of wild onion and bitter weed may be removed from milk and cream. In the spring of 1901, the writer was requested to try a patent compound claimed to remove all kinds of weedy taste from milk, but it proved to be an absolute failure. Cooking soda (saleratus) was also given a like trial, but failed of the purpose claimed for it by some people. Having failed so far to find anything that when fed to the cows would remove weedy taste in the milk, the next step was treating the milk and cream. Bitter weed taste was removed entirely from cream by thoroughly mixing it with two or more parts of water at any temperature above 70 degrees Fahrenheit, and then running the whole through the separator. Saltpetre dissolved in water was tried as an aid in removing the bitterness, but as good results were secured without it as with it. Rapidly and slowly heating milk and cream to various high temperatures did not remove bitterness, but often imparted a cooked taste. Butter made from washed cream (as above) was pronounced free of all bitterness by the station customers. Butter made from unwashed cream was decidedly bad and was often rejected by the customers. No means were found to remove the bitter weed taste from whole milk. In the spring of 1902 milk and cream were treated for the wild onion flavor the same as in the previons year for the bitter weed taste.

Alabama Ag'l Exp. Station.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

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Turpentine for Lump Jaw - - - 703

WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons or the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own ight who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

THE *Grass Lake* (Mich.) *News* made mention last year of one of its subscribers, Mr. Dudley Vosburg, who had been a patron of the local creamery as well as of the condensed milk factory. Being of a figuring turn of mind, and withal a reading man, he kept track of all the values involved in both ways of disposing of his milk. Rightly enough Mr. Vosburg figured that he could not part with the skim milk without serious loss to the growth of young animals on his farm, and that would bring a loss of fertility. His idea of farming is that he must pursue that method that will bring him the largest amount of manure. For that reason he keeps a large amount of young stock constantly growing. Mr. Vosburg's conclusions are that he cannot afford, either in point of direct cash revenue or for the benefit of his farm, to forego the use of his skim milk.

A JUST DISTINCTION.

All sorts of men keep ,cows the same as all sorts of men practice law or medicine, or edit newspapers. In every business there is a thinking, reading, studying class, who really set the pace for the rest to trot by. These thoughts are evoked by the following observation, made by a friend in Pennsylvania who sends us a list of names of dairy farmers in his vicinity. He says:

"I have given the names of those most interested in papers that aid in educating them in the work in which they are engaged."

Some men are interested in anything which will aid them in obtaining a better understanding of their work.

Others care nothing for such an understanding. They look on their work from the lowest level, and consequently what they get out of their work, whether it be money, or the respect of men, is of the least possible account. Every man's estimate of his work depends on the width of his horizon. A man at the bottom of a cellar cannot see half as far or half as much, as if he stood on the house top. Some men want every aid to their vision and standpoint they can get; others, and by far the largest number, don't see much, nor do they want to. Every man should ask himself the question: To which class do I belong?

THE RELATION OF SCIENTIFIC INVESTIGATION TO FARM PRACTICE.

The reading of the interesting article written by Mr. C. L. Gates, on page 674, in last week's issue of the DAIRYMAN, brings up a train of thought. The farmer who has never given his mind any exercise in the direction of accurate scientific investigation, will ask the question: What is the good of all such work? As a rule, farmers are not disposed to take very kindly to fine spun, scientific theories. But this view is erroneous. The object of the scientific student is not to make money; it is to find accurately just what are the laws that govern any of the processes of nature.

Before men can take full advantage of any of those processes they must be exhaustively studied, every ray of light followed out and a complete understanding had of all the laws and principles that govern their action.

This has been the case with the steam engine and all other mechanical devices; with electricity, with hydraulics, with the study of the laws of light, heat and all forms of potential energy. So it is with the laws that govern the action of health and disease. The first step to be taken is to thoroughly understand the governing principles; next by invention to make use of these forces for the benefit of man. The effort of Prof. Armsby to exhaustively study from the scientific standpoint, what is the total fuel value of the food which is to drive the machinery of the body of the steer, is not mere theory as some men call it. Indeed, there is no theory about it. It is an exhaustive study of the facts of digestion, and just what is the waste through the bowels, the urine, the skin and the breath.

When once those facts are clearly established, the practical man who is intelligent can take advantage of the road which has thus been surveyed out, and make it conducive to his profit. Prof. Armsby is studying out the *why* so the practical feeder can more perfectly know *how* to proceed. It would be greatly to our advantage as farmers if we were better educated so we could have more and larger intellectual understanding of the meaning of science and its application to the uses of agriculture.

THE VALUE OF A RIGHT IDEA OF THINGS.

A quaint old Yankee in New York, when we were boys, used to have the habit of saying: "It is mighty important to have the right idea of things to start with." One day a young bull tackled the old man in his barnyard. Uncle Sam grabbed the bull by the tail and gave him a severe lashing with a black-snake whip, which he happened to have in his hand. His bullship soon gave up the fight and was glad enough to get away. Uncle Sam said very quitely: "He's sort 'o young and foolish: you see he didn't have the right idea of me an' other things to start wirh."

The corn crop is three weeks late in the west, and there are hosts of dairy farmers who wish now they had a silo to put a good portion of their crop in, for in that way they could secure the full value of both ear and stalk, as feed for their cows next winter. They have not had the right idea of this matter to start with.

Three patrons of the Hoard Creameries were talking on the street corner, in Fort Atkinson the other day. They all agreed that they made a big mistake a few years ago when they quit keeping a good registered dairy bull at the head of their herds. Said one: "My heifers are not worth half as much for milk as those I used to raise ten years ago from a Jersey bull. I paid $80 for him, and I wish I had him back again." Said another: 'This idea of trying to put both beef and milk into the same animal is a humbug. I thought my Guernsey grade cows were not quite large enongh, and so I bought a Short-horn bull and the cows he brought me, don't begin to bring as much money as their mothers did."

You see he bred downwards, and not upwards; away from the pail and churn and not towards them; wrong ideas of dairy breeding to start with.

Said the third: "If I had known as much then as I do now, I would have built a good barn and a silo ten years ago when lumber was cheap. I had the money, but I hated to call it in from where it was loaned at six per cent, and now I dread to start building because everything is so high."

This man has lost the use of a good barn and silo for ten years, which would have paid three times six per cent. And he did not have the right idea of things to start with.

These three men are typical of a great host of men who are keeping cows. They are constantly at cross-purpose with the right idea of dairy management. The right start in everything is a right idea of what we want to do. A neighbor, who had fought the idea of a silo for fifteen years, sent his boy to the Short Course one winter, at the Wisconsin Agricultural College. The boy came home and stirred the father up to build a silo. Now he says he don't see how he ever got along without one. Lots of men are as afraid as death of a new idea. Some men make progress in ideas and the doing of things backward, the same as does a cat that is is pulled by the tail. It is better, cheaper, and much more profitable to keep our face to the front.

It is the character and quality of our ideas of our work that tells the story for or against us. Bad luck generally comes from adopting a wrong idea, or using a wrong method. But the great point for every man, whatever his occupation may be, is to carry constantly with him the thought that he and he alone is responsible for the ideas he has.

Every man must be his own school master. He must direct his own mind. If he refuses to make provision for himself whereby he can secure a supply of good ideas, then he is to blame.

Too many of us feed our hogs to the verge of cholera, and starve our minds. We must have contact with ideas if we expect to secure them. We must come near to the fire if we expect to be warmed. Again we are reminded of the old proverb: "As a man thinketh (has ideas), so is he."

FLAVOR AND AROMA.

That very excellent little work "Elements of Dairying" by Prof. James Long, England, contains the following interesting chapter on "Flavor and Aroma" in butter:

"According to Storch, whose investigations have been very extensive, the flavor of butter is derived from the serum, not from the fat of milk or cream. Butter produced from first skimmed cream which has been churned while still sweet, is deficient in that fine flavor which is characteristic of butter of the highest type. On the other hand, it retains the mild, delicate flavor of the cream. The wealthier of the French consumers prefer butter of this kind. It is made in comparatively small quantities, but it is imitated to an enormous extent by the aid of almost tasteless fat of another kind, with which butter of fuller flavor is blended.

The flavor of good butter is improved by the addition of a small quantuty of very fine, dry salt. The addition of salt if preferable after the butter has been partially worked. Brining, excellent as the practice is, cannot take the place of dry salting, so far as it contributes to the improvement of flavor.

Flavor is also affected by the food given the cow. Where the milk is *properly managed*, complaints are never made when cows are fed on good grass or hay.

Under stall feeding, excessive quantities of roots, sour grains, rape, or cabbage, deteriorate flavor. Sour ensilage and fermented foods of all kinds are also untrustworthy in a butter dairy. Among the best suitable foods for addition to hay and grass are bran, cotton cake, oats, pea meal and malt culms.

The aroma of butter is no guide to its keeping quality, however agreeable it may be on the palate. It changes rapidly in newly-made butter, which is exposed to light or air. This fact will be observed if a test is made at the end of twenty-four hours.

As with flavor, the aroma of good butter, insipid immediately it has been made, requires time to develop. For this reason among others, the practice of judging butter direct from the churn is incorrect.

Duclaux thinks that aroma may proceed from the products of the ferments in the cream, or "perhaps to some traces of caproic or butyric ether, formed at the expense of small quantities of these acids, which are present in all butters in a free state."

In another place Prof. Long says that butter which is almost white, is inferior in flavor to that which is rich in natural color. In England the owners of Guernsey cattle make the claim that the butter from their milk is of superior flavor, owing to its high color. Here is a field for investigation by some of our experiment stations.

ABORTION.

This is a subject of constant and almost supreme interest to every owner of a dairy herd. HOARD'S DAIRYMAN is always on the lookout for the best and latest information that will instruct its readers on this important question. In the *New York Tribune Farmer* of May 28th a subscriber describes his troubles with this disease and asks Dr. Smead, the veterinary editor, to give him some advice. The Doctor writes so well and intelligently on the subject that we place his answer before our readers.

Answer: The question you ask is of such general importance that, although much has been already written and gone into print in regard to it, I will, at the risk of repeating some things already said, give in a general way some things that cattle owners must take into consideration when the trouble you ask about breaks out in a herd.

First—They must bear in mind that the cows of today, whether they have been bred for beef or milk production—either one, I care not which—have been so treated as to weaken the reproductive organs; and cattle that are highly bred—perhaps inbred to some extent, to establish so-called types—are bred with uterine weakness. As an illustration of this: A cow with an inbred tendency to lay on flesh is quite likely to have from calf-hood a uterus more or less dwarfed by fatty tissue; while one bred with an udder development sufficient to feed two or more calves is usually found with her reproductive organs lacking in nerve tone and vitality; and many of them, in middle life, become sterile or abort from uterine weakness

Second—The cow has a sympathetic nervous system, even as man has; and is just as subject to the effects of shock as humans are. A sudden fright of a pregnant human female will sometimes produce a miscarriage. A pregnant human female who witnesses a childbirth will, if of a highly nervous temperament be liable to a miscarriage. This is a known fact among physicians. Hence it is never safe to have them present. Now, let us apply a little of this reasoning right to the cow; or, rather, herd of cows.

One of them from some cause aborts. She is allowed to remain right in the herd with the other cows, and the result is that others abort from sympathy alone. This is one cause, then, that can be remedied by taking the aborting one from the herd and keeping her away as long as the placenta is retained and until other substances or fluids are got rid of. When a cow prematurely gives birth the placenta generally is retained and becomes more or less putrid. Some of the germs of putridity remain as a rule, and if she becomes pregnant again the membranes become diseased, and the result is another abortion. This is not sympathetic, but genuine germ abortion, and the bull that served her may have become infected and may carry the germs to other cows.

We thus see that we have two forms

abortion; yet both need treating on exactly the same lines. First, isolation of the aborting cow and quarantining her; second, the treating of her to prevent the germ that will develop and prove an infection in the herd. Take the first cow that aborts immediately from the herd. Procure a cattle syringe and daily irrigate the vagina and uterus with some germicide. Perhaps there is no better one than one made by mixing a tablespoonful of Creolin or the Jenner disinfecting fluid in three pints of warm water. Continue this until all uterine fluids cease, and then the cow will be liable to get in calf again and carry it full time, if properly cared for, and the disease is headed off in the herd.

Some are saying that it is heifers that have never been milked that are aborting. There are two general causes for this right along the lines already spoken of. The breeders of beef cattle have the habit of allowing the calves to run with cows or feed them excessively on fattening food, and the result is that they grow up with a dwarfed uterus or immature ones. They are sterile; or if they get in calf cannot carry it. One aborts; then the trouble begins. The breeders of dairy breeds are so afraid of milk and fattening foods that they raise the calves with a general weak vitality, and the uterus being the weakest organ in their body by inheritance, abortion follows from a trivial cause. Now, the prevention in these cases lies in the beef men rearing their calves on growing rations, and not fatten them from birth; and the milk or dairy cattle breeders not being so stingy of milk when their calves are young. Give them milk according to their needs, and oats and wheat bran. Grow them strong vitally, and then don't be afraid of oats and bran to keep them up until they become mothers. Also, give them exercise. I have not wondered, many a time, that heifers aborted when I have visited cattle raisers' barns and found calves shut up in dark, filthy pens, with corn meal to help themselves to; or else fed on a lot of wishwashy stuff, so that more milk could be sent to the factory. Feed the heifers well and give them exercise, and be sure it is a growing ration that you feed, and there will be far less abortion among them.

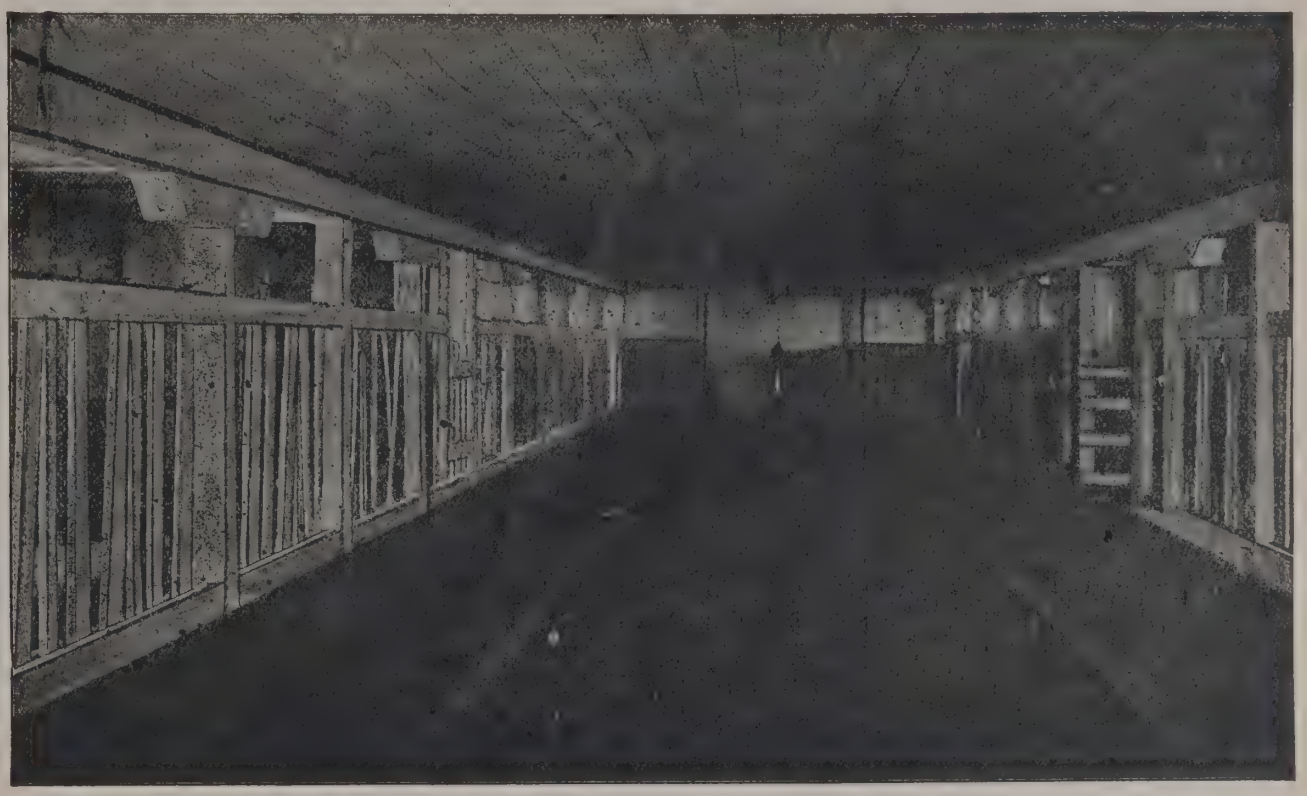
Thus, the whole treatment of abortion becomes one of food first; second, care in separating when one by chance aborts; and, third, the proper use of germicides and disinfectants. Just a word on that. When a calf is dropped in the stable or in the field, always take it entirely away from where any cow can see or smell it. Don't leave it in the field for cows to smell of, or throw it out on the manure heap; but dispose of it by burying or burning. Then, use the disinfectant spoken of on the place where it was dropped. Abortion can be prevented in the manner mentioned and headed off, but it means action, and immediate action, on the part of the one in charge of the herd. In short, no dilly-dally work will ever head it off. Neither will some man's powder or liquid to be put in salt or feed ever stop it.

This, in brief, is a general line to follow, when it appears. Stamping it out never will be done. It is here, and here to stay as long as we continue to breed good cattle for either beef or milk. The tree that produces the fruit, whether it be apple, pear, peach or plum, needs to be sprayed, and the animal that grows up to meet man's needs must be cared for and treated right on the same lines as that fruit tree. It must be made to grow. Then, when a germ attacks it, it must be treated, and the germ destroyed, or the business stops.

Dr. Smead's ideas of how to treat young heifers are sound and good. Not one-third of the young heifers in this great dairy state of Wisconsin are fed and nourished, as they ought to be, to make good cows. One of the best ways to diminish disease of all kinds in men and animals is to nourish the body well so it can resist disease. Last week we spoke at length on the "Care of Young Stock." It is a very important subject for every farmer to study and consider. There are thousands of farmers who never really feed anything well except their hogs. It is a good plan to keep all heifers that are in calf, separate from those that have not been bred, so as to avoid the danger that comes from riding those in heat. This often causes abortion in heifers.

THE *Dairy and Creamery* says there is one way to ascertain the value of a cow and that is by determining the amount of butter fat she will produce from a given amount of feed. Very true, but what will the *Dairy and Creamery* do with the farmer who has neither disposition or energy enough to make an effort to "ascertain." It may be said that the only way to drain flooded land is to ditch it, but what about the man who prefers to be flooded. We have had farmers ask us: "What will I do for cows to eat up my fodder?" when we have urged them to test their cows and turn off the poor ones.

IT is stated on good authority that the dairy idea has prevailed to such an extent in the Willamette Valley, Oregon, and other dairy districts in that state, that the prevailing type of cattle there are Jersey grades. It is generally the case that where farmers become imbued with dairy ideas and strive to reach the best perfection and profit in their business they soon see that one of the most important aids to such results is a cow bred for dairy purposes.



A sanitary cow stable. Floor kept clean, ceiled overhead and whole interior whitewashed.



While this stable is in bad condition it could be made sanitary at small expense by ceiling the interior to make a smooth and firm surface, whitewashing the same, putting in windows and ventilators and keeping clean.—Illinois Experiment Station Report.

Alfalfa for Pennsylvania.

ED. HOARD'S DAIRYMAN:—I have carefully read your paper for some time and am deriving much benefit from it. I wish to submit a few more alfalfa questions. I have a field of four acres which slopes to the southeast. It is steep enough that it makes good business for three horses to cut it with a binder. It has been cleared about thirty-five years; in that time it has raised eight or nine crops of wheat. The ground is broken in June, then cross plowed in August and top dressed with barn-yard manure, after which it is seeded to wheat; in the spring seeded with clover and timothy. It is then mowed two or three times and then the process has been repeated. The yield has varied from twelve to thirty bushels to the acre.

My plan is this: To plow this field for potatoes and give clean cultivation to get rid of weeds. The following spring plow and seed to alfalfa. What I wish to know is this. Will this field raise alfalfa? I would be willing to spend $50 per acre to get alfalfa started on this field if I could know it would grow successfully. What analysis of fertilizer and about what quantity would be a liberal application. Will ground lime sown after the fertilizer has been sowed be of any benefit?

In an alfalfa article some time ago you say tile is not suitable to drain a field for alfalfa. How would you drain it? By plowing in narrow back furrows or how?

West Franklin, Pa. L. C. B.

The probabilities are that if red clover flourishes on the piece of land referred to, that the soil is already inoculated with the nitrogen gathering bacteria, which are so essential to profitable production of alfalfa. We are aware that in saying this, we are not in accord with statements put forth by some of the experiment stations—notably, that of Illinois—but our personal experience justifies the statement. As to the proper fertilizer to use, see the article on page 628, and if there is not now some considerable lime in the soil, the addition of lime, applied as suggested, after the fertilizer has been sown, will be altogether in order.

Alfalfa is such a deep rooted plant that it would soon find its way into the drain tiles and effectually clog them up. Further than this, land which is not fairly well drained naturally, is hardly appropriate for alfalfa. Surface water could be removed by very shallow open ditches made by back furrowing as suggested.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Suggestions for an Iowa Ration.

What will be the best ration for cows having only shredded fodder for roughage unless it be a little oat straw occasionally? Have watched your columns since I commenced taking your paper in Jan., but have seen no rations that fit my situation. I have to buy all my concentrates but corn, so wish to know which is the best and cheapest of the following: oats testing 26 pounds at 28 cents per bu.; bran, $17 a ton: oil cake, $26 a ton, shorts $20. Haven't a price on gluten feed yet, but you could tell what I should buy it for to be better than oats or bran. Also, I may be able to get some barley at about 40 cents. If so would you use some of that? Would like a ration to use that and one without so I will know what to buy and in what proportion soon. About how much roughage and how much grain per day should a 900-lb. cow have?

Am testing my cows and trying to get them up to 300 pounds a year, but will not this first year, but am getting more from nine this summer than I did last year from 15, and 6 of them are the same cows I had then. J. D. M.

Janesville, Iowa.

We take it that "shredded fodder" means shredded corn stalks, which is corn stover. With this shredded stover as the principle item of roughage, we think it would pay to feed, especially to cows freshening this fall or early winter, from one to two pounds of oil meal daily. This oil meal not only furnishes a high percentage of protein, which is needed with the corn stover, but it has a dietetic effect, aids in the digestion of the other feeds, and is, therefore, especially indicated in cases like the present. Just what other grains to feed is more of a problem. Bran at $17 per ton is considerably cheaper than oats weighing 26 pounds and costing $.28 per bushel. Gluten feed is always in order for milch cows; so are brewers dried grains, Atlas gluten meal and malt sprouts. It hardly becomes us to express an opinion as to what these various feeds should be sold for. Prices are governed largely by the demand and supply. Two pounds of oil meal, two pounds of gluten feed and four pounds of bran would make a very fair allowance of grain for almost any cow. In addition, give her what of the shredded stover she would want and the probabilities are that this would make a fair average for a herd. Some might require more grain. In that event, if prices warranted it, some corn meal could be added, say two pounds, or the bran or the gluten feed increased or brewers grains added.

If the cows freshened last spring, they will require much less grain during the winter, because they will give less milk; but after all, the amount of grain to be fed must depend largely upon the judgment of the feeder. Let the cows have what they will pay for, but do not feed them so much as to get them over fat.

A matter too often overlooked is a failure to give the cows salt in proper amount and at proper times. The ideal way is to give them salt twice a day, with each feeding of grain, a good heaping teaspoonful. There is no more reason why a cow should be salted only once a week or why she should be expected to go to a trough to help herself than it is for a man or woman to take their salt in a similar way, and not with the food as they eat it.

Cost of Cement Silos.

I would like you to find out from some of the farmers that have written your paper about cement silos, how much it costs to build them, and publish in your paper. C. D. S.

Dousman, Wis.

If any of our readers who have built cement silos can give information as to the cost, we shall be very glad to publish it. Meantime, we may quote from Prof. King's "Physics of Agriculture:"—"The cost of the material for laying 100 square feet of concrete floor, four inches thick, with ½ inch of facing is: crushed rock, or in its absence, coarse gravel and plaster sand 1.23 cubic yards $0.984, sand and gravel .73 cubic yards $.365, cement 376 pounds $3.76, total $5.109."

When to Harvest Corn for Silage?

I sowed Salzer's Superior corn, and now intend siloing it. Owing to drouth in June was set back considerable, and has hardly started to tassle. Our corn season here is short and will expect frosts by Sept. 10. Will it be fit for silage at this stage or week later? We read in the DAIRYMAN that corn must be fairly turned before cutting, but this shows no sign as yet. As we are greenhorns we would thank you in advance for information. C. M.

Wausau, Wis.

As stated in another column of last issue, the editors will prefer to let their corn get frosted rather than harvest it for the silo before the ears are fairly well filled and matured. Indeed, so far as our present knowledge of the subject extends, a pretty severe frost improves the quality of unripe or immature corn for silage. There will, of course, be some loss of leaves in the frosted corn, but this is more than compensated for by the improved condition of the stalk and ear.

Paint for Inside of Silo.

Please give me information of a cheap paint or filler for the inside of a silo. A. K.

Rockville, Conn.

It is something of a question whether it is desirable to paint the inside of the silo, but assuming that it is, there is probably no better preparation than coal tar, and the best way to put this on is to reduce the tar with gasoline sufficiently so that it will work fairly well under the brush. It should not be forgotten that the gasoline vaporizes very easily, and hence, when using it, care should be taken not to bring lighted matches or light or fire of any kind near it.

Arresting Horn Growth.

I called at several of our dairy supply stores for a preparation to prevent the horns from growing on a heifer. They told me to write and ask you, as you would give me some valuable and immediate information. The calf is now two months of age, and if you can tell me what to use, as I have been told you would, I will be eternally grateful. M. W.

Palms, California.

There are various chemical dehorners on the market, and some of these, notably March's, have been advertised in our columns. In the absence of these, many persons use caustic potash, to be had at almost any drug store in small sticks about the size of a lead pencil. The chemical preparations, as well as the caustic potash, are recommended to be used when the calves are from a week to ten days or two weeks old, before the budding horn has attained very much development. Whether the potash will kill the horns on calves that are two months or more old, we are unable to say, but it may perhaps be worth while trying. Clip off the hair above the budding horn, wrap some paper about the caustic potash, dip the end in water, and rub it thoroughly several times just over the horn. This, of course, will develop a sore spot which will need some attention, but will heal in ten days or two weeks, and if successful, leave a clearly polled head.

Seeding to Alfalfa in New York.

In Central New York, when, and whether alone or with some other crop, should alfalfa be sown? If with another crop, what is best? SUBSCRIBER.

Auburn, N Y.

In seasons like the present in Wisconsin, where we have had an excess of rain all summer and the soil is thoroughly saturated, it might do to seed alfalfa in the late summer or early fall, but in ordinary seasons it would be a doubtful experiment in our opinion, because the young plants would not acquire sufficient growth and maturity to withstand the winter.

Where land is not reasonably free from weeds, we have considered it advisable to seed alfalfa with some quick growing nurse crop, and as a rule would prefer barley, although we have always used oats. We have some loss this year with the nurse crop growing too large

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DOCTOR SAID

"Quit Wrong Food and Eat Grape-Nuts."

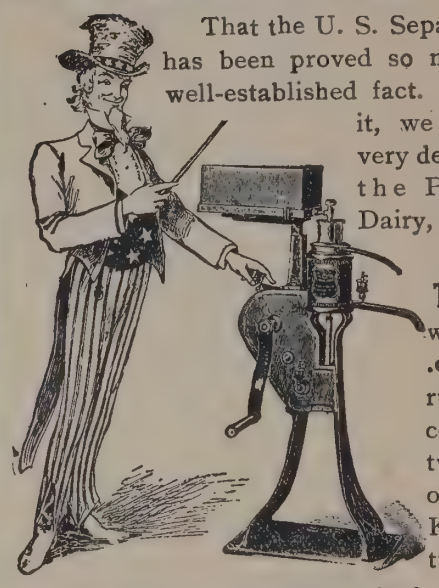
An Illinoisan who has been through the mill says: "Last spring I was so bad with indigestion I could not digest even soft cooked eggs and doctor said I must eat predigested food and prescribed Grape-Nuts. I changed for the better before I had used one package, eating it three times a day.

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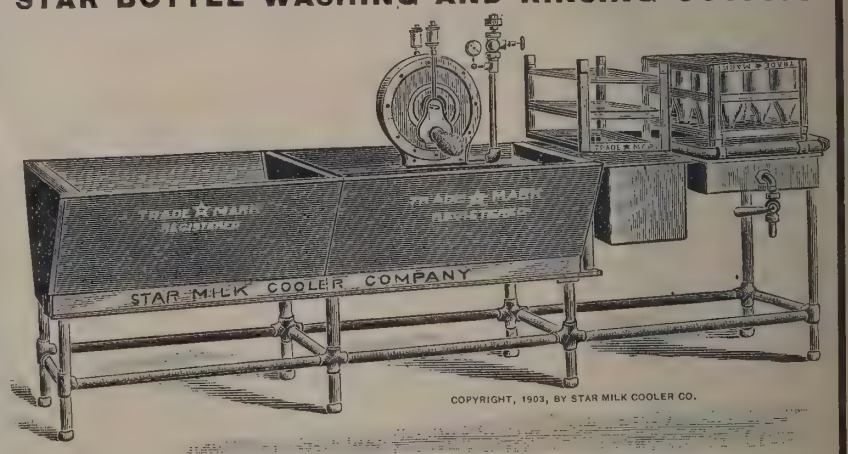
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STAR BOTTLE WASHING AND RINSING OUTFITS



Write Us About This.

STAR MILK COOLER CO., HADDONFIELD, N. J.



EASY. It is easy to go on losing money by taking care of milk in the old way, that is, by not taking care of it: But it is easy, too, to take proper care of your milk with a

Champion Milk Cooler-Aerator

The Champion is pre-eminently the easy Cooler—easy to buy, easy to take care of, easy to use.

A Booklet for the asking.

Champion Milk Cooler Co.,
67 Main Street, CORTLAND, N. Y.

and lodging so badly as to smother the young alfalfa. If we had cut the nurse crop before it went down so flat and had taken it off the ground immediately, all would have been well.

Not a Good Way to Build a Silo.

I am about to erect a silo 20 x 20, by 30 ft. high and expect to build it on a stone foundation with 2 x 4 scantling laid flat one upon another, with an overlap of ¾ of an inch with every alternate one, which will answer as a groove to hold the cement, which I will put on the inside. Would you advise me to cement on wood, will it stick and last?

I am a subscriber of your valuable paper, which is O. K. I read so much about silos in your paper, so I concluded to build me one and try this new way on the plan of the grain elevators.

Have just started a dairy with 40 cows. The silo is something new for this part of the country Helena, Montana. S. R. T.

We are of the opinion that a silo 20 feet square built in the manner proposed would not be a success, as the sides would not withstand the great pressure, and it it is doubtful if the over-lapping and retreating 2 x 4s would furnish a sufficient hold for the cement. An eight sided silo built up with 2 x 4s, laid flatwise and crossing and interlocking at the corners would probably be strong enough to resist the great pressure. Then, by furring out on the inside with thin strips and lathing on these, a lining of cement plaster would probably hold. Common lath would answer for these strips.

Basement for Pigs and Manure.

Have a barn 40x50 ft and a basement under one end of it 30x40 ft. I now have my cows in the basement. What objection would there be, if any, in putting the cows on the floor above the basement, and have the basement for a pig room and manure cellar?

Could cement floors be placed on the wooden floors? H. A. G.
Bristol, Ill.

Do the best one can, a manure cellar under a stable cannot be kept in a cleanly or sanitary condition, and a manure pile, either in a basement or elsewhere, is not a fit place for swine. All things considered, it is almost universal judgment that the best way to dispose of manure is to haul it out and spread it on the ground daily, or as often as circumstances will permit. This is not only a great saving in labor, but it enables one to get the manure where it is wanted at a time of year when other matters are not pressing.

It is extremely doubtful if cement floors would be successful if laid on floor supported by joists.

Feed for Horses.

Could you feed peas and oats fodder as a substitute or part substitute for boughten oats, to horses, or is there less nourishment when the oats are in milk?

Also with plenty of good grass, oats, oats and peas and corn fodder, if the weather is only warm, what grain would you add to make a balanced ration. R. A.
Winsted, Conn.

Peas and oats fodder makes, a very acceptable roughage for horses, but horses at work can hardly get along on roughage alone. They need some grain of some kind, not necessarily oats.

With the feeds named, we would use such kind or combination of grains as we could buy cheapest, when the amount of digestible nutrients contained in each variety is considered. Corn, barley, wheat, and almost any of the by-products, make very acceptable feed for horses at moderate work.

Sowing Barley for Silage—Disinfecting a Bull.

Can I sow barley now, with the hope of putting it the silo and making good ensilage, either mixed with a little corn and soy bean, or alone?

Have been troubled with contagious abortion the past winter and wish to breed some of the cows again. How should the bull be disinfected so there will be no chance of his carrying possible germs to other cows. J. H. W.
Fitchburg, Mass.

We do not think it would be expedient to attempt to make silage of barley at any time, certainly not by sowing it as late as August. Under favorable conditions, it might be possible perhaps to make a moderate crop of barley hay from barley sown early in August, but hollow stemmed grains do not appear to keep well in the silo.

A bull can be disinfected by using a two ounce hard rubber syringe and injecting your disinfecting solution into the sheath before and after serving.

The solution must not be as strong as ordinarily used. A 1 to 5000 solution of bichloride of mercury is sufficient.

"Yield" and "Overrun."

Please tell me through your valuable paper how to find the "yield" of a creamery for a month; also the "overrun" A READER.
Lake Crystal, Minn.

We know of no other way of finding the actual yield of a creamery except to put the butter on accurate scales and weigh it up; and the over-run will be the difference between the amount of fat in milk and the total weight of the butter.

This over-run will vary from day-to-day in the same creamery, and more or less in different creameries, partly because buttermakers are not as careful and exact and honest as they should be in making and reporting the tests, and partly because butter itself varies in the amount of fat it carries.

Patterning after results obtained in the ninety days' contest at the World's Fair in Chicago, where the best machinery was used and the most expert buttermakers employed, the Association of Agricultural Chemists, after full consideration, came to the conclusion that in testing cows and estimating the amount of butter, one-sixth might reasonably be added to the fat. In other words, under the best conditions, standard commercial butter may exceed the total fat by 16⅔%. It will be very difficult indeed for the average creamery to obtain such an over-run as this, for the reason that the milk, as they receive it is not always in the best condition, and oftentimes the separators and churns are not doing their very best work. It is our opinion that a creamery making an average over-run of 12½% throughout the year is doing about as well as ought to be expected.

The N. C. B. Assn. Meeting Postponed Until 1904.

ED. HOARD'S DAIRYMAN:—After having made a thorough canvass of the situation, the Executive Committee of the of the N. C. B. Assn., has come to the conclusion, that it will be to the interest of all concerned to abandon the Convention of 1903, and to convene same at St. Louis, Mo., Oct. 20 to 27, 1904.

In coming to this decision, the committee wishes to express their appreciation of the liberal offer made by Citizens' Business League of Sioux Falls, and feel that at the earliest opportunity they should be recognized as being entitled to a meeting of the Association in Convention in their city.

The Committee has further decided to complete the six months educational tests. The participants will receive pay for their 6th exhibit, and the championship cup will be awarded to the winner when tests are completed.

The committee further orders that a special diploma be awarded to all those participating in the 6 months tests, having an average score of 92 or above.

By order of Excutive Committee,
E. SUDENDORF, Sec'y.
N. C. B. Assn.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

"ADVERTISEMENT".

TRIP THAT PAID.

Ten Miles to Get a Package of Postum.

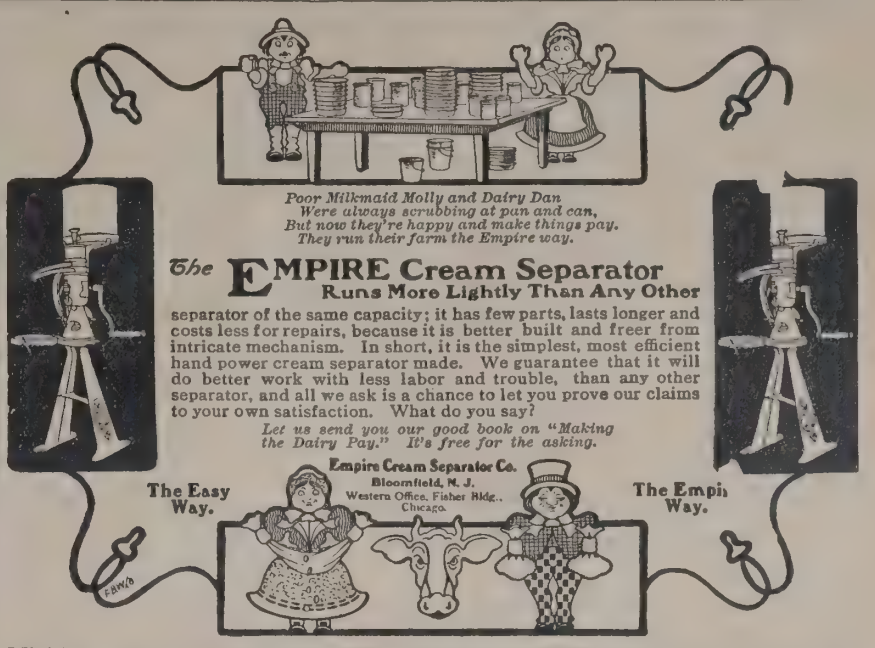
Some sufferers won't turn over a hand to help themselves but there are others to whom health is worth something. A German woman living in the country made a 10-mile trip to get a package of Postum. She was well repaid, for it brought health and happiness in return.

A translation of the good frau's letter says: "From a child I had been used to drinkiug coffee, daily, but the longer I continued drinking it, the worse I felt, I suffered with heart trouble, headaches and dizziness. Then I had such an uneasy feeling around my heart that I often thought death to be near.

"I gave up drinking coffee and tried hot water, but that did not taste good, and I did not get well. Then I read some letters from people who had been helped by Postum Food Coffee, and I determined to try it."

"I had to go 10 miles, to get a package but I went. I prepared it carefully according to directions and we have used it now in our family for nearly two years, drinking it twice a day. It agrees well with all of us. My heart and bowel troubles slowly but surely disappeared, it is seldom that I ever have a headache, my nerves are steady and strong again and I am otherwise strong and well. My husband has been lately cured of his sick headaches since we threw coffee out of our home and have used Postum. Name furnished by Postum Co., Battle Creek, Mich.

Look in each package for a copy of the famous little book, "The Road to Wellville."



Did You Ever Keep a Record Of Your Cows?

IF SO, you have felt the need of a convenient, simple and handy Record Sheet. We have had so many requests for these Record Sheets that we concluded to get up one that would "fill the long felt want." We have a very simple and complete Record Sheet for 10 cows, one month, that is printed on heavy Manilla Paper, we can send postpaid at following prices:

Price 5c Each	6 for 20c	12 for 30c	25 for 50c

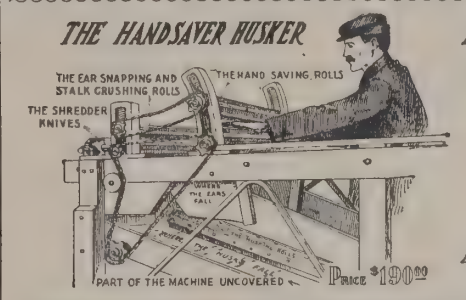
SIZE 10x16 INCHES

We also have a one cow Record Sheet, heavy Manilla paper (one month) that we will mail postpaid

Single Copy 5c	5 for 15c	10 for 25c	25 for 40c

SIZE 6x15 INCHES

HOARD'S DAIRYMAN.
FORT ATKINSON, WIS.



YOU CAN'T GET HURT
HUSKS 50 BUSHELS PER HOUR
SNOW WON'T BOTHER
ASK ABOUT OUR 2 WHEEL WIND MILL AND ALL IRON WOOD SAW
ADDRESS
DOUBLE POWER MILL CO.
APPLETON, WIS.

MILK TUBES Patent Coin Silver 1¾" 50c. 2¾" 80c. Improved Teat Opener 75c. Dilating plug 25c. Postpaid on receipt of price. G. P Pilling & Son, 2d and Arch Sts., Ph l., Pa.

WRINGING WET Clothes dry is the reason for using any wringer. Saving clothes, buttons and money is the reason for using **Horse-Shoe Brand Wringers.** They are made with rolls of the finest Para Rubber. Every wringer is warranted. **THE AMERICAN WRINGER CO., 99 Chambers Street, New York.**



The Distribution of Skim Milk.

It is known that the just complaints of creamery patrons on account of unfair distribution of skim milk are the bane of the separator creamery business. Further disputes among patrons, annoyances to managers, hindrances to the best work of buttermakers, watering the skim milk, and many other ills in the same train are unnecessary, since the

Barber-Coleman Check Pump

has for more than five years been successfully solving the problem in many different creameries. When a patron has dropped in his check he can pump the amount of skim milk called for by his check, less the percentage taken out as cream, so in like proportion to all other checks. Its measuring apparatus is just an ordinary pump which everyone understands and knows how to operate.

Cornish, Curtis & Greene Mfg. Co.,

General Sales Agents De Laval Alpha Separators,
FORT ATKINSON, WIS.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—On account of Labor Day falling on Monday, President Newman advised the members to hold the weekly session on Saturday.

The Quotation Committee reported the official market firm at 19½ cents.

Offerings.	*Tubs.*	*Amount asked.*
Winslow	50	20
Orangeville	20	20
Baileyville	20	20

There were no sales. Former markets:

	Sold.	*Price.*
August 31, 1903	210	19¼
Sept. 8, 1902	0	20
Sept. 9, 1901	0	20
Sept. 10, 1900	0	20⅛
Sept. 5, 1899	111	21

The New York market is 20 cents, with receipts of 6,767 tubs.

The output for the Elgin district was 712,776 pounds. H. C. B.

Elgin, Ill., Sept. 5.

Sales of Good Dairy Cows.

ED. HOARD'S DAIRYMAN:—Does it pay to breed and raise good dairy cows? I should say that it does, and Jefferson county, Wis., is the place to find the men who know how to produce such cows, and the place to find the cows as well. In proof of which I submit the following:

Last week there came to Fort Atkinson, this county, from old Mexico, a man with a name unpronounceable by the average American, who wanted to buy *good dairy cows*. Thoroughbred Holsteins were the kind he wanted. He could not talk English, so had with him an interpreter. He secured the services of James Wilson, of Fort Atkinson, who knows where to look for the best stock, and together they went to Lake Mills, 12 miles distant, where they bought 18 cows of Wm. Everson, 6 of them two-year-old heifers, which had not come in, for the nice sum of $3,000, an average of $166.66 each. They then went to the farm of F. B. Fargo near by where they bought 11 cows and two calves, one a bull and one a heifer less than a year old, for $2,250, an average of $173 each. They next visited W. R. Gates of the adjoining town of Oakland, and of him obtained 8 head—5 cows, two young heifers and a young bull for $950.

These results were obtained through the exercise of skill and judgment through many generations in breeding, and proper care in feeding and handling the animals, and not by haphazard, go-as-you-please, or one-bull-is-as-good-as-another method which too many farmers practice

These are not the only cows that have been sold for high prices in Jefferson county, but I have only mentioned these recent sales to remind farmers that it pays to raise good stock—that which is best adapted to the purpose for which they are to be used.

I might also mention that this particular breed is not the only breed of good dairy cows to be found in this county. Cows of other dairy breeds have been sold here, not very long since, at equally high prices, and there are plenty of them to be found now, so that one wishing to buy can find the kind he thinks best adapted to his purpose, or the breed to which he takes a fancy.

These cows were not purchased because of any merely fancy points or "show" qualities, but because of their undoubted value for a working dairy, and the probable ability of transmitting these valuable qualities to their progeny.

A few years ago I stopped over night with this same Wm. Everson of Lake Mills. He then had 40 cows. They were fine ones and heavy milkers though they were not, at that time, bred up to the high standard of his present herd. I observed then that he was a good feeder, fed a well balanced ration, and fed each cow in accordance to her ability to turn her food into milk. He provided his cows with succulent food in the form of corn silage.

In the evening, a check was brought to him in payment for the milk he had delivered to the creamery during the previous month. The amount was $345 for the milk of 40 cows one month. Besides this he had had the skim milk which had been the main feed of a bunch of splendid calves and a goodly lot of pigs.

Surely, it does pay to keep, well feed and well care for *good* dairy cows, even if one has to pay high prices for them to begin with. But it does not pay a dairyman to keep and milk poor scrub cows even if they can be bought for almost nothing. C. P. GOODRICH.

Fort Atkinson, Wis.

CONCERNING OUR ADVERTISERS.

Our readers desiring to buy a gasoline engine will do well to read the advertisement in our columns of the Temple Pump Co., Chicago, and their "Master Workman."

People who are looking for a breed of good milk and butter producing cows should read the ad. "A Rare Chance" on page 696.

An event of large interest to Holstein breeders is announced in the auction advertisement of Mr. John C. Godfrey the noted breeder of Holstein cattle. The advertisement will be found on another page and contains mention of some of the choicest cattle from three eminent breeds. It will be well for our Holstein friends to consult the advertisement.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

DAIRY MARKETS.

CHICAGO, Ill., Sept. 5—Butter—19c firm. Eggs—Extras, 22c: prime firsts, 20c.

Cattle—Choice to fancy beeves, 1,200 to 1,500 lbs., 5.80@6.05; good to choice steers, 5.40@5.75; fair to good export and shipping steers, 4.85@5.35; medium beef steers, 4.50@4.80; plain beef steers 4.20@4.45; common to rough, 1.000 to 1,200 lbs 3.70@4.15; good to choice, fat heifers, 3.85@4 80; good to choice feeders, 3.75@4.35; poor to plain stockers and feeders, 2.40@3.50; fair to good cows and heifers, 3.00@4.00; good cutting to fair beef cows, 2.40@3.00; common to good canning cows, 1.00@2.50; bulls, poor to choice, 2.40@4.25; calves, choice to fancy 6 25@6.70; calves, common to fair, 3.00@6.00: corn-fed western steers, 4.00@5.35; Texas bulls and grass steers, 2.90@3.85 Texas steers, fair to choice, 3.75@4.65; western range steers, 3.25@4.60; western range cows and bulls, 2.00@3.60.

Hogs—Good to choice shipping 5.75@5.95; good to choice heavy packing, 5.45@5.65; rough and common heavy mixed, 5.05@5.35; assorted light, 150 to 195 lbs., 6.00@6.20; good to choice butcher weights, 5.90@6.10; poor to choice light mixed, 5.60@6.00; thin to choice, 50 to 130 lb. pigs 4.50@6.20; stags and rough lots, 3.00@5.00.

MANITOWOC, Wis., Sept. 2—Cheese—The sales here to-day were: 215 Twins at 9¼c; 1,800 Daisies at 10½c, and 750 Young Americas at 10¾c.

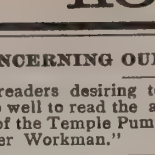
MUSCODA, Wis., Aug. 29—Cheese—On the Call Board 586 Twins sold at 9½c; and 95 were withdrawn.

BRILLION, Wis., Aug. 27—Cheese—Sales to-day were 359 Twins at 9¼c; 803 Daisies at 10¼c; 80 cases Young Americas at 10¾c; and 112 Cheddars at 9¾c.

PLYMOUTH Wis., Sept. 1—Cheese—twenty-seven factories offered 3,017 boxes of cheese; of these 125 Twins and 50 Americas were passed, the balance selling as follows: 831 Longhorns at 11c; 960 Daisies at 10⅞c; 70 at 11c; 60 Twins at 9¾c; 135 at 9⅞c; 17 at 10c: 465 Americas at 11c; 312 Americas at 11⅛c. Market active and firm.

APPLETON, Wis., Aug. 27 —Cheese—Twenty-one factories offered 1,288 boxes and all sold as follows; 120 Cheddars at 9¾c, 23 at 9⅛c, and 1,145 Twins at 9¾c.

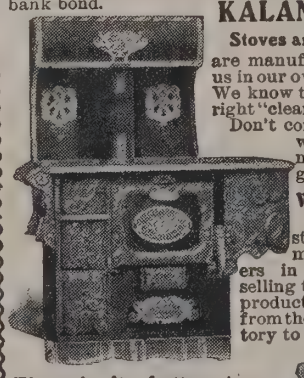
MARSHFIELD, Wis., Aug. 28—Cheese—Fourteen factories offered 870 boxes of cheese; 95 Twins and 25 Daisies were passed, balance were sold as follows: 417 Twins at 9⅝c; 327 Daisies at 10⅛c; 6 Cheddars at 9⅜c. Market active. The board



All Kalamazoo ranges and cook stoves are equipped with patent oven thermometer. Makes baking sure and easy.

The KALAMAZOO

A better stove or range than you can get from any other source. A saving of from 25% to 40% in price. Prompt shipment from factory to user. Factory prices—no dealers' profits. Freight prepaid by us. 360 days approval test. Guarantee backed by $20,000 bank bond.



KALAMAZOO
Stoves and Ranges

are manufactured by us in our own factory. We know they are all right "clear through." Don't confuse them with cheap mail order goods.

We are the only stove manufacturers in the world selling their entire product direct from their own factory to the user.

There isn't a better stove or range at any price

and by eliminating all dealers' and middlemen's profits we save you easily 25% to 40%. Moreover we give you a 360 Days Approval Test. If your purchase is not satisfactory in every way, return the goods at our expense. We have a complete line of ranges, cook stoves and heaters for fuel of all kinds. All stoves blacked, polished and ready for business.



It will pay you to investigate.

Send for catalog No. 168 and prices, freight prepaid.

THE KALAMAZOO STOVE CO.,
Manufacturers,
Kalamazoo, Michigan.

BUFFALO GLUTEN FEED

Digestible.

Protein in concentrated feeds must be digestible to be of value to the dairy farmer. Indigestible protein makes fertilizer—not milk.

Buffalo Gluten Feed Protein

is almost wholly digestible; that's why it is the

Greatest Milk-Maker Known.

Ask your feed dealer.

Address, Department B
THE GLUCOSE SUGAR REFINING CO.,
Chicago, Ill.

$46.00 Complete. **PAIR OF WINNERS!**

CASH With two Extra Shares



Plasa Bird Gang.

Rochester, Ill., April 23, 1900.—My Plasa Bird Gang received; finished plowing 80 acres yesterday, and can say for lightness of draft and good work it can not be beat. Truly yours J. N. HARVEY. We challenge any plow for good work, light draft, easy handling, we have thousands of testimonials from farmers. Sent on trial, satisfaction guaranteed or money refunded. Send for big free catalog of Buggies, Harness, Disc Harrow, 12-16, $17; Steel Range, 6-8 inch hole and closet, $24, dealers' price, $40. 1000 other things. Address

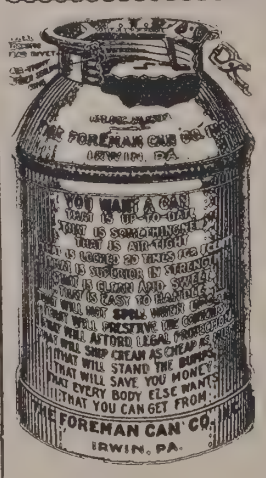
HAPGOOD PLOW CO., Box 778 Alton, Ill.



$29.75

Plasa Bird Sulky.

The only plow factory in the United States selling direct to the consumer.



We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity—1000 cans daily, which should enable us to fill all orders promptly.

Every can sold on a guarantee.

Write for circular H.



5 TON WAGON SCALE $35.00
SENT ON TRIAL FREE.
CATALOGUE FREE.
AMERICAN SCALE COMPANY.
519 MASS. BLDG, KANSAS CITY, MO.

You Can Depend on

H. & R. REVOLVERS

CATALOGUE FREE.
HARRINGTON & RICHARDSON ARMS CO.,
DEPT. 22, WORCESTER, MASS.

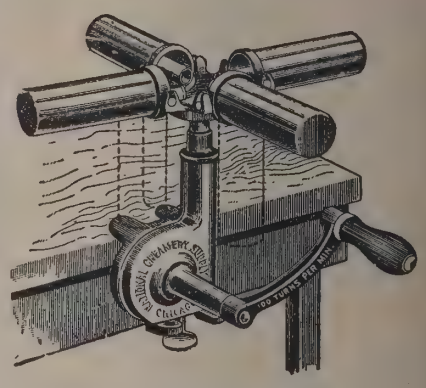
NORTHERN WISCONSIN FARM

FOR SALE. 113 acres all improved in Barron County. Rich clay and clay loam soil. Fine farm buildings. First-class roads. Abundance of good water. In well settled district. Write us for details.
HILES & MYERS, C-100 MATTHEWS BUILDING, Milwaukee, Wis.

$3 a Day Sure

Send us your address and we will show you how to make $3 a day absolutely sure; we furnish the work and teach you free, you work in the locality where you live. Send us your address and we will explain the business fully, remember we guarantee a clear profit of $3 for every day's work, absolutely sure. Write at once.
ROYAL MANUFACTURING CO., Box 1110, Detroit, Mich.

NATIONAL Babcock Milk Tester



(Dotted Lines show position of bottle holders when not in motion.

Has enclosed cut gears.
Swinging bottle-holders.
Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

DOES YOUR DAIRY PAY?

It costs no more to feed a profitable than an unprofitable cow.

NET PRICES.

No. 1,—2 bottle, complete for testing milk each	$4 00
No. 2,—4 bottle, complete for testing milk each	5 00
No. 3,—2 bottle, complete for testing cream and milk, each	4 50
No. 4,—4 bottle, complete for testing cream and milk, each	5 50

Prices include full directions for making test, bottle of acid, test bottle brush, acid measure, pipette and test bottles.

See our ad of STEEL TANKS and SCALES in NEXT issue. Write for catalogues and circulars.

National Creamery Supply Co.,
450—458 Illinois St.,
CHICAGO, U. S. A.

passed a resolution to meet every two weeks hereafter until close of present season.

WASHINGTON, D. C., Sept. 5—Butter—Market firm. Extras 20¾c;

PHILADELPHIA, Pa., Sept 5—Butter—Market firm. Solids 20c; near by prints 21c; western 20c. Exchanged adjourned until Tuesday.

BOSTON, Mass. Sept.5 -Butter-Boston butter market closes a little firmer at 20½.
Cheese—A little firmer at 10@10⅛
Eggs—Market firmer af 20@23.

NEW ORLEANS, La., Sept. 5—Butter—Market steady; extras, 20½c; firsts, 19c.
Cheese and eggs unchanged.

NEWARK, N. J., Sept. 5—Butter — Market steady at 20.
Eggs—Extras 23c; firsts, 22c firm.

Latest quetations for fancy creamery: Baltimore, 20@20½c; St. Louis, 20c; Buffalo, 20c; St. Paul, 18½c; Minneapolis, 18½c; Milwaukee, 19c.

TOPEKA, Kan., Sept. 3—Butter—Creamery butter, 19@20c; Dairy butter, 16@17c.
Cheese—Longhorns, 11c; Twins, 10¾c; Daisies, 11c; Prints, 11½c.

LIVERPOOL, Sept. 5—Butter—Good United States uominal.
Cheese—Firm American finest white, 50s; do colored, 52s.

NEW YORK, N. Y., Sept. 5—Butter—Extras, creamery, 20; renovated, 17c. Receipts, 4,487. Market steady.
Cheese—Firm, unchanged. Receipts, 2,406.
Eggs—Very firm; western extras, 23; firsts, 22c. Receipts, 6,767.

UTICA, N. Y., Aug. 31—Cheese—The sales here today were as follows: 79 lots, 6,710 boxes.
Ruling on large 9½c; ruling on small and general, 9¾c. Butter, 30 packages at 20c; 12 at 21c; 25 at 21½c; 600 1 lb. prints at 22c. Curb sales of cheese 500 large at 9¾@9⅞c; 250 at 10c; small 1,400 at 10c; large will soon be worth more than small, so few are being made.

NEW YORK MARKET.

NEW YORK, Sept. 5—Butter—Receipts for the week, 49,226 packages.
Exports for the week, 67 packages.
Extra fresh Creamery butter was in good demand and sold up clean at 20 to 20½c, and at the close there is every indication of advanced prices for this style butter. Firsts were readily picked up at 19 to 19½c and good sound creameries were inquired for at 18@18½c. Dairy butter is hardly in quantity enough to quote; few tubs fancy sold at 19 to 20c. About all the arrivals were poor to good stock in all sizes and kinds of packages and they sold to packers at 14 to 16c. Ladle butter is quite but holders are firm and insist on outside prices for desirable lots. Renovated dull and nominal. We quote:
Creamery, extra, 20@20¼c: medium, 19@19¾c; poor, 15@18c; Dairy, extra, 19@19¼c; medium, 16@18c; poor, 14@15c.
Cheese—Receipts for the week, 31,363 boxes. Exports, 8,530 boxes
The market is active and strong and sales were reported this week up to 11c for fancy large sized cheese. Small cheese were more plentiful and 10¼c was about top for best goods. Skimmed cheese showed more life and sold freely for export at 5 to 7c, while house trade took finest qualities at 8 to 9c. We quote:
Full Cream, large, extra, 11c; medium, 10@10¾c poor, 7@9c. Full cream, small, extra, 10¼c; medium, 10@10¼c; poor, 7@9c.
Eggs—Receipts for the week, 45,321 cases.
Strictly fresh stock very scarce and wanted. All grades are doing better and it begins to look as though all the ice house stock would be wanted at full prices. We quote:
New York & Penn., strictly fresh, per dozen, 24@25c; Northern & Western, strictly fresh, 22@23c; all Sections, poor to good, 15@21c.
177 Chambers St. DAVID W. LEWIS & Co.

NEW YORK FERTILIZER MARKET.

Acid phosphate	60	@	67½
Phosphate rock, f. o. b. Char'n	5 00	@	7 00
Tenn	3 00	@	4 00
Bones, rough ₱ ton	17 co	@	18 co
ground	19 00	@	20 00
Bone meal	22 00		24 00
Bone black, refuse	18 00	@	19 00
Potash, dbl. m're salt 48@53 per cent	1 12	@	1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons	25 00	@	30 00
sulph of basis, 90@98 per cent	2 11	@	2 18
90@98 per cent less than 25 tons	38 00	@	40 00
Potash muriate ₱ 100 lbs.	1 83	@	1 95
less than 25 tons	36 00	@	40 00
Kainit 25% S. of P. ₱ ton	9 30	@	9 50
less than 25 tons	9 50	@	10 50
Sylvinit, 35@37% P. ₱ unit	41	@	46
Nitrate of soda	2 15	@	
Blood, Dried red ₱ unit	2 55	@	2 60
low grade	—	@	—
Concentrated tankage	15 00	@	16 00
Fish guano, dried	25 co	@	25 25
acidulated	23 00	@	23 50

BALTIMORE MARKET.

BALTIMORE, Md., Sept. 3—Butter—There is no change of importance to note in the market; the conditions are about the same as noted in our last report. Extras, contrary to expectations, continue in fairly liberal receipt. Speculators have been quite prominent on the market, and all long lines of high scoring stock have met quick sale; and in several instances a slight premium over our top quotations has been obtained. The demand for local consumption continues very good while firsts continue in moderate receipt, the supply is about equal the requirements. Imitation Creamery—So far this week have been in very light receipt, all attractive offerings met prompt sale. Ladles—The offerings are fully equal to, if not in excess of the demand. Packing stock is in reduced supply; there is quick sale awaiting all fresh sweet arrivals. Blocks and Prints—for the time being are in ample supply for the requirements. At the close of today's market, there was quite a healthy feeling prevailing and receivers were firm in their views.
Creamery Separator, extras 20@20½c; firsts 18½@19½c; seconds, 16@18c. Imitation Creamery, extras, 18c; firsts, 17c; seconds, 14@16c. Creamery blocks (2-lb.) extras, 21@22c; firsts 20c; seconds, 17@18c. Iowa & N. W. Ladle, extras, 16c½; firsts, 15½c; seconds, 13c. Creamery prints (¼ lb) extras, 22@23c; firsts, 21c; seconds, 17@19c. Md. Va., & Penn. Prints, extras, 20@21c: firsts, 19c; seconds, 16@18c.
Eggs—There is very little if any change to note in the condition of the egg market since our last issue. There is a continued scarcity of strictly fresh stock, and for this kind there is a quick demand at 22 cents. All defective stock is slighted; in several instances, owing to the light supply of desirable eggs, storage stock had to be drawn upon in order to satisfy the demand.

Cheese—Receipts ample; demand moderate; market rules steady to firm.

N. Y. State—Cheddars, fine, 10¾@11c; choice, 10¼@10½c; fair, 9@9¼c, Flats, fine, 10¾@11c; choice, 10¼@10½c; fair, 9@9½c; Small, fine, 11@11¼c; choice, 10½@10¾c: fair, 9½@10c; Ohio Flats, fine, 9¾@10c; choice, 9@9¼c; fair, 8¼@8½c; O. Picnic, fine, 10@10¼c; choice, 9½@9¾c; fair, 8½@9c; Swiss Cheese, (domestic) new, fine, 13@13½c; choice, 11@12c; fair, 9@10c.
301 Exchange Place. G. M. LAMB & BROS.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Fine Dairy Farm for Sale—Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence. cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. T. S. TOMPKINS, Pasadena, Cal. 15-tf

For Sale—3 Golden Lad Bull Calves, sired by Golden Lad of St. Ouen, a 50% Golden Lad; dams large milkers and extra butter cows. These calves will be sold at a low price, considering breeding. It costs but little for transportation charges on a four-weeks-old calf and in twelve months you have a thoroughbred ready for business. Address THE SEARS AND NICHOL DAIRY CO., Chillicothe, Ohio. 28-4

Wanted—At once, married man with small family (would hire a good boy) to work on a dairy farm with 60 cows. Must be steady, good milker and feeder and all around man in barn work. Can have garden, chickens, pigs, milk and steady work for one year or more. State wages wanted. C. H. CROOK, Box 144, Ottawa, Ill.

Wanted—A man capable of soliciting and increasing a retail milk business in a city of 100,000 inhabitants. Business running under favorable conditions, and plant equipped with all modern appliances for the sanitary handling of milk. None but a competent man need apply. Address IRA O. JOHNSON, 185-205 S. Front St., Grand Rapids, Mich. 31-2

$20,000.00 will buy and swing business of five milk and cream dealers; give control of all wholesale in city of 200,000. Business of one quarter million annually. This is a snap and will go quick. Address "F. C." care Hoard's Dairyman.

Wanted—First-class dairy farmer to work dairy farm of 200 acres. Must understand breeding, feeding and handling of a working dairy herd of registered Jersey cattle. Write, giving references and wages wanted per month. Address 110 S. Vita Ave., Beaver Dam, Wis. 31-2

For Sale—A first-class milk business. 21 cows, horse, 2 wagons, 2 sleighs, cooler, milk tester, cans, bottles. Everything complete and in good condition. Price $2,500. Trade can be doubled inside of a year. For particulars apply to JOHN J. WHITE, Brandon, Manitoba, Can.

Wanted—Position delivering bottled milk Experience and good milker. E. FLETCHER, Hartford, Mich. R. R. 1.

For Sale—480 acres. 200 level, 160 acres Gov't land can be added by using homestead right, making 640 acres in one piece. A well equipped dairy of 30 cows, with gas engine; 40 acres fine grove, plenty water in grove. Good buildings, very rich soil; called the finest outfit in the county. Will give possession any day and give ones own time to pay for last half if ten years; terms at 6 per cent. I mean business. $9600 is the price. you will say it is worth $14000. Address F. A. I. R., care of Hoard's Dairyman. 30-tf

Guernsey Bulls for Sale—I have a few young Guernsey Bulls for sale at Moderate price, ranging from six months to one year old. These animals are from highly bred sires and mothers of good size and well reared. Good bargains here. W. D. HOARD, Fort Atkinson. Wis. 30-tf

For Sale—Good cheese factory and machinery in Outagamie county, Wis. 6000 lbs. milk daily. Inquire of FRED HADLER, Route 3, Appleton, Wis. 30-tf.

Position Wanted—By an experienced dairyman as herdsman or to take charge of a retail milk wagon. Would prefer place in northwest. A No. 1 references. Address J. R. J., Box 273, Three Oaks, Mich. 30-2

Jersey Cows for Sale—Having sold my milk route and intending to retire from the milk business I offer for sale 25 head of High Grade Jerseys, ranging in age from 4 to 6 years. These cows are descendants of the once famous herd owned by Congressman H. C. Adams. late Dairy and Food Commissioner of Wisconsin. They are of the St. Lambert blood and all solid colors. 20 are milking, balance coming in soon. Willl be sold cheap if taken together as I want to make room for other stock. Come and see them or write for particulars. Farm 3 miles south of Madison on Fish Hatchery road. WILLIAM McKEE, R. D., No. 5, Madison, Wis. 30-2

An Experienced, temperate man wanted to run boiler, engine and separator, bottle milk, etc., and feed calves and pigs. Wages $35.00 per month and board. Address R. F. PARKER, Southville, Mass. 30-2

For Sale—One 2,500 lb. De Laval separator, one receiving vat. one heating vat, two 60 gal. weigh cans, one 216 bottle sterilizer, 100 gal. pasteurizer, one bottle washer and one rotary pump. DALLASTOWN CRY. CO., Dallastown, Pa. 30-2

A Registered Jersey Bull, Cadet's Recorder, No. 61695, three years old, a fine animal. Inquire of E. O. RICE, Portage, Wis. 30-3

Dollars are made with good dairy stock. For choice purebred Guernsey bulls and grade heifers write A. H. HINMAN, Allenville, Wis. 30-4

For Sale—At a bargain, adjoining city of Decorah, Iowa, 454 acre dairy farm, stock and machinery complete. Watered by never failing springs. Good farm buildings including two large silos. Established city milk and cream trade for the product of 100 cows. For price address J. C. BEARD, Decorah, Iowa. 28-6

For Sale—Fine 4 months' old grade Guernsey heifer $25.00, also bull calf one month old from thoroughbred but not registered Guernsey cow. Sire, Carl P. V., 6540. Price $25 00. Address GILBERT HICKCOX, Box H, Whitefish Bay, Wis. 29-3

Wanted—First-class man capable of taking charge of 25-acre farm, country place. Must be an expert in raising crops, vegetables, fruit, poultry and cows. Married; not more than one child. Wife to make butter and help with poultry. Write stating references and wages wanted to H. I., care Hoard's Dairyman. 29-4

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 1901

98 PER CENT

Of the Creameries of America
Now Use

DE LAVAL
CREAM SEPARATORS

After Twenty Years of Experience and Trying Twenty Makes of Machines.

That is a Record which Speaks for Itself and also Means Something to the Inexperienced Buyers of.....

FARM CREAM SEPARATORS

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Randolph & Canal Sts., CHICAGO.
1213 Filbert St., PHILADELPHIA.
9 & 11 Drumm St., SAN FRANCISCO.
GENERAL OFFICES: 74 Cortlandt St., NEW YORK.
121 Youville Square, MONTREAL.
75 & 77 York Street, TORONTO.
248 McDermot Avenue, WINNIPEG.

For Sale—One 30-inch French burr geared feed mill in best running order; also one Western Mill corn sheller, capacity from 5 to 75 bushels per hour, nearly new, Reason for selling, too large for this place. JOHN ZIEGLEY, Valley, Wis. 26-tf

Herdsman Wanted—Single man not under 30 years of age, with several years experience; one acquainted with rearing and caring for Holsteins. References required. State wages required including reference. Steady place for right party. Address D, care Hoard's Dairyman. 25-tf

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

For Sale—Young bull fit for service, sired by Recorder 29239 and tested dam 16 lbs. 2 oz. Sold at a sacrifice. JOS. KARELS, Big Stone, S. D., R. 1 30-tf

The Third Revised Edition of Buff Jersey's Popular Book Just Out of Press—Ten chapters, 25 illustrations and right up-to-date. Subjects treated are: Silos and Ensilage, All Phases of the Dairy Subject, Soil Crops, Up-to-date Farm Machinery, How to Cure Abortion and Milk Fever, Seme Medicines and Remedies, The Steam Plant, its care, and many other valuable things ably treated. Send for circular. Sent post paid, cloth binding $1.00, paper 75c. BUFF JERSEY, Monmouth. Ill. 47 tf

Wanted—Good farm hand. Must be good milker. Good home to right man. Wages $25 00 per month and board. Address E. H. GIFT, Hampshire, Ill.

Wanted—At Meramec Highlands, near St. Louis, an experienced, energetic yearly farmer. Wages $25 per month with good house and garden free. If grown children can promise extra work. Address MERAMEC HIGHLANDS CO., St. Louis.

Wanted—Married man on dairy farm, also a single man. Only good milkers need apply. Good wages. Address T. E. GETZELMAN, Hampshire, Ill.

Wanted—At Meramec Highlands Dairies, near St. Louis, one or two dairy foremen, must be experienced milkers and feeders; married men preferred. Wages $35 per month with good farm house and garden opportunity free. Apply or address 208 N. 4th St., St. Louis.

For Sale—Registered Guernsey bulls, a No. 1 5 months' old bull calf (eligible) at $20.00, one registered 3-year-old cow. Address J. H. BOWLBY, Bath, N. Y.

Wanted—Position as milker with honest, good dairyman. Am 21 years of age and can give best of reference. Address CHESTER BERRY, Franklin, Kentucky.

High Grade Jerseys—To reduce herd to capacity of pasture, will sell a limited number of young cows of high breeding. Have won several first premiums. Also some fine heifer calves from good testing dams. A. SHARPLESS, Landenberg, Pa.

For Sale—The Owego National Bank, Owego, N. Y., offers for sale a large size De Laval cream separator for which $750 was paid two years ago. It was used for only a few months and is in as good condition as when new. It will be sold at a liberal discount. Address OWEGO NATIONAL BANK, Owego, N. Y.

For Sale—A second hand, self-feeding, 16 inch Smalley Ensilage Cutter in good order, together with 56 feet of carrier, 18 feet of which was new last year Also a three horse Smalley Tread Power in good condition. The above will be sold cheap to make place for larger machinery. W. D. HOARD, Fort Atkinson, Wis. 20-tf.

I offer my U. S. Separator No. 2½, used 6 mos., a No. 3 Wizzard churn and worker combined, and a 5-horse engine. Reason for selling is a change in business. All in first-class shape and does good work. Will sell separator or churn without engine. E. E. EASTMAN, Plymouth, Wis. 28-4

Wanted—Competent house-keeper on farm. Elderly woman, single, widow or married. If married, man can work on farm if competent as manager. No objection to one or two children old enough and willing to work. Permanent position, good wages. Well arranged house. CARL MUTH, Sheboygan, Wis. Howard Road, 2 miles from city. 30-2

Radisson on the Chippewa—A new town in Sawyer County, Wis., on the North-Western Line, located on both the Chippewa and Couderay rivers, in the center of a most fertile and promising hardwood district. This is an exceptionally promising country for landseekers, while sportsmen will find it an ideal place for camping. The many lakes and streams afford excellent muscallonge, bass and pike fishing, while the woods are full of deer. If looking for a new location, don't fail to see this new country. For map and full particulars write to T. W. Teasdale, General Passenger Agent C. St. P. M. & O. Ry., St. Paul, Minn. 29-3

Very Low Rates to Ogden and Salt Lake City, Utah—Via the North-Western Line. Excursion tickets will be sold Sept. 12, 13 and 14. with very favorable return limits, on account of annual meeting National Irrigation Congress. Apply to agents Chicago & North-Western R'y. 30-2

Excursion Rates to the Centennial Celebration at Chicago—Via the North-Western Line. Excursion tickets will be sold at reduced rates September 28, 29 and 30, limited to return until October 2, inclusive. Send stamp to W. B. Kniskern. Passenger Traffic Manager, Chicago, or call on Ticket Agent for copy of handsome Chicago Centennial Folder, issued by the North-Western Line, profusely illustrated, giving an outline of the program for Celebration Week, a brief reference to Chicago's early history and the relation of The North-Western Line to the industrial progress of the city. For further particulars apply to Agents Chicago & North-Western R'y. 30 4

Excursion Tickets to Walworth County Fair at Elkhorn, Wis.—Via the North-Western Line, will be sold at reduced rates, Sept. 14 to 18, inclusive. limited to return until Sept. 19, inclusive. Apply to agents Chicago & North-Western R'y.

Very Low Rates to Baltimore, Md.—Via the North-Western Line. Excursion tickets will be sold Sept. 17, 18 and 19, with very favorable return limits, on account of annual meeting I. O. O. F Grand Lodge. Apply to agents Chicago & North-Western R'y. 31-2

Excursion Rates at County Fair at Fond du Lac, Wis.—Via the North-Western Line. Excursion tickets will be sold at reduced rates Sept. 14 to 18, inclusive, limited to return until Sept. 19, inclusive. Apply to agents Chicago & North-Western R'y.

Returns from Two New York Dairies.

ED. HOARD'S DAIRYMAN:—The accompanying tables, which I have prepared directly from the milk bills of the two dairies represented by them, will, it seems to me, afford a valuable object lesson for all who are interested in the study of the dairy business in its various phases.

For not only will they show the benefits derived from co-operative dairy management as proven in this dairying region, but at the same time a comparison of the two tables shows a considerable difference in results, particularly in the matter of milk yield and average returns per cow for the same year in the two dairies. This of course is due to the difference in the butter fat test and has, no doubt, been brought about largely by difference in breeding, as the milk in both instances was as I am credibly informed, whole milk just as milked from the dairy, no cream in either case having been taken from one portion of the milk and added to another. The test of Mr. Van Dyke's dairy for the year is certainly a remarkable one and since its publication recently in some of our local papers, has drawn out a great deal of comment, but it shows what may be done by careful breeding along the line of increased butter production in even a large dairy.

Mr. Van Dyke has for many years been breeding with reference to building up a first-class butter dairy, of high grade Jerseys, believing that such a dairy will return better profits, than one producing more milk but of inferior quality, in the long run where the milk is made up as it is here—both Mr. Thompson and Mr. Van Dyke are patrons of the Delhi Co-operative Dairy Company's creamery, a statement of the past year's work of which was recently given in your paper—on the butter fat basis.

On the other hand Mr. Thompson believes it pays him better to breed more particularly with reference to increased size and vigor, and incidentally to a larger milk production, rather than to the largest possible butter fat yield from his dairy, which is also composed of grade Jerseys, but of a somewhat different type, he having for several years been selecting and breeding for size and yield even if to secure these, he is obliged to sacrifice something in the per cent of butter fat.

As will be seen by reference to the table, he has succeeded in securing an average milk yield, per cow, of 674 pounds above that of Mr. Van Dyke, with an apparent gain of $3.27 per cow, in favor of Mr. Thompson, in average returns.

It would be interesting to know the cost of production in either dairy, thus showing the real gain in profit of one over the other, but I was given no data to ascertain this even approximately.

Delaware Co., N. Y. J. E. BROWNELL.

STATEMENT OF SALES OF CHAS. R. THOMPSON, DELHI, N. Y., FROM APRIL 1, 1902 TO MARCH 31, '03.

1902—03.	Lbs. Milk.	Butter Fat Test.	Price per lb. fat.	Gain over Borden's.	Would receive at Borden's price.	Amount Actually Received.
April 15	8981	4.3%	.274	—$1.46	$214.89	$213.44
April 30	8927	4 4%				
May 15	8033	4.4%	.2166	9.47	173.99	183.46
May 31	10282	4.8%				
June 15	9553	4.8%	.21¼	32.30	161.03	193.25
June 30	9392	4.8%				
July 15	8382	4.8%	.25½	52.15	144.89	197.04
July 31	7717	4.8%				
August 15	6265	4.8%	.25¼	23.83	126.21	150.04
August 31	5755	5.1%				
September 15	4074	5.2%	.249	8.49	107.56	116.05
September 30	4890	5.2%				
October 15	4615	5.4%	.2761	5.57	124.72	130.29
October 31	3987	5.6%				
November 15	2574	5.4%	.3228	21.54	73.16	94 70
November 31	2146	5.4%				
December 15	2166	5.2%	.38	12.66	85.19	97.85
December 31	2897	5.0%				
January 15		4 4%	.37⅓	—.50	112.87	112.37
January 31	6841	4.4%				
February 15	4813	4 2%	.344	—.74	131.32	130.58
February 28	3942	4.5%				
March 15	6210	4.3%	.314	—4.49	192.10	187.61
March 31	7512	4.4%				
Total lbs. of milk	139954					
Total milk sales						$1806.68

Total actual gain over Borden's, $166.01—$7.19=$158.82.
Average yield per cow, 4665 pounds.
Average return per cow $60.22.

SUMMARY OF STATEMENT OF SALES FROM DAIRY OF GEO. L. VAN DYKE FOR YEAR ENDING MARCH 31, 1903.

1902—'03.	Lbs. Milk.	Butter Fat Test.	Price per lb. fat.	Gain over Borden's.	Would receive at Borden's price.	Amount actually received.
April, '02	18406	4.85 %	.274	$24.47	$228.07	$252.54
May, "	22348	4.8 %	.2166	20.13	213.25	233.38
June "	22301	5.0 %	.2125	47.11	189.55	236.66
July, "	20520	5.0 %	.255	76.90	184.68	261.58
August, '02	18130	5.4 %	.2525	56.71	190.36	247.07
September, '02	12903	5.75 %	.249	29.85	154.83	184.68
October, '02	10556	6.00 %	.2761	21.68	153.06	174.74
November, '02	7283	5.95 %	.3228	27.02	112.88	139.90
December, "	8882	5.55½%	.38	39.76	146.55	186.31
January, '03	11565	4.9 %	.37⅓	20.75	180.82	211.57
February, "	11492	5.0 %	.344	25.32	172.38	197.70
March, '03	15203	4.95 %	.314	23.60	212.87	236.47
Total	179589					
Total milk sales						$2562.60

Total actual gain over Borden's, $413.30.
Average yield per cow, 3991 pounds.
Average returns per cow, $56.95.

Mr. Wheaton's Canadian Dairy Notes.

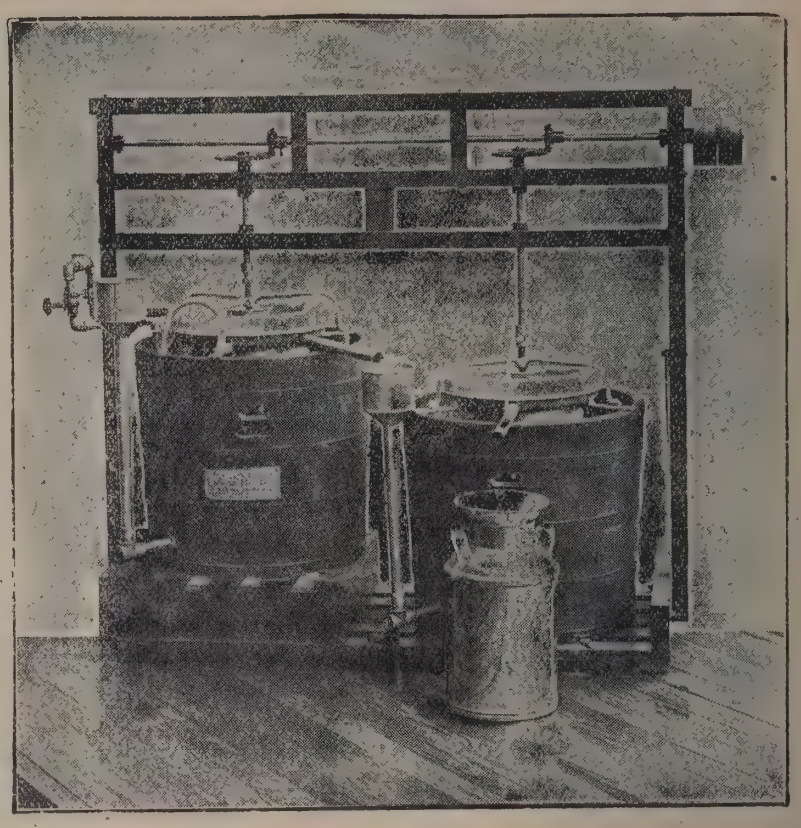
Shipping Too Green Cheese—Price of Cheese—Developing the Butter Trade—Dairy School Announcements.

ED. HOARD'S DAIRYMAN:—Again our dairymen have the charge made against them of shipping cheese too green. The complaint comes from Great Britain through our agent of the Canadian Department of Agriculture, who is looking after the market side of agriculture in the old land. So serious is this complaint that there is a danger of its injuring very materially the good reputation of Canadian cheese across the water.

There were similar complaints last year and one would think the matter had been ventilated enough at last winter's dairy conventions to prevent a recurrence of the practice this year. But for a little present gain, the practice is kept up by not a few factories, who seemingly are not at all concerned about the reputation of our cheese abroad, or with its effect upon future trade.

The blame may be said to rest upon both buyer and seller alike. The former will buy and ship this immature product for the purpose of present gain, and the latter will sell frequently ahead of time on a falling market, and with the hope of gaining a little because of less shrinkage in weight. But whatever the gain, there is no good reason whatever for continu-

A GREAT SUCCESS.



The Miller Cream Pasteurizer has a capacity of from 450 to 600 lbs. per hour.

Price $150 in Tin. $200 in Copper.

THE MILLER PASTEURIZING MACHINE CO.

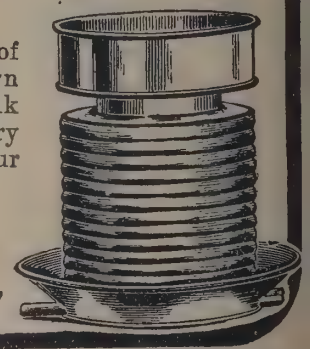
CANTON, OHIO.

Milk Dealers' Supplies

Milk Aerators, Pasteurizers and Coolers
Ice Cream Cans and Tubs
Milk Bottles
Milk Shipping Cans
Milk Bottle Caps



These are but a few of the many things of our own superior make for the milk dealer, dairyman and creamery man. Write at once for our free illustrated catalogue.



STURGES & BURN MFG. CO.
Chicago, Ill., St. Paul, Minn., Kansas City, Mo.



Truth to Tell

There are no other milk cans made that can equal in wearing qualities the genuine

BUHL CANS

They are tinned to stay tinned, and put together to stand years of hard service. Other cans crack easily, become dented, and being lightly tinned soon rust and go to pieces. Not so with the "Buhl Factory," "Improved Elgin" and "Genuine Iowa." They will outlast any other cans on the market, and are thoroughly and quickly cleaned. Remember, the Buhl is the only can in the world that is made with the Buhl "Victor" Can Breast and the Buhl "Victor" Round Handle. As there are many inferior imitations of this can, we stamp all ours with the Milk Can Trade Mark. Look for it. Sold by all live dealers. Ask about them, or write us direct.



BUHL STAMPING COMPANY,
212 W. Larned St., Detroit, Michigan.

ing the practice. In the long run, someone has to suffer and the loss will eventually come back to the patron.

In any case, the practice is a vicious one. If cheese is not sufficiently cured at the factories before shipment, it has no chance for properly curing after leaving the curing room and therefore reaches the consumer in an immature state, with its quality impaired and lacking that fine flavor characteristic of well cured cheese. Besides, bad flavors may develop after leaving the factories that could not be detected in the green stage. This may also be a reason for shipping green from factories where bad flavors are common.

But whether good or bad flavors develop afterwards, all cheese should be kept until sufficiently cured before being shipped. Patrons of factories should insist upon this being done. It is in their interests to do so as any loss, present or future, will come out of their pocket.

It is somewhat surprising how the price of cheese keeps up this season. Only once, and that for a few days, has it been near the nine cent point. This week's quotations at the local dairy boards of trade in this province are ruling 5 above the 10c point; a very good price for August quality. The market is reported firm, and stocks on this side are light. Factorymen were never sold up closer at this season, which may account somewhat for the large quantities of cheese shipped green.

At these prices for cheese it is little wonder that the butter side of dairying is receiving scant attention. "Cheese is king" and the butter manufacturer may rest satisfied if he can hold a fair proportion of his former patrons. This, he is finding it difficult to do, especially, where there are cheese factories in operation in the neighborhood.

But the "boom" in cheese is not the only thing working against the extension of the butter industry. The action of that dairy conference at Montreal last spring, in proscribing butter made by the cream gathering system and the determination which certain exporters are showing, to prevent butter being made by any other plan than the factory separator system, has also had this effect. Many of our dairymen are largely engaged in swine raising and rearing young stock and know the value of skim milk for feeding purposes when fed in a sweet condition. The factory separator plan, in this country at least, has not been managed in a way that would give the best results to the patron who wishes to utilize the skim milk to advantage for feeding purposes. As a rule it is returned sour and with a large amount of its feeding value gone. Factory managers are to blame for this and they should not complain if patrons prefer to do their own skimming and retain the skim milk at home.

In developing our butter trade, the farmer's side deserves some consideration. In conversation with a prominent dairyman the other day, he stated that he would not patronize a creamery at all unless he were allowed to do his own skimming at home.

The direct cash returns as between cheese and butter were so far apart that unless one were able to make the very most out of the skim milk, the latter could not compare with the former in point of profit for the farmer. He stated that he had tried sending milk to a separator creamery, but had not been able to get his skim milk home in a satisfactory condition.

There are, no doubt, many others who have had similar experiences, and whose wishes must be given some consideration, if our butter-making industry is to be largely extended. There is also the question of haulage, which is much less in the case of the cream gathering as compared with that of the cream separator factory.

We have no desire to disparage the value of the factory separator system in the making of the finest butter. Probably, all things considered, and taking one factory with another, a more uniform quality of butter can be made by this system than by the cream gathering plan. But with the patron, quality is not everything, and unless it carries with it a sufficiently increased price to pay him for what he loses in the way of extra haulage and inferior skim milk returned, he will not be influenced much by it.

If it were an impossibility to get good butter by the cream gathering plan, arguments against it would have more weight. But it has been shown that where properly managed, even where the farm separator is not in use, good butter can be made, and consequently there is no excuse for this general condemnation of the system, because some few concerns have been badly managed. As a patron told us recently, he could look after the cream a good deal better and a great deal easier than the whole milk. A little education of the cream gathering patron would go a long way towards improving the quality of the cream.

There is no need, perhaps, of pursuing this question further. Time will, we think, show that if the butter-making industry is to be largely extended in many parts of Canada, the cream gathering plan must be pushed forward rather than retarded. However, cheese seems to be in the ascendant just now, and it may be that neither system will make much headway, till the tide turns.

There is a little better feeling in the creamery butter market just now and the demand for export is much stronger, chiefly for fine saltless creamery and for choice, light salted. The ruling figure is about 19 cents, which as compared with 10 cents for cheese, is not very encouraging for the butter maker. The flow of milk is good for this season of the year and a large fall make of cheese and butter is assured.

The dairy school announcements are out. In our last letter we stated that the Strathroy school would open on Dec. 1st. The provincial school at Guelph will open about the same time under the direction of Professor Dean. A fine series of courses is provided; a creamery course in December for those preparing for winter butter making; a regular course for cheese and buttermakers and a home dairy course beginning early in January and continuing till the end of March; a short course for dairy instructors in April, and a summer course for makers following. All this gives ample opportunity to makers to keep up-to-date in their methods and work.

Prof. J. W. Hart, who for several years has had charge of the Kingston Dairy School, has resigned to accept a position at the Illinois Agricultural College. The Illinois College will secure a painstaking and energetic official who has had a wide and varied experience in dairying, especially the butter-making side of it. His successor has not been appointed yet but it is probable that a well qualified dairyman, a former member of Prof. Robertson's staff will receive the appointment. If so, the Kingston School will have another period of successful educational work before it.

Much interest is being taken in the dairy exhibits at the Toronto Industrial Fair this year. A couple of valuable prizes are to be given to the syndicate instructor of the factories whose districts take the most prizes. There are other classes for the makers as well. J. W. WHEATON.

Toronto, Canada.



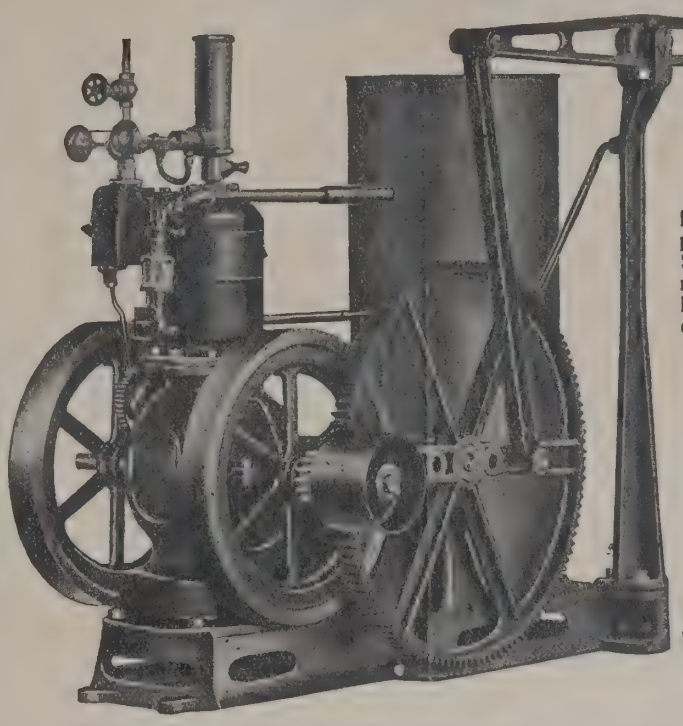
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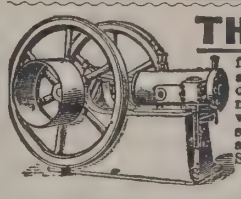
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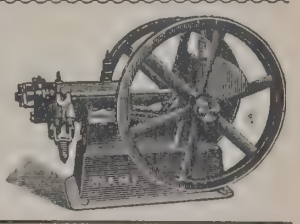
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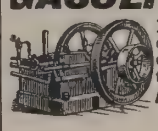
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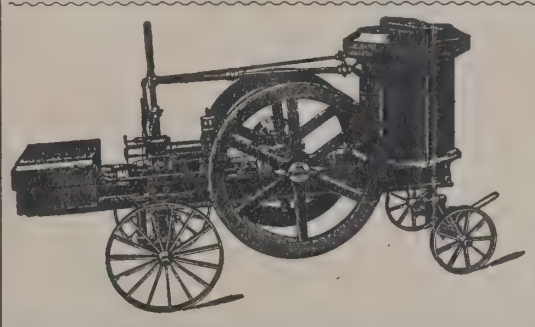


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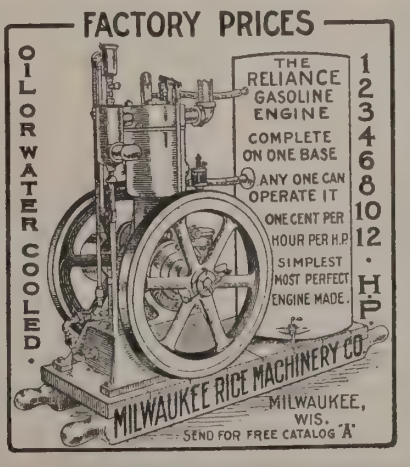


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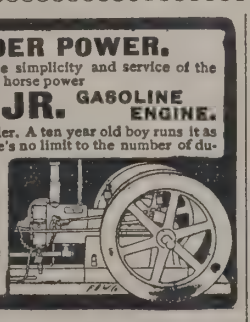


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Pennsylvania Pickings.

Dosing Cattle.

ED. HOARD'S DAIRYMAN:—I used to know good men who, in the spring would always make themselves tea from the bark scraped or cut from the sassafrass root—I guess as a punishment. They used to say they did it to thin their blood, purify the system, tone themselves up, etc. These self-punishers belonged to that revered and estimable class of citizens who fed their growing boys sulphur and molasses if a pimple or sore appeared on the boy's face.

Now, in both these cases sassafrass tea and sulphur and molasses may have been exactly what the patients needed, but as one of the patients I always doubted it.

The application of this discourse on home-made medication to the dairy business may be found in that large and well meaning class of dairymen and other stockmen who think the health and profitable working of their animals requires that frequent doses of powders and condimental foods shall be administered.

These same people who used to tea themselves with sassafrass treated their cows for hollow-horn by boring gimlet-holes through the horns and tying an old stocking-leg filled with salt around the base of the horns. For "wolf in the tail" the skin of the tail was generously slit, turned back, the opening filled with salt, and the whole bound up. For bloody milk, the more Dutch of our friends would find a toad somewhere about the cow's trough and kill the toad. It is true the cows had to embrace the doctrine of "absent treatment" to be cured thus, and it was pretty hard on the toad, "which doth hide a precious jewel in its head."

The present leaning toward spring medicines for human use, and condimental powders and foods for the animals, marks an intellectual advance from some of the old notions, and some day we shall find an intelligent conception of the balanced ration—that is, a ration containing a variety of wholesome, easily digested foods, supplying all the needs of the animal—will more cheaply take the place of the patented foods. That these latter are profitable additions to many rations I do not deny.

When a cow is fed nubbins, weather beaten corn stover, wheat or buckwheat straw at the stack, and religiously kept out in the winds and rains and snows in order to make her healthy, the wolf is not in her tail, it is at the other end—the wolf is at the door.

INSUFFICIENT FEEDING.

To my mind this is the greatest single dairy sin to-day. Many a good cow has degenerated into a hanger on, a place taker, because she has not been fed enough of the right kinds of foods. Now the novice in dairying must not think he can undo in a month's good, sensible feeding, the harm that has become almost established as part of the cow's nature from long periods of poor feeding. I would never reject a cow that my judgment told me ought to be a good one until I had fed her uninterruptedly well, at least a year.

We may laugh at the pioneer dairymen who fed nubbins and straw, and exposed their cows to the winter weather, but there are as many large herds exposed to the hardships of poor pastures and flies during our summers, as there were small herds underfed and poorly housed in the winters of our fathers.

There was no so-called dairy science then with a light for them to live up to. There is the science today. We have the experiments, the books, the papers and much light from some sources, overmuch-light, but are we living up to it—not all of it, but the clear, white best of it?

BACTERIA.

I have observed that since the Year Book of the National Agricultural Department has been out, the newspapers have considerable congratulation for us farmers, because the Government is breeding bacteria for us to sprinkle on our lands, for growing the leguminous crops.

They are to be solidified and compressed into the semblance of yeast cakes, which the farmer soaks and sprinkles the soakings over his land. Great results are promised, especially on poor and unproductive land, where crops of peas, beans and clover are to be improved at percentages of increase that make some of the calculations on the mining schemes, so plentifully infesting the mails for some time past, look like thirty cents.

It would appear to a lay farmer that for these friendly germs to live and carry on their beneficent operations for our legumes, soil conditions favorable to their living and work would seem necessary. Can they live and work without moisture, warmth, air—in a word, humus? If they can, then indeed do they bring good news. If they cannot, then we scarcely need them, for good land well tilled rarely fails at the harvest.

Pa. W. F. MCSPARRAN.

Siloing Whole Corn.

ED. HOARD'S DAIRYMAN:—G. L. S., of Dane, can silo his corn whole with success by putting it in in layers and lapping one layer on the other one-half its length. I built a silo last September, 10×12 feet with a depth of 22 feet, 6 feet of which was in the ground below the stable floor. The earth constituted the floor and the sides were built of pine boards ¾ and ½ inch thick and from 4 to 7 inches wide, taken from my own land and sawed at a cost, beside handling, of $3.50 per thousand feet. Frame was made of 2×8 pine set 15 inches from center to center and well bridged to keep from springing. Boards were doubled, joints broken and red rosined paper used as a lining between them.

The upper barn floor is about seven feet below top of silo (it occupies one corner of bay) and by driving up with a load of corn and placing a plank on wagon rack with one end resting about three feet below top of silo, two men could unload the loose stalks in armfuls as fast as two more could take care of them in the silo.

By keeping the sides a little higher than the middle, which was done by placing a line of small bunches lengthwise around the inside of the silo and tramping them well, and jamming doubled up bunches solidly into the corners, we lost but very little; not more than a common wagon box full altogether from rotten corners and top of silage.

There was none rotten in the corners after getting down 3 or 4 feet, although the way the stuff settled after being put in, made me think that it was all going

THE BROWN BESSIE HERD Offers one bull 14 months old, sired by Recorder, 29239, the only living son of Brown Bessie and has 14 tested daughters. Dam, Relay, 70353, test 17 pounds 2 ounces. She a daughter of Diploma with 61 tested daughters. Also Berkshire Pigs of English and American selected stock. H. C. TAYLOR, Orfordville, Wis.

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The herd is made up of representative animals of both home and foreign breeding.
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Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.
Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL Perry, Lake Co., Ohio.

GUERNSEYS FOR SALE
Bull two years old out of Count Topsy 24.27 lbs. butter 7 days. She won 1st prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality F. W. TRATT, Whitewater, Wis.

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Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.
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For information as to rates, dates of sale, etc., of these or other occasions, call upon the ticket agent of the North-Western Line.
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My herd of twenty cows, one two-year-old bull and two yearling heifers, all fine thoroughbred Jerseys, but not registered; health perfect. Cows very rich milkers; ages range from three to six years, due to calve this fall and early winter. Also one choice thoroughbred Guernsey cow. Come and see them or write for particulars. Reason for selling change of business.
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FOR SALE GOLDEN LAD BLOOD. sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

FOR SALE. Two A. J. C. C. Bulls ready for service; also some younger ones. Cows and heifers in calf to richly bred bulls. Write for pedigrees and prices. We have a few Berkshire Boar Pigs from unregistered sows left; cheap.
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The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service as you cannot get it.
Also Headquarters for Large English Berkshires and Standard Poultry.
Apply to
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HAZEL FERN HERD. A. J. C. C. Jerseys blood of St. Lambert, Melia Ann, Combination, Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

FOR SALE. Grandsons of Pedro 3387, by his son Pedro's Pretty Pogis 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

ROBINSWOOD JERSEY DAIRY is offering a few Reg. Jersey Bulls ready for service at from $25 to $50, sired by a grandson of Recorder, the only living son of Brown Bessie, out of good cows. Write, stating your wants, to N. H. ROBINSON, Prop., Centralia, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.
W. J. HUSSEY, Mt. Pleasant, O

VALLEY FARM Offers for sale a son of "King of St. Lambert's King" out of a daughter of "Gazilla's Fawn," dropped July 29th., 1900. Also have some young bulls. Write your wants to FRED STUBLEY, Black Earth, Wis.

PROSPECT HILL JERSEY HERD.
Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

into the manure pile before the cows had a chance at it.

It was my first trial with silage and my first silo, but it shall not be my last, for without that silo we would have lost all of our corn fodder on account of its immature condition, because of the cool season. It was mostly sweet corn, a little being sorghum.

The sweet corn was away ahead of the sorghum for making milk. We put in the stuff in alternate loads of sweet corn and sorghum, as long as the sorghum lasted. In feeding, when we would reach the sorghum, down would go the milk yield, but just as soon as we began on the sweet corn again, up it would come. Talk about ensilage not being good feed! why these cows would quit their bran to eat that ensilage.

After trying the horses on it once, they would call for it every day and they got it too, just as long as it lasted, which was up to March 10. When it was gone we missed it and a whole lot of milk too, about the same time.

The cost of that silo was less than $15 in cash and is the most profitable piece of furniture we have on the farm. We cut corn with a home made sled cutter, drop two armfulls in a place and when the field was cut, began hauling to the silo, using the most of three days in filling.

In closing let me say that after the silage had settled for a couple of days, we watered the top *a la* HOARD'S DAIRYMAN. Near the bottom we had to use a potato hook to loosen it up, so we could get it out.

K. W. L.

Minong, Wis.

Why Milk Varies in Test.

Prof. J. A. Conover of the Kansas Station, writes of milk tests as follows:

"At nearly every institute attended by Prof. Cottrell and myself, the question was asked: "What is the reason our milk tests 2.6 per cent one month and next, under exactly the same conditions, it tests 4 per cent or more?" There are a great many things that affect the test, so that we cannot point to any one thing as doing it. In the first place, the conditions are never "exactly" the same; the pasture may be better one month than another, the weather may be cooler or warmer, perhaps you encourage the cow less with the milk stool, or perhaps the boy who brings them in does not get them so much excited. All these things, and many more, influence the per cent of butter fat."

Kindness is sure to be rewarded by an increase in both the per cent of butter fat and also in the milk yield; whenever you abuse the cow, either by a sharp word, the milk stool, or by running her, you are taking money out of your pocket by decreasing the per cent of butter fat, and also the yield of milk. Whenever the cow suffers for lack of food, water or lack of proper care, there is a decrease in the amount received from her.

There are other reasons why your test may be lower one month than another. When the milk is warm, it churns very easily, so that when you send your milk to the station in cans only half full, they will be partially churned when they get there. There is no way of getting a fair sample of such milk, for the butter fat that is churned is lost both to the patron and to the creamery. If you have a can and a half to send, fill one can full, so that you will be sure to have that much that will not be churned. Keep the milk as cool as possible, as it does not churn so readily at a low temperature.

If you do not want low tests, do not take the first milk yourself and let the calf have the last. The first milk often tests as low as one-half of one per cent, while the last will test from ten to twelve per cent. Don't skim all your milk before you send it to the station, and then expect it to test six per cent.

To the creamery man I would say, keep all the samples of milk from churning, if possible: good tests can never be obtained from a churned sample without the use of ether, and this is too laborious a process for you. It is claimed by some that simply heating the milk to a temperature that will melt butter fat will answer, but my work in this line convinces me that satisfactory results can never be obtained in this manner.

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA.

President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.

FEES FOR REGISTRY.

TO MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.

NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. ☞All blanks furnished free.

Life Membership, $25.

Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.

Address F. L. HOUGHTON, Putney, Vt., for information relating to Registration of Pedigrees.

MAPLES STOCK FARM, PENNELLVILLE, N. Y.
Second Annual Offering
150 HEAD OF HIGH CLASS REGISTERED
HOLSTEIN-FRIESIANS
AT AUCTION, OCT. 14-15, 1903
at Fulton Fair Grounds, Fulton, N. Y. Catalogues ready Oct. 1. Write for one. Address R. F. D. 3 **John C. Godfrey, Fulton, N. Y.**

VALLEY FARM HERD
HOLSTEIN-FRIESIANS
Headed by Korndyke Queen De Kol's Prince, dam Korndyke Queen De Kol, 24 lbs. 6.7 oz., granddam Belle Korndyke, 25 lbs. 12.3 oz. Both sire and dam by Manor De Kol, his dam Netherland Hengerveld 25½lbs. 10.66 oz., Manor De Kol by a son of De Kol 2d, 26 lbs. 9.2½ oz. All are official tests and average 25 lbs. 13.72 oz. butter for 7 days and 3.95 per cent fat in their milk. Two bull calves now for sale and young ones after Sept. 1. DON J. WOOD, West Exeter, N. Y.

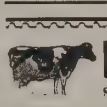
Holstein-Friesian Bull Calves
Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

JUST BULL CALVES
We have three, that are individually fine. They are bred right, have been fed right, and the price is right.
Ohio's Famous Herd, Holstein-Friesian Cattle. **W. B. SMITH & SON.**
2488 W Broad St, Columbus, O.

FOR SALE CHEAP The exceptionally well bred H.-F. bull Duke Mercedes De Kol, 3 yrs. old, sure and kind, can be bought for $100, or about half price, because his owner can use him no longer. Dam, g-dams, sisters, aunts, cousins, A. R. O.; making a wonderful showing. For further information and photo address
MALCOLM H. GARDNER, Darien, Wis.

HOLSTEIN-FRIESIANS INDIVIDUALITY, PERFORMANCE, BREEDING. You need it all. Write or come. 100 head.
McKAY BROS., Buckingham, Ia.

THE MONONA FARM HERD
OF HOLSTEIN-FRIESIANS
Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 69.50 lbs. one day. Breeders and dairymen please write for prices.
F. W. HALLIS,
Monona Farm. Madison, Wis.


HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis.

HOLSTEINS IN CALIFORNIA
ST. ANSELMO, MARIN COUNTY
250 HEAD IN THE HERD
Sires are sons of Mercedes Julip Pietertje, Colantha 4th Belle Korndyke, Fay Barnham Princess Wayne 7th. A fine lot of bull calves
R. M. HOTALING,
Rialto Building San Francisco, Cal.

LOOK HERE
34 cows and heifers in the **McGEOCH HERD** have been **officially tested** with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs. of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs. of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by **Gem Pietertje Hengerveld Paul De Kol, or Sir Ormsby De Kol** for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days; average per cent of fat 4.47. Are these the kind of **Holstein-Friesians** you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd? For particulars address **H. B. Daggett, Mgr., Station A, Milwaukee, Wis.** Residence: National Ave., near 40th. Phone, South 1601.

HOLSTEIN-FRIESIANS
FAIRVIEW HERD
We offer bulls ready for service; also heifer and bull calves not related, of the kind to suit the most particular.
O. J. GODFREY, Pennellville, N. Y.

Bulls For Sale.
Two choice bulls ready for service and some fine bull calves from good testing dams. Sire: Paul Clyde, son of Paul DeKol. Dam's record 24.38 lbs. in 7 days. Write **C. A. SNOW & SONS, Athens, Ohio.**

150 HEAD OF REGISTERED HOLSTEIN-FRIESIANS AT
PUBLIC AUCTION
WEDNESDAY AND THURSDAY
OCT. 14 & 15, 1903,
FULTON FAIR GROUNDS, FULTON, N. Y.

In my Second Annual Sale I have accepted consignments from three leading breeders. E. C. Brill, Poughquay, N. Y.; Fred Dixon, Sennett, N. Y., and Irwin Langworthy, South Brookfield, N. Y. In this sale will be found cows and heifers with large A. R. O. records bred to such bulls as Beryl Wayne De Kol Paul, Lord Netherland De Kol, Lilith Pauline De Kol's Count, Soldene Clothilde Artis, and Landes De Kol Burke.

Catalogues ready Oct. 1st and will be sent to all who write for them. Address all communications to JOHN C. GODFREY, R. F. D. 3, Fulton, N. Y.

B. V. KELLEY, Syracuse, N. Y., and W. P. SHERMAN, New York, Auctioneers.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148 Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.
WM. EVERSON & SONS, Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULLS FOR SALE.
Ready for service; from A. R. O. animals; sired by Johanna Rue 2nd and Paul De Kol, sire of 13 A. R. O. cows. Also young bull calves by same sire. **THOS. CAINES, Supt.**
ARCADIA, - MISSOURI.

TYRANENA HERD
100 HOLSTEIN-FRIESIANS 100
A. R. O. Stock For Sale.
Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz **Frank B. Fargo, Lake Mills, Wis.**

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Offers 3 yearling bulls and 10 yearling heifers, sired by a grandson of Sadie Vale's Concordia. Cows and heifers bred to oldest son of Mercedes Julip's Pietertje, No. 29480. Chester White Pigs in pairs and trios, not related.
W. R. GATES, Fort Atkinson, Wis.

OAKLAND HERD HOLSTEINS
PREMIER SIRE **Mutual Friend 3d's Paul**
A son of Paul De Kol & Mutual Friend 3d, 21.84 lbs. butter, milk averaged 4.7% at 3 years. She has two A. R. O. daughters, 1 made over 20 lbs. Must reduce herd at some price. State just what you want. T. A. MITCHELL, Weedsport, N. Y.

BROOKSIDE HERD
HOLSTEIN-FRIESIANS
To reduce herd to capacity of pasture, will sell a limited number of A No. 1 young cows of high breeding and individually right, large producers, at $150 each; also 15 bull calves at bargain prices.
STEVENS BROTHERS, Lacona, N. Y.

HOME FARM HERD.
Headed by **COLANTHA 4TH'S LAD.** Official test of three nearest dams, 25.1 lbs. butter in seven days. Herd numbers 125 head.
BEST FAMILIES REPRESENTED.
Special prices on six or eight bulls of serviceable age. **W. B. BARNEY & CO., Hampton, Ia.**

THE STEVENS HERD Contains at the present time the young bull, Vale, with the largest official backing of any bull ever born. Several half-brothers and sisters to Vale, and a large number of cows and heifers bred to his sire, whose official backing is larger than that of any other bull ever in service. A cow that stands unequaled by any other that ever lived, in the official work of herself and daughters. The only cow ever officially tested for six months. Eighteen cows and heifers with official 7-day butter records averaging, by the 80 per cent. factor, over 20 lbs. each. Thirty animals whose dams have made official 7-day butter records averaging over 20 lbs. each. Why not get our prices before buying?
HENRY STEVENS & SON,
Brookside Stock Farm. Lacona, Oswego Co., N. Y.

ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.
GEO. T. McNEIL, Theresa, N. Y.

FOR SALE.
H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address **W. H. JONES, Watertown, Wis.** Rural Route No. 2.

FOR SALE 2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.
M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

CLOVERDALE HERD
HOLSTEINS.
Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.
A. J. DAUGHERITY, Streator, Ill.

Woodlake Herd.
Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. **JOHN B. IRWIN, Station D., R. 1. Minneapolis, Minn.**

MARKHAM MANOR FARM,
Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 18870, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for discription and price to **J. A. THORNTON, Manager, Simmonsville, Vt.**

FIRST CLASS BULL
Offered at reasonable price by South Side Farm, White Bear, Minn. Born Dec. 1, 1899. Sired by Baron Pauline De Kol with 8 A. R. O. daughters, and tracing three times to De Kol 2d. Our bull's dam has A. R. O. record of over 22 pounds, under five years, and during week's official test milk averaged over 40 per cent. fat. Fine conformation, nicely marked, superior handler, large veins and rudimentaries, gentle, vigorous, and sure. Other bulls ready for service.

STAR FARM HOLSTEINS
SPECIAL OFFERING: Six of the choicest Johanna bull calves from official butter record dams and A. R. sire.
Also a few choice heifer calves, yearlings and 2-year olds; latter bred to Mercedes Julip's Pietertje Paul.
150 HEAD TO SELECT FROM
Special prices on cows in carload lots. Prices reasonable for quality. Liberal terms of payment.
HORACE L. BRONSON, Cortland, N. Y.

Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. **C. H. STEVENS, Jefferson, Wis.**

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. All our choice pigs of 1902 farrowing have been sold. We are now taking orders for 1903 farrowing.
JOHN WHITE & SON, Adamstown, Md.

HOLSTEINS
High Class Advanced Registry Stock only. Best butter families. Stock for sale.
Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.


T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordias. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.
Wm. O. Jackson & Sons, South Bend, Ind.

FOR SALE. H.-F. Bulls, ready for service. from A. R. O. Cows and sired by Sir Jonanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis

PURE BRED SHORTHORNS
CHOICE BULLS FOR SALE.
Also Cows and Heifers bred to Clay Buttercup, 126851, a descendant of the Clay Family, champions at the World's Fair dairy test.
GEO. WENHAM, Fort Atkinson, Wis.

Bread an' Milk.

Brown bread an' milk an' sweet apple,
with a spoonful o' cream, ye know,
Is there anything else ye think of that sets
you a-longin' so?
Ye can see the bins in the suller, where
the pound-sweets used to be,
An' smell the supper a-cookin'|an' the
steepin' o' mother's tea.

An' the cows at the barn to greet ye,
ole Speckle an' Bess an' Brin;
An' then when the chores were finished
an' the wood an' the shavin's in,
With cheeks as red as yer mittens, an'
eyes that were all aglow,
A passin' your bowl to father for the
spoonful o' cream, ye know.

Perhaps what they call their menus
may be a slight more great;
Perhaps there are fancier dishes set by
the rich man's plate;
But I wouldn't give up the mem'ry for all
o' their fuss and show
O' the bread an' milk an' sweet apple
that I et in the long ago.

—*Ladies' World.*

Fat Veal Wanted in Skim Milk Calves.

A Massachusetts Appeal.

ED. HOARD'S DAIRYMAN:—Can anyone tell me how to make separator veal calves fat inside? I have been experimenting all summer and it is slow work. The calves grow fast and look in good order, but the butcher finds no fat inside. I have fed large quantities of milk and in addition, oil meal, corn meal and ground oats. I tried cooking oil meal and adding to the milk, but found it much more likely to cause scours than the separator milk alone. Has anyone tried cotton seed meal?

Abington, Mass. S. B. R.

We submit the above question to our readers but without much expectation that the sought for informatien can be had. For reasons which it is difficult, if not impossible to explain, there is something in milk fat for calf development that cannot be otherwise supplied, as stated by our correspondent. The calves will grow and look in good order, but there is something about the flesh and the distribution of fat that apparently cannot be had with any combination of meal and grain and skim milk.

However, if any of our readers can shed any light on this question or give this inquirer any hints, we shall be very glad to receive and publish the same.

Defending the Scrub Cows.

ED. HOARD'S DAIRYMAN:—I was in the sheep business until I was forced out on account of wolves. I then sold out and turned my attention to cows. I bought a number of scrub calves and bred them at about 18 months old; they are doing fairly well, but of course I have to weed them out. There are a few that are not up to my standard and some that run over. My standard is not high. I will keep a cow that produces one pound of butter fat a day; anything lower than that I will not feed.

I had a notion to change my herd gradually to Jerseys. But in reading the DAIRYMAN I have changed my mind, as the DAIRYMAN bears me out in what I always contended, that if our common native cows were used and fed as well as the little, registered Jerseys commonly are, they make a better dairy cow.

I have always contended that such cows as Brown Bessie and other phenomenal milkers were only sports, and by pampering and forcing they were brought up to their high record. I presume that every pound of butter made from Brown Bessie, cost the owner a dollar.

Your correspondent, H. H. L., page 606, bears me out in my theory. He says of visiting a herd in York state, "my friend has probably no more than an average herd, but when I saw him, his twenty cows were averaging slightly over 400 pounds of milk a day." He calculated a test of an average of 4.56. Now my scrubs are doing better than this, and after being properly weeded out and better cows substituted, I shall expect them to do very much better. J. L.

Wood County, Wis.

Our Wood County friend has entirely misapprehended the teachings of the DAIRYMAN, if he is of the opinion that we think the common native cow is, as a rule, equal to the grade or thoroughbred dairy cow, be she Jersey, Guernsey, Holstein or Ayrshire. We have contended, however, that one can have a profitable dairy without going to the expense of investing in a thoroughbred herd, especially, if he will commence with the calves, and give them a good dairy bringing up, and after they commence to give milk, have the courage to dispose of all that do not prove to be profitable milkers. Then, let him breed these selected heifers to a thoroughbred sire, whose ancestors have shown dairy ability, and he is on the way to the possession of as good a herd of practical working dairy cows as the country affords.

It is altogether a mistake to contend that Brown Bessie and hundreds of other phenomenal milkers were simply sports. They were as far removed from sports as it is possible for a cow to be. They were bred along lines which clearly indicated that when they came to maturity and had a fair bringing up and chance to show what they were worth, they would prove not only phenomenal yielders but economical producers as well.

In the 90 days contest at the Columbian Exposition, Brown Bessie produced 178.12 lbs. of butter fat, the equivalent of 204.47 lbs. of standard butter, and at a cost for feed of $25.51. Feed stuffs were valued as follows: Hay, $11.50 per ton; silage, $4.00; corn meal, $22.00; corn hearts, $13.50; grano-gluten, $14.75; oats, $23.00; cotton seed meal, $26.00; bran, $12.50; middlings, $13.00; oil meal, $22.

Galalith (Milk Stone.)

Consul General O. G. D. Hughes, of Coburg, Germany, reports as follows:

At the Hygienic Milk Supply (Hygienische Milchversorgung) Exhibition, which was lately held at Hamburg, the Vereinigten Gummiwaren-Fabriken, of Harburg and Vienna, exhibited a number of objects which seemingly had nothing whatsoever to do with hygienic-milk supply. There were shown, nicely arranged in glass boxes, combs seemingly made of horn; cigar holders, with amber-colored mouthpieces; knives and forks,

THE

"1900" FAMILY WASHER FREE

Greatest Invention of the Age. Labor and Expense of Washing Clothes Cut in Two.

No More Stooping, Rubbing or Boiling of Clothes.

Every Household Needs One.



THE "1900" BALL-BEARING FAMILY WASHER SENT FREE

to anyone answering this advertisement, without deposit or advance payment of any kind, freight paid, on 30 days trial. The "1900" Ball-Bearing Washer is unquestionably the greatest labor-saving machine ever invented for family use. **Entirely new principle.** It is simplicity itself. There are no wheels, paddles, rockers, cranks or complicated machinery. It revolves on **bicycle ball-bearings,** making it by far the easiest running washer on the market. No strength required; a child can operate it.

No more stooping, rubbing, boiling of clothes. Hot water and soap all that is needed. It will wash **large quantities of clothes,** no matter how soiled, **perfectly clean in 6 minutes.** Impossible to injure the most delicate fabrics.

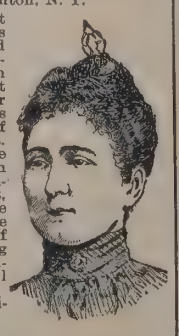
An Enthusiastic Admirer.

Chicago, Ill., March 22, 1903.

The "1900" Washer Co., Binghamton, N. Y.

The washer that I bought from you nearly 2 years ago is in the best condition yet, and I believe it always will be; nothing has been worn out or broken off; every part is as good as it was when I bought it. Neither have I noticed that my clothes through the continuous use of the washer have been worn out. Your washer don't rub the clothes to pieces or wear them out. It is really the best washing machine on the market, and if I could help it there would not be a house-wife in the United States without one of your "1900" ball-bearing washing machines. I heartily recommend it to every lady, for it will save her a lot of hard work.

Mrs. A. H. CENTNER, 636 Diversey Boulevard.



Write at once for catalogue and full particulars to

"1900" WASHER CO.,

219 R. STATE ST., BINGHAMTON, N. Y.

The New 1903 REID HAND SEPARATOR



The 1903 Reid Hand Separator is the most exact milk skimmer ever made—it is simplest, fastest, lightest running, and affords most butter-producing material under all conditions. It creates a new source of revenue and maintains the income—

WEARS LESS, LASTS LONGEST

Every Reid Hand Separator is sent out under a positive guarantee, and is sold on its own merits. If you want a separator we will send a Reid on approval—work it ten days and if it does not excel all others return at our expense. Send for new catalogue and revised price list, mailed free.

A. H. REID, 30th and Market Sts., Philadelphia, Pa.



THE

Iowa Dairy Separator.

AN UP-TO-DATE MACHINE REPLETE WITH PRACTICAL IDEAS

It is built in the following sizes:

250, 350, 450, 600, 750 POUNDS PER HOUR

Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.

SEND FOR CATALOGUE NO. 60 AND PRINTED MATTER.

IOWA DAIRY SEPARATOR COMPANY, WATERLOO, IOWA.

WE TAKE THE RISK

of your being satisfied, and glad you bought the cream separator that makes money for you.

THE AMERICAN

Is Sold On Trial.



The price makes it easy for every cow owner to buy. Run this separator and make money. The catalogue is free and we want you to have one. Write to-day.

American Separator Company,

Medal Winner at Paris Exposition. Box 1023 Bainbridge, N. Y.

Big Profit in Cows

is but a question of getting *all* the cream (butter fat) out of the milk. With the old setting system your loss is over 80 per cent greater than with a



NATIONAL Hand Separator

A valuable machine you can test in your own home or dairy

10 Days Free

If you like—buy it; if you don't, we take it back and pay all expense—you have nothing to risk. Our catalogue gives full particulars.

National Dairy Machine Co., Newark, N. J.



WANTED!!

Every reader of this paper who owns a few cows to send for our new catalog of

DAVIS Cream Separators

Sent free upon request. It will tell you why the Davis Separators are money makers for their owners.

THEY ARE GUARANTEED to separate THOROUGHLY and QUICKLY. Dairymen and farmers find the "Davis" the most economical piece of machinery on the farm. Let us send you full particulars about it

DAVIS CREAM SEPARATOR CO.

54 to 64 N. Clinton St., Chicago.



EYE TROUBLES CURED

by the ONEAL DISSOLVENT METHOD at patients own home. Dr. Oneal cures Blindness, Cataracts, Scums Films and White Spots on the Eyes, Granulated Lids, Weak and Sore Eyes by mild medicines. Cross-Eyes cured. No pain. Always successful. References in all parts of the world. Write to-day for Dr. Oneal's opinion, advice and his Illustrated Book, absolutely FREE

OREN ONEAL, M. D., Suite 904, 52 Dearborn St., Chicago

WORLD CREAM SEPARATOR CO.

NEW OXFORD BALL BEARING Cream Separator

Sold on guarantee to be the best on the market. Catalog free.

WORLD CREAM SEPARATOR CO. 41 Main St., Council Bluffs Ia.

AMERICAN CATTLE DOCTOR Orange Judd edition gives symptoms and cure for all diseases of cattle. Many valuable prescriptions. 359 pages $1.00 postpaid. S. C. SULLIVAN CO., ERIE, PA.

St. Jacobs Oil

The surest, quickest cure for Lumbago.

with handles similar in appearance to ebony; ferrules for umbrellas and sticks, and balls, rings, chess figures, dominoes, etc.; also a small table with an inlaid marble slab, and finally a number of thick slabs and staves with every imaginable variation of marble colors, but of considerably less weight than real marble. These objects were made of "galalith"—i. e., milk stone.

Skimmed milk, in spite of its many valuable qualities, has so far been little used; it contains a considerable portion of nutritious matter—i. e., 1 liter (1.05 quarts) of skimmed milk is of about equal value to a quarter of a pound of meat. It is by far too little appreciated as a cheap food for the people, hence what the German peasant cannot sell to milk-sugar factories, or use for the manufacture of cheese is given to cattle and pigs as food. The principal albuminoid substance of skimmed milk, the casein, is the raw material out of which the new product, galalith, is manufactured. More than fifteen years ago the idea was originated to manufacture various articles like buttons, handles, ornamental plates, and colored pencils out of casein.

The inventor took out a patent for a manufacturing process, which is described as follows: Fresh casein—*i. e.*, ordinary dried curds—were disolved in hot soap water; to this solution the required coloring ingredients and a metalic salt were added, and a firm substance consisting of casein and metallic soap was produced, which, by drying and pressing into moulds, could be given any desired shape. It is to be supposed the inventor had found out by continued trials that casein by addition of a metallic salt becomes brittle and softens easily in water. With a view of counteracting this latter drawback, soap was added, but the articles produced thus were soft and brittle, and the invention was not a success. The chemical factory of Schering at Berlin then invented a process, the idea of which was to make casein insoluble by the addition of formaldehyde, but the disadvantage of this invention was that the articles produced distended considerably in water.

The inventors of galalith succeeded, after many troublesome trials, in doing away with the deficiences of former methods and in using the good that was in the former ones for the working out of an entirely new process. Their first aim was to make an insoluble union of casein by the addition of salts and acids. The substance thus obtained was dephlegmated and dried, and, finally, by the addition of formaldehyde, the galalith was obtained. To produce, for instance, a material similar to ebony, which could be used for handles of table knives, they proceeded as follows: Dissolved casein was given a dark color by the addition of soot and, with the help of a metalic salt, "acetate of lead," a slate-colored precipitate was obtained. This was mixed with water and the thin pap filled into a cloth stretched over a frame. The water becoming absorbed by the cloth, the pap contracted into a unfiorm, firm, and dark mass; this was placed in a solution of formaldehyde and, after being dried, a product resulted which in luster and color was equal to ebony. In this way a raw material is produced which the inventors have protected by numerous patents.

An advantage of the new product as compared with celluloid is the fact that it does not ignite so easily and is entirely odorless. Trials have proved that even when kept for weeks in water it does not distend more than the best quality of buffalo horn; after one month it had not soaked in more than twenty per cent of water. Of late, trials have been made to produce, by the addition of vegetable oils, an insulating material for electrotechnical purposes.

The Reading Dairyman Wins.

I have seen one dairyman with a beautiful home, large and well ventilated stables, all the product of a herd of milk cows, and another farmer with the same old house he built ten years before, dilapidated stables, gates broken, fences down, all the product of another herd of cows, equal in number to the first. Why this difference with the same conditions?

If you go into the home of the first class of men you will find agricultural papers; you will find a reader, a man who has a thinker and is using it. He may not be a graduate of any agricultural college, but he is a self-educated man, who received a large part of his education from the agricultural papers. How much more advanced he would have been if he had learned the rudiments at the Agricultural College! But greater honor is due to self education than to the college educated man. Still, if progress was to depend on self education, we would resemble the snail instead of the ant.

I am a firm believer that the duty of every state is to place a premium on agricultural pursuits. The most important branch of agriculture is dairying. The growth of cereals depends on dairying to return its elements to the soil of which the soil has been robbed by their growth. Dairying enriches the soil, while the growth of cereals impoverishes it. Therefore no branch of agriculture should be fostered and encouraged as much as the dairying industry.—E. A. McDONALD, Washington State Dairy and Food Commissioner.

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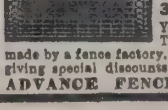
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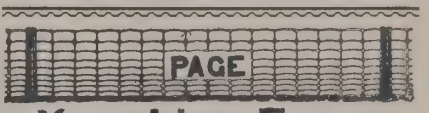
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Buttermilk Wheying Off.

ED. HOARD'S DAIRYMAN:—As I am having trouble with my buttermilk, for retail trade, separating or "wheying off" shortly after leaving the churn, I ask your advice in handling same to overcome above results. I have handled at high and low temperatures (48° F. to 58° F.) and have the same results. I bottle all of this, and of course it looks badly when delivered. J. M.

Baltimore, Md.

It is difficult to say without more exact information just what is the trouble with the buttermilk, but we are inclined to think that it is too acid. Buttermilk that is decidedly acid wheys off easily, which it will not do if more nearly neutral. We would suggest a lower degree of acidity for the cream unless it would affect the accustomed flavor of the butter, and then cool the buttermilk as soon as possible to prevent further growth of the lactic acid bacteria.

Ensilage From Frosted Corn.

ED. HOARD'S DAIRYMAN:—I note some of your readers wish to know about making ensilage from frosted corn.

My experience last year was that good silage can be made from badly frosted corn, and that the cattle find it a very palatable ration and that it made an excellent quality of milk, without the use of an excessive amount of other feed. The ensilage kept perfectly, though we used but a small quantity of water, perhaps one-half dozen barrels on the two last days cutting.

Dimensions of silo, 30 x 30. We cut 55 acres of badly frosted corn, in fact the leaves were so dry the last two days that they flew around like chaff, and it was on account of the dry condition of the corn, in the afternoon, that we used the water.

One peculiar feature was that the frosted corn did not heat to above 80°, and in using from the silo there did not seem to be evidence of having attained a higher degree of heat.

I do not think that you make a mistake in recommending the filling of silos from frosted corn, and I would say after the frost comes, put your corn in the silo as soon as possible.

CHAS. HOWELL.

Cerro Gordo Co., Ia.

Handling Frosted Silage Corn.

The present outlook is that a large amount of ensilage corn will be frosted before it is sufficiently matured for good silage. If this happens the chances are that there will be a large amount of poor silage made for want of proper handling. When corn is frosted the result is a breaking of the plant cells, allowing the sap to escape, with a rapid drying of the plant. If such dry corn is put in the silo it will not pack well nor go through the usual siloing process and the result is a mass of moldy ensilage. Experience has shown that if such corn is wet thoroughly when siloed, perfectly good ensilage can be made; but it needs water, lots of it. Forty barrels to the average silo is not too much, but it must be distributed as evenly as possible during cutting. The following letter, published in HOARD'S DAIRYMAN, September 19, 1902, gives one man's experience with frosted corn and we advise a careful reading of the same:

ED. HOARD'S DAIRYMAN:—Reading several discussions lately of the different methods of handling corn for siloing, I thought I would add my plan by which I saved my corn last year, after a frost which had completely killed and dried it.

We had one hard frost which completely killed everything in the crop line, and I found my corn next day so dry you could hear it rattle across the field.

The next morning the agent was setting up a McCormick, and I was hustling things to be ready.

The next morning at 3:30, I was in the field with outfit and one man, and I cut and he piled bundles on ground, laying flat and in piles, containing 2 to 3 good sized shocks in a pile, and we worked as long as corn was wet with dew, then went to breakfast.

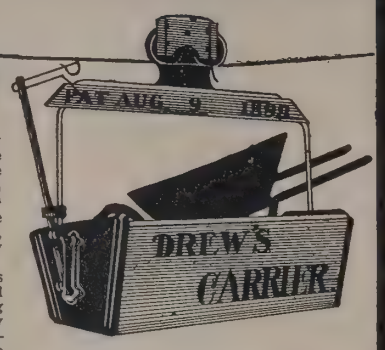
We could cut all day on what was down, and the bound bundles would open damp and handle fine, and my silage was fine all through; no dry rot nor fired silage in it.

I think my moisture was distribut

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A two-cylinder gasoline engine; superior to all one-cylinder engines. Costs less to buy and less to run. Quicker and easier started. Has a wider sphere of usefulness. Has no vibration; can be mounted on any light wagon as a portable. Weighs less than half of one cylinder engines. Give size of engine required. Sizes 1½, 2, 2½, 4, 5, 6, 8, 10 and 15 horse power. Mention this paper. Send for catalogue. THE TEMPLE PUMP CO., Meagher and 15th Sts., CHICAGO.

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It is self operating—it turns curves and switches—dumps its load in yard or wagon. Besides carrying manure you can use it to convey ensilage, feed, grain, potatoes, cans of milk, from one point to another. It works so simple and easy that any man or boy can run it.



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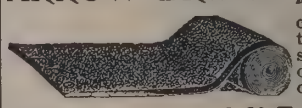
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are all salt, no impurities. Improve the quality and yield of milk. A modern convenience, always present, animals never neglected, and costs for each only about a nickle a month. See how they enjoy helping themselves when you place it within reach. For all stock. Buy of dealers or send for free booklet to

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more evenly than any number of barrels set over cutter could possibly have done it, and at lots less expense and trouble, if you consider that you don't have to wait on cutters, but cut with a machine that does fine work and never grumbles (if you oil it). We repeated same routine each day until silo was filled.

Logansport, Ind. SAM SMITH.

Ropy Milk.

ED. HOARD'S DAIRYMAN:—For the past month I have been troubled with stringy or ropy milk. We use the milk for town delivery. It is very objectionable. The milk contains no clots, for when it is strained it does not stop up the strainer, but flows through as freely at last as in the beginning. I have never been able to find anything upon the strainer.

The milk is cooled over an aerator and immediately set into ice-water. The vessels used are all properly cleansed, and the water in the vats is clear and pure. The cows graze upon a blue grass pasture, and are healthful and in the best of condition. Salt is continually before them. H. A. B.

Magengo, Iowa.

Ropy milk is the result of the work of a specific bacteria growing in the milk. When once contaminated with this species, it seems to be necessary to go through the stables, as well as the dairy utensils, and make a thorough cleaning out of everything connected with the production and handling of the milk. This calls for a thorough scalding and cleansing of dairy utensils with boiling water and washing soda. The wash water must be scalding, as this species of bacteria and its spores are very resistant to heat. See that the stables are cleaned out, it may be necessary to whitewash; brush the cows well, especially the udders, and if there are any mud holes in the pasture or elsewhere, that they have access to, fence them off. If any milk is bought from other dairies, set a small quantity of such milk to see if the ropy milk does not come from the outside dairies. Ropy milk is difficult to get rid of, hence the cleaning must be thorough.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Indigestion.

I have a cow well and hearty apparently, but her droppings are too thin, so much so, that she is poor in flesh, for everything passes right through her. She fills up good and full during the day, but voids large quantities through the night, and in the morning she is quite hollow, and it makes her bones show. The droppings will spatter four feet each way; she is on grass and has no grain.

Saco, Maine. MRS. S. L. B.

ANSWER.

Give a complete change of diet, such as is easily digested, including some first quality hay, and give in each feed a tablespoonful of bicarbonate of soda.

Rheumatism Perhaps.

I have a heifer one year old who is lame on her left front foot. I examined her foot but can't find anything. She walks as though her leg was asleep There is no swelling She has been lame for two weeks. A. H. P.

Spring Hill, Minn.

ANSWER.

Have the leg examined by a qualified veterinarian, and make sure of the cause, then he may be able to find a remedy.

Milk Fever.

We would like to have some light on milk fever and the Schmidt treatment. During this year we have had four cases of this disease, all of which we treated with the Schmidt treatment, but only one of them successfully. In every case the treatment seemed to give relief at first. As the cow did not seem to be fully relieved, a second dose was administered in every case. In the only case in which the cow finally recovered, she was apparently well within 24 hours after being treated, though, of course, she was very weak. In the other cases the animal would get up and walk around, but would eat nothing. They all appeared stupid, and this stupor increased until death ensued.

The last one to die, calved August 13th. On Aug. 14th she was taken with the fever, showing the first symptoms about 36 hours after calving. The Schmidt treatment was administered at once. In about 4 hours she got up and appeared to be doing nicely. But about 18 hours after the first dose was given she appeared to be getting worse, so another dose of the iodide of potash was used, apparently with beneficial results. After that she seemed to contract a cold, showing a heavy discharge from the nose, and continued to grow worse. Yesterday, Aug. 19, she had a high fever, her temperature going to 109. She was bathed in cold water, which seemed to give some relief. Last night she died.

In connection with the Schmidt treatment I used heavy doses of Epsom salts and gave 3 oz. doses of aromatic spirits of ammonia and spirits of nitrous ether, as recommended by Dr. McIntosh Do you think I gave too many or too few doses of potassium iodide? Does this treatment have any weakening effect on the cow? Could the use of ammonia and ether, in connection with the Schmidt treatment, have done any harm?

CLOVERLANDS DAIRY FARM.

New Orleans, La.

ANSWER.

In the opinion of the writer, you have made your mistake in giving the heavy doses of Epsom salts, as such will almost invariably kill when a cow is in the state of stupor. The large doses will find their way down into the trachea and into the lungs, which results in pneumonia or immediate suffocation. The stimulants should be given in smaller doses, and repeated every hour, so small that they will absorb in the mouth. Your potassium iodide treatment was all right, as far as can be learned from your letter.

Lump Jaw.

Heifer has a bunch forming under her throat. This bunch I noticed about three weeks ago. It seems to be growing; is now about 4 inches long, about 1¼ inches in width; it seems to be soft and flabby. N. N.

Black Creeek. Wis.

ANSWER.

If your heifer has not bruised the enlarged parts, so as to cause the swelling, we are inclined to believe that it is the acute stage of lump jaw. Should it continue to enlarge, see lump jaw, this issue, and apply same treatment.

Unknown Disease.

There is a disease among the cows here that is new to me; it kills very quickly. It is very much like distemper with horses. The cow's nostril become clogged with matter, like a horse with distemper, until she can't breathe, except with her mouth open; she has high fever; her throat a little swollen; her head turned to one side as though her side hurt. G. H.

Chepultepec, Alabama.

ANSWER.

Your description is not sufficient to warrant a diagnosis, or suggest a remedy. If the disease is becoming general, you should notify your state officials; or if you wish to have an opinion from this department, please give a minute description of every detail noticeable, and a complete history of the case. You cannot give us too much information in such cases.

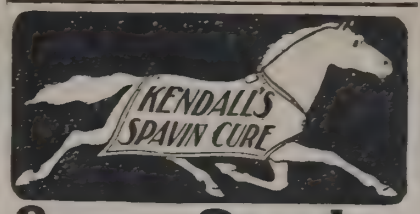
Lump Jaw.

My cow has a large round lump between jaw bones as large as man's fist, also swelling upon one jaw bone; has been coming about two months.

Troy, Ala. W. P. R.

ANSWER.

Have the lump dissected out completely and there will be no chance for it to return. Employ a qualified veterinarian, and have it done right to avoid further infection.



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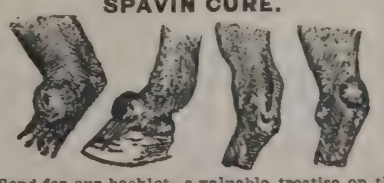
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Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ⅜ lb 50c, 1½ lb $1.00, postpaid.

O. H. MFG. CO.,
Dept. H, Lyndon, Vt.



ABORTION

Can be successfully treated with **Anti-Abortion Serum.** Easily administered and permanently cures. Information free.

DR. ROBERTS
VETERINARY REMEDY CO.,
537 Grand Ave., Waukesha, Wis.

BARREN COWS CURED.
Write for Pamphlet and Testimonials.
Oldest and best Treatment Extant.
MOORE BROS., V. S., Albany, N. Y.

DR. GEORGE HOLLABUSH'S
Sure Cure for Abortion

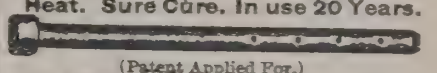


and General Tonic for Cows. The only genuine sure cure and general tonic for cows in the market. I guarantee, and refund money if cure unsatisfactory. Dr. Geo. Hollabush, Ft. Atkinson, Wis. Write for circular.

..ABORTION..

RETENTION OF PLACENTA AND FAILURE TO BREED.
KELLOGG'S CONDITION POWDER
Is a positive cure for these diseases. Write for circular containing full information, references and price.
H. W. KELLOGG CO., St. Paul, Minn.

ABORTION,
Failing to Breed and bring Cows to Heat. Sure Cure. In use 20 Years.



(Patent Applied For.)

Hard Rubber Safety Milk Tubes and Dilating Plugs to cure hard milkers and a test Bistoury. Send for testimonials.

DR. WM. HORNE, Janesville, Wis.

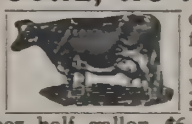
DYSPEPSIA Cure guaranteed or money returned. Tasteless tablets, small package, month's treatment fifty cents. Hundred page family medicine book for 2c stamp. Dept. B. Modern Medicine Co., Bennet Harbor, Mich.

CHLORO NAPTHOLEUM DIP

Used in the Dairy makes every condition perfectly sanitary. Use it as a disinfectant, for cleaning all dairy utensils and cans, sprinkling floors and walls. Purifies and cleanses thoroughly. Also **cures** scours in calves and contagious abortion in cows. Keeps flies off cows at milking. Guaranteed. Agents wanted. 1 gal. $1.50; 5 gals. $6.75, prepaid. Larger lots at lower rates.

WEST DISINFECTING CO., Inc., 8 E. 59th. St., New York.

CURE "THE" COW
NO CURE, NO PAY



WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address

DR. EATON J. GROSS
152 Congress St., Troy, N. Y.

BLACKLEGOIDS
BEST PREVENTIVE OF BLACKLEG.



Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each **Blacklegoid** (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. **Blacklegoids** are sold by druggists; *ask for them.*

Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is interesting to stockmen. Write for it; it is free.

PARKE, DAVIS & CO. DETROIT, MICH.

Branches: New York, Kansas City, Baltimore, New Orleans, Chicago, Walkerville, Ont.; Montreal, Que.; London, Eng.

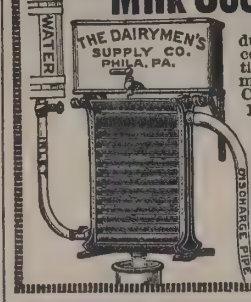
Alfalfa in New Jersey.

ED. HOARD'S DAIRYMAN:—I have a small dairy and am profoundly interested in securing a growth of alfalfa. The spring of 1902 we sowed part of our garden to alfalfa. It produced a fine crop and did well last year. About May 1st, 1903, we sowed 30 lbs. seed on one acre. It came up well but the weeds largely took possession. We have mowed it three times but the alfalfa seems to have largely disappeared. Must I from present conditions, look upon it as a failure, or is it to be attributed to the absence of the necessary bacteria. It is on good soil, where we had 75 bushels shelled corn. We prepared the ground well, applied a good coat of lime, three bags of a complete fertilizer and 200 lbs. sulphate of potash per acre. Am willing to apply any quantity to secure a crop. Would you think it necessary to secure some soil to sow over this acre, provided next spring it has failed, and where can I get it? Our College Farm is a successful grower of alfalfa. Would one barrel of this soil per acre furnish the necessary bacteria? I notice the Editor is a successful grower of alfalfa, hence I write. D. C. L.

Cranbury, N. J.

It does not follow that the field where alfalfa was sown this spring is in as fit condition for that crop as was the garden where trial was made the year previous. The presumption is that peas and other leguminous plants have been grown in the garden for many years until the soil there is fairly well inoculated with the proper bacteria for their best growth. So, if the field where this last spring's seeding of alfalfa was made has heretofore borne good crops of common red clover, we should be inclined to the opinion that there was bacteria enough in the soil to permit the growth of alfalfa, and look for its decay in other directions. On the contrary, if this field has not been tried in red clover, it would be advisable to get some soil from an alfalfa field and scatter broadcast, wherever alfalfa was wanted. Possibly, soil from a garden plat where alfalfa is growing would be as good as any. Certainly, soil from the college alfalfa fields would be all right, and a barrel per acre probably all sufficient.

MELONEY'S Automatic **Milk Cooler** TRADE MARK BESTOV and Aerator



Made of the best conducting material—sheet copper and coated with tin outside where the milk comes in contact. Cools milk quickly. Expels all animal odors and the smell of grass and garlic. Aerates it thoroughly. Can be easily cleaned. Fully guaranteed. Used by the most progressive dairymen. Send for catalogue "Bestov" dairymen's supplies. **Dairymen's Supply Co., Dept. Philadelphia, Pa.**



WILDER'S PATENT SWING STANCHIONS

Chain or Pin Fastened.

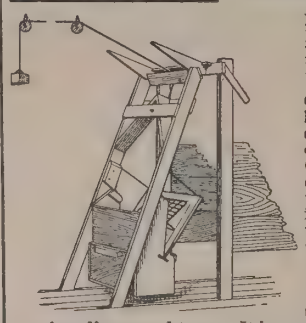
Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.

Safest, Strongest, Most Convenient

fastening made. Cheapest to put in and save room in barn. Send for Stanchion Catalog to

WILDER-STRONG IMPLEMENT CO., 11 Monroe, Mich.

JUST OUT! UNDERHILL SELF ADJUSTING STALL



No Gutters
No Platforms
No fastenings
No Stables to clean

Cease trying to keep your cows clean. **You can't do it.** Give them a chance and **they will do it themselves.** This is the **only** way and the **easy** way. Write for circular telling what the cow has discovered to us. It is a great revelation.

Wm. M. UNDERHILL, Oconto, Wis.

NO CHAIN IS STRONGER THAN ITS WEAKEST LINK

NO MAN IS STRONGER THAN HIS STOMACH

DR PIERCE'S GOLDEN MEDICAL DISCOVERY MAKES WEAK STOMACHS STRONG

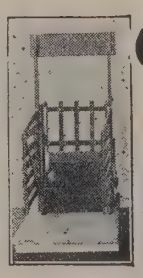
This Taylor Stanchion



is made of angle steel lined with hard wood on side next the animal's neck. **It is lighter, neater and stronger** than any other stanchion made. Swings on chain at top and bottom and admits of greatest freedom of motion. Cattle can lay with head on side. Easiest opened and closed. **Reliable Agents Wanted.** Write for special terms, prices, etc.

JAMES BOYLE, SALEM, O.

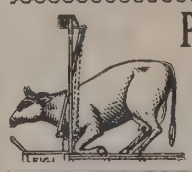
THE NEW PATENT Cow Stall AND FEED TROUGH.



This is the only Cow Stall with a centering hinge. Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars.

R. A. McLERY & CO., Palmyra, Wis.

Prescott's Swinging Swivel Stanchion



Keeps Cows Clean.

Swings forward while getting up or lying down. Locks back while standing Full particulars free.

E. PRESCOTT, Beverly St., Boston, Mass

The BEST Cattle Fastening.

SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated circular free. GLENORA MFG. CO., Glenora, Yates county, N. Y.

Infringements will be prosecuted.

EASE, COMFORT AND THRIFT.

21 STRONG REASONS

WHY IT WILL PAY YOU TO BUY A FARM IN THE GREAT BLUE GRASS COUNTRY OF NORTHERN WISCONSIN.

1. The soil is rich and productive. Everywhere there is a clay subsoil to retain the moisture.
2. The climate is very uniform—neither extreme of heat or cold.
3. The seasons are regular and there is never a crop failure.
4. There is an abundance of wood for building and fuel, which need only to be cut.
5. Taxes are very low compared with other sections.
6. It is the best agricultural country known for a man of small means to get rich.
7. It is better to **own** a low-priced farm than to **owe** for a high-priced farm.
8. You can own a home in this section for what you now pay out for rent in one year.
9. Everything grown in the west can be grown on these lands.
10. There is an unsurpassed market for all farm products throughout the year.
11. Truck farming is very profitable in this section.
12. No better fruit country in the northwest. All northern varieties are wonderfully successful.
13. The best place in America to raise horses, mules, cattle, sheep and hogs.
14. The water supply is the best. The country is full of clear running streams and springs
15. Cereal crops average more bushels per acre than in other northern states. This may be said particularly as to oats, the average yield being from 60 to 80 bushels per acre.
16. Grasses and clovers for grazing or hay grow luxuriantly, far better than they do in southern Wisconsin, Iowa, Minnesota, or the Dakotas.
17. No swamps in this section—no malaria, no chills, no fever, no cyclones, no hail or destructive storms.
18. Fish and game in abundance. It is the sportman's paradise.
19. Lumbering and manufacturing interests offer ample employment at good wages whenever desired, both winter and summer.
20. Thousands of settlers are moving into northern Wisconsin, and in consequence land is increasing in value very fast.
21. The best class of people are among the settlers, which include principally Americans, Germans and Scandinavians.

DON'T PAY RENT, but come up and let us sell you a farm which will cost you but little more than the rent of a good farm in the older agricultural districts. Not only that, but a farm that will grow in value every day. Write us to-day for full particulars concerning these lands, and arrange to look them over at the earliest possible moment. They cannot fail to interest you if you want to get a home of your own. Mention HOARD'S DAIRYMAN.

WISCONSIN BLUE GRASS LAND CO., Baldwin, Wis.

DAIRY FARM FOR SALE

At **ANN ARBOR** near **DETROIT, MICH.** A thorough dairy farmer with capital can learn of a handsome investment by addressing subscriber.

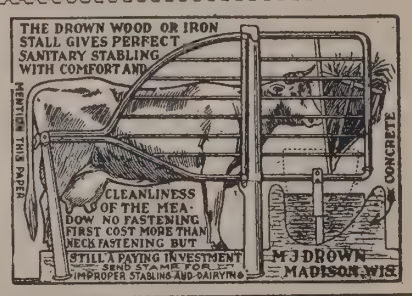
A 575 Acre Dairy Farm near Ann Arbor, Mich., university town, can be had at a reasonable figure. It can be made to produce from eight to ten thousand dollars worth of milk yearly, and sale for this will be assured by the present owner. The farm's equipment in the way of modern dairy barns, silos, for 100 cows, milk and ice houses, together with homestead and tenant houses is complete. For particulars inquire by mail or call at

TOWAR'S WAYNE CO. CREAMERY,
71 Grand River Ave. DETROIT, MICH.

IOWA FARMS For Sale $45 to $65 Per Acre.

We offer improved Iowa farms close to church, school and town, with local telephone and rural mail delivery, soil rich, black loam, and level, at $45 to $65 per acre. We also have special bargains in North and South Dakota and Canada. If you wish to buy or sell land or city property anywhere, write to us for confidential terms. We make a specialty of long range sales, so no matter how far away you live, if interested write us. We refund railway fare to parties who buy of us. Send for price list with pictures of farms.

THE JOHN M. CANNON LAND AGENCY, CRESCO, IOWA.





CHAIN-HANGING CATTLE STANCHION

The Most Practical **CATTLE FASTENER** ever invented. Manufactured and For sale by

O. H. ROBERTSON, Forestville, Conn.





Only One Hand needed to stanchion Cattle if you have our **Steel Latch Stanchion**

When open is locked ready for cattle to come in; closed, it swings freely. Best dairy cattle tie because comfortable and quiet; gives greatest freedom. Made of selected hardwood oil finished. We are the sole manufacturers. Write now for circulars and delivered prices.

TOLEDO PLOW CO., Dept. H, TOLEDO, OHIO.

BIG SELLER FOR GOOD AGENTS

THE FOSTER STEEL STANCHION

Best cow fastener. All metal. Strong, durable and convenient. Liberal terms to hustling agents. Ask for circular No. 30

Frank H. Battles, Seed Grower Rochester, N.Y.

Improved and Unimproved Farms for Sale

Farm No. 1 consists of 90 acres with frontage on a fine lake where there is excellent fishing and game. This lake is one of a chain of lakes on which you can travel for twenty-three miles. Has two-story house with eight rooms. Two-story log barn. Ice house and ten acres cleared. For sale at a bargain. One mile and a half from the railroad.

Farm No, 2. One-half mile from the railroad. 100 acres or more if desired, five acres cleared. Two-story, eight room house. Glass chicken house. First-class hog pen. Plenty of timber on land for own use, and quite a quantity of saw timber. We have besides this 16000 acres of unimproved land. Heavy black soil. All lies in Central Wisconsin. Low priced Excellent markets. Will grow any kind of crop and produce immense results. Excellent water supply. Splendid markets and a local demand for everything that is raised. None of the land lies more than three miles and a half from the railroad.

WISCONSIN FARMS

Will furnish names of people who have bought from us who have made big success. Can furnish lands in either small or large quantities. Can furnish reduced rates to see the lands. Easy terms to suit the convenience of the purchaser. As safe and desirable an investment as government bonds. Write in for maps and any information you may desire.

INTERIOR LAND CO., Janesville, Wis.

Buy You a Ticket to CROOKSTON, MINN., and call upon

The Polk County Land & Loan Company

For choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.

360 acre farm, 4½ miles from Crookston, Minn, (a city of 7,000 inhabitants), and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x2 1½ stories with an L 14x22, and a wood shed in connection 20 ft. square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm in under a high state of cultivation, and is well drained by a slight ravine running through the farm, merely sufficient for self drainage. The soil is a rich deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50,

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired. Price $19.00 per acre.

FOR SALE

On account of age and infirmity I will sell my farm of 204 acres four miles of Unionville, Putnam Co., Mo., sixty head of grade Jersey cows and heifers, a two horse power boiler and engine, one No. 5. U. S. Separator, one 100 gallon churn and butterworker with other dairy implements.

For particulars address

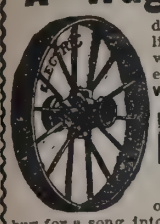
J. B. OLINGER, Unionville, Mo.

FLIES? ORR'S FLY KILLER. No Other as Good.

1 gal. $1; 5 gal. $4; Sprayers 50c.

ORR & COOPER, Box 829, BEAVER, PA.

A Wagon's Worth



depends upon its convenience and life. The life depends upon the wheel. You get every convenience of the **Modern Low Handy Wagon** and double its life by using

ELECTRIC Metal Wheels

For a few dollars you turn your old running gears or one you can buy for a song, into a new wagon. Straight or staggered oval steel spokes. The stoutest wheel you can buy. **Any height, fit any wagon.** No repairs, no rutting, light draft, long service. Let us send you free catalog to show you how it saves you money.

Electric Wheel Company., Box 130 Quincy, Illinois.

WONDERFUL STOVE OFFER.

OUR FREE STOVE CATALOGUE shows a picture of our Newark, Ohio, stove foundry, **THE LARGEST STOVE FACTORY IN THE WORLD, where we make every kind of RANGE, COOK AND HEATING STOVES, which we sell direct to users at LESS THAN ONE-HALF the prices charged by others. OUR FREE STOVE CATALOGUE pictures, describes and prices every kind of stove we make,** explains our liberal pay after received terms, our 30 days' free trial offer, our safe delivery guarantee, our quality and durability guarantee and also carries with it **the most astonishingly LIBERAL OFFER ever heard of.** Just to give you a little idea of the wonderful values we are offering we show two popular stoves taken at random from our big assortment as shown in our free Stove Catalogue.



$3.98 buys this handsome NEW 1904 MODEL OAK HEATER. Burns wood or coal and is one of the handsomest oak heaters made, beautiful rococo cast iron base, top and front, best sheet steel body, very elaborate nickel plated ornamentations and trimmings, including side rails, bands, top, handsome urn medallions, checks, drafts, etc. **OUR FREE STOVE CATALOGUE** shows a very large picture of this and an endless variety of other **direct draft and DOUBLE HEATER WOOD AND COAL HEATING STOVES.**



$4.85 buys this handsome COOK STOVE, latest 1904 model, one of the latest and best cook stoves made; highest grade casting, large oven shelf, oven door kicker, nickel medallions and trimmings, heavy covers and centers. Our free Stove Catalogue shows a very large picture of this and an endless variety of other cast iron cook stoves and cast and steel ranges at correspondingly low prices.

Our big $11.98 nickel trimmed steel range is the greatest steel range value ever offered. **Our $13.95 reservoir nickel trimmed steel cook stove and our big 500-pound reservoir high shelf range, which we sell at $15.95 ARE THE EQUAL OF RANGES THAT SELL ELSEWHERE AT DOUBLE THE PRICE.**

Our free Stove Catalogue shows large pictures and complete descriptions of all the stoves we make, explains our liberal terms, 30 days' free trial proposition, our guarantees, etc., and carries with it the most liberal stove offer ever named. Don't buy a stove anywhere until you see our free Stove Catalogue. Simply write us a **LETTER** or on a **POSTAL CARD SAY** "send me your free Stove Catalogue," **AND IT WILL GO TO YOU BY RETURN MAIL, POSTPAID, FREE.** Address,

SEARS, ROEBUCK & CO., CHICAGO.

Water In The Stable a Necessity.



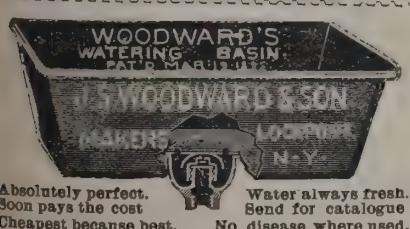
It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. **Why not use the Best?** Write for descriptive circular.

C. E. BUCKLEY & CO., Poughkeepsie, N. Y.



Iron Troughs

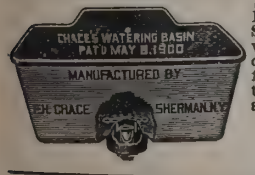
First Lot at Wholesale. Can't break or rot, nice round rim, any size or shape. Write for circular of **Cow Basin,** Poultry and Stock Troughs. Who will be first. **D. H. BAUSMAN, Bausman, Lanc. Co., Pa.** We make Steel Swings. Fine Booklet Free.



Absolutely perfect. Soon pays the cost Cheapest because best.

Water always fresh. Send for catalogue No disease where used.

SAMPLE BASIN SENT ON APPROVAL.



Basins are fitted with **Self Closing Cover** which prevents all dirt and sediment from getting into them. Send for catalogue and price list

F. H. CHACE,
Sherman, N. Y.

Painkiller PERRY DAVIS'

The world-known household remedy for cuts, burns, bruises—cramps, diarrhœa and all bowel complaints

When Infected Soil is Necessary for Alfalfa.

ED. HOARD'S DAIRYMAN:—What is your opinion in regard to using infected alfalfa soil when first seeding land with alfalfa? I do not remember of you recommending it. Robert O. Denning, of Kansas, in DAIRYMAN of July, 25th, 1903, and others who have been successful in raising alfalfa do not mention infected soil. While others, notably Prof. Hopkins of the Ill. Experiment Station insist on it. The Professor says of their own fields at the University: "The presence or absence of alfalfa bacteria made the crop a success or failure respectively," and they offer to furnish infected soil to citizens of Illinois at a very reasonable price.

Do you sow the seed or drill it? What is the best season to sow? Are you careful to have northern grown seed? How much seed do you sow to the acre.

Meadville, Pa. E. A. R.

The editors of this paper have had very excellent success with alfalfa without using any artificial means for infecting the soil with bacteria, but their farms are in a lime-stone region and red clover has been grown on them more or less for many years. It is fair to presume, therefore, that before alfalfa was thought of in this vicinity, the soil was more or less impregnated with bacteria available for leguminous crops. It is claimed by Prof. Hopkins and some others that alfalfa bacteria differ from the bacteria found on the roots of common red clover, but Prof. Conn and others think that this difference is really caused by the different roots to which bacteria attach themselves. In other words, alfalfa bacteria and red clover bacteria do not constitute distinct species, but are variations of the same species.

There are many things about the successful growing of alfalfa that cannot be successfully taught in words, but must be learned by experience. Our constant advice, therefore, to all parties is, to commence with alfalfa in a very limited, moderate way, and thus ascertain whether the soil and the climate and the conditions are favorable to its growth. If our correspondent has been successful with red clover, we see no reason why he may not succeed with alfalfa without going to the trouble or expense of getting infected soil with which to inoculate his own fields. On the other hand, if common clover is an uncertain and disappointing crop to him, the probabilities are that alfalfa will also be disappointing, and one way to avoid this disappointment would be to get 200 or 300 pounds of infected soil from some old alfalfa field to scatter upon his fields.

It is a current rumor, for which we have seen no official announcment, that the Department of Agriculture at Washington has succeeded in isolating alfalfa bacteria and propagating them, and is now, or soon will be, prepared to furnish these bacteria to parties who may apply.

We have always seeded our fields broadcast, but in some sections, the seed is drilled in. Which is the better way, we are not prepared to say. In the latitude of Pennsylvania and Wisconsin, our judgment is that the only proper time to seed alfalfa is in the spring, and although we have hitherto always used a nurse crop, we are beginning to believe that it is better to dispense with it and sow seed alone. Most of the alfalfa seed used in this part of the country comes from Colorado, Kansas and Nebraska.

We believe heavy seeding desirable, so as to secure a thick stand and prevent the alfalfa from growing too coarse, and for this purpose, we do not consider 25 to 30 pounds of seed to the acre too much.

Turpentine for Lump Jaw.

ED. HOARD'S DAIRYMAN:—I notice an inquiry of what will cure the lump jaw by I. D. V. R. I would like to have him try spirits of turpentine, as I had a valuable Holstein heifer that had a large bunch on her jaw before I noticed it. I saturated the bunch twice with turpentine, and it has taken bunch off slick as can be. I have cured quite a number in the same way. R. L. B.

Manlius, N. Y.

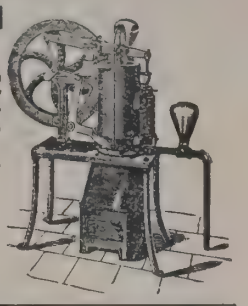
HALF ENOUGH WATER

Is quite enough for some people, but most people want water every day. If



RIDER or ERICSSON HOT AIR PUMPS

Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.



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22 Pitt St., SIDNEY, N. S. W.

Grit

Grit is a good thing in its place, but a bad thing in butter. Gritty salt—salt that's icy, insoluble, full of lime, chlorides and magnesium, is accountable for many exasperating difficulties of dairymen. It represents a loss of time, labor, money and patience, not always attributed to it. With DIAMOND CRYSTAL SALT—"*the Salt that's ALL Salt*"—your butter difficulties will disappear, and a gain in time, *money* and less labor result. Its dry, pure flakes dissolve quickly, imparting a rich flavor and keeping quality that find ready favor and highest market prices. "Just Salt" is a valuable booklet every dairyman should read. We send it free.

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BUTTER FOR UNCLE SAM

THE CONTINENTAL CREAMERY COMPANY TOPEKA, KANSAS

Has been awarded the contract to supply the United States Navy with half a million pounds of butter for the ensuing year.

For this purpose only the best quality of butter is used, and its keeping quality must be made of the very best, owing to the fact that the entire year's supply must be made within a few months and it is carried through all conditions of climate.

The government has made a thorough study of supplying butter to suit the requirements of the Navy and as a result it has laid down some very exacting standards to which those who bid for these contracts must comply. One of the few concerns who can fulfill these requirements is the Continental Creamery Co. and it was awarded this contract, which is the biggest single order for butter ever filled.

This company produces the greatest quantity of fancy creamery butter in the world, all of which is made from pasteurized cream. Surely it knows something about making good butter. It also knows from actual experience and the investigations of its chemists, that one of the factors in making good butter is

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make the way plain in night work or travel. Always shed a strong, clear, white light, with no choking, sooting or smoking.

Over Sixty Years the Favorite.

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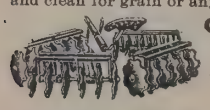
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Cuts a track 5 ft. wide, 1 ft. deep. Connects the sub-soil water. It is an excellent machine for covering in sugar cane. Strength guaranteed. Can plow a newly cut forest, stump, bush or bog land, leaves the land true and clean for grain or any crop.



Clark's Dbl. Action Cutaway Harrow
Moves 15000 Tons of Earth a Day.



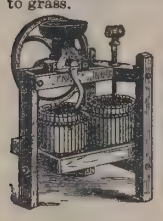
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Will smooth an acre as true as a mill pond in twenty minutes.

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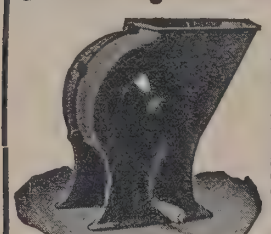
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Simplest Press Made.

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They keep Silage dry, cool and healthful. Send for Booklet H.

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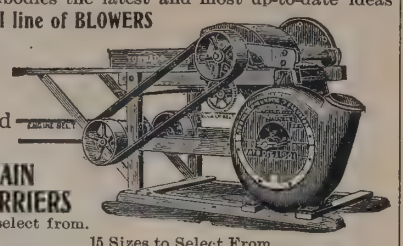


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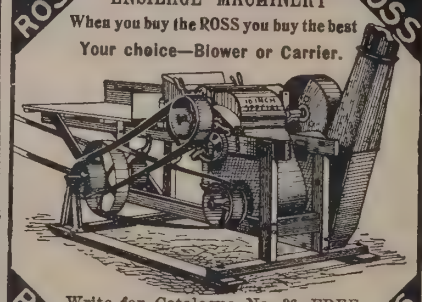
Ensilage Cutters; Ensilage and Stalk Shredders; Blowers and Chain Carriers; Tread Powers; Sweep Powers; Threshing Machines; Circular and Drag Saw Frames, Etc.

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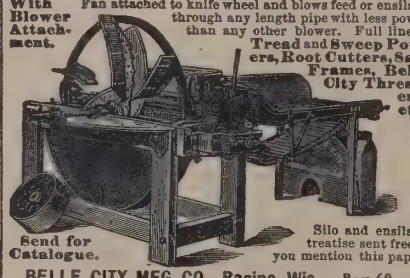
When you buy the ROSS you buy the best
Your choice—Blower or Carrier.



Write for Catalogue No. 36—FREE.
Prof. Woll's Book on Silage 10c.
THE E. W. ROSS CO.
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BELLE CITY Feed and Ensilage Cutter

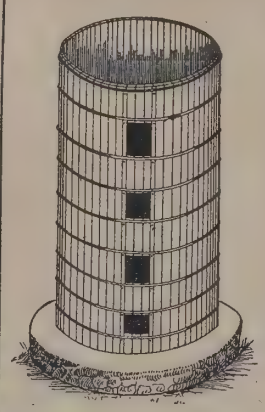
With Blower Attachment. Fan attached to knife wheel and blows feed or ensilage through any length pipe with less power than any other blower. Full line of Tread and Sweep Powers, Root Cutters, Saw Frames, Belle City Threshers etc.



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Silo and ensilage treatise sent free if you mention this paper.

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Its time for dairymen to act if they want the benefits of a silo this season. You should place your order

NOW

if you want the best, and the best is always the cheapest, especially in Silos. Write us for prices and circular.

If you are in the market we can save you money.

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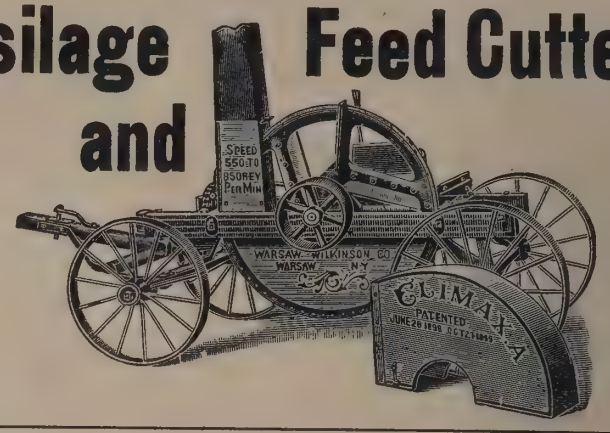
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Ensilage and Feed Cutters.



"THE COMPLETE MACHINE"

CLIMAX machines are original. They are not made over from old models, in an attempt to turn them into blowers, by adding a number of chains, belts, or other attachments. They are made to elevate by wind delivery, and every part is built with this end in view. They are sold under an absolute guarantee to do the work, and **never** fail.

CLIMAX machines passed the experimental stage eight years ago. It has never been necessary to change any essential feature of the original pattern. We are still using the straight knives, with the shearing, inward cut; the elevating is still done with the same wheel as the cutting, requiring less power; the smooth reversing gear, which is positive and cannot break; the large feeding rollers, which won't choke, and the knife adjustment, which sets every knife at once and sets them **true.** All these have stood the test and cannot be had with any other machine.

The combination of simplicity, great strength, large capacity and few wearing parts, places the **CLIMAX** in the very front rank. When you have a binding guarantee as well, there should be no doubt regarding the machine. Catalogue for the asking.

WARSAW-WILKINSON CO., WARSAW, N. Y.

Does Saving ONE or TWO MEN

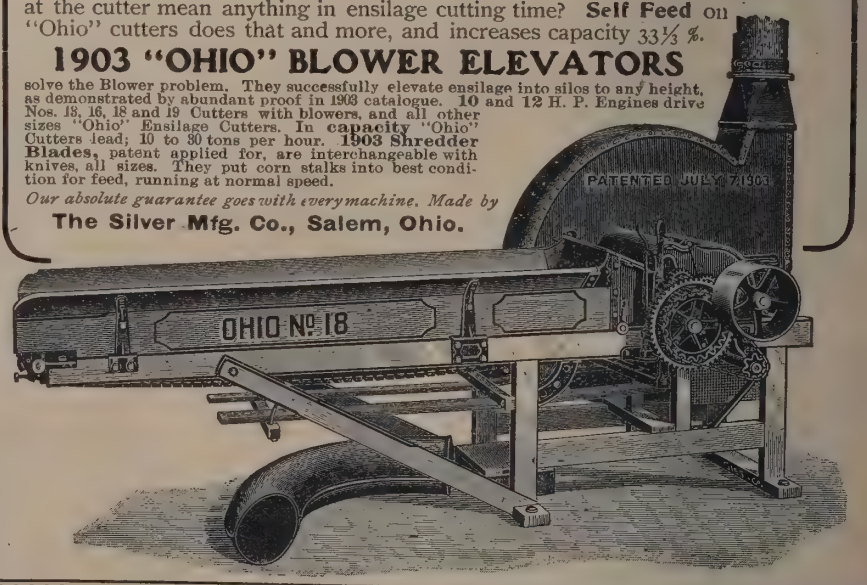
at the cutter mean anything in ensilage cutting time? **Self Feed** on "Ohio" cutters does that and more, and increases capacity 33⅓ %.

1903 "OHIO" BLOWER ELEVATORS

solve the Blower problem. They successfully elevate ensilage into silos to any height, as demonstrated by abundant proof in 1903 catalogue. **10** and **12** H. P. Engines drive Nos. 13, 16, 18 and 19 Cutters with blowers, and all other sizes "Ohio" Ensilage Cutters. In **capacity** "Ohio" Cutters lead; 10 to 30 tons per hour. **1903 Shredder Blades,** patent applied for, are interchangeable with knives, all sizes. They put corn stalks into best condition for feed, running at normal speed.

Our absolute guarantee goes with every machine. Made by

The Silver Mfg. Co., Salem, Ohio.



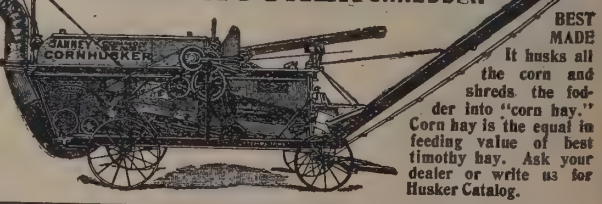
HUSK YOUR CORN, SHRED YOUR FODDER, SELL YOUR HAY

A corn crop may be profitable without saving the fodder, but IT WILL BE TWICE AS PROFITABLE IF IT IS SAVED. The new method of handling corn saves the entire crop. The new way is to run all the corn through the

JANNEY'S PATENTED HUSKING PIN — IT TAKES OFF THE SHUCK

JANNEY COMMON SENSE CORN HUSKER and FODDER SHREDDER

If you feed corn hay you can **sell all your meadow hay.** You can also bale and sell your surplus corn hay; big demand. You may add further to your profits by husking and shredding for your neighbors. Pays better than a threshing machine and costs less. Eight years in the field. More in operation than any other.

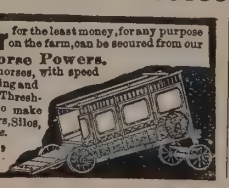


BEST MADE

It husks all the corn and shreds the fodder into "corn hay." Corn hay is the equal in feeding value of best timothy hay. Ask your dealer or write us for Husker Catalog.

JANNEY MFG. CO.
OTTUMWA, IOWA
DEPT. D.

The Most Power for the least money, for any purpose on the farm, can be secured from our **Fearless Railway Horse Powers.** We make them for 1, 2, 3 and 4 horses, with speed regulators. Unequalled for Cutting and Grinding Feed, Sawing Wood, Threshing, Pumping Water, etc. Also make Threshers, Engines, Feed Cutters, Silos, etc. *Illustrated Catalog Free.*



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HOARD'S DAIRYMAN.

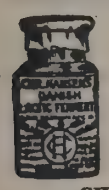
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Devoted to Dairying and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., SEPTEMBER 18, 1903. NUMBER 32

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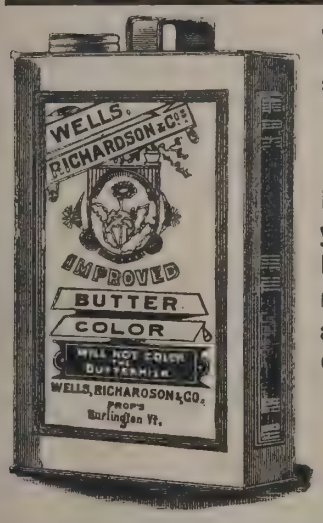
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Liberal Advancements Made on Consignments.
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CHR. HANSEN'S LACTIC FERMENT
To Ripen your cream, ensuring
Perfect Flavor, Uniformity and Keeping Qualities in your Butter.
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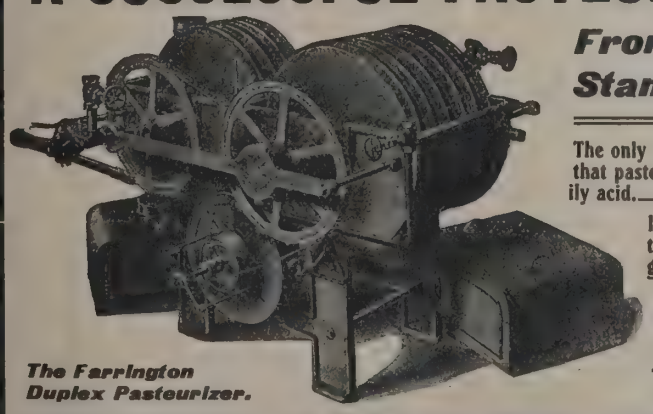
HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, BOSTON.**
Medals—Bronze 1878 Silver, 1887, World's Fair, 1893.

THE KIND THAT HAS NO MUD.



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Improved Butter Color
Has stood the test for many years, and users of color know that it can always be relied upon. It is the BEST and therefore the CHEAPEST COLOR on the market.
For Sale By All First-Class Supply Houses.

A SUCCESSFUL PASTEURIZER



From Every Standpoint.
The only Pasteurizer made that pasteurizes milk heavily acid.
It makes good Butter—that makes good business.
Your Butter will score 8 points higher.
The Farrington Duplex Pasteurizer.
Write to the
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Cream Separators in Use, and 500,000 Dairymen adding to their wealth as the result.

The dairy separator is universally recognized as a money making, money saving, and labor saving farm implement.

THE TUBULAR CREAM SEPARATORS are **known the world over and the percentage of increase in their sale annually is greater than that of all other separators combined.** THE REASON IS PLAIN. The **Tubular** is a modern, up-to-date machine—simple, durable, efficient, easily turned, easily cleaned, easily put together, and easily kept in order. It is the only separator with a low down supply can, and has many other conveniences not found in other machines. Compare the **Tubular** with any other make of cream separator and you will be convinced.



There are a dozen or more of the old style bucket bowl separators, some with discs, some with blades, some with cones, some with radish graters, and some with other contraptions inside the bowl; all about alike and not much choice. **There is but one Tubular** and it is guaranteed to be the most convenient, durable, and serviceable separator made. Write for free catalog No. 144.

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My name on a lamp-chimney says, "Pay double for me; I give double light and don't break."

MACBETH.

How to take care of lamps, including the getting of right-shape chimneys, is in my Index; sent free.

MACBETH, Pittsburgh.

Dietz Lanterns

make the way plain in night work or travel. Always shed a strong, clear, white light, with no choking, sooting or smoking.

Over Sixty Years the Favorite.

Made in many styles and sizes for all purposes, as hand lanterns, driving lamps, post lamps for streets or front of country residences, church doors, etc. CATALOGUE SENT FREE.

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WATER PROOF, AIR TIGHT

They keep Silage dry, cool and healthful. Send for Booklet H.

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The **Roof that Lasts**

For stables, barns, houses and sheds there is no roofing that excels

PAROID Ready Roofing

in economy and durability. Don't confuse it with cheap, flimsy roofings. It's the kind that lasts. Any one can put it on. Complete roofing kit free with each roll. Send for free sample and book on

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STEEL ROOFING.



Strictly new, perfect, Semi-Hardened Steel Sheets two feet wide, six feet long. **The best Roofing, Siding or Ceiling you can use.** We furnish nails free and paint roofing, two sides. Comes either flat corrugated or "V" crimped. Delivered free of all charges to all points in U. S. east of Mississippi River and north of Ohio River at **$2.25 PER SQUARE. Prices to other points on application.** A square means 100 square feet.

Write for Free Catalogue No. 20 on material bought from Sheriffs' and Receivers' Sales. **CHICAGO HOUSE WRECKING CO., W. 35th and Iron Sts., Chicago.**

Beef Versus Dairy Breeds.

ED. HOARD'S DAIRYMAN:—The farmer who breeds or feeds either cattle or sheep, for the block must not ignore the distinction between the distinctly beef making types of cattle, and the dairy type, or the best type of mutton producing sheep. He cannot afford to be ignorant on these points. They are of vital importance, and determine profit or loss. "Economy of production" must be understood, and the successful stock owner must breed with this end in view, of making a certain amount of food produce the largest possible amount of gain, and such gain be relegated to the parts desired to be finished according to the market requirements.

The prime beef type calls for short limbs, but a broad, straight back, well sprung ribs, broad chest, etc., and the broad back and ribs must be well covered with flesh, and an even distribution of fat. The heavy, inordinately fat animal has been driven out of market by the demand for one of different type. Another point in favor of the distinctly beef producing breeds as bred for the market, is the fact that the beef of such animals is always superior to that of animals of distinctly dairy type. In our grandfather's days the excessively fat steer or cow, etc., was the one which "topped the market," avoirdupois being the end generally sought then—it was tallow versus beef—those were the days of tallow candles. Other means of illumination and lubrication have been since discovered, and distinctly fat or tallow producing animals have been relegated to the back ground.

A point which also must receive due attention, is reference to the age of animals which are to be fed for market, *i. e.* the block. Experience and experiments have shown that the young and growing animal fattens more easily, than when grown or fully matured. As animals progress toward maturity the returns or gain for food consumed is much less. The young animal furnishes the most profitable carcass, and there is not a superabundance of fat where not wanted; this should receive attention when at all practical to do so. Early maturity of animals for market may be accomplished by generous feeding of such cheap, coarse foods as the farm produces, combined with grain enough to give a suitable ration; the amount of grain may be moderate, except in the finishing up.

As an example of the characteristics of the beef and the dairy types, take the Jersey or Ayrshire, and compare with that of the Hereford or Durham. Those who are at all acquainted with the former will concede that the "little Jersey" was never intended to be anything except what she is, one among the best butter cows bred, or the highest type of dairy animal. She is, as a rule, rough, angular and bony, and when fattened the Jersey does not develop along the lines demanded by the market; but instead accumulates fat around the internal organs, while the prominent parts, back and hips, are scantily clothed with flesh; and the same may be said of the Ayrshire also.

On the other hand, the Hereford or Durham which has been bred for generations "to hoard up everything she eats, and yield it up only with her life" belongs to the best type of beef producing animals. A Hereford cow will give scarcely milk enough to raise her calf, but puts all she eats upon her back instead of in the pail, as a rule.

As to food, the Jersey will consume the same amount probably as the Hereford, all things being equal, and the gain in weight be nearly the same, but the Jersey does not lay on flesh readily, and on such parts of her anatomy as will bring the best results *i. e.* highest prices. Tallow cannot compete against loin and rib roasts. The Durham or Hereford is capable of taking on flesh and fat in the proportion required, and finishing up to the point of highest excellence.

Individual preference finds no recognition in the stock buyers' catalogue. He is buying for a certain end, either dairy or beef animals, and he knows what he wants, and is imperative in his demands; the producer must conform to his requirements or requisites or lose results.

The breeder or feeder must humor the markets which, in turn, humors the public.

A. C. McP.



Factorymen, printers, farmers, country merchants and others, whose changing duties require very frequent washing of hands, will find that Ivory Soap is just what they want. It lathers quickly and will not make the hands sore or rough, even when used very often, or with a stiff brush. It keeps the skin soft because it is pure; as pure as a soap can be made. It floats.

MILK TUBES Patent Coin Silver 1¼" 50c. 2¾" 80c. Improved Teat Opener 75c. Dilating plug 25c. Postpaid on receipt of price. G. P Pilling & Son, 2d and Arch Sts., Phila., Pa.

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QUALITY ELMCO MARK

Elmco Standard Middlings.

—ANALYSIS:—

Moisture 9.77 Crude Protein 19.13 Ether Extract 5.98

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Guaranteed clean and pure. Free from ground screenings or any adulteration. Is richer feed than bran and is a great milk producer. Buy **Elmco Standard Middlings** and you buy the best.

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Paying for Milk at Cheese Factories By Test.

Some Washington Queries.

Ed. Hoard's Dairyman:—The 16th of last May our new cheese factory received the first milk. During June and July we have manufactured about 20,000 lbs. of cheese. The milk is supplied by over 50 patrons, and it is hauled at the expense of the association. The whey is sold for 10 cents per 100 lbs. For May and June we paid 25 cents per lb. of butter fat; for July, 24 cents. How do these prices compare with prices paid in the state of Wisconsin?

Our association is a co-operative association. We paid according to the butter fat. Yet some are kicking. One thinks he has been paid 25 cents only for the butter fat, and he expects to receive payment for the casein.

Now, Mr. Editor, let us know whether you consider that we have done well or not at the start, and whether we are right to pay for the milk according to the butter fat? The farmers who read your excellent paper understand well all those questions.

Aug. 24.—This letter came back, having forgotten the word "Fort," yet it seems to me that every postmaster of Wisconsin knows who is Hoard's Dairyman.

L. Chevalley.

La Center, Washington.

The defectively addressed letter never reached Wisconsin, but was turned back by some extra-technical post-office clerk, for the reason that there is no post-office in Wisconsin named "Atkinson."

During the months of May, June and July of the present year, milk has brought about 21.6 cents net for each pound of butter fat it contained, whether sent to cheese factory or creamery. Neither the cheese factory nor the creamery pays for the butter fat specifically, but for the milk, and the fat contained in the milk indicates its relative value for either butter or cheese.

That is to say, 4 per cent milk is really worth one-seventh more for either butter or cheese than 3.5 per cent milk. The milk is tested for fat simply to ascertain how much butter or cheese it will make and, for short, we talk and write about paying for the fat. When the Kicker referred to was paid 24 or 25 cents per pound nominally for the butter fat, h was in fact receiving pay for his milk according to its cheese making value; that is, he was paid for both fat and casein.

It follows from the above that the method of paying for milk on the basis of its content of butter fat is really the only just and equitable way of running a cheese factory.

Digestibility of Cheese.

Ex-Director C. S. Plumb of the Indiana Experiment Station, in a recent contribution to *Farm and Home*, says:

Many Americans who naturally like cheese do not eat it because they complain that it disagrees with them. This is a characteristic complaint. Consequently Americans eat comparatively little cheese. In Europe this food is a common article of consumption. It frequently takes the place of meat in the family. One may buy cheese sandwiches in Great Britain as readily as those made with meat. The Britisher eats cheese in good sized pieces. In the United States but few consume over a cubic inch at a meal, and many not that much, and then usually with pie. A friend of the writer, a Dane, with a dairy education, was at my table one day, and in discussing cheese, he said; "I never could understand why Americans usually prefer to eat cheese with pie." Like all Europeans he had been taught to eat cheese as any other common article of food, and pie was not in his bill of fare.

The common cream cheese of our market is technically known as Cheddar cheese. It is usually palatable to most persons and is a nutritious article of diet. Our people would be much better off if they would consume more cheese and less tough beefsteak. Our people, however, have never been educated to eat cheese that has been properly made and cured. That is the reason why so many people can not eat cheese without its disagreeing with them.

In America, cheese is made and placed in the curing room, and anywhere from twelve to fourteen days after being placed in the curing room it is likely to be turned on the market.

Cheese to be most digestible should go through an extended curing process in the curing room. This takes time. The casein in old, well cured cheese, by the curing process, becomes far more digestible than that in the new cheese. Age ripens the cheese and makes it digestible. This fact is well understood in Europe, and consequently cheese is not placed on the market there until it is suitably cured. It should be at least three months old before going onto the market. Such cheese is mellow, breaks down more readily in the mouth when masticated, and has a richer flavor than young cheese. Cheese such as Americans usually eat would not be regarded as saleable in cheese eating countries.

What we need in America is a campaign of education among customers. Our dairy schools teach students how to make cheese properly, but up to this time they have apparently had little influence in educating public sentiment to a proper conception of cheese consumption. Even the instructors in domestic economy have said little on this matter.

In view of the fact that cheese is one our most nutritious foods and cheaper than meat, in fact, the importance of educating the masses on this subject can not be readily overestimated. If our people were educated to know good cheese and would refuse to buy the green, immature stuff so largely placed on the market, cheese makers would cure properly and consumers would increase their demands for the product.



AYSHIRE COWS.



AYRSHIRE COW, EDNA COOK, A. H. R. 10591.



ARYSHIRE COW, WINNIE PENDER, A. H. R. 10567.
Property of Ed. Finn. Whitewater, Wis.

Skim Milk for Fowls.

Skim milk is a farm product whose food value is not fully appreciated. It is not generally realized that milk loses little in actual food value by skimming. It is true that most of the fat is removed in the cream, but the most valuable food constituents—i. e., the nitrogenous substances—are left behind in the skim milk. Skim milk not only contains much nutritive material, but this material is in a form which, as a rule, is easily digested. It is not only healthful, nutritious food for man, but it may be fed to calves, pigs and chickens with excellent results. Its composition is such that it may be substituted for part of the grain food, especially corn, of these animals with benefit and profit.

The Indiana Station has recently made some interesting experiments on the use of skim milk for young chickens. Two uniform lots (4 to 6 weeks old) of 10 chickens each (5 Plymouth Rocks and 5 Houdans) were fed from July 11 to September 5 under identical conditions, except that one lot received in addition to the food given the other, all the skim milk they would drink. Both lots were given all they would eat of a mixed food consisting of two parts crushed corn, one part bran, and one part ground oats. They were fed three times a day, except on Sundays, when an increased amount of food was given at the morning and evening meal. * * * Both lots were also given all they would consume of cracked bone, cabbage, lettuce and water, of which no record was kept.

It was found that the lot receiving skim milk made a more rapid and satisfactory gain than the lot which did not receive skim milk. Milk-fed chickens made an average weekly gain of 4.46 ounces; those receiving no milk 2.62 ounces. The most rapid increase in weight occurred at those periods when the largest amounts of skim milk were consumed. The skim milk is considered "especially valuable as a food for young chickens during the hot, dry weather, and becomes of less importance as the chickens grow older and the weather becomes cooler."

The vessels in which the skim milk is fed should be scalded frequently to keep them clean and wholesome.—*Poultry Success.*

In Denver, Col., there were 21 deaths of children in four days and the cause was traced to milk containing formaldehyde. If this is true such work is getting far beyond a $10 fine, and is close to murder.

The Real Thing.

The city boy—There isn't much excitement on a farm, is there, uncle?

Uncle Hi—H'm! You never teached a part weaned calf to drink out uv a pail, did ye?—*Houston Post.*

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

As showing how a small thing may nearly lead to serious results, a Guernsey bull, at the Wisconsin State Fair, was led out to be photographed. The owner who was leading him, wore a white shirt, and as he stated afterwards, the bull had never seen him except with his coat on. The combination of white cloth and bright sunlight seemed to cause a high degree of nervousness, which ended in a vicious attack on the part of the animal. Luckily, help was quickly at hand and the animal was subdued, but under other conditions this simple change of costume might have led to serious results. Taking any liberties with a bull is about as safe as walking around a powder factory with a lighted cigar; one may do it with safety, but the chances are strongly against it.

A STRONG TEXT.

It was the pleasant fortune of the senior editor to be called to address the farmers of LaCrosse Co., Wis., at their annual fair in West Salem, Sept. 2nd. The able Secretary, A. J. Phillips, had prepared a feature out of the ordinary as an accompaniment to the address. He had secured the famous grade Guernsey herd of 20 cows owned by Mr. H. D. Griswold, of that place. These cows, which had earned the past year for their owner, over $100 apiece in cream alone, were ranged in front of the grand stand, and we were told to go ahead and preach to the people the gospel of a better cow. So far as the text was concerned there could not be a better one, and we tried to emphasize and make clear the principles which had made such a herd of cows possible. This entire herd is the result of straight forward breeding on dairy lines, by a man who is a plain but very intelligent farmer. It is a pity that such texts could not be exhibited at every fair in the land.

PRODUCING CLEAN MILK.

Twenty years ago a book advocating and describing methods for the production of clean milk could not have been written, not because there was no necessity for such a book, but because neither the public nor the producers had been educated up to the necessity nor the methods of producing such an article of food.

Experience has shown that there is a direct relation between the quality of the milk supply and the death rate of cities, and recognizing this danger the city is calling for clean milk from healthy cows, produced in clean surroundings. The city doctors are recognizing the fact that dirt and disease are almost synonymous terms, especially where milk is shipped long distances and the dirt of various kinds has the time to perform its work.

They are also recognizing the fact that there must be a co-operation between the producer and the city handler, else no advance can be made towards cleanliness and improved quality of the milk, and there is consequently an attempt on the part of those having control of the city milk supply, to reach out and attempt by means of education, as well as laws, to impress on the dairyman the necessity of greater cleanliness in his methods of milk production.

The methods used in education are shown by a small book just published by Dr. S. D. Belcher, of the Rockefeller Institute, having the title "Clean Milk." The book contains nothing new to those who are familiar with advanced dairy practice, but it is valuable as containing descriptions of the methods that have been successfully employed in producing clean milk and especially in pointing out those practices which may seem innocent, yet which are direct sources of serious contamination to the milk supply.

Under the head of the cow barn, a chapter is devoted to the average and ideal cow barn. The average cow barn needs no description; the ideal cow barn described by the author is comparatively small, accomodating not more than 20 head, with a cement floor, a gutter for drainage, a dust-proof ceiling, a large sky light and ample provision for ventilation.

A single row of stalls is recommended, because in case of disease being present among the animals there is less danger of spreading the infection by coughing, and also with such arrangement the animals can have their heads nearer the windows, and enjoy purer air. The last point would not seem to be of any great moment, if there is a good system of ventilation in use. Also in this connection, we decidedly dissent from the author's statement that "air tight construction is not needed in a cow barn * * * *, A herd of cows in a loosely built shed will thrive better in coldest weather, than if maintained in a tightly built. steam heated barn, and an elaborate scheme for ventilation and the regulation of temperature."

The author writes from New York city, and the winters in that vicinity are notedly mild, whereas winter, in any of the northwestern states, is of the other extreme, and the dairyman who winters his dairy cows in loosely built sheds will find that a 20-below-zero wind will cause a decided shut-down in milk production, as his animals will use expensive feeds to keep warm.

Steam heated barns are an expensive and unnecessary luxury, but tightly built stables, with proper ventilation are a necessity for economic milk production in at least two-thirds of the dairy section of this country. The author is evidently not familiar with the King system of ventilation so common in the west, as he makes no reference to it, and speaks only of overhead ventilation, and advises that an architect be employed where more pretentious barn buildings are erected.

Of course great stress is put on the necessity of cleanliness. It needs no argument to prove that fifthy stables, dirty cows, unclean milkers and more than doubtful milk vessels are objectionable from a standpoint of decency alone, and too much cannot be done towards educating the milk producer and dealer to a realizing sense of the necessity of better and cleaner methods.

Such conditions produce something more than disagreeable odors; they are direct cause of sickness and frequently death, and Dr. Belcher's book is to be commended as an attempt to put into shape, and bring before the public an account of the dangers that result from unclean milk, and the methods that improve its quality.

DOES IT PAY TO MILK COWS OF THE BEEF TYPE?

A good many wise(?) people have endeavored to make themselves merry at the expense of HOARD'S DAIRYMAN because here and there, and at long and rare intervals, some cow nominally belonging to a beef breed, makes a phenomenal dairy record. Several years ago they quoted an instance from the herd at Cornell, where a couple of Shorthorn grades, the pick and remainder of some eighteen or twenty of similar breeding, made a larger yearly record than other cows of dairy breeding in the same herd. It was in vain that we dissected the record, and showed that these were selected animals, that their record covered 365 consecutive days, without any handicap of pregnancy, and that when all conditions were equalized, even these selected cows fell back very decidedly. Year after year this case was cited as proof that the modern Short-horn cow was a profitable dairy animal.

Later, a grade Short-horn cow at the Wisconsin Station made a great dairy record, and there was a grand chorus all along the line, joining in the refrain "HOARD'S DAIRYMAN discomfited"—all the singers oblivious of the maxim, *exceptio probat regulam*' HOARD'S DAIRYMAN, always ready to face facts, secured a photograph of this animal and dispatched an experienced stockman to investigate her breeding and ancestry. The picture showed an animal so far removed from the ideal beef form that she was pronounced a good model for a dairy cow, and the inquiry, where she was bred and raised, disclosed the fact that for many generations her dams had been heavy milkers, and so far from the accepted beef type was her maternal grandam, that her herd and home name was "Old Bones." Her sire, also, although a full-blooded Short-horn, was of decided dairy type. And yet, and to this day, the record of this cow is quoted as establishing the propriety and profitableness of trying to do dairy business with cows not of dairy breeding or conformation.

Again and again, in herd reports and cow censuses, HOARD'S DAIRYMAN has published the facts of actual experience, all tending to prove that there is a constant connection as of cause and effect between dairy form, dairy breeding and dairy profits, and that the beef bred cows or cows of beefy form, although deceptively named dual-purpose animals, are as much out of place in the dairy as a threshing engine would be for hauling a buggy.

We give elsewhere some further evidence to the same effect, gathered by one of Dairy Commissioner McConnell's assistants in Minnesota and printed in the *Dairy Record*, under the title, "A Seven Days' Test of Two Herds." If it be objected that other causes than breed and dairy type contributed to the difference in the yield of these two herds, amounting to an average of 3.23 pounds of butter per cow in seven days, how would it do to suggest that a greater disparity exists in the one herd where 3 grade Holsteins averaged 8.76 pounds butter in seven days and 6 Short-horns averaged only 4.07 pounds, or less than half as much as their dairy bred mates in the same herd, with the same care and the same feed.

Lest it may be charged that we have attempted to bury the record of one of these Short-horns in the tomb of "general averages," let us point out as an exception, No. 9 in Mr. Polzine's herd, a 2-year-old Short-horn heifer whose record is nearly a half-pound larger than that of the grade Jersey 2-year-old in Mr. Huyler's herd, which commenced milking before she was 20 months old. If we admit, out of consideration for the feelings of our dual-purpose, and beef friends, that this particular Short-horn heifer is a better dairy animal than the grade Jersey and is worthy of membership in a dairy herd, where does it leave those other Short-horns? And what sort of a percentage is it, where only one animal out of six makes butter enough to pay for her board?

Is not this another good illustration of the maxim that "the exception proves the rule?" The very fact that attention is sought to be diverted from the five and centered upon the one, warrants the conclusion that "it pays to test a herd" and that it does not pay to fool away one's time milking cows of beef type or beef breeding. It is not profitable to search for grapes among thorns or for figs in thistle patches.

OLEO PREPARING FOR A NEW CAMPAIGN.

It was to be expected, perhaps,—but all the same it has a misfit appearance—that "A Weekly Agricultural and Live Stock Journal," even though edited and published under light reflected from the stock yards and slaughter houses in Chicago, should endorse the claim that the law taxing the fraud out of oleomargarine, has resulted in an annual loss of $33,000,000 to $55,000,000 to the stock-raisers of the country; and that the Massachusetts and Michigan courts have held that it is as lawful to color oleo as it is to color butter.

Neither statement is true, but their constant repetition in some of the metropolitan dailies and certain city farm papers indicates that the Chicago and Kansas City packers, and others whose illegitimate profits have been curtailed, purpose to re-open the contest.

The courts referred to have held, contrary to the true intent and meaning of the state laws they were construing, that a color resulting from the normal ingredients of oleomargarine was not within the prohibition of these statutes. In other words, these decisions tend to the doctrine that only artificial coloration is now prohibited in the states named. But the Commissioner of Internal Revenue and the United States courts are holding that the use of palm oil, either directly or through cotton seed oil, is artificial coloration, and the parties who attempted to circumvent the law of Congress in this manner have been required to pay the 10-cent tax and heavy penalties in addition.

The statement as to shrinkage in a market value of beef cattle is equally fallacious. This is the old argument advanced when the Grout Bill and its successor were under consideration in Congress. "The falsity of the argument," says the *Ohio Farmer* in a recent article, "that the butterine demand for oleo affects the price of cattle has been shown up so often that the subject is getting stale; but still they keep harping on it. They fooled ten western senators, who opposed the butterine law because they were led to believe this story, and they even made a cat's-paw of the National Live Stock Association, which is controlled by western ranchmen. A few years ago the butterine men had this story down pat and figured to a cent what butterine was worth to the cattleman. They claimed it increased the price of the average steer exactly $3 46.

Oleo oil is only produced by a few of the largest packing houses. The census reports show that about three-fourths of the entire output is made in Chicago, Kansas City, St. Louis and Omaha. Large slaughtering markets like Boston do not make any. A special plant is needed, and the process of manufacture is so delicate that it can only be carried on successfully on a large scale, by the

largest houses. It does not appear that the beef trust pays any more for cattle than the small slaughter houses, which make no oleo. A western ranchman who is familiar with the ways of the Chicago stock yards and other western markets, would be so shocked he would need the attention of a doctor, if a buyer for Armour or Swift would come to him and say: "Good morning, Mr. Countryman, that's a nice bunch of cattle you have this morning. Just find out what the little fellows, or these eastern buyers will offer you for them, and then come to me and I will pay you $3.46 more a head. I can do this because our people have an oleo plant, and we can work into oleo or butterine, the fat which they would have to cook into tallow." As a matter of fact, it is a few big little things, like the profit on oleo, that enable four or five packing concerns to control more than two-thirds of the packing business of the United States.

AN UNLIMITED FOREIGN MARKET FOR OLEO OIL.

The butterine law has not compelled the packers to "make tallow of this product," for the simple reason that there is a foreign demand for all the oleo oil that can be got out of all the cattle killed in the United States. For years past the foreign buyers have been taking 80 to 90% of the output of the packing houses. Government records make it appear that we actually exported more oleo oil in 1900 than the entire amount produced in the United States! The census reports on the packing industry make it appear that the total output of oleo oil in the year ending June 1, 1900, was 19,111,120 gallons. If we allow 7½ pounds to the gallon, this would be equivalent to 143,333,400 pounds. The custom house returns published by the Treasury Department, show that in the fiscal year ending June 30, 1900, our exports of oleo oil amounted to 146,739,681 pounds. The census valuation of the entire product in this country was $11,482,542, while the custom house valuation of the amount exported was $10,503,586. There is an offset of a month in the custom house of the fiscal year and the census year, but each covers a full year of twelve calendar months; and it probably takes a month at an average to clear from the seaboard the product of western factories, so that the two years correspond very closely in practical effect.

The whole sum and substance of the matter is, that the big slaughtering concerns, that heretofore made oleomargarine in the semblance of butter and are anxious to re-engage in that business without payment of the ten-cent tax, are owned and managed by men whose sole aim is to make all the money they can, and have never shown any disposition to divide profits with anybody, except the retailers of their oleagenous combination of the fat of beeves and swine with cotton seed oil. They never paid a cent more for the steer or the hog than they were obliged to, or in excess of what exporters and others not in the oleomargarine business paid.

And those exporters and slaughterers of cattle who converted none of the fat into oleomargarine, or even into oleo oil, were not in the business simply for their health, but made, as they were entitled to make, a good profit. They did not grow as rich and haughty and anarchistic as the oleo manufacturers did, but they paid just as much for cattle. In other words, whatever profit there was in the manufacture of oleomargarine—and it was by no means insignificant—did not filter back to the breeders or feeders of cattle and hogs, but was retained to the last penny by the Swifts, the Moxleys and their co-conspirators in debauching commerce and defrauding the consumers of their substitute for butter.

PROF. MCKAY ON FLAVOR IN BUTTER.

That grand old dairyman, Chas. L. Beach,—bless his memory—was once talking to a lot of creamery patrons, and he talked plain, so as not to be misunderstood, just as the DAIRYMAN does. He said:

"A great deal of your milk comes to the creamery in an unfit condition. You know that. I am not going to assume that you are ignorant of your duty. Like myself, you do not do half as well as you know. We both too often sacrifice our conscience to our convenience. We are not full fledged, four squared dairymen yet, making the business and all its demands, our pride, our honor, our chief concern. We keep cows, but how do we keep them? not half as clean as we do our cornfields. Why? Because we do not have half as much pride in our cow work as we do in our corn work. When the creamery patron becomes just as keenly alive to the reputation of his creamery as he wants the butter maker to be; feels his importance in it and his responsibility to it, realizes that one pound of dirty milk will spoil 100 pounds of clean milk, then we will make butter that will beat the whole world."

Now that was the truth and nothing but the truth from the patron's stand point. It was a faithful, honest, brave statement, and faithful, honest men always welcome that kind of talk.

But this business of making fine butter is a very wide proposition. It does not all rest on the farmer who produces the milk. Of great importance is the study of the scientific side of it, the skilled training in the work; the sharpened perception of the taste, the smell, the eye, and all that goes to make what we call expert judgment. It will give us some idea what all this means to read the following extract from the address of Prof. G. L. McKay of Iowa before the last winter's meeting of the Ohio Dairymen's Association.

"The standard of flavor for butter, as most of you know, is practically the same the world over. Butter has what we might term two flavors, that which gives a pleasant sensation to the palate when dissolved in the mouth is called palate flavor; then there is the boquet flavor or nose-aroma, so called from the pleasant flavor given off when butter is passed before the face. I had the privilege at Copenhagen, Denmark, of examining the butter before the judges went over it.

In Denmark, their methods are different from ours, from the fact that they use a different standard. They keep the butter for ten days at the experiment stations before it is scored. It is then divided into three divisions and they have three of their experts pass over it, scoring on the basis of 15 for perfection. These men pass over the entire lot separately, each judge taking a separate division and going over the entire lot. After the judging is completed, the manager takes the average of the three for the score.

There are so many things that affect the flavor that it is almost impossible for me to attempt to describe them. We have butter here to-day (indicating butter on the platform) which scores 97, but I am sorry to say it is an outside tub which scores the highest; we have also some here which, I think, scores about 70, or 70 some odd points, I cannot call off the score accurately, but it is down in the 70's at any rate. I presume that the milk making this butter, was equally as good when drawn from the cow as the milk making the 97 butter. A lesson of this kind is also given in what we call process butter. We have in this country a law regulating process butter.

Has it ever occurred to you that this butter is built on ignorance. It is built on the fact that many of the dairymen are unable to make good salable butter. Butter that sells for eight or nine cents a pound is usually thrown in tubs or a barrel in the back part of the store and is sold in barrel lots to the process manufacture. Milk for this butter was just as pure when drawn from the cow as that used for any butter; the loss is due to the lack of skill on the part of the maker. We have lots of dairy writers and instructors in the country, but that point has not been overcome.

[Not one farmer in a hundred, whose milk makes process butter, ever reads dairy papers or listens to dairy instructors. —ED. DAIRYMAN.]

The places where they have employed government experts to travel through the country and give instruction have made much greater progress than other countries.

For instance, take the province of Ontario, Canada, see the advancement they have made in cheese; the Canadian cheese is standing at the head of the list in the English market. Take Denmark, see the position they hold in the English market on butter. The same is true of little Holland. These countries all have their traveling experts.

So we find there is lots of room for work at the present time. We have no exact method of scoring butter; it is merely the sense of smell and taste. I think, however, I could go into a room and score duplicates practically the same from the sense of smell and taste, but it does not take an expert even, to find the difference between the flavor in this tryer (indicating) and the tryer I will send down to you. (At this point the professor passed around for inspection by the audience two samples of butter.)

* * * * The appearance goes a good way in giving the judge a good impression of the maker. Whenever I find a tub of that kind (indicating the tub scoring 97), I have a good impression of that man right away and I score his butter as high as I can. But take the case of this man where the tub is poor; it is an indication at the outset, of a careless maker. * * * *

WORKING BUTTER.

In Denmark they place the butter in water; they first work the butter for about three-quarters of a minute, just enough to incorporate the salt. Then they throw it into water and allow it to stand for a period of two hours. The water keeps the butter at a uniform temperature, and also aids in dissolving the salt.

Recurring again to flavor. A great many of the bad flavors come in the milk from an external source; germs from the manure being carried on the cow's legs and body, which later affect the milk and produce what is called a weedy flavor. This flavor is largely produced by a species of bacteria called *bacillus lactus aerogenous*. Our bacteriologist found this same germ at his home dairy, producing this typical weedy flavor. We also found that by inoculating our best cream with this species of bacteria, it would produce the same flavor.



Contrast with cut below.



Milk is produced here for direct consumption from dairy of 40 cows. Barn has little provision for light; manure is left in piles at openings, contaminating air and tainting milk.—*Illinos Station Report*

Experience With Abortion.

ED. HOARD'S DAIRYMAN:—The excellent article in the last DAIRYMAN induces me me to give my experience with abortion. During twelve years we never had a very wet summer without more or less abortion in the herd, and one or two times our dairy was about ruined. Ours is a winter dairy. Last summer I used a fly repellent of my own compounding. Three gallons kerosene, one quart pine tar, and one pint crude carbolic acid. The cows were sprayed twice a day with this. The result was quiet and peace while milking. At night the cows that were sprayed did not have a fourth as many flies on them as did those that were not sprayed.

Last summer was the wettest summer we ever knew, but we did not have a single case of abortion, athough every herd around us had more or less. We have used the same preparation this year and to this date are free from the pest. I have given the recipe to others and in many cases there has been no abortion, and in the rest the evil has been diminished. As carbolic acid is strongly recommended for abortion, I think inhalation by the cows has the same effect as giving it in the feed, at least it looks that way.

Below I give the record of our dairy for three years.

YEAR.	No. of Cows.	Lbs. milk per cow.	Receipts per cow.	Cost per cow.	Profit per cow.	Price of milk per 100 lbs.
1899	18	8300	$75.75	$26.90	$48.79	$ 90
1900	16	5323	51.70	19.86	31.94	.94
1901	18	7412	76.83	27.70	49.02	1.05

Tallmadge, Ohio. S. J. B.

Crimson Clover and Bloat.

Is crimson clover more likely to cause bloat than the ordinary red clover? A. W.
Wawarsing, N. Y.

There are no reports, accessible to us, on this subject, and the natural presumption is, "no news being good news," that no specific objections to crimson clover on this score have been observed. However, here as elsewhere, when one is traveling in a new country or sailing uncharted seas, some caution should be observed and frequent observations made in order to avoid possible pitfalls or hidden reefs.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Bran, Barley and Oats Compared for a North Dakota Ration.

Please formulate a balanced ration for my dual-purpose cows. They weigh from 1,000 to 1,300 lbs. I have the following feeds of my own raising: barley, 53 cts.: oats, 30 cts.; speltz, 30 cts; macaroni, wheat, 35 cents in market here; bran I can buy at $14 a ton. I have prairie hay, all the cows want to eat and straw all they can eat.

I have been testing my cream with a 18 c. c. pipette and use 160°F. water to fill up test bottles. An old butter maker tells me that I expand the butter fat. Will the butter fat expand more than the scale test would be? H. I.

Havana, N. D.

In order to arrive at a satisfactory comparison of the relative prices of these different feed stuffs and their relative feeding value, we must first reduce them to similar terms or denominations, and then note the varying percentages of digestible units in each. As we have no satisfactory analysis of speltz or macaroni wheat, or information as to their weights per bushel, we omit them from present consideration, but our inquirer can make estimates for himself, upon the hypothesis that a ton of speltz is about equal in feeding valne to a ton of oats.

Barley at 35 cents per bushel (48 lbs.), is $14.60 per ton; add $1.90 for grinding and the price is $16.50. Barley contains 78 per cent of digestible units and bran 58 per cent. With bran at $14, barley should be worth $18.82 if we disregard the larger per cent of protein in bran. Oats at 30 cents per bushel (32 lbs.) cost $18.75 per ton, or adding as above for grinding, $20.65 Oats carry only 66 per cent of digestible units, and are therefore too high in price to be considered, when bran costs only $14 and barley $18.82.

If these dual-purpose cows are fairly good milkers and have not been giving milk for several weeks, we recommend trying a daily allowance of 4 lbs. bran, 4 lbs. ground barley, a tablespoonful of salt, and hay *ad libitum*—that is all each cow will eat without any waste. For cows capable of yielding 25 lbs. of milk daily, add, if procurable, some linseed oil meal, gluten feed or distillers dried grains—one to two pounds daily.

The test should be read at 140°F., a temperature higher than that, especially in the case of cream where the fat column is long, will give too high a reading. To get accurate results, cream should be weighed, never measured.

Ohio Alfalfa Queries.

Can alfalfa be sowed in the spring with oats, and about what time should the oats and alfalfa be sowed?

Would you put the seed in the drill and sow with the oats or with a hand seed sower after the oats are sowed and cover the seed with a weeder?

How much oats would it be best to sow to insure good conditions for the alfalfa, and how much alfalfa seed to the acre?

I wish to harvest the oats the same as though there was no alfalfa with them. A. L. D.

Quincy, Ohio.

1. Yes, but the better practice is to seed alfalfa without any nurse crop, or at most with a very light one.

2. Seed separately, and as early in the spring as the ground can be worked up into a good, warm tilth.

3. We would not use more than six pecks of oats to the acre, and less would be better, unless the ground is very weedy and the quick-growing oats are needed to hold the weeds in check. Do not use less than 25 lbs. of alfalfa seed to the acre. The thicker stand one can get, the better quality of hay will result.

4. It will not do to let the oats ripen, but they should be cut very soon after heading out, and cured with the young alfalfa for hay. Treated in this way, with a favorable season, a good second crop of alfalfa may be expected the first season.

Feeding Value of Sweet Corn Ears.

What is the feeding value of sweet corn ears compared to bran at $20 per ton? Or in other words can I sell sweet corn at $9 per ton, cobs and husks returned, and buy bran at $20. C. N. T.

Kennedy, ——.

There are no figures of carefully conducted experiments available for answering this inquiry. There is however, a very general misconception as to the feeding value of sweet corn and sweet corn stover. Both are perhaps somewhat more palatable than common corn, but sugar or glucose has no higher feeding value than starch. Personally we incline to the opinion that it would be profitable to sell the corn and expend the proceeds in part, at least, for bran. If no other gain was made, a ton of bran has $2.50 more available manurial value than a ton of corn.

Danger in Pasturing Alfalfa.

I have a lot of 12 acres of alfalfa which has been cut twice, and at this writing it has another crop ready to cut. I have 12 spring calves. Is there any danger of killing the calves if I turn them into the 12 acres? I do not intend to cut it again. I have been told that it was dangerous to put the calves on it. W. A. B.

Marengo, Ill.

From the best evidence that comes to us, and from the great preponderance of all the evidence, we should not deem it safe to turn calves or cattle of any age, on this alfalfa for more than a few minutes at a time, and then only when not wet with rain or dew, and after their appetites had been otherwise partially appeased. The danger is from bloating.

Land Renting for Fifteen Dollars—Milk Selling at Eight Cents.

Can anything be made selling bottled milk 3.5 per cent fat at 8 cents per quart delivered, where man has plenty of clover hay and blue grass pasture, but must purchase all other feed, except some little fodder? Land lies at edge of city limits of a manufacturing town, and rents for $15 per acre.

Or would it be cheaper to live twelve miles away and ship milk to same place? Land renting in this case at $5 or $6 per acre, about 3 miles from railroad.

We are wondering if the first proposition isn't the best when help is so scarce and very high? A man and boy could take care of a large business, if all feed was brought to the barns. Corn, 40 cents; bran, about $16.50; and dried grains at $18 delivered. Could perhaps have room to raise about 150 tons of ensilage, not sure about this. Or could more ground be rented say two miles away from first place to raise ensilage on, at $8 per acre? N.

Illinois.

Whether it will pay to rent land at $15 per acre is a question that cannot be answered by one at a distance, and especially without a pretty intimate acquaintance with the renter. It would not pay—at least that is our present judgment—to pay $15 per acre for pasture or for any kind of common meadow. If one could cut four tons of hay from an acre he might pay $15 rent.

At prices as they have averaged for the last five years, one could well afford to buy all feed, if he could sell milk at 8 cents a quart.

Personally, we should not choose the more distant location at the prices named.

An Oregon Winter Ration.

Please formulate me a winter ration of the following feeds for Jersey cows that weigh from 800 to 900 lbs.: I have all the clover hay and clover silage they can use. I can buy oats at 25 cents per bushel (32 lbs.), or bran at $18 per ton; oil meal delivered here at $30 per ton. I have a chopper to do my own grinding with, at very small cost. My cows have freshened within the last two weeks except two; one of which will freshen in November and the other about Christmas. I expect them to average about 20 lbs. of milk each all winter. M. S. S.

Hubbard, Ore.

This is the proper time of year to plan

"ADVERTISEMENT"

FORCED TO RESIGN.

Lost a Good Position Through Bad Food.

"I felt immediately better after my first meal on Grape-Nuts, which I began to use after my health had broken down and I was a nervous wreck.

My stomach was in such a condition that I could eat nothing and trying to eat was a burden to me.

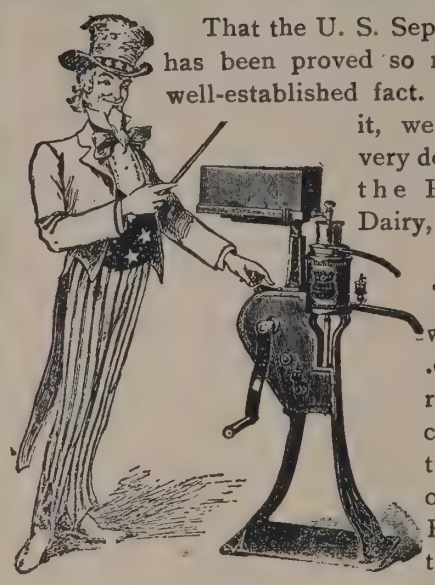
My pulse ran up to 115 and my weight fell 21 pounds, I got so I couldn't work and was forced to resign a good position. I took milk punches between meals and quit meat altogether, but nothing improved my appetite and the condition of my stomach. I finally went on one meal a day and had to force myself to eat that and was rapidly starving until one day a friend suggested Grape-Nuts.

Although my palate and stomach had rebelled against all other foods Grape-Nuts agreed immediately and I really relished this food while the changes in my condition have been wonderful. My weight increased from the start and I have now regained 12 pounds while my pulse is normal and I am a new person all over. Life seems worth living and I enjoy all my meals.

To make sure that this change was due to Grape-Nuts I made the experiment of leaving off the food for five days but I began to go backwards so rapidly that I concluded I had satisfied my curiosity in this respect and I went back to Grape-Nuts again in a hurry and began to pick up again. Grape-Nuts certainly touched the spot and did the work." Name given by Postum Co., Battle Creek, Mich.

Look in each package for a copy of the famous little book, "The road to Wellville."

THE U. S. LEADS THE WORLD



That the U. S. Separator leads all others has been proved so many times that it is a well-established fact. To those who doubt it, we call attention to two very decisive victories: one at the Pan-American Model Dairy, where

THE U. S. WON THE WORLD'S RECORD

with the average test of .0138 for 50 consecutive runs; the other the recent competitive test between six different makes of separators at the Kansas State Agricultural College, where

The U. S. Excelled All Others

in the tests of skim milk and total minimum loss, according to Press Bulletin No. 123.

For reports of many other victories, write for catalogues.

The U. S. Is the Safest and Most Durable,

the gears being entirely enclosed in iron casting, making it impossible for anyone to get caught in them and injured. Don't overlook this point in buying a separator.

We have the following transfer points: Chicago, La Crosse, Minneapolis, Omaha, Sioux City, Montreal, Quebec, Sherbrooke, P. Q., Hamilton, Ont.

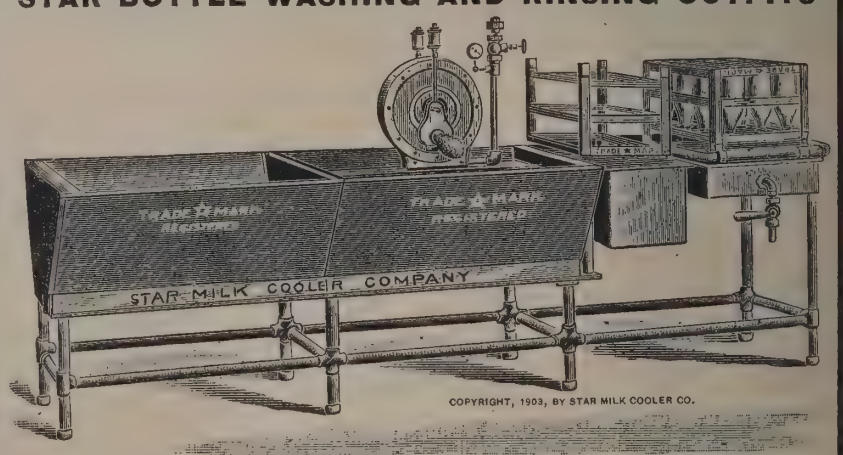
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STAR MILK COOLER CO., HADDONFIELD, N. J.



Do not Cool Your Milk

the old-fashioned way, with a dipper or a paddle, but get an up-to-date

Milk Cooler-Aerator.

Saves Time, Labor, Patience and Money.

A Free Booklet; ask.

Champion Milk Cooler Co., 67 Main Street, CORTLAND, N. Y.

for winter feeding, and especially so with cows that are expected to be at their best between this and January. The treatment, including feed, given the cow in the early part of her lactation period, has much to do with her subsequent usefulness. We think it wise, therefore, to commence winter feeding of fresh cows now.

The presumption is, that these cows have plenty of good pasturage now,—at least plenty of good looking pasturage. With us in Wisconsin, pastures never before looked so well at this time of the year, but we find that the lush grass, consequent upon an excess of rain, is lacking in nutriment. We therefore advise our Oregon inquirer to commence at once with a moderate daily allowance of oats and salt and some of that clover hay. We cannot name any specific amount, for this must be determined by the results as they develop with the individual cows. The presumption is, that about four pounds of oats daily will be a fair average for the present.

When the pastures fail and silage and hay constitute the roughage, increase the allowance of oats to 6 lbs. and add about 1 lb. of oil meal. The amounts of hay and silage must be largely determined by the supply available. We should prefer to have each cow eat about 6 lbs. of hay and then add as much silage as will be eaten with relish.

Seeding to Alfalfa in West Virginia.

We have a field of 5 acres which we plowed as soon as we finished cutting wheat and sowed to cow peas with the intention of sowing in alfalfa as soon as peas come off. They will not be ready to cut for 10 days or 2 weeks yet, and we are afraid it may be too late for fall sowing, so we would like to have your opinion in this case. Do you think the latter part of September is too late to sow alfalfa in West Virginia along the Ohio river? We are beginners in the dairy business and find the DAIRYMAN a great aid. G. W. D.
Graham Station, W. Va.

We are very much of the opinion that it will be safer and better all around to wait until spring for seeding this field to alfalfa. Sow as early in the spring as the ground will work up mellow and warm, and be extra careful to make a finely pulverized seed-bed with the best and richest soil on the surface. Deep plowing. or subsoiling rather, is all right for alfalfa, provided the subsoil is not brought to the surface, but is left where it belongs.

Tests and Yields.

When butter is worth 18 cents per pound and milk tests 5.1, what is 100 pounds of milk worth and how many pounds of butter will 100 pounds make and will you kindly give a table how they figure the tests. A. F. C.
Warren Co., Pa.

There is no table or rule for figuring tests and yields that will apply to the daily results with exactness. In the best conducted creameries and in private dairies the overrun will vary more or less from day to day. Milk testing 5.1 per cent fat will average to yield approximately 5¾ pounds of butter per hundred pounds of milk. Under best conditions it might reach 6 pounds, and at other times, if separator and churn do not work just right, the yield might not reach 4½ pounds.

From these figures our inquirer must himself answer his first question. Is the price named the net after deducting cost of making, or must 2½ to 4 cents be deducted?

Rape Not Cause of Skin Disease in Swine.

Having little experience in hog rearing, I was induced to sow rape for pasture. Came up good and strong. When about sixteen inches high, turned ten sows and a litter of young pigs on it. Sows all got sore ears, and some of the heavy ones got sore udders. The small pigs got backs all sore and seemed to suffer a great deal. Skin peeled off over back. Have you had any similar trouble? How should I have handled the rape crop?
Woodstock, N. B. C. F. R.

Probably the most satisfactory answer we can give in this case is to state that the present writer has had between thirty and forty late spring pigs and their dams running at will in a field of rape all summer, and a more healthy and thrifty bunch of swine it would be difficult to find. Of course, they have had other feed, such as sweet, warm, separator skim milk and middlings, and lately some freshly cut alfalfa for variety.

It is safe to say that rape did not cause the trouble reported and it would be idle to hazard any opinion as to the real cause without more specific information. It looks like a case where some form of "dip" would be required, and possibly some internal medication. If possible, consult some qualified local veterinarian.

For Cows in Milk Eight Months.

Please advise me of best balanced ration for milk production for Jersey cows, in milk about 8 months, and now giving about 8 quarts eachdaily. I have good meadow pasture, and gluten, corn meal and bran, and would like you to fix up for me the best combination for production of milk from these. M. J. W.
Mt. Vernon, N. Y.

Cows that have been in milk 8 months, and are expected to freshen again (as these cows should) in November and December, cannot be expected to continue profitable producers much longer. As long as the good pasture lasts, there can be no better supplementary feed than a few lbs. of good hay daily and from 4 to 8 pounds of a mixture in equal parts by weight, of bran and ground corn with a teaspoonful of salt night and morning. Do not feed so much grain as to cause any cow to lay on superfluous flesh.

The Boy that Lives on Our Farm.

The boy lives on our farm; he's not
Afeard o' horses none!
An' he can make 'em lope, er trot,
Er rack, er pace, er run.
Sometimes he drives two horses, when
He comes to town an' brings
A wagonful o' 'taters nen,
An' roastin' ears an' things.

Two horses is "a team," he says—
An' when you drive er hitch,
The right-un's a "near-horse," I guess,
Er "off"—I don't know which.
The boy lives on our farm, he told
Me, too, 'at he can see,
By lookin' at their teeth, how old
A horse is, to a T!

I'd be the gladdest boy alive
Ef knowded much as that,
An' could stand up like him an' drive,
An' jist push back my hat,
Like he comes skallyhootin' through
Our alley, with one arm
A-wavin' fare,ye-well! to you—
The boy lives on our farm!

—*James Whitcomb Riley.*

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

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ART OF REST.

May be Acquired and Used With Great Benefit.

Complete and restful poise of the body and mind is an art not easily gained.

Perhaps nothing brings one as much content, comfort, happiness and pleasure as those conditions of easy, restful, resourceful and well balanced mind and body, that make of work a pleasure and the daily life happy and peaceful.

The nervous housewife busy with a hundred duties and harrassed by children; the business man, worried with the press of daily affairs, debts, etc., cannot enjoy the peace and restful repose and healthful nervous balance unless they know how.

There is a way. First and foremost the stomach must be consulted. That means leaving off coffee absolutely, for the temporary stimulant and the resulting depression is sure ruin to the nervous system, aud the whole condition of health and happiness rests upon stomach, nerves and mind.

Start with the stomach, that is the keystone to the whole arch. Stop using things that break down its power, upset its nervous energy and prevent the proper digestion of the food, and the consequent manufacture of healthful blood and nerves, brain and tissues.

When you quit coffee take on Postum Food Coffee. That is like stopping the payment of interest and starting on a career where you are loaning money and receiving interest. The good results are double. You stop poisoning the system with coffee and start building up the broken down nerve cells by powerful elements contained in Postum. These are pure food elements ably selected by experts for the purpose of supplying just the thing required by Nature to perform this rebuilding.

These are solid substantial facts and can be proven clearly to the satisfaction of anyone, by personal experience. Try the change yourself and note how the old condition of shatteted nerves and worried mind changes to that feeling of restful poise of a well balanced nervous system.

The managing physician of a hygienic sanitarium in Indiana says that for five years in his practice he has always insisted upon the patients leaving off coffee and taking Postum Food Coffee with the most positive, well defined results and with satisfaction to the most confirmed coffee toper.

The Doctor's name will be furnished by the Postum Co. Ltd., Battle Creek, Mich.

Look in each package for a copy of the famous little book, "The Road to Wellville."

Empire Empire

Eight Years — Fifteen Cows

The Empire Way Makes Cows Pay.

1895 1896 1897 1898 1899 1900 1901 1902



How's This for a Record?

Emporia, Kans., Jan. 2nd, 1903.

Empire Cream Separator Co., Bloomfield, N. J.

Dear Sirs: Have used one of your **Empire** Cream Separators for the past eight years, during which time I have been milking at all times from twelve to fifteen cows. The cost for repairs in the eight years has been only seventy-five cents. I have had experience with other separators but consider the **Empire** superior to any other, as it never caused me any bother. It is easy to clean and has proven very durable. It does good work at all times. L. H. VAHSHOLTZ, Rural Route No. 4.

The Empire Cream Separator turns more easily, is more easily cleaned, does better work, and costs less for repairs than any other, because it is the **simplest separator made.** Don't buy a separator until you have investigated the merits of the Empire.

Send for our new book on Making Milch Cows Pay.

Empire Cream Separator Co., Bloomfield, N. J.

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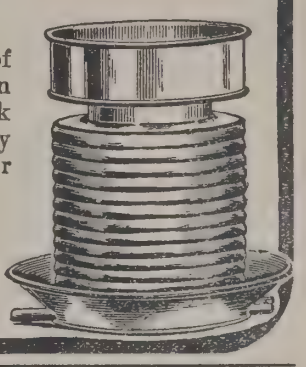
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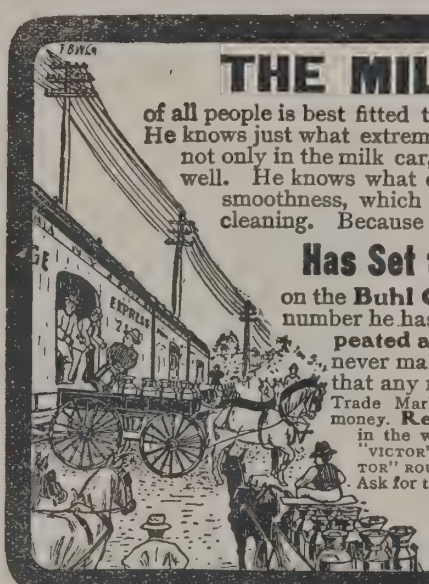
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of all people is best fitted to judge of the merits of a milk can. He knows just what extreme hard wear a can is subjected to, not only in the milk car, but in the city delivery wagon as well. He knows what economy there is in toughness and smoothness, which mean wear, resistance and ease of cleaning. Because of this knowledge he

Has Set the Seal of His Approval

on the **Buhl Cans.** This is witnessed by the large number he has bought in the past and by his **repeated and ever increasing orders.** He never makes a mistake, because he has learned that any milk can stamped with the Milk Can Trade Mark is the best milk can for the money. **Remember** the Buhl is the only can in the world that is made with the BUHL "VICTOR" CAN BREAST and the BUHL "VICTOR" ROUND HANDLE. All dealers sell them. Ask for the **Buhl.** Look for the Milk Can Trade Mark. No other Can so good.



Buhl Stamping Co.,

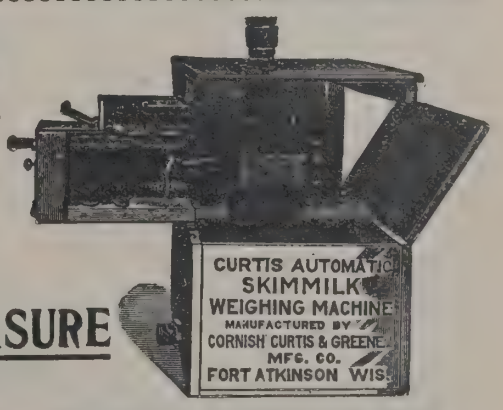
212 West Larned Street, Detroit, Michigan.

Skim Milk

Often goes to the wrong man for the simple reason that the patrons have no standard of

WEIGHT or MEASURE

and the last man suffers.



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Cornish, Curtis & Greene Mfg. Co.,

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for.... DE LAVAL ALPHA SEPARATORS.

Fort Atkinson, Wis.

A Seven Days' Test of Two Herds.

I have tested several herds this season and find some very good ones, and some very poor ones. The cows that produce the most butter are almost without an exception of the dairy form.

With the permission of two of the patrons will give the record of two herds for seven days.

Will leave it with the reader to decide whether it pays to test a herd, also if it pays to milk cows of the beef type.

B. B. SCRIPTURE.

F. H. HUYLER HERD—SEVEN DAY TEST.

BREED.	No. of Cow.	Test.	Lbs. Milk.	Lbs. Butter	Years Old.
Not known, dairy type.	1	4.0	211	9.84	5
Jersey grade.....	2	4.6	201	10.79	4
Not known, dairy type.	3	3.8	197	8.72	4
Grade Jersey.....	4	4.6	114	6.12	2
Average		4.25	181	8.87	

No. 4 cow calved when she was under 20 months old.

H. POLZINE HERD—SEVEN DAY TEST.

BREED.	No. of Cow.	Test.	Lbs. Milk.	Lbs. Butter.	Years Old.
Short-horn.....	1	2.6	63	1.90	4
"	2	3.0	116	4.06	6
"	3	3.2	105	3.91	12
"	4	3.2	76	2.83	8
Grade Holstein.....	5	3.4	213	8.44	6
Short-horn.....	6	3.6	124	5.20	7
Grade Holstein	7	3.6	189	7.93	8
" "	8	3 9	218	9.91	6
Short-horn.....	9	3.8	149	6.60	2
Average.....		3.37	139	5.64	

—Dairy Record.

Renting a Dairy Farm.

In reply to an inquirer as to what the custom is in renting dairy farms as to the proportion of the proceeds that should go to the renter and the landlord, Mr. Colon C. Lillie gives the following suggestions in the *Michigan Farmer*:

I wish there were more well defined customs in this country about renting farms. In the old countries they have well established customs, and they are seldom deviated from, but our country is hardly old enough for that yet. We are coming to it, however, aud we need some unwritten law on the subject. If we had some well defined customs there would not be so much dissatisfaction between owner and renter.

In general it may be stated that the land draws one-third and the labor one-third. That is, if the tenant furnishes the cows and all other stock and does the labor, he gets two-thirds the crops or receipts from the farm. If the owner furnishes everything, teams, tools, cows, the tenant doing the labor only, then the owner gets two-thirds of the receipts and the renter one-third for his labor. Sometimes the owner furnishes the cows, or in some instances half of them, and the renter furnishes teams and tools; then each takes half the proceeds.

In each instance the stock is fed from the individual products, i. e., each furnishes feed in proportion to his receipts, and if extra feed, such as bran, cotton seed meal, etc., is purchased, each must furnish in such proportion to his share of the proceeds. If the former gets two-thirds of the proceeds, then he pays for two-thirds of the feed purchased. If the renter receives one-half, then he pays for one-half the purchased food, and so on. Of course there are many little details that the owner and renter must agree upon and all should be put in the contract. The owner usually pays the money tax and the renter the road or highway tax. In repairing fences and buildings the owner usually furnishes the necessary material and the renter does the labor. If new buildings are constructed the owner does all, as these will be permanent improvements and will add to the value of the farm. The renter must do all the labor, not only in putting in the crop and harvesting it, but he must market it as well.

I am glad this question of keeping cows on rented farms is being discussed. It is the only correct way of farming in general; we can't keep our land in good condition unless live stock is a part of the farming. Dairying is the only form of live stock husbandry that brings a satisfactory, uniform cash income the year round. It gives the tenant cash to do business with and to live on and it gives the owner cash also. When we come to rent our farms we should insist

"ADVERTISEMENT."

THE VALUE OF CHARCOAL

Few People Know How Useful it is in Preserving Health and Beauty.

Nearly everybody knows that charcoal is the safest and most efficient disinfectant and purifier in nature, but few realize its value when taken into the human system for the same cleansing purpose.

Charcoal is a remedy that the more you take of it the better; it is not a drug at all, but simply absorbs the gases and impurities always present in the stomach and intestines and carries them out of the system.

Charcoal sweetens the breath after smoking, drinking or after eating onions and other odorous vegetables.

Charcoal effectually clears and improves the complexion, it whitens the teeth and further acts as a natural and eminently safe cathartic.

It absorbs the injurious gases which collect in the stomach and bowels; it disinfects the mouth and throat from the poison of catarrh.

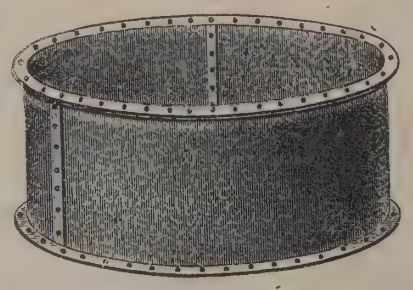
All druggists sell charcoal in one form or another, but probably the best charcoal and the most for the money is in Stuart's Absorbent Lozenges; they are composed of the finest powdered Willow charcoal, and other harmless anti-septics in tablet form or rather in the form of large, pleasant tasting lozenges, the charcoal being mixed with honey.

The daily use of these lozenges will soon tell in a much improved condition of the general health, better complexion, sweeter breath and purer blood, and the beauty of it is, that no possible harm can result from their continued use, but on the contrary, great benefit.

A Buffalo physician in speaking of the benefits of charcoal, says: "I advise Stuart's Absorbent Lozenges to all patients suffering from gas in stomach and bowels, and to clear the complexion and purify the breath, mouth and throat; I also believe the liver is greatly benefitted by the daily use of them; they cost but twenty-five cents a box at drug stores, and although in some sense a patent preparation, yet I believe I get more and better charcoal in Stuart's Absorbent Lozenges than in any of the ordinary charcoal tablets."

NATIONAL

Galvanized Steel Tanks



Made of annealed steel galvanized. Seams securely riveted. Heavy steel angles for top rim. Will last a lifetime. Made in all shapes and sizes. Write for our SPECIAL MAIL ORDER PRICES. When quality is considered WILL NOT BE UNDERSOLD.



THE Weighright

Two Scales in One

A Portable Floor and a Counter Scoop Scale on one base.

CAPACITY

1-4 oz. to 300 lbs.

Price Reasonable

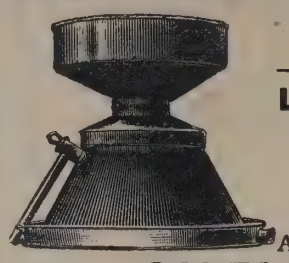
See our ad of NATIONAL BABCOCK MILK TESTERS in last and next issues

National Creamery Supply Co.,

450-458 Illinois St.,

CHICAGO, U.S.A.

Get the Best Milk Cooler AND AERATOR.



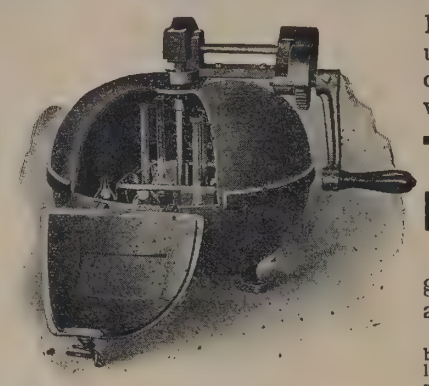
LARGEST COOLING SURFACE EASIEST TO CLEAN.

WRITE US FOR PRICES.

Ask for our new Thirtieth Annual Catalogue of Dairy Apparatus and Supplies.

OAKES & BURGER, Cattaraugus, N. Y.

DO NOT TEST YOUR MILK



In any tester except one built on up-to-date, scientific principles, and one that you know will do your work easily and accurately.

The Twentieth Century Noiseless Hand Tester

Has no equal on the market in grace of design, ease of operation and accuracy of result.

Constructed on the same general line as our Turbine machine. Pockets made in pairs and of seamless brass. A large Dairy or Creamery not supplied with steam can secure just as accurate tests as can be made with a Turbine machine.

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We handle everything in the Dairy and Creamery line.

Creamery Package Manufacturing Co.,

1, 3 and 5 W. Washington St., Chicago.

BRANCHES: Kansas City, Mo.; Minneapolis, Minn.; Waterloo, Iowa; Omaha, Neb St. Louis, Mo. and Cowansville, Quebec.

HILL'S FAMILY MEDICINE CHEST $3.00

An emergency drug store at home. Twelve standard reliable remedies for common ills, prescribed by world's leading physicians. **Positively no patent medicines.** All non-poisonous and vegetable compounds, commonly given for **constipation, liver trouble, malaria, cold, grippe, indigestion, dyspepsia, cholera morbus, fever and ague, tonsilitis, sore throat, nerve and blood tonic, kidney and bladder troubles, rheumatism, colic and infants' complaints.** Leather case, compact and portable, containing directions and ingredients of each bottle. Hundreds of dollars saved in doctor bills, serious disease and death often prevented. Money refunded if not as represented. **Charges prepaid.** Ask for case M 15. HILL REMEDY CO., 85 Dearborn Street, CHICAGO



Water In The Stable a Necessity.



It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. **Why not use the Best?** Write for descriptive circular.

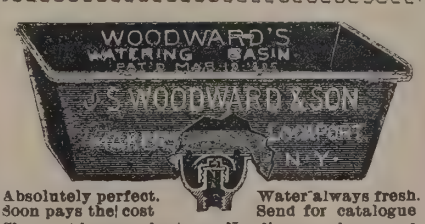
C. E. BUCKLEY & CO., Poughkeepsie, N. Y.



COW BASIN

SELF CLOSING LID.

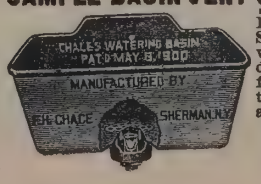
Pure white Porcelain. No rust, no filth, no splashing. **D. H. Bausman,** Bausman Lane. Co., Pa. Iron, Pig, Chick, and Stock Troughs.



Absolutely perfect. Soon pays the cost Cheapest because best.

Water always fresh. Send for catalogue No disease where used.

SAMPLE BASIN SENT ON APPROVAL.



Basins are fitted with **Self Closing** Cover which prevents all dirt and sediment from getting into them. Send for catalogue and price list

F. H. CHACE, Sherman, N. Y.

Clark's Tools for Large Hay Crops

CLARK'S REVERSIBLE



Bush Plow and Harrow

Cuts a track 5 ft. wide, 1 ft. deep. Connects the sub-soil water. It is an excellent machine for covering in sugar cane. Strength guaranteed. Can plow a newly cut forest, stump, bush or bog land, leaves the land true and clean for grain or any crop.



Clark's Dbl. Action Cutaway Harrow

Moves 15000 Tons of Earth a Day.



Clark's 8 foot Smoothing Harrow.

Will smooth an acre as true as a mill pond in twenty minutes.

Clark's Rev. Sulky Disk Plow



Made single or double. One or two furrows five to ten inches deep; 14 inches wide. For two or four horses. Light draft. No side draft. No similiar plow made. When Clark's grass tools are used as directed in his grass circular, we, the C. H. Co., guarantee them to kill wild mustard, charlock, hard hack, sunflower, milk weed, morning glory, Russian thistle or any other foul plant that grows, or money refunded. Now is the time to commence work for next year's seeding to grass.

Clark's Root Cutter.



TWO SIZES. Cuts 1 or 2 bushels per minute, for fowl or beast. Gouge cutters never choke or clog. Price $7 to $15.

SEND FOR CIRCULARS.

THE CUTAWAY HARROW CO.,

HIGGANUM, CT., U. S. A.

5 TON WAGON SCALE $35.00

SENT ON TRIAL FREE. CATALOGUE FREE. AMERICAN SCALE COMPANY. 519 MASS. BLDG. KANSAS CITY, MO.

that a certain number of cows be kept on them. It is best for the farms and their owners, as well as for the tenants.

DAIRY MARKETS.

ELGIN, Ill Sept. 3 —Butter—Sold at 20c a lb on Board Trade today, an advance of ¼c from last week. Sales in the district were 70 ,000lbs.

CHICAGO, Ill., Sept. 14.—Butter—Firm; creameries, 15@19½c; dairies, 13@17½c

Cheese—Steady; daisies, 10⅛@10¾c: Twins, 10@10¼c; Young Americas, 11@11½c,

Eggs—Steany; at mark, cases included, 17@18c.

Cattle—Choice to fancy beeves, 1,200 to 1,500 lbs., 5.80@6 10; good to choice steers, 5.40@5.75; fair to good export and shipping steers, 4.85@5.35; medium beef steers, 4.40@4.80; plain beef steers 4.20@4.35; common to rough, 1,000 to 1,200 lbs 3.60@4.15; good to choice, fat heifers, 3.85@4 80; good to choice feeders, 3.75@4.35; good to plain stockers and feeders, 2.40@3.50; fair to good cows and heifers, 3.00@4.00; good cutting to fair beef cows, 2.40@3.0c; common to good canning cows, 1.40@2.35; bulls, poor to choice, 2.40@2.45; calves, choice to fancy, 6.00@6.75; calves, common to fair, 2.75@5.75: corn fed western steers, 4.00@5.35; Texas bulls and grass steers, 2.90@3.85 Texas steers, fair to choice, 3.75@4.65; western range steers, 3.25@4.60;

Hogs—Good to choice shipping, 6.00@6.15; good to choice heavy packing, 5.55@5.75; rough and common heavy mixed, 5.30@5.50; assorted light, 150 to 195 lbs., 6.05@6.20; good to choice butcher weights, 6.05@6.20; poor to choice light mixed, 5.80@6.00; thin to choice, 50 to 130 lb. pigs 4.75@6.10; stags and rough lots, 3.25@5.00.

MILWAUKEE, Wis., Sept. 14.—Butter—Creamery—extras, 19½c; firsts, 17@18c; seconds, 15@16c; whey, 10c; Dairy, fancy, 17c; lines, fresh, 14@15c; packing, 12@13c; grease, 5@6c.

Cheese—American, full cream — Twins, 10½@11c; Young Americas, 11½@12c: Daisies, 11@11½c; Longhorns, 11½@12c; low grades, 8@9c; Brick, fancy, 8½@9c; low grades, 6@7c; Limburger—Fancy, 8½@9c; off goods, 5@7c; Swiss, old, drum, choice, 12@12½c; drum, No. 2, 10@11c; Block, choice, 11@11½c; block, No 2, 9@10c; fancy, 8½@9c; low grades, 6@7c.

Eggs—Strictly fresh laid, at mark, cases returned 16½@17c; do, loss off, 18c; dirties and seconds 15c; checks, 12c.

SHEBOYGAN, Wis., Sept. 9—Cheese—Offerings of cheese on today's Call Board were 1,760 cases, and all sold as follows: Three hundred and thirty-five Daisies at 11c, 185 do at 11½c, 39 Young Americas at 11c, 95 do at 11⅛c, 144 Longhorns at 11c, 611 do at 11⅛c.

MANITOWOC, Wis., Sept. 9—Cheese—One hundred boxes Twins, 9¾c, 1,150 boxes Young Americas, 10¾c; 1,400 boxes Daisies, 10¾c.

SHEBOYGAN FALLS, Wis., Sept. 9—Cheese—Twenty factories offered 1,163 boxes of cheese on the Call Board today, and all except 114 sold as follows: 400 Americas at 11⅛c, 239 Daisies at 11c, 90 cases Longhorns at 11¼c, 916 at 11⅛c, 46 at 11c. Market active and firm.

BRILLION, Wis., Sept. 10—Cheese—60 Cheddars, 10¼c; 550 Daisies, 10⅞c; 115, 10¾c; 78 Flats, 10⅝c; 265 at 10¼c; 80 Young Americas, 11c.

MONROE, Wis., Sept. 5—Green county cheese prices: Round Swiss, 12c; No. 2 Swiss, 10¼@11c; Block, Swiss. 11¼@12c: Brick 9@9½c; Limburger, 7½@8c.

FOND DU LAC, Wis., Sept. 4—Cheese—Sales at Dairy Board today were 650 Twins at 10c; 365 at 10¼c; 225 Daisies, at 11c; 200 at 11⅛c Market active.

HORTONVILLE, Wis., Sept. 3 .—Cheese—The offerings were all sold as follows: 40 Cheddars, at 10¼c; 763 Twins at 9⅝c; 634 at 9½c; and 71 double Daisies at 10¼c,

PLYMOUTH Wis., Sept. 8—Cheese—Twenty-five factories offered 2,442 boxes to-day and all sold as follows: 458 Longhorns at 11½c; 174 at 11¼c; 894 Daisies, 11c; 40 Twins at 10c; 131 at 10¾c; 80 at 10⅜c; 665 Americas at 11c. Market active and firm.

MUSCODA, Wis., Sept. 5 —Cheese—On the call board 490 Twins sold at 9¾c; 25 at 10c; and 25 were withdrawn.

Latest quotations for fancy creamery: St. Louis, 20c; Cincinnati, 21½c; Buffalo, 22c; St. Paul, 18¾c; Minneapolis, 18½c.

PHILADELPHIA, Pa., Sept. 14—Butter—Market firm. Solids, 20½c; nearby prints, 21c; western 20c.

WASHINGTON, D. C. Sept. 14—Butter—Market firm. Extras, 21c; choice firsts, 20c; renovated, 17½c.

NEW ORLEANS, La., Sept. 14—Butter—Extras firm at 21c; firsts, 19c.

Eggs, 21c.

NEWARK, N. J., Sept. 14—Butter—Market steady at 20¾c.

Eggs—Western extras 23c; firsts, 22c.

TOPEKA, Kan., Sept. 12—Butter—Creamery butter 19@20c; dairy, 16@17c.

Cheese—Longhorns, 11¼c; Daisies 11¼c; Twins 11c; Prints, 11¾c.

BOSTON, Mass. Sept. 14 —Butter—Creamery, western extra. 20½@21½c; western firsts, 19@19½c; dairy, 15@19¾c; imitation creamery, 15@15¾c; ladle, 14@15c; box and print, 15@22½c.

Cheese—Choice, 10¾@11½c; Wisconsin, Twins, 10¼@11¾c; Ohio, flat, 9¾@10c.

Eggs—Nearby, 30c; wsstern selected, 21¼@23c; poor to fair, 17@18c; Illinois, 19@20c.

CUBA, N. Y., Sept. 9—Cheese—Four thousand small cheese sold at 10⅞c.

UTICA, N. Y., Sept. 14—Cheese—Offerings: 6,500 boxes; 2,000 large colored sold at 10⅞c; 4,000 small colored, 11c. General tendency upward owing to confidence in prices.

NEW YORK, Sept. 14—Butter—Receipts, 9,000 pkgs.; market firm; state dairy, 14⅝@18c; extra creamery, 20¾c; Packing stock, 12@14¼c; creamery common to choice, 15@20c; renovated, 13@17c.

Eggs—Receipts, 9,086 pkgs.; market irregular; state and Pennsylvania, fancy mixed, 23@24c; state and Pennsylvania. seconds to firsts, 19@22c; western, extras, 23c; refrigerated 18@20c; western, firsts, 22c: western, thirds to seconds, 17@21c.

Cheese—Receipts, 2,548 pkgs; market firm; state full cream, fancy, small colored, 11¼c; small white 11¾c; large colored 11c; large white 10⅞c.

CANTON, N. Y., Sept. 14—Cheese — Offered 2,160 boxes of cheese; 1,170 tubs of butter. Cheese sold at 10¾c; butter, 20⅞c.

WATERTOWN, N. Y., Sept. 12—Cheese—Sales, 6,500. 10¾@10⅞c for large, 10¾@11c for small.

NEW YORK MARKET.

NEW YORK, Sept. 12—Butter—Receipts for the week, 49,342 packages.

Exports for the week, 560 packages.

There is a good demand for all grades fresh make creamery butter at a slight advance over last week's prices, and at the close the market is firm with receipts well cleaned. Extras were less plentiful and found plenty of buyers at 20¼ to 20½c, and good to fair qualities were in demand from all quarters at 19 to 20c. New York state dairy of finest quality sells readily at 19 to 20c, but most of the arrivals are poor and sold at 15 to 18c. Ladle goods are in light supply and firm. We quote:

Creamery, extra, 20½@21½c; medium, 19@20c; poor, 16@18c; Dairy, extra, 20c; medium, 17@19c; poor, 15@16c.

Cheese—Receipts for the week, 33,981 boxes. Exports, 6,900 boxes.

There was a good, healthy market all the week; best marks of full cream cheese sold at 11c, and in some cases a fraction more was paid for specials. Skimmed cheese had more inquiry with sales of best goods at 8½ to 9½c, and under grades at 5 to 8c. We quote:

Full Cream, extra, 11c; medium, 10@10½c; poor, 6@8c.

Eggs—Receipts for the week, 42,792 cases.

A strictly fresh egg is wanted at full prices. Other grades sold at about last week's quotations: We quote:

New York & Penn, finest selections, per doz, 24@25c: Northern & Western, finest selections, 23@24c; all Sections, poor to good, 16@22c.

177 Chambers St DAVID W. LEWIS & Co.

BALTIMORE MARKET.

BALTIMORE, Md., Sept. 10.—Butter—The healthy feeling noted in our last report has not abated in the least, but on the contrary the market presents a very firm appearance, and receivers are firm in their views on all desirable stock. Extras are in quick demand, especially long lines, both for storage and consumptive purposes. Firsts are also meeting with prompt sale. Seconds—The supply is about equal to the requirements. Grades under seconds are very dull. Imitation creamery—While in moderate receipt, the supply of the kind is quite equal to if not in excess of the demand. Ladles—Fresh sweet stock continues in moderate receipt; there is an active demand for this kind, while faulty stock is neglected entirely. Packing Stock—The receipts of desirable stock have been insufficient to satisfy the demand; the market rules firm on all attractive offerings, Blocks and Prints—There is a vast difference in the quality of the stock arriving, hence the wide range in values; all choice to fancy arrivals meet prompt sale.

Creamery Separator, extras, 21c; firsts, 19½@20c; seconds, 17@18c. Imitation Creamery, extras, 18c; firsts, 17c; seconds, 15@16c. Iowa & N. W. Ladle, extras, 16¾c; firsts, 15@15½c; seconds, 13@14c; Ohio & Indiana Ladle, extras, 16c; firsts, 15c; soconds, 13@14c. Creamery blocks, (2-lb.) extras, 22c; firsts 21c; seconds, 18@19c: Creamery prints (⅛ lb) extras, 23c. firsts, 22c; seconds, 18@20c.

Eggs—The market has ruled firm since our last report. There is a brisk demand for strictly fresh stock at 22 cents, and all receipts of this kind are promptly placed on arrival; the market closes steady to firm on all desirable stock, either fresh or storage.

Cheese—Receipts fairly liberal; demand good; market rules very firm.

N. Y. State—Cheddars, fine, 11¼@11¾c; choice, 10¾@11c; fair, 10@10½c, Flats, fine, 11⅜@11⅝c; choice, 11@11¼c; fair, 10¼@10¾c; Small, fine, 11⅝@12c; choice, 11¼@11½c: fair, 10½@11c; Ohio Flats, fine, 10¼@10⅝c; choice, 9¾@10c; fair, 9@9½c; Ohio Picnic, fine, 11@11¼c; choice, 10½@10¾c; fair, 9½@10c; Swiss Cheese, (domestic) new, fine, 13@13½c; choice, 11@12c; fair, 9@10c.

301 Exchange Place. G. M. LAMB & BROS.

NEW YORK FERTILIZER MARKET.

Acid phosphate		@	67½
Phosphate rock, f. o. b. Char'n	5 00	@	7 00
Tenn	3 00	@	4 00
Bones, rough ₱ ton	17 00	@	18 00
ground	19 00	@	20 00
Bone meal	22 00		24 00
Bone black, refuse	18 00	@	19 00
Potash, dbl. m're salt 48@53 per cent	1 12	@	1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons	25 00	@	30 00
sulph of basis, 90@98 per cent	2 11	@	2 18
90@98 per cent less than 25 tons	38 00	@	40 00
Potash muriate ₱ 100 lbs	1 83	@	1 95
less than 25 tons	36 00	@	40 00
Kainit 25% S. of P ₱ ton	9 30	@	9 50
less than 25 tons	9 50	@	10 50
Sylvinit, 35@37% P ₱ unit	41	@	46
Nitrate of soda	2 ¼	@	2 30
Blood, Dried red ₱ unit	2 55	@	2 60
low grade	—	@	—
Concentrated tankage	15 00	@	16 00
Fish guano, dried	25 00	@	25 25
acidulated	23 00	@	23 50

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—80 acre dairy farm, stock and machinery, complete, 1½ miles from county seat. Have good retail milk route established. Poor health only reason for selling. For particulars write R. P. WHITNEY, Medford, Wis.

High Grade Jerseys—To reduce herd to capacity of pasture, will sell a limited number of young cows of high breeding. Have won several first premiums. Also some fine heifer calves from good testing dams. A. SHARPLESS, Landenberg, Pa. 31-2

Wanted—A working manager to take charge of a 60 acre dairy farm. Married man. Must have experience. Guernsey herd on farm. Address, giving references and experience had, JOHN BARTH, 109 Clinton St., Milwaukee, Wis. 32-2

Ayrshires for Sale—Four heifer calves, four mo. old, descended from the best herds in this country. P. BYRNE & SONS, St. Josephs, Pa. 32-2

For Sale—Two registered yearling Guernsey bulls. RAY BICKNELL, Ft. Atkinson, Wis. 32-tf

Wanted—Position in factory by a first class butter and cheese maker. Six years experience. A. R. POTTER, Oakland, Vt.

For Sale—Two horse tread power (Ross) in first class condition. Price $25. C. F. MICHAEL, Fremont, Ohio.

Wanted—Position in butter or cheese making, or both combined. Have had 25 years experience. Married. Can give the best of references. Sober. Would like work the year round. No children. A. N., 679 Arkwright street, St. Paul, Minn.

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 1901

98 PER CENT

Of the Creameries of America Now Use

DE LAVAL CREAM SEPARATORS

After Twenty Years of Experience and Trying Twenty Makes of Machines.

That is a Record which Speaks for Itself and also Means Something to the Inexperienced Buyers of.....

FARM CREAM SEPARATORS

Farm or Factory De Laval Catalogues May be Had for the Asking.

The De Laval Separator Co.

Randolph & Canal Sts., CHICAGO.

1213 Filbert St., PHILADELPHIA.

9 & 11 Drumm St., SAN FRANCISCO.

GENERAL OFFICES: 74 Cortlandt St., NEW YORK.

121 Youville Square, MONTREAL.

75 & 77 York Street, TORONTO.

248 McDermot Avenue, WINNIPEG.

For Sale—One 30-inch French burr geared feed mill in best running order; also one Western Mill corn sheller, capacity from 5 to 75 bushels per hour, nearly new. Reason for selling, too large for this place. JOHN ZIEGLEY, Valley, Wis. 26-tf

Herdsman Wanted—Single man not under 30 years of age, with several years experience; one acquainted with rearing and caring for Holsteins. References required. State wages required including reference. Steady place for right party. Address D, care Hoard's Dairyman. 25-tf

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

For Sale—Young bull fit for service, sired by Recorder 29239 and tested dam 16 lbs. 2 oz. Sold at a sacrifice. JOS. KARELS, Big Stone, S. D., R. 1 30-tf

The Third Revised Edition of Buff Jersey's Popular Book Just Out of Press—Ten chapters, 25 illustrations and right up-to-date. Subjects treated are: Silos and Ensilage, All Phases of the Dairy Subject, Soil Crops, Up-to-date Farm Machinery, How to Cure Abortion and Milk Fever, Some Medicines and Remedies, The Steam Plant, its care, and many other valuable things ably treated. Send for circular. Sent post paid, cloth binding $1.00, paper 75c. BUFF JERSEY, Monmouth Ill. 47 tf

For Sale—480 acres, 200 level, 160 acres Gov't land can be added by using homestead right, making 640 acres in one piece. A well equipped dairy of 30 cows, with gas engine; 40 acres fine grove, plenty water in grove. Good buildings, very rich soil; called the finest outfit in the county. Will give possession any day and give ones own time to pay for last half if ten years; terms at 6 per cent. I mean business. $9600 is the price, you will say it is worth $14000. Address F. A. I. R., care of Hoard's Dairyman. 30-tf

Fine Dairy Farm for Sale—Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence. cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. T. S. TOMPKINS, Pasadena, Cal. 15-tf

Wanted—A man capable of soliciting and increasing a retail milk business in a city of 100,000 inhabitants. Business running under favorable conditions, and plant equipped with all modern appliances for the sanitary handling of milk. None but a competent man need apply. Address IRA O. JOHNSON, 185-205 S. Front St., Grand Rapids, Mich. 31-2

Two choice young Guernsey bulls for sale. MRS. A. W. LEHMANN, Neosha, Dodge Co., Wis. 12-sp

Wanted—To rent with privilege of buying, a farm with established retail milk route within short distance of thriving town. JOHN F. FENTON, Fox Chase, Pa. 26-sp

Situation Wanted—In large dairy by two Hollanders. First class herdsmen and dairymen in every respect. Best of references. Address P. R., Zeeland, Mich.

For Sale—A brand new Facile cast iron, 8 bottle hand tester, complete with bottles and pipette; price $7.00. C. J. T. UTERMARK, Somerset, Wis.

For Sale—A second hand, self-feeding, 16 inch Smalley Ensilage Cutter in good order, together with 56 feet of carrier, 18 feet of which was new last year Also a three horse Smalley Tread Power in good condition. The above will be sold cheap to make place for larger machinery. W. D. HOARD, Fort Atkinson, Wis. 20-tf.

Guernsey Bulls for Sale—I have a few young Guernsey Bulls for sale at Moderate price, ranging from six months to one year old. These animals are from highly bred sires and mothers of good size and well reared. Good bargains here. W. D. HOARD, Fort Atkinson. Wis. 30-tf

For Sale—Good cheese factory and machinery in Outagamie county, Wis. 6000 lbs. milk daily. Inquire of FRED HADLER, Route 3, Appleton, Wis. 30-tf.

A Registered Jersey Bull, Cadet's Recorder, No. 61695, three years old, a fine animal. Inquire of E. O. RICE, Portage, Wis. 30-3

Dollars are made with good dairy stock. For choice purebred Guernsey bulls and grade heifers write A. H. HINMAN, Allenville, Wis. 30-4

For Sale—At a bargain. adjoining city of Decorah, Iowa, 454 acre dairy farm, stock and machinery complete. Watered by never failing springs. Good farm buildings including two large silos. Established city milk and cream trade for the product of 100 cows. For price address J. C. BEARD, Decorah, Iowa. 28-6

Wanted—First-class man capable of taking charge of 25-acre farm, country place. Must be an expert in raising crops, vegetables, fruit, poultry and cows. Married; not more than one child. Wife to make butter and help with poultry. Write stating references and wages wanted to H. I., care Hoard's Dairyman. 29-4

Wanted—First-class dairy farmer to work dairy farm of 200 acres. Must understand breeding, feeding and handling of a working dairy herd of registered Jersey cattle. Write, giving references and wages wanted per month. Address 110 S. Vita Ave., Beaver Dam. Wis. 31-2

Excursion Rates to the Centennial Celebration at Chicago—Via the North-Western Line. Excursion tickets will be sold at reduced rates September 28, 29 and 30, limited to return until October 2, inclusive. Send stamp to W. B. Kniskern. Passenger Traffic Manager, Chicago, or call on Ticket Agent for copy of handsome Chicago Centennial Folder, issued by the North-Western Line, profusely illustrated, giving an outline of the program for Celebration Week, a brief reference to Chicago's early history and the relation of The North-Western Line to the industrial progress of the city. For further particulars apply to Agents Chicago & North-Western R'y. 30-4

Very Low Rates to Baltimore, Md.—Via the North-Western Line. Excursion tickets will be sold Sept. 17, 18 and 19, with very favorable return limits, on account of annual meeting I. O. O. F Grand Lodge. Apply to agents Chicago & North-Western R'y. 31-2

Home Visitors' Excursion Tickets to Indiana and Ohio—Via the North Western Line, will be sold at reduced rates on four Tuesdays, Sept. 1, 8, 15 and October 6 limited to return within 30 days from date of sale. For particulars as to territory to which excursion tickets may be sold, etc., apply to agents Chicago & North-Western Ry. 29-sp

The Oleo Situation in New England.

ED. HOARD'S DAIRYMAN:—The information recently given out by Mr. Knight, Secretary of the National Dairy Union, is very gratifying. The fact that there has been more honesty in the sale of dairy products and their imitations, is a cause for congratulation. But unfortunately, I cannot look at the situation as optimistically as does Mr. Knight. Though the figures—and figures won't lie—show a falling off in the consumption of oleomargarine, I am inclined to think that this if analyzed, is due to a straightening out of some of the dishonesty, where there was no anti-color law and no pretense at doing an honest business. I cannot help the feeling that so far as New England is concerned, there is as much yellow oleo sold as at any time during the last half dozen years; perhaps I should say that more yellow oleo is sold now in New England, than there has been at any time within recent years.

A few months ago, I went into a Rhode Island butter store where there were several tubs of butter(?), each with some label or advertisement over it. I put on my most innocent face, and called for a pound of butter, from the tub labeled "Best New York Dairy, 28 cents." It was oleo, in imitation of butter; whether it had "artificial" coloration I do not know; but imitation butter was being openly and deceptively sold, as and for butter at 28 cents a pound. A few weeks ago I went into a butter (?) store in Hartford, and found several tubs of oleo placarded as butter, with different fancy designations. Oleomargarine in imitation of butter was being sold openly as butter with no mark or sign to show the stuff was not butter—barring the revenue stamp, which no ordinary purchaser could see.

In Massachusetts colored oleo, in imitation of butter, but without "artificial" coloration, is now sold openly and without restriction. This is largely due to a ruling of one of our superior court judges. Our law prohibits the sale of imitation butter, and heretofore in prosecuting cases we have charged the defendant with selling imitation butter, have proved the sale, and that the substance sold looked like butter, but on chemical analysis proved to be something else, and on that evidence have secured conviction. But there is a proviso or exception in the law allowing the sale of oleomargarine when free from coloration, which causes it to look like butter. The prosecution has never paid any attention to this proviso, claiming that all we had to do was to prove the direct and positive side of the case, and that it was then up to the defendant to set up the provisions of this exception—if they applied in his case—and prove them. This contention has been upheld by the lower courts for years, and the oleo people have never thought it worth while to carry the point up to the Supreme Court for a final and decisive decision.

But a few weeks ago a superior court judge ruled that the proviso meant that the oleomargarine must be free from "extraneous" coloration which causes it to look like butter, thus putting into the law a word which is not there. He also held that the prosecution must prove that there has been a sale of imitation butter free from extraneous color. As the government cannot appeal in this state, that case is ended, but it is expected to arrange for a test case before some other judge who will rule differently, and then the oleo interest can appeal and we can get a decisive opinion on this anti-color law, which stood the constitutionality attack before the National Supreme Court.

Michigan has an anti-color law copied verbatim from the Massachusetts law, and this point has just been decided by the supreme court in that state, adversely to the honest butter interests, and along the lines of the view of the Massachusetts judge above alluded to. The case is Bennett vs. Carr. The court says: "At the time the statute in question was enacted, the only method in use in causing oleomargarine to look like yellow butter was the introduction of some extraneous coloring matter. This was the mischief to be remedied. . . . If we give the enlarged construction to the statute now in question, as urged by the relator, it follows that the legislature has prohibited the manufacture and sale of a valuable article of food, the natural color of which resembles yellow butter, itself almost universally colored by extraneous matter. The manufacturer of such a product, if he sold it at all, would be compelled to introduce some coloring matter, so as to make it look unlike the yellow butter of commerce. . . . .

It (the law) does prohibit the use of any substance for the sole purpose of producing yellow color. The use of such coloring matter was the sole mischief then known to exist, and the only danger to be apprehended and guarded against. Our statute is copied *verbatim* from that of Massachusetts. The supreme court of that state in a case just decided, has held that the statute applies only to extraneous substances or ingredients which cause the product to look like butter and not to cases where the ingredients themselves naturally produce the color."

Now here is an interesting question. The Massachusetts supreme court has made no such decision, as stated above. Who imposed upon the supreme court of Michigan by giving it this misinformation? Have the oleo lawyers been lying to the Michigan supreme court? The statement must have come from them. Are these professional men so zealous in their desire that the dear public shall have this "valuable article of food" that they will go to the extent of deceiving the supreme court of one of the largest and best commonwealths in the nation to carry their point? It is the lawyer's business to make arguments for the side that puts money in his purse. Everyone understands that he is in the market for sale to any purchaser, but never before did we have reason to suppose that his professional loyalty to his client went so far as to require him to manufacture facts.

MASS. GEORGE M. WHITAKER.

Growing Hairy Vetch for Seed.

The following information relating to the growing of the hairy vetch for seed, is furnished by the Bureau of Plant Industry of the U. S. Department of Agriculture, through its Seed Laboratory, in response to numerous inquiries on the subject:

The cultivation of hairy vetch has increased rapidly in the last few years, and would be much more common if the seed was raised in this country, and especially on the farms, where it is to be sown.

Practically all the seed now used in the United States, is imported from Europe. During the fiscal year ending June 30, 1903, over 80, 000 pounds of this seed was brought in.

Experiments have been carried on by the Seed Laboratory of the Bureau for two years in St. Mary's county, Maryland, and the past year in Wayne county, Ohio, to determine the practicability of growing seed in this country. From the results of these trials, it is evident that the seed can be produced at a profit over a wide area of the United States.

Great difficulty has been experienced in harvesting the seed when grown alone. It ripens very unevenly and if left until most of the seed is mature, it becomes matted on the ground, and shells and molds badly. It was found that by sowing with rye, a sufficient support was furnished to keep it off the ground and allow it to be cut easily with the mowing machine. Rye seems best adapted as a supporting crop, on account of the time of ripening and the stiff straw.

The best results were obtained with seeding from one-half to three-fourths bushels of vetch and one-half bushel

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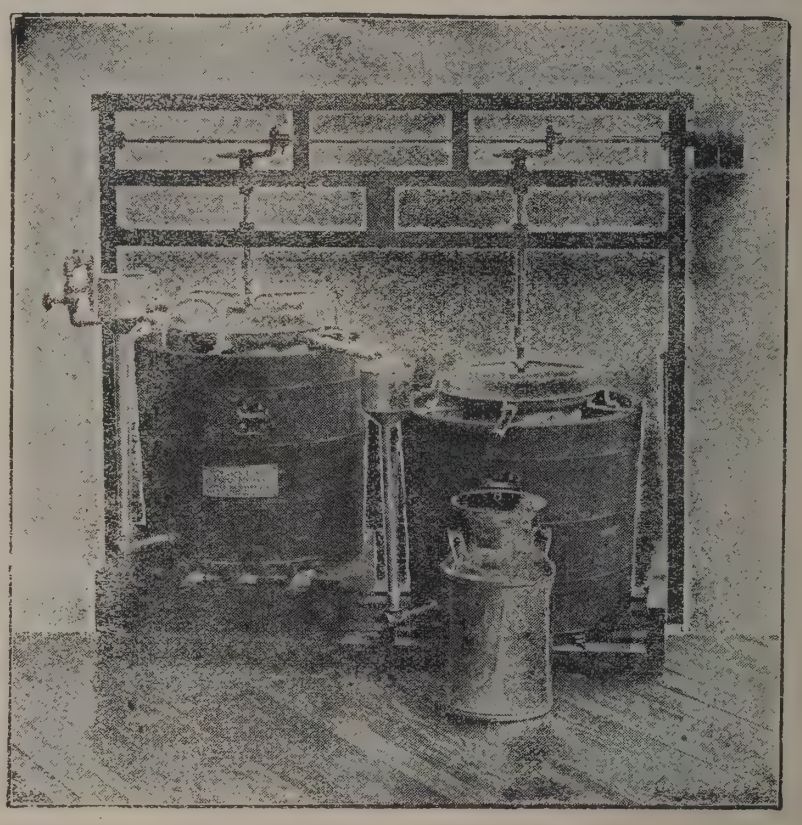
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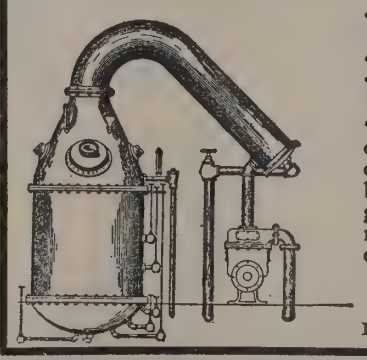


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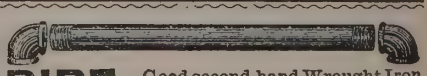
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of rye to the acre, sowing from the middle to the last of September.

The crop should be cut about the time the last pods are formed and the vines are getting dry. The cutting is done with an ordinary mowing machine, after which the vines and straw should be put in piles and allowed to dry. The threshing can be done with an ordinary grain threshing machine.

The 4 acres in Ohio yielded 13 bushels of vetch and 61 bushels of rye. In Maryland the storms knocked the rye down so it did not fill well, but the 4 acres yielded 18 bushels of vetch and 8 bushels of rye. Reports from Mississippi show a yield of from 5 to 7 bushels per acre in that State.

In many instances hairy vetch has been sown and proved a failure under ordinary cultivation. As it is adapted to a considerable variety of soils and a wide area, it is certain that the failure in most instances is due to the absence of the organism which produces the root tubercles, and has the property of fixing the free nitrogen in the air, making it available for plant food. In sowing the areas referred to above the greater part was inoculated with the nitrifying organism, but a strip was left in each case on which none of the inoculating material was used. A vigorous growth of hairy vetch was obtained on the inoculated plots, while on the uninoculated plots in both cases the growth was very scanty and the ground almost bare. This shows the ability of the vetch to make a very satisfactory growth by means of the inoculation on ground where it proves an entire failure under ordinary cultivation.

Unless hairy vetch has already been grown successfully on a piece of ground, it should be inoculated to insure success. Inoculating material will be furnished by, and all inquiries concerning it should be addressed to, Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.

The Department has no seed of hairy vetch for distribution.

The Interstate Live Stock Fair.

ED. HOARD'S DAIRYMAN:—The Interstate Live Stock Fair has just been brought to a close. In every respect it has been a very successful fair. I enclose a list of the competitors and their scores. There were 49 creamery and two dairy exhibits. The average score was 94.6. This surely proves that this is one of the finest lots of butter on exhibition this year. This will also be readily understood when you glance over the score list as you will see that nearly all of the prize winners from Iowa and Minnesota have made an exhibit.

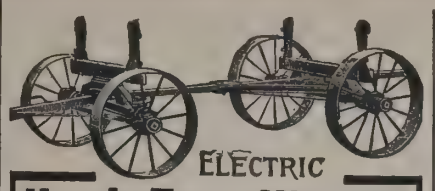
There is $460 to be divided among those who scored above 92. Beside the money premium, Mr. Sondergaard will be awarded gold medal and W. S. Smarzo silver medal.

The dairy hall was beautifully decorated. The supply men present claim that they have never seen a dairy hall so tastily decorated as this.

Sioux City, Ia. M. MORTENSEN.

LIST OFCOMPETITORS AND SCORES.

W. S. Smarzo, Masonville, Ia	98⅝
Reynolds Co-op. Creamery Co., Long Prairie, Minn	94
E. J. Babcock, Madelia, Minn	94⅛
Anthony Holecek, Owasa, Ia	93
F. M. Borglum, Rutland, Ia	94⅛
A. R. Meen, Holstein, Ia	92⅛
E. H. Baldwin, Storla, S. D	93
R. J. Erb, Arbor Hill, Ia	92½
H. D. Wendt, Magnolia, Ia	97¾
A. E. Banta, Wheatland, Ia	96
George Wick, Story City, Ia	94½
James F. Brady, Deerfield, Minn	96⅝
O. W. Hicks, Guernsey, Ia	95
H. J. Rosenan, Meriden, Minn	97¼
J. B. Feldman, Dyersville, Ia	95
J. O. Stranne, Hanson, S. D	90¾
M. E. Enevoldsen, Gilbertsville, Ia	91¼
A. Kindberg, Dike, Ia	94
G. E. Lindall, Greenleaf, Minn	96½
A. J. Spohn, Petersville, Ia	92⅛
N. E. Anderson, Norseland, Minn	96¾
M. J. Donovan, Williamstown, Ia	94⅛
Fred Schreiber, North Washington, Ia	91¾
H. J. Gredicott, Easton, Minn	96
P. A. Miller, Browns Valley, Minn	90
Robert D. Lammer, Guernsey, Ia	96
J. W. Reynolds, Lake Crystal, Minn	96
J. P. Nielson, Brayton, Ia	97½
Edwin Hed, Gibbon, Minn	96½
H. J. Evans, Strawberry Point, Ia	94½
Elov Erickson, Mankato, Minn	98½
Wm. Strampe, Paullina, Ia	94
G. A. Henzies, Mt Vernon, S. D	91
A. L. Remington, Dickens, Ia	93¾
Fred Sten Eyck, Hazel, S D	91½
N. H. Knudsen, Emmetsburg, Ia	97½
M. Sondergaard, Hutchinson, Minn	98¾
H. A. Goetsch, Honey Creek, Minn	96
Jessup Creamery Co., Jessup, Ia	93⅛
P. D. Nelson & Co., Moorhead, Ia	96
M. J. Mausager, Ellsworth, Ia	95½
A. R. Kinney, Nicolett, Minn	96½
Wm. Gehrls, Germantown, Ia	95
N. H. Trimble, Alden, Ia	98¼
L. P. Anderson, Irvington, Ia	92½
F. W. Stephenson, Dundee, Ia	97½



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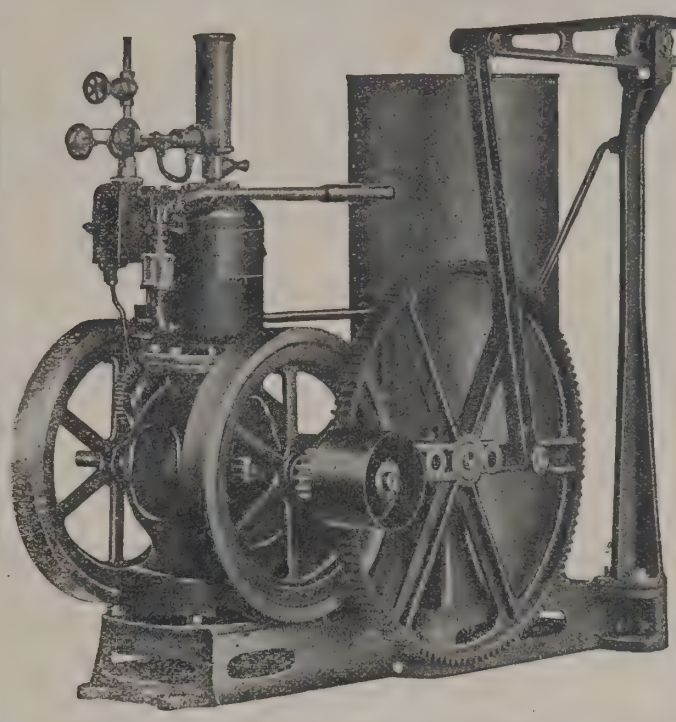
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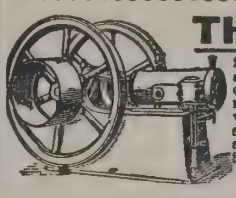
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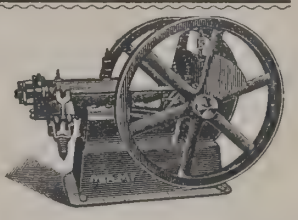
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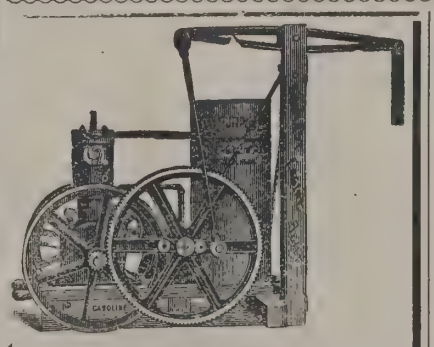
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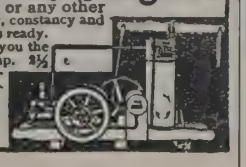


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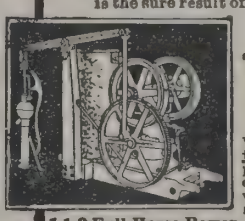
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A Bad Milk Day.

ED. HOARD'S DAIRYMAN:—Eternal vigilance is not always the precursor of victory. It certainly is not so in the dairy in early September. The greatest "schemes of mice and men gang aft aglee," as the great Scottish bard said. The milk flow will go down notwithstanding all your human care and attention. Man is not mighty, and these failures and disappointments only go to tell us that we here below are not omnipotent, but just simply "Little wanton boys that play with bladders;" and is one of the strongest arguments against Darwinism, agnosticism, and in favor of the immortality of the soul, the presence of the all-powerful being and a hereafter, where (for the good) the wicked cease from troubling and the weary are at rest.

Flies and heat are two things that cannot be always combatted successfully. Yesterday was one of those days when they were rampant. It was the worst day for milk this season. Not because it was the very hottest day of the season. There were others; and the flies too were perhaps as bad, though we are not sure. But when dry pastures are combined with flies and heat, here is a triumvirate that it is almost an impossibility for mortal man to compass. It was so with us yesterday, when we had the complete triumvirate, heat, flies and seared pastures, and notwithstanding our best efforts, we had the smallest milk flow of this season, some two pounds per cow less than the previous day, or average of the week.

In the morning we anticipated the heat and flies and did our very best to fight them. We gave the cows a good feed of ground oats and corn, and after milking had a can of kerosene emulsion, and very carefully went over each cow with the spray, and rubbing the mixture on every vulnerable spot along their bodies. They were then sent to the field, where they had opportunity to drink as they went along. About ten o'clock, however, the heat became violent. The cows could not stand under such heat and feed. There are some old buildings in one of the pasture fields, and they usually go in there on hot days. We thought they would seek this protection yesterday, and no doubt they did for a while.

Along about two o'clock, we went to the field to see if they got water in the lower pasture where the stream was small and the flow of water such that we usually have to stand by them for a time, as, otherwise, all might not get water. As we were going to the field we met a number of cows coming at a dead run, with tails up in the air, and in a most excited condition. With some effort we turned them back, as we wanted to drive them to a spring where there was a cool place. As we did they turned, and off they went back around the field in a stampede that would do credit to an old time prairie buffalo stampede, tails high in the air, snorting and apparently making a record race against time. We got them to the water, but they were too excited to drink. Some of them walked into the water to cool themselves, but would not drink, which was in itself very strange. Here they had some shade, and we left them.

About five o'clock we noticed them grazing. We believe they grazed none all day until this time. Notwithstanding that we used the repellent, we noticed that two of the cows were covered with flies, while strangely enough, we noticed scarcely any flies on the others. All got an equal wash of the emulsion in the morning. Why it was apparently effective on some of the cows and not on the others appears a little mysterious. The repellent appeared to dry on those cows which were covered with flies, though the soap in the mixture makes a kind of a crust. From this we inferred that those cows which appeared to be covered with flies, had stood in the hot sun more than the others, permitting the fly preventive to evaporate and dry up. We noticed two cows going along together, each of which received equal care in spraying, that one side of one was black with flies and not a single one appeared to be on the other. The best fly preventive will not prove a sure thing on such a day a yesterday.

At five o'clock when the cows came to the stable, it was nice and cool. We had placed in the mangers the largest feed of green barley that we gave them this summer, and in fact we thought they might leave some of it. They

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Offers one bull 14 months old, sired by Recorder, 29239, the only living son of Brown Bessie and has 14 tested daughters. Dam, Relay, 70353, test 17 pounds 2 ounces. She a daughter of Diploma with 61 tested daughters. Also Berkshire Pigs of English and American selected stock.
H. C. TAYLOR, Orfordville, Wis.

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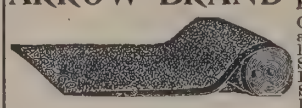
Sire of thirty-three tested daughters, is unquestionably the most prepotent of any Jersey sire in the land. We have for sale young bulls rich in his blood; also a few cows and heifers in calf, whose progeny will be attractive because of the "Hart's King" blood in them. For prices, etc., address
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R. F. D., North Madison, Lake Co., Ohio

Wasteland Guernseys

Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.
M. M. & E. J. HOLLINGSWORTH,
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GUERNSEYS FOR SALE.
Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Trouper's Pride, Tops of Gold and Lord Yexa.
JAS. H. BEIRNE, Oakfield, Wis.

POLAND CHINAS.

I have sold my farm and will sell my entire stock of POLAND CHINA HOGS, including Seventy-five Pigs from three to six mos. old of both sexes. Fourteen Sows, one of 3 years old, one yearling, and a 2-year-old boar. They are as good as in the state if not better. Come and see them or write for prices. Here is a bargain. C. HECKER, Cambria, Wis.

Florham Guernseys.

The herd is made up of representative animals of both home and foreign breeding.

BULL CALVES,

from large producing dams for sale. Apply to J. L. HOPE, Supt., Florham Farms, Madison, N. J.

Old Homestead Guernseys.

Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.

Especially low prices, standing of herd considered. No catalogue. State what you want.

L. V. AXTELL Perry, Lake Co., Ohio.

GUERNSEYS FOR SALE

Bull two years old out of Count Topsy 24.27 lbs. butter 7 days. She won 1st prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

GUERNSEYS FOR SALE.

The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

Rosendale Guernsey Herd

TUBERCULIN TESTED.

Sixty head of choice Guernseys headed by Coralette's Son, (see page 450) whose dam, Coralette made 479.7 lbs. fat in one year at 3½ years old, and was first prize cow at Wisconsin State Fair in 1896.

Some fine young bulls for sale.
GEO. C. HILL & SON, Rosendale, Wis.

GUERNSEYS.

HADDON FARMS—Home of the noted GLENWOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

DON'T

USE A SCRUB BULL

You can not afford to. A little book gives good reasons for your buying a registered sire. Write for it, and for Sale List A 20, containing several well bred A. J. C. C. young bulls fit for immediate use, nearly all being from tested dams. To close these out quickly they are offered at the price of calves. Write at once, if in need, and secure the choice.

WINTERGREEN HILL FARM
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FOR SALE GOLDEN LAD BLOOD, sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

FOR SALE. Two A. J. C. C. Bulls ready for service; also some younger ones. Cows and heifers in calf to richly bred bulls. Write for pedigrees and prices. We have a few Berkshire Boar Pigs from unregistered sows left; cheap.
N. N. PALMER & SON, Broadhead, Wis.

BILTMORE JERSEYS

are great and presistant dairy workers and typical Jerseys. We ask comparison with any other herd for

YEARLY MILK & BUTTER YIELDS, SUBSTANCE AND FINISH.

The herd contains more prize winners at the leading exhibitions (including the Pan-American) than any other herd.

The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service as you cannot get it.

Also Headquarters for Large English Berkshires and Standard Poultry.

Apply to
BILTMORE FARMS,
BILTMORE, N. C.

HAZEL FERN HERD. A. J. C. C. Jerseys blood of St. Lambert, Mella Ann, Combination, Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

ROBINSWOOD JERSEY DAIRY is offering a few Reg. Jersey Bulls ready for service at from $25 to $50, sired by a grandson of Recorder, the only living son of Brown Bessie, out of good cows. Write, stating your wants, to
N. H. ROBINSON, Prop., Centralia, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.
W. J. HUSSEY, Mt. Pleasant, O

VALLEY FARM Offers for sale a son of "King of St. Lambert's King" out of a daughter of "Gazilla's Fawn," dropped July 29th., 1900. Also have some young bulls. Write your wants to
FRED STUBLEY, Black Earth, Wis.

PROSPECT HILL JERSEY HERD.

Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

NORTH OAKS FARM, ST. PAUL, MINN.
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AYRSHIRE BULLS

Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address,

N. E. McKISSICK, Supt., Cardigan, Minn

AYRSHIRE CATTLE of the BEST of BREEDING. Also Chester White Pigs, ready to book for season's trade. Young stock of both sexes. Prices reasonable. Come and see us.
F. TSCHUDY & SONS, Monroe, Wis.

didn't, and would have eaten much more. The fact was, they scarcely ate any all day. When we began milking the outcome was as stated, about 2 lbs. to 2½ lbs. of falling off per cow. One cow, the "old 15-year-old," was 5 lbs. short, "the little heifer" was barely 2 lbs., while our best, our "No. 6," was more than 2 lbs. off; another was 4 lbs. (the one spoken of as being covered with flies on one side of her body,) while two of the had actually their usual mess of milk. This morning all the cows milked normally again..

We think we made a mistake in not permitting the cows to come on home as they intended at two o'clock, instead of turning them back. Had we permitted them to come to the stable then, and given some green feed, we would probably have done better, though this would hardly make much, if any, difference in the milk yield, two or three hours later. It would have been more humane however, though we left them in not too bad a place.

Later; since writing the above we have seen the milk drawer, and he reports the lightest load of milk this season. The heat, flies and seared pastures, evidently were universal in their effects yesterday. J. A. M.

P. E. I.

He Thinks We Have a Difficult Task.

ED. HOARD'S DAIRYMAN:—Your paper interests me very much. You are honest, straightforward, and know what you are talking about. But you are figuring on the American farmer in the wrong direction. You think there is going to be a large class of farmers, like yourself, who will make a special study of the cow and the dairy business, and who will try and build up their knowledge in that direction. I doubt it. Most of the farmers, dairy farmers as well as the rest, despise their business. Their wives despise it; the daughters despise it, and the sons despise it. What can the farmer do but despise it? You will hear him say that he hopes his son will not have to work as hard as he has had to, and the mother says the same about her daughter. There is no class pride or class spirit among the farmers. What they want most is to get off the farm as soon as possible, and move into some small city or village, where they can live without work. Work, they take it, is the great shame, and humiliation of humanity, the one thing that marks a slave and the absence of it, makes a gentleman. How then can you ever hope to build up a class of American farmers who will take as much pride in being farmers as lawyers do in being lawyers or doctors being doctors? H. C. R.

Oneida, N. Y.

What do our readers think of the above?

Frosted Corn for Silo.

ED. HOARD'S DAIRYMAN:—Referring to your opportune and "orthodox" article, *re* frosted corn, in your last issue, please let me, in my little way, back up your statement that you "prefer to let the corn be frosted rather than cut it into the silo before it is properly matured." In my experience of ten years, as manager for the late Mr. E. D. Tillson of Canada, we put up yearly about one thousand tons of ensilage and I found immature corn always proved unsatisfactory and has not the nutriment in it. One season we had about 10 acres badly frosted. At once started to cut, haul to barn and put through cutter, watering the corn by sprinkler connected with hose, as it passed up the carriers. Result: Good, fair ensilage next spring.

It is important to note that water must be used. J. D. McL.

Madison Co., N. Y.

Siloing Oats and Peas.

ED. HOARD'S DAIRYMAN:—Replying to "E. J. S., Chautauqua, N. Y.," *re* above, allow me to state that while manager on the Annandale farm in Canada, I found oats and peas put in silo make excellent feed. Much care must be taken, however, in having the crop *good* and *moist* when put in, and I see Mr. E. J. S. has done this. He may safely anticipate sound feed in spring. Please report result. JOHN D. MACLEAY.

Madison Co., N. Y.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.



LOVE

Often leads to poverty. No real woman ever sold her heart for the luxuries of life. But many a woman who has gladly faced poverty for the man she loved, may well doubt her wisdom when pain becomes the mate of poverty. If she were rich, she thinks, she could find a way of cure.

Dr. Pierce's Favorite Prescription is within the reach of every one. It lifts the burden of pain which weighs down those who suffer from womanly diseases. It establishes regularity, dries weakening drains, heals inflammation and ulceration and cures female weakness.

"You have my heartfelt thanks for your kind advice to me," writes Mrs. Geo. Fletcher, of 106 Victoria Avenue, Galt, Ontario. "Was troubled with catarrh of uterus for over a year. The doctors said I would have to go through an operation, but I commenced to use Dr. Pierce's Favorite Prescription and 'Golden Medical Discovery,' also his 'Lotion Tablets' and 'Antiseptic and Healing Suppositories.' Now I am completely cured, after using six bottles of Dr. Pierce's medicines. I am glad to say his medicine has made me a new woman."

Weak and sick women, especially those suffering from diseases of long standing, are invited to consult Dr. Pierce by letter, *free*. All correspondence is held as strictly private and sacredly confidential. Address Dr. R. V. Pierce, Buffalo, N. Y.

Dr. Pierce's Pleasant Pellets are easy and pleasant to take. A most effective laxative.

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President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.

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TO MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.

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Life Membership, $25.

Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.

Address F. L. HOUGHTON, Putney, Vt., for information relating to Registration of Pedigrees.

MAPLES STOCK FARM, PENNELLVILLE, N. Y.
Second Annual Offering
150 HEAD OF HIGH CLASS REGISTERED

HOLSTEIN-FRIESIANS
AT AUCTION, OCT. 14-15, 1903
at Fulton Fair Grounds, Fulton, N. Y. Catalogues ready Oct. 1. Write for one. Address R. F. D. 3 John C. Godfrey, Fulton, N. Y.

VALLEY FARM HERD
HOLSTEIN-FRIESIANS
Headed by Korndyke Queen De Kol's Prince, dam Korndyke Queen De Kol, 24 lbs. 6.7 oz., granddam Belle Korndyke, 25 lbs. 12.3 oz. Both sire and dam by Manor De Kol, his dam Netherland Hengerveld 26 lbs. 10.66 oz., Manor De Kol by a son of De Kol 2d, 26 lbs. 9.2l oz. All are official tests and average 25 lbs. 13.72 oz. butter for 7 days and 3.95 per cent fat in their milk. Two bull calves now for sale and young ones after Sept. 1. DON J. WOOD, West Exeter, N. Y.

Holstein-Friesian Bull Calves
Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

Bulls For Sale.
Two choice bulls ready for service and some fine bull calves from good testing dams. Sire: Paul Clyde, son of Paul DeKol. Dam's record 24.88 lbs. in 7 days. Write C. A. SNOW & SONS, Athens, Ohio.

HOLSTEIN-FRIESIANS INDIVIDUALITY, PERFORMANCE, BREEDING. You need it all. Write or come. 100 head. McKAY BROS., Buckingham, Ia.

HOLSTEIN-FRIESIANS
FAIRVIEW HERD
We offer bulls ready for service; also heifer and bull calves not related, of the kind to suit the most particular.
O. J. GODFREY, Pennellville, N. Y.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are Homestead Prince De Kol No. 25863. Sire: Pieter tje Hengeveld Paul De Kol No. 22128. Dam: Shade land De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No 5148 Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.
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HOLSTEIN-FRIESIAN BULLS FOR SALE.
Ready for service; from A. R. O. animals; sired by Johanna Rue 2nd and Paul De Kol, sire of 13 A. R. O. cows. Also young bull calves by same sire.
THOS. CAINES, Supt.
ARCADIA, - MISSOURI.

TYRANENA HERD
100 HOLSTEIN-FRIESIANS 100
A. R. O. Stock For Sale.
Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62 Eight official records in pedigree that average 21 lbs. 5 oz Frank B. Fargo, Lake Mills, Wis

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Offers 3 yearling bulls and 10 yearling heifers, sired by a grandson of Sadie Vale's Concordia. Cows and heifers bred to oldest son of Mercedes Julip's Pietertje, No. 29480. Chester White Pigs in pairs and trios, not related.
W. R. GATES, Fort Atkinson, Wis.

OAKLAND HERD HOLSTEINS
PREMIER SIRE Mutual Friend 3d's Paul
A son of Paul De Kol & Mutual Friend 3d, 21.84 lbs. butter, milk averaged 4.7% at 3 years. She has two A. R. O. daughters, 1 made over 20 lbs. Must reduce herd at some price. State just what you want. T. A. MITCHELL, Weedsport, N. Y.

BROOKSIDE HERD
HOLSTEIN-FRIESIANS
To reduce herd to capacity of pasture, will sell a limited number of A No. 1 young cows of high breeding and individually right, large producers, at $150 each; also 15 bull calves at bargain prices.
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HOME FARM HERD.
Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams. 25.1 lbs. butter in seven days. Herd numbers 125 head.
BEST FAMILIES REPRESENTED.
Special prices on six or eight bulls of serviceable age.
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THE STEVENS HERD Contains at the present time the young bull, Vale, with the largest official backing of any bull ever born. Several half-brothers and sisters to Vale, and a large number of cows and heifers bred to his sire, whose official backing is larger than that of any other bull ever in service. A cow that stands unequaled by any other that ever lived, in the official work of herself and daughters. The only cow ever officially tested for six months. Eighteen cows and heifers with official 7-day butter records averaging, by the 80 per cent. factor, over 20 lbs. each. Thirty animals whose dams have made official 7-day butter records averaging over 20 lbs. each. Why not get our prices before buying?
HENRY STEVENS & SON,
Brookside Stock Farm. Lacona, Oswego Co., N. Y.

ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale
GEO. T. McNEIL, Theresa, N. Y.

FOR SALE.
H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address W. H. JONES, Watertown, Wis. Rural Route No. 2.

THE MONONA FARM HERD
OF HOLSTEIN-FRIESIANS
Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 69.50 lbs. one day. Breeders and dairymen please write for prices.
F. W. JALLIS,
Monona Farm. Madison, Wis.

JUST BULL CALVES
We have three, that are individually fine. They are bred right, have been fed right, and the price is right.
Ohio's Famous Herd, Holstein-Friesian Cattle. W. B. SMITH & SON.
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FOR SALE CHEAP The exceptionally well bred H.-F. bull Duke Mercedes De Kol, 3 yrs. old, sure and kind, can be bought for $100, or about half price, because his owner can use him no longer. Dam, g-dams, sisters, aunts, cousins, A. R. O.; making a wonderful showing. For further information and photo address
MALCOLM H. GARDNER, Darien, Wis.

FOR SALE 2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R. from good milkers and testers.
M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

CLOVERDALE HERD
HOLSTEINS.
Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.
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Woodlake Herd.
Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN, Station D., R. 1. Minneapolis, Minn.

MARKHAM MANOR FARM,
Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 11370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for discription and price to J. A. THORNTON, Manager, Simmonsville, Vt.

HOLSTEINS IN CALIFORNIA
SAN ANSELMO, MARIN COUNTY
250 HEAD IN THE HERD
Sires are sons of Mercedes Julip Pietertje, Colanth 4th Belle Korndyke, Fay Barnham Princess Wayne 7th. A fine lot of bull calves
R. M. HOTALING,
Rialto Building San Francisco, Cal.

FIRST CLASS BULL
Offered at reasonable price by South Side Farm, White Bear, Minn. Born Dec. 1, 1899. Sired by Baron Pauline De Kol with 8 A. R. O. daughters, and tracing three times to De Kol 2d. Our bull's dam has A. R. O. record of over 22 pounds, under five years, and during week's official test milk averaged over 40 per cent. fat. Fine conformation, nicely marked, superior handler, large veins and rudimentaries, gentle, vigorous, and sure. Other bulls ready for service.

STAR FARM HOLSTEINS
SPECIAL OFFERING: Six of the choicest Johanna bull calves from official butter record dams and A. R. sire.
Also a few choice heifer calves, yearlings and 2-year olds; latter bred to Mercedes Julip's Pietertje Paul.
150 HEAD TO SELECT FROM
Special prices on cows in carload lots. Prices reasonable for quality. Liberal terms of payment.
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Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. All our choice pigs of 1902 farrowing have been sold. We are now taking orders for 1903 farrowing.
JOHN WHITE & SON, Adamstown, Md.

HOLSTEINS
High Class Advanced Registry Stock only. Best butter families. Stock for sale.
Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.



T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.
Wm. O. Jackson & Sons, South Bend, Ind.

FOR SALE. H.-F. Bulls, ready for service. from A. R. O. Cows and sired by Sir Jonanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis

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34 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs. of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs. of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by Grem Pietertje Hengerveld Paul De Kol, or Sir Ormsby De Kol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days; average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd?
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PURE BRED SHORTHORNS
CHOICE BULLS FOR SALE.
Also Cows and Heifers bred to Clay Buttercup, 126881, a descendant of the Clay Family, champions at the World's Fair dairy test.
GEO. WENHAM, Fort Atkinson, Wis.

The Farm Separator System.

ED. HOARD'S DAIRYMAN:—You comment editorially on the Farm Separator System in your issue of August 14, 1903, and it seems to the writer that you bring up some very interesting matters.

The idea you suggest is, that while the hand separator system may lower the average quality of creamery butter, still it may not be an unmixed evil, as the patron's returns will be proportional to the care he gives his cream, and he will be thereby encouraged to produce a better cream. You refer to the time when each farmer made and shipped his own butter to the Chicago or other market, and the commission man returned him on the basis of what his butter was worth, which, of course, prompted him to an improvement in quality.

The contention of the writer is that just such a plan should be adopted with the cream buying business at the present time.

The matter of the lowering of the average quality of creamery butter by the introduction of the hand separator is very serious, and it is all the more because the danger is being minimized by some of our creamerymen who know better (or should) and who will later feel the evil effects of their desire to temporarily profit themselves at the expense of the business in general.

The writer has lately visited a number of the large centralized creamery plants that are receiving cream from hand separator patrons, either by direct shipments or through receiving stations, and there can be no doubt whatever that they are making a very ordinary and sometimes inferior grade of butter, and this state of affairs has been brought about very largely by the cream from the hand separators being of such poor quality. Nor does there seem to be any organized effort by the creamerymen to correct or lessen the trouble. Thousands of hand separators are being sold over almost all the dairying districts, and it really begins to look as though their use would become universal with creamery patrons everywhere. These machines are costing the patrons an average of $100, and, practically without exception, we find them pleased and satisfied with them.

In spite of the fact, however, that the patrons like the hand separator, there can be no doubt that as at present handled they are working an injury to the quality of the creamery butter made from this hand separator cream. The patrons are delivering a poorer quality of cream than they formerly did milk, and the quality of the butter is thereby lowered.

Very few creamerymen seem able to cope with the problem, most of them paying the same price for low as high quality cream, and of course this method of payment is sure to still further lower the quality of the receipts. A number of our large companies recognize the seriousness of the situation, but are deterred from any reform by the fact that their competition, which may be sharp, has not yet learned the lesson, and are willing to pay the same price for poor as for good cream. This makes it very hard for any proprietor, who has the good of the business at heart, to adopt any reform that will cure the evil.

It occurs to the writer that now is a very good time for creamerymen to consider these matters, and to shape their policies so that the healthy growth of the business will not be injured or interfered with. The writer believes that by taking the proper precautions the evil of poor cream may be gradually annihilated. The cream when received should be carefully inspected and graded. Sweet, clean-flavored cream, properly handled, will make extra creamery butter; cream received from different patrons slightly sour, with smothered or other off flavors will make firsts; while rank, old, bad flavored cream will make a second. On the Chicago and New York butter markets a first is worth on an average of one cent less than an extra, while a second is worth at least three cents less than an extra.

I believe the different qualities of cream should be termed "extras, firsts and seconds," the top price being paid for extras (not one-half cent above), one cent less for firsts, and at least three cents less for seconds than for extras. We can then go to our patrons in good grace, and give instruction as to how to care for the cream; we can urge daily delivery, should that be necessary to make it grade extras, and I believe that nothing



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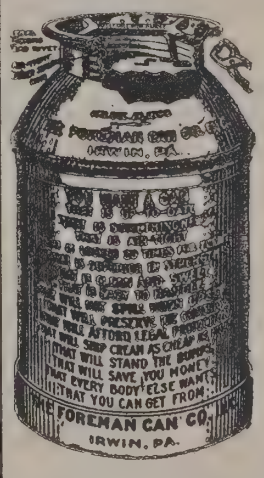
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Every can sold on a guarantee. Write for circular H.

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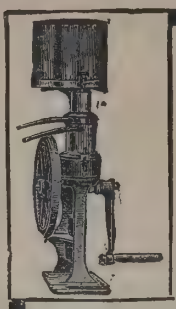
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Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.

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A friend to every man who owns a cow. A machine that is sold on its merits at a surprisingly low price. Get in touch with us. Write for our catalogue. **It Is Free.**

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Won Medal at Paris in 1900. Box 1023 Bainbridge, N. Y.



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AN UP-TO-DATE MACHINE REPLETE WITH PRACTICAL IDEAS

It is built in the following sizes:

250, 350, 450, 600, 750 POUNDS PER HOUR

Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.

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Every reader of this paper who owns a few cows to send for our new catalog of

DAVIS Cream Separators

Sent free upon request. It will tell you why the Davis Separators are money makers for their owners.

THEY ARE GUARANTEED to separate THOROUGHLY and QUICKLY. Dairymen and farmers find the "Davis" the most economical piece of machinery on the farm. Let us send you full particulars about it

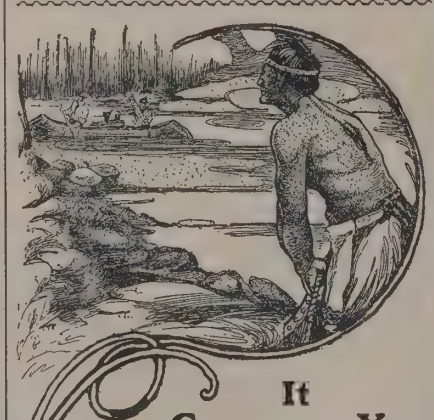
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to know what happens to your butter on its way to the consumer's table. It's likely to encounter enough noisome smells in commission house, storage cellar and shop to ruin your reputation. There's safety in

Pioneer Brand Parchment Paper.

A pure vegetable parchment which holds the delicate flavors in and shuts the foreign odors out. Don't confound it with common or so-called parchments. The Pioneer has no taste or smell of its own to impart and your butter stays sweet as a nut. **Sheets for print wrapping, rolls for box linings, circles and linings for tubs.**

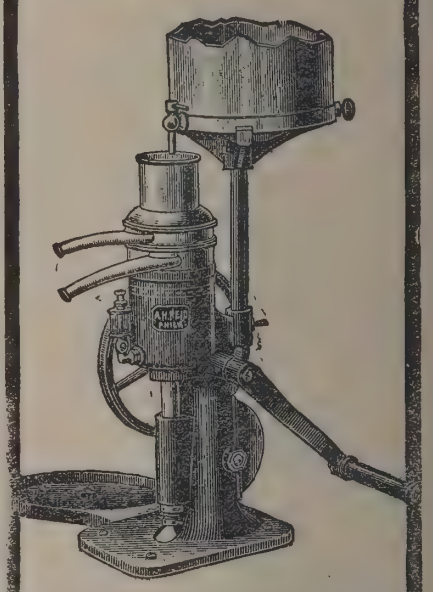
Your name or brand on wrapping sheets is good advertising. It will not come off to discolor the butter if we print it. Let us send you sample sheets and copy of book, "Better Butter."

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Reid's Hand SEPARATOR



The "best" separator is that one which does its work most thoroughly and easily, that is built of strongest material, and that is most easily washed and kept in order.

First cost is a great point with a buyer, but ease of running, perfection of skimming and simplicity in washing are even greater considerations.

The **Reid Hand Separator** has but a single cylinder inside the bowl, and skims as closely as one-hundredth of one per cent. Indeed, some tests indicate "not a trace" of fat in the skim milk.

The Reid is perfectly planned and strongly built, and it literally "runs like a watch."

As to our guarantee of excellence, we make the strongest statement that can be expressed in words: **Money back (less freight) if the buyer is not satisfied.**

There is a new (free) booklet about the Reid Hand Separator.

Sizes run from 150 lbs. to 500 lbs. per hour.

A. H. REID
CREAMERY AND DAIRY SUPPLY CO.,
PHILADELPHIA, PA.

MILK DEALERS COMBINATION Milk Protector, for cans or bottles. Prevents milk churning and souring in summer and freezing in winter. INVESTIGATE. S. C. Sullivan Mfg. Co., Erie, Pa.

ing else will so inspire the patron to care and cleanliness as this simple classification that hits him in the pocketbook if he does not care for his cream as he should.

As stated before, many of our creamerymen who are now buying hand separator cream, are afraid that any change of plan will lose them business, and unless the creamerymen competing can agree on a classification somewhat as outlined above, of course any change will have to be slow. However, I think that no one familiar with the business will deny the importance of reform in the lines indicated, but like many other reforms we cannot expect to reach perfection at once. E. W. CURTIS.

Topeka, Kan.

Siloing Whole Corn.

ED. HOARD'S DAIRYMAN:—Noticing in your issue of August 28, G. L. S.'s letter about filling his silo with whole corn, I am prompted to write and say that there are a number of dairymen in this section who have filled their silos with whole corn with perfect success for many years.

Most of them use a hay fork and carrier to elevate the bundles and drop the load in the center of the silo, keeping a man there who lays the bundles in regular courses, the first with buts out, the next with tops out, alternating all the way up. Every second or third course put an extra bundle or two along the edges against the outside, and tramp down the corn all the time. Be particular about keeping the edges well filled. After corn is all in, some of them pour five or six barrels of water over the top.

When the corn comes out, it can be taken in reverse order and comes out in perfect shape, the bundles not broken, and as fine ensilage as one could wish to see. I have heard of one or two who have thrown it in expecting to cut it out, but they never did it a second time.

People who put it in this way say they save the expense of cutting and get as good, if not better, ensilage than if cut. I would like your opinion on that point.

Utica, N. Y. L. C. W.

As we have never fed whole corn silage, it would be eminently foolish to give any opinions as to its quality.

Transfers of Guernsey Cattle.

BULLS.

Augusta's Pride Jeweller 8756, John Barth to F. C. Shepherd, Freeport, Ill.

Coronation 7938, James Logan Fisher to James W. Paul Jr., Radnor, Pa.

Emilie N.'s Jeweller 8757, John Barth to E. M. Fitzmaurice, Berlin, Wis.

Fes Lin's Squire 7225, M. D. Cunningham to A. L. Aldrige & Son, Burlington, Wis.

Golden Rex 8824, M. B. Rowe to A. W. Wallis, Baltimore, Md.

Kidder 8377, L. P. Morton to Frank Krieger, Prattsville, N. Y.

Petoskey's Chief 8828, Wm. Atkin to C. D. Hoadley, Ithaca, Mich.

Vestal Light 8834, Joseph Harris to C. J. Hupp, Birmingham, Mich.

Woodlawn Chief 8823, P. H. McCormick to Edward C. Dietz, Hydes, Md.

COWS.

Angora 3rd 13297, Maggie Pearce 11905, Our Clara 2nd 13163, Polly Ann 12782, Ezra Michener to A. J. Snyder, Plumsteadville, Pa.

Angora 3rd 13297, Maggie Pearce 11905, Our Clara 2nd 13163, Polly Ann 12782, A. J. Snyder to J. W. Paul Jr., Radnor, Pa.

Avis H. 13451, J. B. Palmer to Spencer Borden, Fall River, Mass.

Bolony 13507, Wolframena 13324, Est. N. K. Fairbank to Otto Young, Lake Geneva, Wis.

Bogota 15660, Morning Dew 16224, F. E. Bond to Frank Jennings, Jamesburg, N. J.

Daisy of Hillside Farm 13662, P. A. Young to Thomas J. Davis, Lee, N. H.

Hartt's Beauty 16490. Hartt's Queen 16489, Albert H. Kellogg to S. W. Hartt, Port Angeles, Wash.

Mary McFarland 2nd 16481, R. F. Ridgway to E. T. Gill, Haddonfield, N. J.

Miss Croesus 10038, Charles F. Choate to N. I. Bowditch, Farmingham, Mass.

Miss Butterfly 2nd 16486, Miss Trixy 16487, Wm. P. Noyes to Geo. Morgan, Amherst, Wis.

Ollie's Maid 16484, J. A. Beidler to G. B. Tallman, Perry, N. Y.

Princess Ovid 16485, J. A. Beidler to Harry Yates, Buffalo, N. Y.

Ruth of Maple Ranch 16137, Hopewell Bros. to Chas. H. Jones, Wellesley Farms, Mass.

Viola of Maulton 16482, E. Maule & Co. to Maurice T. Phillips, Pomeroy, Pa.

Peterboro, N. H. WM. H. CALDWELL, Sec.

Aug. 31, '03.

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A DWELLING house in the city of Elizabeth, N. J., built one hundred years ago, has always been painted with Pure White Lead and Linseed Oil—nothing else.

There is not a crack, blister, blemish or imperfection of any kind in the paint. Makers of mixtures, beat this record if you can!

Be sure the brand is right. Those in margin are genuine, and made by "old Dutch process."

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Compressed Pure-Salt Bricks.



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WANTED

FIFTY Good Dairy Cows

Send list at once of what you have to offer, stating the ages, breeds and lowest cash price.

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THE ONLY LOW DOWN

Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the market.



20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished.

Send for catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.

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Sole Manufacturers.
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NO MORE RUBBING, stooping or boiling of clothes. The "1900" Ball Bearing Washer will wash a large tubfull of clothes in 6 minutes. An hour's wash in 20 minutes. The washing is done sitting down. You can try it free of expense, freight prepaid, no advance payment. "1900" Washer Co., 219A State St., Binghamton, N. Y.



The National

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justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

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BEST MILK WAGON ON EARTH.

SOLD DIRECT TO CONSUMER ONLY. Highest Grades—Lowest Prices—Guaranteed. Shipped on Approval. Full line Buggies and Harness. Write for Catalogue and Prices.

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THE O. ARMLEDER CO., Cincinnati, O.

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Superior to corn, oats and hay. Ton lots $23.00; half ton $12.00; 500 pounds $6.50; 100 pounds $1.50. Put up in 100-lb. sacks f. o. b. Minneapolis. Cash with order.

This Meal is Guaranteed Absolutely Pure. We also manufacture Strictly Pure Linseed Oil.

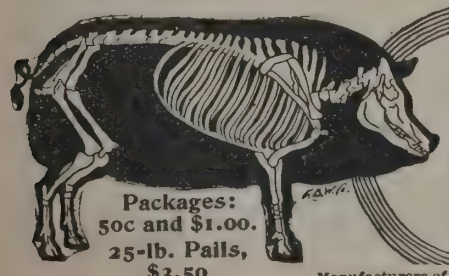
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For Dairy Cattle and Horses. If your dealers do not keep it write us for prices and sample.

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The Inside of a Hog

determines the value of the outside. First of all, he must have good health—freedom from worms, cholera, swine plague, etc. All these things and success are possible if he is properly fed.

PRUSSIAN STOCK FOOD

has made a most enviable reputation with hog feeders everywhere. It conditions the stomach and bowels, promotes the appetite, improves digestion and leads to perfect assimilation of the food. These mean saving in feed, quick fattening and large profit.

"Gentlemen:—I have been using your Prussian Stock Food for six months and find it one of the best remedies I have ever used. My neighbor's hogs all died with the cholera last fall. I fattened over 100 head and did not have a sick hog.—Abraham Whisler, Chill, Ind."

Prussian Stock Food is guaranteed to give satisfaction when used according to directions. If no dealer at your place write us. Tell us how many head of stock you have and where you saw this ad and we will send you our 68 page Farmer's and Stockman's Hand Book Free.

PRUSSIAN REMEDY CO., ST., PAUL MINN.

Packages: 50c and $1.00. 25-lb. Pails, $3.50

Manufacturers of Prussian Poultry Food, Heave, Worm and Lice Powders, Cough & Distemper Cure, Spavin Cure, etc.

A Dairyman's Good Income.

The following experience of a successful Wisconsin dairyman was related at the recent meeting of the Guernsey Breeder's association at Athens, Wis., by H. D. Griswold of West Salem, Wis.

"Choose a herd sire that has a mother and a grandmother and as many more relations as possible that were good milk and butter producers," advised Mr. Griswold. "Get the very best you can. Then get a scale and a Babcock test and know what each cow is doing. Cull out the poor ones and keep the best always. Keep up that practice with your heifers. You cannot buy good cows; there is only one way to get them, and that is to raise them. Then comes good feed and plenty of it, warm and well lighted stable and constant, careful care.

"Now to illustrate along this line I will give you a little of my own experience. In 1889 I bought my first Guernsey sire. I had then one Holstein cow, one Jersey and three or four Shorthorns. I find by my books that my total receipts for butter that year were $138.86. In 1891 I got a Babcock tester, the first one that ever came to our town. I found that year that my cows were making 365 pounds of butter each; I then had nine. I increased the number till in 1902 I had twenty-one cows. I have increased the average production per cow to 424 pounds each. I have increased my receipts from $138.86 in 1889 to $1,937.43 in 1902.

I now have twenty-five cows, and in the month of May just passed we got 5,700 pounds of cream, testing twenty per cent butter fat, with no other feed than grass and a little ensilage. These twenty-five cows are all grade Guernseys but five. I have three Jerseys and two full-blood Guernsey heifers. All but three were raised by myself on the farm and have never been off the place. Six of the twenty-five are two-year-old heifers.

"I tell you this not to boast, but to let you know what we are doing today, instead of giving you some has-been tale. We have the same little fifty-acre farm than we had in 1889, but we have built onto the barn four times, have built two silos, and the farm is increasing in productiveness. But you will say it has

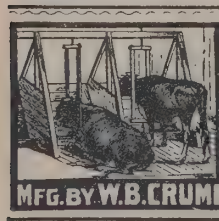
$1.00 BIG 500-POUND STEEL RANGE OFFER.

If you can use the best big 500-pound steel range made in the world, and are willing to have it placed in your own home on three months' free trial, just cut this notice out and send to SEARS, ROEBUCK & Co., Chicago, and you will receive free by return mail a big picture of the steel range and many other cooking and heating stoves, you will also receive the most wonderful $1.00 steel range offer, an offer that places the best steel range or heating stove in the home of any family, such an offer that no family in the land, no matter what their circumstances may be, or how small their income, need be without the best cooking or heating stove made.

SEND 50 CENTS to Modern Medicine Co., Dept. B., Benton Harbor, Mich., for their Wonderful Tonic Tablets, that restores health and vigor to men and pale, sickly women. Guaranteed or money returned. Valuable medicine book for 2 cent stamp.

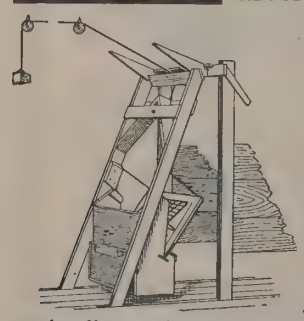


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CATTLE STANCHION
The Most Practical
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ever invented.
Manufactured and For sale by
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CLEAN, SAFE, COMFORTABLE.
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JUST OUT! UNDERHILL SELF ADJUSTING STALL



No Gutters
No Platforms
No fastenings
No Stables to clean
Cease trying to keep your cows clean. You can't do it. Give them a chance and they will do it themselves. This is the only way and the easy way. Write for circular telling what the cow has discovered to us. It is a great revelatio
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Foster Steel Stanchion
made entirely of steel and malleable iron. Unlike all others. Affords greatest freedom and motion and always holds the animal. Hung on chains—moves all ways. Lightest, strongest, most convenient and easiest to open and close.
GOOD SELLER—BIG PROFITS.
One agent sold 75 first day, Another sold 200 first week. We want responsible agent in every Dairy Community. Send for circular number 30.
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Scott's "Perfect" Cow Stanchion

SWINGING
SELF-CLOSING
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3 NECESSITIES FOR PERFECT STANCHIONS

Made of hard wood—strong and durable. Price $1.00. Satisfaction guaranteed.
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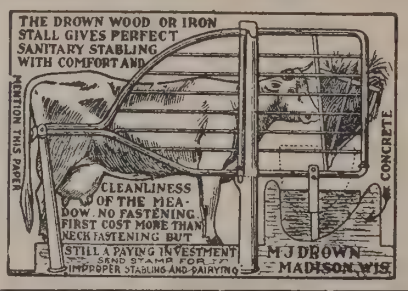
The BEST Cattle Fastening.
SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated circular free. GLENORA MFG. CO., Glenora, Yates county, N. Y.
Infringements will be prosecuted.



Prescott's Swinging Swivel Stanchion
Keeps Cows Clean.
Swings forward while getting up or lying down. Locks back while standing Full particulars free.
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THE NEW PATENT
Cow Stall
AND FEED TROUGH.
This is the only Cow Stall with a centering hinge. Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars.
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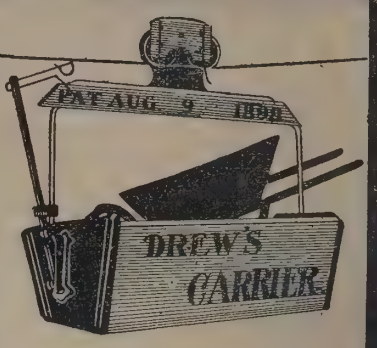


WILDER'S PATENT SWING STANCHIONS
Chain or Pin Fastened.
Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.
Safest, Strongest, Most Convenient
fastening made. Cheapest to put in and save room in barn. Send for Stanchion Catalog to
WILDER-STRONG IMPLEMENT CO., 11 Monroe, Mich.



Only One Hand
needed to stanchion Cattle if you have our
Steel Latch Stanchion
When open is locked ready for cattle to come in; closed, it swings freely. Best dairy cattle tie because comfortable and quiet; gives greatest freedom. Made of selected hardwood oil finished. We are the sole manufacturers. Write now for circulars and delivered prices.
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Every farmer who gets a Drew Elevated Carrier has no more use for the barnyard wheelbarrow. The
DREW ELEVATED CARRIER
will carry the manure from the stables to any point in the barnyard, drop it, return automatically, ready for another load.
It is self operating—it turns curves and switches—dumps its load in yard or wagon. Besides carrying manure you can use it to convey ensilage, feed, grain, potatoes, cans of milk, from one point to another. It works so simple and easy that any man or boy can run it.

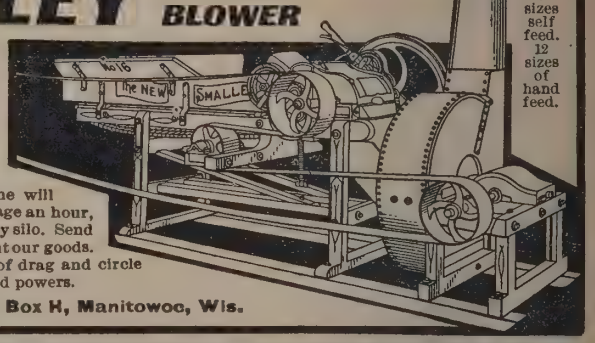


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carries labor off from the farm—it is the farmer's labor and money saver. No trouble to put them up—no trouble after they are up.
It leaves barnyard free from posts—keeps the barnyard clean and free from litter. Get one and
"WATCH IT WORK FOR YOU"
WRITE FOR OUR ILLUSTRATED CATALOGUE, FULLY EXPLAINING ALL ABOUT IT.
Also receive testimonials from hundreds of farmers and dairymen who have the Drew Carrier on their farms
DREW ELEVATED CARRIER CO., WATERLOO, WIS., U. S. A. 1



CHERRY'S Perfected Barn Equipments
Consisting of Manure Carrier, Feed Carrier, Ensilage Carrier, Grain Elevator, Swivel Hay-Carrier, Hay Forks and Barn Door Fixtures. This system of carriers is built for **Heavy Work** and **Durability.** By the use of our **Curves** and **Switches** we can equip any barn. Send for illustrated Catalogue H and price list to
D. B. CHERRY & CO.,
KNOXVILLE, IOWA.

SMALLEY SAFETY BLOWER
6 sizes self feed. 12 sizes of hand feed.
Only One Belt Required.



No lost power. No danger in operation. Belt cannot slip. Every part strong and of best material. No more strain on the *Smalley* machine when Blower is attached than with the ordinary carrier. Largest size machine will easily handle ten tons of ensilage an hour, cut ¼ inch and elevate into any silo. Send for 1903 catalogue, tells all about our goods. We also make complete line of drag and circle saw machines, sweep and tread powers.
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WE GUARANTEE that under the same conditions as to power and speed applied, condition of corn, etc.,
The Appleton Corn Husker



2-Roll, 4-Roll, and 6-Roll,
Down or Mounted.
Write to-day for free Catalogue.
will do more and better work than any other machine of like character and corresponding size on the market; that it is simpler in construction; easier in every way to operate; easier and safer to feed and to require less power for successful operation. The proof of these claims is sent for the asking. We make also a complete line of sweep and tread horse powers, shellers, ensilage and fodder cutters, feed grinders, wood saws, windmills, etc. Remember that Appleton quality is the standard of excellence.
APPLETON MFG. CO., 35 Fargo St., Batavia, Ills.

$3 a Day Sure Send us your address and we will show you how to make $3 a day absolutely sure; we furnish the work and teach you free, you work in the locality where you live. Send us your address and we will explain the business fully, remember we guarantee a clear profit of $3 for every day's work, absolutely sure. Write at once.
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Dana's White Metallic EAR LABELS
stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Samples free. Agents Wanted.
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FLIES? ORR'S FLY KILLER. No Other as Good.
1 gal. $1; 5 gal. $4; Sprayers 50c.
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Ensilage Cutters; Ensilage and Stalk Shredders; Blowers and Chain Carriers; Tread Powers; Sweep Powers; Threshing Machines; Circular and Drag Saw Frames, Etc.
Handsome Catalogue Free; Send for It
ST. ALBANS FOUNDRY AND IMPLT. CO.,
St. Albans, Vt.

ABORTION IN COWS



ABORTION consists in expulsion of the offspring before it can live independent of the dam. Abortion, when not due to specific causes, results from blows, injuries, poisonous blood disorders, exposure to cold, sudden excitement, anger, odors from slaughter houses, or from other animals similarly affected, purgatives and improper nutrition. Smut, ergot and decomposed materials of any kind, when taken as food often cause abortion.

Anæmia, another word for poverty of the blood, is probably the most common cause. Coarse, innutritious food reduces the vitality of the dam, the circulation is sluggish, the blood supplied to the calf, colt, lamb, or pig is deficient in quantity and poor in quality.

These conditions above are often sufficient to cause a cow to lose her calf or a mare to lose her foal and if aided by excitement, a physic, a fall or a chill abortion is almost sure to follow. In all animals carrying young, good nutritious food must be supplied to nourish dam and foetus. Tonics are required, and quiet, clean quarters must be provided, and grain or hay affected with smut or containing ergot must be avoided.

Anæmia, being one of the most common causes for abortion in animals, is not easily noticeable. Animals showing extreme debility of the muscular system, becoming easily exhausted upon slight exertion are generally anæmic, and no better tonic can be applied than Dr. Hess Stock Food. It contains the tonics and salts of iron essential for the improvement of impoverished blood.

This stock food is formulated by Dr. Hess (M. D. D. V. S.), and is used by eminent veterinarians and endorsed by leading colleges. If they know of nothing better it must be good. Dr. Hess Stock Food, the scientific compound, is sold on a written guarantee, 100 lbs. $5.00 (except in Canada and on Pacific Slope), smaller quantities at a slight advance. It is fed in a small dose.

For every disease and condition for which Dr. Hess Stock Food is not recommended, the little yellow card in every package entitles you to a letter of advise and special prescription from Dr. Hess.

Dr. Hess has written a book on the diseases of stock and poultry. It is consulted and commended by many leading veterinarians.

Write Dr. Hess & Clark, Ashland, Ohio; state what stock you have, what stock food you have fed, also mention this paper. For this information you will receive this valuable book, with which you will be able to treat your own domestic animals.

Stops Chills **Painkiller** (PERRY DAVIS') Cures Cramps



"Just as good?" "Just as good!" Did you say? "Just as good as Veterinary Pixine!!" The dealer who tells you that is mistaken. He does not know

FACTS AND TESTS PROVE IT!

Emery, Ky., April 9, 1903.

I feel it my duty to tell what Veterinary Pixine did for a horse of mine. He was cut with a knife between the fore legs three inches deep and two inches long, which every minute would gap open. I used several different kinds of remedy without success, even to having some stitches taken. Nothing did any good and it kept swelling and became feverish. I almost gave up hopes of getting him well. In the columns of the Ohio Farmer I observed your advertisement and, as it was the last chance, I purchased a box at the druggists and used it as directed and before the box was used up the cut was entirely well. I intend to keep a supply on hand for emergency cases if I have to pay a dollar a box for it. Please accept my thanks for the good I have received from its use, and if you choose you can use my name and testimony.

W. S. CAMPBELL.

This penetrating, stimulating, soothing, absorbing, antiseptic, healing ointment heals from beneath the surface by disinfecting the parts, subduing inflammation and stimulating healthy granulations, not by drying and scabbing, and stimulates growth of hair, natural color. Makes quick, clean and healthy cure; heals stinging, burning, chronic saddle and collar galls, hopple chafes, abscesses, caked bag, cow pox, and hoof rot. It penetrates, stimulates, soothes and heals while horse works. Money refunded if it fails.

Price, 2-oz. box 25c; 8-oz. box 50c; 5-lb. pkg. $4.00, at all druggists and dealers or sent prepaid.

TROY CHEMICAL CO., Troy, N. Y.

Also Manufacturers of "Save-the-Horse" Spavin Cure. $5.00 a bottle. Send for copy of guarantee and booklet.

Land Above Ditch?

Its only hope is effective and economical pumping. You can raise water where you want it with the



RIFE Hydraulic ENGINES.

Will fill a storage tank any height above the source of supply, when water may be drawn through buildings, dairy houses, stable, yards, etc., by gravity process. It runs itself. Will force up pure water of a spring with muddy water without mixing. Write us your needs and we'll send plans and estimates of cost.

RIFE ENGINE CO., 126 Liberty St., New York.

taken a long time, over ten years. True, but you have to work at something, and dairying is no harder than any other work. The land must be kept up with some kind of stock, and what can you do better? Did you ever think that an income of $2,000 on a little farm in the country is better than twice that in the city? Then the boys are interested in good stock, as they cannot be in scrub stock. And this daily association with these dumb animals makes a man better. He has to anticipate their wants; he has to take lots of steps and do countless little things for their welfare and comfort, and these daily duties make him more thoughtful of others, and he becomes a better husband and father and citizen.

For Cows in New Mexico.

We have 30 head of milch cows and expect to milk about 20 all through the winter. We have green pasture all but three months during winter, and then have alfalfa, wheat and oat hay—all first-class; also some green corn fodder. What would be the best grain to feed for both quality and quantity? Bran, barley and shorts sell at $25 per ton, which of course is very high. A. M. K.

Las Cruces, N. M.

If the feed called "shorts" is really a good quality of middlings and not largely re-ground bran, as is too frequently the case, we should say, feed a mixture, equal parts by weight, of the bran and shorts. Otherwise mix bran and barley in same proportions, or, when feeding alfalfa hay, feed barley alone. Also save the alfalfa hay as far as practicable for the cows giving milk. The amount of of grain to be fed must be governed largely by circumstances; that is, by the ability of each cow to respond. A cow that will not give more than 15 lbs. of milk daily, should have decidedly less grain than one that yields 20 or 25 lbs. And withal, which is a matter that appears to demand constant repetition, do not omit to give salt every day, or better yet twice a day, a good teaspoonful each time.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Warty Teats.

I have a fine cow all right in every way, but her teats are completely covered with warts.

Bar Mills, Me. O. E. E.

ANSWER.

Clip the warts off with a pair of scissors, and touch up the parts with a stick of lunar caustic.

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from **Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING.** *Impossible to produce scar or blemish.* Every bottle sold is warranted to give satisfaction. Price **$1.50** per bottle. Sold by druggists, or sent by express, **charges paid**, with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland O.

FENCE! STRONGEST MADE. Bull Strong, Chicken Tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free.

COILED SPRING FENCE CO. Box 103, Winchester, Indiana, U. S. A.

Drive to the Depot—Not to the Dealers

And get your **ADVANCE FENCE** you from 10% to 20% on what you would have to pay your dealer for it. Remember that we manufacture and sell as we send it direct to you, saving



fence direct to the user, at wholesale prices, and will allow you

30 DAYS' FREE TRIAL.

You take no risk in dealing with us. This is the most liberal offer ever made by a fence factory. Write at once for our catalogue giving special discounts for large quantities. Address

ADVANCE FENCE CO., 126 St., Peoria, Ill.

PAGE

See One Roll

of Page Fence stretched up. That's convincing.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

BROWN

16 to 35 Cents Per Rod.

Heaviest, strongest, most durable fence made. All wires extra large. *We sell to farmers at wholesale prices.* Coiled Spring, Barb and Soft Galvanized Wire.

WRITE FOR CATALOGUE

The Brown Fence & Wire Co. Cleveland, O.

Milk Fever Cure

Hood Farm Milk Fever Cure (Improved Schmidt Treatment complete) saves the lives of the most valuable cows. Can be applied after the cow is unconscious. Three treatments, $2.50. Sent to any railroad express point in the United States, $2.75.

C. I. HOOD & Co., Lowell, Mass.

Mention this Paper.

Lump Jaw Spavin Curb Splint Sweeny

Cure Them

Lump Jaw in cattle, Fistula and Poll Evil in horses, and almost every blemish that a horse can have, even bad Bone Spavin, Ringbone and Knee-Sprung, can be readily cured by anybody. We want to tell you how to do it, prove that you can do it, and guarantee you success in doing it. Two big booklets explaining everything sent free. Write now.

Fleming Bros., Chemists, 338 Union Stock Yards, Chicago, Ill.

Tuttle's Elixir



Cures all species of *lameness, curbs, splints, contracted cord, thrush, etc.* in horses. Equally good for internal use in *colic, distemper, founder, pneumonia, etc.* Satisfaction guaranteed or money refunded. *Used and endorsed by Adams Express Company.*

TUTTLE'S FAMILY ELIXIR Cures rheumatism, sprains, bruises, etc. Kills pain instantly. Our 100-page book, "Veterinary Experience" **FREE.**

Dr. S. A. TUTTLE, 62 Beverly St., Boston, Mass

Beware of so-called Elixirs—none genuine but Tuttle's. Avoid all blisters; they offer only temporary relief if any



Above trade mark on every box.

Work Horses need not be laid off for treatment if you use **Bickmore's Gall Cure.**

Cures while you work him of all **Harness, Saddle or Collar Galls, Scratches, Cuts, Cracks, etc.** Sold everywhere by dealers. Guaranteed. Money refunded if it fails. Sample mailed for 10 cents.

BICKMORE GALL CURE COMPANY, Box 515, Old Town Me.



NEWTON'S Heave, Cough, Distemper and Indigestion Cure. A veterinary specific for wind, throat and stomach troubles. *Strong recommends.* $1.00 per can. Dealers. Mail or Ex. paid.

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Cured to stay cured. Never return. A radical departure. Cause eliminated. Constitution changed. **FREE** Nerves reconstructed. Splendid health. Over 52,000 patients. Good references. ("Reliefs," or change of climate, cannot cure..) Write for BOOK 41 F FREE, containing reports of many interesting cases. Address

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Our Improved Grooming Brushes, revolving 1200 times a minute, insure glossy coat, clean skin, active pores, health and beauty. Their use increases value of all stock. Indispensable for prize winning show cattle. Will groom 30 to 50 head an hour, and do it better than by hand. Get our Free Booklet and learn to groom your cattle, horses and all stock the best way.

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The Safety **MILKING INSTRUMENT**

Is far superior to the old-fashioned

MILK TUBE.

Price $1 by mail, prepaid. Circulars Free.

MOORE BROS., V. S., Albany, N. Y.



Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.

Used Exclusively at Model Dairy

Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.

O. H. MFG. CO., Dept. H, Lyndon, Vt.



ABORTION

Can be successfully treated with **Anti-Abortion Serum.** Easily administered and permanently cures. Information free.

DR. ROBERTS VETERINARY REMEDY CO.,

538 Grand Ave., Waukesha, Wis.

DR. GEORGE HOLLABUSH'S

Sure Cure for Abortion



and General Tonic for Cows. The only genuine sure cure and general tonic for cows on the market. I guarantee, and refund money if not satisfactory.

Dr. Geo. Hollabush, Ft. Atkinson, Wis. Write for circular.

..ABORTION..

RETENTION OF PLACENTA AND FAILURE TO BREED.

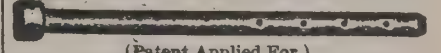
KELLOGG'S CONDITION POWDER

Is a positive cure for these diseases. Write for circular containing full information, references and price.

H. W. KELLOGG CO., St. Paul, Minn.

ABORTION,

Failing to Breed and bring Cows to Heat. Sure Cure. In use 20 Years.



(Patent Applied For.)

Hard Rubber Safety Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.

DR. WM. HORNE, Janesville, Wis.

CHLORO NAPTHOLEUM DIP

"**Chloro-Naptholeum** is unexcelled for the purpose intended. Dipping our young calves in a solution immediately freed them from all parasites. As a preventative for contagious abortion we have recommended this as a successful remedy." J. Q. EMERY & SON, Albion, Wis. Chloro-Naptholeum Dip is guaranteed. Agents wanted. 1 gal. $1.50; 5 gals. $6.75 prepaid. Larger lots at lower rate.

WEST DISINFECTING CO., Inc., 8 E. 50th. St., New York.

CURE "THE" COW

NO CURE, NO PAY



WRITE, giving symptoms of animal sick, and will ship you the express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address

DR. EATON J. CROSS

152 Congress St., Troy, N. Y.

BLACKLEGOIDS

BEST PREVENTIVE OF BLACKLEG.



Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each **Blacklegoid** (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. **Blacklegoids** are sold by druggists; *ask for them.*

Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.

PARKE, DAVIS & CO. DETROIT, MICH

Branches: New York, Kansas City, Baltimore, New Orleans, Chicago, Walkerville, Ont.; Montreal, Que.; London, Eng.

The Small Farmer and the Silo.

ED. HOARD'S DAIRYMAN:—The article of J. G. S., from Bakerfield, Kern Co., Cal., causes me to take pen in hand once more. I do not remember just what the pen caused me to say about alfalfa in Butler Co., but I have distinctly in mind what I wanted to say, and why I wanted to say it. I wanted to say that in my opinion, after seven years' trial, the climatic conditions of the corn belt were most favorable to the successful growing of alfalfa; that the burden of the crop was to be able to cure it, if it was cut as soon as it should be, that is, as soon as any of the bottom leaves begin to fall.

And I would like to convince any "Doubting Thomas" living in said corn belt that he can grow it successfully if he has suitable land. My experieuce says the valley land along our small streams, whose variation on the water gauge is less than 8 feet, is the ideal home of alfalfa, although it can be grown profitably elsewhere. But in this land of fogs and dews and frequent showers, I would say, let every man provide himself with silos. Especially upon the small farmer and stock grower do I wish to impress the wisdom of filling our silos with clover, alfalfa and such. We use no cutter, but handle the crop like hay, and use the same tools, being sure to keep the material thoroughly spread and well packed at sides, and, to secure capacity, fill slowly as it nears completion, for the settling is wonderful. Lastly, cut early and fill without wilting.

I believe there are many of the smaller crops, especially the legumes, that can be successfully siloed, and with much less expense than corn. I am aware that some good teachers, like HOARD'S DAIRYMAN and Prof. Henry, have some skepticisms about siloing hollow-stemmed plants, but I have none. The trouble, I think, has been in allowing these crops to become too mature, or letting them wilt too much after cutting. Cut all these crops in the prime of their succulence, get all the dew in the silo you can, and if any doubts remain, use water.

I am preparing to silo a crop of rye and hairy vetches in the spring. I have never grown vetches, but am going to try them, but fear my soil too heavy. I expect to seed my corn stubble to rye, 2 bushels per acre, using from 1½ to 2 bushels vetches and in the early spring sow clover. I am familiar with rye and know it must be siloed before it shows a head, and if the vetches have not made a paying growth. trust to getting a crop of clover and vetches later on.

This will give me two cuttings in a year and leave the ground in good condition for corn. This is a two-year rotation of feeding crops, and, with the application of 30 loads fresh barn (not barnyard) manure per acre, we feel justified in expecting some returns, although I am applying 300 lbs. 14% acid phosphates per acre this fall.

My reason for these details are several:

First, the climate of the corn belt is genial to alfalfa.

Second, the home of the silo is upon the small farm, and the farmer who both superintends and does the work has many advantages over hired help, especially in utilizing the silo.

Third, the succesful siloing of small crops, and especially legumes without running through a cutter, is the cheapest way to make ensilage, and places the system within reach of even the smallest farmers.

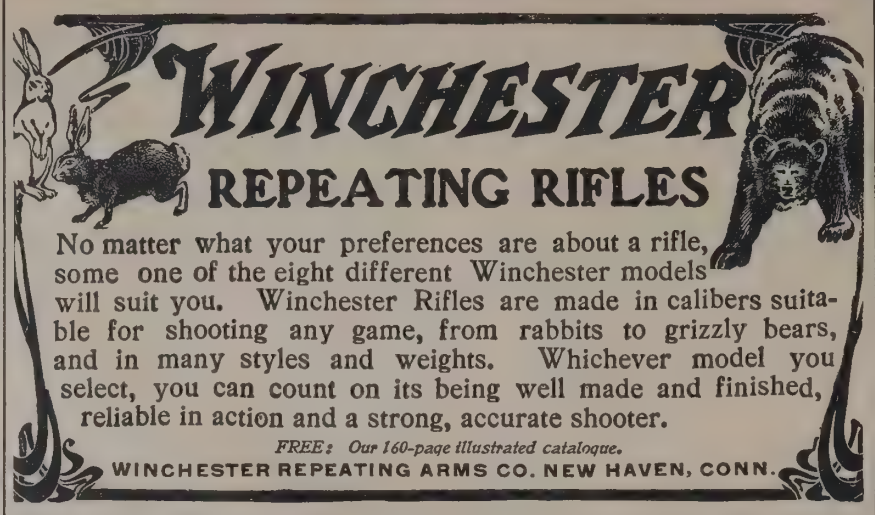
Fourth, it gives a rapid rotation of feeding crops, and with a small alfalfa field, a balanced ration without a feed bill.

Fifth, it secures a supply of succulent feed before the dry summer begins, and enables the farmer to harvest and save his crops at their best without delay, giving place for the succeeding crop.

In connection with blue-grass pastures well cared for and intermixed with alfalfa the dairy farmer surely holds a controlling hand even though he lives in the non-glaciated hill district of Southern Ohio.

P. CLAWSON.

Butler Co., O.





H. & R. SINGLE SHOT GUN

Automatic and Non-Ejecting

The cheapest absolutely safe gun, with improvements found heretofore only in the highest priced. Perfect in model and construction. Simplest "take down" gun made. Top snap; center hammer; rebounding lock. Your dealer can supply, or we will sell to you direct.

Illustrated Catalog tells about our complete line—FREE.

Harrington & Richardson Arms Co.

DEPT. 22, WORCESTER, MASS.

Makers of H. & R. Revolvers.

21 STRONG REASONS

WHY IT WILL PAY YOU TO BUY A FARM IN THE GREAT BLUE GRASS COUNTRY OF NORTHERN WISCONSIN.

1. The soil is rich and productive. Everywhere there is a clay subsoil to retain the moisture.
2. The climate is very uniform—neither extreme of heat or cold.
3. The seasons are regular and there is never a crop failure.
4. There is an abundance of wood for building and fuel, which need only to be cut.
5. Taxes are very low compared with other sections.
6. It is the best agricultural country known for a man of small means to get rich.
7. It is better to own a low-priced farm than to owe for a high-priced farm.
8. You can own a home in this section for what you now pay out for rent in one year.
9. Everything grown in the west can be grown on these lands.
10. There is an unsurpassed market for all farm products throughout the year.
11. Truck farming is very profitable in this section.
12. No better fruit country in the northwest. All northern varieties are wonderfully successful.
13. The best place in America to raise horses, mules, cattle, sheep and hogs.
14. The water supply is the best. The country is full of clear running streams and springs
15. Cereal crops average more bushels per acre than in other northern states. This may be said particularly as to oats, the average yield being from 60 to 80 bushels per acre.
16. Grasses and clovers for grazing or hay grow luxuriantly, far better than they do in southern Wisconsin, Iowa, Minnesota, or the Dakotas.
17. No swamps in this section—no malaria, no chills, no fever, no cyclones, no hail or destructive storms.
18. Fish and game in abundance. It is the sportman's paradise.
19. Lumbering and manufacturing interests offer ample employment at good wages whenever desired, both winter and summer.
20. Thousands of settlers are moving into northern Wisconsin, and in consequence land is increasing in value very fast.
21. The best class of people are among the settlers, which include principally Americans, Germans and Scandinavians.

DON'T PAY RENT, but come up and let us sell you a farm which will cost you but little more than the rent of a good farm in the older agricultural districts. Not only that, but a farm that will grow in value every day. Write us to-day for full particulars concerning these lands, and arrange to look them over at the earliest possible moment. They cannot fail to interest you if you want to get a home of your own. Mention HOARD'S DAIRYMAN.

WISCONSIN BLUE GRASS LAND CO., Baldwin, Wis.

Cheap House Warming

The Modern House is warmed from a furnace. The very best furnace is the **LEADER Steel Furnace** We make it to fit your house and send it freight prepaid to your station. Any carpenter or handy man can set it up. Anybody can operate it. Burns hard or soft coal, wood or cobs. One furnace will heat the largest house in the coldest weather. Seven to eleven rooms heated with the fuel required by two stoves. If the weather is mild less fuel is used. Only one fire to take care of and that requires but a few minutes a day. No dust, smoke or ashes in the rooms. Even, delightful heat day or night in any kind of weather. Send to us for free estimate of the cost of fitting your house and ask us for our booklet telling all about these furnaces. We send estimates and information free. Buy of the makers and save the middleman's profits. Write for our catalogue No. 35.

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Buy You a Ticket to CROOKSTON, MINN., and call upon

The Polk County Land & Loan Company

For choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.

360 acre farm, 4½ miles from Crookston, Minn, (a city of 7,000 inhabitants), and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x2 1½ stories with an L 14x22, and a wood shed in connection 20 ft. square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm in under a high state of cultivation, and is well drained by a slight ravine running through the farm, merely sufficient for self drainage. The soil is a rich deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50.

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired, Price $19.00 per acre.

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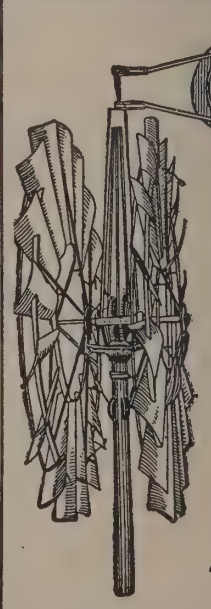
Farm No. 1 consists of 90 acres with frontage on a fine lake where there is excellent fishing and game. This lake is one of a chain of lakes on which you can travel for twenty-three miles. Has two-story house with eight rooms. Two-story log barn. Ice house and ten acres cleared. For sale at a bargain. One mile and a half from the railroad.

Farm No, 2. One-half mile from the railroad. 100 acres or more if desired, five acres cleared. Two-story, eight room house. Glass chicken house. First-class hog pen. Plenty of timber on land for own use, and quite a quantity of saw timber. We have besides this 16000 acres of unimproved land. Heavy black soil. All lies in Central Wisconsin. Low priced Excellent markets. Will grow any kind of crop and produce immense results. Excellent water supply. Splendid markets and a local demand for everything that is raised. None of the land lies more than three miles and a half from the railroad.

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Will furnish names of people who have bought from us who have made big success. Can furnish lands in either small or large quantities. Can furnish reduced rates to see the lands. Easy terms to suit the convenience of the purchaser. As safe and desirable an investment as government bonds. Write in for maps and any information you may desire.

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GET THE BEST. Horse Powers for one, two, or three horses, for running Wood Saws, Threshing Machines, Ensilage Cutters, etc. All who are interested in **Horse Powers, Wood Saws,** or **Threshing Machines and Ensilage Cutters** are invited to write for fifty-page pamphlet. It's free.



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IRBYDALE Very choice irrigated acre tracts. Fine soil adapted to all products including fruit. 5 acres makes a farm that will support a family. Located in a beautiful little valley, just the place for a home. Good location for business. For information, terms, etc., address

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130 acres, 50 acres cleared, 40 acres under plow. Fine clay loam. Good buildings. School, creamery, railroad, and church near. We have other fine farms in this county. Send for descriptions.

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or other real estate, **no matter where it is or what it is worth.** Send description, state price, and learn my wonderfully successful plan. W. M. OSTRANDER, 250 North American Building, Philadelphia

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THE ROOT OF THE MATTER

He Cured Himself of Serious Stomach Trouble By Getting Down to First Principles

A man of large affairs in one of our prominent eastern cities by too close attention to business, too little exercise and too many club dinners, finally began to pay nature's tax, levied in the form of chronic stomach trouble; the failure of his digestion brought about a nervous irritability making it impossible to apply himself to his daily business and finally deranging the kidneys and heart.

In his own words he says: "I consulted one physician after another and each one seemed to understand my case, but all the same they each failed to bring about the return of my former digestion, appetite and vigor. For two years I went from pillar to post, from one sanitarium to another. I gave up smoking, I quit coffee and even renounced my daily glass or two of beer, but without any marked improvement.

"Friends had often advised me to try a well known proprietary medicine, Stuart's Dyspepsia Tablets and I had often perused the newspaper advertisements of the remedy but never took any stock in advertised medicines nor could believe a fifty-cent patent medicine would touch my case.

"To make a long story short I finally bought a couple of packages at the nearest drug store and took two or three tablets after each meal and occasionally a tablet between meals, when I felt any feeling of nausea or discomfort.

"I was surprised at the end of the first week to note a marked improvement in my appetite and general health and before the two packages were gone I was certain that Stuart's Dyspepsia Tablets were going to cure completely and they did not disappoint me. I can eat and sleep and enjoy my coffee and cigar and no one would suppose I had ever known the horrors of dyspepsia.

"Out of friendly curiosity I wrote to the proprietors of the remedy asking for information as to what the tablets contained and they replied that the principal ingredients were aseptic pepsin (government test), malt diastase and other natural digestives, which digest food regardless of the condition of the stomach."

The root of the matter is this, the digestive elements contained in Stuart's Dyspepsia Tablets will digest the food, give the over-worked stomach a chance to recuperate and the nerves and whole system receive the nourishment which can only come from food; stimulants and nerve tonics never give real strength, they give a fictitious strength, invariably followed by reaction. Every drop of blood, every nerve and tissue is manufactured from our daily food, and if you can insure its prompt action and complete digestion by the regular use of so good and wholesome a remedy as Stuart's Dyspepsia Tablets, you will have no need of nerve tonics and sanitariums.

Although Stuart's Dyspepsia Tablets have been in the market only a few years yet probably every druggist in the United States, Canada, and Great Britain now sells them and considers them the most popular and successful of any preparation for stomach trouble.

St. Jacobs Oil

The old Surety, cures Sciatica.

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A Five Pound Can of KNO GERM makes 300 gals. liquid ODORLESS disinfectant. Kills bad odors instantly, leaving air pure and odorless. Costs only $2.50. Guaranteed by us and your supply house.

M. H. FAIRCHILD & BRO.....CHICAGO

Killing Quack Grass.

ED. HOARD'S DAIRYMAN:—The article in the DAIRYMAN of August 21st, on quack grass, will be read with interest in many localities, especially in the northwest, and more especially in Wisconsin, as the soil of a great portion of this state is such as to promote the rapid growth of quack. I shall not differ very much as to its treatment therein mentioned, but I will digress somewhat, and it may seem to be taking a round-about-way in so doing.

Weeds are the great pest of this country and the great hindrance to dairymen in the eastern states. Here in New York State, it was only a few years ago that the Canada thistle was thought to be the worst weed, but in later years other and more virulent species of weeds have been creeping in, until now the grasses are too often almost entirely crowded out.

This is why, no doubt, the settlers in the northwest from the eastern states, are so solicitous for legislation to prevent the spreading of weeds. The treatment for the killing of weeds is somewhat similar with all, but has to be more persistent with some than with others, which is the case with quack, and more so in Wisconsin and other portions of the west than in the eastern states, owing to the pliability of the soil in which it makes such rapid growth that the farmers have become alarmed, and I think not necessarily so at all, for if its habits are studied into and a proper treatment applied, they will soon get over their fears.

My brother, near Berlin, Wis., writes me he has some quack, and wants to know how I would treat it, and he says some there cover it with straw to smother it out. I wrote him to be sure and smother it to death, but recommended what Mr. Henry did, that is to plow as soon as the grain is off, and further to harrow every few days. the balance of the season, and do this for two seasons, and with the second crop sow clover to finish the choking process.

One thing I would differ with Mr. Henry in, is the late plowing. If the choking process has been persisted in the roots below are by this time forming humus, and better remain to assist the next crop, which can be relied on sure to be a good one if properly disked and harrowed in the spring.

There, I hope I have made the indiscretion that my adjoining townsmen, Mr. Henry Van Dreser, did—that is, he used a little plain, common sense as applied to agriculture, and particularly as to poultry management, and then his critics said he was seeking political notoriety. I think, however, he shares with me in the sentiment advanced by the great Fox of England, who said, that the agriculturist who could make two blades of grass or two stalks of grain grow where one now grows is of more account than all the politicians combined.

In conclusion, I wish to ask the farmers of the state of New York, if there is any doubt about their getting two blades of grass where they now get one, if their weeds were eradicated.

AUGUSTUS PARSONS.

Sharon Centre, N. Y.

A New York Dairy Record.

ED. HOARD'S DAIRYMAN:—After reading J. A. M.'s July record in the last DAIRYMAN, made me feel like submitting mine. I have eleven cows, or three that are six years or over old, four 4 years old, two 3 years old, two 2 years old. They gave 4,877 lbs. the last 16 days of June, 9,563 lbs. during July and 4,140 lbs. the first 14 days of August. The average price per hundred was $.85 at the cheese factory, where milk was sent.

My cows are half-blood Holsteins, raised by myself, and have been in milk between 5 and 6 months, with no grain since the middle of May, but as J. A. M. says "they simply eke out their own salvation in the pastures."

I like HOARD'S DAIRYMAN the best of any dairy paper I have taken.

Baldwinsville, N. Y. G. H. G.



SAW MILLS, 4 H. P. cuts 2,000 feet per day—All Sizes—Planers. Shingle Mills and Edgers with Patent Variable Friction Feed-Portable Grinding Mills, Water Wheels, Lath Mills, etc. Send for large Catalogue. Freight don't count.

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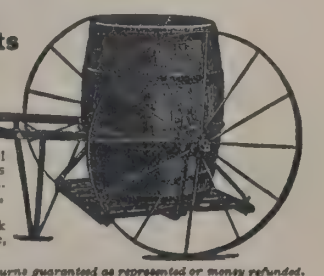
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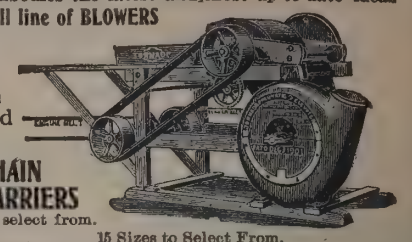
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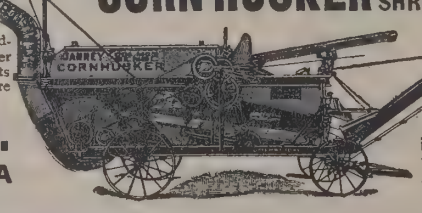
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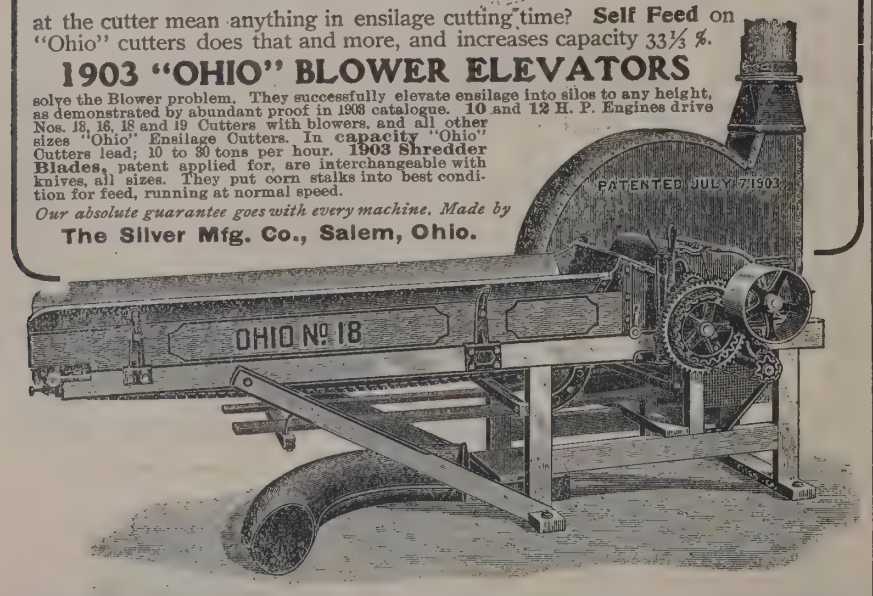
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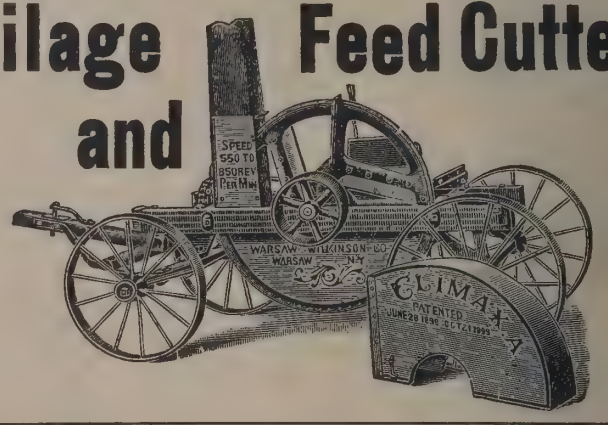
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VOLUME XXXIV. FORT ATKINSON, WIS., SEPTEMBER 25, 1903. NUMBER 33

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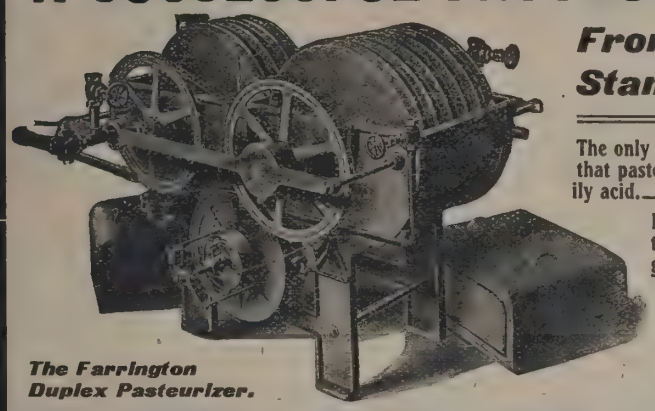
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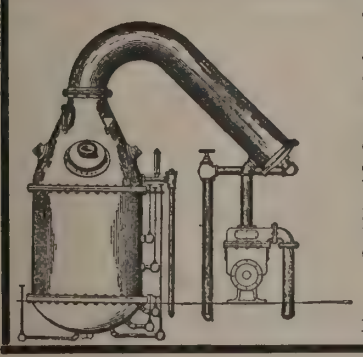
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Official Records of Holstein-Friesian Cows From July 31 to Sept. 2, 1903.

These records are made under the careful supervision of our agricultural experiment stations. The representatives of the stations weigh the milk and ascertain the amount of fat it contains, and the superintendent of Advanced Registry determines the equivalent butter on the basis of 85.7 per cent fat to the pound.

During this period, reports of twenty-two cows have been approved, all of which are seven day records.

Winana Beets DeKol 44887—6 years, 2 months, 4 days, commencing 7 days after calving: Milk 509.6 lbs., fat 16.566 lbs., equivalent butter 19 lbs. 5.2 oz. Owner, Henry Stevens & Son, Lacona, N. Y.

Myretta Royal Pietertje 47895—6 years. 1 month. 23 days, commencing 7 days after calving: Milk 441.2 lbs., fat 16.432 lbs., equivalent butter 19 lbs. 2.7 oz.

Pietertje Princess Leo 29342—12 years, 3 months, commencing 7 days after calving: Milk 407.8 lbs., fat 15.482 lbs., equivalent butter 18 lbs. 1 oz. Owner, O. J. Godfrey, Pennellville, N. Y.

Altoana 2d's Eva 28442—12 years, 12 days, commencing 15 days after calving: Milk 537.5 lbs., fat 15 050 lbs., equivalent butter 17 lbs. 8.9 oz.

Alma Perfection Pietertje 47886—7 years, 2 months, 16 days, commencing 15 days after calving: Milk 486.8 lbs., fat 14.662 lbs., equivalent butter 17 lbs. 1.7 oz.

Mignone Twisk 2d, 44616—8 years, 2 months, commencing 14 days after calving: Milk 494.2 lbs., fat 14.243 lbs., equivalent butter 16 lbs. 9.9 oz.

Mercedes Abbekerk Jewel 43254—6 years, 6 months, 28 days, commencing 19 days after calving: Milk 412.5 lbs., fat 12.212 lbs. equivalent butter 14 lbs. 4 oz. Owner, T. S. Tompkins, White Bear Lake, N. Y.

Princess Hartog Twisk 2d. 44618—7 years, 2 months, 5 days, commencing 13 days after calving: Milk 372.8 lbs., fat 12.119 lbs., equivalent butter 14 lbs. 2.2 oz.

Dame Marjory DeKol 53077—3 years, 6 months, 8 days, commencing 12 days after calving: Milk 395 4 lbs , fat 13.946 lbs., equivalent butter 16 lbs. 4.3 oz Owner, F. B. Fargo, Lake Mills, Wis.

Beechwood Libbie 52742—3 years, 11 months, 24 days, commencing 45 days after calving: Milk 430.7 lbs., fat 12.864 lbs., equivalent butter 15 lbs. 0.1 oz. Owner, University of Illinois, Urbana, Ill.

Inka Pietertje of Spring Brook 53979—3 years, 5 months, 3 days, commencing 6 days after calving: Milk 390.8 lbs., fat 12.410 lbs., equivalent butter 14 lbs. 7.6 oz. Owner, F. B. Fargo, Lake Mills, Wis.

Lady Veeman Clothilde 53546—3 years, 8 months, commencing 16 days after calving: Milk 371 lbs., fat 11.169 lbs., equivalent butter 13 lbs. 0.5 oz. Owner, University of Illinois, Urbana, Ill.

Tina Clay DeKol 57350,—2 years, 8 months, 6 days, commencing 11 days after calving: Milk 322.9 lbs., fat 11.261 lbs., equivalent butter 13 lbs., 2.2 oz. Owner University of Illinois, Urbana, Ill.

Pauline DeKol Pet 59263—2 years, 2 months, 9 days, commencing 10 days after calving: Milk 325.2 lbs., fat, 10.782 lbs., equivalent butter 12 lbs., 9.3 oz.

Quoque Mooie 64023—1 year, 11 months, 28 days, commencing 18 days after calving: Milk 306.9 lbs., fat 9.989 lbs., equivalent butter 11 lbs., 10.5 oz.

Queen Signet Koningen DeKol 63094—1 year, 9 months. 29 days: commencing 22 days after calving: Milk 324.4 lbs , fat 9.922 lbs., equivalent butter 11 lbs., 9.2 oz

Volodi Clothilde 55090—2 years, 9 months, 13 days, commencing 35 days after calving: Milk 275 7 lbs., fat 9.221 lbs., equivalent butter 10 lbs., 12 1 oz. Owner University of Illinois, Urbana, Ill.

Myretta Grover 55871—2 years, 11 months, 7 days, commencing 76 days after calving; Milk 284.2 lbs., fat 8.958 lbs., equivalent butter 10 lbs., 7.2 oz.

Rachel Schillaard 64143—2 years, 8 months, 15 days, commencing 61 days after calving: Milk 268.2 lbs , fat 8.775 lbs., equivalent butter 10 lbs., 3.8 oz.

Carlotta Sonnett 57943—2 years, 5 months, 2 days, commencing 124 days after calving: Milk 258.4 lbs., fat 8.660 lbs., equivalent butter 10 lbs., 1.6 oz.

Imperial Mema DeKol 59262—2 years, 2 months, 7 days, commencing 6 days after calving: Milk 262.4 lbs., fat 8.392 lbs., equivalent butter 9 lbs., 12.7 oz.

Dutchland Belle 58715— 1 years, 10 months, 21 days, commencing 22 days after calving: Milk 256.2 lbs., fat 7 414 lbs., equivalent butter 8 lbs. 10.4 oz. Owner Henry Stevens & Son, Lacona, N. Y.

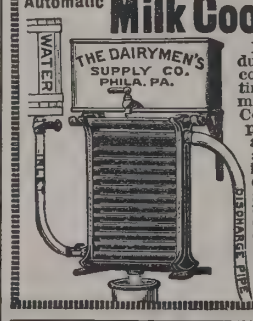
S. Hoxie, Supt, of Advanced Registry.
Yorkville, N. Y., Sept. 2, 1903.

Preserving Corn Against Weevil.

Do you know of some method of preserving corn against weevil? Ricardo Jimenez.
San José, Costa Rica.

The method in common use is to put the corn in a tight wooden or other kind of box and put in a small amount of carbon bisulphide, the fumes of which are very poisonous to insect life. All lights must be kept away, as the liquid is very inflammable and the vapor explosive.

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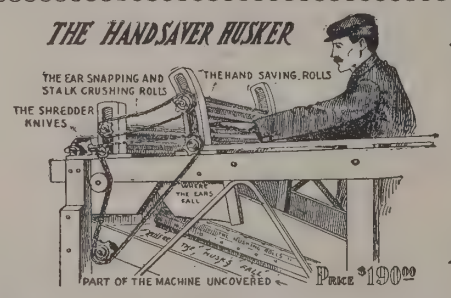
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Hoard's Dairyman

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association

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ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

Entered at Fort Atkinson, Wisconsin, as second-class matter.

Bromus Inermis.

Press Bulletin.

Bromus inermis (awnless, smooth, or Hungarian Brome-grass) is a very hardy, perennial grass, with smooth upright stems from 18 inches to 3½ feet high, and with open panicles or seed heads 4 to 8 inches long. It has a very heavy system of roots and underground root-stalks, which after it is well established makes a very tough sod and gives it great drouth-resisting qualities. It is a native of Europe and Asia, and has been known for over a hundred years, but was not cultivated until a few years ago, because it was thought it would become a pest similar to quack grass if cultivated. During the last decade, it has come very rapidly into prominence in this country. It has been grown in most of the western and northwestern states and reports have been made by the North and South Dakotas, Nebraska, Colorado, Montana, Wyoming and Idaho Experiment Stations. These reports have been favorable to the grass. Because of its great drouth-resisting qualities, Bromus inermis is especially adapted to the drier portions of the State and will grow in places where none of the other tame grasses will survive. It is also well adapted to practically every other portion of the State, as it is able to thrive under wet conditions as well as dry. It also makes a good growth in shady places, where most other grasses will not do well. It will produce most abundantly on rich, heavy soils, but will grow on poor, thin soil better than most of our other grasses.

BROMUS INERMIS FOR PASTURE.

Bromus inermis makes an excellent pasture grass as it shoots up in the spring about two weeks earlier than any of the native grasses, produces a good aftermath or second growth, and continues to grow especially late in the fall. If the summer is dry it will stop growing, and start again after the beginning of the fall rains, but if the dry period is not too long it will continue to grow from early in the spring until late in the fall. At the Kansas station we have grown Bromus inermis in a field way for four seasons. This summer we have pastured some young stock, ranging from 9 to 18 months of age, on a field of Bromus inermis seeded last fall. These calves have not shown any noticeable preference between Kentucky blue-grass, prairie-grass, and Bromus inermis, and have thrived well on the Bromus. The grass stands trampling by stock exceedingly well. It is so vigorous that it will run out all weeds and other grasses, after it once becomes well established. It, however, may be sown with other grasses and legumes, and allowed to take full possession in a few years.

BROMUS INERMIS FOR HAY.

Bromus inermis will also make a very satisfactory crop of hay, yielding from 1½ to 4 tons per acre, according to the season and the richness of the soil. It may usually be cut twice during the season. The first crop is sometimes cut for seed by a self binder, raising the cutter bar as high as possible and cutting off the heads and then following in the same swath with the mower to cut the hay. The bundles may be left upon the swaths of hay until the hay is raked, when they may be shocked up between the windrows, thus carrying on the processes of haying and harvesting in the same field at the same time. The yield of seed varies from 200 to 400 pounds per acre. It should be cut for hay just after the bloom falls. The hay is relished by all kinds of stock, and its feeding value is fully equal to that of timothy or prairie hay.

PREPARATION OF SEED-BED.

It is quite essential to prepare a proper seed-bed. In order to conserve the moisture and sprout the seeds, the soil should be well firmed. The ground should be plowed some time before seeding, so as to become thoroughly firmed and settled by the rains, or if it is impracticable to do this a subsurface packer or similar implement should be used to follow the plow and pack the soil. The ground should be harrowed at frequent intervals until seeding time, and special pains taken to prepare a thoroughly pulverized seed-bed near the surface. If the ground is not too hard and is comparatively free from weed seeds, an excellent seed-bed may be prepared with a disk harrow and other surface-working implements. This method insures a firm subsurface, the importance of which has just been mentioned.

SEEDING.

Bromus inermis should preferably be sown in the spring, and as early as it is possible to prepare a suitable seed bed, thus insuring plenty of moisture to start the young plants and keep them growing until they have sufficiently developed root systems to enable them to survive the dry periods we are apt to have later in the season. If sown in the spring the ground should be plowed in the autumn, if thought best to plow at all. Bromus inermis may also be seeded in the fall; and if the season is favorable as good a catch may be obtained as in the spring. If sown in the fall, sow from the first to the middle of September. It is not advisable to sow Bromus inermis with a nurse crop except in localities where the soil drifts badly by the winds. This grass will hold the soil from drifting after it has a few weeks' growth. The best apparatus of which I know for seeding Bromus inermis is a wheel-barrow, broad-cast seeder, with a hopper made especially for sowing this seed. This should be followed by an ordinary smoothing harrow. It may be seeded by hand by a man experienced in this method of seeding. The ordinary grain drills have not proved satisfactory generally, as it is very difficult to get the seed to pass through the seed cups of the drill. Sow 18 to 20 pounds of seed per acre. Seed may be secured of any of the reliable seed houses of the west. The price varies from $10 to $15 per hundred pounds, according to the grade of seed and the firm with which you deal. It pays well to get a good grade of seed. If you cannot afford to purchase sufficient seed for a large area, get a small amount of seed of a good grade, sow it on a carefully prepared seed bed, and raise your own seed with which to sow a larger area.

RENEWING THE CROP.

After the third year the roots and underground root-stalks develop such a dense mat that there is neither room nor nourishment for them to continue their growth, and the field becomes sod-bound, the production being materially decreased. Several remedies are recommended: one is to disk thoroughly with the disk harrow; another to plow and then thoroughly firm the sod with a subsurface packer or heavy roller. Where re-seeding is not too difficult, and where the land can profitably be used for the growing of other crops, the most practical method of renewing the grass is by re-seeding.

KILLING THE SOD.

Bromus inermis cannot be considered a pest notwithstanding its hardiness. No experiments in destroying the grass have been conducted at this station, but the trials of other stations have demonstrated that it can be successfully killed out by breaking, after the removal of the hay crop, disking at intervals, and back-setting in the fall. V. M. Shoesmith.

Manhattan, Kan.



HOLSTEIN COW, FLOA 3, H. F. H. B., 28564.

Property of John Jaquay, South Hamilton, N. Y.

Dairying in Prince Edward Island.

Ed. Hoard's Dairyman:—This is a great year for dairying in this Province of Canada. We believe it is the best year for cheese in this Island province for three years. Three years ago the top notch was reached in the output of the Island factories. Since then the annual output has receded until last year the output was smaller than six years ago. This certainly was a bad state of affairs. True the dry weather of last year and the year before had considerable to do with the diminution of the cheese industry, but this could not be all. Patrons withdrew from the factories believing they were not making enough of money. If it were confined to the small patrons only this would not matter so very much, but very many of the larger patrons withdrew in the last three years, so that the final output at the end of the year was reducing at a serious pace.

This season apparently many of the old patrons are back again, or those who stuck right along are sending more milk, or probably there are considerable new patrons. Whatever way it may be the industry never was in a more healthy condition. The milk flow is greatly exceeding last year and what is more, the flow of milk is being kept up to a respectable average right along. We believe the output of cheese for the season of 1903 will equal that of any year since the business was begun.

Some few years ago a good many became over-enthusiastic over the cheese factory. They fed everything to the cows to make milk. They turned their cows into their hay land, asserting that a ton of hay growing in the field would produce a ton of milk, and as hay was worth only about $8.00 and milk $15 per ton, the advisability of turning their hay into milk was apparent. But these expectations were not always realized. A hundred pounds of good pasture grass in hay will make a hundred pounds of milk, but it must be remembered that it will take 600 to 700 pounds of grass to make a 100 pounds cured hay, to make a 100 pounds of milk, which, perhaps was not the way many of those people looked at it. A great many of the more opulent farmers, who grew lots of grain, began blindly to feed this grain to the cows. They began feeding this grain in early spring when the cows were non-producing, that is before they had calved, thinking that the cows would repay this luxurious feeding on the double after calving. They naturally would not do this. Others retained the few hundred bushels of grain they usually sold in the spring at good prices for seed purposes, to feed to the cows when the cheese factory started, expecting that they would double the market value of their grain. In this, they were doomed to disappointment. They finally got disgusted with "throwing away their grain" as it were, and stopped feeding grain at all, and also stopped the practice of turning the cows into the hay fields. This brought the patron back to the primitive days when the cows might forage for themselves any old way. Some continued sending a small amount of milk, while others dropped off, deciding that dairying did not pay.

These are some of the causes of the cheese industry going down in this province in the last three years.

You see, the patron did not have the right kind of cow to turn a hundred pounds of hay grass into a hundred pounds of milk; or to turn prime seed oats into milk. What is more, the patron was a tyro among cows. His wife and hired girl usually looked to the cows during the milking season. Not being money makers he took no interest in them, so long as he had butter to use at meal times and cream for his tea. That is all he ever expected of the cows. The change was therefore too great for the average man.

As time goes on the patron is learning a few things, and this year, it appears, he knows considerable, if we judge by the healthy tone of the cheese business this season.

We believe there is considerable to be learned yet, and for this reason nothing phenomenal can be expected of P. E. I. dairying for a few years yet.

Dairying is one of the most difficult branches of farming in the catalogue, and in the course of events, it is only one here and there that will make a success of the business. If it were an easy business there would be no incentive for brainy men to go into it.

On most farms there is little grain in the summer months to feed, and the great majority of farmers consider it heterodox to purchase feed of any kind, and hence the cows, and other animals on the farm for that matter, must go without all summer. "It never pays to buy feed for an animal," says the farmer on every side. What value do you set on the feed you grow yourself, pray? Why does the farmer set no apparent value on the bushel of grain in his granary, of his own growing, while the bushel purchased has an exhorbitant value? This is strange, but it is just the way.

Another thing with the patron is, that if a cow is in pretty good pasture she is doing all right, though the cow does not fill herself completely. They do not appreciate the need of filling the cow completely, if a respectable milk flow is expected. There is too much of average work. "I am feeding pretty well;" "My cows are in pretty fair pasture, and ought to be doing better than they are." This is the average man who gets average results. He is not enthusiastic. There are so many like this. J. A. M.

P. E. I.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Jersey Cattle Club of Illinois.

Ed. Hoard's Dairyman:—There will be a meeting of the Jersey Cattle Club of Illinois at the State Fair grounds on the 29th instant; meeting will be held in Assembly Hall at 1:30 o'clock p. m. All who may be interested in the little cow or in the advancement of the dairy interests of the state are invited to be present.

Euclid N. Cobb, President.

Monmouth, Ill.

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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

SIGN NAME, POST OFFICE AND STATE.

Hoard's Dairyman is in constant receipt of letters containing money, in which the writers omit to give their names, or post office, or state and some times none of these are given. We have repeatedly spoken of these things and advised every farmer to go to his local printer and have say a hundred letter sheets struck off, with a little card in the left hand corner like this:

John Doe,
Ft. Atkinson, Wis.

Then if he will have the envelope printed with the same card he will be doubly sure that he never will write a letter in which the receiver will not be sure to know where it comes from and who the sender was. Thousands of dollars are lost every year because of a lack of just this simple provision against carelessness.

THE CENTRIFUGAL FORCE OF A SEPARATOR.

At a speed of 6,000 to 7,000 revolutions per minute the tensile strain on a separator bowl is sixteen tons per square inch says Prof. Dean of Canada. This is a tremendous force, yet it is necessary in order to force the butter fat out of the milk serum. It also cleans the cream from dirt. Deep setting or shallow setting simply keeps the dirt soaking in the milk for 24 to 36 hours.

CLOVER HAY.

C. Kasper writes to the *Modern Farmer*, and the article is approvingly copied by the *Dairy and Creamery*, that clover "cannot be excelled by any other hay as feed, except cow pea hay when it contains the seed." There is a good deal of such careless writing and copying going the rounds of the agricultural press, especially where a considerable portion of the editing is done with the shears.

While it is true that clover, cut at the right time and properly cured, is a valuable hay, it is also true that cow pea is not the only hay plant that exceeds it in feeding value. Alfalfa is nearly a third richer in protein, which is the great ruling element to give such feeds the value. Clover analyzes 8.6 in protein, while alfalfa analyzes 11 per cent, only 1 per cent below bran.

A TRUE STATEMENT.

On page 727 of this issue, our Prince Edward Island correspondent utters a very true statement. He is describing the ups and downs of dairy farming in that most beautiful and fertile island, all owing to the fact that the minds of the farmers were not as well equipped in dairy knowledge as they should have been and says:

"Dairying is one of the most difficult branches of farming in the catalogue, and in the course of events it is only one here and there that will make a success of the business. If it were an easy business, there would be no incentive for brainy men to go into it."

All that is true, but it is not all of the truth. Not only is it a difficult business, but a large proportion of men engaged in it really work to make it more difficult by refusing to make a study of it. They refuse to believe that it is necessary for them to cultivate their minds and understanding and fertilize their brains, as all brainy men have been obliged to do, that succeeded in it.

LOVE THE GREAT SOLVENT.

To every mood or condition of the human mind is given certain specific perceptions. To see—see the truth concerning the things—is the first great necessity in doing things. "Love hath its own wisdom, and so has hate," said an ancient writer. And so we see, or do not see, in proportion as we love. This principle discloses the reason why some men succeed in the manipulation of the forces of nature, where others fail. To him who loves his work, shall special wisdom come concerning that work. Love opens the eyes; hate or dislike shuts them. Some men succeed wonderfully with men, others with animal life, others with certain forms of plant life, and others with machinery.

In each case we will find that they like men, like animals, like plants, or machinery. There is good sense then in the broad generic statement that stands as our caption—"Love is the Great Solvent."

What can we make of this principle in the promotion of our happiness and profit as dairymen? First, let us learn to love the cow; learn to love the methods of peace and gentleness that unlock the secrets of her nature. We should idealize our work; refine our thought concerning it. Then we will never weary of it. It will never become drudgery. Constant unfolding of new truth concerning it will come to us. What wonderful contrast is presented in this in the life of him who loves and him who hates.

PASTEURIZED WATER FOR BUTTERMAKING.

The water supply is one of those things concerning which too much is taken for granted in regard to its purity. A hole is dug or driven into the ground and the water that is pumped from it is assumed to be pure and clean, principally because no one is made sick by drinking it.

Water from a creamery well may be pure when the well was first dug, but the chances are, that at the end of a few years it is anything but clean. The soil of the average creamery is full of rotting material and every year carries the rotting material lower and lessens the power of the soil to dispose of fresh material. Once a water vein is reached the well is quickly, and seriously contaminated, although the water may be normal to taste and smell.

Such water may not cause sickness, but it will cause poor keeping butter, and thus is a direct cause of loss of money. The influence of wash water on the keeping quality of butter is shown in a recent bulletin issued by the Iowa Experiment Station. The conclusions are as follows:

(1) Water contains germs which cause butter to deteriorate in quality.

(2) These germs can be removed or destroyed in a practical and inexpensive way by two processes, viz.: Pasteurization and filtration.

(3) Butter washed in pasteurized wash water will keep normal much longer than the same butter washed in unpasteurized water.

(4) Butter made from pasteurized cream and washed in pasteurized water retains its normal flavor about twice as long as butter made with unpasteurized water.

(5) Unwashed butter made from good and well ripened cream keeps as well and in some instances better than the same butter when washed in unpasteurized water.

(6) Salt improves the keeping quality of butter.

(7) It pays to pasteurize the wash water as well as the cream. The cost of pasteurization of milk and water after pasteurizer has been purchased, is about .1 of a cent per pound of butter.

SHARP CONTRASTS.

We doubt if there is a business carried on in the country in which occur sharper contrasts in the ability, mental hunger, enterprise, and finally the yearly profits, than is found among the farmers of the United States who call themselves dairymen.

A leading manufacturer of Wisconsin, who is also an enthusiastic dairy farmer, after reading some of the Cow Census reports in the Dairyman where was shown men living side by side, where one man would make $1.50 to $2.00 for every dollar he spent on feed and the other lose 30 to 40 cents, said to us: "When I read these reports I am simply amazed that such farmers can live, or I might say, barely exist. Here they are in the full blaze of the 20th century with all the knowledge that is shining on this business of dairying and they are as unconscious of it as if they had lived a hundred years ago."

The difference between these two classes of dairy farmers is simply a mental one. The successful ones read and think, and improve in their business; the others go along day after day and year after year with no mental hunger, no desire for better knowledge, and consequently with no idea that what ails their pocket book is their own lack of dairy intelligence. If a man is really brainy and intelligent he will hunger after knowledge. There is no variation from this rule. Here is one out of many thousand of these contrasts. Mr. Adam Keir of Trunket, Pa. writes us as follows:

"I feel as if I cannot be without the Dairyman. I need just such mental food. I have done what I could to get others to give it a trial but only a few would do so.

There is a great need of such a paper in this community. Thanks for the Dairyman; every paper brings new and valuable ideas."

THE COW QUESTION IN PENNSYLVANIA.

The following letter from Dr. Joseph Bringhurst of West Chester, Pa., touches a question—that of raising good cows—that dairy farmers in the East, as well as the West, should seriously consider:

Ed. Hoard's Dairyman:—The coming question in Chester Co. among most farmers—and nearly all farmers here are dairymen—is, where to get cows. The majority buy fresh cows from dealers at public sales, that are brought from other counties of the state, or New York. The prices vary from $40 to $75. At one sale I attended, 12 cows out of 30 brought $60. It seems to me that to buy cows at these prices and have possibly one out of three turn out good and have to dispose of the other two after a time to the butcher or bologna man, is pretty expensive business.

On the other hand, a great majority of our farmers, many of them bright, well educated men, say it does not pay them to raise calves with milk averaging 3½ cents per quart the year round.

Cows are scarce here at any price. A reliable dealer told me yesterday that he paid $65 each for two cows in Franklin Co., Pa., to bring on here and sell again. He said if it continued so hard to buy cows out there as it now is, that he would have to stop business for a time as there was no profit."

The above statement is but a repetition of similar statements that have come to us from various portions of the United States.

The fact is that the enormous increase in the consumption of milk in the cities and towns of the country, is creating a great demand for cows, aside from what the butter and cheese interests create. The prices Dr. Binghurst gives are often paid in the great milk producing districts that supply Chicago and other western cities. It is true that there is a great demand for pronounced dairy cows, and this demand will continue even if financial reverses come over the country.

In the light of this demand we reason as follows:

These farmers who are bent on raising steers had much better raise good, well bred heifers. At two years of age and nearly ready to calve, heifers will bring as much or more than steers, and the cost of keeping will be less.

We hear much about raising steers for market. Why not raise heifers for the cow market?

To do this rightly, a few things are necessary:

(1) The use of fresh, sweet skim milk.

(2) A little good calf raising gumption; a little study and attention to the fact that these calves are babies and as such must be kept clean, healthy and growing.

(3) Under no circumstances to allow the calf to be checked in its early growth, up to one year of age, if it can be helped. The first year makes all the difference in the world, in the after appearance of the cow.

(4) See to it that the heifer is the product of a good registered bull of one of the four dairy breeds of cattle. Her main value will be based on the likelihood of her having lots of cow in her. To insure that, give her a father that carries an abundance of such blood and quality in his veins. In picking up such heifer calves from outside farmers, do not be afraid of paying a little more for those that are sired by such bulls. Such parentage will tell in the future quality of the heifer as a cow, and so she is worth more to raise for that purpose.

(5) Don't be afraid of the future of the dairy business. Don't be afraid to invest in a good bull, and all the necessary expense in the way of good, clean, warm quarters to raise calves in, as they should be raised.

(6) Try by all means within reach to have the cows calve in September and and October, so that the calf can have the advantage of 8 months of its early life without the torment of flies. This will make a great difference in its thrifty appearance.

(7) Then when you have a likely bunch of calves, yearlings, or cows for sale, advertise them where other dairymen who want to purchase such stock, can see it. This is simply good business sense.

THE WISCONSIN STATE FAIR.

It is somewhat of a question as to what extent horse racing, side shows, automobile racing and fakirs of various kinds can be introduced and the fair still be called agricultural. But if all these are a necessary part of an agricultural fair, if they together with the usual horses, dairy stock, agricultural machinery, etc., are a necessary part of the methods used for the amusement and instruction of farmers and their families, then the Wisconsin State Fair at Milwaukee, last week was a success. The side shows, from the snake eaters, up or down as they may be graded, do not require mention here, they always do their own advertising, and the methods they employ are as much a nuisance as the shows themselves, and we

were glad to see that their patronage seemed to be limited. The fair was handicapped by a heavy rain on Wednesday, which made a large part of the grounds a sea of mud. This was especially so in the section where the agricultural machinery was located, and in consequence there were few or no visitors brave enough to wade the mud for purposes of inspection. This was much to be regretted as the exhibition in this department was much larger than ever before, and agricultural machinery is something more in these days than a collection of plows and harrows. Much of the machinery was geared up and run by steam power and made an interesting illustration of the application of invention in assisting the farm work.

The horse, sheep, swine and fat stock departments were well filled, but in the dairy division there was a decided lack of exhibitors, especially from Wisconsin. In fact, if it were not for the entries of breeders from outside of the state, some parts of the dairy division would have been conspicuous by absence.

There was a Brown Swiss herd from Wis., exhibited by Inman Bros., Holsteins by W. B. Barney of Iowa, Guernseys by M. D. Cunningham, Kansasville, Wis., and Jerseys by E. A. Smith of Ill. There was an exceptionally good exhibition of Ayrshires by Sam Jones of Juneau, Ed. Finn, of Whitewater, and Adam Lietz of Waukesha.

The dairy cattle made but a thin showing for a Wisconsin State Fair, especially when we consider that Wisconsin is the second dairy state in the country, and still more so when we consider that within fifty miles of Milwaukee are some of the finest Holstein, Guernsey and Jersey herds in the country.

The Wisconsin Dairy School had a large exhibition of material pertinent to the teaching of dairying and creamery practice. To the average city visitor, at least, dairy machinery and creamery appliances are somewhat strange objects, and there was much inquiry as to the use of the separators, Babcock testers, butter workers and other things of that nature.

With the intention of exhibiting the methods of separating milk, ripening cream and churning, Prof. Farrington had made arrangements for a daily supply of milk, but his plans were changed by the eagerness with which the visitors, city and otherwise, demanded milk to drink, and the supply of material for the churn was very small in consequence.

The butter exhibit included 100 entries from four states. As might be expected, Wisconsin was largely ahead in numbers. Creamery butter scored from 98½ to 87. The total score is given elsewhere. Prof. McKay of Iowa, spoke highly of the even quality of the creamery butter, and stated that the highest scoring dairy butter, 97½, was the highest he had ever seen in this class. There was a much smaller exhibit of cheese, but of excellent quality. One of the most interesting small exhibits was a graphic illustration of the composition of milk, butter and cheese, in which each constituent was shown in its proper percentage in glass tubes; each tube containing either water, fat, casein or milk sugar in proper amount to show percentage composition.

This display was both attractive and educational and indicated well the modern methods that are being used to educate the dairy student into something more than a rule of thumb idea of dairy practice.

The fair was badly handicapped by the weather, but it was equally set back by its own want of conveniences. A fine grand stand and cement walk to the same are good things, but there is a much greater need for proper walks, drainage and exhibition buildings and unless these are supplied the Wisconsin fair will soon consist of a grand stand and race track and the agricultural part of its name will be completely, as it is now, partially a misnomer. Following is the list of prize winners in the dairy classes:

HOLSTEIN.

Bull, 3 years old and over—First, Jewell of Home Farm, W. B. Barney & Co., Hampton, Ia.; second, Colantha IV's Lad, W. B. Barney.

Bull, 2 years old and under 3—First. Sir Pietertje Posch, A. N. McGeoch, Milwaukee.

Bull, 1 year old and under 2—First, Aggie Colantha Lad, W. B. Barney & Co.; second, Sir Josephine Mechthilde Pietertje, Rust Bros., West Allis.

Bull calf—First, Prince of Home Farm, W. B. Barney; second, Lad of Home Farm, W. B. Barney; third, Prince Piebe Akrummer, Rust Bros.

Cow, 3 years old or over—First, Aaltje Salo VIII Rust Bros.; second, Colantha Florence Herbert; W. B. Barney & Co third, Aaltje Salo IX Rust Bros.

Heifer, 2 years old and under 3—First, Colantha Florence Herbert IV, W. B. Barney & Co.; second, Aaltje Salo Princess Paula, Rust Bros.; third, Emporia De Kol II, W. B. Barney & Co.

Heifer, 1 year old and under 2—First, Aggie Mink II, W. B. Barney & Co.; second, Aaltje Salo Inka III, Rust Bros.: third, Colantha Florence Herbert V, W. B. Barney & Co.

Heifer calf—First, Aaltje Salo V's Netherland IV, Rust Bros.; second, Colantha of Home Farm, W. B. Barney & Co.; third, Rija Colantha, W. B. Barney.

Get of Sire—First, Barney; second, Rust Bros.

Produce of cow—First, Rust Bros., second, Barney & Co.

Senior champion bull—Barney & Co.

Senior champion cow—Rust Bros.

Junior champion bull—Barney & Co.

Champion heifer—Barney & Co.

GUERNSEY.

Bull, 3 years old and over—First, El Tello, L. P. Martiny, North Freedom, Wis.; second, Fernwood's Son, Fred Clausing, Grafton, Wis.; third, Karl P. V., Fred Vogel, Milwaukee, Wis.

Bull, 2 years old and under 3—First, Robianna's Standard, M. D. Cunningham, Kansasville, Wis.; second, Sir Count Topsy, Fred Clausing.

Bull calf—First, Lip Nero, M. D. Cunningham; second, Harry of Fern Ravine, Fred Vogel.

Cow, 3 years old and over—First, Select O. K., Fred Vogel; second Philip's Favorite, Fred Clausing; third, Countess Beauty, Fred Clausing.

Heifer, 2 years old and under 3—First, Gertrude Kelly, M. D. Cunningham; second, Tilly of Fern Ravine, Fred Vogel; third, Rosaline, Fred Vogel.

Heifer, 1 year old and under 2—First, Do Fes Granna, M. D. Cunningham; second, Do Seig Amy, M. D. Cunningham; third, Lip Amy, M. D Cunningham.

Heifer calf—First, Fesca's Noline, M. D. Cunningham; second, Fred Vogel.

Get of sire—First, Cunningham.

Produce of cow—First, Vogel; second, Cunningham.

Senior champion bull—Cunningham.

Senior champion cow—Vogel.

Junior champion bull—Cunningham.

Champion heifer—Cunningham.

AYRSHIRE.

Bull, 3 years old or over—First, Prince Ossidine, Sam Jones, Juneau, Wis.; second, Landers, Edward Finn, Whitewater.

Bull, 2 years old and under 3—First, Flying Cloud, Adam Seitz, Waukesha, Wis.; second, Duke Landers, Edward Finn.

Bull, 1 year old and under 2—First, Prince of Mapleton, Sam Jones; second, Edward Finn.

Bull calf—First and third on Landers calves, Edward Finn; second, Joe Ossidine, Sam Jones.

Cow, 3 years old or over—First, Wisconsin Belle, Sam Jones; second, Dahlia Zip, Edward Finn: third, Alta Cook, Sam Jones.

Heifer, 2 years old and under 3—First, Josephine Pender, Adam Seitz; second, Alta Cook III, Adam Seitz; third, Florence Pander, Edward Finn.

Heifers, 1 year old and under 2—First, Lily Cook B., Adam Seitz; second, Landers' calf, Edward Finn.

Heifer calf—First, Jones; second, Finn; third, Jones.

Get of sire—First, Seitz.

Produce of cow—First, Seitz.

Senior champion bull—Jones.

Senior champion cow—Jones.

Junior champion bull—Jones.

Champion heifer—Seitz.



A dairy barn and milk house adjacent. As expensive a barn as this, is not essantial to the production of clean milk, but this shows what the dairy business will support, as the farm has been a strictly dairy farm for thirty years.



The King system of ventilation in dairy barn shown in above cut. Fresh air is carried between joists overhead to center of barn. Foul air drawn out near floor by large ventilators carried above roof, causing a continuous change of air without creating a draught on cows. Ventilator shown at "A".—Illinois Experiment Station Report.

JERSEY.

Bull, 3 years and over—First. E. A. Smith, Ringwood, Ill.

Bull, 2 years and under 3—First, E. A. Smith.

Bull, 1 year and under 2—First and second, E. A. Smith.

Bull calf,—First and second, E. A. Smith.

Cow, 3 years or over—First and second, E. A. Smith.

Heifer, 2 years and under 3—First and second, E. A. Smith.

Heifer, 1 year and under 2—First and second, E A. Smith

Heifer calf—First and second, E. A. Smith.

Four animals of either sex, the get of one sire—First, E. A. Smith.

Two animals of either sex, produce of one cow—First, E. A. Smith.

Bull, over 2 years—First, E. A. Smith.

Cow, over 2 years First, E. A. Smith.

Bull, under 2 years—First, E. A. Smith,

Heifer, under 2 years—First, E. A. Smith.

Dirt in the Dairy.

Experiments at the Illinois Station to compare the amount of dirt falling from washed and unwashed udders during the process of milking, are reported as follows. It was determined after several trials, with three different milkers on 30 cows, that it requires an average of 4½ minutes to milk a cow.

A glazed dish 11 inches in diameter, the size of an ordinary milk pail, was placed in the top of a pail and held under a cow's udder in the same position as when milking. For 4½ minutes the milker then went through motions similar to those in milking, but without drawing any milk.

The amount of dirt which fell into the dish during the operation was, of course, approximately the same as would have gone into the milk during the milking process. The dirt caught in the dish was then brushed into a small glass weighing tube, the udder washed, and the process repeated.

The dirt which fell from the washed udder was carefully brushed into a weighing tube. Both tubes were then placed in a dessicator, and after drying 24 hours were accurately weighed on a chemical balance. Sixty trials were made at different seasons of the year.

With udders that were apparently clean it was found that an average of 3½ times as much dirt fell from the unwashed udders as from the same udders after they were washed. With soiled udders the average was 22, and with muddy udders the average was 94 times as much dirt from the unwashed udders as from the same udders after washing.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

A Wisconsin Ration.

Please suggest a balanced ration to feed with hay (clover and timothy) also cut corn stalks and mangel wurtzels and if we get ready, with some silage too. I can buy malt sprouts for $12.00 per ton; bran about $15.00 by car lot, oil meal for $30.00 per ton, oats for about 30 cts. per bushel, corn and rye for about 50 cts. per bushel. Last winter we gave our cows only warm water with oil meal and oatmeal steamed, and they did well but it makes lots of trouble. H. L. W.
Mayville, Wis.

If these cows are fresh or soon to be fresh they will require more feed through the winter than cows that freshened last spring, just as a horse at hard work every day needs more feed than when idle much of the time and never called upon for constant work. A cow giving 20 to 30 lbs. of rich milk every day, is really hard at work and requires more feed than when giving only about half as much. The size of the cow also makes some difference in the amount of feed required. The best we can do is to suggest a basic or average ration and let the feeder add to or take from the amounts as circumstances may seem to require.

Ordinarily the following would be a fair average daily allowance for a mixed herd of cows.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. clover and timothy hay.....	8.53	.48	3.96	.16
10 lbs. corn stover (stalks)	5.96	.17	3.24	.07
20 lbs. mangels.....	1.82	.22	1.08	.02
4 lbs. malt sprouts..	3.59	.74	1.48	.07
4 lbs. bran.....	3.52	.50	1.52	.12
Totals.....	23.42	2.11	11.28	.44

With 30 lbs. of silage omit the stover and mangels.

Jersey or Guernsey?

I have high grade Jerseys; sell cream to creamery; most of my cows are rather small. Would you advise using a Guernsey bull, or of getting as strong a Jersey as possible. Most of the chances to sell cows here are to buyers that sell to the milkmen, so Jerseys are not wanted very much.
Plainfield, Mass. F. M. R.

The Guernsey and Jersey breeds are so similar in most respects, that a cross of them is not considered particularly objectionable with grade cows. Much more important than the question of which breed the bull represents, is the question as to the quality his breeding represents. Make more inquiry as to the dairy capacity of his dam aud granddams, than as to his size or anything else.

What to Feed With Oat Hay and Corn Silage.

Will you please tell me what to feed with my oat hay and corn ensilage this next winter?
We will commence cutting the corn next week, and a fine crop, well eared and past the roasting-ear stage now. Bran is $23 per ton, shorts $23. oil meal, $29. Oats were cut when in the milk and cured good. E. J. R.
Bethel, Wash.

Oil meal is relatively cheaper than the middlings and the middlings cheaper at the prices named than bran, but one can not well depend exclusively upon the oil meal and middlings,—although in combination they might be fed with the silage. We should prefer, however, to use some bran, and as an average for fresh cows would suggest trying, say, 2 lbs. oil meal, 3 lbs. middlings and 3 lbs. bran as the average daily allowance.

A Side Issue in Dairying, or Vice Versa.

ED. HOARD'S DAIRYMAN: — Among the notable things brought out in these replies from patrons of Skowhegan Creamery, is the area and number of trees in the orchards on their farms. Of course, all trees do not bear standard fruit, and all those supposed to bear good fruit do not come up to expectations. A number of patrons report no orchard. This is mainly from the fact that although the section is generally a good one for apples there are localities where apple trees can not live. We know some of these lands almost within a stone's throw of good productive orchards. But of those who live on orchard land it seems as though few have appreciated the value of a good orchard as an income producer.

Instead of one to three acres, why not ten to thirty in orchard? Some 300, 350 and 400 tree orchards are promising, if all are good varieties of fruit; but the 1,200 to 1,400 tree orchards, if of good winter fruit, must come, in their maturity, to eclipse all other departments of the farm on which they live, in value of products. They, of course, need care and attention, which costs something, but a few good crops from them sends the balance sheet up for large credits to orchards. This will be true if the trees are fed and fungi and insects are kept from doing harm to the foliage and fruit. Uncared for, an orchard is an eyesore, and is also dangerous to other orchards in the neighborhood. Lone trees of poor fruit on roadsides and in pastures should be destroyed to prevent the harboring of injurious crops of both fungi and insects on these uncared for trees. Thus every neighbor becomes in some measure responsible to all others in this, the same as in the proper precautions to kill out the warble flies by preventive means, and the destruction of troublesome roadside weeds.

We conceive that the small orchards were planted for family use only, when each farm was supposed to be a sort of independent little republic, and every man had a right to do what he pleased with his own. Now, on the interdependent system, which is so rapidly being worked out, a division of labor is compelled. Articles once produced on the farm, must now be purchased. The farmer, as a producer, must bring more of the fewer products of the farm to market to exchange for more things he needs to use. There is need of more labor, and he feels he is unable to pay the price required to bring him willing but unskilled labor. What shall be done?

Almost every young man and woman are up and off to the town, factory, or city, where hours of labor are more reasonable than on the farm, and the pay prompt and wages higher. It does not prevent the going, to warn them that temptations to spend money are numerous, and only the strongest keep out of contamination with vice. A counterpoise ought to be applied. You have in the grange and free rural delivery of mail two very able helps. Why not think out a plan to put able and willing hands on your farm and train them to become skilled? Why could not a good tenement house be put on the farm; a garden and yards for chickens and pigs with suitable shelters be supplied?

Then affix a reasonable rental for five or ten years. Put the larger rent on the first and less on each succeeding year, or better fix it so the rent pays for it in a series of years. Have wages of tenant fixed as well as what shall be paid to any other members of his family. Let wages be on an up grade, gradual at first, until a standard for expert work is reached.

Some plan of this kind would enable

"ADVERTISEMENT."

CUBS' FOOD.

They Thrive on Grape-Nuts.

Healthy babies don't cry and the well nourished baby that is fed on Grape-Nuts is never a crying baby. Many babies who cannot take any other food relish the perfect food Grape-Nuts and get well.

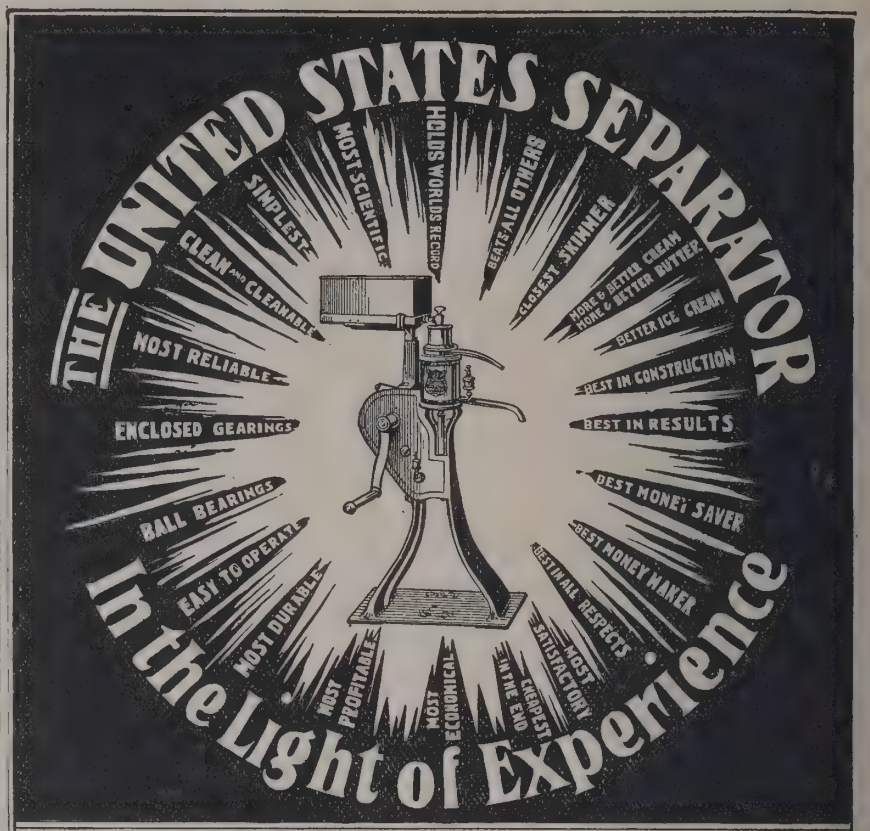
"My little baby was given up by three doctors who said that the condensed milk on which I had fed it had ruined the child's stomach. One of the doctors told me that the only thing to do would be to try Grape-Nuts, so I got some and prepared it as follows: I soaked 1½ teaspoonfuls in one pint of cold water for half an hour, then I strained off the liquid and mixed 12 teaspoonfuls of this strained Grape-Nuts juice with six teaspoonfuls of rich milk, put in a pinch of salt and a little sugar, warmed it and gave it to baby every two hours.

In this simple, easy way I saved baby's life and have built her up to a strong healthy child, rosy and laughing. The food must certainly be perfect to have such a wonderful effect as this. I can truthfully say I think it is the best food in the world to raise delicate babies on and is also a delicious, healthful food for grown-ups as we have discovered in our family." Name given by Portum Co., Battle Creek, Mich.

Grape-Nuts is equally valuable to the strong, healthy man or woman.

Grape-Nuts food stands for the true theory of health.

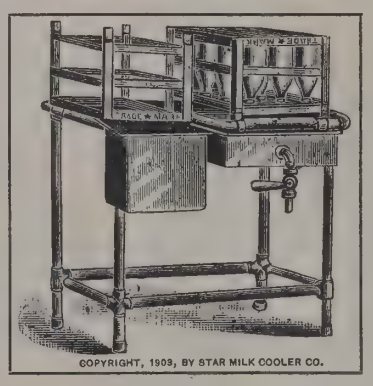
Look in each package for a copy of the famous little book, "The Road to Wellville."



VERMONT FARM MACHINE COMPANY
BELLOWS FALLS, VT.

WHEN YOU SEND IN YOUR RENEWAL, SPEAK TO A FEW OF YOUR NEIGHBORS AND HAVE THEM JOIN YOU. CLUB RATES: 2 Subscriptions, $1.50; 3 Subscriptions, $2.00; 4 Subscriptions, $2.50; 5 Subscriptions, $3.00.

STAR BOTTLE RINSER



Can be used with any style of Wash Sink, and may be placed in a convenient position at end of same.

Used with Bottle Carriers.

Great Labor Savers

Made in two styles—single and double.

Write for Illustrated Booklet containing our complete Washing and Rinsing Outfits.

STAR MILK COOLER CO., Haddonfield, N. J.



Up-to-Date Dairymen

—USE A—

Milk Cooler-Aerator.

at the farm. The **CHAMPION** is simple, cheap, effective—it is the best there is. Our Booklet about it for the asking.

Champion Milk Cooler Co.
67 Main Street, CORTLAND, N. Y.

many a farmer to enlarge his business by planting trees and to cultivate better and at the same time keep more cows. He need not be tied so closely to the farm, and should thus be able to secure a larger income than before he shared his work with his neighbor.

Some young man would be sure to see his opportunity with an opening of this kind with a good farmer and settle down to steady life rather than go off to the city. This is suggested with the hope that some one will take it up. Houses are purchased in the cities on a plan of this kind and it will doubtless work well in the country if given a fair trial.

Reference was made to the fact that at least one of these patrons has been in the State University Dairy School and another has had a year's training in an Agricultural College. Such cases to be noted thus are far too few. Many other young men should take such a course of study that they may understand their business and be able to take advantage of opportunities to improve that they are not likely to see without the special information to be obtained in that way.

There is a growing demand for such workers. Recently we have met people in the middle West looking for such helpers on farms and have the same voiced from the extreme South, in a recent correspondence, where there is also a need for just this kind of labor. Many a boy is going out from the vicinity of this creamery who, if he had the special training to test the cows and find that he can make a difference of more than city wages will net, to stay on the old farm and apply special efforts to improved methods to change crops, and reduce labor in spots where it has been hardest, would find his greatest pleasure in such work. Once he gets started in the spirit of such an effort to see what can be developed he would be inspired to continue it. FRANK E. EMERY.

Chicago.

Essentials In Cream Testing.

Professor Eckles, discussing the subject of cream testing before the Missouri Dairymen's Association, said: "The increasing use of the farm separator has brought a new problem to many in regard to cream testing. I believe this is the most difficult problem in testing that the creamery manager has on hand today, and of course the patron is just as much concerned, and even more.

" To get a fair, accurate sample of cream under all conditions and to make a correct test of that sample, I assure you is no job for a careless man. In sampling the cream the same methods are used as for milk, except even greater care is necessary to get a fair sample, as cream is often difficult to get into a uniform mixture. Before taking a sample from a bottle for testing, it is generally advisable to warm cream to near 100°, as it will then more easily mix into a uniform condition. Pouring from one jar to another is the best method of mixing. If the cream contains more fat than can be read on the scale on one cream bottle, a pipettefull may be divided about equally between the two bottles. A pipettefull of water is also divided in the same manner.

"If cream is tested by measuring out with 17.6 c. c. pipette, as is done with milk, the reading will be too low for two reasons. The basis of the Babcock test is eighteen grams. The 17.6 c. c. pipette delivers this weight of milk, but as cream is more adhesive than milk, a considerable amount will stick to the pipette. In sour or thick cream this error may be as much as 1.5 per cent. This error is easiest removed by filling the pipette about one-third full of warm water, shaking to loosen the cream from the sides, then adding this to the cream in the bottle. The other cause for error is on account of the lightness of the cream, as compared with milk. A 17.6 c. c. pipette full of cream does not weigh quite eighteen grams, the regulation amount, but somewhat less, depending upon the richness of the cream. If it is necessary to have an exact test of cream, it can be obtained best by using delicate scales and weighing out the desired amount. Scales especially arranged for this purpose can now be purchased at a reasonable price.

"The temperature at which cream bottles are read is of great importance. A difference of over 1 per cent can be made by changing the temperature from 110 to 180 degrees—extremes often met with in various testers. The exact temperature at which reading is correct has not yet been determined, but should be somewhere about 120 degrees. The best way to get bottles at a proper temperature is to set them in a pan deep enough to bring the water up near the top of the bottle.

"The details of sampling and testing required are worthy of the factory man's most earnest attention and care. The Babcock test, under proper conditions of use does exact justice to all, and instead of being a cause of friction between patron and creamery, it should be a peacemaker and judge that increases business and encourages improvement among the herds of the dairymen. It pays to do your testing carefully and honestly. It pays as a business policy, leaving out for the moment the questions of right and wrong. It pays to give every man just what he is entitled to—no more and no less. I believe a creameryman should know where he furnishes a set of tests that he should be able to go before court and swear they are correct. It does not take the patrons of a creamery long to find out whether the testing is being done carefully or not. I do not believe it pays for a man to attach an air of mystery to the method of testing or to keep the time of testing a secret and allow no patrons to be present. Rather announce the time the testing is to be done and invite all to be present, and demonstrate how simply the system is carried out. Let a factory manager once gain the confidence of his patrons by accurate, careful work and the trouble over this question at the factory is about over."

Strong for the Silo.

The roughage for our cattle consists of alfalfa, which we grow at the rate of four tons to the acre, and silage made from corn which we grow at the rate of twelve tons to the acre. We have put some alfalfa into the silo with remarkably good results, and in case the weather is wet at any cutting this is the way we cure it. I would not attempt to keep a dairy of five cows or more without a silo. The one which we are now using is one of the Harder patent fronts, sixteen feet wide and thirty feet deep. It is made of cypress without a knot in it.

You ask if a silo would pay on a small farm. Ours is a small farm, only about 100 acres, and still we keep fifty head of cattle on it, beside twenty-five sheep. We feed silage to everything on the farm, including the hogs, and believe that it is economy to do so.—F. E. DAWLEY in *Farmer's Guide.*

"ADVERTISEMENT."

TWO TIPS

And Both Winners.

A man gets a friendly tip now and then that's worth while.

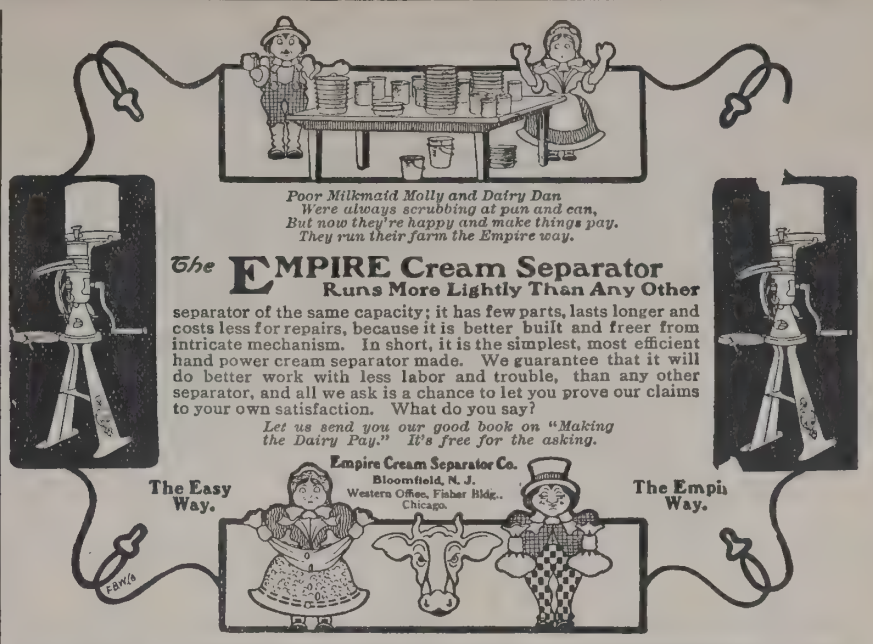
A Nashville man says: "For many years I was a perfect slave to coffee, drinking it every day and all the time I suffered with stomach trouble and such terrific nervousness that at times I was unable to attend to business and life seemed hardly worth living. I attributed my troubles to other causes than coffee and continued to drench my system with this drug. Finally I got so bad I could not sleep, my limbs were weak and trembling and I had a constant dread of some impending danger and the many medicines I tried, failed to help me at all.

One day a friend told me what Postum had done for her husband and advised me to quit coffee and try it, but I would not do so. Finally another friend met me on the street one day, and after talking about my health he said: 'You try Postum Cereal Coffee and leave coffee alone,' adding that his nervous troubles had all disappeared when he gave up coffee and began to drink Postum.

"Thfs made such a great impression on me that I resolved to try it, although I confess I had little hopes. However, I started in and to my unbounded surprise, in less than two weeks I was like another person. All of my old troubles are now gone, and I am a strong, healthy, living example of the wonderful rebuilding power of Postum. It is a fine drink as well as a delicious beverage and I know it will correct all coffee ills; I know what a splendid effect it had on me to give up coffee and drink Postum." Name given by Postum Co,, Battle Creek, Mich.

There's a reason.

Look in each package for a copy of the famous little book, "The Road to Wellville."



Poor Milkmaid Molly and Dairy Dan
Were always scrubbing at pan and can,
But now they're happy and make things pay.
They run their farm the Empire way.

The EMPIRE Cream Separator
Runs More Lightly Than Any Other

separator of the same capacity; it has few parts, lasts longer and costs less for repairs, because it is better built and freer from intricate mechanism. In short, it is the simplest, most efficient hand power cream separator made. We guarantee that it will do better work with less labor and trouble, than any other separator, and all we ask is a chance to let you prove our claims to your own satisfaction. What do you say?

Let us send you our good book on "Making the Dairy Pay." It's free for the asking.

Empire Cream Separator Co.
Bloomfield, N. J.
Western Office, Fisher Bldg., Chicago.

The Easy Way. The Empire Way.

ARMOUR'S BLOOD MEAL Cures Scours in Calves.

First proved by the Kansas Agricultural Experiment Station, and since corroborated by thousands of leading stockmen who have used it without a single failure. Equally effective for the diarrhea of all animals.

PREVENTS weak bones, paralysis of the hind legs and "thumps" in pigs; "big head" of foals; "rickets" of all young animals; abortion due to incomplete nutrition, and a host of other troubles.

A Potent Food for Work Horses, Dairy Cows, Poultry.

Write us for booklet giving valuable information about **Blood Meal** and our other feeding products. Consult us free of charge regarding stock diseases.

THE ARMOUR FERTILIZER WORKS,
Chicago. Omaha. Baltimore. Atlanta. Jacksonville.

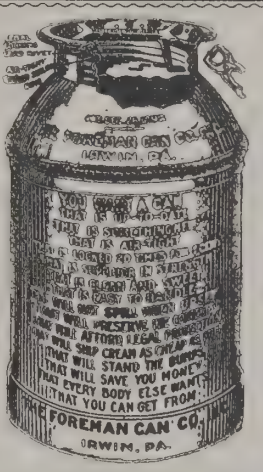
MEAL OR FEED

Fine meal for family use. Ear corn crusher and grinder, corn cracker, all round feed maker for every farm need.

Monarch Mills

attrition or genuine imported French burr styles. Thousands in use. Meet every house or barn purpose. Sold on 15 days free trial. Get Monarch catalog before buying.

Sprout Waldron & Co
Box 208, Muncy, Pa.



We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity—1000 cans daily, which should enable us to fill all orders promptly.

Every can sold on a guarantee. Write for circular H.

Creasey Ice Breakers



Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right. Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.

J. S. L. WHARTON, Mfr.,
17th Clearfield Sts. Philadelphia, Pa.

CREAMERYMEN, DAIRYMEN and MILK DEALERS

Can be Promptly Furnished with anything they want at reasonable prices, if they will write me. My CHILDS' PATENT MILK BOTTLE FILLER is the best on the market. Send for free catalog.

J. S. BIESECKER,
59 Murray St., New York City.



The Distribution of Skim Milk.

It is known that the just complaints of creamery patrons on account of unfair distribution of skim milk are the bane of the separator creamery business. Further disputes among patrons, annoyances to managers, hindrances to the best work of buttermakers, watering the skim milk, and many other ills in the same train are unnecessary, since the

Barber-Coleman Check Pump

has for more than five years been successfully solving the problem in many different creameries. When a patron has dropped in his check he can pump the amount of skim milk called for by his check, less the percentage taken out as cream, so in like proportion to all other checks. Its measuring apparatus is just an ordinary pump which everyone understands and knows how to operate.

Cornish, Curtis & Greene Mfg. Co.,

General Sales Agents De Laval Alpha Separators,
FORT ATKINSON, WIS.

Oil Meal and Bran.

ED. HOARD'S DAIRYMAN:—Kindly advise me in your "Inquiries and Answers" if oil meal in connection with bran will make a satisfactory grain ration for cows having heavily grained ensilage, clover hay and shredded corn stover for roughage. If oil meal can be secured at lower cost per unit of protein content, is it advisable to make it the principal protein food of ration and if not why not?

Grass Lake, Mich. C. B. C.

Oil meal contains approximately one-third more units of digestible nutrients than bran. Therefore if bran can be bought for $15, oil meal would be worth only $20 for merely nutritive purposes. But oil meal has certain dietetic properties not found in bran, and carries a much larger per cent of protein, but when fed in excess even for these purposes it has a tendency to impart a not altogether acceptable oily flavor to milk and butter, and in addition injures the butter texture.

Silage, roots and green fodders of any kind, as well as pasture grass, will answer about the same dietetic purpose as oil meal, and when sufficient protein can be obtained by using more or less bran, it would not be advisable to make oil meal the principal protein feed in a ration.

The following formula illustrates this conclusion:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
6 lbs. clover hay	5.08	.41	2.15	.10
6 lbs. corn stover	3.40	.10	1.94	.04
6 lbs. bran	5.28	.75	2.32	.12
2 lbs. oil meal	1.92	.59	.65	.14
Total	23.60	2.24	11.26	.61

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—Owing to weather conditions the weekly output decreased 8 per cent. The Quotation Committee reported the official market firm at 21½ cents.

Offerings.	Tubs.	Bid.	Sold.
Dundee	50	21½c.	Kilbourne of Aurora.

Former markets:

Sept. 14, '03, 60 tubs at 20 cents.
Sept. 22, '02, 0, 22¾ cents.
Sept. 23, '01, 125 tubs at 21 cents.
Sept. 24, '00, 25 tubs at 21½ cents
Sept. 25, '99, 255 tubs at 22⅛ cents.

Elgin, Ill., Sept. 21. H. C. B.

CONCERNING OUR ADVERTISERS.

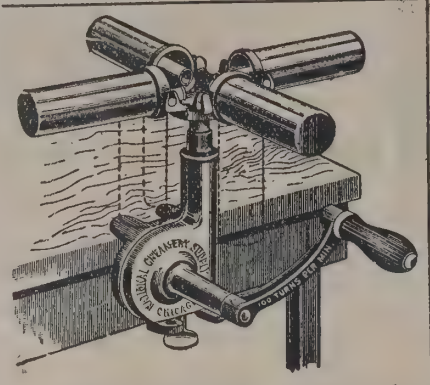
With this issue the season's advertising of the familiar Monarch French Burr and Attrition Feed Mills starts. Old readers remember the advertisements from past seasons. These mills have found their way into the feed barns of many who read this paper. If there had been any note of dissatisfaction we should be sure to know it. These Monarch Mills are admirably adapted to the feeder's purposes. We have no hesitation in recommending them unreservedly But an intending buyer need not buy on faith. Note the liberal time given to try before consummating the purchase. It shows the serene confidence the manufacturers have in their product. Catalog with full description can be obtained by writing the manufacturers, Sprout, Waldron & Co., Box 208, Muncy, Pennsylvania.

We have just received from the Standard Paint Company of New York and Chicago, manufacturers of the well known Ruberoid Roofing and the Giant and P. & B. Products, a specimen piece of Giant Insulating Paper taken from the buildings of the Artic Ice & Cold Storage Company, of Buffalo, New York. As the Giant Papers are so widely used for sheathing buildings, poultry houses, stock barns, and for lining silos, for the purpose of making them air-tight and water-proof, it is interesting to note that the sample sent us is still in perfect condition after thirteen years of instillation. There is absolutely no sign of deterioration and the paper is still entirely soft and pliable and full of insulating life. In fact, upon comparing it with a piece of unused paper we find that it is as good as new and could probably be used for as many years longer. The Giant Papers are remarkable for their peculiar pliability and elasticity. They are made of tough, strong stock of fine quality. Their peculiar feature is their saturation with the Giant Water-proof and Acid proof Compound which is manufactured solely by the Standard Paint Company, and the perfect condition of the paper after its long use speaks well for the peculiar non-oxydizing qualities of the Giant Compound. We consider the test mentioned as remarkable and one which should appeal to users of sheathing papers, whether for dwellings, poultry or stock barns, or for silos. The paper permanently excludes all draughts and dampness. It has been Standard for eighteen years and is everywhere well regarded because of its durability.

DAIRY MARKETS.

ELGIN, Ill Sept. 21 —Butter was quite at 21½c a pound on the board of trade today, an advance of 1½c over last week's figures. The sales for the district during the week were 702,832 pounds.

NATIONAL
Babcock Milk Tester



Dotted Lines show position of bottle holders when not in motion.

Has enclosed cut gears.
Swinging bottle-holders.
Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

DOES YOUR DAIRY PAY?

It costs no more to feed a profitable than an unprofitable cow.

NET PRICES.

No. 1,—2 bottle, complete for testing milk.. each $4 00
No. 2,—4 bottle, complete for testing milk.. each 5 00
No. 3,—2 bottle, complete for testing cream and milk, each 4 50
No. 4,—4 bottle, complete for testing cream and milk, each 5 50

Prices include full directions for making test, bottle of acid, test bottle brush, acid measure, pipette and test bottles.

See our ad of STEEL TANKS and SCALES in NEXT issue. Write for catalogues and circulars.

National Creamery Supply Co.,
450—458 Illinois St.,
CHICAGO, U. S. A.

A SEPARATOR BARGAIN

Alpha, No. 1 Turbine Separator will be sold at great sacrifice as we are out of business. Condition perfect.

SUNCOOK VALLEY CREAMERY CO.,
SUNCOOK, N. H.

Big Success With Hogs

SOME farmers are more successful with hogs than others. The man that only gets 8 lbs. of pork out of a bushel of corn fed to hogs makes only half as much as the man that gets 17 lbs.

The American Swineherd is a specialist and the best authority on the hog industry.

Prof. Henry says that success is only obtained by concentrating all efforts upon one line.

A two-years' course in hog raising:
Teaching how to be successful.
How to secure the greatest profits.
How to get 17 lbs. of pork out of a bushel of corn and 19 lbs. from a bushel of wheat-fed hogs.
How to feed to double the growth and gain over usual methods; only healthy hogs profitable.
How to keep your hogs healthy.
How to utilize, without other expense than the subscription to this paper, the costly experience and gathered wisdom of the most capable and successful feeders.

Prof. Kennedy of the Iowa Agricultural College says "Your paper is a leader in its line on feeding."

Every owner of hogs should take advantage of this special offer:

Send us $1 for two years' subscription to the **American Swineherd** and it will entitle you to a free copy of the Hand Book on "Hog Hygiene," with trade secrets, receipes, valuable information, etc. If the offer is accepted in ten days we will send you in addition the wonderfully suggestive picture in colors, "Uninvited Guests," suitable for framing, showing the pigs partaking of a meal uninvited.

This equips you for a successful hog business.

AMERICAN SWINEHERD,
535 Como Bldg., Chicago, Ill.

Water In The Stable a Necessity.



It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. Why not use the Best? Write for descriptive circular.

O. E. BUCKLEY & CO., Poughkeepsie, N. Y.



New American Manure Spreaders

hold from 50 to 100 bushels. Spread just as thin or thick, fine or coarse, as ground requires Don't have to stop team to make change. Most substantial, largest capacity, lightest draft.

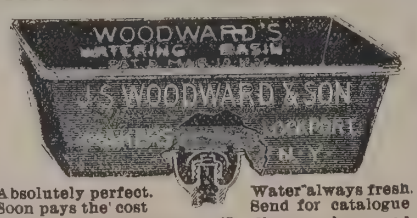
Send today for Booklet B.

American Harrow Co
Detroit Mich



Iron Troughs

First Lot at Wholesale. Can't break or rot, nice round rim, any size or shape. Write for circular of **Cow Basin**, Poultry and Stock Troughs. Who will be first.
D. H. BAUSMAN, Bausman, Lanc. Co., Pa. We make Steel Swings. Fine Booklet Free.



Absolutely perfect. Water always fresh.
Soon pays the cost Send for catalogue
Cheapest because best. No disease where used



Foster Steel Stanchion

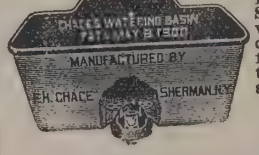
made entirely of steel and malleable iron. **Unlike all others.** Affords greatest freedom and motion and always holds the animal. Hung on chains—moves all ways. **Lightest, strongest, most convenient** and easiest to open and close.

GOOD SELLER—BIG PROFITS.

One agent sold 75 first day, Another sold 200 first week. **We want responsible agent in every Dairy Community.** Send for circular number 30.

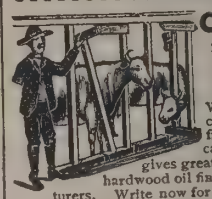
FRANK H. BATTLES, Seed Grower,
Rochester, New York.

SAMPLE BASIN SENT ON APPROVAL.



Basins are fitted with **Self Closing Cover** which prevents all dirt and sediment from getting into them. Send for catalogue and price list

F. H. CHACE,
Sherman, N. Y.



Only One Hand

needed to stanchion Cattle if you have our

Steel Latch Stanchion

When open is locked ready for cattle to come in; closed, it swings freely. Best dairy cattle tie because comfortable and quiet; gives greatest freedom. Made of selected hardwood oil finished. We are the sole manufacturers. Write now for circulars and delivered prices.

TOLEDO PLOW CO., Dept. H, TOLEDO, OHIO.

JUST OUT! UNDERHILL SELF ADJUSTING STALL



No Gutters
No Platforms
No fastenings
No Stables to clean

Cease trying to keep your cows clean. **You can't do it.** Give them a chance and **they will do it themselves.** This is the **only** way and the **easy** way. Write for circular telling what the cow has discovered to us. It is a great revelatio

Wm. M. UNDERHILL, Oconto, Wis.



The BEST Cattle Fastening.

SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated circular free. GLENORA MFG. CO. Glenora, Yates county, N. Y.

Infringements will be prosecuted.



Prescott's Swinging Swivel Stanchion

Keeps Cows Clean.

Swings forward while getting up or lying down. Locks back while standing Full particulars free.

E. PRESCOTT,
Beverly St., Boston, Mass

THE NEW PATENT

Cow Stall

AND FEED TROUGH.



This is the only Cow Stall with a centering hinge. Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars.

R. A. McLERY & CO.,
Palmyra, Wis.



CHAIN-HANGING
CATTLE STANCHION
The Most Practical
CATTLE FASTENER
ever invented.
Manufactured and For sale by

O. H. ROBERTSON,
Forestville, Conn.



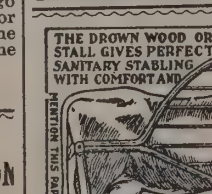
WILDER'S PATENT SWING STANCHIONS

Chain or Pin Fastened.

Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.

Safest, Strongest, Most Convenient fastening made. Cheapest to put in and save room in barn. Send for Stanchion Catalog 60

WILDER-STRONG IMPLEMENT CO., 11 Monroe, Mich.



WARRINER'S CHAIN HANGING STANCHION.
CLEAN, SAFE, COMFORTABLE.
MFG. BY W. B. CRUMB, Forestville, Conn.

This Taylor Stanchion

is made of angle steel lined with hard wood on side next the animal's neck. **It is lighter, neater and stronger than any other stanchion made.** Swings on chain at top and bottom and admits of greatest freedom of motion. Cattle can lay with head on side. Easiest opened and closed. **Reliable Agents Wanted.** Write for special terms, prices, etc.

JAMES BOYLE, SALEM, O.

CHICAGO, Ill., Sept. 21.—Butter—Extra, per lb. 21c; firsts, 18@19c; seconds, 16@16½c; dairies, 13@18c; process butter, 16½c; packing stock, 10@13c; Ladles, 14@14½c.

Cheese— Twins, per lb. 10½@10¾c: daisies, 11c; Longhorns, 11@11½c; Young Americas, 11@11½c, brick, 11@11¼c.

Eggs—Prime firsts at mark, cases returned, 21c. miscellaneous receipts, at mark, cases returned, 17@18½c; at mark, cases included, 18@19c; fresh gathered extras, 23c.

Cattle—Choice to fancy beeves, 1,200 to 1,500 lbs., 5.50@6.00; good to choice steers, 5.10@5.40; fair to good export and shipping steers, 4.55@5.00; medium beef steers, 4.15@4.50; plain beef steers 3.90@4.10; common to rough, 1,000 to 1,200 lbs. 3.50@4.85; good to choice, fat heifers, 3.85@4.60; good to choice feeders, 3.40@4.10; good to plain stockers and feeders, 2.40@3.40; fair to good cows and heifers, 3.00@4.00; good cutting to fair beef cows, 2.30@2.90; common to good canning cows, 1.30@2.15; bulls, poor to choice, 2.40@2.45; calves, choice to fancy, 6.25@7.75; calves, common to fair, 3.00@6.00: corn-fed western steers, 4.00@5.35; Texas bulls and grass steers, 2.90@3.85 Texas steers, fair to choice, 3.75@4.65; western range steers, 3.25@4.60;

Hogs—Good to choice heavy shipping, 6.10@6.30; good to choice heavy packing, 5.80@6.00; rough and common heavy mixed, 5.55@5.75; assorted light, 150 to 195 lbs., 6.20@6.40; good to choice butcher weights, 6.20@6.40; poor to choice light mixed, 5.90@6.15; thin to choice, 50 to 130 lb pigs 5.00@6.20; stags and rough lots, 3.25@5.25.

MILWAUKEE, Wis., Sept. 21.—Butter—Creamery—extras, 20c; firsts, 18@19c; seconds, 16@17c; whey, 10c; Dairy, fancy, 17c; lines, fresh, 14@15c; packing, 12@13c; grease, 5@6c.

Cheese—American, full cream — Twins, 10¾@11c; Young Americas, 11¾@12c: Daisies, 11@11¾c; Longhorns, 11¾@12c; low grades, 8@9c; Brick, fancy, 8½@9c; low grades, 6@7c; Limburger—Fancy, 8½@9c; off goods, 5@7c; Swiss, old, drum, choice, 12@12½c; drum, No. 2, 10@11c; Block, choice, 11@11½c; block, No 2, 9@10c; fancy, 8½@9c; low grades, 6@7c. Receipts for the week, 207,735 lbs.; preceding week, 158,340 lbs.

Eggs—Strictly fresh laid, at mark, cases returned 17@17½c; do, loss off, 18½c; dirties and seconds 16c; checks, 14c.

SHEBOYGAN FALLS, Wis., Sept. 16—Cheese—19 factories offered 1,654 boxes of cheese on the Call Board today and all except 80 boxes sold as follows: 94 Young Americas at 11¾c: 384 at 11½c; 192 Daisies at 11¾c; 856 cases Longhorns at 11¾c; 38 at 11¾c; 10 at 11½c. Market steady and firm.

SHEBOYGAN, Wis., Sept. 16—Cheese—Sales on the Sheboygan Dairy Board to-day were as follows: 81 Daisies at 11⅝c; 481 at 11¾c; 238 Young Americas at 11¾c; 255 at 11⅜c; 60 Longhorns at 11¾c; 30 at 11½c; 479 at 11⅜c. Market very active.

MANITOWOC, Wis., Sept. 16—Cheese—Sales on the Dairy Board: 100 boxes Twins at 10c; 1,100 boxes Young Americas at 10¾c; 1,550 boxes Daisies at 10¾c.

PLYMOUTH Wis., Sept. 15—Cheese—Twenty-two factories offered 2,378 boxes of cheese, all of which sold as follows: 488 Longhorns at 11½c; 1,111 Daisies, at 11¾c; 96 Twins at 10¾c; 202 10⅞c; 481 Americas at 11⅛c. Market active.

FOND DU LAC, Wis., Sept. 21—Cheese—Sales at Dairy Board today were 40 Twins at 10¾c; 308 at 10¾c; 220 Daisies, at 11½c; 100 at 11⅝c Market active.

MUSCODA, Wis. Sept. 12—Cheese—The offering today were 601 boxes of Twins. Sales: 491 at 9¾c; 25 at 10¼c; and 50 at 12c; 35 withdrawn.

APPLETON, Wis., Sept. 10 —Cheese—Twenty-factories offered 1,081 boxes of Twin cheese and all except 80 boxes sold as follows; 317 at 10¼c, 684 at 10⅜c.

CANTON, N. Y., Sept. 21—Butter—1,155 tubs of butter offered at 21½c.

Cheese—Offered 2,026 boxes. Twins sold at 11c.

WATERTOWN, N. Y., Sept. 21—Cheese—Sales 6,000. 11c for large, 11@11⅛c for small sizes.

UTICA, N. Y., Sept. 21—Prices of dairy products here are firm. Eastern and foreign advices are favorable.

NEW YORK, Sept. 21—Cheese—Receipts, 2,803 boxes; market firm: state full cream, fancy, small colored, 11¼c; small white 11¾c; large clored 11¼c; large white 11¾c.

BOSTON, Mass. Sept. 21 —Butter—Creamery, western extra, 21½@22½c; western firsts, 19@20½c; dairy, 15½@21¼c; imitation creamery, 16c; ladle, 14@15½c; box and print, 16@23c.

Cheese—Choice, 11¼@11¾c; Wisconsin, Twins, 11@11¼c; Ohio, flat, 10c.

Eggs—Nearby, 31c; western selected, 22@24c; poor to fair, 17@18c; Illinois, 20@21c.

LIVERPOOL, Sept. 21—Butter—Good United States nominal.

Cheese—Firm, American finest white, 52s; colored, 53s.

NEW ORLEANS, La., Sept. 21—Butter—Market active. Extras 21½c; ladles, 16c.

Eggs, 22c.

NEWARK, N. J., Sept. 21—Butter—Market firm at 21½c.

Eggs—firm extras 23c; firsts, 22¼c.

TOPEKA, Kan., Sept. 18—Butter—Creamery butter 19½@20½c; dairy, 16½@17½c.

Cheese—Longhorns, 11¼c; Daisies 11¼c; Twins 11c; Prints, 11¾c.

Latest quotations for fancy creamery: Cincinnati, 22c; Buffalo, 21c.

ST. LOUIS, Sept. 21—Butter—Quiet; creamery, 15@21c; dairy, 15@17c.

Eggs—Higher, 19c, loss off.

KANSAS CITY, Sept. 21 — Butter — Creamery, 17¼@18½c; dairy, fancy, 17c.

Eggs—Steady; Missoure and Kansas, cases returned, 18c; new No. 2 white wood cases included, 18¼c.

PHILADELPHIA, Pa., Sept. 21—Butter—Firm, ½@1c higher; extra western creamery, 21½c; near by prints 22c.

Cheese—Firmer; New York full creams, fancy, 11⅝c; choice, 11¼@11½c; fair to good, 10½@11c.

Eggs—Firm, ½c higher; fresh nearby, 24½c; loss off; western, 23@24c; southwestern, 21½c @22c; southern, 20@20½c.

BALTIMORE MARKET.

BALTIMORE, Md., Sept. 17.—Butter—Although the dairymen in certain sections report a shrinkage in the milk supply, receipts since our last report have continued fairly liberal, and with the exception of an advance of a ½ cent on fine creamery, there is little or no change to note in the general condition of the butter market. The local consumptive demand continues very good, and dealers generally are taking their regular lots promptly. The receipts of extras and firsts are about on a par with the demand; while seconds and under grades are in ample supply. Imitation creamery of desirable quality continues in moderate receipt. Ladles—The supply is about equal to the requirements. Packing stock, since our last issue, has been in more liberal receipt; all arrivals have so far met prompt sale. Blocks and prints—All choice to fancy invoices find quick sale, while defective lots are exceedingly dull and in many instances have to be sold for packing purposes. The market generally rules firm, but the impression seems to prevail that creamery is high enough for the present, and any further advance in the near future would likely prove detrimental.

Creamery Separator, extras, 21@21½c; firsts, 19½@20c; seconds, 17@18c. Imitation Creamery, extras, 18c; firsts, 17c; seconds, 15@16c. Iowa & N. W. Ladle, extras, 16½c; firsts, 15@15½c; seconds, 13@14c; Ohio & Indiana Ladle, extras, 16c; firsts, 15c; seconds, 13@14c. Creamery blocks, (2-lb.) extras, 22@22½c; firsts, 21c; seconds 18@20c: Creamery prints (¼ lb) extras, 23c; firsts, 22c; seconds, 18@20c. Md. Va. & Penna., prints, extras, 21c; firsts, 19@20c; seconds, 18@19c.

Eggs—With continued light receipts of strictly fresh eggs, and a brisk demand at 23 cents, the market to-day presents a very healthy appearance and closes firm and fairly active on all desirable offerings either fresh or storage.

Cheese—Receipts fair; demand good; market firm and active.

N. Y. State—Cheddars, fine, 11⅜@11½c; choice, 11@11¼c; fair, 10¼@10¾c, Flats, fine, 11½@11¾c; choice, 11¼@11½c; fair, 10¾@11c; Small, fine, 11⅞@12c; choice, 11⅛@11¾c: fair, 11@11¼c; Ohio Flats, fine, 11@11½c; choice, 10½@10¾c; fair, 9½@10c; Ohio Picnic, fine, 11½@11¾c; choice, 11@11¼c; fair, 10¼@10¾c; Swiss cheese, (domestic) new, fine, 13@13½c; choice, 11@12c; fair, 9@10c.

301 Exchange Place. G. M. LAMB & BROS.

NEW YORK MARKET.

NEW YORK, Sept. 21—Butter—Receipts for the week, 44,590 packages.

Exports for the week, 1,325 packages.

Lighter receipts and favorable weather caused an advance in the market. Prices are firm at the close, with higher tendencies. We quote:

Creamery, extra, 21c; medium, 19@20c; poor, 16@18c; Dairy, extra, 20c; medium, 17@19c; poor, 15@16c.

Cheese—Receipts for the week, 36,393 boxes. Exports, 4,239 boxes.

Market has been decidedly firm all the week, exports having bought freely and are anxious for next week's receipts. Home trade bought freely of fancy flats. There was an increase in the sales of all grades skimmed cheese, the ruling price being about 9c for finest. We quote:

Full Cream, extra, 11¼c; medium, 10½@11c; poor, 7@9c.

Eggs—Receipts for the week, 48,941 cases.

There is a demand for all strictly fresh eggs at full prices, The market in general is very firm on all grades. We quote:

New York & Penn., finest selections, per doz, 24@25c; Northern & Western, finest selections, 23@24c; all sections, poor to good, 17@22c.

177 Chambers St. DAVID W. LEWIS & CO

NEW YORK FERTILIZER MARKET.

Acid phosphate		60 @	67½
Phosphate rock, f. o. b. Char'n		5 00 @	7 00
Tenn		3 00 @	4 00
Bones, rough	₱ ton	17 00 @	18 00
ground		19 00 @	20 00
Bone meal		22 00	24 00
Bone black, refuse		18 00 @	19 00
Potash, dbl. m're salt 48@53 per cent		1 12 @	1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons		25 00 @	30 00
sulph of basis, 90@98 per cent		2 11 @	2 18
90@98 per cent less than 25 tons		38 00 @	40 00
Potash muriate ₱100 lbs		1 83 @	1 95
less than 25 tons		36 00 @	40 00
Kainit 25% S. of P.	₱ ton	9 30 @	9 50
less than 25 tons		9 50 @	10 50
Sylvinit, 35@37% P.	₱ unit	41 @	46
Nitrate of soda		2 15 @	2 25
Blood, Dried red	₱ unit	2 55 @	2 60
low grade		— @	—
Concentrated tankage		15 00 @	16 00
Fish guano, dried		25 00 @	25 25
acidulated		23 00 @	23 50

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Holstein-Friesians — Registered cows and heifers, singly or by carload. Also bulls 1 month old to service age. Richest blood of the breed. KNOPP & PIERCE, East Claridon, Ohio. 33-5

Wanted—A working manager to take charge of a 60 acre dairy farm. Married man. Must have experience. Guernsey herd on farm. Address, giving references and experience had, JOHN BARTH, 109 Clinton St., Milwaukee, Wis. 32-2

Ayrshires for Sale—Four heifer calves, four mo. old, descended from the best herds in this country. P. BYRNE & SONS, St. Josephs, Pa. 32-2

For Sale—Two registered yearling Guernsey bulls. RAY BICKNELL, Ft. Atkinson, Wis. 32-tf

For Sale—A three-horse Smalley Tread Power in good condition. The above will be sold cheap to make place for larger machinery. W. D. HOARD, Fort Atkinson, Wis. 20-tf.

Wanted—Superintendent thoroughly experienced in handling all farm and dairy problems and producing a fancy quality of Jersey milk and cream. Address V. A. L. E., care Hoard's Dairyman.

Wanted—Registered Jerseys or Guernseys. Will pay cash or will exchange standard bred stallion brood mares and colts. Can use a carload. G. VALENTINE, Genesee, Wis.

For Sale—Twenty-four cow dairy; leased land at low rent; only strictly bottled milk business in city of 20,000 population. This is a new dairy and growing. Good prices year around. Price $1,000. GEO. H. WILLIAMS, Jackson, Tenn,

For Sale—Eight pure bred registered Holstein-Friesians, 7 heifers and 1 bull, age 1 to 3 years. All beauties and well bred. $400 takes the lot, or will sell separately. R. L. WALLACE, Box 744. Knoxville, Tenn. 33-2

For Sale—A first-class dairy in Dayton, Ohio. One of the best and oldest established routes in the city. For further information address "DAIRY," care of Herald Publishing Co., Dayton, Ohio. 33-tf

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 1901

500,000

Cream Separators in Use and 500,000 Dairymen Adding to Their Wealth as the Result.

Our ten-years-ago would-be competitor who uses space on the front cover of this paper had the audacity to use the above heading to an advertisement in last week's issue.

There is no need of a better index to the quality of the advertising of the average separator "boomer" than this very example. Naturally the impression intended to be given was that these machines were of the advertisers own make, but a second look will show that no such claim was made, and of course very few of them really are.

The advertiser might have added that perhaps 5,000 of them were his own make and that nearly all of the rest were DE LAVAL made, but that would have caught no fresh victims of "cheap" separators.

The new buyer of a separator may well profit by the experience of the longest and largest users of them—and that inevitably means a DE DAVAL machine.

The De Laval Separator Co.

Randolph & Canal Sts., CHICAGO.
1213 Filbert St., PHILADELPHIA.
9 & 11 Drumm St., SAN FRANCISCO.

GENERAL OFFICES:
74 Cortlandt St., NEW YORK.

121 Youville Square, MONTREAL.
75 & 77 York Street, TORONTO.
248 McDermot Avenue, WINNIPEG.

For Sale—One 30-inch French burr geared feed mill in best running order; also one Western Mill corn sheller, capacity from 5 to 75 bushels per hour, nearly new, Reason for selling, too large for this place. JOHN ZIEGLEY, Valley, Wis. 26-tf

Herdsman Wanted—Single man not under 30 years of age, with several years experience; one acquainted with rearing and caring for Holsteins. References required. State wages required including reference. Steady place for right party. Address D, care Hoard's Dairyman. 25-tf

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

For Sale—Young bull fit for service, sired by Recorder 29239 and tested dam 16 lbs. 2 oz. Sold at a sacrifice. JOS. KARELS, Big Stone, S. D., R. 1 30-tf

The Third Revised Edition of Buff Jersey's Popular Book Just Out of Press—Ten chapters, 25 illustrations and right up-to-date. Subjects treated are: Silos and Ensilage, All Phases of the Dairy Subject, Soil Crops, Up-to-date Farm Machinery, How to Cure Abortion and Milk Fever, Seme Medicines and Remedies, The Steam Plant, its care, and many other valuable things ably treated. Send for circular. Sent post paid, cloth binding $1.00, paper 75c. BUFF JERSEY, Monmouth. Ill. 47 tf

For Sale—480 acres, 200 level, 160 acres Gov't land can be added by using homestead right, making 640 acres in one piece. A well equipped dairy of 30 cows, with gas engine; 40 acres fine grove, plenty water in grove. Good buildings, very rich soil; called the finest outfit in the county. Will give possession any day and give ones own time to pay for last half if ten years; terms at 6 per cent. I mean business. $9600 is the price, you will say it is worth $14000. Address F. A. I. R., care of Hoard's Dairyman. 30-tf

Fine Dairy Farm for Sale—Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence. cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. T. S. TOMPKINS, Pasadena, Cal. 15-tf

Wanted—Competent single man. Must be sober, to take care of Jersey herd, do milking and make butter. Good place for the right man. State wages and give references. Box 298, Butler, Pa. 33-2

Wanted—A partner with small capital to run a milk, cream, butter, ice cream, and dairy supply business, in a city of 36,000, already established. Running three retail wagons; can easily put on three more. Best dairy country in the state. J. H. PARKER, Lexington, Kentucky.

Big Money in Golden California—I want a thorough, reliable and practical farmer to take charge of one of my ranches. Married man preferred. Must be a good teamster and understand running farm machinery. Good wages, house, barn, corrals, and chicken runs. Will contract by year with right party. E. E. MOORE, Compton, California. 33-2

Wanted—Registered Guernsey bull calf under six months. Write age, weight, and price to WM. LUCE, R. F. D., No. 2, Ft. Smith, Ark.

Guernsey Bulls for Sale—I have a few young Guernsey Bulls for sale at Moderate price, ranging from six months to one year old. These animals are from highly bred sires and mothers of good size and well reared. Good bargains here. W. D. HOARD, Fort Atkinson, Wis. 30-tf

For Sale—Good cheese factory and machinery in Outagamie county, Wis. 6000 lbs. milk daily. Inquire of FRED HADLER, Route 3, Appleton, Wis. 30-tf.

Dollars are made with good dairy stock. For choice purebred Guernsey bulls and grade heifers write A. H. HINMAN, Allenville, Wis. 30-4

For Sale—At a bargain. adjoining city of Decorah, Iowa, 454 acre dairy farm, stock and machinery complete. Watered by never failing springs. Good farm buildings including two large silos. Established city milk and cream trade for the product of 100 cows. For price address J. C. BEARD, Decorah, Iowa. 28-6

Wanted—An experienced dairyman to act as herdsman. Must be good milker, sober, steady, and industrious. CHAS. F. BRUNSON, Mobile, Alabama.

Wanted—By an experienced farmer and dairyman a dairy farm to manage. Have net over $60 per cow per year for butter. Address J. H. B., Hiland House, Mitchell, South Dakota.

Excursion Rates to County Fair at Beaver Dam, Wis.—Via the North Western Line. Tickets will be sold at reduced rates Sept. 26 to Oct. 2, inclusive, limited to return until Oct. 3, inclusive. Apply to agents Chicago & North-Western Ry.

Very Low Rates to Denver, Colo.—Via the North-Western Line. Excursion tickets will be sold Oct 4 to 8, inclusive, with very favorable return limits, on account of annual convention of Brotherhood of St. Andrew. Apply to agents Chicago & North-Western Ry. 33-2

Homeseekers' Excursions to the Northwest, West and Southwest, and Colonist Low Rates West—Via the North-Western Line. Excursion tickets at greatly reduced rates are on sale to the territory indicated above. Standard and Tourist Sleeping Cars, Free Reclining Chair Cars and "The Best of Everything." For dates of sale and full particulars apply to agents Chicago & North-Western Ry. 53-sp

Excursion Rates to the Centennial Celebration at Chicago—Via the North-Western Line. Excursion tickets will be sold at reduced rates September 28, 29 and 30, limited to return until October 2, inclusive. Send stamp to W. B. Kniskern, Passenger Traffic Manager, Chicago, or call on Ticket Agent for copy of handsome Chicago Centennial Folder, issued by the North-Western Line, profusely illustrated, giving an outline of the program for Celebration Week, a brief reference to Chicago's early history and the relation of The North-Western Line to the industrial progress of the city. For further particulars apply to Agents Chicago & North-Western R'y. 30 4

Very Low Rates to San Francisco and Los Angeles, Cal.—Via the North-Western Line. Excursion tickets will be sold Oct. 8 to 17, inclusive, with very favorable return limits, on account of convention of American Bankers' Association. Apply to agents Chicago & North-Western Ry. 33-4

Consolidating Barns.—Manure Basements.—Ventilation.

ED. HOARD'S DAIRYMAN:—I have four buildings: A, 30×32; B, 24×40; C, 24×40, and D, 30×40, which I wish to put together in such a way as to make, as nearly as possible, a modern dairy barn. Will you kindly make suggestions on the plan which I inclose, remembering that this must be done with a limited amount of money and all help and material very high, also that the ground is dry, sandy soil, with a good chance to drain to the north and south away from the house, which is below the barn.

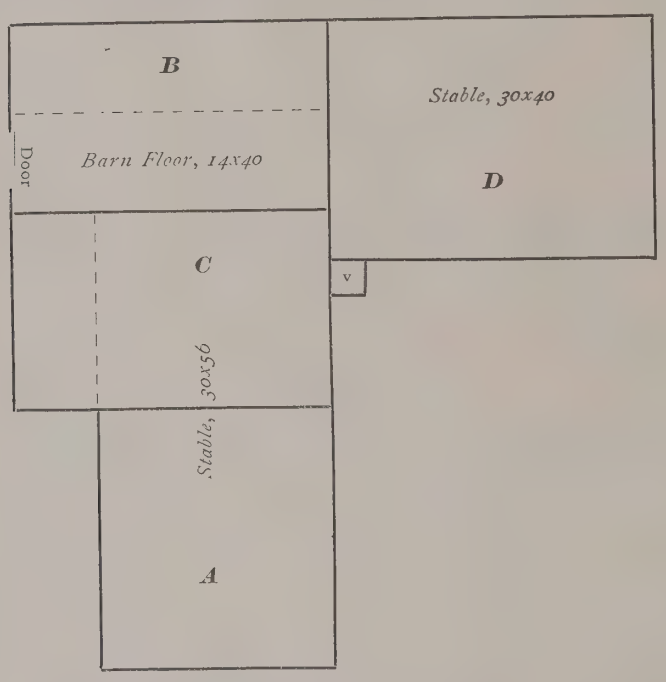
First—Does this soil call for a ditch under the wall?

Second—Are stone broken with dynamite all right for building wall?

Third—Will basement under this barn prevent the use of the King system of ventilation? I am sure you will object to using basement under cow stable to store manure, but the lay of the land with reference to the house is such that it can hardly be stored elsewhere, and we purpose to draw it out often, using land plaster, sawdust and other absorbing material.

Fourth—Will two layers of one-inch boards be all right for all floors except stable?

Fifth—Will you please show how many and how large the inlets for fresh air and the outlets for foul air should be?



It seems to be most convenient in this plan to have the cows face central feeding alley. You will say that 30 feet is too narrow for two rows of cows, but it will be much wider than I have used for the past 17 years, and using this building as it is without changing roof, will save much expense. Placing end of main barn toward the west against the bank and using cross section plan given on page 589 of DAIRYMAN, I wish to drive in 8 feet high, that is, 8 feet above top of basement. In this plan do you have a purline plate? According to your plan, I will have still 26 feet high for driving in to unload, which seems higher than necessary. If you do not have purline, how are rafters joined? BLANK.

New Haven, Vt.

Our Vermont friend not only omitted to enclose his proposed plan for assembling these four buildings and consolidating them into one, but also forgot to append his name to his letter. We much regret these omissions, for his plan would not only have contained some general suggestions to aid us, but, what is more to the purpose, would have offered some indications of the peculiar conditions affecting the problem.

As an original proposition, we incline to a program substantially as follows:—Bring the two buildings, B and C together, side by side, making one structure 40x48 feet, divided through the center by the frame work of one of the sides in each structure. On one side of this center, have a drive-way or barn floor, preferably 14 feet wide, and on a level, or but slightly higher than the floor over the basement. It is much better to elevate the hay with a horse-fork than to have either a long or a steep grade to reach the barn floor. The space remaining after deducting for barn floor will make an excellent place for storing grain and tools and the unobstructed 24x40 feet of the other building will store nearly as much hay as two bays 14x48—or four bays each 14x24.

Bring up the buildings A and D and attach one on the east of this consolidated central building and one on the south, so as to form the north and west sides of a yard, substantially as shown in the accompanying diagram, provided one can be content for all future time with stables only 30 feet wide in exterior dimension.

We should personally much prefer, and do not hesitate to advise our correspondent, if it can be done without too much expense in changing roofs, to turn buildings A and D one-quarter around, presenting the 32 and 40 feet sides to the main central structure and thus making the stables that much wider.

In either case, there will be greater economy of space and greater convenience in doing the work to face the cows towards the sides and have a central driveway, 8 feet wide, for hauling out the manure, and for admitting and turning out the cows. On either side of this alley or driveway, there may be a gutter or trench 12 inches wide, then standing platform for cows, 4½ feet wide, which will leave 4½ feet on each side clear for feeding, or, if mangers are insisted upon, 2½ feet for passage and 2 feet for manger.

Build a foul air shaft not less than 4x4 ft. in the corner, as shown at V and inlets for fresh air, not more than 12x12 inches at convenient places on all sides of the stables. These fresh air inlets

The Elwell Kitchen Cabinet

SOLD ON APPROVAL



We shall not attempt to describe it here but invite you to send for our new booklet.

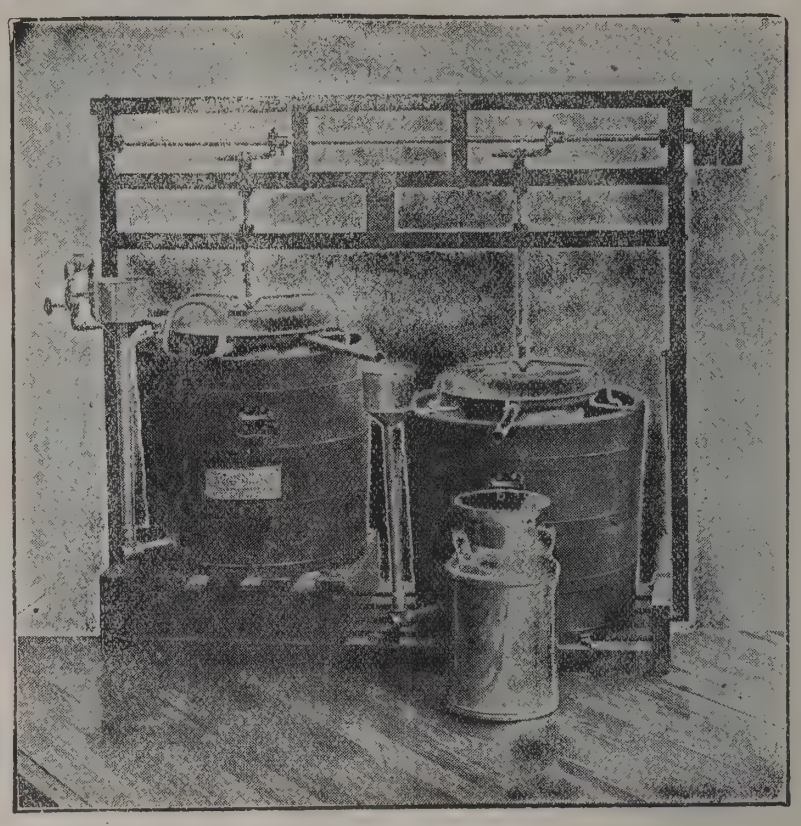
"THE LABORATORY OF THE HOME."

It puts the work of the kitchen upon a business basis—everything handy, sanitary, dust-proof and mouse-proof; easy to keep fresh and clean. Booklet tells why.

Thousands of our cabinets sold—eight styles. Every home-maker wants one. Write to-day for booklet. A postal card will do.

Elwell Kitchen Cabinet Co. 926 5th Ave. S. E. Minneapolis.

A GREAT SUCCESS.



The Miller Cream Pasteurizer has a capacity of from 450 to 600 lbs. per hour.

Price $150 in Tin. $200 in Copper.

THE MILLER PASTEURIZING MACHINE CO.

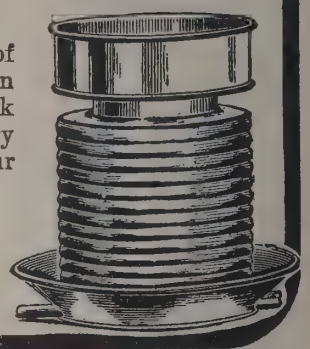
CANTON, OHIO.

Milk Dealers' Supplies

Milk Aerators, Pasteurizers and Coolers
Ice Cream Cans and Tubs
Milk Bottles
Milk Shipping Cans
Milk Bottle Caps



These are but a few of the many things of our own superior make for the milk dealer, dairyman and creamery man. Write at once for our free illustrated catalogue.



STURGES & BURN MFG. CO.
Chicago, Ill., St. Paul, Minn., Kansas City, Mo.

BUHL CANS ARE NOT Like Other Milk Cans Because They Are Better

This is equally true of the **Buhl Factory, "Improved Elgin" and Genuine Iowa Cans**; superior material, design, workmanship, and smooth finish combine to produce those **long wear** qualities for which the **Buhl Cans** are so renowned. **Remember** the Buhl is the only can in the world that is made with the BUHL "VICTOR" CAN BREAST and the BUHL "VICTOR" ROUND HANDLE. They may cost a little more than common cans—we do not know, for we cannot tell how badly "the trust" and others are beating you. We know that the small added cost of the **Buhl Cans** will prove the best can investment you ever made. Every can that is stamped with our famous Milk Can Trade Mark, as shown here is a genuine **Buhl Can.** The mark is a guarantee of all around excellence. Ask your local dealer for **Buhl Cans.** If he does not have them he can get them for you. Write us about it. We will see that you are supplied.



Buhl Stamping Company, 212 W. Larned Street, Detroit, Mich.

must open interiorally at the ceiling or top of the stable and outwardly 3 feet or more lower.

If there must be manure basements, see that independent ventilating flues are built for them.

We do not consider this soil calls for drain tile under the walls; we know of nothing that would exclude from use the stone broken with dynamite; two thickness of inch boards, are everywhere preferable to plank for floors; in the sketch referred to there are no purlin plates, but the rafters are tied together with a 10 or 12-inch board, securely nailed across the angle, and thus form a strong, self-supporting arch.

Virginia Inquiries.

ED. HOARD'S DAIRYMAN:—I run a dairy of about thirty-five cows, milking at present twenty-six; milk 2 a. m. and 12 m. I am only getting thirty-five gallons milk per day. They have green sorghum, as much as they will eat, and a fair pasture to run in with plenty of water, (they drink very little), and ten qts. of grain a day,—one quart meal and four qts. of bran at a feed. Can you change this ration to make them do better?

Also the best method for curing pea hay.

And the plan for a small milk room for bottling about 200 quarts per day.

Old Point Comfort, Va. P. W. J.

These cows appear to be receiving enough feed to enable them, if properly handled, to produce more than an average of 12 lbs. of milk per day. If the "meal" is cotton seed meal, the two quarts will weigh about three lbs. and the eight quarts of bran should weigh about 5 lbs. It will be a difficult matter to increase the yield very much now, as when a shrinkage is once established it is liable to persist. If not already doing so, try giving a large teaspoonful of salt with each feed of grain, and see that the milking is closely supervised. We suspect that the trouble has been more in the milking than the feeding. Milkers that are set to work at 2 o'clock in the morning, if not closely supervised, will not be apt to be particularly patient with the cows or particular to milk out the last few drops. Leaving even a little milk in the udder is a sure way to bring about a decided shrinkage.

From lack of experience, we must refer the question as the the best method of curing pea hay to our readers for answer.

A milk bottling room may be of almost any shape, but should not be so connected with a barn or dwelling as to admit of any contamination with either. It should, as a matter of course, be kept scrupulously clean, and to this end no one from the stable or kitchen should be allowed to enter it. Preferably, the floor should be of cement, and slanting to the center or one side with a drain to carry off the wash water so handily that there can be no excuse for omitting to scrub and flush it every day, or oftener if used more than once daily.

If one is really in earnest about wanting to be up-to-date in producing and handling milk for family consumption, he will find the book "Clean Milk" by Dr. S. D. Belcher, a valuable assistant. We do not know the price of this book, but an inquiry addressed to The Hardy Publishing Co., New York City, will receive courteous attention.

Fall Treatment of Alfalfa.

ED. HOARD'S DAIRYMAN: — I have about one quarter of an acre on which was secured a very good catch of alfalfa, using oats as a nurse crop. It hasn't been cut since the oats were taken off and would average now about five inches in height. Am very anxious to get this through the winter without injury and should like your advice as to what to do.

Have thought of manuring quite heavily, and then covering the alfalfa with well dried, wild grass—raking it off in the spring.

Would you advise this or would you use manure alone? J. F. C.

E. Charlotte, Vermont.

Would advise letting entirely alone. After the ground is frozen for winter then give it a good top-dressing of barn yard manure.

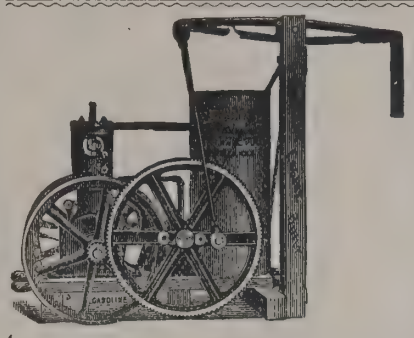


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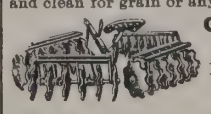
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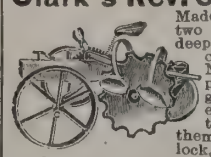
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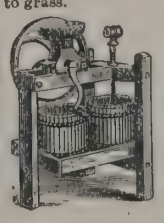
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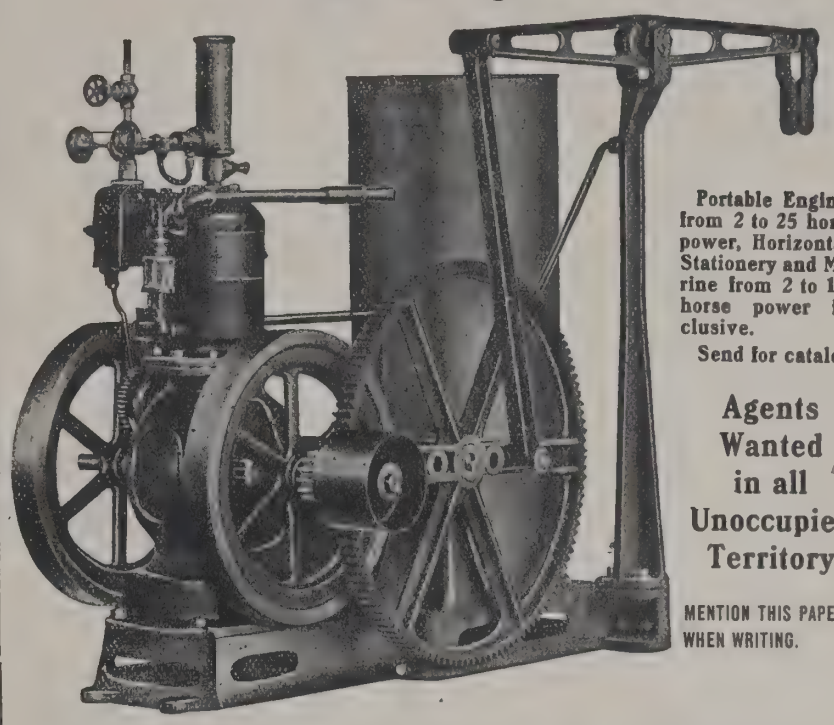
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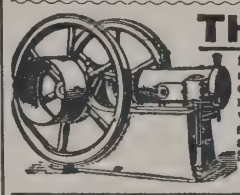
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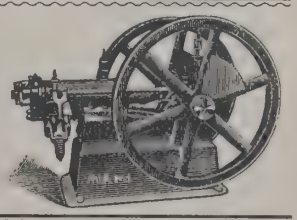
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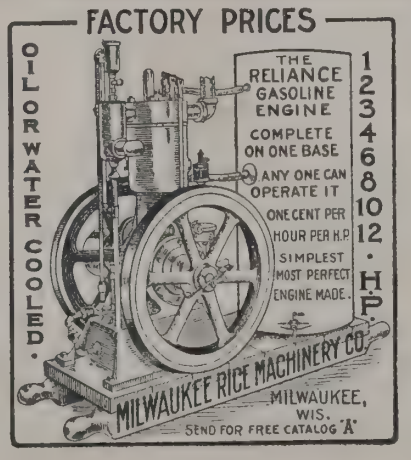
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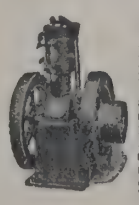


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HAZEL FERN HERD. A. J. C. C. Jerseys blood of St. Lambert, Melia Ann, Combination, Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis' 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

ROBINSWOOD JERSEY DAIRY is offering a few Reg. Jersey Bulls ready for service at from $25 to $50, sired by a grandson of Recorder, the only living son of Brown Bessie, out of good cows. Write, stating your wants, to
N. H. ROBINSON, Prop., Centralia, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.
W. J. HUSSEY, Mt. Pleasant, O

VALLEY FARM Offers for sale a son of "King of St. Lambert's King" out of a daughter of "Gazilla's Fawn," dropped July 29th., 1900. Also have some young bulls. Write your wants to
FRED STUBLEY, Black Earth, Wis.

PROSPECT HILL JERSEY HERD.
Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

J. Kelty, Boscobel	91½
E. J. Keyes, Plymouth	94
H. F. Kellner, Cazenovia	91½
F. M. McKinney, Dudley	92½
J. Nelson, Cadott	94¾
A. W. Parkin, Stanton, Minn	96¾
C. A. Pasche, Medford	95¾
M. Raeder, Milladore	93
O. Steinhart, Castle Rock	92
J. A. Shaiffer, Prairie Farm	95½
N. J. Sharin, Lake Church	92½
G. J. Vogt, Freemont	98
Jos. Vogt, Freemont	98
John Vogt, Freemont	98½
W. S. Walsh, Bear Valley	92½
F. H. Wismer, Plain	95
E. Wunsch, Haven	95
Wm. Zwicky, Van Dyne	90½
H. W. Austin, Fennimore	93
J. Berg, Sturgeon Bay	91
A. A. Barberiee, St. Charles, Minn	80
J. O. Batchelder, Fond du Lac	91
N. G. Douma, Cleveland	93½
Robert Engel, Freemont	98
Mrs. F. J. Curtis, Poynette	81
R. B. Cartwright, Cadott	88
J. Chalupnik, Tisch Mills	92¾
J. Clarson, Boscobel	95¼
H. H. Graskamp, VanDyne	94
Gentilly Dairy Ass'n, Gentilly, Minn	95½
G. Horneck, Elkhart Lake	94½
A. E. Helmer, Evans Mills, N. Y.	95
O. A. Kielsmeir, Hika	96½
J. Keltey, Boscobel	91½
E. J Keyes, Plymouth	94
H. F. Kellner, Cazenovia	91½
F. M McKinney, Dudley	92½
J. Nelson, Cadott	94¾
A. W. Parkin, Stanton, Minn	96¾
C. A. Pasche. Medford	95¾
M. Raeder, Milladore	93
O. Steinhart, Castle Rock	92
J. A. Scheifer, Prairie Farm	95½
N. J. Sharin, Lake Church	92½
G. J. Vogt. Freemont	98
Jos. Vogt, Freemont	98
John Vogt, Freemont	98½
W. S. Walsh, Bear Valley	92½
F. H. Wismer, Plain	95
E. Wunsch, Haven	95
Wm. Zwicey, Vkan Dyne	90½
YOUNG AMERICA.	
M. G. Douma, Cleveland	92½
J. Chalupnik, Tisch Mills	92½
W. M. Heisdorf, Hilbert	92
A. E. Helmer, Evans Mills, N. Y.	96½
Mrs G. Halladey, Wautoma	85
O. A. Kielsmeir, Hika	96¾
E. J. Keyes, Plymouth	94½
E. E. Lindner. Clinton	94½
E. Wunsch, Haven	95¾
Wm. Zwickey, Van Dyne	93
BRICK.	
H. H. Bilgrien, Iron Ridge	91
C. F. Brinkman, Brinkman	96¾
J. Boehler, Beaver Dam	95½
R. C. Gauschow, Bonduel	97
L. Guth & Co., Ackerville	94
J. Nelson. Cadott	91½
F. Sette, Iron Ridge	97½
E. Wittwer & Bros. Monticello	92½
SWISS.	
H. H. Bilgrien. Iron Ridge	88
Stauffacher & Roth, Monroe	93
E. Whittwer & Bros., Monticello	93½

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Selecting a Short-horn Calf to Cross on Jersey Cows. —Watering Silage.

ED. HOARD'S DAIRYMAN:—1. We are going to select a Short-horn calf to raise for breeding purposes in our Jersey herd. What points should be observed in selecting one, and what method of feeding would be best to follow the first year?

2. How much water should be put on 100 tons of silage, when the corn is put into the silo a week or two before it would be ready to shock? G. J. B.
Galesburg, Mich,

1. It is hardly fair to ask us how to do something that we are utterly opposed to. We feel very certain that it is a mistake, that will cause deep regret, to make the cross contemplated. It may minimize this mistake to a degree, to get a calf that has a dam and grandam with authentic and satisfactory dairy records, if such can be found. A calf of any breed is a very poor index of what the mature animal will be. About the only "point" in a calf of either sex indicative of future dairy ability is the location of the rudimentary teats. If these are squarely placed and well separated, the presumption is, the animal, if a heifer, will develop a well shaped udder; and if a bull will produce heifers of similar conformation. If a bull calf of Short-horn breeding, combining proper heredity with well placed rudimentary teats is obtained, one may do something towards perpetuating his dairy tendencies, by feeding principally upon skim milk and first quality hay, with but little grain of any kind, and that of a bulky and nitrogenous character, such as bran or oats.

2. Corn in the condition named needs no extra water added as it goes into the silo, unless it be to wet the sides to facliate settling. When the filling is completed, wet the surface as thoroughly as an extra heavy shower of rain would.

HOLSTEIN BREEDERS

ATTENTION!

A party desiring to purchase a number of thoroughbred Holstein cows under eight years old, requests that those having any for sale should send to this office brief outlines, showing breeding for three generations, with records both of individuals and ancestors, either private or official, general description and price, bearing in mind that none but the very best are wanted.
Address all communications to

COW BUYER, Care of Hoard's Dairyman, **Fort Atkinson, Wis.**

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA.

President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.

FEES FOR REGISTRY.

TO MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.
NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. ☞ All blanks furnished free.

Life Membership, $25.

Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.
Address F. L. HOUGHTON, Putney, Vt., for information relating to Registration of Pedigrees.

HOLSTEIN BULLS.

We have some grandly bred young bulls ready for service. One of the largest and best advanced registry herds in the United States.
PIERCE LAND & STOCK CO. 14 Turk St. San Francisco, Cal.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22123. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148 Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.
WM. EVERSON & SONS, Lake Mills, Wis

HOLSTEIN-FRIESIAN BULLS FOR SALE.

Ready for service; from A. R. O. animals; sired by Johanna Rue 2nd and Paul De Kol, sire of 13 A R. O. cows. Also young bull calves by same sire. **THOS. CAINES. Supt.**
ARCADIA, - MISSOURI.

MAPLES STOCK FARM, PENNELLVILLE, N. Y.
Second Annual Offering
150 HEAD OF HIGH CLASS REGISTERED

HOLSTEIN-FRIESIANS

AT AUCTION, OCT. 14-15, 1903
at Fulton Fair Grounds, Fulton, N. Y. Catalogues ready Oct. 1. Write for one. Address
R. F. D. 3 **John C. Godfrey, Fulton, N. Y.**

VALLEY FARM HERD

HOLSTEIN-FRIESIANS

Headed by Korndyke Queen De Kol's Prince, dam Korndyke Queen De Kol, 24 lbs. 6.7 oz., granddam Belle Korndyke, 25 lbs. 12.8 oz. Both sire and dam by Manor De Kol, his dam Netherland Hengerveld 26 lbs. 10.66 oz., Manor De Kol by a son of De Kol 2d, 26 lbs. 9.21 oz. All are official tests and average 25 lbs. 13.72 oz. butter for 7 days and 3.95 per cent fat in their milk. Two bull calves now for sale and young ones after Sept. 1.
DON J. WOOD, R. F. D. 2, West Winfield, N. Y.

Bulls For Sale.

Two choice bulls ready for service and some fine bull calves from good testing dams. Sire: Paul Clyde, son of Paul DeKol. Dam's record 24.88 lbs. in 7 days. Write **C. A. SNOW & SONS. Athens. Ohio.**

HOLSTEIN-FRIESIANS

INDIVIDUALITY, PERFORMANCE, BREEDING. You need it all. Write or come. 100 head.
McKAY BROS., Buckingham, Ia.

HOLSTEIN-FRIESIANS

FAIRVIEW HERD

We offer bulls ready for service; also heifer and bull calves not related, of the kind to suit the most particular.
O. J. GODFREY, Pennellville, N. Y.

HOLSTEIN-FRIESIAN BULL CALF.

Do you want one for use this winter which will improve your dairy herd? Do you want him elegantly proportioned, with straight back, high rump, and all the dairy points? Do you want one whose relatives are A. R. O., and elgible to the Advanced Registry himself? If so, I have just what you want.
MALCOLM H. GARDNER, Darien, Wis.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

TYRANENA HERD

100 HOLSTEIN-FRIESIANS 100

A. R. O. Stock For Sale.

Both sexes, all ages. Herd headed by Sir Plebe Hengeveld De Kol, No. 27929, dam Plebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 83 lbs. 5 oz **Frank B. Fargo, Lake Mills, Wis**

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Offers 3 yearling bulls and 10 yearling heifers, sired by a grandson of Sadie Vale's Concordia. Cows and heifers bred to oldest son of Mercedes Julip's Pietertje, No. 39480. Chester White Pigs in pairs and trios, not related.
W. R. GATES, Fort Atkinson, Wis.

OAKLAND HERD HOLSTEINS

PREMIER SIRE **Mutual Friend 3d's Paul** A son of Paul De Kol & Mutual Friend 3d, 21.84 lbs. butter, milk averaged 4.7% at 3 years. She has two A. R. O. daughters, 1 made over 20lbs.
Must reduce herd at some price. State just what you want. T. A. MITCHELL, Weedsport, N. Y.

BROOKSIDE HERD

HOLSTEIN-FRIESIANS

To reduce herd to capacity of pasture, will sell a limited number of A No. 1 young cows of high breeding and individually right, large producers, at $150 each; also 15 bull calves at bargain prices.
STEVENS BROTHERS, Lacona, N.Y.

HOME FARM HERD.

Headed by **COLANTHA 4TH'S LAD.** Official test of three nearest dams 25.1 lbs butter in seven days. Herd numbers 125 head.

BEST FAMILIES REPRESENTED.

Special prices on six or eight bulls of serviceable age. **W. B. BARNEY & CO., Hampton, Ia.**

THE STEVENS HERD

Contains at the present time the young bull, Vale, with the largest official backing of any bull ever born. Several half-brothers and sisters to Vale, and a large number of cows and heifers bred to his sire, whose official backing is larger than that of any other bull ever in service. A cow that stands unequaled by any other that ever lived, in the official work of herself and daughters. The only cow ever officially tested for six months. Eighteen cows and heifers with official 7-day butter records averaging, by the 80 per cent. factor, over 20 lbs. each. Thirty animals whose dams have made official 7-day butter records averaging over 20 lbs. each. Why not get our prices before buying?
HENRY STEVENS & SON,
Brookside Stock Farm. Lacona, Oswego Co., N. Y.

ELMWOOD

Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.
GEO. T. McNEIL, Theresa, N. Y.

FOR SALE.

H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address **W. H. JONES, Watertown. Wis.** Rural Route No. 2.

THE MONONA FARM HERD

OF HOLSTEIN-FRIESIANS

Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 69.50 lbs. one day. Breeders and dairymen please write for prices.
F. W. ALLIS,
Monona Farm. Madison, Wis.

JUST BULL CALVES

We have three, that are individually fine. They are bred right, have been fed right, and the price is right.
Ohio's Famous Herd, Holstein-Friesian Cattle. **W. B. SMITH & SON.**
2488 W Broad St, Columbus, O.

Holstein-Friesian Bull Calves

Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

FOR SALE 2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.
M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

CLOVERDALE HERD

HOLSTEINS.

Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.

A. J. DAUGHERITY Streator, Ill.

Woodlake Herd.

Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN, Station D., R. 1. Minneapolis, Minn.

MARKHAM MANOR FARM,

Simonsville P. O., Andover, Vt.

Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 13570, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for discription and price to **J. A. THORNTON,** Manager, **Simmonsville, Vt.**

HOLSTEINS IN CALIFORNIA

SAN ANSELMO, MARIN COUNTY
250 HEAD IN THE HERD
Sires are sons of Mercedes Julip Pietertje, Colantha 4th Belle Korndyke, Fay Barnham Princess Wayne 7th. A fine lot of bull calves
R. M. HOTALING,
Rialto Building San Francisco, Cal.

FIRST CLASS BULL

Offered at reasonable price by South Side Farm, White Bear, Minn. Born Dec. 1, 1899. Sired by Baron Pauline De Kol with 8 A. R. O. daughters, and tracing three times to De Kol 2d. Our bull's dam has A. R. O. record of over 22 pounds, under five years, and during week's official test milk averaged over 40 per cent. fat. Fine conformation, nicely marked, superior handler, large veins and rudimentaries, gentle, vigorous, and sure. Other bulls ready for service.

STAR FARM HOLSTEINS

SPECIAL OFFERING: Six of the choicest Johanna bull calves from official butter record dams and A. R. sire.
Also a few choice heifer calves, yearlings and 2-year olds; latter bred to Mercedes Julip's Pietertje Paul.

150 HEAD TO SELECT FROM

Special prices on cows in carload lots. Prices reasonable for quality. Liberal terms of payment.
HORACE L. BRONSON, Cortland, N. Y.

Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. **C. H. STEVENS, Jefferson, Wis.**

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. All our choice pigs of 1902 farrowing have been sold. We are now taking orders for 1903 farrowing.
JOHN WHITE & SON, Adamstown, Md.

HOLSTEINS

High Class Advanced Registry Stock only. Best butter families. Stock for sale.
Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.



T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.
Wm. O. Jackson & Sons, South Bend, Ind.

FOR SALE. H.-F. Bulls, ready for service, from A. R. O. Cows and sired by Sir Jonanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs C. A. SCHROEDER, West Bend, Wis

LOOK HERE

34 cows and heifers in the **McGEOCH HERD** have been **officially tested** with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.62 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs. of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs. of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by **Gem Pietertje Hengerveld Paul De Kol,** or **Sir Ormsby De Kol** for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days; average per cent of fat 4.47. Are these the kind of **Holstein-Friesians** you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd?
For particulars address **H. B. Daggett, Mgr., Station A, Milwaukee, Wis.** Residence: National Ave., near 40th. Phone, South 1601.

PURE BRED SHORTHORNS

CHOICE BULLS FOR SALE.

Also Cows and Heifers bred to Clay Buttercup, 126851, a descendant of the Clay Family, champions at the World's Fair dairy test.
GEO. WENHAM, Fort Atkinson, Wis.

Elgin Milk Prices for the Coming Year.

ED. HOARD'S DAIRYMAN:—The various large milk factories in this section made their semi-annually contracts this week. The Borden Condensed Milk Company, for their factories at Elgin, Carpentersville, Belvidere, St. Charles, Dixon, Genoa Junction and the minor bottling plants, paid an average of $1.46⅔ per hundred pounds for the six months. The prices per hundred per month were:

October	$1.35
November	1.45
December	1.55
January	1.55
February	1.50
March	1.40

This is 5 cents per hundred more than the contract price for the corresponding period of last year, yet the producers are not satisfied. The farmers claim that the advance in the price of feed and the increased demand of help far more than counteracts the small advance paid by the company, and that the cost of production will be at least 10 cents more per hundred than it was a year ago.

Oatman Bros., at Dundee, contracted for 25,000 pounds of milk daily, paying as follows:

	Per hundred.
October	$1.50
November	1.50
December	1.50
January	1.45
February	1.45
March	1.40

The Sherwin creameries at St. Charles and the Elgin Butter Co. pay two cents per hundred less than the Borden Co. The Sherwin factory will use 30,000 pounds daily; the Elgin Butter Co., 20,000 pounds, and the Borden Co., 100,000 pounds at its Elgin factory.

The resolution adopted on Monday by the Elgin Board of Trade was, in full, as follows:

WHEREAS, Our state legislature has provided $250,000 to have our state properly represented at the World's Fair at St. Louis in 1904, and

WHEREAS, The dairy interests of the state should receive a portion of this appropriation to make a suitable showing, so that they may compare favorably with the exhibit made by other states, therefore be it

Resolved, That we, the Elgin Board of Trade, representing twenty thousand dairymen, and whose products sold last year at over eleven million dollars, request the Illinois Commission to the Louisiana Purchase Exposition to set aside $15,000 to be used in making a suitable display, exhibit, or working dairy during the exposition, the same to be arranged for and to be under the direction of a committee of seven, two to be appointed by the Illinois State Dairymen's Association, two by the Elgin Board of Trade, two by the Chicago Butter Board and A. J. Glover of the Illinois College of Agriculture Experiment Station, but under the control of your commission."

The resolution was unanimously adopted and the secretary instructed to notify the Illinois commission and the Chicago Butter Board. H. C. B.

Elgin, Ill.

Tests Accepted for Record by the American Jersey Cattle Club.

CONFIRMED TEST.

Ella Golden 149309—Sire, Stoke Pogis of Prospect 29121; dam, Ella of Endegeest 88376. Milk, 332.6 lbs.; fat, 16.244 lbs.; estimated butter on basis of 85 per cent fat, 19.11 lbs. Churned butter, 18 lbs., 9 3-5 oz. Average percentage of fat in churned butter, 84.66. Churned butter computed on basis of 85 per cent fat, 18 lbs., 8 2-5 oz. Test made from June 24 to 30, 1903; age, 4 years, 4 months; actual weight, 942 lbs.; fed 7½ lbs. bran, 2 lbs. ground corn and oats and 3 lbs. cotton seed meal, daily—clover and timothy pasture.

AUTHENTICATED FAT ESTIMATES.

Mabel's Surprise 126878—Sire, Prince Noble 22198; dam, Mabel Seaman 69725. Fat, 15.193 lbs.; milk, 246.1 lbs. Test made from June 2 to 8, 1902; age, 6 years, 7 months; estimated weight, 900 lbs.; fed 3 lbs. wheat bran and 1½ lbs. gluten feed, daily—clover and timothy pasture. Property of F H. Scribner, Rosendale, Wis.

Mabellena 107603—Sire, Prince Noble 22198; dam, Mabel Seaman 69725. Fat, 15.113 lbs.; milk, 273.9 lbs. Test made from June 1 to 7, 1902; age, 7 years, 5 months; estimated weight, 900 lbs.; fed 3 lbs. wheat bran and 1½ lbs. gluten feed, daily—mixed clover and timothy pasture. Property of F. H. Scribner, Rosendale, Wis,

Loretta D. 141708—Sire, Ida's Rioter of St. L. 9th 41010; dam, Cicero's Chemical Test 101087. Fat, 16.648 lbs.; milk, 307.2 lbs. Test made from June 2 to 8, 1902; age, 5 years, 8 months; estimated weight, 1000 lbs.; fed 3 lbs. wheat bran and 1½ lbs. gluten feed, daily—clover and timothy pasture. Property of F. H. Scribner, Rosendale, Wis.

Massena of Orchard Farm 166190—Sire Jamont 42212; dam, Massena Polo 101099. Butter, 15 lbs. 14 oz.; milk, 219 lbs., 4 oz. Test made from June 12 to 18, 1903; age 7 years; actual weight, 910 lbs.; fed 28 lbs. cotton seed meal, 42 lbs. ground corn and oats, and 42 lbs. wheat bran—hay *ad, lib.*, orchard pasture.

Melrose Lass 105925—Sire, Fisher 29104; dam, Nonesuch Lass 62589. Butter, 21 lbs,, 11¼ oz.; milk, 304 lbs. Test made from June 25 to July 1, 1903; age, 8 years, 6 months; estimated weight, 850 lbs.; fed 56 quarts wheat bran, 42 quarts cotton seed meal, 28 quarts ground oats, 28 quarts corn meal, and 21 gallons cotton seed hulls—7 bundles partially ripe, unthreshed oats. short Bermuda grass pasture.

Miss Cisneros 131026—Sire, Matchless P. S. 1831 J. H. B.; dam, Marie Blanche P. S. 4741. J. H. B. Butter, 20 lbs., 3 oz.; milk, 264 lbs., 5 oz. Test made from June 25 to 29, 1903; age, 8 years, 2 months; actual weight, 750 lbs.; fed 36 lbs. cotton seed meal, 42 lbs. bran and 42 lbs. ground oats—alfalfa hay and pea-vines *ad lib.*

Oscar's Beauty 144463—Sire, La France's Onnan 49436; dam, Memewortha 61449. Butter, 16 lbs.; milk, 270 lbs., 11 oz. Test made from June 20 to 26, 1903; age, 4 years, 1 month; estimated weight, 850 lbs.; fed no grain—good mixed pasture only.

Rowena Inez 137675—Sire, Fritz of Glynllyn 36579; dam, Duke's Rowena 2d 70877. Butter, 17 lbs. 1 oz.; milk, 224 lbs., 6 oz. Test made from July 13 to 19, 1903; age, 6 years, 7 months; estimated weight, 780 lbs.; fed 56 lbs. ground corn and oats. 28 lbs. cotton seed meal, and 42 lbs. wheat bran—clover pasture.

Melrose Lass 105925—Ten Days—Sire, Fisher 29104; dam. Nonesuch Lass 62589. Butter, 30 lbs., 7¾ oz.; milk, 425 lbs, Test made from June 22 to July 1, 1903; age, 8 years. 6 months; estimated weight, 850 lbs.; fed 80 quarts wheat bran, 60 quarts cotton seed meal, 40 quarts ground oats. 40 quarts corn meal and 30 gallons cotton seed hulls—10 bundles partially ripe, unthreshed oats, short Bermuda grass pasture.

SEVEN-DAY BUTTER TESTS.

Adelphia Melia Ann 163524—Sire, Melia Ann's son 22041; dam, Adelphia Marigold 133768. Butter, 15 lbs., 15½oz; milk, 277 lbs.

Test made from April 27 to May 3, 1903; age, 3 years, 4 months; actual weight, 930 lbs; fed 5 lbs. wheat bran, 2 lbs. cotton seed meal, 2 lbs, ground oats and corn, and 2 qts. potatoes, daily,

Annie of Seekonk 159124—Sire, Gen. Jamont 42212; dam, Seekook Bell 123967. Butter, 19 lbs. 7 oz.; milk, 259 lbs. 1 oz. Test made from July 29 to Aug. 4, 1903; age, 6 years, 1 month; estimated weight, 940 lbs.; fed 70 lbs. ground corn and oats, 28 lbs. cotton seed meal and 42 lbs. wheat bran—alfalfa hay *ad lib.*, clover pasture.

Gail Rivers 135684—Sire, Senica's Victor 24085; dam, Gorham's Silven 67851. Butter, 18 lbs. 11 oz; milk, 286 lbs. 2 oz. Test made from July 9 to 15, 1903; age, 6 years 2 months; estimated weight, 980 lbs.; fed 56 lbs. ground corn and oats, 28 lbs. cotton seed meal and 42 lbs. wheat bran—clover pasture.

Imp Agenoria's Lass 150265—Sire, Eminent P. S. 1842; dam, Agenoria's Lass P. S. 3251. Butter, 20 lbs. 10 oz.; milk. 276 lbs. 1 oz. Test made from June 23 to 29, 1903: age, 7 years 4 months; actual weight 850 lbs.; fed 28 lbs. cotton seed meal, 48 lbs. bran, and 48 lbs. ground corn and oats—alfalfa hay and pea vines *ad lib.*

Imp Gipsy 150262—Sire, Golden Coast P. S. 1817 J. H. B.; dam, Gipsy P. S. 5240 J. H. B. Butter 16 lbs., 7 oz.; milk, 248 lbs., 3 oz. Test made from July 8 to 14, 1903; age, 9 years; actual weight, 740 lbs; fed, 14 lbs. cotton seed meal, 56 lbs. ground corn and oats, and 42 lbs. wheat bran—pea vine hay.

Imp Lincoln 144517—Sire, The Owl 54738; dam, Lincoln P. S. 5777 J. H. B. Butter, 15 lbs. 2 oz.; milk, 213 lbs., 5 oz. Test made from July 11 to 17, 1903; age, 6 years, 8 months; estimated weight, 680 lbs.; fed 56 lbs. ground corn and oats, 42 lbs. wheat bran, and 28 lbs. cotton seed meal—clover pasture.

Josie of Eau Claire 128006—Sire, Melia Ann's

THE

"1900" FAMILY WASHER FREE

Greatest Invention of the Age. Labor and Expense of Washing Clothes Cut in Two.

No More Stooping, Rubbing or Boiling of Clothes.

Every Household Needs One.



THE "1900" BALL-BEARING FAMILY WASHER SENT FREE

to anyone answering this advertisement, without deposit or advance payment of any kind, freight paid, on 30 days trial. The "1900" Ball-Bearing Washer is unquestionably the greatest labor-saving machine ever invented for family use. **Entirely new principle.** It is simplicity itself. There are no wheels, paddles, rockers, cranks or complicated machinery. It revolves on **bicycle ball-bearings,** making it by far the easiest running washer on the market. No strength required; a child can operate it.

No more stooping, rubbing, boiling of clothes. Hot water and soap all that is needed. It will wash **large quantities of clothes,** no matter how soiled, **perfectly clean in 6 minutes.** Impossible to injure the most delicate fabrics.

An Enthusiastic Admirer.

Chicago, Ill., March 22, 1903.

The "1900" Washer Co., Binghamton, N. Y.

The washer that I bought from you nearly 2 years ago is in the best condition yet, and I believe it always will be; nothing has been worn out or broken off; every part is as good as it was when I bought it. Neither have I noticed that my clothes through the continuous use of the washer have been worn out. Your washer don't rub the clothes to pieces or wear them out. It is really the best washing machine on the market, and if I could help it there would not be a house-wife in the United States without one of your "1900" ball-bearing washing machines. I heartily recommend it to every lady, for it will save her a lot of hard work.



Mrs. A. H. CENTNER, 666 Diversey Boulevard.

Write at once for catalogue and full particulars to

"1900" WASHER CO.,

219 R. STATE ST., BINGHAMTON, N. Y.

The New 1903 REID HAND SEPARATOR



The 1903 Reid Hand Separator is the most exact milk skimmer ever made—it is simplest, fastest, lightest running, and affords most butter-producing material under all conditions. It creates a new source of revenue and maintains the income—

WEARS LESS, LASTS LONGEST

Every Reid Hand Separator is sent out under a positive guarantee, and is sold on its own merits. If you want a separator we will send a Reid on approval—work it ten days and if it does not excel all others return at our expense. Send for new catalogue and revised price list, mailed free.

A. H. REID, 30th and Market Sts., Philadelphia, Pa.



A Cream Separator is valuable according to the amount of money it makes for you.

The American Is a Money Maker.

It does its work so well that we dare sell it on approval. The price is low enough to make it a big winner for you the first year. Write for free catalogue.

AMERICAN SEPARATOR COMPANY,

Awarded Medal at Paris, 1900. Box 1023 Bainbridge, N. Y.



THE Iowa Dairy Separator.

AN UP-TO-DATE MACHINE REPLETE WITH PRACTICAL IDEAS

It is built in the following sizes:

250, 350, 450, 600, 750 POUNDS PER HOUR

Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.

SEND FOR CATALOGUE NO. 60 AND PRINTED MATTER.

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End Your Butter Troubles

with a **National Hand Separator** and make more and better butter from same quantity of milk. The National will do it easier, quicker and pay its cost in a very short time. We don't ask you to take our word—we send the machine for



10 Days' Free Trial

and let it prove its worth right in your own dairy. *You take no risk*—we assume it *all*. If it does not meet your expectations, send it back—we pay the costs. Our catalogue tells more—write for it, it's free.

National Dairy Machine Co., Newark, N. J.



WANTED!!

Every reader of this paper who owns a few cows to send for our new catalog of

DAVIS Cream Separators

Sent free upon request. It will tell you why the Davis Separators are money makers for their owners.

THEY ARE GUARANTEED to separate THOROUGHLY and QUICKLY. Dairymen and farmers find the "Davis" the most economical piece of machinery on the farm. Let us send you full particulars about it

DAVIS CREAM SEPARATOR CO.

54 to 64 N. Clinton St., Chicago.

WORLD CREAM SEPARATOR CO.

NEW OXFORD BALL BEARING Cream Separator

Sold on guarantee to be the best on the market. Catalog free.

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Ask your Dealer

Make your horses happy by providing them with Pure-Salt Bricks. Warranted to contain nothing but refined dairy salt. A great modern convenience at a cost of about 5 cents per horse per month.

BELMONT STABLE SUPPLY CO.

Brooklyn, N.Y.

MILK DEALERS COMBINATION Milk Protector, for cans or bottles. Prevents milk churning and souring in summer and freezing in winter. INVESTIGATE. S. C. Sullivan Mfg. Co., Erie, Pa.

son 22041; dam, Jollie of Eau Claire 110886. Butter, 22 lbs., 9 oz. milk, 319 lbs., 2 oz. Test made from July 29 to Aug. 4, 1903; age, 6 years, 9 months; estimated weight, 840 lbs.; fed 70 lbs. ground corn and oats, 42 lbs. cotton seed meal and 55 lbs. wheat bran—alfalfa hay, clover pasture.

Butter-Tests Accepted by the American Jersey Cattle Club, Sept. 10, 1903.

SEVEN-DAY TESTS.

Etta Rex 2d 122289—Sire, Comus Rex 26804; dam, Etta Rex 11590. Butter, 16 lbs., 7 oz.; milk, 238 lbs., 8 oz. Test made from Sept. 16 to 22, 1894; age, 3 years; estimated weight, 900 lbs.; fed 91 lbs. of a mixture of equal parts of corn meal, oat meal and bran—prairie hay and sheaf oats, mixed prairie grass and white clover pasture.

Guenon's Lad's Love 154988—Sire, Guenon's Lad 54422; dam, King Koffee's Fanny 121589. Butter, 14 lbs., 10½ oz.; milk, 198 lbs., 4 oz. Test made from June 12 to 18, 1903; age, 3 years; estimated weight, 800 lbs.; fed 5 lbs. bran, 5 lbs. oat meal and 3 lbs. oil meal, mixed, daily—hay *ad lib.*, good clover and orchard grass pasture. Property of estate of W. S. Ladd, Portland, Oregon.

Philadelphia 23476—Sire, Forget-me-not P. S. 291 J. H. B.; dam, Wide Awake 18591. Butter, 18 lbs., 1 oz.; milk, 181 lbs., 4 oz. Test made from Dec. 24 to 30, 1894; age, 12 years; estimated weight, 975 lbs.; fed 84 lbs. corn and oats, 63 lbs. bran, 14 lbs. oil meal and 21 lbs. cotton seed meal—millet and prairie hay, cut corn stover and oat straw *ad libitum*.

Upright's Maiden 105616—Sire, Diploma 3d 36376; dam, Upright's Brownie 103755. Butter, 17 lbs., 8 oz.; milk, 326 lbs., 8 oz. Test made from May 21 to 27, 1903; age, 7 years; estimated weight, 950 lbs.; fed 5 lbs. bran, 5 lbs. oat meal and 3½ lbs. oil meal, mixed, daily—hay *ad lib.*, good clover and orchard grass pasture. Property of estate of W. S. Ladd, Portland, Oregon.

FOURTEEN-DAY TESTS.

Guenon's Lad's Love 154988—Sire, Guenon's Lad 54422; dam, King Koffee's Fanny 121589. Butter, 29 lbs., 3½ oz.; milk, 400 lbs., 4 oz. Test made from June 12 to 25, 1903, age, 3 years; estimated weight, 800 lbs.; fed 5 lbs. bran, 5 lbs. oat meal, and 3 lbs. oil meal, mixed, daily—hay *ad lib.*, good clover and orchard grass pasture. Property of Est. of W. S. Ladd, Portland, Oregon.

Upright's Maiden 105616—Sire, Diploma 3d 36376, dam, Upright's Brownie 103755. Butter, 34 lbs., 10 oz.; milk, 643 lbs. Test made from May 21 to June 3, 1903; age, 7 years; estimated weight, 950 lbs.; fed 5 lbs. bran, 5 lbs. oat meal, and 3½ lbs. oil meal, mixed, daily—hay *ad lib.*, good clover and orchard grass pasture. Property of estate of W. S. Ladd, Portland, Oregon.

Milky Brine in Butter.

Cause and Remedy for White Specks—Churning Temperature and Washing.

Prof. E. H. Farrington, in *Country Gentleman*, presents a letter of inquiry and his reply to same, commenting as follows:

"I am having trouble with milky brine in my butter, and cannot find what causes it. It is not in every churning, and some churnings are a great deal worse than others. To-day was the worst I ever had. When I worked the butter, the brine that came from it was like buttermilk, and it left particles of curd all through the butter to such an extent that I fear it won't pass as an extra.

"This churning of cream was not ripe enough; it had not thickened, but I have had the same trouble with cream that was in prime shape for churning, only not so bad. And I have had a nice clear brine from cream that was no riper than this. I thought that reworking might improve it, but the curd is in granules about the size of a pinhead and quite hard, and I doubt if reworking would affect them." A. N. T.

Picketts, Wis.

The milky brine in butter is usually caused by churning the cream at too high a temperature, and not allowing the buttermilk to drain thoroughly from the granular butter after churning. The experience described indicates that the milky brine is caused by overripe cream, and by failing to strain this cream into the churn. The pieces of curd which are the size of a pinhead and quite hard, evidently come from curd in the cream which was so sour that the curd contracted into hard lumps, and then was not removed when the buttermilk was drawn. If these pieces of curd are so small that they will pass through any strainer used for straining the cream into the churn, they may be removed by washing the granular butter in the churn in the following way:

After the buttermilk has been drawn off, fill the churn two-thirds full of water. The granular butter will all rise to the surface, because butter is lighter than water; the hard lumps of curd, however, being heavier than water, will sink, and they may be drained off with wash water through the drain spout at the bottom of the churn. This washing and draining off of the wash water should be repeated until by inspection it is shown that these small lumps of fine, hard curd are all removed. In this way the granular butter is cleaned from curd, so that it may be salted and worked ready for packing.

The letter does not state what kind of cream is received at the factory. If it is from milk which is separated at the factory, there is no excuse for having these hard pieces of curd in the cream, because under such circumstances the buttermaker should control the ripening of the cream, and churn before it sours to such an extent that the curd coagulates and separates from the fat of the cream. If, however, the factory receives hand separator cream from farmers, the buttermaker is not entirely responsible for this condition of the cream.

In such a case it is probable that some farmers send a very sour cream, and it is the curd from this sour cream that is causing the trouble with the butter.

The ordinary milky brine which butter sometimes has without the presence of these white specks of curd, may be easily overcome by churning the cream at a temperature below 55 deg. A rich cream churned at this temperature ought to give a very clear brine—in fact, when the buttermilk is drained off, it may often be noticed that the last portion of the buttermilk as it comes from the churn, is thin and watery, and looks more like water than buttermilk.

If a milky brine is formed even when the cream is strained into the churn, and churned at a low temperature, the milkiness may be removed by adding strong brine to the churn just about as the cream breaks into granular butter.—*Dairy Produce.*



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and you'll never be satisfied with any other.
PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

Drive to the Depot—Not to the Dealers
And get your ADVANCE FENCE as we send it direct to you, saving you from 10% to 20% on what you would have to pay your dealer for it. Remember that we manufacture and sell fence direct to the user, at wholesale prices, and will allow you
30 DAYS' FREE TRIAL.
You take no risk in dealing with us. This is the most liberal offer ever made by a fence factory. Write at once for our catalogue giving special discounts for large quantities. Address
ADVANCE FENCE CO., 136 St., Peoria, Ill.

BROWN
16 to 35 Cents Per Rod.
Heaviest, strongest, most durable fence made. All wires extra large. We sell to farmers at wholesale prices. Coiled Spring, Barb and Soft Galvanized Wire.
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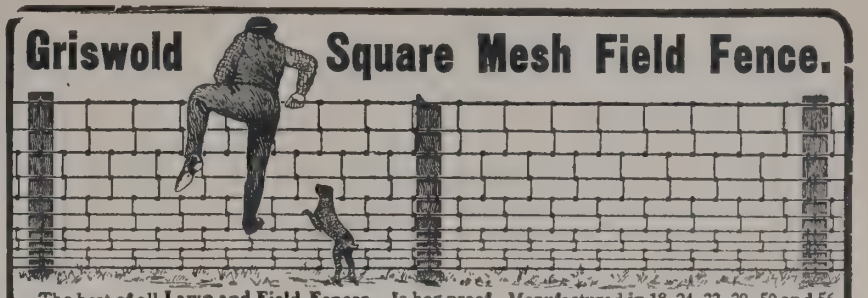
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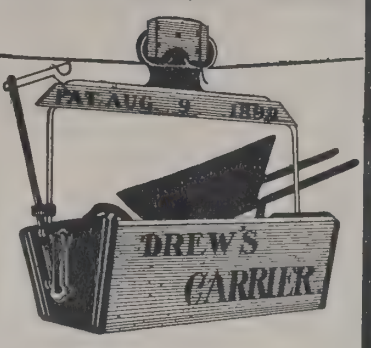
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ONLY $129
TERMS—⅓ Cash and balance 1, 2, 3, and 4 months notes or 5 per cent discount for cash


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THE O. ARMLEDER CO., Cincinnati, O.



BEST MILK WAGON ON EARTH.
SOLD DIRECT TO CONSUMER ONLY.
Highest Grades—Lowest Prices—Guaranteed
Shipped on Approval. Full line Buggies and Harness. Write for Catalogue and Prices.
SAVE DEALERS' PROFITS.
UNION BUGGY CO Dept B PONTIAC, MICH.

Griswold Square Mesh Field Fence.

The best of all **Lawn and Field Fences.** Is hog proof. Manufactured in 18, 24, 33, 39, 50 and 56 inch heights; in 20 and 40 rod rolls. The narrow widths can be supplemented to any height desired by Barbed or Plain wire, or two strand twisted Cable wire. Manufacturers of **Diamond Mesh Fence. Plain, Galvanized, Barbed or Telephone Wire. Wire Nails and Hay Bale Ties.** Write for illustrated catalogues and price lists. Dillon-Griswold Wire Co., Sterling, Ill.

GOODBYE, WHEELBARROW


Every farmer who gets a Drew Elevated Carrier has no more use for the barnyard wheelbarrow. The
DREW ELEVATED CARRIER
will carry the manure from the stables to any point in the barnyard, drop it, return automatically, ready for another load.
It is self operating—it turns curves and switches—dumps its load in yard or wagon. Besides carrying manure you can use it to convey ensilage, feed, grain, potatoes, cans of milk, from one point to another. It works so simple and easy that any man or boy can run it.
THE DREW ELEVATED CARRIER
carries labor off from the farm—it is the farmer's labor and money saver. No trouble to put them up—no trouble after they are up.
It leaves barnyard free from posts—keeps the barnyard clean and free from litter. Get one and
"WATCH IT WORK FOR YOU"
WRITE FOR OUR ILLUSTRATED CATALOGUE, FULLY EXPLAINING ALL ABOUT IT.
Also receive testimonials from hundreds of farmers and dairymen who have the Drew Carrier on their farms.
DREW ELEVATED CARRIER CO., WATERLOO, WIS., U. S. A.



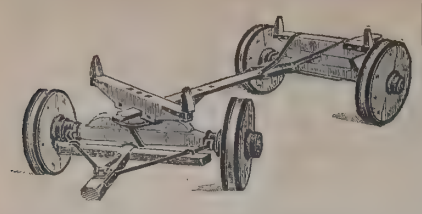
CHERRY'S
Perfected Barn Equipments
Consisting of Manure Carrier, Feed Carrier, Ensilage Carrier, Grain Elevator, Swivel Hay-Carrier, Hay Forks and Barn Door Fixtures. This system of carriers is built for **Heavy Work** and **Durability.** By the use of our **Curves** and **Switches** we can equip any barn. Send for illustrated Catalogue H and price list to
D. B. CHERRY & CO.,
KNOXVILLE, IOWA.

THE ONLY LOW DOWN
Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the market.


20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished.
Send for catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.
Shipman, Bradt & Co.
Sole Manufacturers,
DE KALB, - ILLINOIS.



The National
LOW DOWN CUT-UNDER
justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.
THE NATIONAL WAGON COMPANY, Chillicothe, Ohio.



The HILLSDALE LOW DOWN Wagons

and Wheels to fit your old wagons. Price reduced.

HILLSDALE WHEEL CO., Hillsdale, Mich.



WE LEAD THE WORLD

We are the largest manufacturers of Grooved and Plain Tire Steel Farm Wagon Wheels in America. We guarantee our patent Grooved Tire Wheels to be the best made by anybody anywhere. Write us.

HAVANA METAL WHEEL CO.

HAVANA, ILL.



THE PLANO SHREDDER

does it by turning corn stalks into fine corn hay of highest value. This Husker and Shredder works fast enough to yield big profits—husks and shreds from 21 to over 30 acres in a day.

Its famous Husking Belt prevents all clogging and makes clean husking certain in all kinds of corn. It is **wholly safe**—no crippled operators here, for they can't reach the feed rolls nor easily get at the husking mechanism.



Ask for 1903 Husker catalogue with full description. It's free.

PLANO DIVISION

International Harvester Company of America

CHICAGO, ILL.

$1.00 BIG STOVE OFFER.

If you can use the best big 500-pound steel range made in the world, or the best coal or wood heating stove ever made and are willing to have either stove placed in your own home on three months' free trial, just cut this notice out and send to SEARS, ROEBUCK & Co., Chicago, and you will receive free by return mail, big pictures of both stoves, also many other cooking and heating stoves, you will also receive the most wonderful $1.00 steel range and heating stove offer, an offer that places the best steel range or heating stove in the home of any family, such an offer that no family in the land, no matter what their circumstances may be, or how small their income, need be without the best cooking or heating stove made.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Poison Perhaps.

I have a cow that calved the 12th. of Aug. She appeard to be all right until the a, m. of the 4th of Sept.(the placenta came away, no discharge) Then we noticed her throwing her head and acting a little strange. When brought up at milking time in p. m. she was vomiting and frothing at the mouth, pulse quick, looking wild in the eye; bowels very distended, breathing labored. She gave the usual quantity of milk in the morning, but very little at night. She died during the night. Could she have been poisoned with a drug? B. B. B.

Litchfield Co, Conn.

ANSWER.

No. 1 If you don't know the action of a drug, nor the nature of the disease, it is best not to dope the animal at all. For many an animal is killed by administering medicine, which is contra indicated.

No. 2 If you will describe the disease, which is new to you, we will endeavor to find the proper name for it.

How to Use the Teat Bistoury.

Please explain more fully the method of using a teat bistoury and the treatment necessary afterwards. We have a cow with hard rings in two of her teats, making her quite hard to milk. They are very sore at times and then give off a very yellow milk for a few milkings. What treatment is necessary? Is the teat bistoury a safe and sure remedy for hard milking cows? G. J. B.

Galesburg, Mich.

ANSWER.

Insert the bistoury into the teat and through the obstructed parts, push the shaft so that the blade will portrude to such an extent as you wish to cut. Then draw the bistoury downward, cutting through the obstruction. Cut in the same way in four opposite directions. There is no further treatment necessary but to keep on milking. This will keep the channel open, and it will stay open, owing to the flow of milk. Hard milkers are treated likewise; it is an immediate relief. Be sure to leave the bistoury thoroughly clean.

Warts.

I have a fine cow five years of age all right in every way except her teats are completely covered with warts. O. E. E.

Bar Mlils, Me.

ANSWER.

Clip them off with a pair of sharp scissors and touch up the parts with a stick of lunar caustic. If the teats appear hard and dry rub them with lanolin.

Mastitis.

I have a cow that frequently one quarter of her udder, and then another, will swell up, get hard and when it gets soft, that part will give thick, stringy milk. A. M. B.

Newell, Ia.

ANSWER

This is very often brought about by cows compelled to lie in a narrow and uncomfortable stall, thereby squeezing these quarters against the hoofs while laying down. Hot fomentations and plenty of hand rubbing are the quickest to relieve this trouble. Apply them as often and as long as possible. A little warm lard rubbed into the udder between the fomentations, will greatly aid to soften the parts. Be sure to first remove the cause.

Lame in Back.

My Chester white boar is about one year old, and about a month ago commenced to wabble in his hind parts. In a few days was down unable to rise with his hind parts, and at present does not try to use them in the least. I thought it

FOR SALE!

PROFITABLE DAIRY FARM

Of 360 acres near Burlington, N. J., 18 miles from Philadelphia. Fancy milk sold to city dealer. 100 head registered Jerseys. Handsome dwelling; substantial farm house and tenant houses; modern equipped barns. Fertile land; good water; good roads. Owned by widow. Apply to

H. H. ALBERTSON, Taughannock Falls, N. Y.

LANDS EASY TO GET

I have lands, all good farming land, in Wilkin and Polk counties, Minnesota and Grand Forks and Burleigh counties, North Dakota, that I will sell on crop payment plan, with small cash payment of from $2.50 to $3.50 an acre cash down. Must sell. A chance of a lifetime. Investigate. For description and how to reach them, address

E. E. SECOR, Buffalo Center, Iowa

FINE FARM OF 150 ACRES 20 miles from Milwaukee, running water, high state of cultivation, large orchard, good buildings. A bargain if taken at once.

ADAMS & GLOVER LAND CO.,

Herman Building, Milwaukee, Wis.

Wisconsin

offers unexcelled opportunities for those who want to stop paying rent and make money in agriculture, in the fruit or dairy industry, or in sheep raising. Along the lines of the

Chicago, Milwaukee & St. Paul Railway

in Northern Wisconsin are many tracts of land admirably adapted to the home-seeker. In former timber tracts are many cultivated farms worth $50 to $75 an acre. Adjoining them, enjoying the same advantages, are unimproved farms for $7 to $20 per acre. Why not take a trip there and investigate these openings for yourself?

Additional information on request.

F. A. MILLER, GENERAL PASSENGER AGENT, CHICAGO.

DO YOU WANT 10 COWS?

We make the following liberal offer to any reliable farmer who buys 160 acres of land of us: We will furnish you with 10 cows, either fresh or soon to become fresh. They cost you just the market price. You sell their cream to the creamery. Every month you have the Creamery Company send us sixty per cent. of the amount due you for cream. You do this until the cows are paid for. In one year the cows with their increase will pay for themselves. After the first year they will take care of the annual payments of principal and interest due on your farm. If you buy a half section, we will furnish you with 20 cows, and so on, selling you 10 cows for every 160 acres you buy. This is the "crop payment plan" applied to stock. We expect purchasers to pay from $2.00 to $3.00 per acre in cash—sometimes we make easier terms to good men. If our plan interests you, write us.

WHITNEY & WHEELOCK, 22 Broadway, Fargo, N. D.

ILLUSTRATION.



A NORTHERN MINNESOTA RASPBERRY PATCH

Very few of the better class of dairy farmers in the old settled districts of the United States appreciate the opportunities that are offered to the dairy farmer who is anxious to secure a better market, broader field, and higher prices than he secures at the point where he is located.

For this reason we wish to call to the attention of our readers the possibilities of the new markets opening up in the mining districts of Minnesota. This district contains two distinct iron ranges, about twenty-five miles apart, and extending across the northern portion of Lake and St. Louis counties, Minnesota. On these two iron ranges, especially on the southern range, known as the Missabe or "soft ore" range, are a number of towns of a population of all the way from two or three hundred to about seven thousand people, which are built up by people drawing good salaries or wages, or making good incomes, who are also a class of people ready to spend their money to get the best that the country offers.

These towns are located according to the mines, and are maintained by the mines and sawmills, and other lines of business, which are building up there.

The country south of this more southern range is especially adapted to stock and dairy farming and the raising of vegetables, feed grains, and fruit. It has already been proven one of the finest clover and timothy countries in the world. The early settlers, who have put in small crops of wheat, rye, oats and corn, have received very good returns from their small acreage. Potatoes grow tremendously, returning very large yields per acre of the finest quality. Cabbages and other vegetables that market readily grow equally well, and those who have been adventurous enough to plant apple trees are now reaping satisfactory returns. The drawback of the country seems to be the work of clearing as it appears to the new comer. This work is usually over-estimated and in this St. Louis county agricultural district are some lands which can be readily put under the plow, free from stone, or from the work of grubbing.

The prospective settler may question the life of the market, arguing that the mining and lumber business will soon die out. The lumber business, which plays but a small part in the maintenance of the country, may dwindle down in the course of fifteen or twenty years, but the mining companies have at the present time work planned ahead in the ore bodies which they have blocked out to last fifty years, and are making plans for handling this project accordingly. This should thoroughly satisfy the investigator of this country as to the long life of the markets promised. We understand that in this county railroad companies have for sale several hundred thousand acres of desirable agricultural lands which can be secured on extraordinarily easy terms by actual settlers, and that the speculator is discouraged by these railroad companies while the settler is encouraged in every way. We would advise our readers, who contemplate making a change, or the farm hands and hired men of our dairy farmers, who contemplate branching out for themselves, to thoroughly investigate this country,



Wise Man's Wagon.

The man who has had experience in running a wagon knows that it is the wheels that determine the life of the wagon itself. Our

ELECTRIC STEEL WHEELS

have given a new lease of life to thousands of old wagons. They can be had in any desired height and any width of tire up to 8 inches. With a set of these wheels you can in a few minutes have either a high or a low down wagon. The Electric Handy Wagon is made by skilled workmen, of best selected material—white hickory axles, steel wheels, steel hounds, etc. Guaranteed to carry 4000 lbs. Here is the wagon that will save money for you, as it lasts almost forever. Our catalog describing the uses of these wheels and wagons sent free. Write for it.
ELECTRIC WHEEL CO., BOX 130, QUINCY, ILLINOIS.

BUY A MILL

that grinds small grains, corn on cob, shelled corn, either or all mixed.



The New Holland

grinds in any form to desired fineness, runs easy, grinds fast and costs half what others do.

Sold on Free Trial Plan.
Return if not satisfied. Ask for catalogue.
New Holland Machine Co., Box 119, New Holland, Pa

The Books Are Free

Spavin
Ring Bone
Knee Sprung
Fistula
Poll Evil
Lamp Jaw

If you have a horse that is lamed or blemished by any kind of a growth or enlargement, that is Knee Sprung or has Fistula, Poll Evil or Sweeny, or if there is a case of Lump Jaw among your cattle, write us at once. We will send you two big booklets. One tells you just how to cure these diseases and blemishes. The other proves that you can cure them, and we guarantee you success besides. Same methods employed by over 140,000 farmers and stock owners. Write for the books and tell us what kind of a case you have to treat.

FLEMING BROS., Chemists,
228 Stock Yards, Chicago, Ill.

Cows Made to Breed

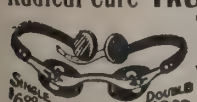
Inject with Hood Farm Breeding Powder when they fail to breed, do not clean, are irregular; also after abortion. Of greatest value to breeders and stock owners. Dollar size by mail, $1.15; large size, four times more, to any railroad express point in U.S. $2.75. C. I. Hood & Co., Lowell, Mass.

Painkiller PERRY DAVIS' CURES CRAMPS & COLIC

St. Jacobs Oil

Promptly cures Sprains and Bruises.

RUPTURED? Send for our
Radical Cure **TRUSS** on **FREE TRIAL**



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Totally unlike anything made. Beware of imitations.
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SIGHT RESTORED AT HOME



Illustrated book sent **Free** tells how this can be done with perfect safety at small expense by the **Oneal Dissolvent Method.** All forms of eye diseases cured. References to cured cases in all parts of the world. Cross-Eyes Straightened. No knife or pain. Always successful. Book, testimonials and Dr. Oneal's advice and opinion absolutely **FREE**
OREN ONEAL, M. D., Suite 904, 52 Dearborn St. Chicago

might be kidney worm, gave him a few doses of copperas, also turpentine. He eats as natural as ever. acts as healthy as ever, otherwise.
Hartland, Minn. W. W. B.

ANSWER.

Apply equal parts of oil of turpentine, ammonia and cotton seed oil over the back once daily, and rub it well for 5 or 10 minutes. Give the animal a teaspoonful of equal parts of sulphur and nitrate of potash twice daily.

Garget.

I have two cows which have lost one quarter each from garget. Will you kindly advise if the milk and cream from the remaining three teats is all right to use in my household? Also, is it probable that heifers from these cows will inherit this defect? L. DeS.
Bailey, Tenn.

ANSWER.

If the other quarters are healthy, and the ones which are dry, do not suppurate or discharge unhealthy fluids, the milk from the remaining quarters is fit to use for your family.

It is not probable that the heifers from these cows will inherit the defect.

Altered Secretion.

I have a Jersey cow that I think is somewhat affected with garget. Every few days one quarter of udder swells and gets somewhat hard and the next milking some white, cheese like milk or matter is milked out. Generally it is in pieces or stringy like. In udder or quarter there is sometimes a lump when swelled, but goes down in a day or two. D. S. S.
Mansfield, Ohio.

ANSWER.

Give a full dose of physic. When this has operated, give a dram of Potassium Iodide in a quart of water, an hour before feeding, morning and night; keep indoors until you notice a change for the better.

Obstructed Teat.

A valuable cow just dropped second calf, has one rear teat obstructed by something about the size of a No. 4 shot. Have to use a straw to pass milk. T. O. S.
Jamestown, R. I.

ANSWER.

Pass a good sized milking tube up into the teat, then locate the obstruction and squeeze it up and down against the tube for a few minutes, each time after milking. You may paint the region over the enlargement, twice a week, with tincture of iodine. Do this after milking.

Milk Fever.

Thoroughbred Holstein, three years old, could not calve alone, and upon examination found calf wrong end too, with hind legs under belly. Straightened the legs and removed calf, which was nearly dead. In twelve hours called the veterinarian who removed the afterbirth. Cow received one lb. salts, ginger, laudanum and bicarbonate of soda in doses that were ordered. Cow died in 22 hours. Symptoms were, refused to eat or drink, extremities cold, low pulse, limbs stiff, difficult breathing. Eyes became more and more sunken and glassy, head at the side, and not hardly any milk in the udder. I called it milk fever. How much hurt will it do if the Schmidt treatment is used on a cow that is suspected of having milk fever and did not have it?

Have a four-year-old that is very fat and a heavy milker (over 7,000 lbs. second season) that is due Oct. 1st. Will have the Schmidt treatment all ready in case of need. G. L. P.
Wilshfield, Ohio.

ANSWER.

We believe your cow had milk fever. The Schmidt treatment would have been your remedy. It does no harm to apply the Schmidt treatment to a cow even if she did not happen to have milk fever.

Horse Owners! Use
GOMBAULT'S



Caustic Balsam
A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*
Every bottle sold is warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland O.

THE NORTH-WESTERN LINE C.&N.W.RY.

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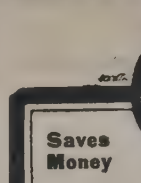
Will be in effect from all points on the Chicago & North-Western Railroad for the occasions named below:

Denver, Colorado Springs, Pueblo, Oct. 7 to 11, Brotherhood of St. Andrew.

For information as to rates, dates of sale, etc., of these or other occasions, call upon the ticket agent of the North-Western Line.

Detroit, Mich., Oct. 16th to 22nd, Christian Church National Conventions.

San Francisco and Los Angeles, Cal. Oct. 20th to 23rd, American Bankers' Convention.



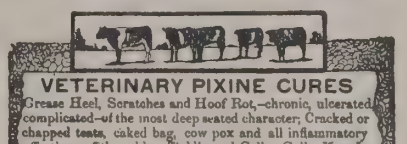
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serves to show that for Spavins, Ring Bones, Curbs, Splints and all forms of Lameness nothing is sure but **Kendall's Spavin Cure.** When men write like the below after years of experience they know what they are talking about.

Silverton, Col., Jan. 4, 1903.
Dr. B. J. Kendall Co., Enosburg Falls, Vt.
Dear Sirs:—Kendall's Spavin Cure for twenty years has been my cure-all for both horses and man, and has always given satisfaction.
Very truly yours, W. N. SISSON.

Price $1; 6 for $5. As a liniment for family use it has no equal. All druggists. Book "A Treatise on the Horse" mailed free. Address
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VETERINARY PIXINE CURES

Grease Heel, Scratches and Hoof Rot,—chronic, ulcerated, complicated—of the most deep seated character; Cracked or chapped teats, caked bag, cow pox and all inflammatory affections of the udder; Saddle and Collar Galls, Nipple Chafes, and Abscesses, Old chronic Sores, the result of pressure by badly fitting harness or by irritating masses of dirt, sweat and hair under the harness. It makes a positive and permanent cure by producing healthy granulations, building up new cellular tissues, healing naturally from the bottom without scab or scar and stimulating growth of hair, natural color. It penetrates, soothes and heals while horse works.
Absolutely Guaranteed. Money back if it fails.
2 oz. 25c; 8oz. 50c; 5lb. pkg. $4.00.
At all Dealers or sent prepaid.
Send 10c for sample box and booklet. Troy Chemical Co. TROY, N. Y.
VETERINARY PIXINE

"SAVE THE HORSE" SPAVIN CURE.



$5.00 WITH WRITTEN GUARENTEE.

It isn't words, type or page advertisements, it's the truths that ring out sound, clear and impressive—actual results from business men whose standing and reliability can be readily ascertained—which have made **"Save-the-Horse"** such a success. Their cured horses are living advertisements, absolute certainties as to the possibility in your own case: with every bottle is a guarantee document as binding to protect you as the best legal talent could make it.

The fire iron invariably only aggravates the disease or injury, blistering is less effective; both necessitate laying up horse four weeks to several months. Mercurial and poisonous compounds produce irreparable injury.

"Save-the-Horse" eliminates these factors; Cures without scar, blemish or loss of hair, can apply at any time, anywhere, in all conditions and extremes of weather. Horses may be worked as usual with boots, as no harm results from destruction of hair or scalding of limb.

Positively and Permanently Cures Bone and Bog Spavin, Thoroughpin, Ringbone (except low ring bone), **Curb, Splint, Capped Hock, Windpuff, Shoe Boil, weak and Sprained Tendons and all Lameness.**

$5.00 per Bottle with written guarantee, constructed solely to protect you. Need of second bottle almost improbable, except in rarest cases. Send for booklet and copy of guarantee. If case is different than described in booklet or advertising we advise frankly of the possibility of the remedy effecting cure. Give particulars, state age, development, location of swellings, lameness, and describe way horse carries leg.

$5.00 per bottle at all druggists and dealers, or sent express prepaid.

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Hay Fever and Asthma

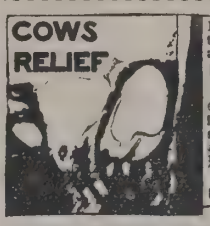
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Cures Curbs, Splints, Spavins, Etc. Equally good for Colic, Distemper, Etc. Our 100-page book, "Veterinary Experience", FREE.

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Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.
Used Exclusively at Model Dairy
Guaranteed to cure caked bag in 12 to 36 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.
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Write for Pamphlet and Testimonials.
Oldest and best Treatment Extant.
MOORE BROS., V. S., Albany, N. Y.



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Can be successfully treated with **Anti-Abortion Serum.** Easily administered and permanently cures. Information free.

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VETERINARY REMEDY CO.,
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Sure Cure for Abortion

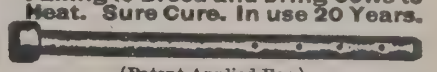


and General Tonic for Cows. The only genuine sure cure and general tonic for cows on the market. I guarantee, and refund money if not satisfactory.
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Write for circular.

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RETENTION OF PLACENTA AND FAILURE TO BREED.
KELLOGG'S CONDITION POWDER
Is a positive cure for these diseases. Write for circular containing full information, references and price.
H. W. KELLOGG CO., St. Paul, Minn.

ABORTION,
Failing to Breed and bring Cows to Heat. Sure Cure. In use 20 Years.



(Patent Applied For.)
Hard Rubber Safety Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.
DR. WM. HORNE, Janesville, Wis.

$3 a Day Sure Send us your address and we will show you how to make $3 a day absolutely sure; we furnish the work and teach you free, you work in the locality where you live. Send us your address and we will explain the business fully, remember we guarantee a clear profit of $3 for every day's work, absolutely sure. Write at once.
ROYAL MANUFACTURING CO., Box 1110, Detroit, Mich.

CHLORO NAPTHOLEUM DIP

Used in the Dairy makes every condition perfectly Sanitary. Use it as a disinfectant, for cleaning all dairy utensils and cans, sprinkling floors and walls. Purifies and cleanses thoroughly. Also cures scours in calves and contagious abortion in cows. Keeps flies off cows at milking. Guaranteed Agents wanted. 1 gal. $1.50; 5 gals. $6.75, prepaid. Larger lots at lower rates.
WEST DISINFECTING CO., Inc., 8 E. 50th. St., New York.

CURE "THE" COW
NO CURE, NO PAY



WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address
DR. EATON J. CROSS
152 Congress St., Troy, N. Y.

BLACKLEGOIDS



BEST PREVENTIVE OF BLACKLEG.

Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each Blacklegoid (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. Blacklegoids are sold by druggists; *ask for them.*

Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.

PARKE, DAVIS & CO. - DETROIT, MICH.
Branches: New York, Kansas City, Baltimore, New Orleans, Chicago; Walkerville, Ont.; Montreal, Que.; London, Eng.

Providing a Silo for Next Year.

ED. HOARD'S DAIRYMAN:—There is a great deal of interest and a great inquiry and a great demand for silos this second week in September and yet the time is closely at hand for people to cut up their corn. You understand that this Company have been manufacturing silos for the last ten years and to-day we could use four times the machines we have, and four times the men connected with the silo department tnat we are now carrying and operating, but we haven't the room for them. It may be said that the up-to-date manufacturer should be able to take care of all the trade that is offered to him, but the silos vary in size. It is impossible for a manufacturer to build a lot of silos and store them as can be done with machines of various kinds. We have had a number of people come here to Kalamazoo in the last ten days who were satisfied that if they got a frost at the usual time of year, their corn crop was practically lost. They were ready to buy a silo now; the same conditions in regard to their corn crop existed a year ago and we had people come to us who said it was up to them to buy a silo and save all their corn crop or practically lose all of it from frost.

Your paper, as well as most of the farm papers, are urging the use of a silo in the last sixty days, four times as strong as you did during the winter months and yet we hold if a man is going to build a barn or a granary or any other improvement on his place, he will take it up in the winter months and possibly get ready to put it up and we hold that the time for a man to buy a silo is in the early winter or early spring months. The installation of a silo on a man's farm in April, enables him to get this work done and out of the way of his spring work and he has it ready for his clover crop if he wishes to put a portion of it in, or if the weather is such that he is apt to lose that from wet weather, and then he has it to feed out during the dry hot weeks of August and September.

We think you can serve your readers in the winter time by urging them to take up the placing of a silo at that time and while your excellent paper gives the rations of a great many dairymen, one of which would show that they were feeding ensilage, at the same time all of us are prone to defer making a purchase unless we are pretty near ready to use it. We assume that every concern manufacturing silos has more business than they can take care of at this time of year, at least that is our condition and there isn't one of them but what would make a concession to buyers in the early part of the year which they cannot afford to do at this season.

This company has erected for the American Jersey Cattle Club on the St. Louis Fair grounds, one of our 18x40 ft. Redwood silos and we have also put up a little smaller one for the Short-horn Association, and as there will be a great many people at the St. Louis Fair next year, there will be a good opportunity to examine what we consider the most durable material in the shape of lumber there is in existence. And right in connection with this high priced lumber as some term it, our experience in the silo trade shows that the buyers as a rule are buying larger silos and better material than they have before in eight or ten years, and we believe that you can serve the interests of your readers at all times by urging them to build a silo and build a good one, and build it early in the year.

You can publish our views as manufacturers, if you wish, and we would like to hear an expression from other manufacturers. WILLIAMS MFG. CO.

Kalamazoo, Mich.

Flax Seed for Fattening Veals.

ED. HOARD'S DAIRYMAN:—I noticed in your paper of Sept. 11, an item under head of "A Massachusetts Appeal." In regard to cotton seed meal, I have never fed any to calves, but know of parties that tried it, and they did well for a while and then they all died very suddenly.

I think if S. B. R. would get some whole flax seed and steep it up and strain, (perhaps ground flax seed scalded would do as well) and try it on one or two, it would fat inside and they cannot tell them outside from new milk calves. I have fattened a good many that way, but never dressed but one, and that showed large quantities inside.

Oxford, N. Y. J. D. V. R.

THE BUGLER'S CHEST

Is well expanded. He uses his lungs to their fullest capacity. People in ordinary do not use much over half their lung power. The unused lung surface becomes inert, and offers a prepared ground for the attack of the germs of consumption. There is no need to warn people of the danger of consumption, but warning is constantly needed not to neglect the first symptoms of diseased lungs.



Dr. Pierce's Golden Medical Discovery cures obstinate coughs, bronchitis, bleeding lungs, and other conditions which, if neglected or unskilfully treated, find a fatal termination in consumption. It is entirely free from opiates and narcotics.

"About three years ago I was taken with a bad cough, vomiting and spitting blood," writes Mr. D. J. Robinson, of Spring Garden, W. Va. I tried many remedies; nothing seemed to help me till I commenced using Dr. Pierce's Golden Medical Discovery. After using ten bottles and four vials of his 'Pleasant Pellets,' I commenced to improve. My case seemed to be almost a hopeless one. Doctors pronounced it ulcer of the lungs. I was sick nearly two years—part of the time bedfast. Was given up to die by all. I thought it would be impossible for me to live over night at one time. I haven't spit any blood now for more than twelve months, and worked on the farm all last summer. It was Dr. Pierce's medicines that cured me."

Accept no substitute for "Golden Medical Discovery." There is nothing "just as good" for diseases of the stomach.

The "Medical Adviser," in paper covers, is sent *free* on receipt of 21 one-cent stamps to pay for mailing *only*. Address Dr. R. V. Pierce, Buffalo, N. Y.

SEND 50 CENTS to Modern Medicine Co., Dept. B., Benton Harbor, Mich., for their Wonderful Tonic Tablets, that restores health and vigor to men and pale, sickly women. Guaranteed or money returned. Valuable medicine book for 2 cent stamp.

Improved and Unimproved Farms for Sale

Farm No. 1 consists of 90 acres with frontage on a fine lake where there is excellent fishing and game. This lake is one of a chain of lakes on which you can travel for twenty-three miles. Has two-story house with eight rooms. Two-story log barn. Ice house and ten acres cleared. For sale at a bargain. One mile and a half from the railroad.

Farm No. 2. One-half mile from the railroad. 100 acres or more if desired, five acres cleared. Two-story, eight room house. Glass chicken house. First-class hog pen. Plenty of timber on land for own use, and quite a quantity of saw timber. We have besides this 16000 acres of unimproved land. Heavy black soil. All lies in Central Wisconsin. Low priced Excellent markets. Will grow any kind of crop and produce immense results. Excellent water supply. Splendid markets and a local demand for everything that is raised. None of the land lies more than three miles and a half from the railroad.

WISCONSIN FARMS

Will furnish names of people who have bought from us who have made big success. Can furnish lands in either small or large quantities. Can furnish reduced rates to see the lands. Easy terms to suit the convenience of the purchaser. As safe and desirable an investment as government bonds. Write in for maps and any information you may desire.

INTERIOR LAND CO., Janesville, Wis.

Buy You a Ticket to CROOKSTON, MINN., and call upon

The Polk County Land & Loan Company

For choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.

360 acre farm, 4½ miles from Crookston, Minn, (a city of 7,000 inhabitants), and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x2 1½ stories with an L 14x22, and a wood shed in connection 20 ft. square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm in under a high state of cultivation, and is well drained by a slight ravine running through the farm, merely sufficient for self drainage. The soil is a rich deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50,

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired, Price $19.00 per acre.

21 STRONG REASONS

WHY IT WILL PAY YOU TO BUY A FARM IN THE GREAT BLUE GRASS COUNTRY OF NORTHERN WISCONSIN.

1. The soil is rich and productive. Everywhere there is a clay subsoil to retain the moisture.
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3. The seasons are regular and there is never a crop failure.
4. There is an abundance of wood for building and fuel, which need only to be cut.
5. Taxes are very low compared with other sections.
6. It is the best agricultural country known for a man of small means to get rich.
7. It is better to own a low-priced farm than to owe for a high-priced farm.
8. You can own a home in this section for what you now pay out for rent in one year.
9. Everything grown in the west can be grown on these lands.
10. There is an unsurpassed market for all farm products throughout the year.
11. Truck farming is very profitable in this section.
12. No better fruit country in the northwest. All northern varieties are wonderfully successful.
13. The best place in America to raise horses, mules, cattle, sheep and hogs.
14. The water supply is the best. The country is full of clear running streams and springs
15. Cereal crops average more bushels per acre than in other northern states. This may be said particularly as to oats, the average yield being from 60 to 80 bushels per acre.
16. Grasses and clovers for grazing or hay grow luxuriantly, far better than they do in southern Wisconsin, Iowa, Minnesota, or the Dakotas.
17. No swamps in this section—no malaria, no chills, no fever, no cyclones, no hail or destructive storms.
18. Fish and game in abundance. It is the sportman's paradise.
19. Lumbering and manufacturing interests offer ample employment at good wages whenever desired, both winter and summer.
20. Thousands of settlers are moving into northern Wisconsin, and in consequence land is increasing in value very fast.
21. The best class of people are among the settlers, which include principally Americans, Germans and Scandinavians.

DON'T PAY RENT, but come up and let us sell you a farm which will cost you but little more than the rent of a good farm in the older agricultural districts. Not only that, but a farm that will grow in value every day. Write us to-day for full particulars concerning these lands, and arrange to look them over at the earliest possible moment. They cannot fail to interest you if you want to get a home of your own. Mention HOARD'S DAIRYMAN.

WISCONSIN BLUE GRASS LAND CO., Baldwin, Wis.

DAIRY FARMING

AND FRUIT RAISING IN MINNESOTA

Very few people realize the opportunity for dairy farming and fruit raising in Aitkin and St. Louis counties, Minnesota. Railroad lands can be secured on very easy terms at reasonable prices, which can be easily put in shape for best class of dairy farms and fruit orchards.

The Duluth & Iron Range Railroad Company, and the Chicago, Rock Island & Pacific Railway Company offer special inducements to actual settlers, and particularly easy terms to renting farmers and hired men on farms who wish to get a start for themselves. Write for our book of Happy Homes in the Tall Timber, and do not hesitate because your funds are low to come and see what we can do toward helping you secure for yourself a happy and successful home in the fruit and dairy district of Aitkin and St. Louis counties.

For maps, rates, terms, etc., apply to

L. B. ARNOLD, Land Agent for Trustees for C. R. I. & P. Ry. Co. and Asst. Land Com'r for D. & I. R. R. R. Co.
838 Pioneer Press Bldg., ST. PAUL, MINN.

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THE KING OF THE OZARKS

Leads the World in Apples, Small Fruit and Stock Raising

Unequaled by any country on earth for all-around farming, fruit and stock. 1,400 feet above sea level. Beautiful, healthful climate; short winters, January and February. Pure air, pure water, abundant and fine range, where all grains, grasses and fruits grow to perfection. **If you want a cheap productive farm, where you can make money and enjoy living this is the place.** We can sell you at the present time **finest improved farms from $10 to $25 an acre.** Will positively double in price a year from now. Don't delay or make the mistake of buying elsewhere till you have investigated this spot, but write at once to

J. H. QUIN & CO., Lebanon, Mo., for particulars and mention this paper.

IOWA FARMS For Sale $45 to $65 Per Acre.

We offer improved Iowa farms close to church, school and town, with local telephone and rural mail delivery, soil rich, black loam, and level, at $45 to $65 per acre. We also have special bargains in North and South Dakota and Canada. If you wish to buy or sell land or city property anywhere, write to us for confidential terms. We make a specialty of long range sales, so no matter how far away you live, if interested, write us. We refund railway fare to parties who buy of us. Send for price list with pictures of farms.

THE JOHN M. CANNON LAND AGENCY, CRESCO, IOWA.

FARMERS WANTED

Send Card for FREE MAP and Price List of Wild and Improved Lands in Wadena, Otter Tail, Becker, Todd, Hubbard, and Case Counties, Minnesota. Low prices and easy terms. We are large owners.

MURRAY'S LAND OFFICE,
WADENA, MINNESOTA.

LAND

Will never be cheaper than today

50,000 Acres railroad and homestead. **Southeastern Saskatchewan.** Price $3.50 to $4.00 per acre, **Ten Years Time.** Prairie and timber, cattle and wheat, forty bu., on new railroad. Cheap Excursions. **Agents Wanted.** Write for map and full particulars. Room 810-12, Scandinavian-Canadian Land Co. 172 Washington St. Chicago

FINE MARATHON CO. FARM

FOR SALE. 80 acres, 55 acres under cultivation; 25 acres of fire wood and timber; clay top and subsoils; in midst of fine agricultural section; a good dairy farm.

HILES & MYERS, C-100 MATTHEWS BLDG., MILWAUKEE, WIS.



5 TON WAGON SCALE $35.00
SENT ON TRIAL FREE
CATALOGUE FREE
AMERICAN SCALE COMPANY
519 MASS. BLDG, KANSAS CITY, MO.



A Low Wagon at Half Price.

The cheapest, the easiest and the best way to get a low wagon is to buy a set of **Electric Steel Wheels** to fit your farm wagon. If you don't want to bother with changing the wheels buy a set to fit your old gear. If you have no old gear you can buy one for a song, as there are thousands of them lying around the country. A set of **Electric Steel Wheels** costs less than one-half the price of a low wagon. They are made to fit any wagon. They make a new wagon out of your old one with wheels that cannot rot or break. Made with straight or staggered spokes, wide or narrow tires. Save blacksmith bills. Write for our **Handy Farm Wagon Catalog.** Tells about our full line of Electric implements. **It Is Free.**

ELECTRIC WHEEL CO.,
Box 130 Quincy, Ills.

10 lbs. of soap for 10 cents

Better soap than you can buy at any price. You make it yourself in ten minutes, with the grease and fat from your kitchen and a can of

Banner Lye

sold at your grocer's for 10 cents.

No trouble; no boiling; no large kettles; no adulterated soap. Nothing but the purest soap—ten pounds of hard soap or twenty gallons of soft soap.

Banner Lye is also the best

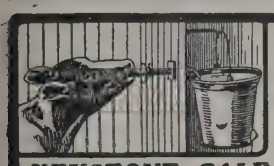
Cleanser and Disinfectant

No well-regulated home is without it. You need it everywhere to protect against dirt and disease.

Banner Lye is new style lye in patented safety packages. Easily opened and closed, safe, odorless and colorless.

Write for book "*Uses of Banner Lye*," and give us your grocer's name, should he not have it.

THE PENN CHEMICAL WORKS, Philadelphia, U. S. A.



SENT

out under positive guarantee. Money refunded if not satisfactory. No bolting food. Perfect digestion. All tinned—no rust.

KEYSTONE CALF FEEDER

Patented under No. 721,384. Used in about forty experiment stations. Mass. Ag'l College writes as follows: Mr. M. T. Phillips, Dear Sir:—I write to say that the Calf Feeder is giving excellent satisfaction. We have found it to be all we could ask for in a feeder. It is easily cleaned and appears to be durable. Yours truly, E. A. JONES, Supt.
Complete with extra nipple, $1.50, express prepaid. Circulars free.

M. T. PHILLIPS, POMEROY, PA.

The Most Power for the least money, for any purpose on the farm, can be secured from our **Fearless Railway Horse Powers.**

We make them for 1, 2, 3 and 4 horses, with speed regulators. Unequalled for Cutting and Grinding Feed, Sawing Wood, Threshing, Pumping Water, etc. Also make Threshers, Engines, Feed Cutters, Silos, etc. *Illustrated Catalog Free.*



HARDER MFG. CO.,
Cobleskill, N. Y.



H. & R. SINGLE SHOT GUN

Automatic and Non-Ejecting

The cheapest absolutely safe gun, with improvements found heretofore only in the highest priced. Perfect in model and construction. Simplest "take down" gun made. Top snap; center hammer; rebounding lock. Your dealer can supply, or we will sell to you direct.

Illustrated Catalog tells about our complete line—FREE.

Harrington & Richardson Arms Co.
DEPT. 22, WORCESTER, MASS.
Makers of H. & R. Revolvers.

Questions in Ventilation, Cow Stalls, and Concerning Beet Pulp.

ED. HOARD'S DAIRYMAN:—For a cow barn 28×42 with two rows of stalls, one for cows and one for calves with two box stalls on their side, a six foot feeding alley in center, would a ventilating shaft 2×3ft. made of dry flooring, either at one end outside, or in corner of a box stall, running up 30 ft., do for the outlet; and four intakes, one at each corner 8 in. square, built as you have so often explained, do for the fresh air? If not, please suggest a better way. I only know of the system through your writings for the last eight months and it seems just the thing.

In reading your article on the cleanliness of your cows during winter, I can not help wonder why, practically all writers are so silent on the actual construction of good, healthy, cleanly and comfortable cow stalls. Week after week we have silo construction, barn construction (outside of stalls,) and in fact everything pertaining to a cow's comfort and well being, except the place, the actual bedroom, of the cow, for practically six months out of twelve. I know a great many men are dissatisfied with stanchions. A very few want the patent double up concerns, and still, if the question is asked: "How shall I build my cow stalls?" the answer will be to refer to the advertising columns. This is not in one paper but all which I have the privilege to read. I wish a few articles could be written by different parties describing in detail their ideas along this line. I believe it would pay.

Do you care to pass judgment on the beet pulp molasses feed now advertised in your columns? B. E. M.

Mannington, W. Va.

Prof. King's rule for size of ventilating shaft is a cross-section of four square feet for each twenty animals. On this basis a shaft or flue 2×3 ft. would suffice for thirty grown cows, provided it is approximately thirty feet high and has no sharp bends to interfere with draft. The number and size of intakes cannot be so definitely estimated, because of the difficulty of ascertaining the amount of fresh air that will sift in around doors and windows and otherwise.

It is well to provide too many, and have them well distributed, rather than too few, as it is an easy matter to close those not needed, and variations in wind and weather necessarily require some adjustment. We would recommend not less than three of these intakes on each side, and four would be better, as they would give a more uniform distribution of the incoming fresh and cold air.

In the matter of stalls or "bed-rooms" for the cows, HOARD'S DAIRYMAN pleads not guilty to any suppression of anything that can throw light on the subject. It has published, on some three or four occasions, illustrations and descriptions of practically all the devices in use for this purpose, but it cannot be expected to republish such matter in response to every inquiry submitted, more especially as some of the best of these are regularly advertised in its columns, and it does not consider itself competent to pronounce any particular device superior to all the others.

It would be an admirable investment for B. E. M. and thousands of other farmers to purchase King's Physics of Agriculture, a book of some 600 pages, in which these problems of ventilation and cow stalls, as well as numberless other problems relating to farm buildings and farm economics are exhaustively discussed. The book costs only $1.75, and is sent from this office, postage prepaid on receipt of that sum.

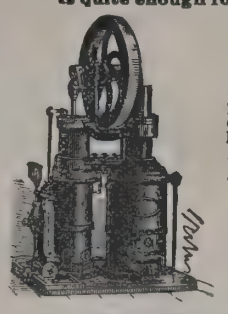
We have a very high opinion of the feed referred to, but have had no occasion to make use of it in our own herds Why not send to the advertisers for the printed matter descriptive of this feed and its analysis, and then, if it seems to fit in with your home-grown feeds, make a trial of it.

DON'T PUT OFF

Seeing your friends and having them join 1 for a good club of subscribers

HALF ENOUGH WATER

Is quite enough for some people, but most people want water every day. If

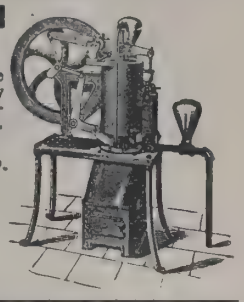


RIDER or ERICSSON HOT AIR PUMPS

Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.

Rider - Ericsson Engine Co.,

35 Warren St., NEW YORK.
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692 Craig St., MONTREAL, P. Q.
40 Dearborn St., CHICAGO.
40 N. 7th St., PHILADELPHIA.
Teniente Rey, 71 HAVANA.
22 Pitt St., SIDNEY, N. S. W.



Flavor

The market value of butter is unquestionably its flavor, and its flavor is unquestionably affected by the quality of the salt used. Prize winning butter makers always use DIAMOND CRYSTAL SALT—"*the Salt that's ALL Salt*"—to insure that *winning flavor*. Its pure, dry flakes quickly dissolve—assimilate *evenly* through the butter, and add a keeping quality that is inestimable. No waste—no grit—no mottled effect. The only salt in the world that's all salt. Dairymen will find our illustrated booklet "Just Salt" contains valuable hints. We send it free.

DIAMOND CRYSTAL SALT CO., ST. CLAIR, MICH.

BUTTER FOR UNCLE SAM

THE CONTINENTAL CREAMERY COMPANY TOPEKA, KANSAS

Has been awarded the contract to supply the United States Navy with half a million pounds of butter for the ensuing year.

For this purpose only the best quality of butter is used, and its keeping quality must be made of the very best, owing to the fact that the entire year's supply must be made within a few months and it is carried through all conditions of climate.

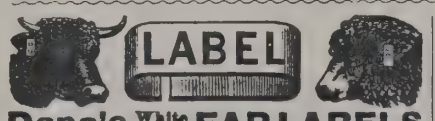
The government has made a thorough study of supplying butter to suit the requirements of the Navy and as a result it has laid down some very exacting standards to which those who bid for these contracts must comply. One of the few concerns who can fulfill these requirements is the Continental Creamery Co. and it was awarded this contract, which is the biggest single order for butter ever filled.

This company produces the greatest quantity of fancy creamery butter in the world, all of which is made from pasteurized cream. Surely it knows something about making good butter. It also knows from actual experience and the investigations of its chemists, that one of the factors in making good butter is

WORCESTER SALT--IT USES NO OTHER

FOR SALE BY ALL CREAMERY SUPPLY HOUSES.

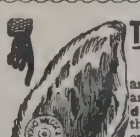
WORCESTER SALT COMPANY
168 DUANE STREET, NEW YORK.



Dana's White Metallic EAR LABELS

stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Samples free. Agents Wanted.

C. H. DANA, 50 Main St., West Lebanon, N. H.



The "STAY THERE"
Aluminum Ear Markers

are the best. Being made of aluminum they are **brighter, lighter, stronger and more durable** than any other. Fit any part of the ear. Nothing to catch on feed trough or other obstacle. Your name, address and any series of numbers on each tag. **Sample tag,** catalogue and prices **mailed free.** Ask for them. Address

WILCOX & HARVEY MFG. CO.,
196 Lake St., Chicago, Ills.

WINCHESTER



'NEW RIVAL" BLACK POWDER SHELLS.

It's the thoroughly modern and scientific system of loading and the use of only the best materials which make Winchester Factory Loaded "New Rival" Shells give better pattern, penetration and more uniform results generally than any other shells. The special paper and the Winchester patent corrugated head used in making "New Rival" shells give them strength to withstand reloading.

BE SURE TO GET WINCHESTER MAKE OF SHELLS.

CLIMAX

Ensilage and Feed Cutters.



"THE COMPLETE MACHINE"

CLIMAX machines are original. They are not made over from old models, in an attempt to turn them into blowers, by adding a number of chains, belts, or other attachments. They are made to elevate by wind delivery, and every part is built with this end in view. They are sold under an absolute guarantee to do the work, and **never** fail.

CLIMAX machines passed the experimental stage eight years ago. It has never been necessary to change any essential feature of the original pattern. We are still using the straight knives, with the shearing, inward cut; the elevating is still done with the same wheel as the cutting, requiring less power; the smooth reversing gear, which is positive and cannot break; the large feeding rollers, which won't choke, and the knife adjustment, which sets every knife at once and sets them **true.** All these have stood the test and cannot be had with any other machine.

The combination of simplicity, great strength, large capacity and few wearing parts, places the **CLIMAX** in the very front rank. When you have a binding guarantee as well, there should be no doubt regarding the machine. Catalogue for the asking.

WARSAW-WILKINSON CO., WARSAW, N. Y.

Does Saving **ONE or TWO MEN**

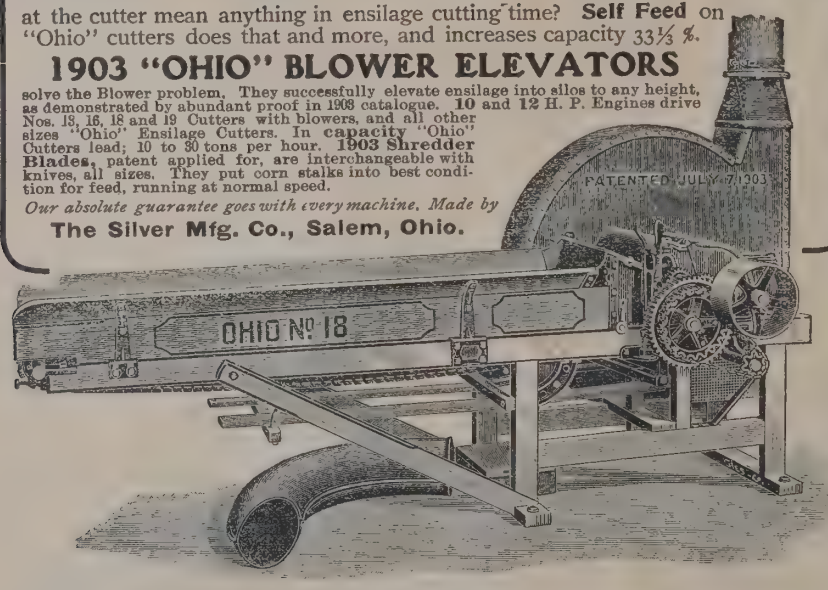
at the cutter mean anything in ensilage cutting time? **Self Feed** on "Ohio" cutters does that and more, and increases capacity 33⅓ %.

1903 "OHIO" BLOWER ELEVATORS

solve the Blower problem. They successfully elevate ensilage into silos to any height, as demonstrated by abundant proof in 1903 catalogue. **10** and **12** H. P. Engines drive Nos. 13, 16, 18 and 19 Cutters with blowers, and all other sizes "Ohio" Ensilage Cutters. In **capacity** "Ohio" Cutters lead; 10 to 30 tons per hour. **1903 Shredder Blades,** patent applied for, are interchangeable with knives, all sizes. They put corn stalks into best condition for feed, running at normal speed.

Our absolute guarantee goes with every machine. Made by

The Silver Mfg. Co., Salem, Ohio.





WE GUARANTEE that under the same conditions as to power and speed applied, condition of corn, etc.,

The Appleton Corn Husker

will do more and better work than any other machine of like character and corresponding size on the market; that it is simpler in construction; easier in every way to operate; easier and safer to feed and to require less power for successful operation. The proof of these claims is sent for the asking. We make also a complete line of sweep and tread horse powers, shellers, ensilage and fodder cutters, feed grinders, wood saws, windmills, etc. **Remember that Appleton quality is the standard of excellence.**

2-Roll, 4-Roll, and 6-Roll, Down or Mounted.

Write to-day for free Catalogue.

APPLETON MFG. CO., 35 Fargo St., Batavia, Ills.

MILK TUBES Patent Coin Silver 1¾" 50c. 2⅜" 80c. Improved Teat Opener 75c. Dilating plug 25c. Postpaid on receipt of price. **G. P Pilling & Son,** 2d and Arch Sts., Phila., Pa.

WRINGING WET Clothes dry is the reason for using any wringer. Saving clothes, buttons and money is the reason for using **Horse-Shoe Brand Wringers.** They are made with rolls of the finest Para Rubber. Every wringer is warranted. **THE AMERICAN WRINGER CO., 99 Chambers Street, New York.**

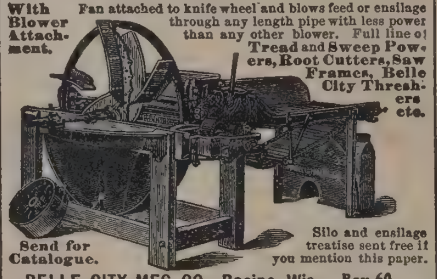
Ensilage Cutters "They Throw and Blow." Pneumatic. "Silo Fillers." **Blowers.**

These machines cut and elevate with the same wheel at the same time. This wheel has paddles which throw and fans which blow. Without the fans the paddles would throw the ensilage 15 feet high. A light blast of air in addition will blow it to any height. No chains, belts or cogs to slip and waste power. A two-horse tread power will cut and elevate 4 tons per hour, a 10 h. p. engine 20 tons per hour. The easiest running and safest cutters and blowers made. Also cutters and carriers, shredders, silos, engines, horse powers, saw machines, etc. Send for catalogues.

HARDER MFG. CO., COBLESKILL, N.Y.

BELLE CITY Feed and Ensilage Cutter

With Blower Attachment. Fan attached to knife wheel and blows feed or ensilage through any length pipe with less power than any other blower. Full line of **Tread and Sweep Powers, Root Cutters, Saw Frames, Belle City Threshers etc.**



Send for Catalogue. Silo and ensilage treatise sent free if you mention this paper.

BELLE CITY MFG. CO., Racine, Wis. Box 60.

ROSS ROSS

ENSILAGE MACHINERY

When you buy the ROSS you buy the best

Your choice—Blower or Carrier.

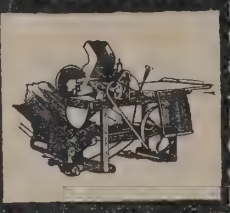


ROSS ROSS

Write for Catalogue No. 36—FREE. Prof. Woll's Book on Silage 10c.

THE E. W. ROSS CO. Springfield, Ohio.

"ST. ALBANS" LINE



Ensilage Cutters; Ensilage and Stalk Shredders; Blowers and Chain Carriers; Tread Powers; Sweep Powers; Threshing Machines; Circular and Drag Saw Frames, Etc.

Handsome Catalogue Free; Send for it

ST. ALBANS FOUNDRY AND IMPLT. CO., St. Albans, Vt.

BOWSHER

(Sold with or without elevator) **CRUSH** ear corn (*with or without shucks*) and **GRIND** all kinds of small grain. **Use Conical Shape Grinders. Different from all others.**

LIGHTEST RUNNING.



Handy to Operate. 7 Sizes—2 to 25 h.p. One size for windwheel use.

Also make Sweep Grinders; Geared and Plain.

N. P. D. Bowsher Co., South Bend, Ind.

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LIGHTNING WELL MACHY IS THE STANDARD

STEAM PUMPS, AIR LIFTS, GASOLINE ENGINES

WRITE FOR CIRCULAR



THE AMERICAN WELL WORKS

AURORA, ILL. – CHICAGO. – DALLAS, TEX.

DOUBLE CAM BRADLEY STEEL HAY PRESS

One horse can operate it. Very easy for two. Send for circular.

NOT A COG NOR CHAIN ABOUT IT.

Simplest Press Made.



Lifting jack goes with each Press. Powerful—puts full weight into box car. Tracks with a wagon; 2 horses draw it on common roads.

Has an **AUTOMATIC PLUNGER DRAW.**

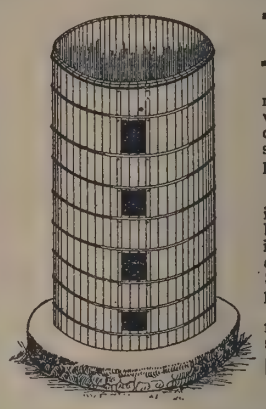
DAVID BRADLEY MFG. CO., 110 E. Broadway BRADLEY, ILL.

IF YOU WANT A

SILO

Write us for information.

THE A. T. STEARNS LUMBER CO., BOSTON.



TIME!

Its time for dairymen to act if they want the benefits of a silo this season. You should place your order

NOW

if you want the best, and the best is always the cheapest, especially in Silos. Write us for prices and circular.

If you are in the market we can save you money.

INDIANA SILO CO., Anderson, Ind.



PREPARED ROOFING FELTS.

We can save you money on your wants in this line. We offer you Two-Ply Tarred Roofing Felt, 108 square feet to the roll, complete with caps, nails and cement, per roll, **$1.15.** Three-ply complete, per roll, **$1.35. Vulcanite,** the highest grade on the market, complete as above. Price per roll, **$1.50.** We have all kinds of Roofing. Write for **Free** Catalogue No. 20 on material bought from Sheriffs' and Receivers' Sales. **CHICAGO HOUSE WRECKING CO., W. 35th and Iron Streets, Chicago.**

RUBEROID

(Trade Mark Registered)

ROOFING and GIANT PAPERS

FOR INSULATING SILOS

WATER PROOF, AIR TIGHT

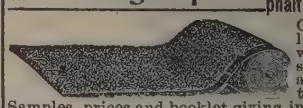
They keep Silage dry, cool and healthful. Send for Booklet H.

THE STANDARD PAINT COMPANY

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100 WILLIAM ST., NEW YORK.

No Painting Required on Arrow Brand Asphalt Ready Roofing



Can be easily laid as the work only consists of nailing and cementing the joints.

Samples, prices and booklet giving instructions for laying sent free postpaid.

ASPHALT READY ROOFING CO., 82 Pine St., New York.

WANTED

FIFTY Good Dairy Cows

Send list at once of what you have to offer, stating the ages, breeds and lowest cash price.

J. W. WILKINSON,

Care of Hoard's Dairyman, **Fort Atkinson, Wis.**

GROOM YOUR CATTLE BY POWER

Our Improved Grooming Brushes, revolving 1200 times a minute, insure glossy coat, clean skin, active pores, health and beauty. Their use increases value of all stock. Indispensable for prize winning show cattle. Will groom 30 to 50 head an hour, and do it better than by hand. Get our Free Booklet and learn to groom your cattle, horses and all stock the best way.

CHICAGO FLEXIBLE SHAFT CO., 194 Ontario St., Chicago, Ill.

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HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., OCTOBER 2, 1903. NUMBER 34

University of Ill

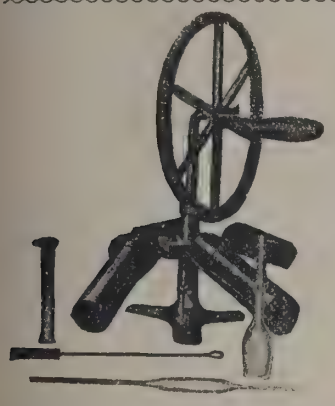
HAND SEPARATOR BUTTER always brings a good price. We make it a specialty. Why sell your cream when you can get from 15% to 20% more for butter! Save "the over-run" for yourself. Send for market quotations and make us a trial shipment.
C. H. WEAVER & CO., 128 South Water St. CHICAGO.
REFERENCE:—Any bank or wholesale house.

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs**
Liberal Advancements Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, New York



ASK YOUR DEALER IN DAIRY SUPPLIES FOR
CHR. HANSEN'S LACTIC FERMENT
To Ripen your cream, ensuring
Perfect Flavor, Uniformity and Keeping Qualities in your Butter.
CHR. HANSEN'S LABORATORY, P. O. Box 1003, Little Falls, N. Y.

HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, BOSTON.**
Medals—Bronze 1878 Silver, 1887, World's Fair, 1893.



ROBBER COWS.

Some cows rob the owner of the feed they eat, and of the profit of the rest of the herd. They have little or no butter fat in their milk. Find them out and send them to the block.

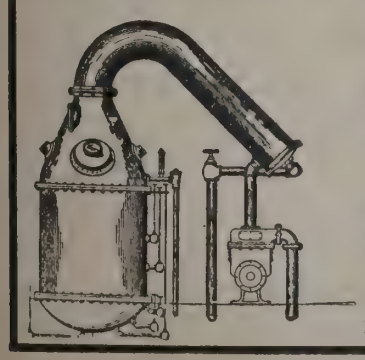
THE
"Sweepstakes"
Babcock Milk Tester

Will do it. Runs on ball bearings, 2 and 4-Bottle sizes with necessary glassware. Strong, convenient.
WRITE FOR CIRCULAR AND PRICES.
We handle everything in the Dairy and Creamery line..
Creamery Package Manufacturing Co.,
1, 3 and 5 W. Washington St., Chicago.
BRANCHES: Kansas City, Mo.; Minneapolis, Minn.; Waterloo, Iowa; Omaha, Neb St. Louis, Mo. and Cowansville, Quebec.

Get the Best Milk Cooler AND AERATOR.



LARGEST COOLING SURFACE
EASIEST TO CLEAN.
WRITE US FOR PRICES.
Ask for our new Thirtieth Annual Catalogue of Dairy Apparatus and Supplies.
OAKES & BURGER, Cattaraugus, N. Y.



Milk Condensing Machine I supply the most improved machinery and most successful processes for manufacturing all classes of condensed milk and evaporated cream. Factories built complete, put in operation and results guaranteed. If you are interested write for my new illustrated and descriptive catalogue. The only catalogue ever published on the subject.
R. R. ROGERS, Winthrop, Maine.
(Formerly of Detroit, Mich.)
I am not associated with any person, firm or company.

ARE THERE COWS ON MARS?

Nobody knows. But **everybody** knows that dairymen need a separator that gets the cream—gets it all—gets it quickly—gets it easily—gets it cheaply. Dairymen, the world over, are turning from the contraption filled, top heavy, back breaking, hard to clean, bucket-bowl separators to the Dairy Tubular Separators.



TUBULAR HAND SEPARATORS

Are as modern and different from all others as all others are antiquated and alike. The Tubular bowl is hung from a simple ball bearing—runs smoothly, doesn't vibrate, can't bind. It contains one tiny piece, and that removable, and can be thoroughly washed in three minutes. It has a bottom feed thus preventing the mixing of whole and partly skimmed milk—makes clean skimming quick. The low supply can is easy to fill—a six-year-old child can look into it. It saves the back. The enclosed gears, running in a mist of oil save power, avoid waste, prevent accidents.

Our free catalog tells all about the Tubular. A postal card will bring it and may save you money, work, and worry. Ask for No. 144.

The Sharples Co.,
28, 30 & 32 So. Canal St.
CHICAGO. ILL.

P. M. SHARPLES,
West Chester, Pa.
U. S. A.

If your lamp-chimneys break, say MACBETH to your grocer—loud!

He knows.

You need to know how to manage your lamps to have comfort with them at small cost. Better read my Index; I send it free.

MACBETH, Pittsburgh.

DIETZ

The safest, most convenient, most thoroughly dependable light that can be carried. Never smokes, never flickers, never blows out. Brightest, clearest, steadiest. The

World's Most Popular Lantern.

Sold by dealers everywhere. If requested we send you lantern book to make selection before you go to buy.

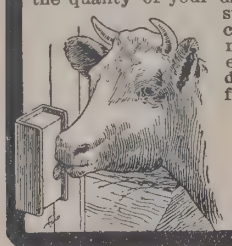
R. E. DIETZ COMPANY,
94 Laight St., New York.

Established 1840.

LANTERN

Compressed Pure-Salt Bricks.

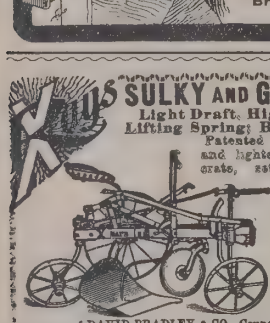
Increase the quantity and improve the quality of your dairy products by supplying your cows with this modern convenience. Ask your dealer or send for free booklet to the



Belmont Stable Supply Co.,
Brooklyn, N. Y.

SULKY AND GANG PLOWS

Light Draft, High Lift, Powerful Lifting Spring; Boy can handle it. Patented Step carries the plow and lightens draft. Shipped in crate, set up and sharpened ready for use. Spring Clevis eases draft and saves harness. Automatic Lock on rear wheel. Celebrated "Garden City Clipper" bottoms used.



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Pennsylvania Pickings.

A Live Dairy Association.

ED. HOARD'S DAIRYMAN:—It was recently my pleasure to attend the annual meeting of the Milk Producers' Protective Association, of Westmoreland County, Pa, and address it on the subject of dairying and other things relating thereto. The meeting was not large but it was earnest, and the exercises were made to conform to the size of the attendance. The association numbers about one-hundred and twenty-five members, who all share in the good results the organization has been able to secure, although the regulation complaint arises from the wheel-horses, as from all such bodies, that a few must do the work. I do not think this as a rule indicates any lack of interest on the part of other members of the team, but is more generally an unspoken confidence that the leaders are doing all that may be done.

The pioneer work must always be undertaken by those naturally endowed with the rare qualities of leadership. There must always be hewers of wood and drawers of water, with many quiescent ones to accept all benefits and sometimes find fault.

This association is composed of milk shippers, and by reason of its representative strength, has been able to regulate steady and remunerative prices for milk, as well as command the attention of the mediums of transportation.

The meeting was much interested in the questions of the better cow, her best care and her most economical feeding, her breeding and her tribe. The silo, ensilage, alfalfa and kindred subjects have lost no interest for these business dairymen, and he needs must be posted who goes to talk to them.

THE SPECIAL BREEDS.

My tentative suggestion that these people might find in some of the larger milking strains, animals for mere milk production more profitable than the breeds of more concentrated purposes, was not well taken, one of the most prominent and successful members assuring me that his good Jerseys stood second to none within his knowledge in the production of quantity, and had the further desirable recommendation of commanding from one to two cents more per gallon than milk of inferior quality.

True, there is a one-time cheese maker from the lumber regions of Pennsylvania, who is sent around to farmers' institutes assuring the people that butter fat in milk is a substance of no nutritive value and should not be striven for by producers of milk. But this Martinesque theory has not yet found its way among the enlightened citizens of the state who are still willing to pay the best price for the milk that makes cream.

For instance, my friend Shoemaker, who owns a fine farm and a profitable herd of registered Jerseys, near Greensburg, Westmoreland county, sells all the Jersey milk his large herd produces for a yearly price of eight cents a quart, which circumstance can scarcely be attributed to the extravagant tastes or bad judgment of his satisfied customers.

A FAVORED SECTION.

The farmers in this western section of the state are highly favored. They have in their cities, and almost countless towns, an unequaled market for all farm produce—"anything sells."

Their markets are near at hand. The subterreanean value of many of their farms far exceeds the surface value, and the land's worth for farming is not lessened by the fact that deeper down it has a market value often of four or five times as much, for the digging of coal. Indeed, in some sections there are oil and gas in addition to the coal.

FEEDING QUESTIONS.

Dairymen, with excellent markets, do not always consider the question of the cost of feeds with the minuteness that less favorable circumstances make imperative with others. Where this care in feed cost is forced upon us the saving of a few cents per day commands our keenest thought, and necessity becomes the mother of reform. I tried to impress upon these friends (many of them regard HOARD'S DAIRYMAN as a dairy essential—and that means any amount of dairy grace) that they could not afford to feed forty to fifty-cent oats and twenty-or-more-dollar timothy hay to cows, but they simply point to their profits and discount the prophet.

Pennsylvania. W. F. MCSPARRAN.



Castile soap is supposed to be made of olive oil, hence its presumed purity. Some Castile soap is made of olive oil and some is not. Some Castile soap is good and some is bad. In purchasing you can not tell which kind you are getting.

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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association

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The Dairy Cow.

[By Mrs. Minnie Eshelman Sherman at the University Farmers' Institute at Long Beach, Cal.

Scientific dairying, as to the feeding of the cow and the handling of her product, has been the outgrowth of the specialized work of the dairy school experts. While the creamery man, with his manner of paying as little as possible for what the cows produce, has made the dairyman take out his pencil and learn to figure just exactly what the cows do earn, so he has, by calculating, brought the keeping of the cows down to a business basis.

HISTORICAL.

The first historical mention we have of the importation of cattle is that they were brought by the Europeans to Mexico about the year 1525. The mild, equable climate and the abundant, grass-covered ranges caused them to multiply rapidly, and they soon covered not only the plains of Mexico, but those of Texas and California, with their offspring.

The first improved cattle came to Virginia from Holland in 1625, and were of beef and milk form. The oxen were powerful animals, plowing the new lands, while the cows furnished a small amount of milk for the settler's family. The first cows used solely for milk were brought from Normandy to Quebec by the French emigrants. It is said that these yellow, dun and silver gray Normandy animals enter largely into the foundation strains of both the modern Island Jersey and Swiss cattle. They were of medium size and gave a fair quantity of milk, while the oxen were large enough for plowing in a hilly country, like Canada and New England.

However, the dairy cow was, as yet, of little value in the eyes of the farmer, for as late as 1825, at a Massachusetts county fair there was no class for cows or for butter or cheese; but there was the surprising entry of 100 yoke of oxen competing in feats of strength and docility. I wonder if there were some old men there to croak at that county fair as an ox show, just as we croak today that our fairs are mere race horse matinees.

The beef strain is very hard to breed away from; even in the fifth and sixth generations of cows it often crops out when cows are fed for heavy milk production. Many a good grade cow has slipped off into beef when five or six years old, causing a loss—for it does not pay to fatten a beef on dairy rations. When we consider a good cow should produce 350 pounds of butter, worth, say 25 cents a pound, or $87.50 in a year, it is, indeed, killing the goose that lays the golden egg to sell her for cow beef at $30 to $40. You see we do not believe in the general-purpose cow, though it may seem presumptious, for she has prominent advocates; but then, "seeing is believing," and we have never seen one.

DAIRY POINTS.

Now, in selecting a cow for dairy use, one of the principal points is the stomach; it should be large and somewhat pendant—never set flush with the back bone, but always leaving a ridge. The stomach should suggest that the digestion is ample, and that the consumption of food can be pushed heavily, and yet a margin of reserve force remain, for the drain from the heavy milk flow should be urgent and her appetite constant if she is to continue in profitable milking for the entire year.

Draw an imaginary line directly across the cow's body in front of her udder. First of all, notice if ample breeding power is indicated by the width of her pelvis. The hips should be high, the thighs wide and incurving well; a strong; rugged back bone, with a distinct rise at the rear, so as to make the animal taller at the rump than at the shoulder. This rise should be gradual, and in improved breeds is rarely a rough, disfiguring hump. The tail should be long and slender and set high enough to carry out the high line of the pelvic arch. She should be thick through in front of the line to give ample room for heart and lungs, with a large navel and well developed milk veins, with a skin soft and full of oil. The head and neck should be fine and feminine, the breast without brisket or dewlap: the eye clear, prominent and full of gentle intelligence, while the under jaw should be strong and rather short. The spare hind quarters of the dairy cow have grown lighter and lighter in the years past.

THE UDDER.

The teats should be well placed and of convenient size and shape, neither too large nor too small, and far enough apart to be easily milked dry. The two small rudimentary teats behind the four regular ones are a good indication for milk continuance in a cow. The Swiss say that they indicate a cow will transmit her quality as a milker to her offspring.

The elaboration of milk by the cow is a physiological mystery about which little is definitely known. The alliance between blood supply and the milk shows, however, that to have a copious supply of milk, there must be a correspondingly generous supply of blood. The blood flows from the heart to the udder, and passes into the milk veins, and back through the milk walls, near the fore legs into the body, returning again to the heart and lungs. The milk veins show by their size and engorged condition the amount of blood they carry. The milk wells should be large enough to admit easily the second finger of a man's hand.

The front part of a cow's udder is often less well developed than the rear portion. Here is a loss in milk greater than is commonly recognized. Some years ago Professor Plumb found in thirteen cows deficient in the fore part of their udders, that the hind teats gave 57% more milk than the front ones.

OLD ONES.

As to how long a cow should be retained in the herd each must decide for himself; but I am satisfied that many people sacrifice their cows by selling too soon, as they are afraid the cow will become too old for the butcher. I have kept many cows until they were worthless for beef and thought that it paid better than to lose a year or two of good milk. The mature cow has outgrown the likelihood of milk fever and garget, and has shown she possesses good lungs and a good digestion and that her disposition is good. We have had cows eighteen years old that made 350 pounds of butter in a year. By the records of 486 cows kept for seven years, the age of greatest profit in a cow's life is from six and a half to fourteen years old. The Holland Government tested a large number of cows to find at what period of cow's life the milk contained the greatest amount of butter fat. The period was fixed as from the seventh to the eighth year, and that in a healthy, well-fed cow the milk capacity increased up to the twelfth year, the flow remained stationary until the fifteenth year, when it usually decreased until the cow became farrow.

SIRES.

The selection of a pure bred sire to head a grade here is wise. This sire should be a good individual, strong in his race type, with a backbone as rugged as the ridge of a continent, without brisket or dewlap; a distinctly masculine head, with a good, mellow skin. He should show rudimentary teats and dairy form in his rear conformation. It is important, though often overlooked, that the dam of this sire should have a perfectly formed udder—the form of the udder is strongly transmittable, and each breed has a type of its own. The sire should have a lively sense of his own importance, and not be willing to be imposed on by rough handling. He should fight if cornered, for the gentle bull rarely imparts grit to the offspring and endurance seems to be founded in temper. Listless, flabby people are amiable; so is a listless, inert bull. The very word, bully, should indicate his character; he should be ready to bluster and fuss at any infringements of the rights of his harem. It is better for the head of a grade herd to be a strong, typical individual than one whose dam is a phenomenal, record-breaking cow. There are many fine bulls sacrificed to the idea that nature will permit sudden great elevations of quality. Now, quality must be backed by the physical health of the animal; so, if we push quality before conformation, or correct form has been built up strongly, we are apt to lose health. Milk production is a heavy strain, and the animal must not only be physically educated herself to stand it, but must have inherited the acquired constitution from her dams.

Each sire used in breeding the herd should be more refined in type than his predecessor. We believe in each generation having fresh blood introduced, and do not believe in incestuous inbreeding.



This dairy barn, fine milk house costing $1,000 and good farm of 186 acres, have been paid for from sale of milk.

Oregon Experiences.

Ed. Hoard's Dairyman:—As I have been a reader of your very valuable paper for a short time (year and a half), it may seem that I am presuming too much to say what I think of various subjects treated in its columns, and also possibly lacking somewhat in dairy experience, since I date my begining in dairy knowledge from about that space of time.

Have had "right smart" to do with cows for near half of a century, but as to dairying as it should be done, can't say as I fully grasp the subject yet, but I believe I am learning.

There is too much against me to go at it as systematically as I should like, as I will explain farther on, but let me say that your crusade in favor of clean methods, is to my my mind very necessary, and should be encouraged by every one producing butter or milk for market. It does seem as though a man could see an inch beyond his nose, and see that cleanliness enhances his product and gives him a sure and stable market. It is no difference whether he sells cream to the creamery or sells his butter to the consumer, dirty methods lower the quality and the creamery man cannot renovate the cream as you would old feathers. But the dirty patron lowers the value of the whole batch of butter in proportion to the amount he supplies, and the butter is scored down instead of up, as it should be, to the highest quality.

I am dealing direct with the consumer, and as this summer is the first attempt in that direction, I think I am doing well to sell at 40 cents cash per roll, while others sell for 35 cents in trade at the country store. I was offered 50 cents cash for just a part, but I could not do that as it would cause me to sell the rest to the store. So I took 40 this year.

There are many sources that I am indebted to for information and the Dairyman is not the least. I read an article in your paper this summer on ropy milk; well, that very week I had a batch one morning, and by the aid of that article I located the cause, and I have not had any more trouble. I used to bring my cows in off the commons with a dog. I have learned better sometime since, much to my own satisfaction and profit, which has appreciated several fold.

I began several years ago with Shorthorns. I have only two left now out of nine, and they stay till I know I can do better. Have learned by observation and test that they won't do me. Have some full blood Jersey heifers and sire, now; am beginning all over. I tell you a farm separator and good dairy literature are eye openers in the way of education

along dairy lines. Then there is the subject of feed, the biggest item of all with me. To begin with, my place is seeded to mesquite (velvet) grass, as it is a stayer where all others fail amongst logs and stumps, but as a dairy proposition, it is a snare and delusion. So I sowed vetch, and vetch and oats this year and filled an 8x20 silo with the whole vetch for a trial; filled half full with cut corn last fall, and some of it was too ripe and the pressure was not great enough and did not get water enough on it so had a ring of white mould about 6 inches wide, 6 inches from the staves, clear around and up and down from top to bottom. This year am hoping for better results, as I put in the vetch green and filled it full.

When I built my cow barn I built a shed extension to cover the manure which I threw out of holes behind the cows. The law was passed since then in this state, prohibiting the dumping of manure within 150 feet from the barn where cows are stabled for dairy purposes Well, I got a scoop wheelbarrow and wheel the manure out in my orchard every morning and I whitewashed the inside of the stable where it was dirty, and I am going to build a shed half way between horse and cow barns to put manure in from both places. I know many of your readers will say it won't pay, and a year ago I would probably have said so too, but today I think it will pay the best in the world. I am not ashamed to let anyone, even the customer that buys my butter, see my cow barn. Besides I am getting "cranky" about my eating in my old age (or middle age) and as I eat some of the product of those cows I have got to thinking it just as well to be clean. That manure shed will when floored make a fine calf shed. See ?

A year ago I said that a balanced ration was out of the question with me. Only rich men could afford it. I couldn't. Well, I have been experimenting a little this year with some of my cows with oil meal and bran and that when pasture was at its best, and then I suddenly got out of both and went to feeding green vetch and oats, second crop, when I cut my vetch for silage. Well, the cows slacked up all right, so now I am in a study how far I can go with bran at a cent a pound and oil meal at a cent and a half or two cents, to go with oat hay and vetch silage next winter.

Another thing. My cows always freshened in spring, say May or June. Since I have begun to milk without a calf around, the cows have gone backwards; that is, they are freshening earlier each year till they will be fresh (7 of them) the last of January and the first of February One will freshen this fall.

I am sowing clover, both white and red, among the stumps and logs and it is taking well. I am a new beginner in the mountains where everything was covered with brush and timber ten years ago, but have 100 acres fenced and into grass, but have only 4½ acres under the plow. Have by the aid of another man cut from 18 to 30 tons of mesquite hay with a scythe, around amongst the logs and stumps, for this makes the fourth year. (Don't infer from this that everybody does so out here, for that is not the case. There are some very fine farms here that have been farmed for 40 years or more and have abundance of feed). Well, that may be dairying with a vengeance, but I am making a living at it where scores of others failed that put in their time at lumbering; and by the way, I had to do some work in the lumber camp till I got started, but I could see more in a cow than they did. Well, there are lots of other things I could write about as to yield per cow, experimenting with them with feeds, but they are like the experience of many of your writers, so I will close for this time by wishing you *bon voyage* in your undertaking to enlighten the average cow keeper like myself.

Holly, Ore. J. R. SPRINGER.

Health and Happiness in the Country.

The *Saturday Evening Post*, that great metropolitan weekly paper founded by by Franklin and published for nearly two hundred years, under the heading, "Back to the Tall Grass," prints the following relative to the drifting of the city folks to the free and open country:

"The cities are growing more and more crowded every year as people are attracted to them from the country, and year by year men are learning better and better the truth, that it is in the country that one can live the sanest life.

"Thus we can account for the remarkable exodus of city people to the country, and the tremendous influx of country people to the city. Brooklyn, for instance, was never so populous as now, and there are whole Jersey suburbs made up to the last man of people who have fled from Brooklyn and its confinements to breathe the fresh air of the Oranges.

"It is easy to understand why this is so. The city holds out inducements to to the country boy that his own environment will never yield him, and he comes to the metropolis, works at his business as few city boys can work, and in course of time he marries a girl who has also come in from the country to earn her living, and they settle down in a cozy flat up in Harlem or out in Brooklyn, and when his means at last permit, he builds himself a house on Rriverside Drive or the Park Slope and is happy. His children have all the advantages of the city that were denied him when he was a small boy, and if they do not grow up to as lusty a madhood as his, if they do not amount to as much as he did, there are two reasons for it; they have a rich father and he did not; they were born in the city. Now, it is an undeniable fact that few city men rise high in the councils of the nation. If a great man is wise he is born in the country.

"Yes, it is easy to understand why there has been such an exodus to the country. The city boy, born and brought up in a brick-walled dwelling, getting a a smell of the life-giving country air only during an all too short vacation, envies his country cousin who can breathe ozone all the year round and who has all outdoors for his playground, and he determines to go to the country to live if ever it becomes possible. To be sure he is only a clerk and promotion is likely to stop when he has reached a certain point, but perhaps he can get an ideal little house not too far from the city and lead there an ideal life—and perhaps an ideal girl.

"In course of time he meets and marries the latter, also a city denizen but with longings for the country. For the first months, or perhaps years, they must put up with a cramped city flat, although her father owns his house in the vicinity of Washington Square. But in course of time children come to them and then they see the absurdity, the criminality of bringing up children in the city. They remember their own childhood and how physically dwarfing it was, and they go a-house-hunting in the suburbs and at last find a cozy little house, not so far from New York but that he can commute, and they move out there, and he raises his own vegetables and she goes in for chickens and becomes something of a botanist, and her sons grow up lusty and broad minded.

"And the end of it all is that when the sons are of age to take up business they go into the city with a country education, and they take the prizes from under the very noses of the city bred children whose country bred father won the prizes of his generation before, and so the city and the country are changing inhabitants all the time and who shall say that it is not for the best?

But he is wisest who, having fled from the city as soon as he was able, keeps his children in the country, there to live and die. If every one lived in the country, the city would be a very good place in which to live because there would be plenty of room. Pending that time it were better for all city people to live in the country, for there is always lots of room there."

Commenting on the above, *Farm Life* says:

"The editor does not put it too strongly when he says that 'few city men rise high in the councils of the nation.' It is a blessed thing to be born in the country. While always contending that as a rule boys should stick to the farm, we do not wish to be understood as decrying the ambitious country youth who seems by nature to be fitted for some special and important work not found within the realm of farm and country life. The cities of today really owe their great growth and development to the brains of the country folks who in youth breathed the rich ozone of the farm, and reveled in the wholesome, free and out-of-door existence enjoyed by farmers alone.

Notice the conclusion of the article: "If every one lived in the country the city would be a very good place in which to live, because there would be plenty of room." In order to grow up to be great and distinguished men, boys must have plenty of room to expand physically and mentally. There will always be plenty of room for such growth in the country, and this being true, is it any wonder that the tide is turning toward that wide and open sea of health and wealth—the country?"


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A Skin Game.

Nine farmers out of ten run their dairy herds on the lottery principle. It differs from the regular nickel-in-the-slot-lottery in that it deals with dollars instead of cents and that if the game is run long enough and on a large enough scale the chances are that the fellow who plays it will lose out. A farmer goes to the city and sees a young man drop a dime in a slot, turn a handle and get five cents in return. He calls the youngster a fool. Then he goes home and during the next year he shoves $40 worth of good alfalfa and milling-trust bran into Old Brindle and gets $30 in return. Of course,he does not call himself any names, because he keeps no count either of the feed Brindle eats or of the returns she gives. He can not be expected to blame himself with a loss that he knows nothing about. He knows that he paid off $500 on the new forty and supposes that Brindle did her share. She certainly did so, but if she had not done it her owner would have been $10 ahead The moral rests in the fact that most men who operate dairies, do not know what it costs to produce a gallon of milk.—*Denver Field and Farm.*

Keeping Cows Clean In Stable.

ED. HOARD'S DAIRYMAN:—In your issue of Sept. 4th, in an article headed "Keeping Cows Clean" you described the condition of cows in the stables of the Senior Editor.

Would be pleased to learn through your paper just what methods are followed to secure such results, and of these methods which are the most essential.

Also in feeding peas to hogs is there any advantage in soaking peas and feeding in troughs, over scattering peas on a feeding floor or the ground. B. J. P.

Moores Junctfon, Mich.

The system of stabling in use in barn of Senior Editor is what is known as the "Model Stall" which has been frequently illustrated in the columns of HOARD'S DAIRYMAN. We do not know that it is in any sense superior to other modern methods of tying cows, but all these methods are vastly superior to the stanchion plan both in cleanliness and comfort for the cow; and whatever promotes cleanliness and comfort in the cow promotes the profit of the owner.

It pays well to soak peas as well as old corn when fed to hogs. It costs nothing but a little effort and the peas and corn are thereby made more digestible. When fed it is best to place them in a clean place, whether that place is a trough or a feeding floor.

Crude Petroleum for Painting Silo.

ED. HOARD'S DAIRYMAN:—Tell those who want a paint for inside of silo to get a barrel of crude oil and put it on, all the boards will take. No danger from matches. In six or seven years repeat, and your silo will last many years. Have oiled mine three times in 16 years. B.

McHenry, Ill.

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Opinions on Farm Life.

ED. HOARD'S DAIRYMAN:—As you ask your readers to give their opinion concerning H. C. R's. article, I take the opportunity to say a few words on a subject in which I am deeply interested and think every other farmer and dairyman ought to be.

It is true that class pride and class spirit lacking to a very perceptible degree amongst farmers as a class, and that farm work above all other kinds of work is held far below the dignity of man. The reason for this comes partly, if not wholly, from the fact that they have not had a chance to view the far more cumbersome labor of the city.

Take as a few examples, the common laborer in the city standing in a narrow trench from twelve to fourteen feet in depth, shoveling out dirt in order to lay sewer pipe. In the manufacturing plants of our machine factories, men are engaged amidst the whir and buzz of machinery in air made hot by the heat of many furnaces and polluted by odors too many to describe. These are all honorable avocations, but do they equal agriculture? Do they give a man as much rest of mind and body as to be engaged where you can breathe pure air and get a view of the broad expanse of country, and feel, as you ought, that you are a part of nature itself. Shame is more the product of idleness than of work. Work, when not excessive, tends to ennoble and uplift man, while idleness breeds in humanity a desire for sensation.

Our New York friend cannot have noticed the trend of the times, or if he has noticed it, he intentionally does not admit it, that farmers are commanding more respect from their fellow men than they have in the past, because more of them respect themselves. They have gained this respect through our agricultural press (papers like HOARD'S DAIRYMAN and others) and our agricultural colleges.

From these sources of knowledge farmers learn to know that their vocation can be made pleasant as well as profitable to themselves. If parents would but teach their children that all the arts and sciences come into play more or less upon the farm and that no work, as long as that work is honorable, is degrading, they would teach them a lesson that in their after lives they would bless them for.

Therefore, H. C. R. and others, education and the power of knowledge must open the way for a better understanding between the farmer and his business, and the farmer and men of other professions.

The dawn of this day is here, and the noble work is going on under the guidance of the most able teachers the world has ever known. P. A. P.

Hudson, Wis.

ED. HOARD'S DAIRYMAN:—I note an article signed by H. C. R., Oneida, N. Y., in yours of Sept. 18.

H. C. R. goes on to say that "you," HOARD'S DAIRYMAN, are figuring on the American farmer in a wrong direction. Most of the farmers, dairy farmers as well as the rest, despise their business. Their wives despise it; the daughters despise it, and the sons despise it. What can the farmer do but despise it? He hopes his sons and daughters will not have to work as hard as he has had to." The article winds up by asking: What do our readers think of the above?

I want to answer that not only as a professional man, but as one who has farmed it for ten years.

I think the gentleman writing that article does not know the trials of other avocations. Muscular tire is not the only tire; it is the least real tire. Who is more independent than a farmer? Who is more sure of a good, comfortable living? Who is more free from brain tire than the farmer?

Of late years such papers as HOARD'S DAIRYMAN are doing much to bring about a higher ideal, a higher standard in farming? Where is there an industry that has been more poorly conducted, slackly handled? Where is there better opportunity for advance than in farming? There are coming to the front now advanced ideas regarding not only the chemistry of soils, but feeding to bring results desired. All this is the result of study.

Where a man can take a farm that has carried 25 cows and make it produce enough to carry 75 cows, he is not only a silent teacher of our neighborhood about, but is bringing in more money into his own pocket.

I fear the brother farmer who wrote that, does not appreciate his vocation. I would have him change his thoughts. What is more more noble than the man who can make two blades of grass grow where there formerly grew but one?

The farmer is one of the most independent men on earth, but they do not sometimes know it. T. R. W.

Vermont.

ED. HOARD'S DAIRYMAN:—I was much surprised to day by reading the letter of H. C. R. in the issue of Sept. 18, page 717. Now we have a great many men in our community, who have worked on a farm and run a dairy for the past forty or fifty years and their sons after them, who would not change places with any retired lazy man in the county.

Of course we have a great many of the brand of men he speaks of, but by close observation, I find that nearly all of them are the men that are keeping the Star Boarder brand of cows and don't know a balanced ration from a Babcock tester.

And I do think that if every dairyman would make an effort and provide himself with a dairy of No. 1, thoroughbred cows, of some good milking breed, and try to improve them by breeding, feeding and reading, there would be a great many more farmers that would be well satisfied with their calling.

WILLIAM HERBERT.

Mantua, O.

Can the Percentage of Fat in Milk be Lowered by Scanty Feeding.

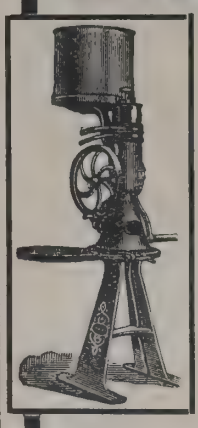
In the case of short periods (ten days to three weeks) the results of the experiments seem to be entirely consistent with the conclusion that scant feeding or the feeding of unbalanced rations exerts an entirely insignificant influence on the fat content of milk. The results of all these experiments which have come to my notice are summed up in the following conclusions of one such test:

The animals are fed for two weeks on rations which were insufficient. The cows lost in weight, and in some cases there was a slight shrinkage in yield of milk, but the composition remained practically unchanged, indicating that it is the flesh of the animals that first declines when the aliment is insufficient.

In the case of long continued, scantily, and poorly balanced feeding, it seems to be clearly established that the fat content of the milk may be materially reduced below the normal. This is illustrated by observation upon cows in Norrland. During the period from January to May, Norrland cows are in general fed only a meager allowance of marsh hay, and are therefore in a very poor condition when turned out to pasture in June. The results of about 2,000 analyses for these periods of feeding show that on rich pasturage their milk carried from 2.65 to 5.8 per cent, with an average of 4 per cent, of butter fat, and that on scant stable feeding the milk carried from 1.10 to 4.6 per cent, with an average of 3.25 per cent of butter fat. In discussing these results, the author concludes that the fat content of milk can not be increased at will by increasing a normal ration, but, on the other hand, that it can be greatly decreased by scant and poor rations. If a change is made from a deficient to a normal ration, the fat content of the milk will again be raised to the limit determined by the inherent qualities of the individual cow. This point is more or less generally accepted and is of practical importance in the case of ordinary feeding only, as it indicates that cows may be below their normal for some reasons, and that a proper ration may apparently increase the percentage of fat, when in reality it is only bringing the animals up to their normal quality of milk.—*Report Bureau of Animal Industry, 1902.*

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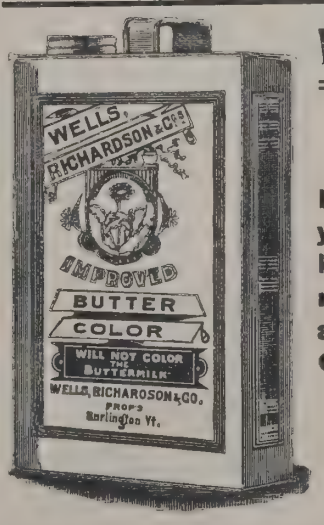
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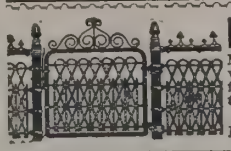
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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own ight who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

A GOOD BARN YARD.

One of the most desirable adjuncts to a good dairy farm, and at the same time the hardest to get is a good, hard barnyard that will not poach up by the constant treading of the cows in wet weather. At the Hoard's Dairyman farm we have succeeded in constructing just such a yard, and that too in a comparatively inexpensive manner. The soil underlying the yard wherein run about 50 cows and heifers, is a heavy clay. Anyone of experience knows what that sort of soil means in a wet time. Into this yard three years ago we drew three car loads of coal cinders and it was soon as hard as a macadamized road, and has so continued to this day. It is easily scraped by the use of a two-horse barnyard scraper, and there is never any mud in it. When we remember the old-fashioned barn yard, with the cows wallowing knee deep in manure, we bless the day that set us to making a coal cinder yard.

THE PROFIT OF KINDLINESS.

Says a writer in the *Farm Journal*:

"My horse knows me as far as it can see me, and as I leave the wagon will look after me and watch for my re-appearance; then, if I wave my hand will come to me. Will yours do that?"

Right in that short paragraph lies a principle—the principle of kindness.

That principle is a harbor of safety for some men. Others avoid it and wreck their fortunes on the rocks of unkindness and spiteful usage. A boy once said to us:

"Father always speaks to the horses, the dog and me as if he couldn't bear to have us round."

Think how much that man missed in the kindly loyalty of boy, horses and dog.

What is the matter with some men on the farm? They strike and scold cattle and horses and boys and everything else that dare not strike or talk back. And yet they are not unkind men at heart. Let a neighbor be in distress and they will do anything to relieve him.

They have got in the habit of loud speech and rough usage. It is costing them good money every day, but they don't see it.

Think how many weary steps that man whose words serve as our text, saved in catching his horse in pasture. Then, besides, does any one think the animal did any less work for loving his master as he did?

It is of especial importance that we deal kindly and gently with the cow if we expect the best possible profit from her service. The shrewd, far-seeing dairyman studies how to promote the comfort and contentment of his cows. "He knows where his bread is buttered." He keeps his mind alert to know what cow comfort is. For this reason he is gentle, quiet and patient, even with a fractious, ill-tempered cow. He banishes the cramped, confining stanchion; the deep and dangerous manure gutter; the crowding of cows uncomfortably and unhealthfully together in the stable. He has clear convictions as to what constitutes a well lighted, well ventilated, clean, healthful stable room.

Through all his management runs this principle of kindness, not only because it is the humane thing to do, but also because it *pays*.

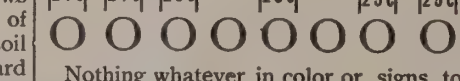
In no other way can the boys, the hired men, the cows, the horses and all the animals or life of the farm be made to feel contented and happy on that farm. Every owner and manager of a farm should remember always, that he is the prime source from whence proceeds the spirit and atmosphere of that farm. He is to decide whether it shall be a genial, kindly farm life or not. And in no other way can it prove a truly successful, happy farm life for him and all concerned.

HOW THE OLEOMARGARINE LAW IS EVADED IN NEW ENGLAND.

The following extract from a private letter written by Mr. Geo. M. Whitaker former General Agent Dairy Bureau of Massachusetts, now connected with the U. S. Revenue Department, will serve to show the oleo snake still rears his counterfeit head in some of the principal butter markets of the east.

Mr. Whitaker says:

"I went into a New Haven (Conn) store a few days ago—a "butter" store. There were 12 opened tubs all in a row with placards announcing price something like this.



Nothing whatever in color or signs to show that all was not butter.

"Have you any renovated butter?" I asked.

"We have some *good* butter. I don't know whether it is renovated, I don't know much about that" was the reply.

A little was taken from one tub on the point of a knife. I recognized our old friend (?) and appeared satisfied.

"How much do you want?" was next asked me.

"I am more interested in looking at revenue stamps than purchasing" said I, walking behind the counter.

Nine of the 12 tubs were oleo, free from "artificial" coloration,—paying a quarter of a cent tax, and sold as butter.

Note the fact that these tubs were marked at a butter price, were declared by the clerk to be butter and as Mr. Whitaker says were "sold as butter."

He says they were free from "artifical" coloration but he does not say that they were not of a yellow color so as to all the more easily gull the consumer into supposing he was buying butter.

And yet amid all this fraud and evasion of law, with some of the oleo makers constantly before the courts for attempts to swindle the government out of the revenue tax, we have a lot of professional people and the National Cattlemen's Association declaring it to be a legitamate industry. If there ever was an unmitigated fraud and swindle, conceived in fraud and worked through fraud, it has been, and still is the oleomargarine industry.

WARM MILK FOR YOUNG CALVES.

The normal temperature of a healthy cow is 100° to 102° F. The temperature of the milk when first drawn from the udder is the same. Every experienced calf feeder will admit the superior quality and growth shown by calves which take their milk direct from the cow. There is much evidence in favor of the belief that a large share of this improvement in appearance and condition is due to the fact that the milk is at blood heat, and for that reason stimulates its own digestion.

Experiments have been carried on, both in Europe and America, on this point, all proving the great value of warm milk, whether whole or skimmed, over cold milk, as a food for young calves and pigs. When farmers separate their milk on the farm care should be taken to feed the skim milk at once, as soon as separated, to the calves especially. Many farmers wait for some time after separation before feeding the skim milk. Such practice shows that they are not good students of animal physiology. They have not studied the principles which govern the assimilation of food by young animals. Nature, when left to herself, generally does things pretty near right, and the animal mothers give their milk to their young in its best and most perfect state. But man steps in between nature and these farm babies and forgets to do all he can to help the young things to make up for the loss their unnatural condition imposes. This is another case where reading and study will help the farmer to better know his duty. If a man once knows his duty well and thoroughly he is much more apt to perform it than he is if he half knows it or admits it.

FACTS ABOUT ENSILAGE.

Some people assert that there are no well and thoroughly conducted experiments to prove that a field of corn put into the silo is worth any more in feeding power for milk, than the same field cut, put into the shock, the corn husked and ground and fed to the cows with the stalks.

In reply to this Mr. N. B. White in his book, "Thirty Years Among Cows," states his own experience to the contrary and cites the Vermont Experiment Station, which found that corn was worth more for milk in the form of ensilage than if handled in the usual way. Prof. Babcock of the Wisconsin Station found that the milk from ensilage feed exceeded the milk from dry feed in churnibility, 12 per cent. That is, the cream of ensilage milk gave up its butter fat in the churn 12 per cent better.

Some farmers seem to hesitate at the cost of ensilage machinery. We can see no reason for that, any more than that we should hesitate at the purchase of any farm machinery. The question applies there as it does everywhere else—Does it pay?

Farmers have some strange notions of economy. For instance: The present season has been a very difficult one to make good hay, particularly so with clover and alfalfa. We have harvested three crops of alfalfa hay from 32 acres. Some of it stood in the cock for twelve days, receiving three heavy rains. By reason of being covered with a 40-inch square hay cap, made of "A" sheeting, costing 12 cents each, all of this hay, or about 150 tons, has been secured in fairly good condition, and some of it very fine. Because some of the farmers of this county would not go to the expense of providing caps they have lost two-thirds of the feeding value of their alfalfa. We calculate that our 1,000 hay caps saved us at least $400 of feeding value in our alfalfa. Pretty good interest that on the original cost of $120. And so it is with the economy of the silo. All the necessary expense is a money-making investment.

BREEDING PRINCIPLES.

That there is such a thing as science in the breeding of our domestic animals is an assertion that needs no argument. Here and there in the world's history have been men who have demonstrated that they possessed a knowledge of that science. By the term "science" we mean just what is meant by the same term in chemistry—a knowledge of the underlying princples that govern the operations of nature.

Booth and Bates in Short-horns, Dauncey in Jerseys, and a host of studious, observing men who have done something to develop all classes of animals and fowls, all these men took hold on certain principles, worked out their problems, and developed their animals in given lines with more or less success, depending upon how well they saw and understood governing principles. In the September number of the *Century Magazine* is a very able article on "The Horse in America" written by John Gilmer Speed, a significant name by the way. It will well pay every farmer who is interested in the idea of breeding farm animals, (and all farmers should be so interested) to read this article. We have not space to speak of it farther than to quote one very significant sentence, with a few comments.

In speaking of the Henry Clay family of horses who were of a distinct and prepotent type, the writer says:

"This type fortunately has not entirely perished, but so little of the blood has been preserved that the type is all but gone. Here was another victim of the Hambletonian craze and of the mistaken idea that 'like begets like,' *without regard to the important blood influences which are all-controlling*. Would a forester plant an acorn in a grove of maples and expect to get a combination of oak and maple because the ground had nurtured maples before and was peculiarly adapted to that kind of tree?

We have italicized the words in the above pithy statement to which we wish to call the attention of those farmers who want good milking cattle, who subject themselves to the expense of keeping cows for their milk, and who are seeking good profit, but who in our opinion, act just as unwisely in handling breeding machinery, as would the man who would plant an acorn in a maple grove and expect to get a combination of oak and maple.

To that class belong the men who breed to the Holstein sire for quantity, and the next generation they breed to a Jersey or Guernsey for more butter fat, and finally breed the result of these two opposing traits to a Short-horn for meat and size.

As Mr. Speed says, they are governed with the idea that "like begets like" without regard to the great ruling fact that "blood influences control." If we undertake to unite opposing traits and tendencies, we play one against the other and end in neutralizing both.

Out of just this unscientific notion of "succotash breeding" has come the folly of dual-purpose breeding. Away go thousands of farmers on this idea, thinking that all they have to do is to put their hand into this dual-purpose rag-bag and take out an all-sorts combination that will bring them the best profit. Nature establishes no certain and steadfast prepotencies in that way. It is no sign that because we want a thing we can have it.

Such men forget or ignore the great ruling principles that govern the development of animals in any given direction. They forget the history of animal breeding, and ignore the great basic fact that the men who have developed the qualities of cattle for beef, or for a large flow of milk, or for richness of butter fat, have been obliged to follow the law of "specific purpose."

In this way and only in this way, were the Short-horns, the Herefords, the Polled

Angus, the Galloways, the Red Polls, the Devons and all breeds of beef cattle established so that they will reproduce the same qualities with profitable certainty.

In this way and only in this way, have the milk, and butter qualities of the dairy breeds been established.

The men who bred for beef *or* milk, understood the governing principles that Nature works with. They saw that she works always in straight lines; that she first establishes a type by long-time breeding in one direction, just as the mustang horses, or Texan cattle, were established. They saw clearly that the moment a departure is made from specific type, that moment are we setting up warring, and not agreeing, tendencies. We have introduced confusion and reversion, and destroyed prepotency and certainty of result.

Therefore those dairy farmers, (and by dairy farmers we mean those men who seek their largest profit at the pail) who are filled with the idea of breeding in what they call "dual-purpose" or "general-purpose" lines, should consider whether Nature and her established principles in reproduction endorse such ideas or not.

It will take but a moment to see that the hodge-podge, unsatisfactory character of our cattle in general, has been brought about by this same general-purpose idea, breeding for everything in general and nothing in particular.

It will take but a moment to see that such breeding usually results in deterioration and not in improvement. The logical outcome of such ideas is the scrub, whom an Irishman once wittily described as "a nine-spot, neither high nor low, nor worth a dang for game."

THE BROADMOORE DAIRY.

The Broadmoore Dairy of Colorado Springs, Col., is under the management of Mr. H. R. Blair.

The annual report from May 1st, 1902, to April 1st, 1903, shows as follows:

Average number of cows for the year, 139.

	Lbs.	Cost.
Alfalfa hay fed	712,237	$3,561.11
Alfalfa soiled	855,061	1,068.82
Bran fed	278,962	2,510.66
Corn-chop fed	29,893	269.04
Silage	445,136	445.31
Milk produced	1,005,149.5	$7,854.76
Average lactation period, mos.		9.3
Average herd test, butter fat, per cent		4.1
Feed cost per pound milk		$0.007
Average milk per cow, lbs		7,211.23
Average butter-fat per cow, lbs.		295.66
Butter per cow, 1-6 overrun, lbs		344.93

The above is a very large average per cow considering the number of cows in the herd.

Some Pertinent Problems.

Should Ventilation Be From Floor or Ceiling?—Which Way Should Cattle Face in Stable?—Which is the Healthier, Holstein or Jersey Milk?—Milk From Pregnant Cows.—Results of Spaying Cows.

ED. HOARD'S DAIRYMAN:—I notice when writing in regard to ventilation of cow stables you say that the ventilating shaft should start near the floor and go out at the roof,

At the Wisconsin Agricultural College last winter Prof. Whitson said that the air in a stable was always in motion and that the shaft should start from the ceiling, though I notice in Physics of Agriculture that the shaft is begun near the floor. Which is best?

Why do you plan to face the cattle towards the wall? It seems to me that a cow must enjoy looking across at her neighbors rather than to look at a wall, and that the sunshine might better come towards her from the rear than to shine in her eyes, and that she could be more conveniently fed, especially when using soiling crops, by the cows facing together, and that the manure could be just as easily removed by carrier either way. The idea that the cows breathe toward one another amounts to little, because they do that to their neighbors on each side of them.

Which is the healthier milk for children, milk like the Holstein, rather low in per cent of fat, or milk like the Jersey's?

Is milk more nourishing from a fresh cow, or one not in calf?

Do you know of any experiments made in spraying cows? If so, what were the results and conclusions? MAX.

Suffolk Co., N. Y.

While it is doubtless true that "the air in a stable is always in motion" and that in consequence the various gasses are so much distributed that, with a continual inflow of pure air, ventilation from the ceiling would carry off a large proportion of the vitiated air, it still remains that there is so little of this "motion" that the temperature at the floor may be several degrees lower than at the ceiling. In ventilating a stable or a house it is expedient in winter to draw off this colder stratum of air and thus induce the warmer air at the ceiling to descend. On the contrary, during the heat of summer, openings at the ceiling, to allow the escape of the hot air, are very desirable. Therefore we advise building ventilating flues from the floor, and also providing openings into same at the ceiling, to be closed or opened as circumstances may dictate.

The question of facing double rows of cows one way or the other in a stable is not a very vital one, and the pros and cons are perhaps about equally balanced. If it is a trifle more convenient to distribute feeds of all kinds—not soiling crops alone—from a central feeding alley, is it not equally true that it is somewhat more convenient to remove the manure from a central driveway, than from passage ways at opposite sides? Just how much more enjoyment a cow may obtain from looking other cows in the face than from looking at the blank wall, with sidelong glances at her neighbors on either side, or whether light and sunshine coming from the rear would be more agreeable than coming from the front, are questions that we do not feel competent to discuss, much less decide. We do know, however, that current theories point to the conclusion that danger of infection is increased by compelling cows to breathe the air expelled from other cow's lungs and that the less exposure of his kind the better.

However, the determining factors with us are that it appears to be more convenient to have both rows of cows enter and leave by a common doorway; to have the cows in both rows accessible for milking or other purposes from a common passage; to arrange stable so that cows may be changed from one row to the other without having to take them out of doors or up or down to find a cross-passage way.

The average percentage composition of human milk is said to be 87.41 parts water; 3.78 parts fat; 2.29 parts casein and albumen; 6.21 parts milk sugar and 0.31 parts ash. The nearer cows' milk approaches this composition, the more fit would it be, one would think, for feeding infants. All cows' milk contains too much casein and too little sugar. Hence there is a growing demand, especially in cities, for what is known as modified milk, that is, for milk to which cream and water and milk sugar may have been added, so as to reduce the proportion of casein and increase that of the sugar. Whether Holstein milk is better for this purpose than Jersey milk, we are unable to say. For children past the age of infancy, Holstein milk may be the better for such as are inclined to be over fat, and Jersey milk more suitable for such as are of too spare a habit.

The next inquiry has never been scientifically investigated, so far as our reading has extended, but there is a fairly well founded opinion that the milk of cows advanced in gestation is not as satisfactory for any purpose as that from fresh or farrow cows.

There are all sorts of reports about the results obtained from spaying cows, some very favorable and others just as decidedly unfavorable. There has not been enough experience in this line to justify any generalizing. Perhaps the temperament of the animal operated upon, whether it inclines to beef or milk, may account for much of the discrepancy in the testimony.

An Exceptionally Bad Creamery.

ED. HOARD'S DAIRYMAN:—There are many successfully managed farmers' creameries in our state, but I occasionally learn of an instance where the attempts to save pennies is the means of losing dollars, and one of these has just come to my notice. After hearing the story and investigating the circumstances I was reminded of what a successful creamery owner in this state once told me. He said that the only kind of creameries he cared to buy now days were those which the farmers had tried to manage and made a failure of. He could generally get these factories at a very low price, and by his methods of spending some money and fitting up the factory with modern machines and appliances and giving the butter maker a fair chance to do good work, he could soon transform the place into a creamery that the patrons respected and that made some money for him and for the farmers.

The particular instance that I have in mind is a good illustration of a lack of ability to comprehend the necessity of spending some money to help make some more money and to prevent the loss of what has been earned.

A co-operative creamery in the north central part of the state had managed to worry along for 3 years with a fair building and some second hand machinery which had been bought because it was cheap. Here is where the management made its first mistake. The old style and out-of-date machines were fit only for the junk pile, but they could be bought cheap and had been used in a creamery before, so that it was assumed that they could be used again.

The factory received but very little milk for the first few years and managed to worry along and accumulate a considerable number of evidences of neglect without spending anything for repairs or losing much on the butter. This condition of affairs might have continued until the place finally decayed sufficiently to be plowed under the sod and leave no reminders that there ever had been a creamery here, except for the rank weeds that grew on the filth fertilized soil. The unusual rains of the past season, however, kept up the pastures so much better than formerly that the milk and cream supply this year reached a point that had never been heard of before.

Now was the time for the management to take advantage of the opportunity to make some money by spending some money in getting an adequate equipment for the factory, with machines capable of handling the increase in milk. Did they do it? No! They wrote to the Dairy School for a buttermaker and got a first-class man who had made butter successfully for three years before taking hold of this factory.

His experience and training, however, led him to ask that the rotten walls of the refrigerator be repaired so as to help prevent the loss they were having from mold, as reported by the commission man who bought the butter. He also asked for a new, modern churn, as the one in the factory was probably the only one of the kind ever made, and an experiment of some manufacturer who never made another one like it. This was the second-hand churn bought cheap when the factory started.

The separator in the creamery was also out of date, and the new buttermaker reported to the president of the company that the skim milk tested one-half of one per cent fat. This is a loss of twelve per cent of the fat in the milk, provided the milk tested 4.0% fat.

The creamery was receiving, at this time, 15,000 lbs. of milk per day, and a loss of 0.5% fat in the skim milk would amount to 75 lbs. of fat which, at 20 cents per lb., means $15.00 per day being lost by using the cheap second-hand separator. In 70 days this loss would pay for two modern, up-to-date machines that would save many dollars to the farmers in a year.

Probably the greatest piece of folly about the factory, was the determination of the management to continue their old practice of holding the buttermilk in one side of the twin cream ripening vat. The new butter maker asked to have some sort of a clean tank provided for this buttermilk, so that he could use both sides of the cream vat for his constantly increasing cream supply. This, the management refused to furnish, because the patrons took their buttermilk home to drink, and they had always done this way in the past and ought to continue to do so in the future.

The butter maker tried to skim a richer cream so as to be able to get it all into the one side of the ripening vat, and leave the other side for buttermilk. In fact this buttermaker labored very patiently with the men and the machines he had to deal with, but he has concluded that he cannot hope to stay in such a place because he is afraid, his reputation might suffer from the failure to make any headway against such odds as he has encountered up to the present time.

Such instances as this are rare, as we have many first-class creameries in the state that are managed by broad-minded farmers, but the occasional factory of this sort, shows the great need there is in Wisconsin of creamery inspectors. We ought to have ten of them constantly at work. E. H. FARRINGTON.

Wisconsin, Dairy School.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Feeding Heifers.

Have 12 yearling heifers not yet bred, which I wish to raise for milch cows. Will feed timothy hay and would like to know what grains would be the cheapest and best at the following prices; also how much grain to feed per day to make them grow right along this winter. Chop feed $22 per ton; oil meal, $23; bran, $17; flour middlings, $22; oats 35 cents per bushel; corn 50 cents per bushel. Also what difference in grain if I feed half timothy and one-half clover hay? M. C.

Manchester, Ia.

Heifers intended for the dairy should be fed for growth and development along dairy lines and not along beef lines. Early development is not particularly desirable and excessive laying on of flesh and rounding out with fat are to be carefully avoided. To this end, the digestive organs should be called upon for a goodly amount of daily exercise. "Use breeds strength" as well in the muscular and secretory functions of the stomach as in the muscles of the limbs of man or beast. Therefore, we advise feeding these heifers all the mixed clover and timothy hay they will eat without waste, with a moderate daily allowance of salt to aid digestion and assimilation. The probabilities are they will not need any grain, but an occasional mess of silage or roots, or better, a small daily allowance would be beneficial. We specify the mixed hay in preference to clear timothy, because it contains more muscle building nutriment and more mineral matter for building up and strengthening the bones. If on hay alone and the daily allowance of salt, the droppings become too dry and hard a little oil meal will be indicated. Circumstances must determine the amount. If the heifers thrive and appear active and hearty, do not be concerned if they fail to increase in weight as one should expect of steers. But if for any reason they do not appear to be thrifty, or do not make satisfactory growth, feed a mixture of bran and ground corn, equal parts by weight, in such amounts as conditions may require.

Amount of Butter from Four Per Cent Milk.

Farrington and Woll's table says that 85 lbs. of milk testing 4 per cent, will yield 3.7 lbs. of butter. The *N. Y. Farmer* says 85 lbs. of milk at 4 per cent will yield 4 lbs. of butter. Which is right? F. B.

Mongaup Valley, N. Y.

However paradoxical it may appear, the truth is that both statements are correct. Farrington and Woll's table gives the very smallest yield that can be accepted without challenging instant attention and suspicion that there is something wrong. When the overrun falls below 11 per cent, it is conclusive that there are needless losses. Both creameries and dairies should do somewhat better than this, but such an overrun is quite as much as many of them have shown.

In like manner it must be conceded that with everything in best condition, with the highest degree of care and skill on the part of the operator, with separators not overcrowded, or run too long without cleaning, it is quite possible to make 4 lbs. of butter from 85 lbs. of 4 per cent milk. This is simply adding one-sixth, and is the rule followed in estimating the yield of a cow. But such an overrun cannot be expected in regular creamery work.

Fir Saw Dust for Bedding.

My dairy farm is so situated that it is difficult for me to arrange satisfactorily the matter of bedding for the cattle. We have no straw on the place and cannot get any at a reasonable expense. I can get fir sawdust without difficulty. There is a popular impression here that the use of fir sawdust is objectionable because injurious to the land upon which the manure is spread. Two reasons are given: One being that the turpentine, pitch or other ingredients of the sawdust are injurious to plant production: and the other, that the sawdust tends to make the soil dryer. L. T. T.
Seattle, Wash.

We should not hesitate to use the fir saw dust for bedding in a cow stable. Similar objections have been made in Wisconsin to the use of pine saw dust and shavings, but actual use of pine shavings on our own farms and gardens and by some of our neighbors has not proven objectionable in any degree. On the contrary, we have fancied the texture of the soil has been improved. Possibly, excessive amount of this saw dust in particular spots might temporarily be injurious, but the amount that would ordinarily be employed cannot, in our opinion, have any injurious effect.

Duration of Red Clover Seeding—An Alfalfa Inquiry.

Will enough red clover come on the third season to make a profitable hay crop? I am aware that botanists say the clover plants live but two years. My neighbor (an old country German) says: "Leave it another year."

How would it do to sow clover sod to alfalfa? The latter does well here, two cuttings from four acres, made fourteen big loads, and the land is far from rich. C. A. D.
Milton Junction, Wis.

Common red clover is strictly a biennial plant. Seeded in the spring it does not come to maturity and bear seed the same season, but does seed the second year, and each plant thus maturing ordinarily terminates its life. Under extra favorable conditions some roots will live over after producing seed, and there will also be some plants that do not bear seed that will grow the third year. Usually there are not enough of these to make a profitable crop the third year. One can probably ascertain in the spring whether there are enough plants alive to make it expedient to reserve the field for a hay crop.

We should not expect very much success in attempting to secure a good stand of alfalfa by seeding on a clover sod, except by plowing down all the live clover. On the spots where there was any considerable clover, the young alfalfa plants would probably be smothered.

Does Sorghum Seed Diminish Milk Flow?

Our herd of cows has been doing reasonably on native pasture consisting of prairie grass, Japan clover and other wild grasses which grow upon our prairie lands when pastured awhile. Recently a short drouth came upon us and to keep cows from shrinking in flow of milk we began to feed sorghum, the seed of which was about half ripe. In spite of the fact we fed sorghum freely, our cows have dropped off nearly one-half in milk flow. Some of our farmers affirm that sorghum seed will dry up a cow. Have you any information that will verify this claim? We fed sorghum silage successfully last year. B. D. M.
Carlisle, Ark.

There is perhaps no conclusive testimony upon this point either way. In a single experiment at the New Jersey Experiment Station several years ago, the substitution of sorghum seed meal for corn meal reduced the average yield of the three cows from 28.1 lbs. to 24.6 lbs. and when put back upon corn meal the yield increased to 27 lbs. On the other hand, chemical analysis fails to show any principle in sorghum seed—at least when ripe—that should cause shrinkage. There is, however, a more or less wide spread belief that sorghum seed does tend to decrease the flow of milk, and possibly the unripe seed may be more objectionable than that which has matured.

Cow Stable Queries.

Would you please publish in your next paper a good plan for my barn, which is 24x44. The cows now face towards the wall and are tied with chains. Am intending to put a feeding alley in the middle and have the cows face each other and also put in stanchions. Will six inches of fine crushed stone mixed with cement, tamped solid, make a good floor for cows to stand on? Would also like to know which are the best stanchions.
Haven, Wis. G. F. G.

A stable only 24 feet wide does not afford promise of a very satisfactory arrangement. It requires not less than 6 feet to supply standing and feeding room for even a small cow, and 7 feet is none too much for larger cows. At the very least then 12 feet in width must be exclusively devoted to the cows. Deducting also for the frame and siding of the barn, there will remain 11 feet for gutters and passage ways. If the cows face inwards, there should be at least 4 feet between mangers for a feeding alley (and more would be better,) and this will leave 3½ feet on either side for a gutter and walk for cows to pass.

If the cows are faced to the wall and there be allowed the same space for getting the feed to the cows, namely, 2 feet on each side, and give each rowof cows the same space, there will remain a central alley 7 feet wide, or 5 feet between gutters, for cows to come in and go out, and for milkers to go back and forth. This, in our judgment, will be the more convenient arrangement.

We do not approve the concrete platform for cows to stand on and much less for cows to lie on. Unless heavily bedded they are cold, and a prolific source of rheumatism and garget.

The swing stanchions are such a decided improvement over the rigid stanchion, that the latter should be banished from every cow stable.

Farm and City Life.

ED. HOARD'S DAIRYMAN:—I believe I am qualified to comment on the charge of H. C. R. as published on page 717, that people are leaving the farm because they do not like to work and imagine that there is a living in town without work. I do not accept that statement. I saw little but farm life before I was 22 and I have seen a good deal of it since that time. We have always had a farm in the family, and a good one, though I do not manage it.

No, there is nothing gained by misstating the case. It is overwork that is mainly to blame for the lack of farm workers. My wife refuses to return to the farm on any terms because she broke down there, not being made of cast iron as her parents were. Why is it in the city that a girl will work in the shop and fairly starve when she could always be laying up money at domestic service? Nothing in the world but the fact that in one case her work is done sometime and in the other it never is.

It is just so between farm work and shop work for men. The farmer has an idea that he must rise at 4 a. m. and work till 8. p. m. or he is not doing his duty, and there is Sunday work always besides. Who would be willing to work in this way except for himself if he could get a job of eight or nine hours that would support him? The lack of farm help is the answer to the question. Now what are we going to do? Shall we cut our farms down till we can work them ourselves or shall we try to stand the present awful system till the gas engine is ready to help us out, as it will before long, I verily believe?

I say neither. I have lived on farm and in town and observed both side by side long enough to be prepared to assert that the thing that is killing farming is waste. There is waste enough on most of the farms I visit to pay abundantly for help needed and at reasonable hours and leave a good margin after that. I will say nothing of antiquated methods that contribute to the same end, but will try to point out what I believe would be a remedy in whole, or in great part.

In the first place, the work on a farm should be arranged so that the farmer could say to his hired help: "I want you to work for me an entire year and if we can agree I want you another year. I do not believe in the policy of working my help to death in the warm part of the year and turning it off to do nothing for at least four months of the year."

I am convinced that there is work enough that can be left over till winter to keep men earning something then. Let the barns and stables be made light and warm, let the dairy be reasonably large, let the grain be left over to be thrashed by a small machine in winter, let the coarse feed all be cut up before feeding, let ration be the rule of feeding instead of feeding by guess, as we were all taught to do, let the manure be drawn out as it is made, let the making of all farm appliances, such as gates, bushel crates and a thousand other things that are mostly labor, let all repair work that a handy farmer can do, be put into the winter schedule, let winter hours be only from daylight to dark and there would be winter work, and the summer rush would not need to be what it is.

The farmer who has much more work to be done than he can do, should not labor with his hands nearly so much as he should study. He should watch every inch of his farm every day, or something will get the start of him. One of the great sources of worry and loss, is from excessive dry or wet weather. Sometimes the weather changes its entire tac-

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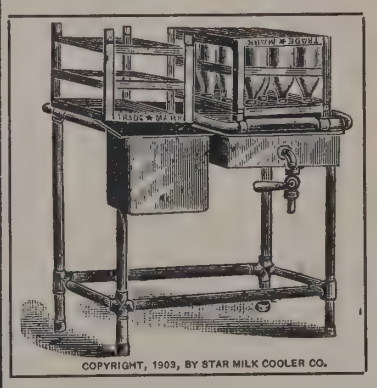
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tics, as it did here, from no rain to all rain, this year about the first of June. It is hard to square a farm to such a radical change, but some of our farmers did it. They caught the few dry weeks and cultivated their hoed crops until they have corn now, while their neighbors have none. They watched their potatoes and headed off the blight, so that the crop grew, while that of their neighbors died before the potato was full grown. They watched the weather and got hay and grain in without rain on them. It is not the hard work alone that counts. It is the right sort of watchfulness.

Two fields of our farm were rented this season. The tenants were neighbors. One tilled his field well and when crop was ripe, he gathered it. He got out of it a big yield and he got all that grew. Both sowed oats. The other was late in putting his crop in. He hurried the fitting of the soil and the crop was much lighter than the other, though the land was quite as good. Then he harvested the crop and let it stand and get very much colored by rain, though the other offered to help him draw it in. I believe one of these fields netted $10 an acre more than the other did, and all on account of better farming. One of these men can pay for hired help, the other cannot. JOHN CHAMBERLIN.

Erie Co., N. Y.

A Warning to Patrons of Local Creameries.

ED. HOARD'S DAIRYMAN:—I am informed by an article in one of the daily papers that the Milwaukee railroad is making an effort to consolidate the creameries along its line. The plan, it is claimed, is to interest dairymen in the butter manufacturing plants located in the large cities and towns, by offering better prices for their product. This means that the railroad mentioned is, by granting special low rates to central churning plants, doing that which will have a tendency to destroy the local creameries which it has for the past decade assisted in promoting and fostering. The railroad's reward, says the report, will be the tariff derived from the shipment of the cream to the central churning plants, overlooking the fact that in closing the local creamery the railroad loses the freight it paid for coal, tubs and other supplies.

It seems almost incredible that a railway company should encourage any movement which is calculated to break down the local creameries which have accomplished so much in bringing prosperity and wealth to its constituents who, before the advent of the creamery, were in financial distress and many in actual poverty. It is impossible for the railway to get any benefit from such a change except the extra business that would come to it in taking the cream from the local station to the central plant.

The fact that the expense to get the cream to the central churning plant and the cost of manufacture there is greater than the cost of manufacture in our well regulated co-operative creameries, and the additional fact that butter made in these central plants from cream delivered only two or three times a week, will have to be sold at a cent or so less per pound than it would be sold for if made in the local separator creamery, makes it evident that the freight charges for the cream, and the profit taken by the central plant, have to be paid by the milk producer. Even if, for the time being, the rates for transporting the cream to the central plant and the butter to market, are made so low that as much is realized by the milk producers as they do by manufacturing the butter in their home creamery, what assurance is there that the low rates will be continued after the home creamery has been closed and the local co-operative creamery association dissolved?

It is only a few years ago that a railroad made similar special low rates on cream to a central churning plant at Topeka, by which that plant was enabled to get control of nearly all the creameries in Kansas. After the local creameries were closed, the local creamery organizations abandoned and each farmer was dealing independently with the central churning plant, the special low rates were discontinued and the profits in dairying were reduced.

In this matter we are not disposed to quarrel with the railway companies, it is their business to get freight; nor with the central churning plants for soliciting cream; but when the farmers' co-operative creamery is likened unto the farmer's plowing with a stick, harvesting with a sickle and threshing with a flail, and the central churning plant placed on a level with the modern gang plow, the self-binding harvester and the steam thresher, I feel called upon to nudge the patron of the co-operative creamery and shake my head.

The claim is made that "the plan is in accord with the present age of consolidation and centralization." We question the wisdom of the railroads in promoting this movement, for there is no one thing that so tends to stiffen prices of railway stocks and bonds, and increase freight and passenger receipts as a prosperous contitutency.

The farmers' co-operative creamery is the best institution that ever came to the dairymen of the northwest; it has done more for them than any other organization, because it brings the profits to the producer—where they belong; it has done more for the material interests of the farmer than any other institution in the state, and if the farmers know what is to their interest they will let well enough alone, stand by their home creameries and let the central churning plants look for patronage to those who have not learned by experience, the great benefits (pecuniary and social) that come to every community that gives strong support to a co-operative creamery.

T. L. HAECKER.

Minnesota Dairy School.

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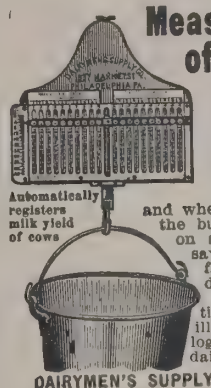


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With the **Automatic Milk Scale** you can keep an accurate record of the yield of each cow, and remove the unprofitable ones from the dairy. Each button on scale arm corresponds to number of cow, and when pail of milk is weighed the button registers the weight on score card. Big money saver and money maker for farmers and dairymen. Send for testimonials and illustrated catalogue of **Bestov** dairy supplies.

TRADE MARK **BESTOV**

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Every ounce of salt used in salting butter with

DIAMOND CRYSTAL SALT

"The Salt that's ALL Salt" you get paid for at butter prices. It becomes a part of the butter—that's why.

Write for book "Just Salt." **Free.**

DIAMOND CRYSTAL SALT CO., St. Clair, Mich.

$3 a Day Sure

Send us your address and we will show you how to make $3 a day absolutely sure; we furnish the work and teach you free, you work in the locality where you live. Send us your address and we will explain the business fully, remember we guarantee a clear profit of $3 for every day's work, absolutely sure. Write at once.

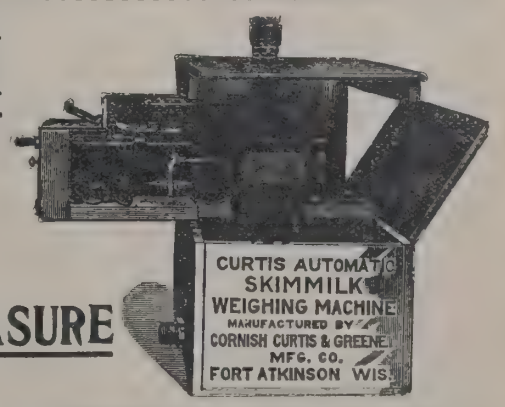
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Skim Milk

Often goes to the wrong man for the simple reason that the patrons have no standard of

WEIGHT or MEASURE

and the last man suffers.



☛ FULL DESCRIPTIVE CIRCULAR FREE.

Cornish, Curtis & Greene Mfg. Co.,

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for....
DE LAVAL ALPHA SEPARATORS.

Fort Atkinson, Wis.

How a City Milk Inspector Tested Milk.

A good commentary on the knowledge of dairy methods is found in the way a Chicago milk inspector, who went out to DeKalb, Ill., to test some cows and thereby trace to its fountain head the source of Chicago's poor milk. He took with him some young doctors who were equally wise in milk production. They came, milked and tested and the following letter shows the extent of their wisdom:

EDITOR RECORD HERALD:—I notice in one of your contemporaries today that by the tests taken by Mr. Patterson of the pure food commission and Mr. Grady of the city milk inspection bureau the Holstein cow is condemned on the sample of milk taken from the cow that Mr. Patterson milked.

Now, as I was there on the invitation from Mr. Gurler, I happen to know something about the whole proceedings and especially in regard to the milking of the Holstein cow in question. I naturally supposed all the facts would be given for publication, but for some reason they do not appear in either of the reports; hence, in justice to the dairymen in whose interests it is my duty to speak, and to do justice to that noble breed of dairy cattle that are being so much maligned by the city inspectors, I state the facts from a dairyman's standpoint.

Mr. Patterson did not milk the cow; he only partially milked her. He milked from the cow eleven pounds of milk, which, according to the published reports tested only 2.8% butter fat. But what followed? I had one of Mr. Gurler's regular milkers take the cow immediately after Mr. Patterson was through and he got three pounds more milk from her.

This can be verified by Mr. Lundberg, of DeKalb, Alderman Fowler, of Chicago, and A. J. Glover and myself. Four tests were made of this 3 pounds of milk and it tested 6%, which does not surprise anyone conversant with the quality of the last milk drawn from a cow, compared with the first drawn. Thus we have the following to submit as the test of the Holstein cow's milk that Mr. Patterson was supposed to have milked:

	Test.	
Eleven pounds milked by Mr. Patterson	2.8	.308
Three pounds milked by Mr. Gurler's milker	6.0	.180
		.488
Fourteen pounds of milk, average	3.485	.488

As the state test is 3%, this Holstein cow is still nearly 0.5 above. Why this was given to the public at 2.8 I fail to understand, as I informed Mr. Patterson what we had done before leaving the barn, wishing to be honest with him in the matter.

I am not personally interested in any Holstein cows, but I want to see fair play for all dairy breeds. I love the Jerseys and Guernseys, consider the Ayrshires splendid milkers, learning more every year in regard to the Brown Swiss, and for an all round animal; believe the Durhams cannot be beaten. Yours for simple justice to the Holstein.

JOSEPH NEWMAN.

President Illinois Dairymen's Association.

Advantages and Disadvantages of Pasteurizing.

[From Prof. Dean's Book, "Canadian Dairying."]

"The chief advantages of pasteurization for butter making are:

1. It destroys the germ life of milk or cream to a large extent, especially when heated to 185 degrees, which is the temperature to be recommended. A clean seed-bed is thus prepared for the proper germs to give fine flavor to the butter.

2. It tends to eliminate stable and feed flavors from milk and cream, especially with milk in winter.

3. The ripening of the cream may be controlled by the butter maker, which is the important point in making good butter.

4. In case of bad-flavored milk, it enables the butter maker to improve very much the quality of his goods.

5. By the use of pure cultures (commonly called "starters") a more uniform quality is produced from day to day throughout the year.

6. The butter possesses an improved keeping quality, hence is better suited for the export trade, as our butter does not reach the consumer for two to four weeks after being made.

7. An improved quality of butter may be produced at cream-gathering creameries by pasteurization of the cream when sweet. The pasteurization of sour cream is attended with more labor and more difficulties, and the results are not so good. It is difficult to pasteurize milk or cream which contains more than 0.1 per cent of acid. However, after natural coagulation takes place in the cream, which will be when it contains 0.4 to 0.5 per cent of acid, the work may be done fairly well but is usually attended with considerable loss.

8. There is less loss in the skim milk when the whole milk is pasteurized before separating, especially in winter. We have used nearly all the leading makes of separators for creaming hot milk. The upper bearing of the machine needs to be somewhat more loose than when running through milk at a temperature of 100 degrees, and plenty of good oil is required to lubricate the bearing when separating pasteurized milk.

9. A better quality of skim milk may

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Catalogue No. 72, fresh from the printing presses and containing more goods that are really up-to-date and of the very latest style and design than any other six catalogues published, is now ready for distribution.



It will save you money on everything you buy and enables you to make your selections as readily and satisfactorily as if you could come to Chicago every day. It puts you in direct touch with the great markets of the world and places before you a stock of first-class goods more complete in every detail than has ever before been offered by any firm and at prices that are positively the lowest, when the reliable quality of the merchandise is taken into consideration. This catalogue contains over 1,100 pages of quotations on reliable merchandise of every description. No matter what you may need, you will find the article fully described and illustrated in our great book at a price that no shrewd buyer should overlook.

More than 2,000,000 people sent us orders last year—many of them were your neighbors. They gave us their business simply because we sold them reliable goods for less money than they could buy the same goods for elsewhere and at the end of the year found that they had made an average saving of 25 per cent on their purchases. If your neighbors find it to their advantage to trade with us, why can't you? If you have never traded with us, now is the time to begin. Ordering from a great catalogue is convenient and satisfactory; in the leisure of your own home you can make selection from a mammoth stock of thoroughly reliable merchandise, all quoted at the lowest possible prices.

You can, if you desire, compare prices with those you have been accustomed to pay and you can thus get better results than by making a hasty examination at a local store. You not only have the advantage of your own deliberate judgment but you are protected by the strongest guarantee ever made by any mercantile house, for we extend to all purchasers the privilege of returning goods at our expense if they are not satisfied with their purchases; and, even more, we agree to replace any shipment damaged or lost in transit; in other words, we assume all the responsibility.

In 1872 we originated the catalogue plan of buying and during the thirty-two years of our life have grown steadily each year until our business is now one of the largest in the world. We reached this position by treating people fairly, giving honest value and avoiding all forms of trickery, exaggeration, or misrepresentation. With Catalogue No. 72 in your possession you can buy from us almost as easily as if you visited our store in person, and we cordially invite every person desiring reliable goods at wholesale prices to fill out coupon at the right and send for a copy. The book is new from cover to cover; contains all the new goods of the season; is complete in every department; so there is no better time than the present to send for a copy and begin trading with us if you are satisfied with our prices and goods. The experiment will cost you only 15 cents. It may result in a saving of hundreds of dollars the first year.

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17,000 pictures of the things that we describe. 70,000 prices on them. The prices are the lowest wholesale prices on the market.

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From Farm Machinery to Trowels.
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From Sewing Machines to Needles.
From Power Pumps to Hand Pumps.
From Windmills to Feed Cutters.
From Rifles to Toy Pistols.
From Steel Ranges to Stove Pipe.
From Bath Tubs to Wash Bowls.
From Carpets to Doilies.
From Furniture to Foot Stools.
From Dinner Sets to Vases.
From Hall Clocks to Watches.
From Suits to Hosiery.
From Spring Hats to Shoes.
From New Jackets to Underwear.
Everything that the farmer or mechanic uses—or anybody. All that the housewife uses. Everything for a child. Anything that anybody wears. Almost everything you eat. These 70,000 articles cover about all the wants of humanity.

Send 15 Cents Today

If you want our catalogue, fill out carefully the slip below this and mail to us today, enclosing 15 cents. This catalogue which we offer you costs us about 50 cents to print, even in million lots. The postage on it costs us 26 cents more. We ask you to send us but 15 cents (only about half the postage alone), just to show that you do not send from mere curiosity. This book will save any average family at least $100 per year.

Cut this slip out and send it with 15c in stamps TODAY.

Montgomery Ward & Co., Chicago.

Enclosed find 15 cents for partial postage on Catalogue No. 72, as advertised in Hoard's Dairyman.

Name _____
(Be sure to write very plainly.)

Postoffice _____

County _____ State _____

Be sure to enclose this slip in an envelope.

Montgomery Ward & Co., Michigan Ave. & Madison St. Chicago

Requests are pouring in so rapidly that we suggest you write us at once and get your catalogue promptly. Don't forget the coupon. Cut it out before you mislay the paper.

FOR SALE!

A CREAMERY and Dwelling House in a fine section of the country, Maryland, doing a PROFITABLE BUSINESS. For full information, address

MARYLAND,
CARE OF HOARD'S DAIRYMAN.

GOOD DAIRY FARM

FOR SALE—near Reedsburg, Wis., of 160 acres, 100 acres cleared and in good state of cultivation. 60 acres open woodland and fine pasture. 2 good flowing wells. New barns costing $1500.00. Good house and all outbuildings in good repair. Write for information.
J. T. BATES, Reedsburg, Wis.



The Best Cooling Process

It has no peer for cream gathering, quick cooling and ventilation. Milk and water are not mixed. Undiluted sweet skim milk to feed to calves and pigs. Soon pays cost of separator. More butter, richer flavored, easier to keep clean.

Write for our catalogue with pictures and our special introductory prices. Agents wanted. Pat. May 21, 1901.

THE ARRAS CREAM SEPARATOR CO., Bluffton, Ohio

We Bring Buyer and Seller Together

Do you wish to sell or exchange your farm, creamery or cheese factory? No matter where located—east, west, north, or south. Write for our new plan. We put you in direct communication with buyer. Save the big commission which agents would charge.

HILES & MYERS, C-100 MATTHEWS BLDG., MILWAUKEE, WIS

be returned to the farmers by sending it home hot. There is also less danger of spreading disease. In Denmark all skimmilk and buttermilk must be heated to 180 degrees before it is returned to the farmer. This plan has materially lessened the spread of tuberculosis in that country. Hydrogen peroxide is used to test whether the dairy products have been pasteurized, and the law is rigidly enforced.

The disadvantages of pasteurization are:

1. The extra cost for labor and machinery to heat and afterward cool the milk or cream. A milk pasturizer that will heat milk for two power separators will cost $150 to $200.

2. There is difficulty in pasteurizing milk or cream which is "over-ripe," and this may cause trouble in hot weather, when milk or cream is not properly cared for and cooled at the farm and is delivered in poor condition.

3. Some trouble is experienced from the froth which rises on the milk as a result of heating. No practicable remedy for this has yet been discovered.

4. There is a tendency to lack of flavor, and sometimes there is a slightly "cooked" flavor as a result of pasteurization. The cooked flavor usually disappears in less than two weeks. Lack of flavor is objectionable in local markets.

Two points are essential if pasteurization is practized:—proper means of heating and cooling the cream and the use of a proper culture to give the desired flavor to the cream and butter. Commercial cultures should be propagated three or four times in pasteurized skimmilk before they are used in cream for ripening in order to get the best results.

Missouri State Dairy Association.

ED. HOARD'S DAIRYMAN:—The date of the meeting of the Missouri State Dairy Association has been changed from November 10-12 to December 8-10, 1903.

Columbia, Mo. C. H. ECKLES.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The Quotation Committee reported the market firm at 21½ cents.

Former markets:

Sept. 21, '03, no sales, 21½ cents.
Sept. 29, '02, no sales, 22½ cents.
Sept. 30, '01, 60 tubs, 22 cents.
Oct. 1, '00, no sales, 21½ cents.
Oct. 2, '99, no sales, 23½ cents.

Output for Elgin district, 696,500 pounds.

Offerings.	*Tubs. Bid.*	*Bidder.*	*Sold.*
Ashton	35 21¾c	Kilbourne	Kilbourne
Winslow	30		
Dundee	50 21¾c	Kilbourne	Kilbourne
Harvard	50 21¾c	Kilbourne	Kilbourne

Winslow was withdrawn. H. C. B.

Elgin, Ill., Sept. 28.

DAIRY MARKETS.

ELGIN, Ill., Sept. 28—Butter—Ruled firm on the Board of Trade, selling at 21¼c a pound, same as last week. Sales in this district for the week were 696,500 lbs.

CHICAGO, Ill., Sept. 28.—Butter—Firm; creameries. 16@21½c; dairies, 14@18¼c.

Cheese—Strong, daisies, 11c Twins, 10½@10¾c: Young Americas, 11@11½c.

Eggs—Steady; at mark, cases included, 18@19c.

Cattle—Choice to fancy beeves, 1,200 to 1,500 lbs., 5.60@5.80; good to choice steers, 5.10@5.50; fair to good export and shipping steers, 4.60@5.00; medium beef steers, 4.20@4.50; plain beef steers 3.90@4.15; common to rough, 1,000 to 1,200 lbs. 3.50@3.85; good to choice, fat heifers, 3.85@4.50; good to choice feeders, 3.40@4.10; good to plain stockers and feeders, 2.40@3.40; fair to good cows and heifers, 3.00@4.00; good canning to fair beef cows, 2.10@3.80; common to good canning cows, 1.30@3.25; bulls, poor to choice, 2.40@4.20; calves, choice to fancy, 6.25@7.50; calves, common to fair, 3.00@6.00; corn-fed western steers, 4.00@5.30; Texas bulls and grass steers, 2.00@3.80 Texas steers, fair to choice, 3.75@4.65; western range steers, 3.25@4.50;

Hogs—Good to choice heavy shipping, 6.05@6.25; good to choice heavy packing, 5.60@5.85; rough and common heavy mixed, 5.35@5.55; assorted light, 150 to 195 lbs., 6.15@6.40; good to choice butcher weights, 6.20@6.35; poor to choice light mixed, 5.90@6.15; thin to choice, 50 to 130 lb pigs 5.00@6.20; stags and rough lots, 3.25@5.25.

MILWAUKEE, Wis., Sept. 28.—Butter—Creamery—extras, 21¼c; firsts, 19@20c; seconds, 17@18c; whey. 12c; Dairy, fancy, 18c; lines, fresh, 15@16c; packing, stock 13½@14c; grease, 5@6c.

Cheese—American, full cream — Twins, 10¾@11c; Young Americas, 11¼@12c: Daisies, 11@11¼c; Longhorns, 11¼@12c; low grades, 8@9c; Brick, fancy, 8¼@9c; low grades, 6@7c; Limburger—Fancy, 8¼@9c; off goods, 5@7c; Swiss, old, drum, choice, 12@12¼c; drum, No. 2, 10@11c; Block, choice, 11@11¼c; block No. 2, 9@10c.

Eggs—Strictly fresh laid, loss off, cases returned, 19c; at mark 17¼@18c; dirties and second 16c; checks, 14c.

MANITOWOC, Wis., Sept. 23—Cheese—Ninety boxes Twins, 10¾c; 1,050 boxes Young Americas, 11c; 450 Daisies, 11¼c.

SHEBOYGAN, Wis., Sept. 23—Cheese—1,972 boxes cheese were offered on the board to day, of which were sold 630 daisies at 11⅝c; 110, 11¾c; 278 Young Americas, 11⅛c; 235, 11⅝c; 348 Longhorns, 11¾c; 309, 11⅝c; 20, 11¾c.

SHEBOYGAN FALLS, Wis., Sept. 23—Cheese—21 factories offered 1,794 boxes of cheese on Call Board to-day, and all sold as follows: 510 cases Young Americas at 11⅝c, 240 Daisies at 11⅝c, 230 cases Longhorns at 11¾c, and 814 at 11⅝c. Market active and firm.

FOND DU LAC, Wis., Sept. 28—Cheese—Sales at Dairy Board today were 308 Twins at 11⅜c; 318 Daisies, at 11¾c; 100 at 11⅞c. Market active.

ST. LOUIS, Sept. 21—Butter—Steady; creamery, 22@22½c; dairy, 14@17c.

Eggs—19c, loss off.

KANSAS CITY, Sept. 28— Butter — Creamery, 18½@19½c; dairy, fancy, 17c.

Eggs—Weak; Missouri and Kansas, cases returned, 17½c; new No. 2, white wood cases included, 18c.

BOSTON, Mass. Sept. 28 —Butter—Creamery, western extra, 22@22½c; western firsts, 19½@20½c; dairy, 15½@21½c; imitation creamery, 16c; ladle, 14@15½c; box and print, 16@23c.

Cheese—Choice, 11¾@12c; Wisconsin, Twins, 11@12c; Ohio, flat, 10½@11c.

Eggs—Nearby, 32c; western selected, 23@24c; poor to fair, 17@18c; Illinois, 20@21c.

NEW YORK, N. Y., Sept. 28—Butter—Receipts, 9,439 pkgs.; market steady; state dairy, 15@20c; extra creamery, 21½c; common to choice, 16@21c.

Cheese—Receipts 2,392 pkgs.; market strong; state full cream, fancy small colored, 12¼c; small white, 12¼c; large colored, 12c; large white, 12c.

Eggs—Receipts, 9,128 pkgs.; market strong; state and Pennsylvania, fancy mixed, 24@25c; seconds to firsts, 20@24; western extras, 24c; western thirds to seconds, 17@21c; western firsts, 23c; refrigerated, 19@21c.

NEW YORK MARKET.

NEW YORK, Sept. 26—Butter—Receipts for the week, 43,258 packages.

Exports for the week, 1,550 packages.

Trade during the last two days has been more quiet owing to the advance in prices and the withdrawal of considerable lots of freezer butter stored in July. During the early part of the week trade was good, fancy creamery cleaning up quickly at full prices. We quote:

Creamery, extra, 21½c; medium, 19½@21c; poor, 18@19c; Dairy, extra, 21c; medium, 18@20c; poor, 15@17c.

Cheese—Receipts for the week, 38,719 boxes. Exports, 8,992 boxes.

This has been a week of considerable activity among the trade, higher prices having been paid in the country. This caused a firm feeling, and the market closes with prospects of higher prices for the coming week. We quote:

Full Cream, extra, 12c; medium, 11@11½c; poor, 7½@9½c.

Eggs—Receipts for the week, 42,789 cases.

The market advanced one cent per dozen early in the week, receipts not having been enough to supply the current demand. All grades firm. We quote:

New York & Penn., strictly fresh, per doz, 24@25c; Southern & Western, strictly fresh, 23@24c; all sections, poor to good, 19@23c.

177 Chambers St. DAVID W. LEWIS & Co

NEW YORK FERTILIZER MARKET.

Acid phosphate	60	@	67½
Phosphate rock, f. o. b. Char'n	5 00	@	7 00
Tenn	3 00	@	4 00
Bones, rough ₱ ton	17 00	@	18 00
ground	21 50	@	22 00
Bone meal	22 00		24 00
Bone black, refuse	19 00	@	19 50
Potash, dbl. m're salt 48@53 per cent	1 12	@	1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons	25 00	@	30 00
sulph of basis, 90@98 per cent	2 11	@	2 18
90@98 per cent less than 25 tons	38 00	@	40 00
Potash muriate ₱ 100 lbs.	1 83	@	1 95
less than 25 tons	36 00	@	40 00
Kainit 25% S. of P. ₱ ton	9 50	@	9 50
less than 25 tons	9 50	@	10 50
Sylvinit, 35@37% P. ₱ unit	41	@	46
Nitrate of soda	2 15	@	2 20
Blood, Dried red ₱ unit	2 55	@	2 60
low grade	—	@	—
Concentrated tankage	15 00	@	16 00
Fish guano, dried	25 00	@	25 25
acidulated	23 00	@	23 50

BALTIMORE MARKET.

BALTIMORE, Md., Sept. 24.—Butter—Since our last report there has been quite a falling off in the general recipts of butter, especially creamery. Toward the close of last week there was quite an improvement in the demand, and particularly for local consumption. The cooler weather prevailing has proven quite a factor in causing many of the summer tourists to return to their homes, these in connection with the visiting Odd Fellows and their families have swelled the population no little, hence the increase in the demand. Extras—The supply for the present is about equal the requirements. Firsts, while in fair recipt have proven insufficient for the demand. Seconds are in full supply; Imitation creamery is in light receipt, there is a fair demand. Ladles—The supply is equal to the demand. Packing stock is meeting with a fair demand. Blocks and Ptints—All choice to fancy stock meets prompt sale. At the close of today's market there was a healthy feeling, and all desirable stock was firmly held at the recent advance.

Creamery Separator, extras, @22½c; firsts, 21@22c; seconds, 19@20c. Imitation Creamery, extras, 20c; firsts, 18@19c; seconds, 15@17c. Iowa & N. W. Ladle, extras, 17c; firsts, 15½@16c; seconds, 14@15c; Ohio & Indiana Ladle, extras, 16½c; firsts, 15@16c; seconds, 13@14c¼. Ohio Storepacked, Firsts, @13c; Seconds, 12@12½c; W. Va. firsts, @13c; seconds. 12@12¼c. Creamery blocks (2 lbs.) extras, 23@23½c; firsts, 21½@22c; seconds, 19@21c. Creamery 'prints' ¼ lb.) extras, 24½c; firsts, 23@24c; seconds 19@22c. Md. Va. prints, extras, 22@23c; firsts, 20@21c; seconds, 18@19c. Renovated Butter, extras, 18c: firsts, 17c; seconds, 15@16c.

Eggs—With continued light receipts of strictly fresh eggs, and a brisk demand at 25 cents, the market to-day presents a healthy appearance and closes firm quite active on all desirable stock either fresh or storage.

Cheese—Receipts fair; demand good; market rules firm and active at the advance.

N. Y. State—Cheddars, fine, 11½@11¾c; choice, 11¼@11½c; fair, 10¾@11c, Flats, fine, 11¾@12c; choice, 11½@11¾c; fair, 11@11¼c; Small, fine, 12½@12¾c; choice, 12@12¼c: fair, 11½@11¾ Ohio Flats fine, 11¼@11½c; choice, 10¾@11c; fair, 10@10c½; Ohio Picnic, fine, 11¾@12c; choice, 11¼@11½c; fair, 10¾@11c; Swiss cheese, (domestic) new, fine, 13@13½c; choice, 11@12c; fair, 10@19½c.

301 Exchange Place. G. M. LAMB & BROS.

PRIZE WINNING BUTTER

De Laval Made as Usual

The reports from the different State Fairs now being held show the almost universal use of DE LAVAL machines in the making of the very finest quality of butter, just as for fifteen years past.

A few of the most important returns received within a few days are:

NEW YORK —E. F. ROWLEY, Kennedy, N. Y., - - 98%
IOWA— — —C. D. ELDER, Manchester, Iowa, - 98¾%
WISCONSIN—A. V. GROW, Whitewater, Wis., - - 98½%
MINNESOTA—L. LOHNBAKKEN, Butternut, Minn., - 97¾%
SIOUX CITY—M. Sondergaard, Hutchinson, Minn., 98¾%

The separator does not make the butter but it has much to do with the condition in which the cream goes to the buttermaker, and it is in this, as in every other feature of separator practicability, that the DE LAVAL machines are so markedly superior.

A DE LAVAL catalogue—to be had for the asking—will make plain the difference between separators.

The De Laval Separator Co.,

Randolph & Canal Sts., CHICAGO.
1213 Filbert Street, PHILADELPHIA.
9 & 11 Drumm St., SAN FRANCISCO.

General Offices: 74 CORTLANDT STREET, NEW YORK.

121 Youville Square, MONTREAL.
75 and 77 York St., TORONTO.
248 McDermot Avenue, WINNEPEG.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—480 acres, 200 level, 160 acres Gov' land can be added by using homestead right, making 640 acres in one piece. A well equipped dairy of 30 cows, with gas engine; 40 acres fine grove, plenty water in grove. Good buildings, very rich soil; called the finest outfit in the county. Will give possession any day and give ones own time to pay for last half if ten years; terms at 6 per cent. I mean business. $9600 is the price, you will say it is worth $14000. Address F. A. I. R., care of Hoard's Dairyman. 30-tf

Fine Dairy Farm for Sale—Near St. Paul, Minn. 210 acres good land with ample buildings of all kinds. Page fence. cedar posts. Pure bred Holstein cattle and Yorkshire swine sell readily at good prices. Good markets for all dairy products. Will sell with or without stock and other personal property. Easy terms. Enforced removal to California only reason for selling. T. S. TOMPKINS, Pasadena, Cal. 15-tf

Wanted—Competent single man. Must be sober, to take care of Jersey herd, do milking and make butter. Good place for the right man. State wages and give references. Box 298, Butler, Pa. 33-2

Big Money in Golden California—I want a thorough, reliable and practical farmer to take charge of one of my ranches. Married man preferred. Must be a good teamster and understand running farm machinery. Good wages, house, barn, corrals, and chicken runs. Will contract by year with right party. E. E. MOORE, Compton, California. 33-2

Wanted—A Canadian Agricultural College graduate seeks position as manager of medium sized, up-to-date stock or dairy farm in good locality. Have spent terms on best farms in Ontario, Canada. 28 years of age. Address "Canadian" % HOARD'S DAIRYMAN, Fort Atkinson, Wis. 34-2

Position Wanted—Two good milkers (Hollanders) want position on dairy farm, and if possible on same place. Address JOHN STEENHOVEN, care of D. J. de Hoogle, Boyden, Iowa.

Herdsman Wanted—Who understands care and handling of thoroughbred Holsteins as well as rearing of young stock. Single men only need apply. State wages and experience. Steady place for right party. Address A. J. DAUGHERITY, Streator, Ill. 34-tf

For Sale—In car-load lots, fresh milch cows, 8 Springers. E. M. BOURNE, Wiota, Iowa. 34-2

Wanted—Situation as manager, by a married man, on a dairy farm where milk is retailed, bottle delivery preferred. 8 years experience. Strictly sober. Best of references. Address F. E. N., care Hoard's Dairyman. 34-sp

For Sale—A cheese factory in good dairy country. Doing good business. No opposition, (cheap.) Address S. O. U., care Hoard's Dairyman. 34-tf

For Sale—One 30-inch French burr geared feed mill in best running order; also one Western Mill corn sheller, capacity from 5 to 75 bushels per hour, nearly new. Reason for selling, too large for this place. JOHN ZIEGLEY, Valley, Wis. 26-tf

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

For Sale—Young bull fit for service, sired by Recorder 29239 and tested dam 16 lbs. 2 oz. Sold at a sacrifice. JOS. KARELS, Big Stone, S. D., R. 1 30-tf

The Third Revised Edition of Buff Jersey's Popular Book Just Out of Press—Ten chapters, 25 illustrations and right up-to-date. Subjects treated are: Silos and Ensilage, All Phases of the Dairy Subject, Soil Crops, Up-to-date Farm Machinery, How to Cure Abortion and Milk Fever, Seme Medicines and Remedies, The Steam Plant, its care, and many other valuable things ably treated. Send for circular. Sent post paid, cloth binding $1.00, paper 75c. BUFF JERSEY, Monmouth. Ill. 47-tf

Holstein-Friesians — Registered cows and heifers, singly or by carload. Also bulls 1 month old to service age. Richest blood of the breed. KNAPP & PIERCE, East Claridon, Ohio. 33-5

For Sale—Two registered yearling Guernsey bulls. RAY BICKNELL, Ft. Atkinson, Wis. 32-tf

For Sale—A three-horse Smalley Tread Power in good condition. The above will be sold cheap to make place for larger machinery. W. D. HOARD, Fort Atkinson, Wis. 20-tf.

For Sale—Eight pure bred registered Holstein-Friesians, 7 heifers and 1 bull, age 1 to 3 years. All beauties and well bred. $400 takes the lot, or will sell separately. R. L. WALLACE, Box 744. Knoxville, Tenn. 33-2

For Sale—A first-class dairy in Dayton, Ohio. One of the best and oldest established routes in the city. For further information address "DAIRY," care of Herald Publishing Co., Dayton, Ohio. 33-tf

Two choice young Guernsey bulls for sale. MRS. A. W. LEHMANN, Neosha, Dodge Co., Wis. 12-sp

Guernsey Bulls for Sale—I have a few young Guernsey Bulls for sale at Moderate price, ranging from six months to one year old. These animals are from highly bred sires and mothers of good size and well reared. Good bargains here. W. D. HOARD, Fort Atkinson. Wis. 30-tf

For Sale—Good cheese factory and machinery in Outagamie county, Wis. 6000 lbs. milk daily. Inquire of FRED HADLER, Route 3, Appleton, Wis. 30-tf.

Very Low Rates to Denver, Colo.—Via the North-Western Line. Excursion tickets will be sold Oct. 4 to 8, inclusive, with very favorable return limits, on account of annual convention of Brotherhood of St. Andrew. Apply to agents Chicago & North-Western Ry. 33-2

Very Low Rates to San Francisco and Los Angeles, Cal.—Via the North-Western Line. Excursion tickets will be sold Oct. 8 to 17. inclusive, with very favorable return limits. on account of convention of American Bankers' Association. Apply to agents Chicago & North-Western Ry. 33-4

Note and Comment.

Pittsburg Milk Producers—The Present and Future of Dairying in Nebraska.

ED. HOARD'S DAIRYMAN:—From Pittsburg, Pa., to Lincoln, Neb., was quite a long step and worth note, from the contrasts presented.

At Pittsburg, I attended a meeting where there was a general outpouring of the farmers who supply that city with milk. They came to confer together and, with a union of loyal members, to demand from the dealers a price that will bear some relation to the retail price in the city; and to insist that purity, and healthfulness shall be maintained from stable to consumer; that the Health Officer take an active part and fulfill his duties to the extent of the law,—not that there are great violations, but to the end that confidence shall be re-established and maintained, and the demand for milk promoted.

When, a week later, I reached Lincoln, a queer state of affairs was on exhibition. The food commissioner of the state had arrested several milk peddlers and dealers for selling milk with .2 per cent fat test, as whole, new milk; and using formaldehyde as a regular thing in keeping it sweet. The strange part of the proceeding was that the Mayor of Lincoln was the chief and active attorney for the defense of the milk dealers, and so so far has cleared them, on the ground that putting preservatives into milk does not, under the law of the state, constitute an adulteration, and there is no law against using preservatives.

The city has a milk ordinance against adulteration, which has the word unwholesome milk, and under this clause, the Health Officer proposes to move, but there seems to be a great lack of cooperation and agreement between the chemists and officials of the city, the state, and the state farm. The Health Officer avers, in print, that he has been aware of the use of formaldehyde in city milk for two years, and knows it to be deleterious, but strangely, has not moved upon the enemy's works. It is a matter of comment by many that the Mayor of the city, when the trials come on under the city ordinance, will act as an attorney against the enforcement of the city's law against unwholesome milk with the formaldehyde brand. Surely, this is a strange position for a Mayor!

About the first sign that met my eye, as I left the Lincoln depot, was "The Beatrice Creamery Co." on the front of a huge, four story, brick block, and the most notable sight, was a lot of men "settting in," car loads of cream in 85 pound cans which had come in from the late indian, and buffalo country. "That's the largest creamery in the world," said my guiding friend, as we walked along in a wind that threatened to "hold me up" every minute. "They make two full car loads of butter a day there. In July they made 21 tons a day."

That statement and the wind together took my breath metaphorically, and threw me down, for it must not be forgotten that this is a place where 45 years ago, both indians and buffalos roamed without let or hindrance.

In due time we visited this great creamery and were shown its workings. It seems incredible that in six years it has grown from very humble beginnings to have now almost 7000 patrons, and in the best of the season, receives nearly 2000 cans of cream daily, that makes more than twenty tons of butter. It started out as a gravity cream-raising concern; then it changed to the skimming station system, but is now, with a few minor exceptions, a farm separator institution, and has in the past year put out from this office alone, about 4,000 hand separators. The skimming stations are turned into cream gathering "centrals," and new territory acquired, until now the the cream comes in from stations 400 miles away. And these are being daily added to, for in the last ten months, the business has increased fully sixty per cent and has outgrown the Lincoln terminal, which is to be immediately greatly increased in size, and a sub plant established somewhere in Colorado.

The resident managers, Messrs. Priest, Hascall and others, were very cordial, and I was taken from "turret to foundation stone," and every part of the workings of the plant exhibited. The serious thing to contend with is the farm individuality of the cream and the time that must elapse before the cream from Scott's Bluff Co. can reach Lincoln. To say that some of it is actively sour, ripe does not express it, is to put it mild. Fully half of the cream needs strenuous pasteurization, and the large Farrington Duplex pasteurizer was going full speed limit, warming up 125 cans of cream per hour to 185° and as rapidly cooling it to 45°, at which temperature it is held for several hours to regrain, or crystallize—whatever it is called. Of course cream must be graded, and it was a great sight to see the 1,000-gallon cream vats far up aloft with their fat contents being made ready for the churn, and then down in the basement to see the huge churns revolving this cream into butter, and note the great masses of it which were being transferred from churn to table-like platforms, where it was being moulded into every form and kind of pat, brick, package, box and carton yet invented, to fit and meet every kind and condition of southern and western markets.

"In June we made 1,260,000 lbs. of butter, July, 1, 200,000 lbs., and in September we will make 700,000 pounds easily, and as a dairy state Nebraska has only just commenced," says our matter-of-fact guide.

True, but as we go about, we almost wonder how this farmer is finding so much butter fat. The strictly dairy cow is only met with now and then. "The cow that is making this butter," we are told by the manager, "is a stockman's cow that was brought up to raise a calf. They are milking her now and feeding the calf skim milk. This cow only gives milk a few months at the best. She knows little about dairy barns, or balanced rations. A straw roof with barb wire siding, is her average inheritance. We want dairy cows and dairymen out here, and we are going to have them."

Yes, Nebraska will in time be a great dairy state, but it needs to have a wide distinction drawn between dairy cows and beefers with dairying as a side issue and a thing to be avoided when other farm work is supposed to be pressing. Some of the frontier counties seem to be already awake to the merits of the cow, and have placed the dairy first in importance. One county, out towards sun-set, a county with less than 1,600 inhabitants, will this season sell this one company $35,000 worth of butter fat, and other new counties are doing nearly as well. There are natural factors in abundance in favor of Nebraska as a dairy state. She has a rich soil in which all grasses thrive, with corn crop galore. The prairie grass, blue stem, black root, and the like grasses are all fine foods. Alfalfa is to revolutionize the stock industry. It grows everywhere, is the hope of the irrigated districts, and the reliance of the stockman. Close under the surface is an abundance of water, pure and free of mineral matter.

The west promises a market faster than the production can supply. Give Nebraska a dairy education, and—well, we in the east will see in her butter crop a real "yellow peril." JOHN GOULD.

Lincoln, Neb.

An Able Dairy Farmer's Wife.

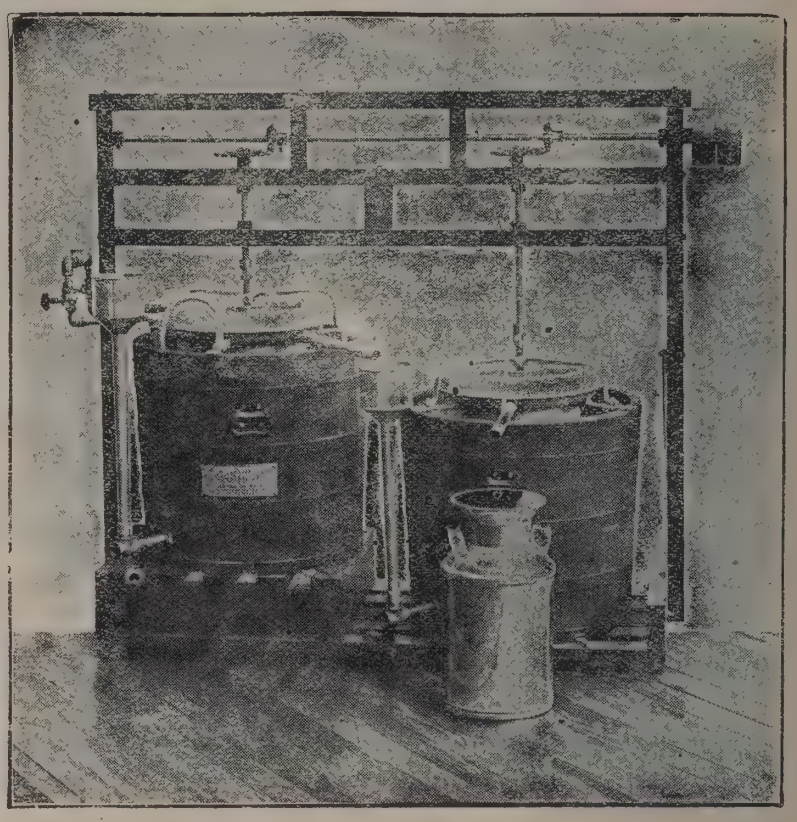
It is a good thing to be a very successful dairy farmer as is H. D. Griswold of West Salem, Wis., the man who made 20 grade Guernsey cows, last year, return over $100 apiece in cream alone. The brain equation shows in all Mr. Griswold's work as it should in every dairy farmer's work. But that is not all. Mr. Griswold is fortunate in possessing a very bright, intelligent wife. That is a lucky thing for him. We suspect that therein is the hiding of his power. Who shall estimate the force, the far-reaching influence upon the fortunes of any man of a good, loyal, keen-witted wife? "Her price is above rubies."

But we will let our readers peruse the following address which Mrs. Griswold gave at a public reception a few weeks since at West Salem. The title of her remarks was:

THE FARM, THE FARMER AND THE FARMER'S WIFE.

The farmer has never found his fields Elysian. We read and hear of an earthly paradise and sometimes think that we, or our neighbors, have found it, but it takes but little time to dispel the illusion. The sentence passed upon our first parents has never been revoked, and by the sweat of sombody's brow must man still eat bread. To ordinary mortal vision, it it would seem better that man should

A GREAT SUCCESS.



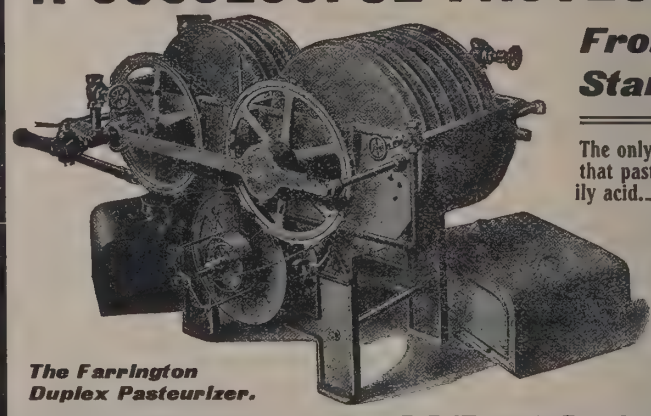
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It makes good Butter—that makes good business.

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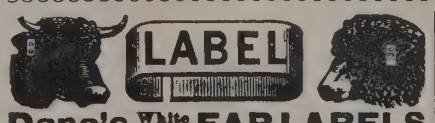
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$1.00 BIG STOVE OFFER.

If you can use the best big 500-pound steel range made in the world, or the best coal or wood heating stove ever made and are willing to have either stove placed in your own home on three months' free trial, just cut this notice out and send to SEARS, ROEBUCK & Co., Chicago, and you will receive free by return mail, big pictures of both stoves, also many other cooking and heating stoves, you will also receive the most wonderful $1.00 steel range and heating stove offer, an offer that places the best steel range or heating stove in the home of any family, such an offer that no family in the land, no matter what their circumstances may be, or how small their income, need be without the best cooking or heating stove made.

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Our Improved Grooming Brushes, revolving 1200 times a minute, insure glossy coat, clean skin, active pores, health and beauty. Their use increases value of all stock. Indispensable for prize winning show cattle. Will groom 30 to 50 head an hour, and do it better than by hand. Get our Free Booklet and learn to groom your cattle, horses and all stock the best way.

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reap that which he sows, but when he has carefully prepared the ground and put therein good seed, whence then should it have quack-grass, wild mustard, pigeon-grass, poke weeds and purslane? In what witch cauldron did Nature brew the army-worm, potato bug, chinch-bug and cut-worm? On what floating breeze come the microbes that produce hog-cholera, milk fever, mange, heaves, lump jaw and lock-jaw?

All men are dependent on the forces of Nature. The sunlight warms and woos, the breezes cool and purify, the storm cloud is a benison of good, or a demon of destruction, but no man is so directly dependent as the farmer. To him the weather means much, and Dame Nature holds his fortune largely in her hand. Nor is this all, for like other men he must encounter competition in the form of adulterated food products and bogus imitations; ever and always, also, there lieth in wait for him the man who walketh up and down the earth selling stock food, fruit trees, lightning rods, cord als, egg-producing and lice-destroying powders, dictionaries, p'anos, or axle-grease, not to mention the man or woman who would "like to have you have your picture enlarged."

But this is only one side of the picture. On its canvas are the growing crops, the cattle upon a thousand hills, and, in spite of rain and drought and frost, out of the womb of the morning comes the sunshine, the dew drops and the dancing leaf, for Nature is still as bountiful as when "the morning stars sang together" and "all the sons of God shouted for joy."

But is the farmer alone a child of destiny? Has the tradesman no cares? Is his brow always smooth and his step always elastic? Has the banker always a normal pulse, a good digestion, and can he woo sleep at his will? Has the physician any time he can call his own? Is he not often the object of undeserved criticism, and does he not often see patrons clothed in purple and fine linen, whose unpaid doctor bills would clothe his family? Is not the mechanic the victim of the trades-union and the walking delegate? A man may enter the politicial arena and serve his country, his God and his fellow man, but his faith in each will be sometimes sorely tried, though he himself come forth unscathed and uncorrupted.

Rapid railroad transit, the telephone and telegraph, inter-urban railways, and the newspaper, with the free delivery system, have all brought the country nearer the city. Our splendid school system, manual training and cooking schools have done much to influence popular thought.

The public press is also an educator, and through it people living in the rural districts, may keep informed of current events, and hear within twenty-four hours the latest news, whether it be the death of the head of the great Roman Catholic church or the birth of an ex-president's last baby.

Of the farmer's wife I have little to say. Her interests and those of her husband are, or should be, identical, and she is wisest who keeps herself in full touch and sympathy with his affairs. The breeze which blows prosperity to him, blows the same to her, and to the home more comforts and luxuries; but blow high or blow low, she trims her sails to meet the wind.

In essentials there should be unity, but there are a few minor affairs in which they do not always sympathize, and one of these is dress. The love of beauty and comeliness is inherent in woman's nature, and it is a trial to her oft-times that her husband's business compels him to wear plain and often patched and soiled clothing. When she visits the city or village she meets men, not superior to her husband in intellectual or moral worth, dressed in fashionable and becoming clothing. She sees little boys on the street with hardly enough to do to keep them out of mischief, in jaunty caps and neck-ties, and comes home to find her liege-lord and her offspring arrayed in the prevailing blue or brown denim, becoming to neither face nor figure. It does give her a little thrill of pain, for is she not sure that if her husband had on the minister's clothes he would be a handsomer man than the minister? And if her sun-browned boy wore the clothes of a prince, he would look a very prince himself? Blame her not, she can't help it!

Another trial also is that everlasting business commonly called chores. If work could only close at supper time, it were well; but after that there is a season more or less protracted, that seems to belong to neither night nor day, but a kind of twilight exercise, and one which so uses up nerve and muscle that there is little inclination to dress up and go out to spend the evening afterward. To array himself in starched linen, best clothes and tight shoes, after completing the chores, requires powerful attractions and often much coaxing and cajoling on the part of the wife. The young man, whose sweetheart is waiting, will do it and count it no sacrifice, but the man whose sweetheart is by his own fireside, would fain abide at home with her there and let society, with all its allurements, enjoy itself without him. CARRIE P. GRISWOLD.

Economy in Production.

A Short-Sighted Criticism.

ED. HOARD'S DAIRYMAN:—I am at a loss to understand why you can waste your own time or space in your valuable paper upon such bald nonsense as makes up the article on page 674 headed "Economy in Production" and signed, C. L. Gates, Bellefonte, Penn. I read the article carefully from start to finish, with the hope that as $15,000 of the hard earned money of the tax payers of Pennsylvania had been expended upon the apparatus used in these experiments, I could discover some germ of practical sense that would benefit the farmers and dairymen of our state in their efforts to reach useful results in the very important matter of Economy in Production, but I can find only the veriest bosh. I will be glad if C. L. Gates will extract something from his long article that a plain farmer could use in solving this most useful problem which is constantly staring him in the face. If this paper of Mr. Gates is a fair sample of the work of our experiment stations, it is quite time a halt is called in the most extravagent expenditure of the people's money on these stations. JACOB PRICE.

West Chester, Pa.

The DAIRYMAN'S opinion of the article referred to by Mr. Price, and of the experiments being carried on at the Pennsylvania State College, with a view to determine the actual nutritive value of feed stuffs was given on page 688. Mr.



The value of a food for producing weight is determined by its digestibility. You frequently see one animal become thrifty and fat on a ration on which another continually declines. The fault is due to digestive differences. Dr. Hess (M.D., D.V.S.), by combining his practical experience as a stock feeder with twenty years of study and practice of both human and veterinary medicine, has given the world an absolutely scientific preparation which provides for this very condition. Dr. Hess Stock Food is not a food ration, but a medicinal tonic and laxative, a doctor's prescription for calling into healthy action every organ in the animal body. If the medical and veterinary colleges know of nothing better, it must be good. No unprofessional manufacturer can equal it. It keeps cattle up on their appetite to the very last day. It expels worms and produces the sleek, glossy coat, that finishing touch that commands the fancy price.

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A treatise on the diseases of stock and poultry, written by Dr. Hess (M. D., D. V. S.), sent free to any address on receipt of answer to the following questions: How much stock have you? (number of head of each kind). What stock food have you used? Mention this paper.

Prof. W. S. Goss, Dean of Talladega (Ala.) College, says of it: "I think Dr. Hess' book a little gem. I shall keep it near me for reference."

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rapidly forces the development of solid flesh and fat, and gives greater milk capacity to a cow. Keeps cattle, horses, hogs and sheep in perfect condition.

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When pasture is insufficient or altogether lacking this Food supplies just the needed elements to maintain the maximum yield of milk. It is better than bran and costs less.

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If you are feeding stock for the market you will find **Alma Dried-Molasses Beet-Pulp** fed with grain the best fattener, because it increases the appetite, aids digestion and assimilation.

Do not confuse this with wet beet pulp which freezes and ferments, or with common dried pulp containing no additional sugar. It takes 16 tons of wet pulp to make one ton of our Food and it keeps indefinitely. The genuine Alma Dried Molasses Beet Pulp contains 72 times as much sugar as wet pulp, and nearly 5 times as much as common dried pulp.

Write to-day for prices, directions for feeding, analysis by U. S. Government expert, etc. Address

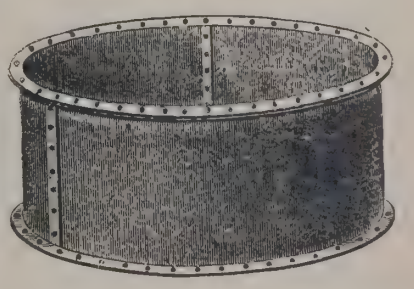
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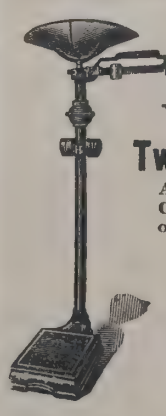
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A Portable Floor and a Counter Scoop Scale on one base.

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CHICAGO, U. S. A.

Price, in his criticism, falls into the quite too common error, of wanting to plant his seed one day and harvest results the next day. It takes time to work out dependable scientific conclusions, just as it takes time to go into a forest and clear up a tillable farm, or to select a route and construct a railroad. Agricultural science in all its branches, and especially that one which embraces the successful and economic feeding of farm animals, is yet in its infancy. We have learned some things by experience, but the Editors of this paper are painfully aware that there is much more to be learned, and they look to Prof. Armsby and his Respiration-Calorimeter apparatus to solve some of the perplexing problems which are now constantly presenting themselves.

Hand Separator Cream.

ED. HOARD'S DAIRYMAN:—Judging from what I read and hear in regard to the hand separator system of cream gathering, the general impression prevailing is, that the cream will have to be gathered every day or every other day anyhow. Now it is certain that there are thousands of small dairymen who will never buy a separator if they have got to make the daily trip to the station, and if they would, the creamery could not afford to ship it, for the charges are the same for two or ten gallons. But if the cream can be held from three to five days, the trouble above mentioned will be largely if not entirely overcome, and the farmer with the small herd will have a chance to grow a large one, and that is what we are much in need of here as elsewhere.

We have been handling hand separator cream from individual shippers since last April, having therefore passed through the hardest season for the milk or cream business. My experience leads me to say that the success of the system lies almost or entirely in the skimming of a very heavy cream. We are buying whole milk also; we have one patron who hauled to us for three or four years, and if in that time he brought in one good lot of milk, it was a mistake on his part. He moved so far from the factory that he could not haul it, so bought a hand separator, and we are getting from him 10 gallons of 40 per cent cream every fourth day and it is very nice cream; above the average.

Of course the reasons are apparant to anyone who will think. The separating is done immediately after milking, the cream being very heavy and a small amount of it is easily taken proper care of, and if properly cared for, will keep 3 or 4 times as long and well as light cream. We have another patron who takes good care of his milk. He was shipping 40 per cent cream every otherday, of finest flavor. He broke his separator, borrowed one, couldn't skim better than 21 per cent; shipped every day; couldn't use the cream at all; got his separator fixed; skimmed heavy again; shipped when he got a can full (2 or 3 days); flavor O. K.

Some of our patrons continue to skim a light cream; they are the only ones from whom we get cream that is off flavor, and it is a fact that some of these same patrons are taking better care of their milk and cream than others who skim heavy and whose cream is O K on flavor. Also the skimming of heavy cream leaves the skim milk where it belongs, on the farm, and saves shipping charges which is a saving for the farm also, for it comes off the price of the butter fat. Have just received three lots of cream testing 40%, 34% and 22%. The gentleman who wrote on this subject in last week's DAIRYMAN would certainly have to grade them extra, 1st, and 2nd. The 22% cream was only 2 days old and had a sharp, vinegar sour. The 34% was nice, but the 40% was just turning and a most excellent flavor and had been held five days.

Briefly put, our experience is, that during the past summer we have not had one lot of heavy cream (38% to 52%) but what any good judge would call very nice and most of it firsts, and we haven't had one lot of light cream, say, 20% to 30%, that any one would call nice. I suppose the first thought of the reader will be, do I know what good cream and butter is, the answer to that query is, try it and see, that is, the heavy cream.

I might add, that our butter has retailed at 30 cents per pound all summer on the home market, a city of 25,000, and



For Rheumatism

Neuralgia Sprains
Lumbago Bruises
Backache Soreness
Sciatica Stiffness

Use the old reliable remedy

St. Jacobs Oil

Price, 25c. and 50c.

Giant Killer Feed Mill



Triple geared. For ear and shelled corn and all grains. Fast working. Grinds as coarse or fine as wanted and makes excellent family meal. You save feed and have more thrift in animals if you install the

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shown below. Return draft, an easy steamer and suited to large or small stablings. Don't buy either mill or cooker until you get our free circulars. They're money makers and savers.



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John Deere Plow Co., Indianapolis, Ind.; Harber Bros. Co., Bloomington, Ill.; Deeds & Manley, St. Louis, Mo.; John Deere Plow Co., Kansas City, Mo.; Lininger & Metcalf Co., Omaha, Neb.; Smith & Zimmer Co., Minneapolis, Minn.; Lindsay Bros., Milwaukee, Wis.

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At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.

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We obtain PATENTS FOR INVENTORS. 20 years experience. Our opinion as to patent ability FREE. Write us. C. C. Shepherd, Patent Atty., 918 F. street, Washington, D. C. Dept. A.

NORTH OAKS FARM, ST. PAUL, MINN.
(Jas. J. Hill, Proprietor.)

AYRSHIRE BULLS

Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address,

N. E. McKISSICK, Supt., Cardigan, Minn

AYRSHIRE CATTLE of the BEST of BREEDING. Also Chester White Pigs, ready to book for season's trade. Young stock of both sexes. Prices reasonable. Come and see us.
F. TSCHUDY & SONS, Monroe, Wis.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality F. W. TRATT, Whitewater, Wis

GUERNSEYS FOR SALE.

Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Trouper's Pride, Tops of Gold and Lord Yexa.
JAS. H. BEIRNE, Oakfield, Wis

GUERNSEYS FOR SALE

Bull two years old out of Count Topsy 24.27 lbs. butter 7 days. She won 1st prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

ALL THREE FREE.

THE STRICT MILK LAWS AND THE INSPECTORS, TO SAY NOTHING OF YOUR PROFITS, MAKE PERFECT CLEANLINESS ABSOLUTELY NECESSARY. EXPERIENCE, HARD WORK AND SCIENCE, ENABLE US TO OFFER YOU THREE ARTICLES ENDORSED BY THE HIGHEST AUTHORITIES AND EXPERTS. USED AND TESTED AT AGRICULTURAL EXPERIMENT STATIONS. WE WILL SEND FREE, EXPRESS CHARGES PAID, ONE LARGE CAN "DAIRY," THE CAN AND BOTTLE CLEANER AND PURIFIER; ONE FOUR OUNCE CAN "KNO-GERM," MAKES TEN GALLONS LIQUID ODORLESS DISINFECTANT, AND ONE BOX "BRILLIANT" METAL POLISH IF YOU WANT TO TRY THE FINEST GOODS MADE FOR YOUR WORK. THE GOODS ARE FREE IF YOU SEND THIRTY-FIVE CENTS TO PAY PART OF EXPRESS CHARGES AND TO PROVE YOU ARE INTERESTED.

M. H. FAIRCHILD & BRO., 199 MICHIGAN ST., CHICAGO.

THE BROWN BESSIE HERD Offers one bull 14 months old, sired by Recorder, 29239, the only living son of Brown Bessie and has 14 tested daughters. Dam, Relay, 70353, test 17 pounds 2 ounces. She a daughter of Diploma with 61 tested daughters. Also Berkshire Pigs of English and American selected stock.
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KING OF ST. LAMBERT'S KING 30752

Sire of thirty-three tested daughters, is unquestionably the most prepotent of any Jersey sire in the land. We have 10r sale young bulls rich in his blood; also a few cows and heifers in calf, whose progeny will be attractive because of the "Hart's King" blood in them. For prices, etc., address
FRANK W. HART, CLEVELAND, OHIO.

GUERNSEYS.

HADDON FARMS—Home of the noted GLEN WOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

Florham Guernseys.

The herd is made up of representative animals of both home and foreign breeding.

BULL CALVES,

from large producing dams for sale. Apply to J. L. HOPE, Supt., Florham Farms, Madison, N. J.

Wasteland Guernseys

Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.
M. M. & E. J. HOLLINGSWORTH, Landenberg, Chester Co., Pa.

Rosendale Guernsey Herd

TUBERCULIN TESTED.

Sixty head of choice Guernseys headed by Coralette's Son, (see page 450) whose dam, Coralette made 479.7 lbs. fat in one year at 3½ years old, and was first prize cow at Wisconsin State Fair in 1896.

Some fine young bulls for sale.
GEO. C. HILL & SON, Rosendale, Wis.

Old Homestead Guernseys.

Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.

Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL Perry, Lake Co., Ohio.

PROSPECT HILL JERSEY HERD.

Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

READY FOR SERVICE

YOUNG JERSEY BULLS

Now ready for service or fit next Winter and Spring. Tested dams with high yearly butter records. St. Lambert, Combination, and Brown Bessie blood. Prices from $30 to $150, according to age and breeding.
E. E. STEVENS, North Madison, Ohio

A SNAP IN JERSEYS

Five A. J. C. C. Cows averaging 5328 lbs. milk and calf in year; never tested less than 5% butter fat; milk weighed each milking and record kept. Three due to calve this fall by a prize winning Exile bull whose dam has record of 16 lbs. 3 oz. butter in a week.

Also five Yearling Heifers from above, old enough to be served this fall and winter.

Ten Head for $750, or will sell separately.
WM. L. BRADBURY,
NASONS, ORANGE COUNTY, VA.

DON'T

USE A SCRUB BULL

You can not afford to. A little book gives good reasons for your buying a registered sire. Write for it, and for Sale List A 20, containing several well bred A. J. C. C. young bulls fit for immediate use, nearly all being from tested dams. To close these out quickly they are offered at the price of calves. Write at once, if in need, and secure the choice.

WINTERGREEN HILL FARM
SCOTTSVILLE, N. Y.

FOR SALE GOLDEN LAD BLOOD. sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

FOR SALE. Two A. J. C. C. Bulls ready for service; also some younger ones. Cows and heifers in calf to richly bred bulls. Write for pedigrees and prices. We have a few Berkshire Boar Pigs from unregistered sows left; cheap.
N. N. PALMER & SON, Broadhead, Wis.

BILTMORE JERSEYS

are great and presistant dairy workers and typical Jerseys. We ask comparison with any other herd for

YEARLY MILK & BUTTER YIELDS, SUBSTANCE AND FINISH.

The herd contains more prize winners at the leading exhibitions (including the Pan-American) than any other herd.

The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service as you cannot get it.

Also Headquarters for Large English Berkshires and Standard Poultry.

Apply to
BILTMORE FARMS,
BILTMORE, N. C.

HAZEL FERN HERD. A. J. C. C. Jerseys blood of St. Lambert, Malia Ann, Combination, Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

ROBINSWOOD JERSEY DAIRY is offering a few Reg. Jersey Bulls ready for service at from $25 to $50, sired by a grandson of Recorder, the only living son of Brown Bessie, out of good cows. Write, stating your wants, to
N. H. ROBINSON, Prop., Centralia, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.
W. J. HUSSEY, Mt. Pleasant, O

VALLEY FARM Offers for sale a son of "King of St. Lambert's King" out of a daughter of "Gazilla's Fawn," dropped July 29th., 1900. Also have some young bulls. Write your wants to
FRED STUBLEY, Black Earth, Wis.

the demand has always exceeded the supply. Now, my reasons for writing are twofold: First, this hand or farm separator system is in its infancy, and we all have very much to learn, so let us all turn on the light of our experience, Second, I have gotten much from the DAIRYMAN and its readers, and I want to give what I can in return. Following is our card to patrons:

OUR MOTTO.

Clean and cool from the cow to the consumer.

HOW TO HANDLE CREAM.

Set cream screw to skim as heavy as it will run from the machine; thus saving skim milk, express charges and labor. Separate as soon as through milking; cool cream immediately, then mix it well with what you have on hand; never mix warm and cold cream. Keep in a cool, clean place (a well is best) cover top of can with cloth, never put tin top on till ready to ship.

Clean your machine and all pails, strainers, etc., as soon as through separating. *Never use soap.* Rinse off with luke warm water, then use hot water with a little sal soda in it, then finish with boiling water or steam. "Eternal vigilance is the price of liberty" or any good thing, especially good milk, cream and butter.

EDWIN PATTISON.

Bloomington, Illinois.

Indiana State Dairymen's Meeting.

ED. HOARD'S DAIRYMAN:—The Fourteenth Annual Convention of the Indiana State Dairy Association will be held at Plymouth, Ind., December 10, 11, 1903.

Plymouth is in about the center of the north quarter of the state, a section in which about one-half of the Indiana creameries are located, and in which several new ones have been started within a year or two. A great deal of milk is produced in the western part for the Chicago market.

Plymouth is on three lines of railroad, making it easy of access from all directions, and local trains run at convenient hours.

A good program is in process of preparation which will include prominent speakers from this and other states.

Prizes will be offered for creamery and for dairy butter, as well as for cheese.

The merit of the essays received last year prompts the repetition of the following offer:

To the person residing in Indiana, presenting the best essay, as a result of his or her own work, on the cost of producing milk, butter fat, or butter, a prize of $10.00 will be awarded; and to the writer of the second best $5.00.

Essays should be written on one side of the paper only.

The writer's name should accompany the essay on a separate piece of paper.

Essays should be in the hands of the secretary before the opening of the first session of the convention.

Suggestion: As a cow must be maintained a year, whether she is producing or not, it is suggested that where it is possible to know of the year's production either by home records or the creamery where the milk may be delivered, and to make an accurate estimate (by weight if possible) of feed and pasture consumed, it is the most desirable basis for figures. Though the shorter the period the more accurate the figures may be because of the practicability of getting actual weights for a short time for the whole. The evidence the essay bears that the writer knows accurately whereof he writes, rather than guessing at what was or might be done by his herd, will have much weight in making the award.

Applications for entry blanks and programs may be addressed to the Secretary, H. E. VAN NORMAN.

LaFayette, Ind.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

HOLSTEIN-FRIESIAN
YEARLING BULLS
ready for service, of high quality and breeding, at low prices for the next sixty days. They are from such families as Sadie Vale Concordia, Korndyke, De Kol Burke, Clothilde, Netherland, etc. Also choice heifers. **Smiths & Powell Co., Syracuse, N. Y.**

HOLSTEIN BREEDERS

ATTENTION!

A party desiring to purchase a number of thoroughbred Holstein cows under eight years old, requests that those having any for sale should send to this office brief outlines, showing breeding for three generations, with records both of individuals and ancestors, either private or official, general description and price, bearing in mind that none but the very best are wanted.
Address all communications to
COW BUYER, Care of Hoard's Dairyman, **Fort Atkinson, Wis.**

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA.
President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.
FEES FOR REGISTRY.
TO MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.
NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. All blanks furnished free.
Life Membership, $25.
Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.
Address F. L. HOUGHTON, Putney, Vt., for information relating to Registration of Pedigrees.

HOLSTEIN BULLS. We have some grandly bred young bulls ready for service. One of the largest and best advanced registry herds in the United States.
PIERCE LAND & STOCK CO. 14 Turk St. San Francisco, Cal.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148 Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.
WM. EVERSON & SONS, Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULLS FOR SALE.
Ready for service; from A. R. O. animals; sired by Johanna Rue 2nd and Paul De Kol, sire of 13 A. R. O. cows. Also young bull calves by same sire. **THOS. GAINES, Supt.**
ARCADIA, - MISSOURI.

MAPLES STOCK FARM, PENNELLVILLE, N. Y.
Second Annual Offering
150 HEAD OF HIGH CLASS REGISTERED
HOLSTEIN-FRIESIANS
AT AUCTION, OCT. 14-15, 1903
at Fulton Fair Grounds, Fulton, N. Y. Catalogues ready Oct. 1. Write for one. Address R. F. D. 3 **John C. Godfrey, Fulton, N. Y.**

VALLEY FARM HERD
HOLSTEIN-FRIESIANS
Headed by Korndyke Queen De Kol's Prince, dam Korndyke Queen De Kol, 24 lbs. 6.7 oz., granddam Belle Korndyke, 25 lbs. 12.3 oz. Both sire and dam by Manor De Kol, his dam Netherland Hengerveld 25 lbs. 10.66 oz., Manor De Kol by a son of De Kol 2d, 26 lbs. 9.21 oz. All are official tests and average 25 lbs. 13.72 oz. butter for 7 days and 3.95 per cent fat in their milk. Two bull calves now for sale and young ones after Sept. 1.
DON J. WOOD, R. F. D. 2, West Winfield, N. Y.

Bulls For Sale.
Two choice bulls ready for service and some fine bull calves from good testing dams. Sire: Paul Clyde, son of Paul De Kol. Dam's record 24.88 lbs. in 7 days. Write **C. A. SNOW & SONS, Athens, Ohio.**

HOLSTEIN-FRIESIANS INDIVIDUALITY, PERFORMANCE, BREEDING. You need it all. Write or come. 100 head. **McKAY BROS., Buckingham, Ia.**

HOLSTEIN-FRIESIANS
FAIRVIEW HERD
We offer bulls ready for service; also heifer and bull calves not related, of the kind to suit the most particular.
O. J. GODFREY, Pennellville, N. Y.

HOLSTEIN-FRIESIAN BULL CALF.
Do you want one for use this winter which will improve your dairy herd? Do you want him elegantly proportioned, with straight back, high rump, and all the dairy points? Do you want one whose relatives are A. R. O., and elgible to the Advanced Registry himself? If so, I have just what you want.
MALCOLM H. GARDNER, Darien, Wis.


HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

TYRANENA HERD
100 HOLSTEIN-FRIESIANS 100
A. R. O. Stock For Sale.
Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz **Frank B. Fargo, Lake Mills, Wis.**

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Offers 3 yearling bulls and 10 yearling heifers, sired by a grandson of Sadie Vale's Concordia. Cows and heifers bred to oldest son of Mercedes Julip's Pietertje, No. 39480. Chester White Pigs in pairs and trios, not related.
W. R. GATES, Fort Atkinson, Wis.

OAKLAND HERD HOLSTEINS
PREMIER SIRE **Mutual Friend 3d's Paul** { A son of Paul De Kol & Mutual Friend 3d, 21.84 lbs. butter, milk averaged 4.7% at 3 years. She has two A. R. O. daughters, 1 made over 20 lbs.
Must reduce herd at some price. State just what you want. T. A. MITCHELL, Weedsport, N. Y.

BROOKSIDE HERD
HOLSTEIN-FRIESIANS
To reduce herd to capacity of pasture, will sell a limited number of A No. 1 young cows of high breeding and individually right, large producers, at $150 each; also 15 bull calves at bargain prices.
STEVENS BROTHERS, Lacona, N. Y.

HOME FARM HERD.
Headed by **COLANTHA 4TH'S LAD.** Official test of three nearest dams 25.1 lbs. butter in seven days. Herd numbers 125 head.
BEST FAMILIES REPRESENTED.
Special prices on six or eight bulls of serviceable age. **W. B. BARNEY & CO., Hampton, Ia.**

THE STEVENS HERD Contains at the present time the young bull, Vale, with the largest official backing of any bull ever born. Several half-brothers and sisters to Vale, and a large number of cows and heifers bred to his sire, whose official backing is larger than that of any other bull ever in service. A cow that stands unequaled by any other that ever lived, in the official work of herself and daughters. The only cow ever officially tested for six months. Eighteen cows and heifers with official 7-day butter records averaging, by the 80 per cent. factor, over 20 lbs. each. Thirty animals whose dams have made official 7-day butter records averaging over 20 lbs. each. Why not get our prices before buying?
HENRY STEVENS & SON,
Brookside Stock Farm. Lacona, Oswego Co., N. Y.

ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.
GEO. T. McNEIL, Theresa, N. Y.

FOR SALE.
H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address **W. H. JONES, Watertown, Wis.** Rural Route No. 2.

THE MONONA FARM HERD
OF HOLSTEIN-FRIESIANS
Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 69.50 lbs. one day. Breeders and dairymen please write for prices.
F. W. JALLIS,
Monona Farm. Madison, Wis.

JUST BULL CALVES
We have three, that are individually fine. They are bred right, have been fed right, and the price is right.
Ohio's Famous Herd, Holstein-Friesian Cattle. **W. B. SMITH & SON,**
2488 W Broad St, Columbus, O.

Holstein-Friesian Bull Calves
Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

FOR SALE 2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.
M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

CLOVERDALE HERD
HOLSTEINS.
Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.
A. J. DAUGHERITY, Streator, Ill.

Woodlake Herd.
Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN, Station D., R. 1, Minneapolis, Minn.

MARKHAM MANOR FARM,
Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldome Clothilde. No. 15370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for discription and price to **J. A. THORNTON,** Manager, **Simmonsville, Vt.**

HOLSTEINS IN CALIFORNIA
SAN ANSELMO, MARIN COUNTY
250 HEAD IN THE HERD
Sires are sons of Mercedes Julip Pietertje, Colantha 4th Belle Korndyke, Fay Barnham Princess Wayne 7th. A fine lot of bull calves
R. M. HOTALING,
Rialto Building San Francisco, Cal.

FIRST CLASS BULL
Offered at reasonable price by South Side Farm, White Bear, Minn. Born Dec. 1, 1899. Sired by Baron Pauline De Kol with 8 A. R. O. daughters, and tracing three times to De Kol 2d. Our bull's dam has A. R. O. record of over 22 pounds, under five years, and during week's official test milk averaged over 40 per cent. fat. Fine conformation, nicely marked, superior handler, large veins and rudimentaries, gentle, vigorous, and sure. Other bulls ready for service.

STAR FARM HOLSTEINS
SPECIAL OFFERING: Six of the choicest Johanna bull calves from official butter record dams and A. R. sire.
Also a few choice heifer calves, yearlings and 2-year olds; latter bred to Mercedes Julip's Pietertje Paul.
150 HEAD TO SELECT FROM
Special prices on cows in carload lots. Prices reasonable for quality. Liberal terms of payment.
HORACE L. BRONSON, Cortland, N. Y.

Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. **C. H. STEVENS, Jefferson, Wis.**

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. All our choice pigs of 1902 farrowing have been sold. We are now taking orders for 1903 farrowing.
JOHN WHITE & SON, Adamstown, Md.

HOLSTEINS
High Class Advanced Registry Stock only. Best butter families. Stock for sale.
Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.


T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.
Wm. O. Jackson & Sons, South Bend, Ind.

FOR SALE. H.-F. Bulls, ready for service, from A. R. O. Cows and sired by Sir Jonanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis

LOOK HERE
84 cows and heifers in the **McGEOCH HERD** have been **officially tested** with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs. of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs. of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by **Gem Pietertje Hengerveld Paul De Kol,** or **Sir Ormsby De Kol** for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days; average per cent of fat 4.47. Are these the kind of **Holstein-Friesians** you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd?
For particulars address **H. B. Daggett, Mgr., Station A, Milwaukee, Wis.** Residence: National Ave., near 40th. Phone, South 1601.

PURE BRED SHORTHORNS
CHOICE BULLS FOR SALE.
Also Cows and Heifers bred to Clay Buttercup, 126881, a descendant of the Clay Family, champions at the World's Fair dairy test.
GEO. WENHAM, Fort Atkinson, Wis.

Mr. Wheaton's Canadian Dairy Notes.

Canadian Fairs—A Large Cheese Exhibit—The Prize Winners

ED. HOARD'S DAIRYMAN:—The big fairs here of 1903 are now events of the past. In the main they have been the most successful exihibitons ever held in Canada. Especially is this true of the Dominion Exhibition held at Toronto, during the first two weeks of September. Never on this continent has a better show of live stock, at an annual fair, been seen. There were nearly 1300 horses on exhibition, with a high average of excellence in quality, especially in the heavy draught classes. The show of Short-horns was worth going a long way to see, While no very brilliant individuals were shown, the general average was ahead of anything ever seen in Canada, which is saying a good deal.

In the dairy classes a splendid array of those great benefactors of mankind, the dairy cows, faced the judges.

If we take the Dominion Exhibition as a criterion, the Ayrshire is the most popular dairy breed in Canada. This favorite of the Lowlands of Scotland, was out in strong force, with some splendid dairy types among its numbers. Next in order came the Holsteins, with a lot of animals which, for high average of excellence, would be hard to beat in any showing. Those splendid butter producers, the Jerseys, also made an excellent showing, with several individuals of high merit.

The Guernseys, though few in number were of high quality. In fact all along the line no inferior individuals were to be seen, simply because there is no use in bringing anything else to a great show of this kind.

A new class this year was that for grade dairy cows. Many of the breeders fought shy of this class, and consequently only comparatively few grades were shown. It will be different another year, and we look for this being one of the strongest classes in the show. And why should it not be? The grade dairy cow is the average farmer's cow, and our exhibitions will render a signal service to their country by encouraging the finest types of this class to come within the show ring.

But while the live stock at Toronto this year could not be passed by without some special attention, the display of dairy products must claim the greatest amount of attention. Never in the history of Canadian dairying has a better all-round exhibit of butter and cheese been gathered together. It was a revelation to many an American visitor, while those who had the privilege of sampling the various exhibits pronounced the quality as being of the best.

Thanks largely to that sturdy champion of Canadian dairying, Mr. A.F. MacLaren, M. P., who for the past few years has been a director of the Toronto Exhibition, our dairymen have one of the best equipped dairy exhibition buildings on the continent, if not in the world, in which to display their products. It is equipped with a refrigerating plant, and has every facility for displaying exhibits to the best advantage. The main part of this building was in use last year. Since then, through the liberality of the Ontario Government, a large amphitheater has been added, in which butter making competitions and demonstrations in cheese making are carried on, and lectures given every day by experts and others on practical and timely topics. This theater will seat about 1,200 people and was crowded to the doors every day while the lectures and demonstrations were in progress. The dairy building this year was in charge of Mr. F. J. Dillon, favorably known to many readers of the DAIRYMAN.

In the cheese section over 500 cheese were on exhibition, representing fully 200 different factories. Of these factories, 13 were from outside Ontario, 7 from New Brunswick, 3 from Prince Edward Island and 3 from Quebec. The judges, Mr. J. A. Ruddick, chief of the Dairy Division, Ottawa, and senior instructors Publow and Barr, pronounced the quality to be uniformly good throughout. The chief defects were in the flavor and texture, many cheese showing more openness than is usual at this season of the year. These defects were largely due to bad milk, and unsanitary condition of the factories. The same cheese showed the effects of too high curing, due to badly equipped curing-rooms.

All the prizes went to Ontario makers, though some outside lots scored enough points (95) to secure a medal. The New Brunswick and Prince Edward Island cheese, while rich in quality, were too green and scored lower in flavor and texture. The Quebec cheese also scored lower in flavor, and, while rich in quality, were a little weak in texture.

The chief interest centered around the syndicate prizes. These were given to the syndicate instructor whose factories made the finest exhibit of cheese and to those having the factories scoring the highest average in the regular classes. Mr. W. H. Morton, instructor in the Tweed section in Eastern Ontario, won first in both these sections, and one of his makers, Mr. C. Chambers, Fluerton, won the challenge trophy. The second prize for the best collection went to Instructor McKay, of St. Mary's and second for aggregate to Instructor Brown of Ingersoll. The following are the awards in the regular classes, with those scoring sufficiently high (95 points) for a silver medal:

Best two factory, colored—1, J. S. Isdad, Paisley; 2, W. A. Bell, Pine River; 3, Charles Wilkins, Cornwell; 4, W. A. Anderson. No medals.

Best two factory, white—1, Mary Morrison, Newry; 2, G. M. McKenzie, Ingersoll; 3, C. A. Publow, Mud Creek; 4, Parlane Christie, Woodstock. No medals.

One cheese, best factory, colored—1, J. S, Isard; 2, J. W. Claridge, Glen Huron; 3. Chas. Atwood, Arcona; 4, A. E. Gracey, Dorchester. Silver medals, W. D. Angus, Attwood; 5, W. T. Oliver, Camlachie; 6 Geo. A, Renwick, Villiers; 3, G. M. McKenzie, Ingersoll.

One cheese, best factory, white—1, C. Chambers Fleurton (Challenge Trophy); 2, J. W. Claridge; 3, J. S. Isard; 4, A. McNair, Mill Bridge.

Medals—J. R. Almont, Simcoe; Fred H. Gould, Combermere; Chas. E. Ballard, Fort Stewart; W. F. Gerow, Napanee; W. D. Angus; E. E Diamond, Madoc; Jos. W. Johnson, Stamwood; H. S. Nix, Maynooth; Miles Latta, Thomasburg; John H, Anderson, Bancroft; John E. Stacey, Mitchell; Havelock Cheese Co., Havelock, N. B.; Geo. W. Chambers, Eldorado: G. M. McKenzie; W. Hamilton, Listowel; R. T. Gray, Queensboro; M. Morrison, Harriston; Geo. A. Boyes, Putnam; T. K. White, Drummond Center; J. L. Thompson, Hawkesville; Jos. Taylor, Campbellford; J. Dilworth, Meyersburg.

Best 3 Canadian Stillton—1, G. M. McKenzie; 2, Connolly Bros., Thamesford; 3, W. F. Gerow.

Best 2 Canadian Flats—1, C. A. Publow; 2, Mary Morrison; 3, Robt. Cuddie, Woodstock.

In butter, Quebec had much the best of the battle, carrying off the challenge trophy. It excelled in flavor and texture. The trophy went to W. H. Stewart, Fentin, Que. The following are the awards in the butter sections:

Best tub or box—1, W. H. Steward Fentier, Que. (Challenge Trophy); 2, J. G. Bauchard, St Hyacinthe, Que.; 3, Robert Ireland, Quyon, Que.; 4. Sleightholm & Rankin, Strathroy.

Best 50 pounds creamery, pound rolls or prints—1, J. G. Bauchard; 2, F. W. Smith, Beaver-

LIGHT AND DARK,

Day and night, sunshine and shadow are not more different from each other than a healthful from a sickly woman. The healthful woman carries light and sunshine with her wherever she goes.



The woman who suffers from ill-health casts a shadow on her own happiness and the happiness of others. She cannot help it. Those who suffer cannot smile and sing.

Ill-health in woman is generally traceable to disease of the delicate womanly organism. Many women have been restored to happiness by the use of Dr. Pierce's Favorite Prescription. If there is an invalid woman, suffering from female weakness, prolapsus, or falling of womb, or from leucorrhea who has used Dr. Pierce's Favorite Prescription without complete success Dr. Pierce would like to hear from such person—and it will be to her advantage to write as he offers, in perfect good faith, a reward of $500 for any case of the above maladies which he cannot cure.

"I feel it my duty to inform you that I had been a sufferer for many years from nervousness with all its symptoms and complications," writes Mrs. O. N. Fisher, of 1861 Lexington Ave,, New York, N. Y. "I was constantly going to see a physician. I was induced to ask Dr. Pierce's advice. I then took five bottles of 'Favorite Prescription.' I am not now cross and irritable, and I have a good color in my face; have also gained about ten pounds in weight and *one thousand of comfort*, for I am a new woman once more."

The dealer who offers a substitute for "Favorite Prescription" does so to gain the little more profit paid on the sale of less meritorious medicines.

Dr. Pierce's Common Sense Medical Adviser is sent *free* on receipt of stamps to pay expense of mailing *only*. Send 21 one-cent stamps for the paper-covered book, or 31 stamps for the cloth bound. Address Dr. R. V. Pierce, Buffalo, N. Y.

THE

Iowa Dairy Separator.



AN UP-TO-DATE MACHINE
REPLETE WITH PRACTICAL IDEAS

It is built in the following sizes:

250, 350, 450, 600, 750 POUNDS PER HOUR

Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.

SEND FOR CATALOGUE NO. 60 AND PRINTED MATTER.

IOWA DAIRY SEPARATOR COMPANY, WATERLOO, IOWA.

From Cow To Cream

is but a short journey on the farm that runs the



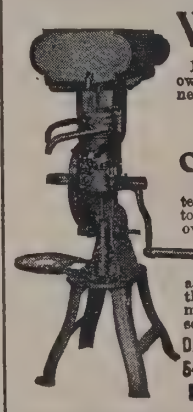
AMERICAN Cream Separator,



the one that gets the profits, and runs without an expert. We let you test it yourself and return if it is not a money maker for you. The price makes it easy to buy. Write now for free catalogue.

American Separator Co., Box 102 Bainbridge, N. Y.

Awarded Medal at Paris Exposition.



WANTED!!

Every reader of this paper who owns a few cows to send for our new catalog of

DAVIS

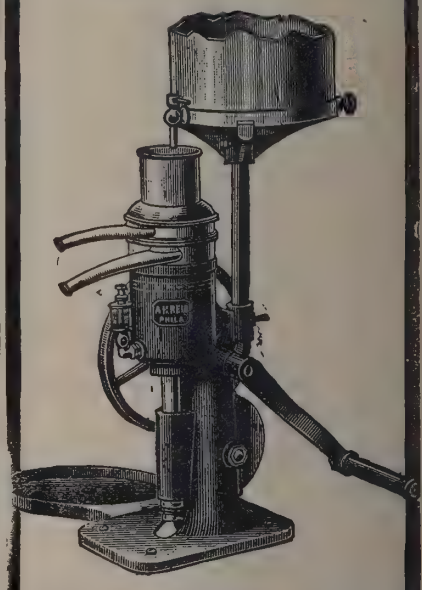
Cream Separators

Sent free upon request. It will tell you why the Davis Separators are money makers for their owners.

THEY ARE GUARANTEED to separate THOROUGHLY and QUICKLY. Dairymen and farmers find the "Davis" the most economical piece of machinery on the farm. Let us send you full particulars about it

DAVIS CREAM SEPARATOR CO.
54 to 64 N. Clinton St., Chicago.

Reid's Hand SEPARATOR



The "best" separator is that one which does its work most thoroughly and easily. that is built of strongest material, and that is most easily washed and kept in order.

First cost is a great point with a buyer, but ease of running, perfection of skimming and simplicity in washing are even greater considerations.

The **Reid Hand Separator** has but a single cylinder inside the bowl, and skims as closely as one-hundredth of one per cent. Indeed, some tests indicate "not a trace" of fat in the skim milk.

The Reid is perfectly planned and strongly built, and it literally "runs like a watch."

As to our guarantee of excellence, we make the strongest statement that can be expressed in words: **Money back (less freight) if the buyer is not satisfied.**

There is a new (free) booklet about the Reid Hand Separator.

Sizes run from 150 lbs. to 500 lbs. per hour.

A. H. REID
CREAMERY AND DAIRY SUPPLY CO.,
PHILADELPHIA, PA.



NEW OXFORD
BALL BEARING
Cream Separator

Sold on guarantee to be the best on the market. Catalog free.

WORLD CREAM SEPARATOR CO. 41 Main St., Council Bluffs Ia.

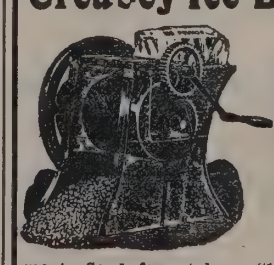


We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity—1000 cans daily, which should enable us to fill all orders promptly.

Every can sold on a guarantee.

Write for circular H.

Creasey Ice Breakers



Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right.

Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.

J. S. L. WHARTON, Mfr.,
17th Clearfield Sts. Philadelphia, Pa

NOW Is the time to Subscribe for HOARD'S DAIRYMAN.

MILK DEALERS COMBINATION Milk Protector, for cans or bottles. Prevents milk churning and souring in summer and freezing in winter. INVESTIGATE. S. C. Sullivan Mfg. Co., Erie, Pa.

ton: 3, John McQuaker, Owen Sound; 4, A. C. Reesor, Locust, Hill.

Best 40 pounds creamery, packages—1, Robt. Ireland; 2, Geo. Balkwell, Lafontaine, Ont.; 3, Sleightholm & Rankin.

Best dairy tub not less than 30 pounds—1, A. D. Delong, Elgin; 2, Miss M. Hunter, Rockton; 3, Geo. W. Gardner, Lyn; 4, Mrs. S. J. Lyons, Norval.

Best dairy firkin, crock or tub, not less than 20 pounds—1, W. B. Cockburn, Hamilton; 2, J. M. McKay, Elanbank; 3, Miss M. Hunter; 4, W. H. Phillips, Frankford.

Best basket, 1 pound prints or rolls—1, Miss M. Hunter: 2, Mrs. S. J. Lyons; 3, W. B. Cockburn. 4, D. Steward, Hempstead

The butter-making competitions were well contested, and were in charge of Prof. Dean, and Mr. A. H. McFeeters of the Ontario Agricultural College. Competitors were required to ripen the cream, make the butter and put it up in pound prints ready for shipping. The awards in this section were as follows:

Professionals—1, Miss M. Hunter; 2, Miss M. L. Green; 3, Miss H. McAllister; 4, M. R. Player.

Amateurs for farmers, farmers' wives and daughters—1, M. Stonehouse, Port Perry; 2, Miss Mabel Parkinson, Jarvis; 3, Miss Maud Parkinson, Jarvis; 4, C. E. Rogers, Dorchester.

Free for all, open to any farmer, farmer's wife, son or daughter—1, Miss M. L. Green; 2, Miss M. Hunter; 3, Miss H. M. McAllister. Judges recommended division of fourth prize money between Miss R. M. Wolfe and R. W. Burns.

Free for all, open to any member of a dairy school or person employed in a creamery—1, W. B. Cockburn, Hamilton; 2, Miss Maud Parkinson; 3, Miss Janet Stewart, Hamstead; 4, Miss Mabel Parkinson.

Before closing, just a word in reference to the splendid array of cream separators to be seen in the dairy building. Eleven different makes of separators were shown, nearly all of which were hand separators, thus showing the growing popularity of this line in Canada. Mr. Ruddick had in this building also a most instructive exhibit, showing the effects of cool curing and illustrating by chart how modern cheese curing rooms should be built.

The directors of both the Eastern and Western Dairymen's Associations met during the fair and arranged the time and place for holding their annual conventions. The Eastern Association will meet at Belleville on January 6, 7 and 8, and the Western Association at St. Thomas, on January 12, 13 and 14, 1904. It is the intention, we understand, to bring one or more speakers for these meetings from the United States.

The dairy product exhibits at the London and Ottawa fairs were superior in quality to those of other years. At London an interesting butter-making competition took place. The dairymen are asking for a new building at London, which they certainly should have if that exhibition wishes to keep abreast of the times. J. W. WHEATON.

Toronto, Canada.

Conversion Factor for Estimating Yield of Butter.

ED. HOARD'S DAIRYMAN:—Will you be good enough to give me the coefficient by which I can determine the quantity of butter in pounds, the amount of milk in pounds and the percentage of butter fat being known? G. W. N.

Dimock, Pa.

Inasmuch as butter is not a stable compound, but may vary several points in its percentage of butter fat, and further, because the losses in creaming and churning are not uniform, it is impossible to give a coefficient or factor for estimating the yield of butter from the per cent of fat in the milk, that will give results corresponding with the actual churn yield in every individual instance. But in this respect, as in so many other of the practical affairs of life, we must be content to accept the law of averages. Standard commercial butter will vary from 80 to 85 per cent in its content of fat, and the inevitable losses in creaming and churning, with the best of modern machinery and the highest degree of skill and care in its use will not fall much below 0.2 of one per cent, and this loss will be practically the same in milk of all qualities, but proportionally smaller as milk increases in its fat content.

Therefore, if we say that butter should average 82.5 per cent fat and that the losses in creaming and churning do not exceed 0.17 of one per cent, 100 lbs. of 4 per cent milk would yield 4.66 lbs. of butter, a gain of 16⅔ per cent, or one-sixth.

At the dairy test during the Columbian Exposition in Chicago, where everything was at its best, the average yield of butter from 100 pounds of fat in the milk was 117.3 lbs. It is not to be expected that the average work in the best conducted dairies or creameries can quite equal these figures, but in estimating the butter capacity of a cow or herd it is but fair to give them the benefit of the highest skill, and hence it was resolved by the Association of American Agricultural Colleges and Experiment Stations, at its annual convention in 1895, to adopt the factor 1.166+ for computing the yield of butter from the butter fat in the milk. Or, for short, add one-sixth to the total fat.

A New Use for Ensilage.

ED. HOARD'S DAIRYMAN:—One of my neighbors had a large quantity of ensilage on hand last spring when grass was six inches high. He turned his cows into a clover pasture and kept them in the yard at night, and gave them a good feed of ensilage in the morning before turning them to pasture. He reported his cows as doing well on the feed. This seems to be a very sensible way of feeding ensilage. If clover hay will balance ensilage, why will not ensilage balance clover pasture?

I do not like the new notions about feeding a balanced ration, but I find my cows believe in the new doctrine and compel me to follow the rules or change the breed of cows. This summer I took my cows from a pasture of mixed grasses and put them in a field where there was an abundance of alsike clover, and nothing else. In a few days I noticed a decrease in the quantity of milk. One winter I fed my cows ensilage and timothy hay, and they refused to pay for the feed. N. B. WHITE.

Oconomowoc, Wis.

CHICAGO oleo factories during the month of August turned out 21,668-50-pound tubs of uncolored and 691 tubs colored oleo. This is 20 per cent less than the August make of 1902 and eighty per cent less than for August 1901. For a law that is a failure this is doing very well.

HALF ENOUGH WATER

Is quite enough for some people, but most people want water every day. If

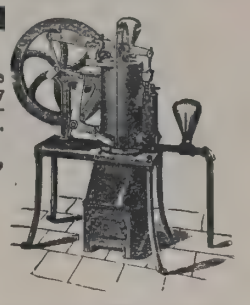


RIDER or ERICSSON HOT AIR PUMPS

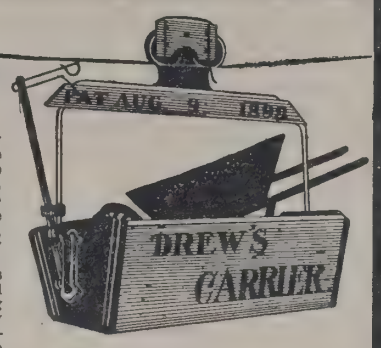
Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.

Rider - Ericsson Engine Co.,

35 Warren St., NEW YORK.
239 Franklin St., BOSTON.
692 Craig St., MONTREAL, P. Q.
40 Dearborn St., CHICAGO.
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Teniente Rey, 71 HAVANA.
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GOODBYE, WHEELBARROW



Every farmer who gets a Drew Elevated Carrier has no more use for the barnyard wheelbarrow. The

DREW ELEVATED CARRIER

will carry the manure from the stables to any point in the barnyard, drop it, return automatically, ready for another load.

It is self operating—it turns curves and switches—dumps its load in yard or wagon. Besides carrying manure you can use it to convey ensilage, feed, grain, potatoes, cans of milk, from one point to another. It works so simple and easy that any man or boy can run it.



THE DREW ELEVATED CARRIER

carries labor off from the farm—it is the farmer's labor and money saver. No trouble to put them up—no trouble after they are up.

It leaves barnyard free from posts—keeps the barnyard clean and free from litter. Get one and

"WATCH IT WORK FOR YOU"

WRITE FOR OUR ILLUSTRATED CATALOGUE, FULLY EXPLAINING ALL ABOUT IT.

Also receive testimonials from hundreds of farmers and dairymen who have the Drew Carrier on their farms.

DREW ELEVATED CARRIER CO., WATERLOO, WIS., U. S. A. 1

WE LEAD THE WORLD



We are the largest manufacturers of Grooved and Plain Tire Steel Farm Wagon Wheels in America. We guarantee our patent Grooved Tire Wheels to be the best made by anybody anywhere. Write us.

HAVANA METAL WHEEL CO.
HAVANA, ILL.

PRICE TALKS WITH QUALITY BACK OF IT.

ONLY— $129

TERMS—⅓ Cash and balance 1, 2, 3, and 4 months notes or 5 per cent discount for cash



We make 10 styles. Write for our Form E. Catalogue and Price List.

THE O. ARMLEDER CO., Cincinnati, O.



BEST MILK WAGON ON EARTH.

SOLD DIRECT TO CONSUMER ONLY. Highest Grades—Lowest Prices—Guaranteed. Shipped on Approval. Full line Buggies and Harness. Write for Catalogue and Prices.

SAVE DEALERS' PROFITS.

UNION BUGGY CO. Dept B. PONTIAC, MICH.



CHERRY'S Perfected Barn Equipments

Consisting of Manure Carrier, Feed Carrier, Ensilage Carrier, Grain Elevator, Swivel Hay-Carrier, Hay Forks and Barn Door Fixtures. This system of carriers is built for **Heavy Work** and **Durability.** By the use of our **Curves** and **Switches** we can equip any barn. Send for illustrated Catalogue H and price list to

D. B. CHERRY & CO.,
KNOXVILLE, IOWA.

THE ONLY LOW DOWN

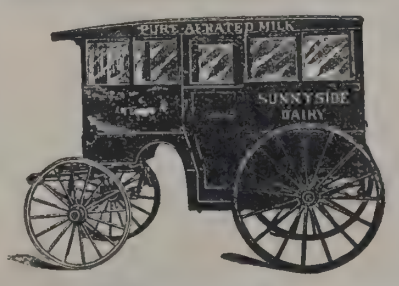
Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the market.



20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished.

Send for catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.

Shipman, Bradt & Co.
Sole Manufacturers.
DE KALB, - ILLINOIS.



The National

LOW DOWN CUT-UNDER

justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

THE NATIONAL WAGON COMPANY, Chillicothe, Ohio.



The HOUSE *that* HEATH *built*

TWO years ago Alexander Heath, of Boston, determined that there should be more subscribers for

The Saturday Evening Post

in that city and its suburbs than in any city in the country. He wanted to build a new home and determined that The Post should pay for it. Both results have been accomplished. Here is the home — paid for entirely through work for that magazine.

What he accomplished you can duplicate. The publishers are ready to announce the greatest offer ever made for work for THE LADIES' HOME JOURNAL and THE SATURDAY EVENING POST. In addition to a liberal payment for every subscription or renewal secured

$50,000

will be given to 3,000 Persons

this winter — a part each month — just as an *extra incentive* to good work. No experience necessary; no expense involved. Write for full details.

THE CURTIS PUBLISHING COMPANY
615 ARCH STREET
Philadelphia, Pennsylvania



Foster Steel Stanchion

made entirely of steel and malleable iron. Unlike all others. Affords greatest freedom and motion and always holds the animal. Hung on chains—moves all ways. Lightest, strongest, most convenient and easiest to open and close.

GOOD SELLER—BIG PROFITS.

One agent sold 75 first day, Another sold 200 first week. We want responsible agent in every Dairy Community. Send for circular number 30.

FRANK H. BATTLES, Seed Grower,
Rochester, New York.

Scott's "Perfect" Cow Stanchion

SWINGING
SELF-CLOSING
SELF-LOCKING
3
NECESSITIES FOR PERFECT STANCHIONS

Made of hard wood—strong and durable. Price $1.00. Satisfaction guaranteed.

Write for descriptive circular.

B. C. SCOTT, 212 Beach St., Bridgeport, Conn.

THE NEW PATENT

Cow Stall



AND FEED TROUGH.

This is the only Cow Stall with a centering hinge. Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars.

R. A. McLERY & CO.,
Palmyra, Wis.



Prescott's Swinging Swivel tanchion

Keeps Cows Clean.

Swings forward while getting up or lying down. Looks back while standing Full particulars free.

E. PRESCOTT,
Beverly St.. Boston, Mass

He Don't Like Farm Life.

ED. HOARD'S DAIRYMAN:—I have read the article in the DAIRYMAN of Sept. 18, from Mr. H. C. R., Oneida, N. Y., which induced me to write and tell you what I think of it. I don't think there was ever an article published in HOARD'S DAIRYMAN that had more truth about it than the one from Mr. H. C. R. As far as I ever went I found things exactly like Mr. H. C. R. writes, that is, that the young people want to get off the farm as soon as possible and move to some town where they can live without work. This puts me in mind of a young lady who came on a visit from town a few years ago. When she was told that our neighbor and his son, who was 16 years old, was milking 10 cows, mornings and evenings, she said: "If this farmer was living near a city he would get arrested for making that boy help him milk 10 cows."

This shows what she thinks of teaching young people how to work, and there are hundreds like her. GOTTFRIED JOSSI.

North Georgetown, O.

CONCERNING OUR ADVERTISERS.

The Portland Mfg. Co., of 135 Pearl St, Portland, Mich, wants live men and women who desire a dignified and profitable method of making money. This can be done in any vicinity where their washing machine is not yet introduced. As an extra inducement they offer from $5.00 to $7.00 per day and expenses to commence with. Their washer is sold under a positive guarantee to wash everything from the finest linen or lace perfectly clean, even to taking the grime that is "ground in" out of the dirtiest collars and cuffs of the most soiled working garment, in one fourth the time and labor, with no injury to the most delicate fabric. It is sent on trial for 30 days. The foregoing statements are endorsed by an experience of fifteen years, during which time many of their agents have made small fortunes and are still enjoying comfortable incomes. It would be well for those of our readers who are interested to write at once for particulars.

MONEY IN CORN STALKS.

The E. W. Ross Co., of Springfield, Ohio, have issued a 12 page folder referring to the additional profit that can be made by utilizing the corn stalks of the corn crop for feed, both in the green and dry stages. Corn fodder when cured in the field loses much of the saccharine matter, but by far the greatest loss comes from the action of rain, snow and wind. In connection with this fact, when fodder is thrown out to the stock in the whole state, little or none of the stalk is eaten. How many times do we see winter pastures after two or three months of this sort of feeding literally covered with fodder uneaten and wasted? These are the conditions which many of our friends desire to overcome. We advise every farmer or dairyman who reads this to write to the E. W. Ross Co, Dept. 36, Springfield, Ohio, and get a copy of this folder and learn how to double the value of your corn crop. The folder is free—a postal card will bring it to you. Mention this paper.

There are thousands of the readers of HOARD'S DAIRYMAN that should accept the proposition of M. H. Fairchild & Bro., 199 Michigan St., Chicago, Ill., that they make in their advertisement this issue. They offer a trial of their "Dairy" a cleanser and purifier, and "Kero Germ" a disinfectant, and "Brilliant" a metal polish, if you will help pay the express. These goods are standard and have stood the practical test and made friends everywhere among creamerymen and dairymen. Every dairyman and creameryman wants something of this kind and needs it. A chance to try goods at the manufacturers expense is not often given. Don't refuse it but give the goods a trial. Read the ad headed "All Three Free."

There is an attractive advertisement in this issue of the Colonial Salt Co., Akron, Ohio. They claim to have the best butter salt made and offer a 56-lb. sack delivered, free, on request. Read the advertisement and let them hear from you.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Partial Paresis.

I have 12 pigs about 8 weeks; 4 out of the dozen seem to have weak backs, and drag their hind parts: they have been so for 3 weeks. They are eating milk from separators and have a large run at grass. GEO. S. G.

Edinboro, Pa.

ANSWER.

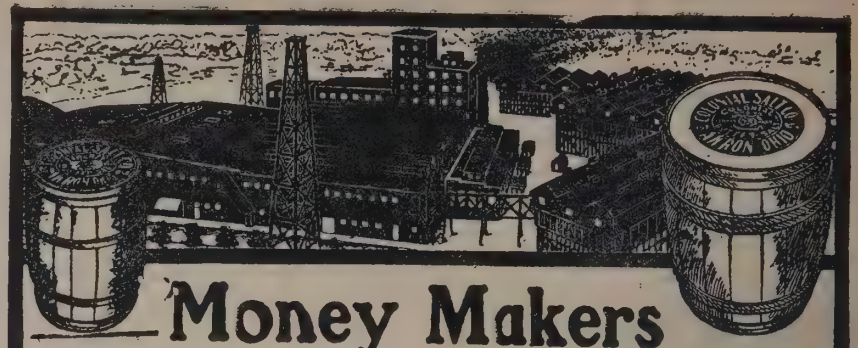
The lameness is due to the partial paresis, which is usually caused by high feeding, especially if young pigs are fed freely on corn and other fat producing elements during the growing period, when the body really demands muscle and bone producing elements. You must first of all remove the cause. Then you may puncture the lumbar region on each side of the spine with a thermo cautery, making about 12 or 14 holes on each side at least an inch deep.

Organic Troubles.

We have a cow six years old, had her last calf eighteen months ago, has not given milk since last spring, and is getting poor every day, is nothing but skin and bones; eats well, chews her cud and can see nothing wrong with her.

Would a twelve months old Guernsey bull, weight 625 lbs. be too young for service? I would

A Steel Stanchion beats anything you ever saw for tying cattle. Lighter, stronger, neater. Swings on chains Not in the way when lying down. Agents wanted. Write for special terms and prices. **Jas. Boyle, Mfr., Salem, O**



Money Makers For Butter Makers

Behind "Colonial" and "Liberty" Butter Salts stands the great Colonial Salt Company plant—absolutely sanitary, modern, and cleanly

Daily output 750,000 pounds.
Storage capacity 25,000 tons.
Six salt wells 3,000 feet below the surface at our plant—the purest bed of rock salt in the country—daily capacity 400 tons of salt.
Cooper shop capacity 2,000 barrels daily.
3,000 horse power boilers.
Daily supply of coal for evaporating salt, 150 tons.
Absolutely pure water from wells 150 feet deep used to dissolve the salt.
Loading tracks under cover hold 22 cars, while switch outside holds 11 additional cars.
Three trunk lines to the plant, Erie, Pennsylvania, and B. & O., facilitate immediate shipment of orders.
Every step in the process is here done by machinery, from the brine to the salt in the package, thus avoiding any chance of impurities of any kind getting into the salt. All packages are made at the works fresh every day; all cars are packed under cover; thus insuring delivery to the consumer in fresh, sweet, clean packages not soiled in any way.
Of "Colonial" and "Liberty" brands of Butter Salt

THE FLAVOR IS PERFECT
THE COLOR PERFECT WHITE

The purity the highest known, over 99 per cent. They are the lightest salts for the same bulk that there is on the market today; dissolve quickly and evenly, do not wash out in the working nor leave the butter gritty or mottled.

"Colonial" Butter Salt (light flaky grain) and "Liberty" Butter Salt (granulated, every grain the same size and perfectly square) may be tried absolutely free of cost by all who have never used them. A 56 pound sack of either or both will be delivered free on request, in return for which you are asked to report to us your actual success with them.

COLONIAL SALT COMPANY, AKRON, OHIO.

JUST OUT! UNDERHILL SELF ADJUSTING STALL



No Gutters
No Platforms
No fastenings
No Stables to clean
Cease trying to keep your cows clean. You can't do it. Give them a chance and they will do it themselves. This is the only way and the easy way. Write for circular telling what the cow has discovered to us. It is a great revelation.

Wm. M. UNDERHILL, Oconto, Wis.



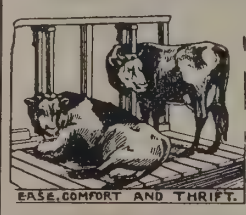
WILDER'S PATENT SWING STANCHIONS

Chain or Pin Fastened.

Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.

Safest, Strongest, Most Convenient fastening made. Cheapest to put in and save room in barn. Send for Stanchion Catalog to

WILDER-STRONG IMPLEMENT CO., 11 Monroe, Mich.

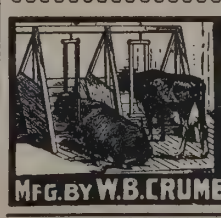


EASE, COMFORT AND THRIFT.

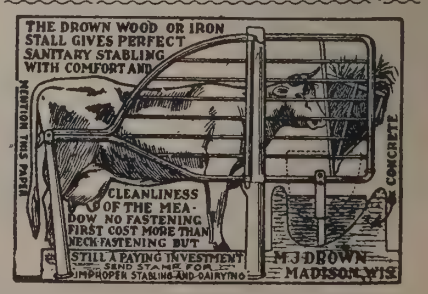
The BEST Cattle Fastening.

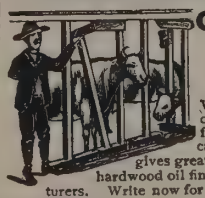
SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated circular free. GLENORA MFG. CO. Glenora, Yates county, N. Y.

Infringements will be prosecuted.



WARRINER'S CHAIN HANGING STANCHION.
CLEAN, SAFE, COMFORTABLE.
MFG. BY W. B. CRUMB, Forestville, Conn.





Only One Hand

needed to stanchion Cattle if you have our

Steel Latch Stanchion

When open is locked ready for cattle to come in; closed, it swings freely. Best dairy cattle tie because comfortable and quiet; gives greatest freedom. Made of selected hardwood oil finished. We are the sole manufacturers. Write now for circulars and delivered prices.

TOLEDO PLOW CO., Dept. H, TOLEDO, OHIO.



CHAIN-HANGING CATTLE STANCHION

The Most Practical CATTLE FASTENER ever invented. Manufactured and For sale by

O. H. ROBERTSON, Forestville, Conn.

HOOD FARM

Abortion Treatment

Hood Farm Abortion Cure is proving the most successful remedy for this very prevalent trouble that we have yet seen.

After Abortion cows should be injected with Hood Farm Antiseptic Breeding Powder, which thoroughly disinfects, kills all germs and **makes cows breed.** Also successful where cows fail to clean and where they do not come in season regularly.

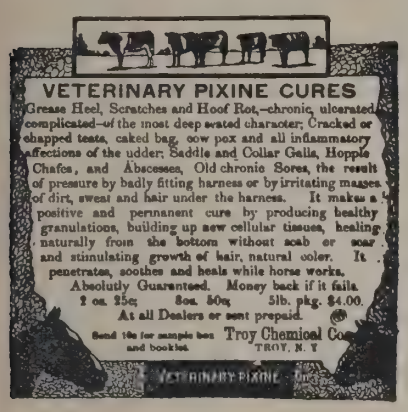
Hood Farm Abortion Cure, dollar size, prepaid to any railroad express point in the U. S., $1.25; $2.50 size, containing four times this quantity, $2.75.

Dollar size Breeding Powder, by mail $1.15; $2.50 size prepaid for $2.75.

Hood Farm Flexible Injection Tube, for administering the Powder, 75 cents; by mail, 90 cents. Address

C. I. HOOD CO., Lowell, Mass.

Mention this paper in ordering.



VETERINARY PIXINE CURES

Grease Heel, Scratches and Hoof Rot,—chronic, ulcerated complicated—of the most deep seated character; Cracked or chapped teats, caked bag, cow pox and all inflammatory affections of the udder. Saddle and Collar Galls, Hoppl Chafes, and Abscesses, Old chronic Sores, the result of pressure by badly fitting harness or by irritating masses of dirt, sweat and hair under the harness. It makes a positive and permanent cure by producing healthy granulations, building up new cellular tissues, healing naturally from the bottom without scab or scar, and stimulating growth of hair, natural color. It penetrates, soothes and heals while horse works.

Absolutely Guaranteed. Money back if it fails.

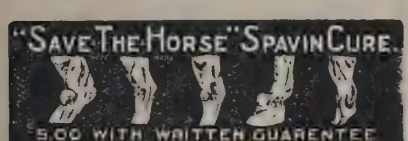
2 oz. 25c; 8oz. 50c; 5lb. pkg. $4.00.

At all Dealers or sent prepaid.

Send 10c for sample box and booklet. Troy Chemical Co. TROY, N. Y.

VETERINARY PIXINE

"SAVE-THE-HORSE" SPAVIN CURE



$5.00 WITH WRITTEN GUARENTEE

It isn't words, type or page advertisements, it's the truths that ring out sound, clear and impressive—actual results from business men whose standing and reliability can be readily ascertained—which have made "Save-the-Horse" such a success. Thus cured horses are living advertisements, absolute certainties as to the possibility in your own case, with every bottle is a guarantee document as binding to protect you as the best legal talent could make it.

The fire iron invariably only aggravates the disease or injury, blistering is less effective, both necessitate laying up horse four weeks to several months. Mercurial and poisonous compounds produce irreparable injury.

"Save-the-Horse" eliminates these factors. Cures without scar, blemish or loss of hair, can apply at any time, anywhere, in all conditions and extremes of weather. Horses may be worked as usual with boots, as no harm results from destruction of hair or scalding of limb.

Positively and Permanently Cures Bone and Bog Spavin, Thoroughpin, Ringbone (except low ring bone), **Curb, Splint, Capped Hock, Windpuff, Shoe Boil, weak and Sprained Tendons and all Lameness.**

$5.00 per Bottle with written guarantee, constructed solely to protect you. Need of second bottle almost improbable, except in rarest cases. Send for booklet and copy of guarantee. If case is different than described in booklet or advertising we advise frankly of the possibility of the remedy affecting cure. Give particulars, name age, development, location of swellings, lameness, and describe way horse carries leg.

$5 00 per bottle at all druggists and dealers, or sent express prepaid.

TROY CHEMICAL CO., TROY, N.Y., ALSO MANUFACTURERS OF VETERINARY PIXINE

Clark's Tools for Large Hay Crops

CLARK'S REVERSIBLE

Bush Plow and Harrow



Cuts a track 5 ft. wide, 1 ft. deep. Connects the sub-soil water. It is an excellent machine for covering in sugar cane. Strength guaranteed. Can plow a newly cut forest, stump, bush or bog land, leaves the land true and clean for grain or any crop.

Clark's Dbl. Action Cutaway Harrow



Moves 15000 Tons of Earth a Day.

Clark's 8 foot Smoothing Harrow.



Will smooth an acre as true as a mill pond in twenty minutes.

Clark's Rev. Sulky Disk Plow



Made single or double. One or two furrows five to ten inches deep; 14 inches wide. For two or four horses. Light draft. No side draft. No similiar plow made. When Clark's grass tools are used as directed in his grass circular, we, the C. H. Co., guarantee them to kill wild mustard, charlock, hard hack, sunflower, milk weed, morning glory, Russian thistle or any other foul plant that grows, or money refunded. Now is the time to commence work for next year's seeding to grass.

Clark's Root Cutter.



TWO SIZES. Cuts 1 or 2 bushels per minute, for fowl or beast. Gouge cutters never choke or clog. Price $7 to $15.

SEND FOR CIRCULARS.

THE

CUTAWAY HARROW CO.,

HIGGANUM, CT., U. S. A.

like to use him as soon as possible and not injure him for the future. J. A. T.

Ryan, Iowa.

ANSWER.

No. 1. Your cow has organic trouble of some kind which is impossible to locate without a personal examination. If you have more than one that is unthrifty in a like manner there may have suspicion of tuberculosis. The best advice we can give is to have a thorough investigation made by a qualified veterinarian.

No. 2. The bull is old and big enough for service, if not allowed to be overtaxed in this capacity.

Lice.

Three years ago I unfortunately bought a calf, with blue lice on it. Since then I have been pestered with them; they tell me the only way to get rid of them is to burn the buildings. This is too expensive, burning good basement buildings.

Plattsville, Wis. J. N. McL.

ANSWER.

Soak each animal to the skin with a solution of Creolin, taking 12 tablespoonfuls to each gallon of water. Be sure to apply it to every part of the body, and see that the coat is soaked to the skin. Repeat in eight days. Also thoroughly disinfect the stalls and surroundings with the same solution, and whitewash the entire inside of your barn.

Worms in Horses.

Please give me a remedy for worms in horses?

Marian Harbor, Staten Island. R. W. B.

ANSWER.

Starve the horse about twelve hours so that the bowels will not be filled with alimentary matter. Then give the following at one dose: santonin, 20 grains; Aloes bark, 7 drams; oil of turpentine, 1 ounce; raw linseed oil, 1 pint.

Abortion.

Is the solution given by Dr. Smead on page 689 of the DAIRYMAN, the proper one for germ abortion? If not, can you give a prescription that will likely do the work? I have a valuable cow that aborts within six weeks after being bred.

Salem, Ind. O. Q. T.

ANSWER.

The method of treating abortion on page 689, as recommended by Dr. Smead, is exactly what has been advocated in the veterinary columns of the DAIRYMAN for the past three years. His idea of treating the trouble by applying antiseptics directly to the seat of same is what we refer to. The solution recommended is as good as any. The preventive measures are the most important and have been referred to in these columns time and again. The writer is pleased to learn that Dr. Smead is of the same opinion and believes this to be the only true preventive and remedy for the trouble. His advice as to rearing calves is well worth the consideration of every breeder.

Warranted to give satisfaction.



GOMBAULT'S

CAUSTIC BALSAM

A safe, speedy and positive cure for

Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a **HUMAN REMEDY** for **Rheumatism, Sprains, Sore Throat,** etc., it is invaluable.

Every bottle of **Caustic Balsam** sold is Warranted to give satisfaction. Price **$1.50** per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

THE LAWRENCE-WILLIAMS COMPANY, Cleveland, Ohio.

HAY FEVER AND ASTHMA

Cured to stay cured. Never return. A radical departure, Cause eliminated. Constitution changed. **FREE** Nerves reconstructed. Splendid health. Over 52,000 patients. Good references. "Reliefs," or change of climate, cannot cure. Write for Book 41 F Free, containing reports of many interesting cases. Address **DR. HAYES, Buffalo, N. Y.**

Bickmore's Gall Cure



is guaranteed, or Money Refunded, to cure Collar or Saddle Galls on horses under the harness while the horse is worked. Equally sure for all cases of **Chaps, Bruises, Cuts, Mud Scald, Scratches, Grease Heel, Rope Burn,** etc.

BE SURE AND WORK THE HORSE

The above trade mark is a guarantee to the public of **strength, purity and genuineness.** Beware of imitations. Substitutes yield the dealer more profit, but cost you the same. Sample by mail 10 cents. It's enough to cure one horse. Best thing known for **Chapped and Cracked Cow's Teats.** Write to-day.

BICKMORE GALL CURE CO., Box 515, Old Town, Me.

Tuttle's Elixir



Cures all species of *lameness, curbs, splints, contracted cord, thrush, etc.* in horses. Equally good for internal use in *colic, distemper, founder, pneumonia, etc.* Satisfaction guaranteed or money refunded. *Used and endorsed by Adams Express Company.*

TUTTLE'S FAMILY ELIXIR Cures rheumatism, sprains, bruises, etc. Kills pain instantly. Our 100-page book, "Veterinary Experience" **FREE.**

Dr. S. A. TUTTLE, 62 Beverly St., Boston, Mass

Beware of so-called Elixirs—none genuine but Tuttle's. Avoid all blisters; they offer only temporary relief if any.

Good News to Stock Owners

Just the information that you must have to successfully treat Fistula, Poll Evil, Sweeny, Knee-Sprung, Curb, Splint, Spavin, Ringbone and all blemishes hard or soft, also Lump Jaw in cattle.



Bone-Spavin Ringbone Lump-Jaw

Certain and inexpensive methods fully described in our two big booklets, which we send free if you have a case to treat. Over 140,000 farmers rely upon these same methods. Write for the books.

FLEMING BROS., Chemists, 226 Union Stock Yards, Chicago, Ill.

THE NORTH-WESTERN LINE C&NWRY

Special Reduced Excursion Rates

Will be in effect from all points on the Chicago & North-Western Railroad for the occasions named below:

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For information as to rates, dates of sale, etc., of these or other occasions, call upon the ticket agent of the North-Western Line.



5 TON WAGON SCALE $35.00

SENT ON TRIAL FREE

CATALOGUE FREE

AMERICAN SCALE COMPANY

519 MASS. BLDG, KANSAS CITY, MO.

DEATH TO HEAVES Guaranteed



NEWTON'S Heave, Cough, Distemper and Indigestion Cure. A veterinary specific for wind, throat and stomach troubles. *Strong recommends,* $1.00 per can. Dealers. Mail or Ex. paid.

Newton Horse Remedy Co., Toledo, Ohio.



The Safety

MILKING INSTRUMENT

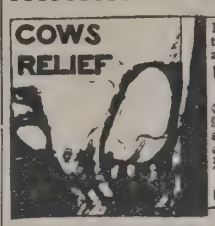
is far superior to the old-fashioned

MILK TUBE.

Price $1 by mail, prepaid. Circulars Free.

MOORE BROS., V. S., Albany, N. Y.

COWS RELIEF



Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.

Used Exclusively at Model Dairy

Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1¼ lb $1.00, postpaid.

Ohio MFG. CO., Dept. H, Lyndon, Vt.



ABORTION

Can be successfully treated with **Anti-Abortion Serum.** Easily administered and permanently cures. Information free.

DR. ROBERTS VETERINARY REMEDY CO.,

540 Grand Ave., Waukesha, Wis

DR. GEORGE HOLLABUSH'S

Sure Cure for Abortion



and General Tonic for Cows. The only genuine sure cure and general tonic for cows on the market. I guarantee, and refund money if not satisfactory.

Dr. Geo. Hollabush, Ft. Atkinson, Wis

Write for circular.

..ABORTION..

RETENTION OF PLACENTA AND FAILURE TO BREED.

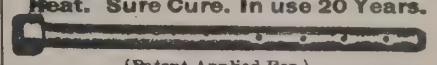
KELLOGG'S CONDITION POWDER

Is a positive cure for these diseases. Write for circular containing full information, references and price.

H. W. KELLOGG CO., St. Paul, Minn.

ABORTION,

Failing to Breed and bring Cows to Heat. Sure Cure. In use 20 Years.



(Patent Applied For.)

Hard Rubber Safety Milk Tubes and Dilating Plugs to cure hard milkers and a test Bistoury. Send for testimonials.

DR. WM. HORNE, Janesville, Wis.

CHLORO NAPTHOLEUM DIP

"**Chloro-Naptholeum** is unexcelled for the purpose intended. Dipping our young calves in a solution immediately freed them from all parasites. As a preventative for contagious abortion we have recommended this as a successful remedy." J. Q. EMERY & SON, Albion, Wis. Chloro-Naptholeum Dip is guaranteed. Agents wanted. 1 gal. $1.50; 5 gals. $6.75 prepaid. Larger lots at lower rate.

WEST DISINFECTING CO., Inc., 8 E. 59th. St., New York.

CURE "THE" COW

NO CURE, NO PAY



WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address

DR. EATON J. GROSS

152 Congress St., Troy, N. Y.

BLACKLEGOIDS

BEST PREVENTIVE OF BLACKLEG.



Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each **Blacklegoid** (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. **Blacklegoids** are sold by druggists; *ask for them.*

Our newly printed eight-page folder on the "Cause and Nature of Abortion" interest to stockmen. Write for it; it is free.

PARKE, DAVIS & CO. DETROIT, MICH.

Branches: New York, Kansas City, Baltimore, New Orleans, Peoria, Walkerville, Ont.; Montreal, Que. London, Eng.

What I Know About Quack Grass.

ED. HOARD'S DAIRYMAN:—I notice quite frequently in your question department someone inquires how to kill or eradicate quack. Now if there is one thing that the writer should be conversant with it is the history of quack grass. Was reared on a farm that was covered with it and when a boy have chopped it out of potatoes and corn with a dull hoe until the back of my neck ached like an ulcerated tooth, and I wished every root and seed was ten thousand leagues under the sea. Later on, when I became better acquainted with it, it was with me as vice with Pope: "First endure, then embrace," and I have about concluded that if there was but one root on my farm and I had that root in my hand, I would plant it in good soil.

WHY I LIKE IT.

I like it because it never grows on poor soil. I like it because when, on account of poor seed or some other cause, the crop fails, Mr. Quack comes in and makes sweet pasture, or will cut a good swath of excellent hay. All kinds of stock like it and will thrive on it.

I like it because I consider it easier to get rid of than either daisies, wild mustard, Canada thistle, or almost any known, worthless enemy to clean crops.

HOW TO DESTROY IT.

There are different ways of destroying it. One is thorough cultivation. It can't stand harrowing and pulverizing in dry weather. Expose a root three days in a hot sun and it is hay. The spring tooth harrow is a bitter enemy to the life of quack roots. It brings them to the surface and exposes them to the sun and air, while the disk and cutaway harrow have a tendency to chop them up, and a quack root is like a potato, the more pieces you make of it the more seed you will have.

Take a field that is thoroughly rooted to quack and plow it in the fall, and plow it good. Don't take a 13-inch plow and turn an 18-inch furrow. If you do, you won't plow it good. In the spring when ground is dry and good shape to work, give a thorough hetchelling with spring tooth harrow, and harrow it about every two weeks until about the 20th of June, and then sow to buckwheat and when you harvest your crop in September Mr. Quack will be extinct. Or if you don't care to raise buckwheat, after thorough cultivation and same treatment, sow to clover. Be sure you have good seed and Mr. Quack will disappear. Or you may plant corn and if the season is not too wet, with the modern appliances for working in corn, you will need do very little work with a hoe.

Like almost any plant, it is harder to stamp out in a wet season than in a dry one, but thorough cultivation will keep it from interfering with any crop, and if your clover ripens and dies out, or grass crop fails for any other reason, Mr. Quack comes in, and I call him a good substitute. FRANK SHELDON.

Sandy Hill, N. Y.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

IRBYDALE Very choice irrigated acre tracts. Fine soil adapted to all products including fruit. 5 acres makes a farm that will support a family. Located in a beautiful little valley, just the place for a home. Good location for business. For information, terms, etc., address
BABCOCK, CORNISH & CO., Hyde Block, Spokane, Wash.

I Can Sell Your Farm

or other real estate, **no matter where it is or what it is worth.** Send description, state price, and learn my wonderfully successful plan. **W. M. OSTRANDER,**
250 **North American Building, Philadelphia**

Improved and Unimproved Farms for Sale

Farm No. 1 consists of 90 acres with frontage on a fine lake where there is excellent fishing and game. This lake is one of a chain of lakes on which you can travel for twenty-three miles. Has two-story house with eight rooms. Two-story log barn. Ice house and ten acres cleared. For sale at a bargain. One mile and a half from the railroad.

Farm No, 2. One-half mile from the railroad. 100 acres or more if desired, five acres cleared. Two-story, eight room house. Glass chicken house. First-class hog pen. Plenty of timber on land for own use, and quite a quantity of saw timber. We have besides this 16000 acres of unimproved land. Heavy black soil. All lies in Central Wisconsin. Low priced Excellent markets. Will grow any kind of crop and produce immense results. Excellent water supply. Splendid markets and a local demand for everything that is raised. None of the land lies more than three miles and a half from the railroad.

WISCONSIN FARMS

Will furnish names of people who have bought from us who have made big success. Can furnish lands in either small or large quantities. Can furnish reduced rates to see the lands. Easy terms to suit the convenience of the purchaser. As safe and desirable an investment as government bonds. Write in for maps and any information you may desire.
INTERIOR LAND CO., Janesville, Wis.

Buy You a Ticket to CROOKSTON, MINN., and call upon

The Polk County Land & Loan Company

For choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.

360 acre farm, 4½ miles from Crookston, Minn, (a city of 7,000 inhabitants), and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x2 1½ stories with an L 14x22, and a wood shed in connection 20 ft. square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm in under a high state of cultivation, and is well drained by a slight ravine running through the farm, merely sufficient for self drainage. The soil is a rich deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50,

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if defired. Price $15.00 per acre.

LAND ***Will never be cheaper than today*** **50,000 Acres** railroad and homestead. **Southeastern Saskatchewan.** Price $3.50 to $4.00 per acre, **Ten Years Time.** Prairie and timber, cattle and wheat, 1orty bu., on new railroad. Cheap Excursions. **Agents Wanted.** Write for map and full particulars. Room 810-12, Scandinavian-Canadian Land Co. 172 Washington St. Chicago

21 STRONG REASONS

WHY IT WILL PAY YOU TO BUY A FARM IN THE GREAT BLUE GRASS COUNTRY OF NORTHERN WISCONSIN.

1. The soil is rich and productive. Everywhere there is a clay subsoil to retain the moisture.
2. The climate is very uniform—neither extreme of heat or cold.
3. The seasons are regular and there is never a crop failure.
4. There is an abundance of wood for building and fuel, which need only to be cut.
5. Taxes are very low compared with other sections.
6. It is the best agricultural country known for a man of small means to get rich.
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17. No swamps in this section—no malaria, no chills, no fever, no cyclones, no hail or destructive storms.
18. Fish and game in abundance. It is the sportman's paradise.
19. Lumbering and manufacturing interests offer ample employment at good wages whenever desired, both winter and summer.
20. Thousands of settlers are moving into northern Wisconsin, and in consequence land is increasing in value very fast.
21. The best class of people are among the settlers, which include principally Americans, Germans and Scandinavians.

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offers unexcelled opportunities for those who want to stop paying rent and make money in agriculture, in the fruit or dairy industry, or in sheep raising. Along the lines of the

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E. E. SECOR, Buffalo Center, Iowa

Now For Iowa.

The members of the Iowa State Dairy Association, which has suffered considerably of late years through competition with the National Creamery Buttermakers' convention, may now take courage. Its officers have the opportunity to pull off a convention in good, old-fashioned style.

After all, state dairy conventions seem to do more good than the big National meetings. The discussions get closer to the dairymen, and more benefit results to individual members. The Iowa meeting in November ought to be one of the largest and most successful in the history of the association.

Let us hope that a suitable meeting place may be selected, where there are good hotels, a prosperous and progressive dairy country surrounding, and easily accessible for the creamerymen of the state.

The dairy trade will do the rest.—*Creamery Journal.*

If HOARD'S DAIRYMAN may be permitted to make a suggestion, it will be this:

Let the Iowa people try a new tack. Stop making the Iowa convention merely a creamery meeting divorcing it practically from the great base of supplies—the dairy farmer. Put up a program that will take hold of the man who tills the farm, breeds the cows, produces the milk, and who is at the bottom of all the progress and profit of both creamery and cheese factory.

No finer dairy conventions are held in the United States than those of the Wisconsin Dairymen's Association. For the past two years a new feature has been added, that of the Cow Census. About two months before the date of the meeting, an agent of the Association goes to the town where the meeting is to be held and proceeds to take a close, accurate census of 50 farmers and their herds, comprehending a year's work at the creamery; the same kind of census that has been taken by HOARD'S DAIRYMAN in various states. Each farmer is told that his herd will be designated by a number. All the facts for a year are worked out, both at the farm end, and at the creamery, showing the management of each farmer, the breed of his cows, how he feeds, and how his policy of management is finally justified at the creamery.

All this data is collected and made the subject of an address by the census taker and the subject of discussion for a full day of the Convention. Long before the holding of the meeting, dairymen living adjacent thereto, know of this census discussion and their interest is greatly aroused. It is something that has a practical bearing on the actual problems at the farm end; that sheds light; that they can understand; that means a good deal to them, and they respond by a liberal attendance at the convention.

The creamerymen are interested, for the discussion touches the keynote of the whole business—the inteligence and profit of the creamery patron. We would suggest to the Iowa Dairymen's Association that they try this method in their next annual meeting. Break new ground that is just aching and groaning for the plow, and see if it does not impart new interest and life to the Association. Human nature in Iowa must be about the same as that in Wisconsin.

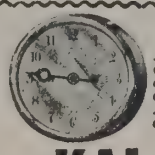
Average Fat for Holstein-Friesian Milk.—A Correction.

ED. HOARD'S DAIRYMAN:—In your editorial of last week in regard to the Chicago milk supply, and the folly of a ward politician, in the role of Chief Milk Inspector, holding any breed of dairy cattle responsible for the dishonesty of dealer or shipper, you are in error in the statement that "average Holstein milk tests about 3% fat;" and the point is made the more striking by comparison with some supposable average milk containing 5% fat. I am sure that it is the purpose of the DAIRYMAN to speak impartially of the dairy breeds, and that it will welcome any information in regard to any one of them.

The two most widely disseminated and popular dairy breeds in America are the Holstein-Friesian and Jersey. Major Alvord, Chief of the Dairy Division of the Department of Agriculture, gives the estimated number of living registered Holstein-Friesians as 75,000, with a valuation of $9,750,000, or $130 each; and the estimated number of living registered Jerseys as 125,000, with a valuation of $12,500,000, or $100 each. When to this large amount invested in the registered animals of the two breeds is added the unknown valuation of the unregistered pure breds and the grades, it is at once seen how far reaching any unjust stricture on either breed may prove.

It would seem that there should be less doubt as to the average per cent of fat in Holstein-Friesian milk than in that of any other breed. During the last two years alone, over 1,200 Holstein-Friesian cows have been officially tested, for periods not less than 7 days, by the different state experiment stations; and, with every milking so tested, the average per cent of fat for all the milk taken in bulk is just about 3.4%. Five Canadian Holstein-Friesian cows at the Pan-American, tested officially for a period of six months, averaged 3.26%, while the only Holstein-Friesian cow of note, which has been officially tested for so long a period as six months, gave 9,785.6 lbs. milk, containing 346.4 lbs. butter fat, an average of 3 54%.

While the five Canadian Holstein-Friesian cows at Buffalo produced more butter fat than any other five cows of any breed, their milk was below the normal in per cent of fat. Indeed, I note that it is, for the most part, the very heavy milking Holstein-Friesians that show the lowest per cent of fat; and while they may—and often do—produce a larger



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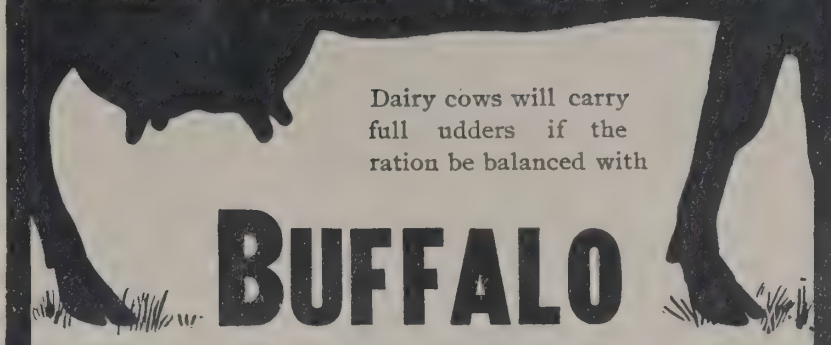


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Breeder and Shipper of Poland China Hogs, Bloomingdale, O."

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amount of butter fat in a given time than the more modern milkers, they lower the average per cent of fat for the breed. I am quite sure that the breed, as a whole, averages very close to 3.5%; individual cows ranging, for the most part, between 3 and 4% fat. The change in environment from the low lands and moist climate of Holland to the higher lands and drier climate of America, together with nutritious, concentrated feed and selection in breeding, is slowly but surely increasing the per cent of fat in the milk; and the present aim of its breeders is to hold on to the great yield of milk, and at the same time increase its per cent of fat.

I think it is generally admitted that the Jerseys give the richest milk of any of the dairy breeds; yet I know of no official average yields for a herd for any length of time of 5%. I believe that for the 90-day test at the World's Fair at Chicago, the Jersey milk in bulk averaged 4.75% fat, while the five Jersey cows at the Pan-American averaged 4 54%. If it be admitted that Jersey milk in bulk averages 4.7%, and I should state that it averaged about 4.15%, I would not be proportionally further from the truth than was the DAIRYMAN's statement. The Holstein-Friesian breed asks no favors of any kind. It is big enough, strong enough and vigorous enough to push its own way wherever given a chance; and the dairymen who are after the dollars are its best friends. MALCOLM H. GARDNER.

Darien, Wis.

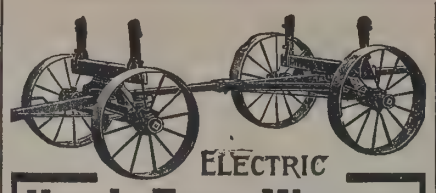
What is Cream Ripening?

This subject is discussed in Professor Conn's new work, entitled "Bacteria in Milk." The chief agency in cream ripening, according to Professor Conn, is the growth of bacteria. The bacteria of milk collect in the cream and multiply very rapidly at a temperature at which the cream is kept during the ripening. Normally ripened cream contains about 500,000,000 bacteria in every cubic centimeter. From this enormous growth of bacteria it can be easily understood why very pronounced changes take place in the chemical nature of the cream. The organisms not only consume a certain quantity of material for food, but they also produce by-products, either as excretions or as decomposition products, which vitally affect the character or quality of the cream. While it is true that there are certain chemical ferments found in milk when it is freshly drawn, and while there is no proof that these enzymes may not have a part to play in cream ripening, yet it is generally believed that the part played by these is relatively small compared with the part played by the organisms. Cream becomes acid on account of the development of lactic acid and thickens and acquires a peculiar odor, because of the presence of decomposition products; such changes are the very ones found to be produced by the growth of bacteria, and thus the general nature of the changes during the cream ripening is quite in accordance with the belief that bacteria are the primary agents in the change.

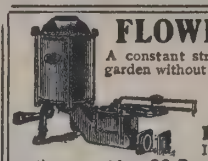
To the dairyman and the creameryman the matter of chief importance is that of keeping out of the milk or cream such organisms as are injurious to them, such for example, as are found around stables due to dust or odors, and also to the odors that might come from quarters in which the products are kept. The great activity of these organisms in reproducing themselves should always be kept in mind, so that their mere introduction is sufficient to undo the work of beneficial bacteria. Where milk or cream is sent to the creamery from the farm, too great pains cannot be taken by the dairyman to exclude organisms of all kinds, good and bad alike, because it is much easier for the creameryman to handle products of this character than it is to handle products in which are found a mixture of flavors.

Name Not Given.

We received last week a letter from a subscriber at Waitsfield, Vt., containing $1.00, to which the writer failed to sign his name. The letter contained a statement of experience in using carbolic acid for abortion. Will the writer please give us his name that we may credit the money?

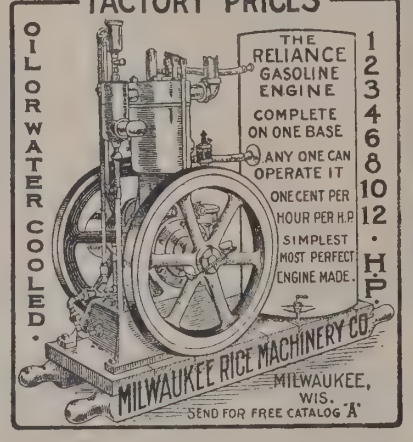


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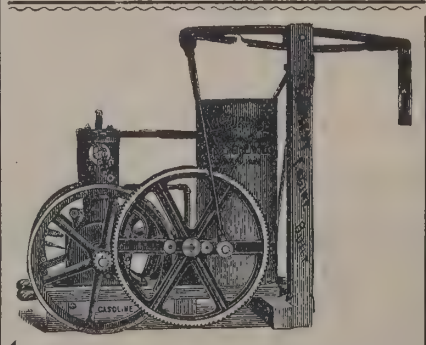


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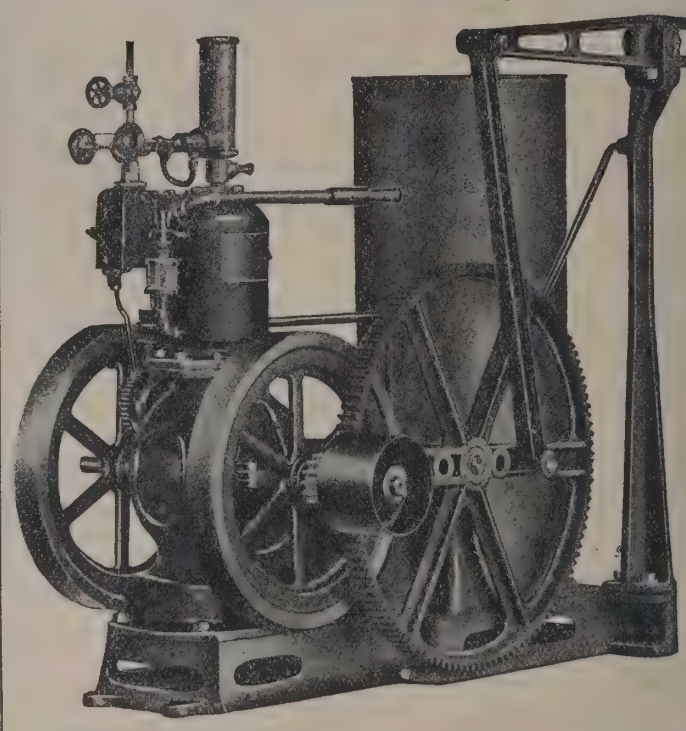
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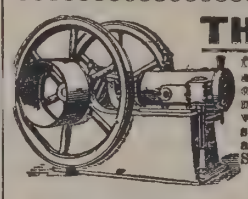


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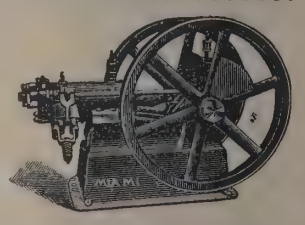


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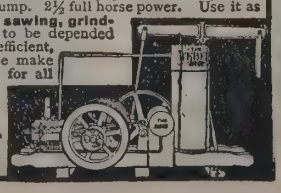
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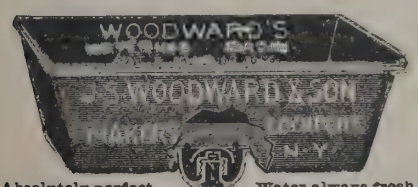
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The daily use of these lozenges will soon tell in a much improved condition of the general health, better complexion, sweeter breath and purer blood, and the beauty of it is, that no possible harm can result from their continued use, but on the contrary, great benefit.

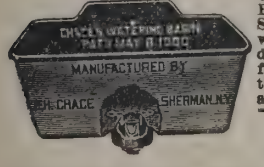
A Buffalo physician in speaking of the benefits of charcoal, says: "I advise Stuart's Absorbent Lozenges to all patients suffering from gas in stomach and bowels, and to clear the complexion and purify the breath, mouth and throat; I also believe the liver is greatly benefitted by the daily use of them; they cost but twenty-five cents a box at drug stores, and although in some sense a patent preparation, yet I believe I get more and better charcoal in Stuart's Absorbent Lozenges than in any of the ordinary charcoal tablets."



Absolutely perfect. Soon pays the cost Cheapest because best.

Water always fresh. Send for catalogue No disease where used

SAMPLE BASIN SENT ON APPROVAL.



Basins are fitted with Self Closing Cover which prevents all dirt and sediment from getting into them. Send for catalogue and price list

F. H. CHACE, Sherman, N. Y.

Water In The Stable a Necessity.



It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. Why not use the Best? Write for descriptive circular.

O. E. BUCKLEY & CO., Poughkeepsie, N. Y.



COW BASIN

SELF CLOSING LID.

Pure white Porcelain. No rust, no filth, no splashing. D. H. Bausman, Bausman Lanc. Co., Pa. Iron, Pig, Chick, and Stock Troughs.

MILK TUBES Patent Coin Silver 1¾" 50c. 2¾" 80c. Improved Teat Opener 75c. Dilating plug 25c.

Postpaid on receipt of price. G. P Pilling & Son, ad and Arch Sts., Phila., Pa.

In the article on Abortion, page 688, quoting from Dr. Smead, there is an error, we are informed, in the name of the disinfecting fluid recommended—the word "Jenner" being substituted for Zenner.

A Creamery Experience.

Ed. Hoard's Dairyman:—I saw an article in your paper of August 7 on creameries, written by W. F. McSparrin, which interested me. I was in hopes that the farmers were onto the creamery fiends' mode of operation by this time, but am sorry to hear of them still getting beaten by such swindlers who are slick fellows and no doubt find plenty of fish to bite their hooks yet.

About five years ago, some parties from the west, I think their names were Bernett & Bernett, came to Allegany, N. Y., to work their scheme for building a creamery. They used their usual mode of doing business, by going to the most influential farmer and giving him $500 worth of stock to allow his name to be used as bait for his neighbors. They then engaged the services of a druggist of the town, who about that time experienced religion in order to get the confidence of the people, for a starter for them.

They soon succeeded in selling the stock to the amount of $4,000 in spite of the fact that I showed many of the farmers the actual cost of such a building and fixtures, and proved to them that they were paying twice what it was worth; but the company had told them they were to get 20 per cent yearly on their investment and that the cheese factory had never paid anything, and they were going to wipe the cheese factories off the earth. I told them the cheese factories were here before the creameries came, and they would be here after the creameries were gone.

I said to them that in five years I would be with them just to say: "I told you so," and it has been just about the five years now. I send you a clipping from the *Olean Ledger* that will tell the story. One business man of Allegany was treasurer for the company, and I did succeed in convincing him of some things and he refused to pay the full amount over to the company, and finally succeeded in getting off about $900. But what did the stock holders do with that $900, but to take it to boost up their sales of butter by putting in a portion of it on each sale of butter, just to beat the cheese factories. But when their $900 was gone and they had to rely on the market for their price, they soon fell behind in the race and had to close up their business.

I think the best way to stop such frauds on the farmers is for the granges to take up such matters and fight to the death. Farmers have been picked long enough and unless they combine and fight, they will continue to be picked.

L. W. Howden, Deputy P. of H. McKean Co., Pa.

Transfers of Guernsey Cattle.

BULLS.

Belitius 6398, W. M. March to A. Rodoni, Pescadero Cal.
Carl of Fern Ravine 8853, Fred Vogel, Jr., to James Champine, Kelley, Wis.
Christie of Mt. Vernon 6956, Mt. Vernon Ladies' Association to M. B. Rowe, Fredericksburg, Va.
Dr. Jim 8827, Ezra Michener to Clay S. Walker, Lumberville, Pa.
Duke of Rush 7487, Uzal Kinney to Walter Upham, Neath, Pa.
Faith's Anchor 8846, S. M. Shoemaker to Mrs. W. F. Norris, Woodbourne, Pa.
General Putnam 8802, H. F. Dimock to N. G. Williams, Brooklyn, Ct.
Glenwood's Mainstay 8th, E. T. Gill to W. C. Schulze, Philadelphia, Pa.
Gertia's Duke 8858, Wm. H. Caldwell to Geo. D. Emery, West Rindge, N. H.
Hardwick Senator 8821, Henry F. Sears to Wm. C. Endicott, Danvers, Mass.
Sir Acrobat 8741, Thomas S. Michener to Dent Bros., Grand Gorge, N. Y.
Sir Nicholas 8529, J. P. Welsh to H. S. Stoker, Stillwater, Pa.
Wisconsin's Jasper 8348, Fred Clausing to H. B. Sherk, Spirit Lake, Iowa.

COWS.

Cynthia of Whitehall 14433, Gurexa's Duchess 11833, Hilo of Ellerslie 11597, H. A. & A. S. Bartholomew to H. A. Bartholomew, Whitehall, N. Y.
Crystal Belle 13846, Mattie T. 13612, J. J. Thompson to Hiram Ricker & Sons, South Poland, Me.
Florinda 12916, Nacona 16438, Nana 2nd 9370, Nankeen 2nd 16421, James M. Codman to Albert French, Lebanon, O.
Marjorie of Pinehurst 16522, Norah of Pinehurst, 16334, Est. E. R. Strawdridge to Mrs. E. W. Strawbridge, Moorestown, N. J.
Masher's Camilla 15793, William B. Rice to Albert French, Lebanon, O.
Moselle's Elegante 15796, Moselle's Select 15797, Wm. H. Caldwell to Albert French, Lebanon, O.

Wm. H. Caldwell, Sec.

Peterboro, N. H., Sept. 8, 1903.

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When Monday Rolls Around

the Gold Dust Twins are the busiest little rascals that ever lived. A huge wash has no terrors for them and the knowing housewife realizes that they save her back as well as the clothes.

Whiter clothes, little rubbing, quick results are the arguments for the use on wash day of

GOLD DUST

OTHER GENERAL USES FOR GOLD DUST | Scrubbing floors, washing clothes and dishes, cleaning woodwork, oilcloth, silverware and tinware, polishing brass work, cleansing bath room, pipes, etc., and making the finest soft soap.

Made by THE N. K. FAIRBANK COMPANY, Chicago——Makers of FAIRY SOAP.

GOLD DUST makes hard water soft



TERRIFF'S PERFECT WASHER

SENT ON TRIAL with a positive guarantee to wash the collars and wristbands of the dirtiest shirt perfectly clean, without the use of the washboard or hand rubbing, with no injury to the most delicate fabric. Will do a family washing in one hour; *saves time, labor and expense.*

FREE We want good, reliable and industrious agents, and in order to secure your help will send one of our washers absolutely Free. Write today for Free catalogue and full particulars.

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NOT A COG NOR CHAIN ABOUT IT.

Send for circular.



Simplest Press Made.

Has an AUTOMATIC PLUNGER DRAW.

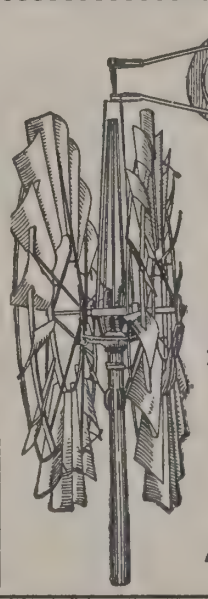
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SAW MILLS, 4 H. P. cuts 2,000 feet per day—All Sizes—Planers, Shingle Mills and Edgers with Patent Variable Friction Feed-Portable Grinding Mills, Water Wheels, Lath Mills, etc. Send for large Catalogue. Freight don't count.

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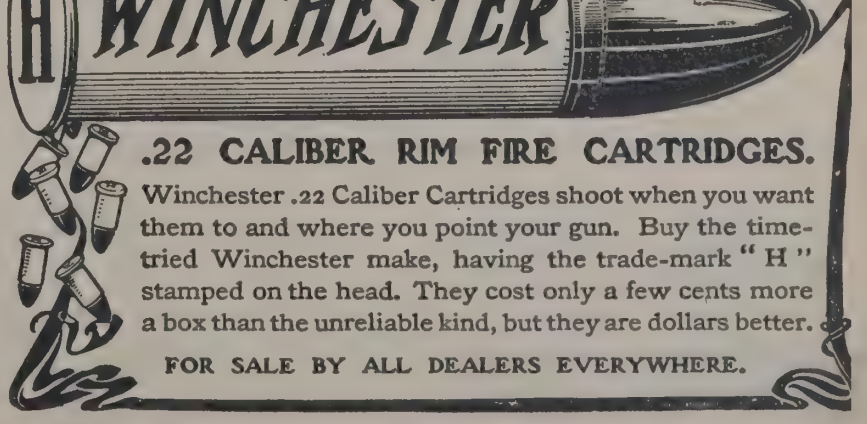
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REVOLUTIONIZES WIND POWER.

2-14 ft. Wheels. 10 horse power

All the power you need for $1.00 per MONTH.

Address **Double Power Mill Co.,** Appleton, Wisconsin



.22 CALIBER RIM FIRE CARTRIDGES.

Winchester .22 Caliber Cartridges shoot when you want them to and where you point your gun. Buy the time-tried Winchester make, having the trade-mark "H" stamped on the head. They cost only a few cents more a box than the unreliable kind, but they are dollars better.

FOR SALE BY ALL DEALERS EVERYWHERE.



MY HOG WEIGHS 1100 LBS.

EASTHAMPTON, MASS., March 20, 1903.

International Stock Food Co., Minneapolis, Minn.

DEAR SIRS:—I have a large hog that was raised on your **"International Stock Food"** and he now weighs 1100 lbs. This hog is three years old and is as strong on his legs as any hog weighing 150 lbs. He is half Chester White and half Poland-China. He is still growing and every one is satisfied that he is the largest hog in America. Truly yours,

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☞We Have Thousands of Similar Testimonials and Will Pay You $1000 Cash to Prove That They Are Not Genuine and Unsolicited.☜

We own "International Stock Food Farm," which is located 12 miles from Minneapolis and contains 650 acres. We feed "International Stock Food" every day to all our WORLD CHAMPION STALLIONS, DAN PATCH 1:59 1/5 and DIRECTUM 2:05¼; to our YOUNG STALLIONS, BROOD MARES, COLTS, WORK HORSES, CATTLE and HOGS. "INTERNATIONAL STOCK FOOD" ☞3 FEEDS FOR ONE CENT☜ is Prepared from Roots, Herbs, Seeds and Barks and Won the Highest Medal at Paris Exposition in 1900 as a High-Class vegetable, medicinal preparation to be fed to stock in small amounts as an addition to the regular feed. It is a Great Aid in Growing or Fattening stock because it increases the appetite and Aids Digestion and Assimilation so that each animal obtains more nutrition from the grain eaten. We positively guarantee that its use will make you extra money over the usual Plan of Growing and Fattening stock. "International Stock Food" can be fed in safety to Horses, Cattle, Sheep, Goats, Hogs, Colts, Calves, Lambs or Pigs. It is Absolutely Harmless even if taken into the Human system. You insist on eating medicinal ingredients with your Own food at every meal. Salt is a stomach tonic and worm medicine, Pepper is a powerful stimulating tonic, Mustard is a remedy for dyspepsia, Vinegar is a diuretic. You eat these medicinal ingredients almost with every mouthful of your food, and it is proven that these Medicines promote health and strength for people and improve their digestion. "International Stock Food" contains pure vegetable medicinal ingredients that are just as safe and as necessary an addition to the regular feed of your stock if you desire to keep them in the best possible condition. "International Stock Food" is endorsed by Every High-Class Farm Paper. It purifies the blood, stimulates and permanently strengthens the entire system so that disease is prevented or cured. "International Stock Food" is sold on a "Spot Cash Guarantee" by Fifty Thousand Dealers throughout the World. ☞Your Money will be Promptly Refunded in Any case of failure. It will make your Calves or Pigs grow Amazingly and has the largest sale in the World for keeping them healthy. ☞Beware of the many Cheap and Inferior Imitations. No Chemist can separate all the Different powdered Roots, Herbs, Barks and Seeds that we use. Any One claiming to do so Must be an Ignoramus or a Falsifier.

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Dear Sirs:—I received your "International Stock Book" and was more than pleased with it. It is worth more than $10.00 to me. Very truly yours, RICHARD J. MORRISSEY.

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With BLOWER or CARRIER

ALL SIZES—Known as the **BEST.**



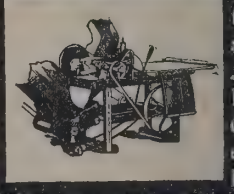
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Ensilage Cutters; Ensilage and Stalk Shredders; Blowers and Chain Carriers; Tread Powers; Sweep Powers; Threshing Machines; Circular and Drag Saw Frames, Etc.

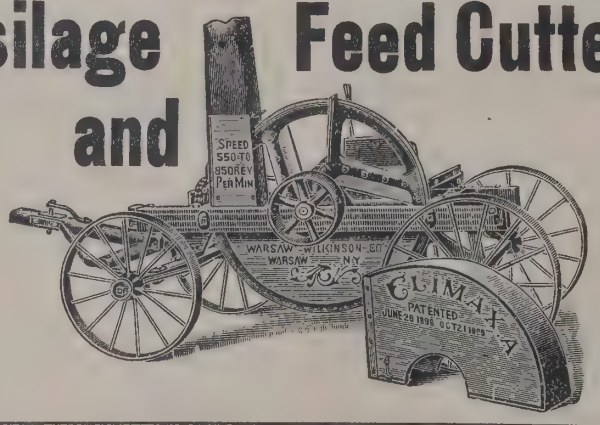
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CLIMAX

Ensilage and Feed Cutters.



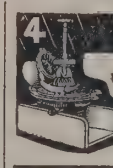
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CLIMAX machines are original. They are not made over from old models, in an attempt to turn them into blowers, by adding a number of chains, belts, or other attachments. They are made to elevate by wind delivery, and every part is built with this end in view. They are sold under an absolute guarantee to do the work, and **never** fail.

CLIMAX machines passed the experimental stage eight years ago. It has never been necessary to change any essential feature of the original pattern. We are still using the straight knives, with the shearing, inward cut; the elevating is still done with the same wheel as the cutting, requiring less power; the smooth reversing gear, which is positive and cannot break; the large feeding rollers, which won't choke, and the knife adjustment, which sets every knife at once and sets them **true.** All these have stood the test and cannot be had with any other machine.

The combination of simplicity, great strength, large capacity and few wearing parts, places the **CLIMAX** in the very front rank. When you have a binding guarantee as well, there should be no doubt regarding the machine. Catalogue for the asking.

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4 HORSE and 2 Horse SWEEP MILL.

And Horse Power.

Grinds corn with shucks, rye, barley, wheat, oats and all other grains. **Self feeders. Geared 7 to 1. Light draft. Great Capacity.** (Also make plain sweep and Belt Mills; 10 sizes.)

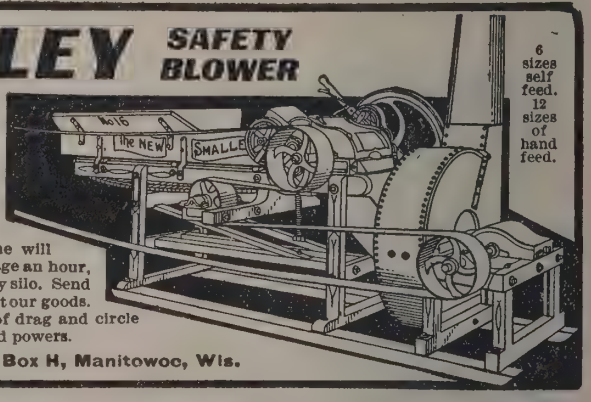
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6 sizes self feed. 12 sizes of hand feed.

Only One Belt Required.

No lost power. No danger in operation. Belt cannot slip. Every part strong and of best material. No more strain on the *Smalley* machine when Blower is attached than with the ordinary carrier. Largest size machine will easily handle ten tons of ensilage an hour, cut ½ inch and elevate into any silo. Send for 1903 catalogue, tells all about our goods. We also make complete line of drag and circle saw machines, sweep and tread powers.



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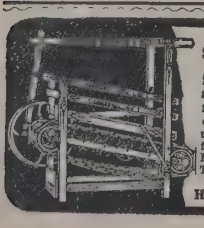
The 1903 Shredder Blades

(Patent Applied for)

make efficient shredders out of "Ohio" Feed and Ensilage Cutters. The **New Shredder Blade** is the regular "Ohio" knife with solid integrally projecting bits which cut and tear corn stalks into a nicely shredded condition, as shown in the picture. It makes corn-hay of the fodder.

Shredder Blades are interchangeable with knives on all sizes "Ohio" Cutters. They successfully reduce fodder to the proper condition and do not pulverize the leaves like other styles. **They shred** with the same power, speed and capacity as "Ohio" Cutters, and either the Chain or Blower Elevators handle the shredded corn perfectly. **Speed,** 600 to 700 revolutions. **Power,** 2 Horse Tread up to 12 h. p. Engine according to size. Let us send the 1903 catalogue of "Ohio" Cutters and Shredders. "Modern Silage Methods" 10c, coin or stamps. Manufactured by

THE SILVER MFG. CO., Salem, Ohio. *Established 1854.*



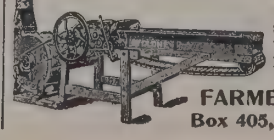
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Saves human muscle. This **ENTERPRISE POWER** is unequalled for churning, separating cream, running washing machines, etc. One dog, sheep or goat works it easily. We also make a full line of large tread powers for 1, 2 and 3 horses. Full line of Ensilage and Feed Cutters, Wood Saws Threshers, Engines, Round Silos, etc. CATALOGUE FREE.

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With TRAVELING TABLE and BLOWER



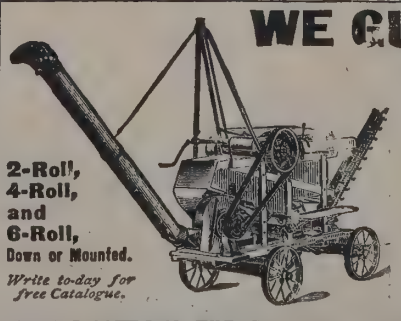
Guaranteed to cut split, shred and elevate ensilage 50 feet perpendicular height. For catalog address

FARMERS MFG. CO.

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WE GUARANTEE

that under the same conditions as to power and speed applied, condition of corn, etc.,



2-Roll, 4-Roll, and 6-Roll,

Down or Mounted.

Write to-day for free Catalogue.

The Appleton Corn Husker

will do more and better work than any other machine of like character and corresponding size on the market; that it is simpler in construction; easier in every way to operate; easier and safer to feed and to require less power for successful operation. The proof of these claims is sent for the asking. We make also a complete line of sweep and tread horse powers, shellers, ensilage and fodder cutters, feed grinders, wood saws, windmills, etc. **Remember that Appleton quality is the standard of excellence.**

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Devoted to Dairying and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., OCTOBER 9, 1903. NUMBER 35

HAND SEPARATOR BUTTER always brings a good price. We make it a specialty. Why sell your cream when you can get from 15% to 20% more for butter? Save "the over-run" for yourself. Send for market quotations and make us a trial shipment.
C. H. WEAVER & CO., 128 South Water St. CHICAGO.
REFERENCE:—Any bank or wholesale house.

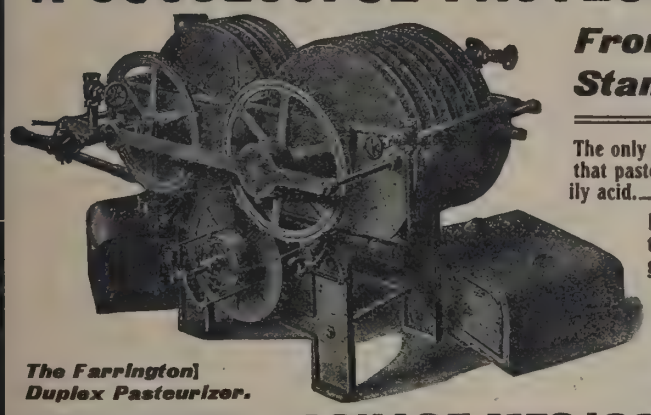
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Liberal Advancements Made on Consignments.
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ASK YOUR DEALER IN DAIRY SUPPLIES FOR
CHR. HANSEN'S LACTIC FERMENT
To Ripen your cream, ensuring
Perfect Flavor, Uniformity and Keeping Qualities in your Butter.
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HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, BOSTON.**
Medals—Bronze 1878 Silver, 1887, World's Fair, 1893.

A SUCCESSFUL PASTEURIZER



From Every Standpoint.

The only Pasteurizer made that pasteurizes milk heavily acid.

It makes good Butter—that makes good business.

Your Butter will score 8 points higher.

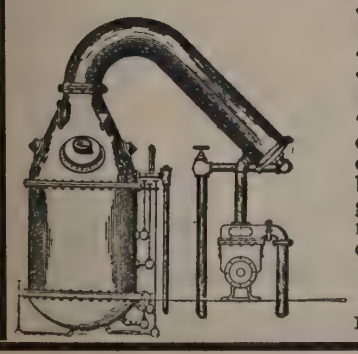
The Farrington Duplex Pasteurizer.

Write to the
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BRANCH HOUSES: Kansas City, Mo. Minneapolis, Minn. St. Louis, Mo Waterloo, Ia.
Canadian Branch: Cowansville, Quebec.
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LARGEST COOLING SURFACE EASIEST TO CLEAN.
WRITE US FOR PRICES.
Ask for our new Thirtieth Annual Catalogue of Dairy Apparatus and Supplies.
OAKES & BURGER, Cattaraugus, N. Y.



Milk Condensing Machine I supply the most improved machinery and most successful processes for manufacturing all classes of condensed milk and evaporated cream. Factories built complete, put in operation and results guaranteed. If you are interested write for my new illustrated and descriptive catalogue. The only catalogue ever published on the subject.
R. R. ROGERS, Winthrop, Maine.
(Formerly of Detroit, Mich.)
I am not associated with any person, firm or company.

AND THE STUCK PIG SQUEALED

The Chief Howler of the "Bucket Bowl Brigade" Seems to Hate TRUTH, and the TUBULAR Above Everything Else.

"Right Now" he is tearing his hair because we had the courage to tell the truth about the number of dairy separators actually in use. It did make his oft repeated romance about the number of old fashioned, dangerous, complicated disc separators in use look awfully "fishy," but we didn't suppose he was hugging the delusion that anyone really believed his ridiculous stories. We thought he just kept on telling such stuff from force of habit. He ought not tell yarns that are "fishy" (i. e. "discy"); then he need not be hurt by our telling the truth. We are sorry for him but

WE CANNOT STOP SELLING TUBULAR DAIRY SEPARATORS while he catches up with the procession. Farmers want the **Tubulars** because they have more conveniences, run easier, skim closer, wear longer, require less care and attention than any other separator made. We cannot afford to stop the largest cream separator works in the world from making **Tubulars** because our jealous competitor is having trouble with his "bucket full of discs." **Compare the Tubular with any other separator. Judge for yourself.**



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28, 30 & 32 So. Canal St.
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West Chester, Pa.
U. S. A.



DR. HESS
Great Stock Book
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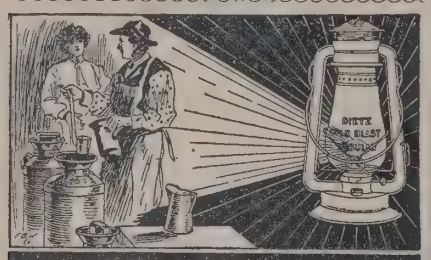
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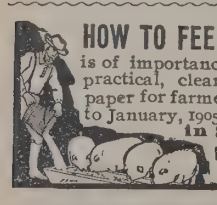
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Please tell me the cause of this and why it gets strong so quickly.

We make about two pounds of butter to the gallon of cream. Is that a good average or not?. DR. W. F. P.

Pleasant Hill, Ky.

The conditions under which you are making butter must be such as to in some way cause the cream to be overripe when it is churned. I do not think that this ought to be the case if the cream is cooled immediately after it comes from the separator, to a temperature near 55° F. If you can hold the cream at this temperature and churn every other day I feel sure that the quality of your butter will improve and that no complaints will be made in regard to its being strong.

In order to produce butter of good quality it is absolutely necessary that your separator should be thoroughly cleaned, the bowl and tinware scalded each time after the separator is used, and the cream should be kept in clean, bright tinware or earthen crocks in a place where it will not absorb bad odors of any sort.

The trouble you are having is either caused by the fact that the cream is held at too high a temperature before it is churned, or some of the machinery or tinware through which it passes on its route from the cow to the churn is not properly cleaned and scalded every time they are used. I am sure you will get good results by ripening your cream at the low temperature mentioned, provided it has not been inoculated with too many objectionable germs before it is churned.

The defects mentioned as being noticed by your customers in the butter when it is one, two or three days old, are such as to lead one to believe that something must be radically wrong in either the temperature or the cleanliness used. You certainly ought to be able to make butter which will keep more than a week in a perfectly sweet condition. Your methods of churning, washing, salting and working the butter as described in your letter, ought to give satisfactory results.

The exact test of your cream can be easily calculated if you are making two pounds of butter per gallon of cream. This calculation may be made as follows:

We will assume that the butter contains 85 per cent fat; then in two pounds there will be 1.7 pounds fat. Now, since a gallon of cream weighs approximately 8.2 pounds, you have 1.7 pounds of fat in 8.2 pounds of cream. The amount of fat in 100 pounds of cream may then be obtained by the following proportion: 8.2 : 1.7 : : 100 : x. Completing the calculation, shows that your cream tests 20.7 per cent fat.

This is rather a thin cream, but the thinness ought not to have any influence on the quality of the butter made from it.

You can probably adjust the cream screw in your separator, so as to increase the richness of your cream a little. If this will not interfere with the efficiency of the skimming, I would advise doing this. A thicker cream will ripen slower than thin cream and as over-ripeness seems to be the cause of your troubles, a thicker cream may aid in improving the quality of your butter.

E. H. FARRINGTON.
Wis., Dairy School.



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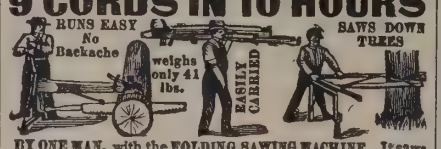
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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Answers to Dairy Questions by Prof. Farrington.

MILK SAMPLING.

I should like to get my milk tested. Would you kindly forward me directions for taking my milk samples? M. H.
New Richmond, Wis.

The taking of a sample of milk for analysis is an operation that requires the use of ordinary common sense and good judgment. Cream will rise on milk very quickly, and in order to have the milk evenly mixed when the sample is taken it is necessary to dip out a small portion of the milk immediately after it has been poured from one vessel to another. Samples have been sometimes sent us to test and the absurd results obtained show that they were not fairly taken.

This inaccuracy of sampling is often caused by ignorance on the part of the parties taking the sample. Not every one realizes how quickly cream will rise on milk. A good many people who own cows are also unaware of the fact that the first milk which a cow gives is considerably thinner than the last milk, or strippings, and samples of milk have been sent to me to test by simply milking into a small bottle which when filled was supposed to represent a fair sample of the milk the cow gave. A great many tests of different portions of a cow's milk have been made and these always show that the first milk drawn tests less than half as much as the last milk. It is not even safe to assume that filling a bottle near the middle of a milking will fairly represent the average composition of the milk given by a cow at any one time.

The sampling of one cow's milk may be done in a satisfactory way by pouring all the milk she gives at one milking into a pail, then after this has been poured back and forth from one pail to another several times, dip about six ounces of it into a bottle at once before the cream has had time to rise to the surface. Fill the bottle to the cork in order to prevent churning by the agitation during transportation. Carefully pack in a small box and send by prepaid express to the Dairy School, Madison, Wis. We are willing to test such samples for Wisconsin dairymen at any time, and we do a great deal of this work every year.

The sample of one milking, however, will not necessarily give a correct idea of the average composition of the milk a cow gives, because the richness of any cow's milk will vary from one milking to another. It is not always the same from day to day, but the test may go up and down from various causes. Anything that excites the nervous system of a cow will have an effect on the test of her milk. Indigestion has also an immediate influence on milk secretion. If the cows are roughly treated by driving them from pasture, or by standing in cold, wet rain or wind, the milk secretion is influenced to such an extent that changes in the test may be noticed and become as radical as changes in the weather.

Every farmer who owns cows would be greatly benefitted by owning a small Babcock tester and using it in his own herd. He will then find that the test of some cows' milk will vary in a very un explainable way from day to day, and that the milk of other cows will be uniform in test.

The mixture of several cows' milk, or the milk that is taken to a factory from a farm each day, will not usually be influenced by the same conditions that cause a variation in the test of one cow's milk. If this mixture of milk from a herd is to be tested, the sample ought to be taken immediately after the entire lot of milk is poured from one can to another several times until the cream is thoroughly mixed through it all. A small quantity of this milk well mixed will fairly represent the whole, and if this is the kind of milk you wish to sample, you may fill a bottle of it to the cork and send it to us as I have already suggested, the sample of milk from one cow may be sent.

SNAP SHOTS FROM THE WISCONSIN STATE FAIR.



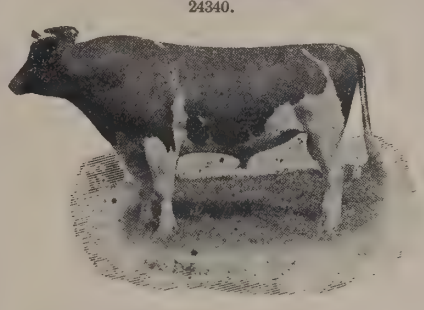
An imported two-year-old Ayrshire bull.



Ayrshire cow, Bell of Wisconsin, A. B. A., 1335. Property of Sam Jones, Juneau, Wis.



Holstein cow, Jewell of Home Farm, H. F. H. B. 24340.



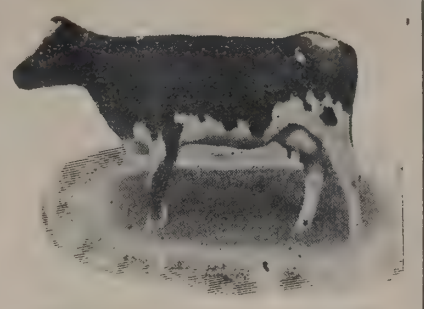
Holstein bull, Colanth Florence Herbert. Property of W. B. Barney, Hampton, Ia.



Brown Swiss bull, McJohn I.



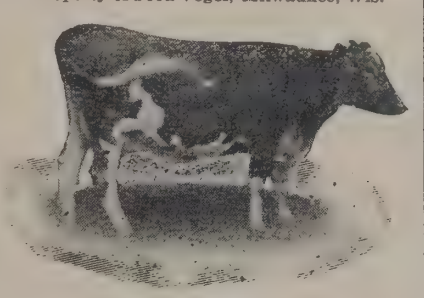
Brown Swiss Cow, Countess 8th. Property of F. H. Inman, Hanover, Wis.



Guernsey cow, Bell O. K., A. G. C. C., 12944.



Guernsey cow, Selects O. K., A G. C. C., 12942. Property of Fred Vogel, Milwaukee, Wis.



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DIFFERENCE BETWEEN BUTTER AND BUTTER FAT PRICES.

I am in need of some advice and come to you for information as to what I shall do in order to compete with a creamery that pays more for a pound of butter fat than butter is worth. The butter at my creamery is selling as extras and the overrun is about 12 per cent. We handle all milk, no cream at all. A neighboring creamery has between forty and fifty cream patrons, but no milk patrons. The farmers here do not understand why it is that the price per pound of butter fat paid at the neighboring creamery is higher than the market price of butter.

What kind of a sampling tube would you advise using for taking samples of milk at the milk weighing can? R. B.
Arkansaw, Wis.

The difference between the price paid for butter and for butter fat at a creamery is a point which is not well understood by all creamery patrons. Most of them are aware that the Babcock test shows the butter fat in milk and that this is from ten to fifteen per cent less than the butter which will be made from the milk; but few have had occasion to look into the matter any further than this. You will find that it will be profitable for you to make the problem clear to your patrons so that they will understand why there is a difference in the price of butter and of butter fat. You can do this by means of a calculation something like the following:

Suppose your factory received 150,000 pounds of milk in one month and the average test of this milk was 4.0 per cent fat; then the pounds of fat delivered to the factory will be 6000,—150,000 x .04= 6,000. If your overrun is 15 per cent there will be 6,900 pounds of butter made, —6,000 x 1.15=6,900. Now we will suppose that the butter sold for 20 cents per pound, then this will bring $1380.00. If the expenses of operating your factory during this time are $120.00 there is left $1260.00 to pay the farmers for the 150,000 pounds of milk or the butter fat it contained. The next thing neccssary to do in order to find out how much each patron should receive for his milk is to determine the price that will be paid for one pound of fat or for one pound of butter according to the arrangement made at your factory with the patrons. In this case the price paid per pound of fat will be found by dividing the $1260.00 by the 6000 lbs. fat which gives 21 cents. If you wish to pay by the price per pound of butter then the $1260.00 must be divided by the total weight of butter, 6900 pounds, and this gives 18.2 cents as the price to be paid for butter.

In either case you will see that the patron will obtain the same amount for his milk no matter whether he is paid by the price per pound of fat, which is 21 cents, or the price per pound of butter, which is 18.2 cents. The difference in price simply comes from the fact that in one case we have estimated that there is 15 per cent more butter than butter fat in the milk delivered by each patron, and this will naturally diminish the price per pound of butter below the price per pound of butter fat, or in other words, more butter is made from 100 pounds of milk, but it is paid for at a smaller price per pound than the butter fat is paid for.

If you can get your patrons to understand this matter, I think they will not be inclined to get dissatisfied because some other creamery is paying a higher price per pound of fat than you are paying per pound of butter. The net sum received per hundred pounds of milk of the same test may be very nearly the same at the two factories, and when the patrons understand this they will not be disturbed by differences of three or four cents per pound in the prices they receive.

This is probably an explanation of why the creamery you mention is paying more per pound of butter fat than the market price for butter. It pays for a less number of pounds of butter fat than of butter and consequently can pay a larger price per pound.

The taking of samples of milk at a creamery may be fairly well done by means of a small dipper which will hold between one and two ounces of milk. Dip this full of milk from the weigh can before the cream has time to rise and immediately after weighing the milk. This method is usually sufficiently accurate for all practical purposes. A "milk thief" or a long, cylindrical tube for tak-

(Continued on page 780)

Analyses of Feeding Stuffs.

TABLE SHOWING AVERAGE AMOUNTS OF DIGESTIBLE NUTRIENTS IN THE MORE COMMON AMERICAN FODDERS, GRAINS AND BY-PRODUCTS.

Compiled by the Editors of Hoard's Dairyman, Fort Atkinson, Wis.

Name of Feed.	Dry Matter in 100 Pounds.	Digestible Nutrients in 100 Pounds. Protein.	Carbohydrates.	Ether Extract. (Crude Fat.)
GREEN FODDERS.	Lbs.	Lbs.	Lbs.	Lbs.
Pasture Grasses mixed	20.0	2.5	10.2	0.5
Fodder Corn	20.7	1.0	11.6	0.4
Sorghum	20.6	0.6	12.2	0.4
Red Clover	29.2	2.9	14.8	0.7
Alfalfa	28.2	3.9	12.7	0.5
Cow Pea	16.4	1.8	8.7	0.2
Soja Bean	24.9	3.2	11.0	0.5
Oat Fodder	37.8	2.6	18.9	1.0
Rye Fodder	23.4	2.1	14.1	0.4
Rape	14.0	1.5	8.1	0.2
Peas and Oats	16.0	1.8	7.1	0.2
Beet Pulp	10.2	0.6	7.3	...
SILAGE.				
Corn	20.9	0.9	11.3	0.7
Corn, Wisconsin analyses	26.4	1.3	14.0	0.7
Sorghum	23.9	0.6	14.9	0.2
Red Clover	28.0	2.0	13.5	1.0
Alfalfa	27.5	3.0	8.5	1.9
Cow Pea	20.7	1.5	8.6	0.9
Soja Bean	25.8	2.7	8.7	1.3
DRY FODDER AND HAY.				
Corn Fodder	57.8	2.5	34.6	1.2
Corn Fodder, Wis. analyses	71.0	3.7	40.4	1.2
Corn Stover	59.5	1.7	32.4	0.7
Sorghum Fodder	59.7	1.5	37.3	0.4
Red Clover	84.7	6.8	35.8	1.7
Alfalfa	91.6	11.0	39.6	1.2
Barley	85.2	6.2	46.6	1.5
Blue Grass	78.8	4.8	37.3	2.0
Cow Pea	89.3	10.8	38.6	1.1
Crab Grass	82.4	5.7	39 7	1.4
Johnson Grass	87.7	2.4	47.8	0.7
Marsh Grass	88.4	2.4	29.9	0.9
Millet	92.3	4.5	51.7	1.3
Oat Hay	91.1	4.3	46.4	1.5
Oat and Pea Hay	85.4	9.2	36.8	1.2
Orchard Grass	90.1	4.9	42.3	1.4
Prairie Grass	87.5	3.5	41.8	1.4
Red Top	91.1	4.8	46.9	1.0
Timothy	86.8	2.8	43.4	1.4
Timothy and Clover	85.3	4.8	39.6	1.6
Vetch	88.7	12.9	47.5	1.4
White Daisy	85.0	3.8	40.7	1.2
STRAW.				
Barley	85.8	0.7	41.2	0.6
Oat	90.8	1.2	38.6	0 8
Rye	92.9	0.6	40.6	0.4
Wheat	90.4	0.4	36.3	0.4

Name of Feed.	Dry Matter in 100 Pounds.	Digestible Nutrients in 100 Pounds. Protein.	Carbohydrates.	Ether Extract. (Crude Fat.)
ROOTS AND TUBERS.	Lbs.	Lbs.	Lbs.	Lbs.
Artichokes	20.0	2.0	16.8	0.2
Beets, common	13.0	1.2	8.8	0.1
Beets, sugar	13.5	1.1	10.2	0.1
Carrots	11.4	0.8	7.8	0.2
Mangels	9.1	1.1	5.4	0.1
Parsnips	11.7	1.6	11.2	0.2
Potatoes	21.1	0.9	16.3	0.1
Rutabagas	11.4	1.0	8.1	0.2
Turnips	9.5	1.0	7.2	0.2
Sweet Potatoes	29.0	0.9	22.2	0.3
GRAIN AND BY-PRODUCTS.				
Barley	89.1	8.7	65.6	1.6
Brewers' Grains, dry	91.8	15.7	36.3	5.1
Brewers' Grains, wet	24.3	3.9	9.3	1.4
Malt Sprouts	89.8	18.6	37.1	1.7
Buckwheat	87.4	7.7	49.2	1.8
Buckwheat Bran	89.5	7.4	30 4	1.9
Buckwheat Middlings	87.3	22.0	33.4	5.4
Corn	89.1	7.9	66.7	4.3
Corn and Cob Meal	89.0	6.4	63.0	3.5
Corn Cob	89.3	0.4	52.5	0.3
Corn Bran	90.9	7.4	59.8	4.6
Atlas Gluten Meal	92.0	24.6	38.8	11.5
Gluten Meal	88.0	32.1	41.2	2.5
Germ Oil Meal	90.0	20.2	44.5	8.8
Gluten Feed	90.0	23.3	50.7	2.7
Hominy Chop	88.9	7.5	55.2	6.8
Starch Feed, wet	34.6	5.5	21.7	2.3
Cotton Seed	89.7	12.5	30.0	17.3
Cotton Seed Meal	91.8	37.2	16.9	8.4
Cotton Seed Hulls	88.9	0.3	33.1	1.7
Cocoanut Meal	89 7	15.6	38.3	10.5
Cow Peas	85.2	18.3	54.2	1.1
Flax Seed	90.8	20.6	17.1	29.0
Oil Meal, old process	90.8	29.3	32.7	7.0
Oil Meal, new process	89.9	28.2	40.1	2.8
Cleveland Oil Meal	89.6	32.1	25.1	2.6
Kaffir Corn	84.8	7.8	57.1	2.7
Millet	86.0	8.9	45.0	3.2
Oats	89.0	9.2	47.3	4.2
Oat Feed or Shorts	92.3	12.5	46.9	2.8
Oat Dust	93.5	8 9	38.4	5.1
Peas	89.5	16.8	51.8	0.7
Quaker Dairy Feed	92.5	9.4	50.1	3.0
Rye	88.4	9.9	67.6	1.1
Rye Bran	88.4	11.5	50.3	2.0
Wheat	89.5	10.2	69.2	1.7
Wheat Bran	88.1	12.6	38.6	3.0
Wheat Middlings	87.9	12.8	53.0	3.4
Wheat Shorts	88.2	12.2	50.0	3.8

GLOSSARY.

The terms used in the above table and in the discussion of feeding problems in HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DRY MATTER.—That portion of a feeding stuff which remains after all the water or moisture has been expelled by heat.

DIGESTIBLE NUTRIENTS.—That portion of the dry matter which can be digested by the animal and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen, hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CARBOHYDRATES.—That part of the digestible nutrients which is the primary source of sustaining animal heat and furnishing the energy for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc., and in the published tables of chemical analyses, are usually subdivided into the terms *crude fibre*, which is the least digestible portion of feeding stuffs and *nitrogen-free extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude* fat. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained, by some, that the fat in the milk comes, largely, from the crude fat in the food, but it has been demonstrated that it is not absolutely necessary for this purpose.

FEEDING STANDARDS.

Various experiments have been conducted with a view to ascertain the amount of feed and the varying amounts or proportions of the several digestible nutrients required by domestic animals under the differing conditions in which they are placed. It is evident that a horse or an ox, at rest in a stall, requires less feed than when at work, and that a dry cow should not be fed in the same way that one would feed her when giving milk. The more work required of the horse, and the more milk yielded by a cow, the greater is the demand for food. In the nature of the case there can be no exact and arbitrary standards laid down. What will suffice for one animal may be either too much or too little for another accomplishing the same work, owing to differences in adaptability, in digestive and assimilative powers, and in care and environment. It is well known that the well groomed and properly stabled horse requires less feed for the same work than the same horse left to shift for himself without grooming or shelter. It is equally true that the milch cow responds by larger results to good care and proper shelter.

It does not follow that the labors of investigators in seeking to establish standards for feeding, have been fruitless. On the contrary, the results already attained are most helpful if rightly used and varied from as circumstances may require. The following table is compiled from the conclusions reached by different experimenters, supplemented by personal experience and reports from readers of HOARD'S DAIRYMAN:

ANIMAL.	Daily allowance for 1000 lbs. live weight. Dry Matter.	Digestible Nutrients. Protein.	Carbohydrates.	Ether Extract. (Crude Fat.)
COWS.	Lbs.	Lbs.	Lbs.	Lbs.
At rest in stall	15 to 20	0.5 to 1.0	7.0 to 10.0	0.1 to 0.3
Giving milk	20 to 30	1.6 to 3.0	10.0 to 16.0	0.5 to 1.0
HORSES.				
Light work	15 to 20	1.5 to 2.0	9.0 to 10.0	0.4 to 0.6
Heavy work	26 to 30	2.5 to 3.0	13.0 to 15.0	0.8 to 1.0
YOUNG DAIRY STOCK. Age in months. / Av. live wt. per head, lbs.				
2–3 / 150	23	4.0	13.0	2.0
3–6 / 300	24	3.0	12.8	1.0
6–12 / 500	27	2.0	12.5	0.5
12–24 / 700	26	1.5 to 1.8	12.0 to 12.5	0.3 to 0.4

The food of support, or the simple maintenance ration, is the amount required to hold the animal at a uniform weight when no energy is expended in exercise or milk giving. The larger the animal, other conditions being equal, the greater the amount of feed required for this purpose; but the variation in this respect does not run parallel with the variation in weight. Thus a cow weighing 800 pounds will require more feed per hundred than one weighing 1000 pounds or 1500 pounds. Instead of deducting, for such an animal, one-fifth from the maintenance ration, as given above, it would be nearer right to deduct not more than one-sixth. Whatever is consumed beyond the requirements for maintenance, supplies the material for growth, for making milk or furnishing the power expended in work and exercise and combating enemies and the elements. It follows that as conditions vary the standards should vary.

It should not be forgotten in compounding a ration that the stomachs of different classes of animals vary in relative size. The cow has very capacious receptacles for food, showing that she is fitted to consume relatively more coarse fodder than other animals, and hence, in arranging her feed, regard should be had both to bulk and the proper distribution of the nutrients throughout the entire mass. For example, 20 lbs. of timothy hay or 10 lbs. of corn will furnish practically equivalent amounts of nutriment, but the cow will not thrive on corn alone, because of the defective digestion, consequent upon failure properly to distend her stomachs and subdivide the concentrated food. Those of us who belong to the generation that went "through the war" remember that "roughage" was quite as essential as grain for the continued well being and endurance of the animals. The prescribed army ration for the horse contains practically an equal amount of roughage and grain; for the cow, under ordinary conditions, we think it best to have about two-thirds of the dry matter in roughage and one-third in grain. When feeding heavily for rapid increase of weight or extra flow of milk, this proportion cannot be maintained, but the roughage should not be materially decreased.

HOARD'S DAIRYMAN aims especially at giving the milk producer—the farmer who keeps cows—the very best and clearest scientific and practical information that can be obtained on the feeding question. It is always ready to answer any and all questions that it is able to on the many sides of dairy practice. For the trifling sum it costs, only $1.00 a year, less than 2 cents a week, it would seem no man who really values sound knowledge and who seeks the best profit can afford to be without it.

Suggestions for a Missouri Barn.

ED. HOARD'S DAIRYMAN:—I am expecting to build a barn this fall to accommodate 4 horses, 10 cows and 25 to 30 sheep and goats. The location which would be most convenient is on a side-hill, and with an abundance of good flat limestone on the place, I could make it with a basement very cheap, and as I expect to raise tame hay, it would seem to a layman this plan would be best, for it would give plenty of hay-loft room.

May I presume to ask such suggestions upon this subject, as your time will permit, as to size, ventilation and general arrangements?

I have plenty of loose rock to concrete the bottom, and with water from my windmill could have a good arrangement for watering stock. G. L. C.

Missouri.

There is no objection to a basement stable, provided it is properly constructed, and has an abundance of light. The best way to build a basement is to excavate in the bank at least six feet in width on sides and ends from where barn is to stand, and build a retaining wall. Then on very low foundation walls build the basement of six or eight inch studding, so that it shall be eight feet from the floor of the stable to the bottom of the joists which are to carry the upper floor. On this framework erect the barn proper, just as though it was to rest on a stone wall.

The reasons for recommending the retaining wall and area are, first, that a bare stone wall is both cold and damp; and, second, in no other way can one secure proper light and ventilation, unless, indeed, there is not more than five feet of excavation, It is admitted that but few barns or stables are built in this way, but it would be a decided improvement to many if they had been so built.

There should be from 10 to 12 good sized windows in this basement, hinged at the bottom to open inwards from the top. This will prevent storms beating in when windows are open. There should be also not less than 8 inlets for fresh air, well distributed, openings equivalent to 12 by 12 inches and constructed as shown in Fig. 3, opening inwardly at the ceiling and outwardly 3 to 6 feet lower. If basement is constructed as we have suggested the spaces between studding may be used for these flues, but if stone walls form the basement, then flues like chimneys should be provided as the walls go up

The outlet for foul and cold air, 3 ft. × 3 ft., may be located, as shown, in one corner of the box stall, or, if it is not practicable to have a door in that end of the barn, locate this flue in the center. If placed to one side of the center make a long bend in the upper story to give exit at the ridge.

As will be seen from the cuts herewith we have provided for an extra horse and cow and added a box stall, but have omitted all provision for sheep. This can better be supplied by building a low shed at some convenient place, either attached to or separate from the barn proper. About all that sheep want, especially in the latitude of Missouri, is shelter from storms. A stable warm enough for cows and horses would be too warm for sheep. Make a closed shed, with two or three openings for convenience of getting in and out, and not be over particular about battening the cracks.

The horse stable may be shut off from the cow department by a couple of sliding doors, and the space not needed for horses will be convenient for feed bins, calf pens, or storage for wagons and tools.

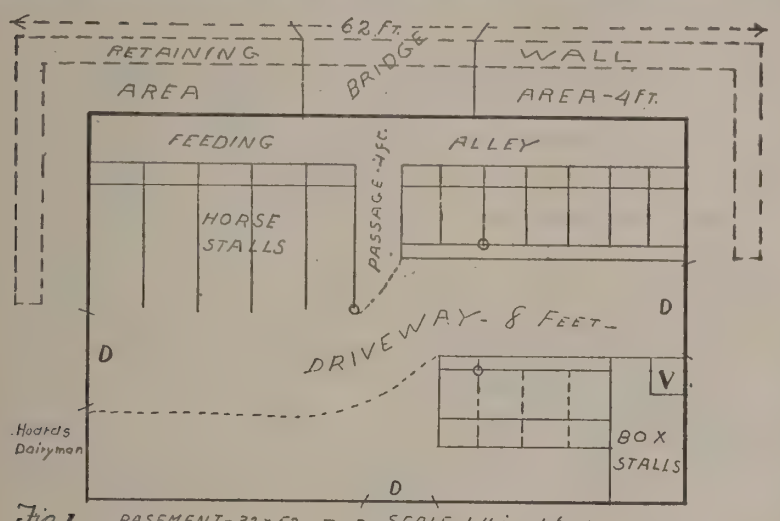


Fig. 1. BASEMENT-32×50 — SCALE-1-16 in.-1 foot

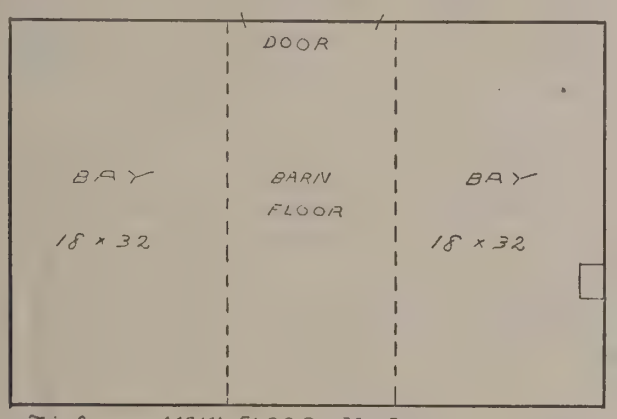
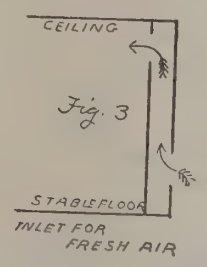


Fig. 2. MAIN FLOOR-32×50



The three circles at rear of stalls indicate location of posts for supporting girders to carry joists.

Clover Taint in Milk and its Product.

I have trouble with my milk when I turn my cows in fresh clover—red clover pasture. The milk, cream and butter take a peculiar flavor, somewhat disagreeable. What can I do to prevent it? I am making a good grade of butter at fancy prices, and this annoys me a great deal.

Cecil, Wis. N. N.

Let the cows have less of the fresh clover and more of some other forage. Especially, take the cows out of the clover some hours before milking. The clover flavor usually disappears of its own accord after a few days, partly because the cows do not eat so ravenously or so much, and partly doubtless because the clover becomes more mature.

DON'T PUT OFF

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In the past three years the actual weekly sales of the

EMPIRE CREAM SEPARATOR



have increased more than 1000 per cent.

In other words, we are selling more than **ten times as many** separators as we sold three years ago.

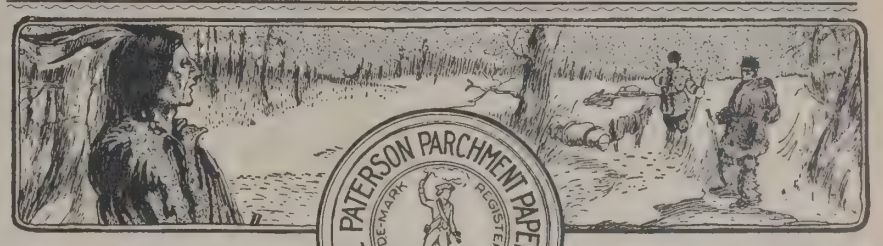
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Our book tells why.

Don't buy a separator on anybody's "say so." Investigate for yourself.

EMPIRE CREAM SEPARATOR CO.,
Bloomfield, N. J. **Chicago, Illinois.**



The Flavor of Good Butter

is easily destroyed by contact with foreign substances. The problem is how best to protect it for table use. Up-to-date butter makers with one accord now resort to the

Pioneer Brand Parchment Paper

for wrapping pound prints and lining boxes and tubs. **Pioneer** is not a so-called parchment. It is a pure vegetable product, without taste or smell, and seals the package from foreign smells and holds the fine flavors. Name or trade mark printed on each wrapping sheet if desired. Ask for samples and book, "Better Butter." Sent free for the asking.

The Paterson Parchment Paper Company,
37 Eighth Street, **Passaic, New Jersey.**



Truth to Tell

There are no other milk cans made that can equal in wearing qualities the genuine

BUHL CANS

They are tinned to stay tinned, and put together to stand years of hard service. Other cans crack easily, become dented, and being lightly tinned soon rust and go to pieces. Not so with the "Buhl Factory," "Improved Elgin" and "Genuine Iowa." They will outlast any other cans on the market, and are thoroughly and quickly cleaned, **Remember,** the Buhl is the only can in the world that is made with the **Buhl "Victor" Can Breast** and the **Buhl "Victor" Round Handle.** As there are many inferior imitations of this can, we stamp all ours with the **Milk Can Trade Mark.** Look for it. Sold by all live dealers. Ask about them, or write us direct.



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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own ight who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

COMING EVENTS.

Indiana State Dairymen's Meeting, Plymouth, Dec. 10-11, 1903.
Missouri Dairymen's Meeting, Columbia, Dec. 8-10, 1903.
Minnesota Dairymen's Association, St. James, Oct. 21-22, 1903.
New York Dairymen's Association, Ogdensburg, Dec. 8-11, 1903.
Vermont Dairymen's Association, St. Albans, Jan. 5-7, 1904.
Illinois Dairymen's Association, Greenville, Jan. 5-7, 1904.
Wisconsin Cheese Makers' Association, Milwaukee, Jan. 6-8, 1904.
Ohio Dairymen's Association, Columbus, Jan. 27-29, 1904.
Wisconsin Butter Makers' Association, Feb. 2-4, 1904.

A WISE LAWYER.

The statutes of Wisconsin relating to adulterated or unclean milk provide that exception shall be made in prosecution concerning milk that has been pasteurized. Dr. Mitchell, the former state chemist, tells a good story in this connection.

A farmer was prosecuted for adulterating his milk. The lawyer employed in his defense said to the court: "Your honor, this complaint is defective. It does not conform to the statute which makes exception of all milk which has been pasteurized, and Sir, we can prove that the cows of this defendant have been on pasture for two months."

The lawyer smiled a ghastly smile when he was shown his ignorance of the term "pasteurization."

FEED LIMITATIONS.

When a surveyor starts to run out the route for a new railroad the first thing he studies is, "the lay of the land." He knows that in a large degree he must conform to the configuration of the country. There are some things he cannot do and some that he can do. His science has its limitations. So it is with this science of dairy feeding. The primary object in the feeding of cows is the production of milk, not butter or cheese, even if these elements are what we are principally after. We will get the right idea of this matter if we always keep in mind the following principles:

(1) Milk is composed of several elements, chief of which are milk sugar, casein and butter fat.

(2) These elements are always in a certain proportion, to each other.

(3) That proportion is governed in the main by the individuality of the cow herself and not by her feed. At her birth she was given her proportion—such a percentage of casein, milk sugar and fat, and that proportion continues with slight variations, till her death.

(4) That if we wish to produce milk with an excess of butter fat, over the average, we must make it a birth question—breed for it.

(5) The cow cannot change the relative proportions of her milk to suit our convenience. All we can do with feed is to assist her to produce a larger quantity of milk of her own individual proportion.

A clear understanding of the working of these principles enables us to see what we can do and cannot do with feed.

Right here commences the scientific study—and by scientific we mean *practical*—of feeds and methods of feeding. The principle of balancing the elements of food so that the cow may be best assisted to make milk and in profitable quantity, starts here. Also the study of environment, how to promote her health and comfort, how she shall be personally treated, for all these things have an important bearing on the return in milk she will make from our feed. Right here is shown the importance of dairy intelligence over dairy ignorance. Thousands of men are ignorant of these things, or have but a very faint idea of how they operate, and they suffer very greatly in the profit of the business, by such ignorance.

Right at this point starts the consideration of the work of breeding. As we said under the 4th head, if we wish to increase the proportion of butter fat, secure richer milk, we must breed for it, for we cannot feed for it. All that we can do with feed is to increase the quantity of the milk such as it is. What the milk is the cow determines. As she is born so will she continue. If we wish her to give milk of a different proportion in its constituent elements, we must see to it that she is born in the right direction. This is the province of breeding, and it has its own limitations to study and obey.

A WORD WITH MR. CLAWSON.

The Senior editor of HOARD'S DAIRYMAN desires in this way to express his great appreciation of the valuable article written by Mr. P. Clawson of Butler Co., Ohio, found on page 722 in the issue of Sept. 18.

In this article Mr. Clawson contributes generously of his valuable experience in the growing and ensiloing of alfalfa, thus furnishing valuable data for the guidance of others on this important matter. He speaks of the great difficulty of curing it for hay. He is correct, if it is to be handled as ordinary hay is handled. But in our own experience we have been able to overcome this difficulty very considerably by the use of the cotton cloth hay caps. If alfalfa is cut and cured in the windrow and then hauled to the barn or stack, three serious difficulties are likely to occur:

(1) The hay becomes too dry if the weather is fair and sun is hot, and there results a serious loss of leaves.

(2) The first heating and sweating must take place in the mow, and this is sometimes dangerous.

(3) Alfalfa is much more valuable as a hay, if cured in the shade, by being cocked up as soon as wilted sufficient to handle well on the rake, and then covered with the hay cap.

If the weather is catchy the hay cap is doubly valuable. Our method is to cut the alfalfa as soon as the first blossoms appear. Early cutting with each crop, insures a much stronger growth to follow. Then the hay is cocked up as above described, and remains in the cock with an occasional brief opening, until it has gone through the first sweat. Care is taken to move the cocks onto fresh ground every two or three days to prevent smothering the plants under them. The present summer has been the hardest one in which to make hay, on account of wet weather, we have ever known, yet, by the use of the hay caps and methods as described, we have put in three heavy cuttings of alfalfa in good condition most of it, from 32 acres.

The cost of these cotton cloth hay caps all stringed and weighted, is only about 12 cents apiece, which is a trifling expense when we consider the valuable aid they bring in by saving the hay in good condition.

We are curious to know how Mr. Clawson gets his alfalfa ensilage out of the silo with any ease whatever, if he puts it in whole. Like clover it makes a tangled mass that holds together tenaciously, and it would seem as if when packed hard in the silo it would be a matter of much difficulty to get it loose. Will Mr. Clawson please tell us if he does not find this to be the case. If so how does he overcome the difficulty?

A MODEL MISSOURI FARM.

The spirit of dairy progress, of dairy understanding, of dairy beauty, as well as profit, is abroad in the land. It is found in the sunny South, on the Pacific coast, in rugged New England, in snowy Canada, in the great middle west: Every where that the gentle cow doth go there is the spirit that "seeketh for perfection in knowledge and deed." All this striving for better thought, better understanding, better work is a splendid feature of our civilization.

In St. Louis is published a rather unique magazine, called "Tact." In the issue of July 15th is contained a description of "how the pure milk problem has been solved for St. Louis through scientific methods by Mr. Sylvester P. Keyes," written by John G. Small. The establishment is situated at Keyes Summit, seventeen miles southwest of St. Louis. We have time to mention but a few of the features of this worthy effort to produce milk in all its purity. Mr. Keyes has expended $60,000 in this enterprise, and we are glad to know that it has met with encouraging response from the people of St. Louis.

The plant is under the superintendency of Mr. J. L. La Rowe, who is a well schooled and experienced dairyman, assisted by Mr. Archie A. Keyes, Secretary of the company, who is a graduate of the Columbia Agricultural School and a student of scientific dairying.

At present 200 cows are handled and cared for in a manner to produce the cleanest and best milk possible. The milking commences at 1:30 in the morning with 20 milkers.

First the milk is taken to the cooling room where it is twice strained and filtered and cooled, by being run through the aerator and reduced in temperature to 30 degrees. A portion of the milk is creamed, and the balance is taken to the city branch office where it is placed in bottles, packed in chipped ice and distributed to customers. When the bottles are returned they are scientifically cleaned. This means that they scrubbed with hot water, alkaline mixture and brushes, then sterilized and rinsed in filtered water. All the water used is from artesian sources. Physicians recommend this milk and cream, because it is scientifically clean.

A complete system of waterworks permeate the system. The stalls are thoroughly cleaned by washing every dav, and as much care is taken to secure ventilation and disinfection of the cow quarters as is taken to keep the milk clean.

It has been very difficult to get it into the minds and comprehension of dairymen that a cow needs as pure air as they do. Indeed, it is questionable whether they have had very clear ideas about the ventilation of their own homes and especially their sleeping rooms.

We need all over this land just such object lessons in clean, honest dairying as is presented in the Model Missouri Dairy Farm.

SHY BREEDERS.

One of the difficulties which dairymen have to contend with is the habit some very valuable cows take on of being shy breeders. They become barren and soon have to be turned over to the tender mercies of the butcher.

Wherever abortion has prevailed in a herd it is quite apt to end in barrenness, and often so with cows who have never aborted. Another potent cause of barren cows is the feeding of too much corn and other carbonaceous food. There is an intimate connection between the process of gestation and the character of the food the mother eats. Hence it has become a common saying ofttimes, concerning a barren cow, "She is too fat." On general principles fat is opposed to fertility. Then, again, gestation is a process which has to do very particularly with the nervous system, and food containing sufficient protein, which is a nerve supporting element, is necessary to put the mother in proper condition for the work of gestation. This is one of the important reasons why alfalfa is so useful a food for all breeding animals, as was witnessed by our experience with brood sows, reported recently in this paper.

Sometimes the fault of non-breeding is the fault of the male. Dairymen are quite apt to shut up their bulls and not give them sufficient exercise. This injures their breeding power. Even if such bulls cause conception, there is a lack of vigor in the offspring. It is comparatively an inexpensive thing to provide a good single tread power and train the bull when young to work this power. He may be made to run the farm separator and will at the same time take on increased vigor and sureness as a sire. It will also help greatly to humanize him, make him decent and tractable. There is nothing like plenty of work to keep men and animals out of mischief.

Every dairy farmer should be a reader and student of the breeding question. It contains laws and principles, a knowledge of which will help him greatly in the production of desirable farm stock and ofttimes save him from serious losses.

TEMPERATURE IN SHALLOW PAN CREAMING OF MILK.

But few comparatively of the people who make butter in the United States, have centrifugal separators. Their method of separating the cream is either by shallow pan, or deep setting. To such it may prove interesting to read the following statement of the difference in these methods, in furthering as complete separation of the butter fat as possible. The experiment is recorded in Prof. Dean's new book on "Canadian Dairying."

"The average of three years experiments at the Ontario Agricultural College, in which about 4,000 pounds of milk testing on average of 3.66 per cent fat, were creamed by each method, the shallow pan skim-milk contained an average of .31 per cent fat; the skimmilk from deep-setting methods contained an average of .29 per cent fat; the separator skimmilk contained an average of .09 per cent fat.

Further experiments were made to show the effect of temperature on the thoroughness of separation in the two methods of shallow pan and deep setting. Cans of milk cooled to an average temperature of 41 degrees contained two-tenths of one per cent fat, that is two-tenths of a pound in 100 lbs. of milk.

Similar cans cooled to 47 degrees gave a loss of three tenths per cent fat in the skimmilk, while lots of the same milk cooled

to 57 degrees contained 0.7 per cent fat, or over three quarters of a pound of butter in one-hundred pounds of milk."

If some of those people who think skimmilk is not worth much as a feed would find out how much fat they waste in it, perhaps they would have a higher idea of its value, commercially at least.

CITY MILK TRADE.

The city milk trade is a department of dairying peculiar in many respects. The handling of immense quantities of milk in a rapid and cleanly manner calls for conditions not found in common dairy practice. As a rule there is but little system in the methods used in handling this milk. As a city increases in size and more milk is called for, more men enter into the business, and larger quantities of milk are handled, but in no case is any one city able to guarantee the purity and healthfulness of its milk supply. There is a little good milk that brings extra prices, some milk of fair quality, and an immense amount of poor milk.

This city milk has always been a source of trouble to doctors and boards of health, and much has been written and many investigations made regarding its quality, but the actual improvement has not been great, owing to the conditions under which it is handled, and the element of politics, which always enters into any attempt at regulation, thus neutralizing to a large extent all efforts of law makers and boards of health.

Of late years there has been a general public sentiment towards a better quality of milk, and it has become so strong that even politics cannot entirely neutralize it and better city milk seems to be a coming possibility.

One of the best monographs on this subject that we have seen is Bulletin No. 46 of the United States Bureau of Animal Industry, entitled "The Milk Supply of Two Hundred Cities and Towns." This bulletin is in two parts, the first being a compilation of the laws and ordinances existing in the various cities and towns of the country, and the second contains suggestions for the improvement of the milk supply, and conditions influencing the product.

Just now, there seems to be no medium between the high-priced milk (certified milk) from a model dairy, and the general run of low priced market milk, nor a true appreciation of the fact that a good quality of milk can be produced without fine buildings, high-priced cattle and expensive methods. As the bulletin says:

"A truly 'model dairy' is one which is conducted in the best practicable manner known to science. They are not necessarily places where money has been lavishly expended for fine blooded cattle and highly adorned buildings;such places, if they are not properly conducted, are far from 'model.' But they are dairies where milk is produced and handled that is as clean and wholesome as milk can be made; the cows are in good condition, free from disease in any stage, and frequently examined by a skilled veterinarian, who removes from the herd any suspicious animals; none but wholesome feeds are used; the stable is abundantly lighted and well ventilated, often thoroughly cleaned and kept in a correct sanitary condition; the cows are kept clean and comfortable; the attendants are healthy and cleanly; all utensils are sterilized daily; great care is taken to protect the milk from contamination; the milk is promptly cooled, and it should contain less than one one-thousandth part as many bacteria as are found in much of the milk regularly sold in cities and towns."

Cleanly methods are within the reach of every milk producer and the introduction of such methods, does not necessarily call for lavish expenditure, and when the producer can be induced to practice cleanliness—common every day cleanliness, not the expensive variety—and the dealer handle the milk as a quickly perishable article should be handled, there will be an approach to a practical cleanliness that will do much sometime towards bringing about the ideal, but the last is a long distance in the future.

One of the difficulties that stand in the way of reform, is the formation of rules for milk production, by men who are largely theorists and certainly know little about the actual milk work. An excellent sample of this kind of work is found in the contract required by the Medical Milk Commission of Essex Co., N. Y., which the dairyman must sign and fulfill before supplying milk that can be endorsed by the commission. The contract consists of 68 rules and regulations, most of which are excellent, but there are some that indicate that the compiler is stronger on theory than practice. Thus under rule 22, it is agreed that the dairymen shall exclude from the herd, "any animal that was bred through consanguinity within three generations." This is evidently the result of the good old medical superstition that inbreeding with the bovine race, will always produce disease. An examination of Jersey records would prove the contrary, but the above is too well grounded in medical lore to be overthrown by facts to the contrary. The result of the rule will be to throw out a large number of valuable dairy animals, if the rule can be enforced, which is doubtful.

Under the head of feeding, is the following: "The feed and fodder shall consist only of nutritious and wholesome materials, such as grass, clover and timothy hay, whole grain, or the entire result of the *grist*." There shall not be fed * * * * * * * hulls, screenings, wet or dry brewers grains, oil meal, sour ensilage * * glucose of starch factories, any waste by-product in the treatment of grain, etc.

The above excludes corn bran, wheat bran, middlings, corn meal, malt sprouts, buckwheat middlings and all of the gluten meals and feeds and a complete non use of ensilage, since all ensilage contains acid. This is a fool theory carried to extremes, and shows that the compiler of the rules needs some practical dairy knowledge on feeds and feeding.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Customary Price of Cream.

Please advise me through HOARD'S DAIRYMAN the customary price per quart for cream delivered at private residences, that tests 20 or 21 per cent, butter fat. SUBSCRIBER.
Delaware, Ohio.

Prices vary so much in different localities, that it is impracticable to say what the customary price of cream is. At the Wisconsin Dairymen's Convention in 1902, it was stated that cream should net the farmer about 2½ cents per gallon for each per cent of butter fat it contains. One dairyman reported he was receiving, net at his railroad station, 60 cents per gallon for 25 per cent cream; and another that he was receiving 25 cents per quart for 32 per cent cream delivered to city customers. The retail price of milk should largely govern the price of cream.

A New Jersey Ration.

Will you kindly help me formulate ration for our cows, grade Jerseys, to freshen this month and next. Mixed timothy and red top hay on hand, wet beer grains $5.50 per ton; linseed meal, O. P., $32.00 per ton; cotton seed meal, $31.00 per ton; gluten feed,$28.00 per ton; corn meal, $26.50 per ton; bran in 200 lb. sacks, 23.00; per ton corn and cob meal, $22.00 per ton.

Can you give an analysis of foul meadow hay?
Bernardsville, N. J. G. W. T.

From the feeds named we should be inclined to select the wet grains and gluten feed, and as a maximum would allow about 20 lbs. of the former and 3 lbs. of the latter. Assuming that a cow would eat 20 lbs. of hay, the allowance for one day would tabulate as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
20 lbs. mixed hay	17.80	.76	9.03	.24
20 " wet grains	4.86	.78	1.86	.28
3 " gluten feed	2.70	.70	1.52	.08
Totals	25.36	2.24	12.41	.60

A cow receiving such an allowance ought to yield at least 25 lbs. of 5 per cent milk, or 30 lbs. 4 per cent milk, or 36 lbs. 3.5 per cent milk.

We are unable to find any satisfactory analysis of foul meadow hay.

A Minnesota Ration.

Would you kindly formulate a ration for milch cows, of the following named feeds: Corn ensilage, cut when corn was good roasting ears; bran, $14 per ton; shorts, $16 dried malt sprouts, $6 per ton; plenty of good corn stover; oil meal about $22. C. A. R.
Red Wing, Minn.

We are always a little suspicious of shorts, as too frequently the feed sold under this name is but little else than reground bran. If the so-called shorts are largely composed of middlings, as they really should be, we would substitute 4 lbs. for half of the bran specified below:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
15 lbs. stover	8.93	.14	2.59	.10
8 lbs. bran	7.05	1.00	3.09	.24
2 lbs. oil meal	1.82	.59	.65	.14
Totals	25.72	2.12	10.53	.69

Two Pennsylvania Ration Formulas.

Can you give me a ration for good sized cows. Have a farm, plenty of good mixed hay (clover and timothy,) corn stover and cob meal.

Gluten feed is $26; bran, $20; middlings, $25; rye distillers grain $18; cotton seed meal, $29. Also would like ration for "home" farm; plenty of good silage, German millet, corn stover and some clover hay; feed stuffs same as above; retailing milk here at 7 cts' a quart. J. B.
West Chester, Pa.

There is apparently not much to choose between the gluten feed and the rye grains at the prices named, if both are equally palatable. Sometimes these distillers grains, from lack of proper treatment, do not prove to be relished by cows, but when dried at the right time and with good judgment, they are entirely unobjectionable. The manufacturers of gluten feed seem to have brought this part of their business to such perfection that we have heard no complaint against this product for some years.

In answer to the first inquiry we suggest the following.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
15 lbs. mixed hay	12.80	.72	5.94	.24
8 lbs. corn stover	4.76	.14	2.59	.06
4 lbs. gluten feed	3.60	.93	2.03	.11
4 lbs. corn and cob meal	3.56	.26	2.52	.14
Totals	24.72	2.05	13.08	.55

For cows giving a large flow of milk it would not be amiss to add to the above, a pound of cotton seed meal and, as suggested, 6 pounds of the rye grains may be substituted for the 4 lbs. of gluten feeds.

For the "home" farm herd, we recommend trying about the same amount and proportions of grain, with say, 40 lbs. silage and all the other roughage each cow will eat without waste.

Price of Ensilage.

I want to know what the price of ensilage per ton is when ready to feed. I live six miles from a good market. C. F.
Calcutta, O.

Silage, like all other feeds, can have no fixed market or feeding value. When hay is very high in price, silage would be worth more than when hay is cheaper. Good silage contains a trifle more than one-third as much nutriment as timothy hay, as it is more easily digested, and and has the added advantage of succulence. For these reasons we think it quite within the limits of safety to say that 2½ tons of silage is the equal of one ton of hay for general feeding purposes.

Quality of Meat from Young Calves.

1. What are the cardinal points in establishing the age of a calf up to two weeks old and usually termed "Bob or Slunk?"

2. What impairs the nutrition of veal of a calf under age?

3. What are the distinguishing points on a carcass, which died a natural death and is immediately brought to market and offered for sale? Is such meat fit for food?

4. What book can you recommend for the study of meat and food inspection and where can I procure same? A. B. R.
Chicago, Ill.

We know of no points by which the age of a calf under two weeks old can be established except that in a general way the flesh lacks texture, is soft and flabby. Such flesh is by common consent considered to be improper for human food, but we know of no experiments that have been made to establish the fact. So far as we know the decision is from a theoretical rather than a practical standpoint.

The flesh of a calf that has died a natural death is yellow and the blood vessels contain coagulated blood. As there is no such a thing as "natural death" the animal in all cases, except strangulation or other violent death, having died from some disease, such meat cannot be considered wholesome or fit for human food. Of course there are exceptions, as when an animal has met with an accident that was immediately fatal.

You can probably obtain what you require by writing to the Bureau of Animal Industry, Washington, D. C.

A Herd Record in Book Form.

May I ask for a suggestion for a form of record that would be convenient and so one could find each cow's record for her milk and test,thereby giving her comparative value? Would like a record that I could use in book form. E. W. H.
Lancaster, Mass.

It is not practicable or necessary to enter in a permanent or book record all the daily details of yield of milk and test. Keep these figures on loose sheets and transfer the footings by months, to the ledger account with each cow. Our single cow record sheet was designed for just such cases. It is printed on heavy, manilla paper to withstand rough usage; has spaces for all necessary, daily details for a full month; size 6×15 inches, and sells (postpaid) 25 for 40 cents.

Allowance to Tenant for Growth of Young Stock.

Will you please tell me what would be the right price to allow a tenant next March for the growth on yearlings and calves a year. R. P. K.
Sherburne, N. Y.

It would be impossible, one would suppose, to fix any arbitrary or special price. If the animals have been fed from the undivided hay, grain and pasture of the farm, the increase in value, that is, in their market value, whether more or less, should be divided in the same proportion as other farm products.

On the contrary, if the tenant pays a cash rent, or has fed the stock at his sole expense, he would be entitled to the whole of the increased value.

Painting and Ventilating Silos.

We have built a silo 16×30 feet of white pine, with roof, stone foundation, and cement bottom; have been advised not to paint it outside. We have a preparation to paint it on the inside. What is your advice? Would you put ventilator on roof? J. F.
Dayton, Ohio.

Simply as a matter of good looks, we would advise painting, but it is doubtful whether painting will increase the life of the structure, for the reason that paint will tend to delay the drying out of the lumber, after it has absorbed the silage juices. Railroads have learned that it is not advisable to paint their bridges, for example, until the lumber has become fully seasoned and dry. But with the silo one can perhaps afford to sacrifice something to appearances, and it cannot be denied that a well painted silo is more attractive than an unpainted one.

We cannot say that a ventilator is indispensable to the silo, but there should be some means whereby the heated air and gases may escape.

Effect on the Community of Milk Condensing Factories.

We are about 30 miles from Cleveland, O., connected with the city by electric line. We have cheese factories, but the factory price is not as good as we think it should be all the time. From July 20 to Aug. 20, the price was 70 cents per hundred, deliverd at factory regardless of test.

Would a condensing factory be a benefit to us? This is claimed to be a fine location for one. One or two companies have been here looking the ground over, and we think there will be one put in if the farmers give them any encouragement. What has been the effect on the country where they are located?

The electric road has only been running about 3 years. Only a little summer milk is shipped to the city, but nearly all the winter milk. Winter dairying is only in its beginning here. R. T.
Middlefield, O.

In the "Elgin District" the condensing factories, the creameries and shipping milk to Chicago are about on an equality, so far as returns to the farmer are concerned.

In some ways the condensing establishments, with their strict rules and supervision, are a decided benefit, but on the contrary they have some very absurd notions in regard to feeding.

It would seem that one living within 30 miles of such a city as Cleveland could make it highly profitable to engage in private dairying, finding a special market at good prices for a thoroughly first-class product, either with grocers or private customers; eliminating in this way the charges and subterfuges of middle men and market manipulators.

The Need and Economic Value of Improvement in Dairy Stock.

[By GEO. H. ELLIS, West Newton, Mass.]

After I had accepted an invitation to speak before this body upon "The need and economic value of improvement in dairy stock", it occured to me to consult again the last report of the secretary of this Board, to refresh my memory as to what had been said upon the subject. I found Ex-Governor Hoard's lecture on "Dairy Economics," Dr. Twitchell's "Lesson in Economics," and Professor Colley's "Selection and Improvement of Dairy Herd,"—three admirable papers, covering almost every point which it will be possible for me to touch upon, and better than I can hope to do.

But, as most of these papers treat the matter in the abstract, I decided, at the risk of seeming personal, to use actual figures from our own experience at Wauwinet farm, which have helped us to realize the need and value of such improvement.

Our records show at a glance the number of pounds of milk given by each cow for the past six or seven years, and we are therefore able to make comparisons, not only between our own herd and other herds, but between the different animals in our own herd.

What is the average production of the average herd? Authorities pretty generally agree that in this state it is considerably less than 4,000 pounds per cow; but as this is probably an estimate only, we shall consult figures from carefully prepared statistics in HOARD'S DAIRYMAN, obtained in some of the best dairy sections in New York State.

Mr. W. H. Jenkins, a recognized authority, furnished in the DAIRYMAN for November 14, a table showing the production of 80 herds in Onondaga County, containing 852 head, with an average yearly yield of almost exactly 4,000 pounds; but one-half of these herds were fed largely on alfalfa as roughage, and therein had an advantage over us in New England, where as yet we have not made a success in growing this most valuable of clovers. The 40 herds not fed alfalfa averaged only 3,689 pounds per cow.

In the DAIRYMAN for November 21, Mr. H. H. Lyon, who is conducting an investigation at the Bainbridge creamery, prints statistics from 10 herds, containing 186 cows, with an average of 3,648 pounds per cow; and this furnishes a fairer basis for comparison, as he states the amount of grain fed, which averages only about two pounds per day less than that given to our own cows. Few, however, of these herds are fed ensilage, and therein we have an advantage.

For the purpose of this comparison, we will take the figures of our own herd for the year ending January, 1900, partly because we can make an easier division, and partly because the figures for the two succeeding years show a slight falling off from those of that year. The average of all the 160 cows in milk, or which should have been in milk, for the full year, including all heifers and all aborters, was 6,003 pounds of milk, averaging, in all of the several tests made, a little better than 5 per cent butter fat. There is a difference, then, of 2,355 pounds between the average of the 10 herds reported by Mr. Lyon and the average of our own herd, which at 1¼ cents per lb., would make $29.43 per cow.

But the difference is not less pronounced if we use only figures from our herd; for, of the 160 cows averaging 6,003 pounds, 79, or practically one-half, averaged 7,223 pounds, while the remaining 81 averaged only 4,813 pounds,—a difference of 2,410 pounds at 1¼ cents per pound, making $30.12 as actual cash value of the difference in product,—not of individual cows, but of the best half and the poorest half of our own herd, figured at a fair price at the farm; and yet the average of our poorest half is better by nearly 1000 pounds, than the other averages quoted.

Now, what is the difference in actual value between the animals classified as the "better" and the "poorer half" of our own herd? It is difficult to make an arbitrary figure, because several things enter into the computation which cannot be accurately estimated, among others, the greater liability of the larger producer to milk fever, garget and other troubles, that may take her out of our profitable list. But, assuming the average producing years to be five, the cash value of this difference in product is $150.60. Suppose we pay $50 more for the better than the poorer cow, and allow 5 per cent compound interest on this additional sum,—she would have cost us $66.90 more at the end of five years than the poorer cow, and there would still be $50 difference between a good cow and an extra good cow.

But how are we to obtain these so-called extra good cows? The only satisfactory way I know, is to raise them.

Were dealers or sellers able, as they should be, to state just the amount and quality of milk a cow had given for a full year, or for a series of years, the problem would be a different one. At a meeting of Jersey cattle breeders some years since, a man asked, in my presence, of another who had a national reputation as a breeder of fine cattle: "What do you consider the best points in buying a cow?" "I think the milk pail is a pretty good point," said he. And so it is; but do not be deceived by the cow that gives an immense quantity when fresh. The year's product is the only thing that counts when you balance the year's account.

As to the relative value of cows raised or bought, I have obtained from our books some figures that may prove interesting.

In 1901 we bought in Brighton market, on September 10 and 17, 22 cows, all grade Jerseys, and all bought, I have no hesitation in saying (as I did not buy them myself), with good judgment. They were all fresh and all promising, costing an average of $54.90 each. Our milk scales soon told us that 4 of them were unprofitable, and as soon as seemed desirable we sold them for beef, leaving 18 cows, at an average cost (allowing for the loss on 4 sold) of $61.50. These cows presumably calved in August, 1901, and I find by our records they average to be due again in December, 1902.

We had 34 heifers born between Aug. 1, 1898, and April 30, 1899, which came fresh with first calves in 1901, and it so happened that they averaged to calve in August, and they also average to be due again in December, so we have here a good basis for comparison.

The 18 cows averaged, for the eight months from Jan., to Aug. 1, 1902, 4,048 pounds of milk; the 34 heifers averaged for the same time, 4,431 pounds of milk—nearly 10 per cent more than the cows. And let it be understood these were not selected heifers. Included in this list is every heifer on the farm that came fresh for the first time during the year 1901, whether properly calving or aborting, and 4 or 5 of them did abort. Six of them had their second calves during the time covered by these figures; but eliminating them would not change the result, as all averages would remain the same. The average age of these heifers at calving was 31 months, the youngest to come fresh aborting at 21 months, and the oldest being 38 months. They were all by our own thoroughbred Jersey bulls, and most of them out of grade cows; those out of our thoroughbreds showing little, if any, above the average, either as to quantity or quality of milk.

Many of them were, of course, out of cows of our own raising, they being by our bulls out of grade cows.

Seven of the smallest milkers (mostly aborters) were not brought from Barre to the home farm, and were not therefore tested for butter fat, but the average of the other 27 was 5.05 per cent.

As to the cost of raising these heifers, I am unable to give exact figures. Realizing the necessity for raising our own stock, and appreciating the fact that to do this economically on a large scale it must be done in a good grazing country, we have established farms in Barre in Worcester county, whose hill pastures are hard to equal; but this experiment has not been carried far enough to give results, except in one particular. We lease one farm of about 200 acres, having on it a large barn, the floors of which we utilized with pens holding from 3 to 5 yearlings each, and on the product of this farm we carried last year 85 heifers and 2 bulls, at a cost practically as follows:

Rent of farm	$500.00
Cost of manuring, plowing, planting, cultivating and putting in silo 11 acres of corn	220.00
Commercial fertilizer	42.00
Putting in hay	150.00
Two thirds wages of man 200 days in winter care	150.00
One-fifth cost of silo	50.00
Additional pasture	100.00
Incidentals, say	63.50
Total	$1,275.50

Or $15 each for the 85 head, including cost of carrying 2 bulls. The items for incidentals may be a trifle small, but we had between 12 or 15 tons of hay remaining in the barn in the spring, of

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Sec. Mo. State Fair.

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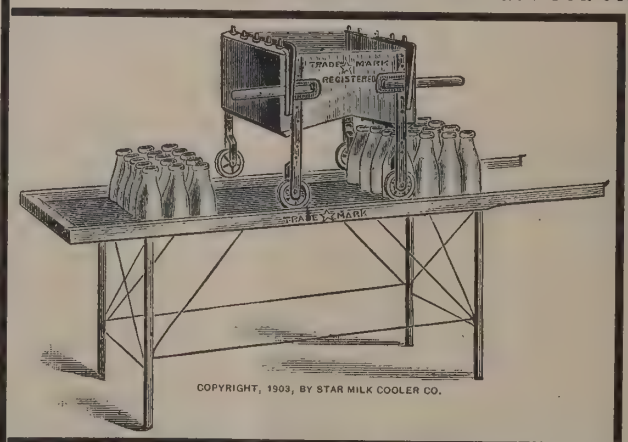
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which I have no account, and which would more than offset this.

Taking this as cost of carrying for the year, from 1 to 2 years old, what is the cost of carrying for the first year, and for the additional 7 months required to bring them to 31 months, the average age of calving? As to this, I have as yet no definite figures. The first year is, of course, most expensive, involving, as it does, more labor, and cost of milk (fresh and skimmed) and grain, to bring them up to six months old; but it is safe to say that our 34 heifers would cost us at 31 months of age not more than $40 each, against $61.50 for the cows bought.

Among the heifers are probably 5 or 6 which we shall not consider good enough to keep, but this percentage is no greater than with the cows bought; and in the comparison of figures above made I have included, as before stated, the product of every one, including those which are unprofitable, thus materially reducing the average.

Among these 18 cows, the figures of which are here included, are some good ones as well as some poor ones. There are two that gave over 10,000 pounds of milk each in ten days less than a year, between the 10th of September, 1901, and the 1st of September, 1902. The test of one of those giving over 10,000 pounds was 4.45 per cent; the test of the other was 4.62 per cent. They gave a large quantity of milk, but not so rich as our average.

Now, our breeding is not merely to decrease the first cost, but to improve the herd for production; and it goes without saying that whatever the purpose for which we are keeping our cows, thoroughbred bulls should be used, of the breed best suited for the purpose. In our case we took the Jersey for the very plain reason that we are located in a Jersey city. Newton was essentially a Jersey town in the old days, and very many were still kept there when we began this plan of supplying milk in the way we were doing; and in establishing our business, in not a few cases, we bought from proprietors their Jersey cows. Jersey milk was what these people wanted and were willing to pay for, and we have learned to supply what is wanted. If we were making it for contractors, we should not make Jersey milk, but as large a quantity of milk as we could, and maintain the standard, and we should feel that therein we had fulfilled our obligations.

In raising our calves we try to reduce the cost as far as possible, but that is not the main thing. The main thing is to keep them growing, to get strength, to get size and constitution. Our ration for our calves is sweet milk for some days; then we introduce skim milk with linseed meal, and keep before them ground oats and rowen, or good hay. When they are from two to three months old (if it is in summer) they are turned out to pasture; but the skim milk and linseed meal, and for a time some ground oats, are continued. We have raised some very good calves on very little milk, and some included in this record were so raised, using oatmeal gruel in place of skim milk. Where one can have skim milk, I should not advise gruel.

In the leased farm referred to we have not an ideal place; it has an old-fashioned barn, and we have turned all the lower floor into pens. Naturally, it is rather dark.

I hope in the near future to build entirely different barns or sheds in which to winter all our young stock. They will be long, one-story affairs, divided into sections, say about 12 feet square, in each of which I would keep 4 or 5 heifers. The building would run east and west, giving southerly exposure, and each section or pen would have plenty of windows, including one in roof and would open into an outside yard. The doors between pen and yard would never be closed, except in extremely cold and stormy weather. I have used this plan with bulls with great satisfaction, and am confident of its successful use in producing healthy, rugged stock.

If outdoor air is so essential in curing tuberculosis in human beings, as many of our best physicians now claim, it must be equally good in guarding against it, whether in men or animals. Undoubtedly the cost of raising will be somewhat increased, but, as undoubtedly, the results will warrant the expense.

[CONCLUDED NEXT WEEK.]

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Cheese as an Article of Diet.

ED. HOARD'S DAIRYMAN:—Your article, page 707, reached my table not very long after a report from a young domestic science student. In this report were several bills of fare containing "Fondu" as one article and that, the principal source of albuminoids for the meal. Naturally the cheese article arrested attention. It would seem from the statement that "one may buy cheese sandwiches in Great Britain as readily as those made with meat," as though cheese sandwiches could not be purchased readily in America. If your readers wish to test this, let them make a fair trial in any city, or country town of any size, and they will probably find that cheese sandwiches can be found or made almost any where. Crackers and cheese lunches were common and popular to our grand parents.

The cheese supply is apt to be nearly exhausted in spring, and new cheese is put on the market at a lower price than old cheese commands, in order to realize quickly on it. New cheese, or at least only partially cured cheese, is too frequently put on the market here in America, and the sale is injured from the fact that in this form it is less digestible than after it is properly cured. If only well cured, and therefore easily digestible cheese were exposed for sale it is probable the consumption of cheese would greatly increase.

When cheese finds its way into our tables in a state to "melt in the mouth" with proper mastication, it is easily digestible and cheaper than meat in most localities. This is well understood by a great many Americans who have not studied the subject in Europe, and most all of our cheesemakers know the facts. The error is made in a business way in order to realize early on the product, and we believe the cheesemaker is not the man who is responsible for the too early removal of the cheese from the curing room. We have never met a cheesemaker who would not rather keep the cheese on the shelves until fairly cured, when he knows it will be much better received than when sent out earlier.

In America we know some things that Europeans do not seem to have ever had opportunities to pick up. They are only beginning to learn of the value of American apples and as yet know nothing of the virtues of apple dumplings and apple or mince pies. Over here, however, these articles have been every day affairs and, unconsciously, perhaps, with regard to the scientific balancing of the ration, cheese began to be taken along with the pie.

With the light that is now being shed on diet from the scientific centers it would seem that this is a step in the right direction, toward the balanced ration, even if taken in small quantities. Perchance the eater has at the meal taken meat or eggs enough to supply his quota of nitrogenous food when a larger portion would be wasted or worse. As yet too few people consider these points.

However, the point made, and which we would reinforce is that more cheese could be used with less meat and less expense would be incurred since cheese is so rich in albuminoids. The writer once planned to make a bulletin on this subject and as a beginning proposed to use cheese in his own family and to write from practical experience as well as from other points of consideration.

Shim milk cheese was sought for cooked articles because richer in protein and cheaper but it could not be found readily. Imperfectly cured cheese was cooked. The object aimed at was to show that these articles could be used readily and safely, and that the expense of a really nutritious diet would be much less than with meat.

The great obstacles to be overcome are that our people are addicted to a meat diet and they are not accustomed to cheese. Thefore they like the one and do *not* like the other. This taste for one and distaste for the other at home stopped the bulletin. But the work went far enough to bring an acquaintance with cheese as a staple article of diet which has grown and the report of the bill-of-fare named at the opening of this article came from one of those who objected to cooked cheese at that time. Now it is, perhaps, a commonly selected article as a principal dish for a meal now and then, and is relished by all.

Chicago, Ill, FRANK E. EMERY.

ALL THREE FREE.

THE STRICT MILK LAWS AND THE INSPECTORS, TO SAY NOTHING OF YOUR PROFITS, MAKE PERFECT CLEANLINESS ABSOLUTELY NECESSARY. EXPERIENCE, HARD WORK AND SCIENCE, ENABLE US TO OFFER YOU THREE ARTICLES ENDORSED BY THE HIGHEST AUTHORITIES AND EXPERTS. USED AND TESTED AT AGRICULTURAL EXPERIMENT STATIONS. WE WILL SEND FREE, EXPRESS CHARGES PAID, ONE LARGE CAN "DAIRY," THE CAN AND BOTTLE CLEANER AND PURIFIER; ONE FOUR OUNCE CAN "KNO-GERM," MAKES TEN GALLONS LIQUID ODORLESS DISINFECTANT, AND ONE BOX "BRILLIANT" METAL POLISH IF YOU WANT TO TRY THE FINEST GOODS MADE FOR YOUR WORK. THE GOODS ARE FREE IF YOU SEND THIRTY-FIVE CENTS TO PAY PART OF EXPRESS CHARGES AND TO PROVE YOU ARE INTERESTED.

M. H. FAIRCHILD & BRO., 199 MICHIGAN ST., CHICAGO.

Did You Ever Keep a Record Of Your Cows?

IF SO, you have felt the need of a convenient, simple and handy Record Sheet. We have had so many requests for these Record Sheets that we concluded to get up one that would "fill the long felt want." We have a very simple and complete Record Sheet for 10 cows, one month, that is printed on heavy Manilla Paper, we can send postpaid at following prices:

Price 5c Each	6 for 20c	12 for 30c	25 for 50c

SIZE 10x16 INCHES

We also have a one cow Record Sheet, heavy Manilla paper (one month) that we will mail postpaid

Single Copy 5c	5 for 15c	10 for 25c	25 for 40c

SIZE 6x15 INCHES

HOARD'S DAIRYMAN.
FORT ATKINSON, WIS.



The Best Cooling Process

It has no peer for cream gathering, quick cooling and ventilation. Milk and water are not mixed. Undiluted sweet skim milk to feed to calves and pigs. Soon pays cost of separator. More butter, richer flavored, easier to keep clean.

Write for our catalogue with pictures and our special introductory prices. Agents wanted. Pat. May 21, 1901.

THE ARRAS CREAM SEPARATOR CO., Bluffton, Ohio

Creasey Ice Breakers



Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right.

Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.

J. S. L. WHARTON, Mfr.,
17th Clearfield Sts. Philadelphia, Pa.

FARM TELEPHONES.

BOOK FREE How to put them up; what they cost; why they save you money. All information and valuable book free. Write to J. Andrae & Sons, 193 W. Water Street, Milwaukee, Wis.



The Distribution of Skim Milk.

It is known that the just complaints of creamery patrons on account of unfair distribution of skim milk are the bane of the separator creamery business. Further disputes among patrons, annoyances to managers, hindrances to the best work of buttermakers, watering the skim milk, and many other ills in the same train are unnecessary, since the

Barber-Coleman Check Pump

has for more than five years been successfully solving the problem in many different creameries. When a patron has dropped in his check he can pump the amount of skim milk called for by his check, less the percentage taken out as cream, so in like proportion to all other checks. Its measuring apparatus is just an ordinary pump which everyone understands and knows how to operate.

Cornish, Curtis & Greene Mfg. Co.,

General Sales Agents De Laval Alpha Separators,
FORT ATKINSON, WIS.

If wise old Solomon, twenty-eight hundred and fifty years ago, and twenty-four centuries before Gutenberg made the production and multiplication of books relatively cheap and easy, in the bitterness of his despair was led to exclaim: "Of making many books there is no end," how much more may we, in this twentieth century, lament that there is neither time nor strength to go through the accumulating thousands of publications that have to do with the one division of agriculture to which Hoard's Dairyman is specifically devoted. We do the best we can to keep abreast of the times, both by original research and careful scanning of the books, bulletins, pamphlets and other publications that come from the fecund presses of Europe and America. Much of this reading matter, we regret to say, when not fatally misleading, is practically worthless, and excuses in a degree the contempt so many dairymen have for book farming. But when the winnowing process is completed, when the chaff and foul seeds have been eliminated, there remains not a little that is helpful and stimulating. From time to time we transfer the best of this to our columns, generally much condensed, but seldom anything more unreservedly to be commended to the studious consideration of our readers, and especially to those who have not been as successful with cows as they would like to be, than the article on "The Need and Economic Value of Improvement in Dairy Stock," a paper prepared and read by Mr. Geo. H. Ellis, at the Public Winter Meeting of the Massachusetts Board of Agriculture last December and copied from the Fiftieth Annual Report of that Board.

Mr. Ellis is one of the prominent and successful business men of the city of Boston, whose home is at West Newton, where he owns twenty-five acres of land which is called "Wauwinet Farm." Some 12 or 13 years ago he was selling eighteen quarts of milk daily to his neighbors. The quality of this milk, both for fat content and freedom from dirt and bacteria, was such that there was a constantly increasing demand, and being the shrewd business man that he was, he continued, as he was able, to supply this demand and at the same time produce the milk at the least practicable cost. Additional land, some of it vacant city lots and blocks, and some of it as far away as fifteen miles, was rented, and other land purchased, until at the present time the active dairy herd numbers 160 cows in milk.

Mr. Geo. T. VanNorman, an occasional correspondent of the Dairyman, is the resident superintendent, but, as will be seen by reading the article, Mr. Ellis himself is the general manager and every detail feels the impress of his management. What Mr. Ellis has to say, therefore, is founded on the business man's theory that every dollar invested and every dollar expended must return a satisfactory cash income. He has theories. He has been a student as well as a reader of Hoard's Dairyman, but for the occasion he confined himself to the concrete facts as they had developed among his own cows and on the land where they were cared for and fed.

It needs no apology from us for transferring Mr. Ellis' paper, and the discussion which followed, to our columns, notwithstanding the extra space required to print it in full. We give a part only in this issue and the balance will follow next week, and, unless we greatly misjudge, some tens of thousands of our readers will so far profit from its careful perusal as to adopt the principles, and as far as they can, the methods which have made Wauwinet Farm and its dairy as profitable as they are exceptional.

One Hundred Per Cent Gain in Five Years.

A Vermont Report of Progress.—Suggestions for Ration Requested.

Ed. Hoard's Dairyman:—Please give me balanced ration for my cows; price of feed as follows: Have plenty of good ensilage and mixed hay, also some oat hay; corn meal, $1.25; gluten, $1.60; gluten feed, $1.40; distillers grain (Ajax flakes) guaranteed 34 to 36% protein, 12 to 14% fat, $1 45; mixed feed, $1.20; bran, $1.10 per hundred weight.

My cows will weigh from 800 to 1,000 lbs.; will be all new milch except one and are capable of giving from 20 to 35 lbs. of milk per day.

I greatly appreciate your paper and have learned many things from it.

My dairy is not large, but last year I put in a round silo, finding the main points of its construction in the Dairyman. Am well satisfied with the results. I would say to all who build round silos, to spike them together as Buff Jersey says.

I started on the road as a dairyman five years ago and received $35 per cow, last year $72, and now have some promising half-blood Holsteins and expect our little scrub dairy to keep improving.

Bradfort, Vt. G. W. E.

It is a good deal like "carrying coals to Newcastle" to offer suggestions for feeding cows to a man who has brought up the annual average income per cow from $35 to $72 in five years. We do not hesitate, however, to advise feeding the silage so sparingly, if possible, as to have a fair amount left over for use next summer when the pastures begin to fail. It follows that when the allowance of silage is cut down, there must be a corresponding increase in the amount of hay fed, estimating 2½ lbs. of silage the equivalent of 1 lb. of hay. In addition to the silage and hay, we should expect to feed an average of about 8 lbs. of grain, and would make half of this out of the dried grains, if they prove to be entirely palatable. Otherwise, substitute the gluten feed. The balance may be made up of ground corn and bran. And, equally important, do not omit the daily allowance of salt.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Our Special Elgin Letter.

Ed. Hoard's Dairyman:—The Quotation Commitee reported the official market steady at 20½ cents which means a cut of one cent.

Former markets:

Sept. 28, '03, 135 tubs, 21½ cents.
Oct. 6, '02, 40 tubs, 22½ cents.
Oct. 7, 'or no sales, 22 cents.
Oct. 8, '00, no sales, 20½ cents.
Oct. 9, '99, no sales, 23½ cents.

Output for the Elgin district, 690,500 pounds.

Offerings.	*Tubs.*	*Asked.*	*Bid.*	*Sold.*
Ashton	35		20½	Kilbourne
Dundee	60		20½	Kilbourne
Harvard	40	20½		

Oct. 5, '03. H. C. B.

DAIRY MARKETS.

ELGIN, Ill., Oct. 5—Butter declined a cent a pound, on the Board of Trade, this afternoon, selling at 20½c. Sales in the district for the week were 690,500 lbs.

CHICAGO, Ill., Oct. 7—Butter—Easy; creameries, 16@20½c; dairies, 14½@19c.

Cheese—Firm, Daisies, 11½c; Twins, 11c; Young Americas, 11½c.

Eggs—Easy; at mark, cases included, 18@19c.

Cattle—Choice to fancy beeves, 1,200 to 1,500 lbs., 5.60@5.90; good to choice steers, 5.00@5.50; fair to good export and shipping steers, 4.50@4.90; medium beef steers, 4.20@4.35; plain beef steers 3.80@4.15; common to rough, 1.000 to 1,200 lbs. 3.40@3.75; good to choice, fat heifers, 3.85@4 35; good to choice feeders, 3.30@4.15; good to plain stockers and feeders, 2.10@3.30; fair to good cows and heifers, 2.90@4.00; good cutting and fair beef cows, 2.10@2.75; common to good canning cows, 1.30@2.00; bulls, poor to choice, 2.50@4.25; calves, choice to fancy, 6.25@7.25; calves, common to fair, 3.00@6.00: corn-fed western steers, 4.00@5.30; Texas bulls and grass steers, 2.90@3.85; Texas steers, fair to choice, 3.50@4.40; western range steers, 3.10@4.40.

Hogs—Good to choice heavy shipping, 5.85@6.15; fair to choice heavy packing, 5.50@5.85; rough and common heavy mixed, 5.30@5.45; assorted light, 150 to 195 lbs., 6.15@6.50; good to choice butcher weights, 6.20@6.40; poor to choice light mixed, 5.90@6.15; thin to choice, 50 to 130 lb pigs 5.00@6.20; stags and rough lots, 3.25@5.25.

MILWAUKEE, Wis., Oct. 5.—Butter—Creamery—extras, 21½c; firsts, 19@20c; seconds, 17@18c; whey. 12c; Dairy, fancy, 18c; lines, fresh, 15@16c; packing, stock 13½@14c; grease, 5@6c.

Cheese—American, full cream — Twins, 11@11c½; Young Americas, 12@12½c: Daisies, 12@12½c; Longhorns, 12@12½c; low grades, 8@10c; Brick, fancy, 8½@9c; low grades, 6@7c; Limburger—Fancy, 8½@9c; off goods, 5@7c; Swiss, old, drum, choice, 12@12½c; drum, No. 2, 10@11c; Block, choice, 11@11½c; block No, 2, 9@10c. Receipts for the week, 153,590 lbs.; preceding week, 152,643 lbs.

Eggs—Strictly fresh laid, loss off, cases returned, 19c; at mark 17½@18c; dirties and second 16c; checks, 14c.

FOND DU LAC, Wis., Oct. 5—Cheese—Sales of cheese today were 225 Twins at 10¾c; 80 at 10⅞c; 814 Daisies, at 11½c; Market active.

WEDNESDAY and THURSDAY

OCT. 14 AND 15

The undersigned well known breeders will sell at PUBLIC AUCTION to the Highest Bidder

150 HEAD

Of Registered Holstein-Friesian Cattle, consisting of Cows, Heifers and Bulls of rich and fashionable breeding. In this offering are cows bred to and sired by De Kol 2nd's Paul De Kol, Beryl Wayne De Kol Paul, Lilith Pauline Ke Kol's Count, Alta Posch's Son, Lord Netherland De Kol, Soldene Clothilde Artis, and Sandes De Kol Burke. Many A. R. O. Cows and Heifers, among them being Mulvie Pauline De Kol 23.09 lbs., Aaggie Ideal De Kol 20.09 lbs. at 4 years, Lucy Alexander De Kol 17.75 lbs. at 3 years.

The best time to buy cattle in the east is in the fall. Western breeders will do well to avail themselves of this grand opportunity to buy first class stock at their own price.

Fulton is 45 minutes ride from Syracuse on N. Y. C. & H. R. R., and D. L. & W. R. R.; 20 minutes ride from Oswego on N. Y. C. & H. R. R.; N. Y. O. & W. R. R., aud D. L. & W. R. R. Free lunch will be served each day to all attending the sale.

EVERYBODY COME

CONTRIBUTORS—Irwin Langworthy, South Brookfield, N. Y.; E. C. Brill, Poughquay, N. Y.; Fred Dixon, Sennett, N. Y.; John C. Godfrey, Fulton, N. Y. Write for Catalogue October 1st. Address

John C. Godfrey, R. F. D. 3, Fulton, N. Y.

AUCTIONEERS—B. V. Kelley, Syracuse, N. Y., and W. P. Sherman, New York.

Holstein-Friesian Breeders Third Semi-Annual Consignment Auction Sale
414 South Clinton Street, Syracuse, N. Y.,

WEDNESDAY, OCT. 28th., 1903

I am instructed by the following well known breeders to catalogue and sell on the above date one of the most selected and choice lots of Holstein-Friesian Cattle ever yet offered to the public, consisting of cows and heifers with A. R. O. butter records ranging up to and over 21 lbs. each. Young bulls, cows and heifers whose dams have A. R. O. butter tests ranging up to 25 lbs. These choice females and several others bred to such noted bulls as Mercedes Julip's Pietertje Paul, Beryl Wayne's Paul De Kol, De Kol 2nd's Butter Boy 3rd., Mutual Friend 3rd's Paul, Johanna Rue 3rd's Lad and Sir Korndyke Manor De Kol. The contributors are A. A. Cortelyou, Neshanic, N. J.; F. P. Knowles, Worcester, Mass.; T. A. Mitchell, Weedsport, N. Y.; H. L. Bronson, Cortland, N. Y.; Stevens Bros., Lacona, N. Y.; H. A. Moyer, Syracuse, N. Y. Communications and applications for catalogues, which are now ready, can be addressed to either of the contributors, or

W. C. HUNT, Sales Manager, Liverpool, N. Y.

The above breeders will hold their next Auction Sale on the New York State Fair Grounds, Syracuse, June 2 and 3, 1904, the two days following the next annual meeting of the Holstein-Friesian Association. This will be made a regular annual event.

The Ohio Dairy School

Is the name given to a Special Winter Term's Course in Dairying at the **OHIO STATE UNIVERSITY.** This course has recently been extended and improved. A handsome Illustrated Bulletin which tells all about it will be mailed free.

THE CLASS IS LIMITED TO FIFTY

Those wishing longer courses of dairy work can find them here.

A group of students have entered this fall to take Special Dairy Studies during the College Year of Nine Months. Address

PROF. JOHN W. DECKER

Townshend Hall, O. S. U., Columbus, Ohio



Only One Hand

needed to stanchion Cattle if you have our

Steel Latch Stanchion

When open is locked ready for cattle to come in; closed, it swings freely. Best dairy cattle tie because comfortable and quiet; gives greatest freedom. Made of selected hardwood oil finished. We are the sole manufacturers. Write now for circulars and delivered prices.

TOLEDO PLOW CO., Dept. H, TOLEDO, OHIO.

FREE SAMPLES READY

First, Second and Third Highest Scores at Iowa State Fair, three of the four highest scoring tubs at the Minnesota State Fair; five highest scoring tubs of butter at the Ames contest for June; three highest scoring tubs at Lake Crystal, Minn., and first and second at Interstate Fair at Sioux City, Ia., made with the O. DOUGLASS BOSTON BUTTER CULTURE. Samples and instructions free. **O. DOUGLASS.**

Treasurer, 26 John St., Boston, Mass.

PLYMOUTH Wis., Sept. 29—Cheese—Twenty-seven factories offered 2,999 boxes of cheese and all but 40 Twins sold as follows. 680 Longhorns at 11⅝c; 1,097 Daisies, at 11⅝c; 475 at 11¾c; 184 Twins at 11c; 75 at 10⅞c; 423 Young Americas at 11c; 24 at 11¼c. Market active and firm.

MUSCODA, Wis. Sept. 26—Cheese—The sales today were: 40 boxes Twins, 11c; 80 at 10¼c; 33 double Daisies at 10¾c; 80 Twins were withdrawn.

BRILLION, Wis., Sept. 24—Cheese—Sales to-day were: 279 Twins at 11⅛c; 726 Daisies at 11⅜c; 33 cases Young Americas at 11¼c; and 100 Cheddars at 11c.

MANITOWOC, Wis., Sept. 30—Cheese—1,900 boxes Twins 10¼c; 950 boxes Young Americas, 11c; 1,550 boxes Daisies, 11¼c.

SHEBOYGAN, Wis., Sept. 30 — Cheese—On the call Board here to-day 2,222 boxes of cheese were offered and sold as follows: 190 Daisies at 11⅝c; 911 daisies at 11¼c; 413 Young Americas at 11⅛c; 708 Longhorns at 11⅛c. Market steady.

SHEBOYGAN FALLS, Wis., Sept. 30—Cheese—18 factories offered 1,659 boxes of cheese on the Call Board today and all except 88 cases of Longhorns sold as follows: 495 cases Young Americas at 11⅛c; 202 Daisies at 11⅛c; 138 cases Longhorns at 11⅜c and 736 at 11⅛c. Market steady and firm.

MARSHFIELD, Wis., Sept. 25—Cheese—Thirteen factories offered 1,634 boxes of cheese, all of which were sold as follows: 730 Twins at 10⅞c; 285 at 11c; 369 Daisies at 11⅛c; and 230 at 11⅞c. Market strong.

WASHINGTON, D. C. Oct. 5.—Butter—Market firm. Extras, 22½c.; choice firsts, 21½c; renovated, 17c.

PHILADELPHIA, Pa., Oct. 5—Butter—Dull and ½@1c lower; extra western creamery, 20½c; near by prints 21c.

Cheese—Quiet but firm; New York full creams, fancy, 12¼c; choice, 12¼c; fair to good, 11¾@12c.

Eggs—Steady, fair demand; fresh nearby, 25c; loss off; western, 23@24c; southwestern, 21½@22c; southern, 20@21c.

NEW ORLEANS, La., Oct. 5—Butter—Market easy; extras, 22c.

Eggs 21c.

NEWARK, N. J., Sept. 5—Butter — Market weak at 20c.

Eggs—Firsts, 23c.

BOSTON, Mass. Oct. 5. —Butter—Creamery, western extra, 20½@21½c; western firsts, 18½@19½c; dairy, 14½@20½c; imitation creamery, 16c; ladle, 14@15½c; box and print, 16@22c.

Cheese—Choice, 11@12¼c; Wisconsin, Twins, 11@12¼c; Ohio, flat, 10½@11c.

Eggs—Nearby, 32c; western selected, 23@24c; poor to fair, 17@18c; Illinois, 20@21c.

KANSAS CITY, Oct. 5— Butter — Creamery, 18½@19½c; dairy, fancy, 17c.

Eggs—Steady; Missouri and Kansas, cases returned, 17½c; new No. 2 white wood cases included, 18c.

ST. LOUIS, Oct. 5—Butter—Steady; creamery, 22@22¼c; dairy, 17@18c.

Eggs—19c, loss off.

TOPEKA, Kan., Oct. 3—Butter—Creamery butter 21@22c; dairy butter 17@18c.

Cheese—Longhorns, 11¾c; Daisy Twins 11½c; Daisies, 11¾c; Prints, 12¼c.

LIVERPOOL, Oct. 5 — Butter—Good United States nominal.

Cheese—Strong, American finest white, 55s 6d; colored, 56s 6d.

CANTON, N. Y., Oct. 3 —Cheese—Offered 1,874 boxes of Twin cheese, 1,057 tubs of butter. Cheese sold at 11⅝c; butter, 21½c.

UTICA, N. Y., Oct. 5— 72 lots of 5,000 boxes sold for 11½c, all sizes and colors. Market quiet, prices normal.

WATERTOWN, N. Y., Oct. 5—Cheese—Sales 3,000: 11⅜@11¾c for large and small; 11½@11⅝c for Twins.

NEW YORK N. Y., Oct. 5—Butter—Receipts, 8,201 pkgs.; market steady; state dairy. 15@19c; extra creamery, 20c; common to choice. 16@19½c.

Cheese—Receipts 3,538 pkgs.; market steady; state full cream, fancy small colored, 12¼c: small white, 12¼c; large colored, 12c; large white, 12c.

Eggs—Receipts, 8,161 pkgs.; market unsettled. State and Pennsylvania, fancy mixed, 25@26c; state and Pensylvania seconds to firsts 21@24; western extras, 25c; western thirds to seconds, 18@22c; western firsts 23@24c; refrigerated, 19@21c.

BALTIMORE MARKET.

BALTIMORE, Md., Oct. 1.—Butter—There is little if any change to note in the condition of the butter market since our last report. The receipts of creamery, while gradually on the decrease are equally as large as could be expected at this time of the year; the demand just at the present is confined principally to local consumption, which by the way continues very good, particularly for extras and fine firsts. There has also been fair demand from out-of-town buyers and strange to say their orders are always confined to the finest grade of creameries: hence, the receipts of extras and firsts are kept well cleaned up, while the under grades are working out rather slowly at irregular values. All offerings of choice to fancy imitations meet quick sale. Ladles—The supply is fully equal to the requiremeuts. Packing stock—All fresh sweet arrivals meet ready sale, while rancid and cheesy lots are slighted and have to be sold, in many instances, at reduced prices in order to induce buyers to take hold. Prints and blocks—The varied offerings are fuliy equal to, if not in excess of, the demand. The general market, while not over-active, closes in good shape and firm on all desirable stock.

Creamery Separator, extras, 22@22¼c: firsts, 21 21¼c: seconds, 19@20c. Imitation Creamery, extras, 20c; firsts, 18@19c; seconds, 15@17c. Iowa & N. W. Ladle, extras, 17c; firsts, 15¼@16c; seconds, 14@15c; Ohio & Indiana Ladle, extras, 16½c; firsts, 15@16c; seconds, 13@14c¼. Ohio Store-packed, Firsts, @13c; Seconds, 12@12½c; W. Va. store packed firsts, @13c; seconds. 12@12½c. Creamery blocks (2 lbs.) extras, @24c: firsts, 21½@22c; seconds, 19@21c. Creamery prints(¼ lb.) extras, 24¼c; firsts, 23@24c; seconds 19@22c. Md. Va. & Pa. prints, extras, 22@23c; firsts, 20@21c; seconds, 18@19c. Renovated Butter, extras, 18c: firsts, 17c; seconds, 15@16c.

Eggs—Although the market has ruled firm ever since our last issue and the receipts of so-called fresh eggs have been rather light, the supply has been about equal to the demand at 25 cents. For the simple fact that the existing high prices have retarded the sales no little, a great many of our dealers are working exclusively on fancy storage stock, which they claim is giving good satisfaction. There is a vast difference between strictly fresh and so-called fresh, but it seems to be quite difficult to convince some shippers of the fact, but the sooner they become convinced the better it will be for them.

301 Exchange Place. G. M. LAMB & BROS.

NEW YORK MARKET.

NEW YORK, Oct. 3—Butter—Receipts for the week, 47,737 packages.

Exports for the week, 1,759 packages.

Arrivals are largely in excess of last year, and while we are having a good, healthy trade from all quarters, prices were marked down a half cent on extra goods and at the close there were free offerings and prices in buyers' favor. New York dairy butter in very light supply, finest tubs selling at 20c; poor to good lots at 16 to 18c. Ladle butter is quiet, but holders are firm. We quote:

Creamery, fresh, extra, 21c; medium, 20@21c; poor, 15@19c. Creamery, freezer, extra, 21c; medium, 19@20c. Dairy, extra, 20c; medium, 17@19c; poor, 14@16c. Ladle, extra, 17@18c; medium, 15@16c; poor, 14@16c. Renovated, extra, 18c; medium, 15@16c; poor, 13@14c.

Cheese—Receipts for the week, 38,249 boxes. Exports, 8,397 boxes.

Our market is just the reverse of last week; then trade was active. prices advancing, and stocks well cleaned; this week there were plenty of offerings of all grades cheese and large parcels are going over unsold, although receivers were willing to shade prices to be quit of stock. Skims suffered most and were hardly salable at any reasonable price. We quote:

Full Cream, extra, 12@12¼c; medium, 11@11¾c; poor, 9@10c.

Eggs—Receipts for the week, 44,585 cases.

New laid eggs are scarce and wanted at outside quotations, and all good, sweet, useful stock is in fair demand and prices in buyers' favor. We quote:

New York & Penn., finest new laid, per doz. 27
Northern & Western, finest, new laid, 25@26c; all sections, poor to good, 18@24c.

177 Chambers St. DAVID W. LEWIS & CO

NEW YORK FERTILIZER MARKET.

Acid phosphate	60	@	67½
Phosphate rock, f. o. b. Char'n	5 00	@	7 00
Tenn	3 00	@	4 00
Bones, rough ₱ ton	17 00	@	18 00
ground	21 50	@	22 00
Bone meal	22 00		24 00
Bone black, refuse	19 00	@	19 50
Potash, dbl. m're salt 48@53 per cent	1 12	@	1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons	25 00	@	30 00
sulph of basis, 90@98 per cent	2 11	@	2 18
90@98 per cent less than 25 tons	38 00	@	40 00
Potash muriate ₱ 100 lbs.	1 83	@	1 95
less than 25 tons	36 00	@	40 00
Kainit 25% S. of P. ₱ ton	9 30	@	9 50
less than 25 tons	9 50	@	10 50
Sylvinit, 35@37% P ₱ unit	41	@	46
Nitrate of soda	2 10	@	2 15
Blood, Dried red ₱ unit	2 55	@	2 60
low grade	—	@	—
Concentrated tankage	15 00	@	16 00
Fish guano, dried	25 00	@	25 25
acidulated	23 00	@	23 50

PRIZE WINNING BUTTER

De Laval Made as Usual

The reports from the different State Fairs now being held show the almost universal use of DE LAVAL machines in the making of the very finest quality of butter, just as for fifteen years past.

A few of the most important returns received within a few days are:

NEW YORK —E. F. ROWLEY, Kennedy, N. Y., - - 98%
IOWA— — —C. D. ELDER, Manchester, Iowa, - 98¾%
WISCONSIN —A. V. GROW, Whitewater, Wis., - - 98½%
MINNESOTA—L. LOHNBAKKEN, Butternut, Minn., - 97¾%
SIOUX CITY—M. Sondergaard, Hutchinson, Minn., 98¾%

The separator does not make the butter but it has much to do with the condition in which the cream goes to the buttermaker, and it is in this, as in every other feature of separator practicability, that the DE LAVAL machines are so markedly superior.

A DE LAVAL catalogue—to be had for the asking—will make plain the difference between separators.

The De Laval Separator Co.,

Randolph & Canal Sts., CHICAGO.
1213 Filbert Street, PHILADELPHIA.
9 & 11 Drumm St., SAN FRANCISCO.

General Offices: 74 CORTLANDT STREET, NEW YORK.

121 Youville Square, MONTREAL.
75 and 77 York St., TORONTO.
248 McDermot Avenue, WINNEPEG.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—A three-horse Smalley Tread Power in good condition. The above will be sold cheap to make place for larger machinery. W. D. HOARD, Fort Atkinson, Wis. 20-tf.

For Sale—Good cheese factory and machinery in Outagamie county, Wis. 6000 lbs. milk daily. Inquire of FRED HADLER, Route 3, Appleton, Wis. 30-tf.

Process Butter—Complete factory with engine and separator and tanks and a good live business for sale at a bargain. Low rent. Part cash and part time. Good reason for selling. This is a money maker. Write us. CLOVER LEAF BUTTER CO., 16 W. Mo. Av., Kansas City, Mo.

For Sale—Thirty head of high grade Holstein heifers, some nearly full bloods, from six months to two years old, will be sold cheap if taken soon. G. B. SWEARINGEN, Welcome, Minn.

Wanted—All round farm and dairy hand at once. L. E. MAHAN, Malcolm, Neb.

Wanted—Position by butter maker of 14 years experience. Best of references. Wages $45.00 per month. Wish to leave this state. CHAS. JENKINS, Carthage, Ind.

Wanted—Position in a first-class creamery or dairy. Am a graduate from the dairy course at the Michigan Agricultural College. State wages paid. Address A. C. DIGBY, Rushton, Mich.

For Sale—Yearling Jersey bull, registered, bred in the richest butter lines. Price low quality considered. A. F. PIERCE, Winchester, N. H.

Wanted—Two men for stock farm. Must be sober and industrious. One must be competent to run separators and understand feeding and caring for cows. Farm one mile from Grand Forks Buildings first-class and everything convenient. If you want a permanent position write J. D. BACON, Grand Forks, N. D.

Guernsey Bulls for Sale—I have a few young Guernsey Bulls for sale at Moderate price, ranging from six months to one year old. These animals are from highly bred sires and mothers of good size and well reared. Good bargains here. W. D. HOARD, Fort Atkinson. Wis. 30-tf

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

For Sale—Young bull fit for service, sired by Recorder 29239 and tested dam 16 lbs. 2 oz. Sold at a sacrifice. JOS. KARELS, Big Stone, S. D., R. 1 30-tf

The Third Revised Edition of Buff Jersey's Popular Book Just Out of Press—Ten chapters, 25 illustrations and right up-to-date. Subjects treated are: Silos and Ensilage, All Phases of the Dairy Subject, Soil Crops, Up-to-date Farm Machinery, How to Cure Abortion and Milk Fever, Seme Medicines and Remedies, The Steam Plant, its care, and many other valuable things ably treated. Send for circular. Sent post paid, cloth binding $1.00, paper ,75c. BUFF JERSEY, Monmouth. Ill. 47-tf

Holstein-Friesians — Registered cows and heifers, singly or by carload. Also bulls 1 month old to service age. Richest blood of the breed. KNAPP & PIERCE, East Claridon, Ohio. 33-5

For Sale—One carload of Jersey cows. Thoroughbreds and grades; also a few Holsteins. For particulars and specifications address BYRON PARSONS, Havana, N. D. 35-4

For Sale—480 acres, 200 level, 160 acres Gov' land can be added by using homestead right, making 640 acres in one piece. A well equipped dairy of 30 cows, with gas engine; 40 acres fine grove, plenty water in grove. Good buildings, very rich soil; called the finest outfit in the county. Will give possession any day and give ones own time to pay for last half if ten years; terms at 6 per cent. I mean business. $9600 is the price, you will say it is worth $14000. Address F. A. I. R., care of Hoard's Dairyman. 30-tf

Wanted—A Canadian Agricultural College graduate seeks position as manager of medium sized, up-to-date stock or dairy farm in good locality. Have spent terms on best farms in Ontario, Canada. 28 years of age. Address "Canadian" % HOARD'S DAIRYMAN, Fort Atkinson, Wis. 34-2

Herdsman Wanted—Who understands care and handling of thoroughbred Holsteins as well as rearing of young stock. Single men only need apply. State wages and experience. Steady place for right party. Address A. J. DAUGHERITY, Streater, Ill. 34-tf

For Sale—In car-load lots, fresh milch cows, 8 Springers. E. M. BOURNE, Wiota, Iowa. 34-2

For Sale—A cheese factory in good dairy country. Doing good business. No opposition, (cheap.) Address S. O. U., care Hoard's Dairyman. 34-tf

For Sale—Two registered yearling Guernsey bulls. RAY BICKNELL, Ft. Atkinson, Wis. 32-tf

Wanted—An experienced, steady, working farmer on grain and stock farm in Wisconsin. Wife to board a few men at $13.00 per month, Fine dwelling house and garden spot, free. Wages to start, $35 00 per month. Address S. Y., care Hoard's Dairyman. 35-tf

For Sale—Fifteen head of unregistered but pure bred Cheviot sheep. Farmer's prices. H. C. BECKMAN, Brunswick, Ind.

Cheese Maker Wanted—One of experience and ability. Address O. FOURDOT, Reedsburg, Wis.

Wanted—A capable man to take charge of a 275 acre dairy and fruit farm, on shares or salary. WALTER E. WARD, Albany, N. Y. 35-3

For Sale—Grade Guernsey heifer five months old. Price $20.00. S. C. REES, Kokomo, Ind.

For Sale, Cheap—1 registered Holstein-Friesian bull 2 years old, kind and sure, son of Royal Paul DeKol Perfection, and a grandson of above sire 4 months old. Price $60 00 and $25.00 respectively. GRANVILLE STOCK FARM, Box 462, Sherburne, N. Y. 35-tf

Proposition—($65,000 made in 7 months.) I can give a few parties who can secure $500 to $2,000, a very paying business, choice locality. I have an article or machine, valuable to all farmers and stock raisers. With the help of three farmers I made clear, over $65,000 in seven months. Sales in one county, $12,360. The like never before known. Call in person. I pay half car fare whether you invest or not, and give best bank references. Fairness to all. For particulars address W. C. HUNT, Village Farm, Liverpool, N. Y.

For Sale—Creamery plant doing fine business, with rooms for family; large barn; in beautiful valley with high school and in best dairy district on Puget Sound. Price $2,300 cash. Address E. I. THOMPSON, Everson, Wash. 35-4

Very Low Rates to Kansas City, Mo.—Via the North-Western Line. Excursion tickets will be sold Oct. 16 to 21, inclusive, with very favorable return limits, on account of American Royal Live Stock Exhibition. Apply to agents Chicago & North-Western R'y. 35-2

Excursion Tickets to St. Paul and Minneapolis and Return—Will be sold by the North-Western Line daily until Nov. 30, 1903, from Fort Atkinson at $14.00 for the round trip, limited to return until Dec. 15, 1903. Apply to agents Chicago & North-Western R'y. 35-8

Chicago the Wonderful. The International Live Stock Exposition, One of the Features of the City and the Greatest Exhibition of its Kind in the World—Chicago no sooner gets the Centennial Celebration of the past week out of the way, than she begins to consider means for making the International Live Stock Exposition, to be held this fall, better than any ever held in the past. This, for Chicago, is not difficult to accomplish, for over $33,000,000 of live stock was handled at the Union Stock Yards last year, almost three hundred thousand car loads of live stock being received at the Chicago market during this period. This makes the city one of the greatest live stock centers in the world.

The International Live Stock Exposition has been an educational agency of the greatest value to those who have visited the show in recent years from the cattle ranges and feeding grounds of the west. These sources of supply are placed within easy reach of the city by such trunk lines of railway as the Chicago & North Western, which brings to Chicago each year 70,000 carloads of live stock, raised and fed in the territory it reaches. The people living in this rich agricultural region, tributary to Chicago, are evincing each year more interest in the betterment of their stock. The exhibition at the Union Stock Yards during the International Exposition this fall will be one of the most notable ever seen, and its chief value will be along educational lines, looking to the improving of breeds and raising of standards, which means just so much more money in the pockets of the producer.

Full particulars as to the program of the International together with announcement of low railway rates via the North-Western line will appear later.

Very Low Rates to San Francisco and Los Angeles, Cal.—Via the North-Western Line. Excursion tickets will be sold Oct. 8 to 17, inclusive, with very favorable return limits, on account of convention of American Bankers' Association. Apply to agents Chicago & North-Western Ry. 33-4

Homeseekers' Excursions to the Northwest, West and Southwest, and Colonist Low Rates West—Via the North-Western Line. Excursion tickets at greatly reduced rates are on sale to the territory indicated above. Standard and Tourist Sleeping Cars, Free Reclining Chair Cars and "The Best of Everything." For dates of sale and full particulars apply to agents Chicago & North-Western Ry. 53-sp

Very Low Rates to Detroit, Mich.—Via the North-Western Line. Excursion tickets will be sold Oct. 14 to 17, inclusive, with very favorable return limits, on account of Christian Church National Conventions. Apply to agents Chicago & North-Western R'y. 35-2

Answers to Dairy Questions by Prof. Farrington.

(Continued from page 771)

ing the samples by forcing it into the milk in the weighing can so that the tube fills to just the height of the milk in the can is theoretically a more accurate way of sampling than by simply dipping with a small tin cup. You can probably get a milk thief or sampling tube from the dealers in creamery supplies, and I am sure you will find it to be entirely satisfactory.

STARTING A CO-OPERATIVE CREAMERY.

"The farmers in this community are about to organize a co-operative creamery which is to consist of one skimming station with a capacity of 3,000 pounds per hour and a full creamery with a capacity of 3,000 pounds per hour, the latter to be fitted with machinery large enough to handle the milk of both places. Will you give me some idea of how much the machinery will cost, the size of building required and what company you would recommend us to deal with? A man is around here trying to sell stock to start a creamery, and any advice you can give us will be thankfully received as this is a new venture for us. He wants us to raise $4,000.00, but I think he is about $1,000 too high. What is the smallest amount of milk per day that a creamery can profitably handle at 3 cents a pound for making the butter?

Mt. Morris, Wis. E. G. K.

The plan which has been successful in many places where co-operative creameries have been organized is to prepare specifications of a factory, which will be appropriate to the locality. Assistance may be obtained in making such plans from the catalogues of creamery supply firms. A committee of inspection may be sent to visit factories and after their return plans may be made from such information as they have obtained. After the inspecting committee has determined the kind of a building which will best suit your locality and the farmers whom you expect to patronize, the creamery can probably be erected economically by some local carpenter. Such a building will undoubtedly cost less than if the entire contract for building and machinery is let to some agent.

The machinery for equipping this building may then be bought by getting prices from different parties who supply such machinery. It is a good plan to make out a list of the equipment needed and submit it to various dealers for prices.

This method of starting a creamery is the most economical one I know of, and if you have level-headed business farmers on the building and equipping committee, I think you will be able to get a very satisfactory creamery.

A creamery cannot be successfully operated for a very long time unless at least 5,000 pounds of milk are received per day.

You state that you will pay three cents per pound for making the butter; 5,000 lbs. of milk should yield 225 lbs. of butter; this at 3 cents per pound for making is $6.75 per day for running expenses. You cannot expect to meet all the expenses of running a factory for less than this figure. As your milk supply increases the cost of making will naturally be reduced as you can manufacture the butter from 10,000 pounds of milk for less than twice as much as it costs to handle 5,000 pounds.

I think it will pay you to put this matter of starting the creamery into some good man's hands and let him devote his entire time and thought to the subject until the enterprise is in good running order. Some one of the farmers who expects to patronize the factory may be able to do this. If the farmers in general have confidence in him and in his ability to go ahead with the enterprise, you will find that it will be money well spent to pay him a liberal sum for doing the work.

You can get plans which may be studied in anticipation of building your creamery from the dealers in such supplies advertising in this paper.

I have heard of the man whom you mention and think he is an agent for a reliable creamery supply house. He has built a number of creameries in different parts of the state, and so far as I know he is a safe man to deal with. I think, however, that it will be a good plan for you to write to the owners of creameries which he has built in the past. They will probably give you a better idea of his dealings than I can.

STARTER MAKING.

You will please favor me by giving me some information about making starters from milk.

Lyons, N. Y. L. L. H.

The starters used for ripening cream are of two kinds, first, those made from pure cultures of bacteria, which may be bought from some laboratory or dealer and are called "commercial starters," and, second, the natural starters which are made from skim milk or whole milk.

The foundation material for both kinds of starters is usually skim milk. This is first freed from most of its bacteria by heating it to 180°F. or above, for at least one half an hour. It is a good plan to keep this hot milk well stirred and covered while it is being heated. After this period of heating, the skim milk is cooled. The cooling is usually done by setting the can of hot skim milk into cold water. The quicker it is cooled, the better. When the temperature of the skim milk reaches 80°F., it is then in condition to receive either the pure culture which has been bought from the dealer, or the sour milk which has been selected and allowed to sour naturally.

The so-called commercial starters are made by adding to about a gallon of this skim milk a small quantity (about an ounce) of the pure culture which has been bought from a dealer in this material. After the pure culture has been added to the skim milk the mixture is kept at a temperature of about 80°F. until the skim milk has become soured by the pure culture bacteria. This preparation is some times called "startolene" and it may amount to about four quarts of sour milk. This is added to a larger quantity of pasteurized skim milk which has been prepared by heating and cooling as previously described and the mixture is allowed to stand at a temperature near 80° until it becomes sour and has an acidity of about six-tenths of one per cent. If the cream in which the starter is to be used is now ready, the starter may be added to it in about the proportion of ten pounds of starter to one hundred pounds of cream. A small quantity of this starter is saved each day and added to a new lot of pasteurized skim milk. In this way the starter is carried on from day to day and a new lot for use in ripening cream is prepared every day.

The natural starter is made in exactly the same way as the commercial starter except that in place of the ounce of pure culture which is bought from a dealer, a small quantity of selected sour milk is added to the pasteurized skim milk. The starter is then built up from this mixture as before described.

This in general is an outline of the methods used for making cream ripening starters. The successful handling of starters depends entirely on the carefulness with which the skim milk is pasteurized and the skill used in protecting the starter from outside contamination by dust, dirty cans, etc. In some cases the butter maker often goes so far as to wash his hands before handling his starter. These refining precautions used to protect the pure culture and the starter from contamination are very important.

If the starter does not give satisfactory results, it is best to throw it away and begin a new one, but when once obtained, a good starter should be propagated from day to day as long as possible and the length of time which it may be kept pure depends on the care with which it is made from day to day.

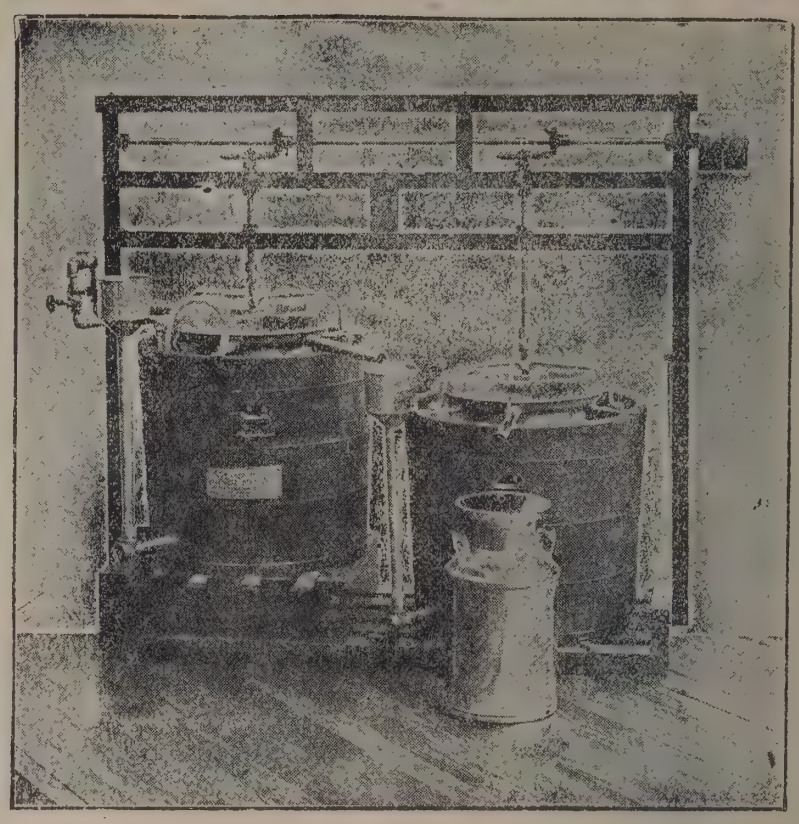
It is always better to seed a new lot of pasteurized skim milk with a portion of fresh starter taken out just before it is poured into the cream, than to attempt to propagate a new starter every day by means of butter milk obtained from a churning of cream in which the starter was used. A buttermilk starter may often give good results but as a rule it cannot be depended on because some unpleasant flavors may develop in the cream during its ripening. These, of course, are carried into the buttermilk, and when this is used for making the next starter, the unpleasant flavors may be continued in the butter from day to day.

One of the important elements in starter making is the ability to detect a satisfactory starter when it is made. A person with a keen sense of smell and taste is able by inspection to select a good starter and know that it will produce good results, while other persons without this ability are unable to accurately judge between two different starters and they may keep on using a poor one day after day without knowing it. This faculty of judging starters may be cultivated by practice and the butter maker who is most successful in training himself to detect a good starter and a poor one as well, will be the most successful in making butter of a fancy grade.

A CHURNING STATION.

We are going to build a co-operative creamery and are undecided about how to build it. Some of the farmers want to put a separator in the creamery, but most of them have hand separators

A GREAT SUCCESS.

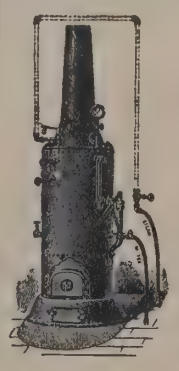


The Miller Cream Pasteurizer has a capacity of from 450 to 600 lbs. per hour.

Price $150 in Tin. $200 in Copper.

THE MILLER PASTEURIZING MACHINE CO.

CANTON, OHIO.



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IF YOU ARE NOT A MILK DEALER, DAIRYMAN OR FARMER

Our Ideal Steamer and Feed Cooker is an absolute necessity. Heats water, cooks feed, steams cans, bottles and other utensils, and furnishes ample power for dairy turbine separators, turbine bottle washers, etc. Furnished complete with steam gauge, water column, safety valve, globe valve, blow off valve, pump, grates, one length water hose and other fittings. This boiler is made of regular boiler iron and has locomotive flues. Burns coal, wood and corncobs. You can't afford to be without it.

	Diameter of Shell	Height of Shell	No. of 2-inch Flues	Length of Boiler Over All	Shipping Weight
No. 1	19 inches	40 inches	9	54 inches	350 lbs.
No. 2	19 inches	44 inches	13	58 inches	400 lbs.

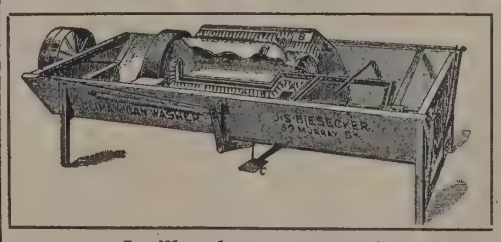
We Have a Complete line of Boilers and Engines. Write for prices.

Creamery Package Manufacturing Co.,

1, 3 and 5 W. Washington St., Chicago.

BRANCHES: Kansas City, Mo.; Minneapolis, Minn.; Waterloo, Iowa; Omaha, Neb St. Louis, Mo. and Cowansville, Quebec.

CLIMAX MILK CAN WASHER



A LONG-FELT WANT SUPPLIED

WHY wash cans in the Creamery by hand when it can be done by steam or other power? The CLIMAX washes the can outside as well as inside. It saves time and extra help. An expert can wash 175 cans an hour. It is a money saver for the wide-awake creameryman. Buy one of these machines and you will never regret it. A postal will bring additional information, prices, and a copy of our illustrated catalogue. Write today.

I will make you a quotation on anything you want or request.

J. S. BIESECKER, 59 Murray St., New York City

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We obtain PATENTS FOR INVENTORS. 20 years experience. Our opinion as to patent ability FREE. Write us. C. C. Shepherd, Patent Atty., 918 F. street, Washington, D. C. Dept. A.



5 TON WAGON SCALE $35.00
SENT ON TRIAL FREE.
CATALOGUE FREE.
AMERICAN SCALE COMPANY.
519 MASS. BLDG. KANSAS CITY, MO.

and I presume the number of these machines used by the patrons will increase. Would you advise us to build and put in a power separator in our creamery or would it be best to build on the hand separator plan, making simply a churning station? We will probably get hand separator cream from at least three-fourths of the farmers.

How much difference in cost will there be between a creamery building with the necessary machinery for taking care of the milk of 400 cows on farms where hand separators are used, and another one which will have in addition to this cream the milk from about 150 cows to be skimmed at the creamery? We would like to have the figures as near as possible to show at our next meeting.

Westby, Wis. J. M.

I think the proposition you have before you is one that may be best decided by building the creamery so that it will accommodate all the machinery and appliances necessary for running a separator in the factory. It may not be necessary at first to use the separator, but we can not always tell what may happen in the future and the fondness which farmers have at the present time for hand separators may not last many years. In case it does not they will want to bring milk to your factory and have it skimmed there as has been the practice in former times. If you erect a building so as to accommodate a separator now, it may not be necessary to buy one at the present time, but the building will not cost much more than if you simply equipped it with a boiler, engine and churning outfit.

If you build simply a churning station and never expect to put in a power separator at the factory, the building does not need to be so large as the modern separator creamery. All you would need at a churning station would be a gasoline engine for running the churn, a small boiler (2 to 4 H. P.) for heating water to clean up with around the factory, a good size cream vat, a combined churn and a good refrigerator in the building. In addition to this you will need some fittings, such as a Babcock milk tester, butter-printing apparatus and a few other supplies, such as butter salt, color and packages.

The power separator will cost $500 and the milk heater, milk vat and milk pumps, together with the difference in the size of boiler that would be needed for running a separator creamery rather than simply a churning station, would all amount to something like $1,000. This amount I think you could save by building a churning station instead of a fully equipped separator creamery.

I think such churning stations are not very common at the present time, but if the tendency of farmers to separate the cream at the farm is to increase in the future as it has in the past, I have no doubt but such establishments may increase in number during the next few years. You can get plans of creamery buildings and an estimate of the cost of equipment needed for starting such an enterprise from the dealers in creamery supplies. These firms have catalogues illustrating the plans of creameries and I think if you will write them they will be glad to send you their publications and give you all the information you need for starting your factory.

Some Facts Concerning Alfalfa From the State of Washington.

The *Chicago Record-Herald* prints the following:

The hay crop of Washington is being harvested and baled for the commercial markets of the Northwest. Estimates place the yield at 800,000 tons, a little more than the crop of 1902. About one third of this will come from the alfalfa fields. The remainder consists of timothy, wild grasses and wheat hay. Buyers are offering $5 per ton for alfalfa in the stack, and $10 baled on board the cars. These prices are the highest ever known at harvest time in the history of the Northwest.

Washington farmers never plow up a field of alfalfa. It is too valuable for exchanging to a cultivated crop. With but little outlay they realize from $20 to $40 per acre every year. The plant has been grown on the same land for a quarter of a century without any signs of decreasing fertility or annual yields. It supplies summer pasture for hogs and cattle and the winter forage for all kinds of stock. Poultry fatten on the leaves and bees make money from the blossoms.

The stock feeder reckons a ton of alfalfa to be worth not less than $10 for feeding purposes. The dairyman places the value at an advance of two dollars per ton. For the general farmer it has the feeding and fertilizing values that combine to make it the most profitable crop that can be grown on the farm. Buyers have attempted to get a corner on the entire output of the state in order to sell it again to stock feeders for fabulous prices. This has been stopped after about one-seventh of the crop was contracted.

Much of the alfalfa hay of central Washington is shipped to the markets of China and Japan. Some goes to the Philippine Islands, and a portion to the gold fields of Alaska. It is put in bales of 100 pounds each and shipped on the ocean vessels. About 300 car loads of this year's crop have been sent out from the Yakima Valley. Last year, when the snow was deep and feeders alarmed over the outcome of the winter, baled alfalfa sold for $18 per ton. In some places timothy had to be imported at a cost of $24 a ton.

Twenty pounds of alfalfa seed plants an acre. The seed has an oily coating which protects it from heat and cold and prevents it decaying in the ground. No crop can be secured the first year after planting. The second year will give two fair crops and fall pasture. In pasturing a field care must be exercised in not giving stock the free range early in the morning when dew or frost is on the plant, as it causes them to bloat.

Alfalfa hay is cut when the plant shows blossoms over the field. If neglected a few days the stems become woody and the feeding value depreciates. In the West the grass may be cut in the morning, raked in the afternoon and stacked the second day. Ordinarily this is not done, as there is never any rain in an irrigated country during the time of harvesting. In the Yakima Valley the moisture precipitation for the entire year does not exceed eight inches.

Transfers of Guernsey Cattle.

BULLS.

Auricula's Mainsheet 887 O, Mrs. E. W. Strawbridge to Harry Yates, Buffalo, N. Y.
A. P. Glenwood 8871, George Wood to Ellis Barker, Chester, Pa.
Aurum 8798, George Wood to George Eachus, West Chester, Pa.
Brightside Chief 8892, Park Commissioners to Rt. Rev. T. D. Beaven, Springfield, Mass.
Imp. Coronation King I. 8840, Edward Trotter Price to Herbert W. Warden, Doylestown, Pa.
Cassibar 8797, George Wood to Thomas Crosley, West Chester, Pa.
Gavin 8880, and Gov. Mervin 8881, E. W. Tillotson to G. H. Merwin Southport, Conn.
Hero of Mt. Vernon 8886, M. B. Rowe to H. H. Dodge, Mt. Vernon, Va.
Knight of Cyprus 8796, George Wood to Peter W. Pratt. Lima, Pa.
Major of Stonecrest 6919, Mrs. S. J. Whiting to D. F. Titus, North Haverhill, N. H.
Major of Thompson City 8831, B. W. Peck to Lester D. Whitting, Canistee, N. Y.
Netherwood John 8872, S. M. Shoemaker to Wm. Lindsay, Elizabeth, N. J.
Puyallup Chief 8310, A. H. Kellogg to A. M. Miller, North Yakima, Wash.
Rob Roy of St. Andrews 6699, Wm. Todd to Wm. Gates, St. Andrews, Que.
Stonecrest's Lilyvale 8594, A. S. Apgar to D. S. Willard, No. Hartland, Vt.
Seven Up's Defender 8168, H. M. Cowles to J. T. Peckham, Portsmouth, R. I.
Tahama Chief 8883, Albert H. Kellogg to Bonner Bros., Snohomish, Wash.

COWS.

Imp. Bijou's Darling I. 16501, Imp. Flora of the Gron 16592, Imp. Flora's Maghareta 16506, Edward Trottee Price to H. W. Warden, Doylestown, Pa.
Begonia of Willow Bank 14883, Daisy Belle of Willow Bank 15128, Daisy of Willow Bank 13460, Golden Lily of Willow Bank 15127, Little Jessie 7050, Lucy Select 14886, Est. John Stebbins to Arthur W. Kennard, Cazerovia, N. Y.
Crocus Blossom 14555, A. J. Snyder to W. R. Hall, Walton, N. Y.
Darling of Thompson City 16556, B. W. Peck to L. D. Whitting, Canistee, N. Y.
Lady Tacoma 16561, Miller's Aunt Patsey 16553, Miller's Gildine 16558, Mollie Snaklin 2nd. 16559, Sister Dilsey 16560, Albert H. Kellogg to A. M. Miller, North Yakima, Wash.
Petal 12144, J. M. Fox to Mr. Carrancey Carr, Foxburg, Pa.
Quilt 14858, J. M. Fox to Aaron Hartman, Clarion, Pa.
Scottsville Beauty 16564, D. L. Stevens to Joseph M. Cox, Scottsville, Pa.

WM. H. CALDWELL, Secr'y.

Peterboro, N. H. Sept. 21.

The New 1903 REID HAND SEPARATOR



The 1903 Reid Hand Separator is the most exact milk skimmer ever made—it is simplest, fastest, lightest running, and affords most butter-producing material under all conditions. It creates a new source of revenue and maintains the income—

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Every Reid Hand Separator is sent out under a positive guarantee, and is sold on its own merits. If you want a separator we will send a Reid on approval—work it ten days and if it does not excel all others return at our expense. Send for new catalogue and revised price list, mailed free.

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THE Iowa Dairy Separator.

AN UP-TO-DATE MACHINE REPLETE WITH PRACTICAL IDEAS

It is built in the following sizes:

250, 350, 450, 600, 750 POUNDS PER HOUR

Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.

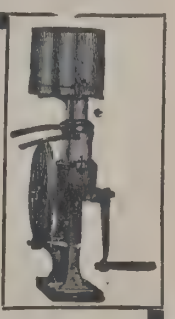
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IOWA DAIRY SEPARATOR COMPANY, WATERLOO, IOWA.

WE TAKE THE RISK

of your being satisfied, and glad you bought the cream separator that makes money for you.

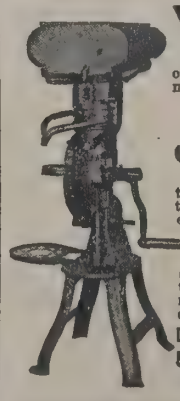
THE AMERICAN Is Sold On Trial.



The price makes it easy for every cow owner to buy. Run this separator and make money. The catalogue is free and we want you to have one. Write to-day.

American Separator Company,

Medal Winner at Paris Exposition. Box 1023 Bainbridge, N. Y.



WANTED!!

Every reader of this paper who owns a few cows to send for our new catalog of

DAVIS Cream Separators

Sent free upon request. It will tell you why the Davis Separators are money makers for their owners.

THEY ARE GUARANTEED to separate THOROUGHLY and QUICKLY. Dairymen and farmers find the "Davis" the most economical piece of machinery on the farm. Let us send you full particulars about it

DAVIS CREAM SEPARATOR CO.

54 to 64 N. Clinton St., Chicago.

A Valuable Cow

You can add value to any cow with a

National Hand Separator

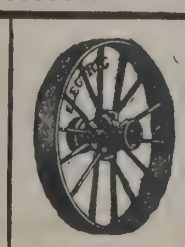
because it will save over 80 per cent. of the loss resulting from the old method of setting. It will separate warm or cold milk, light or heavy cream, and skim *clean*. We send the National and let it prove its worth right in your own home dairy.

10 DAYS' USE FREE.

Costs nothing if you don't buy—costs nothing if you do, for it pays its cost in what it saves. Send for catalogue.

National Dairy Machine Co. Newark, N. J.

Two Lives of a Wagon



for one if the wheels would hold out. If yours are about spent don't fritter money away in repairs. Make a new wagon out of the old gears with

Electric Metal Wheels.

That settles the repairs, and you have the modern Low Down Handy Wagon. Wheels that are all strength, good for 4,000 lbs. burden. Straight or staggered oval steel spokes and broad tires. There's no drying out no rutting, no breakdowns. Light draft and light labor. Made to fit any axle.

Write for illustrated Electric Wheel Catalogue. Mailed Free.

ELECTRIC WHEEL CO., Box 130 Quincy, Illinois.

Spain's Churn



Hand made of thoroughly seasoned white cedar. Has large opening. Never gets water soaked or sours. Easy to clean. Simple to operate. A 30 years' test has proved it the best. Everything for the dairy or creamery—automatic milk scales, glass jars, butter workers, printers, shipping boxes, etc. Send for illustrated catalog of "Bestov" dairy supplies.

TRADE MARK BESTOV

DAIRYMEN'S SUPPLY CO., Dept. Philadelphia, Pa.

NEW OXFORD BALL BEARING Cream Separator

Sold on guarantee to be the best on the market. Catalog free.

WORLD CREAM SEPARATOR CO. 41 Main St., Council Bluffs Ia.

MILK DEALERS COMBINATION Milk Protector, for cans or bottles. Prevents milk churning and souring in summer and freezing in winter. INVESTIGATE. S. C. Sullivan Mfg. Co., Erie, Pa.

Has a Surplus of Corn—Calves Die, Cotton Seed Meal Probable Cause.

ED. HOARD'S DAIRYMAN:—What can I do with my corn to get best results? Am only commencing the business; built a round silo, and planted corn to fill it, but when I came to fill, the 100 tons only took a little over half of the corn. The rest (75 tons) I had cut on account of frost and stood in the field to make. Corn matured about right for table green corn. Should I feed it in the stalk or cut or shred it?

Also can you give any cause for loss of calves. I commenced raising my heifers in March on separator milk; after two weeks old, gradually reduced new milk, till at three weeks they were on separator milk. Then I cooked a tablespoonful of cotton seed meal for each calf and stirred it in the milk. They were kept scrupulously clean and all dishes clean. They did finely till two or three months old on hay and water, and kept each in a pen in a light, well ventilated barn. One, about June 1st, refused his feed; seemed to breathe as if he had trouble with throat, and died in 24 hours; in a few days another the same.

When first one died I stopped all but milk, and made that half hot water. When four had died in about three weeks, I sent a good veterinarian to investigate. He looked over everything and said he could find no cause. Three more died, making seven of my best ones in about a month. They did not bloat. One died in two hours and the others each in about twenty-four hours. Can calves be raised on separator milk? If so how?

I sent you several subscriptions last spring for my neighbors and paid for them out of my pocket. If every reader of the DAIRYMAN would do likewise many farmers who are heavily incumbered would soon get out of debt.

Bar Harbor, Me. C. C. M.

This surplus corn should make excellent fodder, if it was not too much injured by frost. It may be fed in either of the ways suggested, but there will be least waste, if it is shredded. The only question is whether the saving will pay for the extra expense involved. If one has the machinery and the power to run it, we would unreservedly advise shredding; but if fodder is over plenty and cheap, it probably would not pay to purchase or hire machinery and power for this purpose. Cutting in short lengths closely approximates shredding, and if the cut fodder is mixed with the silage twelve hours or more previous to feeding, there will be but little of it rejected. If not mixed with the silage, it is a good plan to cut a week's supply in advance, dampen, and let lie in a pile to heat and soften.

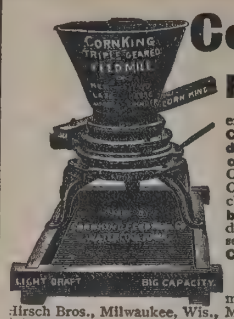
The probabilities are that the cotton seed meal caused the death of these calves. Just why or how is difficult of explanation, but that it is frequently fatal when fed to calves or pigs has been too often observed to admit of question. Calves can be successfully raised on separator skim milk. The present writer has been doing this for years. At first it is a good plan, although not absolutely necessary, to add from a teaspoonful to a tablespoonful of ground flax seed to each feed, first scalding the meal to a jelly. Later, as the calf's stomach develops more power, oat meal may be substituted, and a little later whole dry oats. Very early in its life the calf will nibble at hay. Let it have all it will eat, but give it fresh every day. Recently, also, a very small amount of blood meal daily has proved a very satisfactory practice.

Indiana State Fair Butter Scores.

For several years Purdue University has operated a working dairy at the Indiana State Fair. Each morning and afternoon separators have been run, butter made and milk tested by students from the dairy department under the supervision of the Professor of Dairying. This year was no exception.

The quarters have been remodeled some and fixed up so as to allow the display of a large number of charts, giving much instructive data. As people spent a good deal of time watching the work, these charts attracted considerable interest.

Such facts as to the relative loss of fer-



Corn King
TRIPLE GEARED
FEED MILL.

We give to farmers and feeders in this mill the **Largest Capacity** with the **lightest draft.** Made so it **can't choke.** Grinds Corn and Cob, Shelled Corn, Corn and Oats, coarse or fine without changing buhrs. Made o **best material** and lasts indefinitely. Don't buy until you see our circulars. Write to-day.

Corn King Feed Mill Co., Waterloo, Iowa.

Hirsch Bros., Milwaukee, Wis., Kingman-Galbraith Implement Co., Minneapolis, Minn., Brinly-Hardy Co., Louisville, Ky., Dooley-Ayers-Raisbeck Co., Bloomington, Ill., T. P. Dement Implement Co., St. Louis, Mo., Emerson-Newton Co., Kansas City, Mo., Kingman Implement Co., Omaha, Neb.

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The Industrial Savings and Loan Co., established over 10 years, has earned a reputation for reliability and conservatism that is not surpassed by any institution of its kind. Its business, which is *non-speculative*, is under supervision of and regularly examined by New York Banking Dept. Your money safely invested will earn **5 per cent per annum.** Subject to withdrawal at any time—it bears earnings for every day invested.

INDUSTRIAL SAVINGS & LOAN CO. 5% PER ANNUM

Full information and endorsements of prominent clergymen and professional men sent upon request. WRITE FOR BOOKLET D

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BUY DIRECT FROM FACTORY, BEST
MIXED PAINTS
At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.

BERKSHIRES. We are breeding Imported boars on Gentry's great Duchess sows, weighing 600 pounds. Our herd is very select, every animal a gem. All our choice pigs of 1902 farrowing have been sold. We are now taking orders for 1903 farrowing.
JOHN WHITE & SON, Adamstown, Md.

PURE BRED SHORTHORNS
CHOICE BULLS FOR SALE.
Also Cows and Heifers bred to Clay Buttercup, 196881, a descendant of the Clay Family, champions at the World's Fair dairy test.
GEO. WENHAM, Fort Atkinson, Wis.

NORTH OAKS FARM, ST. PAUL, MINN.
(Jas. J. Hill, Proprietor.)
AYRSHIRE BULLS
Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address,
N. E. McKISSICK, Supt., Cardigan, Minn

AYRSHIRE CATTLE of the BEST of BREEDING. Also Chester White Pigs, ready to book for season's trade. Young stock of both sexes. Prices reasonable. Come and see us.
F. TSCHUDY & SONS, Monroe, Wis.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality F. W. TRATT, Whitewater, Wis.

ALTA CREST FARM, SPENCER, MASS.
Home of the Yeksa Family of Guernsey Cattle. Herd contains more cows with large records and backed by large records than any other
HERD OF
GUERNSEY CATTLE
IN THE COUNTRY
Herd headed by Primative 4909, a son of Primrose's Tricksey, Adv. Reg. No. 2, 582 lbs. butter in one year. Several Bull Calves from elegantly bred Dams at reasonable prices. Address
A. H. SAGENDORPH, Spencer, Mass.

Rosendale Guernsey Herd
TUBERCULIN TESTED.
Sixty head of choice Guernseys headed by Coralette's Son, (see page 450) whose dam, Coralette made 479.7 lbs. fat in one year at 3½ years old, and was first prize cow at Wisconsin State Fair in 1896.
Some fine young bulls for sale.
GEO. C. HILL & SON, Rosendale, Wis.

Wasteland Guernseys
Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.
M. M. & E. J. HOLLINGSWORTH, Landenberg, Chester Co., Pa.

THE BROWN BESSIE HERD Offers one bull 14 months old, sired by Recorder, 29239, the only living son of Brown Bessie and has 14 tested daughters. Dam, Relay, 70353, test 17 pounds 2 ounces. She a daughter of Diploma with 61 tested daughters. Also Berkshire Pigs of English and American selected stock.
H. C. TAYLOR, Orfordville, Wis.

KING OF ST. LAMBERT'S KING 30752
Sire of thirty-three tested daughters, is unquestionably the most prepotent of any Jersey sire in the land. We have 10 for sale young bulls rich in his blood; also a few cows and heifers in calf, whose progeny will be attractive because of the "Hart's King" blood in them. For prices, etc., address
FRANK W. HART, CLEVELAND, OHIO.

GUERNSEYS.
HADDON FARMS—Home of the noted GLEN WOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

Florham Guernseys.
The herd is made up of representative animals of both home and foreign breeding.
BULL CALVES,
from large producing dams for sale. Apply to J. L. HOPE, Supt., Florham Farms, Madison, N. J.

Old Homestead Guernseys.
Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.
Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL Perry, Lake Co., Ohio.

GUERNSEYS FOR SALE.
Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.
JAS. H. BEIRNE, Oakfield, Wis.

GUERNSEYS FOR SALE
Bull two years old out of Count Topsy 24.27 lbs. butter 7 days. She won 1st prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

AMERICAN JERSEY CATTLE CLUB
OFFICES: 8 W. 17TH ST., NEW YORK
President, ELMER A. DARLING.
Secretary, J. J. HEMINGWAY.
BLANKS for Registering and Transferring Jersey Cattle; also Blanks for Private Butter Tests of Registered Jersey Cows, furnished free of charge upon application to the Secretary.
FEES for Registering: To non-members, $2 each head male or female. To members of the Club, $1 each head, male or female. All animals over two years old, double fee. For registration of all dead animals, $1 each. Imported animals, $25.
TRANSFERS are recorded free, if presented within 90 days from date of delivery. Transfers presented after 90 days, $1 each.
PRICE of Herd Register, $1 per Single Volume. Butter Tests of Jersey Cows, including all tests received by the Club to August 1, 1898, $2 per volume. Private Herd Record, 330 pages, cloth, leather back and corners, $2. Pocket Herd Record, 120 pages, flexible leather, 50 cents.
VOLUME OF BUTTER TESTS from August 1, 1898, to July 15, 1902, $1.
THE BY-LAWS of the Club, giving full rules to be followed in securing registration and transfers, mailed free on application.

PROSPECT HILL JERSEY HERD.
Mature cows yearly records are from 405 lbs. to 740 lbs. butter. YOUNG STOCK FOR SALE. Come and see them. Tuberculin Tested. F. H. SCRIBNER, Rosendale, Wis.

READY FOR SERVICE
YOUNG JERSEY BULLS
Now ready for service or fit next Winter and Spring. Tested dams with high yearly butter records. St. Lambert, Combination, and Brown Bessie blood. Prices from $30 to $150, according to age and breeding.
E. E. STEVENS, North Madison, Ohio

VALLEY FARM Offers for sale a son of "King of St. Lambert's King" out of a daughter of "Gazilla's Fawn," dropped July 29th., 1900. Also have some young bulls. Write your wants to
FRED STUBLEY, Black Earth, Wis.

JERSEYS. ST. LAMBERT and Combination, for sale; 24 cows, 7 heifers, 36 bulls.
S. E. NIVIN, Landenburg, Pa.

DON'T
USE A SCRUB BULL
You can not afford to. A little book gives good reasons for your buying a registered sire. Write for it, and for Sale List A 20, containing several well bred A. J. C. C. young bulls fit for immediate use, nearly all being from tested dams. To close these out quickly they are offered at the price of calves. Write at once, if in need, and secure the choice.
WINTERGREEN HILL FARM
SCOTTSVILLE, N. Y.

FOR SALE GOLDEN LAD BLOOD. sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

FOR SALE. Two A. J. C. C. Bulls ready for service; also some younger ones. Cows and heifers in calf to richly bred bulls. Write for pedigrees and prices. We have a few Berkshire Boar Pigs from unregistered sows left; cheap.
N. N. PALMER & SON, Broadhead, Wis.

BILTMORE JERSEYS
are great and presistant dairy workers and typical Jerseys. We ask comparison with any other herd for
YEARLY MILK & BUTTER YIELDS, SUBSTANCE AND FINISH.
The herd contains more prize winners at the leading exhibitions (including the Pan-American) than any other herd.
The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service as you cannot get it.
Also Headquarters for Large English Berkshires and Standard Poultry.
Apply to
BILTMORE FARMS,
BILTMORE, N. C.

HAZEL FERN HERD. A. J. C. C. Jerseys blood of St. Lambert, Melia Ann, Combination, Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

ROBINSWOOD JERSEY DAIRY is offering a few Reg. Jersey Bulls ready for service at from $25 to $50, sired by a grandson of Recorder, the only living son of Brown Bessie, out of good cows. Write, stating your wants, to
N. H. ROBINSON, Prop., Centralia, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.
W. J. HUSSEY, Mt. Pleasant, O

A SNAP IN JERSEYS
Five A. J. C. C. Cows averaging 5328 lbs. milk and calf in year; never tested less than 5% butter fat; milk weighed each milking and record kept. Three due to calve this fall by a prize winning Exile bull whose dam has record of 16 lbs. 3 oz. butter in a week.
Also five Yearling Heifers from above, old enough to be served this fall and winter.
Ten Head for $750, or will sell separately.
WM. L. BRADBURY,
NASONS, ORANGE COUNTY, VA.

Just for Nothing
We will send you THE JERSEY BULLETIN and HOARD'S DAIRYMAN to the end of 1903. But while making you this generous offer, we wish you to do something.
Subscribe for both papers for 1904, at the lowest clubbing rate, $1.75 FOR THE TWO. To make it plain, send us $1.75 and we will send THE JERSEY BULLETIN and HOARD'S DAIRYMAN to January 1st., 1905.
"IT'S UP TO YOU!"

tilily in various farm crops, records of individual cows, an illustration of balanced rations, etc., occupied the space. These often furnished an excuse for questions on the part of those watching the work so that the middle of each day was a continual question box with answers by those in charge.

A new feature was three columns of print butter, containing in the first case, the actual number of pounds of butter made by the average cow of the state, as shown by the census, which is 140 lbs. The second column contained 300 lbs., and was labeled: "The amount of butter a good cow should make," and the third column contained 374 lbs., and was the amount of butter made by one of the University cows at a feeding cost of $46. The relative size of the columns attracted attention and undoubtedly set a good many people to thinking.

The following are the scores of butter and entries:

BUTTER.

20-LB. TUB CREAMERY.

Herbert Newby, Spiceland	94⅛
Perry L. Jonhson, Prairie Creek	94
Silas Holloway, North Manchester	92¼
Schlosser Bros., Hanna	89¼

10 LB. DAIRY.

Mrs. Peter Raab, Lawrence	91⅛
Mrs. Jerome Dunlap, LaFayette	87¾
Mrs. Mary Smith, Marshall	80

5-LB. DAIRY BUTTER IN PRINTS.

Mrs. E. T. Drake, Edinburg	95
Frank Gregory, Pendleton	94
Mrs. Peter Raab, Lawrence	91¾
Mrs. Chas. Lamont, Mooresville	91½
A. W. Poster, Bridgeport	88¾

CHEESE.

30.LB. FULL CREAM CHEESE.

Boyd & Drischel, Cambridge City	96
A. E. Helmer, Evans Mills	93
W. L. McCain, Durbin	86⅛

FANCY EXHIBIT.

Jerome H. Drake, Gallaudet	1st
Mrs. Jerome Drake, LaFayette	

YOUNG AMERICA CHEESE.

Boyd & Drischel, Cambridge City	95⅛
A. E. Helmer Evans Mills, N. Y	93
W. L. McCain, Durbin	86⅛

Osborne on the Cow.

While some of the lands in the drier sections of the Dakotas are selling for much more than they will ever be worth for farming purposes, the greater part of her moister lands are not selling too high, and there are good reasons why they are not.

The secret of some of the reasons for the state's remarkable progress is told by O. M. Osborne, of Howard, one of the shrewdest observers in South Dakota.

"When I came to South Dakota eleven years ago," says Mr. Osborn, "this section of the state was an exclusive wheat country. Farmers kept one or two cows, often not making enough butter for the family table. One would rarely see a herd of cattle or a flock of sheep in a day's drive. Wheat fields, acres and miles of them, stretched away on every hand. The invariable result of planting the same crop on the same land year after year was aggravated by the series of dry seasons and by declining prices. With his income cut off or reduced the farmer was driven to mortgage his land. Many of them lost their homes. Others struggled along under loads of debts that were almost hopeless. The mortgage shark and the machine fiend made life a burden to them.

"Then the cow came and rescued the farmer. A few at first turned their attention to home dairying. They prospered and others followed their example. Herds began to dot the landscape, living, sleek and fat, on the rich grasses which had hitherto gone up in smoke from the prairie fires which at intervals swept over the plain. Creameries were built and herds multiplied. From small beginnings the dairy quickly became one of the leading industries of the state. Mark the result: Lands which were sold under mortgage foreclosure a few years back for $4 to $5 per acre, with the judgment creditor usually the only bidder, are eagerly sought after at $15 to $25 per acre, and contented farmers are reaching out after adjoining quarters everywhere."—*Dakota Farmer.*

TYRANENA HERD

100 HOLSTEIN-FRIESIANS 100

A. R. O. Stock For Sale.

Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.6a. Eight official records in pedigree that average 23 lbs. 5 oz. Frank B. Fargo, Lake Mills, Wis.

HOLSTEIN BREEDERS

ATTENTION!

A party desiring to purchase a number of thoroughbred Holstein cows under eight years old, requests that those having any for sale should send to this office brief outlines, showing breeding for three generations, with records both of individuals and ancestors, either private or official, general description and price, bearing in mind that none but the very best are wanted.

Address all communications to

COW BUYER, Care of Hoard's Dairyman, Fort Atkinson, Wis.

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA.

President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.

FEES FOR REGISTRY.

TO MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.

NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. ☞All blanks furnished free.

Life Membership, $25.

Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.

Address F. L. HOUGHTON, Putney, Vt., for information relating to Registration of Pedigrees.

HOLSTEIN BULLS. We have some grandly bred young bulls ready for service. One of the largest and best advanced registry herds in the United States.

PIERCE LAND & STOCK CO. 14 Turk St. San Francisco, Cal.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148 Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.

WM. EVERSON & SONS, Lake Mills, Wis.

FERMANAGH HERD

HOLSTEIN-FRIESIANS

Bulls ready for service from A. R. O. animals sired by Johanna Rue 2d Paul De Kol, sire of 13 A. R. O. cows. Also young bull calves by same sire. THOS. GAINES, Supt., Arcadia, Missouri

MAPLES STOCK FARM, PENNELLVILLE, N. Y.

Second Annual Offering

160 HEAD OF HIGH CLASS REGISTERED

HOLSTEIN-FRIESIANS

AT AUCTION, OCT. 14-15, 1903 at Fulton Fair Grounds, Fulton, N. Y. Catalogues ready Oct. 1. Write for one. Address R. F. D. 3 John C. Godfrey, Fulton, N. Y.

VALLEY FARM HERD

HOLSTEIN-FRIESIANS

Headed by Korndyke Queen De Kol's Prince, dam Korndyke Queen De Kol, 24 lbs. 6.7 oz., grandam Belle Korndyke, 25 lbs. 12.8 oz. Both sire and dam by Manor De Kol, his dam Netherland Hengerveld 26 lbs. 10.66 oz., Manor De Kol by a son of De Kol 2d, 26 lbs. 9.21 oz. All are official tests and average 25 lbs. 13.72 oz. butter for 7 days and 3.95 per cent fat in their milk. Two bull calves now for sale and young ones after Sept. 1.

DON J. WOOD, R. F. D. 2, West Winfield, N. Y.

Bulls For Sale.

Two choice bulls ready for service and some fine bull calves from good testing dams. Sire: Paul Clyde, son of Paul DeKol. Dam's record 24.88 lbs. in 7 days. Write C. A. SNOW & SONS, Athens, Ohio.

HOLSTEIN-FRIESIANS INDIVIDUALITY, PERFORMANCE, BREEDING. You need it all. Write or come. 100 head. McKAY BROS., Buckingham, Ia.

HOLSTEIN-FRIESIANS

FAIRVIEW HERD

We offer bulls ready for service; also heifer and bull calves not related, of the kind to suit the most particular.

O. J. GODFREY, Pennellville, N. Y.

HOLSTEIN-FRIESIAN BULL CALF.

Do you want one for use this winter which will improve your dairy herd? Do you want him elegantly proportioned, with straight back, high rump, and all the dairy points? Do you want one whose relatives are A. R. O., and elgible to the Advanced Registry himself? If so, I have just what you want.

MALCOLM H. GARDNER, Darien, Wis.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

WANTED, TO BUY

10 to 20 head of Holstein-Friesian Cows 3 to 4 years old; 1 bull 15 months old; 1 bull calf 3 months old. State full particulars, price, etc. THOS. McGINNIS, 296 State Street, Chicago.

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Offers 3 yearling bulls and 10 yearling heifers, sired by a grandson of Sadie Vale's Concordia. Cows and heifers bred to oldest son of Mercedes Julip's Pietertje, No. 39480. Chester White Pigs in pairs and trios, not related.

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OAKLAND HERD HOLSTEINS

PREMIER SIRE Mutual Friend 3d's Paul

A son of Paul De Kol & Mutual Friend 3d, 21.84 lbs. butter, milk averaged 4.7% at 3 years. She has two A. R. O. daughters, 1 made over 20 lbs. Must reduce herd at some price. State just what you want. T. A. MITCHELL, Weedsport, N. Y.

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HOLSTEIN-FRIESIANS

To reduce herd to capacity of pasture, will sell a limited number of A No. 1 young cows of high breeding and individually right, large producers at $150 each; also 15 bull calves at bargain prices.

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HOME FARM HERD.

Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams. 25.1 lbs. butter in seven days. Herd numbers 125 head.

BEST FAMILIES REPRESENTED.

Special prices on six or eight bulls of serviceable age. W. B. BARNEY & CO., Hampton, Ia.

THE STEVENS HERD Contains at the present time the young bull, Vale, with the largest official backing of any bull ever born. Several half-brothers and sisters to Vale, and a large number of cows and heifers bred to his sire, whose official backing is larger than that of any other bull ever in service. A cow that stands unequaled by any other that ever lived, in the official work of herself and daughters. The only cow ever officially tested for six months. Eighteen cows and heifers with official 7-day butter records averaging, by the 90 per cent. factor, over 20 lbs. each. Thirty animals whose dams have made official 7-day butter records averaging over 20 lbs. each. Why not get our prices before buying?

HENRY STEVENS & SON, Brookside Stock Farm. Lacona, Oswego Co., N. Y.

ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.

GEO. T. McNEIL, Theresa, N. Y.

FOR SALE.

H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29828. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address W. H. JONES, Watertown, Wis. Rural Route No. 2.

THE MONONA FARM HERD OF HOLSTEIN-FRIESIANS

Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 169.50 lbs. one day. Breeders and dairymen please write for prices.

F. W. JALLIS, Monona Farm. Madison, Wis.

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Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

FOR SALE 2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.

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Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN, Station D., R. 1. Minneapolis, Minn.

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Simonsville P. O., Andover, Vt.

Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldome Olothilde. No. 15370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for discription and price to J. A. THORNTON, Manager, Simmonsville, Vt.

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SAN ANSELMO, MARIN COUNTY

250 HEAD IN THE HERD

Sires are sons of Mercedes Julip Pietertje, Colantha 4th Belle Korndyke, Fay Barnham Princess Wayne 7th. A fine lot of bull calves

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FIRST CLASS BULL

Offered at reasonable price by South Side Farm, White Bear, Minn. Born Dec. 1, 1899. Sired by Baron Pauline De Kol with 8 A. R. O. daughters, and tracing three times to De Kol 2d. Our bull's dam has A. R. O. record of over 22 pounds, under five years, and during week's official test milk averaged over 40 per cent. fat. Fine conformation, nicely marked, superior handler, large veins and rudimentaries, gentle, vigorous, and sure. Other bulls ready for service.

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SPECIAL OFFERING: Six of the choicest Johanna bull calves from official butter record dams and A. R. sire.

Also a few choice heifer calves, yearlings and 2-year olds; latter bred to Mercedes Julip's Pietertje Paul.

150 HEAD TO SELECT FROM

Special prices on cows in carload lots. Prices reasonable for quality. Liberal terms of payment.

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Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

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High Class Advanced Registry Stock only. Best butter families. Stock for sale.

Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.



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Wm. O. Jackson & Sons, South Bend, Ind.

FOR SALE. H.-F. Bulls, ready for service. from A. R. O. Cows and sired by Sir Jonanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis

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34 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs. of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs. of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by Gem Pietertje Hengerveld Paul De Kol, or Sir Ormsby De Kol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days; average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd?

For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis. Residence: National Ave., near 40th. Phone, South 1601.

HOLSTEIN-FRIESIAN YEARLING BULLS

ready for service, of high quality and breeding, at low prices for the next sixty days. They are from such families as Sadie Vale Concordia, Korndyke, De Kol Burke, Clothilde, Netherland, etc. Also choice heifers.

Smiths & Powell Co., Syracuse, N. Y.

In Prince Edward Island.

ED. HOARD'S DAIRYMAN:—The only fair we attended this year was the Prince Edward Island Provincial fair, which took place at Charlottstown, Sept. 21-25. We were more than usually interested in this fair from the fact that we entered our little scrub heifer, and a number of our Tamworth hogs. On this account we had to be on the grounds a part of every day of the fair. The weather was beautiful and fair for the first three days, but on Thursday, the principal day—the day upon which the railroads and steamboats granted unusually liberal concessions, and "the big day," it rained in torrents from noon until sundown, and the thousands of people who came in to see the fair on this particular day did not see it at all, and which meant a loss in gate money to the fair managers of probably $5,000. This was a great disappointment all around, to the people as well as to the fair, and probably means a deficit for the fair managers of this year's exhibition.

The different classes of live stock were well filled. In fact the ordinary shed room could not accomodate more than three-fourths of the live stock. This was more noticeable in the dairy stock, and makes it appear that Prince Edward Island dairymen are making an effort to infuse considerable pure blood into their herds, and also that there are a very great many of fine grade dairy stock in the province. For the past few years the great drawback to successful dairying in the Island appeared to be the paucity of really good dairy cows.

Dairymen were feeding a lot of cows that never were able to pay their board. The owners of these animals found that increased feeding of meal foods, roots and silage, did not pay, and in disgust, many of them reduced their herd and lost their enthusiasm in dairying, with the result that dairying has been going down in this province for the past three years.

This year has apparently been the "parting of the ways." Another supreme effort has been made. The *sine qua non* has been found out. The dairymen are breeding and feeding better dairy cows, with the result that the dairy business on the Island this present season is going to be better than for three years back. Dairying is now on a more solid foundation.

The fundamental principles of dairying seem to be understood by the Islanders at least. They do not appear to think any more that just feeding alone will fill the milk pail. It appears to be understood that the right machine must first be procured—a machine that will give the greatest motive power with the least expenditure of fuel. As everybody knows, coal is high, but no higher probably, in proportion, than bran, ground oats, and oil cake—the fuel required to run the lacteal machinery for the dairy cow, and elaborate milk.

These, then, we imagine, are some of the chief causes or incentives, to the large number of grade dairy cattle to be seen at the Prince Edward Island exhibition this year, and the apparent marked increase in pure bred dairy sires in the country.

In an essentially Dairy Province like Prince Edward Island it is not to be wondered at that the exhibit of dairy cattle was very large, and the predominant feature of the show. In this class the sheds would not accomodate nearly the numbers on the grounds and temporary quarters had to be utilized out side—machinery halls, empty hog pens, sheep pens, and any old place. No doubt another year increased accomodation will be furnished as the fair has grown completely out of its swaddling cloths. T. D. Mc Callum, Danville, Quebec, judged the dairy cattle. Ayrshires were in largest numbers. The shed accomodated twenty-six, while the numbers quartered elsewhere could not be arrived at. There were some very fine specimens of the breed represented, and among so many good ones, comparisons seem to be odious indeed. Caston Bros, appeared, however, to be the chief Ayrshire exhibitors, although there were many others who showed smaller herds of probably equal merit.

The Jerseys, while largely represented, were nothing extra; many of them were ill fitted and scrawny looking. With the advent of the creamery the pet-Jerseys of the city people are no more in evidence. A few years ago many people in the cities made their own butter and used their own cream, and as they kept but one or two cows for this purpose, they were kept well and made family pets of. Now, however, this is changed. The people now use creamery butter, and the pet Jersey which used to adorn the Jersey sheds at the provincial Fair is now a thing of the past. The few Jerseys that are here are in the hands of the dairy farmers who do not usually pet and pamper their stock, hence the passing, to some extent, of the Jersey at the Prince Edward Island show—at least so it appears to the impartial spectator.

Guernseys were represented by eight head in the pure bred class, and were owned, apparently by one solitary individual who had everything his own way. These cattle were shown in admirable condition and were one of the most attractive features of the dairy live stock show.

In Holsteins the number on exhibition was by no means large, but what was lacking in number was more than made up in quality. The two-year-old bull, imported some time ago from Ontario, was, in itself, worth going a long distance to see. Though only a little more than two years, he weighs 1,800 pounds, and is as live and active as a kitten, with no apparent surplus flesh either. This animal would be a worthy and likely competitor at St. Louis, if his owner sees fit to show him there, considering his splendid dairy conformation, withal.

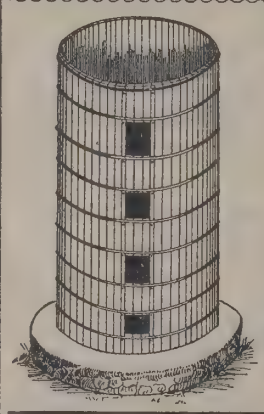
In dairy grades the number was very

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if you want the best, and the best is always the cheapest, especially in Silos. Write us for prices and circular. If you are in the market we can save you money.

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When one wakes up aching from head to foot, and with the flesh tender to the touch, when

Soreness and Stiffness

makes every motion of the body painful, the surest and quickest way out of the trouble is to use

St. Jacobs Oil

promptly. It warms, relaxes, cures. Price, 25c. and 50c.

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Cuts a track 5 ft. wide, 1 ft. deep. Connects the sub-soil water. It is an excellent machine for covering in sugar cane. Strength guaranteed. Can plow a newly cut forest, stump, bush or bog land, leaves the land true and clean for grain or any crop.



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Moves 15000 Tons of Earth a Day.

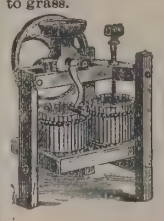


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Will smooth an acre as true as a mill pond in twenty minutes.

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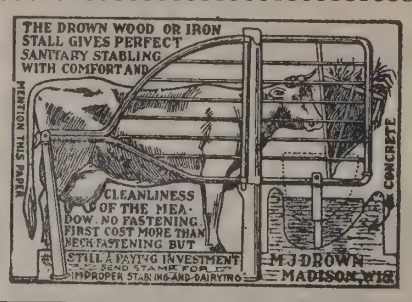
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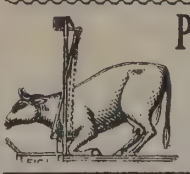




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Prescott's Swinging Swivel tanchion
Keeps Cows Clean.
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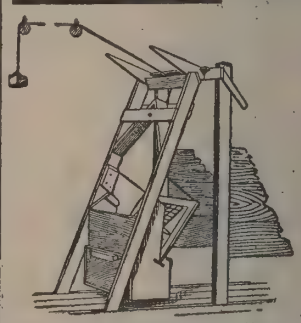
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CLEAN, SAFE, COMFORTABLE.
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This Taylor Stanchion



is made of angle steel lined with hard wood on side next the animal's neck. It is lighter, neater and stronger than any other stanchion made. Swings on chain at top and bottom and admits of greatest freedom of motion. Cattle can lay with head on side. Easiest opened and closed. Reliable Agents Wanted. Write for special terms, prices, etc.
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JUST OUT! UNDERHILL SELF ADJUSTING STALL



No Gutters
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No fastenings
No Stables to clean
Cease trying to keep your cows clean. You can't do it. Give them a chance and they will do it themselves. This is the only way and the easy way. Write for circular telling what the cow has discovered to us. It is a great revelation.
Wm. M. UNDERHILL, Oconto, Wis.



WILDER'S PATENT SWING STANCHIONS
Chain or Pin Fastened.
Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.
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Foster Steel Stanchion
made entirely of steel and malleable iron. Unlike all others. Affords greatest freedom and motion and always holds the animal. Hung on chains—moves all ways. Lightest, strongest, most convenient and easiest to open and close.
GOOD SELLER—BIG PROFITS.
One agent sold 75 first day, Another sold 200 first week. We want responsible agent in every Dairy Community. Send for circular number 30.
FRANK H. BATTLES, Seed Grower,
Rochester, New York.

THE NEW PATENT
Cow Stall
AND FEED TROUGH.



This is the only Cow Stall with a centering hinge. Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars.
R. A. McLERY & CO.,
Palmyra, Wis.

large. Each grade competed together, there being no general competition. The Jersey grades competed against themselves; the Ayrshires the same, and so with the Holsteins and Guernseys, which seemed a little ridiculous and of little general uitlity, were it not for the fact that the animals had to be sired by a registered bull of the recognized grade.

Among the grades were very many fine dairy cows, of good shape and dairy conformation, and to the casual observer appeared to be money-makers for their owners. "Handsome is that handsome does."

As to the quantity of milk which those cows and heifers gave a day, it is ridiculous to hear the answers some of the owners give one when asked how much milk is such a cow giving per day. In answer to this question some men told me that their two-year-old heifers gave 60 pounds per day, some others answered 40 pounds, while some others answered 30 pounds. Only one man appeared to know how much milk his two-year-old heifer gave per day, and this was the owner of the sweepstakes two-year-old Jersey. He answered that this heifer gave 20 pounds per day and her udder conformation and development appeared to be as prominent as those who asserted that their heifers gave 40 to 60 pounds per day.

It, however, is probably not lack of veracity, but ignorance of the actual pounds of milk given by their cows per day. Though well advanced in breeding, and not having very much competition in the show ring, they do not appear to pay very much attention to the milk flow.

This appears to be the fact in Jerseys and Guernseys at least. From casual observation of the two-year-old dairy heifers of all breeds during the several days of the Fair, we truthfully believe that there was not one two-year-old heifer on the grounds that gave as much as twenty pounds of milk per day. We took particular notice of the grade two-year-olds, and we concluded that there was not any as good as our own little heifer at home, mentioned frequently in the DAIRYMAN. We paid to enter our heifer at the Fair, but was barred because our heifer was not by a pure bred sire, and ours is sired by a nondescript. Again in the milking contest, there was, strangely indeed, no class for two-year-olds. As for myself, seeing the vast array of two-year-old heifers at the Fair, I am prouder than ever of our own little heifer at home.

No doubt there is good reason for classing the grades into breeds by a pure bred sire of that particular breed, in order to give the average farmer and dairyman encouragement to use pure bred sires of the several breeds. With a good animal by a pure bred sire of any particular breed, at this Fair, the owner would stand almost as good a chance for prize money as the man with the pure bred. "A half loaf is better than no bread" seems to be the idea of the Fair directors.

The writer had his Tamworth hogs on exhibition here, and succeeded in getting two firsts and one second, which was quite satisfactory. The hog show was very fine; that of Yorkshires and Tamworths being particularly so. The Berkshires also made a fine showing. The breeders have been endeavoring to bring their hogs to the requirements of the bacon trade; that is making the back narrower, the shoulder lighter and the side deeper. In this the Berkshire and other breeders appear to be succeeding admirably. J. A. M.

Charlottetown, P. E. I.

Plan for Feeding Rack Wanted.

Would you or some of your readers give me plans for a feeding rack for corn fodder to be placed in the yard and movable? A SUBSCRIBER.

Blue Earth Co., Minn.

As we do all our feeding of cows and young stock in the stable, we are not posted on the subject of feeding racks in the yard, but if any of our readers can give this Minnesota subscriber any valuable suggestions we shall be pleased to publish them.

A New Wrinkle in Silo Construction Suggested.

ED. HOARD'S DAIRYMAN:—Just now everybody is talking silo. What's the matter with the octagon style, made of 2×4s, 8 feet long, laid flatways, with pieces of lath four inches long between each stick, and about two feet apart? These will make the grooves to clinch plastering; put in plenty 20 in. spikes, cement inside and shingle outside. The round stave silo is expensive and short lived.

I find lots of good things in your paper. Every dairyman ought to take it. About all we know we have learned from others. This county (Delaware) is one of the largest and oldest in the state as to dairying, and not one farmer in twenty takes a dairy or agricultural paper,—are just going along in the same old rut their grandfathers traveled. What a stupid lot the average farmers are. All other trades seem to be making the most of their opportunities.

Let your light shine. J. A. T.

Ryan, Iowa.

One must not be too positive in approving or condemning any proposed variation from accepted theories in regard to construction of silos. The plan proposed seems to be free from any fatal objections, but in the absence of carefully prepared specifications as to materials and labor we incline to the opinion that it will be more expensive than several other methods of construction.



Many a child has been fooled by the story of the pot of gold which is to be found just at the foot of the rainbow, and has started out to gather riches full of happy dreams.

Many a man and woman have been deceived by the tale that there was health to be found out beyond the sunset, and they have started out dreaming of a healthful future, never to be realized.

People who have tried change of climate in vain for the cure of weak lungs have been perfectly and permanently cured by the use of Dr. Pierce's Golden Medical Discovery. It cures deep-seated coughs, bronchitis, bleeding lungs, emaciation, and other conditions which, if neglected or unskilfully treated, find a fatal end in consumption.

"Last spring I had a severe attack of pneumonia which left me with a very bad cough, and also left my lungs in a very bad condition," writes John M. Russell, Esq., of Brent, Cherokee Nat., Ind. Ty. "I had no appetite and was so weak I could scarcely walk. My breast was all sore with running sores. I got two bottles of Dr. Pierce's Golden Medical Discovery, which I believe saved my life. I cannot express my gratitude to you. I am able now to do very good work."

Any substitute offered as "just as good" as "Golden Medical Discovery" is a shadow of that medicine. There are cures behind every claim made for the "Discovery," which no "just as good" medicine can show.

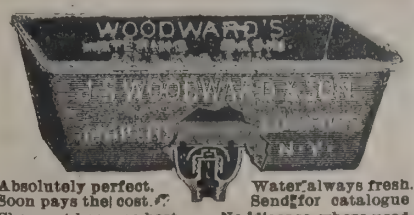
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Iron Troughs

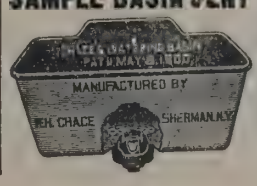
First Lot at Wholesale. Can't break or rot, nice round rim, any size or shape. Write for circular of **Cow Basin,** Poultry and Stock Troughs. Who will be first.

D. H. BAUSMAN, Bausman, Lanc. Co., Pa. We make Steel Swings. Fine Booklet Free.



Absolutely perfect. Water always fresh.
Soon pays the cost. Send for catalogue
Cheapest because best. No disease where used.

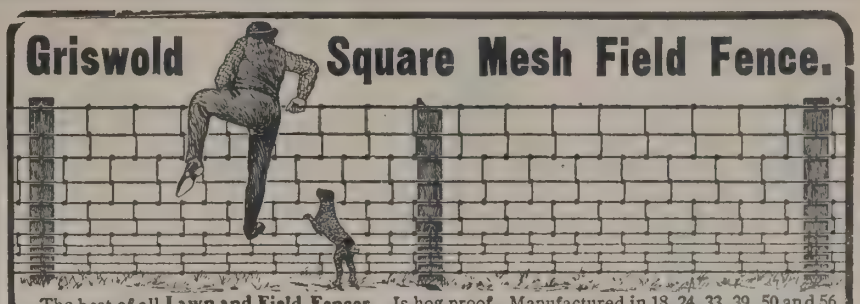
SAMPLE BASIN SENT ON APPROVAL.



Basins are fitted with Self Closing Cover which prevents all dirt and sediment from getting into them. Send for catalogue and price list

F. H. CHACE,
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Griswold Square Mesh Field Fence.



The best of all **Lawn and Field Fences.** Is hog proof. Manufactured in 18, 24, 33, 39, 50 and 56 inch heights; in 20 and 40 rod rolls. The narrow widths can be supplemented to any height desired by Barbed or Plain wire, or two strand twisted Cable wire. Manufacturers of **Diamond Mesh Fence. Plain, Galvanized, Barbed or Telephone Wire. Wire Nails and Hay Bale Ties.** Write for illustrated catalogues and price lists. **Dillon-Griswold Wire Co., Sterling, Ill.**

THE ONLY LOW DOWN

Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the market.



20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished.

Send for catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.

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Sole Manufacturers,
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The National

LOW-DOWN CUT-UNDER

Justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

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JUST FOR ASKING

We have a book telling all about our celebrated **ADVANCE FENCE** which we send anywhere free. If you are going to buy any fence this year, you cannot afford to miss getting this book, and reading how we send Advance Fence anywhere on **THIRTY DAYS' FREE TRIAL,** and sell it to you for less money than the dealer will charge you for fence not as good.

ADVANCE FENCE CO.
33 B St., Peoria, Ill.

PAGE

IF YOU WANT

a better, more practical, longer lasting, heavier galvanized wire fence, YOU WANT PAGE.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

SENT ON TRIAL

A Fence Machine that will make over 100 Styles of Fence and from 50 to 70 rods a day

AT ACTUAL COST OF WIRE

Horse-high, Bull-strong, Pig and Chicken-tight. Wire at Wholesale Prices. Catalogue Free.

Kitselman Bros. Box 173 **Muncie, Ind.**

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16 to 35 Cents Per Rod.

Heaviest, strongest, most durable fence made. All wires extra large. We sell to farmers at wholesale prices. Coiled Spring, Barb and Self Galvanized Wire.

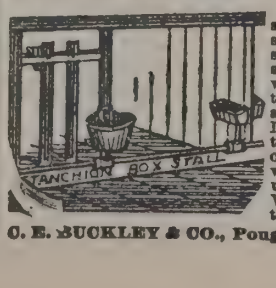
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FENCE! ***STRONGEST MADE.*** Bull Strong, Chicken-Tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free.

COILED SPRING FENCE CO.
Box 103, Winchester, Indiana, U. S. A.

Water In The Stable a Necessity.



It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. Why not use the Best? Write for descriptive circular.

C. E. BUCKLEY & CO., Poughkeepsie, N. Y.

PRICE TALKS WITH QUALITY BACK OF IT.

ONLY **$129**

TERMS—1/3 Cash and balance 1, 2, 3, and 4 months notes or 5 per cent discount for cash



We make 10 styles. Write for our Form E. Catalogue and Price List.

THE O. ARMLEDER CO., Cincinnati, O.



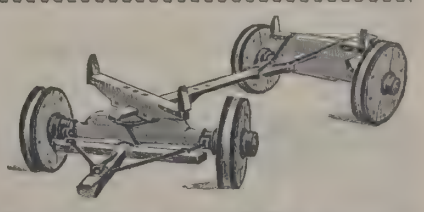
BEST MILK WAGON ON EARTH

SOLD DIRECT TO CONSUMER ONLY

Highest Grades. Lowest Prices. Guaranteed. Shipped on Approval. Full line Buggies and Harness. Write for Catalogue and Prices.

SAVE DEALERS' PROFITS

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The HILLSDALE LOW DOWN Wagons

and Wheels to fit your old wagons. Price reduced.

HILLSDALE WHEEL CO., Hillsdale, Mich.



Mrs. Keith's housework didn't prevent earning *Christmas money.*

MRS. GEORGE KEITH, of Scranton, Pennsylvania, writes:

"For three years I have paid for my own clothes, bought Christmas presents for the children and earned my own spending money by representing The Ladies' Home Journal and The Saturday Evening Post among my friends and neighbors. The prize money received each spring has been added to the fund which we are saving to buy our own home. Any mother will appreciate how much satisfaction this has given me."

In addition to paying liberally for every subscription secured this winter, we shall give

$50,000

In Extra Cash Prizes

Each month $5000 will be given to 325 persons who do the best work during that month, and at the end of the season $10,000 more to 451 persons who have done the best work during the whole time. Everything necessary will be sent on request.

THE CURTIS PUBLISHING COMPANY, 615 Arch Street Philadelphia, Pa.



STEVENS

There's no Firearm to Equal it

We Want to Mail You

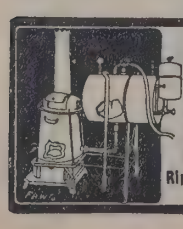
OUR FREE BOOK

which tells all about the "Stevens," how to care for it, target shooting, etc.

For 4c. in stamps we mail a Clever Rifle Puzzle that will make you think hard. It is a novelty. Address Puzzle Department.

When your dealer won't supply the "Stevens" we sell direct, express paid.

J. STEVENS ARMS AND TOOL CO.
340 Main St.
Chicopee Falls, Mass.



RIPPLEY'S Improved Combination STEAM COOKERS

will cook 25 bushels of feed in 2 hours; heat water in stock tank 250 feet away. Will heat dairy, hog and poultry houses. Made of boiler steel; can't blow up; no flues to rust or leak. PRICES $5 00 TO $45.00; 5 styles and 15 sizes. Sold under a guarantee. Endorsed by Experiment Stations. *Catalogue and prices free.*

Rippley Mdw. Co., Box 20 Grafton, Ill.

A Commendation and an Inquiry.

How Deep in Ground May a Silo Be?

ED. HOARD'S DAIRYMAN:—On reading the current issue of the DAIRYMAN, I am very forcibly impressed by your article, "Love the Great Solvent." It ought to be printed so that he who runs might read everywhere, and especially in dairy barns. The average man when he gets a cow's brush in his eyes is apt to say things unfit for print.

I have a Buff Jersey silo, 16 feet in diameter and 34 feet deep. It is very satisfactory, but as I want silage the year round, I am going to build another slightly larger, and I want to ask how deep in the ground silos have been made and used successfully.

My brother built a silo this season, and the underground part seems a great deal the most profitable. As soon as the digging was finished they placed a form, made in sections, 4 feet high and 8 feet long, shaped to 24 feet diameter, and filled back of them with gravel and sand mixed with about ⅛ of its bulk of Portland cement. Above ground, there had to be an outer as well as inner form, and as the pressure was greater outward than inward, we put a hoop around the outside made of a dozen strands of No. 12 wire tightened with a Page fence stretcher.

The labor of getting the forms in place, and of elevating cement and gravel makes the work go slowly, when you get far up in the air. I think the underground part would last indefinitely, and keep silage perfectly for years.

Dane, Wis. G. L. S.

We not only thank G. L. S. for his kindly and much appreciated compliment, but are glad to welcome him to the constantly increasing number of dairymen, who realize that there is a commercial as well as an ethical value in reciprocal affection between the dairyman and his cows. Not only is a merciful man merciful to his beast, but such mercy blesses him who gives as well as them that receive.

In one sense there is no limit to the depth a silo may extend in the ground, but our judgment is that, whether for convenience or safety, the bottom of the silo should not be more than six feet below the level of the feeding floor, or the first opening for removing silage.

CONCERNING OUR ADVERTISERS.

A copy of the pamphlet "Principles of Profitable Farming," is before us in a new and revised edition. The principles of proper rotation with leguminous crops and the great advantages to be derived by such methods are explained in the pamphlet in a fascinating manner. A description of the Experiment Farm at Southern Pines, N. C., where the best methods of using fertilizers are being studied and put into practice, is also a valuable feature of this publication A thorough perusal of the book would be of interest and benefit to all practical farmers and copies can be had, free of charge, by writing to the German Kali Works, 93 Nassau Street, New York, N. Y.

ORIGIN AND OBJECT OF THE GREATER GEORGIA ASSOCIATION.

Mr. John M. Stahl, editor of The Farmer's Call, in a speech to the National Farmer's Congress at Macon, Ga., last year, said the farmers of Illinois had spent a million dollars in two years, buying land in the far North West. He added that they bought it there because it was persistently advertised, and in his opinion many would have done better had they bought land in the Southern States, particularly Georgia. Among the many who read this speech was Mr. J. K. Orr, President of the Atlanta Chamber of Commerce, and one of the largest wholesale merchants in Georgia. He came to the conclusion that if it pays to advertise a nostrum of doubtful merits, it should pay better for a great State like Georgia to advertise its incomparable resources and the extraordinary advantages it offers to enterprising people Out of this idea the greater Georgia Association grew. It is an organization composed of thirty of the most progressive towns, cities and counties in Georgia, and its headquarters are in the Atlanta Chamber of Commerce. Its secretary, Mr. W. G. Cooper, now secretary of the Atlanta Chamber of Commerce, was Chief of Publicity and Promotion for the Cotton States and International Exposition, held in Atlanta in 1895. The Executive Committee is composed of fourteen of the leading business men of the State. This Association is proceeding in a systematic manner to put before the thrifty farmers of the Middle West and the business men of the great cities, the opportunities that await enterprise in Georgia.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Bistoury.

Where can I buy a bistoury, and how much will it cost? F. J. W.
Conneaut, Ohio.

ANSWER.

A bistoury of good quality can be supplied from this office for $1.50 post paid.

Sterility.

What is the cause of cows, or rather a large

Breeder's Gazette Specials!

Those who subscribe now for the world's greatest illustrated agricultural weekly—THE BREEDER'S GAZETTE—will get, in addition to the brimming regular issues, such special numbers as the following:

October 28
Illustrated Report Kansas City "Royal" Show.

November 18
Thanksgiving Day Edition.

December 9
Chicago International Show Report---Illustrated.

December 16
Christmas Number.

Needless to say these will be up to THE GAZETTE'S usual standard. Why not have the best?

The Christmas Number will have a lithographed cover reproduction of the drawing that won THE GAZETTE'S $200.00 cash prize for best design for that purpose. A great double number free to all subscribers.

Terms $2.00 per year. Special rates to agents and clubs. Agents wanted.

Sample copy of regular issue free if you mention this paper. Address

J. H. SANDERS PUBLISHING CO.,
358 Dearborn Street, CHICAGO, ILL.



We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity—1000 cans daily, which should enable us to fill all orders promptly.

Every can sold on a guarantee. Write for circular H.

$1.00 BIG STOVE OFFER.

If you can use the best big 500-pound steel range made in the world, or the best coal or wood heating stove ever made and are willing to have either stove placed in your own home on three months' free trial, just cut this notice out and send to SEARS, ROEBUCK & Co., Chicago, and you will receive free by return mail, big pictures of both stoves, also many other cooking and heating stoves, you will also receive the most wonderful $1.00 steel range and heating stove offer, an offer that places the best steel range or heating stove in the home of any family, such an offer that no family in the land, no matter what their circumstances may be, or how small their income, need be without the best cooking or heating stove made.

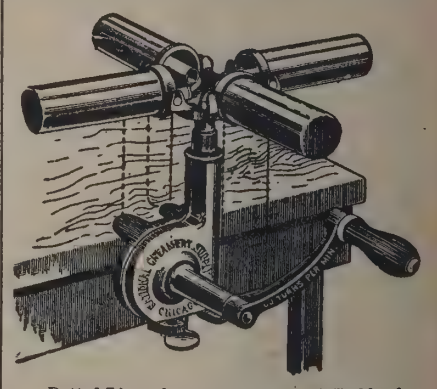
We Bring Buyer and Seller Together

Do you wish to sell or exchange your farm, reamery or cheese factory? No matter where ocated—east, west, north, or south. Write fo our new plan. We put you in direct communication with buyer. Save the big commission which agents would charge.

HILES & MYERS, C-100 MATTHEWS BLDG., MILWAUKEE, WIS.

CORN HUSKERS Small size, 6 to 8 h. p. to run it. Large size for Threshermen, 14 to 18 h. p. to run it; with self-feeder. CATALOG FREE. ROSENTHAL CORN HUSKER CO., Box 11, Milwaukee, Wis.

NATIONAL Babcock Milk Tester



Dotted Lines show position of bottle holders when not in motion.

Has enclosed cut gears.
Swinging bottle-holders.
Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

DOES YOUR DAIRY PAY?

It costs no more to feed a profitable than an unprofitable cow.

NET PRICES.

No. 1,—2 bottle, complete for testing milk each	$4 00
No. 2,—4 bottle, complete for testing milk each	5 00
No. 3,—2 bottle, complete for testing cream and milk, each	4 50
No. 4,—4 bottle, complete for testing cream and milk, each	5 50

Prices include full directions for making test, bottle of acid, test bottle brush, acid measure, pipette and test bottles.

See our ad of STEEL TANKS and SCALES in NEXT issue. Write for catalogues and circulars.

National Creamery Supply Co.,

450—458 Illinois St.,
CHICAGO, U. S. A.

GONE LAME!!



Those words strike terror to the heart of every horseman. Don't worry. If it is **Spavin, Ring Bone, Splints, Curb** or any form of **Lameness, Kendall's Spavin Cure** will cure it quickly and permanently.

Cambridge Springs, Pa., Dec. 4, 1902.
American House Livery,
Dr. B. J. Kendall Co.,
Gentlemen:—I have been using your Kendall's Spavin Cure **for fifteen years** and find it a success. I have one of your old "Treatise on the Horse and his Diseases," the leaves are some of them lost; if you have any new ones please send me one, and oblige.
Very truly yours,
CHAS. KELLY.

Price $1; 6 for $5. As a liniment for family use it has no equal. Ask your druggist for **Kendall's Spavin Cure**, also **"A Treatise on the Horse,"** the book free, or address
Dr. B. J. KENDALL CO., ENOSBURG FALLS, VT.



TUTTLE'S ELIXIR

Cures Curbs, Splints, Spavins, Etc. Equally good for Colic, Distemper, Etc. Our 100-page book, "Veterinary Experience", **FREE.**

DR. S. A. TUTTLE,
62 Beverly Street. Boston, Mass.

HOOD FARM
Antiseptic
Breeding Powder

Makes Cows Breed After Abortion.
Corrects Failure to Come in Season and Failure to Clean.

"I had a heifer that aborted her first calf and she failed to breed again, though three different bulls were tried. I decided to give Hood Farm Antiseptic Breeding Powder a trial. After one month's treatment the heifer was bred successfully and in due time she gave me a fine heifer calf for which I have been offered $25." JOSEPH MASON, Bacon Farm, Newton Highlands, Mass.

Price, $1, sent by mail, $1.15. Size containing four times this quantity, $2.50. Sent prepaid for $2.75. Address
C. I. HOOD CO., Lowell, Mass.
Mention this paper.



COWS RELIEF

Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.
Used Exclusively at Model Dairy
Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.
O. H. MFG. CO.,
Dept. H. Lyndon, Vt.



A QUICK, SHARP CUT hurts much less than a bruise, crush or tear
DEHORNING Done with the **KEYSTONE KNIFE**
is the safest. Quick, sharp cut. Cuts from four sides at once. Cannot crush bruise or tear. Most humane method of dehorning known. Took highest award World's Fair. Write for free circulars before buying.
M. T. PHILLIPS, Box 13, Pomeroy, Pa.

THE NORTH-WESTERN LINE C&NWRY.

Special Reduced Excursion Rates

Will be in effect from all points on the Chicago & North-Western Railroad for the occasions named below:

Detroit, Mich., Oct. 16th to 22nd, Christian Church National Conventions.

San Francisco and Los Angeles, Cal. Oct. 20th to 23rd, American Bankers' Convention.

For information as to rates, dates of sale, etc., of these or other occasions, call upon the ticket agent of the North-Western Line.

HAY FEVER AND ASTHMA
Cured to stay cured. Never return. A radical departure. Cause eliminated. Constitution changed. **FREE** Nerves reconstructed. Splendid health. Over 52,000 patients. Good references. "Reliefs," or change of climate, cannot cure. Write for Book 41 F Free, containing reports of many interesting cases. Address **DR. HAYES, Buffalo, N. Y.**

SEND 50 CENTS to Modern Medicine Co., Dept. B., Benton Harbor, Mich., for their Wonderful Tonic Tablets, that restores health and vigor to men and pale, sickly women. Guaranteed or money returned. Valuable medicine book for 2 cent stamp.

per cent of them, failing to take up until they come in heat three or four times? H. C. K.
Tillamook, Oregon.

ANSWER.

Although there are various causes, very often this trouble follows a siege of abortion, or even if a bull has served a cow which has recently aborted, and still discharging from the vagina, and then serves a healthy cow, he may cause sterility or even abortion. It is generally admitted that the presence of abortion germs will prevent conception.

Abortion.

We have one cow in our herd (a grade Jersey) that we think has aborted, at least she comes in season every 18 to 21 days. We can see nothing else to indicate abortion. She carried her calf 6½ months. If she has aborted would she be apt to increase any in milk when her time to have freshened is up? This is the third time this cow has done this. First time aborted in 4 months; second time, 5 months; and this time 6½ months, but increased in milk the first two times. Would you advise selling her or giving her another trial? If the latter, when would be best to breed her?
Elsberry, Mo. C. H. T.

ANSWER.

We would advise to give the cow a rest, viz.: do not breed her for at least six months, so that nature will have a chance to restore the uterus to its normal condition. She may then be able to carry the calf its full time. A cow usually gives more milk after she has aborted, provided she carries the calf long enough to bring her within two or three months of the normal time for dropping the calf, but if the abortion is continued four or five times in succession, it will so weaken the system that there is no increase in the flow.

Hernia.

A mare colt about six months old has a soft lump about size of a goose egg, about a foot from the bag on the seam of the belly. Came on when she was about a week old. It looks like a rupture Should it be bandaged? W. J. W.
Riverside, Cal.

ANSWER

Your colt has a hernia which can only be remedied by performing an operation, known as laparotomy. Employ a qualified veterinariam.

Spaying.

Does it pay to spay young heifers from grade cows?
At what age may they be spayed?
Is it a dangerous operation?
Are there any publications on spaying?
Tuscola Co., Mich. E. M. O.

ANSWER.

It pays to spay heifers if you are feeding for beef, as they fatten quicker.

The usual time to perform this operation is when they reach maturity, just before they come in heat.

The operation is not dangerous if carefully performed.

For publications on this subject write Alex Eger, 2537 State St., Chicago, Ill.

Horse Owners! Use



GOMBAULT'S
Caustic Balsam
A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. **Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING.** *Impossible to produce scar or blemish.*
Every bottle sold is warranted to give satisfaction Price $1.50 per bottle. Sold by druggists, or **sent by express, charges paid, with full directions for its use.** Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland O.



Let Them Help Themselves.

They'll not take too much, and they'll get it as they want it. Don't force animals to eat salt when they don't require it, by mixing with food.

COMPRESSED
Pure-Salt Bricks

are all salt, no impurities. Improve the quality and yield of milk. A modern convenience, always present, animals never neglected, and costs for each only about a nickle a month. See how they enjoy helping themselves when you place it within reach. For all stock. Buy of dealers or send for free booklet to
Belmont Stable Supply Co., Brooklyn, N.Y.

"SAVE-THE-HORSE"
— TRADE MARK —
SPAVIN CURE.

The Commonwealth Press
OLIVER B. WOOD
PROPRIETOR
WORCESTER MASS.

Mercantile and Law Printing a Specialty. Blank Books Manufactured to order.

OLIVER B. WOOD,
Printer and Stationer,
No. 50 Foster Street.

Worcester, Mass. June 11, 1903.

I have a Wilkes Pacing Gelding that became lame in the off forward foot. The soreness was just above the hoof, with a tendency to throw out a ringbone. I tried three veterinarians and various advertised remedies which were on the market but without effecting a cure. Also fired and blistered him once. My attention was called to your remedy by a friend who urged me to use it. After one month's trial and the use of one and one-half bottles, we hitched the horse up and drove him and he has never taken a lame step since. Have now been driving him six months on the road, have speeded him on the track and macadam roads and he is as sound as a bullet. It is certainly a wonderful remedy and I feel that I cannot say too much in its praise. Wishing you every success, I am yours respectfully
O. B. Wood

J. M. DAY
LEADING DRUGGIST
Dayton, Wash., Sept. 15, 1903.

Troy Chemical Co.
Troy, N.Y.

Gentlemen:-Herewith please find enclosed N.Y. Exchange for which please send me at once 1 bot. "Save-the-Horse"
"Save-the-Horse" is certainly accomplishing wonderful results in this case. The bog is all gone and the Thoroughpin is fast disappearing.
Very truly yours
J. M. Day

RIPON, WIS., July 29, 1903. Gentlemen: My horse had ringbone on right hind leg. Used blisters for nearly one year and had him fired, but to no effect other than to leave a bad scar. In April I purchased a bottle of your "Save-the-Horse" and by the time I used half of the bottle it had completely cured the lameness and is reducing the bone. Yours respectfully,
O. B. Dakin

It is the truth---actual results from business men whose standing and reliability can be readily ascertained--- which have made "Save-the-Horse" such a success. Their cured horses are living advertisements, absolute certainties as to the possibility of the remedy in your own case, and with every bottle is a guarantee document as binding to protect you as the best legal talent could make it.

"Save-the-Horse" cures without scar, blemish or loss of hair, can apply at any time, any place, and in all conditions and extremes of weather. Horses may be worked as usual with shin or ankle boots, as no harm can result from destruction of hair or scalding of limb. **Positively and Permanently Cures Bone and Bog Spavin, Thoroughpin, Ringbone,** except low ringbone, **Curb, Splint, Capped Hock, Windpuff, Shoe Boil, Weak and Sprained Tendons and all Lameness. $5.00 per Bottle.** Written guarantee with every bottle given under our seal and signature, constructed solely to satisfy and protect you fully. Need of second bottle is almost improbable, except in rarest of cases. Send for booklet and copy of guarantee. $5.00 per bottle at all druggists and dealers, or sent express prepaid.

TROY CHEMICAL CO., TROY, N. Y., Also Manufacturers of Veterinary Pixine.

BLACKLEGOIDS



BEST PREVENTIVE OF BLACKLEG.

Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each Blacklegoid (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. Blacklegoids are sold by druggists; *ask for them.*

Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.

PARKE, DAVIS & CO. - DETROIT, MICH.
Branches: New York, Kansas City, Baltimore, New Orleans, Chicago; Walkerville, Ont.; Montreal, Que.; London, Eng.

CHLORO NAPTHOLEUM DIP

Used in the Dairy makes every condition perfectly Sanitary. Use it as a disinfectant, for cleaning all dairy utensils and cans, sprinkling floors and walls. Purifies and cleanses thoroughly. Also cures scours in calves and contagious abortion in cows. Keeps flies off cows at milking. Guaranteed. Agents wanted. 1 gal. $1.50; 5 gals. $6.75, prepaid. Larger lots at lower rates.
WEST DISINFECTING CO., Inc., 8 E. 59th. St., New York.

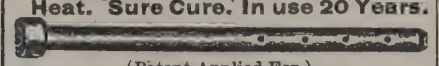
CURE "THE" COW
NO CURE, NO PAY



WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address
DR. EATON J. GROSS
152 Congress St., Troy, N. Y.

ABORTION,

Failing to Breed and bring Cows to Heat. Sure Cure. In use 20 Years.



(Patent Applied For.)
Hard Rubber Safety Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.
DR. WM. HORNE, Janesville, Wis.

DR. GEORGE HOLLABUSH'S
Sure Cure for Abortion



and General Tonic for Cows. The only genuine sure cure and general tonic for cows on the market. I guarantee, and refund money if not satisfactory.
Dr. Geo. Hollabush, Ft. Atkinson, Wis.
Write for circular.



ABORTION

Can be successfully treated with **Anti-Abortion Serum.** Easily administered and permanently cures. Information free.
DR. ROBERTS
VETERINARY REMEDY CO.,
541 Grand Ave., Waukesha, Wis

..ABORTION..

RETENTION OF PLACENTA AND FAILURE TO BREED.
KELLOGG'S CONDITION POWDER
Is a positive cure for these diseases. Write for circular containing full information, references and price.
H. W. KELLOGG CO., St. Paul, Minn.

NOW Is the time to Subscribe for **HOARD'S DAIRYMAN.**

BARREN COWS CURED.
Write for Pamphlet and Testimonials.
Oldest and best Treatment Extant.
MOORE BROS., V. S., Albany, N. Y.

New York Milk Producers' Meeting.

ED. HOARD'S DAIRYMAN:—The members of the Five States Milk Producers' Association, also of the Producers' Pure Milk Company, are still active, but the recent unsettled condition in Wall Street, together with some other difficulties, it is claimed, have deferred the final consummation of the companies' plans. A meeting was held at Binghamton, N. Y., Sept. 22, to determine whether more time should be given the company. The meeting was composed of the representatives of the F. S. M. P. Association for each railroad branch and of the sales committee.

There are twenty two railroad branches, or divisions, within the territory of the Association, each having a representative, and all except a few of these representatives were present at the meeting. While considerable discussion was had regarding matters in general, the only vote taken was with reference to extending the time. It will be remembered that certain individuals represented that the People's Pure Milk Company would be completely organized and would be ready to take the milk of the members of the Association at a good price by October first.

It now appears that the company is not ready to purchase milk and they therefore ask for more time. The representatives of the routes mentioned voted, so far as they have the power to do so, to extend the time, leaving the matter in the hands of the sales committee to act upon at their discretion.

How far the People's Pure Milk C ompany are from final organization could not be definitely learned, nor could it be determined how generally the farmers are signing the contracts, pledging the sale of milk to the company for the next five years. In fact, the whole affair appears to be one of some uncertainty at the present time. It is to be hoped that some good will ultimately result to the farmers who are interested. H. H. L.

Chenango Co., N. Y.

World's Fair Dairy Barns.

The contracts for the four dairy barns at the World's Fair have been let, and construction will begin at once so that the cows may be brought to the Exposition grounds before the first of the year.

Their location is at the north end of live stock site and just west of the proposed live stock forum or main amphitheater.

The barns will be uniform octagons, 100 feet in diameter. Each will have thirty-eight stalls arranged in a semicircle, with a rear promenade twelve feet wide to accommodate visitors. Eight box stalls, 8'x12' will be provided for the cows at calving time, and two box stalls will furnish quarters for bulls. The second floor will have four feed bins, each holding about 500 bushels of ground feed. Sleeping quarters for the men in charge of the cows are also provided.

The arrangement of the barns permits full inspection of the stock by visitors and of the care of the cows to the best possible advantage. Chief Coburn and Secretary Mills express themselves as well pleased with the plans.

GROOM YOUR CATTLE BY POWER

Our Improved Grooming Brushes, revolving 1200 times a minute, insure glossy coat, clean skin, active pores, health and beauty. Their use increases value of all stock. Indispensable for prize winning show cattle. Will groom 30 to 50 head an hour, and do it better than by hand. Get our Free Booklet and learn to groom your cattle, horses and all stock the best way.
CHICAGO FLEXIBLE SHAFT CO.,
194 Ontario St., Chicago, Ill.

GOOD DAIRY FARM

FOR SALE—near Reedsburg, Wis., of 160 acres, 100 acres cleared and in good state of cultivation. 60 acres open woodland and fine pasture. 2 good flowing wells. New barns costing $1500.00. Good house and all outbuildings in good repair. Write for information.
J. T. BATES, Reedsburg, Wis.

IOWA FARMS For Sale $45 to $65 Per Acre.

We offer improved Iowa farms close to church, school and town, with local telephone and rural mail delivery, soil rich, black loam, and level, at $45 to $65 per acre. We also have special bargains in North and South Dakota and Canada. If you wish to buy or sell land or city property anywhere, write to us for confidential terms. We make a specialty of long range sales, so no matter how far away you live, if interested write us. We refund railway fare to parties who buy of us Send for price list with pictures of farms.
THE JOHN M. CANNON LAND AGENCY, CRESCO, IOWA.

Improved and Unimproved Farms for Sale

Farm No. 1 consists of 90 acres with frontage on a fine lake where there is excellent fishing and game. This lake is one of a chain of lakes on which you can travel for twenty-three miles. Has two-story house with eight rooms. Two-story log barn. Ice house and ten acres cleared. For sale at a bargain. One mile and a half from the railroad.

Farm No. 2. One-half mile from the railroad. 100 acres or more if desired, five acres cleared. Two-story, eight room house. Glass chicken house. First-class hog pen. Plenty of timber on land for own use, and quite a quantity of saw timber. We have besides this 16000 acres of unimproved land. Heavy black soil. All lies in Central Wisconsin. Low priced Excellent markets. Will grow any kind of crop and produce immense results. Excellent water supply. Splendid markets and a local demand for everything that is raised. None of the land lies more than three miles and a half from the railroad.

WISCONSIN FARMS

Will furnish names of people who have bought from us who have made big success. Can furnish lands in either small or large quantities. Can furnish reduced rates to see the lands. Easy terms to suit the convenience of the purchaser. As safe and desirable an investment as government bonds. Write in for maps and any information you may desire.
INTERIOR LAND CO., Janesville, Wis.

Buy You a Ticket to CROOKSTON, MINN., and call upon

The Polk County Land & Loan Company

For choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.

360 acre farm, 4½ miles from Crookston, Minn., (a city of 7,000 inhabitants), and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x2 1½ stories with an L 14x22, and a wood shed in connection 20 ft. square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm in under a high state of cultivation, and is well drained by a slight ravine running through the farm, merely sufficient for self drainage. The soil is a rich deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50,

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired, Price $19.00 per acre.

DO YOU WANT 10 COWS?

We make the following liberal offer to any reliable farmer who buys 160 acres of land of us: We will furnish you with 10 cows, either fresh or soon to become fresh. They cost you just the market price. You sell their cream to the creamery. Every month you have the Creamery Company send us sixty per cent. of the amount due you for cream. You do this until the cows are paid for. In one year the cows with their increase will pay for themselves. After the first year they will take care of the annual payments of principal and interest due on your farm. If you buy a half section, we will furnish you with 20 cows, and so on, selling you 10 cows for every 160 acres you buy. This is the "crop payment plan" applied to stock. We expect purchasers to pay from $2.00 to $3.00 per acre in cash—sometimes we make easier terms to good men. If our plan interests you, write us.
WHITNEY & WHEELOCK, 22 Broadway, Fargo, N. D.

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Leads the World in Apples, Small Fruit and Stock Raising

Unequaled by any country on earth for all-around farming, fruit and stock. 1,400 feet above sea level. Beautiful, healthful climate; short winters, January and February. Pure air, pure water, abundant and fine range, where all grains, grasses and fruits grow to perfection. **If you want a cheap productive farm, where you can make money and enjoy living this is the place.** We can sell you at the present time **finest improved farms from $10 to $25 an acre.** Will positively double in price a year from now. Don't delay or make the mistake of buying elsewhere till you have investigated this spot, but write at once to
J. H. QUIN & CO., Lebanon, Mo., for particulars and mention this paper.

21 STRONG REASONS

WHY IT WILL PAY YOU TO BUY A FARM IN THE GREAT BLUE GRASS COUNTRY OF NORTHERN WISCONSIN.

1. The soil is rich and productive. Everywhere there is a clay subsoil to retain the moisture.
2. The climate is very uniform—neither extreme of heat or cold.
3. The seasons are regular and there is never a crop failure.
4. There is an abundance of wood for building and fuel, which need only to be cut.
5. Taxes are very low compared with other sections.
6. It is the best agricultural country known for a man of small means to get rich.
7. It is better to own a low-priced farm than to owe for a high-priced farm.
8. You can own a home in this section for what you now pay out for rent in one year.
9. Everything grown in the west can be grown on these lands.
10. There is an unsurpassed market for all farm products throughout the year.
11. Truck farming is very profitable in this section.
12. No better fruit country in the northwest. All northern varieties are wonderfully successful.
13. The best place in America to raise horses, mules, cattle, sheep and hogs.
14. The water supply is the best. The country is full of clear running streams and springs
15. Cereal crops average more bushels per acre than in other northern states. This may be said particularly as to oats, the average yield being from 60 to 80 bushels per acre.
16. Grasses and clovers for grazing or hay grow luxuriantly, far better than they do in southern Wisconsin, Iowa, Minnesota, or the Dakotas.
17. No swamps in this section—no malaria, no chills, no fever, no cyclones, no hail or destructive storms.
18. Fish and game in abundance. It is the sportman's paradise.
19. Lumbering and manufacturing interests offer ample employment at good wages whenever desired, both winter and summer.
20. Thousands of settlers are moving into northern Wisconsin, and in consequence land is increasing in value very fast.
21. The best class of people are among the settlers, which include principally Americans, Germans and Scandinavians.

DON'T PAY RENT, but come up and let us sell you a farm which will cost you but little more than the rent of a good farm in the older agricultural districts. Not only that, but a farm that will grow in value every day. Write us to-day for full particulars concerning these lands, and arrange to look them over at the earliest possible moment. They cannot fail to interest you if you want to get a home of your own. Mention HOARD'S DAIRYMAN.
WISCONSIN BLUE GRASS LAND CO., Baldwin, Wis.

MILK

From Ten Cows Will Bring You as Much Money in St. Louis Co., Minn., as from Twenty Cows where You are Located. Why? Because:

1st. There are more consumers and less producers of milk; as result the price is nearly double.
2d. You will be one-half nearer to the market; have quicker delivery and less freight to pay.
3d. The cows having larger ranges to feed on, more grass, such as clover, bluejoint, red top, and peavine, are apt to give you more milk.

If you doubt this, please come and investigate, and we will show you at the same time about 10,000 acres of finest hay land, no swamp, on which you can open up a dairy or a stock farm that will be a money maker from the start.

PRICES FROM $7.50 TO $15.00 PER ACRE

TERMS VERY EASY. If you are interested write for our free Illustrated Folder and Railroad Rates, Etc., to **L. B. ARNOLD, 838 Pioneer Press Bldg., St. Paul, Minn.**
Assistant Land Commissioner Duluth & Iron Range R. R. Company.

Wisconsin

offers unexcelled opportunities for those who want to stop paying rent and make money in agriculture, in the fruit or dairy industry, or in sheep raising. Along the lines of the

Chicago, Milwaukee & St. Paul Railway

in Northern Wisconsin are many tracts of land admirably adapted to the home-seeker. In former timber tracts are many cultivated farms worth $50 to $75 an acre. Adjoining them, enjoying the same advantages, are unimproved farms for $7 to $20 per acre. Why not take a trip there and investigate these openings for yourself?

Additional information on request.

F. A. MILLER, GENERAL PASSENGER AGENT, CHICAGO.

FARMERS WANTED

Send Card for FREE MAP and Price List of Wild and Improved Lands in Wadena, Otter Tail, Becker, Todd, Hubbard, and Case Counties, Minnesota. Low prices and easy terms. We are large owners.
MURRAY'S LAND OFFICE,
WADENA, MINNESOTA.

LANDS EASY TO GET

I have lands, all good farming land, in Wilkin and Polk counties, Minnesota and Grand Forks and Burleigh counties, North Dakota, that I will sell on crop payment plan, with small cash payment of from $2.50 to $3.50 an acre cash down. Must sell. A chance of a lifetime. Investigate. For description and how to reach them, address
E. E. SECOR, Buffalo Center, Iowa

Silage for the Dairy Cow.

ED. HOARD'S DAIRYMAN:—I want to give my testimony again in favor of the use of silage for the dairy cow. My last year's experience but added to the experience of the past, and even more satisfactory than ever before. I thought my mixed corn and cow pea silage of last year could not be beat; but I have just finished filling my round stave silos again, this being eleven times for one, and the tenth filling for the other, and this time the quality of silage is even better than ever before; planted in good land, securing fine stand of both corn and peas, and being blessed with an exceptionally favorable season, the crop was certainly fine.

The Albemarle corn grew very tall, some of it measuring fifteen feet in height, and bearing two to six ears of long slim corn per stalk—well filled, firm ears. Often the peas were found climbing to the top of the stalk, and bearing well filled pods of ripe and half ripe peas We had no wind or storms to lodge the crop; was standing straight with scarcely ever a fallen stalk, so that the McCormick harvester got it all but the roots, leaving the field clean as a field newly plowed. The cultivation was continued late with the 14-tooth, one-horse, Iron Age harrow, so that there are no weeds or grass on the ground, and to-morrow I expect to start the disk harrow with four good mules to it to sow the field in rye for winter pasture. I could not ask for the land to be in better condition for the rye seeding, and it can be so quickly done.

Last winter I fed my Jerseys from 1st of October until the 1st of April, full feeds of the corn and pea silage, and they had the run of the blue grass and rye pasture whenever the weather was not cold and stormy. I did not spend a dollar for the high-priced mill feeds, and I never had my cows to do better, or reach spring in better condition, and this new filling of silage is even richer than last year in grain of both corn and peas, owing to the very favorable season for the growth of the crop and the ideal condition of the weather when filling. The ground was dry so that I had no trouble with the corn harvester.

This is its third season's work in the field, and I did not see a single bundle of the fifteen feet-high corn that it missed tying. It is certainly a valuable implement for the dairyman. It would have been an utter impossibility for me to have saved this crop of corn and peas, as I did, by hand labor. There was absolutely no loss. An average yield of more than twelve tons per acre of the best feed reduces the cost of winter feeding to a point that I can make considerably more money dairying in winter than in summer, when we have the heat, the flies and the extra necessary care of the milk and butter that summer brings.

Labor was higher this fall than ever before with us, on account of the great demand for labor on some new railroads in our section, and the opening up of some more extensive phosphate mines near us—so that putting up my silage cost more this year than last year. The harvesting in the field, hauling to the cutter, cutting and packing in the silos, cost me exactly seventy cents per ton, allowing the same for my own teams, as for those I hired. I use a Tornado cutter and chain elevator, driven by a four-horse, over-head gear, lever horse-power. The cutter, I have used ten years; it tears up the butt ends of the largest stalks so that a calf can eat every particle. There is none wasted. I wore out one set of teeth on my cutter, and two years ago put in an entirely new set, at a cost of about $5, so it has proven a cheap machine for me, and seems yet almost as good as new.

My stave silos, built eight feet in the ground and the wooden tub setting on foundation of only two thicknesses of brick and the staves 14 feet long, making entire depth 22 feet, have never failed to furnish me good silage. One of them has been filled eleven years, the other ten, and they seem good for at least ten more. And the two with the plain board roof that covers them cost less than $100. I believe they have paid me their cost every year. One hundred per cent per annum does seem to be a good investment for a dairyman, if it is not for a speculator, and I do not see how any dairyman can can afford to keep cows without a silo.

It has many advantages besides its cheapness over any other way of feeding. The work of filling can be done at a season of the year when there is no other work pushing and the work is practically independent of the weather. No danger of loss from rain like saving hay, for if it rains the work can go on as soon as the raindrops cease; no use to wait for days of sunshine. Much less space is occupied to store a full winter's feed than any other way that feed can be stored. The danger of loss by fire is not one-tenth as great as dry hay or fodder stored in the barn. The silage is ready and convenient to feed at any time and in any kind of weather. All kinds of farm stock are fond of good silage.

I feed one or two feeds to my mules and horses; have never seen any ill effects and they are very fond of it. For the dairy cow it furnishes a rich, succulent ration the whole winter that will compare favorably with the best spring pasture in milk and butter production. And especially here in the south where we can grow our corn and pea silage as a second crop, after harvesting wheat, rye or clover, making it the cheapest winter cow feed in the world and for any one article of feed it is decidedly the best as a continued ration. My cows never tire on it from November until May.

J. N. MERONEY.

Darks Mill, Tenn.

We Don't All See Alike.

ED. HOARD'S DAIRYMAN:—It's true and no less fortunate than true, it seems to us, since reading in Sept. 18th issue of this paper, an article by H. C. R. whom we are compelled to classify as an pessimist of the bluest type.

We must admit there is much, too much, truth in some of the statements made in the article in question, which was headed, "He Thinks We Have a Difficult Task." He says: "Most of the farmers, dairy farmers as well, despise their business." If this be true, then we fear you have indeed a difficult and hopeless task; for when a man, for one moment, feels in any degree above his business he has placed himself beyond the pale of usefulness, as his conversion into an intelligent and liberal-minded citizen is out of question.

The writer, we fear, however, had not a clear conception of the true circumstances upon which he has based his argument. We would take issue at any rate with H. C. R. in the statement in question, and think that the following is perhaps nearer the correct view of the situation.

The wise man said: "The love of money is the root of all evil." We might add to this, "The love of popularity is the root of much discontent." It is this love of popularity that creates very much of dissatisfaction among farmers. To many it seems unpopular to feed swine, to follow a team all day, to milk half a dozen cows night and morning, etc. The observant, intelligent farmer, however, with his mind on his work, is so interested in even the simplest operations that its unpleasant features are entirely lost sight of.

It is justly unpopular, though, to slave, as too many do, from 4 a. m. till 8 p. m., or even sometimes later. Experience has proven repeatedly that the farmer who works on regular and reasonable hours makes quite as much net ultimately, other things being equal, as the former. Herein lies the cause of very much of the derision of which our noblest of callings is sometimes a subject. Again, the apparent awkwardness of manner and the often untidy appearance of the farmer, tend to excite, when in company with the more self-commanding and well-dressed, a spirit of self-disdain which breaks through the countenance, influences the general bearing, and so tends to intensify the situation. Another, and inexcusable, cause of the average farmer's low estimate of himself and his privileges, is his lack of power to converse freely and intelligently in company with those well-informed and up-to-date, due to a lack of knowledge. In these times of rural mail delivery and rural telephones, there is no reason why the farmer cannot meet and discuss intelligently the leading questions of the day with anyone.

These are only a few of many as simple causes of the discontent so prevalent among farmers and their families. Most of them know that there is nothing, absolutely nothing whatever, about their business which, studied and understood, should be despised; but a lack of knowledge of the real principles upon which they operate precedes a spirit of disinter-

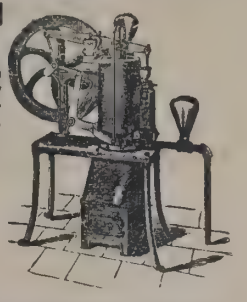
HALF ENOUGH WATER

Is quite enough for some people, but most people want water every day. If



RIDER or ERICSSON HOT AIR PUMPS

Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.



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Weight

Salt that makes weight makes money for the butter maker. DIAMOND CRYSTAL SALT—"*the Salt that's ALL Salt*," made weight for one creamery at the rate of $8,000 a year in additional profit. The secret is simply this: Whatever weight you add in DIAMOND CRYSTAL SALT, *you obtain in increased weight of butter*. Its pure, dry flakes dissolve completely and become a part of the butter, instead of being washed out, or adhering to the worker rolls, like common, gritty, flinty salt. Our illustrated booklet "Just Salt" is just the thing for dairymen. Free on request.

DIAMOND CRYSTAL SALT CO., ST. CLAIR, MICH.

BUTTER FOR UNCLE SAM

THE CONTINENTAL CREAMERY COMPANY
TOPEKA, KANSAS

Has been awarded the contract to supply the United States Navy with half a million pounds of butter for the ensuing year.

For this purpose only the best quality of butter is used, and its keeping quality must be made of the very best, owing to the fact that the entire year's supply must be made within a few months and it is carried through all conditions of climate.

The government has made a thorough study of supplying butter to suit the requirements of the Navy and as a result it has laid down some very exacting standards to which those who bid for these contracts must comply. One of the few concerns who can fulfill these requirements is the Continental Creamery Co. and it was awarded this contract, which is the biggest single order for butter ever filled.

This company produces the greatest quantity of fancy creamery butter in the world, all of which is made from pasteurized cream. Surely it knows something about making good butter. It also knows from actual experience and the investigations of its chemists, that one of the factors in making good butter is

WORCESTER SALT--IT USES NO OTHER

FOR SALE BY ALL CREAMERY SUPPLY HOUSES.

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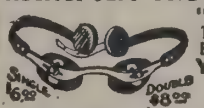
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WINCHESTER

Take-Down Repeating Shotguns

Don't spend from $50 to $200 for a gun, when for so much less money you can buy a Winchester Take-Down Repeating Shotgun, which will outshoot and outlast the highest-priced double-barreled gun, besides being as safe, reliable and handy. Your dealer can show you one. They are sold everywhere.

FREE: Our 160-Page Illustrated Catalogue.

WINCHESTER REPEATING ARMS CO. NEW HAVEN, CONN.

estedness and discontent, and hence the farmer learns to despise himself rather than his business.

All the causes enumerated may easily be removed, and once removed, there is, at once an interest awakened, and as before stated the farmer goes out and in, regardless of what a few ill-bred people may say or think. "The Dignity of a Calling is its Utility." W. G. C.

World's Fair Exhibit of Brown Swiss Cattle.

The Brown Swiss Cattle Breeders' Association is making a strong effort to secure exceptionally good representation of that breed at the World's Fair, both in the breeding classes and in the cow demonstration. Harry McCullough of Fayette, Mo., who has been given charge of the assembling of the Brown Swiss cows for the demonstration has issued a letter calling attention to the importance of sending the best cows obtainable to St. Louis. He says:

"The World's Fair at St. Louis in 1904 will afford the best possible opportunity for calling the widest attention to the great excellence of the Brown Swiss cattle as profitable milk and beef producers, and the most should be made of this favorable occasion for advertising the breed. There are many superior Swiss cows in the United States that should take part in the World's Fair test, and the value of every good cow in the competition will be increased in proportion to her record.

"It is my desire to put some of the best Brown Swiss cows in the country in the World's Fair dairy test, and parties who have first-class cows that will freshen the first ten days of May or the last ten days of April, 1904, are requested to send me full information about the daily yield of milk this season, the weekly yield of butter, the beef conformation of the cow and any further information that will aid in forming an opinion as to the advisability of putting the cows in the World's Fair dairy test."

Silos at The World's Fair.

The silos on the live stock site are the first exhibit at the World's Fair to be ready. Representatives of the breeds to take part in the cow demonstration at St. Louis, have seen to their filling. They and the cutting machinery are supplied by an Ohio manufacturing concern without cost to the Exposition or breeds interested.

Growing Alfalfa in California.

ED. HOARD'S DAIRYMAN:—I will try and tell you in a brief way the way we grow alfalfa in California under irrigation. In the first place we level our land as near level as we can, and we use a civil engineer's instrument, and when we get done, it is very nearly as level as a floor. I put my land in checks with a levee around every quarter acre. In the winter we irrigate from the river, using the flood water to soak up our land; we put from 24 to 30 inches on; with what water we get from the rain, will make us two good crops Then in the summer we use a pumping plant to pump our water, and we put on about six inches for each crop, and by not pasturing the land any, but by cutting and feeding green, we can cut six crops a year, and have good pasture all the winter.

We sow our alfalfa here any time, but it is the best sown in the spring, say March; some sow with a nurse crop and some without. I sow 20 lbs. of alfalfa seed and 20 lbs. of barley. I sow the barley to shade the ground to keep it from baking, for just as soon as the alfalfa is large enough to stand it, we put about six inches of water on it, and if there was nothing to shade the ground, it would bake so hard the young alfalfa would not grow, for the softer and finer the ground the better.

We never let our alfalfa come to the bloom here before cutting, but always cut when it is in the bud—or I will tell you how you can always tell when it is ready to cut. Take the top of it and roll it in your fingers and if the water runs out of it you let it stand until when you mash it, it will be damp, but no water runs out, or take near the bottom and try it by chewing it and if it is tough and the fibre is stringy, I always get the mower in as soon as possible.

I will say this, if you want to see alfalfa grow to perfection, why just come to California — the dairyman's Paradise, where you don't have to keep your cows shut up in the barn all winter, but can let them run on green pasture and have all the good alfalfa hay they can eat. I also grow about three acres of carrots and they yield something wonderful, about 70 or 80 tons per acre. R.W. MITCHELL.
Monterey Co., Cal.

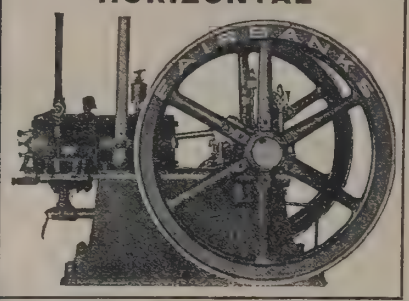


GOOD INTENTIONS ALONE CANNOT PRODUCE GOOD MACHINERY. Most all manufacturers are honest, but lack the experience and equipment necessary to turn out a thoroughly first class engine. We are the founders of the Gas Engine industry in the United States; have been building **OTTO** engines for 21 years, and operate the largest and most complete plant in the country devoted exclusively to the building of Gas and Gasoline Engines. Which will you buy, **Otto Experience** or **Others' Experiments**

THE OTTO GAS ENGINE WORKS, Philadelphia, Pa.

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GASOLINE ENGINES for all Farm Work. Write for CATALOGUE No. 360

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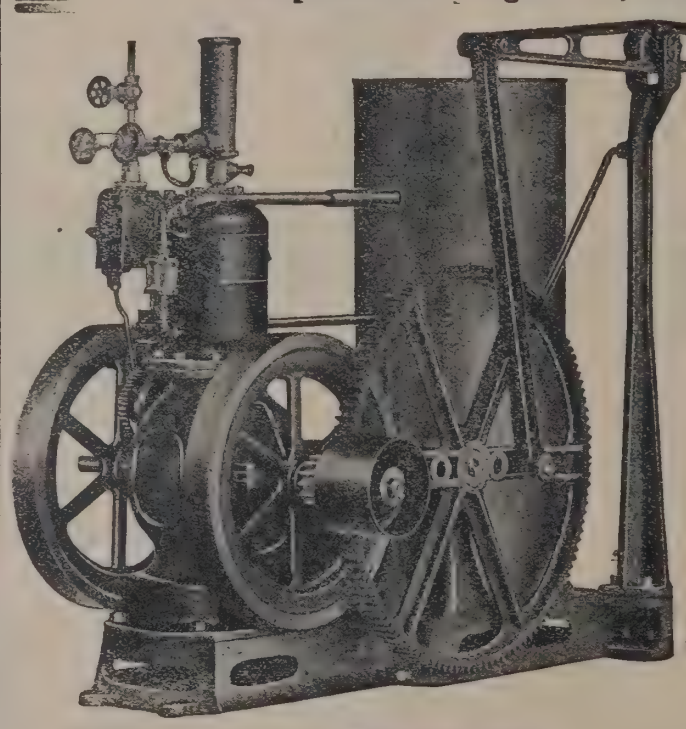
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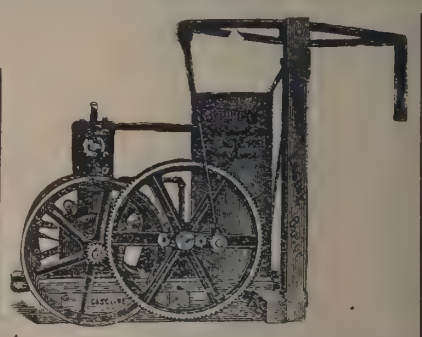
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The Model Gas and Gasoline Engines
MANUFACTURED BY
The Central City Iron Works, Stevens Point, Wis. and Model Gas Engine Co., Auburn, Ind.

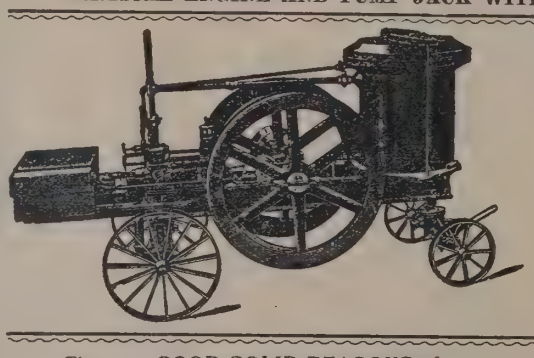


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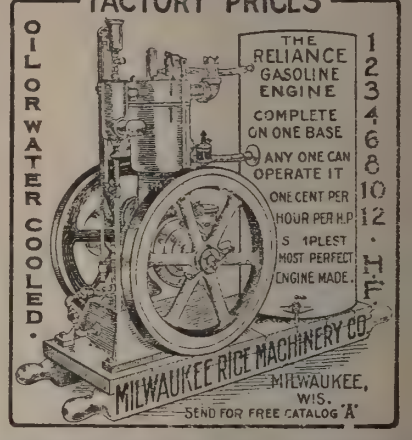


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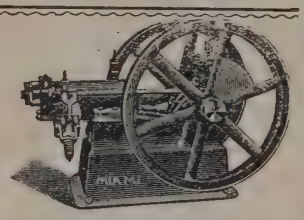


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Portable and Stationary, 3 to 25 H. P.
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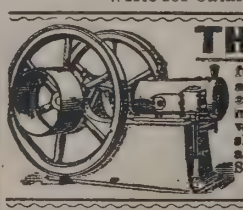


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All its parts are built to perform their functions properly and to keep on doing so WITHOUT WEARING OUT.
Miami Engines, Horizontal, 5 to 65 H.P., 12 Sizes.
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THE MIDDLETOWN MACHINE CO., Middletown, Ohio.
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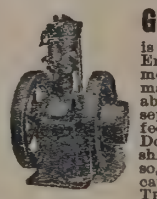




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THOMPSON-LEWIS Gasoline Engines furnish the greatest possible power at the lowest possible cost in **time, labor, fuel and money.** They are so simple that anybody can run them without expert training or experience. Our **Volume Governor** gives uniform speed. Our **Acme Mixer** is the most positive and economical on the market. Our **Hand Starting Lever** starts engine with least effort. All bearings of **Iridium Bronze.** Best material and workmanship throughout. Many sizes from 4 (actual) h.p. up. Best for all farm work—cutting and grinding feed, sawing wood, pumping water, separating cream, churning, etc Send for free catalog before you buy It may save you time, money and annoyance.
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Gas Engine Excellence is best represented in the **Buick Engines**—the reason why we make more small engines than any other manufacturer. Are you thinking about an engine to do the cream separating, churning, pumping, feed cutting or other farm work? Do you want guaranteed workmanship and up-to-date construction? If so, it's going to pay you to get our catalog H before buying.
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DON'T BUY GASOLINE ENGINES UNTIL YOU HAVE INVESTIGATED **"THE MASTER WORKMAN"**
A two-cylinder gasoline engine; superior to all one-cylinder engines. Costs less to buy and less to run. Quicker and easier started. Has a wider sphere of usefulness. Has no vibration; can be mounted on any light wagon as a portable. Weighs less than half of one cylinder engines. Give size of engine required. Sizes 1½, 2, 2½, 4, 6, 8, 10 and 15 horse power. Mention this paper. Send for catalogue. **THE TEMPLE PUMP CO., Meagher and 15th Sts., CHICAGO.**

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will never use any other. It is made just for shaving, by a firm whose business has been to make shaving soap for more than 50 years. "The only Soap fit for the face."

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Banner Lye is odorless and colorless and safe and satisfactory. It

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—10 pounds of hard soap or 20 gallons of soft soap—without boiling or large kettles, in only ten minutes.

Banner Lye keeps your kitchen, milk-room, milk-pans, etc., and dairy absolutely sweet and clean. It takes away not only the dirt that you can see, but the dirt that you can't see.

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are the best. Being made of aluminum they are brighter, lighter, stronger and more durable than any other. Fit any part of the ear. Nothing to catch on feed trough or other obstacle. Your name, address and any series of numbers on each tag. Sample tag, catalogue and prices mailed free. Ask for them. Address

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Patent Coin Silver 1¾" 50c. 2¾" 80c. Improved Teat Opener 75c. Dilating plug 25c.

Postpaid on receipt of price.

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Another Opinion on Farm Life.

ED. HOARD'S DAIRYMAN:—H. C. R.'s interpretation of the American farmer is too true to be denied. However, he is usually not the farmer who subscribes for HOARD'S DAIRYMAN. The per cent of your subscribers among dairymen ought to estimate the number of dairymen who do not belong to H. C. R.'s class, and all new subscribers should be recorded as decreasing this number. As soon as a farmer begins to interpret Nature's laws he begins to appreciate his occupation in such a way that an exchange, if possible, would not be made with the best lawyer or doctor living. It is the farmer who performs the old-fashioned routine without the assistance of the numerous scientific truths so freely distributed by the state experiment stations and the Agricultural Department at Washington, D. C., as well as the various farm papers, it is he and his family who are dissatisfied. However, there is a reaction in favor of the farm. Many who have left the farm for other occupations are returning, and a few who never knew anything of farming are seeking country homes.

J. L. C.

Elmer, N. Y.

"A Wonderful Stimulant."

Your paper is a wonderful stimulant to the dairy business. We built a silo last year and we think it is one of the best investments we ever made. We built one of the round stave silos. There are no silos in this immediate neighborhood. We have a retail dairy and have been at the business four years.

I would like to know how to make a home-made carrier for my silo cutter. I have an Ohio No. 13 cutter, but the carrier I used last year was not atisfactory.

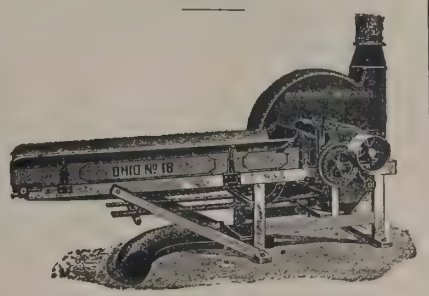
W. G. M.

Montgomery Co., O.

If every reader of HOARD'S DAIRYMAN could be stimulated to some specific improvement every year, whether it be the erecting of a silo, fixing the stable for warmth and ventilation, discarding inferior cows, feeding good cows better rations, buying a first-class dairy bull, or any other of the matters which go to make up-to-date dairymen, what an increase would it not make in the aggregate profits received.

True economy consists not in withholding expenditures, but in making wise investments, whether of labor or money, and, although we have never tried to construct a "home-made carrier" we are constrained to believe that it is a matter of so much detail and exactness that one might better purchase from those skilled in that business than attempt to make one with his own hands and the tools found on a farm.

ILLUSTRATIO



MODEL ENSILAGE CUTTERS ON ST. LOUIS FAIR GROUNDS.

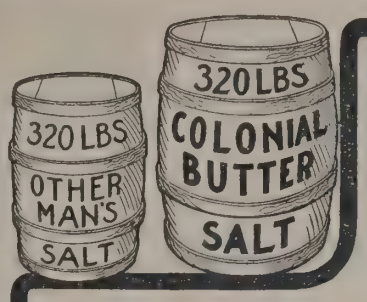
The enterprise and generosity of the Silver Manufacturing Company are playing a prominent part in the preparations for dairy proceedings at the Louisiana Purchase Exposition at St. Louis next year. It needs only mention of this concern's name to call up in the minds of our readers the "Ohio" Ensilage and Feed Cutters, regularly advertised in our columns. Two prominent dairy concerns, the A. J. C. Club and the Shorthorn breeders, determined to erect silos at St. Louis on the exposition grounds and to fill them with this year's corn crop against the time they shall want to use silage in the competitions there next fall. The Silver Mfg. Co. generously offered to donate, not only the ensilage cutting machinery, but also to erect the silos themselves. Both associations promptly accepted the offers and modern, up-to-date silos have been erected and filled with the approved ensilage machiery for which this company is so widely noted. It should be mentioned here that the Silver people erected the silo and furnished the ensilage machinery used by the Model Dairy at the Pan-American Exposition at Buffalo. Commenting upon the satisfactory character of the Buffalo plant, Prof. Edward Van Alstyne, superintendent of the Model Dairy, said: "I believe there are no machines of the same capacity that are as strong and at the same time will run as easily as the Ohio cutters. As to the No. 19 Monarch self feed cutter and blower elevator, which we used to fill the silo, I have nothing to say but words of praise. Our man in charge of the feeding tried his best to fill the cutter so that the blower might be clogged, but without the slightest apparent effect."

We do not have at hand data as to size of silo, manner and time of filling, etc. The work was done by the Ohio No. 18 cutter. We are reproducing here a small cut of this Ohio No. 18, with blower attachment, as exemplifying the type of cutter and blower made for ensilage purposes.

Cream SEPARATORS.

All about them and other things for the dairy and creamery.

A. H. REID, Philadelphia.



"Money Makers for Butter Makers"

Even though it were not apparent that

COLONIAL BUTTER SALT

AND

LIBERTY BUTTER SALT

are superior to all other kinds in flavor, color and purity, there would always be apparent the fact that they are superior in lightness, bulk for bulk. Take the barrel that holds 320 lbs. of the other man's salt; it will hold but 225 lbs. of Colonial Butter Salt. The usual salt barrel has a 30 inch stave and a 19 or 20 inch head. The Colonial barrel has a 34 inch stave and a 21 inch head, to hold the same net weight of salt.

The lightness of the salt makes it dissolve quickly and evenly and prevents washing out in the working, and if there is any value in the "make weight" theory, this salt stands at the head in that respect.

THE FLAVOR IS PERFECT

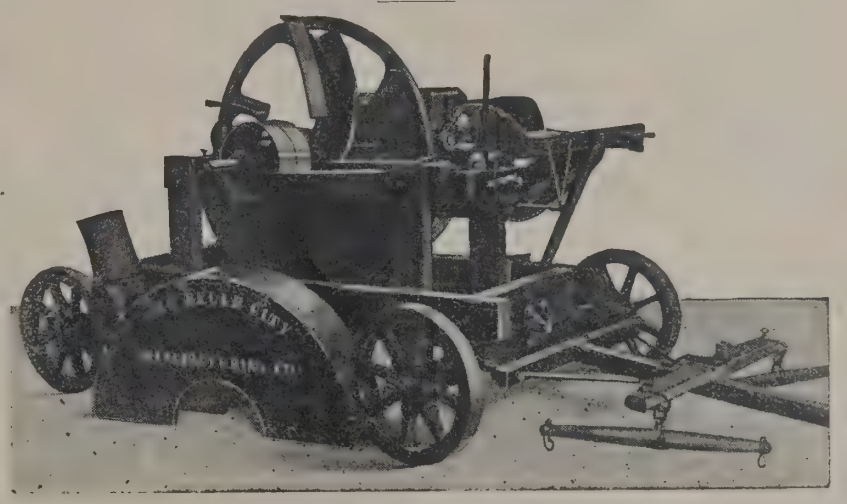
THE COLOR PERFECT WHITE

The purity over 99 per cent, highest in the world. PROVE IT YOURSELF. To those who have never used Colonial Butter Salt (light, flaky grain) or Liberty Butter Salt (granulated) we shall be glad to deliver free of any charge a 56 lb. sack of either or both, on request. We only ask, in return, that you report to us your actual success with our salt.

Won't you try it today.

COLONIAL SALT CO., AKRON, OHIO.

ILLUSTRATION.



SILO FILLING

To those farmers who are fortunate enough to own a silo the question of filling it is as of much importance as is threshing and like threshing it is always advisable to hasten the work, while the corn is in proper condition and the weather favorable. In order that there may be no delays in this work it is very necessary to have a good ensilage cutter, one with large capacity, strong and light running, in short, one that can be relied upon at all times, and if the farmer is up to-date the cutter should be equipped with a blower.

The accompanying illustration shows the Belle City Cutter with chain feed and blower, which is up-to-date in every particular. The blast for elevating, as will be seen in cut, is furnished by heavy, steel wings attached directly to the knife wheel, which revolves in the upper and lower wheel casings. This constitutes the blower, making a very simple and at the same time a very effective and powerful means of delivering the cut feed.

There are no chains, belts or bearings required for this blower other than are required for the ordinary machine without this attachment and because of this the complete machine with blower can be run with about the same power required for operating the same size cutter with the old style carrier or elevator.

The manufacturers of these machines, THE BELLE CITY MFG. CO., RACINE JUNCTION, WIS., will be pleased to furnish full information regarding them upon request; they also have a treatise on ensilage which they mail free.

SEEDS THE ALBERT DICKINSON CO.

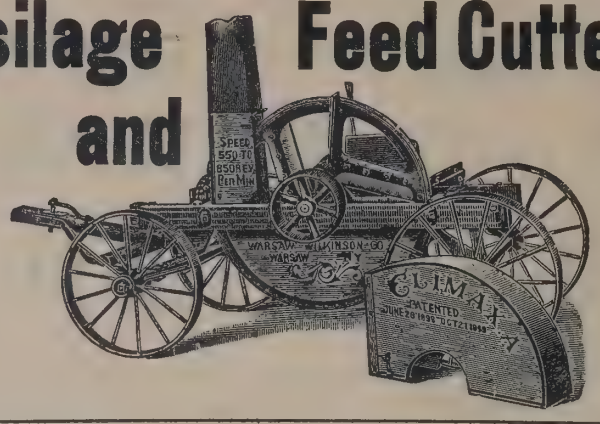
DEALERS IN

GRASS SEEDS, CLOVERS, FLAX SEEDS, LAWN GRASS, BEANS, PEAS, POP CORN, BIRD SEEDS, BUCKWHEAT, BAGS, ETC.

CHICAGO, ILL. BRANCH: MINNEAPOLIS, MINN.

CLIMAX

Ensilage and Feed Cutters.



"THE COMPLETE MACHINE"

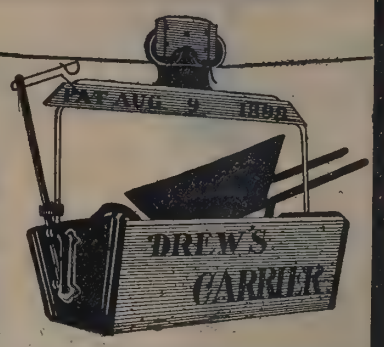
CLIMAX machines are original. They are not made over from old models, in an attempt to turn them into blowers, by adding a number of chains, belts, or other attachments. They are made to elevate by wind delivery, and every part is built with this end in view. They are sold under an absolute guarantee to do the work, and **never** fail.

CLIMAX machines passed the experimental stage eight years ago. It has never been necessary to change any essential feature of the original pattern. We are still using the straight knives, with the shearing, inward cut; the elevating is still done with the same wheel as the cutting, requiring less power; the smooth reversing gear, which is positive and cannot break; the large feeding rollers, which won't choke, and the knife adjustment, which sets every knife at once and sets them **true.** All these have stood the test and cannot be had with any other machine.

The combination of simplicity, great strength, large capacity and few wearing parts, places the **CLIMAX** in the very front rank. When you have a binding guarantee as well, there should be no doubt regarding the machine. Catalogue for the asking.

WARSAW-WILKINSON CO., WARSAW, N. Y.

GOODBYE, WHEELBARROW



Every farmer who gets a Drew Elevated Carrier has no more use for the barnyard wheelbarrow. The

DREW ELEVATED CARRIER

will carry the manure from the stables to any point in the barnyard, drop it, return automatically, ready for another load.

It is self operating—it turns curves and switches—dumps its load in yard or wagon. Besides carrying manure you can use it to convey ensilage, feed, grain, potatoes, cans of milk, from one point to another. It works so simple and easy that any man or boy can run it.



THE DREW ELEVATED CARRIER

carries labor off from the farm—it is the farmer's labor and money saver. No trouble to put them up—no trouble after they are up.

It leaves barnyard free from posts—keeps the barnyard clean and free from litter. Get one and

"WATCH IT WORK FOR YOU"

WRITE FOR OUR ILLUSTRATED CATALOGUE, FULLY EXPLAINING ALL ABOUT IT.
Also receive testimonials from hundreds of farmers and dairymen who have the Drew Carrier on their farms.

DREW ELEVATED CARRIER CO., WATERLOO, WIS., U. S. A.



CHERRY'S Perfected Barn Equipments

Consisting of Manure Carrier, Feed Carrier, Ensilage Carrier, Grain Elevator, Swivel Hay-Carrier, Hay Forks and Barn Door Fixtures. This system of carriers is built for **Heavy Work** and **Durability.** By the use of our **Curves** and **Switches** we can equip any barn. Send for illustrated Catalogue H and price list to

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WE GUARANTEE that under the same conditions as to power and speed applied, condition of corn, etc.,

The Appleton Corn Husker

2-Roll, 4-Roll, and 6-Roll, Down or Mounted.

Write to-day for free Catalogue.

will do more and better work than any other machine of like character and corresponding size on the market; that it is simpler in construction; easier in every way to operate; easier and safer to feed and to require less power for successful operation. The proof of these claims is sent for the asking. We make also a complete line of sweep and tread horse powers, shellers, ensilage and fodder cutters, feed grinders, wood saws, windmills, etc. **Remember that Appleton quality is the standard of excellence.**

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New American Manure Spreaders

hold from 50 to 100 bushels. Spread just as thin or thick, fine or coarse, as ground requires. Don't have to stop team to make change. Most substantial, largest capacity, lightest draft.

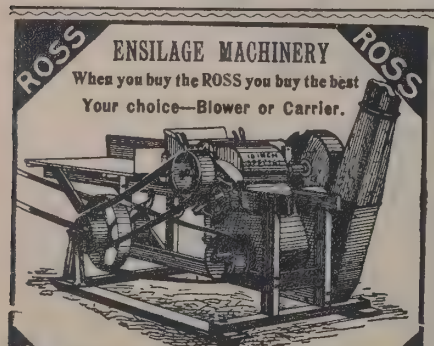
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American Harrow Co
Detroit, Mich.

ROSS ENSILAGE MACHINERY ROSS

When you buy the ROSS you buy the best

Your choice—Blower or Carrier.



Write for Catalogue No. 36—FREE
Prof. Woll's Book on Silage 10c.
THE E. W. ROSS CO.
Springfield, Ohio.

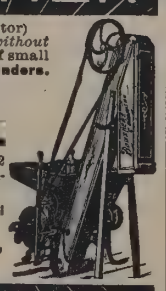
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(Sold with or without elevator)
CRUSH ear corn (*with or without shucks*) and **GRIND** all kinds of small grain. **Use Conical Shape Grinders. Different from all others.**

LIGHTEST RUNNING.

Handy to Operate. 7 Sizes—2 to 25 h. p. One size for windwheel use.

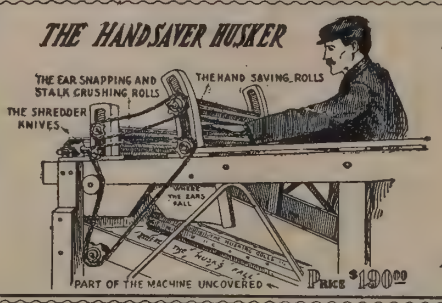
Also make Sweep Grinders; Geared and Plain.



N. P. D. Bowsher Co., South Bend, Ind.

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THE HANDSAVER HUSKER



YOU CAN'T GET HURT

HUSKS 50 BUSHELS PER HOUR

SNOW WON'T BOTHER

ASK ABOUT OUR 2 WHEEL WIND MILL AND ALL IRON WOOD SAW

ADDRESS

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HEEBNER'S FEED CUTTERS.

Feed all your fodder. By using Heebner's cutters with shredder attachment the whole of the nutritious stock is cut, crushed and shredded, and rendered edible. No waste. Animals eat it greedily and thrive. Shredder attachment costs $5.00. The model ensilage cutter. Also make Tread Powers, Lever Powers, Little Giant and Penna. Threshers, Wood Saws, Feed Mills, etc. Catalog free.

HEEBNER & SONS, 20 Broad St., Lansdale, Pa.

A Feed Mill

at little cost that grinds mixed grains, shelled corn or cob corn.



The New Holland

meets exactly the feeder's wants, with free trial to prove it. Speedy, strong, light running. 3 sizes, suited to any power. Write for free catalogue.

NEW HOLLAND MACHINE CO., Box 119, NEW HOLLAND, PA

BELLE CITY Feed and Ensilage Cutter

With Blower Attachment. Fan attached to knife wheel and blows feed or ensilage through any length pipe with less power than any other blower. Full line of **Tread and Sweep Powers, Root Cutters, Saw Frames, Belle City Threshers etc.**



Send for Catalogue. Silo and ensilage treatise sent free if you mention this paper.

BELLE CITY MFG. CO., Racine, Wis. Box 68.

"ST. ALBANS" LINE



Ensilage Cutters; Ensilage and Stalk Shredders; Blowers and Chain Carriers; Tread Powers; Sweep Powers; Threshing Machines; Circular and Drag Saw Frames, Etc.

Handsome Catalogue. Free! Send for it

ST. ALBANS FOUNDRY AND IMPLT. CO.
St. Albans, Vt.

Ensilage Cutters "They Throw and Blow." Pneumatic. "Silo Fillers." Blowers.

These machines cut and elevate with the same wheel at the same time. This wheel has paddles which throw and fans which blow. Without the fans the paddles would throw the ensilage 15 feet high. A light blast of air in addition will blow it to any height. No chains, belts or cogs to slip and waste power. A two-horse tread power will cut and elevate 4 tons per hour, a 10 h. p. engine 20 tons per hour. The easiest running and safest cutters and blowers made. Also cutters and carriers, shredders, silos, engines, horse powers, saw machines, etc. Send for catalogues.

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Send us your address and we will show you how to make $3 a day absolutely sure; we furnish the work and teach you free, you work in the locality where you live. Send us your address and we will explain the business fully, remember we guarantee a clear profit of $3 for every day's work, absolutely sure. Write at once.

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"1900" BALL BEARING WASHER sent free, without advance payment, freight prepaid both ways on 30 days trial. Mr. Geo. N. Burnet, Ashtabula, O., says, "Have done 1200 washings and is good for 1200 more. Beats them all, and have tried 8 different machines. Write at once to "1900" Washer Co., 219A State St., Binghamton, N. Y.

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HOARD'S DAIRYMAN.

of Ill

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., OCTOBER 16, 1903. NUMBER 36

HAND SEPARATOR BUTTER always brings a good price. We make it a specialty. Why sell your cream when you can get from 15% to 20% more for butter? Save "the over-run" for yourself. Send for market quotations and make us a trial shipment.
C. H. WEAVER & CO., 128 South Water St. CHICAGO.
REFERENCE:—Any bank or wholesale house.

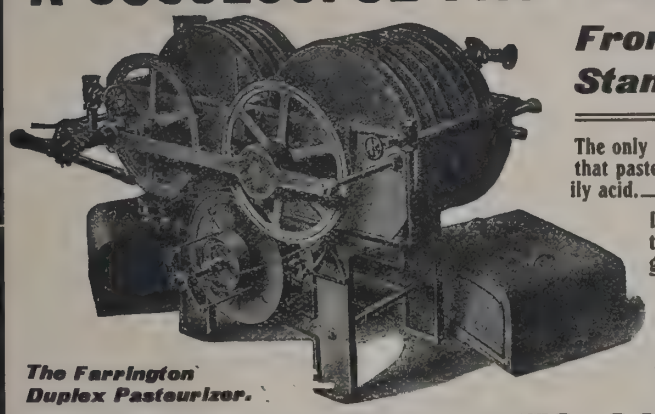
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Liberal Advancements Made on Consignments.
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NO COAL TAR IN OURS!
Chr. Hansen's Danish Butter Color
IMPARTS THE PERFECT "JUNE COLOR" TO BUTTER
Has stood the test of more than 30 years. Absolutely pure and harmless
CHR. HANSEN'S LABORATORY, BOX 1003, LITTLE FALLS, N. Y.

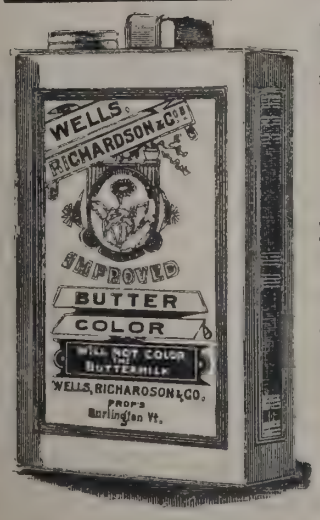
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From Every Standpoint.
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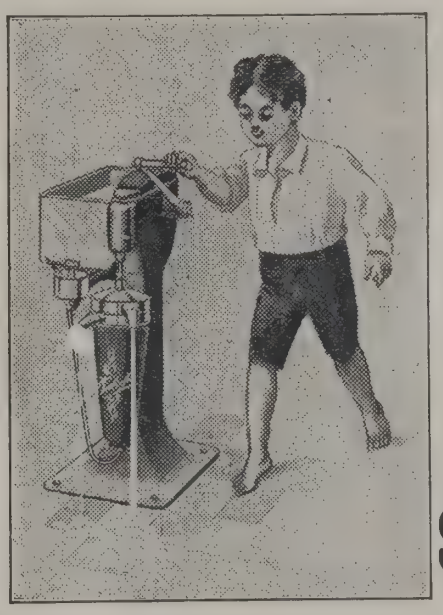
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Has stood the test for many years, and users of color know that it can always be relied upon. It is the BEST and therefore the CHEAPEST COLOR on the market.
For Sale By All First-Class Supply Houses.

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The higher you lift milk the harder you work. The higher the supply can of the separator the harder on the back—unless you want to risk your neck and your milk by stepping on a ladder or box. There is only one separator that has a low supply can.
Keep Your Eye On The Can!



THE SHARPLES DAIRY TUBULAR SEPARATOR

Has a supply can only waist high. You can empty a thirty quart can into it without stepping off the ground. The Tubular Separator has a simple tubular bowl, suspended from a single ball bearing. Won't vibrate—wabble—bind—or require rebalancing. Bowl contains only one tiny piece—which can be removed in an instant—permitting the bowl to be washed thoroughly in three minutes. All other separators have top heavy bucket bowls—set on a spindle—filled with troublesome, expensive discs or other contraptions. The Tubular has safe, enclosed gears running in a mist of oil. All other separators have bothersome oil cups needing constant watching. The Tubular has the only bottom feed—thus avoiding mixing whole and partly skimmed milk, and making the Tubular the easiest, fastest, cleanest, most durable skimmer known.
Catalogue No. 144 tells a truthful story about a separator that's different. It's free—write for it.

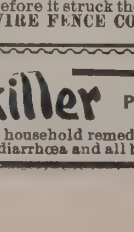
The Sharples Co., 28, 30 & 32 So. Canal St. CHICAGO, ILL.
P. M. SHARPLES, West Chester, Pa. U. S. A.

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The maker who isn't afraid of his lamp-chimneys.

The Index tells you, in ten minutes, all you need to know for comfort with lamps and the saving of chimney-money; sent free; do you want it?

MACBETH, Pittsburgh.

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The cleanest, strongest, steadiest, (made on the cold blast principle,) the one which does not leave you in the lurch by blowing out, comes from
DIETZ Cold Blast LANTERNS.
They are the most convenient lanterns made. You never remove the globe for filling, trimming or lighting. There is no chance for accidents with them. Then there's satisfaction in knowing the lantern you carry is not the dim, quivering, smoking kind. Learn how and why they are better than others by writing us for free lantern book. You can make your choice from many. Then see that your dealer gets it for you.
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Established 1840.



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Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address
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A Fence Machine that will make over 100 Styles of Fence and from 50 to 70 rods a day
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Horse-high, Bull-strong, Pig and Chicken-tight. Wire at Wholesale Prices. Catalogue Free.
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16 to 35 Cents Per Rod.
Heaviest, strongest, most durable fence made. All wires cross-lock. We sell to farmers at wholesale prices. Coiled Spring, Both end Self Galvanized Wire.
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Square Mesh, Dimond Mesh Fence, Plain, Galvanized, Barbed, or Telephone Wire. Write for illustrated catalog and price list.
DILLON-GRISWOLD WIRE CO., Sterling, Ill.

PAGE
WASN'T IT LUCKY THAT
the runaway auto at Zanesville, O., fair, ran into Page Fence? It had already counted over a score of killed or injured before it struck the fence.
PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

Painkiller PERRY DAVIS'
The world-known household remedy for cuts, burns, bruises—cramps, diarrhœa and all bowel complaints

That Difficult Task.

ED. HOARD'S DAIRYMAN:—I have read and re-read the article of "H. C. R." in the DAIRYMAN, for Sept. 18 with the title, "He Thinks We have a Difficult Task" and your question, "What do our readers think of the article?"

I think he may be right in a small number of instances, but that most of the farmers and their families despise farming and get out as soon as possible, I am pretty certain will not apply to Vermont.

That they are interested in their occupation and have made good progress in it, is evident from the condition of their farms, buildings, etc., which any observing individual can take in at a glance.

You, Mr. Editor, have been in the state, taken at least as fair a view of the condition of agricultural affairs as can be gathered from passing through a country and in meeting with the men and women at the farmers' conventions. I am aware that these are the representative men and women of a state that are met at these gatherings, but they are not all of them by any means. Altogether, there is a large class engaged in this leading occupation of the state who are industrious, contented, prosperous and happy.

I think there are very few of the class in Vermont who despise farming and get away from it as soon as possible, from any such motives, to say the least.

A farmer or any of his family who will leave the occupation from such motives I think will, as a general thing, make poor progress in any other.

Of course, not all of the farmer's family do or can remain on the farm, or at least the ancestral one; but it is possible that if more would do so, it would be better for them. Still we do have the satisfaction of knowing that not a few of the sons of our own state have gone to other states and made their mark, an honorable one too, and when they come back to visit the home of their youth, it is with a true regard and respect for the old farm, the home and all that is connected with them. Despise them? No, not they.

It is true that for various reasons a few of our farmers rent their farms—not sell them—and move into neighboring villages, but it was not because they despised the business, by any means.

There is quite a large class of business men, doctors, merchants, etc., who own farms, and although as a usual thing they do not live on them, they become greatly interested in the business and have faith enough to believe that the ownership of farm property is a safe investment.

There is a serious drawback at present from the great difficulty of obtaining help for the farm, both in the house and out of doors, and this does not appear to be confined to Vermont either. This is very discouraging to the owners of farms, and more of them will be rented as the result if there is not a change for the better.

This scarcity of help naturally leads to the employment of more labor-saving devices on the farm, as well as a change in methods, wherever this promises to be an advantage.

The work of the DAIRYMAN is among the more progressive class of farmers, those who have a taste for reading and can thus be reached.

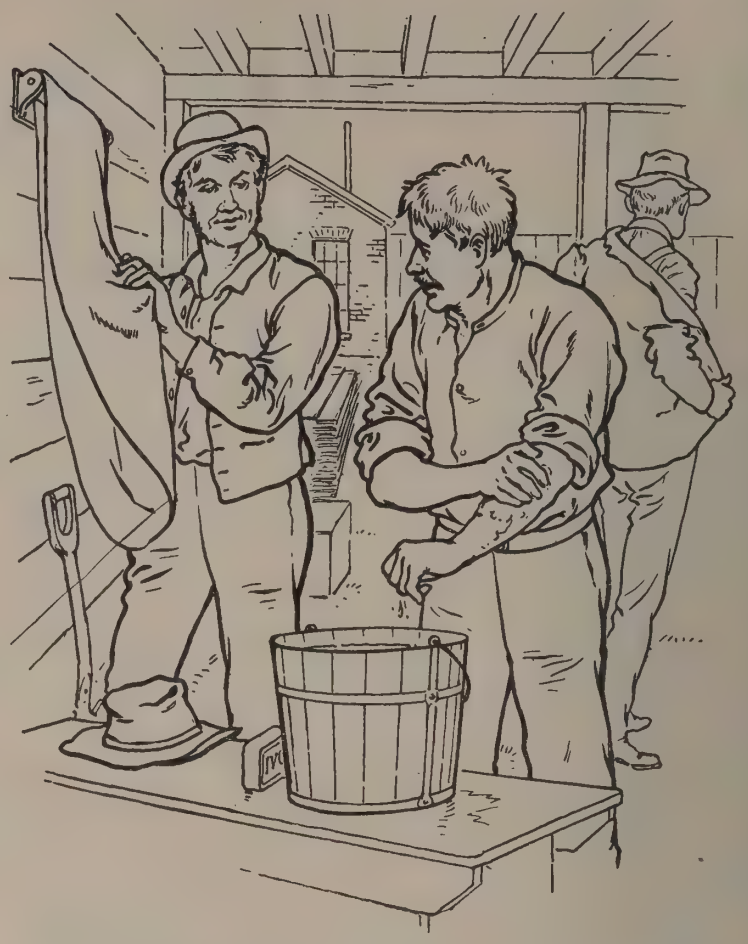
If we can only get men to read without prejudice, study what they read, compare notes and experience with others, there is hope of doing them much good; but there is a class that it is difficult to reach, and it requires all of the energy and skill of an agricultural journal and the aid of its most interested friends and helpers to get the attention of this class—the one so desirable to reach—but this is being done and the good seed of agricultural progress so long and carefully sown is surely bringing in its returns.

So there is encouragement to work on and to extend farther and farther the help that is so surely needed, believing that in due time there will be reaping for the sowing.

As the Senior Editor of the DAIRYMAN is pretty well acquainted with Vermont, including my own—Franklin—county, I wish to add here to my article the following editorial paragraph taken from the *St. Albans Messenger*, a leading state paper, as relating to the present position and prospects of this county:

"Franklin county may well be proud that there are no so-called "abandoned farms" within its borders. The thrift and prosperity of this county, the pro-

(Continued on page 815)



Workingmen will find it poor economy to employ ordinary laundry soaps for personal use. Those soaps contain free alkali, which injures the skin, and makes it rough and sore. Ivory Soap is pure, and is soothing to the skin; it is cheap enough to be within the reach of all.

Ivory Soap—99 44/100 Per Cent. Pure.

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Elmco Feed Leads.
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(L)et any enterprising feed dealer show by test that the product he sells is ALWAYS uniform and of superior quality and his trade will continue to grow.
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(O)n this basis of quality rests the foundation for our immense ELMCO Feed trade.
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LISTMAN MILL CO., La Crosse, Wis., U. S. A.
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THE MILL WHERE MARVEL FLOUR IS MADE.

Hoard's Dairyman

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association

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ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

Entered at Fort Atkinson, Wisconsin, as second-class matter.

Improving the Cheese Milk.

Improvement in Cheese Must be Started by Getting Better Milk.

J. Lehnerr, read the following paper before the Minnesota Cheesemakers' Educational Convention:

We can make just as good cheese in the state of Minnesota, as they do in any other state of the Union. All we need is the production of a good, clean-flavored, unadulterated milk.

How can we improve the quality of our cheese?

There are people living today who believe that our cheese factories are O. K., that is, good enough, and that there is no need of getting alarmed. Yes, there are people who believe in leaving well enough alone; who never want to go to any extra trouble and expense in order to try to improve their methods and old ways of doing things. They say this talk of keeping up with the times, is a new-fangled notion, and time costs money for those who try it: in fact, we are often told that those who stick to the "good, old fashioned ways" and do not have much to do with these up-to-date things, are the most successful and make the most money.

I, for one, look at it in another light and think if we want to make any progress and want to improve the quality of our cheese, we must not feel satisfied with our present standard or degree of perfection, and think we are all right. The moment we do this, we are at a standstill, and that means that we are going backwards; and those who are progressive and up-to-date will improve and advance, and we will be pushed aside to see the great procession of the onward moving, up-to-date passers-by.

Another thing we probably should do more, but can not very well, and that is to reject all milk which has not been thoroughly cooled or aerated, or contains any dirt or smell whatever. But if this were done, the cheesemaker would be apt to have a pretty lively time and considerable trouble. Personally, I have tried to follow this rule to some extent, but found it impossible, as our patrons do not practice aerating their milk and can not detect anything wrong with the milk, even if is slightly tainted; therefore, would think a wrong had been done. So we are simply obliged to accept the milk which we do not care to, and lots of it, too, just to keep peace and prevent trouble.

But now to come to the point: No body, I don't care who it is, can make a very high grade of cheese out of tainted or imperfect milk. Every patron that allows his cows to remain dirty, covered with a thick coating of manure, never takes a brush to clean the cows, and there are plenty of them, is surely not in favor of improving the quality of cheese. They claim they do clean milking even though the cows be dirty. I do not take much stock in this theory. Milk, cheese and butter are articles of food to be eaten by men, women and children; a great many forget this. They seem to think it does not make any difference what kind of milk is sent to the factory, judging from what may be seen on the strainers of factories, and I believe if the dirt which falls into a milk pail could be separated, placed on a plate for food for such a milker, he would change his mind, and I do not doubt but it would be a very good medicine for the man. If the cow is clean and your hands and pails are also clean. there is every reason to believe the milk will also be clean. On the other hand, if the can is dirty and the milker is filthy, the milk is bound to be tainted. In the summer, the cows wander over dirty sloughs and the udders become dirty. The udder should be washed at every milking and unless this be done, bad milk comes to the factory. Many claim that it does not pay to brush the cows. wash udders, feed balanced rations, aerate and cool milk. Men who make this claim are invariably the ones who never try it and their opinions are worthless. Can anybody tell me how much they have lost by taking good care of their cows and doing the other things mentioned? I say, take your hat off when you meet a good cow.

When you cultivate, prepare and care for a field properly, you will get larger crops and better results than by little or no care and cultivation. This is an established fact that none can dispute. The same principle holds true in the dairy department of the farm as well as in the crop department. If there is not money enough in our cheese business to warrant our doing the right work, I say quit the business. Do not bother with it unless you can do it as it should be done. Remember the old saying. Whatever you do, do well.

A little more about taking care of the milk. I will say: After the milk is drawn from the cow, milk should be properly aerated and cooled. Filth on the cow's udder carries a great many bacteria into the milk. Germs in milk multiply very rapidly unless the milk is aerated and cooled immediately after it is drawn from the cow. This should be done outside of the stable. Cooling milk arrests the growth of germs. The sanitary condition of milk is very important. The purity of the water supply and the condition of the stables are the two most important factors for the production of good milk. A cow's stable is a place for a cow to live in, not to exist in. The health of men and women depends, to a large extent, upon the cow; the health of the cow depends largely on her house being properly aired and cleaned; therefore health of children and men depends in a great measure on how the cow's stable is looked after.

Neither cattle nor other animals should be allowed or compelled to drink stagnant water. In fact no animal should be given water to drink which we would hesitate about drinking ourselves.

Some causes of bad flavored milks are foods, such as Swede turnips and tops, rape, musty meal, raw potatoes, grass having bad smelling weeds, such as leeks or rag-weed.

If you have some old and rusty cans which leak badly and have dinged covers and spill one-half a gallon or more of milk every day they are sent to the factory, should you continue to use them? Will it pay to buy new ones?

To wash milk pails, milk cans, etc., they should first be rinsed in lukewarm water, next washed with hot water and then scalded, after which put them in a nice place to air and dry. Do not wipe dairy tinware with a dishcloth. Make a bonfire of all the old dishcloths that are used for wiping dairy utensils, and the flavor of the milk will go up 10 per cent.

Now we come to the weigh room. There is the good chance to make the





A Contrast in Farm Buildings.

good or the poor cheese. It is the duty of the cheesemaker to inspect carefully the milk and milk cans and can covers, take out samples of both morning and evening milk, make your test every two weeks and invite farmers to be present, if possible, when you make the test. It is the duty of the cheesemaker to examine daily the inside and outside of the opening from the weighing can into the milk conductor. He should be thoroughly qualified as to teaching the farmers improved methods of handling stock, feeding stock, general farming and to answer questions asked by farmers about the weigh room.

Acid Test of Cream.

[Extracts from *Illinois Station Bulletin No. 32.*

The sourness of cream is one of the things considered by many dairymen in making butter. They may be not agreed on the amount of acidity that the cream should have when it is ready for churning, but many base their judgment on the taste or appearance of the cream.

The strength of the alkaline liquid and the amount of cream taken for each test are constant, known quantities, always the same in comparative trials of different lots of cream. The amount of acid in the measured quantity of cream is unknown until, by testing it, it is observed how much of the standard alkaline liquid is necessary to use to produce the pink color.

In the fall of 1899, this method of testing the acidity of cream was used by Dr. Manns at the creamery of Gurler Bros., DeKalb, Ill., and also in churnings of cream which he made at this station. He found that when cream was churned at a temperature of 58 to 62 degrees, F., too much acid in the cream injured the quality of the butter, and too sweet cream churned at this temperature caused a loss of butter in the buttermilk. The butter was not all churned out unless the cream was sufficiently soured. The butter was of poor quality if the cream was too sour.



PROF. A. R. PEARSON.
Appointed as Professor of Dairy Industry at Cornell University.

CREAM TESTING WITH ALKALINE TABLETS.

A formula has been worked out by which a definite amount of solid alkali can be made into a tablet, containing both the alkali and the color indicator necessary for testing the acidity of cream or milk.

Each tablet contains a definite amount of alkali which will neutralize as much acid as 4.66 cubic centimeters of a one-tenth normal alkaline liquid. A test of the number of tablets showed them to be very uniform in the amount of alkali contained in each tablet. The extreme difference amounted to three-tenths of one cubic centimeter of the one-tenth normal liquid. One thousand tablets weigh about 12 ounces. Each tablet is about 3/8 of an inch in diameter and 1/8 of an inch thick, and they can be used instead of the one-tenth normal alkaline liquid and the liquid indicator already mentioned. The tablets can be used for testing the acidity of cream in the following way:

DISSOLVING THE TABLET.

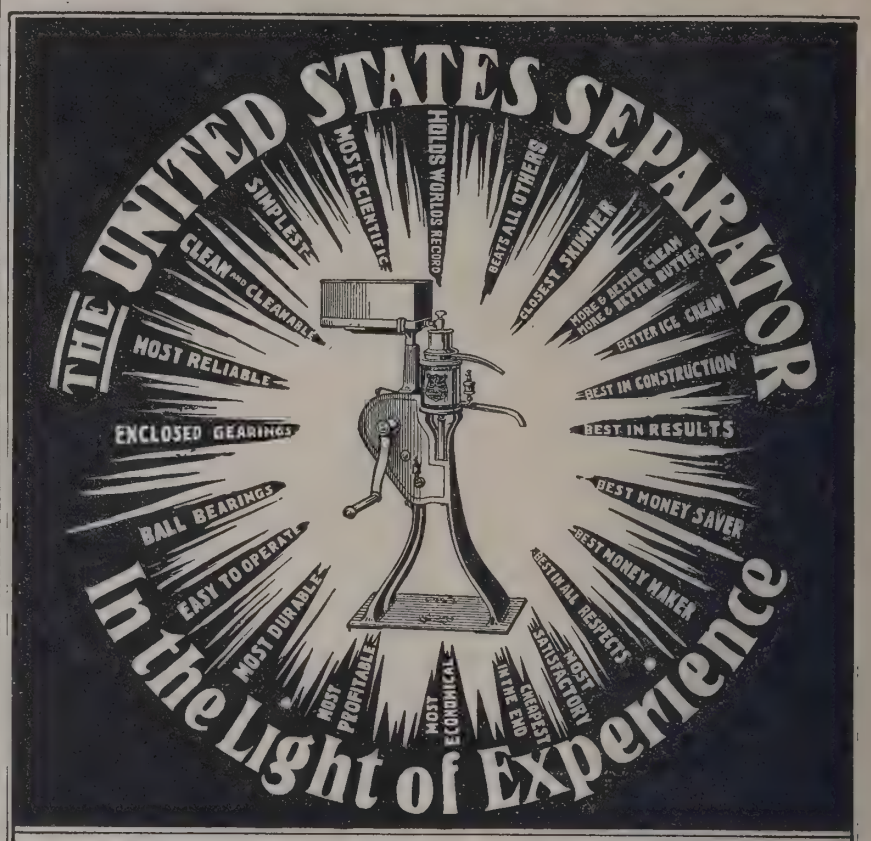
A 50 cubic centimeter glass cylinder graduated, and on a foot, is found to be a convenient piece of apparatus to use in preparing the solution of tablets. It is made of stout glass not easily broken and can be obtained of any dealer in chemical apparatus. Put five tablets into this cylinder, add hot or cold water until the cylinder is filled up to the 50 mark, then cork the cylinder and shake frequently until the tablets all disappear in solution. If the solution of the tablets is hastened by shaking the bottle or stirring the liquid, it should be done in such a way as to prevent any loss. As they do not dissolve immediately, they should be put to soak about one-half hour before the cream is to be tested. The strength of the solution does not change perceptibly by standing four or five hours, but there is some change in a tablet solution which is a day or more old. The solid tablet will not change and the only precaution necessary is to use a fresh solution of the tablets in testing the acidity of the cream. Excepting the flocculent residue or settlings, which will not dissolve in water, the tablets should all disappear in the solution before it is added to the cream to be tested. When the solution is complete, the cylinder contains a reddish colored liquid, the alkaline strength of which is indicated by the number of tablets which were put in the cylinder.

TESTING THE CREAM.

The cream to be tested should be thoroughly mixed. Then measure 25 cubic centimeters of the cream into a glass tumbler or cup. If the cream is very thick 25 cubic centimeters of clean rain water may be mixed with it in the dish. The sourness of the cream is then ascertained by adding the reddish colored solution of the tablets to this measured quantity of cream until it retains a pinkish color. When the two liquids, cream and tablet solution are thoroughly mixed, the pink color does not remain permanent until the acid of the cream is completely neutralized by the alkali of the tablets. An excess of the alkali causes the color to increase. The acidity of the cream is measured by adding just enough of the alkali to produce a permanent change of color from white to pink. No further addition of the alkali is necessary as the first change of color indicates the point when the acid is all neutralized. A piece of white paper placed under the tumbler in which the cream is tested will help to show the change of color.

The amount of alkali required to produce this change of color shows the sourness of the cream as indicated by this test. A change of color may be produced in 25 cubic centimeters of sweet cream by a solution of one or two tablets. As the sourness of the cream increases, 25 cubic centimeters of it may require a solution of three, four or five tablets to change the color.

The indications are that a cream which requires a solution of six or more tablets to change its color is too sour.



VERMONT FARM MACHINE COMPANY
BELLOWS FALLS, VT.



Did You Ever Keep a Record Of Your Cows?

IF SO, you have felt the need of a convenient, simple and handy Record Sheet. We have had so many requests for these Record Sheets that we concluded to get up one that would "fill the long felt want." We have a very simple and complete Record Sheet for 10 cows, one month, that is printed on heavy Manilla Paper, we can send postpaid at following prices:

Price 5c Each	6 for 20c	12 for 30c	25 for 50c

SIZE 10x16 INCHES

We also have a one cow Record Sheet, heavy Manilla paper (one month) that we will mail postpaid

Single Copy 5c	5 for 15c	10 for 25c	25 for 40c

SIZE 6x15 INCHES

HOARD'S DAIRYMAN.
FORT ATKINSON, WIS.

The butter made from such cream will be off flavor. The only general direction that can now be given as applicable to nearly all cream, is to churn it when 25 cubic centimeters of the thoroughly mixed cream is not colored by a solution of four tablets, but is decidedly colored by a solution of five tablets.

Some dairymen may prefer to churn a less acid cream and adopt the sourness of cream which will give a color with a solution of three tablets.

Comparative trials made by each person of the acidity of the cream and the flavor of the butter made from it, will be a satisfactory guide to follow.

The test will show the sourness of each lot of cream, so that a uniformity of acidity can be had in each churning.

How much acidity each lot of cream should have, or whether cream should be churned sweet or sour, may be a matter of opinion with the butter maker. This test serves as an aid to show him when the cream is of the sweetness or sourness which he prefers. It will also show when the cream ought to be churned in order to prevent it from spoiling the butter, by ripening too far and becoming too sour for the best results.

The complete outfit, including, 1000 tablets of 25 cubic centimeters, pipette and one 50 cubic centimeter cylinder, costs $3, delivered. One thousand tablets ought to make 250 tests.

Milk Fever of the Cow.

Press Bulletin.

Milk Fever, technically called parturient paresis or parturient apoplexy, is characterized by the following symptoms:

The newly calved, adult cow, that has had an easy labor and "cleaned" promptly, suddenly becomes restless, sticks her tongue out, refuses feed, steps up and down with her hind feet, gets a "kink" in her neck, "wabbles" when exercised, and finally goes down paralyzed, with milk, urine and manure suppressed, tucks her head into her side, snores loudly, becomes bloated, unconscious, and lies stretched out upon her side until death occurs in from three hours to three days. Some cows show delirium, struggle and pound the head upon the ground. The majority of cases, however, are quiet, and have no fever; the temperature is more often below normal.

CAUSE.

The exact cause of milk fever has not been determined, but Dr. J. Schmidt, a Danish veterinarian, points out that the disease may be due to poisonous products derived from tissue changes taking place in the udder, while experience teaches that certain conditions apparently render a cow of the proper age peculiarly susceptible. A few of these aggravating causes are: hot, badly ventilated, filthy stables; heavy feeding upon grain foods (concentrates) right up to the time of calving; lack of exercise; excessive use of succulent foods; sudden plethora induced by new grass in spring; heredity; immediate and complete removal of the first milk produced after calving, or immediate removal of the new born calf.

NATURAL PREVENTION.

It is safe to assert that the disease may be absolutely prevented by the adoption of the following simple, natural methods: Start six weeks prior to calving and feed cow upon dry hay, bran mashes and a little flax seed meal, but no corn, corn meal, shorts, middlings, oat meal, gluten meal, malt sprouts, or any similar concentrate. One month from calving increase the amount of flax seed meal mixed in the bran mashes to insure keeping the bowels freely open. If there is a tendency to constipation, despite the increased amount of oil meal, dissolve two ounces of Epsom salts in the mash or drinking water once or twice daily as required. One week before calving double the amount of oil meal daily, and give at calving, if the cow is costive, one pound of Epsom salts, one ounce of ground ginger root and one ounce of saltpetre with a cupful of molasses in two quarts of warm water, at one dose, slowly and carefully from a long-necked bottle. During all this time the cow is to be given ample out-door exercise daily to keep her blood in full circulation, all the organs of the body in proper order and her muscles full and strong.

This method of preventive treatment applies equally to the susceptible cow whose calf is expected when green grass is in its "spring flush." She is to be kept in a dry yard and there to have the same food and care given the cow about to calve prior to the advent of grass. When calf comes allow it to suckle for 3 days, or draw off some of the milk frequently by hand; do not milk clean at first.

MEDICINAL PREVENTION.

Unless the cow has suffered a previous attack of the disease, predisposing her to a second attack and necessitating larger doses of medicine, it will be found safe and sufficient in average cases to give her as a preventive one-half drachm of iodide of potash twice daily for three days, then three times daily during the week preceding parturition, and two drachms the moment it is observed that she is about to calve. Where the cow is fat she may also have two drachms immediately after parturition. While this plan succeeds, it checks milk flow after calving, hence is somewhat objectionable.

TREATMENT.

Place cow attacked with milk fever in a box stall, or shady place in summer time when out of doors. Prop her up by means of bags filled with straw, so that she must lie on her sternum (breast bone). Keep her head up in same manner. She will soon bloat and die if allowed to lie upon her side. Tap the pouch with trocar and cannula, if she is bloated when found. Give no drenches of medicine by the mouth. Strip away the milk; wash the udder clean with warm water and soap, adding chloro naptholeum to make a 2 per cent solution. This done, place the udder upon a clean rubber sheet, to prevent soiling. By means of a five-foot length of quarter-inch rubber hose, in one end of which has been inserted a large milking tube and the other a glass funnel, infuse very slowly into each teat in turn, half a pint of milk-warm solution of 2 drachms of iodide of potash in one quart of freshly boiled water. Then rub the udder well once an hour, until the liquid is absorbed.

Inflation of the udder with pure oxygen gas gives even better results, than the iodide of potash treatment.

In addition to the above treatment, syringe a gallon of soapy warm water into the rectum every four hours; remove the urine by means of catheter at least twice daily; repeat the infusion of iodide of potash solution, if the cow is not up inside of twenty-four hours. Do not milk in less than six hours. Give by mouth one drachm of fluid extract of nux vomica in a tablespoonful of water every six hours. Turn the cow partly every four hours, so that the hind leg can be pulled forward, and outwards to retain her on her chest. Let her drink when she can do so and feed a soft mash when she becomes conscious. Feed her carefully for a few days and as a rule this will be the last of the treatment necessary.

A. S. ALEXANDER, V. S.
Veterinarian, Wisconsin Agricultural Experiment Station.

Treatment for Lumpy Jaw.

In a treatise on lumpy jaw recently issued by the Purdue Experiment Station, the disease is diagnosed and treatment prescribed as follows:

The disease more often affects cattle than other animals. It is due to a fungus—actinomycosis. The fungus occurs upon grass or other vegetation, and it is only when it becomes introduced into the tissues that it causes trouble. The disease comes from eating, outside sources, and is not contagious in the usual sense of the word. Several animals may become affected while on the same pasture, but this is not due to all being exposed alike. Some years the number of cases is greater than others, owing to the greater development of this fungus. The disease affects the jaw more often than other parts, due to the fact that the tissues are sometimes broken in the act of chewing, thus permitting infection. Any part of the body may be attacked.

The disease is comparatively easy to treat. A dram of iodide of potash is given twice a day from two weeks to twenty days. For cattle weighing 2,000 pounds or more, the dose is increased, and lessened for calves. If pus be present in the lump it should be let out by incision. In a few refractory cases a second period of treatment may be required after resting for ten days. About 80 per cent of recoveries may be expected. Affected animals should be kept away from the healthy, and off the pasture fields. In the case of milch cows, the milk should not be used. The state does not pay for such animals when it is found necessary to destroy them.

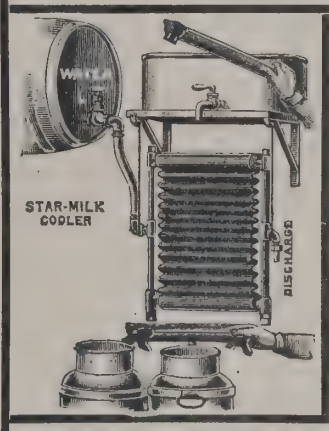
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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

COMING EVENTS.

Indiana State Dairymen's Meeting, Plymouth, Dec. 10-11, 1903.
Minnesota Dairymen's Association, St. James, Oct. 21-22, 1903.
New York Dairymen's Association, Ogdensburg, Dec. 8-11, 1903.
Vermont Dairymen's Association, St. Albans, Jan. 5-7, 1904.
Illinois Dairymen's Association, Greenville, Jan. 5-7, 1904.
Wisconsin Cheese Makers' Association, Milwaukee, Jan. 6-8, 1904.
Ohio Dairymen's Association, Columbus, Jan. 27-29, 1904.
Wisconsin Butter Makers' Association, Feb. 2-4, 1904.
Maine Dairy Convention at Foxcraft, Me., Dec. 2 and 3, 1903.
New Jersey Agricultural and Dairy Convention, Trenton, N. J., Jan. 14, 15 and 16.
Eastern Ontario Dairymen's Convention, Belleville, Ont., Jan. 5, 6 and 7.
Missouri Dairymen's Meeting, Clinton, Dec. 8-10, 1903.

THE College of Agriculture and Domestic Science of the Ohio State University has opened with the largest attendance in its history. The enrollment is now 206, which is 20 ahead of the enrollment at this time last year and 60 ahead of the enrollment two years ago. The enrollment of the University has increased in proportion and now numbers nearly 1,700 and is likely to reach over 1,900 before the close of the year.

SOME of the dairy and agricultural papers have been telling about the negro, Gilchrist Stewart, being chosen Superintendent of the Dairy Department of the Western Fair of Toronto, Ont., and they have ascribed all sorts of stupendous accomplishments to him, as if he was one of the gods done in ebony. Among the many things the *Dairy World* ascribes to his fertile genius is the discovery that chloride of saltpetre would remove onion, garlic and turnip flavor from butter and cheese. Well, maybe it would, if there was such a thing as chloride of saltpetre. The statement, chemically speaking, and Stewart's character as a man are about alike—neither have any visible means of existence.

THE RAILROADS AND FARM PAPERS.

The railroad men are among the keenest and soundest reasoners in the country. They have to be, for they cannot afford to make mistakes. It is a pity that there are not more farmers who would see their business in the same light.

Advertising Agent Munch, of the Illinois Central R. R., makes the statement that his road finds the farm paper the most profitable to advertise in. He says their business follows that line very closely. They do not make sales of their land to the well established farmers, but rather to the hired men who are thinking of becoming farmers themselves.

And the hired men see and read the agricultural papers taken by the farmers. It is a noticeable fact that good hired men much prefer working for farmers who have plenty of good farm reading on their tables.

INTELLIGENT BREEDING.

The *St. Paul Farmer* mentions the fact that the cattle on the ranches in Montana are superior for beef purposes to the cattle of Minnesota and it asks why this is so and answers the query by saying the Montana ranchman has had better ideas about breeding than the Minnesota farmer. He has had a truer appreciation of the importance of selecting sires that will breed true to the purpose of meat making. The DAIRYMAN would add that take them as they go the beef farmers everywhere are much better students of breeding to a purpose than are the dairy farmers. It is very rarely that we hear a good beef cattle farmer talk about general purpose breeding. If you notice the sire he selects he will always be of the most decided beefy outline.

But there are thousands of dairy farmers who, wanting dairy cows, will go ahead and select bulls of the same beefy type. That shows which side has made the best study of the laws that govern breeding results.

HE WATCHED MEN AND MARKETS.

It seems to be a very difficult matter to arouse the average creamery or cheese factory patron to a realizing sense of how he is losing money in his present ideas of cows and methods. Wherever HOARD'S DAIRYMAN instituted a "cow census" and looked into the actual condition of these men and the amount of dairy knowledge they are doing business with, a very discouraging showing is made—such a large percentage of farmers do not seem to know, nor care to know, what they in reality are doing. We suppose that we ought not to wonder at these men, or feel surprised at the bland contentment they manifest in thus going on year after year keeping cows at a loss. The men who do that, we invariably find, are living on the ragged edge of the business. It will be found that they read scarcely anything about dairying, or in any way enlighten their minds on this dairy question. They do not seem to know any more about it than they did years ago. Mr. A. E. Anderson of Oelwein, Iowa, in the meeting of the North Central Iowa Butter Makers the other day spoke as follows:

"A man from Northfield, Minn., claimed that last year his cows brought him $80 per head and cost him for feed $31.50, leaving him a net profit practically of $50 per cow.

I have watched the markets the past year and observed that butter netted the milk producer about 18 cents, making the value of the year's product of the average cow $24. The cost of keeping such a cow in this state is $21. This left a profit for the average cow of but $3. Of course, there was the calf, which could be sold possibly for $15; but the average cow should produce 250 pounds of butter per year, and with land climbing to the $80 per acre mark, and hired men costing $40 a month, including board and washing, *farmers must work in a different manner if they wish to succeed.* * *

We have not gotten the most out of our cows because we have not known how to feed and care for them."

HOARD'S DAIRYMAN wishes the privilege of adding one more hindrance which has stood in the way of the farmers not getting what they should from their cows in these days of high priced land and labor.

They have not bred their cows for the purpose of more milk, butter or cheese.

They have been deluded with "dual purpose" notions. All through Iowa the farmers have worked under this idea, and the result is the $24-dollar cow Mr. Anderson is complaining about. The average return from the cows of this, Jefferson county, Wisconsin, is 240 pounds of butter per cow, even with too many of our farmers breeding for general purpose. Think what the average would be if they all bred their cows on dairy lines and for the best results at the pail.

Now 240 pounds of butter, at 18 cents, the net price Mr. Anderson names, would amount to $43.20, and we have just as good a chance to make profit from the skim milk as do the Iowa people, and besides we have double the amount of skim milk. The average cost of keeping is $30. Here is a gain of $10 per cow over the Iowa average. The cows of Jefferson county in the main are Jersey, Guernsey and Holstein. They produce over 8,000,000 pounds of butter a year, support 100 creameries, and six cheese factories, and the value of the entire dairy product is about $2,000,000 a year. Does any one suppose that this would be the case if the Jefferson county farmers handled their business from the "dual-purpose" and no-reading standpoint, as do the farmers whose cows average only $24 a year?

A FINE SOUTH CAROLINA DAIRY.

In no branch of agriculture has there been shown such marked progress and advancement toward scientific results, intelligent comprehension of underlying principles, and skillful training as in dairying.

The reason for this we believe to be because of the better organization of the dairy farmers. They have organized county, state and national associations; the conduct of their business is largely through associated effort in creameries and cheese factories. By virtue of such organization, dairy farmers have been reached to a larger extent than other farmers, by all the educational influences of the convention, farm institute, dairy school and the dairy papers.

The spirit of dairying is spreading to all the states in the Union.

People must have good food; they want good butter, cheese, and in particular they want good milk.

This rapidly increasing demand is calling for special outlay of capital and enterprise. A recent number of the *State*, the leading paper of South Carolina, contains an illustrated description of the up-to-date dairy farm and herd of Mr. F. H. Hyatt near the city of Columbia. Cuts are shown of the dairy house, the herd, and the fine dairy barn 150 ft. long and 30 ft. wide. The farm consists of 1,100 acres, two-hundred and fifty of which is Bermuda grass, The herd numbers 80 mature cows, made up of Jerseys, Devons and Holsteins. Especial care is taken to keep the establishment clean and in a sanitary condition. Each morning each cow is carefully groomed. Mr. Hyatt points to practical results of keeping clean, in the fact that for six years he has not loss a single cow by death. He grazes his cattle from March to November and by planting oats and rye can graze the cows fully 10 months. It costs while grazing about 5 cents a day to keep the stock and in winter about 15 cents a day. The average value of the cows is $45 to $50 a piece.

The farm is carried on with six first-class men as help. The daily output of milk is 500 quarts, which retails in the city at $1 for 12 quarts, by the pint; $1 for 14 quarts by the quart, and $1 for 16 quarts by the gallon. Mr. Hyatt states that such is the demand that he could easily dispose of the milk of 300 cows. Whatever butter is made sells for 25 cents a pound. A sterilizing plant will be shortly put in. Concerning the profits of the business, Mr. Hyatt says:

"I know of nothing that pays better. Any man can make 15 per cent on his money, besides the natural increase in the valuation of the farm resulting from the manuring that is constantly going on. My farm has now reached that point of development where I do not have to buy any more cows, raising all I need, and consequently is now more profitable than it was at the start."

It is a very encouraging sign to see these first-class dairy farms being established in the South. North or South there is no difficulty in carrying on a successful dairy business if the man at the head of it will but comprehend the old maxim, "knowledge is power,"

A SUCCESSFUL OHIO DAIRY.

Wise men and wise dairying are not confined to any one state. Indeed, there are enough of such examples to convince us that there is no special "dairy belt" except in the brains of these successful men. The *Ohio Farmer* publishes the following business showing for a year of the farm and dairy of Mr. J. C. Stalton, of Columbia Co., Ohio. There are 94 acres in the farm and an average dairy of 24 registered Jersey cows.

RECEIPTS FOR THE PAST YEAR.

Milk delivered at the Winona creamery	$1,629.80
Curd from the milk	149.11
Hogs sold during the year	438.50
Clover seed and hay	247.00
212 bu. of wheat	151.40
Calves	95.00
Apples, potatoes, etc	161.59
Maple syrup	45.36
Poultry	50.00
Received for workof teams and hands	256.00
Milk for two families, truck from patches	60.00
Total farm income	$3,283.76

EXPENDITURES.

Farm labor	$560.00
Cow feed, gluten and oil meal	286.00
Feed for hogs and horses	209.88
Taxes	32.76
Farm papers	2.70
Blacksmithing, horseshoeing, etc	25.80
Seeds, ensilage, seed corn and alfalfa	18.35
Ensilage cutting and threshing	47.00
Binder twine	13.00
Coal for engine	2.12
Fertilizers	46.00
Incidentals	27.80
Total farm expense	$1271.41

SUMMARY.

Income	$3,283.76
Expense	1,271.41
Balance	$2,012.35

CAPITAL.

94 acres land	$6,000
Live stock and equipment	3,000
Total valuation	$9,000

The net income would be 22⅓ per cent on the investment. The following items of information concerning the methods followed are given. The cows were milked for the creamery. Therefore, they are to be reckoned as creamery cows. The average return per cow is $74.12 The boughten grain fed these cows was $11 each. Total cost of keeping for the year is put at $23. It will be noted that this fine showing of net profit of $51.12 per cow was made from Jerseys, the cow that so many farmers will not have on their farm because they are troubled with fear that after earning about double what their general-purpose cows do for a series of years they would lose a few dollars on her old carcass in beef. Not only does Mr. Stratton have fine cows, but a silo also. He cuts and stores his ensilage at 50 cents a ton; cost of growing the crop $4 an acre and $3 more as land rentals, or a total cost 70 cents a ton, making the entire cost of the ensilage $1.20 per ton. The cost of producing his butter was 8 cents per pound.

A SIGNIFICANT CONTRAST.

Former Governor Adams of Colorado, who was born on a Wisconsin farm and educated in Wisconsin schools, in an address before a horticultural convention made a statement as true as it was startling when he said:

"The twentieth century will be known as the age of irrigation of gardens and orchards. The benefactors will be those who discover or develop a new root, fruit or food. He who finds a new vegetable or a new apple is great-

er than he who invents a new dynamite, a new gun or a battleship. I would rather develop a new Jonathan, a Winesap. a Baldwin, or even a Ben Davis, than be a senator or win a great battle. The man who gave us the Early Rose or Burbank potato has done a hundredfold more than the astronomer who finds a new star, or the explorer who plants a flag at the north pole."

A Wisconsin Bulletin on Milk Production.

It is encouraging to see that the experiment stations are giving up the one, two and three week feeding periods, and acknowledging the fact that a cow is not a machine that can be switched from one track to another by the turning of a crank or change in the food given. There is no doubt that a large amount of experimental work is of little value on account of the short period through which the experiment has been carried. In fact the present indications seem to be that one if not more lactation periods are necessary to establish the influence of food upon milk production or its action on the nutrition of the animal. The bulletin on milk production issued by the Wisconsin Station is the work of Prof. W. L. Carlyle and F. W. Woll, and gives in detail the history of the University dairy herd from the time of its organization, in November, 1898, to May of the present year.

During all this time accurate records of food consumption and milk production have been kept and each cow has been credited with whatever profit she has made. The herd is composed of animals representing the various types of dairy and dual-purpose cattle, and so offers an opportunity for study and comparison that could never be secured in an ordinary herd.

The bulletin is summarized by the authors as follows:

1. The average yield of milk for the various cows in the herd ranged from 10,960.3 to 4,033.0 pounds; the production of fat ranged from 474.73 to 183.64 pounds, and the net profit returned by the cows from $79.31 to $19.59. The highest average production per year for any cow in the herd was that of the Jersey cow, Gold, which is credited with a production of 7,621.6 pounds of milk and 474.73 pounds of butter fat, and a net profit (value of butter and skim milk minus cost of food) of $79.31. This cow also produced the maximum amount of butter fat of any cow in the herd during 365 consecutive days—viz: 502.12 pounds, and returned the highest net profit of any cow during this time, with $84.55. Twenty-two of the cows produced more than 300 pounds of butter fat per year on the average, and twenty-five out of the total number of thirty-eight cows yielded a profit of $40 or more over the cost of the food eaten.

2. The average production of ten cows during their year of maximum production was 376.51 pounds of butter fat, and their average net profit $58.21. During the year following their maximum production the same cows yielded on the average 281.47 pounds of butter fat and a net profit of $40.82. Cows making exceptionally high records for a single year are almost certain to require a portion of the succeeding year for recovery, and will therefore give a much smaller production and lower net profit for that year.

3. Cows belonging to the different breeds represented in the herd yielded on the average as follows:

	Lbs. butter fat per year
Red Polled (one cow)	461.81
Holstein (five cows)	351.62
Guernsey (nine cows)	319.35
Jersey (twelve cows)	301.31
Short horn (eleven cows)	281.73

The average net profit returned by cows of these breeds decreased in the same order from $56.70 (Red Polled) to $36.09 (Short-horn.)

4. The cows in the University herd may be considered as representing three different types of cows, viz., extreme dairy type, large dairy type, and dual-purpose type. If the results for cows of the same type be averaged, we find that the large dairy cows lead in average annual production of fat with 325.23 pounds, the extreme dairy cows being next with 310.21 pounds, and the dual-purpose cows last with 292.99 pounds. The rank of the cows, according to net profit returned, decreased in the same order, from $45.31, for the large dairy cows, to $37.82 for the dual-purpose cows.

In the opinion of the authors, cows of the large dairy type of the particular breed suiting the fancy of the farmer and weighing, say 1,000 pounds or more, will, everything considered, be found the most satisfactory for the dairy farmer; cows of the dual-purpose type, on the other hand, are to be recommended for farmers who wish to utilize more or less of the rough feed produced on their farms for raising beef for the market, in conjunction with keeping a number of cows for milk production. It is not, in our opinion, the part of wisdom for our dairymen to select small, refined cows with a spare habit of body in an extreme degree as the most desirable type of dairy cow.

Cows of exceptional merit as producers were found within all the different types or breeds represented in our herd; the main reliance in selecting cows for the dairy herd should, therefore, be placed not on any particular type or breed, but on individual excellence for dairy purposes. The best indications of true merit in dairy cows are a digestive capacity as evidenced by great depth and length of body and a general refinement in conformation as shown by fineness of bone in the legs, a clean-cut feminine head, a long and fine neck, light shoulders, prominent backbone, a fine, elastic quality of udder, and a well developed milk vein system. Minor points are fine, silky hair, thin, unctuous and movable skin, large, bright eyes, and a general sprightly appearance.

6. The milk produced by the cows decreased somewhat in quality with advancing age. The average per cent for the year with cows in our herd came as follows: 1st year, 4 49 per cent; 2d year, 4.40 per cent; 3d year, 4.29 per cent, and 4th year, 4.17 per cent.

7. The flow of milk decreased, on the average, for all cows in our herd and for four years, with 8 per cent for each month during the progress of the lactation period, and the production of butter fat decreased with 7.3 per cent for each month.

8. Our dual-purpose cows maintained their flow of milk during the progress of the lactation period, as well or better than cows of the dairy types. The shrinkage in the production of milk between the third and the fortieth weeks of the lactation period for the same cows was 44 per cent for the extreme dairy cows, 59 per cent for the large dairy cows, and 49 per cent for the dual-purpose cows, and in the production of fat for the same types of cows 43, 60 and 46 per cent, respectively.

9. The rations fed to the best producers in the herd during the winter periods contained, on the average, 25.28 pounds of dry matter, 2.05 pounds of digestible protein, 15.22 pounds of digestible carbohydrates and fat, and had a nutritive ratio of 1:7 4. The low producing cows received on the average, 21.14 pounds of dry matter, 1.59 pounds of digestible protein, and 12.20 pounds of carbohydrates and fat (nutritive ratio, 1:7.8), while intermediate figures were obtained for the cows with a medium production.

10. Only ten cows out of a total of thirty-three required more than 2 pounds of digestible protein in their average daily winter rations under our system of feeding for a large and economical production. The case of the cow Ella, weighing 1,000 pounds, is especially worthy of note, from the fact that she received only 1.48 pounds of digestible protein per day in her winter ration, and 12.19 pounds of digestible carbohydrates and fat (nutritive ratio 1:8.2), and produced 343 pounds of butter fat yearly, as the average for four years.

According to our present knowledge, we believe that only cows of large capacity will give economical returns for a supply of more than 2 pounds of digestible protein per day, under the conditions present in the northwest, and in the majority of cases, with good average dairy cows, a supply somewhat less than this may be found most economical.

Alfalfa Queries by Mr. Grote.

Will Alfalfa Succeed on Well Drained Wisconsin Marshes.

ED. HOARD'S DAIRYMAN:—Bulletin No. 76 of the Illinois Experiment Station gives as the result of their experiments, and the experiments executed under their supervision, in regard to alfalfa the following facts:

1. Successful alfalfa fields exist in river bottoms as well as on upland, in Illinois.

2. Where alfalfa culture is unsuccessful no alfalfa bacteria are in the soil and by inoculating the alfalfa fields with these bacteria the unsuccessful fields become successful.

3. The application of lime will increase the product by neutralizing the acidity of the soil.

4. Where soils have little or no phosphates and potassium, the addition of these fertilizers will increase the crop and assist in the growing of the necessary bacteria in the soil.

5. Alfalfa requires an abundance of nitrogen, more than any soil can furnish, and the bacteria are necessary to enable the plant to collect the nitrogen from the air, and where the soil is fully impregnated with such bacteria, no nitrogen should be furnished to the soil, as it is wholly unnecessary.

On the established facts the following conclusion is based:

"It is practically certain, that, if inoculated with the proper bacteria alfalfa can be successfully grown on any Illinois soils which grow corn and red clover well."

If this is so, then all well drained marshes would grow good alfalfa if properly limed and supplied with potassium.

Bulletin No. 68 of same Station, states that the Crystal Carbonate Lime Co. of Elsberry, Missouri, offers fine, ground limestone at $1 per ton, loaded in the R. R. car at Elsberry, Missouri.

Now as the river bottoms, subject to overflow, and any lands fit for corn and clover in Illinois produce alfalfa at the rate of 10 tons of hay per acre, I would like to know:

1. Have we any evidence that equal results have or can be obtained in Wisconsin, particularly on marsh soil, properly drained.

2. Have we any factory in Wisconsin at which lime can be obtained for the same price as in Missouri?

From the experiments in Illinois, it seems that the inoculating of the soil is the only thing necessary and this brings another question:

Where can soil be obtained in Wisconsin filled with bacteria to be used for inoculation of other soils?

Mauston, Wis. CHARLES C. GROTE.

What is not known about the growing of alfalfa in Wisconsin and other northern states would make a large book. One of the matters known is that alfalfa flourishes in localities and soils, where a few years ago it was said it could not be profitably grown. It is quite generally believed at the present time that alfalfa cannot be expected to succeed on soil when the permanent ground water comes within eight feet of the surface. Put in the form of a maxim this belief is phrased, Alfalfa will not tolerate wet feet. Perhaps it remains for Mr. Grote to experiment in a small way with alfalfa, on a well drained Wisconsin marsh. The editor of HOARD'S DAIRYMAN will be glad to furnish him with a few pounds of "infected soil" to enable him to prosecute such an experiment, or he can probably obtain a pure culture of alfalfa bacteria from the Department of Agriculture at at Washington.

We do not know of any place in Wisconsin, where lime can be bought at price named.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Malt Sprouts.

I am writing you for information regarding malt sprouts, and whether it would be better to use in a balanced ration than bran. It is a feed that has never been used in this country to my knowledge, and I am ignorant as to its feeding quality and composition. Have been told it was supposed to take the place of bran, and that it was cheaper. Please give me some light on the subject, and also the names of firms where I could buy it. Would you advise malt sprouts or bran to use with the following to make a balanced ration: corn and cob meal, cotton seed meal, or gluten feed? Our herd is composed of twenty-six Holsteins. Please formulate a balanced ration that you would consider the best from the above feeds, bran, clover hay, stover and ensilage included. L. E. L.
Springport, Mich.

Malt sprouts usually lack somewhat in palatability and hence can be fed in limited amounts only, say 3 to 5 lbs. daily. As we are not advised concerning the location of malting plants in Michigan, we are unable to say where this correspondent could obtain malt sprouts to best advantage. If not to be had from some plant in his immediate vicinity, they could probably be obtained from Milwaukee, Chicago or Detroit in carloads, at a price which would justify their use. For relative feeding value of bran and malt sprouts consult table on page 772, which shows malt sprouts to be much higher in digestible protein than bran, and lower in fat. In total digestible units, reducing fat to its equivalent in carbohydrates, there is no material difference in the two feed stuffs, bran showing 58% and malt sprouts 59.5%.

The following combination should make a satisfactory average ration:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients* Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
8 lbs. clover hay	6.78	.54	2.86	.14
6 lbs. stover	3.58	.10	1.94	.04
4 lbs. malt sprouts	3.59	.74	1.48	.07
4 lbs. corn and cob meal	3.56	.26	2.52	.14
Totals	25.43	2.03	13.00	.60

One Quarter of Heifer's Udder Defective.

I have a very fine heifer that is making a very nice udder, but the one front quarter does not fill out the least bit. I have milked it some so as to excite the milk organs of that quarter so it might fill up after all. She is due to calve about the middle of February next. E. S. S.
Jonestown, Pa.

Nothing is more effective in cases of this character than persistent, continued massage. It is not enough simply to rub the udder, but it should be gently kneaded and rolled under and between the hands. A liniment of lard and alcohol may be applied and thoroughly rubbed in, but after all the main reliance must be massage.

Schmidt Treatment (Iodide of Potasssium) for Milk Fever.

Where can I get the Schmidt treatment for milk fever in cows, as our local druggists do not keep it, and claim they cannot find it listed?
Albion, Mich. J. A. R.

The Schmidt treatment consists in the use of iodide of potassium, which can be obtained at any drug store. See article on milk fever this issue.

Stabling Dairy Cows Loose.

Will you please answer through your paper the following question: What do you think of stabling dairy cows loose, tying in stanchions while being fed and milked; the cows to be dehorned and the stable kept well bedded? L. E. U.
Afton, Wis.

We have had no expérience with dehorned cattle, and therefore cannot answer with very much satisfaction even to ourselves. We know it is claimed that such a plan works very well indeed with fattening steers, only, as we understand the descriptions given, the steers are fed as well as housed in common. We confess to considerable apprehension that in a herd of cows turned loose in a large pen, some of the least belligerent would be kept in more or less fear much of the time, and if such should be the case, that would not be conducive to best results at the pail. At Wauwinet farm, near Boston, where Mr. Ellis is meeting with unusual success with cows, his superintendent, Mr. Van Norman, is very favorably impressed with the plan of giving each cow a small box stall for constant use.

The Editor's Method of Making Alfalfa.

Give a detailed description of your method of making alfalfa hay, including time of cutting, size of cocks, method of holding caps down, etc.
Afton, Wis. L. E. U.

This question will be found pretty fully answered on page 774. The hay caps there mentioned are preferably 40 inches square, although 36 inches square answers a good purpose. Common sheeting, of medium quality, is the kind of cloth used. The caps are held in place by a light weight at each corner. The senior editor uses the half of an old horse shoe for a weight, fastened to the corner with a piece of stout twine. Any other thing weighing perhaps 6 to 8 ounces, will answer every purpose. In fairly good hay weather, the writer of this reply would not open the cocks until just before hauling the hay to the barn, but in this, as in so many other particulars, the man on the ground must think, judge and act for himself. If the weather is cold and damp, the wilted alfalfa will not heat and sweat as readily as in warmer and fair weather, and in consequence the hay will not cure. Open the cocks to the sun and thus gain the necessary warmth, and when again cocked up the curing process will go on. So in the matter of size of cocks, current circumstances must be considered. In cool, damp weather, the size may be larger than in dry and hot weather.

A Stable Plan Criticised.

I am about to build a cow barn on the east side of a hay barn and to be on a grade with the hay barn. The new building is to be 16x60 and I wish to accommodate twelve cows and use the balance of the room for box stalls.

I propose to have a feeding alley four feet wide, two feet for feeding box, four feet and six inches platform, fourteen inches for gutter and the balance of width about three feet, four inches for alley in rear of cows. Shall have four windows in the east side to light the barn and about seven feet for height of ceiling over cows.

Will you please criticize the arrangment suggested above? How far apart should the cows be placed if swing stanchions are used, and how far apart if cow ties are used? F. H. W.

Michigan

We suggest at least six windows instead of four. This stable being on the east side of the hay barn must necessarily get all the light and sunshine from the east side, and therefore cannot have too much of either of these. Get good sized windows and space them about evenly.

Instead of allowing 4 feet width for feeding alley, thereby curtailing the space behind the cows, we would cut this down to 3 feet and suggest dispensing entirely with feeding boxes. This is a very radical departure from common custom and one that doesn't appear, at first, plausible. Much against his own judgment, the present writer was induced to try this plan for a few cows in his stable, and it worked so satisfactorily that, after a few weeks all the mangers or feeding boxes were removed and the cows fed both hay and grain for some time on the level floor. Later on, wishing to provide for watering cows in the stable, he introduced a V trough in front of the cows and raised the feeding alley, or walk, level with the edge of the trough. We show in this issue a cross section for a stable floor showing the manner of putting in this trough, and also showing a new style of gutter.

For cows weighing 1,000 pounds, or more, 3 feet 6 inches is probably none too much space to allow for each cow. For smaller cows this space may be reduced, and for 800-pound cows 3 feet would probably be ample. It is immaterial whether cows are fastened with swinging stanchions or tied with ropes or chains about the neck, so far as stall room is concerned, but in either event we don't hesitate to advise putting in a partition of some kind, between each two cows. There is quite as much necessity for a partition between cows, as for one between horses. It is, perhaps, largely immaterial what sort of a partition is built. The present writer prefers a swinging partition of some kind, hinged to the frame which carries the stanchions, or separates the standing platform from the feeding alley, and given a little pitch so that it will normally hang at right angles with the gutter. You may connect these partitions with ropes or chains, or they may be left entirely loose if the cows are fastened at the neck.

A very important matter, but one almost universally neglected, is to provide for the admission of fresh air and the withdrawal of foul, cold air. It would seem to need no argument to convince an intelligent man that his cows need pure air to breathe, as much as he does, in order to promote health and vigor. On page 773 *ante* is a little diagram showing the proper method of introducing air. To remove the cold, foul air, build a flue at the most convenient point.

A Massachusetts Ration.

Our cows are mostly grade Jerseys and we sell cream. We have no ensilage or roots, but feed good mixed hay, clover and red top and grain.

Will you please tell me what would be the best ration we could make up from the following grain we can buy here; Corn meal, ground oats, Quaker dairy feed, bran, Buffalo gluten feed, cotton seed meal. We have tried the following rations per day: 2 lbs. bran, 2lbs. ground oats, 1 lb. gluten feed,—2 lbs. bran, 2 lbs. Quaker dairy feed and 1lb. cotton seed meal.

Are these rations heavy enough for cows fed plenty of hay, and giving from 16 to 20 lbs. of quite rich milk per day? How much heavier could we feed without injuring the cows?

Abington, Mass. S. B. R.

A cow of ordinary size ought not to be required or expected to eat and digest daily more than about 20 lbs. of hay or its equivalent in other roughage. This will furnish from 16 to 18 lbs of dry matter and she may safely be fed 8 lbs. of grain in addition bringing the total dry matter up to 23 to 25 lbs. If this amount of grain causes the cow to lay on unnecessary flesh, or if for any reason she does not properly respond at the pail, feed less. Extra large producers, of strong constitutions, may take more than 8 lbs. of grain, if it is not too concentrated, without injury, but just where the limit is, as regards profit or safety, no one can tell in advance.

In the absence of silage and roots, we incline to think 1 lb. old process linseed

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The kidneys filter and purify the blood—that is their work.

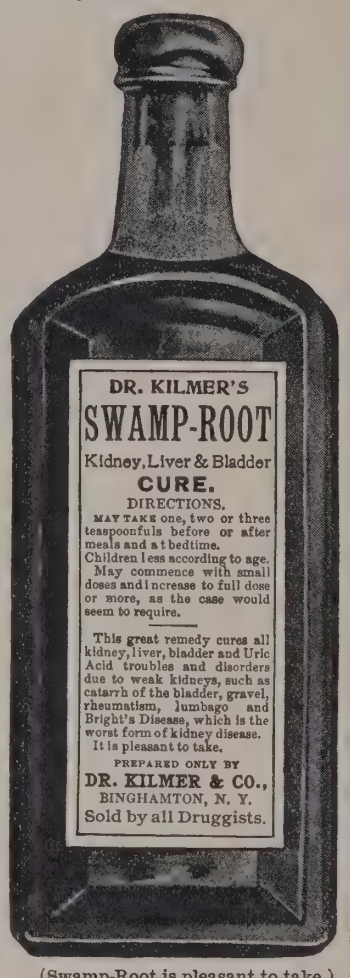
Therefore, when your kidneys are weak or out of order, you can understand how quickly your entire body is affected, and how every organ seems to fail to do its duty.

If you are sick or "feel badly," begin taking the great kidney remedy, Dr. Kilmer's Swamp-Root, because as soon as your kidneys are well they will help all the other organs to health. A trial will convince anyone.

Weak and unhealthy kidneys are responsible for many kinds of diseases and if permitted to continue much suffering with *fatal results are sure to follow*. Kidney trouble irritates the nerves, makes you dizzy, restless, sleepless and irritable. Makes you pass water often during the day and obliges you to get up many times during the night. Unhealthy kidneys cause rheumatism, gravel, catarrh of the bladder, pain or dull ache in the back, joints and muscles; makes your head ache and back ache, causes indigestion, stomach and liver trouble, you get a sallow, yellow complexion, makes you feel as though you had heart trouble; you may have plenty of ambition, but no strength; get weak and waste away.

The cure for these troubles is Dr. Kilmer's Swamp-Root, the world-famous kidney remedy. In taking Swamp-Root you afford natural help to Nature, for Swamp-Root is the most perfect healer and gentle aid to the kidneys that is known to medical science.

If there is any doubt in your mind as to your condition, take from your urine on rising about four ounces, place it in a glass or bottle and let it stand twenty-four hours. If on examination it is milky or cloudy, if there is a brick-dust settling, or if small particles float about in it, your kidneys are in need of immediate attention.



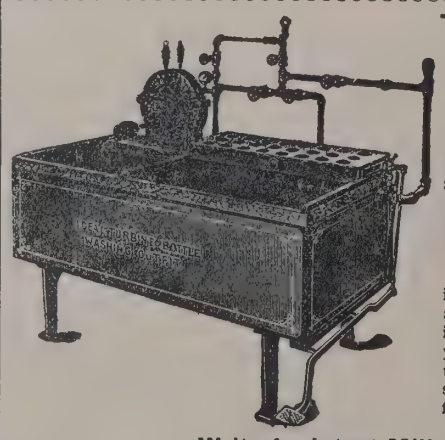
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Swamp-Root is pleasant to take and is used in the leading hospitals, recommended by physicians in their private practice, and is taken by doctors themselves who have kidney ailments, because they recognize in it the greatest and most successful remedy for kidney, liver and bladder troubles.

If you are already convinced that Swamp-Root is what you need, you can purchase the regular fifty-cent and one dollar size bottles at the drug stores everywhere. Don't make any mistake, but remember the name, Swamp-Root, Dr. Kilmer's Swamp-Root, and the address Binghamton, N. Y., on every bottle.

EDITORIAL NOTE—You may have a sample bottle of this wonderful remedy, Swamp-Root, sent absolutely free by mail, also a book telling all about Swamp-Root, and containing many of the thousands upon thousands of testimonial letters received from men and women who owe their good health, in fact their very lives, to the great curative properties of Swamp-Root. In writing to Dr. Kilmer & Co., Binghamton, N. Y., be sure to say you read this generous offer in the Fort Atkinson HOARD'S DAIRYMAN.

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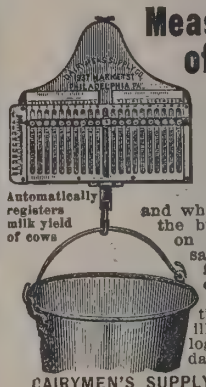
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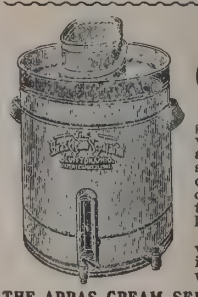
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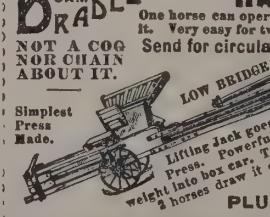
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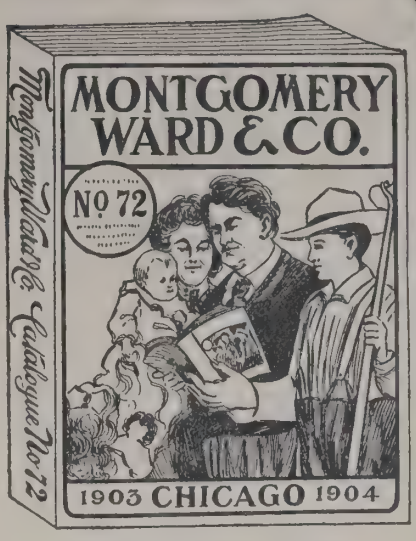
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oil meal could be added to the grain allowance specified by our correspondent, partly to add more protein to the ration and partly to secure better digestion and assimilation. There is but little difference in the analysis of the two combinations of grain mentioned,—so little in fact that the question of cost would determine our choice.

An Alfalfa Question.

ED. HOARD'S DAIRYMAN:—I have a farm at Gustavus, Trumbull Co., Ohio, and I am anxious to experiment with about one acre of alfalfa. The piece of ground which I contemplate using raised corn this year, and I would like to have your judgment as to plowing it this fall or whether it had better be done next spring.

2. What kind of manure or fertilizer would you recommend and how much to the acre?

3. Would it make any difference from what locality I purchased the seed?

4. Would it do to secure an infected soil this fall and keep it through the winter and sow along with the grain, or would it be better to buy it in the spring about the time for sowing alfalfa seed? The soil is a somewhat heavy clay subsoil and the general impression in that vicinity is that alfalfa would not amount to anything owing to its winter killing. I am, however, anxious to experiment for myself and am willing to take all the risk in this direction. F. N. BEACH.

Rochester, N. Y.

1. It can be plowed this fall, but first give it a good dressing of manure; then next spring disk it thoroughly both ways and thoroughly harrow to make a fine seed bed.

2. It would be well to dress it next spring with, say, 300 lbs. of sulphate or muriate of potash, or 30 bushels of wood ashes.

5. Would prefer seed from the eastern slope of the Rocky Mountains, say northern Nebraska.

4. If your land grows red clover well you do not need any infected soil. Otherwise it might be well to sow 300 lbs. of such soil to the acre next spring.

The Source of Fat in Milk.

It Is Hard to Tell Where it Does Come From.

New York Experiment Station Bulletin No. 132 affords the following conclusions of experiments:

First—A cow fed during ninety-five days on a ration from which the fat has been nearly all extracted, continued to secrete milk similar to that produced when fed on the same kinds of hay and grain in their normal condition.

Scond—The yield of milk fat during the ninety-five days was 62.9 pounds. The food fat eaten during this time was 11.6 pounds, 5 7 only of which was digested. Consequently, at least, 57.2 pounds of the milk fat must have had some other source than the food fat.

Third—The milk fat could not have come from previously stored body fat. This asserion is supported by three considerations. (1) The cow's body could have contained scarcely more than sixty pounds of fat at the beginning of the experiment. (2) She gained forty-seven pounds in body weight during this period of time with no increase of body nitrogen, and was judged to be a much fatter cow in the end. (3) The formation of this quantity of milk fat would have caused a marked condition of emaciation, which, because of an increase of body weight, would have required the improbable increase in the body of 104 pounds of water and intestinal contents.

Fourth—During fifty-nine consecutive days 38 8 pounds of milk fat were secreted, and the urine nitrogen was equivalent to 33.3 pounds of protein. According to any accepted method of interpretation not over seventeen pounds of fat could have been produced from this amount of metabolized protein.

Fifth—The quantity of milk solids secreted bore a definite relation neither to the digestible protein eaten nor to the extent of the protein metabolized. In view of these facts it is suggested that the well-known favorable effect upon milk secretion of a narrow nutritive ratio is due in part to a stimulative, and not wholly to a constructive function of the protein.

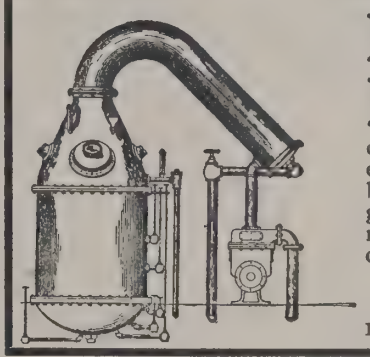
Sixth—The composition of the milk bore no definite relation to the amount and kind of food.

Seventh—The changes in the proportion of milk solids were due almost wholly to changes in the percentage of fat.

Investigation on the Weight of Hay.

ED. HOARD'S DAIRYMAN:—The Agrostologist of the United States Department of Agriculture is undertaking to investigate the subject of the weight in a given volume of hay under different conditions, and would be glad to get into communication with anyone who will be baling hay from the stack or from the mow any time this fall or during the coming winter. In writing to us please state what time the baling will be in process. W. J. SPILLMAN, Agrostologist.

U. S. Department of Agriculture, Washington, D. C.



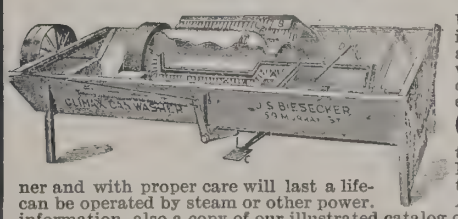
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I supply the most improved machinery and most successful processes for manufacturing all classes of condensed milk and evaporated cream. Factories built complete, put in operation and results guaranteed. If you are interested write for my new illustrated and descriptive catalogue. The only catalogue ever published on the subject.

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I am not associated with any person, firm or company.

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thoroughly washes cans, inside and out. It is made in a simple and durable manner and with proper care will last a lifetime. It saves time and extra help and can be operated by steam or other power. A postal will bring prices and additional information, also a copy of our illustrated catalog of dairy supplies. Write today.

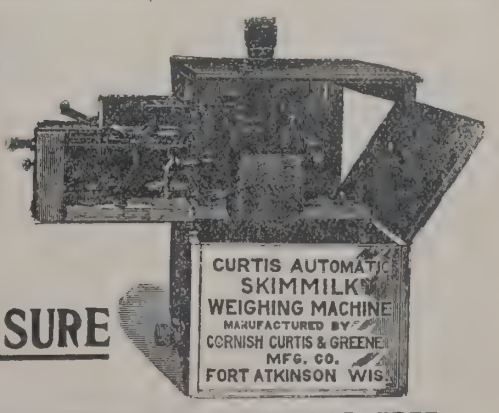
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Skim Milk

Often goes to the wrong man for the simple reason that the patrons have no standard of

WEIGHT or MEASURE

and the last man suffers.



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Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

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Fort Atkinson, Wis.

Barn Plan for Kansas Dairyman.

ED. HOARD'S DAIRYMAN:—Would you kindly give through your columns a drawing of a cow stable for 22 cows, a few young calves and small grain bin? Kindly give dimensions in feet for floor for cows, gutter, feeding alley and space back of cows, feeding alley in center, for carpenter to go to work on. Cost should not exceed $250, with hay loft on tight floor above.

Would like to hear from a successful creamery patron in the state of Kansas, that feeds his cows ensilage through the winter.

A CREAMERY OPERATOR FOR THE INTEREST OF 83 PATRONS.

Kansas.

The limit of cost given above must be some slip of the pen. Surely no one expects to build a barn and stable for 22 cows for $250.00. Possibly it might be done for $1,250, not counting the assistance rendered by the owner.

In the cuts made to accompany this answer, we have made provision for a barn floor on level with the stable, on the assumption that it will not be practicable in all places to set the barn in a bank and thus make access to the second floor easy. We also assume that when one starts in to build a new barn he ought to provide ample room for getting about comfortably. The extra expense of a building 32 or 34 feet wide over what it would cost to build only 28 feet is comparatively trifling, especially when considered in connection with the greatly increased convenience.

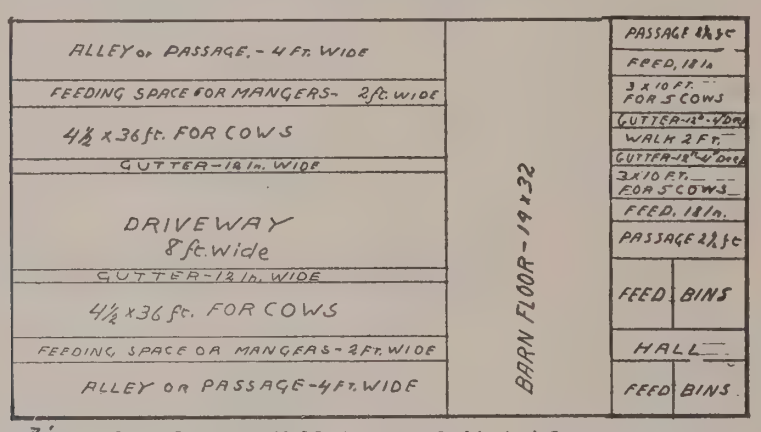


Fig. 1.-FIRST FLOOR OF STABLE--SCALE-1 Inch-4 Feet. Hoard's Dairyman

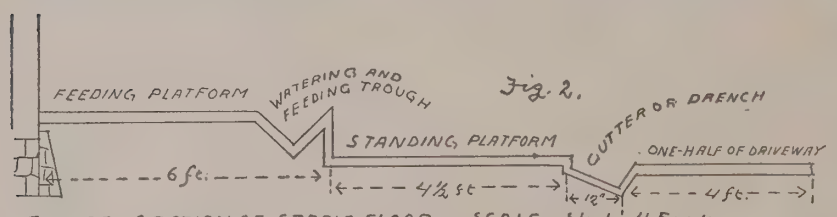


Fig. 2.

CROSS SECTION OF STABLE FLOOR-- SCALE- 1 Inch-4 Feet.

We have planned the stable for cows to face the walls, and not for a central feeding alley, as we think that the better way. It is certainly more sanitary for the cows, and in our opinion more convenient for doing the work.

Our plan calls for a structure 32 feet wide and 60 feet long. If the space for driving in to unload hay is not needed, the length may be diminished 10 feet by substituting a passage 4 feet wide for the 14-foot barn floor, but in that event we would extend the central driveway between the rows of cows the full length of barn, although this would do away with some of the space allotted for calves. We should also prefer to devote some of the space assigned to feed bins to a box stall.

Figure 2 is a cross section of one-half the plan for stable floor, drawn to scale and dimensions given. Please observe that the feeding platform in front of the cows is raised to the level of the top of the V trough. This trough may be made of 2×8 and 2×10 stuff and will be found a great convenience as well for watering cows in cold and stormy weather, as for feeding grain. The present writer advocates doing away with everything in the way of enclosed and separate mangers. There may be, if one deems it indispensable, a triangular partition running out over the trough between the cows, but it is far more important, no matter what style of fastening is adopted, that there should be a partition of some kind, running to the rear and giving each cow an independent stall.

Possibly the most radical item in this plan is the form of the gutter, or trench for receiving the excrement. The bottom is not level as is the usual way, but slopes quite sharply to rear and then turns up at a right angle to meet the central driveway. This arrangement tends to remove the liquid further away and diminishes the opportunities for soiling tails. The inclined bottom of the trench also tends to discourage the habit many cows acquire of standing with hind feet in trench. To obviate too great depth of trench at rear, lay the floor of driveway 2 or 3 inches lower than the platform occupied by cows.

It is not expected that this plan can be followed in all its measurements and arrangements, but it is submitted in the hope that it may be helpful by way of suggestion. Nothing is said about ventilation as that important topic has been fully treated in recent issues. A large flue or shaft for taking out the foul, cold air, may be built anywhere on the outside, preferably with a southern exposure, and several small inlets for fresh air as well as windows for admitting light should not be omitted, whatever else may be curtailed.

And withal do not be frightened at an extra cost of $300 or $400. Make the stable as nearly perfect in all respects as possible, for there is no place on the dairy farm, (unless it be in the purchase of a bull) where liberal expenditure will pay better profits. A well ventilated stable promotes health, saves feed, and increases the quantity and quality of milk.

Educating the Hired Man.

ED. HOARD'S DAIRYMAN:—Probably not many hired men, as compared with farm owners, read your valuable paper. And why should they? What does it matter to them whether they know anything much about dairying or not? Brains don't count much in the hired man—not when pay day comes. They say that any fool may be a farmer. That isn't so. But any fool may be a hired man for some farmers, and the bigger gump-head he is, the better, if he only has got the brawn.

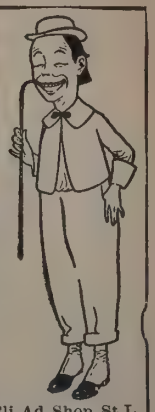
There is no place in the world where education and intelligence and experience can be of greater practical value than on the farm. Nowhere are they in less demand.

The highest pay that I can get now, on the farm is $20.00 per month. The highest pay I could get 10 years from now, no matter how hard I worked and how much I knew, would be about $24 or $25—unless perhaps, I got married.

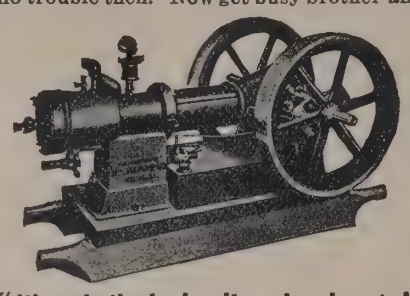
The farmers around here seem to consider a married man worth from 25 to 50% more than a single one. They say that he is more steady. They work the single man half the night and "lock up" at 9 o'clock, so as to keep him steady. How do they expect that he is going to get married unless he sports around some.

I hope sometime to be a good intelligent

FOOL-PROOF
BECAUSE IT'S SO SIMPLE



THE ELI GASOLENE ENGINE } Is the BEST because it has no gears, cams, levers or valve mechanism. Don't Be Jollied into buying a complicated engine that's always out of order—get the ELI—no trouble then. Now get busy brother and write for booklet to-day.

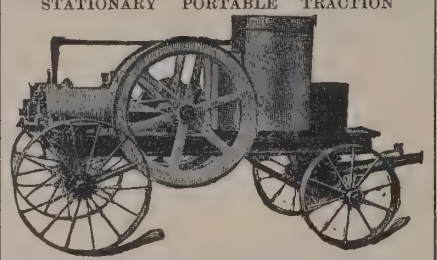


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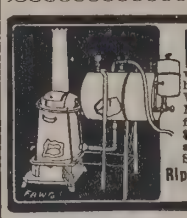
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C. P. & J. LAUSON, 103 West Water Street. Milwaukee, Wis.



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BAVIER NOVELTY CO.,
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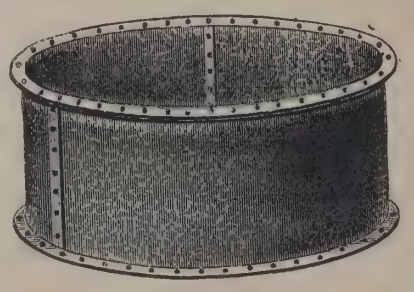
RIPPLEY'S Improved Combination STEAM COOKERS
will cook 25 bushels of feed in 2 hours; heat water in stock tank 250 feet away. Will heat dairy, hog and poultry houses. Made of boiler steel; can't blow up; no flues to rust or leak. PRICES $5 00 TO $45.00; 5 styles and 15 sizes. Sold under a guarantee. Endorsed by Experiment Stations. *Catalogue and prices free.*
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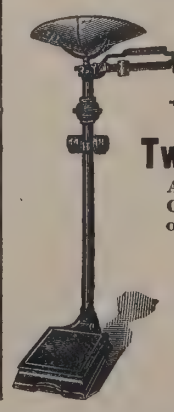


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Two Scales in One
A Portable Floor and a Counter Scoop Scale on one base.
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Scoop ½ oz. to 40 lbs.
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NET PRICE
No. 6, Tin Scoop, $7.75
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See our ad of NATIONAL BABCOCK MILK TESTERS in last and next issues

National Creamery Supply Co.,
450-458 Illinois St.,
CHICAGO U. S. A.

"TELEPHONE FACTS FOR FARMERS"
a book of meaty telephone information giving just what the farmer wants to know about 'phones. A "straight from the shoulder" talk. A book that will post you how to buy right. Sent free if you ask for book F-15. Address nearest office.
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ILLUSTRATION.



THE IMPROVED KEMP SPREADER.

The 1903 round of State and County Fairs, in addition to showing improvements in stock and the products of the soil, will have served to bring a new delegation of farmers into closer touch with some of the more modern pieces of machinery that are so well calculated to serve their interests. The thought is suggested by the announcement that the improved Kemp, the pioneer in the manure spreader field, was to be shown in operation as usual at a leading state fair. Whoever of our readers has had the good fortune to see the Kemp in operation must have been impressed by its work. It is not the first time we have had a good word to say in its favor. But a machine which occupies so important a field in farm economy, and does it so acceptably, cannot be too frequently brought up for public notice. No apology is due, therefore, for again producing the illustration herewith. Its province is keeping up the fertility of the land by making the most of the fertilizers always at hand. It furnishes the one economical way of using the barnyard manures. It brings about their timely distribution before their valuable elements have leached and washed away. The manures are so spread that every particle of fertilizing content shall be absorbed and appropriated by the hungry soil. Some may have had misgivings as to the ability of a spreader to work in any but well rotted and dry manures. If this were true a large part of its value would indeed be lost. But the mind should be disabused of any such thought. This Kemp spreader is equally at home in the refractory, lumpy, strawy, corn stalk manures and in the commercial fertilizers. When loaded, the driver has perfect control of everything from his seat, spreading thick or thin as the soil may require, and only dismounting when he has returned to the yard for reloading. We can make but briefest mention here. It will have served a good purpose if it leads a single farmer, who is yet without a manure spreader, to procure the Kemp catalog and make study of its usefullness in connection with his own land. Address Kemp & Burpee Mfg. Co., Syracuse, N. Y.

farmer and own a large farm, but I can never save the money by working out for $24 per month.

Any fool can be a hired man and, for that matter, any fool may be a lawyer, and here goes one more off in that direction. An ex N. H. HIRED MAN.

North Haverhill, N. H.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The Quotation Committee declared the official market firm at 20½ cents.

Former markets:

Oct. 5, '03, 95 tubs, 20¼ cents.
Oct. 13, '02, no sales, 23½ cents.
Oct. 14, '01, 215 tubs, 21½ cents.
Oct, 15, '00, 75 tubs, 21½ cents.
Oct. 16, '99, no sales, 23½ cents.

The output for the Elgin district, 683,600 pounds.

Offerings.	*Tubs*	*Bid.*	*Sold.*
Solon Mills	50	21	Kilbourne
Dundee	50	21	Kilbourne

Oct. 12, '03. H. C. B.

DAIRY MARKETS.

ELGIN, Ill., Oct. 12—Butter ruled firm on the Dairy Board, selling at 20½c per lb. Sales in the district for the week were 683,600 lbs. One hundred tubs sold today for 21c.

CHICAGO, Ill., Oct. 12—Butter—Steady; creameries, 15½@20c; dairies, 14@18c.

Cheese—Steady; Daisies, 11½c; Twins, 11c; Young Americas, 11½c.

Eggs—Easy; at mark, cases included, 18@19c.

Cattle—Choice to fancy beeves, 1,200 to 1,500 lbs., $5.45@5.75; good to choice steers, 5.00@5.40; fair to good export and shipping steers, 4.40@4.90; medium beef steers, 4.00@4.35; plain beef steers 3.75@4.00; common to rough, 1,000 to 1,200 lbs., 3.40@3.70; good to fat heifers, 3.75@4.40; good to choice feeders, 3.40@4.20; good to plain stockers and feeders, 2.10@3.30; fair to good cows and heifers, 3.00@3.85; good cutting and fair beef cows, 2.10@2.85; common to good canning cows, 1.30@2.00; bulls, poor to choice, 2.40@4.25; calves, choice to fancy, 6.25@7.50; calves, common to fair, 3.00@6.00: corn-fed western steers, 4.00@5.30; Texas bulls and grass steers, 2.90@3.85; Texas steers, fair to choice 3.50@4.40; western range steers, 3.10@4.50.

Hogs—Good to choice heavy shipping, 5.35@5.75; fair to choice heavy packing, 5.10@5.30; rough and common heavy mixed, 4.80@5.00; assorted light, 150 to 195 lbs., 5.50@5.90; good to choice butcher weights, 5.60@5.85; poor to choice light mixed, 5.25@5.70; thin to choice, 50 to 130 lb pigs 4.25@5.60; stags and rough lots, 2.25@4.50.

MILWAUKEE, Wis., Oct. 10.—Butter—Creamery—extras, 20½c; firsts, 18@19c; seconds, 16@17c; whey, 12c; Dairy, fancy, 18c; lines, fresh, 15@16c; packing, stock 13½@14c; grease, 5@6c.

Cheese—American, full cream — Twins, 11@11½c; Young Americas, 12@12½c: Daisies, 12@12¼c; Longhorns, 12@12½c; low grades, 8@10c; Brick, fancy, 8½@9c; low grades, 6@7c; Limburger—Fancy, 8½@9c; off goods, 5@7c; Swiss, old, drum, choice, 11½c; Block No. 2, 9@10c.

Eggs—Strictly fresh laid, loss off, cases returned, 19c; at mark 17½@18c; dirties and second 16c; checks, 14c.

PLYMOUTH Wis., Oct. 6—Cheese—Twenty-seven factories offered 2,947 boxes of cheese and all but 85 Longhorns selling as follows: 271 Longhorns at 11¼c; 309 at 11½c; 1,062 Daisies, 11½c; 586 at 11⅝c; 192 Twins, 10⅞c; 153 10¾c; 235 Americas, 11⅜c; 54 at 11½c. Market firm.

MUSCODA, Wis., Oct. 10—Cheese—Twenty-five boxes of Twins sold at 11c, 45 at 10½c; 50 single Daisies at 11c; 145 boxes Twins withdrawn; 200 boxes square prints withdrawn.

FOND DU LAC, Wis., Oct. 12—Cheese—Sales on the dairy board today were 463 Twins at 10⅝c; and 288 Daisies, at 11⅜c. One party swept the board on the first bid.

SEYMOUR, Wis., Oct. 6 Cheese—The offerings were all sold as follows:
400 double Daisies at 11⅛c; 1,122 at 11c; 495 Twins 10⅝c.

BRILLION, Wis., Oct. 8—Cheese—Sales on the call board today were: 123 Twins at 11c; 78 at 10⅞c 733 Daisies at 11½c; 56 cases Young Americas at 11¼c; and 100 Cheddars at 11c.

MANITOWOC, Wis., Oct. 7—Cheese—One hundred and ten boxes Twins at 10½c, 900 boxes Young Americas at 11c, 1,650 boxes Daisies at 11¼c.

SHEBOYGAN FALLS, Wis., Oct. 7—Cheese—Twenty-two factories offered 1,673 boxes of cheese on the Call Board today and all except 100 cases Longhorns sold as follows: 580 cases Young Americas at 11⅜c, 50 Daisies at 11⅝, 76 do at 11½c, 85 cases Longhorns at 11⅜c, 772 do at 11⅝c, 10 do at 11c. Market active.

SHEBOYGAN, Wis., Oct. 7—Cheese—On the Call Board here today 2,116 boxes of cheese were offered and sold as follows: 686 Daisies at 11⅝c. 285 do at 11⅜c, 411 Yonng Americas at 11⅜c, 95 do at 11¼c, 641 Longhorns at 11¼c.

NEW ORLEANS, La., Oct 12—Butter—Extras 21½c; firsts, 20c; ladles, 15½c. Quiet.

PHILADELPHIA, Pa., Oct. 12—Butter—Firm; prints, 1c higher; extra western creamery, 21c; near by prints 22c.

Cheese—Quiet but steady; New York full creams, fancy, 12½c; choice, 12⅛c; fair to good, 11¾@12c.

Eggs—Firm, good demand; fresh nearby, 21c, at the mark; western, 24c, loss off; southwestern, 21c; southern, 18@20c.

ST. LOUIS, Oct. 12—Butter—Quiet; creamery, 17@21½c; dairy, 14@18c.

Eggs—Steady, 19½c, loss off.

KANSAS CITY, Oct. 12— Butter — Creamery, 18½@19c; dairy, fancy, 17c.

Eggs—Firm; Missouri and Kansas, cases returned, 18½c; new No. 2 white wood cases included, 19c.

WASHINGTON, D. C., Oct. 12—Butter—Market firm. Extras 21½c; choice firsts 21c; renovated 17c.

TOPEKA, Kan., Oct. 10 Butter—Creamery butter 20@21c; dairy butter 16½@17½c.

Cheese—Longhorns, 12c; Twins 11¾c; Daisies, 12c; Prints, 12½c.

BOSTON, Mass. Oct. 12—Butter—Cream, western extra, 21@22c; western firsts, 19@20c; dairy, 14½@20½c; imitation creamery, 16c; ladle, 14@15½c; box and print, 16@23c.

Cheese—Choice, 11@12¼c; Wisconsin, 11@12¼c; Ohio, flat, 10½@11c.

Eggs—Nearby, 34c; western selected, 23@24c; poor to fair, 17@18c; Illinois, 20@21c.

LIVERPOOL, Oct. 12— Butter—Good United States nominal.

Cheese—Steady, American finest white, 54s 6d; colored, 55s 6d.

UTICA, N. Y., Oct. 12—Cheese—Seventy-five lots, 1,000 large, 11⅛c; 45 lots, 4,000 small, 11¼c.

CANTON, N. Y., Oct. 13 —Cheese—Offered 2,100 boxes of Twin cheese, 110 tubs of butter. Cheese sold at 11¼c; butter, 20½c.

WATERTOWN, N. Y., Oct. 13—Cheese—Sales 4,200 at 11¼c for large and Twins; 11¼@11⅜c for small and singles.

NEW YORK N. Y., Oct. 12—Butter—Receipts, 6,382 pkgs.; firm; creamery, 21c; creamery, common to choice, 16@20½c; state dairy, 15@19c.

Cheese—Receipts 1,928 pkgs.; market dull; state full cream, fancy small colored, 12c: small white, 12c; large colored, 11¾c; large white, 11¾c.

Eggs—Receipts, 8,210 pkgs.; Steady; State and Pennsylvania, fancy mixed, 25@26c; state and Pensylvania seconds to firsts 20@24c; western extras, 25c; western thirds to seconds, 17@22c; western firsts 23@24c;

NEW YORK MARKET.

NEW YORK, Oct. 10—Butter—Receipts for the week, 43,485 packages.

Exports for the week, 2,203 packages.

Price for fresh creamery butter was marked down one cent per pound early in the week and sales up to Thursday were at 20c for extra goods; later, there was increased demand from all quarters and there was not enough fresh creamery to go around and prices were advanced to 21c. Stocks were well cleaned and prices decidedly in buyer's favor. New York dairy is wanted and full prices are readily paid for fine quality of fresh makes. Exporters are in the market for ladle goods and are reported to have paid 15 to 15½c for about 1,500 tubs. Packing stock sells quick at 13 to 14½c. Market closes in healthful condition and advancing tendencies for all grades. We quote:

Creamery, fresh, extra, 21c; medium, 20@20c½; poor, 16@19c. Creamery, freezer, extra, 20@21c; medium, 17@19c; poor, 14@16c. Dairy, extra, 19@20c; medium, 15@15½c; poor, 13@14c.

Cheese—Receipts for the week, 34,919 boxes.

Exports, 7,579 boxes.

Very quiet market the past week, with abundant stocks of all grade cheese and prices weak.

Some sales of finest small cheese out of cold storage at 12c, and prices for fresh goods were 12@12¼c. Skims unless of finest quality were entirely neglected. We quote:

Full Cream, extra, 12¼c; medium, 11¾@12c; poor, 9@11.

Eggs—Receipts for the week, 43,649 cases.

Our market is unchanged. All new laid stock and best freezer goods are in demand at full prices. We quote:

New York & Penn., new laid, per doz, 27@28c, Northern & Western, new laid, 25@26c; all sections, poor to good, 14@23c. Refrigerator stock, poor to fancy, 18@22c. DAVID W. LEWIS & Co 177 Chambers St.

NEW YORK FERTILIZER MARKET.

Acid phosphate	60	@	67½
Phosphate rock, f. o. b. Char'n	5 00	@	7 00
Tenn	3 00	@	4 00
Bones, rough ₱ ton	17 00	@	18 00
ground	21 50	@	22 00
Bone meal	22 00		24 00
Bone black, refuse	19 00	@	19 50
Potash, dbl. m're salt 48@53 per cent	1 12	@	1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons	25 00	@	30 00
sulph of basis, 90@98 per cent	2 11	@	2 18
90@98 per cent less than 25 tons	38 00	@	40 00
Potash muriate ₱ 100 lbs	1 83	@	1 95
less than 25 tons	36 00	@	40 00
Kainit 25% S. of P. ₱ ton	9 30	@	9 50
less than 25 tons	9 50	@	10 50
Sylvinit, 35@37% P. ₱ unit	41	@	46
Nitrate of soda	2 15	@	2 20
Blood, Dried red ₱ unit	2 55	@	2 60
low grade	—	@	—
Concentrated tankage	15 00	@	16 00
Fish guano, dried	25 00	@	25 25
acidulated	23 00	@	23 50

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All Reading Notices under this head are at the ate of 25 cents per line.

For Sale—Holstein bull calves, one 3 weeks old and two 8 months old; average official 7 day 80% butter records of dams and sire's dam is as follows: 19.5 lbs., 18.5 lbs., and 20.7 lbs. If you want a calf worth the money write quick to F. G. JOHNSTON & CO., Sta. B., Columbus, O., owners of the Business Herd of Holstein-Friesian Cattle. 36-2

For Sale—One choicely bred Guernsey bull by Stella P's Gold Bar, 8368, out of my best cow, 16 months old, warranted a sure stock getter. Also a few choice Berkshire sows and boars, April farrow, at reasonable prices. J. E. STORY, Successor to Nor. Wis. Live Stock Co., Stanley, Wis. 36-tf

Milch Cows Wanted—Car load lots, heavy milkers or springers. Give detailed description individuals, breed, age, guaranteed production and lowest spot price delivered Asheville. Address ANANDALE DAIRY FARMS, Asheville, N. C.

For Sale—Choice pedigreed O. I. C. Pigs 12 weeks old at $8.00 each. S. J. HOWARD, R. F. D. No. 1, Henderson, Ky. 36-3

Creamery For Sale—New creamery plant complete, located at Hamburg, Iowa, is to be sold at Sheriff's sale, at Sidney, Iowa, Oct. 21st, 1903. For further information address M. LIGGETT, Hamburg, Iowa.

For Sale—One fine registered 18 months Guernsey bull. Address EDWARD DIETZ, Hyde's P. O., Md. 36-3

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Wanted—Situation as manager, by a married man, on a dairy farm where milk is retailed, bottle delivery preferred. 8 years experience. Strictly sober. Best of references. Address F. E. N., care Hoard's Dairyman. 34-sp

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Holstein-Friesians — Registered cows and heifers, singly or by carload. Also bulls 1 month old to service age. Richest blood of the breed. KNAPP & PIERCE, East Claridon, Ohio. 33-5

For Sale—One carload of Jersey cows. Thoroughbreds and grades; also a few Holsteins. For particulars and specifications address BYRON PARSONS, Havana, N. D. 35-4

Wanted—Position as foreman on dairy farm by married man. Experienced in care and management of dairy stock; also of sheep and swine. References given. Address CHARLES W. SMITH, Lake Park, Minn. P. O. Box 147.

Wanted—An experienced farmer and dairyman, married, with two large boys, to farm and milk and care for 40 cows. Stable has cement floor and water in every stall; stalls are Bidwell. Milking hours 4:30 a. m. and 2 p. m. Wages $800 per year with house rent and garden. State your experience and give references. Give ages of members of your family. J. P. WATTS, Kerrmoor, Pa. 36-2

For Sale—Five cheese factories, 20 acres land, saloon and store with stock, three houses in Appleton, Wis., two farms 60 and 80 acres. Address 775 Ida St., Appleton, Wis. 36-tf

Wanted—A second-hand separator, Sharples preferred. Must be in good repair. A. BRINKMAN, Lancaster, Wis.

Very Low Rates to Kansas City, Mo.—Via the North-Western Line. Excursion tickets will be sold Oct. 16 to 21, inclusive, with very favorable return limits, on account of American Royal Live Stock Exhibition. Apply to agents Chicago & North-Western R'y. 35-2

Excursion Tickets to St. Paul and Minneapolis and Return—Will be sold by the North-Western Line daily until Nov. 30, 1903, from Fort Atkinson at $14.00 for the round trip, limited to return until Dec. 15, 1903. Apply to agents Chicago & North-Western R'y. 35-8

For Sale—Creamery plant doing fine business, with rooms for family; large barn; in beautiful valley with high school and in best dairy district on Puget Sound. Price $2,200 cash. Address E. I. THOMPSON, Everson, Wash. 35-4

Proposition—($65,000 made in 7 months.) I can give a few parties who can secure $500 to $2,000, a very paying business, choice locality. I have an article or machine, valuable to all farmers and stock raisers. With the help of three farmers I made clear, over $65,000 in seven months. Sales in one county, $12,360. The like never before known. Call in person. I pay half car fare whether you invest or not, and give best bank references. Fairness to all. W. R. WHITE. For particulars address C. HUNT, Village Farm, Liverpool, N. Y.

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For Sale—In car-load lots, fresh milch cows, 8 Springers. E. M. BOURNE, Wiota, Iowa. 34-2

For Sale—A cheese factory in good dairy country. Doing good business. No opposition, (cheap.) Address S. O. U., care Hoard's Dairyman. 34-tf

For Sale—Two registered yearling Guernsey bulls. RAY BICKNELL, Ft. Atkinson, Wis. 32-tf

Wanted—An experienced, steady, working farmer on grain and stock farm in Wisconsin Wife to board a few men at $13.00 per month, Fine dwelling house and garden spot, free. Wages to start, $35.00 per month. Address S. Y., care Hoard's Dairyman. 35-tf

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Need and Economic Value of Improvement in Dairy Stock.

[Continued from page 776.]

The tendency with too many farmers has been to go from the old barn (with which we were so familiar in days gone by, and through which the wind and snow had free range) to close, unventilated quarters, in which I believe it is impossible to make wholesome milk. Sunlight and good ventilation, however obtained, are essential factors, and so I believe is exercise. I am not in sympathy with the plan, so warmly advocated in some quarters, of leaving cows in the stanchions from fall to spring. It may result in temporary increase of milk yield, but must be at the expense of constitution, if long continued. I would give all cows some out-of-door exercise in all but the stormiest weather. If possible to have a yard or lane so arranged that the cattle could be driven about to the extent of a mile or two every day, I would ask no better arrangement. In the latest barn, built in Newton, are 92 pens, each 7 by 9 feet, in which our cows are kept without tying, this giving opportunity for a good deal of exercise; but, even so, I much prefer that they should be driven out of doors every day, except in stormy weather.

People living in our cities are realizing more and more the need of returning to natural conditions for continued health. It should be no less needful with cattle. Feeding our own cows entirely in the barn, as we do at the home farm, we plan to give them a vacation of two or three months at the Barre farm, when dry or nearly so. If in summer, as is the case with a large proportion of them, this time is spent in pasture, and we believe this tends to improve constitution in both cow and calf.

We believe in liberal, but not high, feeding. Our winter daily ration at the home farm consists of 30 to 40 pounds of ensilage, 8 to 12 pounds of grain, and all the clover, or clover mixed hay, the cows will eat, usually 7 to 10 pounds each. In summer, forage crops takes the place of ensilage to a large extent, though the past year we fed some ensilage every day until green sweet corn was available.

Our grain mixture at present time is 1,150 pounds bran, 850 pounds corn meal, 450 pounds middlings and 400 pounds cotton seed meal; this quantity supplying feed for two days for 143 cows. Ordinarily we do not feed corn meal, but the poor quality of ensilage this year necessitates its use.

We vary this mixture from time to time as the conditions of the grain market and the conditions of our other feed make it seem desirable to do so.

We have experimented with alfalfa to a limited extent, having brought some 30 tons from Kansas and Nebraska, and we find the value to be about one-third more than clover hay. We have made several attempts to raise it, but have not yet succeeded in obtaining and holding a good catch. We do not, however, propose to give it up without further trial, because of its high feeding value, as indicated above, and the fact that it is practically a perennial, having in this respect a great advantage over red clover.

DISCUSSION.

Question: Do you warm the water for your cows?

Mr. Ellis: No, sir, but water is before our cows all the time. If we were watering once or twice a day, I should want to warm the water.

Dr. J. B. Lindsey (Amherst): Will the lecturer add a word to his opinion of how the average cows are kept on the average farm in Massachusetts, and how, in his judgment, they can be improved? That is a subject I believe should be especially dwelt upon. I believe we are behind the times in our methods of producing dairy stock.

Mr. Ellis: I thought the statistics quoted spoke pretty loudly. A difference of 50 per cent between good cows and poor ones should answer that. We are answering the questions of how to improve in our own way by raising our best calves by pure-bred bulls, and these bulls are bought with reference to the purpose. We don't want to use Prof. Sanborn's scrub bulls—I am as much opposed to scrub registered stock as he is, but in our case we want large production as well as rich milk. We therefore breed our pure-bred and grade cows to registered bulls of large milking strains.

Question: How about getting rid of the poor ones?

Mr. Ellis: It takes sand to get rid of them; and yet, watch your figures and you will find you have missed it if you have not used sand.

Prof. F. S. Cooley (of Amherst): How much milk or butter must a cow produce in a year to be profitable?

Mr. Ellis: That depends upon what it costs to keep her. Really, it depends very materially upon two things,—the cost of keeping and the price obtained for milk.

Prof. Cooley: I observe that the lecturer has some idea of what the minimum product of a cow should be, and below which she cannot fall without being sold.

Mr. Ellis: My sand runs out once in a while, and I do not sell a cow when I know I ought to. We ought not to keep a cow that gives less than 5,000 pounds of milk.

Prof. Cooley: That answers the question. Now, what is the difference in value, in your opinion, between a cow that will produce 3,000 pounds of milk and one that will produce 6,000 or 8,000 pounds?

Mr. Ellis: Not allowing for the extra chance for loss—and there is a little extra chance, you are running a greater risk with the better cow—there is no question but what farmers could better pay $100 to $150 for a 6,000 pound cow than buy the average 3,000 pound cow at going prices.

Prof. J. W. Sanborn (of Gilmanton, N. H.): I am at the other extreme from my friend the lecturer. I am out in the country, four miles from any railroad. We make milk for the Boston market at about 2½ cents. I have adopted the practice of selling any cow that won't make 300 pounds of butter fat in a year.

Hon. S. A. Hickox (of Williamstown): I find that it is a very difficult thing to get a herd up to a point of excellence; this year they may do exceedingly well, but may not do so well next year. I can not account for it. We find there are more crooked sticks than straight ones. We believe in good cows, but it is a very difficult thing to get them. We are willing to pay the price for them. I would like to know how to weed out or get and keep a herd up to the point of excellence mentioned—6,000 pounds.

Mr. Ellis: You have got to breed them. We don't discard a cow that does not give us a certain amount of milk at once; we give her an opportunity to come up to the point.

Mr. Hickox: How much grain do you give the first year to the heifers?

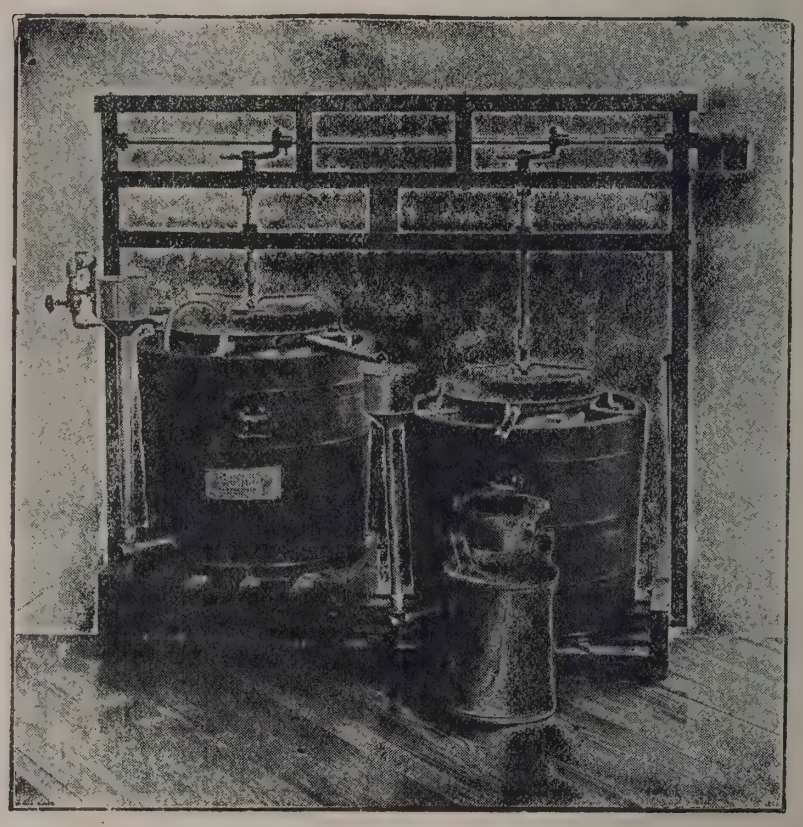
Mr. Ellis: That depends. We should give a larger quantity to the heifer giving a large quantity of milk. I will ask my superintendent, Mr. Van Norman, to give his figures. I should say from 6 to 8 pounds, so long as she was in pretty full milk.

Mr. Van Norman: I will say in regard to that, we have no rule. The herdsman is instructed to give that which they need. With a heifer dropping a calf at twenty-four months old, we don't pay much attention to the amount of grain, if she makes use of it for growth or milk. You must bear in mind that a heifer must have food enough to take care of herself, so she may grow and provide milk. Individuals differ, and differ so materially that it is impossible to give a specific amount.

Mr. Ellis: We have almost never had

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heife r injured by over feeding.

Question: What do your cows average a day per cow,—how many quarts?

Mr. Ellis: With 6,000 pounds, they would average 7.31 quarts per day. Our basis for figuring is not 2⅛ pounds, which is ordinarily taken. Our records show us every day the barn weights of our milk, and we have also the exact measurement; and our average is just 2½ pounds barn weight to the measured quart, and on that basis it would give 7.31.

Question: Will that average for three years?

Mr. Ellis: It might not for individual cows; it would for the herd.

Mr. R. Harrison (of North Adams): I heard you mention contagious abortion. Are you troubled with it considerably? Can a cow overcome this so you can keep her in your herd?

Mr. Ellis: We have very few cases of a cow aborting the second year. Were I situated like the ordinary farmer, supplying milk to the contractor, so the loss of the product would not inconvenience me, and considering effect on my own herd alone, I would sooner have the foot and mouth disease come into my herd than contagious abortion. It would cost me less money in the long run. I do not want to belittle the foot and mouth disease, but I do want to emphasize the difficulty with contagious abortion. I had it 7 or 8 years ago, and it is most serious.

Mr. Harrison: You have abortion occasionally. What do you lay it to, generally speaking,—to the cow being roughly handled, or what?

Mr. Ellis: If only occasional, it is generally the result of accident.

Mr. Harrison: How is it with younger cows and older ones, as compared to the number of cases?

Mr. Ellis: It is about the same proportion.

Mr. Harrison: What has been your experience with reference to abortion? I want to know in regard to a cow carrying her calf after she has aborted once,—does she twice? My experience is, that when I have had one abort even several times, after she drops a live calf then there is no more abortion. After they drop a live calf, I had rather have them than one that never aborted.

Mr. Ellis: We have very few cases of abortion the second time.

Mr. Harrison: Hasn't it been proved it is a disease, and not a mechanical trouble?

Mr. Ellis: Yes, but we use the greatest care in disinfecting both our bulls and cows.

Mr. Harrison: I would like to know what you use for antiseptics, and how soon you allow service after abortion.

Mr. Ellis: The time would vary,—never less than three months, and from that up to six months, depending upon the condition of the cow. Carbolic acid is as good as anything. It makes very little difference which of several antiseptics you use, as long as they are properly used.

With reference to pasturing, I will give the experience we had last year in one pasture. We leased a pasture of about 132 acres; in one corner was quite a lot of marshy land, so there was very little over 100 acres left to pasture. We put into the pasture 65 heifers and a bull, and it not only carried all those animals, but we found the grass was getting ahead of us. We mowed two tons of good hay in July, and put 30 dry cows there about six weeks in one part of the pasture, and those taken out the day before Thanksgiving, were fat.

Dr. J. B. Lindsey: I believe this is a subject of very great interest to the farmers of Massachusetts. I have felt for a long time, and still feel, that we as dairymen did not give sufficient attention to the improvement of our dairy stock. It has been a great pleasure to me to visit occasionally Mr. Ellis' herds, and see what a wonderful improvement he has made and the great success he has had in developing his herds. He has 200, more or less, of as fine heifers—the finest, I might say- that I have ever seen, and he has done that by applying common sense in their development. I wish every one of you could see that herd of young stock. I don't mean to say we all could have just the breed he has—that breed is suited to his particular condition; but I do believe that we can make a herd develop suited to our conditions, and I think the hit-or-miss plan which so many farmers in Massachusetts are following at the present time is a great mistake. I think we should take pride enough to endeavor to build up our herds and improve them. I do hope that the members of this Board will take sufficient interest to go home and preach improvement in dairy herds among the people with whom they come in contact.

Mr. Van Norman: I would like to supplement somewhat that which Mr. Ellis has said, and to answer a little more fully Prof. Cooley's question as to how the farmers of Massachusetts can improve their herds.

What Mr. Ellis has said is based upon accurate records, kept as he wants them kept, and in such a way as to give him the knowledge on which to conduct his business. If there is any one thing that I am sure he would wish to emphasize in reference to this, it is that you should have accurate knowledge of each individual cow, know what she is doing, and have the sand to cut out those who are not doing the business.

I would say, then, the first thing in improving your herd is to know your herd, and know what each one is doing. And I would say that we have no rules, only maxims, We endeavor to see that there shall be an intelligent observation of every individual, and that that individual shall be treated as her conditions require. For that reason I did not wish to answer the question definitely as to how much feed we give our heifers. It does not make much difference, as Mr. Ellis says, if they get there in their work. We try to develop a heifer so that she will give a maximum amount of milk, 6,000 or 7,000 pounds, by careful observation of her condition and constitution, giving her grain up to the limit where the result is best, but we won't exceed 12 pounds per cow per day. What difference does it make what you feed that heifer, if you develop an 8,000-pounds cow? I would emphasize that side of this subject—that you know your cows, know them individually, how much they can make use of, and know what that will do.

Question: What grain do you feed?

Mr. Ellis: As I said before, our mixture at present is 1,150 pounds of bran, 450 pounds of middlings, 850 pounds of corn meal and 400 pounds of cotton seed meal. We vary that somewhat, as the cost of feed varies. This year we are feeding corn meal where ordinarily we should not, because of poor quality of ensilage.

Question: Do you feed gluten meal?—it is cheap enough.

Mr. Ellis: We do at times.



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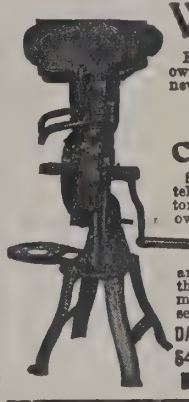
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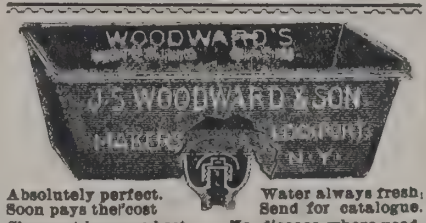
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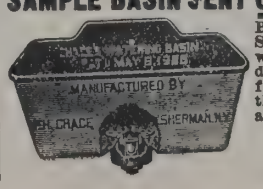


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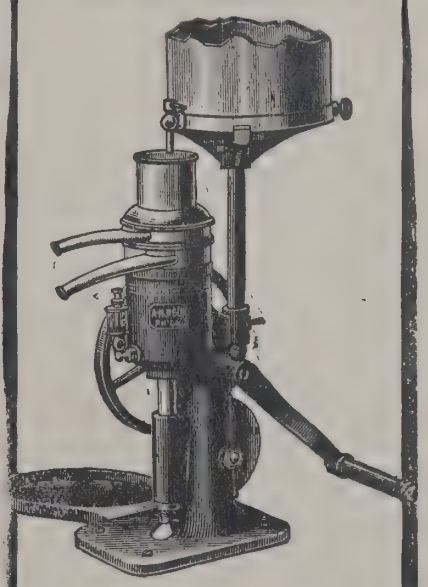
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The "best" separator is that one which does its work most thoroughly and easily, that is built of strongest material, and that is most easily washed and kept in order.

First cost is a great point with a buyer, but ease of running, perfection of skimming and simplicity in washing are even greater considerations.

The **Reid Hand Separator** has but a single cylinder inside the bowl, and skims as closely as one-hundredth of one per cent. Indeed, some tests indicate "not a trace" of fat in the skim milk.

The Reid is perfectly planned and strongly built, and it literally "runs like a watch."

As to our guarantee of excellence, we make the strongest statement that can be expressed in words: **Money back (less freight) if the buyer is not satisfied.**

There is a new (free) booklet about the Reid Hand Separator.

Sizes run from 150 lbs. to 500 lbs. per hour.

A. H. REID
CREAMERY AND DAIRY SUPPLY CO.,
PHILADELPHIA, PA,

MILK DEALERS COMBINATION Milk Protector, for cans or bottles. Prevents milk churning and souring in summer and freezing in winter. INVESTIGATE. S. C. Sullivan Mfg. Co., Erie, Pa.

Some Jersey Tests.

ED. HOARD'S DAIRYMAN:—We don't see in the DAIRYMAN as many reports from pure-bred Jersey dairy herds as I should like. Here are the complete results of the last season of the little bunch at Lake Grove farm. As my dairy inspiration and ambition for "something better" came in the first instance from the DAIRYMAN you may properly claim a share in the showing made:

Allie of Lake Grove 166827 (test 15 lbs. 2 oz.), in 46 weeks milked 7,390 lbs. 2 oz., with monthly composite fat tests indicating 441 lbs. 4¾ oz. of butter, estimated 85% fat. During the five weeks ending in April, 1902, she made 71.985 lbs. of butter as indicated by the Babcock; an average of over 14 lbs. per week for the five weeks.

Clara of LakeHome 161641, in 51 weeks, her first season, milked 5,975 lbs. with her monthly fat tests indicating 377 lbs. 4 oz. of butter.

Duchess of Pleasant View 144633, credited with a churn test of 13 lbs. 11 oz., with her first calf, at 21 months old, milked 6,365 lbs. 4 oz. in 48 weeks, with her monthly fat tests indicating 402 lbs. 11½ oz. of butter.

Ethel Signal Rex 143875 in 52 full weeks, her second season, milked 7001 lbs., 1 oz., with her monthly fat tests indicating 465 lbs., 9 oz. of butter.

Siglolias 151127, test 14 lbs., 7 ozs. with second calf (after milking over 6,000 lbs. in 354 days her first season), milked 5,303 lbs., 15 ozs., in 39 weeks, her second season, with the monthly fat tests indicating 337 lbs., 13½ ozs. of butter. Olga Victor Pogis 12711 (test 17 lbs., 6 ozs.) milked 7,930 lbs. in 46 weeks, with her fat tests indicating 483 lbs., 2 ozs. of butter. In the first 5 weeks after freshening, she made 79 lbs., 8 ozs. of butter, over 15½ lbs. per week. We have since lost this cow with milk fever.

Sweet Briar Signal Torment 168799 in 52 weeks, her first season, milked 5371 lbs., 3 ozs., with the monthly fat tests indicating 347 lbs. 7 ozs. of butter.

Princess of Lake Grove (test 14. lbs. 4 ozs.) in 52 weeks milked 6861 lbs. 15 ozs. with monthly fat tests indicating 476 lbs. 6 ozs. of butter.

Amy of Prospect 138767 in just 352 days, her second season, milked 5004 lbs. 12 ozs, with fat tests indicating 361 lbs. ½oz. of butter. This is the highest testing cow in fat per cent that we own.

Pedro's Sallie Signal 169391 freshened at 17 months old (being bred by accident) and within a year, her first season, milked 3546 lbs. 11 ozs. with her monthly fat tests indicating 216 lbs. 12 ozs. of butter. This young cow and Siglolias, Ethel Signal Rex, Sweet Briar Signal Torment, and Clara of Lake Home are closely related in blood, as are also Allie of Lake Grove and Princess of Lake Grove. The members of the milch herd not mentioned number eight cows and heifers that have not yet completed a season with us.

Our grain ration runs from 6 lbs. to 12 lbs. per day, chiefly bran. In the summer season the cows are on pasture, with grain and green feed of some sort at the barn night and morning. For the past two winters we have fed silage with great satisfaction to both the cows and ourselves.

Our fat tests are made from a composite sample of from 6 to 14 consecutive milkings of each cow, the samples being taken generally about the middle of the month. Since July we have sampled only six milkings for the test sample. Having ascertained the fat per cent, we use that as the basis for estimating the butter (85%) for the weeks ending in the month. As our milk records are kept by weeks (each milking of every cow being weighed and recorded), it is a little handier for us to estimate our months as 4 or 5 weeks as the case may be, instead of the exact calendar month.

Lake Co., Ohio. E. E. STEVENS.

A Question of Law.

Liability for Bull.

J. C. L., Dodge county, Wis.: I am a breeder of pure bred Short-horn cattle. I have a neighbor who keeps scrub cattle of the worst kind. His pasture joins mine and I am continually having trouble about a scrub bull that he allows to run in his pasture. I own all of the fence between our pastures and I have a good, new six wire fence. But nothing can turn his scrub, and it has got through my

DAIRY FARM
FOR SALE
Equipped with every modern facility and convenience with 80 head high class Jersey milkers paying 15 to 20 per cent on investment. Located at Pass Christian, Miss., the mecca of northern health seekers. The average price of dairy products there surpass anything in the north. No such combination of inducements have ever before been offered anywhere. Owner reluctantly consents to sell, his time being monopolized in other lines. Right party buying all personal property can secure favorable lease of premises.
S. Q. HOLLINGSWORTH, COUSHATTA, LA.

FINE DAIRY FARM
FOR SALE—134 acres of good land three miles from Erie R. R. and Buffalo & Susquehanna R. R. Four barns; one large dairy barn 56x36 feet, steel track and horse fork in same, all complete. Large house with cellar under same. Well watered and fenced—in fact it is the finest dairy farm in state of New York. Will sell with or without stock and other personal property. Will trade for Hardware Stock in a good business town.
J. L. HAYNES, Addison, N. Y.
Steuben County.

PURE BRED SHORTHORNS
CHOICE BULLS FOR SALE.
Also Cows and Heifers bred to Clay Buttercup, 195881, a descendant of the Clay Family, champions at the World's Fair dairy test.
GEO. WENHAM, Fort Atkinson, Wis.

ARYSHIRES and CHESHIRES Two Heifer Calves, 11 months old; 1 bull calf two weeks old, red and white. Service boars, sows in farrow; Fall and Spring Pigs in pairs not akin. HOMER J. BROWN, Hartford, Cortland Co., New York.

NORTH OAKS FARM, ST. PAUL, MINN.
(Jas. J. Hill, Proprietor.)
AYRSHIRE BULLS
Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada. Address,
N. E. McKISSICK, Supt., Cardigan, Minn

AYRSHIRE CATTLE of the BEST of BREEDING. Also Chester White Pigs, ready to book for season's trade. Young stock of both sexes. Prices reasonable. Come and see us.
F. TSCHUDY & SONS, Monroe, Wis.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality F. W. TRATT, Whitewater, Wis.

ALTA CREST FARM, SPENCER, MASS.
Home of the Yeksa Family of Guernsey Cattle. Herd contains more cows with large records and backed by large records than any other HERD OF
GUERNSEY CATTLE
IN THE COUNTRY
Herd headed by Primative 4909, a son of Primrose's Tricksey, Adv. Reg. No. 2, 592 lbs. butter in one year. Several Bull Calves from elegantly bred Dams at reasonable prices. Address
A. H. SAGENDORPH, Spencer, Mass.

Rosendale Guernsey Herd
TUBERCULIN TESTED.
Sixty head of choice Guernseys headed by Coralette's Son, (see page 450) whose dam, Coralette made 479.7 lbs. fat in one year at 3¾ years old, and was first prize cow at Wisconsin State Fair in 1896.
Some fine young bulls for sale.
GEO. C. HILL & SON, Rosendale, Wis.

Wasteland Guernseys
Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's Daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.
M. M. & E. J. HOLLINGSWORTH, Landenberg, Chester Co., Pa.

QUERNSEYS FOR SALE.
Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.
JAS. H. BEIRNE, Oakfield, Wis.

GUERNSEYS FOR SALE
Bull two years old out of Count Topsy 24.27 lbs. butter 7 days. She won 1st prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

THE BROWN BESSIE HERD Offers one bull 14 months old, sired by Recorder, 29239, the only living son of Brown Bessie and has 14 tested daughters. Dam, Relay, 70353, test 17 pounds 2 ounces. She a daughter of Diploma with 61 tested daughters. Also Berkshire Pigs of English and American selected stock.
H. C. TAYLOR, Orfordville, Wis.

KING OF ST. LAMBERT'S KING 30752
Sire of thirty-three tested daughters, is unquestionably the most prepotent of any Jersey sire in the land. We have for sale young bulls rich in his blood; also a few cows and heifers in calf, whose progeny will be attractive because of the "Hart's King" blood in them. For prices, etc., address
FRANK W. HART, CLEVELAND, OHIO.

GUERNSEYS.
HADDON FARMS—Home of the noted GLENWOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

Florham Guernseys.
The herd is made up of representative animals of both home and foreign breeding.
BULL CALVES,
from large producing dams for sale. Apply to J. L. HOPE, Supt., Florham Farms, Madison, N. J.

Old Homestead Guernseys.
Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.
Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL Perry, Lake Co., Ohio.

AMERICAN JERSEY CATTLE CLUB
OFFICES: 8 W. 17TH ST., NEW YORK
President, ELMER A. DARLING.
Secretary, J. J. HEMINGWAY.
BLANKS for Registering and Transferring Jersey Cattle; also Blanks for Private Butter Tests of Registered Jersey Cows, furnished free of charge upon application to the Secretary.
FEES for Registering: To non-members, $2 each head male or female. To members of the Club, $1 each head, male or female. All animals over two years old, double fee. For registration of all dead animals, $1 each. Imported animals, $25.
TRANSFERS are recorded free, if presented within 90 days from date of delivery. Transfers presented after 90 days, $1 each.
PRICE of Herd Register, $1 per Single Volume. Butter Tests of Jersey Cows, including all tests received by the Club to August 1, 1898, $2 per volume. Private Herd Record, 330 pages, cloth, leather back and corners, $2. Pocket Herd Record, 120 pages, flexible leather, 50 cents.
VOLUME OF BUTTER TESTS from August 1, 1898, to July 15, 1902, $1. Consolidated Volume, containing all previous tests, $2.00.
THE BY-LAWS of the Club, giving full rules to be followed in securing registration and transfers, mailed free on application.

POLLED JERSEYS
Richest Cow of all breeds in Pan-American Model Dairy. Winning Herd at Ohio and New York State Fairs, 1903. W. H. FORBES & CO., Clifton, O.

HIGH CLASS JERSEY BULLS
Heifers and Cows for sale. My foundation stock is the best I could buy from a herd famous for merit. Write for what you want.
WM. B. GOODRICH, CLIMBING HILL, IOWA.

PROSPECT HILL JERSEY HERD
The cow that can DO something is what the farmers want. Eight cows have finished their official year's work making an average of 524 lbs. each. F. H. SCRIBNER, Rosendale, Wis.

READY FOR SERVICE
YOUNG JERSEY BULLS
Now ready for service or fit next Winter and Spring. Tested dams with high yearly butter records. St. Lambert, Combination, and Brown Bessie blood. Prices from $30 to $150, according to age and breeding.
E. E. STEVENS, North Madison, Ohio

VALLEY FARM Is offering some bargains in young bulls sired by Diploma's Victor, 56310. Grandson of Brown Bessie; two yearlings; one 18 mo. old. Also bull calves. Write
FRED STUBLEY, Black Earth, Wis.

JERSEYS. ST. LAMBERT and Combination, for sale; 24 cows, 7 heifers, 36 bulls.
S. E. NIVIN, Landenburg, Pa.

DON'T
USE A SCRUB BULL
You can not afford to. A little book gives good reasons for your buying a registered sire. Write for it, and for Sale List A 20, containing several well bred A. J. C. C. young bulls fit for immediate use, nearly all being from tested dams. To close these out quickly they are offered at the price of calves. Write at once, if in need, and secure the choice.
WINTERGREEN HILL FARM
SCOTTSVILLE, N. Y.

FOR SALE GOLDEN LAD BLOOD. sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

FOR SALE. Two A. J. C. C. Bulls ready for service; also some younger ones. Cows and heifers in calf to richly bred bulls. Write for pedigrees and prices. We have a few Berkshire Boar Pigs from unregistered sows left; cheap.
N. N. PALMER & SON, Broadhead, Wis.

BILTMORE
JERSEYS
are great and presistant dairy workers and typical Jerseys. We ask comparison with any other herd for
YEARLY MILK & BUTTER YIELDS, SUBSTANCE AND FINISH.
The herd contains more prize winners at the leading exhibitions (including the Pan-American) than any other herd.
The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service as you cannot get it.
Also Headquarters for Large English Berkshires and Standard Poultry.
Apply to
BILTMORE FARMS, BILTMORE, N. C.

HAZEL FERN HERD. A. J. C. C. Jerseys blood of St. Lambert, Mella Ann, Combination, Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

ROBINSWOOD JERSEY DAIRY is offering a few Reg. Jersey Bulls ready for service at from $25 to $50, sired by a grandson of Recorder, the only living son of Brown Bessie, out of good cows. Write, stating your wants, to
N. H. ROBINSON, Prop., Centralia, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.
W. J. HUSSEY, Mt. Pleasant, O

CLOSING OUT
Fifteen head registered and high grade Jersey cows and heifers, several with yearly records, for sale at less than value. Apply at once. Must be sold.
WM. L. BRADBURY,
NASONS, ORANGE COUNTY, VA.

Just for Nothing
We will send you THE JERSEY BULLETIN and HOARD'S DAIRYMAN to the end of 1903. But while making you this generous offer, we wish you to do something.
Subscribe for both papers for 1904, at the lowest clubbing rate, $1.75 FOR THE TWO. To make it plain, send us $1.75 and we will send THE JERSEY BULLETIN and HOARD'S DAIRYMAN to January 1st., 1905.
☞For Sample Copy of Jersey Bulletin address Indianapolis, Ind.
"IT'S UP TO YOU!"

fence several times and has got two of my best heifers in calf. I can prove that the scrub served them. Has my neighbor any right to let his bull run, and, if he has, have I any remedy? He claims that the bull got through my fence and that he is not liable,

Answer: You can probably recover damages from your neighbor if he is worth anything and the facts are as you state them. You do not describe your fence accurately, so we are not certain that it is a sufficient legal fence. Section 1390 of the statutes of 1898 describes a legal wire fence as follows: "All fences consisting of five barbed wires with at least thirty-six barbs each to the rod, firmly fastened to posts well set, not more than sixteen feet apart, with one good stay between the posts, the top wire not less than forty-eight inches high at the place of attachment, the bottom wire being not more than seven inches from the ground, the space between the the bottom and the second wires being not more than seven inches, between the second and third wires not more than eight inches, between the third and fourth wires not more than twelve inches, and between the fourth and top wire not more than sixteen inches, measurements to be made at the place of attachment." It further provides that "all fences consisting of rails, timbers, wires, boards, or stone walls, or any combination thereof * * * or other things which shall be considered equivalent to either of the fences herein mentioned in the judgment of the fence viewers within whose jurisdiction the same may be, shall be deemed legal and sufficient fences." You say that your fence is new and has six wires. If it is well made it will probably satisfy the requirements of the statutes for a legal fence. Section 1391 of the statutes requires the occupant of adjoining lands used for farming purposes to keep and maintain legal partition fences such as are enumerated in section 1390 and further provides that owners who do not "keep in repair lawful partition fences" shall not be entitled to recover damages for trespassing animals. If your fence does not conform to the statutory requirements, evidence to that effect would prevent you from recovering damages in the case of trespass by ordinary farm animals. The legislature of 1903 amended section 1482 in regard to male domestic animals running at large, so that it now reads as follows:

"No stallion over 1 year old, no bull over 6 months old, nor boar nor ram, nor billy-goat over 4 months old shall run at large, and if the owner or keeper shall, for any reason, suffer any such animal so to do, he shall forfeit $5 to the person taking it up, and be liable in addition for all damage done by such animal while so at large, although he escapes without the fault of such owner or keeper; and the construction of any fence enumerated in Section 1390 shall not relieve such owner or keeper from liability for any damage committed by an animal of the enumerated class upon the enclosed premises of an adjoining owner." The intention of the legislature would seem to be, in adding the last clause, to except male domestic animals from the operation of Section 1391 and place upon the owner or keeper the absolute responsibility of taking care of them. Swine had been so excepted by chapter 278 of the law of 1889, but the chapter has been embodied in an ambiguous manner in the last clause of Section 1390 of the statutes. The Supreme court has not yet put any interpretation on these two provisions, however, and it is best to base your claim to damages on sufficiency of your fence. Your neighbor has a perfect right to allow his bull to run in his own pasture, but if it escapes into your pasture and does damage you can collect, provided you are maintaining a lawful partition fence. The measure of damages in such cases is a difficult one. It should be the difference in value between the heifers in their present condition and their value if the unfortunate circumstances had not happened.—*Sentinal Farmer.*

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

BUY DIRECT FROM FACTORY, BEST

MIXED PAINTS

At **WHOLESALE PRICES**, delivered **FREE** for Houses, Barns, Roofs, all colors, and **SAVE** Dealers profits. In use **61 years.** Officially endorsed by the Grange. Low prices will surprise you. Write for samples. **O. W. INGERSOLL**, 258 Plymouth St., Brooklyn, N. Y.

Holstein-Friesian Breeders Third Semi-Annual Consignment Auction Sale
414 South Clinton Street, Syracuse, N. Y.,

WEDNESDAY, OCT. 28th., 1903

I am instructed by the following well known breeders to catalogue and sell on the above date one of the most selected and choice lots of Holstein-Friesian Cattle ever yet offered to the public, consisting of cows and heifers with A. R. O. butter records ranging up to and over 21 lbs. each. Young bulls, cows and heifers whose dams have A. R. O. butter tests ranging up to 25 lbs. These choice females and several others bred to such noted bulls as Mercedes Julip's Pietertje Paul, Beryl Wayne's Paul De Kol, De Kol 2nd's Butter Boy 3rd., Mutual Friend 3rd's Paul, Johanna Rue 3rd's Lad and Sir Korndyke Manor De Kol. The contributors are A. A. Cortelyou, Neshanic, N. J.; F. P. Knowles, Worcester, Mass.; T. A. Mitchell, Weedsport, N. Y.; H. L. Bronson, Cortland, N. Y.; Stevens Bros., Lacona, N. Y.; H. A. Moyer, Syracuse, N. Y. Communications and applications for catalogues, which are now ready, can be addressed to either of the contributors, or

W. C. HUNT, Sales Manager, Liverpool, N. Y.

The above breeders will hold their next Auction Sale on the New York State Fair Grounds, Syracuse, June 2 and 3, 1904, the two days following the next annual meeting of the Holstein-Friesian Association. This will be made a regular annual event.

FOR SALE 2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.
M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

CLOVERDALE HERD

HOLSTEINS.

Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.

A. J. DAUGHERITY Streator, Ill.

Woodlake Herd.

Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. **JOHN B. IRWIN**, Station D., R. 1. Minneapolis, Minn.

MARKHAM MANOR FARM,

Simonsville P. O., Andover, Vt.

Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldome Clothilde. No. 15370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for discription and price to **J. A. THORNTON**, Manager, **Simmonsville, Vt.**

HOLSTEINS IN CALIFORNIA

SAN ANSELMO, MARIN COUNTY

250 HEAD IN THE HERD

Sires are sons of Mercedes Julip Pietertje, Colantha 4th Belle Korndyke, Fay Barnham Princess Wayne 7th. A fine lot of bull calves

R. M. HOLALING,
Rialto Building San Francisco, Cal.

FIRST CLASS BULL

Offered at reasonable price by South Side Farm, White Bear, Minn. Born Dec. 1, 1899. Sired by Baron Pauline De Kol with 8 A. R. O. daughters, and tracing three times to De Kol 2d. Our bull's dam has A. R. O. record of over 22 pounds, under five years, and during week's official test milk averaged over 40 per cent. fat. Fine conformation, nicely marked, superior handler, large veins and rudimentaries, gentle, vigorous, and sure. Other bulls ready for service.

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA.

President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.

FEES FOR REGISTRY.

TO MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.

NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. ☞ All blanks furnished free.

Life Membership, $25.

Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.

Address F. L. HOUGHTON, Putney, Vt., for information relating to Registration of Pedigrees.

HOLSTEIN BULLS.

We have some grandly bred young bulls ready for service. One of the largest and best advanced registry herds in the United States.
PIERCE LAND & STOCK CO. 14 Turk St. San Francisco, Cal.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 23123. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148 Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.
WM. EVERSON & SONS, Lake Mills, Wis.

FERMANAGH HERD

HOLSTEIN-FRIESIANS

Bulls ready for service from A. R. O. animals sired by Johanna Rue 2d Paul De Kol, sire of 13 A. R. O. cows. Also young bull calves by same sire. **THOS. GAINES, Supt., Arcadia, Missouri**

MAPLES STOCK FARM, PENNELLVILLE, N. Y.
Second Annual Offering
150 HEAD OF HIGH CLASS REGISTERED

HOLSTEIN-FRIESIANS

AT AUCTION, OCT. 14-15, 1903
at Fulton Fair Grounds, Fulton, N. Y. Catalogues ready Oct. 1. Write for one. Address R. F. D. 3 **John C. Godfrey, Fulton, N. Y.**

VALLEY FARM HERD

HOLSTEIN-FRIESIANS

Headed by Korndyke Queen De Kol's Prince, dam Korndyke Queen De Kol, 24 lbs. 6.7 oz., granddam Belle Korndyke, 25 lbs. 12.3 oz. Both sire and dam by Manor De Kol, his dam Netherland Hengerveld 26 lbs. 10.66 oz., Manor De Kol by a son of De Kol 2d, 26 lbs. 9.21 oz. All are official tests and average 25 lbs. 13.72 oz. butter for 7 days and 3.95 per cent fat in their milk. Two bull calves now for sale and young ones after Sept. 1.
DON J. WOOD, R. F. D. 2, West Winfield, N. Y.

Bulls For Sale.

Two choice bulls ready for service and some fine bull calves from good testing dams. Sire: Paul Clyde, son of Paul De Kol. Dam's record 24.88 lbs. in 7 days. Write **C. A. SNOW & SONS, Athens, Ohio.**

HOLSTEIN-FRIESIANS

INDIVIDUALITY, PERFORMANCE, BREEDING.
You need it all. Write or come. 100 head.
McKAY BROS., Buckingham, Ia.

HOLSTEIN-FRIESIANS

FAIRVIEW HERD

We offer bulls ready for service; also heifer and bull calves not related, of the kind to suit the most particular.
O. J. GODFREY, Pennellville, N. Y.

HOLSTEIN-FRIESIAN BULL CALF.

Do you want one for use this winter which will improve your dairy herd? Do you want him elegantly proportioned, with straight back, high rump, and all the dairy points? Do you want one whose relatives are A. R. O., and eligible to the Advanced Registry himself? If so, I have just what you want.
MALCOLM H. GARDNER, Darien, Wis.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

TYRANENA HERD

100 HOLSTEIN-FRIESIANS 100

A. R. O. Stock For Sale.

Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz **Frank B. Fargo, Lake Mills, Wis.**

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Offers 5 yearling bulls cows and heifers bred to oldest son of Mercedes Julip's Pietertje, No. 39480. Chester White Pigs in pairs and trios, not related.
W. R. GATES, Fort Atkinson, Wis.

OAKLAND HERD HOLSTEINS

PREMIER SIRE Mutual Friend 3d's Paul A son of Paul De Kol & Mutual Friend 3d, 21.84 lbs. butter, milk averaged 4.7% at 3 years. She has two A. R. O. daughters, 1 made over 20 lbs.

Must reduce herd at some price. State just what you want. T. A. MITCHELL, Weedsport, N. Y.

BROOKSIDE HERD

HOLSTEIN-FRIESIANS

To reduce herd to capacity of pasture, will sell a limited number of A No. 1 young cows of high breeding and individually right, large producers, at $150 each; also 15 bull calves at bargain prices.

STEVENS BROTHERS, Lacona, N. Y.

HOME FARM HERD.

Headed by **COLANTHA 4TH'S LAD.** Official test of three nearest dams, 25.1 lbs. butter in seven days. Herd numbers 125 head.

BEST FAMILIES REPRESENTED.

Special prices on six or eight bulls of serviceable age. **W. B. BARNEY & CO., Hampton, Ia.**

THE STEVENS HERD

Contains at the present time the young bull, Vale, with the largest official backing of any bull ever born. Several half-brothers and sisters to Vale, and a large number of cows and heifers bred to his sire, whose official backing is larger than that of any other bull ever in service. A cow that stands unequaled by any other that ever lived, in the official work of herself and daughters. The only cow ever officially tested for six months. Eighteen cows and heifers with official 7-day butter records averaging, by the 80 per cent. factor, over 20 lbs. each. Thirty animals whose dams have made official 7-day butter records averaging over 20 lbs. each. Why not get our prices before buying?
HENRY STEVENS & SON,
Brookside Stock Farm. Lacona, Oswego Co., N. Y.

ELMWOOD

Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.
GEO. T. McNEIL, Theresa, N. Y.

FOR SALE.

H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29628. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address **W. H. JONES, Watertown, Wis.** Rural Route No. 2.

THE MONONA FARM HERD

OF HOLSTEIN-FRIESIANS

Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 369.50 lbs. one day. Breeders and dairymen please write for prices.
F. W. HALLIS,
Monona Farm. Madison, Wis.

JUST BULL CALVES

We have three, that are individually fine. They are bred right, have been fed right, and the price is right.
Ohio's Famous Herd. Holstein-Friesian Cattle. **W. B. SMITH & SON.**
2488 W Broad St, Columbus, O.

Holstein-Friesian Bull Calves

Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

STAR FARM HOLSTEINS

SPECIAL OFFERING: Six of the choicest Johanna bull calves from official butter record dams and A. R. sire.

Also a few choice heifer calves, yearlings and 2-year olds; latter bred to Mercedes Julip's Pietertje Paul.

150 HEAD TO SELECT FROM

Special prices on cows in carload lots. Prices reasonable for quality. Liberal terms of payment.
HORACE L. BRONSON, Cortland, N. Y.

Oak Grove Herd Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. **C. H. STEVENS, Jefferson, Wis.**

HOLSTEINS

High Class Advanced Registry Stock only. Best butter families. Stock for sale.
Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.



T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.
Wm. O. Jackson & Sons, South Bend, Ind.

FOR SALE. H.-F. Bulls, ready for service. from A. R. O. Cows and sired by Sir Jonanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis

LOOK HERE

34 cows and heifers in the **McGEOCH HERD** have been **officially tested** with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 4 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs. of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs. of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by **Gem Pietertje Hengerveld Paul De Kol**, or **Sir Ormsby De Kol** for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days; average per cent of fat 4.47. Are these the kind of **Holstein-Friesians** you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd?

For particulars address **H. B. Daggett, Mgr., Station A, Milwaukee, Wis.** Residence: National Ave., near 40th. Phone, South 1601.

HOLSTEIN-FRIESIAN

YEARLING BULLS

ready for service, of high quality and breeding, at low prices for the next sixty days. They are from such families as Sadie Vale, Concordia, Korndyke, De Kol Burke, Clothilde, Netherland, etc. Also choice heifers.
Smiths & Powell, Syracuse, N. Y.

A Unique City Milk Plant.

Sanitary, Convenient and Fireproof.

ED. HOARD'S DAIRYMAN:—I have seen many milk plants, many larger and more pretentious in appearance, but never one as truly sanitary, thereby meaning convenient to keep clean and actually kept clean. This plant would be the joy for some of our scientific and sanitary milk cranks to look at, and I hardly know where one may be found that so fully comes up to the truly sanitary standard. This is especially worthy of our attention in these days of pretenstions and shams, especially as regards many so-called sanitary milk plants, where both pasteurizing, cooling and general handling of the milk and cream is frequently carried out in anything but a "sanitary" manner. While Mansfield, Ohio, is only a small city of about 20,000 people, still it is a place which appreciates a good thing, more so than some much larger places. Until about half a year ago, all milk was supplied by a number of small dairymen and peddlers; then a number of these combined and started a "Pure Milk Co.," so-called. Unfortunately, as is generally the case when a number of farmers unite, the necessary business management is lacking, and things don't turn out as had been hoped for.

Thus, since the establishment of the Loiselle Bread and Milk Co. which began supplying milk Sept. 1st, we have two milk companies in this town—one too many, which time will show. The Loiselle Bread and Milk Co. has another original feature, as the name indicates: Baking and milk business run together, and thus far the indications are that this experiment will be successful. Four wagons were already delivering bread and cakes all over town, and now milk and cream is being distributed by the same wagons, one man and two or three boys delivering milk and bread to the houses from each wagon. Two more milk delivery wagons have been added, and these also carry bread. It is too early to judge whether this delivery system will be successful; but the fact that Mr. Loiselle, who is general manager, gives his personal attention to all details and has been most successful in establishing the best and largest baking and ice-cream business in Mansfield, makes my faith strong in a decided success of the milk business also.

The motto is: "Slow but sure." No advertising has as yet been done, and though many people don't even know yet that this milk business is in operation, still the trade is growing daily. The writer is engaged to supervise the proper start, and before operations were begun the dairies of all farmers who were to furnish milk were visited by him, and the proper care and cooling of the milk before delivery was discussed. The result has been that of all milk delivered from twelve patrons up to date, we have had to return only one can, all other milk being received in perfect condition for proper pasteurization.

This is so much more noteworthy, as very few of our patrons had any ice and had to depend on spring, well or cistern water for cooling their evening's milk. During a hot spell we received some night's milk here at a temperature of 65°, altogether too warm, and yet samples of such milk left standing in a warm room would keep perfectly sweet for six hours and longer. In no case would the milk show 0.2% of acidity, which I think goes to prove that the mi[illegible] carefully and cleanly [illegible] milk pails, strainers [illegible] tary conditions [illegible] ery fact [illegible] have a [illegible] and [illegible] ll as [illegible] her- [illegible] ile [illegible] ill [illegible] t

ter is produced; the price 12 cents per gallon, or 4 cents per quart, bottled. Skimmed milk is 10 cents per gallon. No milk, cream or ice-cream is sold except what has been pasteurized and a large portion of skimmed milk is used for the bakery. The ice-cream business is considerable, and two qualities are sold; the best $1.50 per gallon, and a cheaper grade at $1 00.

No new enterprise has ever been established, where it was not found that *some* things might have been arranged still better; but in most new milk enterprises, some serious blunders have been committed, which it took a long time to overcome, and the effects of which have even ruined the whole undertaking. Especially where pasteurization is yet an unknown process, which carries with it the idea that milk of all kinds of doubtful qualities from a lot of dirty farmers, is simply mixed and goes through a kind of boiling process, a natural prejudice has to be overcome, and this can only be done by exerting the utmost care in all departments of the work, from the handling and delivery of milk by the farmers till the distribution into the houses of the consumers. An absolutely faultless and uniform article of milk must be supplied to the consumers from the first day and every day thereafter. Anyone in the milk business knows what mischief is wrought by one day giving your customers an inferior or faulty article, and this still more holds good when pasteurized products are supplied, and properly so, because the consumers have been told before hand that pasteurized milk and cream is superior to any other, and always is perfect and of extraordinary keeping quality. If this claim is not from the start proved as true, the consumers have a right to complain, and will not forget to do so.

To say that the company has delivered milk to about 400 customers for a month and had no complaints would be untrue, but we have had no more than to enable me to call on all such parties and find out what was the matter. A few claimed that their milk was sour next morning; but I found a bottle partly full of milk, unclosed, on an open shelf at 4 p. m. in a room of about 80°. The only argu-

"ADVERTISEMENT."

THE VALUE OF CHARCOAL

Few People Know How Useful it is in Preserving Health and Beauty.

Nearly everybody knows that charcoal is the safest and most efficient disinfectant and purifier in nature, but few realize its value when taken into the human system for the same cleansing purpose.

Charcoal is a remedy that the more you take of it the better; it is not a drug at all, but simply absorbs the gases and impurities always present in the stomach and intestines and carries them out of the system.

Charcoal sweetens the breath after smoking, drinking or after eating onions and other odorous vegetables.

Charcoal effectually clears and improves the complexion, it whitens the teeth and further acts as a natural and eminently safe cathartic.

It absorbs the injurious gases which collect in the stomach and bowels; it disinfects the mouth and throat from the poison of catarrh.

All druggists sell charcoal in one form or another, but probably the best charcoal and the most for the money is in Stuart's Absorbent Lozenges; they are composed of the finest powdered Willow charcoal, and other harmless anti-septics in tablet form or rather in the form of large, pleasant tasting lozenges, the charcoal being mixed with honey.

The daily use of these lozenges will soon tell in a much improved condition of the general health, better complexion, sweeter breath and purer blood, and the beauty of it is, that no possible harm can result from their continued use, but on the contrary, great benefit.

A Buffalo physician in speaking of the [illegible]enefits of charcoal, says: "I advise [illegible]tuart's Absorbent Lozenges to all pat-[illegible]ts suffering from gas in stomach and [illegible]els, and to clear the complexion and [illegible]y the breath, mouth and throat; I [illegible]elieve the liver is greatly benefitted daily use of them; they cost but five cents a box at drug stores, [illegible]ough in some sense a patent pre- yet I believe I get more and [illegible]arcoal in Stuart's Absorbent [illegible]han in any of the ordinary [illegible]lets."

A Bad Fix

When one wakes up aching from head to foot, and with the flesh tender to the touch, when

Soreness and Stiffness

makes every motion of the body painful, the surest and quickest way out of the trouble is to use

St. Jacobs Oil

promptly. It warms, relaxes, cures. Price, 25c. and 50c.



TERRIFF'S PERFECT WASHER

SENT ON TRIAL with a positive guarantee to wash the collars and wristbands of the dirtiest shirt perfectly clean, without the use of the washboard or hand rubbing, with no injury to the most delicate fabric. Will do a family washing in one hour; *saves time, labor and expense.*

FREE We want good, reliable and industrious agents, and in order to secure your help will send one of our washers absolutely Free. Write today for Free catalogue and full particulars.

PORTLAND MANUFACTURING CO., 135 Pearl St., Portland, Mich.

$1.00 BIG STOVE OFFER.

If you can use the best big 500-pound steel range made in the world, or the best coal or wood heating stove ever made and are willing to have either stove placed in your own home on three months' free trial, just cut this notice out and send to SEARS, ROEBUCK & Co., Chicago, and you will receive free by return mail, big pictures of both stoves, also many other cooking and heating stoves, you will also receive the most wonderful $1.00 steel range and heating stove offer, an offer that places the best steel range or heating stove in the home of any family, such an offer that no family in the land, no matter what their circumstances may be, or how small their income, need be without the best cooking or heating stove made.

Cow Profits

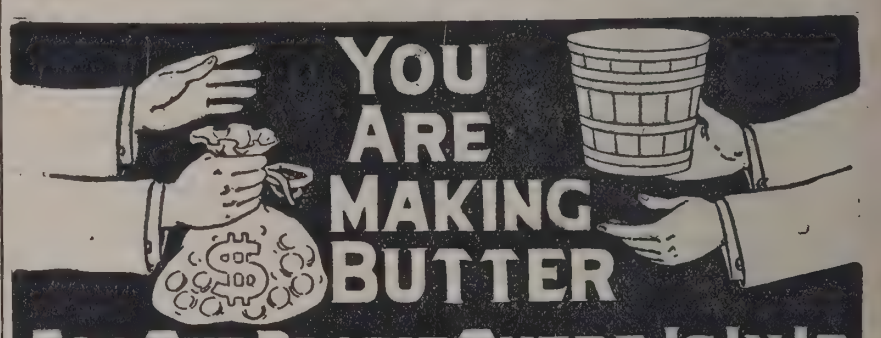
come from the conditioned animals. None in the barren, aborting kind or those that have calving or after birth troubles.

KOW-KURE (For Cows Only)

is for the cow's case. It conditions, prepares for calving difficulties, cures barrenness, milk fever, garget, all breeding difficulties. 100,000 cow owners call it the one true specific cow remedy. Dealers sell it. Kow-Kure book **mailed free**

Dairy Association Co., Lyndonville, Vt.





FOR THE PROFIT THERE IS IN IT

You must make your butter the best possible if you would command the highest price.

Colonial Butter Salt

AND

Liberty Butter Salt

"MONEY MAKERS FOR BUTTER MAKERS"

Are freely credited, by the creameries who use them, with improving the quality of the butter over any other salt, being perfect in flavor, color, and purity, lighter and drier than any other, dissolving more quickly, preventing danger of streaked or mottled butter, while it is safe to work the butter less with these salts than with other makes. Regarding our two brands,

COLONIAL Butter Salt is a light, flaky grain, the lightest for the same bulk that there is on the market. While other makes use a barrel with but a 30 inch stave and a 19 or 20 inch head to hold 320 lbs., Colonial requires a barrel with a 34 inch stave and a 21 inch head to hold the same weight.

LIBERTY Butter Salt is granulated, every grain of the same size and perfectly square; contains one-tenth of one per cent. moisture, so it, as well as the Colonial brand, has the "make weight" feature. It is a little coarser in grain than any other granulated salt, which is a decided improvement, and because of its uniform grain it dissolves evenly and does not leave the butter gritty or mottled.

Send for Free Sack

of either or both these brands. Your request on a postal card will assure the prompt delivery to creameries and cheese factories only, without cost, a 56 lb. sack of either or both. Let us know your success with it after trial.

COLONIAL SALT COMPANY, AKRON, OHIO.

CHICAGO OFFICE—84 ADAMS STREET

ment the woman made was: "But it did not sour yesterday." The fact is, that bottles of milk, which had been out on a delivery wagon for hours, and were then placed in a warm room, would always keep sweet 24 hours, generally longer.

This is all that reasonably may be expected. Some will complain that the cream, which tested 24 per cent fat, was not rich enough. It has found that many have been accustomed to cream from private dairies which has been doctored so well with the so-called "cream thickener," which article is widely advertised. It takes some time before the customers learn of these mysterious tricks, which make a very inferior cream, half milk, appear as if it were very rich. What an enormous amount of stuff people consume which has been fixed up by "cream thickener," "viscogen," coloring matter and preservatives. If Profs. Babcock and Russell had imagined what fraudulent use would be made of it, they would not have given their invention of "viscogen" to the world, and we would have been better off without it. The Company has thus far succeeded only in putting an absolutely perfect milk on the market; all milk has been uniform, never the slightest cooked, or strange flavor being perceptible, and the cream line every day being perfect and alike in all bottles This was of even greater importance here than in most places the prejudice against pasteurized milk having been increased because (I am sorry to say) much improperly pasteurized milk had been put upon the market by the other milk company here. Many people would not buy our milk simply because they had tried the other. They are gradually getting over that notion now, and the demand for our milk and cream is rapidly increasing. "Be sure you are right and then go ahead," but not before. That is a safe motto, and not least in the pasteurizing milk business.

The building is the first of its kind in this country; it is entirely of concrete, the only inflammable material being the doors and window frames and no insurance is carried. The bakery and ice cream business and the milk plant will all be under one roof, but the bakery is not yet finished, all baking being still done in an adjoining building. The plant is built on a slope, all milk being received at the upper side and put on the delivery wagons below. Thus, neither milk pumps nor elevators are used, a decided advantage. The man who weighs the milk, may from above overlook both separator, pasteurizer and bottler, all being placed on a straight line. As soon as we have secured cuts, we shall be pleased to have HOARD'S DAIRYMAN use them for the benefit of its readers.

If any of my readers are contemplating going into the sanitary milk supply for some city, and intend to pasteurize (no other system will be found practical today) I would advise such if possible, to visit this Mansfield plant; no matter which others and much larger ones they may visit, they will see and learn some things here, which they cannot in any other place. They will also find Mr. Loiselle a gentleman, who not only has the reputation of a most successful business man, but who always is glad to impart information to others.

I have said nothing as to what make of separators, pasteurizers, milk bottlers and other implements are used here. Call and see for yourselves.

Mansfield, O. J. MOLDENHAWER.

CORN HUSKERS Small size, 6 to 8 h. p. to run it. Large size for Threshermen, 14 to 18 h. p. to run it with self-feeder. CATALOG FREE. ROSENTHAL CORN HUSKER CO., Box 11 Milwaukee, Wis.



5 TON WAGON SCALE $35.00 SENT ON TRIAL FREE. CATALOGUE FREE. AMERICAN SCALE COMPANY 519 MASS. BLDG. KANSAS CITY, MO.

Scott's "Perfect" Cow Stanchion

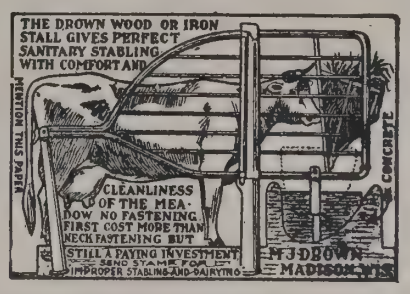
SWINGING
SELF-CLOSING
SELF-LOCKING
3 NECESSITIES FOR PERFECT STANCHIONS

Made of hard wood—strong and durable. Price $1.00. Satisfaction guaranteed.

Write for descriptive circular.

B. C. SCOTT, 212 Beach St., Bridgeport, Conn.

A Steel Stanchion beats anything you ever saw for cattle. Lighter, stronger, neater. Swings on chains Not in the way when lying down. Agents wanted. Write for special terms and prices. Jas. Boyle, Mfr., Salem, O





The BEST Cattle Fastening. SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated circular free. GLENORA MFG. CO., Glenora, Yates county, N. Y. Infringements will be prosecuted.

EASE, COMFORT AND THRIFT.



CHAIN-HANGING CATTLE STANCHION The Most Practical CATTLE FASTENER ever invented. Manufactured and For sale by O. H. ROBERTSON, Forestville, Conn.

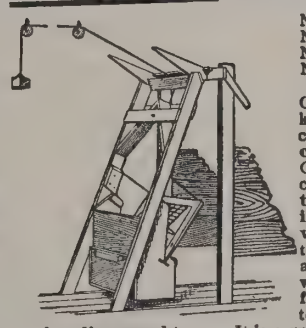


THE NEW PATENT **Cow Stall** AND FEED TROUGH.

This is the only Cow Stall with a centering hinge. Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars.

R. A. McLERY & CO., Palmyra, Wis.

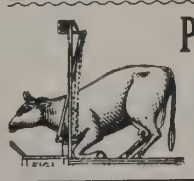
JUST OUT! UNDERHILL SELF ADJUSTING STALL



No Gutters
No Platforms
No fastenings
No Stables to clean

Cease trying to keep your cows clean. You can't do it. Give them a chance and they will do it themselves. This is the only way and the easy way. Write for circular telling what the cow has discovered to us. It is a great revelation.

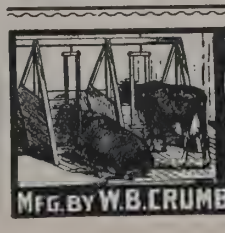
Wm. M. UNDERHILL, Oconto, Wis.



Prescott's Swinging Swivel Stanchion

Keeps Cows Clean. Swings forward while getting up or lying down. Locks back while standing. Full particulars free.

E. PRESCOTT, Beverly St., Boston, Mass



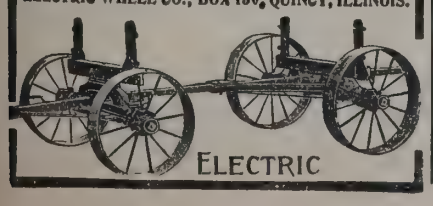
Wise Man's Wagon.

The man who has had experience in running a wagon knows that it is the wheels that determine the life of the wagon itself. Our

ELECTRIC STEEL WHEELS

have given a new lease of life to thousands of old wagons. They can be had in any desired height and any width of tire up to 8 inches. With a set of these wheels you can in a few minutes have either a high or a low down wagon. The Electric Handy Wagon is made by skilled workmen, of best selected material—white hickory axles, steel wheels, steel hounds, etc. Guaranteed to carry 4000 lbs. Here is the wagon that will save money for you, as it lasts almost forever. Our catalog describing the uses of these wheels and wagons sent free. Write for it.

ELECTRIC WHEEL CO., BOX 130, QUINCY, ILLINOIS.



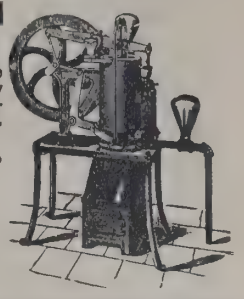
HALF ENOUGH WATER

Is quite enough for some people, but most people want water every day. If



RIDER or ERICSSON HOT AIR PUMPS

Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.

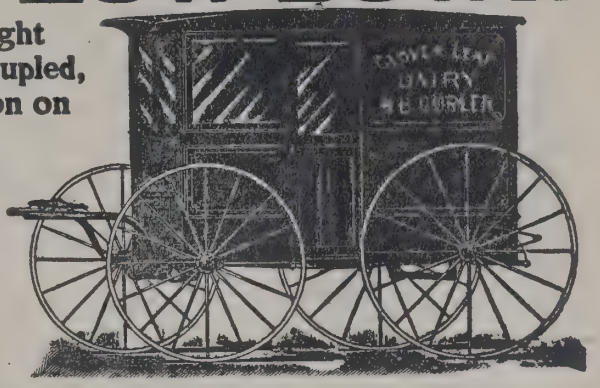


Rider - Ericsson Engine Co.,

35 Warren St., NEW YORK.
239 Franklin St., BOSTON.
692 Craig St., MONTREAL, P. Q.
40 Dearborn St., CHICAGO.
40 N. 7th St., PHILADELPHIA.
Teniente Rey, 71 HAVANA.
22 Pitt St., SIDNEY, N. S. W.

THE ONLY LOW DOWN

Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the market.

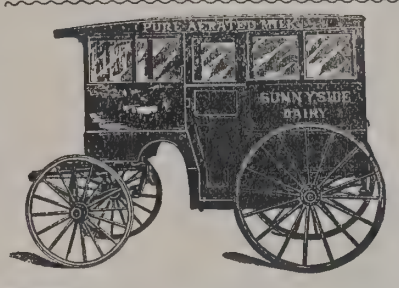


20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished.

Send for catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.

Shipman, Bradt & Co.

Sole Manufacturers,
DE KALB, - ILLINOIS.



The National

LOW DOWN CUT-UNDER

justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

THE NATIONAL WAGON COMPANY, Chillicothe, Ohio.



WILDER'S PATENT SWING STANCHIONS

Chain or Pin Fastened.

Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.

Safest, Strongest, Most Convenient fastening made. Cheapest to put in and save room in barn. Send for Stanchion Catalog to

WILDER-STRONG IMPLEMENT CO., 11 Monroe, Mich.



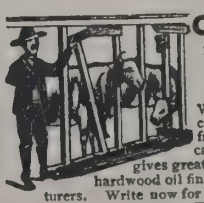
Foster Steel Stanchion

made entirely of steel and malleable iron. Unlike all others. Affords greatest freedom and motion and always holds the animal. Hung on chains—moves all ways. Lightest, strongest, most convenient and easiest to open and close.

GOOD SELLER—BIG PROFITS.

One agent sold 75 first day, Another sold 200 first week. We want responsible agent in every Dairy Community. Send for circular number 30.

FRANK H. BATTLES, Seed Grower, Rochester, New York.



Only One Hand

needed to stanchion Cattle if you have our

Steel Latch Stanchion

When open is locked ready for cattle to come in; closed, it swings freely. Best dairy cattle tie be cause comfortable and quiet; gives greatest freedom. Made of selected hardwood oil finished. We are the sole manufacturers. Write now for circulars and delivered prices.

TOLEDO PLOW CO., Dept. H, TOLEDO, OHIO.



BEST MILK WAGON ON EARTH

SOLD DIRECT TO CONSUMER ONLY

Highest Grades. Lowest Prices. Guaranteed. Shipped on Approval. Full line Buggies and Harness. Write for Catalogue and Prices.

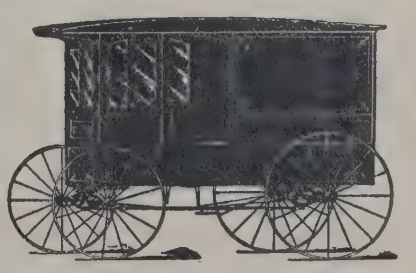
SAVE DEALERS' PROFITS

UNION BUGGY CO. Dept. B. PONTIAC, MICH.

PRICE TALKS WITH QUALITY BACK OF IT.

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TERMS—⅓ Cash and balance 1, 2, 3, and 4 months notes or 5 per cent discount for cash.



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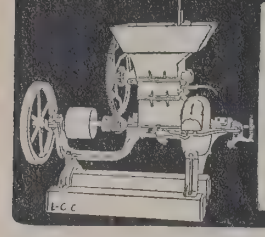
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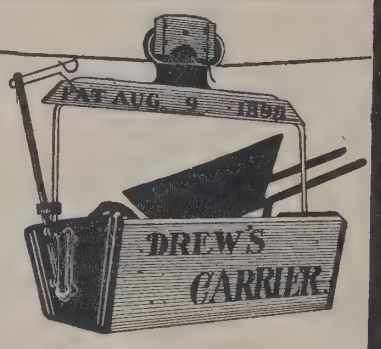
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Buff Jersey Notes.

ED. HOARD'S DAIRYMAN:—I have in my desk several book orders that I cannot fill owing to the name of the sender or name of town and state not being given. Will those who have not received the book kindly send their full address, so I can fill their orders.

Yesterday we finished putting up our ensilage, all sorghum, and it will make a nice lot of feed for the Jerseys this winter; as to the yield it is fully one-third greater than the corn crop, and as for the feeding value is ton for ton equal to corn. The Tennessee Experiment Station, in a series of tests with beef cattle, got better results with sorghum silage than with corn silage. I said our ensilage was all sorghum. I should have said rape and sorghum. Last spring we sowed 16 acres of rape for hogs and young stock pasture, and then found we did not need it, so disced the land to kill the rape and planted sorghum. The rape was not all killed, and grew quite thick and large in the rows of sorghum. It all went into the silo, so the cows will have a variety of flavors.

Last year, I thought the interest in silos and ensilage had reached the high mark, as my correspondence and institute work was mostly along the lines of this subject, but I was mistaken, for this year the stockmen have taken the matter up, and there is no doubt that there have been more silos put up by cattle feeders this year than any other year; and in the case of Iowa, Nebraska and Missouri there have been more built than in all previous years combined, and by the way I have been sending out books and instructions; most of those built were Buff Jersey silos.

I was amused this fall in visiting a silo on a dairy farm to see one of the men employed on the farm putting putty in the cracks of a factory made silo; this silo is of red wood and tongued and grooved, but has never kept the contents as it should, but through no fault of the silo. The putty was being forced in the cracks of the dry wall, and would be forced out again as soon as the staves began to swell after the ensilage was put in. This illustrates how little some people know of the subject of silos. The strongest point in the favor of my silo plan is the cracks in the walls during the time the silo stands empty, these cracks cause the 2×4s to quickly dry out, and checks any tendency to decay, as a dry wall cannot rot.

Last week we attended our State fair, and as usual made entries of butter. Our one-pound prints scored 96 points, and the packed ten-pound tub 95, we now have made 15 entries in the past five years, and have to show for it ten first, one second, and one third premium, a record we feel quite proud of, considering we keep only Jerseys.

I met a large number of dairymen at the fair, and about the first question they would ask me was what are you doing for hired help? My answer was that I would close out my dairy interests in the spring just for the very reason that I could not get the necessary help to handle the class of cattle that I have. But they would say you have a large family to help you; true, but I have given them an education that has made a demand for them as managers of large stock farms at salaries that my business will not justify me in paying, leaving me just where I stood some years ago, when my boys were too young to assist me. The only thing left me is to take a position where only myself will be considered, or perhaps it would be possible to operate a stock farm with the help one might secure. I would like to fit up a stock farm on the ensilage feeding plan as an object lesson to the doubting Thomases that ensilage is the best and cheapest feed that is available in the great corn belt, and I invite correspondence from men who have large stock farms, with this object in view.

Next week the Farmers' Institute season opens with me, my first meeting being in one of the counties that is in my Congressional district, of which I am director. The matter of greatest interest this year in our state is the corn contest boys. These boys received 500 grains of pedigree corn last spring from the secretary of the State Institute organization, and will make exhibits of the corn raised from it at the different institutes in the counties of the state. They will be awarded premiums, and the best samples will be saved for the World's Fair,

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DON'T BREAK YOUR BACK washing clothes 52 times a year. Get a "1900" washer and save labor, time and money. You need not send a cent or pay freight. It is sent absolutely free, freight prepaid on 30 days trial. A word to the wise is sufficient. Write at once to "1900" Washer Co., 219A State St., Binghamton, N. Y.

"ADVERTISEMENT"

COLIC



PAIN in the intestines or stomach of a horse is called colic. It frequently occurs from constipation or by the bowel becoming occluded or impacted with fecal matter.

It may also result from indigestible foods, from improperly cured grains, sudden changes of diet or any influence which will reduce the digestive powers of the animal, such as exhaustion, exposure to severe cold. If animals are fed while in this condition they are extremely apt to suffer from cholic.

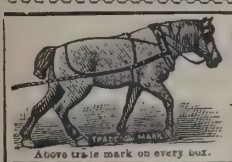
Colic due to fermentation of the food or flatulence is best treated by giving remedies which will prevent formation of gas and absorb that already formed. For this purpose alkalies give best results, such as 1 to 2 ounce doses of aromatic spirits of ammonia well diluted. In severe cases anodyne should also be employed. For this purpose 2 ounces of fluid extract of hyoscyamus, or ounce doses of chloral hydrate diluted, can be administered at once.

In cases of cholic due to impaction stimulants must be administered. Recent treatment by the administration of half ounce to an ounce of powdered nux vomica with 2 ounces of carbonate of ammonia made into pills and given at once, has given excellent results. This can be followed by such laxatives as a pint of flaxseed oil or a half-pound of glauber salts. Aloes as a purgative is not always free from danger, as in many cases it proves to be poisonous.

Keeping the horse in thorough condition is the best preventive of cholic. Give regular, small doses of Dr. Hess Stock Food, the great horse tonic. This will keep his digestion very strong and his appetite sharp; he will gain systemic strength rapidly and soon overcome the inclination to cholic. Along with this improvement in general health will come a sleek coat, readiness of action and increased strength. Dr. Hess Stock Food is invaluable in toning the reproductive organs—and in tiding the colt over the dangers of the first year.

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NOW Is the time to Subscribe for HOARD'S DAIRYMAN.

at St. Louis, next year. The largest number of boys in my district who sent for corn were from Rock Island county, 154 of them, and the premiums offered them are well worth striving for, there is nearly, if not quite, $500 worth of premiums to be awarded.

I take this opportunity to thank G. W. E., of Bradford, Vt., for the kind notice he gives my silo plan; also thank G. L. S., of Dane, Wis., for what he was pleased to say on the same subject.

The article in the DAIRYMAN of the 9th inst. on page 785, entitled, A New Wrinkle in Silo Construction, will, if adopted by the writer, make wrinkles on his brow. I have used a silo built on the eight square plan for the past five years, and no amount of skill or precautionary measures would so pack the ensilage in the corners but what we lost a large amount in every corner.

My son who is in charge of the largest milk producing dairy farm at Burlington, Iowa, is now just in the midst of filling six Buff Jersey silos, whose combined capacity is over 1,000 tons. This son is our first graduate from the Only Self-supporting Agricultural College in the United States, and he has entered on a five-year contract at a salary that but few professional men on their first entering the field can earn net. Next spring we graduate two more of our sons. All of these boys lack some of the principal accomplishments that the average college graduate possesses. None of them can play foot ball, and never contracted the tobacco habit, or the habit of spending the old man's money in foolish ways, and as for the liquor habit not one of my boys ever drank a glass of beer or were inside a saloon, but with these accomplishments lacking I feel that they will be able to hold their own in the long run.

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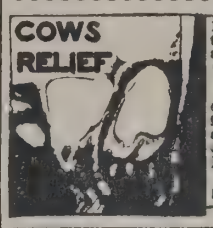
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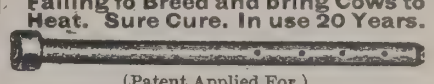
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WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address

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Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each Blacklegoid (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. Blacklegoids are sold by druggists; *ask for them.*

Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.

PARKE, DAVIS & CO. - DETROIT, MICH.

Branches: New York, Kansas City, Baltimore, New Orleans, Chicago; Walkerville, Ont.; Montreal, Que.; London, Eng.

What One Cow Has Done.

ED. HOARD'S DAIRYMAN:— I send you the record of one of my cow's milk, commencing Aug. 14th, 1902, and ending Sept. 10th, 1903. This cow is due to freshen Nov. 2nd, 1903. She gave in:

	lbs.	oz.
August, 1902	507	2
September	1070	
October	1100	
November	973	
December	894	
January, 1903	925	
February	869	2
March	935	2
April	767	
May	872	1
June	851	1
July	680	
August	398	2
20 days in September	109	1

This cow is 9 years of age last March, and dropped her first calf when two years of age, and has bred every year since She is a grade Durham and girts 6ft. 2 in. and is a very attractive cow. She is of a peculiar build and shows great dairy capacity.

I sell my milk at wholesale at 4 cts. a quart. This cow earned in her last milking period $194.72, out of which I deduct $60.00 which leaves $134.72 net. This record is no guess work, as her milk was weighed every milking. I have other cows nearly as good as this, and I will frankly state that HOARD'S DAIRYMAN and Professor Henry's Feeds and Feeding figure largely in getting so good results. H. L. MATHEWS.

Franklin Falls, N. H.

Schmidt Treatment for Milk Fever.

Will you publish the Schmidt treatment for milk fever? S. W. A.

Elizabeth, Pa.

About one-half pint of a solution of one drachm of iodide of potash to one quart of water, is injected into each teat, and distributed, by rubbing and manipulation, through each quarter of udder. The solution is allowed to remain for fifteen or twenty minutes, and is then milked out. This is repeated in four hours if necessary. In making the injection, a milking tube is used to which a piece of thin rubber hose, two feet long, is attached. In the loose end of this hose, a small funnel is inserted; this is held above the udder and the solution is poured into it and allowed to run slowly into the milk cistern and ducts.

Most careful attention must be paid to the cleanliness of the udder and hands, and the sterility of the instruments and solution. The solution must be made of freshly boiled, distilled water, and in a sterile bottle. The instruments, that is, the milking tube, the rubber tubing and funnel, must be freshly boiled and kept in a perfectly clean dish until used. The udder must be washed and the teats disinfected; and the hands disinfected before the milking tube is inserted. All these extraordinary precautions are necessary to prevent injury to the udder. If foreign matter or certain bacteria are introduced with the instruments or medicine, the udder will become inflamed and perhaps will be destroyed.

Clark's Tools for Large Hay Crops



CLARK'S REVERSIBLE

Bush Plow and Harrow

Cuts a track 5 ft. wide, 1 ft. deep. Connects the sub-soil water. It is an excellent machine for covering in sugar cane. Strength guaranteed. Can plow a newly cut forest, stump, bush or bog land, leaves the land true and clean for grain or any crop.



Clark's Dbl. Action Cutaway Harrow

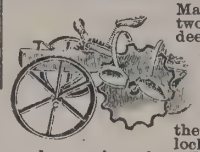
Moves 15000 Tons of Earth a Day.



Clark's 8 foot Smoothing Harrow.

Will smooth an acre as true as a mill pond in twenty minutes.

Clark's Rev. Sulky Disk Plow



Made single or double. One or two furrows five to ten inches deep; 14 inches wide. For two or four horses. Light draft. No side draft. No similiar plow made. When Clark's grass tools are used as directed in his grass circular, we, the C. H. Co., guarantee them to kill wild mustard, charlock, hard hack, sunflower, milk weed, morning glory, Russian thistle or any other foul plant that grows, or money refunded, Now is the time to commence work for next year's seeding to grass.

Clark's Root Cutter.



TWO SIZES. Cuts 1 or 2 bushels per minute, for fowl or beast. Gouge cutters never choke or clog. Price $7 to $15.

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THE CUTAWAY HARROW CO.,

HIGGANUM, CT., U. S. A.

Improved and Unimproved Farms for Sale

Farm No. 1 consists of 90 acres with frontage on a fine lake where there is excellent fishing and game. This lake is one of a chain of lakes on which you can travel for twenty-three miles. Has two-story house with eight rooms. Two-story log barn. Ice house and ten acres cleared. For sale at a bargain. One mile and a half from the railroad.

Farm No. 2. One-half mile from the railroad. 100 acres or more if desired, five acres cleared. Two-story, eight room house. Glass chicken house. First-class hog pen. Plenty of timber on land for own use, and quite a quantity of saw timber. We have besides this 16000 acres of unimproved land. Heavy black soil. All lies in Central Wisconsin. Low priced Excellent markets. Will grow any kind of crop and produce immense results. Excellent water supply. Splendid markets and a local demand for everything that is raised. None of the land lies more than three miles and a half from the railroad.

WISCONSIN FARMS

Will furnish names of people who have bought from us who have made big success. Can furnish lands in either small or large quantities. Can furnish reduced rates to see the lands. Easy terms to suit the convenience of the purchaser. As safe and desirable an investment as government bonds. Write in for maps and any information you may desire.

INTERIOR LAND CO., Janesville, Wis.

21 STRONG REASONS

WHY IT WILL PAY YOU TO BUY A FARM IN THE GREAT BLUE GRASS COUNTRY OF NORTHERN WISCONSIN.

1. The soil is rich and productive. Everywhere there is a clay subsoil to retain the moisture.
2. The climate is very uniform—neither extreme of heat or cold.
3. The seasons are regular and there is never a crop failure.
4. There is an abundance of wood for building and fuel, which need only to be cut.
5. Taxes are very low compared with other sections.
6. It is the best agricultural country known for a man of small means to get rich.
7. It is better to own a low-priced farm than to owe for a high-priced farm.
8. You can own a home in this section for what you now pay out for rent in one year.
9. Everything grown in the west can be grown on these lands.
10. There is an unsurpassed market for all farm products throughout the year.
11. Truck farming is very profitable in this section.
12. No better fruit country in the northwest. All northern varieties are wonderfully successful.
13. The best place in America to raise horses, mules, cattle, sheep and hogs.
14. The water supply is the best. The country is full of clear running streams and springs
15. Cereal crops average more bushels per acre than in other northern states. This may be said particularly as to oats, the average yield being from 60 to 80 bushels per acre.
16. Grasses and clovers for grazing or hay grow luxuriantly, far better than they do in southern Wisconsin, Iowa, Minnesota, or the Dakotas.
17. No swamps in this section—no malaria, no chills, no fever, no cyclones, no hail or destructive storms.
18. Fish and game in abundance. It is the sportman's paradise.
19. Lumbering and manufacturing interests offer ample employment at good wages whenever desired, both winter and summer.
20. Thousands of settlers are moving into northern Wisconsin, and in consequence land is increasing in value very fast.
21. The best class of people are among the settlers, which include principally Americans, Germans and Scandinavians.

DON'T PAY RENT, but come up and let us sell you a farm which will cost you but little more than the rent of a good farm in the older agricultural districts. Not only that, but a farm that will grow in value every day. Write us to-day for full particulars concerning these lands, and arrange to look them over at the earliest possible moment. They cannot fail to interest you if you want to get a home of your own. Mention HOARD'S DAIRYMAN.

WISCONSIN BLUE GRASS LAND CO., Baldwin, Wis.

LANDS IN AITKIN COUNTY MINNESOTA

Do you remember the time when your land was worth only $10.00 to $25.00 per acre? Now it is worth $50.00 to $75.00 per acre. History repeats itself. In Aitkin county the land sells today at $7.00 to $10.00 per acre, and is steadily going up. Why not take advantage of past experience and buy some of this land? Your father made money by purchasing land when it was cheap, why shouldn't you? Our terms are easy—Only one-fourth down; balance in 5 to 9 years. For maps and further information write to

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or other real estate, no matter where it is or what it is worth. Send description, state price, and learn my wonderfully successful plan. W. M. OSTRANDER, 250 North American Building, Philadelphia

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This is not strange where there is open pasturage ten months a year and farms produce annually 40 per cent. of their value.

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Leads the World in Apples, Small Fruit and Stock Raising

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Wisconsin

offers unexcelled opportunities for those who want to stop paying rent and make money in agriculture, in the fruit or dairy industry, or in sheep raising. Along the lines of the

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in Northern Wisconsin are many tracts of land admirably adapted to the homeseeker. In former timber tracts are many cultivated farms worth $50 to $75 an acre. Adjoining them, enjoying the same advantages, are unimproved farms for $7 to $20 per acre. Why not take a trip there and investigate these openings for yourself?

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WADENA, MINNESOTA.

LANDS EASY TO GET

I have lands, all good farming land, in Wilkin and Polk counties, Minnesota and Grand Forks and Burleigh counties, North Dakota, that I will sell on crop payment plan, with small cash payment of from $2.50 to $3.50 an acre cash down. Must sell. A chance of a lifetime. Investigate. For description and how to reach them, address

E. E. SECOR, Buffalo Center, Iowa

Answers to Dairy Questions by Prof. Farrington.

CHEESE DIVIDENDS.

Will you please give me some rule by which to find the value of milk that is sold to a cheese factory and paid for according to the amount of fat it contains? What is milk worth testing 3.7 and cheese selling at 10 cents a pound at the factory?
Sheboygan, Wis. L. H. B.

The method of paying for milk at a cheese factory by the Babcock test is a very simple one. All that is necessary for a cheese maker to do is to first take what are called "composite" samples of each patron's milk every day that milk is delivered to the factory. Second, about once in ten days these samples should be tested and from the weight of milk as shown on the milk sheet together with the test of these samples, the amount of fat which each patron has delivered to the factory in his milk may be determined. For instance, if you brought 585 pounds of milk to the factory in ten days, and the test of your composite sample of this milk during this time was 3.7, you delivered 21.6 pounds of fat to the cheese factory (585×.037=21.6). Such a record as this is made of the milk delivered by each one of the cheese factory patrons. At the end of the month the records of the factory will show how much cheese has been sold. The milk sheet and these tests will also show how much fat was delivered to the factory in the milk.

The next thing to do is to subtract a certain amount, which will include the running expenses of the factory, from the money received for the cheese and what is left is the amount to be paid the patrons for their milk. We will say that during the month 100,000 pounds of milk have been received at the factory and that this made 10,000 pounds of cheese which sold for ten cents a pound, which would amount to $1000; the running expenses of the factory may be $100, which subtracted from the $1,000 leaves $900 that is to be paid the patrons of the factory for their milk. The amount which is paid each one is now found by dividing this $900 by the total weight of fat in the milk delivered to the factory during the time this amount of cheese was made. Assuming that the average test of this 100,000 pounds milk is 4 0 per cent fat, the patrons delivered 4,000 pounds of fat to the factory, each one contributing his share as shown by the weight and test of the milk of each patron. The $900 is now divided by the 4,000 pounds of fat in order to find out the price of one pound of fat. This gives 22½ cents as the price per pound of fat to be paid each patron. The amount due you is found by multiplying your weight of milk, 585 pounds by its test, 3 7 per cent, which gives 21.6 pounds of fat, and this multiplied by 22½ cents gives $4.86, your share of the money received for the cheese.

This method of calculating dividends at a cheese factory is as simple as any one I know of and ought to be easily understood by the majority of farmers delivering milk to a cheese factory.

EFFECT OF RICHNESS OF MILK ON QUALITY OF CHEESE.

"If you will answer a few questions for me, I will be very greatful to you, as I wish to clear up a little argument between my cheese maker, my tenants and myself.

Has a cheese maker any power to prosecute patrons that make a practice of skimming their milk, but not skimming below the standard of 3.0 per cent, provided the milk is paid for by test?

Would the different quality of milk affect the yield per hundred pounds of milk and consequenly affect the patron's income?

Does the market ever make any difference in price between cheese made from low per cent fat and high per cent fat?" A. G. M.
Hortonville, Wis.

Legal milk in this state must contain at least 3.0% fat. This I believe, is the only milk standard we have. The question of skimming milk so that it will contain 3.0% fat. should be referred to the Dairy and Food Commissioner, Mr. J. Q. Emery, State Capitol, Madison, Wis., for his ruling on such a practice.

The yield of cheese from milk testing different per cent fat, may be calculated by multiplying each pound of fat by 2.6, as it has been found by extensive experiments, that one pound fat will make approximately 2.6 pounds of cured cheese. This is an average figure and there may be some variation above and below it, depending on the amount of moisture in the cheese.

The approximate yield of cheese from a given quantity of milk, may be calculated by multiplying the weight of the milk by its test. This will give the lbs. of fat in the milk. Then multiply the lbs. of fat by 2.6, and the result will be approximately the weight of cheese that should be made from the milk.

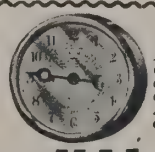
By making cheese from milk containing one per cent fat and from two, three, four and five per cent fat, it has been found that the yield of cheese increases with the richness of the milk. There is not an exact uniformity in the increase of the yield, because milk containing six per cent fat will not make twice as much cheese as milk containing three per cent fat, but under normal conditions, factories do not usually receive milk of these two extremes. It varies probably from 3.5 to 4.5 % fat. The cheese value of milk may be, therefore, very closely determined by the Babcock test, at the majority of factories-

Cheese made from milk testing 3.0 per cent fat is greatly inferior in quality to cheese made from rich milk containing 5.0% fat. I am sure that the markets would notice the difference in the quality of cheese made from these two kinds of milk, and would undoubtedly pay a higher price for that made from rich milk. When, however, the richness of the milk from different patrons runs between 3.5 and 4.5% fat, the probabilities are, that there will not be much difference in the quality of the cheese made, but I think if in your factory you will make some cheese of milk testing 3.5, and another lot from milk testing 4.5% fat, you will notice the difference in the quality of the two cheeses, and by giving both the same treatment in curing and shipping, you will find that the person to whom they are sold, will note the difference in quality and undoubtedly pay you more for the cheese made from the richer milk.

MOLDY BUTTER.

"We have had several complaints from our commission men about mold on our tubs and at times on the inside of the tub through linings and on the butter. Can you give me the cause of this and a remedy for same?" J. H. W.
Highland, Wis.

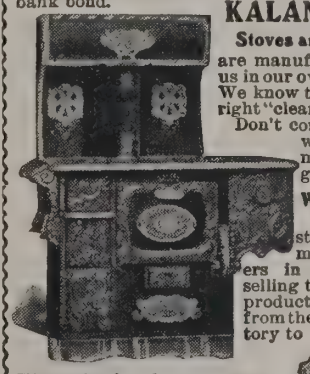
The mold spores which cause butter tubs and parchment paper linings to mold are everywhere present. They are only waiting favorable conditions of temperature and moisture to sprout and grow on a moment's notice. It is necessary, therefore, in order to prevent their growth and the damage done by them, to keep butter tubs before and after they are filled, in a place which is unfavorable for the growth of molds. This, as a rule, means simply keeping the butter in a well ventilated place where the air is dry. The great loss on butter from mold is usually caused by the damp refrigerators at creameries, or the damp refrigerator



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I have been using Prussian Stock Food for over one year. My first trial was on 100 head of steers that showed a gain of **THREE POUNDS** a day. I have since used Prussian Stock Food and find it does all claimed for it.—R. Chisholm, Lanark, Ill.



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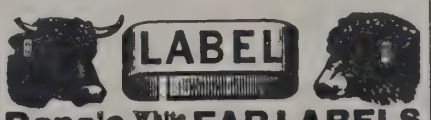
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stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Samples free. Agents Wanted.
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Alma Dried-Molasses BEET PULP

It is not refuse matter but is a by-product food of greatest value, made with the same cleanliness and accuracy as the sugar itself.

We have a booklet telling how this food is made. Ask for one; it will interest you.

It is superior to the many patented "stock foods" as it is a natural product and contains no drugs or dangerous ingredients.

Better than bran and costs less. Keeps the animals in prime condition and when fed with grain is the best fattener known because it improves both appetite and digestion.

E. C. Cummings, Carson City, Mich., writes: "Send 2 tons first freight. Am feeding 35 steers to top the market. This is my 6th order."

It is the best food for milch cows; splendid for calves. All stock thrive on it.

Do not confuse this with wet beet pulp which freezes and ferments, or with common dried pulp containing no additional sugar. It takes 16 tons of wet pulp to make one ton of our Food, and it keeps indefinitely. The genuine Alma Dried-Molasses Beet Pulp contains 72 times as much sugar as wet pulp, and nearly 5 times as much as common dried pulp.



Alma Sugar Co.
Dept. 6 Alma, Mich.

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Built on the right principle. Without any air blast the ensilage would be thrown 15 feet. Only a light blast required to do the rest. "They throw and blow." Also horse powers, engines, silos, etc.
HARDER MFG. CO., Cobleskill, N. Y.

cars in which the butter is shipped to customers.

In preparing butter tubs for filling it is best not to soak them over night, as this will often break the hoops and change the shape of the tub. On account of this warping the tubs may be immersed in scalding hot water the night before they are used. This soaks the tub so that no hoops will break, but the hot water will enter the pores of the wood and kill the mold spores. After it has been heated in this way, it is a good plan to sprinkle the inside of the tub with salt and let it stand empty over night. In the morning steam each tub for at least three minutes over a steam jet, fill with cold water and let them stand until you are ready to fill with butter.

The parchment paper ought to be soaked in brine over night before it is used in the tubs. When both the tub and the paper are treated in this way and the butter tub after it is filled is kept in a dry refrigerator where it may be cold but not damp, there ought not to be any complaints in regard to moldy butter.

Butter Tests Accepted for Publication by the American Jersey Cattle Club, Oct. 1st, 1903.

Chief's Bright Eyes 147382—Sire, Chief of the Cliffs 22028; dam, Highland Sunbeam 41870. Butter, 15 lbs., 8 oz.; milk, 209 lbs., 9 oz. Test made from April 27 to May 3, 1903; age, 11 years; estimated weight, 950 lbs.; fed 10 lbs. wheat bran, 5 lbs. ground corn and oats, 3 lbs. corn meal, 2 lbs. cotton seed meal, and 15 lbs. corn ensilage, daily—clover hay *ad libitum*. Property of Frank W. Hart, Cleveland, Ohio.

Dela S. of Eau Claire 128005—Sire, Melia Ann's Son 22041; dam, Dinah of Eau Claire 77581. Butter, 19 lbs., 3 oz.; milk, 290 lbs., 10 oz. Test made from April 20 to 26, 1903; age, 6 years, 7 months; actual weight, 770 lbs.; fed 10 lbs. wheat bran, 10 lbs. corn meal, 4 lbs. cotton seed meal and 20 lbs. corn ensilage, daily—good clover hay *ad lib*. Property of Frank W. Hart, Cleveland, Ohio.

Esme's Lenore 142825—Sire, Eurotas' Pride 22653; dam, Minerva's Esme 98899. Butter, 25 lbs., 1 oz.; milk, 340 lbs., 5 oz. Test made from Aug. 24 to 30, 1903; age, 6 years; actual weight, 812 lbs.; fed 12 lbs. ground corn and oats, 8 lbs. wheat middlings and 6 lbs. cotton seed meal, daily—clover and alfalfa hay, one-half of each day in good clover pasture. Property of Frank W. Hart, Cleveland, Ohio.

Exile's Volie 111282—Sire, Exile of St. Lambert 13657; dam, Nina Ress of Sennett 103282. Butter, 21 lbs., 8 oz.; milk, 317 lbs., 10 oz. Test made from April 20 to 26, 1903; age, 7 years, 11 months; actual weight, 795 lbs.; fed 10 lbs. wheat bran; 8 lbs. corn meal, 6 lbs. ground corn and oats, 2 lbs. cotton seed meal and 10 lbs. corn ensilage, daily—good clover hay *ad lib*. Property of Frank W. Hart, Cleveland, Ohio.

Fair Fancy Signal 115565—Sire, Signal's Odelio 33001; dam, Ruby Fair 84594. Butter, 18 lbs., 2¾ oz.; milk, 254 lbs., 7 oz. Test made from May 4 to 10, 1903; age, 9 years; estimated weight, 800 lbs.; fed 8 lbs. corn and oats, 2 lbs. oil meal and 6 quarts bran, daily—clover hay night and morning, rye and blue grass pasture during day.

Harriett J. of St. L. 153512—Sire, King of St. Lambert's King 30752; dam, Lucile W. 117868. Butter, 16 lbs., 2 oz.; milk, 253 lbs. 14 oz. Test made from April 27 to May 3, 1903; age, 3 years; estimated weight, 900 lbs.; fed 8 lbs. wheat bran, 4 lbs. corn meal, 6 lbs. ground corn and oats, 2 lbs. cotton seed meal and 10 lbs. corn ensilage, daily—clover hay *ad lib*. Property of Frank W. Hart, Cleveland Ohio.

King's Angela 153520—Sire, King of St. Lambert's King 30752; dam, Angela's Lorna 68696. Butter, 14 lbs. 12 oz.; milk, 206 lbs. 7 oz. Test made from June 8 to 14, 1903; age, 3 yrs.; estimated weight, 900 lbs.; fed 6 lbs. corn meal, 8 lbs. wheat bran, 2 lbs. cotton seed meal and 20 lbs. corn ensilage, daily—Clover pasture. Property of Frank W. Hart, Cleveland, Ohio.

King's Gazelle Fawn 153509—Sire, King of St. Lambert's King 30752; dam, Gazelle's Fawn 93704. Butter, 15 lbs. 2 oz.; milk, 204 lbs. 12 oz. Test made from May 25 to 31, 1903; ago, 3 yrs. 10 mos.; actual weight 880 lbs.; fed 10 lbs. wheat bran, 8 lbs. corn meal, 4 lbs. cotton seed meal and 10 lbs. corn ensilage, daily—good clover hay *ad lib*. Property of Frank W. Hart, Cleveland, Ohio.

King's Rosa 153511—Sire, King of St. Lambert's King 30752; dam, Rosa Landseer 108480. Butter, 15 lbs. 5 oz.; milk, 216 lbs. 1 oz. Test made from June 8 to 14, 1903; age, 3 yrs. 7 mos.; estimated weight, 900 lbs.; fed 8 lbs. wheat bran, 8 lbs. corn meal, 2 lbs. cotton seed meal and 20 lbs. corn ensilage, daily—clover pasture. Property of Frank W. Hart, Cleveland, Ohio.

Kitty Ornament 130541—Sire, Eurota's Pride 22653; dam, Doe Ornament 47782. Butter, 17 lbs. 10z.; milk, 237 lbs. 10 oz. Test made from Aug. 24 to 30, 1903; age, 10 yrs.; actual weight, 787 lbs.; fed 10 lbs. ground corn and oats, 6 lbs. wheat middlings and 4 lbs. cotton seed meal, daily—clover and alfalfa hay *ad lib*, half of each day in good clover pasture. Property of Frank W. Hart, Cleveland, Ohio.

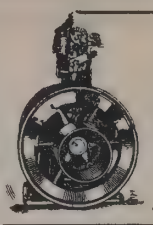
Nervilette's Romp 104432 — Sire, Nervilette's Harry 29057; dam, Romp's Maizy 74915. Butter, 15 lbs. 6 oz.; milk, 210 lbs. 11 oz. Test made from Feb. 27 to Mar. 5, 1903; age, 9 yrs. 10 mos.; estimated weight, 825 lbs.; fed 6 lbs. cotton seed meal, 10 lbs. ground corn and oats, 6 lbs. wheat bran, and 10 lbs. corn ensilage, daily—hay *ad lib*. Property of Frank W. Hart, Cleveland, Ohio.

Ruby Fair 84594—Sire, King Jim 24346; dam, Carrie's Fancy 67104. Butter, 17 lbs 4½ oz.; milk, 234 lbs. 12 oz. Test made from Apr. 7 to 13, 1903; age, 10 yrs. 7 mos.; estimated weight, 900 lbs.; fed 9 lbs. corn and oats, 2 lbs oil meal, 2 lbs. gluten meal, 6 to 8 qts. bran and shorts and 1 gal. apples, daily, clover hay night and morning, rye grass pasture.

Sara of Eau Claire 128002—Sire, Melia Ann's Son 22041: dam, Cill's Cream 42295. Butter, 18 lbs. 7 oz.; milk 287 lbs. 4 oz. Test made from May 25 to 31, 1903; age, 7 yrs.; actual weight 785 lbs.; fed 10 lbs. wheat bran, 8 lbs. corn meal, 4 lbs. cotton seed meal, and 20 lbs corn ensilage daily—good clover hay *ad lib*. Property of Frank W. Hart, Cleveland, Ohio.

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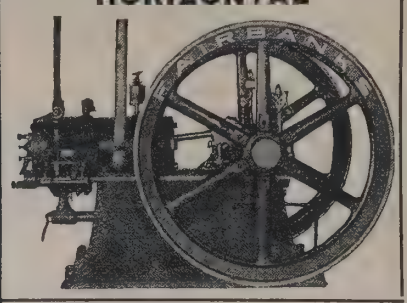
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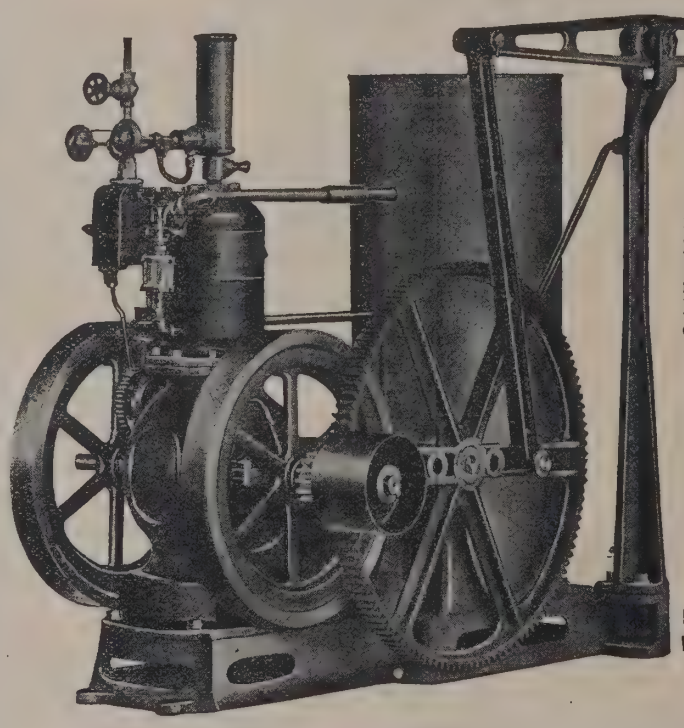


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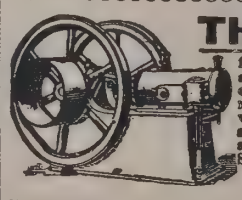
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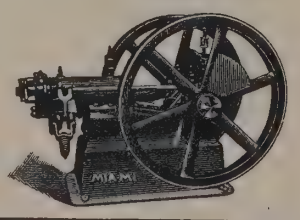


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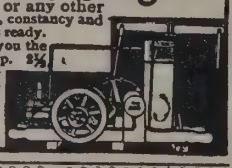
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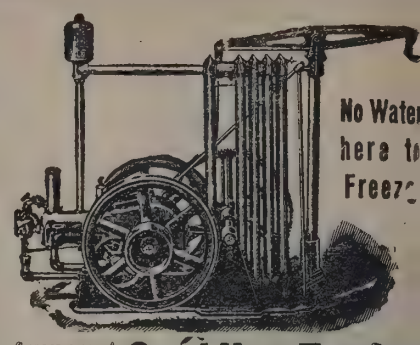
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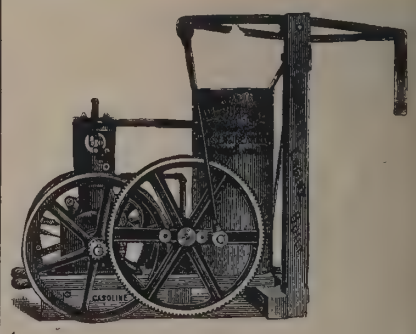
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Stuart's Dyspepsia Tablets relieve the stomach of its work by taking up the work and doing it just as one set or shift of workmen relieves another. They actually digest the food in just the same manner and just the same time as the digestive fluids of a sound stomach do. In fact, when dissolved in the stomach, they are digestive fluids for they contain exactly the same constituents and elements as the gastric juice and other digestive fluids of the stomach. No matter what the condition of the stomach is, their work is just the same. They work in their own natural way without regard to surrounding conditions.

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A Wisconsin man says: "I suffered the pangs of dyspepsia for 10 years. I tried every known remedy with indifferent results until I was told of the remarkable cures of Stuart's Dyspepsia Tablets. I bought a box, began taking them and forgot I had a stomach. Three boxes cured me completely. I have had no trouble whatever for a year and have an appetite like a harvest hand and can eat anything that is set before me without fear of bad results."

Stuart's Dyspepsia Tablets are for sale by all druggists at 50c a box. The druggist never fails to have them in stock because the demand for them is so great and so pronounced that he cannot afford to be without them. People who could not get them from one druggist would go to another and would get in the habit of buying their other drugs there as well as their Stuart's Dyspepsia Tablets.

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That Difficult Task.

(Continued from page 794)

gressiveness and culture of its inhabitants, the character of its buildings and improved lands, stability of its business institutions, sound financial condition of its municipalities, the fact that the county has the highest average of populous towns of any county in the state, and that those towns have the highest average of population in the state—all tell the story of Franklin county's contentment. This northwest corner of Vermont, including our neighbor county in the islands, is one of the most beautiful spots on the footstool, and it is little wonder that its inhabitants dwell in plenty and pride.

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Franklin County, Vermont.

Despising His Business.

ED. HOARD'S DAIRYMAN:—I do not think that H. C. R. in Sept. 18th DAIRYMAN is quite right. There may be farmers who despise their business, but I do not remember that I ever saw one. The successful farmers I know all seem to take pride in their work. They are thinking men and are ambitious and progressive. If a man despises his business it seems to me he cannot possibly succeed in it. On the other hand, if he is successful he is not at all likely to despise his work. It is perfectly natural that the creamery patrons we read about, who lose money on every dollar's worth of feed they use, should despise farming. It would be strange if they did not.

As to farmer's wives despising farming, perhaps a good many of them do; but why is it? Is it not because they have to work hard and never have any good times, and because they have no spending money of their own, and have debts to worry about, or a mortgaged roof to live under? Debts and mortgages are common in town and city, and the chances are that these unhappy farmers' wives would be just as unhappy if they lived elsewhere.

The wives of successful farmers, who do not have to overwork, and who have the comforts and conveniences that a little money brings, will be found a contented class as a rule.

Now and then one will be found who takes a keen interest in all the farm operations and is as enthusiastic as her husband. But again one will occasionally be found who is restless and discontented—and who would be, under any conditions in the world.

In these days of R. F. D. routes, and when the best magazines can be got cheaply by clubbing, with labor saving machinery both indoors and out, and so many things to make life comfortable and interesting, there must be something very wrong with the farmer himself if his sons and daughters do not find the farm life attractive.

As for my own personal opinion on the subject: If the individuals of each class are honest, temperate and moral, I have fully as much respect for a successful farmer as I have for a successful doctor, lawyer or minister. I am a farmer myself, and the only reason I have for being the least bit ashamed of it is that I am not a better one. SUSAN B. ROBBINS.

Abington, Mass.

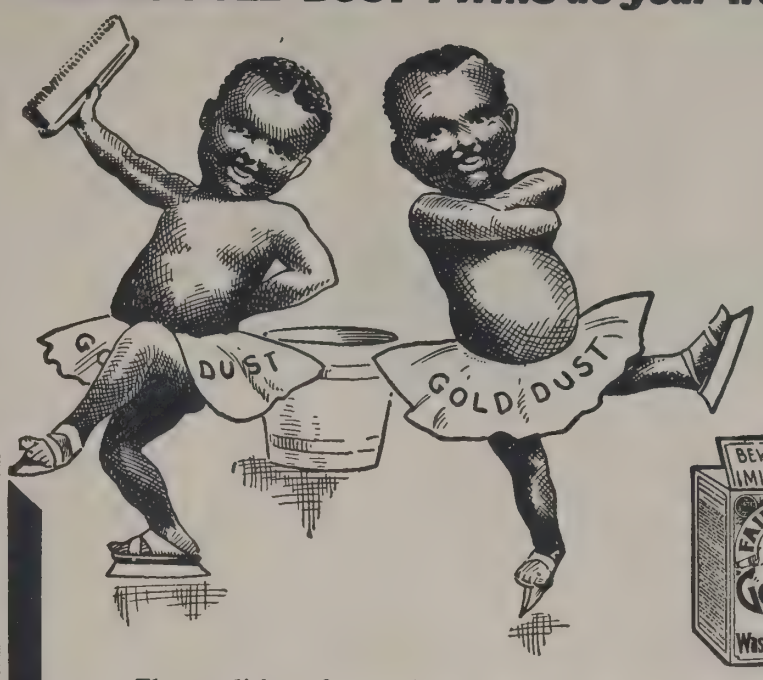
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ED. HOARD'S DAIRYMAN:—Can a small quantity of cream, say two gallons, be successfully pasteurized by setting in water and keeping stirred? What temperature gives the best results without cooked flavor? Is it better to raise temperature slowly? M. D.

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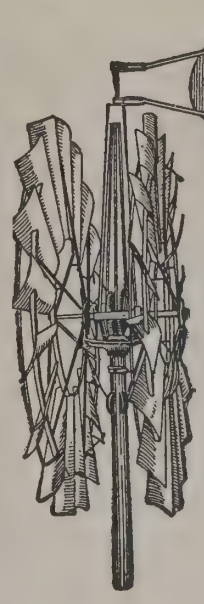
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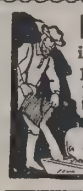
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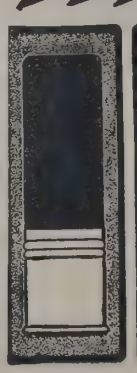
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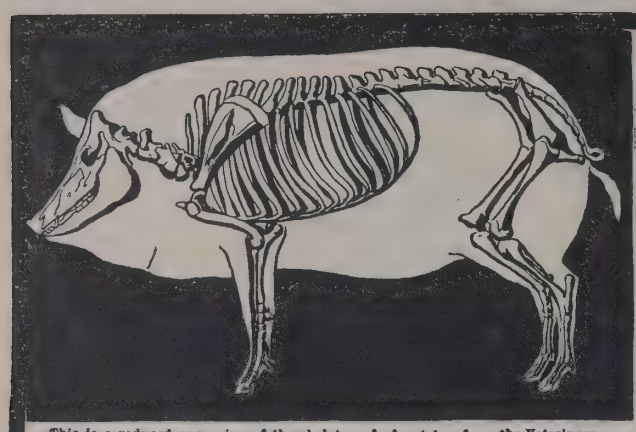
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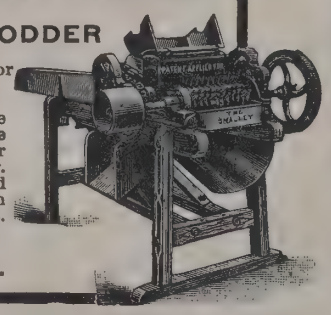
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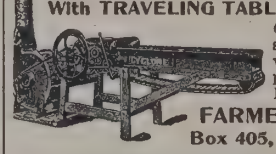


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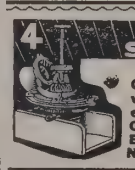
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4 HORSE and 2 Horse SWEEP MILLS

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Grinds corn with shucks, rye, barley, wheat, oats and all other grains. **Self feeders. Geared 7 to 1. Light draft. Great Capacity.** (Also make plain sweep and **Belt Mills;** 10 sizes.)

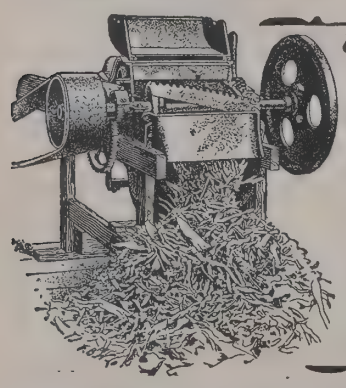
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The 1903 Shredder Blades

(Patent Applied for)

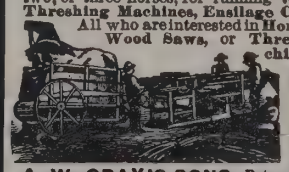
make efficient shredders out of "Ohio" Feed and Ensilage Cutters. The **New Shredder Blade** is the regular "Ohio" knife with solid integrally projecting bits which cut and tear corn stalks into a nicely shredded condition, as shown in the picture. It makes corn-hay of the fodder.

Shredder Blades are interchangeable with knives on all sizes "Ohio" Cutters. They successfully reduce fodder to the proper condition and do not pulverize the leaves like other styles. **They shred** with the same power, speed and capacity as "Ohio" Cutters, and either the Chain or Blower Elevators handle the shredded corn perfectly. **Speed,** 600 to 700 revolutions. **Power,** 2 Horse Tread up to 12 h. p. Engine according to size. Let us send the 1903 catalogue of "Ohio" Cutters and Shredders. "Modern Silage Methods" 10c, coin or stamps. Manufactured by **THE SILVER MFG. CO., Salem, Ohio.** *Established 1854.*

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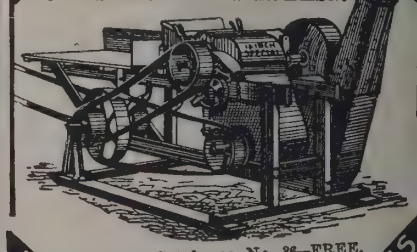
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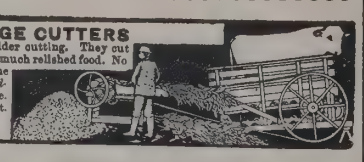
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Most perfectly adapted to wants of feeders. Feed goes twice as far and makes better beef. Our

Giant Killer Triple Geared Feed Mill

is the fastest sweep mill made. Light running and grinds ear and shelled corn and all grains coarse or fine. Strong and durable.



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that under the same conditions as to power and speed applied, condition of corn, etc.,



2-Roll, 4-Roll, and 6-Roll, Down or Mounted.

Write to-day for free Catalogue.

The Appleton Corn Husker

will do more and better work than any other machine of like character and corresponding size on the market; that it is simpler in construction; easier in every way to operate; easier and safer to feed and to require less power for successful operation. The proof of these claims is sent for the asking. We make also a complete line of sweep and tread horse powers, shellers, ensilage and fodder cutters, feed grinders, wood saws, windmills, etc. **Remember that Appleton quality is the standard of excellence.**

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HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., OCTOBER 23, 1903. NUMBER 37

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C. H. WEAVER & CO., 128 South Water St. CHICAGO.
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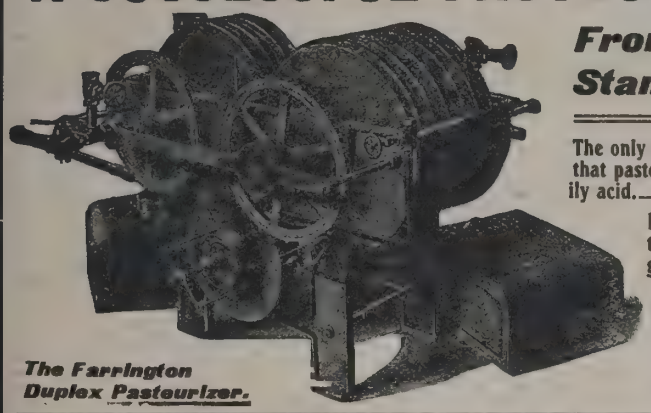
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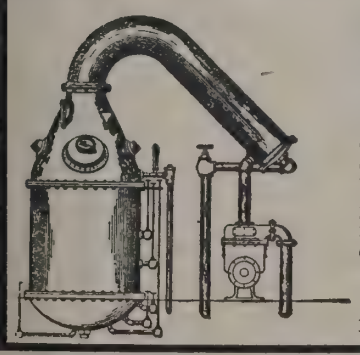
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The only Butter-Culture of keeping quality.
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It makes good Butter—that makes good business.
Your Butter will score 8 points higher.
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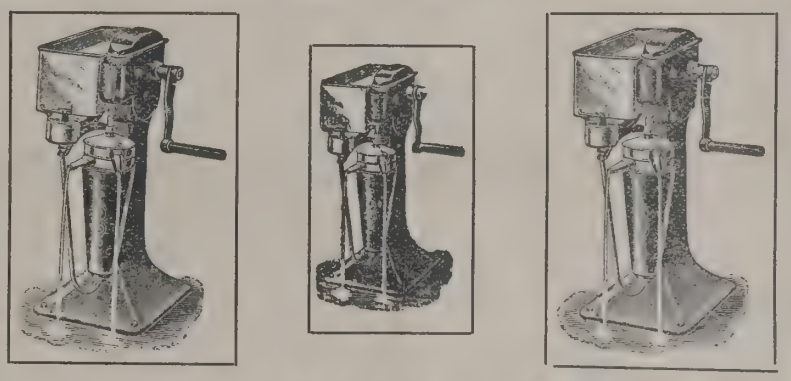


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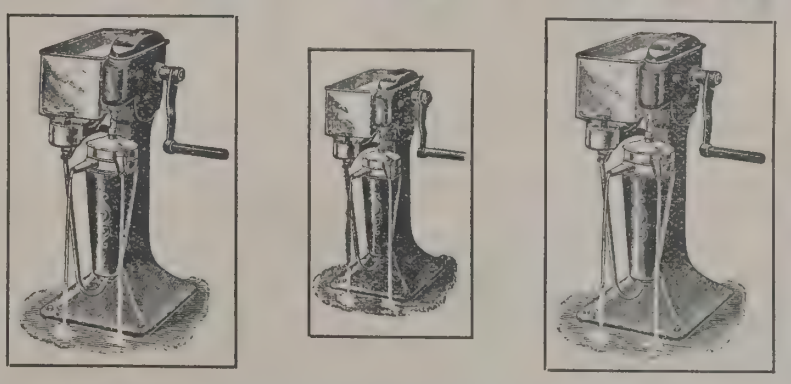
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We also call your attention to Thatcher's Cream Cheese Color which is recognized by all as the best.
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THE THATCHER MANUFACTURING CO.,
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....A....
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Ever stop to think why the "bucket bowl" separator fellows use hot air—avoid facts? Because they know their machines are antiquated—out of date—skinned to a finish—by the Tubular. That's why they talk all around the points of construction—but carefully avoid mentioning their back-breaking, high supply cans—their top heavy bowls, filled with contraptions—their clumsy gears—their aggravating oil cups. They leave facts to the Tubular. They know a show down on construction alone would prove Tubulars take the trick.



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For Tubulars have simple three piece bowls that can be washed clean in three minutes—Tubulars won't vibrate and can't bind—Tubulars have entirely enclosed, absolutely safe gears—Tubulars have no oil cups—Tubulars will cut in half any record for clean fast skimming made by any other machine.

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Makers of Dr. Hess Stock Food.

STAR BRAND MOLASSES FEED

ANALYSIS:
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For Dairy Cattle and Horses. If your dealers do not keep it write us for prices and sample.

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and many other places on the farm such as the feedroom, dairy barn, horse stable, etc. you will get great satisfaction from a good stationary light. The best you can get is a

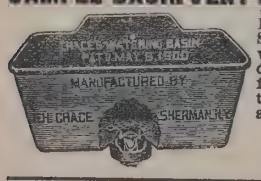


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It is strong, clear and steady, fully up to electric light for your uses. Perfectly safe and most convenient for using. Write us for lantern book which shows every kind to choose from. Local dealer carries or will send for the one you choose.

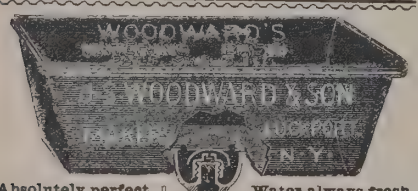
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Basins are fitted with **Self Closing Cover** which prevents all dirt and sediment from getting into them. Send for catalogue and price list

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Absolutely perfect. Soon pays the cost. Cheapest because best.

Water always fresh Send for catalogue. No disease where used.



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More Opinions on Farm Life.

ED. HOARD'S DAIRYMAN:—I would like to say in reply to the article of H. C. R., in your issue of Sept. 18, '03, to succeed anywhere one must work and study. On the farm we have hard work there is no question, but into what occupation or profession can you go and succeed without hard work? But the fact that has impressed me the most forcibly, is how little farmers study the conditions of their own business. I am firmly convinced that if a young man would give the same amount of work and study to a farm, as he would to any other business, he would make as great a success of the farm as of any other line of business.

I cannot agree with H. C. R. or anyone else about despising labor. All literature, from the Bible down, is full of the dignity of labor. No one can succeed anywhere without labor, but we must labor with our head as well as with our hands.

As an illustration of how little some farmers know of their business. I attended a county fair in the western part of our state, last week, and met a dairyman who had a nice lot of Holstein cows there. He told me how he had lost four calves last winter through feeding cotton seed. If he had studied the question at all, he would have learned that cotton seed is death to calves and pigs. Certainly there is no more interesting study, and for the dairyman no more profitable study than the feeding problem. Yet how many farmers you can meet who cannot even tell the proportions of a balanced ration.

Instead of being in such a hurry to leave the farm, let the young men take a winter course at one of our Agricultural Colleges, and then put his knowledge into practical use on the farm.

That conditions are improving in the country, no one who watches country life can doubt, with the Rural Free Delivery, Country Telephone, Good Roads, the isolation of the farm is being done away with, and last but not least the establishment of Agricultural Schools and the consolidation of the district school has brought about the time that every country boy can take his place among the business men of the country and be proud to say, "I am a farmer."

There are two articles in the current "October" number of the *Review of Reviews*, "The New Education of Farm Children" by Prof. W. M. Hays and "Learning by Doing for the Farmer Boy" by Supt. O. J. Kern, that tell of the steps taken toward the improvement of country schools and teaching methods. The ideas there advanced meet with my hearty approval, and I wish that the two articles could be placed in every farm home in this country, and their methods adopted in every state and locality.

In closing let me state that the best practical help that I have found for the study of farm problems has been HOARD'S DAIRYMAN.

Utica, N. Y. L. C. WILLIAMS.

Officers of the Illinois Jersey Cattle Club.

ED. HOARD'S DAIRYMAN:—The following officers were elected by the Jersey Cattle Club of Illinois at their annual meeting recently held in Springfield: President, Euclid N. Cobb was elected to succeed himself. He is our Buff Jersey. Vice President, J. F. Lattimer, of Abington; Secretary, Walter R. Kimzie, of Tamaroa; Treasurer, J. W. Whitson succeeds himself, Rushville.

Owing to a misunderstanding as to place of meeting, the attendance was not as large as it would have been.

Tamaroa, Ill. W. R. KIMZIE, Sec'y.

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Seeing your friends and having them join in for a good club of subscribers.

Water In The Stable a Necessity.



It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. **Why not use the Best?** Write for descriptive circular.

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1862 Lbs. in Thirty Days
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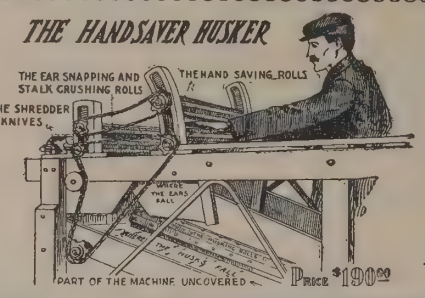
PREVENTS weak bones, paralysis of the hind legs and "thumps" in pigs; "big head" of foals; "rickets" of all young animals; abortion due to incomplete nutrition, and a host of other troubles.

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F. W. WOLL, Chemist, University of Wis., Agricultural Experiment Sta.

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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association

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Entered at Fort Atkinson, Wisconsin, as second-class matter.

Mr. Wheaton's Canadian Dairy Notes.

Canadian Cheese Making—Market Conditions—Foreign Cheese Trade—Canadian Butter—Prof. Dean's New Book on Dairying.

Ed. Hoard's Dairyman:—It is not so very long ago that the leaders in dairy thought and practice in Canada were advising the curtailing of the manufacturing of cheese lest the British market be overdone and the price of cheese reduced below the profit line. But that advice was not acted upon, and Canada is to-day making more cheese than was ever dreamed of a decade ago.

Contrary to the expectations of many, this large increase in the make has not reduced the price. The price is higher this season than it has been for some years, and 1903 will go down to history as a record one, so far as the cheese industry is concerned.

In the later years of the last century, we were exporting over 60 per cent of all the cheese imported by Great Britain, an achievement, then looked upon as nothing short of a marvel, considering the comparatively short time we had been in the business. But what will be thought of the present day record? The latest official import statistics of the United Kingdom show that during August last 349,000 cwt. of cheese were imported, of which quantity Canada supplied 300,000 cwt., thus almost monopolizing Great Britain's import trade in cheese. According to these figures we are sending forward over 85 per cent of the cheese imported by Great Britain. If this demand keeps up until this season's make is disposed of, as it likely will, we shall have little enough to meet the needs of this growing trade.

The market on this side has been of a varying character the past few weeks. As the end of the season approaches there is always more or less speculation. A few weeks ago speculators boosted prices up to a 12 cent basis. Last week there was a decided falling off from these values and prices dropped from ⅜ to ½ cent per lb., leaving the market steady at from 11¼ to 11½ cents per lb.

These are good values for the fall make and are about as high as the old country market will warrant at the present time. A strong and keen demand is needed to make goods go off briskly in the English retailer's shop at anything over the six-penny cut. Of course, at present prices here, values will have to go considerably above that figure to enable the shipper and middleman to realize a living profit. But the fact that the demand keeps up, even at these high values, is pretty strong evidence that Canadian cheese is wanted, and wanted badly by the English consumer. Producers on this side will be acting wisely if they do not ask too high figures, lest this splendid, active demand receive a severe check

One or two Canadians who have recently returned from the old land have been warning Canadians to be on the lookout lest their splendid cheese trade be wrested from them by other countries. Of course they failed to name any particular countries that were trying to get in on the ground floor in the British cheese market. In the face of the present demand and good prices, however, it does not look as if we had anything to fear in this regard. Canadian cheese has obtained such a strong foothold in the British markets that it will take some effort and push to supplant it, even to a very small degree.

Not so much can be said of our butter trade. These same parties state that Canada is likely to be supplanted altogether in the British butter market if we do not get a hustle on. The country that is going to do this is Russia, which is today increasing her exports by leaps and bounds as it were.

And this question should be given some concern by Canadian butter makers. We are not gaining and hardly holding our own in the British butter market at the present time. Of course there are one or two reasons for this. The experience of the past few years has shown that when cheese is up butter is down. This year the farmer is going in for cheese more largely than ever before and of course the butter side of the business has to take a back seat. Besides, early in the season and up to within a couple of months ago, the home market afforded a more profitable avenue for disposing of the product than the export market would warrant. And as the supply was not as large as usual, butter manufacturers found little difficulty in finding a profitable outlet at home.

But all this may be a little aside from the question whether we should make greater effort to enlarge our butter market in Great Britain. Considered in the light of future needs we certainly should make a stronger effort than we are now doing to develop this market. Even if our cheese trade continues to grow as it is now doing, it will soon have supplied England with all the cheese she needs from outside sources. When that point has been reached the surplus will have to find a market elsewhere. But where, is the question. The only outlet is to convert it into export butter. Therefore in view of this contingency, if for no other, there should be no slacking of effort in pushing the sale of Canadian butter in the old land.

To do this successfully, regular quantities must be sent forward and the quality must be of the finest. As to the former, at least, our butter trade has not yet reached a point where the British consumer can rely upon getting Canadian butter in regular and stated quantities. One week he may be able to buy it and the next perhaps there is none to be had, and he must perforce seek his supply in some other brand. One of the great secrets of success in our cheese trade is due to the fact that Canadian cheese is always for sale in Great Britain and can be depended upon. When our butter trade has reached that position it will require as little effort to hold the market as is the case today with Canadian cheese.

While Canada has been for years to the front as a great dairy country, we have had to go elsewhere for text books or works on the subject. But this state of affairs has been brought to a close. There has recently appeared on the scene a most interesting and valuable work entitled, "Canadian Dairying," which is destined to prove most useful as a factor in promoting better dairying methods in Canada. It is edited by that versatile and progressive teacher of dairying, Prof. Dean of the Ontario Agricultural College. The book bears upon its pages the result of careful thought and apt selection of matter. It is designed primarily for the use of the student in the dairy school or agricultural college, but is, nevertheless, a work of great value for the dairy farmer and for the maker of cheese or butter.

The information contained in the book is arranged under two main headings—dairy farming and co-operative dairying. The breeding, feeding and caring for the dairy cow, the caring for milk and cream, and the details of cheese and butter making, are given in concise and convenient form. The illustrations are apt and the work, though nothing entirely new is set forth, is of value in that the most up-to-date and reliable data on the subject are presented in a readable and adaptable way.

An important conference of dairy instructors and teachers will be held at Ottawa on November 4-6 next. This conference is being called by Mr. J. A. Ruddick, Chief of the Dairy Division, Ottawa, for the purpose of discussing matters of importance to cheese and buttermakers. Among the subjects to be discussed are "Cool Curing of Cheese," Pasteurization in Relation to Butter Making," "Transportation of Dairy Products," etc. A similar conference was held a year ago, which proved most useful and instructive. The coming one should prove equally so, if not more valuable.

Mr. J. W. Mitchell, B. A., has been appointed to succeed J. W. Hart, of Illinois, as superintendent of the Kingston Dairy School. Mr. Mitchell's education and training has been such as should eminently fit him for this important position. A graduate of the Queen's University and later of the Guelph Dairy School, where for several years he was an instructor, coupled with a wide experience in the Northwest and in Nova Scotia, on Prof. Robertson's staff, should give a training that makes for success as a teacher of others. The Kingston school will, no doubt, continue to be the important factor it has always been in Eastern Ontario dairying, under his supervision.

A new market for Canadian butter is likely to be developed in Japan. Owing to the direct result of Canada's exhibit at the Osaka exposition three new customers have recently been secured for butter made in the Government creameries in the West. The amount of butter exported to Japan by the Dairy Division, at Ottawa, is now three times what it was at this time a year ago.

Mr. J. A. Kinsella, who succeeded Mr. Ruddick as Dairy Commissioner for New Zealand a few years ago, has resigned and gone to superintend dairy work in the Transvaal, South Africa. Mr. Kinsella is a Canadian who received his training in Canada.

J. W. Wheaton.

Toronto, Canada.



JERSEY COW, LORETTA D, A. J. C. C., 141708.

One of the cows on trial for the St. Louis Fair. Property of F. H. Scribner, Rosendale, Wis.

Weed Out the Poor Cows.

For the last two or three years farmers who have made dairying a prominent feature of their farm operations have had the long end of the double-tree. They have had good prices for butter, good pastures, and have been able to utilize their soft corn and their corn fodder better than any other class of farmers. They have been making money right along. They are not, however, as a rule, making more than half the money to which they would be entitled if they adopted up-to-date methods. The two big leaks in the dairy business, as connected with general farming, are poor cows and unbalanced rations.

We have been urging farmers to weed out the poor cows for the last ten years, and we have been little more in all these years than the voice of one crying in the wilderness. Farmers keep on with their poor cows and lose half the profits of dairying rather than go to a little trouble to get acquainted with their cows—not with their outward appearance, but with their actual capacity. We have begged and pleaded and sometimes almost scolded, and felt like giving it up, but we would try once more.

The great trouble with the farmer is that he does not think he has the time to weigh and test and find out what cows are paying and which are dead-beat boarders. We do not look for any great reform until either the creameries or the experiment stations take the matter up and help the farmers to help themselves.

The Illinois Experiment Station has already done this and the results are just what we would naturally expect, surprising as they may be to farmers who have not given the subject study. Bulletin No. 85 of that station gives the results. Eight farmers, whose herds contained 176 cows at the beginning of the year and 144 at the end, co-operated with the station. The plan was a very simple one: The farmer agreed one week in seven to milk each cow, weigh the milk separately, take a sample. put it in a jar, add a little corrosive sublimate, and send these at the end of the week to the experiment station for analysis, the station furnishing the scale and the cans, the milk sheets, and a small dipper or milk thief for taking the sample. The year was divided into seven-week periods and the samples were taken each fourth week, and from the results of these analyses, giving the per cent of the butter fat for the week, was calculated the yield, assuming that this fourth or middle week would be a fair average of the weeks preceding and following.

Some of the farmers state that the time occupied in this was very little; others complained that it took too much time to do the work. It takes on an average a minute to each cow, or two minutes a day, and for the entire year takes about one hour and thirty-eight minutes of the farmer's time to get a complete record of each cow in the herd. The farmer who is not willing to take that much time had better quit the business.

Our readers may be interested in knowing the results in a general way. Some of the herds returned their owner a good profit, others a small profit, and one herd no profit at all. Six herds out of the eight contained cows which did not pay for their feed. The cow that gave the most profit made 472 pounds of butter. A dozen cows of that kind would make a man rich. The poorest cow gave sixty-eight pounds of butter. A dozen cows of that kind would bankrupt the

owner. The average production of all the herds, omiting one that had been tested for years and all the poor ones thrown out, was 202 pounds of butter. The most profitable cow gave a net profit of $57.22, assuming that the calf paid for her keep when dry and the skim-milk paid for the labor. The poorest cow was kept at an actual loss of $17.83 The average net profit was $9.96.

The station says: "The above facts show clearly that the average production of the Illinois dairy cow can be doubled and the profit increased fourfold."

We hope that the experiment stations in every state can take up this line of work and hence force farmers to see and stop the great leak that occurs in farm profits by the keeping of poor cows, and, as we have often stated, the only way known to find out whether a cow is a poor cow or not is to weigh and test the milk. To show what can be done in this line, we call the attention of our readers to Bulletin No. 76 of the University of Nebraska. It has a dairy herd made up of grade Jersey heifers bought in Wisconsin in 1876, costing $32 per head. It has been using full blooded Jersey sires on this herd ever since. The average yield in butter of this herd for 1897 was 340.-98 pounds; for 1898, 368.89 pounds; for 1899, 247.03 pounds; for 1900, 279 35 pounds; for 1901, 353 43 pounds; or an average for five years of 315.82 pounds.

This is more than can be done with the average dual-purpose herd, such as is kept on most farms that patronize creameries, but not so much more as one would naturally expect. The herd of Mr. Norton, of Iowa, has averaged more than 300 pounds for many years past and it is made up largely of grade Short-horns and other cattle of that type. There would be no difficulty whatever in securing inside of two years a herd of dual-purpose cows that would yield 200 pounds of butter per year, nor would there be any great difficulty in raising this by weighing, testing and proper feeding to 250 or even 300 pounds. Every farmer who has ever milked cows knows that this would pay, and pay well. It is clearly within the reach of any man who is patronizing a creamery, to have a herd of this kind if he will do just two things: Weed out his poor cows in the way in which we have suggested, and then feed a balanced ration, of which more hereafter.—*Wallace's Farmer.*

Farm and City Life.

ED. HOARD'S DAIRYMAN:—I would like to have my little say regarding what H. C. R. says on page 717. "Most of the farmers, dairy farmers as well as the rest, despise their business, their wives despise it, the daughters despise it and their sons despise it." Now I am, or rather was, a city man, being born and raised and lived in a large city the first forty years of my life. I have spent the first past twenty-eight years in farming and dairying on my own little farm of thirty acres, and never during that time have I desired to change my occupation.

Whenever I see in the farm papers that I take, anything that I consider exceptionally good, I cut it out and paste it in my scrap-book. Referring to said scrap-book I find the following clipping from the *Farm Journal*, of some years ago, which I think is good enough to be told over again. The writer says: "I do not live on a farm, or any where near one. I work at my trade here in town, and if any of your discontented farmers want to exchange a little farm for my job they are welcome to it. In winter we go to work in the dark and come home in the dark. If a man lives far away from his work, he must be up early every work day of the year at 5:30 and 6, take his dinner with him, and then get home at 6:45 and 7. Then he must work every work day in the year if he wants to live. Where is the farmer who knows what this means? If they had to plow or harvest every day in the year, then they would know. Why, an industrious farmer lives like a bank president compared to an industrious tradesman.

Let me enlarge on this subject. A tradesman will make from $1.50 to $3 a day, the small wages are made by the man who is given work all the year round, the higher wages are made by the one whose occupation will not permit him to work all the year. In order to get these wages, the tradesman must depend on someone else, the farmer depends on himself alone. In that one difference the farmer compared with us, is as independent as a millionaire. To get even these wages, we must band together in unions, and often have to strike in a body to keep from being cut down. The only strike the farmer must go on, is to refuse to sell his eggs or berries for less than they are worth. It will take about all a tradesman can earn, if he wants to live comfortably. If he wants to save to buy a lot and put up a house, he must deprive himself of many things, and the way he does it is to live on cheap food. The farmer can get the very best and in abundance.

In this particular, again, is the farmer's calling shown to be the best of all occupations, for what else can a poor man get out of this world but a place to sleep and something to eat. Why, the price we pay for strawberries for one week, would keep the farmer in fresh and canned strawberries for a whole year.

There is another item that shows the superiority of country over village life, and this is a truth that should be considered thoughtfully. If a man in town by stinting himself a dozen years, saves enough to buy a lot and build a house, the both being worth say $2,000, in the end he has only a place to live in and must still depend on someone else to give him work. Now, if that money had been put into a ten acre farm at $100 an acre he would have had a business of his own, something that he could get a living out of, as well as a place to live, as the profits should pay for the house and land."

But changing the subject, I want to tell about a new addition of five stalls I have made in my cow stable. They are patterned after the "Model Stall," so often described in the DAIRYMAN, with a few slight variations. The front part is made from the description that has been given by John Gould, of those he has in use, neck chains for fastenings instead of halters, the low down manger instead of the hay rack, and moveable feed box with the 2×8 plank over the cows' necks to prevent them from stepping into the manger.

There is no sunken gutter in the rear, only that formed between the two 3×4s. If the 3×4 scantling at the cow's hind feet be spiked to the floor at the proper distance from the manger, depending of course upon the size of the cow, she is compelled to keep clean, whether she wants to or not. Then, if the other 3×4 is placed on a slant, on the same principle as the gutter on the roof of a house, and a barrel sunk in the ground, so that the liquids can run into it, the platform will be comparatively dry all the time.

The contents of this barrel can be either baled out or pumped out as occasion may require, and used as a liquid manure, or spread over the manure heap. I should have stated that there is just two inches of fall, from the front of the stall to the back platform at the rear. I am so well pleased with these cow stalls that I should certainly duplicate them were I to need any more or alter any of the old ones. J. T. M.

Brandywine Summit, Pa.

An Old Fraud.

ED. HOARD'S DAIRYMAN:—I was somewhat surprised a few years ago when an agent for a compound containing borax came to the Wisconsin Dairy School and tried to sell us some of his preservative to use in milk and other dairy products in which we are interested. I was surprised because of the audacity the man showed in attempting to induce such an institution as this to buy and promote the use of a compound which is prohibited by state law.

I presume all dairymen know that there is a law in the state of Wisconsin forbidding the addition of any substance to milk for the purpose of keeping it in a sweet condition until it reaches the consumer. Such preservatives are simply an attempt to cover up the neglect and the lack of cleanliness which often causes milk to sour when it is shipped to cities or delivered to creameries and cheese factories.

I received somewhat the same shock today as was given me by this man who tried to sell us a preservative for our dairy school products several years ago The agent who visited us today was promoting the sale of a compound which he claimed would increase the weight of butter seventy-five per cent. He stated that to convince me of the great value of his method and patent process, he would place butter in a churn, add three-fourths of a pint of milk to every pound of butter, then use a small quantity of his patent substance and make a product which



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HOARD'S DAIRYMAN.
FORT ATKINSON, WIS.

he termed butter, and which he claimed was better flavored than the best creamery or dairy butter made by anyone. I questioned him somewhat about the composition of the butter he would make in this way and he stated he did not know what it would contain, but he did know that the amount of butter made would be increased seventy-five per cent and that the product would be far superior in quality to that of the butter he started with.

Taking his statements as given, which were that three-fourths of a pint of milk is added to every pound of butter and that the butter is increased seventy-five per cent, we can readily see what happens in his process of making butter. Three-fourths of a pint of milk will contain at least one-half pint of water and according to his figures he is thus adding half a pound of water to every pound of butter. This would be a paying investment if one could sell the water for butter prices, but I reminded the agent that legal butter in the United States must not contain over sixteen per cent of water, and the product he makes will, therefore, not be legal butter.

This attempt to increase the weight of butter by mixing water with it is an old one, but it crops out every once in a while under some new name, Parties who may be approached by such an agent as this should look into the matter thoroughly before investing in a secret process, the use of which, the agent claims to be able to teach anyone who is able to to pay for it. E. H. FARRINGTON.

Wisconsin Dairy School.

Of Interest to Farmers.

Conserving a Water Supply—A Novel Method for Heating Water for Stock.

ED. HOARD'S DAIRYMAN:—Among the arrangements for saving and making the most of a limited water supply, Mr. F. W. Draper, of Enosburg Falls, Vt., who has a farm in the adjoining town of Sheldon, has devised a method that is somewhat novel in character, yet practical and successful. On the farm there is a large cattle barn and also a horse barn for which a supply of water has to be provided, besides the house.

At some distance from the buildings there is a spring that furnishes rather a small but uniform supply of water during the year. The amount is sufficient for house and barns the year round by being carefully husbanded.

There is not a sufficient down grade from the spring to the house to allow of the water being conducted to the first floor, so a large cistern of stone 24x8x4 feet in dimensions is built in a portion of the cellar, into which the water will run. From this it can be pumped to the floor above and will run to the barn or yard in one direction, and to the horse barn in another. It is so arranged that the water can be drawn as wanted for use and then stopped. In this way there is the needed supply and the arrangement which has been in use for a considerable number of years continues to work most successfully.

There has been no trouble from freezing as yet, as the large amount of water in the reservoir is kept at an even temperature. This is the first arrangement of the kind the writer has ever known, and it is possible that its successful operation may be an inducement to others, similarly situated, to put into use on their premises. As will be seen, the method is adapted particularly to a limited supply of water, and on land on which there is not much descent or head.

As to the method for heating water for stock, the writer saw this arrangement several years since on the farm of Mr. C. F. Smith, of Morrisville, Vt., a live-go-ahead agriculturalist, who has an eye to utility and practical results.

He had plenty of good spring water and at one time had it running in the stables before the cows, but not being satisfied that this was a suitable arrangement for the cows, of which he had a fine Jersey herd, he removed it from the stable to a commodious yard adjoining. But as the water was then considered too cold for the cows, he contrived a novel method for warming it.

He had a furnace in the cellar for warming the house, and as the water from the spring could be conducted so as to run in a pipe through the upper part of the furnace, there was no difficulty in the matter. The part of the pipe that passed through the furnace was made into a coil so as to retain the water longer while passing through, thus heating it sufficiently for the purpose. With this arrangement, there was warm water in the yard from the time the fire was started in the furnace in autumn until it was no longer needed, and with no extra cost for heating. This was also something new to the writer, and possibly there are those who with similar conditions might be equally benefited by some such arrangement, which would certainly be worthy of careful consideration, and in the interest of such, this somewhat novel arrangement is given. E. R. TOWLE.

Franklin Co., Vt.

Mr. Clawson's Method of Handling Clover Silage.

ED. HOARD'S DAIRYMAN:—In response to the request of the senior editor we gladly say we have no trouble taking out our clover silage even though it is long, but we anticipated trouble, and had to learn by experience. We take great care in filling our silos that the fork drops its load near center of silo which is 11x11x27 inside and round cornered, the forkfull always finds the center of silo. If the drop is far and the doors kept closed, four of us worked in the silo while unloading and no danger if we stepped in corner as the fork unloaded; the air rushes up, lifting the outsides up like an umbrella in a storm and makes it quite easy to spread evenly which is of vast importance. A forkful thus spread comes out in layers and is passed through our 2x2 foot windows easier than hay and more rapidly than corn silage. But you must take that which is on top and not dip too deep. P. CLAWSON.

Okeana, O.

Some Wisconsin Jersey Tests.

ED. HOARD'S DAIRYMAN:—We are officially testing a large number of our Jerseys for butter fat, the test being conducted the entire year by the experiment station. So far, eight cows have finished their year's work, which I give in butter fat, also carried out into butter by adding one sixth, the average butter of the eight being 524⅝ lbs. Following is the record:

cows.	*Lbs. butter fat.*	*Lbs. butter.*
Loa 107279	479.0	558
Loretta D. 141708	518 9	605
Belle R's Sister 2d 109932	412.5	481
Avileur 10884	390.0	455
Lady Meroe 152987	348.1	406
Edith's Faith 69724	464 7	542
Mabellena 107603	495.2	577
Miss Jepson 148651	491.7	573

The fith cow in the above list is a two-year-old heifer, making 406 lbs. with first calf. In comparing our own personal tests with the test of the experiment station's work there was but very little difference. Some months we were a little ahead and sometimes they were, but figuring up at the end of the year there was practically no difference.

It has been a great satisfaction to me to have this work done, as it practically corroborates the work we have been doing for a good many years. We have also kept an account of what they have eaten and what it has cost to keep each cow. For the entire year the most economical cow produced butter at 6¼ cents per pound. F. H. SCRIBNER.

Rosendale, Wis.

Special Prizes for Holstein-Friesians.

The Holstein-Friesian Association of America has empowered a special committee consisting of W. J. Gillett, Rosendale, Wis.; F. B. Fargo, Lake Mills, Wis.; M. E. Moore, Cameron, Mo.; W. B. Barney, Hampton, Ia.; H. B. Daggett, Lake Mills, Wis., and Robert W. MacGuire, St. Louis, with authority to act concerning the Association's special prizes on Holstein-Friesian cattle at the World's Fair. The committee has notified Chief Coburn that $1,472.50 has been set aside for this purpose, arranged with special attention to the encouragement of smaller breeders of Holstein-Friesian cattle to exhibit at St. Louis.

The regular prizes offered by the Louisiana Purchase Exposition to Holstein-Friesian exhibitors amount to $3,995 The World's Fair regular and special prizes for Holstein-Friesian cattle are about $1,000 more than double the offerings on the same breed at the World's Columbian Exposition in 1893.

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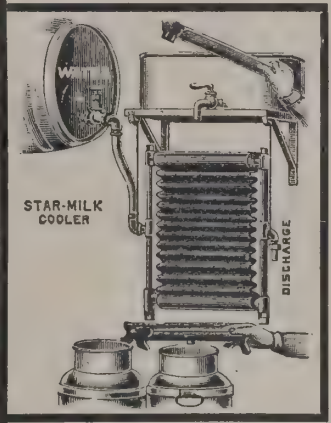
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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of themread dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

COMING EVENTS.

Indiana State Dairymen's Meeting, Plymouth, Dec. 10-11, 1903.
Minnesota Dairymen's Association, St. James, Dec. 8-11, 1903.
Vermont Dairymen's Association, St. Albans, Jan. 5-7, 1904.
Illinois Dairymen's Association, Greenville, Jan. 5-7, 1904.
Wisconsin Cheese Makers' Association, Milwaukee, Jan. 6-8, 1904.
Ohio Dairymen's Association, Columbus, Jan. 27-29, 1904.
Wisconsin Butter Makers' Association, Feb. 2-4, 1904.
Maine Dairy Convention at Foxcraft, Me., Dec. 2 and 3, 1903.
New Jersey Agricultural and Dairy Convention, Trenton, N. J., Jan. 14, 15 and 16.
Eastern Ontario Dairymen's Convention, Belleville, Ont., Jan. 5, 6 and 7.
Missouri Dairymen's Meeting, Clinton, Dec. 8-10, 1903.
Iowa Dairymen's Association, Waterloo, Nov, 18-20.
Washington Dairymen's Association, North Yakima, Dec. 29-31
Massachusetts Creamery Association, Greenfield.
Connecticut Dairymen's Association, Hartford, Jan. 20 21.

A LESSON IN DAIRY ECONOMICS.

There is not a reader of Hoard's Dairyman that cannot profit from a diligent study of the admirable paper, published elsewhere in this issue, prepared and read by Prof. C. L. Beach, of Connecticut, before the Dairymen's Convention in New Hampshire, last winter. It supplements and confirms the various cow censuses which Hoard's Dairyman has had taken in various states, and those taken by the Wisconsin Dairymen's Association, and is in exact accord with Prof. Haecker's work and conclusions in Minnesota, and the experience of Mr. Gurler in his herd at DeKalb, Illinois, and Mr. Ellis, in Massachusetts.

It is a plain recital of plain facts as they developed and were recorded from day to day in the dairy herd at the Connecticut Experiment Station. There is no preconceived theory or personal opinion to be upheld or overthrown by suppression of some of the facts or juggling with the figures. It is such matter as Hoard's Dairyman is constantly in search of for the information and guidance of dairymen everywhere.

We call special attention to the fact that this Connecticut herd contained no cows that did not nominally belong to one or other of the specific dairy breeds, showing that dairymen should not place over much confidence in breed or breed names, but should rely more upon type or conformation, supplemented by a faithful record of performance. Only those cows are profitable which can show a profit, no matter what their breeding or name. Not every cow of even strictly dairy conformation will prove profitable at the pail, and not every cow of beefy conformation will prove unprofitable.

There are exceptions to all general rules, and the poor cows of dairy type, and the good cows of beef type, constitute exceptions to the general rule that profitable dairy cows have a distinctive dairy type.

THE ECONOMIC VALUE TO THE FARMER OF MACHINERY.

President Flanders, of the Farmer's National Congress, in his able address, at the late meettng of that body, gave a very interesting statement of the saving in the cost of producing certain crops, which has come through the use of labor saving machinery. The following are the figures he gives: He stated that the potential saving in the cost of human labor on account of improved implements, machines and processes, at the rate per bushel or ton, has been computed for seven of the principal crops for 1899 as follows:

In the case of the crop of corn, the money measure of the saving of human labor required to produce it in 1899, in the most available economic manner, as compared with its production in the old-time manner, was $523,276,642; of

Wheat	$79,194,867
Oats	52,866,200
Rye	1,408,950
Barley	7,323,430
White potatoes	7,366,820
Hay	10,034,868

The total potential saving in the cost of human labor for these seven crops of 1899 owing to the possible utilization of the implements, machines, and methods of the present time, in place of the old time manner of production, reaches the stupendous amonnt of $681,471,827 for this one year.

Now it would be equally interesting if some man could possibly compute the loss that comes to the farmers each year from the bad care of their machinery. A few years ago we built two large sheds for the storing of the vehicles and machinery on our farm. These sheds cost about $200, the interest and deterioration of which we place at 8 per cent per annum or $16.00. In those sheds are stored fifteen hundred dollars worth of tools, vehicles and machines. The loss in depreciation of this capital, if left exposed to sun and weather, from this cause alone, saying nothing of wear, is estimated by manufacturers to be fully 20 per cent. With good shelter this loss is obviated. Yet there are scores of farmers that we know, who struggle hard every year to get a little surplus to lend on note and mortgage, at five or six per cent, who will not lay out $100 to build a machinery shed that would pay 20 per cent interest on a thousand dollars' worth of valuable machinery. There is an old saying that some people lose more at the spigot of a barrel than others can put in at the bung. As farmers, we have not yet begun to study the economic science of our own business.

SUCCULENT FEED AND MILK FEVER.

Dr. Pearson, the noted veterinarian of the Philadelphia Veterinary College, in a lecture in 1894, spoke somewhat at length of the danger of giving too much grain feed to cows when dry. He said it caused trouble at the time of calving and that succulent food put the cow's system in the best possible condition for the dangers of that period.

Next to grass, there is no form of succulent food that approaches it in effect on the system like corn ensilage or roots. It would be a most interesting and valuable addition to the sum of our knowledge on that particular point, if the 40,000 readers of Hoard's Dairyman would put on their thinking cap and see if their experience bears out the doctor's statement. It looks reasonable from a physiological standpoint.

Now, suppose our readers drop us a postal card stating in brief as follows:

Have been dairying for — years. Have lost — cows with milk fever before putting in a silo. Then state whether they can see any improvement in this respect since they commenced feeding ensilage.

What we are after is to get a concensus of opinion on this one proposition:

Does the feeding of succulent feed in the form of ensilage lessen the percentage of attacks of milk fever?

Do those who have silos show any better record in this respect than those who do not?

Send us your experience.

CERTAIN DAIRY PROPOSITIONS.

This is a very wide country, with many variations of soil, climate and gradations of dairy intelligence in the farmers who keep cows. All these things modify results to a certain degree. They also increase or decrease profits as the case may be. There are many ways of doing the same thing. Creamery practice in New England, or New York, or Wisconsin, is not the same as it is in Kansas.

In the latter state there has sprung up a system based on the following methods: A large company, with abundant capital, enters a given territory with the farm separator. They make arrangements with the railroads and express lines for the shipment of cream to them at some central point. Their agents set to work and canvass the territory for 10 to 15 miles, say on each side of the railroad and for 300 miles in length, and induce the farmers to buy separators and send them the cream, retaining the skim milk on the farm. This system does away with the ordinary creamery entirely. The farmer brings his cream to the railroad station just as he would his wheat, oats, or potatoes. The company settles with the patrons once a month and pays for the cream on the following basis, which we copy from the circular of the J. P. Baden Produce Co., of Winfield, Kansas, which town is the center for nine railroads.

The company binds themselves to buy the cream for five years giving the patron privilege of stopping any time, and at the scale of prices named below. They buy the cream on its butter fat content as shown by the Babcock test, the price to be governed by the average quotation for the month of extra separator creamery butter in New York, the company paying all express charges and return the cans free of charge. The following are the prices.

Within 150 miles of Winfield 2½ cents less than New York.
From 150 to 200 miles of Winfield 3 cents less than New York.
From 200 to 250 miles of Winfield 3½ cents less than New York.
From 250 to 300 miles of Winfield 4 cents less than New York.

Concerning this method of doing business the company have the following to say:

"A cow that will give a gallon of milk (8 60-100 pounds) at a milking or (17 and one-fifth pounds daily) yields 500 lbs a month. At an average test of 3.8 per cent she will earn from $3.23 to $4.56 per month on the basis of the prices paid for butter fat in 1900. The feed that will produce a pound of dressed beef will make one pound of 20-cent butter fat.

That the most practical and economical way for the dairyman, is to separate his milk on the farm as soon as he is through milking.

That it is costing the price of one cow every year to haul the milk of five cows to the station, (and we suppose they mean the creamery as well).

That a centrifugal cream separator will more than pay for itself every year if one has but three to five cows.

That you cannot afford to feed sixteen to twenty cent butter fat to a four or five cent calf when there is an abundance of cheaper feed to raise him on.

That when you feed a steer until he is three years old he is worth from $50 to $60.

That he goes to market and takes your corn with him leaving you nothing.

That you can milk that much money out of a good cow in one year and still have the cow left."

The company farther says that the cost of keeping a cow in Kansas is as follows: Feed, $20; labor to milk and care for her, $10; interest, $2.50; total cost of keeping $32.50, which is a third less than in the states east of the Mississippi. They reckon that it will require 115 pounds of butter fat and the skim milk to pay the cost of keeping a cow a year in Kansas. The foregoing proposition may prove interesting reading to many who survey the dairy business from a different environment and standpoint.

THE HIRED HELP QUESTION.

All over the land is heard the complaint among farmers, that they cannot obtain the help they desire. We hear of no such complaint among manufacturers. A brief study of the methods pursued by the manufacturers to secure labor, as compared with farmers, convinces us that new ideas and plans must prevail among those needing help on farms.

(1) There must be a disposition to consider the help question as one of the important questions of the farm. At present not one farmer makes any special effort to secure help. We are told by men connected with employment agencies in cities that there are thousands of foreigners there who were bred and trained to work on farms in the old country and who, if they could get a good home to live in, with a bit of land to cultivate and the milk of a cow for the children, together with their fuel, would much prefer life on a farm to their present unsatisfactory mode of living.

But there they are in the city. They know nothing of the country and the farmer makes no special effort to know anything about them. Between the two there lies a no-man's-land. Now the manufacturer acts differently. When he wants help he consults some man or agency that makes it a business to supply labor, and for a small consideration he furnishes the men. It is a regular, legitimate business. Why should not the farmer re-organize his ideas and take advantage of conditions, the same as the manufacturers? Has he ever tried it? It may be, but if so, we have heard of it only in a few instances. Then again, farmers with large herds of cows must make some special concession to their help. It is not a very serious sacrifice to knock off labor in the field at half past four o'clock say, and go at the work of milking and caring for the pigs and cows. They will have altogether better milking, better pigs and calves if this is done and they will get their pay for it in the end.

Then again, comfortable tenant houses and lots more of them should be built. If it is true that there are many married men in cities who would prefer farm life with such comforts, farmers ought to know something about it. Have any of our readers any knowledge born of experience to offer on this question? Let us have a discussion of the help question.

THE KEY NOTE.

The key note to profitable dairy farming is to be found in a close study and mastery of economic effort or labor.

We do not believe there is a business on earth where there is as much waste of labor, time and money as is found on the average dairy farms of the country.

There is the waste of poor cows; the waste of unscientific feeding; pouring costly food unsuitable to the purpose of economic milk making into the cows; the waste of unhealthy food and disease breeding stables; the waste of poor methods of soil culture, and its consequent waste of fertility; the waste of poor care of young animals in the first

year of their lives whereby they are not worth half as much in the market as they should be, and finally the great waste of brain and thought, or rather the waste that comes from a lack of brain and thought. Such a host of men there are who prefer to be ignorant of what it means to be a good, economical farmer. Who are as contented as can be in having no hunger or thirst for the knowledge that shall build them up and make first-class men and farmers of them. From one end to the other of it, successful dairy farming calls for a man who has so much pride in the mastery of his business, in his possession of important ideas and methods, as have the best professional men in the country. Such a dairy farmer will be ashamed to be found ignorant, or have his sons ignorant, of what science is doing for him. Such men are the ones who show the largest profits and who win, besides, honor and fame among men.

Oleo in Wisconsin.

ED. HOARD'S DAIRYMAN:—The following circular letter has been issued by the commission:

TO DEALERS IN OLEOMARGARINE IN WISCONSIN:—Your attention is hereby called to the Wisconsin state law relative to the sale of oleomargarine, butterine, etc., a copy of which law is herewith enclosed. Your attention is particularly called to the fact that the sale of oleomargarine "which shall be in imitation of yellow butter" is prohibited in this state. The penalty for the first offense is not less than fifty dollars nor more than five hundred dollars, and for each subsequent offense imprisonment in the county jail not to exceed sixty days nor less than ten days, or a fine of not more than five hundred dollars, nor less than one hundred dollars, or both such fine and imprisonment. Every available force of this Commission will be used to enforce this law strictly.

The sale of oleomargarine in a separate and distinct form and in such a manner as will advise the consumer of its real character, and "free from coloration or ingredient that causes it to look like butter" is lawful in this state, provided the regulations of such law prescribed by the state legislature are strictly complied with. See Section 4607d, Wisconsin statutes of 1898.

The above mentioned laws are the laws of the State of Wisconsin which govern the sale of oleomargarine in this state, and are a copy of the Massachusetts Oleomargarine law, concerning which the United States Supreme Court in Plumley vs. Mass., 155 U. S., 461 says: "The statute seeks to suppress false pretenses and to promote fair dealing in the sale of an article of food. It compels the sale of oleomargarine for what it really is, by preventing its sale for what it is not."

Certain advertisements of butterine have recently been circulated in this state, claiming that it has a rich, creamy shade, and by soliciting dealers to handle the same, thereby seek to delude them into a violation of the state law. Butterine cannot comply with Wisconsin law in being "free from coloration or ingredient that causes it to look like butter" and at the same time have a rich, creamy shade. If oleomargarine or butterine has a rich creamy shade, it thereby carries its own self-condemnation as not complying with the terms of the law in this state.

Certain manufacturers of oleomargarine and their agents when conducting their business with dealers and when corresponding with this commission assume an innocent ignorance of the provisions of Wisconsin statutes and blandly plead that their products comply with the provisions of the United States laws and the rulings thereon by the United States Commissioner of Internal Revenue. Their dissembling course in this respect, in undertaking to induce dealers to violate the law of their own state, furnishes an extreme exhibition of impudent effrontry to the intelligence and law abiding spirit of Wisconsin dealers. The efforts of such agents and manufacturers to ignore the unmistakable provisions of the Wisconsin law and to delude dealers into the belief that the sale is lawful in Wisconsin of oleomargarine which shall be in imitation of yellow butter and not free from coloration or ingredient that causes it to look like butter, must be regarded as disingenuous.

The United States Oleomargarine Law, approved May 9th, 1902, under which all oleomargarine manufacturers and their agents must conduct their business, expressly provides: "That all articles known as oleomargarine, butterine, imitation, process, renovated or adulterated butter or imitation cheese, or any substance in the semblance of butter or cheese not the usual product of the dairy and not made exclusively of pure and unadulterated milk or cream, transported into any state or territory of the District of Columbia and remaining therein for use, consumption, sale or storage therein shall, upon the arrival within the limits of such state or territory or the District of Columbia, be subject to the operation and effect of the laws of such state or territory or the District of Columbia, enacted in the exercise of its police powers to the same extent and in the same manner as though such articles or substances had been produced in such state or territory or the District of Columbia, and shall not be exempt therefrom by reason of being introduced therein in original packages or otherwise."

Persons who sell in Wisconsin or solicit orders for oleomargarine or butterine which "shall be in imitation of yellow butter" and not "free from coloration or ingredients that causes it to look like butter" become violators of the law of the state and liable to legal prosecution.

Please take notice that unlike the United States law the term "artificial" in relation to color is not used and this one word "artificial" makes a vast difference between the United States and the state laws on this subject. To be lawfully salable under the laws of this state oleomargarine or butterine must be "free from coloration or ingredient that causes it to look like butter." Mark, the state law does not say free from "artificial" coloration or ingredient that causes it to look like butter. It matters not, under this statute, whether the coloration is due to "artificial" means or otherwise.

Being in imitation of yellow butter is what is unlawful in this state.

This circular letter is to inform dealers or would-be dealers in oleomargarine or butterine in this state as to the laws of the state that absolutely prohibit the sale in Wisconsin of oleomargarine or butterine "which shall be in imitation of yellow butter" and to caution them against being deluded by the agents of the manufacturers of oleomargarine, butterine, etc., into the belief that a United States license to sell so-called "uncolored" oleomargarine or butterine protects them against the operation of the Wisconsin state law. Such statements by whomsoever made are absolutely untrue. Agents of manufacturers who promise to defend violators of the law of this state in the courts would hardly be able to restore to dealers the reputation of being violators of the law, or free them from the odium of becoming criminals under the law.

The sale of oleomargarine which is "free from coloration or ingredient that causes it to look like butter" is lawful and legitimate in this state, and as oleomargarine of such description is upon the Wisconsin market and can be procured by dealers and at oleomargarine prices, there can be no warrant or excuse for dealing in an article whose sale is unlawful. It is believed that the dealers being correctly informed as to the true state of affairs, will limit their business transactions in oleomargarine, butterine, etc., to lawful products.

It is made the duty of the Wisconsin Dairy and Food Commissioner to enforce the dairy and food laws of the state and it is his purpose to enforce these laws to the fullest extent possible with the force at his command, instituting legal prosecutions if necessary.

J. Q. EMERY, Commissioner.

The One Minute Churn.

ED. HOARD'S DAIRYMAN:—I enclose a circular of a churn which is being introduced through this section. I suspect it is a fake; if not, it is a good thing. Please let us know though your valuable paper just what it is. The indorsements are from your section and dated 1900, so I presume you know something about it.

Jefferson, Ohio. A SUBSCRIBER.

The circular shows that the churn is one of the old-new inventions, gotten up to sell to dairymen. They have been tried many times and always with failure. They don't make one to ten per cent more butter, nor better butter, nor with less work. Nothing has ever been invented that will do better work than the old box or barrel churn, and, as a good churn of any kind will take all but 0.1 per cent of fat out of the cream, it is difficult to see any room for improvement. As to time, the one minute churns all injure the grain of the butter and that point always condemns them.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

A Vermont Ration for Cows and Horses.

Will you kindly help me formulate a ration for my cows, grade Jerseys of about eight hundred pounds, three coming fresh this month and nine coming fresh in February, of the following feeds: Barley and pea hay, cut green; a limited amount of oat silage; will feed all hay for roughage when it is gone; would like to feed bran and cotton seed meal for grains as I have them on hand. Would you advise feeding any other grain with these? Corn, $23; bran, $20; cotton seed meal, $28; linseed meal, $28. Cows are not heavy milkers; will give from twenty to thirty pounds a day.

Please also prescribe a ration for my horses of about eleven hundred pounds, doing moderate work. We appreciate the good work the DAIRYMAN is doing and consider it a friend in need.

What amount of salt should be mixed with one-hundred pounds of grain for cows? H. S. W.

Passumpsic, Vermont.

As there are no analyses of barley and pea hay, or of oat silage, we cannot give a formula in tabular form. Such forage would be relatively high in protein, thus indicating that corn and bran would be a better combination of grain than bran and cotton seed meal. We should think that 4 lbs. of bran and 1 lb. of cotton seed meal, with what hay and silage each cow will eat without waste, ought to give good returns, but if these are not satisfactory we would increase the grain allowance with corn, adding a teaspoonfull of salt to each feeding of grain. It is doubtful if salt, in the limited amount required, could be evenly mixed with the grain in bulk, but if it could, two lbs. would be about the quantity we would try.

For horses, mix bran and corn, equal parts by weight, and feed about 8 lbs. of this mixture daily, with hay above mentioned.

For Canadian Ayrshires.

Please prescribe balanced ration for Canadian Ayrshire cows weighing about 1,000 lbs each, from the following feeds: Ground linseed oil cake costing $25 per ton; wheat bran, $17@$18; wheat shorts, $19@20; ground oats and barley, $20@$24; clover hay, also mixed timothy and clover grown on farm worth $8 per ton; ensilage corn cut part in milk and part in glazing stage on farm; oat straw for bedding and roughage saved in good order. SUBSCRIBER.

Montreal, Que.

At the prices given we should be disposed to encourage the cows to eat as much of the hay and silage as possible, the relative amounts of each to be governed by the supply on hand. If there are half as many tons of hay as silage, we would try the following combination.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
15 lbs. hay	12.79	.72	5.34	.24
4 lbs. bran	3.52	.50	1.54	.12
3 lbs. oats (or barley)	1.78	.18	.85	.08
1 lb. oil meal	.91	.29	.33	.07
Total	26.92	2.08	12 26	.72

Three Pennsylvania Questions.

I would like the opinion of some of HOARD'S DAIRYMAN readers in regard to using disk harrows or Cutaway harrows on stony ground.

Also, what is the best way to ventilate a cow stable in lean-to 18 by 80 on back side of barn?

Do you think ensilage shortens the number of years that cows are at their best? F. L. D.

E. Sharon, Pa.

The first of the above inquiries is, as requested, referred to our readers for answer; the second has been answered so many times recently, that it seems unnecessary to go over the ground again at the present time; and to the third we return an emphatic negative. Of course cows can be improperly fed on silage, as they can on any other feeds, but the rational use of silage is not only wholly unobjectionable, but is, in fact, beneficial to health, longevity and increased production.

An Impossible Overrun (Surplus).

Will you please give the method and tell how it is possible, for a creamery to get a 25 per cent surplus of butter over or above the butter fat test. According to the statement of a neighboring creamery, they have accomplished that feat.

Keene, N. H. J. J. D.

It is both a mechanical and mathematical impossibility to get a 25 per cent overrun, provided the resulting butter comes up to a commercial standing. The Dairy Division of the United States Department of Agriculture has ruled that butter to be of standard quality must contain not less than 82.5 per cent of fat. If there were absolutely no losses in creaming and churning, it would be possible to make 121 pounds of such butter from 100 pounds of fat in the milk, and the overrun or surplus would be 21 per cent. But there are inevitable losses, and, in the present state of the art of butter making, these cannot be brought below about 3 per cent of the total fat and will average much more than this. That is to say, given a quantity of milk containing 100 pounds of fat, the best the most skillful operator can do, with the best modern machinery, is to put 97 pounds of this fat into butter ready for market.

If this butter contains only the minimum of fat, 82.5 per cent, the yield will be 117.5 lbs., an overrun or surplus of 17.5 per cent. If the losses exceed 3 per cent of the total fat, as they usually will, or the butter contains more than 82.5 per cent fat, as butter frequently does, the overrun will be less. In fact, an overrun of 12.5 per cent may be considered fairly good work in any creamery where there are several patrons, delivering milk of varying quality, both as to condition and per cent of fat. The losses in creaming and churning are proportionally larger with 3 per cent milk than with 5 per cent milk.

Does Rape Injure Swine?

Early in spring I advised one of my neighbors to sow rape for hog pasture, which he did, purchasing the seed at the elevator here. After it was large enough he turned his hogs in, and in a week all the hogs had sore noses, being all raw. After a few days, scabs formed and were so sore that the pigs fairly squealed if they touched anything with their snouts, Can you give me any reason why that was and how to prevent it, as I want to sow a rape pasture next spring, if I can be sure not to have the same trouble. W. N

Cecil, Wis.

As there is no one in this country with more experience or better posted on all questions connected with rape than Prof. Henry, we referred the foregoing inquiry to him for answer. As will be seen, he confirms what we said some weeks ago, citing simply only our personal experience with rape the present season. Whatever else may cause the trouble complained of, it is reasonable certain it was not rape. Following is Prof. Henry's reply:

Twice before, if my memory serves me, similar complaints have come to the College of Agriculture. I doubt, however, if the cause assigned is the correct one. Thousands of farmers in the Northwest are allowing their pigs to run in rape fields without such troubles arising. Since this is the case, we should be very slow in condemning rape as a useful feed for hogs. Your correspondent is urged to keep on growing rape, and when the next season comes around to have a good patch and to again use it for pig feeding. Probably the trouble will not annoy. In order to help himself in the present case, let him follow the directions given below. They should prove helpful.

CANKER SORE MOUTH IN YOUNG PIGS.

[*Special Bulletin, Wisconsin Experiment Station, May 1901.*]

This disease is comparatively new in Wisconsin. Where it has appeared it has usually been exceedingly fatal. All farmers receiving this bulletin are urged to preserve it for ready reference should the trouble break out among their swine at some future time. The disease invariably appears in young pigs from the time of birth until six weeks old.

The symptoms are as follows: Large water blisters appear about the lips and snout, rapidly succeeded by much heat and swelling of the parts, and later thick brown scabs appear which open into deep cracks. These scabs extend over the face, head, and even to the body and limbs, the joints of the latter becoming much swollen and inflamed. Ulcers frequently form about the snout and jaws, eating the flesh from the bones. The pigs show dullness, a disinclination to move, often refuse to suckle or do so in a very half-hearted manner.

To be effective, the treatment should be prompt and thorough. Prepare a solution of permanganate of potash, which can be had at any drug-store, using one ounce of the crystals dissolved in one gallon of water in a common pail. The young pigs should be dipped head foremost into the solution and kept there for a brief time. Repeat this two or three times, giving the pig time to catch its breath in the intermissions. This treatment given every day for three or four days, will usually effect a cure if the trouble is not of long standing. In extreme cases where ulcers and heavy scabs have formed, use two ounces of the permanganate to one gallon of water, and before dipping remove all the dead and loose tissue that has been eaten away. The sow's udder should be bathed freely with the solution each day.

Remove the sow and pigs to fresh quarters if possible, and see to it that other successive litters are not farrowed in the pen where the affected pigs were housed until it has been thoroughly disinfected. Benefit will also be derived from a laxative given the sow; a pint of raw linseed oil in her slop or in milk will be suitable.

Ventilating a Stable.

Please tell me how to ventilate my cow stable for thirty-nve head of cows. The stable is 90x22 ft and 7 ft. high on the sides, no mow overhead, but a good tight roof, plenty of windows on the south side. The cows stand in two rows facing the sides with shallow gutters behind them; no feed alleys. Each cow has a stall to herself. The cows are out doors most every day in winter, as our days are nice and bright and the yard well protected.
Valentine, Neb. M. D. C.

Without a personal inspection of the premises or a drawing giving all particulars, it is impossible to give specific suggestions Successful ventilation depends upon the introduction of fresh air and the removal of the foul air. The latter is accomplished by building a flue, or flues, wherever they will be least in the way, with an opening at the bottom, very much after the pattern of the old fashioned fireplace and chimney. These flues can be built on the outside just as chimneys are often constructed, but they should be practically air tight from top to bottom. Windows should not be relied upon for supplying the necessary fresh air. A good deal will come in, sometimes enough, through the minute openings around doors and windows, and elsewhere, but there should be some intake flues, built as shown on page 773.

A Nebraska Ration.

Please compound a ration for me from the following feeds for thirty head of cows; about half of them fresh this fall: Bran, $14 a ton; shorts, $16; corn chop, $18. I have about 25 tons of sorghum hay, 15 tons of good millet hay and plenty of good prairie hay, the latter worth $6 per ton.
Valentine, Neb. M. D. C.

It would be very unwise to feed all cows the same amounts of hay and grain, even if they were all fresh this fall, because some of them will yield much more milk and better milk than others. In the very nature of things these differences in yield will be much greater where only a part of them have recently freshened. A cow should be fed in proportion to her ability at the time to respond to feed. Feed is the raw material out of which the cow manufactures milk. The greater the yield of milk the more feed will be required. For the fresh cows an average daily allowance would be about 5 lbs. each sorghum and millet hay, 10 lbs. prairie hay and 8 lbs. bran. If the feed called shorts is true to name and not mostly reground bran, we should deem it advisable to substitute 4 lbs. of this for 4 lbs. of bran.

Ayrshires at the St. Louis Fair.

Chief Coburn of the Live Stock Department of the World's Fair has advices from leading Ayrshire breeders of an intention to enter that breed in the World's Fair cow demonstration. The Ayrshire men at the Illinois State Fair held a meeting and passed resolutions requesting the Ayrshire Breeders' Association to take early action toward inviting breeders to furnish cows for the demonstration. The resolutions were signed by W. P. Schenck, Avon, N. Y., as president, and G. H. Converse, Woodville, N. Y., secretary of the meeting, and the following committee: Howard Cook, Beloit, Ohio; McCormick & Edgely, Pataskala, Ohio; and Secretary, C. M. Winslow, of the Ayrshire Breeders' Association. The breeders present pledged their services and cattle toward making Ayrshire participation a success at St. Louis.

The Ayrshire Breeders' Association has already made an appropriation of $2,000 in aid of the World's Fair Ayrshire exhibit.

Dairy Questions Answered by Prof. Farrington.

DETECTING WATERED MILK.

In receiving milk here I am often bothered with the addition of skim milk in small quantities, but not enough to bring the test down below a reasonable limit. For instance, I catch a man's test 3 9; lactometer, 1.031; and again at 3.9; lactometer reading 1,034, Of course figuring 3.9 against 3.6, I can judge reasonably the amount of skim milk added, but what I want is a simple formula showing by means of the lactometer, the probable amount of skim milk added when the reading is normal, and the amount of water added when the lactometer reading is not normal; that is, I want to get this information without stopping to make a Babcock test. F. J. C.
Tacoma, Wash.

I do not think it is possible for you to accurately judge regarding the amount of water which may have been added to milk without making a Babcock test of the milk. The use of the lactometer is a very simple and easy matter, as all that is necessary for you to do is to place this instrument in a small cylinder of milk, and read the point to which it sinks in the milk. This simple test, however, will not give you accurate information in regard to the skimming or watering of milk. It will always be necessary for you to make this lactometer reading, and a Babcock test in connection with it.

When you have the results obtained with both these instruments you can calculate the amount of solids-not-fat in each sample. From your knowledge then of the solids-not-fat and the Babcock test which shows the fat, you will be able to determine whether or not each sample is above or below the standard for these ingredients in your locality.

In some places all milk which tests less than 3.0 per cent fat is called "illegal" milk. In certain states and cities the standard of milk varies from 8.0 to 9.5 per cent solids-not-fat and from 3.0 to 3.7 per cent fat.

The skimming or the watering of milk to bring it below the legal standard, may be detected by determining the per cent of fat and the lactometer reading of a sample, and then by comparing these results with the local regulations regarding the standard of pure milk in your city. It is always well when you have a suspicion of a sample of milk to compare the test of it with other tests made of a "control' sample; that is, go to the farm where the milk is produced and see the sample taken from the herd, then compare tests of this "control" sample with those you have made from the same milk at other places.

This subject of milk adulteration and the method of determining to what extent the sample has been either skimmed or watered, is discussed in detail in the book, "Testing Milk and Its Products," which may be had by sending $1.00 to this paper.

TESTS WHICH GAVE NO FAT.

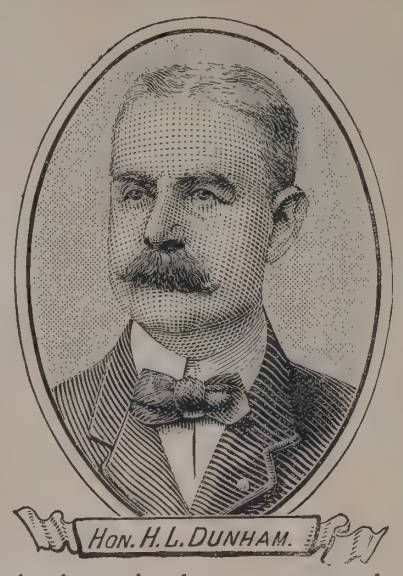
"I am doing the testing of milk in our cheese factory for the patrons and the last time I tested I had two bottles on which there did not come any butter fat in the neck of the bottles. In one bottle there was some kind of a gray scum on the top and on the other a kind of black sliminess, The milk was all treated alike as to the acid and other manipulations of the test. We repeated the tests from the two farmers a second time, treating the milk the same way as before except that we did not warm it before taking the samples. The butter fat in this case separated nice and clear. I would like to know why we did not get a test the first time. The only difference I noticed between the tests was that the first time we added the acid the milk turned black at once, and I think this was because the milk was sour. Can you explain this difference in testing to me?" C. E.
Forest Junction Wis.

I have never before heard of tests of normal milk which did not give any butter fat in the neck of the bottles when the test was properly made. The grayish scum you mention noticing on the top of the liquid in the bottle may have been due to a dirty test bottle or dirty water which you used in filling the test bottle. It certainly could not come from the milk.

The black, slimy deposit which was noticed in the other test bottle, suggests that you may have used too much or too strong an acid in making the test. When too much or too strong acid is used, or the acid or milk is very warm, the action of the acid on the butter fat is so strong that the fat is somewhat burnt. I presume you may have noticed the black spot which strong acid will make when some of it drops on a piece of soft wood, or when a match is placed in the acid, the wood turns black. This same action of the acid on the fat in milk will take place if the acid is either too strong or too warm.

Another thing that sometimes interferes with the proper separation of the fat from the acid mixture is the imperfect mixing of the milk and acid in the test bottles. The acid ought to be added to the milk in such a way that it follows the inside walls of the bottle to the bottom and makes a clean line of separation between the acid and the milk. When the acid is carefully added in this way the bottle may be allowed to stand sometime before mixing the milk and acid, but if through any accident in pouring the acid into the milk it passes through the milk and leaves black colored streaks through the milk or between it and the acid, a clear separation of the fat can only be obtained by shaking the bottle and doing the mixing at once. This mixing of the milk and acid is a very important point to be attended to in milk testing, and if the test bottles are allowed to stand after only partially mixing the milk and acid, the test when completed will show a burnt fat in the neck of the test bottle. This is caused by the strong action of the acid on only a part of the milk before it has been diluted with the entire quantity of milk which has been added to the test

NATURE'S GREATEST AID



An interesting letter to our readers from Hon. H. L. Dunham, Ex-Mayor of Dover, N. J.

Dover, N. J., Nov. 12th, 1902.

I had both kidney and liver trouble for over three years. I tried the best physicians in Washington, D. C., Pittsburg, Cincinnati, and Chicago, and regret to say that I received very little benefit until I commenced taking the great kidney, liver and bladder remedy, Dr. Kilmer's Swamp-Root. After taking the first bottle I noticed quite a change which satisfied me that at last I had found the right medicine. I continued on until I had taken four bottles, by this time I noticed such a marked improvement in my health, in every way, that I felt satisfied I was cured. But, to be positive beyond a question or doubt, I was in Chicago during July, 1902, and went to the Columbus Medical Laboratory, No 103 State St., and had them make a thorough and complete microscopical examination which showed my kidneys and liver to be perfectly well and healthy. I have their written report in my possession, signed by the doctors of the above Medical Laboratory, which is recognized as one of the best in the country.

Very truly yours,
H. L. Dunham
Ex-Mayor of Dover, N. J.

The mild and prompt effect of Dr. Kilmer's Swamp-Root, the great kidney, liver and bladder remedy, is soon realized. It stands the highest for its wonderful cures of the most distressing cases. Recommended and taken by physicians, used in hospitals and endorsed by people of prominence everywhere. To prove what Swamp-Root will do for you a sample bottle will be sent absolutely free, by mail, also a book telling all about Swamp-Root and its wonderful cures. Address Dr. Kilmer & Co., Binghamton, N. Y., and be sure to mention reading this generous offer in the Fort Atkinson HOARD'S DAIRYMAN.

If you are already convinced that Swamp-Root is what you need, you can purchase the regular fifty-cent and one-dollar size bottles at the drug stores everywhere. Don't make any mistake, but remember the name, Swamp-Root, Dr. Kilmer's Swamp-Root, and the address, Binghamton, N. Y., on every bottle.

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is of importance to swine growers. A practical, clean, common-sense swine paper for farmers can be had from now to January, 1905, by sending 10 Cents in Silver at once to
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AN INSTANT'S PAIN and the dehorning job is smoothly done, no crushing or bruising if the
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bottle. By using a little care in adding the acid to the test bottle and by mixing the milk and acid thoroughly at one time, you will have no difficulty in getting a clear separation of the fat, provided the acid is of normal strength, and either the milk or the acid are not above 70 degrees F. when the mixing is done.

The sourness of the milk had probably nothing to do with the blackness of the fat which separated, unless it caused a partial mixture of the milk and acid when you added the acid to the milk in the test bottle.

LONG CHURNINGS.

"By request of one of my neighbors, a well-to do farmer, I am asking the following question: What is the cause of his having to churn from two to three hours before obtaining butter?"
Horns Corners, Wis. H. S. S.

The normal time of churning recommended by good authorities is about three-fourths of an hour. If the butter does not come after two or three hours churning the cause of the delay is usually one or both of two things: First the temperature of the cream is too cold and the room in which the churning is done is also so cold that the cream does not warm up to a churning temperature. Second, cream that is obtained from the milk of cows late in the period of lactation, or stripper cows, is also extremely viscous that it is very hard to churn it, and even warming the cream to a churning temperature, or the adding of hot water, or brine, will not cause such cream to churn.

The temperature at which a long churning occurs, is usually in the neighborhood of 50° F. A thin cream containing 15 to 20 per cent fat will churn indefinitely without making butter, if its temperature is held down to 50° or lower. It is only possible to churn cream at this low temperature when it contains at least 35 per cent fat. In such cases the churning may be done in a very satisfactory way and the texture and body of the butter obtained are excellent. Ordinary farm cream, however, is not often so rich as this, but it usually contains somewhere near 20 per cent fat, and in order to get good results in churning such cream, it is best to have the temperature of the cream near 60°F. and do the churning in a room where the temperature will not vary much from this point.

The best way to overcome the second difficulty mentioned, is to mix the cream from fresh cows with that of cows which have been in milk a long time. When this is done and a rich cream is skimmed from the milk, the difficulty of long churning may be readily overcome.

The two things to be kept in mind, therefore, are, first, to do the churning at a temperature appropriate to the richness of the cream. That is to say, if it tests near 20 per cent fat do not attempt to churn below 60°; if it tests 35 or more per cent, churn at a temperature near 50°.

Second, try to arrange the herd whose cream is being churned so that a majority of the cows will not be late in their lactation period at one time. If fresh cows are continually coming into the herd, and ensilage or some green feed is given them during the winter, I think you will have no difficulty in churning your cream in a reasonable time.

AN ESTIMATE OF BUTTER MAKING SUPPLIES.

"Will you please answer the following questions:
What is the average amount of salt required per hundred pounds of butter and the cost of same?
What is the average amount of butter color per hundred pounds butter and its cost?
What is the cost of different sizes of butter tubs and what size is mostly used?
What advantage is gained in packing butter in one pound prints?
Do some creameries receive more than the Elgin price for their butter? If so, how can I work up such a rade? I have been told that some factories get as much as eight and ten cents above Elgin for their product. Is this true. E. G. K.
Mt. Morris, Wis.

The amount of salt ordinarily recommended to use in butter is one ounce to the pound and for 100 pounds of butter you would, therefore, need to use 100 ounces of salt. The amount of salt left in butter, however, will vary with the dryness of the granular butter when the salt is added and the amount of working which the butter afterwards receives. If the granules are very moist a great deal of the salt will be washed away during the working, and of course the longer the butter is worked the more brine there is squeezed out of it and the fresher the butter becomes, so that the saltiness of the final product is largely influenced by the way in which the butter is made. You can, however, guage the amount to be added by the trade which you supply. Some customers like butter very salt, and others want it very fresh. If you sell on a general market, one ounce to the pound is a good rule to follow until you find out that your customers wish some change to be made in this quality of the butter.

Butter salt costs all the way from three-fourths of a cent to one cent per pound. Assuming that the average cost is 8-10 cents per pound, the cost of the salt for 100 pounds of butter will be near 50 cents.

The amount of color to be used in butter will necessarily vary during the different seasons of the year and somewhat according to the dry feed which cows receive in winter, as well as the natural characteristic of the cows to color their butter fat. As a rule, June butter is naturally more highly colored than that made in the winter, but on the other hand, clover hay when fed in the winter time has a tendency to increase the yellow color of the butter made from the milk of cows which are fed large quantities of clover hay. Again, it is a natural characteristic of the Guernsey cows to produce a more highly colored butter fat than that of the majority of cows of other breeds. You will see, therefore, that a standard rule for color cannot be given and followed during the entire year, because natural conditions vary the color of the butter fat in milk, and on the other hand the demand of the different markets is not uniform in regard to color. Generally, butter which is sold in the south should be more highly colored than that which goes to eastern and northern markets.

A simple calculation, however, will give you some idea of the cost of color per hundred pounds of fat. The average amount of color used is about one ounce of color to 150 pounds of butter. We can now buy five gallons of butter color for $8.50. This is $1.70 per gallon or 1⅓ cents per ounce. Hence you can calculate that the amount of color used per hundred pounds of fat will cost about one cent.

Butter is usually sold in sixty pound, five-hoop, ash tubs. These are now very high priced and at the present time you will probably have to pay about 28 cents per tub. This you will see is nearly one-half cent per pound of butter. These sixty pound tubs in the past cost from 18 to 22 cents. The unusually high price just now is caused by the scarcity of the wood used in making these tubs.

The popularity of butter in one pound prints seems to be steadily growing in the west. Print butter has been very common in the eastern markets for a good many years, in Philadelphia especially print butter has been in lively demand. I think you can sell as many pounds of butter by moulding it into one pound prints soon after it is made, as you can by packing the same butter into sixty pound tubs. There is always more or less shrinkage in the weight of tub butter because of the brine which will necessarily leak out of it between the time the butter is packed and sold. This loss in weight is entirely evaded if the butter is printed and each print wrapped in parchment paper. The printing of butter, of course, requires more labor, not only in cutting it up but in wrapping each print with the parchment wrapper, than packing in tubs. I think, however, that manufacturers and dealers in butter are coming to believe that the making of butter into one pound prints is more economical than packing it into sixty pound tubs.

These one pound prints are usually packed in boxes of various sizes holding from 10 to 50 or more pounds each. If wood is cheap in your neighborhood, you probably can manufacture these boxes, but it will be necessary that you use a wood which will not transfer its flavor to the butter during shipment. It is impossssble for me to give you any figures on this point. You will have to get them yourself from the local conditions and the price at which you can have supplies delivered to you at the town where the creamery is located.

I think it is a fact that some creameries receive more than the Elgin market price for their butter. This, however, is the exception, but if the factory will continually make butter that scores over 95 points and the product is uniform in quality and quantity, I think you will have no difficulty in getting a slight advance over the Elgin price for your butter. I have never heard of anyone receiving so much as eight to ten cents above the Elgin market price for creamery butter where it is made from the milk delivered by a number of different farmers, as is usually the case in our western creameries.

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It is self operating—it turns curves and switches—dumps its load in yard or wagon. Besides carrying manure you can use it to convey ensilage, feed, grain, potatoes, cans of milk, from one point to another. It works so simple and easy that any man or boy can run it.



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D. B. CHERRY & CO.,
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Every can sold on a guarantee.

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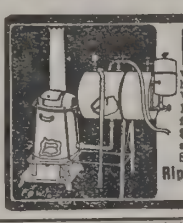
$10.30 BUYS This 55 Gallon **Food Cooker,**



complete with cover, elbow, pipe and damper. Kettle is polished and smooth. Jacket made of heavy steel. Burns any kind of fuel. Flues distribute heat all over. Boils 50 gallons in 20 minutes. Cooks anything. Handy for butchering and a hundred other things on the farm.

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will cook 25 bushels of feed in 2 hours; heat water in stock tank 250 feet away. Will heat dairy, hog and poultry houses. Made of boiler steel; can't blow up; no flues to rust or leak. PRICES $5 00 TO $45.00; 5 styles and 15 sizes. Sold under a guarantee. Endorsed by Experiment Stations. *Catalogue and prices free.*
Rippley Hdw. Co., Box 20 Grafton, Ill.



The Distribution of Skim Milk.

It is known that the just complaints of creamery patrons on account of unfair distribution of skim milk are the bane of the separator creamery business. Further disputes among patrons, annoyances to managers, hindrances to the best work of buttermakers, watering the skim milk, and many other ills in the same train are unnecessary, since the

Barber-Coleman Check Pump

has for more than five years been successfully solving the problem in many different creameries. When a patron has dropped in his check he can pump the amount of skim milk called for by his check, less the percentage taken out as cream, so in like proportion to all other checks. Its measuring apparatus is just an ordinary pump which everyone understands and knows how to operate.

Cornish, Curtis & Greene Mfg. Co.,
General Sales Agents De Laval Alpha Separators,
FORT ATKINSON, WIS.

Market Reports Indicted.

A circular recently issued by the Minnesota Dairy and Food Commissioner contains the following paragraph:

"Many of our best creameries are receiving from one to one and a half cent premium for their butter, while others receive the usual half cent above. The latter are unable to secure this high premium because of the fact that their butter is of defective quality. This additional premium of one-half to one cent for the average creamery means an additional income of from $500 to $1,000 a year, a sum sufficient in many cases to pay the buttermaker's salary."

Commissioner McConnell very properly uses these facts as a text from which to appeal to the dairy farmers of Minnesota to take more pains to deliver milk and cream which shall be free from taints and all objectionable odors, because it is only from such milk and cream that even the best buttermakers can make butter of a quality commanding the largest premiums. In other words, it is only by intelligent and friendly co-operation between good buttermakers and good patrons that the best results can be obtained, and, it goes without saying, only the best returns should be satisfactory to either buttermakers or patrons

And it should not be forgotten, by either patrons or buttermakers, that "a chain is no stronger than its weakest link." As a careless buttermaker or his helper may neutralize the best efforts of his patrons, and make inferior butter from perfect milk and cream, by letting a vat or churn, or connecting pipe, pumps gate or valve become foul and tainted, so a single careless or indifferent patron, by delivering milk in bad condition, no matter from what cause, may set at naught all the care and efforts of other patrons to work together for the common good, to wit, the highest obtainable price for the combined product of their respective herds.

It follows that there should be a combined, co-operative and inflexible determination on the part of buttermakers and patrons, peremptorily to reject every offering of milk or cream, no matter by whom made, that will tend in any degree to lower the quality of the resulting butter.

It also follows, and this is the point we want to emphasize at this time, that markets and market reports need to be reformed. The air is full of "graft" and "rumors of graft," by officials of every degree, in national, state and municipal governments, and the facts stated by Commissioner McConnell, unmistakably indicate that the buyers and sellers of butter, in the price making markets of the country, are busily engaged in methods which make "graft" easily possible and therefore probable. If there are any Minnesota or Wisconsin creameries whose butter sells any week for, say, 22 cents, when the great bulk sells at 21 cents, or less, then in common honesty, such sales should be recorded and reported. If some dairy butter sells for more than the best creamery, as it in fact does, in every market, that fact, instead of being carefully suppressed, should be given the widest publicity as an incentive to other private dairymen. If the common run of Minnesota creamery butter sells for a half cent above current quotations, as Commissioner McConnell says is usual, what is it but a falsehood, to report the market price a half cent below what this Minnesota butter sells for? Do not such reports lay a foundation for graft?

Where to Buy Land.

ED. HOARD'S DAIRYMAN:—You have had no closer reader of HOARD'S DAIRYMAN for at least six years, than myself, and I can not understand how a man can have a sincere desire to succeed with his cows and with the general work on a dairy farm and not be a reader of the DAIRYMAN. When I went to work as a dairy hand six years ago, my employer said that the best thing I could do would be to subscribe for HOARD'S DAIRYMAN, and ever since, I have felt thankful to him for his advice. I have asked you for your opinion on matters of interest to me several times, and you have been so good and frank that I begin to look upon you as my main guide.

I am going to buy a farm and have about five hundred dollars saved up. I can not buy a farm here, such as I want, without more accomodation than anyone can safely allow, looking at the proposition from the other side, and I really incline towards some of the cheap lands that are advertised in the DAIRYMAN. I have to-day written to all of them as to what they can offer, but I want your opinion. Will you let me have it?

N. Y. J. E. CORLIB.

We are receiving many inquiries similar to the above, and our best judgment is that, with shrewd and wise selection, there is the best of opportunities in the Northern Wisconsin and Minnesota lands for bright, progressive young farmers of limited means. The pioneer life of to-day is not what it was fifty years ago—then it meant hardship and sacrifice that only courageous and, in some cases, the indifferent could accept but to-day in Northern Wisconsin and Minnesota, are lands as good as the sun ever shone upon, that can be bought at extremely low figures, and in sections where it is settling up rapidly and with the advantages of railroads and excellent markets near by, with school houses and creameries within reach, and our best advice to you and others similarly situated and similarly inclined, is to read these advertisements in the DAIRYMAN and write to the advertisers. Opportunities are offered those limited in means, that, if they are capable of intelligent and progressive work, will in a very short time land them the owners of as fine a farm and home, and under as favorable conditions, as they could ask for.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The official market was reported firm at 21 cents. There was a decrease of 12% in the weekly output for the district.

Offerings.	*Tubs.*	*Price.*	*Sold.*
Solon Mills	35	21	Holmes
Shirland	22	21	"
Dundee	50	21	"
Creston	35	21	"

Former markets:

Oct. 12, '03, 100 tubs, 20⅛ cents.
Oct 20, '02, 90 tubs, 24½ cents.
Oct. 21, '01, 50 tubs, 22 cents.
Oct. 22, '00, no sales, 22 cents.
Oct. 23, '99, 58 tubs, 23½ oents.

Oct. 19, '03. H. C. B.

DAIRY MARKETS.

ELGIN, Ill., Oct. 19—At the close of the meeting of the board of trade today the official price of butter was fixed at 22c, an advance of ½c over last week. The sales before the meeting amounted to 142 tubs and the price was at the new figure. The output for the district during the last week was 676,000 lbs.

CHICAGO, Ill., Oct. 16—Butter—Steady; creameries, 15½@20½c; dairies, 14@18c.

Cheese—Easier; Daisies, 11¼@11½c; Twins 10¾@11c; Young Americas, 11¼@11½c.

Eggs—Firm at mark, cases included, 18@19½c.

Cattle—Choice to fancy beeves, 1,200 to 1,500 lbs., 5.35@5.65; good to choice steers, 4.80@5.25; fair to good export and shipping steers, 4.30@4.75; medium beef steers, 4.00@4.25; plain beef steers 3.75@3.95; common to rough, 1,000 to 1,200 lbs., 3.40@3.70; good to fat heifers, 3.75@4.40; good to choice feeders, 3.40@4.20; good to plain stockers and feeders, 2.15@3.30; fair to good cows and heifers, 3.00@3.85; good cutting and fair beef cows, 2.10@2.50; common to good canning cows, 1.30@2.00; bulls, poor to choice, 2.40@4.25; calves, choice to fancy, 6.00@7.50; calves, common to fair, 3.00@5.75: corn-fed western steers, 4.00@5.30; Texas bulls and grass steers, 2.90@3.85; western steers, fair to choice 3.50@4.40; western range steers, 3.10@4.50.

Hogs—Good to choice heavy shipping, 5.50@5.70; fair to choice heavy packing, 5.15@5.45; rough and common heavy mixed, 4.80@5.10; assorted light, 150 to 195 lbs., 5.55@5.80; good to choice butcher weights, 5.50@5.70; poor to choice light mixed, 5.20@5.55; thin to choice, 50 to 130 lb pigs 4.25@5.40; stags and rough lots, 2.75@4.75.

MILWAUKEE, Wis., Oct. 19.—Butter—Creamery--extras, 20½c; firsts, 18@19c; seconds, 16@17c; whey, 12c; Dairy, fancy, 18c; lines, fresh, 15@16c; packing, stock 13½@14c; grease, 5@6c.

Cheese—American, full cream new Twins, 11@11½c; Young Americas, 12@12½c: Daisies, 12@12½c; Longhorns, 12@12½c; low grades, 8@10c; Brick, new fancy, 8½@9c; low grades, 6@7c; Limburger, new fancy, 8½@9c; off goods, 5@7c; Swiss, old, drum, choice, 12@12¼c; No. 2, 10@11c; Block, choice, 11@11½c; No. 2 9@10c.

Eggs—Strictly fresh laid, loss off, cases returned, 20c; at mark 18½@19c; storage, April No. 1, 19@19½c; dirties and seconds 17c; checks, 15c.

MANITOWOC, Wis., Oct. 14—Cheese—Sales 87 Twins at 10c; 1,175 Young Americas, at 10½c; 1,771 boxes Daisies, 10½c.

SHEBOYGAN, Wis., Oct. 14 — Cheese—On the call Board here to-day 2,197 boxes of cheese were offered and sold as follows: 362 Daisies at 11¼c; 752 at 11⅜c; 546 cases Young Americas at 11⅜c; 390 at 11c, 623 Longhorns at 11c. Though



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"Stevens-Maynard, Jr."	$3
"Crack Shot"	$4
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of 128 pages, which tells about the "Stevens"—gives pictures and prices. Contains interesting articles on Hunting, Canoeing, Target Shooting, etc.

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AN ANNOUNCEMENT:

The Creamery Machinery and Supply Business for many years conducted by A. H. Barber, Sr., will be resumed by his son, A. H. Barber, at the old quarters 229-231 So. Water St. It is the earnest intention to conduct a business which will be worthy of the patronage of the many warm friends of the old house.

Our stock will be complete and entirely made up of high grade specialties and supplies. The business will be plentifully backed by capital and by excellent connections with manufacturers. The new firm will, however, be independent of any other house. A visit from any of our old friends or any of the trade will be greatly appreciated. Mail or wire orders addressed to

A. H. BARBER, 229 SOUTH WATER STREET, CHICAGO

will receive prompt attention. Long Distance Telephone, Main, 1504.

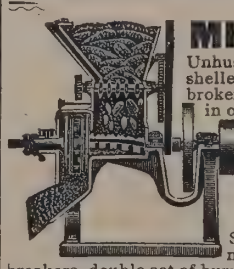
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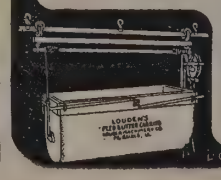
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NOW IS THE TIME TO SUBSCRIBE FOR HOARD'S DAIRYMAN.

prices have taken a slump generally, Daisies are ⅛@¼c higher here than elsewhere reported.

SHEBOYGAN FALLS, Wis., Oct. 14—Cheese—21 factories offered 1,857 boxes of cheese on the Call Board today; 45 Horns were withdrawn and the balance sold at 11 cents for all kinds sold as follows: 546 cases Young Americas, 429 Daisies and 875 cases Longhorns. The market was quiet and prices ¼@⅝c lower than a week ago today.

PLYMOUTH Wis., Oct. 13—Cheese—Twenty-nine factories offered 3,038 boxes of cheese of which 140 Daisies were passed on. The balance sold as follows: 611 Longhorns at 11c; 386 Daisies at 11c; 280 at 11⅛c; 293 Twins at 10½c; 58 at 10c; 258 Americas at 11c; 112 at 11⅛c. Market quiet.

FOND DU LAC, Wis., Oct. 19—Cheese—Sales on the dairy board today were 183 Twins at 10c; and 180 Daisies, at 10¾c. Lower bids made.

TOPEKA, Kan., Oct. 17 Butter—Creamery butter 21@22c; dairy butter 16½@17½c.
Cheese—Longhorns, 12c; Twins 11¾c; Daisies, 12c; Prints, 12¾c.

NEW ORLEANS, La., Oct. 19—Butter—Market quiet. Extras 21@21½c; ladles, 15c.

NEWARK, N. J., Oct. 19—Butter — Steady at 21½c.
Eggs—Extras, 25c; firsts, 24c.

BOSTON, Mass. Oct. 19—Butter — Western extra 21½@22c; western firsts, 19½@20½c dairy, 14½@20½c; imitation creamery, 16c; ladle, 14@15½c; box and print, 16@23c.
Cheese—Choice, 11@11¾c; Wisconsin Twins, 11@11¾c; Ohio, flat, 10½c.
Eggs—Nearby, 34c; western best marks 22@23c; good to choice, 20@21c; Illinois, 23@24½c; refrigerator, 19½@21½c.

PHILADELPHIA, Pa., Oct. 19—Butter firm and ½c@1c higher; extra western creamery, 21½c; near by prints, 23c.
Eggs—Firm; good demand; fresh near by, 24c at mark; western, 24c, loss off; southwestern, 22@23c; southern, 21@22c.
Cheese— Quiet, unchanged; New York full creams fancy, 12@12¼c; choice, 11¾c; fair to good, 11@11½c.

ST. LOUIS, Oct. 19-Butter—Steady; creamery 17@21½c; dairy, 14@18c.
Eggs—Higher, 21c, loss off.

KANSAS CITY, Oct. 19-Eggs firm; Missouri and Kansas, cases returned, 18½c; new No. 2 white wood cases included 19c.
Butter — Creamery, 18¼@19½c; dairy fancy, 17c.

LIVERPOOL, Oct. 19— Butter—Good United States nominal.
Cheese—Steady, American finest white, 53s 6d: colored, 54s 6d.

NEW YORK N. Y., Oct. 19—Butter—Receipts, 5,072 pkgs.; firm; extra creamery, 21½c; creamery, common to choice, 16@21c; state dairy, 15@20c.
Cheese—Receipts 2,854 pkgs.; market quiet; small white and colored, 11½c: large, white and colored, 11¼c.
Eggs—Receipts, 7,761 pkgs.; strong; State and Pennsylvania, fancy mixed, @26c; state and Pensylvania seconds 17@22c; western firsts, 24c; refrigerated, 18@21c.

UTICA, N Y., Oct 19—Cheese—Large, and small, 11c. Exporters active.

CANTON, N. Y., Oct. 19 —Cheese—Offered 2,110 boxes of Twin cheese, 1,076 tubs of butter. Cheese sold at 11½c; butter, 20¾c.

WATERTOWN, N. Y., Oct. 19—Cheese—Sales 5,500 at 11c for large and small.

BALTIMORE MARKET.

BALTIMORE, Md., Oct. 15. —Butter—When we made our report last week, onr market was rather quiet and about steady. On the next day there was a better feeling prevailing, and confidence was soon restored, and at the close of the week the windup was quite firm at ½ cent advance over previous quotations. So far this week with the receipts fully up to expectations, the trading has been quite good, particularly for consumptive purposes. The orders from out-of-town trade have been fairly good, especially for firsts and good seconds; and taking all things into consideration, the situation presents a healthy appearance. Choice imitations and ladles are in fair request at steady prices. Good to choice packing stock has also moved out fairly well, while rancid and cheesy stock is slighted. Blocks and prints continue in fairly liberal supply: choice to fancy lots meet with prompt sale. The market at the close to-day ruled firm at prices quoted, on all desirable offerings.
Creamery Separator, extras, 21½@22c; firsts 20-½@21c; seconds, 18@20c. Imitation Creamery, extras, 19c; firsts, 17@18c; seconds, 15@16c. Iowa & N. W. Ladle, extras, 16½c; firsts, 15½@16c; seconds, 14@15c; Ohio & Indiana Ladle, extras, 16½c; firsts, 15@16c; seconds, 14@15c. Creamery blocks (2 lbs.) extras, 23@23½c; firsts, 21½@22c; seconds, 20@21c. Creamery prints (⅓ lb.) extras, 24½c; firsts, 22½@23c; seconds 20@21c. Md. Va. & Pa. prints, extras, 22@23c; firsts, 20@21c; seconds, 17@19c.
Eggs—While the general receipts have been quite liberal, the supply of new laid eggs have been barely sufficient for the requirements, while so-called fresh are in full supply. The market on fresh receipts rules about steady, at 22c. Storage Eggs—The offerings just now are more than ample for the present needs; the market on them closes quiet, but steady.
301 Exchange Place. G. M. LAMB & BROS.

NEW YORK MARKET.

NEW YORK, Oct. 17—Butter—Receipts for the week, 39,042 packages.
Exports for the week, 2,268 packages.
Receipts show quite an increase over the corresponding week one year ago, and are very liberal for the season; yet the proportion of extra creamery is so small that some buyers had trouble in getting their weekly supply and the pick of fancy, fresh creameries sold at a premium of ¼ to ½c over our highest quotation.
Firsts were in good demand and sold up clean at, say, 20 to 21c; poor, off flavored, streaked and over colored creameries are hard to sell at over packing stock prices. There was a very fair quantity of August and September creameries taken out of freezers and distributed among retailers at about same prices charged for fresh goods, and everything considered, trade has been good, strong and healthful for all table butters and prices close firm.
New York State dairy is in light receipt and wanted. Ladle goods were inquired for by both export and home traders and desirable lots were hard to find. Renovated is only salable at low prices. We quote:
Creamery, extra, 21c; medium, 20@20¾c; poor, 5@18c. Dairy, extra, 20c; medium, 17@19c; poor, 14@16c.
Cheese—Receipts for the week, 27,548 boxes. Exports, 2,502 boxes.
The market has gone from bad to worse and prices are fully ½c lower on full creams and 1c to 2c per pound off on skims of all grades. At the close there don't seem to be demand for the latter at any price. We quote:
Full Cream, extra, 11½c; medium, 11@11¼c; poor, 10@10½c.
Eggs—Receipts for the week, 41,404 cases.
The demand continues good for new laid eggs and best marks of storage goods are wanted at advanced prices. We quote:
New York & Penn., new laid, per doz, 26@28c, Northern & Western, new laid, 25@26c; all sections, poor to good, 18@24c. Refrigerator stock, poor to fancy, 19@22c. DAVID W. LEWIS & Co
177 Chambers St

CALIFORNIA DAIRY MARKETS,

SAN FRANCISCO, Oct. 17—Prices for Butter showed no further depreciations yesterday, but the market still presented an easy undertone, with heavy holders still urging sales by accepting shaded rates. Despite the general easiness of the market trading was cautious and buyers limited their operations to small parcels for immediate requirements While the top quotation was still obtained for the favored brands of Creamery it was only in a small way, the bulk of the day's transactions being closed around 28c, which figure was generally regarded as conservative. The movement in storage goods was still of good volume, operators still finding the handling of this stock most profitable. The situation in the market for ranch eggs was without material change, offerings continuing very light and holders being able to secure any reasonable price they had a mind to ask. While quotations show an advance of a point some holders of selects demanded from ½c to 1½c in advance of the top quotation and secured it without difficulty. There was a lively trade in storage eggs and the market was firm at quotations, with a strong upward tendency apparent. Cheese was in good demand and fancy mild new was reported firm at full figures.
Receipts yesterday aggregated 20,500 pounds butter, 665 cases eggs and 5400 pounds cheese.
Butter—per lb.—Creamery, extras, 28@29c; creamery, good to fancy, 25@27c; dairy extras, 24@25c; dairy choice, 22@23c; store, 18@20c: California storage, 24@27c; Eastern creamery, 23@25c.
Eggs—Per doz—Ranch, selected, large, 46@47c; Ranch, good to choice, 41@45c; store, nominal; California storage, 27@30c; Eastern, 23@28c.
Cheese—Per lb—California creamery, mild new, extra, 14@15c; California creamery, mild new, choice, 13½@14c; Young America, 14@15½c; Eastern, New York cream, Cheddars and flats, new, 14½@16c.

NEW YORK FERTILIZER MARKET.

Acid phosphate		60 @	67½
Phosphate rock, f. o. b. Char'n		5 00 @	7 00
Tenn		3 00 @	4 00
Bones, rough	₱ ton	17 00 @	18 00
ground		21 50 @	22 00
Bone meal		22 00 @	24 00
Bone black, refuse		19 00 @	19 50
Potash, dbl. m're salt 48@53 per cent		1 12 @	1 15
dbl. m'ure salt, 48@53 per cent less than 25 tons		25 00 @	30 00
sulph of basis, 90@98 per cent		2 11 @	2 18
90@98 per cent less than 25 tons		38 00 @	40 00
Potash muriate ₱ 100 lbs		1 83 @	1 95
less than 25 tons		36 00 @	40 00
Kainit 25% S. of P	₱ ton	9 30 @	9 50
less than 25 tons		9 50 @	10 50
Sylvinit, 35@37% P	₱ unit	41 @	46
Nitrate of soda		2 25 @	2 30
Blood, Dried red	₱ unit	2 55 @	2 60
low grade		— @	—
Concentrated tankage		15 00 @	16 00
Fish guano, dried		25 00 @	25 25
acidulated		23 00 @	23 50

READING NOTICES.

All Reading Notices under this head are at the ate of 25 cents per line.

Wanted—Good milker and butter maker. Man capable of taking entire charge of small herd of thoroughbred Jerseys. Must have had experience in raising calves. Steady employment at good wages for competent man. M. E. REEDER, R. F. D. No. 2, Muncy, Pa. 37-2

For Sale—3 Scotch Collie puppies 7 months old; old male sable and some white; sire and dam registered. Also 4 Holstein bull calves 3 to 8 months old; sire, Sir Dairy B. M. DeKol, and out of choice cows. HENRY WALSH, Sheboygan Falls, Wis. 37-4

For Sale—A 2-year-old registered Jersey bull and a registered Jersey cow soon to drop her 4th calf. These are fine animals. Address JAMES M. ROGERS, Elsberry, Mo. 37-2

Wanted—Position by capable butter maker of 15 years experience in creamery in R. R. town. married. Use no liquor or tobacco. Address COMPETENT, care Hoard's Dairyman. 37-3

For Sale—1 fine Guernsey bull 6 mos. old, finely bred. H. C. COOK, Rosston, Pa.

For Sale—One Acme De Laval belt separator good as new. Reason for selling, want steam machine. B. B. PERKINS, Carson, Ia.

Wanted—A partner in a bottled milk business in some American city in the East or Middle-West. Could supply a lot of modern, up-to-date machinery necessary, or would sell machinery. Correspondence invited. References exchanged. Write quick. Address C. H. McNISH, Lyn, Ont., Can.

Wanted—Position on dairy or stock farm as herdsman or foreman by an up-to-date capable man of 15 years experience. Graduate of Wis Agr. College. For further particulars address ABE SAUERS, Mt. Vernon, Ohio.

Situation Wanted—On a first-class dairy by a married man 30 years of age. Small family. Good milker and all round experienced man. Wages $35.00 per month, house, milk, garden, etc., furnished. Can come at once. Address DAIRYMAN, 800 So. East 8th, Des Moines, Ia.

Wanted—At once, a man and wife experienced in dairy work. Wages $35 00 per month and new three room dwelling. In writing state age, nationality, and give references. Address WM. J. HOFSOMMER, Breese, Ill.

For Sale—Finely bred St. Bernard puppies $10 00 and $15 00. Address O. N. JOHNSON, Fond du Lac, Wis.

For Sale—In California a well established milk route, 10½ acre dairy ranch and 33 head well bred dairy stock. Thrifty, healthful and beautifully located settlement in South California. Address P. O. BOX 1, Escondido, Calif.

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There is no enduring profit or benefit to anyone in either the use or sale of second and third class cream separators—whether factory or farm.

Nearly all the large promoters of the sale of farm separators are handling the DE LAVAL machines and doing so with profit and satisfaction to all concerned.

Some few who have first tried cheaper, large discount machines are changing over now and will be in the DE LAVAL line in future.

Some few who have not are beginning to reap the troubles they have sown and the most conspicuous one is now in financial distress.

The moral of all of which is that it is a good time now to get in the DE LAVAL procession for 1904, as there surely won't be enough DE LAVAL machines to go round a few months later on.

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Guernsey Bulls for Sale—I have a few young Guernsey Bulls for sale at Moderate price, ranging from six months to one year old. These animals are from highly bred sires and mothers of good size and well reared. Good bargains here. W. D. HOARD, Fort Atkinson, Wis. 30-tf

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D., Independence Iowa. 50-tf

For Sale—Young bull fit for service, sired by Recorder 29339 and tested dam 16 lbs. 2 oz. Sold at a sacrifice. JOS. KARELS, Big Stone, S. D., R. 1 30-tf

The Third Revised Edition of Buff Jersey's Popular Book Just Out of Press—Ten chapters, 25 illustrations and right up-to-date. Subjects treated are: Silos and Ensilage, All Phases of the Dairy Subject, Soil Crops, Up-to-date Farm Machinery, How to Cure Abortion and Milk Fever, Seme Medicines and Remedies, The Steam Plant, its care, and many other valuable things ably treated. Send for circular. Sent post paid, cloth binding $1.00, paper 75c. BUFF JERSEY, Monmouth Ill. 47 tf

Holstein-Friesians — Registered cows and heifers, singly or by carload. Also bulls 1 month old to service age. Richest blood of the breed. KNAPP & PIERCE, East Claridon, Ohio. 33-5

For Sale—One carload of Jersey cows. Thoroughbreds and grades; also a few Holsteins. For particulars and specifications address BYRON PARSONS, Havana, N. D. 35-4

Wanted—An experienced farmer and dairyman, married, with two large boys, to farm and milk and care for 40 cows. Stable has cement floor and water in every stall; stalls are Bidwell. Milking hours 4:30 a m. and 2 p. m. Wages $800 per year with house rent and garden. State your experience and give references. Give ages of members of your family. J. P. WATTS, Kerrmoor, Pa. 36-2

For Sale—Five cheese factories, 20 acres land, saloon and store with stock, three houses in Appleton, Wis., two farms 60 and 80 acres. Address 775 Ida St., Appleton, Wis. 36-tf

For Sale—One fine registered 18 months Guernsey bull. Address EDWARD DIETZ, Hyde's P. O., Md. 36-3

For Sale—Choice pedigreed O. I. C. Pigs 12 weeks old at $8.00 each. S. J. HOWARD, R. F. D No. 1, Henderson, Ky. 36-3

For Sale—Holstein bull calves, one 3 weeks old and two 8 months old; average official 7 day 80% butter records of dams and sire's dam is as follows: 19.5 lbs., 18.5 lbs., and 20.7 lbs If you want a calf worth the money write quick to F. G. JOHNSTON & CO., Sta. B., Columbus, O., owners of the Business Herd of Holstein-Friesian Cattle. 36-2

For Sale—One choicely bred Guernsey bull by Stella P's Gold Bar, 8368, out of my best cow, 16 months old, warranted a sure stock getter. Also a few choice Berkshire sows and boars, April farrow, at reasonable prices. J. E. STORY, Successor to Nor. Wis. Live Stock Co., Stanley, Wis. 36-tf

Wanted—Situation on dairy farm by single man, good milker and dairy hand. 5 years experience. Address BOX 956, Port Huron, Mich.

Wanted—A position Jan. 1st, 1904, as buttermaker in a good creamery. Have had twelve years practical experience making butter, two years at present place. State wages in first letter addressing J. O. N., care of Hoard's Dairyman.

For Sale—30 h. p. boiler and 20 h. p. engine; 12 h. p. traction engine; several small engines; gasoline engines from 1½ to 50 h. p. BICKNELL HARDWARE CO., Janesville, Wis.

Wanted—A position as butter maker in creamery. Will make cheese if desired. References furnished. Address P. O. BOX 189, Fairfax, Vt.

For Sale—Seven fine Holstein cows from 2 to 6 years old, 2 heifers 6 and 11 months old, a grandson of Manor DeKol nearly 2 years old, also bull calves. S R. FUGGLE Delphi Falls, N. Y.

Jersey Cows and Bulls for sale cheap. D. D. JONES, Orwell. Pa.

I own the only American patent on Automatic Recording Scale for dairy use. Have model which works to perfection. Will cost very little to manufacture; is simple and durable. I will sell the patent or will sell part interest to some enterprising party who will push the sale. Correspondence invited. Circular free. C. I. HUNT, Patentee, Hunt, N. Y.

For Sale—Creamery plant doing fine business, with rooms for family; large barn; in beautiful village with high school and in best dairy district on Puget Sound. Price $2,400 cash. Address E. I. THOMPSON, Everson, Wash. 35-4

For Sale—480 acres, 200 level, 160 acres Gov' land can be added by using homestead right, making 640 acres in one piece. A well equipped dairy of 30 cows, with gas engine; 40 acres fine grove, plenty water in grove. Good buildings, very rich soil; called the finest outfit in the county. Will give possession any day and give ones own time to pay for last half if ten years; terms at 6 per cent. I mean business. $9600 is the price, you will say it is worth $14000. Address F. A. I. R., care of Hoard's Dairyman. 30-tf

Herdsman Wanted—Who understands care and handling of thoroughbred Holsteins as well as rearing of young stock. Single men only need apply. State wages and experience. Steady place for right party. Address A. J. DAUGHERITY, Streater, Ill. 34-tf

For Sale—In car-load lots, fresh milch cows, 8 Springers. E. M. BOURNE, Wiota, Iowa. 34-2

For Sale—A cheese factory in good dairy country. Doing good business. No opposition, (cheap.) Address S. O. U., care Hoard's Dairyman. 34-tf

For Sale—Two registered yearling Guernsey bulls. RAY BICKNELL, Ft. Atkinson, Wis. 32-tf

Excursion Tickets to St. Paul and Minneapolis and Return—Will be sold by the North-Western Line daily until Nov. 30, 1903. from Fort Atkinson at $14 00 for the round trip, limited to return until Dec. 15, 1903. Apply to agents Chicago & North-Western R'y. 35-8

Homeseekers' Excursions to the Northwest, West and Southwest, and Colonist Low Rates West—Via the North-Western Line. Excursion tickets at greatly reduced rates are on sale to the territory indicated above. Standard and Tourist Sleeping Cars, Free Reclining Chair Cars and "The Best of Everything." For dates of sale and full particulars apply to agents Chicago & North-Western Ry. 53-8p

Note and Comment.

Effect of Embalmed Milk—The Weather in Ohio—A New Silo—Apples and Cows—A New York Dairyman and the Dual-Purpose Cow—The Winter Stable—Feeding Grain.

ED. HOARD'S DAIRYMAN:—We had a little to say in a recent DAIRYMAN about the strange state of affairs existing in Lincoln, Neb., dairymen using formaldehyde in milk galore, and the Mayor defending them in court. Apropos to this, the Lincoln *Star*, in its last issue, reports that a milkman coming into the city was accidentally killed by the overturning of his wagon, and two cans of the milk spilled over him, and so well had the milk been "doctored" that the body was perfectly embalmed. The report seems an unusual one, but the coroner has heretofore borne a good reputation as to truth and scientific accuracy.

Both the weather man and the moon-sign scientists are puzzled over weather conditions in Ohio this season. For a territory 50 miles or so wide, on the south shore of Lake Erie, there has been an almost incessant fall of rain for months, interfering with all kinds of work and silo filling in particular, while just to the south, not 75 miles from the lake, the drouth is simply terrible, and for months not to exceed an inch of rain has fallen, and fall work is at a standstill, and fighting fires is the rule. It is pretty hard to predict weather along an east and west line where on one side it rains, and the other a dew is regarded as a blessing, and then have a wet and dry moon hung out the same night to confirm the beliefs of both parties. That's a dual-purpose moon, sure. In the "wet" section fall feed is an abundant factor, and the cool, cloudy, wet weather has so retarded the corn ripening that this 8th of October finds the corn in its best state for milch cows, and judging from my own dairy, the milk flow is abundant. Silo filling has been greatly delayed, and hundreds are yet to be filled, owing to the great rains. Corn fields are mire holes, and silo filling is anything but a joy and delight.

Some genius, name and residence unknown, has in a moment when not influenced by politics, conceived the plan of building a wooden hooped silo in three sections, splicing on a hoop and setting the joint in putty paint and then cleating on the outside with some hard wood 2×4's to hold the sections together, and then covering as usual, to protect the hoops and silo itself. It is something of a trick to build a wooden hooped silo to get the hoops plumb, and get it going all right, but by this plan the three sections are built on the ground, the only great skill being to have the top hoop of each section come up half its width above the end of the ceiling lumber, so to have a good splice. The two sections are "hoisted" into place with pully blocks, and then stayed. Wonder if that is not a pretty good way. What does Geo. Scott know about it? Would it be a good thing for "dairy straws?"

Quite a discussion is going on in an eastern paper about cows breaking into orchards and eating so many apples that they become drunk, and some of them will lie two or three days before they begin to "feel all right in the head again." The scientific man asserts that the ferment of what apples a cow will hold, will not develop alcohol enough to produce drunkeness, and that it must be something else that sets in that gives them this apparent maudlin stupor. Well, what is it then? Several years ago we had a cow break into the orchard and was for two days very similar in her actions, to that displayed by a "foreign nobleman," who lay on the grass on the other side of the railroad fence, who was drunk. Possibly he was not drunk, but his condition was attributable to too large hand-me-outs of apple pie, at contributing farm houses. Intoxicated, or a victim of distressed circumstances, a cow, gorged on apples, is greatly injured in her after milk flow, and the difference will fix the fence, before hand, four times over.

In regard to feeding apples, I am a little distrustful about there being any advantage in feeding cows apples, as a part ration. In my loose way of making experiments, I never saw that I was paid for the time in picking them up, let alone carting, though the Vermont Station finds a fair value in sweet pomace which is quite another thing from the apple before the juice is expressed for the making of family vinegar. Possibly some kinds and varieties are better than others. Which is the cheaper raised, 2,000 bushels of apples, or 2,000 bushels of silage, and which will make the most milk?

Herbert E. Cook, of Denmark, N. Y., is New York's most thorough and practical dairyman and his cow lore is beyond the books. Several years ago he had the dual-purpose idea well developed and later on the cross-bred cow, uniting two of the best dairy breeds. He found the first cross a fair cow, but not as good as either of the foundation stocks. Now for years he has been lining up with one breed, and is making a great dairy out of this straight and away method. In a recent letter to a journal I find these three sentences, which contain a mint of suggestion: "The cost of production today is tremendous. Milk must be produced with a cow machine especially adapted to the work in hand. Any community that goes "crazy" over the milk business with a combination cow, will sooner or later regret its "insanity." Some people do not find out in their lives what they are fitted for, so with the dairyman with dual-purpose cows. This (dual-purpose) matter is a grevious error. Now and then a phenomenal cow is produced, only often enough to prove the rule, that milk and beef are not found in perfection in breeds, or combinations, as a whole." The milking of beefy cows is dairying on the ragged edge. The eastern DAIRYMAN's is succeeding in competition with the west, only because he is not handicapped with a beefy cow. From the DAIRYMAN's standpoint is there anything the matter with the above "Cookies?"

Of course everyone has fixed up the cow stable for winter, whitewashed it, put in four more good sized windows to let in the sunshine, battened it all up snug and warm, put in a ground flue from the stable floor to take out the bad air, had the water trough fixed, and the tank set so that the cows will not have to be turned out stormy days, got some road dust and some plaster to sprinkle in the gutters and a nice lot of bedding ready, and—what? All fancy farming, and don't amount to a cent? Well we know it does and no argument needed.

We have a lot of poor dairy cows in the east and middle states that are so because they are cared for by a poor dairyman, and a man who is a great friend of timothy hay, cut after August 15th. True, some cows die without knowing "whether or no" they were intended to give milk or not; and hundreds of other poor yielding cows are poor because they never had an up-to-date barn, owner, or milk producing food to promote milk giving. Feeding a cow is not just giving her a fill of grass when fresh, but a generous feed every day in the year of something besides grass. What if they do get fleshy while resting? I have lost all fear of flesh injuring a cow before calving. I am aware that about all the ills and troubles that used to beset the dairy before we had the fancy frills on cow care have disappeared, and if one ever had a healthy dairy, I have one; and that with cows that are not out of the stable 50 hours altogether, from Dec. to April; cows that have some grain every day in the year, possibly not ground grain when well eared corn fodder is being fed to them the month before dropping their caves, but the other eleven months. Of course all the readers of HOARD'S DAIRYMAN need none of the above advice, but the fellow "who has dairyed it all his life" still has some queer notions about cow keeping.

JOHN GOULD.

Ohio.

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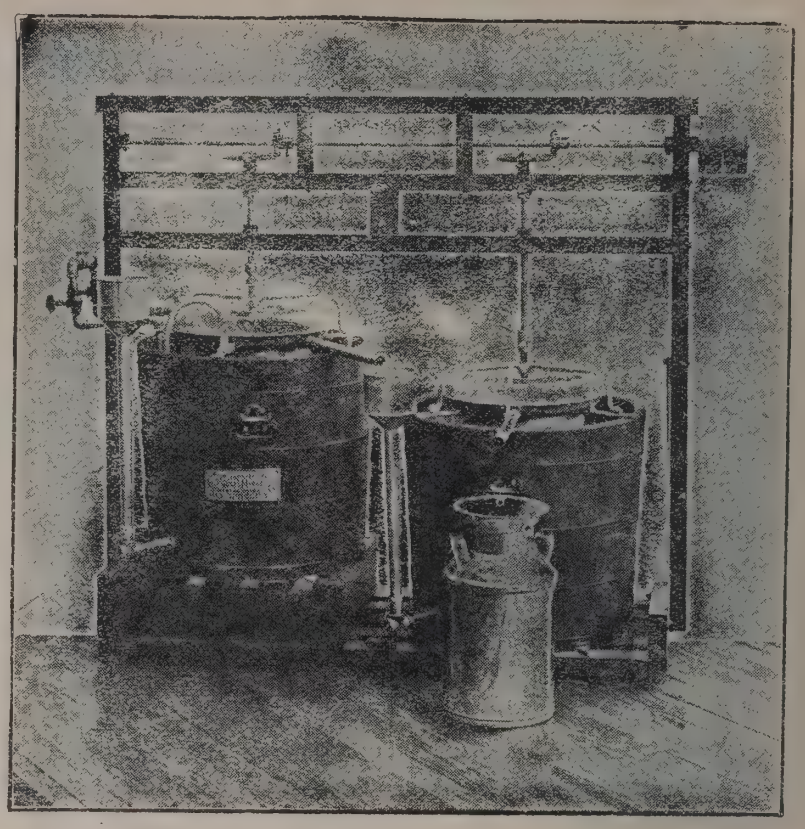
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produced over 10,000 pounds per annum was my family cow. Nearly all the time she had my personal care daily. A retired old farmer, who had cared for cows all his life, kept his horse in the same barn, and was familiar with my methods of caring for the cow. I had occasion to be gone from home a couple of weeks, and he kindly offered to care for her while I was away. On my return I found she had dropped off on her flow fully 20 per cent. The old gentleman said to me: "I have milked that cow and cared for her as nearly as I have seen you as I knew how, but for some reason I have not been able to get from her the quantity of milk I see you take from her day by day." As soon as I went into the barn, the cow showed her pleasure at my return. Within a week she had returned to her former normal flow. Pencil and paper need be used but a moment to show what this difference means in a herd of twenty cows. Five pounds a cow would mean 100 pounds of milk, or about $1 loss a day.

I have read of some cranks, and heard others say they would not allow whistling or talking in the stables where cows are. This is all bosh. The man who has the charge of a cow should speak to her every time he comes near her, and especially every time he puts his hands on her, always calling her by name. She will come to know her name, and expect to be spoken to and be treated in a social manner whenever the man in charge is near her. She should become familiar with the tones of his voice, and those tones should be pleasant ones. It is very rarely, indeed, that a blow to a cow is justifiable. Any ill treatment must be paid for at the milk pail.

There are on the Delaware river two dairy farmers whose farms lie on the opposite sides of the stream. There is not a marked difference between the feeding and pasturage of the two herds, or the quality of the cows. I found one of them producing fully 25 per cent more butter a cow than the other. One treated his cows kindly, and they paid him at the pail. I went with the other after his cows. He had a vicious dog that went with us. The moment we arrived at the pasture bars, the dog gave a yelp and started for the cows. They evidently knew what it meant, for all started on the run in different directions. The dog had nipped the heels of every one of them before they got to the barn. When the milking was done the cows at once appeared frantic to get out of the stanchions. As the cows were released the dog managed to nip the noses of nearly every one of them before they could get free from the stanchions, and all before they got from the yard.

The owner of the cows said to me that his neighbor across the river claimed to be making a great deal more butter a cow than he was getting; that he did not believe it, for he had just as good cows and fed fed them just as well and had just as warm stables. A single hour passed in the two herds at milking time showed very plainly the price the latter one was paying for the manner in which he treated his cows. The cost of keeping the two herds a cow was practically the same, and yet there was 25 per cent difference in the product, arising solely from the different manner of treatment.

How many thousands of dollars are lost annually to the dairymen of the state of New York from the same cause? If an accurate answer to this question could be made the result would be appalling.

To do her best the cow must come to know her attendant and come to like him. She should become familiar with his whistle, his voice, and know the touch of hand. She must be milked as nearly as possible at the same hour each time, and in the same order in relation to the other cows. A creature of routine habits easily formed, she resents at the pail any interruption of those habits. The higher type of producer, the more sensitive she is to these changes. The 3,000 pounds a year scrub can be treated in almost any way and not show such marked results, but the cow that, on proper feed and care, will produce from 8,000 to 10,000 pounds per annum will increase the difference mentioned many fold.

When the cow has delivered into the pail the milk in good condition, her part of the work in the well conducted dairy is done. That of the skilled dairyman is but fairly begun. There are enough "leaks" between the cow and the butter tub to absorb the major portion of the profits of the dairy. Microbes and bacteria are among the great enemies of the dairy. We are informed they multiply many times an hour. A comparatively small amount finding their way into the milk pail before leaving the barn may so increase as to make first-class butter impossible, no matter what pains be taken with the product from that time on. Clean cows, clean udders, clean and pure milk pails, and above all, clean attendants and milkers are indispensable to the profitable and well conducted dairy that is to furnish butter to the epicurean tables of the present century. First-class butter is being and will be produced. It will be in the markets where lovers of that kind of article can procure it. The dairyman that produces it is the one that will get a good price for his product and make a handsome profit from his dairy. If dealers cannot get a first-class article at home, their customers will require them to send where they can procure it.

Given a pure milk, properly produced, in a manner that gives the dairymaid an opportunity to give her skill a fair show, a few words as to the treatment of milk after it reaches the dairy may not be out of place. Much has been written upon this subject, but "line upon line, precept upon precept," is the price to be paid for advanced farming. Every tin vessel about the dairy should be so soldered that no place is left at the seam for material to be secreted and become foul. Milk should be removed to the dairy room as soon as possible after being drawn from the cow. With the dairy room clean and all drains kept so cleansed that no foul odor can reach the room, the balance of the work is largely routine, with a liberal amount of common sense mixed in.

There are two ways of successful creaming of the milk—the separator and the cold water, gravity process. I give the latter for the reason I have tried it the most throughly and like it the best. As the result of experiment I discovered that a double setting in the "Cooley" can, or others of like process, would cream within one-half of one-tenth of 1 per cent, which is as close as is practicable with ordinary work with the best separators. I have a box with two compartments made deep and large enough to contain the cans needed in my dairy, the size to be proportioned to the amount of milk to be set. I have a stream of spring water running into the one apartment, and water with plenty of ice in the other. The spring water stands about 54 degrees in warm summer weather. When the milk is strained the cans are set in the apartment containing the spring water for about two hours. It is then carefully lifted and immersed in the apartment containing the iced water, where it remains for about twelve hours longer. This process saves about one-third of the ice, and the double shock occasioned by first immersing in the spring water and then in the iced water results in a thorough creaming of the milk.

It is claimed by the separator people that the separator takes out more of the impurities than the gravity process. I do not believe this is true, for the separator takes it out because it is the heaviest material in the milk, and the same reason would put the impurities at the bottom of the can, to be drawn off with the skim milk, while the cream rises to the top because it is the lightest. I know of no person that has ever given a scientific test to learn which takes from the cream the impurities the most thoroughly.—C. L. PECK, in *Tribune Farmer*.



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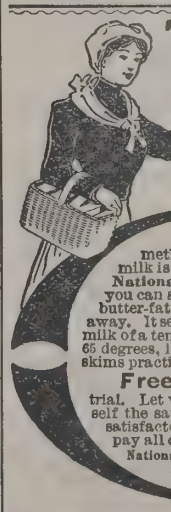
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ED. HOARD'S DAIRYMAN:—At the meeting, last week, of our local cheese board, cheese sold for 12 cents per lb. and was eagerly bought up at this unusually high price. That's a good price for September cheese, and means 90 cents to $1.00 per cwt for the milk furnished the factory. And yet, in the face of this phenomenal price for cheese, the majority of factory patrons by no means are going to take advantage of it. Many of them have already withdrawn from the factory asserting (which is true) that they have no milk, and, what milk they have, they need at home to make butter for the winter. It is quite true that the majority of cheese factory patrons have so little milk to send away now (October 8th) that it is hardly worth the while bothering with it at all, and the milk drawers find it hardly pays to keep on the route, while a few of them are now going along only every other day.

Now, this should not be. October, every man of experience in the cheese business will tell you, is one of the best months in the year for milk. In October, the field crops are all taken off and housed and the cows may have recourse to the grain field, hay fields, etc. There is plenty of fodder at this time, sheaf oats, hay and cereals of all kinds, not to mention roots, which may be fed to the cows in variety. Ah! but this feed is not for the cows. The grain must first be threshed, then sold, and the straw will be for the winter feed of the cows. The roots will be required for winter feed also to take them through the winter. Who expects a cow to bring any money in the winter season? This is a bad state of affairs and one that does not seem to improve with age.

The dairy business is now an old one, and most farmers have given it a try. If it were not a paying business these people would not continue to send milk to the cheese factory every season. Then, if it is a paying business, which it undoubtedly is, why not follow it up and make provision for its extension well into the winter? What profit can men expect from patronizing a cheese factory for four or five months in the year. Paying board for five months and jumping the board bill for the other seven is not going to work. But this is how it is.

There is no occasion in the world for the milk yield to have been reduced at this time. As already said, October is one of the best months for milk, other things being equal. Of course when the cows have been allowed to shrink in September, before the harvest fields were cleared, it is almost a matter of impossibility to regain the milk flow any more in the fall, and the increased pasturage and feed in October does not help very much. It is only for those who fed well in the drought and seared pastures of late August and first September who get the advantage of the better pasturage of late September and October.

To feed a cow good, sound grain, or good grain in the sheaf, seems to be considered a heresy by a great majority of the factory patrons, and to purchase concentrated feed is, of course, out of the question. They expect to have the cake and eat it. They expect, further, to get blood out of stones. They expect the cow to yield milk out of nothing, and when she refuses to do this, there is nothing then to do but cut stick and quit.

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FEES for Registering: To non-members, $2 each head male or female. To members of the Club, $1 each head, male or female. All animals over two years old, double fee. For registration of all dead animals, $1 each. Imported animals, $25.
TRANSFERS are recorded free, if presented within 90 days from date of delivery. Transfers presented after 90 days, $1 each.
PRICE of Herd Register, $1 per Single Volume. Butter Tests of Jersey Cows, including all tests received by the Club to August 1, 1898, $2 per volume. Private Herd Record, 330 pages, cloth, leather back and corners, $2. Pocket Herd Record, 120 pages, flexible leather, 50 cents.
VOLUME OF BUTTER TESTS from August 1, 1898, to July 15, 1902, $1. Consolidated Volume, containing all previous tests, $2.00.
THE BY-LAWS of the Club, giving full rules to be followed in securing registration and transfers, mailed free on application.

POLLED JERSEYS
Richest Cow of all breeds in Pan-American Model Dairy. Winning Herd at Ohio and New York State Fairs, 1903. W. H. FORBES & CO., Clifton, O.

HIGH CLASS JERSEY BULLS
Heifers and Cows for sale. My foundation stock is the best I could buy from a herd famous for merit. Write for what you want.
WM. B. GOODRICH, CLIMBING HILL, IOWA.

PROSPECT HILL JERSEY HERD
The cow that can DO something is what the farmers want. Eight cows have finished their official year's work making an average of 524 lbs. each. F. H. SCRIBNER, Rosendale, Wis.

$50 Jersey Bull Calf
Dropped January 6, 1903.
Grandson in blood of Stoke Pogis 3d and Stoke Pogis 5th; great grandam, Brown Bessie, champion butter cow, Chicago 1893. Dam showed 961 lbs. ½ oz. butter, monthly fat test, 2d season 852 days. Her dam tested and 40 lbs. milker. Sire's dam tested (2d calf) and 40 lbs. milker. A very little white, brisket and thighs.
E. E. STEVENS, North Madison, Ohio

VALLEY FARM Is offering some bargains in young bulls sired by Diploma's Victor, 56310. Grandson of Brown Bessie; two yearlings; one 18 mo. old. Also bull calves. Write
FRED STUBLEY, Black Earth, Wis.

JERSEYS. ST. LAMBERT and Combination, for sale; 24 cows, 7 heifers, 36 bulls.
S. E. NIVIN, Landenburg, Pa.

CLOSING OUT
Fifteen head registered and high grade Jersey cows and heifers, several with yearly records, for sale at less than value. Apply at once. Must be sold.
WM. L. BRADBURY,
NASONS, ORANGE COUNTY, VA.

Wintergreen Hill Farm
A. J. C. C. JERSEYS.
Fall Sale List of cows and heifers is now ready and includes cows to calve for winter milking, heifers recently bred, and a few well bred calves. Some have tests, others are from tested dams. It is a very desirable offering and those applying early may secure their choice. In writing ask for Sale List A21.
WINTERGREEN HILL FARM, Scottsville, N. Y.

FOR SALE GOLDEN LAD BLOOD. sired by Golden Blyth 3d, 54569 A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

FOR SALE. Two A. J. C. C. Bulls ready for service; also some younger ones. Cows and heifers in calf to richly bred bulls. Write for pedigrees and prices. We have a few Berkshire Boar Pigs from unregistered sows left; cheap.
N. N. PALMER & SON, Broadhead, Wis.

BILTMORE JERSEYS
are great and presistant dairy workers and typical Jerseys. We ask comparison with any other herd for
YEARLY MILK & BUTTER YIELDS, SUBSTANCE AND FINISH.
The herd contains more prize winners at the leading exhibitions (including the Pan-American) than any other herd.
The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service as you cannot get it.
Also Headquarters for Large English Berkshires and Standard Poultry.
Apply to
BILTMORE FARMS,
BILTMORE, N. C.

HAZEL FERN HERD. A. J. C. C. Jerseys blood of St. Lambert, Melia Ann, Combination, Pedro, Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale. Estate W. S. Ladd, Portland, Oregon.

FOR SALE. Grandsons of Pedro 3187, by his son Pedro's Pretty Pogis 33660, A. J. C. C. a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs. J. Q. EMERY & SON, Albion, Wis

ROBINSWOOD JERSEY DAIRY is offering a few Reg. Jersey Bulls ready for service at from $25 to $50, sired by a grandson of Recorder, the only living son of Brown Bessie, out of good cows. Write, stating your wants, to
N. H. ROBINSON, Prop., Centralia, Wis.

ST. LAMBERT BULL CALVES, by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.
W. J. HUSSEY, Mt. Pleasant, O

Just for Nothing

We will send you THE JERSEY BULLETIN and HOARD'S DAIRYMAN to the end of 1903. But while making you this generous offer, we wish you to do something.
Subscribe for both papers for 1904, at the lowest clubbing rate, $1.75 FOR THE TWO. To make it plain, send us $1.75 and we will send THE JERSEY BULLETIN and HOARD'S DAIRYMAN to January 1st., 1905.
For Sample Copy of Jersey Bulletin address Indianapolis, Ind.
"IT'S UP TO YOU!"

to the impoverished fields of mother earth, the cow—the dairy cow—is used worse, treated worse, than anything on the face of the earth.

I often think, and so remarked, that dairying through the factory, is never given a fair and square show, and too much is unreasonably expected from it.

When a man, who has previously been in the habit of, say, growing grain for sale, and some roots, with possibly the sale of some live stock, begins to patronize the factory, he possibly makes anywhere from fifty to one hundred dollars in the factory season, from the sale of his milk—an income which he probably never previously enjoyed. Here is an addition to his income of fifty or a hundred dollars, and he has his grain crops, and other live stock to dispose of as usual.

Now, what is the reason this man, seeing that his cows brought him in a hundred dollars does not give back some of this money to the cows, in the shape of that grain and those roots, besides that hay he is accustomed to sell? Can he not afford to feed or reserve for those good cows, which brought him in the extra income, at the least to the value of half of what they made for him? If they made one hundred dollars for him this season, why not reserve at least fifty dollars' worth of grain and roots to feed to these cows during the fall and early winter if he is a cheese factory patron?

By so doing he will still be ahead $50, over previous years and may sell, as usual, the surplus grains, etc. But this is just the very thing the average cheese factory patron will not do. He must have his cake and eat it. He continues in the same old rut of raising grain, hay and roots for sale, while he expects that his scrawny cows will bring him a respectable sum also. This is dairying with a vengeance. It is this parsimonious class who would like to see the factory close down in September. The advanced patron who wants to keep on, has a hard time with these fellows, and they are legion. There is no reason in the world why October should not bring as much milk as September, and bring milk, too, when the milk is of greatest value.

A hundred-weight of milk in October is worth usually (it is this year) as much as 150 lbs. in June. If the herd which yielded 100 lbs. in June, yields but 66 lbs. in October, they are bringing in just as much money. This rule obtains almost every year as well as it does this one.

With a good feed of corn fodder at night, cows will milk, or should milk, well this month, with the increased range of pasturage and the aftermath of the fields. In our own small herd the milk has gradually increased since the middle of September and we are now getting more milk than we were Sept. 1st. There is no reason at all why this should not be general. We have no secret about the business. Our cows are not of an improved breed, not even grades. Our pasture is nothing great, neither are our advantages for water. We simply grasp the great fundamental principle that milk cannot be made out of nothing and that it pays to turn the rough feed and grain of the farm into milk, and save a lot of labor withal, and that a cow must be filled to the brim with food and water before a maximum amount of milk can be expected from her. J. A. M.

P. E. I.

FINE POULTRY FOR SALE

I offer a very select lot of **White** as well as **Buff Plymouth Rock Fowls** of the present year's breeding for sale. Each breed have been kept on separate farms and are absolutely pure in their breeding. They will be sold at

$5.00 A TRIO

Nicely crated on board of cars here.

Single Fowls, $2.00 Each

They have had the range of alfalfa fields the past summer and are very vigorous.

A. R. HOARD,
Fort Atkinson, Wis.

BUY DIRECT FROM FACTORY, BEST

MIXED PAINTS

At WHOLESALE PRICES, delivered **FREE** for Houses, Barns, Roofs, all colors, and **SAVE** Dealers profits. In use **61 years.** Officially endorsed by the Grange. Low prices will surprise you. Write for samples. **O. W. INGERSOLL,** 258 Plymouth St., Brooklyn, N. Y.

Holstein-Friesian Breeders Third Semi-Annual Consignment Auction Sale
414 South Clinton Street, Syracuse, N. Y.,

WEDNESDAY, OCT. 28th., 1903

I am instructed by the following well known breeders to catalogue and sell on the above date one of the most selected and choice lots of Holstein-Friesian Cattle ever yet offered to the public, consisting of cows and heifers with A. R. O. butter records ranging up to and over 21 lbs. each. Young bulls, cows and heifers whose dams have A. R. O. butter tests ranging up to 25 lbs. These choice females and several others bred to such noted bulls as Mercedes Julip's Pietertje Paul, Beryl Wayne's Paul De Kol, De Kol 2nd's Butter Boy 3rd., Mutual Friend 3rd's Paul, Johanna Rue 3rd's Lad and Sir Korndyke Manor De Kol. The contributors are A. A. Cortelyou, Neshanic, N. J.; F. P. Knowles, Worcester, Mass.; T. A. Mitchell, Weedsport, N. Y.; H. L. Bronson, Cortland, N. Y.; Stevens Bros., Lacona, N. Y.; H. A. Moyer, Syracuse, N. Y. Communications and applications for catalogues, which are now ready, can be addressed to either of the contributors, or

W. C. HUNT, Sales Manager, Liverpool, N. Y.

The above breeders will hold their next Auction Sale on the New York State Fair Grounds, Syracuse, June 2 and 3, 1904, the two days following the next annual meeting of the Holstein-Friesian Association. This will be made a regular annual event.

HOLSTEIN-FRIESIAN ASSOCIATION
OF AMERICA.

President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.

FEES FOR REGISTRY.

TO MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.

NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. ☞ All blanks furnished free.

Life Membership, $25.

Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.

Address F. L. HOUGHTON, Putney, Vt., for information relating to Registration of Pedigrees.

HOLSTEIN BULLS.
We have some grandly bred young bulls ready for service. One of the largest and best advanced registry herds in the United States.
PIERCE LAND & STOCK CO. 14 Turk St. San Francisco, Cal.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland De Kol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 oz. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148 Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 oz. Average per cent fat 4.92. Correspondence solicited.
WM. EVERSON & SONS, Lake Mills, Wis.

FERMANAGH HERD
HOLSTEIN-FRIESIANS

Bulls ready for service from A. R. O. animals sired by Johanna Rue 2d Paul De Kol, sire of 13 A. R. O. cows. Also young bull calves by same sire. **THOS. GAINES, Supt., Arcadia, Missouri**

MAPLES STOCK FARM, PENNELLVILLE, N. Y.
Second Annual Offering
150 HEAD OF HIGH CLASS REGISTERED

HOLSTEIN-FRIESIANS

AT AUCTION, OCT. 14-15, 1903
at Fulton Fair Grounds, Fulton, N. Y. Catalogues ready Oct. 1. Write for one. Address
R. F. D. 3 **John C. Godfrey, Fulton, N. Y.**

VALLEY FARM HERD
HOLSTEIN-FRIESIANS

Headed by Korndyke Queen De Kol's Prince, dam Korndyke Queen De Kol, 24 lbs. 6.7 oz., granddam Belle Korndyke, 25 lbs. 12.3 oz. Both sire and dam by Manor De Kol, his dam Netherland Hengerveld 26 lbs. 10.66 oz., Manor De Kol by a son of De Kol 2d, 26 lbs. 9.21 oz. All are official tests and average 25 lbs. 13.72 oz. butter for 7 days and 3.95 per cent fat in their milk. Two bull calves now for sale and young ones after Sept. 3.
DON J. WOOD, R. F. D. 2, West Winfield, N. Y.

Bulls For Sale.

Two choice bulls ready for service and some fine bull calves from good testing dams. Sire: Paul Clyde, son of Paul DeKol. Dam's record 24.38 lbs. in 7 days. Write **C. A. SNOW & SONS. Athens, Ohio.**

HOLSTEIN-FRIESIANS
INDIVIDUALITY, PERFORMANCE, BREEDING. You need it all. Write or come. 100 head.
McKAY BROS., Buckingham, Ia.

HOLSTEIN-FRIESIANS
FAIRVIEW HERD

We offer bulls ready for service; also heifer and bull calves not related, of the kind to suit the most particular.
O. J. GODFREY, Pennellville, N. Y.

HOLSTEIN-FRIESIAN BULL CALF.

Do you want one for use this winter which will improve your dairy herd? Do you want him elegantly proportioned, with straight back, high rump, and all the dairy points? Do you want one whose relatives are A. R. O., and elgible to the Advanced Registry himself? If so, I have just what you want.
MALCOLM H. GARDNER, Darien, Wis.



HOLSTEIN CATTLE!
The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

TYRANENA HERD
100 HOLSTEIN-FRIESIANS 100
A. R. O. Stock For Sale.

Both sexes, all ages. Herd headed by Sir Piebe Hengeveld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz **Frank B. Fargo, Lake Mills, Wis.**

SHADY NOOK HERD
HOLSTEIN-FRIESIANS.
Offers 5 yearling bulls cows and heifers bred to oldest son of Mercedes Julip's Pietertje, No. 39480. Chester White Pigs in pairs and trios, not related.
W. R. GATES, Fort Atkinson, Wis.

OAKLAND HERD HOLSTEINS

PREMIER SIRE **Mutual Friend 3d's Paul** — A son of Paul De Kol & Mutual Friend 3d, 21.84 lbs. butter, milk averaged 4.7% at 3 years. She has two A. R. O. daughters, 1 made over 20 lbs.

Must reduce herd at some price. State just what you want. T. A. MITCHELL, Weedsport, N. Y.

BROOKSIDE HERD
HOLSTEIN-FRIESIANS

To reduce herd to capacity of pasture, will sell a limited number of A No. 1 young cows of high breeding and individually right, large producers, at $150 each; also 15 bull calves at bargain prices,
STEVENS BROTHERS, Lacona, N. Y.

HOME FARM HERD.
Headed by **COLANTHA 4TH'S LAD.** Official test of three nearest dams 25.1 lbs. butter in seven days. Herd numbers 125 head.
BEST FAMILIES REPRESENTED.
Special prices on six or eight bulls of serviceable age. **W. B. BARNEY & CO., Hampton, Ia.**

THE STEVENS HERD
Contains at the present time the young bull, Vale, with the largest official backing of any bull ever born. Several half-brothers and sisters to Vale, and a large number of cows and heifers bred to his sire, whose official backing is larger than that of any other bull ever in service. A cow that stands unequaled by any other that ever lived, in the official work of herself and daughters. The only cow ever officially tested for six months. Eighteen cows and heifers with official 7-day butter records averaging, by the 80 per cent. factor, over 20 lbs. each. Thirty animals whose dams have made official 7-day butter records averaging over 20 lbs. each. Why not get our prices before buying?
HENRY STEVENS & SON,
Brookside Stock Farm. Lacona, Oswego Co., N. Y.

ELMWOOD
Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.
GEO. T. McNEIL, Theresa, N. Y.

FOR SALE.

H. F. A. R. O. cows and heifers bred to Duchess Ormsby Piebe Burke No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address **W. H. JONES, Watertown, Wis.** Rural Route No. 2.

THE MONONA FARM HERD
OF HOLSTEIN-FRIESIANS

Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 69.50 lbs. one day. Breeders and dairymen please write for prices.
F. W. ALLIS,
Monona Farm. Madison, Wis.

JUST BULL CALVES

We have three, that are individually fine. They are bred right, have been fed right, and the price is right.
Ohio's Famous Herd, Holstein-Friesian Cattle. **W. B. SMITH & SON.**
2488 W Broad St, Columbus, O.

Holstein-Friesian Bull Calves
Of Advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address JOHN SHUGART & SONS, Marion, Ind.

FOR SALE
2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.
M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

CLOVERDALE HERD
HOLSTEINS.

Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.

A. J. DAUGHERITY Streator, Ill.

Woodlake Herd.
Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. **JOHN B. IRWIN,** Station D., R. 1, Minneapolis, Minn.

MARKHAM MANOR FARM,
Simonsville P. O., Andover, Vt.

Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 1870, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for discription and price to **J. A. THORNTON,** Manager, **Simmonsville, Vt.**

HOLSTEINS IN CALIFORNIA

SAN ANSELMO, MARIN COUNTY
250 HEAD IN THE HERD
Sires are sons of Mercedes Julip Pietertje, Colantha 4th Belle Korndyke, Fay Barnham Princess Wayne 7th. A fine lot of bull calves
R. M. BOTALING,
Rialto Building San Francisco, Cal.

FIRST CLASS BULL
Offered at reasonable price by South Side Farm, White Bear, Minn. Born Dec. 1, 1899. Sired by Baron Pauline De Kol with 8 A. R. O. daughters, and tracing three times to De Kol 2d. Our bull's dam has A. R. O. record of over 22 pounds, under five years, and during week's official test milk averaged over 40 per cent. fat. Fine conformation, nicely marked, superior handler, large veins and rudimentaries, gentle, vigorous, and sure. Other bulls ready for service.

STAR FARM HOLSTEINS
SPECIAL OFFERING: Six of the choicest Johanna bull calves from official butter record dams and A. R. sire.
Also a few choice heifer calves, yearlings and 2-year olds; latter bred to Mercedes Julip's Pietertje Paul.
150 HEAD TO SELECT FROM
Special prices on cows in carload lots. Prices reasonable for quality. Liberal terms of payment.
HORACE L. BRONSON, Cortland, N. Y.

Oak Grove Herd
Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. **C. H. STEVENS, Jefferson, Wis.**

HOLSTEINS
High Class Advanced Registry Stock only. Best butter families. Stock for sale.
Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.



T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.
Wm. O. Jackson & Sons, South Bend, Ind.

FOR SALE.
H.-F. Bulls, ready for service. from A. R. O. Cows and sired by Sir Jonanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 years. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis

LOOK HERE

34 cows and heifers in the **McGEOCH HERD** have been **officially tested** with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs. of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs. of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by **Gem Pietertje Hengerveld Paul De Kol,** or **Sir Ormsby De Kol** for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days; average per cent of fat 4.47. Are these the kind of **Holstein-Friesians** you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd?
For particulars address **H. B. Daggett, Mgr., Station A, Milwaukee, Wis.** Residence: National Ave., near 40th. Phone, South 1601.

HOLSTEIN-FRIESIAN
YEARLING BULLS

ready for service, of high quality and breeding, at low prices for the next sixty days. They are from such families as Sadie Vale Concordia, Korndyke, De Kol Burke, Clothilde, Netherland, etc. Also choice heifers.
Smiths & Powell Co., Syracuse, N. Y.

The Dairy Cow.

[By Prof. C. L. Beach, Storrs, Conn., at the New Hampshire Dairymen's Convention, 1903.]

Fellow Dairymen:—It has been said that a good dairy region exists wherever there are intelligent dairymen to engage in the business. Success depends more upon the man than upon local conditions. Good dairy practice is not different in New Hampshire from what it is in Connecticut. Sound dairy knowledge is alike applicable to the New England, the Wisconsin, or the California dairyman. The acquired knowledge in regard to the breeding and selection of the cow, the sanitary construction of stables, the palatability and efficiency of rations, and many other problems are universal in their application. We have met here today to exchange experiences, confident that such an exchange will be mutually helpful.

The subject assigned me upon your program is "The Dairy Cow," but this subject should be qualified, for I purpose to speak only upon the selection of the dairy cow.

Statistics tell us the average cow of the United States produces about 3,000 pounds of milk per year, or an equivalent of 140 pounds of butter. This low production will scarcely pay for the cost of keep, certainly not under our New England conditions. There are many herds of grade cows, however, that produce 5,500 pounds of milk and 280 pounds of butter, or nearly twice as much as the average production.

A few years ago the writer made a canvass of a large number of herds whose owners patronized one of the large creameries in our state. From data collected in this canvass, an average production of butter per cow was estimated and is tabulated below.

Average annual production of butter per cow by the herds of the patrons of one Connecticut creamery.

No. of Herds	No. Cows in Herd.	Average Yield Lbs.
1	10	300
8	58	250 to 300
16	133	200 to 250
14	89	150 to 200
8	102	less than 150
47	392	199

The results of this canvass show that only one herd averaged more than 300 pounds of butter per cow per year, and only eight herds averaged from 250 to 300 pounds. The actual butter production per cow per year in the whole 47 herds of 392 cows, averaged 199 pounds. From the best data available it appears that the average conditions in New England require that a cow shall produce not less than 250 pounds of butter per annum before she can begin to yield a profit, when the cost of food, labor and other items are computed at the market prices. Yet the above canvass shows that only one-fifth of the cows included in the examination exceeded this amount, while the general average is fifty pounds below it. If these figures are taken as a fair index of the average production throughout New England, then it would seem that the dairy industry in this section is far less profitable than it ought to be.

It is not difficult to discover sufficient reason for such poor showing, locally and generally, on the part of Connecticut herds. Improper and irrational feeding and poor care and management are causes in a great many instances in which the quality of the cows might assure better results under different feeding and care. There are records of experiments in which herds of very ordinary cows, under proper care and feeding, have produced surprising amounts of milk and butter, and have yielded handsome profits. But a little careful study of dairy herds lead to the conclusion that no inconsiderable part of the trouble lies in keeping cows that no system of feeding, nor the best care and management, could ever make profitable, at least so far as the dairyman is concerned.

Individuality of the Cow.

The ability to utilize food and convert it profitably into milk and butter is a quality of cows that varies with individuals. The variation is in the amounts of milk and butter which different cows make from a given amount of food, and is spoken of as the individuality of the cow. Among both ordinary cows and cows of pure breeds the variation in this respect is quite remarkable, as illustrated to a marked degree in the study of the herd owned by the Connecticut Agricultural College that was made during the year 1898. According to this study the cow with the best record produced during the year 509 pounds of butter, at a profit of $42 82; while during the same time the cow with the poorest record produced 172 pounds of butter at a loss of $4.09. Even in a comparison of the five most profitable cows with the five least profitable, the differences are still remarkable. The former five cows produced butter at an average of 409 pounds per cow for the year, at an average profit of $31.29; while the latter five cows averaged 218 pounds each, at an average profit of 87 cents. Similar differences in the individual qualities of the different cows are observed in the comparison of the production of milk and butter. These variations in the amount of butter and milk produced by individual cows in this herd are not exceptional. The records of station herds and of hundreds of private herds, where individual records have been kept, show variations fully as great as these.

"Condensed record of the dairy herd of the Agricultural College for 1898, showing the value of the food consumed, and the amount and value of the milk and butter produced by each cow during the year, and the corresponding profit or loss.

Number.	Breed.	Years.	Cost of food for one year.	Profit. From butter at 18c per lb.	Profit. From milk at $1 per 100 lbs.	Butter. Amount produced in 1 year. 82.3% butter fat.	Butter. Cost of food for producing 1 lb.	Milk. Amount produced in one year.	Milk. Cost of food for producing 100 lbs.
						Lbs.	Cents.	Lbs.	
1	Grade Guernsey	9	$14.54	$40.42	$41.04	472	9.44	8558	$ .52
2	Jersey	10	48.80	42.82	35.85	509	9.58	8465	.58
3	Grade Guernsey	4	40.60	25.64	19.64	368	11.00	6024	.67
4	Jersey	6	40.21	24.59	13.58	360	11.10	5379	.75
5	Jersey	6	38.18	23.02	11.96	340	11.20	5014	.76
6	Grade Holstein	7	36.73	19.61	20.57	313	11.70	5730	.64
7	Guernsey	13	42.18	22.08	22.17	357	11.80	6435	.66
8	Grade Guernsey	2	37.78	17.66	22.99	308	12.20	6077	.62
9	Grade Holstein	6	42.88	18 86	30.16	343	12.20	7304	.59
10	Grade Jersey	7	36.71	16.75	8.69	297	12.40	4540	.81
11	Ayrshire	8	47.06	20.44	35.43	375	12.50	8449	.57
12	Grade Guernsey	7	40.04	20.62	7.50	337	12.50	4754	.84
13	Grade Jersey	10	44.08	19.28	21.40	352	12.50	6548	.67
14	Grade Jersey	9	41.00	15.88	14.00	316	12.90	5500	.75
15	Grade Guernsey	8	43.13	8.89	12.95	289	14.90	5608	.77
16	Guernsey	10	42.68	7.36	5.96	278	15.30	4864	.88
17	Grade Jersey	8	37.59	13.17	13.24	282	13.30	5083	.75
18	Grade Guernsey	7	41.75	10.81	6.53	292	14.30	4828	.86
19	Ayrshire	7	41 27	10.21	30.61	286	14.40	7188	.57
20	Guernsey	7	39 36	4.92	1.86	246	16.00	4122	.95
21	Ayrshire	6	39.22	2.72	14.79	233	16.80	5401	.73
22	Grade Jersey	8	4 .77	5 49	4.48	257	15.80	3629	1.12
23	Jersey	9	46.21	3 47	4.48	276	16.70	5069	.91
24	Grade Guernsey	4	32.36	2.66	.95	165	19.50	3141	1.03
25	Ayrshire	7	35.05	4.09	3.21	172	20.30	3826	.92
	Average for the herd		$40 80	$15 51	$15 72	313	13.60	5653	.75½

The record, of an entire herd of this kind contains much that is interesting In the study of the results the attention is called at once to the range in productive capacity and profitableness of different cows. Comparison of the narrow range in the cost of food consumed per day with the wide range in the returns in milk and butter produced therefrom illustrates quite clearly the individual differences in cows in regard to economy of production.

It is plainly evident that success in dairying depends very much upon the productive capacity of the individual cows that make up the herd. Inasmuch as there are such wide variations in different cows, in regard to the amount and composition of milk they produce, it should also be evident that a very practicable way to improve the herd and increase the average productive capacity is to dispense with all the cows which the scales and the Babcock test together prove to be unprofitable. It would be pretty safe to assert that twenty cows selected in this way for their high and economical productive capacity would be more profitable than twenty-five and possibly even thirty cows selected in the ordinary random method of making up a herd.

Judging Dairy Cows.

Although the final proof of the value of any cow and her right to be kept in the herd should depend upon her ability, as shown by the scale and fat test, it very often happens that a dairyman must rely upon his own judgment in the selection of cows for his herd. The cow whose good records are known is not usually for sale. Even if the buyer had time to make a short test, that would not be sufficient to prove the worth of the cow. Usually he has to depend upon experience, and possibly in some cases careful study, in judging of the capacity of a cow for dairy performance from what he can observe in her form and from the general impression which she makes upon him. But the ability to judge a good cow under such circumstances is not common among dairymen. Thousands of dairymen have owned and handled cows nearly all their lives and yet are poor judges of cattle. The reason for this is that the knowledge which they have gained from their experience is superficial. They have made little or no study of the cow except in the aggregate They never have proved or corrected their judgments by records or tests. The type of a good dairy cow is a vague conception in their minds, based more upon personal opinion than upon evidence or fact.

Anatomical and Physiological Features of the Dairy Cow.

Intelligent and progressive farmers and dairymen, however, are becoming more familiar with the fact that milk and butter producing qualities of cows are accompanied by a general vigor, conformation, temperament, fineness, bearing and other features that are quite characteristic. Dairymen who profit most in the keeping of cows familiarize themselves with these characteristics and understand their relationship to capacity for production.

This is understood best by those who have had long experience with cows, and have studied under widely varying conditions their general form and manner, especially in connection with accurate records of performance. In general such knowledge includes some idea of anatomy and physiology of the cow, particularly with reference to the general locality, development and functions of the various organs concerned in the production of milk and butter.

In a discussion of this subject, the dairy cow may be considered as a complex machine, developed for a particular purpose, consisting of a frame work, of characteristic form, supporting parts that are most essential to the purpose and parts that are less essential—the essential parts being those directly concerned in the production of milk and butter, while the less essential parts are only indirectly concerned.

The following figure of cow No. 2 shows the outline and general features of a profitable cow of the dairy type, and illustrates points referred to in the following paragraphs.

In the opinion of the writer it seems justifiable to state that the general constitutional vigor of the cow is of primary importance, and that of nearly as great importance are efficient digestive organs; large and well formed milk organs; strong heart and good blood circulation; large, strong lungs; and a highly developed nerve system. For convenience in the present discussion these are called the essential organs, and are considered here with some remarks concerning their uses or functions.

Digestive Organs.

Milk is a manufactured article, produced by the cow from the food which she consumes. The capacity of a cow for producing milk depends largely upon her capacity for digesting food and assimilating it into her tissues. For the accomodation of a large and efficient digestive apparatus, a good dairy cow should have a long, deep and wide barrel with well sprung ribs. This form of middle piece gives ample room for the storage of food, and for an apparatus capable of disposing of large quantities of the coarse, bulky fodder which the cow consumes.

Milk Organs.

The milk organs are quite intimately

Heavy Rains

soften the ground and prepare it for the seed. Williams' Shaving soap softens the beard and prepares it for the razor. Lathers freely and the big, creamy lather penetrates the beard, softens it wonderfully, so that it offers the least resistance to the razor. Makes shaving easy and pleasant.

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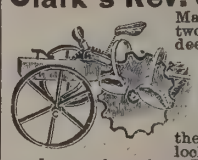
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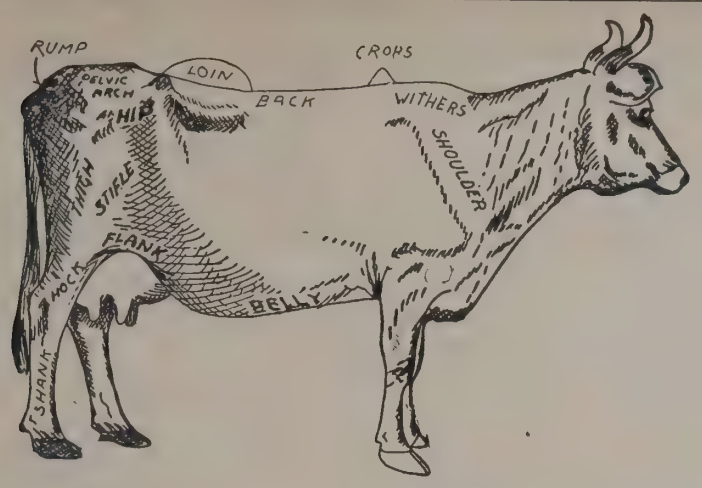
The Fence That Lasts

Why do wire fences give way, break and sag? Go out and examine carefully the average wire fence and you will have no trouble in answering this question In all ready-made woven fences, the stays or uprights are made of smaller wire than the horizontals, consequently they give way sooner and ruin the whole fence.

Another reason that the wire fences sag and break is that proper allowance is not made for the expansion and contraction caused by changing weather. Both of these difficulties are entirely overcome in the famous Brown Fence.



The uprights are of the same size as the horizontal wires and the laterals are made from high carbon, hard springed coiled wire, which not only allows for all contraction and expansion due to change of temperature, but also relieves the posts of much of the dead pull upon them. It is an economical fence to build, and even if it cost more than others (which it does not) it would still be the cheapest in the end. Our readers are urged to send for the Brown Fence Book Address Brown Fence & Wire Co, Cleveland, Ohio. This company is headquarters not only for the Brown fencing but also for Coiled Spring Wire, smooth, soft Galvanized wire and Barb Wire, which they sell to the farmer direct from the factory at wholesale prices, guaranteeing both quality and price.



concerned in the productive capacity of the cow, as it is in these that the milk and butter fat are finally elaborated from the food. It is not altogether clearly understood how the milk is made in the gland, but it seems quite probable that it is produced by the epithelial cells within the udder. So far as is known, the quantity of milk that can be produced depends in a large part upon the number and activity of these cells. The number of such cells is limited by the size of the udder and the amount of fatty tissue it contains. The dairy cow should therefore have a large udder capacity, the larger the better, but the size of the udder should not be due to any large amount of fat or flesh. There should be an elasticity of the tissue, with a shrinkage of the udder when empty. The udder should have considerable surface, extending far forward and well up behind. It should be well balanced and symmetrical in shape, indicating good development in all quarters; for the more perfectly developed the organ is, the larger the amount of milk it will be likely to yield. It should be spread considerably from side to side, also, while the teats should be evenly and squarely placed. To make room for such a capacious, well developed udder, the hind legs of the cow should be wide apart, the thighs should be thin, and the flanks high arched.

The activity of the udder, or the amount of work done in it, is indicated to some extent by the quantity of blood that passes through it, which depends quite largely upon the capacity of the blood vessels which are connected therewith. It is important, therefore, that there should be a strong and full development of the arteries and veins of the udder and abdomen. The milk veins should be large and elastic, should extend well to the front, and should enter the abdomen through large or numerous orifices, thus permitting a strong flow of blood through them with a minimum of resistance as it returns to the heart. Besides these veins, there is a net work of them in the forequarters of the udder, and still others pass upward behind, which, when large, indicate considerable productive capacity.

Pelvic Organs.

Dairying is based upon the maternity of the cow. It is the mother function that arouses the milk organs into activity for the feeding of the offspring. Many generations of selection and breeding by man have prolonged the period of activity of these organs in the dairy cow, but the beginning is always a function of reproduction, which must occur with considerable regularity in profitable cows. In order that this may occur with least tax upon the general vigor and activity of the cow, she should have broad hips and a high pelvic arch, furnishing ample room for the young before birth, and providing for its easy delivery.

Heart and Lungs.

The chest should be deep, providing room for generous sized heart and lungs. These organs, vital in every animal, are required to do more than ordinary work in the dairy cow. The digestion of a large amount of food and its conversion into milk require an expenditure of energy and vitality equal to that expended in the performance of hard work. Therefore, there should be a vigorous circulation of blood and ample provision for its purification and for a large supply of oxygen.

The Nerve System.

The digestive tract prepares the food for assimilation into the tissues, the udder elaborates the milk, the heart forces the blood with its load of food and oxygen through the body, the lungs supply oxygen to the blood and remove from it the product of the oxidation which takes place in the body; but the brain and nerve system are concerned in all these operations. Through the influence of this system the activities of all the organs are aroused, guided, controlled, and harmonized. In the cow the heart and lungs are ever active. The digestion, absorption and assimilation of food, and perhaps the mysterious elaboration of milk, are constantly going on. Collier estimates that a cow giving an average quantity of milk produces, on an average, 138,210,000 fat globules per second, during each twenty-four hours. This and the secretion of the other constituents of the milk illustrate the amount of activity in the udder alone, and suggest the need of a highly developed nerve system. The more pronounced outward signs that indicate this nerve development are a bright, lively, and prominent eye, this prominence causing a dished face; a wide forehead; a wide junction of the skull and spinal column, indicating a large brain; a large prominent backbone, giving room for a well developed spinal cord; a long slim tail and considerable energy and vigor and style of action.

The Correlation of Parts.

It is to be observed that further help in the study of dairy cows is an understanding of the reciprocal relations between the different parts of the body. It is in accordance with this correlation that the parts of the body here spoken of as less essential may be said to be indirectly concerned in the production of milk; for the same food cannot be used at the same time for both forming flesh and producing milk; hence the smaller the amount of food used in the formation of tissues of these less essential parts, the larger the amount that will be left to be converted into milk.

Less Essential Parts.

The energy of the dairy cow is directed as completely as possible toward the production of milk and butter. The tendency to produce milk has been increased as much as possible by breeding, inheritance, and development; and likewise, the tendency to lay on flesh has been restrained. Thus the less essential parts of the dairy cow have been depleted, or have "paid tribute" to the parts which are more essential to the purpose for which she was bred. This has resulted in developing a cow with a fine, slender head and neck; light fore quarters with but little flesh; rear quarters thin, incurved at the rear and sides, showing but little flesh; sharp withers; spare crops; and a generally thin, bony, angular body, devoid of all unnecessary flesh.

The writer is aware that this idea of the special-purpose cow is opposed by advocates of the general-purpose cow, as well as by numerous breeders, owners, and experimenters. Correct conclusions as to the exact type of cow best adapted for large dairy performance can only be drawn after studying the records of many cows from the economic standpoint, and for full lactation periods. Even then there may be exceptions to the general conclusions arrived at. But the dairyman is seeking for the cow most profitable for his own particular purpose and will usually be guided by the general law of averages.

Comparative Study of Group of Dairy Cows, With Regard to Type and Economical Production.

The study of the individual cows indicated that, in this particular herd, the form and type of the cow is more reliable than breed alone as an indication of her productive capacity—grade cows of a distinctive dairy type surpassing thoroughbreds whose type indicated lack of dairy quality. In order to test the relation of form or type of cows to profitable production, we divided the whole herd into three groups, each cow in the herd being included in the group to the type of which she most nearly conforms. The divisions were based upon a study of the particular form of each cow, along the lines suggested by Prof. T. L. Haecker, in his study of the cost of production with the herd of the Minnesota Experiment Station.

The first group included the thin, spare, deep-bodied cows, and has been called the Dairy Group. The second group includes those carrying too much flesh, and is styled the Fleshy Group. The third group contains those lacking depth and width of the barrel, and are designated as Lacking Abdominal Capacity. The results of this grouping and combining the records of the several cows in each group may be summarized as follows:

No. 1. Dairy Group.

The cows in this group are spare, with deep bodies and well sprung ribs. The average production of the group is 351 pounds of butter, and 6,190 pounds of milk. The average food cost of each pound of butter is 12 cents and each 100 pounds of milk is 69 cents. They yield an average profit of $21 49 as butter cows, and $20.24 as milk producers. The cow chosen to represent this group is No. 2, Copper Queen, shown in the cut above.

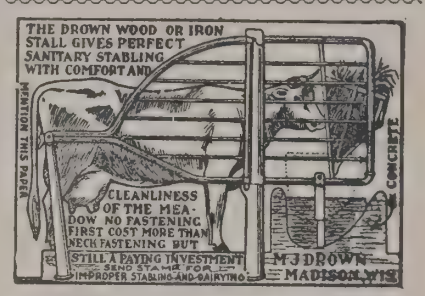
No. 2. Fleshy Group.

The cows in this group are large framed animals. The neck is thick, the shoulders heavy, the loin wide, withers round, crops full, brisket heavy, and as a class they are animals that take on flesh easily and look smooth and plump. They make an average of only 217 pounds of butter each, and less than 4,000 pounds of milk. When the labor expended in their care is taken into consideration, they are all kept at a loss. They charge in cost of food 18 1 cents, or 6 cents more than the dairy group, for each pound of butter, and 31 cents more for each 100 pounds of milk. The cow No. 24 is a representative of this group.

No. 3. Group Lacking Abdominal Capacity.

This group contains five cows lacking


GRINDS Ear Corn, Shelled Corn, Oats, Rye, Barley, Kaffir Corn, Etc., fine or coarse, for feed or family use. Has shake feed which insures regular and even work.
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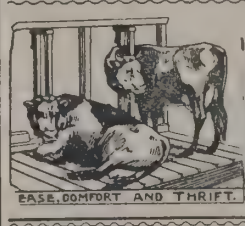



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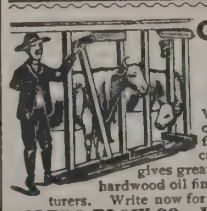

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Chain or Pin Fastened.
Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired
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Prescott's Swinging Swivel Stanchion
Keeps Cows Clean.
Swings forward while getting up or lying down. Looks back while standing Full particulars free.
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SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated circular free. GLENORA MFG. CO. Glenora, Yates county, N. Y.
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Steel Latch Stanchion
When open is locked ready for cattle to come in; closed, it swings freely. Best dairy cattle tie because comfortable and quiet; gives greatest freedom. Made of selected hardwood oil finished. We are the sole manufacturers. Write now for circulars and delivered prices.
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JUST OUT! UNDERHILL SELF ADJUSTING STALL

No Gutters
No Platforms
No fastenings
No Stables to clean
Cease trying to keep your cows clean. You can't do it. Give them a chance and they will do it themselves. This is the only way and the easy way Write for circular telling what the cow has discovered to us. It is a great revelation.
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THE NEW PATENT
Cow Stall
AND FEED TROUGH.

This is the only Cow Stall with a centering hinge. Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars.
R. A. McLERY & CO.,
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This Taylor Stanchion

is made of angle steel lined with hard wood on side next the animal's neck. It is lighter, neater and stronger than any other stanchion made. Swings on chains at top and bottom and admits of greatest freedom of motion. Cattle can lay with head on side. Easiest opened and closed. Reliable Agents Wanted. Write for special terms, prices, etc.
JAMES BOYLE, SALEM, O.

BIG SELLER FOR GOOD AGENTS
THE FOSTER STEEL STANCHION
Best cow fastener. All metal. Strong, durable and convenient. Liberal terms to hustling agents. Ask for circular No. 20
Frank H. Battles, Seed Grower Rochester, N.Y.

in depth and width of barrel. They consume a little less food than group 1, and yield considerably less profit in return, from both milk and butter. The cows in this group differ from those in group 1 in both form and disposition.. No. 18 in the group is a quarrelsome animal, and the boss of the herd. No. 19 is a very nervous cow, and uses her energy in unnecessary work. No. 20 is a discontented animal, always on the alert for an open gate, and often found where she ought not to be. As a group these cows are "light on their feet," and very active animals, which may account somewhat for their low production. They charge in food 14.9 cents for butter and 77 cents per 100 pounds for milk. They are not profitable animals, and should be weeded out of every dairy herd. The cow representing this group is No. 20.

The Result of Impure Water.

There is nothing quite so deceptive as the farm well, nor anything so fixed as the belief of a majority of farmers that the water from their well is the cleanest, sweetest and coolest of any on the face of the earth. Unfortunately, well water may be without taste or smell and still be dangerous. Smell and taste are very poor indicators of the quality of well water, and actually nothing but an outbreak of disease or an analysis will determine its safety. Every year sees an increase of population and a corresponding increase in the contamination of the water supply and in consequence shallow wells are becoming more and more dangerous.

Following is an experience that has come to only too many:

"I reckon, Joe, you won't say anything in the *Gazette* about having typhoid fever on lovely, perfect Woodlawn Farm?"

So remarked a sarcastic friend the other day. Would that I could say that it had never been! It was a terrible shock to me to come home from England and find no grandfather, no Andrew, no David at the station to meet me, and to know that they lay stricken with this foul and malignant disease. And to come to Woodlawn cottage and meet the wife at the door, worn with anxious watches, to enter the hushed and darkened rooms, to kneel by the bedside of my little ones and see their incredibly wasted forms and hear their weak voices hardly above whispers and to feel that the angel of death was hovering near, and if these precious forms grew much lighter they would be snatched swiftly away—all this was unspeakably terrible.

And yet we were spared the worst. Gradually the fever subsided, at last came the glad day when one boy sat up a few minutes, the glad day when they could eat a tiny bit, the glad day when their eyes grew brighter and they took an interest in what went on around them. Then I carried them each day out onto the lawn and they lay in the shade of the great oaks,and that was mighty good for them. And oh,joy! the day came when Andrew walked, and the next day David, who had been faithless, suddenly was seized with belief and before we knew it he was sprinting across the lawn like a young blue-jay, his thin legs moving stiffly and his faint impress hardly bending down the grass! And then Andrew was discovered hugging tight some rosy-cheeked apples. "You won't eat them, will you boy?" ,,N-o-o. I only want them to smell of!" And he did get a lot of comfort in that way, though it fairly brought the tears, the pathos of it, a boy hugging apples that he could only smell, and every fiber in him crying for food. It is all over now, we hope. They eat like wolves and are slowly gaining back their strength. And now comes the practical lesson:

How did this happen? I do not know yet. The well is driven, but it is only 28 feet deep. It is a curious fact that the road on which I live has had in the last ten years typhoid fever in nearly every house for six miles. Whence has it come? Scientists say from drinking impure water. Most of the wells at these homes are shallow dug wells. Only one or two cases are from driven wells. These people might have drunk away from home. What have I done that has been wrong?

I have had the water analyzed, but it takes so long to report that I do not know yet. We are carrying water from a distant spring in the meantime and expect to drill a new and much deeper well, tapping a lower vein. I think our sink drain a bad one. We will make it of metal instead of tile and carry it quite a distance away. There is a wooden floor under the pump. Beneath this floor water drips and it gets rather unclean. This shall be replaced with cement. The closet is a dry-earth affair and we shall use quantities of air-slaked lime as a disinfectant. Soon as I can afford it we shall abandon it altogether and put in water works, bath room, water closets, and carry the drain a good way off. Unless carefully managed this water closet will be more dangerous than the present dry earth closet. All this will cost money—almost as much as the doctor's bill and the nurse's. But it will not have to be done over again, and the doctor and nurse may be needed again, if we do not take care.

I write this to stir up some who have not yet had typhoid. They may by investing a very little money and labor save ten times the amount in cost of sickness, to say nothing of the sorrow. If one can not do more he can drill a well, and preferably a deep one. If he can not afford a sanitary water closet with drainage carried afar off he can build an absolutely safe earth closet. It should have a cement floor, concave, so that absolutely no drainage from it to the soil beneath could take place. Then there should be a capacious bin in the closet filled with dry earth and slaked lime, or coal ashes and lime. Never mind if the lime does destroy the value of the night soil You can keep it entirely odorless and safe and it is quickly and without offense removed at intervals with a shovel and carried off.

Permit no slops to be poured there. Never pour slops twice on the same ground. Get it firmly into your head that typhoid is not a "dispensation of Providence," but a foul disease carried by drinking impure water. This water must be polluted by human excrement and must carry organic matter to nourish the germs. Seven years ago my brother and sister had the disease at the home place; my sister never recovered fully, but died from the effects; my brother took four years of ranch life to make him the man he was before. Then we moved and made sanitary the earth closet, moved the garden and made it into a lawn and there has been no sickness since. That well has thousands of barrels pumped out of It every year by wind power; it is practically a spring.

Yes, I own to having typhoid, and plead guilty of the blackest crime a man can commit, being careless of the well being of my children. I plead simple ignorance in extenuation, and so are you ignorant, friend, and this is to warn you. —JOSEPH E. WING, in *Breeder's Gazette.*

Prosecution for Selling Adulterated Milk in Wisconsin.

ED. HOARD'S DAIRYMAN:-It may be of interest to your Wisconsin readers to be informed that during the past six months about thirty legal prosecutions have been instituted against persons for violation of the law by furnishing adulterated milk. In all but two of these cases convictions have been secured and fines of twenty-five to fifty-five dollars and costs have been imposed. Some of these convictions were for watering milk, others for skimming and a number were for the use of formaldehyde. Some of these convicted for the use of formaldehyde were furnishing milk in cities and others to cheese factories. Some months ago a prominent cheese dealer and cheese factory owner in this state was fined fifty dollars and



How she raised the Mortgage

MRS. L. R. TRYON
lives in a small town in southern Connecticut. She writes:

'Each year for seven years we tried to pay off a little of the mortgage on our home but almost every time we got a little put by sickness or something else seemed to eat it up. I had earned pin-money through The Ladies' Home Journal and The Saturday Evening Post and thought of the same plan to help pay the mortgage. The prize money for the summer's work, together with the commissions, will pay the last installment next month, all done by myself in odd hours during about a year and a half."

Thousands are earning money by this plan. Anybody can do the same.
Besides paying liberally for every subscription secured we are giving

$50,000
in Extra Cash Prizes

Each month $5000 will be given to **325 persons** who do the best work that month and, at the end of the season, **$10,000** more to the **451 persons** who have done the best work during the whole time. Everything necessary sent on request.

THE CURTIS PUBLISHING COMPANY
615 Arch Street
Philadelphia, Pennsylvania

Buy You a Ticket to CROOKSTON, MINN., and call upon
The Polk County Land & Loan Company

For Choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.

360 acre farm, 4½ miles from Crookston, Minn., a city of 7,000 inhabitants, and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 feet square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm is under a high state of cultivation, and is well drained by a slight ravine running through the farm merely sufficient for self drainage. The soil is a rich, deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50.

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired. Price $19.00 per acrs.

FARMING!

Is a sure thing in the district in Minnesota between St. Paul and Minneapolis and Duluth and Superior because there is a market at good prices for everything the farmer produces. This is the greatest natural grass district in the west and splendidly adapted to dairying, stock raising, as well as the growing of small fruits and vegetables. Four great cities within 75 miles. Same grade of clay land in Southern and South Central Wisconsin from $50 to $80 per acre. Our prices from $7 to $15 on 10 years time. This is the time for laboring men or men on salaries who want to be independent to get 40, 80, or 160 acres well located and make a start. Write for illustrated book and map to largest owners of Central-Eastern Minnesota lands.
FARMERS LAND & CATTLE CO.,
GLOBE BUILDING. ST. PAUL, MINN.

FARMERS WANTED

Send card for FREE MAP and Price List of Wild and Improved Lands in Wadena, Otter Tail, Becker, Todd, Hubbard, and Case Counties, Minnesota. Low prices and easy terms. We are large owners.
MURRAY'S LAND OFFICE,
WADENA, MINNESOTA

Cream SEPARATORS.
All about them and other things for the dairy and creamery.
A. H. REID, Philadelphia.

PURE OIL MEAL.

USE FOR MILCH COWS AND FATTENING STOCK.

Superior to corn, oats and hay. Ton lots $23.00; half ton $12.00; 500 pounds $6.50; 100 pounds $1.50. Put up in 100-lb. sacks f. o. b. Minneapolis. Cash with order.

This Meal is Guaranteed Absolutely Pure. We also manufacture Strictly Pure Linseed Oil.

NORTHERN LINSEED OIL CO.,

MINNEAPOLIS, MINN.

When ordering mention this paper.



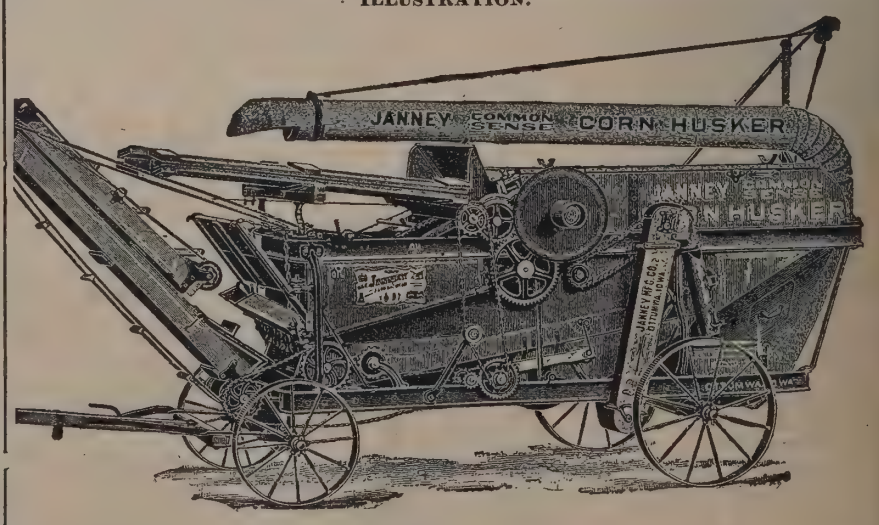
THE OLD RELIABLE
MILWAUKEE
Gasoline Engines
Are easy to start, simple and economical. Highest grade at a reasonable price. Look at the governor. The smoothest running engine on the market. All sizes, both stationary and portable. Send for catalog. Specially adapted for farm work. Built by **MILWAUKEE MACHINERY CO., 290 E. Water St., Milwaukee, Wis.**

FINE FARM

FOR DAIRYING OR STOCK RAISING

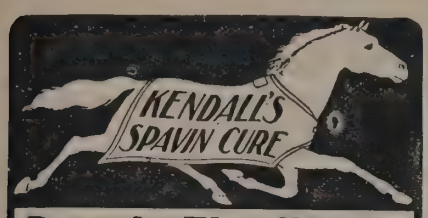
In the Republican Valley. B. & M. road runs through land. 400 acres all good alfalfa land, 125 acres pasture, with two living streams fed by springs that are never dry. Republican River within ten rods of land. 30 acres ash timber; land fenced and has two sets of buildings. Winter wheat and corn crop about perfect this year. Price $30 per acre, one-third cash, balance long time.
B. G. CARY, Republican, Neb.

ILLUSTRATION.



CORN AND COMMON SENSE.

The Janney way of handling a corn crop is the common sense way, because in addition to husking the corn perfectly it shreds the fodder into "corn hay" for feeding stock or selling, thus saving the entire crop. The Janney Common Sense Corn Husker and Fodder Shredder has been eight years in the field and easily leads all other machines of the kind and number in use as well as in quality of work. It yields an additional profit over the old way, and soon pays for itself by the saving. If you are not familiar with the advantages of owning a Janney Common Sense Corn Husker and Fodder Shredder, ask the nearest agent or send direct to Janney Mfg. Co., Dept D, Ottumwa, Iowa, for husker Catalogue and full particulars.



Best In The World.

The time-tried remedy which has done duty in every clime, making its way by its matchless curative properties for **Spavin, Ringbone, Curb, Splint** and all forms of **Lameness.**

Kendall's Spavin Cure.

Thousands of horsemen year after year gladly attest its merits.

Lisle, Ont., Dec. 19, 1902.

Dr. B. J. Kendall Co.,

Gentlemen:—I have used a great amount of your Kendall's Spavin Cure and I am now on my twelfth bottle. I have found it satisfactory. **I have cured dozens of horses,** have found it the best remedy I ever got hold of. We can get it right here in town. There have dozens of people asked me about it and I said "it is the **best stuff** in the world for **Spavins, Galls, Sprains** and many other things." They went and got a bottle and tried it and said it was just the best they ever got. I have been dealing in horses for twelve years and I never found anything to equal Kendall's Spavin Cure. Please send me one of your books so that I can tell the people more about it, and you will oblige, Yours truly,

JOHN RUSSELL HUNTER.

Price $1; six for $5. As a liniment for family use it has no equal. Ask your druggist for **Kendall's Spavin Cure,** also **"A Treatise on the Horse,"** the book free, or address

DR. B. J. KENDALL CO., Enosburg Falls, Vt.



Lump Jaw

Save the animal—save your herd—cure every case of Lump Jaw. The disease is fatal in time, and it spreads. Only one way to cure it—use

Fleming's Lump Jaw Cure

No trouble—rub it on. No risk—your money back if it ever fails. Used for seven years by nearly all the big stockmen. **Free illustrated book** on Lump Jaw and other diseases and blemishes of cattle and horses. Write for it today.

FLEMING BROS., Chemists,
228 Union Stock Yards, Chicago, Ill.

Calf Scours Don't let your calves die from this disease. You can save them by using Hood Farm Calf Scour Treatment, which consists of Calf Scour Cure, a liquid preparation which checks the scours, and Digestive Powder, a preparation of pepsin, which aids digestion, creates an appetite and keeps the calf from becoming stunted in growth.

HOOD FARM

Calf Scour Treatment

SAVES THE CALVES.

At Hood Farm, Lowell, Mass., in one year, there were 83 cases of scours. Every calf was treated with these remedies and all but 3 were saved. Formerly we lost 75 per cent. of all calves affected.

Two sizes of each remedy, $1 and $2.50, large contains four times the quantity of the dollar size. Prepaid to any railroad express point in U. S., 25 cents additional.

Address C. I. Hood Co., Lowell, Mass.

Mention this paper.

BARREN COWS CURED.

Write for Pamphlet and Testimonials.

Oldest and best Treatment Extant.

MOORE BROS., V. S., Albany, N. Y.

CHLORO-NAPTHOLEUM DIP EXPERIENCES

West Disinfecting Co., New York.

GENTLEMEN:

Your letter, price list and circulars about Chloro-Naptholeum Dip received. I have used a few gallons procured from a stock dealer here, and found it so good that I intend using it in my dairy in place of the different disinfectants, germicides, etc., heretofore used. Kindly ship me one barrel.

Yours truly, GEO. A. VILLERE.

Cloverlands Dairy Farm, Louisiana.

Sold in sealed trade-marked cans, 1 gal. $1.50; 5 gals. $6.75. Freight paid. Special prices on tanks and sprayers.

West Disinfecting Co., Inc., 8 E. 59th, Street, N. Y.

Distributing depots in all large cities. Send for free booklet on Cattle, Sheep, Swine, and Poultry. The Guide to profit for Live Stock Owners.

ARROW BRAND Asphalt Ready Roofing



can be laid on top of old shingles without tearing off the old roof. Send for free samples.

ASPHALT READY ROOFING CO.,
82 Pine St., New York.

costs for selling skimmed milk" cheese, contrary to law. We have evidence of other violations of the law and prosecutions are to be instituted as fast as the force at the command of this commission renders it possible.

It has been a peculiar experience and has given me a new notion of the possibilities of human nature, to observe the weak and silly sympathy expressed in certain neighborhoods for these law breakers and to notice in some instances the pettifogging in the local press to free them from the odium justly brought upon them by their action.

Our regret is that the force of this commission is not sufficiently large to enforce the law so completely that not even one guilty person could escape.

J. Q. EMERY, Commissioner

Madison, Wis.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Heifer Gives No Milk.

I have a heifer just come in first calf, she has not given any milk. I have had a veterinary treat her. He can do nothing for her. She has had no grain. She is a registered Guernsey. Would you advise keeping and try again? G. W. W.

Saugerties, N. Y.

ANSWER.

When the heifer comes fresh again, care must be taken to induce the udder to secrete milk by applying hand rubbing to the udder a week or two before calving time. You may also apply dilute alcohol after rubbing.

Unknown Disease.

I have a two-year old heifer that dropped a calf Sept. 28, 1903, and for two weeks did finely; then began to break out on back part of udder, a raised blotch as large as a dime down to a speck, and has now extended all over her body, clear down to her feet, dry and hard. One over end of teat makes it necessary to draw the milk with a tube; is gradually drying up; does not seem to be much sore; stands perfectly to be milked; has had a large bunch in flank as large as a turkey's egg, seems to be loose under skin. W. E. T.

Lynn, Susq. Co., Pa.

ANSWER.

Your case requires a personal examination as it is something unusual. Employ a qualified veterinarian.

Texas Fever Perhaps.

My cows are sick; I don't know whether it is red water or tick fever. They don't seem to be in any particular pain; they won't eat or drink and when they walk seem weak in the hind quarters. The water is red, sometimes nearly black; stay in that condition 2 to 3 days and die. G. C. S.

Monroe, Ga.

ANSWER.

Your description would indicate Texas fever as far as it goes, but there is not enough of the description to warrant the writer to arrive at a positive conclusion. The safer way would be to employ a qualified veterinarian and have him make a personal investigation, both of the living and the dead animals. If you have no such veterinarian in your vicinity, write again and mention every detail of the trouble, note everything unusual, and we will try to advise more definitely.

Barrenness.

I have a grade Guernsey cow now 5 years old. She dropped her first and only calf before she was 2 years old and is still giving about 4 quarts of milk, but all efforts to get her with calf have failed, I have owned her about a year, but the foot and mouth embargo prevented my sending her to bull until 7 weeks ago; she took the bull all right and past the first time (3 wks.)all right, but at the end of 6 weeks came in heat again. F. H. S.

Framingham, Mass.

ANSWER.

This is usually the result of an abnormal condition of the female organs of generation. If possible have these examined and ascertain the cause. Sometimes the animal is too fat to breed, and often a mere change of bulls will remedy the trouble.

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from **Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING.** *Impossible to produce scar or blemish.*

Every bottle sold is warranted to give satisfaction Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland O.

"SAVE-THE-HORSE"

—TRADE MARK—

SPAVIN CURE.

The Commonwealth Press. Oliver B. Wood Proprietor Worcester Mass.

Mercantile and Law Printing a Specialty

Blank Books Manufactured to order.

OLIVER B. WOOD,

Printer and Stationer,

No. 50 Foster Street

Worcester, Mass. June 11, 1903.

I have a Wilkes Pacing Gelding that became lame in the off forward foot. The soreness was just above the hoof, with a tendency to throw out a ringbone. I tried three veterinarians and various advertised remedies which were on the market but without effecting a cure. Also fired and blistered him once. My attention was called to your remedy by a friend who urged me to use it. After one month's trial and the use of one and one-half bottles, we hitched the horse up and drove him and he has never taken a lame step since. Have now been driving him six months on the road, have speeded him on the track and macadam roads and he is as sound as a bullet. It is certainly a wonderful remedy and I feel that I cannot say too much in its praise. Wishing you every success, I am yours respectfully

O. B. Wood

J. H. DAY LEADING DRUGGIST

Dayton, Wash., Sept. 15. 1903.

Troy Chemical Co.

Troy, N.Y.

Gentlemen:-Herewith please find enclosed M.O. Exchange for which please send me at once 1 bot. "Save-the-Horse"

"Save-the-Horse" is certainly accomplishing wonderful results in this case. The bog is all gone and the Thoroughpin is fast disappearing.

Very truly yours J. H. Day

RIPON, WIS., July 29, 1903. Gentlemen: My horse had ringbone on right hind leg. Used blisters for nearly one year and had him fired, but to no effect other than to leave a bad scar. In April I purchased a bottle of your "Save-the-Horse" and by the time I used half of the bottle it had completely cured the lameness and is reducing the bone. Yours respectfully,

E. B. Dakin

It is the truth---actual results from business men whose standing and reliability can be readily ascertained--- which have made "Save-the-Horse" such a success. Their cured horses are living advertisements, absolute certainties as to the possibility of the remedy in your own case, and with every bottle is a guarantee document as binding to protect you as the best legal talent could make it.

"Save-the-Horse" cures without scar, blemish or loss of hair, can apply at any time, any place, and in all conditions and extremes of weather. Horses may be worked as usual with shin or ankle boots, as no harm can result from destruction of hair or scalding of limb. **Positively and Permanently Cures Bone and Bog Spavin, Thoroughpin, Ringbone,** except low ringbone, **Curb, Splint, Capped Hock, Windpuff, Shoe Boil, Weak and Sprained Tendons and all Lameness. $5.00 per Bottle.** Written guarantee with every bottle given under our seal and signature, constructed solely to satisfy and protect you fully. Need of second bottle is almost improbable, except in rarest of cases. Send for booklet and copy of guarantee. $5.00 per bottle at all druggists and dealers, or sent express prepaid.

TROY CHEMICAL CO., TROY, N. Y., Also Manufacturers of Veterinary Pixine.



TUTTLE'S ELIXIR

Cures Curbs, Splints, Spavins, Etc. Equally good for Colic, Distemper, Etc. Our 100-page book, "Veterinary Experience", FREE.

DR. S. A. TUTTLE,
62 Beverly Street. Boston, Mass.

..ABORTION..

RETENTION OF PLACENTA AND FAILURE TO BREED.

KELLOGG'S CONDITION POWDER

Is a positive cure for these diseases. Write for circular containing full information, references and price.

H. W. KELLOGG CO., St. Paul, Minn.



ABORTION

Can be successfully treated with **Anti-Abortion Serum.** Easily administered and permanently cures. Information free.

DR. ROBERTS VETERINARY REMEDY CO.,
543 Grand Ave., Waukesha, Wis

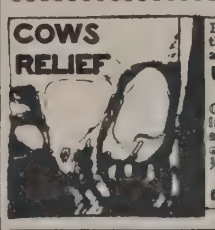
DR. GEORGE HOLLABUSH'S

Sure Cure for Abortion



and General Tonic for Cows. The only genuine sure cure and general tonic for cows on the market. I guarantee, and refund money if not satisfactory.

Dr. Geo. Hollabush, Ft. Atkinson, Wis. Write for circular.



Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.

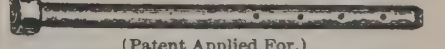
Used Exclusively at Model Dairy

Guaranteed to cure caked bag in 12 to 24 hours. Saves 50c and saves cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.

C. H. MFG. CO.,
Dept. H, Lyndon, Vt.

ABORTION,

Failing to Breed and bring Cows to Heat. Sure Cure. In use 20 Years.



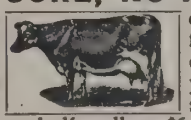
(Patent Applied For.)

Hard Rubber Safety Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.

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CURE "THE" COW

NO CURE, NO PAY



WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full direction for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per quart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address

DR. EATON J. GROSS
152 Congress St., Troy, N. Y.

BLACKLEGOIDS

BEST PREVENTIVE OF BLACKLEG.



Blacklegoids afford the latest and best method of vaccination against blackleg—simplest, safest, surest. They are always ready for use; no filtering, measuring or mixing is necessary. Accuracy of dosage is always assured, because each **Blacklegoid** (or pill) is exactly sufficient for one inoculation. Administration with our Blacklegoid Injector is easy. The operation need not consume one minute. **Blacklegoids** are sold by druggists; *ask for them.*

Our newly printed eight-page folder on the "Cause and Nature of Blackleg" is of interest to stockmen. Write for it; it is free.

PARKE, DAVIS & CO. DETROIT, MICH.

Branches: New York, Kansas City, Baltimore, New Orleans, Chicago; Walkerville, Ont.; Montreal, Que.; London, Eng.

Magnitude of World's Fair Prizes.

That the cash prizes offered in the live stock department of the Louisiana Purchase Exposition aggregate almost thirty per cent more than the total premiums of twelve leading state fairs and the International and American Royal shows combined, might reasonably be doubted by experts in such matters, but such is the case. The cash prizes in Chief Coburn's department of the World's Fair are $55,300 greater than those offered by the fourteen largest live stock shows of the United States in 1092.

This interesting comparison was made at the recent meeting of the American Association of Live Stock Herd Book Secretaries, in a paper on "Live Stock Exhibits at the World's Fair," read by Hon. Geo. W. Stubblefield. Mr. Stubblefield took for comparison the amounts of money offered in 1902 by the state fairs of Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, Nebraska, New York, Ohio, Texas and Wisconsin, and of the International Exposition at Chicago and the American Royal show at Kansas City. The total live stock offerings of these fourteen great shows, compared with those of the World's Fair at St. Louis, read as follows:

	State Fairs.	World's Fair.	Difference.
Horses	$49,488.00	$93,640	$44,152.00
Cattle	84,623.50	64,030	-20,593.50
Sheep	23,906.50	45,500	21,593.50
Swine	24,477.00	32,186	7,709.00
Poultry and pigeons	13,329.85	15,770	2,440.15
Totals	$195,824.85	$251,126	$55,301.15

These figures give at a glance a view of the magnitude of the World's Fair live stock prizes. The differences shown above are in favor of the World's Fair except for cattle, for which the aggregate of the fourteen shows is the larger. The sums allotted to the dog, cat and pet stock shows at the World's Fair are not included in the foregoing.



The "Penny Wise and Pound Foolish"

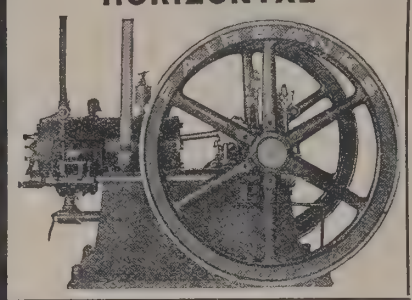
Policy has an apt illustration in the man who buys a **CHEAP** gas or gasoline engine. Unreliable service, frequent and expensive repairs, wastefulness in fuel and short life offset many times over, the small saving in first cost. The **"OTTO"** is the original and **BEST.** Suppose it does cost a little more money, the extra dollars are well invested. **70000** users throughout the civilized world support us in this claim.

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THE FAIRBANKS CO.

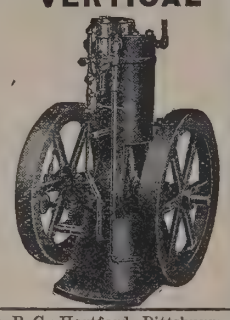
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HORIZONTAL



GASOLINE ENGINES for all Farm Work. Write for CATALOGUE No. 360

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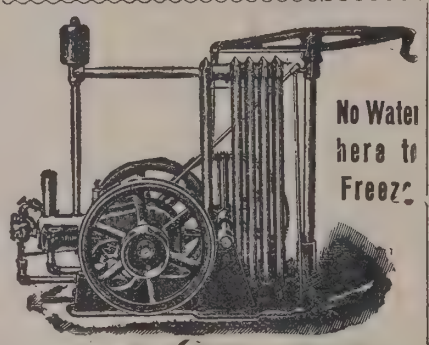
Gas Engine Excellence

is best represented in the **Buick** Engines---the reason why we make more small engines than any other manufacturer. Are you thinking about an engine to do the cream separating, churning, pumping, feed cutting or other farm work? Do you want guaranteed workmanship and up-to-date construction! If so, it's going to pay you to get our catalog H before buying.

THE BUICK MFG. CO., Detroit, Mich

DON'T BUY GASOLINE ENGINES UNTIL YOU HAVE INVESTIGATED **"THE MASTER WORKMAN"**

A two-cylinder gasoline engine; superior to all one-cylinder engines. Costs less to buy and less to run. Quicker and easier started. Has a wider sphere of usefulness. Has no vibration; can be mounted on any light wagon as a portable. Weighs less than half of one cylinder engines. Give size of engine required. Sizes 1½, 2, 2½, 4, 5, 6, 8, 10 and 15 horse power. Mention this paper. Send for catalogue. **THE TEMPLE PUMP CO., Meagher and 15th Sts., CHICAGO.**



No Water here to Freez

If you want **Gasoline Engine**

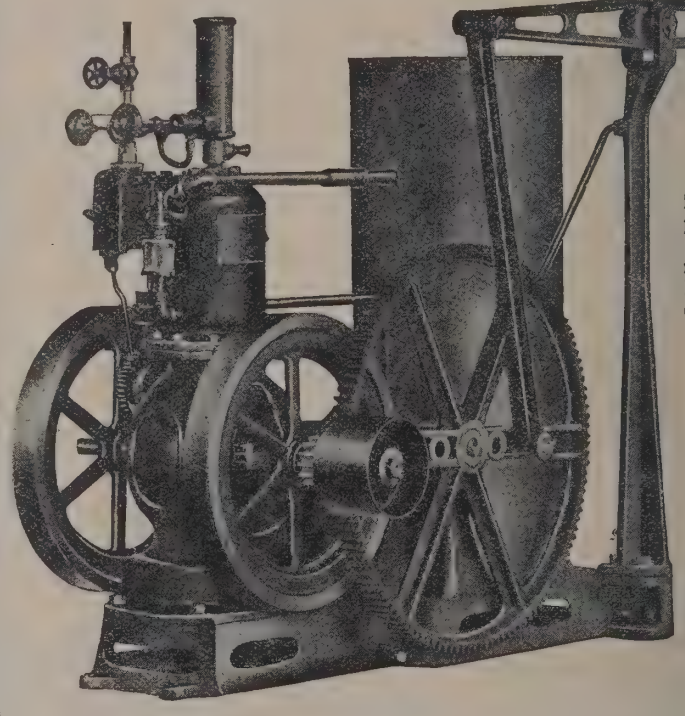
that will be always ready to start, safe, reliable convenient, economical and durable, buy a **FULLER & JOHNSON Frost Proof.** No bother with water nor expense of broken cylinder, no waiting for wind or weather. All sizes, stationary and portable. Send for descriptive catalogue to the manufacturers.

FULLER & JOHNSON MFG. CO., Madison, Wis.

The Model Gas and Gasoline Engines

MANUFACTURED BY:

The Central City Iron Works, Stevens Point, Wis. and Model Gas Engine Co., Auburn, Ind.



Portable Engines from 2 to 25 horse power, Horizontal, Stationery and Marine from 2 to 100 horse power inclusive.

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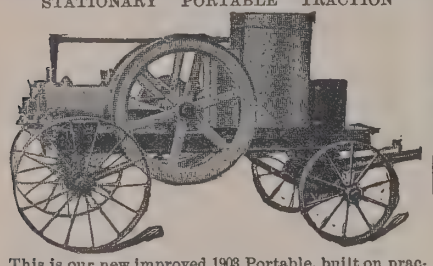
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VERTICAL ENGINE AND PUMP JACK WITH ALL IRON BED PLATE

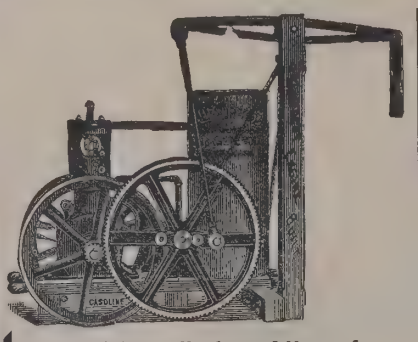
BADGER GASOLINE ENGINES

STATIONARY PORTABLE TRACTION



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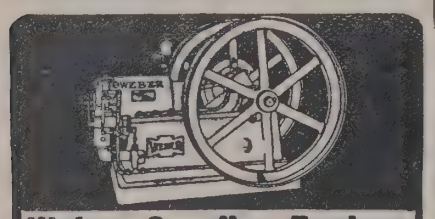


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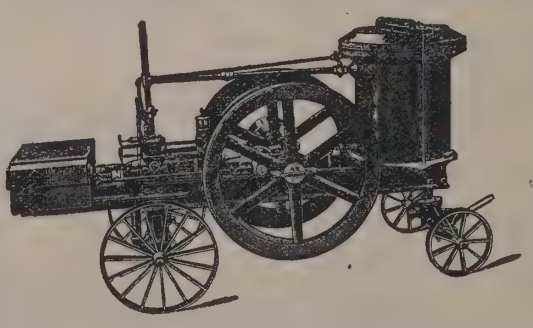
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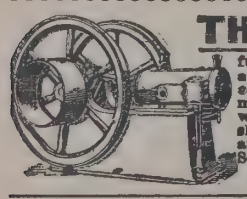


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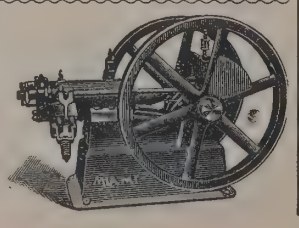
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A Peep Into a French Farm Dairy.

A recent issue of the *Scottish Farmer* contains a racy description of a visit made by a lady correspondent to a French farm when churning was going on:

One fine evening Monsieur Y—— and I, out for a bicycle ride, pass a farmhouse in the middle of a field. It has a square garden in front facing the road, and at the side and back a court-yard floored with clayey soil and hemmed in with roughly put up rails. Within the court-yard the farmer and his man are busily engaged in churning, whilst Madame —— walks around superintending their operations. "Would you enter?" says Monsieur Y——. "Yes, I should like to very much," says I, and he waves his arms to the people round the churn. Immediately a small boy comes running to the road gate to unlock it for us (the farm gates are all locked to keep out the many beggars who infest the district), and we pass in and around the house to see the churn. Madame, short, strong-looking, and suntanned, receives us graciously, shaking hands and talking volubly. We wish to see the butter? Oh, certainly we may, if we care to wait, but it will not be ready to make for at least an hour. The churning has lasted but one hour yet, and there is much cream in today, and she lifts the lid of the churn to let us have a peep.

The cream is thick and clinging in one mass of tiny bubbles, and as I look into the churn I am amazed to see that it is filled to within a foot of the bung hole. The churn is a large, horizontal, barrel one, and may be used either as a revolving barrel or as a still barrel with revolving dashers. "In hot weather," says Madame, "we turn the barrel, in cold we turn the dashers." She goes on to tell me, in answer to my questions, that the churn will hold over 250 quarts, and 150 lb. of butter may be churned in it easily. I say to myself, mentally, if it were my churn, it should never be used for more than 90 lb. of butter—120 quarts of cream. But, then, I should never expect our men folk to churn more than 40 minutes.

Madame does not possess a thermometer, and never regulates temperature, beyond keeping the dairy warm in cold weather by means of a small charcoal portable stove, and churning in the cool morning or evening in summer. Some people in Normandy do use a thermometer, but she has never bothered. While we talk, the daughter of the house, tall and straight, with black eyes and wavy hair, walks to and fro washing up milk pots—terreens of rough, hard earthenware—in which the milk has been set two days for creaming. There are 13 of these, all in a row, set on a wooden board to keep them off the ground. At one side of the court-yard is a large, portable zinc boiler, with a little stove under it, and at another side, conveniently near, a pump with a large tub set under it. Madamoiselle walks to the side of the field and picks a good bunch of nettle tops. After crushing these in her apron she drops them into some warm water, lifted from the boiler into a terreen, then grasping them firmly scrubs round the latter thoroughly. The terreens seem to have been rinsed with cold water before my arrival upon the scene.

All that they ge,t after scrubbing with this one lotof warm water, is a good rinssing in clean, cold water in the tub, under the pump. Having given them this, Madamoiselle ranges them, tilted against the house wall, upside down on a rail, which is fixed along about 15 inches from the wall. Madame, entering the dairy at this stage, I am attracted to see what she is doing. She opens the window and a faint cloud of smoke comes out through it. Wondering at this, I am delighted to be invited to enter and see the cause. The dairy is small, and fitted with shelves for milk pots all around—many milk pots stand on the floor also—and near some of these latter, is a small portable stove, which has been lit to-day to keep up the temperature; these cold east winds take so much heat out of the air, and discourage germ life, so that the milk does not sour readily, without some assistance from the heat of the stove.

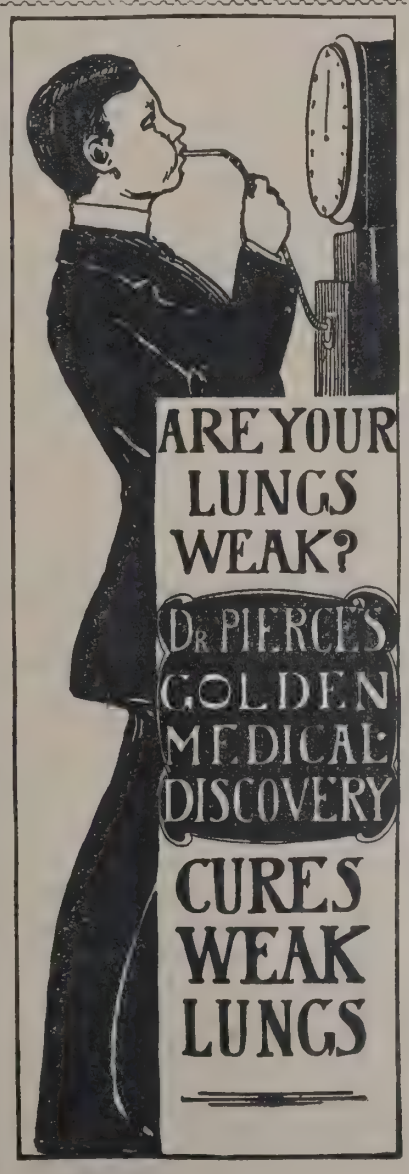
The churning still continues, and there is no sign of butter, so Madame lets us wander round the farm and see the stock, while she crams with pellets of barley meal and buttermilk, ten fowls being fattened for market. The farm consists of 42 acres of good, but marshy land. There are 13 cows in milk (and one not milking) in a field seven minutes walk from the house, and two light horses in another field. Then nearer home 5 or 6 adult turkeys, 50 young ones, of about six weeks, and 10 just hatched, two fattening pigs, and two younger ones to be fattened later, four or five calves and a mixed lot of fowls to the number of about 60. The five calves of about six weeks old, look hungrily up as we inspect them. They are tied up in the corners of their square house, and when I asked Madame if she ever loses calves, she nods her head sorrowully and says yes, about every year some—two have died this year. "What was wrong with them?" "Oh some malade," and she lifts her shoulders and spreads her hands, to indicate that she knows not what it was. They were very bad and died.

I regret not having enough French to inquire if the "malade" was white scours, and to recommend a dose of castor oil first, and afterwards two or three doses, consisting of a third of a small bottle of "gaseous fluid," at intervals, as a remedy, for I know a place where many calves have been tided over an attack of this nasty complaint by those means.

As we approach the house we see that at last the butter has come, and the master is drawing the buttermilk into large wooden pails. He has churned nearly three hours, and during our absence has been obliged to take some of the cream out, because the churn was too full. Now the butter is in a great yellow lump, resting on the dashers as the buttermilk gradually disappears below. Quickly, when all the buttermilk has been drawn, this butter is worked by the dashers in four lots of water successively, each lot consisting of about 50 quarts.

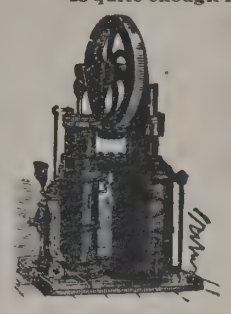
In each water the dashers are turned about a minute fairly quickly, so that the butter may be well squeezed and broken against the side of the churn, and the last water is quite clear when the washing is done. Whilst this has been going on, Madame, taking a terreen (pot) from the rail and a bunch of nettles from the fence, has well scrubbed the former with wood ashes and rinsed it with clean water, and also she has brought out from the house a small wooden table and spread over it a very fine, wet, linen cloth.

Now she stands by the churn with her right hand ready to lift the butter out. But first we must all taste it and pass our opinion on it, so Mademoiselle rushes for the loaf that we may have a small "thumb piece" each. The flavor is very



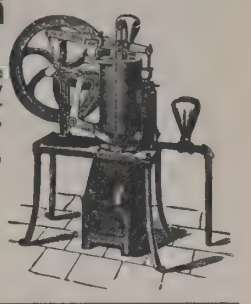
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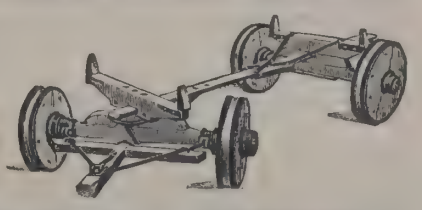
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good, but I can detect a slight indication of the butter having been rubbed, which is not surprising, under the circumstances. Color also is good, but the consistency is inclined too much to greasiness.

Madame lifts some butter into the prepared pot with her right hand, and this is the only stage at which it is touched by hand. Having carried it to the table, she takes a small flat spoon of boxwood, and lifting the butter in spoonfuls on to the linen, pressing and flattening each bit, she piles it in a round heap. When about half the butter from the churn has been thus piled it begins to dawn on me that it is to be moulded to a special shape with that spoon, for Madame smooths the sides most carefully and presses them in to taper towards the bottom. Finally, when she has done, there is a large mass of butter (about 130 lbs., an extra large churning this week, evidently) of the exact shape of the large, strong hamper in which it is to be carried to market; broad and raised on top, tapering towards the bottom; smooth, without a crease in all its surface, it has here and there a drop of clear water trickling down its sides.

The linen cloth is next wrapped round the sides and folded over the top, and the mass of butter dropped into the hamper. Tomorrow it is to be conveyed to the market, eight miles off, and sold to a factory owner, who will pay for it and grade it according to its quality, then work it up at his factory with blender and butter-worker, washing it again with a shower bath of water as it is being worked, and adding dry salt to it. Finally, he will divide it into small packages of 20 to 30 lbs., pack it in grease-proof paper in beautiful, clean-looking white willow hampers, and perhaps export it to England.

It is ten days since the events described above occurred, and Madame having kindly given me a piece of butter to take home with me, I have kept part of it until now. Though it has not a speck of salt in it, it is as pleasant to-day in flavor as on the day it was made. I thought it better at the end of the week than on the day of making. This week the churning only took an hour and a half. No doubt the fact that the men have to churn so much cream at a time lessens the friction applied by long churning, and hinders the speed of churning from ever being high. Otherwise such work would be disastrous to the quality of the butter.

Washington State Dairymen's Meeting.

ED. HOARD'S DAIRYMAN:—The Washington State Fair which is yearly held at North Yakima, Wash., has just closed it meeting with good success in all its departments. During fair week the President of the State Dairy Association, Hon. H. L. Blanchard and the board of directors met at the beautiful home of the Secretary, Mrs. E. Carmichael, where they with a number of other prominent people partook of a splendid banquet, followed by music and singing.

The board of directors decided to hold the meeting of the Washington State Dairymen at North Yakima, Wash., on December 29, 30 and 31st. A strong effort will be made to get prominent men from abroad to make addresses and others to prepare essays. No pains will be spared to make this one of the best meetings ever held in the state, An attractive and snappy program will be prepared. Let every dairyman who reads HOARD'S DAIRYMAN in the state of Washington, remember the date and come to this meeting and listen to good dairy gospel from some of the best dairy students that can be procured.

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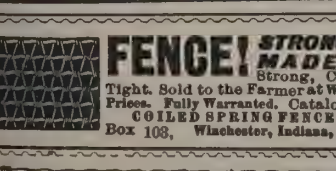
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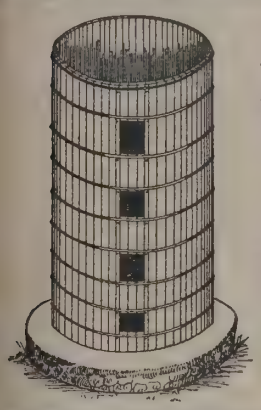
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if you want the best, and the best is always the cheapest, especially in Silos. Write us for prices and circular.
If you are in the market we can save you money.
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Anderson, Ind.

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We have a book telling all about our celebrated ADVANCE FENCE which we send anywhere free. If you are going to buy any fence this year, you cannot afford to miss getting this book, and reading how we send Advance Fence anywhere on THIRTY DAYS' FREE TRIAL, and sell it to you for less money than the dealer will charge you for fence not as good.
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of a powerful runaway auto at Zanesville, O., fair was suddenly stopped by Page Fence, but not until had killed or injured a score of people.
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BROWN
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Heaviest, strongest, most durable fence made. All sizes and styles. We sell at factory at wholesale prices. Send Spring, Fall and Full Catalogue. Also
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Glenwood's Mainstay 12th. 8908, E. T. Gill to R. T. Ridgway, Cream Ridge, N. J.
Glenwood's Mainstay 14th. 8910, E. T. Gill to William Conley, Cedarville, O.
Golden Morning 3rd. 8441, Chas. L. Hill to Levi Kundsen, Brodhead, Wis.
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Texan of the Elms 8096, Rob't W. Lord to Thomas H. Jackson, Sebago, Me.
Wood of the Homestead 8070, A. C. Gardiner to E. H. Phillips, Cape May, N. J.

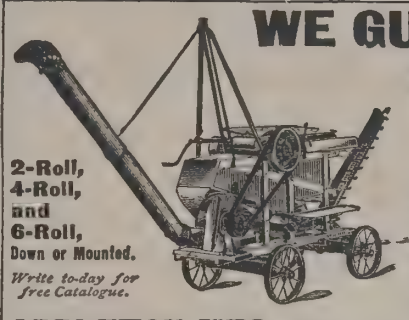
COWS.

Armorel of Haddon 5th 16622, E. T. Gill to R. V. Lindabury, Bernardsville, N. J.
Autumn 16437, Henry Winke to R. Tratt, Whitewater, Wis.
Bollona of Geneva 11468, Blanche of Geneva 15048, Careno 2d 9180, Careno of Geneva 16439, Irene of Geneva 15045, Kindness Filia 8641, Midget of Geneva 13508, Olymphia of Geneva 14790, Quinnebasset 14757, Robiana 9182, Standard's Electra 16241, Tristanette 9790, Renobia of Geneva 15046, Zoefram 14499, Est. N. K. Fairbank to F. Reitbrock & Geo. C. Hill & Son, Rosendale, Wis.
Blanche of Geneva 15048, Irene of Geneva 15045, Midget of Geneva 13508, Olympia of Geneva 14790, Quinnebasset 14757, Zenobia of Geneva 15046, Zoefram 14499, Starlight's Excelsior 7992, Bellona of Geneva 11468, Careno 2d 9180, Robiana 9182, F. Reitbrock & Geo. C. Hill & Son to W. D. Hoard, Ft. Atkinson, Wis.
Babette of Riverside 16429, Princess Anne of Riverside 16428, James Forsyth to W. W. Fisher, Watervliet, Mich.
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Hartha O. K. 12943, Arba of Oak Ridge 15841, Mabel of Oak Ridge 15842, Fred Vogel, Jr., to F. W. Noth, Tomah, Wis.
Jessie Lightfoot 9600, Linda F. 16614, Reeves Flitcraft to Wm. M. Moore, Woodstown, N. J.
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A Fence Machine that will make over 100 Styles of Fence and from 50 to 70 rods a day
AT ACTUAL COST OF WIRE
Horse-high, Bull-strong, Pig and Chicken-tight. Wire at Wholesale Prices. Catalogue Free.
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The best of all Lawn and Field Fences. Is hog proof. Manufactured in 18, 24, 33, 39, 50 and 56 inch heights; in 20 and 40 rod rolls. The narrow widths can be supplemented to any height desired by Barbed or Plain wire, or two strand twisted Cable wire. Manufacturers of Diamond Mesh Fence. Plain, Galvanized, Barbed or Telephone Wire. Wire Nails and Hay Bale Ties. Write for illustrated catalogues and price lists. Dillon-Griswold Wire Co., Sterling, Ill.


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We give to farmers and feeders in this mill the Largest Capacity with the lightest draft. Made so it can't choke. Grinds Corn and Cob, Shelled Corn, Corn and Oats, coarse or fine without changing buhrs. Made of best material and lasts indefinitely. Don't buy until you see our circulars. Write to-day.
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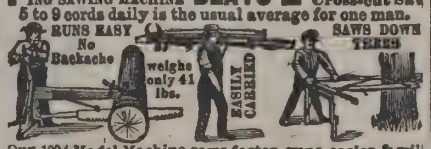
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CRUSH ear corn (*with or without shucks*) and GRIND all kinds of small grain. Use Conical Shape Grinders. Different from all others.
LIGHTEST RUNNING.
Handy to Operate. 7 Sizes—2 to 25 h. p. One size for windwheel use.
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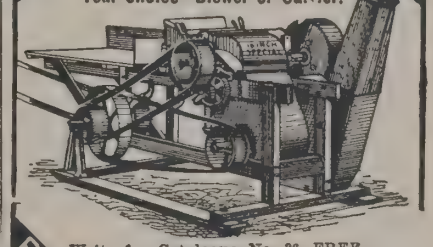
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Fan attached to knife wheel and blows feed or ensilage through any length pipe with less power than any other blower. Full line of Tread and Sweep Powers, Root Cutters, Saw Frames, Belle City Threshers etc.

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"They Throw and Blow"
They require less power than any other blower because the wheel containing the knives also contains paddles which throw and fans which blow. A two-horse tread power will cut and elevate 4 tons of ensilage per hour, and a 10 h.p. engine 20 tons per hour. No chains, belts or cogs to slip and waste power. Also silos, horse powers, engines, carriers, saw machines, etc.
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SAWS ANY WOOD IN ANY POSITION ON ANY GROUND 4 in. to 5 ft. Through
ONE MAN with a FOLDING SAWING MACHINE BEATS 2 MEN with a Cross-cut Saw
5 to 9 cords daily is the usual average for one man.


Our 1904 Model Machine saws faster, runs easier & will last longer than ever. Adjusted in a minute to suit a 12-year-old boy or the strongest man. Send for catalog showing latest improvements. First order gets agency. Folding Sawing Mach. Co. 55 N. Jefferson St., Chicago, Ill.

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When you buy the ROSS you buy the best
Your choice—Blower or Carrier.

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Write for Catalogue No. 36—FREE.
Prof. Woll's Book on Silage 10c.
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RIFLE & PISTOL CARTRIDGES.
"It's the shots that hit that count." Winchester Rifle and Pistol Cartridges in all calibers hit, that is, they shoot accurately and strike a good, hard, penetrating blow. This is the kind of cartridges you will get, if you insist on having the time-tried Winchester make.
ALL DEALERS SELL WINCHESTER MAKE OF CARTRIDGES.



COLONIAL BUTTER SALT

(Light, Flaky Grain)

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(Granulated, Uniform Grain)

"Money Makers for Butter Makers"

FLAVOR—PERFECT
COLOR—PURE WHITE

Purity—very highest, over 99 per cent pure salt.

Driest and Lightest Salts on Earth, thus retaining the moisture in the butter that would otherwise be worked out.

You don't know—you CAN'T know—what a difference these salts will make in the quality, weight, and value of your butter until you have tried them. Don't care what other salt you think is best you must try our brand before you find perfection.

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DIAMOND CRYSTAL SALT CO., ST. CLAIR, MICH.

BUTTER FOR UNCLE SAM

THE CONTINENTAL CREAMERY COMPANY
TOPEKA, KANSAS

Has been awarded the contract to supply the United States Navy with half a million pounds of butter for the ensuing year.

For this purpose only the best quality of butter is used, and its keeping quality must be made of the very best, owing to the fact that the entire year's supply must be made within a few months and it is carried through all conditions of climate.

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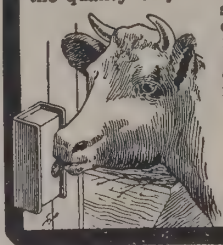
This company produces the greatest quantity of fancy creamery butter in the world, all of which is made from pasteurized cream. Surely it knows something about making good butter. It also knows from actual experience and the investigations of its chemists, that one of the factors in making good butter is

WORCESTER SALT--IT USES NO OTHER

FOR SALE BY ALL CREAMERY SUPPLY HOUSES.

WORCESTER SALT COMPANY
168 DUANE STREET, NEW YORK.

Compressed Pure-Salt Bricks.



Increase the quantity and improve the quality of your dairy products by supplying your cows with this modern convenience. Ask your dealer or send for free booklet to the

Belmont Stable Supply Co.,
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If You're Hunting

for something to preserve the purity of your butter on its precarious journey through commission house, storage cellar and market to the consumer's table, you should write for samples of

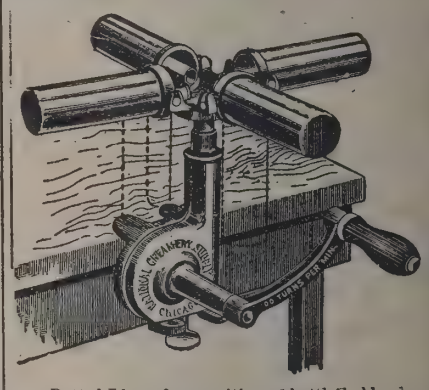
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Parchment Paper

It's the ideal butter wrapping. A pure vegetable parchment, which holds safely the delicate butter flavors and shuts out all injurious odors. **Made in circles for butter tub tops, linings for tubs and boxes, sheets for print wrapping.** Name or brand printed on sheets if desired.

There's a difference in parchments and so-called parchments. The Pioneer is the vegetable product with no taste or smell of its own to give the butter. Don't fail to write for the sample sheets and copy of book, "Better Butter."

THE PATERSON PARCHMENT PAPER COMPANY,
No. 37 8th Street,
Passaic, N. J.

NATIONAL Babcock Milk Tester



Dotted Lines show position of bottle holders, when not in motion.

Has enclosed cut gears.
Swinging bottle-holders.
Runs without jar.
As well made as a cream separator.
Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

DOES YOUR DAIRY PAY?

It costs no more to feed a profitable than an unprofitable cow.

NET PRICES.

No. 1,—2 bottle, complete for testing milk, each	$4 00
No. 2,—4 bottle, complete for testing milk, each	5 00
No. 3,—2 bottle, complete for testing cream and milk, each	4 50
No. 4,—4 bottle, complete for testing cream and milk, each	5 50

Prices include full directions for making test, bottle of acid, test bottle brush, acid measure, pipette and test bottles.

See our ad of STEEL TANKS and SCALES in NEXT issue. Write for catalogues and circulars.

National Creamery Supply Co.,

450—458 Illinois St.,
CHICAGO, U. S. A.

Spain's Churn



Hand made of thoroughly seasoned white cedar. Has large opening. Never gets water soaked or sours. Easy to clean. Simple to operate. A 30 years' test has proved it the best. Everything for the dairy or creamery—automatic milk scales, glass jars, butter workers, printers, shipping boxes, etc. Send for illustrated catalog of "Bestov" dairy supplies.

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DAIRYMEN'S SUPPLY CO.,
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CREAMERYMEN, DAIRYMEN and MILK DEALERS

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One horse can operate it. Very easy for two.
Send for circular.

NOT A COG NOR CHAIN ABOUT IT.



Simplest Press Made.

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Has an AUTOMATIC PLUNGER DRAW.

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We are the largest manufacturers of Grooved and Plain Tire Steel Farm Wagon Wheels in America. We guarantee our patent Grooved Tire Wheels to be the best made by anybody anywhere. Write us.

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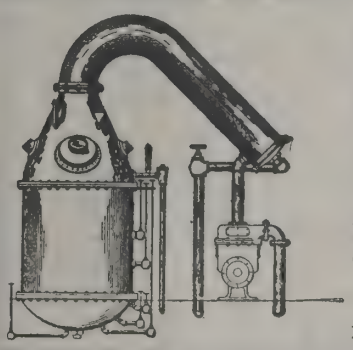
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W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs**
Liberal Advancements Made on Consignments.
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Chr. Hansen's Danish Butter Color
IMPARTS THE PERFECT "JUNE COLOR" TO BUTTER
Has stood the test of more than 30 years. Absolutely pure and harmless
CHR HANSEN'S LABORATORY, BOX 1003, LITTLE FALLS, N. Y.

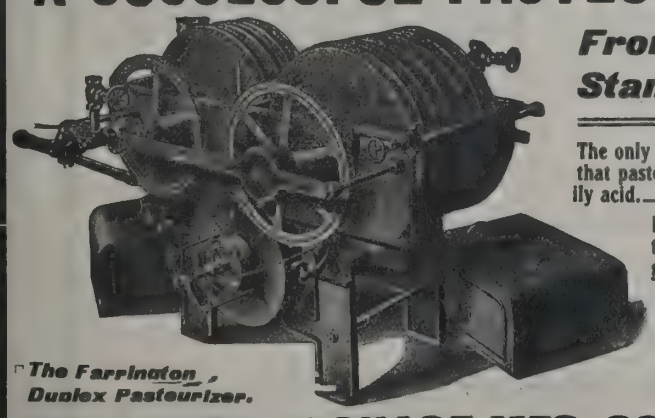
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Medals—Bronze 1878 Silver, 1887, World's Fair, 1893.



Milk Condensing Machine I supply the most improved machinery and most successful processes for manufacturing all classes of condensed milk and evaporated cream. Factories built complete, put in operation and results guaranteed. If you are interested write for my new illustrated and descriptive catalogue. The only catalogue ever published on the subject.
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(Formerly of Detroit, Mich.)
I am not associated with any person, firm or company.

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CONTAINS NO COAL TAR
The pure food agitation makes it imperative that butter makers use a color that is beyond suspicion. Every drop of Thatcher's Orange Butter Color is guaranteed purely vegetable, absolutely harmless and safe anywhere.
We also call your attention to Thatcher's Cream Cheese Color which is recognized by all as the best.
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THE STANDARD VEGETABLE COLOR
THE THATCHER MANUFACTURING CO.,
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A SUCCESSFUL PASTEURIZER



From Every Standpoint.
The only Pasteurizer made that pasteurizes milk heavily acid.
It makes good Butter—that makes good business.
Your Butter will score 8 points higher.
The Farrington Duplex Pasteurizer.
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A SCARED DAIRYMAN.

CHAPTER I.

It was a scared dairyman who said "Take away that bucket bowl separator." An agent for one of the many antiquated bucket bowl machines had tried to sell him one. Just in the nick of time he saw a 1903 Suspended Bowl Factory Tubular Separator.

CHAPTER II.

He saw the trouble a bucket bowl always causes—he saw the saving a Tubular Separator always offers. That's why he said "Take away that bucket bowl machine!"

CHAPTER III.

Sharples Tubular Separators are as modern and different from all others as all others are antiquated and alike. The Tubular bowl is hung from a single ball bearing—runs smoothly—doesn't vibrate—can't bind. It contains one tiny piece, and that removable, and can be thoroughly washed in three minutes. It has a bottom feed—thus preventing the mixing of whole and partly skimmed milk—makes clean skimming quick. The low supply can is easy to fill—A six year old child can look into it—it saves the back. The enclosed gears—running in a mist of oil—save power, avoid waste, prevent accidents.

CHAPTER IV.

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The Sharples Co., CHICAGO, ILL. **P. M. Sharples,** WEST CHESTER, PA.



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Great Stock Book
Free

If you will write and say what stock you have—how many head of each, what stock food you have used—and mention this paper. This book is a comprehensive treatise on the care of all live stock and poultry, based on the scientific knowledge and attainments of the eminent veterinarian, Dr. Hess (M.D., D.V.S.); written in popular language; commended and used by veterinarians everywhere. Get it and become a master of all stock diseases. Write to-day, to

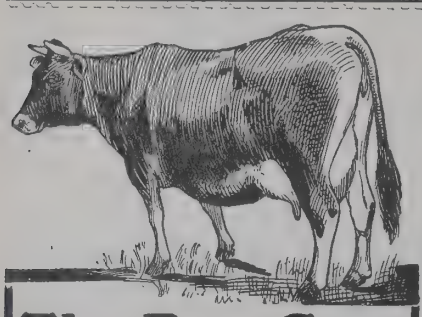
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Makers of Dr. Hess Stock Food.

STAR BRAND
MOLASSES FEED

ANALYSIS:
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For Dairy Cattle and Horses. If your dealers do not keep it write us for prices and sample.

M. C. RANKIN & CO.,
Herman Bldg. Milwaukee, Wis.



The Best Cow

you ever owned would be a better cow both in general condition and milk yield if fed a regular ration of

Alma Dried-Molasses Beet-Pulp

When pasture is insufficient or altogether lacking this Food supplies just the needed elements to maintain the maximum yield of milk. It is better than bran and costs less.

Let us send you our printed matter which tells how careful we are to have it proportioned just right and absolutely clean. See, too, what others think about it.

Alma Dried-Molasses Beet-Pulp is unlike many patent "stock-foods." It is a natural product and contains no drugs or other injurious ingredients.

Sanitary Milk Co., Grand Rapids, Mich., writes: "Send a second carload. We find it as a milk producer better than bran."

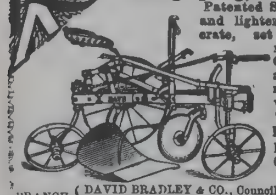
If you are feeding stock for the market you will find **Alma Dried-Molasses Beet-Pulp** fed with grain the best fattener, because it increases the appetite, aids digestion and assimilation.

Do not confuse this with wet beet pulp which freezes and ferments, or with common dried pulp containing no additional sugar. It takes 16 tons of wet pulp to make one ton of our Food and it keeps indefinitely. The genuine Alma Dried Molasses Beet Pulp contains 72 times as much sugar as wet pulp, and nearly 5 times as much as common dried pulp.

Write to-day for prices, directions for feeding, analysis by U. S. Government expert, etc. Address

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Light Draft, High Lift, Powerful Lifting Spring; Boy can handle it. Patented Step carries the plow and lightens draft. Shipped in crate, set up and sharpened ready for use. Spring Clevis eases draft and saves harness. Automatic Lock on rear wheel. Celebrated "Garden City Clipper" bottoms used.



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The Farrowing of the Sow.

ED. HOARD'S DAIRYMAN:—One of our Tamworth sows was bred June 13 last. According to our calculation, this sow should farrow October 6, 115 days being the usual period of gestation in the sow. By the middle of September, however, this sow appeared so heavy that we thought parturition was nearer at hand than we calculated. We had, therefore, some hesitation in crating her and taking her to the fair. We, however, risked it, and though we felt pretty sure of getting one of the three prizes on her, we possibly might lose the litter, and certainly would, did she farrow in the crate, and the chances of saving the litter in the small, cramped pens at the fair were not bright either.

Then the risk of crating a sow heavy with pig was also very great in a day's journey in the crate. We escaped any mishaps, however, in this regard, and got our sow home, after a week on the road, all right. This sow now appeared so heavy, her belly almost dragging on the ground, one would imagine that she was going to farrow twenty pigs. Not having farrowed three weeks previous to the date Oct. 6, we were now at ease as to the date of her coming labor. This sow has a mate, a litter sister, and the two are seldom or never seen apart from each other. They go together like Siamese twins, and seem pretty disturbed when parted—so much so that we were obliged to take this mate into the fair grounds, though we were perfectly sure she would take no prize, being under sized, and only carrying about two inches of a tail; the tail being cut off by the sow dam stepping on the tail on a plank floor while very young.

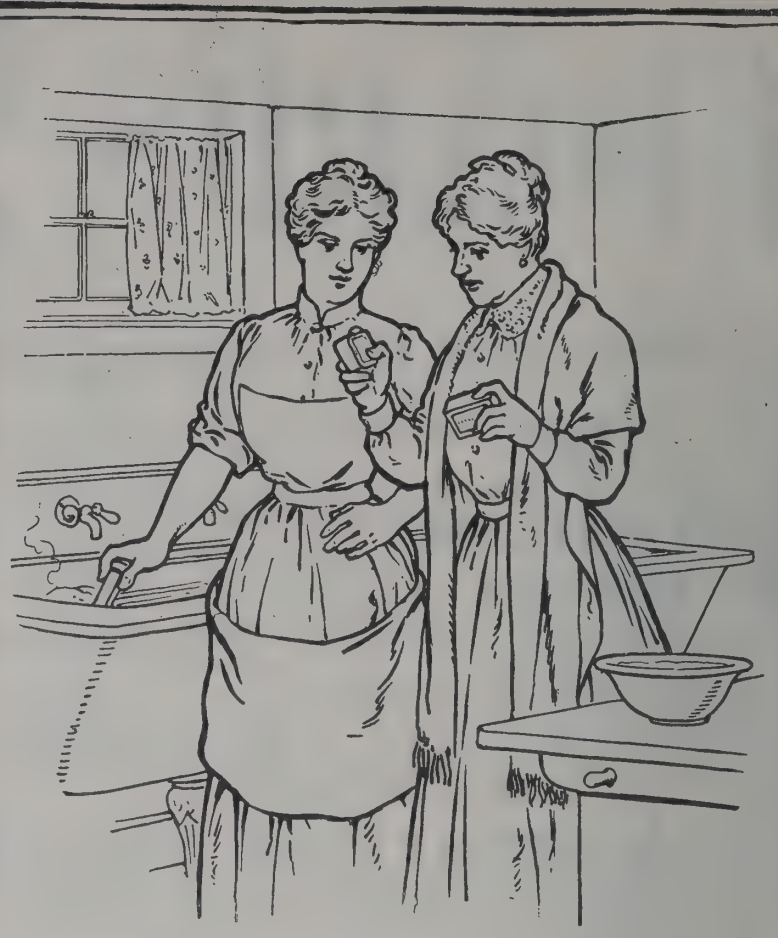
We got the sow safely home Sept. 29, with the others, and she and her mate were housed at night in a pen provided with fenders, and allowed to roam the yard and field during the day. After Oct. 3 the sow was housed at night by herself. On the nights of the 4th and 5th we visited the sow lest she farrow, and to be ready to give her any help and attendance necessary. She did not need it, however. On Oct. 6, the day she was legitimately due to farrow, we decided to keep her in the pen during the day, as no pigs had yet come, though they looked to be dangerously near. All the morning she worried greatly to get out, so we thought there would be no harm in letting her out in the yard, and having taken the precaution to shut all gates leading out to the fields, we kept our eye on the sow all the forenoon, but by noon we missed the sow. We immediately made a search, and found that she had burst open one of the gates leading to a field where there was a clump of thick woods in one corner. We searched the wood, and eventually found her farrowing and had now two pigs.

To leave her here courted disaster, as we had some experience in cases like this before, and that a sow, like bees, does not take kindly to moving from the farrowing nest of her own choosing, and difficult to make her take to the pigs in a new nest, however comfortable. We decided, therefore, to move her to her own pen in the hog house at whatever risk as to injury to the unfarrowed pigs. We gathered the two born pigs in a basket and drove her, out of the improvised nest, home, about two hundred yards distant. After some little difficulty, we got her into her pen, and took the two born pigs into the house by the stove, and gave them a teaspoonful of cow's milk with a little molasses mixed in. The sow was quite uneasy, and did not appear to at all like her new quarters.

For an hour she stood in the pen, ill at ease. By and by she laid down. At three o'clock we glanced in, and found two new comers, one dead, and the other all right; we took them immediately away from her. Then we went to watch by her, and in a short time she had six, one of which was dead, and another of which was a hairless runt, and four of which were big and lively. These we held to the teat as they landed on terra firma, and were soon working out their own salvation with the three that we had previously taken into the house. This made ten, seven of which were large and apparently thriving. It was now nearly sundown, and we shut all doors and left her for the night.

In the morning, when we visited the porcine family there was a new arrival, there being now eight industriously taking breakfast of lacteal fluid. She had

(Continued on page 863.)



The housekeeper must learn to discriminate between Ivory Soap and others that are made to look like it. Each of them lacks some quality of the Ivory and all of them lack its perfect purity. Their imperfections overbalance the slight difference in price. Use the genuine.

Ivory Soap
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—ANALYSIS:—
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Feeding the Young Animal.

Its Future Value Largely Dependent on Proper Food and Care During the First Winter of Its Life.

As a veterinarian whose busines, calls him into several states and upon the farms of many, I cannot help noticing the methods and practices of farmers in general. As has been stated in a previous article, my experience has taught me that 60 per cent of diseases of farm animals are caused directly and indirectly by lack of wisdom in feeding. It is not strange that my attention is directed toward the study of farm conditions, and especially to the young things in their struggle to grow up as they are bred to do. Strange indeed, it seems to me, that some men will pay a service fee of $25 or more to the owner of a stallion, and when he gets a foal of promise seem to have some fad in his head regarding care and feed, and follow it out, and spoil the colt; or, if he has no fad notions, will practice a system of negligence which makes a failure in the growing up of a horse of value not much, if any, above that of a scrub. What is true in relation to the breeding of horses applies to the breeding of cattle, sheep and swine as well.

I care not how well an animal is bred, it must be fed along the lines consistent with its breeding, or the owner will meet with disappointment when it grows up. Breeding is simply the starting in of what may or may not be a successful termination. I recently heard a professor in a great university make the remark, "What we need in our university is a man at the head of our department of animal industry who thoroughly understands the animal in its infancy and its conditions on the farm." I was forcibly struck with the truthfulness of the remark. Our agricultural colleges are working on feeding problems and sending out bulletins on the balancing of rations for milch cows and fattening steers which are good in their way, but rarely do we find a word in them concerning the food and care of a weanling colt, calf, lamb or pig.

They tell us of experiments made in feeding hens for eggs, but rarely a word concerning the importance of growing a chicken into a hen to lay the eggs. I find even teachers in colleges have the tendency to skip over the primary necessities—or fundamental principles, more properly called—which are the very foundation of future success. A schoolboy, when he has learned the alphabet, if you let him have his own way would not take up with a primer, but would like a second, third or fourth reader for his reading book. There is a general neglect in our schools to keep along lines of steady, healthful growth in the education of a child, and especially is this true regarding the animal industry department. A large per cent of our boys, when they have taken an agricultural course in a college, don't actually know enough to feed a calf, milk a cow, lead a colt to water (providing they have not got wheels in their heads and gone to town, where they wear choker collars and part their hair in the middle.) The boy is not to blame. He's a good boy by lineage, but parents and teachers made him what he is by the instruction they gave him.

So much for the boy. What about the colt, calf, lamb and pig? Their training we will leave out and attend to the feeding. Like a child, the young animal has an appetite, and it must be satisfied. It has a body, to grow up in some form. The blood of its ancestry will not take the place of food, and that food must be of a kind that will make growth or there will be no growth—a dwarf will be the result in size and general physical development. Everyone knows that, if he will think a moment. To insure health we must have a steady growth of all parts of the body. Consequently the food must be such as to furnish all parts as needed. It is not a scientific balanced ration talk I am giving at this time, but a plain talk to farmers. You shut that colt or calf in a close, ill ventilated stable, to breathe over and over the gases from its own voidings, and you violate the laws of its nature as the first thing, because its nature, like that of a child, is to run, romp and play, and its bone, muscle and nerve will not develop unless it can do it. You make it breathe poisonous gases and its blood soon becomes anaemic and its glandular system becomes diseased. These are facts that cannot be denied, yet hundreds of farmers to-day are wintering their colts and calves in just such places. Others, perhaps, are practicing the opposite, by keeping them in the yard or field, with a hay stack to get their daily ration from. Neither practice is correct; both are violating nature's laws, and lucky the owner is if evil results do not follow.

Now, I know many a man who reads this will sneer, and try to hide behind the practice of his father, or say: "I have done this way for years, and I don't know as I have had any worse luck than my neighbors." That may be true. Such practices are catching, and run over large areas sometimes. You may say: "I ain't had a colt or calf die in years," which also may be true. But you have had many a one grow up dwarfed in size, with a weak constitution, rendering it a fit subject for every epidemic that came your way. If a colt, it had ringbones, spavins, wind galls or puffs, or it may be more subject to spells of colic every time a change of temperature occurred or a change of food was made. If a calf, it failed to make the steer or heifer you expected of it. If kept for a cow, it failed to equal the ability of its mother at the pail, although its sire may have been of a dairy breed, and a grand one at that. You may try to excuse by laying it to the sire or the breed, and may change both in your breeding afterward. But you won't remedy the matter in that way. It is your method that needs changing; nothing else under the sun. Just provide a comfortable stable to keep the young things in when cold or stormy, and a play ground for fair days, and that part of the problem will be solved.

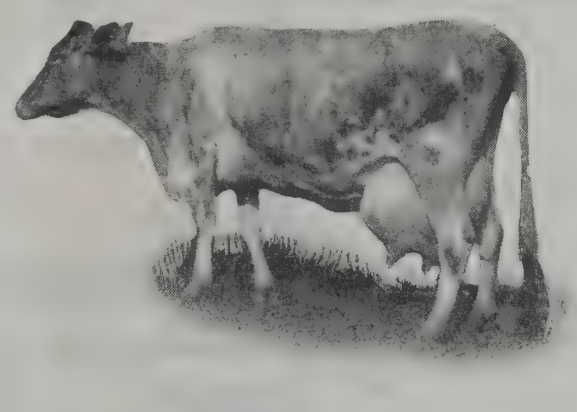
Now, about the feed. Remember, that young creature has got a wonderful appetite, but a weak digestion, and, if a colt, a small stomach, and the food of either colt, calf or other young animals needs to be somewhat more concentrated and more easily digested than that of older animals. This is different teaching from what I have sometimes heard, even at farmers' institutes. I have heard men say the colt and calf needed bulky food in order to give them stomach capacity that it might later in life have the greater power to assimilate food and convert it into muscular energy or milk. Such talk I call simple nonsense. While it is true that all grass eating animals need a food of some bulk, to over-distend the stomach with, non-nutritious and largely indigestible food weakens the digestion in trying to get nutrition out of non-nutrition. A colicky horse is the result, or a cow later on that scours every time a change of food is made. She can't eat much, and consequently can't yield much.

Both are animals not born with weak digestion, but had it fed into them after they were born. What are they good for? I will answer: They are good just as a man is good for business who can't eat by reason of weak digestion. He can't work; neither can a horse or cow under the same conditions be a profitable animal to keep on the farm. Every farmer in the land knows that clover hay—or, better still, fine, well cured, mixed clover and timothy, cut early—makes the best food for rough, dry food raised on farm, but should a colt, calf or lamb be feed wholly upon it, it would have to eat a little too much of it in order to get digestible nutrition out of it. Supply it then with oats and wheat bran. But a lot of people will say, "I have to buy the bran." Well, what if you do? You have to supply sugar and salt and other things for your family, and you sometimes trade things for them like apples, potatoes, butter, eggs, etc. Is it not just as sensible and essential to look after the needs of your animals to some extent?

The future success of agriculture in America depends upon the domestic animals raised on the farm. That statement I defy any one to deny. Then, farmer, look to their needs. If you have a full corn crib and young animals growing up, it is not what they need to grow them; you can't make a balanced ration by feeding corn with your straw, stalks and timothy hay. Do with the corn as you did with the butter and eggs when you traded for sugar. Trade the corn for wheat bran, and if you have no silo or roots to feed for succulence, trade for some linseed oil meal. Then you are on the right track. Your oats you can't afford to sell when you have young animals to raise; or, at any rate, unless you have a surplus—more than your animals need. See that your own animals are fed first, then let the city fellows have the balance.

That is a good rule to go by: If oats are worth 50 cents per bushel to feed a city man's horse, they are worth that to feed your colts, calves, lambs and pigs; yes, hens also. Feed them and get your money for them through the extra value of the animals, and then you will save the fertility on the farm to raise more grain to feed more stock. Save fertilizer bills and veterinary bills, and you won't have to buy condition powders nor any man's "Kow Kure" nor condiment food to bring your animals up in condition. You may ask how much to feed. The answer is: Enough to keep the animal growing every day, from birth to maturity. No strict ironclad rule can be laid down regarding the amount, as there is individuality in animals as well as in men. A rule to vary as may be required I will give.

With the hay mentioned for roughage, a half pound of mixture of oats and bran to a hundredweight of colt, calf or lamb; with timothy hay or corn fodder, two parts bran, one part oats, three-quarters of a pound daily in two feeds; with straw of any kind, a full pound of the last with a handful of linseed oil meal added. Also bear in mind that a few apples, small potatoes, carrots, beets or turnips are a grand thing to feed, the last two for calves and lambs especially. But practice moderation when the succulence is fed. Do not be unwise enough to throw in a scoopful of small potatoes or apples to a colt or calf that never has tasted them, or bad may be the results. At least good, so-called horse sense must be used in feeding animals, and the appetite must be watched, the voidings looked at from time to time, and the food varied as they indicate. When constipated add succulence or linseed oil meal. At all times bear in mind that oats, bran and linseed oil meal rarely cost more than $1 a hundred pounds, while condition powders cost from 25 to 50 cents, stock foods from $10 to $20 per hundred, and veterinarians don't work for nothing. Practice sensible feeding and save your money.—C. D. SMEAD in *Tribune Farmer.*



IMPORTED GUERNSEY COW, HAYES ROSIE, A. G. C. C., 15476

Property of T. L. AMES, Boston, Mass.

This cow gave in five months 6,872.2 lbs. of milk and 312.26 lbs. of butter fat.

Form of Contract for Renting a Farm.

Make a Contract Specific.

This indenture witnesseth: That John Jones this day leases to John Smith, both of Washington township, Marion county State of Indiana, the following real estate, to wit: The west half of the southwest quarter of Section twenty-four, township seventeen north, range three east, containing eighty acres more or less, situated in Pike Township, Marion county, State of Indiana, with all the buildings and appurtenances belonging thereto, said John Smith to have and hold full possession of the same for the term of three years from the first day of March, 1904, and said John Smith shall further have the right and privilege to enter said premises during the fall of 1903, for the purpose of preparing the land and sowing wheat. Said premises to be used only for farm and garden purposes. Said John Smith agrees to handle and cultivate said premises after the manner of good husbandry, and return the same to its owner in as good condition as when he received it, excepting the natural wear and unavoidable accidents, such as tornadoes and fire, and in such case the said Jones shall make the repairs and be held to said Smith for damages in case he does not speedily make said repairs. And Jones further agees to put the buildings and fences in good, reasonable repair before the first of March, 1904, and said Smith is to keep said premises in repair during his lease, except as above named. Said Smith further agrees to sow all land to clover that is sown to wheat. Said Smith is to have enough of the dead timber on said premises for fire wood for cooking and heating purposes of said premises.

Said Smith further agrees to cut all obnoxious weeds, briers, alders in due season, and haul upon the cultivated land all manure made on said premises during his lease. In consideration of the use of said premises, said John Smith agrees to pay said John Jones the sum of——— dollars per year, one-third to be paid October the first of each year, and two-thirds the first of February each year. (Or, if grain rent is to be paid, say that said Jones is to receive one-half of all products raised on said premises, at premises, as they mature, in condition ready for market; to be received by said Jones on the premises in stack, mow or bin as said Jones may provide.) Said Jones further agrees to furnish all new material on the premises for repair of buildings, fences, etc., and said Smith agrees to repair the same, except as above named. Said Jones reserves the right to enter upon said premises to make improvements for its betterment, subject to all damage done said Smith. Said Smith may be ejected from said premises at the close of any year, on failure to comply with terms of this lease, and shall deliver the same to the owner, at the expiration of this lease, without further notice.

The above lease should be signed in

duplicate by both parties, and propely witnessed.

I think the better mode of leasing a farm, for both owner and tenant, is the following:

An article of agreement made and entered into this day by and between John Jones, party of the first part and John Smith, party of the second part. The party of the first part leases his farm, situated in Warren township, Marion county, Indiana, described as follows, to-wit.

The northeast quarter of Section 12, Township 16 North, Range 4 East, in county and state above named, to the party of the second part for the term of five years, from the first of March, 1904. Said Jones is to furnish the said farm and one-half of the live stock and one-half of all tools, harness, machinery, and whatsoever is needed to run a well regulated farm in good farm order, and the said Smith is to furnish the other half of said tools, machinery, stock, etc. Each party shall bear half of the repairs and replenishing of said tools and stock, and all live stock purchased for breeding or feeding purposes shall be paid for by the above parties, half and half, and shall be joint and equal stock. Said John Smith agrees to cultivate, harvest and garner the products of said farm, and to breed, raise and fatten such live stock as will be the most advantageous to both of the contracting parties, and to feed or haul to market all the products of the farm, and the proceeds are to be divided equally between the said John Jones and John Smith, and the whole arrangement and management of the farm shall be mutual between the contracting parties. Said Smith is to have firewood for family use from dead and decaying timber. All tools, machinery, live stock, or other property of the partnership, shall be divided equally between the said John Jones and John Smith at the termination of this lease.

(Signed), JOHN JONES.
JOHN SMITH.

The above parties personally appeared before me and signed this lease.

[Seal.] JAMES TAYLOR,
Notary Public.

There are a few things to be remembered in regard to contracts. Contracts of over three years duration must be signed before a Notary Public and recorded. You should be specific in your contract, for you cannot give oral evidence against a written contract in court.

If you rent a farm for a single year, you would better specify what grain is to be sown or planted in each field. I would say to the landlord, find a good renter and hold to him; and to the renter, find a good landlord and stay with him.

It is better for landlord and tenant, for the tenant to be able to plan for future crops. The landlord should not expect the renter to take a rundown farm and bring it up to a good state of cultivation at his own expense, and the tenant should endeavor to keep the farm in as good condition as he received it, so that the passer-by will not say, "that looks like a rented farm." Be mutual, be just.—I. N. C. in *Indiana Farmer.*

Wisconsin Law Regarding Farm Fixtures.

G. P., West Rosendale, Wis.: "Have recently purchased a farm; contract reads "With buildings and fixtures of every description." There was in the barn a horse fork with rope and all pulleys complete. Former owner claims he can take away the car, pulleys, rope and fork; also hooks that are screwed into the timbers of barn; in fact, all except the track the car runs on. Can he take away any part of the outfit or all of it?

ANSWER.

Our statutes do not define what specific articles shall be considered fixtures and hence pass with a conveyance of the land. Whether an article is or is not a fixture must be determined from principles of law as laid down by the courts, and the application of those principles is by no means easy, since such questions are mixed questions of law and fact. As said by our Supreme Court in Taylor vs. Collins, 51 Wis. 123; "The difficulty in such cases is not in the rules to be adopted by which the question is to be determined, but in the application of correct rules to the facts of a given case."

In the same case the court laid down the following rules for determining what is a fixture; "First, actual physical annexation to the realty; second, application or adaptation to the use or purpose to which the realty is devoted; third, an intention, on the part of the person making the annexation, to make a permanent accession to the freehold." The court has adhered to these rules and affirmed them in Homestead Land Company vs. Becker, 96 Wis., 206, and again in Gunderson vs. Swarthout, 104 Wis., 186. In the latter case Chief Justice Cassoday says further: "Where the machinery is adaped to the purpose to which the realty is devoted, and is for the permanent use and improvement of the freehold, it is a fixture and a part of the realty; but where it is attached for a mere temporary use, with the present intention of removal, it continues to be personal property."

As stated by the Supreme Court, the difficulty comes in applying these rules to the state of facts you have given us. The track and the hooks, to which the pulleys are hooked, are actually physically annexed to the realty, are adpted to the use to which the realty is devoted, and were probably put there with the intention of making a permanent improvement to the farm. However, this question of intention is a question of fact upon which a jury would pass. But it seems that there would be little question but that they would be considered fixtures and pass with the farm under your contract. With the carrier, rope, fork and pulleys there is more question. None of these are physically attached to the soil. There is no question but that they are adapted to the use to which the land is put. It would seem also that they must have been put there with the intention of making a permanent improvement to the farm, but here we are again trespressing upon the province of the jury. Another important fact in your favor is that the track is of no value without carrier, and the track has been built with especial reference to the particular kind of carrier put in. Our Supreme Court has never passed upon a case of the kind. However, it has approved the action of the New York Court in holding that hop poles piled upon land and used season after season were fixtures; and that rails or other building material deposited along the line and ready to put in were fixtures also. In our judgment, the track, hooks, and carrier are fixtures and have passed to you under your contract. We also think that you have a good claim to the rope, fork and pulleys, especially if they have been used for no other purpose than in connection with the carrier..—*Farmer's Sentinel.*

Value of Cows According to Capacity.

Just how much a cow is worth can only be estimated from what she returns for the feed she consumes. Prof. A. H. Wheaton furnishes some very interesting figures based upon present prices of dairy products, which may be of interest to many in determining just where they do stand in cow wealth. It will be noticeable that while the cow that makes 900 pounds of butter is valued at a little over $2.00 for every pound, the one that makes 325 is put down at less than one cent a pound for what she produces, showing that the extra pounds are what count.

Cows that make 300 lbs. of butter or less, beef value							$ 30
Cows	that	make	325	lbs.	of	butter	35
"	"	"	350	"	"	"	40
"	"	"	375	"	"	"	50
"	"	"	400	"	"	"	65
"	"	"	425	"	"	"	85
"	"	"	450	"	"	"	110
"	"	"	475	"	"	"	130
"	"	"	500	"	"	"	200
"	"	"	550	"	"	"	275
"	"	"	600	"	"	"	375
"	"	"	650	"	"	"	500
"	"	"	700	"	"	"	650
"	"	"	750	"	"	"	825
"	"	"	800	"	"	"	1,400
"	"	"	850	"	"	"	2,000
"	"	"	900	"	"	"	

THE U. S. AHEAD AS USUAL

At the Valley Fair, Brattleboro, Vt., Sept. 30 and Oct. 1, '03, one of the **largest fairs** in New England, butter made from cream separated by U. S. Separators received the following premiums:



CREAMERY TUB,
First, . 98 and Sweepstakes.
Second, . 97¾

DAIRY PRINT.
First, . 97¾

DAIRY BOX,
First, . 97
Second, . 96¾

DAIRY TUB,
First, . 96½
Second, . 96

Grand Sweepstakes and all the butter premiums except three went to U. S.

Moral:—**Buy the U. S. Separator if you wish to make the best butter.**

For Western Customers, we transfer our separators from Chicago, La Crosse, Minneapolis, Sioux City and Omaha. Address all letters to Bellows Falls, Vt.

Write for catalogues and prices.

Vermont Farm Machine Co.,
Bellows Falls, Vt.



Buhl Factory Cans

represent the same maximum of superiority found in all cans bearing our famous Milk Can Trade Mark. They are made to be the **neatest, cleanest, strongest** and **most wear resisting** cans upon the market. It will pay you to know more about **Buhl Cans. Remember** the Buhl is the only can in the world that is made with the **Buhl "Victor" Can Breast** and the **Buhl "Victor" Round** handle that cannot cut the hands. We shall be pleased to mail you special circulars and other matter, which contain the helpful, money saving information you should have. When you read this you will know why there are more **Buhl Factory Cans** in use than of all other makes combined. Write us direct about cans and we will tell you where you can get them.

BUHL STAMPING CO.,
212 W. Larned St.,
DETROIT,
Mich.

The dealer who sells lamp-chimneys to last, is either a shrewd or an honest man.

MACBETH.

How to take care of lamps, including the getting of right-shape chimneys, is in my Index; sent free.

MACBETH, Pittsburgh.

To add weight and winning flavor to your butter, salt it with

DIAMOND CRYSTAL SALT

"The Salt that's ALL Salt."

Quickly dissolves, becoming a part of the butter. Not washed out in the working like common salt. Send for free book—"Just Salt."

DIAMOND CRYSTAL SALT COMPANY,
St. Clair, Mich.



Let Them Help Themselves.

They'll not take too much, and they'll get it as they want it. Don't force animals to eat salt when they don't require it, by mixing with food.

COMPRESSED

Pure-Salt Bricks

are all salt, no impurities. Improve the quality and yield of milk. A modern convenience, always present, animals never neglected, and costs for each only about a nickle a month. See how they enjoy helping themselves when you place it within reach. For all stock. Buy of dealers or send for free booklet to

Belmont Stable Supply Co., Brooklyn, N.Y.

How to Make a Lawn.

Experts at the World's Fair Have Installed Many Acres as Exhibits—Some Enemies of the Lawn.

The six-acre rose garden at the World's Fair would not be such a beautiful sight were it not for the belts of blue grass lawn that surround the beds. The slopes to the miniature lakes that contain the rare and beautiful aquatic plants, the terraces, the clumps of shrubbery, would all lack something were it not for the lawns. The lawns are not merely the frame but a real part of the picture. It is the smooth stretch of green, with perhaps a gently undulating surface filling in the otherwise barren spots, and resting the eye, which brings out boldy the more pretentious beauty of the many colored flowers, the grace of the clumps of shrubbery or the stately beauty of the trees. The great ivory palaces of the Exposition would lose much of their grandeur were it not for the lawns that surround them.

The World's Fair lawns, in the 69 acres comprising the agricultural section, are exhibits, and they have been as carfully planned as any of the other show spots in the outdoor section. Mr. Joseph A. Hadkinson, who was appointed superintendent of outdoor planting by Chief Frederick W. Taylor, appreciates the value of the lawn in giving an artistic finish to his work, and the lawns, all of which were planted under his personal direction, will be admired by millions of visitors during the fair. Already they are beautiful and each day adds to their attractiveness.

The conditions, under which the World's Fair lawns have attained perfection, establish beyond question the fact that splendid lawns may be grown under the most discouraging conditions. All along the east side of the great Palace of Agriculture a few months ago was a mass of yellow, sticky clay. A ravine, 17 feet deep, was filled with clay brought from the top of a neighboring hill. This was smoothed, plowed and harrowed and a top dressing of good soil, nearly a foot thick, was spread over the clay. This was worked, pulverized and prepared for the seed.

The seed selected was blue grass and rye grass, mixed in equal parts. The rye grass was first in evidence, but it has done the work that was required of it and has passed away. The visitor will never know it existed, unless he makes inquiries and learns that the blue grass is indebted for much of its beauty to its less known brother, the rye grass. The rye grass peeps up in six or seven days and is a nurse crop for the blue grass. It grows taller and shields the blue grass from the sun. It is not a perennial, and as it is not permitted to go to seed on a well regulated lawn it dies out and leaves the blue grass alone on the field.

One can tell on an October morning in St. Louis why it is called "blue grass." Walk over the lawn early in the morning before the dew has disappeared. The rye grass is the taller, and with its spears covered with the dew it has a vivid green color. The blue grass spears are nearer the ground and in the coating of dew each spear takes on a light blue, but an unmistakably blue color. The blue grass is exclusive, and wherever it takes a stand all weeds and other common grasses are crowded out.

But there are things about planting that Mr. Hadkinson knew and did, that had much to do with the success of the World's Fair lawns. After getting the ground into proper trim the seed was sown, broadcast by hand, one pound to each one hundred square feet. The seed was covered with what he calls a "choppy" motion. A gardener goes over the lawn with a rake, and instead of raking and rubbing the seed in, he swings it slightly and allows the teeth to enter the soil about an inch. When the rake is lifted the soil is turned under for about half an inch. Then the pulverized soil must be treaded to fasten the seed in the ground. On the comparatively level places, a heavy roller is used. On the terraces, and some of the World's Fair terraces incline at an angle as great as 30 degrees, a "pounder" is used. This is a board a foot wide and a foot and a half long, fastened to a handle, with blocks added until it weighs about 15 pounds. The surface is "tamped" with this.

When the earth is smoothed the final work is done. All summer long a great pile of stable manure had lain in a neglected heap in front of the garden. It was thoroughly decomposed. This was run through a soil pulverizer and after being granulated was sprinkled over the ground. The covering is slight, but is all that is needed. It keeps the sun from baking the soil and causes it to retain the moisture. No other fertilizer is used. Having done this, Mr. Hadkinson waited, and nature is doing the rest.

There is one pest that has demolished many a beautiful lawn, and the World's Fair landscape gardeners had a short bout with it before they succeeded in overcoming it. This pest is the mole. These little fellows with wonderfully powerful fore paws, and soft and glossy fur, burrow a few inches under the surface of the ground and raise ridges in the lawn. The moles feed on the earthworms and harm the roots of the grass only incidentally. But if the moles are not killed they will destroy the lawn. Traps are freely advertised but seldom prove effective.

"Gus," Mr. Hadkinson's foreman, is a fearful foe to the mole. He watched Mr. Mole and studied him. The mole takes his meals regularly—at 6 a. m., noon and 6 p. m. and at any of these hours is the time to catch him.

The ridges made by the mole must be beaten down, and watched. When the mole goes over the route again the ridge is again raised. Then the process is easy. Take a spade, drive it in the ground across the mole's route and behind him. Unless this is done he will skurry underground and find safety in one of the deep holes that he has provided for emergencies. But the spade stops his progress and he may be easily dug out and dispatched. In less than a month the moles were banished from the agricultural section of the World's Fair.

Will be Plenty Sorry by Spring.

Referring to present conditions of the fodder question in Minnesota, Prof. Haecker writes as follows in *The Dairy Record*.

The coming winter, it is going to be specially difficult to secure a large flow of milk on account of the great scarcity of good palatable hay and good fodder corn. Most of the hay got wet before it was stacked, and much of it was damaged in the stack by the numerous rain storms. Some of the fodder corn was caught by the frost, and that which was shocked before the wet spell was badly injured, and nearly all will show considerable mold and later on will be musty. Those who put the fodder corn into a silo before or immediately after the frost are exceedingly fortunate, and we are in that class. We have some 300 tons housed in two silos, and it is of fine quality, and the cows eat from thirty to fifty pounds a day. But cows will crave for something besides grain and silage, so have to feed a little hay, but we find it almost impossible to get that which is uniform, unbleached and palatable. We are paying $13.50 for wild hay, feeding half as much in weight as we do of grain. Cows getting six pounds of grain are fed three pounds of hay, those that take twelve pounds of grain get six of hay. They eat every spear, and then reach over and steal some of their neighbor's bedding. Did you ever notice that a cow will eat her neighbor's bedding when she would not touch hers, and the more difficult it is to reach it the better she seems to like it?

Later on, when the fodder corn gets dry, we will substitute it for hay with those animals that are not used in experimental work, and with the young things. With hay at $13.50, oats a 35, and corn and barley at 40 cents per bushel, profits in milk production are not very large, even if one is employing good cows and takes good care of them, and those who are using the beef or dual-purpose cow will be plenty sorry by spring.

Creasey Ice Breakers



Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right. Made is sixteen sizes to suit every requirement. Send for catalogue "11-B" whice givis full particulars.

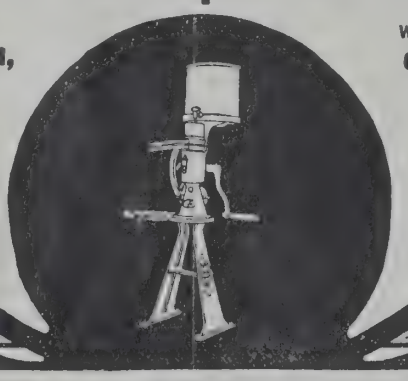
J. S. L. WHARTON, Mfr.,
17th Clearfield St., Philadelphia, Pa.

EMPIRE

There is no royal road to success, but there are roads which are harder than others. There is no way to make money out of dairying without work, but there are ways easier than others. The EMPIRE way is the easy way. It is the way to make the most profit with the least labor and the least expense. It is the most satisfactory way. The EMPIRE Cream Separator is the easy machine to operate and the most profitable machine to use. It is easy to buy because the increased profits pay for it. It is easy to operate because of its simple construction. Our book tells about the EMPIRE way of dairying and about the EMPIRE Cream Separator. It is free for the asking.

Empire Cream Separator Company,

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From Cow To Cream

is but a short journey on the farm that runs the

AMERICAN Cream Separator,





the one that gets the profits, and runs without an expert. We let you test it yourself and return if it is not a money maker for you. The price makes it easy to buy. Write now for free catalogue.

American Separator Co., Box 1025 Bainbridge, N. Y.

Awarded Medal at Paris Exposition.

THE Iowa Dairy Separator.



AN UP-TO-DATE MACHINE REPLETE WITH PRACTICAL IDEAS

It is built in the following sizes:

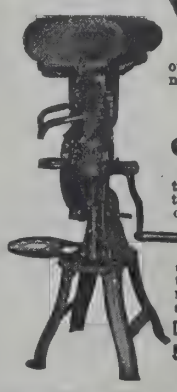
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Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.

SEND FOR CATALOGUE NO. 60 AND PRINTED MATTER.

IOWA DAIRY SEPARATOR COMPANY, WATERLOO, IOWA.

WANTED!!



Every reader of this paper who owns a few cows to send for our new catalog of

DAVIS Cream Separators

Sent free upon request. It will tell you why the Davis Separators are money makers for their owners.

THEY ARE GUARANTEED to separate THOROUGHLY and QUICKLY. Dairymen and farmers find the "Davis" the most economical piece of machinery on the farm. Let us send you full particulars about it

DAVIS CREAM SEPARATOR CO.
54 to 64 N. Clinton St., Chicago.

BARGAINS IN CREAM SEPARATORS

We offer a good selection of separators, DeLaval and other makes, some second-hand, having been taken in exchange, others only shop worn, being machines used for fair exhibitions and the like. These will be offered at low prices as long as they last. Write us at once for full particulars.

STODDARD MFG. CO.,
RUTLAND, VERMONT.

CREAMERYMEN, DAIRYMEN and MILK DEALERS

Can be Promptly Furnished with anything they want at reasonable prices, if they will write me. My CHILDS' PATENT MILK BOTTLE FILLER is the best on the market. Send for free catalog.

J. S. BIESECKER,
59 Murray St., New York City.

30 DAYS FREE



Why buy a "pig in a poke" when you can get the

ROYAL INCUBATOR on 30 Days Free Trial. Absolutely self-regulating. Try it and keep it only if you like it. Send for catalog and free trial plan. With poultry paper one year ten cents.

Royal Incb. Co., Dep. 424, Des Moines, Ia.

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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of them read dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

COMING EVENTS.

Indiana State Dairymen's Meeting, Plymouth, Dec. 10-11, 1903.
Minnesota Dairymen's Association, Fairmont, Dec. 15-17, 1903.
Vermont Dairymen's Association, St. Albans, Jan. 5-7, 1904.
Illinois Dairymen's Association, Greenville, Jan. 5-7, 1904.
Wisconsin Cheese Makers' Association, Milwaukee, Jan. 6-8, 1904.
Ohio Dairymen's Association, Columbus, Jan. 27-29, 1904.
Wisconsin Butter Makers' Association, Feb. 2-4, 1904.
Maine Dairy Convention, Foxcraft, Me., Dec. 2-3, 1903.
New Jersey Agricultural and Dairy Convention, Trenton, N. J., Jan. 14 15 and 16.
Eastern Ontario Dairymen's Convention, Belleville, Ont., Jan. 5, 6 and 7.
Missouri Dairymen's Meeting, Clinton, Dec. 8-10, 1903.
Iowa Dairymen's Association, Waterloo, Nov. 18-20.
Washington Dairymen's Association, North Yakima, Dec. 29-31.
Massachusetts Creamery Association, Greenfield.
Connecticut Dairymen's Association, Hartford, Jan. 20-21.
Oregon's Dairymen's Association, Corvallis, Dec. 15-16.

THE farmers of Japan raise, perhaps, the heaviest crops known to the world, and the superior productiveness of the small lots of land held by peasant proprietors will be apparent from the fact that, with but 11 million acres of cultivated land, 34¼ million people are fed and clothed for the greater part, and are still able to export 25 million pounds of tea, 3 million pounds of raw silk, and 35 million pounds of rice.

THE death is announced from Paris of Professor Nocard, the well known French bacteriologist and authority on infectious diseases in animals, at the age of 53 years. Professor Nocard was one of Dr. Pasteur's chief assistants in the researches into the curative properties of serums. For several years he was the head of the famous veterinary college at Alfort, but he resigned that post in order to devote himself entirely to research. He took an active part in combating Dr. Koch's theory of the non-transmissability of bovine tuberculosis to human beings, and was a very strong advocate of the tuberculin test. Some useful work was carried out by him in reference to abortion in cows and mortality in calves. Last March Professor Nocard stated that he would shortly be able to announce a remedy for the foot-and-mouth disease, but he was struck down before he could complete his investigations.

ONE REASON WHY HOARD'S DAIRYMAN IS A GOOD ADVERTISING MEDIUM.

Hon. Whitelaw Reid contributes a very strong and thoughtful article to the "Sunset Magazine" on "Journalism as a Career." In the same he reasons out clearly, some of the foundation principles of successful advertising. Here is what he says in one place:

"Now what the advertiser first thinks he wants, roughly speaking, is publicity. It takes more thinking on the subject, more observation and experience, to satisfy him that what really does him good is a particular kind of publicity. * * * * The sagacious advertiser understands perfectly that his announcement does more good when it goes to readers who *have the buying* habit and the means to indulge it; and therefore that *character* of circulation is far more important than mere quantity."

Never were truer words penned on the advertising question, than the above. And yet a great majority of advertisers, do not see it. They cast aside this deeper, wiser judgment, and throw their money away on journals, that make a practice of gathering up a mass of riff-raff readers by all sorts of means. HOARD'S DAIRYMAN never pretended to have a big circulation. It does pretend and strongly affirms that it has a circulation among the very cream of the agricultural class, farmers who stand up as business men; who have ideas and sufficient knowledge to know that they need the things that will help them economize the expense of labor, increase the amount and improve the quality of their product and increase the efficiency of the capital, they have invested in their business. Such men are liberal buyers of the things needed in their line. They are readers of HOARD'S DAIRYMAN; they have followed its teachings for years, and found them fairly reasonable and right. The paper has never trifled with their confidence or made merchandise of that confidence for selfish ends. It may have been mistaken, but if so, it was honestly mistaken. For this reason it has built up an advertising patronage that is at once our pride, our great concern, and one of the chief features of the usefulness we hope to accomplish. Every year witnesses a constant clarification of our subscription list. The unbusinesslike dairyman may start to read it, but for the very reason that he is unbusinesslike, he soon tires of it and drops out of its current of thought. Some have the steadfastness of purpose to stay and take the education such reading is sure to give. New men are constantly enrolling themselves in its membership. A portion of these are of the sort that grow, stay and win out. They realize that the day of wornout ideas and methods in all the branches of dairying, have gone by. To them the paper is a constant help, and inspiration. It is for the coming, growing man that we work. His tribe is constantly increasing. Because of all this, HOARD'S DAIRYMAN is every year becoming a more valuable advertising medium.

Please Read and Consider.

As is well known, HOARD'S DAIRYMAN has for years set its face strongly against the idea of the general or, some say, "dual," purpose cow for the farmer who is looking for a good profit in his milk. On page 828 in last week's issue, John Gould, in his "Note and Comment," gives the experience of the noted New York dairyman, H. E. Cook.

We hope every one of our readers read and pondered on that experience, but for the sake of many new subscribers and others who will this week read the paper for the first time, we reproduce it:

Herbert E. Cook, of Denmark, N. Y., is New York's most thorough and practical dairyman and his cow lore is beyond the books. Several years ago he had the dual-purpose idea well developed and later on the cross-bred cow, uniting two of the best dairy breeds. He found the first cross a fair cow, but not as good as either of the foundation stocks. Now, for years he has been lining up with one breed, and is making a great dairy out of this straight and away method. In a recent letter to a journal I find these three sentences, which contain a mint of suggestion: "The cost of production to-day is tremendous. Milk must be produced with a cow machine especially adapted to the work in hand. Any community that goes "crazy" over the milk business with a combination cow, will sooner or later regret its "insanity." Some people do not find out in their lives what they are fitted for, so with the dairyman with dual-purpose cows. This dual-purpose matter is a grievous error. Now and then a phenomenal cow is produced, only often enough to prove the rule that milk and beef are not found in perfection in breeds, or combinations, as a whole." The milking of beefy cows is dairying on the ragged edge. The eastern dairyman is succeeding in competition with the west, only because he is not handicapped with a beefy cow.

The little girl said she did not like to go to Chicago "because there was so much to see she couldn't see anything." It is somewhat so with many farmers "who do the dual-purpose cow pursue." They want so much, (milk and meat) that they do not economically or profitably produce either. It is better always for the dairyman to confine his thought and purpose to the study of milk production. To that end he must study how to breed for milk, and then he will learn to take advantage of the milk breeds of cattle, and the hundreds of years that have been spent in developing dairy quality and capacity in these cattle. It does not pay to spend years in living at cross purpose with our best opportunities and best profits.

Proportion of Butter to Fat in Milk.

Considerable has been said first and last concerning what should constitute the proper amount of overrun in creamery butter. It has been the contention of the DAIRYMAN that this overrun cannot be rightly estimated without taking into the calculation the per cent of fat contained in the milk from which the butter is made. On this question of the proportion of butter to the fat in the milk, Prof. Long, of England, in his "Elements of Dairy Farming" has this to say:

"Many more or less successful attempts have been made to enable the dairyman to ascertain, in a simple manner, what percentage of fat any sample of milk contains. There has not, we believe, been any attempt made to show what percentage of butter, a given percentage of butter fat will produce. A crude method has sometimes been adopted, that of esmating the percentage of water, salt and casein in butter as equivalent to the fat which has been lost by imperfect skimming and churning.

It is quite probable that when the work is badly done throughout, this method of calculation may be applied with approximate precision. We have, however, made an advance in butter making, and with the separator, with carefully ripened cream, and good work with the churn, the loss of fat is so small that another and more scientific mode of calculation must be adopted.

Dr. VanSlyke of the Geneva (N. Y.) Station adopts as a standard, butter containing 85 per cent fat.

For butter produced in a dairy where practically no loss is supposed to occur through want of skill, this figure is low for it assumes that nearly 15 per cent of water is left in the butter, or .45 per cent more than the average of 2,000 samples taken from two to three hundred dairies in all parts of Denmark. Nevertheless, it represents average butter. If no fat were lost in the process of manufacture, it would be sufficient by this standard to divide the actual per cent of fat in the milk by .85 to ascertain the quantity of butter it would be capable of producing per 100 pounds of milk. But we know fat is lost both in creaming and churning. If, therefore, we estimate this loss upon the basis of the abundant existing data, we are able to arrive at a solution of the question.

When cream is obtained by separation, the loss of fat averages about .15 per cent and where cream is perfectly churned, the loss of fat is about .05 per cent. Now if we make these deductions from a given percentage of butter fat—let us say 4 per cent as an example—we have 3.8 remaining. This amount, divided by .86—which we believe to fairly represent the percentage of fat in good British butter—leaves 4.41 as the weight of butter, which under the conditions suggested, we may expect to obtain from 100 pounds of milk containing 4 lbs. of fat."

Creamery Consolidation.

The recent letter of Prof. Haecker on the dangers of creamery consolidation is fully endorsed by Prof. A. H. Wheaton, of the South Dakota Agricultural College in the following letter to the New York *Produce Review*:

I most heartily endorse the article from the pen of Prof. T. L. Haecker which appeared in your valuable paper of Sept. 30th, entitled, "Warns against Creamery Consolidation." These have been my sentiments ever since this craze began to develop. I foresaw at the start some of the evils which now are beginning to develop, but was criticised by some of our leading writers and publishers in this state, then and since, so that I cannot let this pass without raising my voice in commendation of one who is brave enough and who from his position is independent enough to stand up and tell the farmers the whole truth without fear or favor. Truly, "a little knowledge is a dangerous thing" which is beginning to make itself felt among those who had so little knowledge as to have been led to believe that something from nothing could be obtained. When these centralized plants first started they had a large capital to drawn from, by reason of the sale of shares of stock, whereby they could if necessary pay more for cream than it was worth at home, but conservative business management will not allow them to do this only until the home creamery ceases to be a competitor.

Some have reached this point now, the patrons of which are slowly but surely learning the old lesson that one cannot pay freight on the raw material over a long distance and return the cans to their patrons at so much per can, and still make butter cheaper than it can be made at home on the co-operative plan. After the cream has stood on the local depot platform for several hours in hot weather, then transported (in some cases by rail three hundred miles), it is not possible that a better grade of butter can be made from it. The processes of deterioration are slow or swift, according to temperature and local conditions of the atmosphere, so I leave it to the average intelligence of the average farmer to judge whether or not the quality of cream will be enhanced by the long transit process, more than by the local creamery process. It is true that cream can be doctored to some extent, so can the farmer when he becomes sick, but who would not prefer to be kept well, rather than be compelled to take the doctor's prescription after one has been made sick by injudicious care of one's self. Likewise who would not prefer butter made from pure cream in a local creamery to that made from doctored cream? You pay your money and take your choice.

The Man Behind the Cow.

Speaking with a very capable dairy farmer, not long since, we were much impressed with some of his ideas:

"HOARD'S DAIRYMAN is all the time holding up the value and importance of the well bred dairy cow," said he. "In that you are right. But did it ever occur to you that as dairy farmers and hired men we need to be better trained, better educated, and much better qualified than we are, to keep up with the kind of cows we are trying to produce? You advise the farmer to turn off his poor cows, but how is the good cow going to turn off the poor farmer?"

"The great mistake the great mass of farmers make who keep cows, is in supposing that the way they have lived and the little they have really studied cows, fits them to do business with cows.

"I found years ago, that I did not know enough to handle cows so as to get the best profit out of them. I found that

poor as my cows were, they were better fitted to go ahead in the work, if they had a fair chance, than I was. It hurt my pride a good deal to come to this conclusion. Well, I went at it. I made up my mind I would not sit down like a dolt and not understand my business. I want to say to you that I believe I could to-day make twice as much profit as I did fifteen years ago, even with the same cows that I had then, I can't make my neighbors see these things, so I've quit trying. They really talk among themselves that I am losing money because I spend four times the money they do in improvement.

"My cows are twice as good as those I owned 15 years ago, and I don't lose one animal now, where I did two then. I took your advice and went to studying and reading. All the books and papers I've bought haven't cost me fifty dollars, but they gave me hints and ideas, so I began to see things for myself.

"One thing I got, and that was courage to go ahead and do the right thing. I paid $150 for one bull, and he has been worth a thousand to me. I went at the stables and the farm and the feed question, determined if there was a better way of doing things, I would know it,

"I want to tell you there is no comparson in the satisfaction I get in my work to-day over what I had when I started. My bank account tells me that it is all right. Keep up your preaching; you are on the right track."

Some Comments on the Dairyman.

ED. HOARD'S DAIRYMAN:—For three past months, I have been trying to increase the list of subscribers to your valuable paper, first to help and make more profitable the leading industry in our county, and second to compensate the senior editor for his kindness in visiting our fair and delivering useful addresses to our people. I talked personally to many in order to get them to subscribe. Now I want to say a few words to those who are not only new, but who are old subscribers, and while I am not at present keeping cows, still the DAIRYMAN is so well filled with practical facts that I read it carefully every week, and I desire to call attention to some articles in the last issue, Oct. 23, that will bear re-reading.

Two articles appeared, either of which in the writer's opinion are worth a year's subscription, whether you are dairying or not. The article from the pen of Mr. Wing describes a scene which has transpired in many a happy home, when the cause was unknown. And now that it is told and the cause traced out, be careful and watchful that no such trouble is lurking around your own premises.

It reminded me of something I have told of many times in speaking of the pure air on our high ridges in this La Crosse county, and now, after reading friend Wing's experience, I will add pure water. I have been connected with ridge farming for thirty-five years, ever since I started my orchard, and have often said I have in that time never known of a case of typhoid on those hills. Doctor Palmer, an old practioner here, has told me the same, while at the foot of the hills and in valleys, many deaths have occurred.

Now, the fact that on these high lands the water for cooking and drinking is drawn from very deep drilled wells, or brought from springs at the bottom, would go to prove Mr. Wing's theory to be correct. So I say, read and profit by his article. Next, to a man who is directly or indirectly interested in dairying, Prof. Beach's valuable article on the Dairy Cow ought to be read several times, especially that part embodying the report of the production of those twenty-five cows, showing conclusively the value of the Babcock Test in the dairy for the purpose of weeding out the unprofitable animals. Space will not allow a review of this excellent article, but I say, read it again carefully.

I note in John Gould's article that on feeding apples to dairy cows, he says: Possibly some kinds are better than others. True. Actual experience has taught me that a feed of Whitney No. Twenty, apples to cows from half bushel to three pecks per day for several weeks, in addition to other feed, increased the cash value of cream checks every time, while a mixed lot of all grades made little difference. This fall, apples are scarce, and there is no more probability of any cows getting drunk on apples than there is of tramps getting drunk on the handouts from farmers, which are made up of apple pie. But I must close by stating that in my opinion the article by the editor on the hired help question is true and to the point and will bear re-reading, also the one on the key note of the situation. My wish is that the DAIRYMAN will have a much larger circulation. A. J. PHILIPS.

LaCrosse Co., Wis.

The Educational Butter Test for 1904.

ED. HOARD'S DAIRYMAN:—We have sent out a circular to all buttermaker members of our Association, requesting those who wish to enter the Educational Test for 1904, to express their wish in writing.

The Second Annual Educational tests are about to be completed, and in conducting same we have had opportunity to find room for various beneficial changes.

Should we have a test in 1904, I would favor sending every package by refrigerator freight, the charges to be collected at destination, and deducted from the proceeds of the first tub. This would save those participating on an average $3.00 for the six tests, for the express charges are often extortionate, ranging from 50 cents to $1.75 and $2.00 for 20-pound tub, and averaging at least $1.00 per tub. Besides, the express companies do not take proper care of the butter, and often it comes heated, even when packed inside of a 60-pound tub.

I would also recommend allowing each buttermaker to send his butter from any day's make he chooses. Under our present system the call often reaches the buttermaker on Monday, when his milk is naturally the poorest, much being held over Sunday. We have always sent out the calls so as to reach the butter-buttermaker between Tuesday and Saturday, but I find that Uncle Sam is very unreliable when it comes to delivering country mail, and have long ago given up relying on same.

I think every buttermaker who wishes to improve his make should be in the National test as well as the tests conducted by his state, where such is available. The results in detail of the Second Annual Tests, which I hope we will be ready to publish in November, I think will prove that I am right.

Those who enter the Educational Tests for 1904 will be able to compete with the same package for the World's Fair prizes in St. Louis, as well as for the National convention pro rata and other prizes.

In conclusion will say, that I do not believe our Executive Committee will decide on another test unless, at least, 500 buttermakers participate. Those who have not received a circular and desire to participate should advise me at once.

E. SUDENDORF,
Sec'y N. C. B. Ass'n

Elgin, Illinois.

Address after Nov. 1, 3831, Windsor Place, St. Louis, Mo.

The cows in Belgium wear earrings. This is in accordance with law, which decrees that every animal of the bovine species, when it has attained the age of three months, must have in its ear a ring to which is attached a metal tag bearing a number. The object is to preserve an exact record of the number of animals raised each year.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condence the questions into plain epecific inquiry. Be careful to note if your questions eave not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Red Polled Cattle.

Would you please give a description of the Red Poll cattle? Would like to know about their milking quailties? Also the nearest breeder to California, of whom they can be purchased? Have never had any experience with them, but would like to learn all we can about them.

Kingsburg, Cal. C. & B.

As the name implies, these cattle are deep red in color and are hornless. They are possibly the nearest approach to the mythical dual-purpose animals that can be found. There are not enough of them in this country to establish a specific rating in the beef market, but it is extremely probable they would fall below Short-horns, Herefords, Angus and Galloways and somewhat above any of the dairy breeds, for of all the foolish people in the world, there are none that can compare in downright folly and prejudice with the average butcher and buyer for the great slaughter houses. It has been demonstrated over and over again from their own reports and figures, that the grade dairy steer slaughters just as profitably and fattens just as profitably as the best beef bred animals, and yet they are discriminated against by from one cent to three cents a pound in market.

As to the milking qualities of Red Polls, it is but fair to say that many of them have made excellent records, both in the home dairy and at the Pan American Exposition in Buffalo and that the particular animals making these records show decided dairy form. There were ten breeds represented by 5 cows each, at the Pan American Exposition test, which lasted for six months and for profit on butter at 25 cents per pound, after deducting cost of feed, they took rank as follows: Guernseys ($230.11), Jerseys ($225.54), Ayrshires ($217.70), Holstiens ($211.04), Red Polls ($197.83), Brown Swiss ($183.08), French Canadians ($176.35), Short-horns ($172.81), Polled Jerseys ($169.61), Dutch Belted ($116.89). In order of individual profit, the Red Polls stood 2d, 14th, 30th, 39th and 40th.

We are without information as to location of breeders of Red Polled cattle west of the Mississippi river, but if there are such who have confidence in the dairy ability of the breed, we should suppose they would advertise in dairy papers, and particularly in such a paper as HOARD'S DAIRYMAN.

Starting a Milk Route.

Will you please publish in the DAIRYMAN your ideas as to the proper method to be persued by a beginner in the retail milk business? I wish to know how best to secure customers, prices usually obtainable, an explanation of the ticket system. Do retailers give credit and for how long a time, etc? A SUBSCRIBER.

Arenac, Mich.

Circumstances vary so much in different localities, that it is impracticable to submit specific suggestions covering all points. One must be governed largely by the whims and prejudices of his customers, and their ability and willingness to pay for the service rendered. One cannot afford to sell milk containing 5 per cent fat for the same price that 3 per cent milk is sold for. Neither can one afford to be at the extra expense of bottling milk and carrying it to the very door, unless he receives more for it than customers pay for milk taken from a can at the wagon.

If this inquirer can secure a few customers at first for milk of extra quality, delivered in the best condition, from cows known to be absolutely free from disease, and kept in a clean, well ventilated stable, at an appreciable advance over ordinary prices--he can afford to incur the neccessary additional expense; and if he furnishes such milk, other customers will come to him without solicitation.

There is no necessity for explaining the ticket system further than to have tickets printed in sufficient number so that no ticket shall be used a second time. It has a bad effect to hand out a soiled ticket. Have everything about the business,—tickets, bottles, cans, wagon, driver and horse and harness—clean and attractive. And do not give credit. Start in on a strictly cash basis and stick to it. Where parties buy tickets in advance, allow a small discount. For example, if milk sells at 6 cents for a single quart, sell 18 quart-tickets for a dollar.

To Make Cream Whip.

Please tell me if there is any thing that can be put in cream to make it whip, if so what is it, and how is it to be used? H. K.

Beloit, Wis.

Thin cream will not whip; warm cream will not whip. Cream for whipping should not be under 25 per cent fat and should be cooled to 40° F. or below, and should be 12 hours old. If these conditions are fulfilled, there will be no necessity of adding anything to the cream, to make it whip.

Sampling Milk at Creamery.

How often should samples of milk be taken at a creamery? J. A. S.

New Vienna, O.

Samples should be taken every day if possible, and three times a week any way.

Silo with Horizontal Girts.

Find enclosed an article cut from the "Kansas Patron and Co-operator published at Olathe, Kan., Oct. 15. Will you please criticise the silo described in the article. I have been studying the silo question for 3 years and this seems to me a method of building worth considering, and one new to me. Do you know whether this is practical? If not, why not, may I ask? Please give a discussion in the DAIRYMAN if it is worthy. F. E. U.

Gardner, Kans.

The style of silo described in the article accompanying the above inquiry has been described and fully illustrated in the DAIRYMAN many times, and is in use on the Senior Editor's farm, and on other farms in this vicinity, where it is giving universal satisfaction. There is one point in the matter of construction, advised against in the articie, that we consider of considerable importance, and that is, inserting building paper between the double lining of the inside of the silo. We consider common tar paper much better than nothing, but a much better material is the acid and water proof Giant P. & B. paper, manufactured by The Standard Paint Company, 100 William Street, N. Y., (Dept. H.)

Corn Silage for Sheep.

I would like to know if corn silage would prove a satisfactory food for sheep. I have never known of its being fed to sheep, and would like to know through your paper what has been the experience of your readers. F. R. T.

Rawley, Mass.

In his work on Feeds and Feeding, Prof. Henry says: "Silage proves an excellent food for sheep, being especially useful with ewes having lambs at foot." So far as we are informed, all who have fed corn silage to sheep, agree with this statement.

A Pennsylvania Feeding Problem.

Feed sells here as follows: bran, $21; malt sprouts, $19; brewers grains, dried, $21; wet, $4.50; cotton seed meal, $28; gluten, 23% $25; linseed meal, $30; corn meal, $27. Is the following the cheapest and best ration for good milking, 800 lb. cows?

Brewers grains, wet, 20 lbs.	.045
Cotton seed meal, 1 lb.	.014
Linseed meal, 2 lbs.	.030
Fodder stover (corn), 10 lbs	
Straw (wheat) 10 lbs	
	.089

Corn stover sells at about $10 per ton; wheat straw at $8. Have more than enough of the straw. Any criticism or suggestions you may choose to make will be appreciated. F. BROS.

Bryn Mawr, Pa.

Of the feeds named and at the prices given we consider that wet grains, gluten feed and ground corn furnish the largest amounts of digestible nutrients for a given sum of money. These feeds, if of average quality, carry digestible nutrients as follows:

	Per cent.
Bran	58.0
Malt sprouts	59.5
Dried grains	63 4
Wet grains	16 4
Cotton seed meal	73.0
Linseed oil meal	78.8
Gluten feed	80 0
Ground corn	84.3

It does not necessarily follow that the feeds mentioned as carrying the largest amount of digestible nutrients per dollar of cost would be the cheapest to feed in connection with corn stover and wheat straw, feeds especially deficient in digestible protein. The ration given contains the following digestible nutrients:

	Lbs.
Protein	1.95
Carbohydrates	9.55
Fat	.61

A ration compounded of the same roughage with 25 lbs. wet grains, 2 lbs. gluten feed and 2 lbs. ground corn, costing 2.7 cents more, would contain digestible nutrients as follows:

	Lbs.
Protein	1.82
Carbohydrates	11.54
Fat	.60

And it is by no means certain that the more expensive ration would give better results.

A Pennsylvania Ration.

Will you please give me a balanced ration for cows weighing from six to eight hundred pounds from the following feeds: Gluten feed, $1.25 per hundred; wheat bran, $1.10; oil meal, $1.50; corn, $1.20; ground oats, $1.50, clover and timothy hay and corn fodder. I also have a small quantity of roots. I have found out that individual cows have to be fed differently, but what I want you to give is an average ration. E. H.

Shinglehouse, Pa.

To such of these cows as are fresh this fall, we should be inclined to feed 1 lb. oil meal, 2 lbs. gluten feed and 4 lbs. bran, with what hay and corn stover they will eat without waste. Such a ration would tabulate about as follows:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients* Protein	Carbohydrates	Ether Extract
12 lbs. hay	10.24	.58	4.75	.19
12 lbs. stover	7.14	.20	3.89	.08
4 lbs. bran	3.52	.50	1.54	.12
2 lbs. gluten feed	1 80	.47	1.14	.05
1 lb. oil meal	.91	.29	.33	.07
Totals	23.61	2.04	11.65	.51

It is probable that some of the smaller cows will not require so much roughage, and they should have no more placed before them than will be eaten with good relish. And withal, do not omit salt every day, a teaspoonful night and morning.

Answers to Dairy Questions by Prof. Farrington.

TROUBLE IN TESTING.

"We had some trouble last Saturday in making our regular factory milk test. We have paid by the test for a long time, but never had any trouble until the last time. Our composite samples are taken by adding an ounce of milk every morning from each patron's portion to a jar, with the Scovell milk sampler. These samples are preserved by using a measureful of bi-chromate of potash. This measure is ¼ inch deep by ¼ inch in diameter. The last time we made the tests there was so much black and brown substance in among the fat that some bottles only gave 1.7 per cent clear fat. We knew there was something wrong so we cleaned the bottles again and thought it best to try the strength of the acid before we tested any more samples. We measured three samples of one patron's milk into three test bottles and added different quantities of acid to each bottle. First we filled the acid measure up to the mark; second, to about ½ of an inch above the mark; third, to about ¼ of an inch below the mark. We then finished these tests with the result that the bottle in which the least acid was used gave the clearest fat. We thought we now had the problem solved and took all the samples again and added the amount of acid which had proved satisfactory in our experiments. We were much surprised, however, to find that some of our tests still had so much black settlings in them that we could not read the fat, while others were nice and clear. This puzzles us and we would like to know if you can explain the reason for our getting this black stuff in some of the tests and not in others." J. L. W. & Co.

Random Lake, Wis.

The trouble which you have been having with testing is probably caused by the way in which you pour the acid into the milk in the test bottle. This should be done in such a way that the acid flows down the inside surface of the bottle to the bottom and collects in a layer entirely separate from the milk, which will be above the acid. When the milk and the acid are both poured into the bottle in such a way that there is no dark streak between the two liquids where the milk leaves off and the acid begins, you may be sure that the mixing of the milk and acid after this will give an even action of the acid on the milk so that a clear separation of the fat will be obtained.

If, on the other hand, the acid is so poured into the test bottle that it drops through the milk and by the time the last of the acid is poured into the test bottle, some of it has been partially mixed with the milk and a black layer of milk and acid is noticed between the two liquids, you will find that the final mixing of this acid and milk will not be sufficiently uniform to give a clear separation of the fat.

When the acid drops directly into the milk and gives a part of it a dark or black color, leaving the remainder white or in its normal condition, this shows that the strong acid has acted on part of the milk before it had time to be diluted with the entire quantity of the milk. In either case such a mixing will invariably show some burnt fat in the neck of the test bottle, it makes little difference whether you use more or less acid in each test.

The important point in this case is to do the mixing so that the acid will not

THOUSANDS HAVE KIDNEY TROUBLE AND DON'T KNOW IT

To Prove What Swamp-Root, the Great Kidney Remedy, Will do for YOU, every Reader of Hoard's Dairyman May Have a Sample Bottle Sent Free by Mail.

Weak and unhealthy kidneys are responsible for more sickness and suffering than any other disease, therefore, when through neglect or other causes, kidney trouble is permitted to continue, fatal results are sure to follow.

Your other organs may need attention—but your kidneys most, because they do most and need attention first.

If you are sick or "feel badly," begin taking Dr. Kilmer's Swamp-Root, the great kidney, liver and bladder remedy, because as soon as your kidneys are well they will help all the other organs to health. A trial will convince anyone.

The mild and immediate effect of Dr. Kilmer's Swamp-Root, the great kidney and bladder remedy, is soon realized. It stands the highest for its wonderful cures of the most distressing cases. Swamp-Root will set your whole system right, and the best proof of this is a trial.

14 WEST 117th ST., NEW YORK CITY.
DEAR SIRS: OCT. 15th, 1902.

"I had been suffering severely from kidney trouble. All symptoms were on hand; my former strength and power had left me; I could hardly drag myself along. Even my mental capacity was giving out, and often I wished to die. It was then I saw an advertisement of yours in a New York paper, but would not have paid any attention to it, had it not promised a sworn guarantee with every bottle of your medicine asserting that your Swamp-Root is purely vegetable, and does not contain any harmful drugs. I am seventy years and four months old, and with a good conscience I can recommend Swamp-Root to all sufferers from kidney troubles. Four members of my family have been using Swamp-Root for four different kidney diseases, with the same good results."

With many thanks to you, I remain,
Very truly yours,
ROBERT BERNER.

You may have a sample bottle of this famous kidney remedy, Swamp-Root, sent free by mail, postpaid, by which you may test its virtues for such disorders as kidney, bladder and uric acid diseases, poor digestion, when obliged to pass your water frequently night and day, smarting or irritation in passing, brick-dust or sediment in the urine, head ache, back ache, lame back, dizziness, sleeplessness, nervousness, heart disturbance due to bad kidney trouble, skin eruptions from bad blood, neuralgia, rheumatism, diabetes, bloating, irritability, wornout feeling, lack of ambition, loss of flesh, sallow complexion, or Bright's disease.

If your water, when allowed to remain undisturbed in a glass or bottle for twenty-four hours, forms a sediment or



settling, or has a cloudy appearance, it is evidence that your kidneys and bladder need immediate attention.

Swamp-Root is the great discovery of Dr. Kilmer, the eminent kidney and bladder specialist. Hospitals use it with wonderful success in both slight and severe cases. Doctors recommend it to their patients and use it in their own families, because they recognize in Swamp-Root the greatest and most successful remedy.

Swamp-root is pleasant to take and is for sale the world over at druggists in bottles of two sizes and two prices—fifty-cent and one-dollar. Don't make any mistake, but remember the name, Swamp-Root, Dr. Kilmer's Swamp-Root, and the address, Binghamton, N. Y., on every bottle.

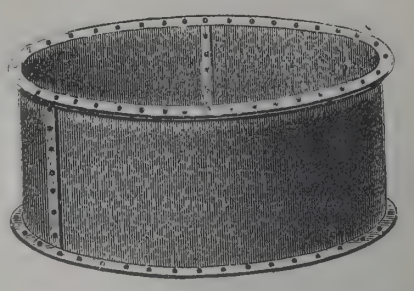
EDITORIAL NOTICE—If you have the slightest symptoms of kidney or bladder trouble, or if there is a trace of it in your family history, send at once to Dr. Kilmer & Co., Binghamton, N. Y., who will gladly send you by mail, immediately, without cost to you, a sample bottle of Swamp-Root, and a book containing many of the thousands upon thousands of testimonial letters received from men and women cured by Swamp-Root. In writing to Dr. Kilmer & Co., Binghamton, N. Y., be sure to say that you read this generous offer in the Fort Atkinson HOARD'S DAIRYMAN.



As expensive buildings as these are not essential to the production of clean dairy products, but these show what the dairy business will support, as nothing but butter is sold from this farm.

NATIONAL

Galvanized Steel Tanks



Made of annealed steel galvanized. Seams securely riveted. Heavy steel angles for top rim. Will last a lifetime. Made in all shapes and sizes. Write for our SPECIAL MAIL ORDER PRICES. When quality is considered WILL NOT BE UNDERSOLD.



THE Weighright

Two Scales in One

A Portable Floor and a Counter Scoop Scale on one base.

CAPACITY

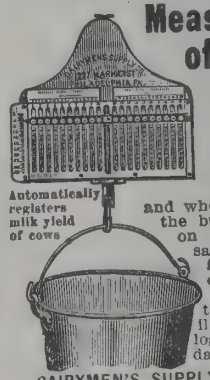
Scoop ½ oz. to 40 lbs.
Platform ¼ to 300 lbs.

NET PRICE
No. 6, Tin Scoop, $7.75
No. 8, Brass Scoop, 8.75

See our ad of NATIONAL BABCOCK MILK TESTERS in last and next issues

National Creamery Supply Co.,

450-458 Illinois St.,
CHICAGO U. S. A.



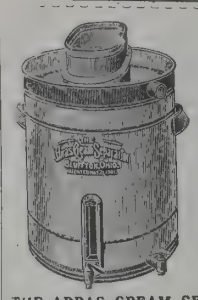
Measure the Milk of each Cow

With the **Automatic Milk Scale** you can keep an accurate record of the yield of each cow, and remove the unprofitable ones from the dairy. Each button on scale arm corresponds to number of cow, and when pail of milk is weighed the button registers the weight on score card. Big money saver and money maker for farmers and dairymen.

Send for testimonials and illustrated catalogue of **Bestov** dairy supplies.

TRADE MARK **BESTOV**

DAIRYMEN'S SUPPLY CO., Philadelphia, Pa.



The Best Cooling Process

It has no peer for cream gathering, quick cooling and ventilation. Milk and water are not mixed. Undiluted sweet skim milk to feed to calves and pigs. Soon pays cost of separator. More butter, richer flavored, easier to keep clean.

Write for our catalogue with pictures and our special introductory prices. Ag nts wanted. Pat. May 21, 1901.

THE ARRAS CREAM SEPARATOR CO., Bluffton, Ohio



We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity—1000 cans daily, which should enable us to fill all orders promptly.

Every can sold on a guarantee.
Write for circular H

NOW Is the time to Subscribe for HOARD'S DAIRYMAN.

act on a small part of the milk before the entire quantity is mixed with it.

I think you will find that if the acid is of the proper strength you may be sure of getting a clear and complete separation of the fat, if you carefully follow these suggestions in regard to the mixing of the milk and acid in the test bottles.

YIELD OF SALTED AND UNSALTED BUTTER.

"I have a good market for unsalted and uncolored butter and I would like to ask you if a given amount of cream will make as much unsalted butter as it will of salted butter?
Disco, Wis. G. L. D.

The relation which salt has to the amount of water in butter, is a subject that has been studied but little up to the present time. A few years ago I made some experiments at a dairy school in which we divided the granular butter which had been washed in the churn, into two lots, salted one of them, worked and made it into butter in the usual way and the other lot was worked in the same way, but made without salting it. Both lots of butter were weighed, samples taken and the finished product analyzed.

These experiments were conducted with 36 churnings and were made on a creamery scale, churning in each case from two to four hundred pounds of butter.

I noticed before making these experiments that there was a great difference in the appearance of the surface of different churnings of butter. Some would have drops of brine thickly covering the surface, while other lots were smooth, showing no moisture whatever on the surface. My investigation started out with the purpose of finding the cause of this difference in appearance, of two butters that were apparently made in the same way. The experiments I have just referred to, soon revealed the fact that the surface of the unsalted butter was invariably free from beads of moisture, while butter which was salted, showed the drops of brine very freely on the cut surface. Salt attracts the moisture of butter to itself and this accumulates in the form of drops of brine, which can easily be seen.

The results of the experiments I have mentioned, however, showed some things in relation to the amount of water left in the butter, that were interesting, besides this appearance of the surface. Briefly summarized they were as follows:

First. The salted butter in every case, contained less water than the unsalted. This was true when the granular butter from the same churning was divided into two parts and each one was washed and worked in the same way, but one was salted and the other was not.

Second. When both lots of butter were taken from the churn, partially worked and allowed to stand in the refrigerator over night, the salted butter always lost considerably more weight at the second working than the unsalted, showing that brine will work out of salted butter, easier than water out of fresh butter.

Third. The analyses taken as a whole, showed that the higher the salt contents the less water the butter contained.

Fourth. The amount of water or brine that shows on the fresh cut surface of butter is a better indication of its salt content than of the water it holds. Salted butter leaks brine easily, but the moisture will not, as a rule, drain out from unsalted butter unless it is loaded with an excessive amount of water.

Fifth. The average amount of butter fat was nearly the same in both the salted and the unsalted lots of butter in these experiments. The amount of salt added to the fat varied from one to four per cent and we should naturally expect that the yield of salted butter would be increased by this weight of salt. It was found, however, that when the butter was weighed the salt which had been added in one case displaced about its own weight of water. You may expect, therefore, so far as salt is concerned that your yield of butter will be about the same in both cases--when you make salted butter as when you make unsalted—but the two and one-half to three pounds of salt which was added to one hundred pounds of butter in the one case will be replaced by water in the unsalted butter.

Sixth. The color of the salted butter was a darker shade of yellow than that of the unsalted.

From these experiments I think you may conclude that you ought to be able to make as much unsalted butter from a given amount of cream as you have been in the habit of making salted butter from the same cream. If your trade likes a dark shade of yellow in the butter it will be necessary for you to use a trifle more color when you come to make unsalted butter in order to bring it up to the shade that you have had in the past.

THE PRICE PER HUNDRED OF MILK TESTING 4.5 AND 3.8 PER CENT BUTTER FAT.

"I have some trouble about paying by the Babcock test in my cheese factory. Some of my patrons claim it is not right. They say there is too much difference in the price per hundred pounds of milk. I would like to know if one man's milk tests 4.5 and the other 3.8, what the difference in the yield of cheese would be and the price per hundred which these two patrons ought to be paid for their milk. Please give me the full particulars about this. A. W. S.
Veefkind, Wis.

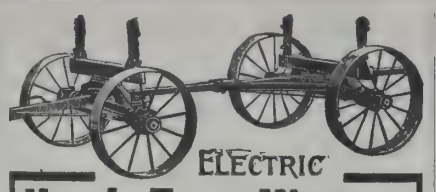
Milk which tests 4.5 per cent fat will make more cheese than milk which tests 3.8 per cent fat. There is a difference between the two of .7 lbs. of fat in every one hundred pounds of milk, and as it has been found by careful experiment that one lb. of milk fat will make 2.6 lbs. of cheese, the difference in cheese yield between these two milks may be approximately found by multiplying the difference in test, or the .7 of one pound of fat, by 2.6 lbs. This gives 1.8 pounds of cheese in favor of the milk testing 4.5 per cent fat over that testing 3.8 per cent fat.

The best way to pay patrons by the test at a cheese factory is to take composite samples of each patron's milk, and at the end of a month or two weeks, according to the custom of the factory, figure out from the weights and tests of each patron's milk how much fat he has delivered to the factory during this time. The cheese sales during the same time will show how many pounds of cheese were made. When this cheese is sold and the expenses of operating the factory for the same time have been deducted from the money received for the cheese, that which remains is to be divided among the patrons of the factory according to the amount and test of the milk they delivered during that time. This sum of money should be divided by the total pounds of fat in the milk which produced the cheese. The quotient will give the price to be paid the patrons for one pound of fat. It is then a simple matter to multiply the fat delivered by each patron, as shown by the weight and test of his milk, by the price per pound and find out how much is due him for the milk sent to the factory during this time. An illustration of this calculation may be made as follows:

We will assume that a factory received 50,000 pounds of milk in one month and this made 5,000 pounds of cheese. The milk sheet at the receiving room may show that there were 30 patrons who brought this 50,000 pounds of milk to the factory. The weight and test of each patron's milk for the month should be found by adding together the weights and average tests.

We will assume that a patron A brought 5,000 pounds of milk during the month and his average test was 3.8. Patron B brought 5,000 lbs. of milk and his average test was 4.5. The amount of fat brought by patron A is then found to be 190 lbs.; that brought by patron B during the same time is 225 lbs. Each brought the same amount of milk, but the test was different. We must now find how much is due them for their milk which was made into the cheese sold during the month. We have already assumed that 5,000 lbs. of cheese were made. We will now suppose that this sold for 10 cents a pound, the sum realized for the cheese was then $500. The expenses of running the factory during the month may probably be $85; subtracting this from the total cheese money, leaves $415, which is to be divided among the patrons supplying the milk. We, in this case, have only the record of two patrons, A and B, out of the 30 or more who sent milk to the factory during the month. It will be necessary next for us to find the average test of the entire quantity of milk brought to the factory. We will assume that the 50,000 lbs. of milk tested 4 per cent fat. If this is the case, there must have been 2,000 lbs. of fat in the milk. In order to find the price to be paid each patron per pound of fat, it is necessary to divide the net receipts, $415, by the 2,000 lbs. of fat. The result of this calculation shows the price of one pound of fat to be 20¾ cents. The amount of money due patron A for his 190 lbs. of fat is then found by multiplying 190 by 20.75 cents. This gives $39.33. The amount due patron B for his 225 lbs. of fat is found in the same way to be $46.57, which is $7.24 more

(Continued on page 856.)



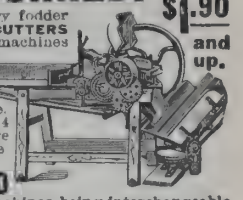
Handy Farm Wagons

make the work easier for both the man and team. The tires being wide they do not cut into the ground; the labor of loading is reduced many times, because of the short lift. They are equipped with our famous Electric Steel Wheels, either straight or stagger spokes. Wheels any height from 24 to 60 inches. White hickory axles, steel hounds. Guaranteed to carry 4000 lbs. Why not get started right by putting in one of these wagons. We make our steel wheels to fit any wagon. Write for the catalog. It is free.

ELECTRIC WHEEL CO., BOX 130 QUINCY, ILL.

DON'T SEND A CENT Try a "1900" Washer for 30 days, free of all charges, freight prepaid both ways. The "1900" Ball Bearing Washer is the simplest, easiest machine ever made for washing clothes. Saves time, money and worry. Write at once to "1900" Washer Co., 219 A State St., Binghamton, N. Y.

CUT AND SHRED. PRICE $1.90 and up.



all kinds of green and dry fodder with the WOLVERINE CUTTERS AND SHREDDERS. No machines of this kind have ever been made which will do more good work with less power than these. They have knives with 4 cutting edges—a measure of economy. We have devised a special

SHREDDER HEAD

which fits any of these machines, being interchangeable with the same size of knife head. It makes two complete machines out of one. Each machine is equipped with a safety fly-wheel which insures the machine against breakage. Equipped with safety stop feed lever which insures the feeder against accident.

SWIVEL CARRIERS which will deliver the feed straight away or to right or left, can be supplied with these cutters in any length desired. Our large sized machines are made with or without traveling feed tables. Cuts ¾ to 1½ inches long.

58 STYLES AND SIZES. We have these machines in all these styles and sizes and can supply anything which anybody could possibly want. They range in price from $1.90 up. Our largest machine will cut a ton of feed in 5 minutes. Every machine is guaranteed as to quality of material, workmanship, capacity and quality of work.

CUT THIS AD OUT and send it to us and we will mail you our free feed cutter and farm machinery catalogue. It gives lowest prices on all kinds of improved machinery.

MARVIN SMITH CO. CHICAGO.

ALL THREE FREE.

THE STRICT MILK LAWS AND THE INSPECTORS, TO SAY NOTHING OF YOUR PROFITS, MAKE PERFECT CLEANLINESS ABSOLUTELY NECESSARY. EXPERIENCE, HARD WORK AND SCIENCE, ENABLE US TO OFFER YOU THREE ARTICLES ENDORSED BY THE HIGHEST AUTHORITIES AND EXPERTS, USED AND TESTED AT AGRICULTURAL EXPERIMENT STATIONS. WE WILL SEND FREE, EXPRESS CHARGES PAID, ONE LARGE CAN "DAIRY," THE CAN AND BOTTLE CLEANER AND PURIFIER; ONE FOUR OUNCE CAN "KNO-GERM," MAKES TEN GALLONS LIQUID ODORLESS DISINFECTANT, AND ONE BOX "BRILLIANT" METAL POLISH IF YOU WANT TO TRY THE FINEST GOODS MADE FOR YOUR WORK. THE GOODS ARE FREE IF YOU SEND THIRTY-FIVE CENTS TO PAY PART OF EXPRESS CHARGES AND TO PROVE YOU ARE INTERESTED

M. H. FAIRCHILD & BRO., 199 MICHIGAN ST. CHICAGO.

Did You Ever Keep a Record Of Your Cows?

IF SO, you have felt the need of a convenient, simple and handy Record Sheet. We have had so many requests for these Record Sheets that we concluded to get up one that would "fill the long felt want." We have a very simple and complete Record Sheet for 10 cows, one month, that is printed on heavy Manilla Paper, we can send postpaid at following prices:

Price 5c Each	6 for 20c	12 for 30c	25 for 50c

SIZE 10x16 INCHES

We also have a one cow Record Sheet, heavy Manilla paper (one month) that we will mail postpaid

Single Copy 5c	5 for 15c	10 for 25c	25 for 40c

SIZE 6x15 INCHES

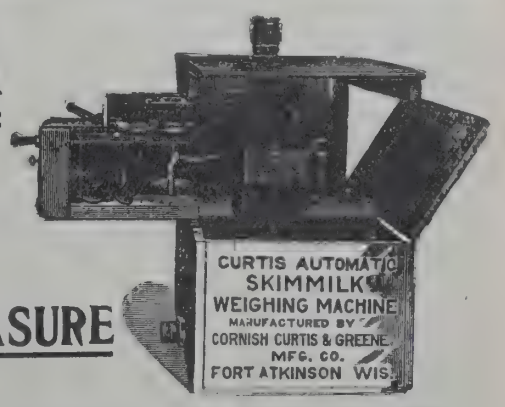
HOARD'S DAIRYMAN.
FORT ATKINSON, WIS.

Skim Milk

Often goes to the wrong man for the simple reason that the patrons have no standard of

WEIGHT or MEASURE

and the last man suffers.



☛ FULL DESCRIPTIVE CIRCULAR FREE.

Cornish, Curtis & Greene Mfg. Co.,

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for.... DE LAVAL ALPHA SEPARATORS.

Fort Atkinson, Wis.

Purity of Well Water in Butter Making.

In a recent bulletin of the Iowa Experiment Station on the keeping quality of butter, the quality of the water used in the creamery is considered as follows:

All well water, whether it be from shallow wells or deep wells, contains bacteria. Water from shallow wells is polluted with impurities to a greater degree than water from deep wells. The conditions which surround shallow wells do not guarantee a creamery pure water at different seasons of the year. Filthy surface water is all the time seeping in from the sides, especially during the wet season. In the spring of the year, or at any time during the different seasons when heavy rains are frequent, shallow, open or bored wells act as a receptacle for inflowing, nasty, surface water containing a great deal of organic matter, and where organic matter is present, germs of different species are always sure to be present.

Besides being a receptacle for such inflowing water, shallow wells serve in the capacity of traps for a number of animals, such as rats, mice, rabbits, skunks, minks and squirrels. The presence of one or more of these dead animals in an open well is sure to result in water strongly impregnated with undesirable odors and a multitude of undesirable and putrefactive organisms, which, when distributed through butter, will produce no good results. If every open well was drained and searched for such dead animals, very few would be searched in vain.

The writer has seen water used which was impregnated with impurities and bad odors to such an extent that it imparted directly to the butter this same undesirable odor and taste. The very fact that water from certain wells has a clean appearance and pure taste does not necessarily indicate that it is free from undesirable germs. Deeply-drilled wells are much the best for supplying creameries with water. They cannot in any possible way serve as a trap for small animals as can the open wells. Germs do not enter the soil so deep as to cause water to be infested with them, so the number of germs deep well water contains largely come from the atmosphere after exposure to it or to unclean receptacles.

Professor Pammel found shallow well water containing as high as 18,000 germs per cubic centimeter. Deep well water he rarely found to contain more than 400 germs per cubic centimeter.

Oregon's State Dairymen's Association.

The next annual meeting of the Oregon Association will be held at Corvallis, Ore., Dec. 15-16.

The Milk Situation in New York.

ED. HOARD'S DAIRYMAN:—Whether the Five States Milk Producers' Association ever gets control of the situation, and enables the dairymen who produce milk for consumption in Greater New York to have a hand, directly, in fixing prices and conditions, they appear to deserve that degree of success. For nearly six years they have struggled with large problems. Some say that nothing has been accomplished, but active members claim that very much has been accomplished.

One of the resolutions adopted at the annual meeting in October points to the price received for milk in 1897 and 1898, and asks comparison with the price the present year, adding: "let such comparison be the answer to all fault-finding." It is said that the advance is nearly or quite fifty per cent. That all of this can be safely credited to the work of the Association will be disputed, but it must be admitted, unless contrary evidence can be introduced, that the Association has very good grounds for a considerable portion of their claim. Agitation of the questions and the erection of co-operative creameries which, without doubt, has been stimulated by the work of the Association, have put dealers somewhat on the defensive, and have thus tended to advance prices.

Whatever it may or may not have accomplished, the Association is active and possesses vitality. The People's Pure Milk Company has not yet put up its cash for the payment of milk, and the sales committee will not consent to the delivery of milk till they do. Many believe that this will be done in time, when the financial horizon shall have cleared. A meeting of the "Five States" people with the Co-operative Creameries Association is planned for some time in January, when it is hoped that something more definite will be known. H. H. L.

Chenango Co., N. Y.

CONCERNING OUR ADVERTISERS.

PRESIDENT RECOMMENDS PRUSSIAN STOCK FOOD.

Mr. John Dey, Hortonville, Wis., President of Outagamie Agricultural Society, says: Prussian Remedy Co., St. Paul, Minn.

Gentlemen: Nearly two months ago you sent to my address at Hortonville a sample of your Prussian Horse and Cattle and Poultry Food. I have tried it in part. I have fed it to the horses and it gives them a good appetite and makes them feel good and look slick. The milk cows I have fed it to, I think my cows have a better appetite and look better and give a better flow of milk and helps the test. I have fed it to sheep and it seems to be just what they want, and I can see a change. I have not tried it on hogs or poultry, but believe it will be a great help to them. I am well pleased with it and shall use it right along and recommend it to all feeders of stock. JOHN DEY, President Outagamie County Agricultural Society, Hortonville, Wis.

P. S. I think we farmers have lost much by not knowing and using the Prussian Stock Food.

The first natural impulse, after securing the fruits of toil, is to seek some safe, profitable investment for the same. The stock market with its manipulation and fluctuations, hardly tempts the provident who see paper profits swept away, and the seeming rich reduced to poverty.

A reliable Banking House with fixed rules of business and an Interest rate of Four per cent—the limit of absolute safety—carries conviction of security and profit to all classes of investors, the farmer, wage-earner, business and professional man.

Compounded twice a year, $4.04 is earned on every $100.00 invested; and proportionately on other sums. Your investment can be increased in any amount from $1.00 up, with the privilege of withdrawals at short notice. Your account therefore, can be expanded or contracted at will, with no diminishment of earning capacity or depreciation in value. Listed stocks, bonds and mortgages are inclastic and out of your control to their full extent. There is the added expense of commissions and transfer charges which reduce the interest of 4½% and 5 per cent earned by such securities, and there is always a certain amount of anxiety and trouble in renewals and reinvestments. All this is lacking in an Investment Bank Account.

The Banking by Mail system which the Pittsburgh Bank for Savings of Pittsburgh originated seven or eight years ago makes it possible for everyone no matter where they reside to have an Investment or Savings Account with this strong old established institution, and banking can be done with the same ease and safety as residents of Pittsburgh enjoy, all of which is explained in their new Booklet mailed free with a souvenir of Pittsburgh if you will mention HOARD'S DAIRYMAN.

WIRE FENCE ON TRIAL.

Unique offer of the Advance Fence Co., made in good faith to our readers.

The Advance Fence Co., G. Sta., Peoria, Illinois, so well and favorably known to the farming public by the high quality of their wire fence and their successful advertising of fence "direct from maker to user," are now offering their fence on the thirty day free trial plan to our readers.

The responsibility of the makers and the superior quality of Advance fence make this offer one of decided interest to all concerned. The company making this fence show their confidence in their product by putting it in your hands to examine and erect, before final acceptance; Advance Fence being so good a fence that they find, from past experience with thousands of purchasers, that its merits are self-evident, and Advance Fence needs only to be seen and examined to be appreciated.

The matter of price-saving in taking advantage of their offer is also an important item to be considered by the man who wants the best fence and wants it at bed-rock factory price.

It will pay the reader to write to this firm and obtain price lists and full facts before placing any order elsewhere.

DAIRY MARKETS.

ELGIN, Ill., Oct. 26—Butter was advanced ½c a pound on the Board of Trade this afternoon, selling at 21½c. Sales in the district for the week were 669,800 lbs.

CHICAGO, Ill., Oct. 26.—Butter—Steady; creameries, 15½@21c; dairies, 14@18c.

Cheese—Easier; Daisies, 10½@11c; Twins, 10¼c; Young Americas, 11c.

Eggs—Steady; at mark, cases included, 18@19½c.

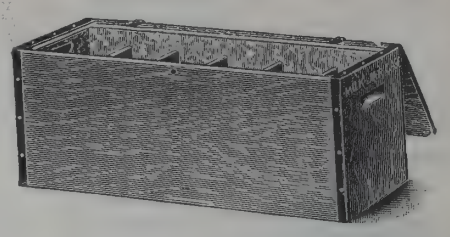
Cattle—Choice to fancy beeves, 1,200 to 1,500 lbs., $5.40@5.85; good to choice steers, 4.90@5.35; fair to good export and shipping steers, 4.40@4.85; medium beef steers, 4.00@4.35; plain beef steers, 3.75@3.95; common to rough, 1,000 to 1,200 lbs. 3.50@3.75; good to fat heifers, 3.75@4.50; good to choice feeders, 3.40@4.15; good to plain stockers and feeders, 2.15@3.25; fair to good cows and heifers, 2.60@3.75; good cutting and fair beef cows 2.10@2.50; common to good canning cows, 1.30@2.00; bulls, poor to choice, 2.40@4.25; calves, choice to fancy, 5.75@7.00; corn fed western steers, 4.00@5.25; Texas bulls and grass steers, 2.90@3.85; western steers, fair to choice, 3.50@4.40; western range steers, 3.10@4.50.

Hogs—Good to choice heavy shipping, 5.60@5.85; fair to good choice heavy packing, 5.20@5.50; rough and common heavy mixed, 5.00@5.15; assorted light, 150 to 195 lbs., 5.70@5.90; good to choice butcher weights, 5.70@5.85; poor to choice light mixed, 5.40@5.75; thin to choice 50 130 lb. pigs, 4.50@5.55; stags and rough lots, 2.85@5.10.

MILWAUKEE, Wis., Oct 26—Butter—Creamery, extras, 21c; firsts, 18@19c; seconds, 16@17c; whey, 12c. Dairy, fancy, 18c; lines, fresh, 15@16c; packing stock, 13½@14c; grease, 5@6c.

Cheese—American full cream, new: Twins, 11⅛@11¾c; Young Americas, 12@12½c; Daisies, 12@12½c; Longhorns, 12@12½c; low grades, 8@10c. Brick, new—Fancy, 9@9½c; low grades, 6@8c.

Our Milk Jar Cases....



Are made of the best material throughout. We have a variety of styles at prices to suit everybody. Our best cases are lined with galvanized steel, ends reinforced with band iron, covers hinged inside, removable wood racks, etc. We will be glad to describe the entire line if you are interested.

Creamery Package Manufacturing Co.,

149 to 153 East Superior St., Chicago.

BRANCHES: Kansas City, Mo., Minneapolis, Minn.; Waterloo, Iowa; Omaha, Neb. St. Louis, Mo. and Cowansville, Quebec.

The Elwell Kitchen Cabinet

SOLD ON APPROVAL



We shall not attempt to describe it here but invite you to send for our new booklet.

"THE LABORATORY OF THE HOME."

It puts the work of the kitchen upon a business basis—everything handy, sanitary, dust-proof and mouse-proof; easy to keep fresh and clean. Booklet tells why.

Thousands of our cabinets sold—eight styles. Every home-maker wants one. Write to-day for booklet. A postal card will do.

Elwell Kitchen Cabinet Co. 926 5th Ave. S. E. Minneapolis.

Your Butter

is all right when it leaves your hands, but how about it when it has stood around the market or grocery a few days absorbing all kinds of odors? The only safeguard to your reputation is a perfect package.

Our New Gem Fibre Box

Is the one perfect butter package. The border of this ad, which is a section of the box, shows how well it is made. Double and triple walls of impervious fibre; dovetailed walls and inner bottom; reinforced with extra bottom and lined throughout with parchment paper. Impervious to **moisture, holds the brine and will neither sweat, must nor mildew.** Send to-day for free booklet and sample.

THE GEM FIBRE PACKAGE CO., Dept. E, Gem Building, Detroit, Mich.

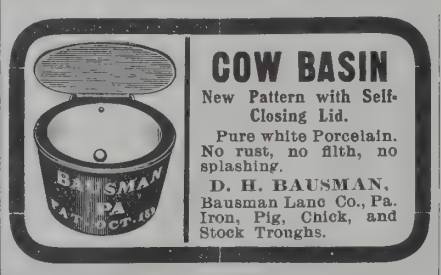


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MILK BOTTLE CAPS

to receive our catalogue. We can supply your wants at prices that are right. Write us.

BAVIER NOVELTY CO., WINDSOR, CONN.



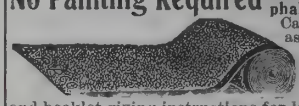
COW BASIN

New Pattern with Self-Closing Lid.

Pure white Porcelain. No rust, no filth, no splashing.

D. H. BAUSMAN, Bausman Lane Co., Pa. Iron, Pig, Chick, and Stock Troughs.

No Painting Required On Arrow Brand Asphalt Ready Roofing



Can be easily laid as the work only consists of nailing and cementing the joints. Samples, prices and booklet giving instructions for laying sent free, postpaid.

ASPHALT READY ROOFING CO., 82 Pine St., New York.

A parlor organ, better in tone, handsomer in case, and very—very reasonable in price. That's the Lyon & Healy organ. Finest catalog free. Write for it today.

Lyon & Healy, 69 Adams St., Chicago.

CREAMERY PLANT

FOR SALE

Creamery, complete, including all the machinery, implements and accessories of a moderate size plant will be sold to the highest and best bidder,

AT AUCTION

WEDNESDAY, DEC. 2, '03

at 10 o'clock a. m., at the premises, located at Fayette, Wis. For information write to

L. B. HOWERY, Darlington, Wis.

GET ONE FREE



THE SIGNAL MAIL BOX

(Bates-Hawley Patent) is the original Rural Service Box. Especially commended by P. M. Gen'l. Full govt. size. Only complete box which meets every need. Write to-day for handsome booklet and our Free Offer

SIGNAL MAIL BOX CO., 367 Benton St. JOLIET, ILL.

THOROUGHBRED

LARGE ENGLISH YORKSHIRE

BOARS, 3¼ months old, from the imported Sow, SUMMER HILL SUNSHINE 16th. This Sow won First Prize in strong competition.

Animals of this breed attain immense weight, fatten readily when young, and cross admirably with the smaller breeds. Those we offer are of the finest quality and true to type.

HENRY STEVENS & SON, Brookside Stock Farm, Lacona, N. Y.

Limburger, new—Fancy, 9@9½c; off goods, 5@7c. Swiss, old—Drum, choice, 12@12½c; drum, No. 2, 10@11c; block, choice, 11@11½c; block, No. 2, 9@10c.

Eggs—Strictly fresh laid, loss off, cases returned, 21c; strictly fresh laid, at mark, cases returned, 19½@20c; storage, city, April No, 1, 20c; storage, country, 18@19c; dirties and seconds, 17c; checks, 15c.

SHEBOYGAN, Wis., Oct.21-Cheese-On the call board today twenty-one factories offered 2,124 boxes of cheese, all of which sold as follows: 20 boxes Twins at 10¼c, 362 Daisies at 10⅞c, 848 at 10¾c, 376 cases Young Americas at 10¾c, 257 cases Longhorns at 11⅛c, 261 at 11c. Bidding lively and market active.

SHEBOYGAN FALLS, Wis., Oct. 21—Cheese—24 factories offered 1,872 boxes of cheese on the call board today and all sold as follows: 552 cases Young Americas at 10⅝c, 293 Daisies at 10⅝c, 100 cases Longhorns at 10⅞c, 917 at 10¾c, and 10 at 10½c. Market steady and firm.

MANITOWOC, Wis., Oct. 21—Cheese—Sales were as follows: 53 Twins, 10c; 1,120 Young Americas, 10¼c; 1,524 Daisies, 10¼c.

MUSCODA, Wis. Oct. 17—Cheese—The sales today were: 25 Twins 10⅛c; 150 Twins were withdrawn.

HORTONVILLE, Wis., Oct. 15—Cheese—The offerings today were 122 Cheddars and 914 Twins. Sales 122 Cheddars at 10½c; and 681 Twins at 10½c. Market dull.

PLYMOUTH, Wis., Oct. 20—Cheese—Thirty factories offered 3,106 boxes of cheese, of which 40 boxes of Longhorns were passed on. The balance sold as follows: 649 Longhorns at 10⅝c; 112 at 10½c; 1,487 Daisies at 10¾c; 298 Twins at 10¼c; 470 Young Americas at 10½c; 50 at 10⅝c. Market firm.

FOND DU LAC, Wis., Oct. 26—Cheese—Sales at Dairy Board today were 958 Twins and 315 Daisies at 10½c. Market quiet.

BRILLION, Wis., Oct. 15—Cheese—Sales today were: 277 Daisies at 11c; 500 at 10⅞c; 110 Twins at 10¼c; 35 cases Young Americas at 10⅜c; and 65 Cheddars at 10⅜c.

APPLETON, Wis., Oct. 15—Cheese—Twenty-one factorie5 offered 196 Cheddars and 1,629 Twins. 705 boxes were withdrawn or bids passed and balance sold as follows: 1,086 Twins at 10½c and 34 at 10⅜c. Market dull.

BOSTON, Mass., Oct. 26—Butter—Creamery, western, extra, 22@22½c; western, firsts, 20@21c; dairy, 15@21c; imitation creamery, 16c; ladle, 14 @15½c; box and print, 16@23c.

Cheese—Choice, 11@11¾c; Wisconsin Twins, 11 @11¾c; Ohio flat, 10½c.

Eggs—Nearby, 36c; western best, 24c; good to choice, 20@22c; Illinois, 25c; refrigerator, 19½@21½c.

NEWARK, N. J., Oct. 26—Butter—Market firm at 22c. Receipts light.

Eggs—Extras, 26c; first, 25c.

NEW ORLEANS, La., Oct. 26—Butter—Market steady. Extras, 22c; renovated, 17½c; ladles, 15c.

TOPEKA, Kan., Oct. 24—Butter—Creamery butter, 21@22c; Dairy butter, 16½@17½c.

Cheese—Longhorns, 12c; Twins, 11¾c; Daisies, 11¾@12c; Prints, 12¾c.

PHILADELPHIA, Oct. 26,—Butter firm, ½@1c higher; extra western creamety, 22c; nearby prints, 23c.

Eggs—Firm and 1c higher; fresh, nearby, 28c at the mark; western, 27c; southwestern, 25@26c; southern, 22@23.

Cheese quiet, but steady; New York full cream fancy,12c; choice, 11¾c; fair to good, 11@11½c.

ST. LOUIS, Oct. 26—Butter—Steady; creamry, 17@22c; dairy, 14@18c.

Eggs—Steady, 21c loss off.

KANSAS CITY, Oct. 26—Eggs firm; Missouri and Kansas cases returned, 18½c, new No. 2 whitewood cases included, 19c.

Butter—Creamery, 18½c@19½c; dairy fancy, 17c.

CANTON, N. Y., Oct. 24—Cheese—Offered 1.800 boxes of Twin cheese, and 976 tubs of butter. Cheese sold at 11; butter 21½c.

WATERTOWN, N. Y., Oct. 25—Cheese—Cheese sales 7,500. Bulk sold at 11 and a few large white at 11⅛c.

LIVERPOOL, Oct. 27—Butter—Good United States nominal. Cheese steady American finest white, 53s 6d; do,colored, 54s 6d.

UTICA, N. Y., Oct. 26—Cheese—Everything sold at 11c, all sizes and colors. Market inactive.

NEW YORK, Oct 26—Butter—Receipts, 6,488 packages; firm: extra creamery, 22c; creamery, common to choice, 16@21½c; state dairy, 15@20c.

Cheese—Receipts, 949 packages; quiet; state full cream, fancy, small, colored, September, 11½c; October, 11¼c; small, white, September, 11½c; October, 11¼c; large, colored, September, 11½c; October, 11¼c; large, white, September, 11½c; October, 11¼c.

Eggs—Receipts, 6,897 packages: firm; state and Pennsylvania; fancy mixed, 27c; state and Pennsylvania, seconds to firsts, 22@25c; western extras, 26c; western, thirds to seconds, 18@23c; western, firsts, 24@25c; refrigerated, 18@21½c.

BALTIMORE MARKET.

BALTIMORE, Oct. 22.—Butter—Although there is a decided decrease in the general receipts of butter, the shrinkage is no greater than is to be expected at this particular season. So far this week the supply of extras and firsts, while comparatively light, is sufficient to satisfy the requirements of our local customers, who are very conservative in their purchases. Owing to the irregularity of the quality of our current receipts there is a wide range in values. Imitation creamery is in moderate supply; there is a good demand for all desirable stock. Fresh, sweet ladles are in quick demand; the supply of this kind is light. Packing stock is in moderate receipt; there is a quick sale awaiting all good to choice arrivals. Choice to fancy blocks and prints are in good request. The market in general closes steady and quite firm at the recent advance.

Creamery separator, extras, 22@22½c; firsts, 20¼@21½c; seconds, 18@20c; imitation creamery, extras, 19c; firsts, 17@18c; seconds, 15@16c; Iowa & N. W. Ladle, extras, 16½c; firsts, 15½@16c; seconds, 13@14c; Ohio & Indiana Ladle, extras, 16@16½c; firsts 15@15½c;; seconds, 13@14c; creamery blocks (2 lbs.), extras, 23½c; firsts, 21½@22½c; seconds, 20@21c; creamery prints, (½ lbs.), extra, 24½c; first, 22½@23c; seconds, 20@21c; Md. Va. & Penna. prints, extras, 23c; firsts, 20@22c; seconds, 17@19c.

Eggs—With less liberal receipts and a better inquiry, particularly for strictly choice stock, there is a steadier feeling, and our market closes in good shape on all desirable offerings, both of fresh and storage stock at 23 cents.

301 Exchange Place. G. M. LAMB & BROS.

NEW YORK MARKET.

NEW YORK, Oct. 24—Butter—Receipts for the week, 36,181 packages. Exports for the week, 1,278 packages.

The arrivals this week of real fancy, fresh make creamery butter were much lighter, and buyers had to do some shopping to supply their wants; this lead to a firm market and latter part of the week price was advanced to 22c. The shortage of fancy, fresh goods made more inquiry for best marks of freezer butter and sales were made in a small way of exceptionally fancy August and September makes at 21 to 22c. Finest fresh dairy and Imitation creamery makes find ready sale at full prices; most of these styles butter arriving are poor and have to be sold at 15 to 17c. A few parcels of ladle butter sold for export at about 15 to 15½c, and low grades packing stock at 14 to 14½c. Nothing doing in renovated goods. We quote:

Creamery, extra, 22c; medium, 20@21½c; poor, 16@19c. Dairy, extra, 20@21c; medium, 16@18c; poor, 14@15c.

Cheese—Receipts for the week, 25,243 boxes. Exports for the week, 5,300 boxes.

Exporters bought a few fancy full cream cheese at about 11½ and paid 8 to 10c for finest, light skims and took full lines of poor skimmed cheese at 3 to 4c.

Home trade were only moderate buyers and while they were willing to pay 11½c for finest small and large cheese, they declined to pay prices asked by receivers, say 11¾ to 12c. At the close there is a better feeling in all grades cheese with a tendency to higher prices. We quote:

Full cream, extra, 11¾c; medium, 11@11½c; poor, 8@10c.

Eggs—Receipts for the week, 44.742 cases.

There is not enough of new laid eggs arriving to supply the trade, and price for this kind of stock is much higher than our quotations. All grades of eggs are in better demand at better prices. We quote:

New York & Pennsylvania, finest, fresh, per doz., 27@28c; Northern & Western, finest, fresh, 26@27c; all sections, poor to good, 18@25c; refrigerator stock, 18@22c.

177 Chambers St. DAVID W. LEWIS & CO.

SAN FRANCISCO MARKET.

SAN FRANCISCO Market Oct. 22—The market for butter displayed a steady tone yesterday on the upper grades of creamery offerings, and the demand, while not brisk, was sufficiently liberal to absorb the bulk of available supplies at full figures. Trading in the cheaper butter, however, continued disappointing, but prices were as previously quoted. For storage goods the market showed a firm tone and active trading was reported within the quoted range of prices. The light arrivals of ranch eggs and the briskness of the demand caused a further improvement in the demand and a 2 point advance was effective in values for selected offerings. Storage eggs naturally shared in the improvement and there was a general hardening of values for both local and eastern descriptions. The demand was buoyant throughout the day and the market closed firm, with a marked upward tendency apparent. Cheese was without quotable change.

Receipts yesterday aggregated 44.000 pounds butter, 683 cases eggs and 4200 pounds cheese.

Butter—Creamery, extras, 29@30c; good to fancy, 26@28c; dairy, extras, 24@25c; dairy, choice, 22@23c; store, 18@20c: California storage, 24@27c; eastern creamery, 23@25c.

Cheese—California creamery, mild new, extra, 14@15c; mild, new, choice, 13½@14c; Young America, 14@15½c; eastern, New York, Cream, Cheddars and Flats, new, 14½@16c.

Eggs—Ranch, selected large, 52@53c; good to choice, 45@50c; store, nominal; California storage, 30@33c; eastern, 25@30.

NEW YORK FERTILIZER MARKET.

Acid phosphate		60 @	67½
Phosphate rock, f. o. b. Char'n		5.00 @	7.00
Tenn		3.00 @	4.00
Bones, rough	℔ ton	17.00 @	18.00
ground		21.50 @	22.00
Bone meal		22.00 @	24.00
Bone black, refuse		19.00 @	19.50
Potash, dbl. m're salt	48@53%	1.12 @	1.15
dbl. m'ure salt	48@53%		
less 25 tons		25.00 @	30.00
sulph. of	basis 90@98%	2.11 @	2.18
90@98% less than 25 tons		38.00 @	40.00
Potash, Muriate	% 100 lbs.	1.83 @	1.95
less than 25 tons		36.00 @	40.00
Kainit, 25% S. of P	℔ ton	9.30 @	9.50
less than 25 tons		9.50 @	10.50
Sylvinit, 35@37% P	℔ unit	41 @	46
Nitrate of soda		2.15 @	2.20
Blood, dried, red	℔ unit	2.50 @	2.55
low grade		— @	—
Concentrated tankage	℔ ton	15.00 @	16.00
Fish, guano, dried		25.00 @	25.25
acidulated		23.00 @	23.50

READING NOTICES

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—Five Jersey heifer calves from 8 to 12 months old. Dams averaging over 5,000 lbs. milk a year. All well bred, $100 will buy the lot; also a bull calf for sale. F. X. HOFFMANN, Millersville, Sand. Co., Ohio.

For Rent—190 acre farm near Chicago Heights, Illinois. Write me for particulars. F. HOLBROOK, Chicago Heights, Ill.

For Sale—Five cheese factories, 20 acres land saloon and store with stock, three houses in Appleton, Wis., two farms 60 and 80 acres. Address 775 Ida St., Appleton, Wis. 36-tf

For Sale—One choicely bred Guernsey bull by Stella P's Gold Bar, 8368, out of my best cow, 16 months old, warranted a sure stock getter. Also a few choice Berkshire sows and boars. April farrow, at reasonable prices. J. E. STORY, Successor to Nor. Wis. Live Stock Co., Stanley, Wis. 36-tf

Guernsey Bulls For Sale—I have a few young Guernsey bulls for sale at moderate price, ranging from six months to one year old. These animals are from highly bred sires and mothers of good size and well reared. Good bargains here. W. D. HOARD, Fort Atkinson, Wis. 30-tf

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D, Independence, Ia. 50-tf

For Sale—Young bull fit for service, sired by Recorder 29239 and tested dam 16 lbs. 2 oz. Sold at a sacrifice. JOS. KARELS, Big Stone, S. D. R. 1. 30-tf

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For Sale—Creamery plant doing fine business, with rooms for family; large barn, in beautiful village with high school and in best dairy district on Puget Sound. Price $2.300 cash. Address E. I. THOMPSON, Everson, Wash. 35-4

For Sale—480 acres, 200 level, 160 acres Gov. land can be added by using homestead right, making 640 acres in one piece. A well equipped dairy of 30 cows, with gas engine; 40 acres fine grove, plenty water in grove. Good buildings, very rich soil; called the finest outfit in the country. Give possession any day and give ones own time to pay for last half, if ten years; terms at 6 per cent. I mean business. $9,600 is the price, you will say it is worth $14,000. Address F. A. I. R., care Hoard's Dairyman. 30-tf

Herdsman Wanted—Who understands care and handling of thoroughbred Holsteins as well as rearing of young stock. Single men only need apply. State wages and experience. Steady place for right party. Address A. J. DOUGHERTY, Streator, Ill. 34-tf

For Sale—A cheese factory in good dairy country, doing good business. No opposition, (cheap.) Address S. O. U., care Hoard's Driryman. 34-tf

For Sale—Two registered yearling Guernsey bulls. RAY BICKNELL, Ft. Atkinson, Wis. 32-tf

Wanted—Position as superintendent of dairy farm within 125 miles of Chicago. Thoroughly up-to-date in all branches of farming. Have a market for high grade milk and cream at good prices. Address A. X., care Hoard,s Dairyman. 38-2

Foreman Wanted—A first-class dairyman, with knowledge of general farming can get position at once as foreman on my farm near St. Paul, Minn. State whether married or not. E. H. HOBE, New York Life Bldg., St. Paul, Minn.

Position Wanted—On a first-class dairy by a married man 30 years of age. Small family. Good milker and all round experienced man. Wages $35.00 per month, house, milk, garden, etc., furnished. Can come at once. Address DAIRYMAN, 800 So. East 8th, Des Moines, Ia.

Wanted—A first-class hand on dairy farm. Must be a good milker and sober. Wages $25.00 per month with board and a chance of increase. JOHN S. EVANS, Grafton, W. Va. Route 5.

For Sale—Two Holstein bulls ready for service. Also younger bulls. Prices $25.00 to $75.00. All stock registered. H. GLISSMAN, Sta. B., Omaha, Neb.

Wanted—A partner in a bottled milk business in some American city in the East or Middle West. Could supply a lot of modern, up-to-date machinery necessary, or would sell machinery. Correspondence invited. References exchanged. Write quick. Address C. H. McNISH, Lyn, Ont., Can. 37-2

For Sale—One carload of Jersey cows. Thoroughbreds and grades; also a few Holsteins. For particulars and specifications address BYRON PARSONS, Havana, N. D. 35-4

For Sale—Choice pedigreed O. I. C. Pigs 12 weeks old at $8.00 each. S. J. HOWARD, R. F. D. No. 1, Henderson, Ky. 36-3

For Sale—One fine registered 18 months Guernsey bull. Address EDWARD DIETZ, Hyde's P. O., Md. 36-3

For Sale—Not wishing to inbreed we offer for sale our bull, De Kol Duke, grandson of Butter Boy 2nd. Also, 2 young bulls, one fit for service. E. W. MOORE, Spring Creek, Warren Co., Pa. 38-2

Wanted—Experienced butter and cheese maker wants position, address "BUTTER MAKER," P. O. Box 373, Morenci, Mich. 38-2

Wanted—Butter and cheese maker of 25 years experience in U. S. and Canada would like a position in either creamery or cheese factory; prefer Pacific coast. Address A. W. W., 679 Arkwright St., St. Paul, Minn.

Wanted—Experienced butter maker, former instructor in dairying, at present in charge of sanitary milk bottling plant in eastern city, wishes to change position. Address C., care of HOARD'S DAIRYMAN, Fort Atkinson, Wis. 38-5

Wanted—Experienced herdsman for a milk farm. Applicant must state age, experience, references and wages wanted. JOHN D. WALSH, Mont Clare Station, Chicago, Ill. 38-4

Closing Out—25 high grade Jersey cows, 3 to 6 years old. Fresh to forward springers. For particulars, ROCKY RUN CREAMERY, Wyocena, Wis.

Wanted—Position as manager of dairy or stock farm. Experienced in intensive farming. Was for years a herdsman; well educated; good habits; good references. Address, S. C. H., care HOARD'S DAIRYMAN.

Wanted—Good milker and butter maker. Man capable of taking entire charge of small herd of thoroughbred Jerseys. Must have had experience in raising calves. Steady employment at good wages for competent man. M. E. REEDER, R. F. D. No. 2, Muncy, Pa. 37-2

For Sale—3 Scotch Collie puppies 7 months old; old male sable and some white; sire and dam registered. Also 4 Holstein bull calves 3 to 8 months old; sire, Sir Dairy B. M. DeKol, and out of choice cows. HENRY WALSH, Sheboygan Falls, Wis. 37-4

For Sale—A 2-year-old registered Jersey bull and a registered Jersey cow soon to drop her 4th calf. These are fine animals. Address JAMES M. ROGERS, Elsberry, Mo. 37-2

Wanted—Position by capable butter maker of 15 years experience in creamery in R. R. town, married. Use no liquor or tobacco. Address COMPETENT, care Hoard's Dairyman. 37-3

The Third Revised Edition of Buff Jersey's Popular Book Just Out of Press—Ten chanters, 25 illustrations and right up-to-date. Subjects treated are: Silos and Ensilage. All Phases of the Dairy Subject, Soil Crops. Up-to-date Farm Machinery. How to Cure Abortion and Milk Fever. Some Medicines and Remedies. The Steam Plant, its care, and many other valuabe things ably treated. Send for circular. Sent post paid, cloth binding $1.00, paper 75c. BUFF JERSEY, Monmouth, Ill. 47-tf

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Two choice young Guernsey bulls for sale. MRS. A. W. LEHMANN, Neosha, Dodge Co., Wis. 12-sp

Some Questions in Dairy Feeding.

[Paper by PROF. HARRY HAYWARD, at the New Hampshire Dairymen's Association.]

During the past ten or twelve years, the literature on the care and feeding of dairy cattle has increased rapidly. Nearly every phase of dairy management has been investigated, in one way and another, and the results of these investigations, published in our station bulletins and agricultural papers, have been widely scattered among reading, thoughtful farmers.

As might be well expected, there are but few of the many questions bearing on the dairy business which have not been settled several times and in a way so different each time as to leave some of them still unsettled.

My purpose to-day is to go over a few of these points with you, hoping that what I have gathered in my experience, as a dairy teacher and experimenter, may be of some help to you, and that I may gather from your discussions something that will be of benefit to me.

I wish to take up first a point that is of great importance to all winter dairymen who are compelled to buy large amounts of nitrogenous by-products to feed, a point upon which most of our leaders in dairy thought are modifying their views considerably. I refer to the influence of the nutritive ratio of the ration upon the economy of the milk and butter production, or, in other words, the economy of the so-called "balanced" ration.

For the past fifteen or twenty years the dairyman has been struggling to feed a balanced ration, buying expensive feeds to enable him to give his cow from 2.2 to 2.5 pounds of digestible protein. Later experiments have demonstrated that a ration, less expensive and more completely home grown, will produce just as much milk and butter. Carefully conducted experiments at the Pennsylvania Experiment Station showed that, other conditions being equal, between the limits of 1:4 and 1:12 the nutritive ratio had no effect either upon the quantity or quality of the milk produced. It has been thought that a surplus of protein over and above that required to supply the waste of tissue and to furnish the amount required by the milk had a stimulative effect upon the milk secreting organs of the cow. In the experiments made at the Pennsylvania Station digestion trials were made, and the results obtained showed the amount of protein fed, over and above that required for maintenance and that taken up by the milk, passed off in the urine with no apparent effect upon the cow in any way. While these experiments were carried on during periods of six months each year for three years, they cannot be taken as conclusive, further work under somewhat different conditions being needed, but they certainly indicate that we have been feeding more protein and, in consequence, a more expensive ration than is now considered necessary.

However, it is evident that a certain amount of nitrogenous food must be fed besides what we can raise in ordinary farm crops, and I know of some prominent dairymen who believe that they must feed certain foods in order to get the best results, or, in other words, they think the cow will not do so well on buckwheat middlings, for example, and corn-meal, as she will on bran and corn-meal. As a result, there are times when the particular ration they wish to feed costs them more than if they could make up a ration of the same composition with other and cheaper foods. While there is no question but that certain foods have certain desirable effects upon the animal system, I fully believe that the effect produced by any single food can also be produced by some other food or combination of foods. A number of experiments have demonstrated that, when fed as part of a well compounded ration, foods of similar composition and digestibility are equal in productive energy. This fact will then be of material assistance to us in selecting the grains to be bought for a season's feeding.

The necessity of adding purchased protein to our home grown feeds to make a suitable dairy ration has resulted in a great effort to produce the needed protein on the farm upon which it is fed. Considerable has been done in various parts of the country with cow peas, soy beans and alfalfa, but, to my knowledge, nothing has as yet been satisfactorily produced on the farm that will take the place of such foods as cotton seed or gluten meal or even bran. After the experience of last year, when all kinds of feeding stuffs were so exorbitantly high, any possibility of escaping from the grain dealer will be gladly considered.

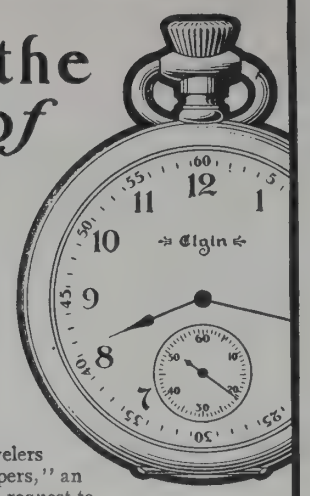
Last year I had considerable experience in feeding a by-product of dairying in the form of a skim milk powder known as Nutrium. While working with this form of skim-milk in some experiments in calf feeding, the thought suggested itself that the skim-milk product known as dried curd, or casein, might be successfully fed to dairy cows as a concentrated nitrogenous food. As you all doubtless know, adding sulphuric acid to skim-milk at a temperature of about 120° F., coagulates the casein so the whey may be drained off. The curd is then dried for about twenty-three hours at a temperature of 120°F. The resulting product, when pulverized, closely resembles white corn meal. It contains about 75 per cent of protein, or nearly twice as much as cottonseed meal. It is easily and cheaply made, will keep indefinitely, and is rich in protein. A ration composed of 10 lbs. mixed hay, 35 pounds silage, 5 pounds corn meal, and 1½ pounds dried curd would conform closely to the feeding standard and have a nutritive ratio of between 1:6 and 1:7. In other words, it looks on paper like an ideal ration and would compare favorably in cost with a ration composed of 10 pounds hay, 25 pounds silage, 4 pounds corn meal, 3 pounds bran, and 2 pounds cotton seed meal. I have fed enough of this dried curd as part of a mixed ration to know that the cows will eat it, that it has no apparent ill effect upon the animal, and a casual observance would seem to indicate that it sustains the flow of milk. Of course, the feeding of dried curd is not recommended, but is suggested as worthy of investigation by those why pay heavy feed bills, and who have a good supply of skim-milk.

Another question perhaps worthy of consideration in dairy management, is the number of times cows should be fed and watered during the day.

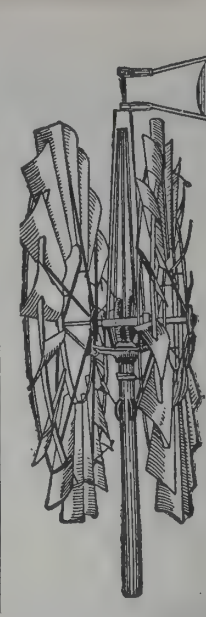
I have worked in a large herd where we fed the cows five times a day. I have also worked with other herds which were fed but twice a day, and I know the cattle were quieter, more contented, and I believe gave better results than when they were fed oftener. When cows are fed a number of times during the day they are up on their feet, straining and worrying for the feed some time before it gets to them. Careful, accurate investigations have recently taught us that an animal is using energy when standing upon its feet that might be put to some other use if lying down. Ruminants have large stomachs and the more quickly this stomach is filled and the animal lies down, contened and satisfied, the better the returns will be for its owner. Another consideration in favor of feeding but twice a day is the expense of the labor required for feeding oftener. It is well understood that it will cost less, and be more convenient, in most cases at least, to feed a given amount in two feeds than in three or five feeds.

The matter of providing water for stall-fed cows is one that has provoked a great amount of discussion, comparatively little of which has been based upon actual figures. Much has been said and written about the advantages of having water before the cow at all times in the stable. A great deal of this has seemed so plausible that little has been said against the practice. If, however, the disadvantages are

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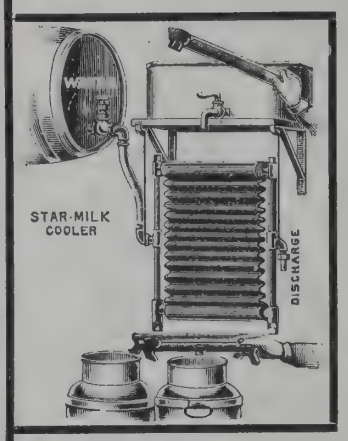


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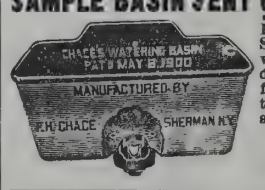


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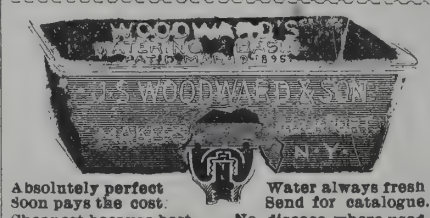


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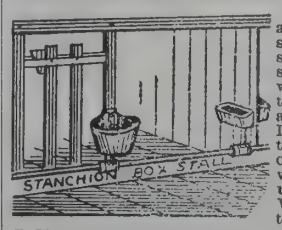


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carefuly weighed against the advantages, it will be seen that there is at least a question as to whether the outlay necessary to put in a self-watering plant, will repay even a low rate of interest on the dollars and cents invested. In the first place, three experiments conducted at two different Experiment Stations, show no increase in milk or butter where the cows were allowed water at will, as against having it twice a day in two experiments, and once a day in one experiment. If these experiments can be relied upon, they indicate that as a proposition to increase the productivenes of a cow, the self-watering devices must be at least questioned.

In the second place, in some cases it is next to impossible to tell when a cow is in season unless she is turned out of doors with other cows. This may, and frequently does cause serious inconvenience and loss in a dairy, and should not be overlooked in casting up the pros and cons of this question.

In the third place, it is admitted by nearly all dairymen that it is almost necessary for the health of the cow that she have at least a little exercise each day, and while a cow is out of the stable there is seldom any reason why she should not take the opportunity to drink.

In the fourth place, I have seen a number of self-watering devices either get out of order and require frequent repairing or not work satisfactorily, so that water had to be carried in pails to supply the deficiency.

In my opinion, based upon considerable observation and some experience, all things considered, a watering trough arranged if possible under a shed in a yard, where it can be supplied with fresh water once a day in winter and twice a day in summer, is more economical, more convenient, and, on the whole, more satisfactory than a self-watering device in the cow stable. Whether it will pay to warm water for cows in winter is also a question that has been debated pro and con for many years. I feel quite safe in saying, in view of the reliable data uppn the question, that for cows kept in comfortable barns there is but little, if any, advantage in warming water they drink.

These three points of feeding, and the number of times per day a cow should be fed and watered are mentioned because it seems that most dairymen should be able to reduce the cost of production in one of these places. That the cow is a highly organized animal we all admit, but it takes more to get her out of adjustment under rational treatment than many would have us suppose.

On dairy farms where either milk is is sold or butter made, it is often a perplexing question to know what is the best way to dispose of the calves. In some cases they are deaconed, in others, sold for fifty cents or $1.00, and in some cases, given away. In this connection, I wish to call your attention to the results of some experiments in which was determined the value of milk and butter when fed to young calves, for the production of veal.

The American dairyman does not pay the attention to raising veal that some of the dairymen do in Europe, and as a consequence does not produce veal of nearly so fine a quality as the Dutch farmers. There is every reason to believe there is an opportunity to create a well paying demand for a superior quality of veal. A few years ago the Pennsylvania Station conducted two different experiments to determine, if possible, what the relation was between milk sold, or made into butter, and that made into veal. The results obtained in the two experiments agreed so closely that they have a fair degree of reliability.

The calves, sixteen in number, were confined in darkened stalls so narrow that after a few days they could not turn around, and care was taken that they had absolutely no solid foods. The object was to keep them as quiet as possible and to stuff them with all the whole milk they would take twice a day.

The calves used in these experiments were very poor for the purpose, and as a consequence the results obtained were not so good as if a higher class calf had been used. However, the results were so surprising to me that they may possibly be of interest to you.

It was found that when veal calves were sold at four weeks old for five cents a pound, shrunken live weight, they would pay a gross price of $1.41 per cwt. for milk testing four and two-tenths per cent fat, and twenty-eight and one-tenth cents per pound for butter: when sold for six cents per pound, $1.70 per cwt. for milk or four and two-tenths cents per quart, and thirty-four cents per pound for butter.

When fed until seven weeks old and sold for five cents they would pay ninety-three cents per cwt. for milk and nineteen cents for butter, and if sold for six cents, $1.18 for milk and twenty-four cents for butter. In either case the figures are as good, if not better, than average net market prices for milk and butter, and the practice of vealing surplus calves is worthy the consideration of all thoughtful dairymen,

The last point in dairy management to which I wish to call your attention, and especially those dairymen who ship milk, is that of raising calves from your best cows without any milk, or at most very little, beside the colostrum from its own mother.

The advantages to be derived from rearing one's own calves, briefly mentioned are as follows: 1. In no other way can the standard of production be systematically raised and maintained. 2. In no other way can uniformity in a herd be secured. 3. The danger of bringing disease into a healthy herd is reduced to the minimum.

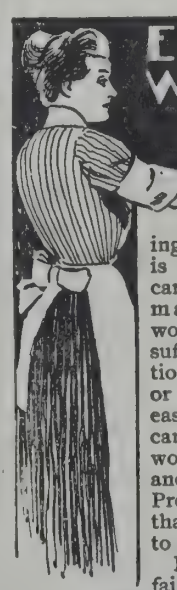
The difficulty of raising calves without skim milk has been almost insurmountable, owing to the lack of milk substitutes and to the high price asked for the various calf meals upon the market. During the past year the Pennsylvania Experiment Station conducted feeding trials with a home-made calf meal for young calves. The results were promising indeed and briefly stated were as follows:

1. Seventeen calves were successfully raised, consuming on an average but 121 pounds of milk. The salable part of this 121 pounds at five cents per quart amounting to $1.25 or less.

2. But little difficulty was experienced in raising the calves, although the conditions under which they were kept, were not satisfactory.

3. The calves raised on milk substitutes made just as rapid and satisfactory growth, determined by the scales, as the check calves fed upon a skim milk and grain ration.

4. The total cost of raising calves on milk substitutes up to the age of four months, or when they are ready to be



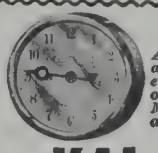
"Love lightens labor," the saying runs, and in a sense it is true. But even love cannot lighten labor or make it easy for the woman who is in constant suffering from inflammation, bearing-down pains or other womanly diseases. The one thing that can make work easy for women is sound health, and Dr. Pierce's Favorite Prescription is the thing that will give sound health to sick women.

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"Favorite Prescription" makes weak women strong, sick women well.

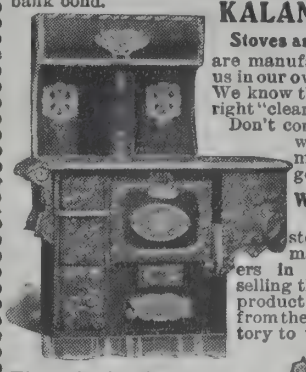
Dr. Pierce's Common Sense Medical Adviser is sent *free* on receipt of stamps to pay expense of mailing *only*. Send 21 one-cent stamps for the paper-covered book, or 31 stamps for the cloth-bound volume. Address Dr. R. V. Pierce, Buffalo, N. Y.



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put upon a hay and grain ration, did not exceed $10 per calf.

5. The calf meal was composed of 30 pounds wheat flour, 25 pounds cocoanut meal, 20 pounds nutrium, 10 pounds linseed meal, 2 pounds dried blood.

DISCUSSION FOLLOWING PAPER OF PROF. HAYWARD.

Question: Don't you think it would be better to warm the water?

Prof. Hayward: If the cows were well stabled, I don't believe the difference would amount to a row of pins, measured in dollars and cents. I can imagine conditions where cows are kept in cold stables and fed a large amount of poor, watery silage, that they might do better if given warm water instead of cold, but if fed hay I don't think it would make any difference.

Question: Do you believe in boiling feed for cows?

Prof. Hayward: No, I don't. I believe experiments have shown conclusively that it does'nt pay in dollars and cents to warm or boil and feed cow slops.

Question: Do you water morning or evening?

Prof. Hayward: Our practice has been usually morning, because then the cows go out and stretch their legs and the stables are cleaned out and aired, and then they are put back for the day.

Question: Do you feed the concentrated foods before or after milking?

Prof. Hayward. We always feed our concentrated foods the first thing in the morning before we milk, then milk, then feed the coarser foods. After milking at both times we feed our roughage. That has the advantage of not feeding rough or dusty foods during the milking, so the stable will be free from dust and the milk will be free from any bacteria that might fall into it during milking.

Question: Will it affect the flow of milk to feed the cows grain while they are being milked?

Prof. Hayward. It is a question I haven't any data on. Personally I don't think it is a good practice. I wouldn't want to do it. I will ask Prof. Wing.

Prof. Wing. I don't think it would make any difference. I don't mean that in any particular case it wouldn't make a difference. I mean taking all the cows. It will depend on what the cow is used to more than on the mere fact of whether she is fed before she is milked or while she is being milked.

Question: In the question of veal, would'nt it be better to make veal and make butter, too?

Prof. Wing. I don't believe you can make veal very successfully on skim-milk and grain. I don't know of any one who is doing it very successfully. Skim-milk calves are reported quite a little below prime veal in all markets. A calf has got to be good for veal sooner than he will eat sufficient grain to do him very much good. Of course they will begin to eat before four weeks old, but they are only getting used to it then. You would have to keep a calf three or four weeks more to see the effect of grain. That tallies exactly with our experience with lambs. We cannot fatten lambs except on milk, and the less they eat aside from that the better. You want to get them into market before they eat very much.

Question: How would you raise a calf for future dairying?

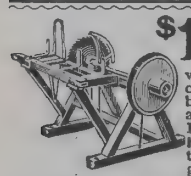
Prof. Wing: Raise it on skim milk. I don't believe the fat put on them cuts much figure as far as the future usefulness of the cow is concerned.

From a Minnesota Dairyman.

A Cream Query—An Unsatisfactory Yield—A Feeding Problem.

ED. HOARD'S DAIRYMAN:—I have only been in the dairy business since last January and would like advice as follows:

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$50 Jersey Bull Calf
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Grandson in blood of Stoke Pogis 3d and Stoke Pogis 5th; great grandam, Brown Bessie, champion butter cow, Chicago 1893. Dam showed 361 lbs. ½ oz. butter, monthly fat test, 2d season 352 days. Her dam tested (2d calf) and 40 lbs. milker. Sire's dam tested (2d calf) and 40 lbs. milker. A very little white, brisket and thighs.
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"IT'S UP TO YOU!"

an average price of 20.6 cents per pound for butter fat. I am now offered 40 cents per gallon for 20 per cent cream. Which is the better proposition?

I have a herd of 17 cows, most of them are four coming five years, with their second calves; five of them are three coming four, just about to freshen. They will average from 800 to 900 pounds in weight. Four of them are full blood Jerseys and the rest are grade Shorthorns. Since January 1st to Oct. 1st, this herd has produced 2129.8 pounds of butter fat.

The reason for giving the above data, is that I want your advice as to feeding this herd for the best results, with the following feeds: Our hay crop is a complete failure, which leaves nothing for rough feed but fodder corn, cut in the usual way, and rye straw. Bran is $16.50 per ton, oats, 30 cents per bushel, corn 35 cents per bushel and oil meal $25 per ton. Will it pay to feed my cows corn just as it was cut in the shock or had I better husk the corn? What is a ton of husked corn stalks (cut in good time) worth?

I have just completed a dairy barn for my cows and calves, fitted out with Bidwell stalls, King's system of ventilation, and well lighted and fitted up to date, and now I am very anxious to learn all I can about my business. I have read your paper for three years and all I know about cows I have learned from its pages.

Thanking you for your advice which you gave me some time ago as to planning my barn, I am Yours truly,

Becker, Minn. J. C. WAGNER.

A gallon of 20 per cent cream will weigh approximately 8½ lbs, and contain 1.7 lbs. of fat, which at 20.6 cents per pound would come to 35 cents. All other things being equal, it would be more profitable to dispose of this cream at the offer made, which is at the rate of 23½ cents per pound of fat. Of course no one can tell whether butter will advance in price next year.

We do not consider a yield of 2,130 lbs. of fat by 17 cows in 9 months as at all satisfactory, as it is at the rate of less than 170 pounds per cow for a full year, unless the remaining three months are better than the average for the balance of the year.

The presumption is that some of these cows are not paying for the feed they consume. The proper course to pursue is to commence at once to keep an accurate record of what each cow produces. Get a spring balance and hang it at some convenient place in the stable and weigh the milk given by each cow night and morning.

Make a permanent record of their weights on blanks, which may be ruled at home for the purpose, or purchased from this office. Near the middle of each month make a composite sample of each cow's milk, to include at least four milkings, and have this sample tested for butterfat. This test may be accepted as the average for the entire month, unless it should appear to be abnormally high or low, for some particular cow or cows, in which case take another composite sample and have that tested.

Transfer from the loose milk sheets into a regular book account with each cow, the total amount of milk for each month with its test and the consequent amount of fat. Then, and not till then, will you begin to know definitely, something about each cow and whether it is worth while to feed her any longer.

To such of the cows, as from a record made and kept in this way, appear to be able to pay for it, we would feed, say 2 lbs. oil meal, 4 lbs. bran, and from 4 to 6 lbs. of ear corn as a daily allowance, with all the roughage they will eat. It would be better to grind the corn into corn and cob meal, especially when it begins to get dry and hard. If some of the cows are pretty heavy milkers, try increasing the allowance of bran moderately, or add a few oats. Feeding is very far from being an exact science yet, and there must be a liberal amount of experimenting and close observation to secure best results.

Corn stalks, otherwise called corn stover, vary so much in quality that it is impossible to fix a value upon them. They frequently are equal to good timothy hay, and again are not much better than straw. They can be improved in feeding value by shredding or by cutting. In the latter case we advise cutting a supply for a week or more at one time, dampening the whole mass and let it lie in a pile to heat and soften. There will be much less waste and much greater satisfaction every way.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The Quotation Committee of the Elgin Board of Trade reported the official market firm at 21½ cents.

Offerings.	*Tubs.*	*Price.*	
Warren	60 sold	21¾	Holmes.
Morrison	60 sold	21¾	Holmes.
Shirland	20 sold	21¾	Holmes.
Oregon	85	21½	Wolverton.
Solon Mills	30 sold	21½	Holmes.
Walworth	40 sold	21½	Wolverton.
Former markets.		*Sold.*	*Price.*
October 19, 1903		142	21
October 27, 1902			24½
October 28, 1901		210	22
October 29, 1900		140	22
October 30, 1899			23½

Oct. 26, '03. H. C. B.

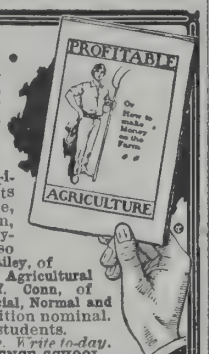
FREE.

This booklet tells how to make money on the farm, and outlines our course of home study in

Modern Agriculture,

Under Prof. Wm. P. Brooks, Ph. D., of the Mass. Agricultural College. Treats of soils, tillage, drainage, fertilizers, crop rotation, stock-feeding, poultry-raising, dairying, etc. Also Horticulture under Prof. Bailey, of Cornell University, and Agricultural Bacteriology under Prof. Conn, of Wesleyan. Full Commercial, Normal and Academic Departments. Tuition nominal. Text-books FREE to our students. *Cata. and particulars free. Write to-day.*

THE HOME CORRESPONDENCE SCHOOL, Dept. 55 Springfield Mass.



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MIXED PAINTS

At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA.

President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.

FEES FOR REGISTRY.

TO MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each

NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. ☞ All blanks furnished free.

Life Membership, $25.

Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.

Address F. L. HOUGHTON, Putney, Vt., for information relating to Registration of Pedigrees.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., P. S. 4

REGISTERED HOLSTEIN-FRIESIAN

YEARLING BULLS AND BULL CALVES.

Write at once for special prices on them for the next thirty days. They are well bred, fine individuals; right in every way. Don't miss this opportunity to purchase. Stock at reasonable prices---prices that you can afford to pay.

JOHN C. GOODFREY, Fulton, N. Y.

FERMANAGH HERD

HOLSTEIN-FRIESIANS

Bulls ready for service from A. R. O. animals sired by Johanna Rue 2d Paul De Kol, sire of 13 A. R. O. cows. Also young bull calves by same sire. THOS. GAINES, Supt., Arcadia, Missouri

LOOK HERE

34 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.98. 9 three-year-olds average 15.06 lbs. of butter in seven days; average per cent of fat 3.60. 8 two-year-olds average 12.16 lbs. of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by Gem Pietertje Hengerveld Paul De Kol, or Sir Ormsby De Kol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days; average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd? For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis. Residence: National Ave., near 40th. Phone, South 1601.

TYRANENA HERD

100 HOLSTEIN-FRIESIANS

A. R. O. STOCK FOR SALE.

Both sexes, all ages. Herd headed by Sir Piebe Hengeweld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz. Frank B. Fargo, Lake Mills, Wis.

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Offers 5 yearling bulls cows and heifers bred to oldest son of Mercedes Julip's Pietertje, No. 39480. Chester White Pigs in pairs and trios, not related.

W. R. GATES, Fort Atkinson, Wis.

HOME FARM HERD.

Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams, 25.1 lbs. butter in seven days. Herd numbers 125 head.

BEST FAMILIES REPRESENTED.

Special prices on six or eight bulls of serviceable age. W. B. BARNEY & CO., Hampton, Ia.

ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.

GEO. T. McNEIL, Theresa, N. Y.

FOR SALE H.-F. A. R. O. cows and heifers, bred to Duchess Ormsby Piebe Burke, No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address Rural Route No. 2. W. H. JONES, Watertown, Wis.

THE MONONA FARM HERD

OF HOLSTEIN-FRIESIANS

Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 69.50 lbs. one day. Breeders and dairymen please write for prices.

F. W. ALLIS, Monona Farm. Madison, Wis.

FOR SALE. H.-F. BULLS, ready for service, from A. R. O. cows and sired by Sir Johanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 yrs. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis.

VALLEY FARM HERD

HOLSTEIN-FRIESIANS

Headed by Korndyke Queen De Kol's Prince, Jam Korndyke Queen De Kol, 24 lbs. 6.7 oz., granJam Belle Korndyke, 25 lbs. 12.8 oz. Both sire and dam by Manor De Kol, his dam Netherland Hengerveld 26 lbs. 10.66 oz., Manor De Kol by a son of De Kol 2d, 26 lbs. 9.21 oz. All are official tests and average 25 lbs. 15.72 oz. butter for 7 days and 3.95 per cent fat in their milk. Two bull calves now for sale and young ones after Sept. 1.

DON J. WOOD, R. F. D. 2, West Winfield, N. Y.

Bulls For Sale.

Two choice bulls ready for service and some fine bull calves from good testing dams. Sire: Paul Clyde, son of Paul DeKol. Dam's record 24.38 lbs. in 7 days. Write C. A. SNOW & SONS, Athens, Ohio.

HOLSTEIN-FRIESIANS INDIVIDUALITY, PERFORMANCE, BREEDING. You need it all. Write or come. 100 head. McKAY BROS., Buckingham, Ia.

HOLSTEIN-FRIESIANS

FAIRVIEW HERD

We offer bulls ready for service; also heifer and bull calves not related, of the kind to suit the most particular.

O. J. GODFREY, Pennellville, N. Y.

HOLSTEIN-FRIESIAN BULL CALF.

Do you want one for use this winter which will improve your dairy herd? Do you want him elegantly proportioned, with straight back, high rump, and all the dairy points? Do you want one whose relatives are A. R. O., and eligible to the Advanced Registry himself? If so, I have just what you want.

MALCOLM H. GARDNER, Darien, Wis.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. Depot. Stock of both sexes and different ages for sale. Bulls in service are: Homesterd Prince De Kol No. 25683. Sire: Pietertje Hengerveld Paul De kol No. 22128. Dam: Shadeland DeKol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 ozs. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148. Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 ozs. Average per cent fat 4.92. Correspondence solicited.

WM. EVERSON & SON, Lake Mills, Wis.

OAKLAND HERD HOLSTEINS

First Prize Herd at New York State Fair, 1901, 1902 and 1903. Offers all ages, of either sex, of the very choicest breeding, at reasonable prices and on liberal terms.

T. A. MITCHELL Weedsport New York

HOLSTEIN BULLS, We have some grandly bred young bulls ready for service. One of the largest and best advanced registry herds in the United States.

PIERCE LAND & STOCK CO. 14 Turk St. San Francisco, Cal.

FOR SALE 2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.

M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

CLOVERDALE HERD

HOLSTEINS.

Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.

A. J DAUGHERITY Streator, Ill.

Woodlake Herd.

Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN, Station D., R. 1. Minneapolis, Minn.

MARKHAM MANOR FARM,

Simonsville P. O., Andover, Vt.

Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 13370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for discription and price to J. A. THORNTON, Manager, Simmonsville, Vt.

HOLSTEINS IN CALIFORNIA

SAN ANSELMO, MARIN COUNTY

250 HEAD IN THE HERD

Sires are sons of Mercedes Julip Pietertje, Colantha 4th Belle Korndyke, Fay Barnham Princess Wayne 7th. A fine lot of bull calves

R. M. HOTALING, Rialto Building San Francisco, Cal.

FIRST CLASS BULL

Offered at reasonable price by South Side Farm, White Bear, Minn. Born Dec. 1, 1899. Sired by Baron Pauline De Kol with 8 A. R. O. daughters, and tracing three times to De Kol 2d. Our bull's dam has A. R. O. record of over 22 pounds, under five years, and during week's official test milk averaged over 40 per cent. fat. Fine conformation, nicely marked, superior handler, large veins and rudimentaries, gentle, vigorous, and sure. Other bulls ready for service.

STAR FARM HOLSTEINS

SPECIAL OFFERING: Six of the choicest Johanna bull calves from official butter record dams and A. R. sire.

Also a few choice heifer calves, yearlings and 2-year olds; latter bred to Mercedes Julip's Pietertje Paul.

150 HEAD TO SELECT FROM

Special prices on cows in carload lots. Prices reasonable for quality. Liberal terms of payment.

HORACE L. BRONSON, Cortland, N. Y.

OAK GROVE HERD Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

HOLSTEINS

High Class Advanced Registry Stock only. Best butter families. Stock for sale.

Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.



T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.

Wm. O. Jackson & Sons, South Bend, Ind.

JUST BULL CALVES

We have three, that are individually fine. They are bred right, have been fed right, and the price is right.

Ohio's Famous Herd, Holstein-Friesian Cattle. W. B. SMITH & SON. 2488 W Broad St, Columbus, O.

HOLSTEIN-FRIESIAN BULL CALVES

Of advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address

JOHN SHUGART & SONS, Marion, Ind.

FINE POULTRY FOR SALE

I offer a very select lot of White as well as Buff Plymouth Rock Fowls of the present year's breeding for sale. Each breed have been kept on separate farms and are absolutely pure in their breeding. They will be sold at

$5.00 A TRIO

Nicely crated on board of cars here.

Single Fowls, $2.00 Each

They have had the range of alfalfa fields the past summer and are very vigorous.

A. R. HOARD, Fort Atkinson, Wis.

Answers to Dairy Questions by Prof. Farrington.

(Continued from page 849)

than patron A received for the same amount of milk. The reason patron B gets so much more money than patron A is, because his milk tested .7 of one per cent more fat per hundred lbs. milk, and on that account it will make more cheese than the same amount of patron A's milk, which tested 3.8 per cent fat.

This in brief is an outline of a method which has proven a very satisfactory practice for paying patrons for milk at a cheese factory. It gives each man the amount due him according to the cheese value of his milk as measured by the Babcock test.

STARTING A NEW CREAMERY.

Quite a number of farmers near here would like to invest in a co-operative creamery. Agents have been canvassing for stockholders, but failed to secure enough of them to start the enterprise. Several creameries have been built within ten to fifteen miles of here. They have only run a short time and then quit. Many of the farmers are afraid to invest. An agent has been here trying to sell fifty shares at $100 each. Another has been trying to raise $3,850. Both have failed.

Can you give me some specific advice as to how to go ahead and start a creamery that will be reasonable in price and establish it on a basis that will make sure of its continuing the business in the future. The land in this region is very rolling, and most of it ought to be seeded down instead of raising grain to sell. Many of the farmers have been trying private dairying, but do not find it profitable. We think a creamery would pay, but as some of them around here have failed we are a little cautious about starting. We want information that will help to make a success of this, to us, new enterprise.

Retreat, Wis. E. B. H.

The establishment of a creamery in a new territory is a business that requires a certain amount of good judgment at the start. One of the first, and perhaps the most important, things to be done is to canvass the territory within a radius of five to ten miles from a given point and find out how many cows may be depended upon to supply the creamery with milk. It is useless to attempt to start a creamery unless the farmers within a reasonable distance will pledge themselves to furnish the milk from at least three hundred cows. In a good many cases some one is appointed to visit the farmers and get the signatures of different parties expecting to patronize the factory, to a statement that they will agree to furnish the milk of a certain number of cows for a certain length of time.

When you have obtained written evidence that the cows are in sight, the next thing to do is to raise the money for building and equipping the creamery. This is often very satisfactorily done by getting one or two of the reliable farmers in the neighborhood to sign a note for some two to three thousand dollars and deposit this at a local bank, where the funds will undoubtedly be supplied for starting the enterprise.

With this money, the committee or the manager who has the building of the creamery in charge may go ahead and determine what sort of a building is needed; have it erected; buy the machinery and start the creamery in business. The note of $3,000 may then be paid by deducting 5 cents per hundred pounds of milk from each patron's milk check every month. You will be surprised to find how quickly this money will be paid in this way, provided your creamery receives the milk from at least three hundred cows. When this sum is paid then the patrons who have brought the most milk to the factory will own the most stock. This will be perfectly right because more butter has been made for them than for the others, and the amount of money they have invested in the factory will depend entirely on the amount of business done at the creamery for them.

After you have determined to build a creamery you will find it profitable to send one or two men to some factories which are successful and talk with the managers of these creameries. You can get from them an idea of the plan of factory that will be best suited for your locality, and when you have formulated your plans, it will probably be cheaper for you to have the building erected by local carpenters than to let the contract to some firm doing business at a distance from you. When the building is erected you can equip it with the necessary machinery by making a list of the fittings needed and submitting this list to dealers in creamery supplies for their bids. It will always pay to deal with perfectly responsible firms in buying the supplies, and it never pays to buy cheap machines or supplies of any one.

The cost of the new enterprise to the stockholders will depend largely on the amount you will have to pay to erect the building. This is a matter of local concern, and something that you can determine better in your locality than anyone else can calculate for you at a distance. The machinery and equipment for a factory that will make butter from the milk of three hundred cows ought not to cost over $1,500. The building will cost, in addition to this, from one to two thousand dollars, according to the style and durability of the factory you may choose to build.

MOTTLED BUTTER.

"Can you tell me how to remedy a trouble I am having with mottles in my butter? I am skimming a very heavy cream. I am forced to do this because I have not vat room enough to handle all the cream unless I make it as thick as possible. I have to cool the cream by adding ice to it in the vat, and I cannot use a starter because of the size of my vat and on account of the cream being so ripe when it is received, that a starter will do no good. I think that by adding these large pieces of ice to the cream in the vat some of it is chilled, while other parts are not cooled to the same temperature. I stir the cream well in the afternoon, the evening and in the morning, but still I have mottles and at times little white specks in the butter."

Neillsville, Wis. A. H. D.

The ice you add to the cream in the vat may be the cause of the mottled butter you are having, but I do not hardly think it is possible that this is the case. The most common cause of mottles in butter is an uneven distribution of the salt, and the ripening of the cream has very little to do with it.

The white specks you mention noticing in the butter may be due to particles of dried cream, which are not removed when the cream is taken from the vat and put into the churn. These white specks are often noticed when the cream is not strained, and they may be removed by pouring all the cream from the ripening vat through a strainer into the churn. This will take out small lumps of dirt or particles of dried cream, which would otherwise remain in the butter and be noticed as white specks in the finished product.

In order to overcome the difficulty you are having with mottles, I would suggest that you add your salt to the granular butter in the churn, then give the churn a few revolutions in order to mix the salt

"ADVERTISEMENT."

THE VALUE OF CHARCOAL

Few People Know How Useful it is in Preserving Health and Beauty.

Nearly everybody knows that charcoal is the safest and most efficient disinfectant and purifier in nature, but few realize its value when taken into the human system for the same cleansing purpose.

Charcoal is a remedy that the more you take of it the better; it is not a drug at all, but simply absorbs the gases and impurities always present in the stomach and intestines and carries them out of the system.

Charcoal sweetens the breath after smoking, drinking or after eating onions and other odorous vegetables.

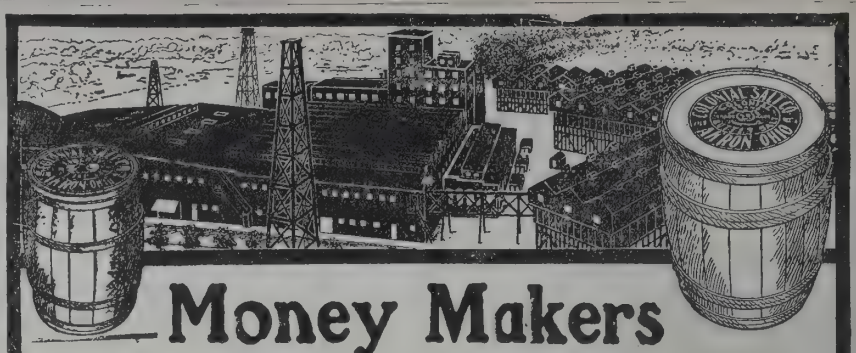
Charcoal effectually clears and improves the complexion, it whitens the teeth and further acts as a natural and eminently safe cathartic.

It absorbs the injurious gases which collect in the stomach and bowels; it disinfects the mouth and throat from the poison of catarrh.

All druggists sell charcoal in one form or another, but probably the best charcoal and the most for the money is in Stuart's Absorbent Lozenges; they are composed of the finest powdered Willow charcoal, and other harmless anti-septics in tablet form or rather in the form of large, pleasant tasting lozenges, the charcoal being mixed with honey.

The daily use of these lozenges will soon tell in a much improved condition of the general health, better complexion, sweeter breath and purer blood, and the beauty of it is, that no possible harm can result from their continued use, but on the contrary, great benefit.

A Buffalo physician in speaking of the benefits of charcoal, says: "I advise Stuart's Absorbent Lozenges to all patients suffering from gas in stomach and bowels, and to clear the complexion and purify the breath, mouth and throat; I also believe the liver is greatly benefitted by the daily use of them; they cost but twenty-five cents a box at drug stores, and although in some sense a patent preparation, yet I believe I get more and better charcoal in Stuart's Absorbent Lozenges than in any of the ordinary charcoal tablets."



Money Makers For Butter Makers

Behind "Colonial" and "Liberty" Butter Salts stands the great Colonial Salt Company plant—absolutely sanitary, modern, and cleanly

Daily output 750,000 pounds.
Storage capacity 25,000 tons.
Six salt wells 3,000 feet below the surface at our plant—the purest bed of rock salt in the country—daily capacity 400 tons of salt.
Cooper shop capacity 2,000 barrels daily.
3,000 horse power boilers.
Daily supply of coal for evaporating salt, 150 tons.
Absolutely pure water from wells 150 feet deep used to dissolve the salt.
Loading tracks under cover hold 22 cars, while switch outside holds 11 additional cars.
Three trunk lines to the plant, Erie, Pennsylvania, and B. & O., facilitate immediate shipment of orders.
Every step in the process is here done by machinery, from the brine to the salt in the package, thus avoiding any chance of impurities of any kind getting into the salt. All packages are made at the works fresh every day; all cars are packed under cover; thus insuring delivery to the consumer in fresh, sweet, clean packages not soiled in any way.
Of "Colonial" and "Liberty" brands of Butter Salt

THE FLAVOR IS PERFECT
THE COLOR PERFECT WHITE

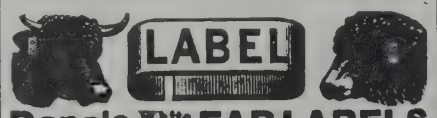
The purity the highest known, over 99 per cent. They are the lightest salts for the same bulk that there is on the market today; dissolve quickly and evenly, do not wash out in the working nor leave the butter gritty or mottled.

"Colonial" Butter Salt (light flaky grain) and "Liberty" Butter Salt (granulated, every grain the same size and perfectly square) may be tried absolutely free of cost by all who have never used them. A 56 pound sack of either or both will be delivered free on request, in return for which you are asked to report to us your actual success with them.

COLONIAL SALT COMPANY, AKRON, OHIO.

GROOM YOUR CATTLE BY POWER

Our Improved Grooming Brushes, revolving 1200 times a minute, insure glossy coat, clean skin, active pores, health and beauty. Their use increases value of all stock. Indispensable for prize winning show cattle. Will groom 30 to 50 head an hour, and do it better than by hand. Get our Free Booklet and learn to groom your cattle, horses and all stock the best way.
CHICAGO FLEXIBLE SHAFT CO.,
194 Ontario St., Chicago, Ill.



Dana's White Metallic EAR LABELS
stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Samples free. Agents Wanted.
C. H. DANA, 55 Main St., West Lebanon, N. H.

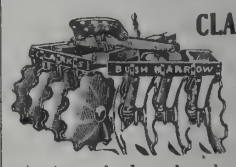
SEND TODAY

To-morrow never comes. If you are going to buy a fence, you are entitled to get the best fence made. **ADVANCE FENCE** is sold direct from the factory to the user on **THIRTY DAYS' FREE TRIAL** for less money than the dealer charges for a fence not as good. Send to-day for this free book giving description and prices.
ADVANCE FENCE COMPANY,
33 A St., Peoria, Ill.

BROWN
16 to 35 Cents Per Rod.
Heaviest, strongest, most durable fence made. All wires extra large. We sell to farmers at wholesale prices. Coiled Spring, Barb and Self-Galvanized Wire. WRITE FOR CATALOGUE
The Brown Fence & Wire Co.
Cleveland, O.

SENT ON TRIAL
A Fence Machine that will make over 100 Styles of Fence and from 50 to 70 rods a day
AT ACTUAL COST OF WIRE
Horse-high, Bull-strong, Pig and Chicken-tight. Wire at Wholesale Prices. Catalogue Free.
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Clark's Tools for Large Hay Crops



CLARK'S REVERSIBLE
Bush Plow and Harrow
Cuts a track 5 ft. wide, 1 ft. deep. Connects the sub-soil water. It is an excellent machine for covering in sugar cane. Strength guaranteed. Can plow a newly cut forest, stump, bush or bog land, leaves the land true and clean for grain or any crop.

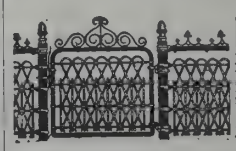


Clark's Dbl. Action Cutaway Harrow
Moves 15000 Tons of Earth a Day.

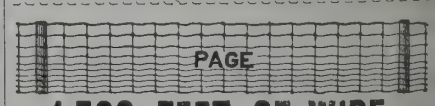


Clark's 8 foot Smoothing Harrow.
Will smooth an acre as true as a mill pond in twenty minutes.

THE CUTAWAY HARROW CO.,
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LAWN FENCE
Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address
COILED SPRING FENCE CO.
Box 425 Winchester, Ind.



1,500 FEET OF WIRE
from the Page Fence that stopped the big runaway racing auto at the Zanesville, O., fair, was cut up into short pieces and carried away as souvenirs by the people who saw the tragic accident in which so many were killed or injured.
PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

GRISWOLD WIRE FENCE
Square Mesh, Dimond Mesh Fence, Plain, Galvanized, Barbed, or Telephone Wire. Write for illustrated catalog and price list.
DILLON-GRISWOLD WIRE CO., Sterling, Ill.

with the butter, and allow it to stand at least 15 minutes. The butter may then be about half worked, then let it stand for at least an hour and complete the working. This ought to give the salt time to become thoroughly dissolved and evenly distributed through the butter. If this practice does not remove the mottles I would allow the butter to stand in the churn, after salting, for two hours or more before it is worked the second time. Two workings of the butter, with an interval between workings, is usually a sure remedy for mottles. I hope you will write me again about this matter, as I know you can easily overcome the difficulty you are having at the present time.

Your factory ought to be provided with cream vats large enough to accomodate all the cream you receive and permit you to use a starter in it for ripening the cream. It is poor economy for a creamery to suffer from lack of this kind of equipment. When you write me again I shall be pleased to have you give me more details in regard to the test of your cream and your method of ripening it. Please also give me some information about your present practice in salting and working butter.

WAXING TUBS.

"Will you please inform me as to the cause of mold? I have been troubled with it for the past three weeks and I have examined everything without being able to locate the cause of the tubs molding. I soak them in strong brine for two hours, then put in liners and before I pack the butter. I do not empty the pickle out of the tubs before I want to use them. I steam the tubs all through before soaking and they are kept in a dry warm place, keep all the pipes clean, also all vats and do not put ice in the cream. The temperature varies from 45 to 56. The tubs look clean and it is impossible to notice any mold on the sides of the tubs when taken from the cooler. Will you please give me instructions as to the use of paraffine wax as I will try that next. My trouble puzzles me as I have always handled the tubs in the same manner in the past and this is my first trouble since I am in the creamery business." L. L. H.

Lyons, N. Y.

I am of the opinion that the reason you are having trouble with mold this year, when you have never had it before, is because of the scarcity of wood for making butter tubs. The manufacturers of tubs have been obliged to use unseasoned wood this year and on account of its being damp and not thoroughly dried, mold grows on such wood very easily. I think you can overcome the trouble you are having in this direction by keeping your tubs in a place where they will dry out somewhat before you use them; then if they are soaked and steamed and sprinkled with salt, you will find that the tubs will not mold in the future. It is absolutely necessary that even after the tubs are filled they shall be kept in a well ventilated, dry refrigerator, and shipped to the market in dry refrigerator cars; dampness from any source will start mold to growing in a very short time.

I do not think you will get any benefit from the use of paraffine wax, as it will be expensive to use in all your tubs, and unless it soak into the wood thoroughly, it makes an unattractive appearance on the surface of the wood. You better take better care of the tubs you use and see that they are held in a dry place until the butter is sold. If this is done you will have no difficulty with mold. E. H. FARRINGTON.

Wisconsin Dairy School.

Religion and Dairying.

It was a custom some years since, when a lecturer wanted to get up something attractive for an audience, to make up a list of modern discoveries that had been known by the Chinese, or Hindoos, or Egyptians, and the general argument of the lecture was, that what with the arts and sciences that we had lost beyond recovery and those that were known some centuries ago, the present generation's discoveries were mostly stolen or borrowed. It might be supposed that bacteriology and the use of starters was something new, but now we are told that the use of starters has been practiced in India as part of a religious ceremony, and that means that it is older than Adam.

At the meeting of the "British Association" Dr. W. H. R. Rivers read a paper on "The Toda Dairy," in which he observed that the Todas of the Nilgiri Hills, India, practiced an elaborate religious ritual which was a development of the ordinary operations of the dairy. The dairy was the temple and the dairyman was the priest, There were several kinds of dairy-temple, of different degrees of sanctity, corresponding to the different degrees of sanctity of the buffaloes tended at each. Of these dairies there were three chief grades. The highest kind was found in secluded spots far from any place where ordinary people lived. It was only the milk of the different kinds of sacred buffalo which was churned in the dairy-temple. There were buffaloes which were not sacred, and their milk was churned in the front part of the huts in which the people lived. The more sacred the dairy, the more elaborate was its ritual. In every case the dairy vessels were divided into two groups. The more sacred vessels were those which came into contact with the buffaloes or the milk. The less sacred were those which received the products of the churning. The dairy ritual was accompanied by definite prayer; and the more sacred the dairy, prayer became a more prominent feature of the ritual. In most of the more sacred dairies there was a bell which was an object of reverence, and usually milk was put on this bell during the dairy operations. The more sacred the dairy, the more was the life of the dairyman hedged about with restrictions.

There were definite ordination ceremonies for each grade of office. In the lowest grade they might be completed in less than an hour; in the highest they were prolonged over more than a week. In addition to the three chief grades of dairy, there were certain dairies in which the ritual had developed in some special direction, and there were often considerable differences in the ritual of different dairies of the same kind, especially of the highest grade. Each clan had a special prayer for use in the dairies belonging to that clan, and each of the highest kinds of dairy had also its own special prayer.

Various features of the lives of the buffaloes were made the occasion of ceremonies, often elaborate and prolonged. Whenever the buffaloes went from one dairy to another to obtain fresh pasturage, the journey became an elaborate ceremony, sometimes prolonged over two or three days. Giving salt to the buffaloes was similarly accompanied by complicated ceremonies, and ceremonies were held fifteen days after the birth of a female calf. One of the most interesting of the ceremonies of the dairy was connected with the custom of adding buttermilk from a previous churning to the newly drawn milk. By means of the addition of buttermilk, which was called "pep," a kind of continuity was kept up in the dairy operations, but under certain conditions this continuity was broken, and it became necessary to make new pep, and this might be the occasion of prolonged and elaborate ceremonies.

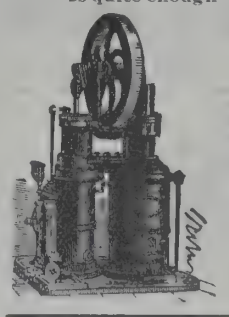
A Class for Farm Butter Makers.

Many farmers' wives and daughters, who regularly make more butter than is required to supply the family, would take advantage of the opportunity to learn more about butter making, but they can not be spared from home to take a ten weeks' course at the Purdue Winter School of Agriculture. It has been suggested that some of them could be spared from home duties to take one week's instruction, were it offered. If several persons want this instruction and will write that they will take such a course, it will be provided.

The plan of the work would be to devote a large part of each day to actual work in ripening cream, preparing starters, churning, working and printing butter, judging and scoring butter as] done at conventions and the larger markets;

HALF ENOUGH WATER

Is quite enough or some people, but most people want water every day. If

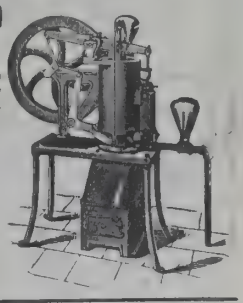


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Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.

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40 N. 7th St., PHILADELPHIA.
Teniente Rey, 71 HAVANA.
22 Pitt St., SIDNEY N. S. W.





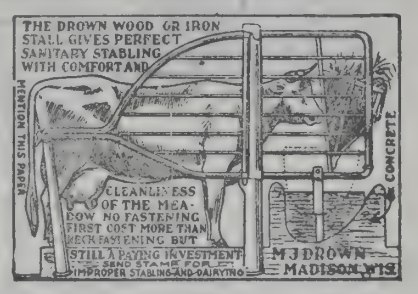
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Chain or Pin Fastened.

Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.

Safest, Strongest, Most Convenient fastening made. Cheapest to put in and save room in barn. Send for Stanchion Catalog to

WILDER-STRONG IMPLEMENT CO., 11 Monroe, Mich.



Scott's "Perfect" Cow Stanchion

SWINGING
SELF-CLOSING
SELF-LOCKING
3 NECESSITIES FOR PERFECT STANCHIONS

Made of hard wood—strong and durable. Price $1.00. Satisfaction guaranteed.

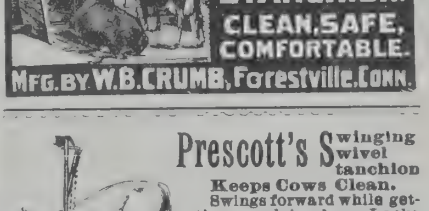
Write for descriptive circular.

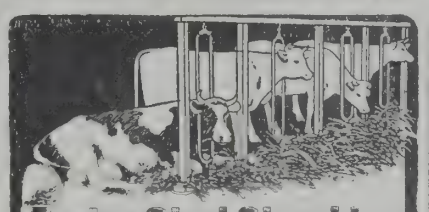
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CHAIN-HANGING CATTLE STANCHION

The Most Practical CATTLE FASTENER ever invented. Manufactured and For sale by O. H. ROBERTSON, Forestville, Conn.





Foster Steel Stanchion

Made entirely of steel and malleable iron. Unlike all others. Affords greatest freedom and motion and always holds the animal. Hung on chains—moves all ways. Lightest, strongest, most convenient and easiest to open and close.

GOOD SELLER—BIG PROFITS.

One agent sold 75 first day, Another sold 200 first week. We want responsible agent in every Dairy Community. Send for circular number 30.

FRANK H. BATTLES, Seed Grower, Rochester, New York.



Prescott's Swinging Swivel Stanchion

Keeps Cows Clean.

Swings forward while getting up or lying down. Looks back while standing Full particulars free.

E. PRESCOTT, Beverly St., Boston, Mass



The BEST Cattle Fastening.

SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated circular free. GLENORA MFG. CO., Glenora, Yates county, N. Y.

Infringements will be prosecuted.

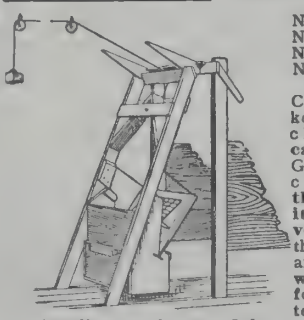


THE NEW PATENT Cow Stall AND FEED TROUGH.

This is the only Cow Stall with a centering hinge. Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars.

R. A. McLERY & CO., Palmyra, Wis.

JUST OUT! UNDERHILL SELF ADJUSTING STALL



No Gutters
No Platforms
No fastenings
No Stables to clean

Cease trying to keep your cows clean. You can't do it. Give them a chance and they will do it themselves. This is the only way and the easy way. Write for circular telling what the cow has discovered to us. It is a great revelation.

Wm. M. UNDERHILL, Oconto, Wis.

A Steel Stanchion beats anything you ever saw for tying cattle. Lighter, stronger, neater. Swings on chains Not in the way when lying down. Agents wanted. Write for special terms and prices. Jas. Boyle, Mfr., Salem, O



$4.20 for this best Single Geared, Hand Feed, Hand Post Drill. On 2 inch oak plank ready to fasten to post. 1 in. steel spindle. Drills 3 in. deep. 17 other styles and sizes of drills at all prices.

$2.15 buys this 100 lb. keg of nails 20d. 10d, $2.20; 8d, $2.25. We are headquarters on nails of all sizes and sell them direct to the buyer at less than wholesale prices. Quality guaranteed the best. All kinds of builders' hardware at manufacturers prices.

$4.00 for best Solid Box Wrought Steel Blacksmith's Vice. Strongest and most reliable vice made. Warranted in every way. 40 different styles and sizes of vices.

buys this whole set of blacksmith tools. 1 forge, 18 in. hearth, 8 in. fan, weight 65 lbs; vice, anvil, hardie, drill and 3 drill bits, 2 hammers. 1 set of stocks and dies, 6 taps, 3 dies, 1 pr. 14 in. pinchers, 1 pr. 20 in. tongs, 1 farrier's knife, 1 chisel. Do your own repairing.

EVERYTHING in blacksmith toools, bar iron, bolts, horse shoes, anvils, etc.

8c. for Stanley 2 ft. carpenters rule. 4 fold, 1 in. wide, round joints. We have 150 styles rules, squares and tape lines adapted to all trades and uses.

Braced Steel Barn Door Track. This is a solid, strong, well made track and will carry the heaviest door. Price 3¼c per ft. 40c per pair for Roller Bearing Anti-Friction Steel Barn Door Hanger. Strong, heavy, covered to keep out ice and snow, and with above track makes the best door hanging arrangement known.

33 Cents for this 26 in. hand saw. We have full line of Diston saws and every kind and variety of saws Hard wood, cross-cut, etc.

$1.07 for this combined anvil and vise. Has jaws for holding any size pipe. Chilled face and jaws. Jaws 5 in. wide and open 3 in. Weight 28 lbs. Numerous other anvils and vises.

44cts buys this genuine Lightning Hay Knife. New improved saw-cut. Best polished tool steel. Unequalled for hay or straw. Other styles, lowest prices.

$1.95 buys this brace and bit set, brace has 10 in. sweep, steel jaws, 8 warranted auger bits, sizes ¼ to 1 in. 1 screw driver bit. 12 other sets. *A complete set carpenter's tools* $2.40 to $18.95. Our catalogue illustrates 7,600 different tools. 1,800 cuts tinware and other hardware.

$2.05 for this scale. Weighs ½ oz. to 240 lbs. Other scales from six ton down to ten pounds.

55 cents buys guaranteed ax. Wt. 3 to 5 lbs. Sixteen styles of double and single bit axes of the latest patterns. Buy now.

$1.95 buys the genuine Good Luck washer. Is well made, has corrugated rocker, produces good work, saves labor, gives clean clothes with little labor. $3.20 for Electric Washer like cut above. 12 styles to select from at lowest prices ever made. Also a full line of wringers.

80c. for this Sargent's Gem FoodChopper. Cuts 2 lbs. per minute. Gem cook book free with each chopper. 28 styles and sizes. Lard presses, etc. Prices very low.

19cts for this 2 qt. granite gray enameled steel preserving or stewing kettle.

45 cents for this Granite gray enameled steel dish pan holding 10 qts; 17 qt. size, 64 cents.

14 cts for this granite gray enameled steel sauce pan. 2 qt. size; 4 qt. 22c; 6 qt. 29c. 12 qt. heavy tin pail 12 cents, 6 qt. milk pans 9c each. 1 qt. dipper 6c; 9 in. pie plate 8c; 9 in. cake pan 3c.

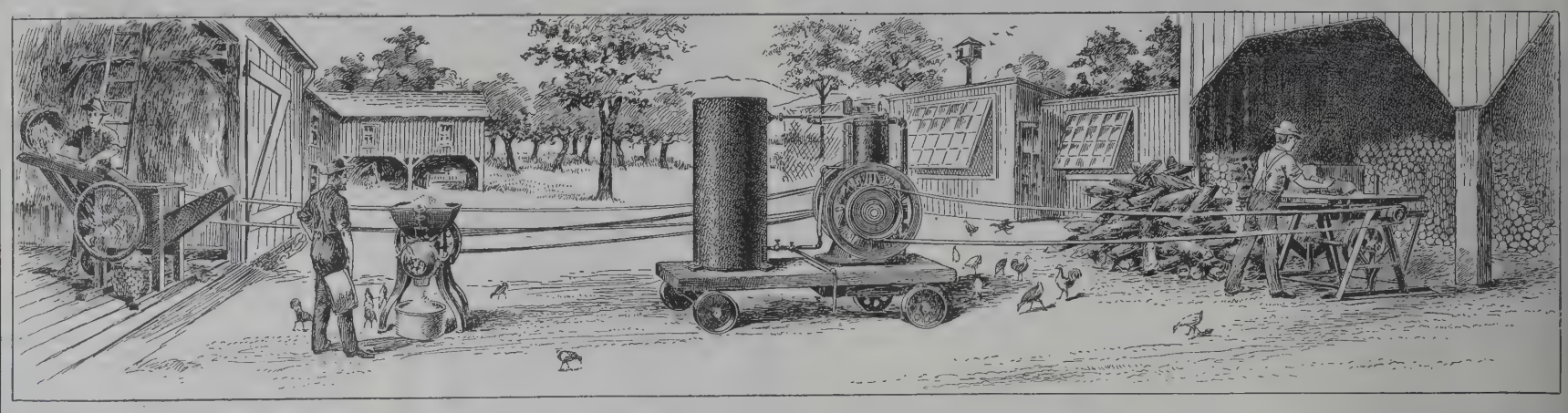
27 cts for this granite gray steel coffee pot, holding 1 qt. 2 qt. 30c; 4 qt. 37c; 5 qt. 52c. Teapots same prices. 9 qt. Tea Kettle 40c. Wash boiler 69c.

CUT THIS AD OUT and send it to us with your name and address and we will mail you free our large Hardware Catalogue. It contains illustrations, descriptions and prices on all kinds of builders' hardware for new houses, barns, etc. and for building and repairing of any kind; all kinds of carpenters' and builders' tools; all kinds of cutlery; all kinds of kitchen, laundry and store supplies. Everything that is best and all at money saving prices. Don't buy till you get the book. Cut this ad out and write to-day.

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CORNER BROOME & ELM STS., NEW YORK CITY



Make the Best Horizontal and Vertical Gasoline Engines for all Farm Work. Write for Catalogue No. 360.

BRANCHES. Albany; Buffalo; Hartford; New Orleans; Baltimore; Philadelphia; Pittsburg; Boston; Montreal, Que.; Vancouver, B. C.; Winnepeg, Man.; Toronto, Ont.; London, Eng.

examination and use of the leading makes of hand separators, and use of the Babcock tester for the determination of the value of milk and the loss of butter fat in the skim milk from the separators, and from gravity methods of skimming milk.

In addition to the daily practical work done under the direction of the instructors, there would be lectures on care and ripening of cream, influence of bacteria, methods of making butter and testing milk, with opportunity for questions and discussion as the practical work progresses.

As such a course could only be a week or ten days in length, none but those having had practical experience in farm butter making would be received.

The total expense would be from $7 to $10, exclusive of railroad fare. The date Nov. 30th to Dec. 9th, '03.

If you would take such a course, send your name to Prof. H. E. VanNorman, Purdue University, LaFayette, Ind. at once. Tell your neighbors about it. It will only require ten or twelve to insure the class.

Cream Sampling.

A great many creams will cream on standing just as milks do. And to sample them correctly, thorough mixing by pouring several times whenever practicable, should precede sampling. When thus thoroughly mixed, either dipper or milk thief may be used. Samples, if not taken daily, at least should be frequently taken, and composited, kept from churning in transit by the use of ice and of full packages and from souring by the use of corrosive sublimate or formalin. Check samples should be left at the farm when requested: or a locked and sealed sample jar may be left with each patron, he to control his own sample until it is ready for testing. It then may be divided, one part to go to the creamery for testing, the other to be retained by him for his own testing, or that of the experiment station, *but not for that of a competing creamery*, whose test may or may not be worth anything. A hand tester taken to the farm may be used at times to advantage for the satisfaction of a doubting Thomas.

The preparation of a sample of cream for pipetting may be materially facilitated and, likewise, be made the more perfect by adopting two minor modifications of the process:

1. Heat the sample to 105-110° F. prior to pouring.

2. Use a small, fine mesh, wire sieve and pestle to detect and mix lumpy cream.

1. The heating serves to make the fat more fluid, to soften the harder clots, and in general to render the entire sample more miscible. It should be remembered, however, that the sample expands on warming and that the pipette delivery of a rich cream, i. e. one carrying more than 25 per cent of cream, should be weighed.

2. The mixing of a warm sample, o a cold one for that matter, is vastly bettered if it be poured through a small, fine mesh, wire sieve, such as is commonly in use in the kitchen and is bought for five or ten cents at any hardware or notion store. Lumps, clots and the like are quickly revealed and may, by pestling, by finger rubbing, by further pouring, etc., be broken up and made to pass the mesh. The pestling and breaking up of the lumps is most effectively done with the sieve partly immersed in the fluid portion of the sample. This is particularly true if the sample is at all sour. A few pourings then suffice to mix the sample more perfectly than can be done with many creams by a multitude of pourings. A sieve 2.5 inches in diameter and from 1 to 1.5 inches deep, with a handle, and a tin pint, or quart, measure with straight sides and a diameter slightly larger than that of the sieve, used as a container, works nicely.—*Bulletin 100 Vt. Exp. Sta.*

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Fever and Foot Rot.

I have lost 15 head of cows in the last 11 months most of them have been with fever. I wish you would give me a remedy for it. Mine is salts and turpentine, 40 to 50 drops in the salts, bathe the back of the head and loins freely with turpentine. I have been bothered with crack heels or warts or some other growth on my cows feet. It looks more like seed warts than anything I know of. Sometime, they get so lame they can hardly walk. P. T. E.
Griffin, Ga.

ANSWER.

1. It is difficult to know what kind of fever you have reference to, please define your case.

2. The lameness appeaps to be foot rot. Clean out the foot by washing with soap and water, and apply Chloronaptholeum or Zenoleum according to directions on package.

Tuberculosis.

1. What are the first symptoms of tuberculosis in a cow?
2. At what stage in the disease can an infected animal give it to another?
3. Can a bull that is in good condition and apparently healthy, yet by the tuberculin test is pronounced diseased, give the disease to his offspring?
4. Do you regard the tuberculin test as absolutely correct? A. W. E.
Holden, Vt.

ANSWER.

1. The first noticeable symptoms in tuberculosis are general unthriftiness, a staring coat and sometimes a deep, hollow cough. But these symptoms are only noticeable in the advanced stages.

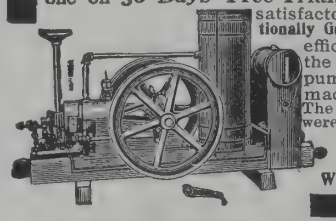
2. Mostly in the advanced stages when the above symptoms are noticeable.

2. Tuberculosis is a germ disease and is not inherited by the offspring. The only way it can be transmitted, is by actual exposure to the germs after birth.

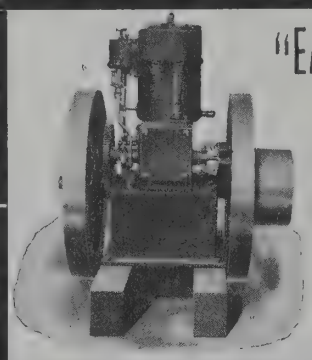
4. The tuberculin test is only regarded as an aid to the veterinarian in making his diagnosis and cannot be absolutely relied on in the hands of an inexperienced man, as the most chronic cases

30 DAYS FREE TRIAL

In order to prove to you that the **WITTE Gas & Gasoline ENGINE** will do your work perfectly and at less cost of operating than any other, we will sell you one on *30 Days' Free Trial*, and agree to take it off your hands if not perfectly satisfactory. Made in all sizes, 1½ to 40 H. P., everyone **unconditionally Guaranteed.** Simple, safe, durable, cleanly, economical, efficient. Thousands in use, for all power purposes about the farm, ranch, plantation, in factories, etc., running pumps, grinding machines, mills, corn huskers, threshing machines, fanning mills, churns, cream separators, etc. The perfected result of 30 years machine constructing, 17 of which were devoted exclusively to **Gas and Gasoline Engine** making. Tell us what you want to "run" and we will send you Catalog M and price list and tell you the size engine you need. Gas Engines shipped at once either from Chicago or Kansas City.



WITTE IRON WORKS CO., 531 W. 5th St., Kansas City, Mo.



"EAGLE" 4 H. P. STATIONARY ENGINE

1904 MODEL

THIS ENGINE is of the four Cycle type and is especially designed and adapted for use on the farm—for separators, churning, pumping, elevating, hoisting, cutting ensilage, etc. No Expert or Engineer required to operate it—very simple in design and compact in construction. This engine is built so it can be easily moved from place to place. We can supply a special belt driven pumping jack to be used in connection with any pump having a wind mill head. Write for prices and description to

EAGLE BICYCLE MANUFACTURING CO.,

Engine Department. TORRINGTON, CONN.

FARM One Season, FREE

NET $4,560.00 From Five Acres

Planting in rotation cauliflower, cucumbers, egg-plant, in beautiful health giving Manatee County. The most fertile section in the United States, where marvelous profits are being realized by farmers, truckers and fruit growers. Thousands of acres open to

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Full particulars, handsomely illustrated booklets, with list of properties for sale or exchange in Virginia, the Carolinas, Georgia, Florida, and Alabama sent free.

JAMES WHITE

Seaboard Air Line Railway

PORTSMOUTH, VA.

Homestead

NET $4,560.00 From Five Acres

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Horse Owners! Use

GOMBAULT'S



Caustic Balsam

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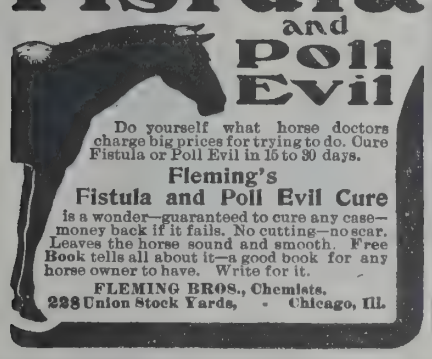
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out of worthless ones are worth while. Barren cows are made to breed, calving and after birth difficulties are safely passed, garget, milk fever, scours, caked bag, etc. are cured by using

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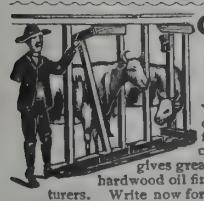


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and the Rheumatism's gone.

such as are the most dangerous, will not respond to the test and must be detected by the physical examination. Therefore, the physical examination is the most important when examining for this disease. The tuberculin test will bring out the slight cases which cannot be detected otherwise, and is thus used as an aid only.

Bloody Milk.

I have a heifer that began to give bloody milk in one quarter about 3 months ago. She gave bloody milk for about a week, then went all right for about two weeks, then gave blood for a while then got better. Now she gives nothing but blood in that quarter, and that side is caked quite hard. SUBSCRIBER.

McLean, N. Y.

ANSWER.

Bloody milk usually comes from an injury of some kind to the udder. Sometimes the calf causes it by violently bunting against the udder, or it may be caused by the cow lying on her side and squeezing the parts with her foot. This is especially so in small, narrow stalls. You must first ascertain the cause and remove it; then give the cow one dram of ergot of rye, as a drench, twice daily.

Failure to Come in Heat.

What can be done to make a cow come in heat? C. C. B.

Washburn, Wis.

ANSWER.

Give a dram of nux vomica in food, twice daily, and feed nitrogenous food. Also increase the amount so as to crowd her a little.

Navel Poisoning.

We have a calf born Sept. 7, with a lump on each jaw. The lumps disappeared, and the calf began to froth at the mouth; now it is running at the nose. The odor is very offensive, also the front legs are swollen, from the body to the knees, and the calf cannot stand.

Avon, Colo. MRS. W. L. W.

ANLWER.

The lumps evidently con'ain pus, the result of navel poisoning. The only cure for this trouble is to keep the calf strong by good care and food, so that it will be able to assist nature to resist the disease. You may also give 20 drops of tincture of iron in a few ounces of water twice daily.

Vermimous Bronchitis.

Please give treatment for lung worms in calves. W. H. I.

Delhi, N. Y.

ANSWER.

This disease is combatted by fumigations of tar, phenic acid, cresol, essence of turpentine, tobacco, etc. The practice of fumigating is very simple. The animals have to be kept for a variable time in a place which is filled with the vapor of one of these agents. The vapors by irritating the respiratory passages, produce coughing and expulsion of the worms. We must be careful to destroy the parasites which are thus ejected. It is advisable to give the animals easily digestible food. Intra-tracheal injections of antiseptic medicines are also resorted to with success.

Heart Failure Perhaps.

I had a fine Jersey cow come in on the 12th at noon. I put her in the barn and by the morning of the 13th she had not manured. I gave her a dose of salts and in less than ten minutes she was dead. She seemed to be perfectly well and lively before I gave her the salts. E. P. S.

Sharon, Wis.

ANSWER.

If the cow was perfectly well otherwise it is hardly possible that an ordinary dose of salts could have killed her. Judging from your description she may have had heart failure.

Abortion, etc.

I have had three cases of abortion during the past year and a good deal of trouble in getting cows to breed; some of the worst cases of failure to breed among those that did not abort and that have always bred well heretofore. Two of those that aborted are now several months in calf. Can you suggest any treatment that will prevent them from aborting again? Also what can I do for the poor breeders? I have tried several bulls and now have just brought home a young bull that was in back pasture with heifers all summer. F. T. B.

Saybrook, Conn.

ANSWER.

As your case is not infectious you have nothing to do but to remove the cause. If you do not wish to dehorn the cow which has caused the trouble, keep her out of the herd.

As to the cows that will not breed it is advisable to alter the environments as well as changing bulls. Cows which are sterile usually run to fat. If this is the case it is best to diet them and do not try to breed them until they are in a normal breeding condition. Sometimes there is an abnormal condition of the uterus, which can only be determined by an investigation.



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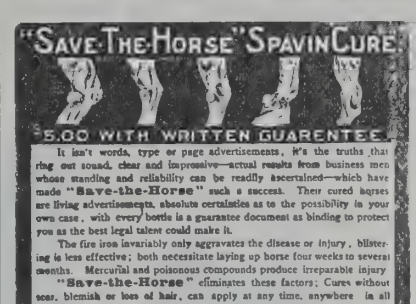
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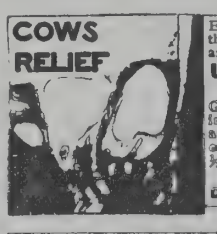
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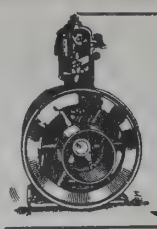
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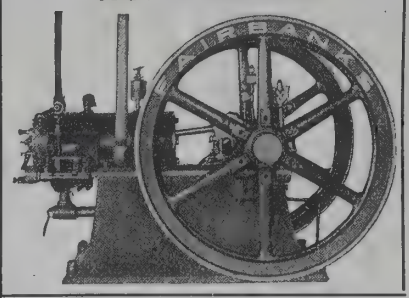
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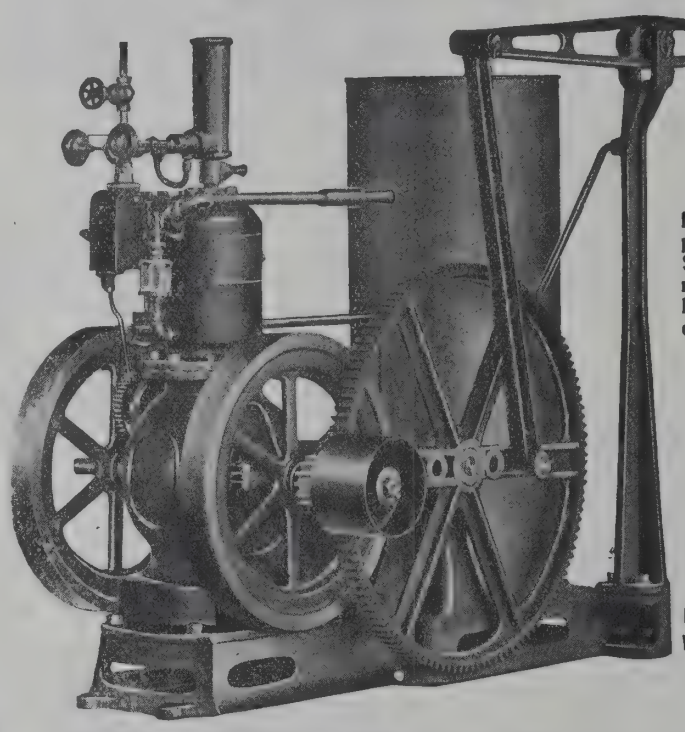


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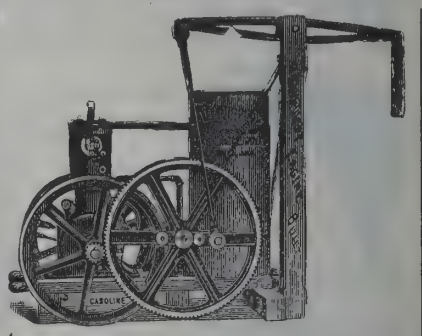


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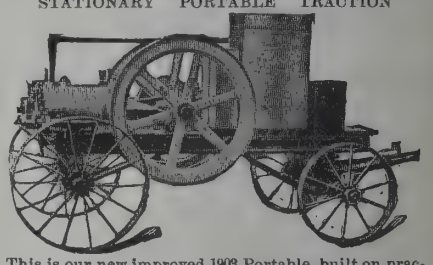
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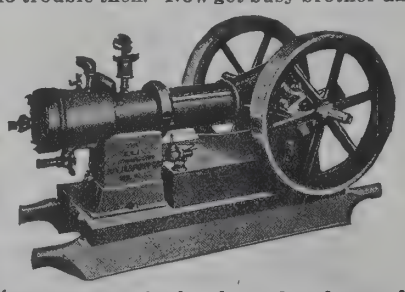
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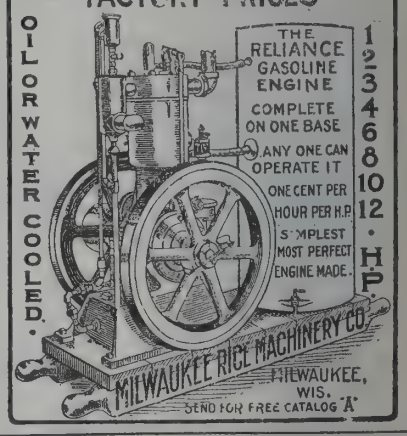
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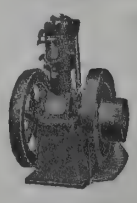
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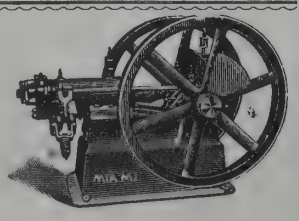
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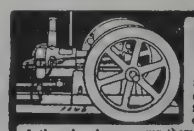
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are the outgrowth of 19 years of engine building. Not approached for strength, safety, simplicity or width of duty. Valuable for a score of farm duties. Any boy can run them. 2½ full horse power at less than 5 cts per hour. Tested and ready for action upon arrival. Made to fit farmers' needs. Other sizes up to 300 h. p. Write for free catalogue

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Common Sense and Common Cows.

A Few Facts of Dairy Interest Told by Prof. T. L. Haecker—The Farmer Gets the Profits.

At the McLeod county fair held at Hutchinson, Minn., a dairymen's session was a feature, at which Prof. T. L. Haecker talked of the possibilities of the dairy cow. Among other leading thoughts presented, he said:

"I referred to the fact a few moments ago that the average yield of Minnesota cows was 140 pounds per year. At the Experiment Station the annual average of our herd is 350 pounds per cow. The herd is a mixed one, comprising representatives of the various breeds, and common cows as well. The milk from these cows is weighed at each milking and a test made with the Babcock tester, so that we know just what we are doing. We have the common cow in the herd, because we must know what she can do, as well as the others. We must know this because she is the cow kept by the average farmer throughout the state. The average butter product of the common cow in our herd is 240 pounds per year, or nearly 100 pounds better than out on the farm.

"Kindness is one of the reasons for this, and I wish I could impress upon you the great importance of treating the cow kindly. It is as important as feeding and will give great returns in the pail. The cow must be well kept, kindly treated, and she will give most excellent returns, even though she may be a common cow.

"I used to urge upon the farmer to take the well bred dairy cow but I have gotten over that, because it does no good. At the experiment station we rereceive as high as 450 pounds of butter per year from the best dairy cows. But this fact does not impress itself upon the farmer, even from the financial standpoint. The trouble is, the average farmer will not take to the high bred dairy cow, because he wants one that will also prove a good beef animal. Now, you cannot successfully combine the two in the way he desires. But he cannot see this, and I have given up trying to make him.

"Did you ever stop to think that in the dairy business the farmer gets the profit resulting from his work, while in the beef business he does not. In the beef business you are paid just what five men, who control the great beef combine, agree to give you, and they take the profit. In the dairy business you control yourselves, even practically to the commision the commision man gets. Now, why try to make a success of both, when one or the other is practical? If you wish to follow dairying why not take the best cow and reap the largest profits? This large return I have spoken of from the dairy cow is from the butter product alone. I have not counted in the calf, because that is not fair, for one calf may be worth more than another. Now you say, the steer calf from this high bred dairy cow is worthless, and we lose it altogether. No you don't. You can get about as much, if not fully as much, for it for veal as you can for a calf from the beef breeds, and the increased return from the high bred cow will more than make up the difference you would make from the beef steer.

"But right here comes the complaint, 'you are receiving aid from the government to carry on the experiment station. If out on the farm we could have such a fund to fall back upon, so that we could buy some of these expensive foods, we could make some of these high records.' Now it is true that we receive government aid and aid from the state also. The government has recognized the value of the work we are doing, and is encouraging it. But in the handling of this dairy herd, we aim to make it as practical as possible, so it will be of some benefit to the farmers of the state.

"For the purpose of ascertaining the true value of these foods, the herd was divided and one portion was fed on these more expensive foods, while the other portion was fed from what every farmer has in his bin—a combination of corn, barley and oats in equal parts. Now what was the result? A careful account was kept of these two sections, and just as good returns were received from the portion of the herd fed on corn, barley and oats, as from the one fed on the high priced foods. The farmer has everything in his barn from which to get as good results from the dairy cow as we have at the station.

"Now the real trouble is, the average farmer does not like to milk, and he does not any longer than he can help. In ten or fifteen years he often makes enough out of the common cow so that he can retire from the business and simply raise beef, and I am glad he has a business that gives him such good results—even from the common cow.

In closing, Prof. Haecker called attention to the careful handling of cows at the time of calving and the general treatment of them. He pointed out from a couple of cows at hand the chief points of the dairy cows.

"A good dairy cow, well and comfortably kept, ought to pay her owner $100 per year. And when it comes down to the steer from the dairy cow, there is not really as much difference as we are often told. I have at the Experiment Station six steers from registered dairy cows, not yet two years old, fed as any farmer should feed them, that will weigh from 900 to 1,200 each. They are just as good as any of your beef breed, and the profit from them and the cow would be much greater. The condemnation of the steer of the high-bred dairy cow is simply a matter of prejudice."

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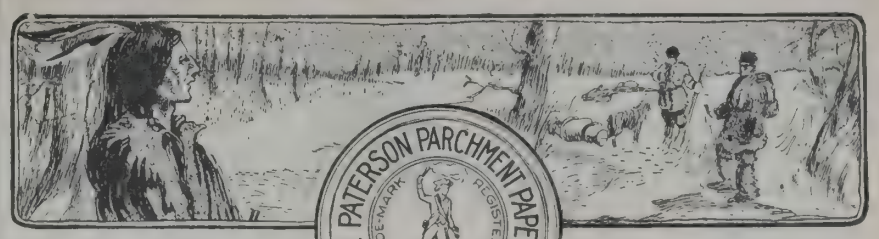
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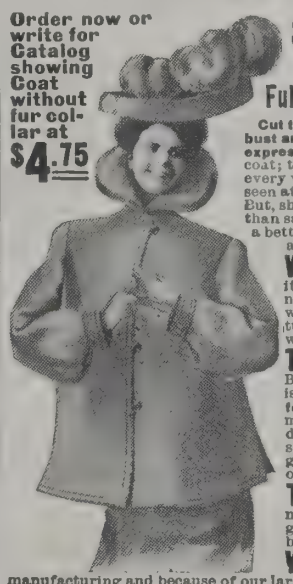
is easily destroyed by contact with foreign substances. The problem is how best to protect it for table use. Up-to-date butter makers with one accord now resort to the

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Cut this ad out and send it to us with $1, stating color preferred, size around bust and neck and we will send you this latest style, swell English Box Coat, by express, C. O. D., for your examination. Go to the express office and examine the coat; try it on; ask your friends about it and if it is not entirely satisfactory in every way; if it is not the most stylish, handsome and best coat you have ever seen at double the price or more, return it to us and we will refund your money. But, should you find that the coat is everything which we claim for it and more than satisfactory to you and your friends in style, quality, fit, etc., and that it is a better coat than you can buy elsewhere for $15.00 to $18.00, then pay the express agent the balance, $6.48 and the 25 to 50c express charges and keep the coat.

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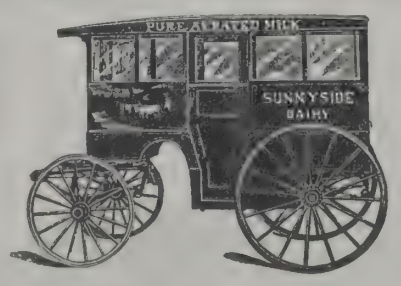
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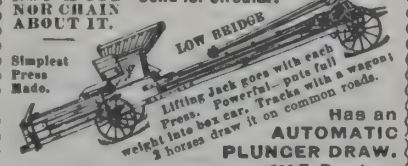
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turn the mothers in to them three times a day for four or five days, in order that they may have three meals a day by natural method, until they get a fair start. I usually sprinkle a little salt upon the calf as soon as it is dropped, in order that the mother may lap it dry and be the readier for her warm drink a little later. If the weather is cold, I take the calf to warmer quarters immediately, and rub her dry with a cloth, beginning at once to feed by hand. A quart of the mother's milk three times a day is enough for the first week. All milk fed for the first three months is warmed to blood heat, or given fresh from the cow.

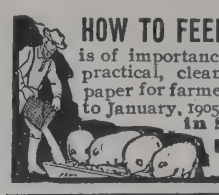
It is a little harder to teach the calf to drink from a pail if not taken from the mother at once, but I firmly believe she grows better if allowed to feed in the natural way for a few days. In the case of Jerseys or Guernseys there may be once in a while a cow whose milk is too rich for her calf, under which circumstances it is probably better to change to diluted milk as soon as the bowels of the calf show that there is trouble.

At the end of the first week my calves are taking, from galvanized pails, three feeds a day, one to one and one-half quarts at a feed. Don't overfeed; it is not a big quantity of milk that makes a calf grow, but a small quantity at the proper temperature, fed regularly, in a clean pail. I like to continue with whole milk for two weeks, then begin to taper off to skim. At the end of four weeks I am feeding twice a day four quarts skim milk at a feed, with two small handfuls of old process linseed meal thrown in dry and mixed with the milk at each feeding. I begin to use the meal and the skim milk together, a little of each at first, and gradually increase the quantity of both until I have arrived at the above amounts some time between the third and fourth week, depending upon the vigor of the calf. I never give more than eight quarts milk a day at any age.

A box of bran is placed where the calf can get at it from the start. As soon as she begins to eat the bran I feed the milk but twice a day. Clover or fine timothy hay is always within reach. At noon I give a drink of lukewarm water. After she is a couple of months old, if the weather is good, I turn her out into the yard for a few minutes and let her run, and drink at the trough. Whole oats are a fine addition to the ration, as soon as she will eat them. I put a handful into the bran, and she soon discovers they are good. Give a little salt occasionally, not in the feed, but where she can lap it. As she grows older, one learns her capacity for bran, oats and green stuff, and can put her upon a regular ration. I feed her the same roughage, including silage, that I give to the cows. A very important matter is to keep dry, clean bedding under the calf. Shavings are the best that I have used. The calf will be stunted with certainty if kept in damp, unclean quarters.

I would rather not turn spring calves to pasture the first season. They make a better growth for me when kept in the barn during the first summer, and fed regularly. They get the clean stuff that is brought in for the cows, the latter being soiled, with the help of silage, the year round. A run in the yard every day is good for them, but my experience is that pasture does not make them grow like milk, grain and soiling crops fed in the barn. When they are in pasture the fly gets in his deadly work in July, August and September. If they are in the barn, we can spoil the fly's fun with the sprayer. All my stock are sprayed in fly time.

Very likely the secret of the better growth in the barn is, that the calf is right under the eye all the time, and one notices whether things are going right or not. All young stock should be where it can be watched. The start is all important. I feed skim-milk for six months, and longer if I have it. Fall calves are tethered upon a grass plot as close to the barn as possible the first summer. They have bran and oats in addition to the grass.—THOMAS WALLIS in *New England Farmer.*



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This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50.

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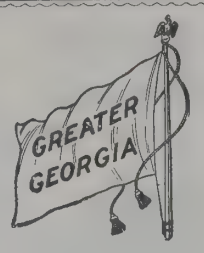
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There is such a thing as forbearance ceasing to be a virtue even in the case of one's stomach. There is no question but that some stomachs will stand a great deal more wear and tear and abuse than others, but they all have their limit and when that limit is reached, the stomach must be reckoned with as sure as fate. The best way and really the only effective way to treat your stomach when it rebels is to employ a substitute to do its work. This will give the weakened and worn-out organ an opportunity to rest and regain its strength and health.

Stuart's Dyspepsia Tablets relieve the stomach of its work by taking up the work and doing it just as one set or shift of workmen relieves another. They actually digest the food in just the same manner and just the same time as the digestive fluids of a sound stomach do. In fact, when dissolved in the stomach, they are digestive fluids for they contain exactly the same constituents and elements as the gastric juice and other digestive fluids of the stomach. No matter what the condition of the stomach is, their work is just the same. They work in their own natural way without regard to surrounding conditions.

The stomach being thus relieved by Stuart's Dyspepsia Tablets, is restored and renewed by Nature and the rest of the human body does not suffer in the least by reason of its failure to perform its work.

A Wisconsin man says: "I suffered the pangs of dyspepsia for 10 years. I tried every known remedy with indifferent results until I was told of the remarkable cures of Stuart's Dyspepsia Tablets. I bought a box, began taking them and forgot I had a stomach. Three boxes cured me completely. I have had no trouble whatever for a year and have an appetite like a harvest hand and can eat anything that is set before me without fear of bad results."

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The Farrowing of the Sow.

(Continued from page 842.)

eleven pigs in all, eight of them saved. As to the runt, I think it could not be saved anyway, and it would not be worth saving anyway. But as to the two other dead pigs, we feel sure they were injured by the moving of the sow, and that had the sow been left in her own nest in the thicket, these two would not have come dead, though the chances were that they would be killed or smashed by the sow later.

The mistake in this case was in permitting the sow to go out of her pen this day. A sow will take to the woods any time in preference to the very best farrowing pen provided for her by man. As to moving her from her improvised nest in the thicket, past experience in similar cases prompted us to do so; others might have acted differently and with more wisdom, and this is why we tell the story, which will be familiar wording to all who keep pigs and, we think, of some interest.

P. E. I. J. A. M.

Better Milk for Cities.

ED. HOARD'S DAIRYMAN:—Cities are rapidly waking up to the importance of a better milk supply; the farmers are realizing more and more that the movement is one of importance to them. The better the milk the more will be consumed and the better will be the price paid for it. The movement is noticeable in each of the cities that I have visited this fall, but its appearance is manifested in a different way in each one.

In Albany, N. Y., for example, there is no very pronounced demonstration, but the movement is on for all that. Farmers still retail about one-half of the milk consumed, while dealers located in small shops in various parts of the city do the remainder of the business, aided by their several wagons. I visited two of these places. In one, Mr. L. B. Tibbitts, the proprietor, has been engaged for twenty-three years, being the oldest dealer in the city. He handles 20 to 25 cans per day, buying direct from farmers in Washington and Saratoga counties. Albany county is not a dairy county, though, of course, some milk is produced there. He says he gets good milk and that the farmers are improving; claims that the milk he gets averages 4 per cent of butter fat. The price paid the farmers averages 2½ cents per quart net for the year.

Mr. W. H. S. Miner, whom I also called upon, is the largest dealer in the city. He has twelve routes, besides selling from his store. His purchases are also made direct from the farmers, but he buys in Schoharie and Herkimer mostly, with some purchases in Washington county. His price nets the farmers practically the same as Mr. Tibbitts'. He handles from 100 to 125 cans of forty quarts per day.

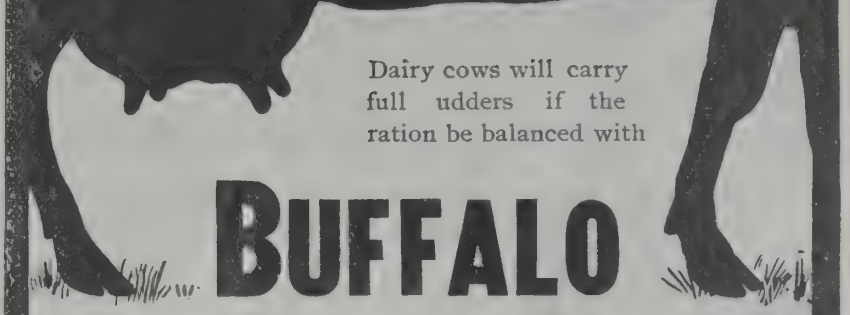
The milk is well cooled and aerated and appears to have received good treatment at the farm. It was claimed that some of the dealers pasteurize, but this is doubted by some of the city officials. No pretense is made of furnishing certified or clarified milk. At the office of the Board of Health it was stated that the milk supply is good, giving as evidence the low death rates of infants in that city, especially from diseases likely to be caused by bad milk.

No systematic inspection has been undertaken by the department, owing to lack of funds, but the general inspector of foods makes occasional examinations. The state Department of Agriculture has been more thorough, though its field is somewhat different from that of the health department. Here I was informed that great changes have come about in Albany's milk supply, during the last twelve or fifteen years. There was a time when the milk sold in this city was more than half water, while now there is practically no adulteration of that kind.

The present condition appears to be pretty good, taking all points into consideration, but it wouldn't be surprising if a more definite knowledge of the milk supply might be demanded at some time in the not far distant future. At present the inspection by state officials and the demands of consumers, together with pecuniary interests of farmers and dealers in a good milk supply, is what keeps up the standard of quality. The directness from farmer to consumer, and the watchfulness of the state department appear to insure a pretty good grade of milk.

Chenango Co., N. Y. H. H. L.

A Full Udder



Dairy cows will carry full udders if the ration be balanced with

BUFFALO GLUTEN FEED

Insures greatest possible yield of finest milk and butter, because it supplies in correct proportions **Digestible Protein**—an absolute essential to profitable dairying.

96% Digestibility.

Protein 27%.

Ask your feed dealer.

Dept. B THE GLUCOSE SUGAR REFINING CO., Chicago, Ill.

PURE OIL MEAL. USE FOR MILCH COWS AND FATTENING STOCK.

Superior to corn, oats and hay. Ton lots $23.00; half ton $12.00; 500 pounds $6.50; 100 pounds $1.50. Put up in 100-lb. sacks f. o. b. Minneapolis. Cash with order.

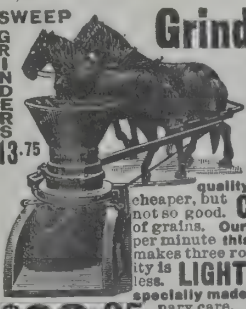
This Meal is Guaranteed Absolutely Pure. We also manufacture Strictly Pure Linseed Oil.

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When ordering mention this paper.

SWEEP GRINDERS $13.75



Grind 46 Bus. Baskets Ear Corn Per Hour

with this Improved Wolverine Ball Bearing, Triple Geared Grinding Mill. **CRUSHES AND GRINDS** ear corn in any condition: shelled corn, rye, oats, barley, Kaffir corn, etc., singly or mixed. Makes coarse, medium or fine feed as desired. Never "chunks" or "hogs" the feed, but produces an even and uniform product. **It is the only sweep mill guaranteed to equal the work of a buhr stone mill.**

IT IS STRONG and is made of the best material money can buy. The castings in the gears are specially heavy and will stand the most severe strain that can be legitimately required of a grinding mill. **The quality is shown by the weight which is 600 pounds.** If it were lighter it would be cheaper, but not so good. **CAPACITY.** This is a stumbling block in the way of grinding mills. We have tested this one under all conditions with all kinds and quality of grains. **Our statement is a guarantee: If the corn is dry, and the team makes five rounds per minute this mill will crush and grind 46 bus. baskets of ear corn per hour.** If the team makes three rounds per minute it will grind 28 bus. baskets per hour. Grinding finer, the capacity is less. **LIGHT DRAFT.** Notwithstanding the enormous capacity of this mill it is the lightest draft sweep mill known. **This is so because it is fitted with specially made hardened steel Ball Bearings.** These ball bearings will last a lifetime with ordinary care. We replace any that are found defective or wear out within five years.

$23.25 OUR OFFER. We know that this mill is so good, and so entirely reliable that we will ship it to anyone in the United States with the understanding that if the mill does not do just as we claim, and does not grind more than any two-horse mill made by any other manufacturer of any construction, of any size buhrs; if the mill is not made on more scientific principles; if it does not grind a more uniform quality of feed and if it is not better in every way than any other sweep mill, it may be returned to us at our expense within three days of the time you receive it. Test it in comparison with any other mill and keep the one which is best. **LARGE LINE.** We have eight sizes of sweep mills, $13.75 and up, and thirty other styles and sizes of grinders suited to all grains and purposes.

CUT THIS AD OUT and send it to us and we will mail you our special farm machinery catalogue. Don't buy a grinding mill of any kind until you get it. It is sure to save you money.

MARVIN SMITH CO. 55. 57. 59. N. JEFFERSON STREET. CHICAGO. ILL.

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WINCHESTER No. 12 NEW RIVAL

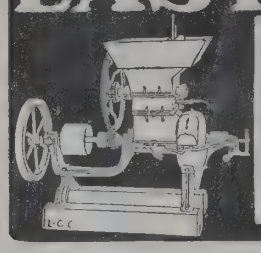
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THE HUNTER'S FAVORITE

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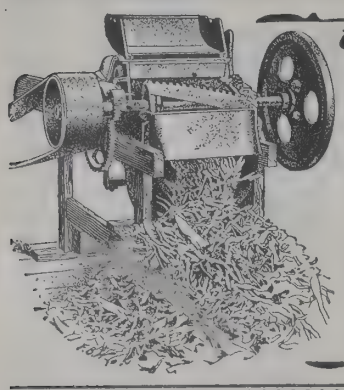


Corn in the ear and all grains, any sort of chop mixture. For speedy and perfect work, saving feed and labor, the all-purpose grinding mill is the

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Made in a variety of styles, including **Power Mills, Sweep Mills, Mill and Power Combined.** The line that meets feeders' wants and is right in price. Don't buy until you have seen our late catalogue. Mailed free. Write for it to-day.

THE FOOS MFG. CO., Springfield, Ohio.



The 1903 Shredder Blades

(Patent Applied for)

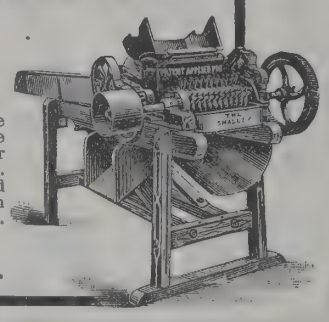
make efficient shredders out of "Ohio" Feed and Ensilage Cutters. The **New Shredder Blade** is the regular "Ohio" knife with solid integrally projecting bits which cut and tear corn stalks into a nicely shredded condition, as shown in the picture. It makes corn-hay of the fodder.

Shredder Blades are interchangeable with knives on all sizes "Ohio" Cutters. They successfully reduce fodder to the proper condition and do not pulverize the leaves like other styles. **They shred** with the same power, speed and capacity as "Ohio" Cutters, and either the Chain or Blower Elevators handle the shredded corn perfectly. **Speed,** 600 to 700 revolutions. **Power,** 2 Horse Tread up to 12 h. p. Engine according to size. Let us send the 1903 catalogue of "Ohio" Cutters and Shredders. "Modern Silage Methods" 10c, coin or stamps. Manufactured by

THE SILVER MFG. CO., Salem, Ohio. *Established 1854.*

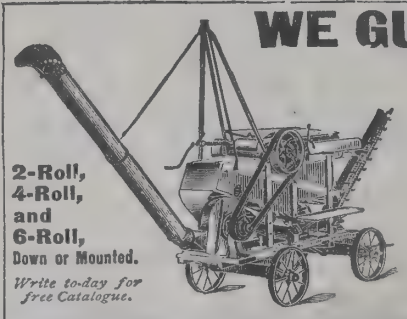
THE SMALLEY SHREDDER

HAS NO EQUAL.



It gives fodder the greatest food value, and makes it easier for the animal to masticate and digest. Requires least power; strong and durable; will outlast a dozen of the saw pattern kind. Knives adjustable to compensate for wear. We can furnish snapper rolls to remove all the ears, just the same as a husker. This combination of cutter, shredder and snapper, costs but little more than the ordinary cutter. We also make drag and circular saws, sweep and tread powers, and ensilage cutters with carriers or blowers to reach any silo. Our free catalogue tells all about our goods. Address Box No. H

SMALLEY MFG. CO., Manitowoc, Wis.



WE GUARANTEE that under the same conditions as to power and speed applied, condition of corn, etc.,

The Appleton Corn Husker

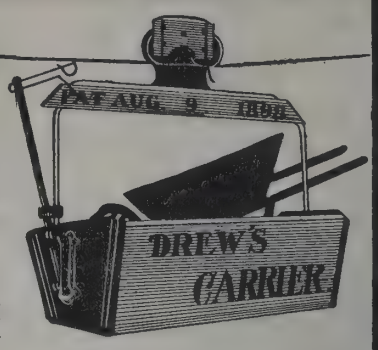
will do more and better work than any other machine of like character and corresponding size on the market; that it is simpler in construction; easier in every way to operate; easier and safer to feed and to require less power for successful operation. Proof of these claims is sent for the asking. We make also a complete line of sweep and tread horse powers, shellers, ensilage and fodder cutters, feed grinders, wood saws, windmills, etc. **Remember that Appleton quality** is the standard of excellence.

2-Roll, 4-Roll, and 6-Roll, Down or Mounted.

Write to-day for free Catalogue.

APPLETON MFG. CO., 35 Fargo St., Batavia, Ills.

GOODBYE, WHEELBARROW



Every farmer who gets a Drew Elevated Carrier has no more use for the barnyard wheelbarrow. The

DREW ELEVATED CARRIER

will carry the manure from the stables to any point in the barnyard, drop it, return automatically, ready for another load.

It is self operating—it turns curves and switches—dumps its load in yard or wagon. Besides carrying manure you can use it to convey ensilage, feed, grain, potatoes, cans of milk, from one point to another. It works so simple and easy that any man or boy can run it.

THE DREW ELEVATED CARRIER

carries labor off from the farm—it is the farmer's labor and money saver. No trouble to put them up—no trouble after they are up.

It leaves barnyard free from posts—keeps the barnyard clean and free from litter. Get one and



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DREW ELEVATED CARRIER CO., WATERLOO, WIS., U. S. A. 1



CHERRY'S
Perfected Barn Equipments

Consisting of Manure Carrier, Feed Carrier Ensilage Carrier, Grain Elevator, Swivel Hay-Carrier, Hay Forks and Barn Door Fixtures. This system of carriers is built for **Heavy Work** and **Durability.** By the use of our **Curves** and **Switches** we can equip any barn. Send for illustrated Catalogue H and price list to

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Giant Killer Feed Mill



Triple geared. For ear and shelled corn and all grains. Fast working. Grinds as coarse or fine as wanted and makes excellent family meal. You save feed and have more thrift in animals if you install the

Northwestern Steam Cooker

shown below. Return draft, an easy steamer and suited to large or small stablings. Don't buy either mill or cooker until you get our free circulars. They're money makers and savers.



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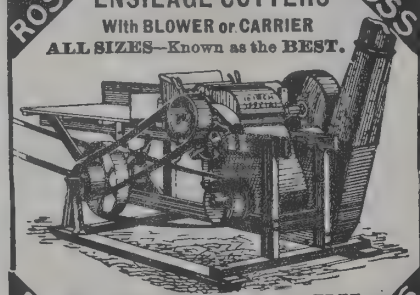
John Deere Plow Co., Indianapolis, Ind.; Harber Bros. Co., Bloomington, Ill.; Deeds & Manley, St. Louis, Mo.; John Deere Plow Co., Kansas City, Mo.; Lininger & Metcalf Co., Omaha, Neb.; Smith & Zimmer Co., Minneapolis, Minn.; Lindsay Bros., Milwaukee, Wis.

ENSILAGE CUTTERS

With BLOWER or CARRIER

ALL SIZES—Known as the BEST.

ROSS ROSS



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Prof. Woll's Book on Silage 10c
THE E. W. ROSS CO.
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All Grinding

Ear corn, with or without husks, and all grains ground fine or coarse as wanted with the

KELLY DUPLEX Grinding Mills.

They never choke. Double cut breakers and double set burrs give greatest speed. Take little power, any kind. Strong and durable. 4 sizes. Catalog free

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HEEBNER'S FEED CUTTERS.

Feed all your fodder. By using Heebner's cutters with shredder attachment the whole of the nutritious stock is cut, crushed and shredded, and rendered edible. No waste. Animals eat it greedily and thrive. Shredder attachment costs $5.00. The model ensilage cutter. Also make Tread Powers, Lever Powers, Little Giant and Penna. Threshers, Wood Saws, Feed Mills, etc. Catalog free.

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4 HORSE SWEEP MILL and 2 Horse And Horse Power.

Grinds corn with shucks, rye, barley, wheat, oats and all other grains. **Self feeders. Geared 7 to 1. Light draft. Great Capacity.** (Also make plain sweep and **Belt Mills;** 10 sizes.)

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for corn and cobs, feed and table meal. Send for all mills advertised, keep the best and return all others. These mills are sent on **Ten Days Trial,** and if not satisfactory can be returned at our expense.

The A. W. Straub Co., 2737 Filbert St., Philadelphia, Pa. Canal & Randolph Sts., Chicago, Ill.



TERRIFF'S PERFECT WASHER

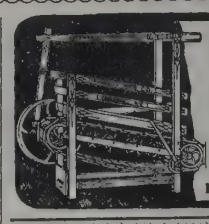
SENT ON TRIAL with a positive guarantee to wash the collars and wristbands of the dirtiest shirt perfectly clean, without the use of the washboard or hand rubbing, with no injury to the most delicate fabric. Will do a family washing in one hour; *saves time, labor and expense.*

FREE We want good, reliable and industrious agents, and in order to secure your help will send one of our washers absolutely **Free.** Write today for **Free** catalogue and full particulars.

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CORN HUSKERS Small size, 6 to 8 h. p. to run it. Large size for Threshermen, 14 to 18 h. p. to run it; with self-feeder. CATALOG FREE.

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A DOG POWER

Saves human muscle. This **ENTERPRISE POWER** is unequalled for churning, separating cream, running washing machines, etc. One dog, sheep or goat works it easily. We also make a full line of large tread powers for 1, 2 and 3 horses. Full line of Ensilage and Feed Cutters, Wood Saws, Threshers, Engines, Round Silos etc. CATALOGUE FREE.

Harder Mfg. Co. Cobleskill, N. Y.



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HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., NOVEMBER 6, 1903 NUMBER 19

University of Ill

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W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs**
Liberal Advancements Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, New York



Chr. Hansen's Lactic Ferment
Ripens the Cream for Butter and the Milk for Cheese to Perfection.
The only Butter-Culture of keeping quality.
—CHR HANSEN'S LABORATORY, BOX 1003, LITTLE FALLS, N. Y.—

HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, BOSTON.**
Medals—Bronze 1878 Silver, 1887, World's Fair, 1893.

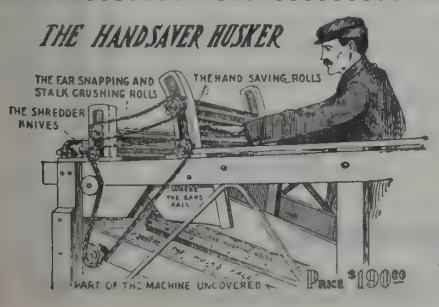
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CONTAINS NO COAL TAR
The pure food agitation makes it imperative that butter makers use a color that is beyond suspicion. Every drop of Thatcher's Orange Butter Color is guaranteed purely vegetable, absolutely harmless and safe anywhere.
We also call your attention to Thatcher's Cream Cheese Color which is recognized by all as the best.
Write for information.
THE STANDARD VEGETABLE COLOR
THE THATCHER MANUFACTURING CO.,
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THE KIND THAT HAS NO MUD.



Wells, Richardson & Co.'s
Improved Butter Color
Has stood the test for many years, and users of color know that it can always be relied upon. It is the BEST and therefore the CHEAPEST COLOR on the market.
For Sale By All First-Class Supply Houses.

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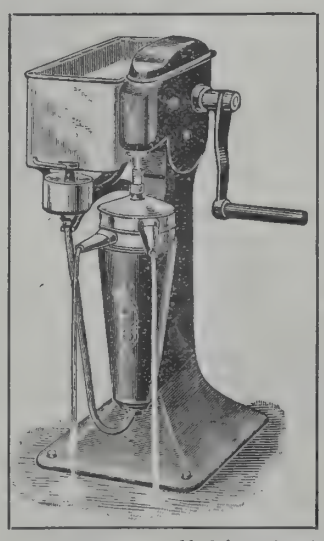


YOU CAN'T GET HURT
HUSKS 50 BUSHELS PER HOUR
SNOW WON'T BOTHER
ASK ABOUT OUR 2 WHEEL WIND MILL
AND
ALL IRON WOOD SAW
ADDRESS
DOUBLE POWER MILL CO.
APPLETON, WIS.

Why He Sells The Tubular

An implement dealer said, "We have to judge for our customers—protect their interests—handle goods we know are safest, surest, handiest—look at separators just as our customers would—question manufacturers about their separators just as carefully as our customers would. That's why I handle the Tubular—that's why I advise others to handle it. It's built on common sense—the kind of sense my customers have.

Now With The Tubular



If your customer asks, "Is the Tubular easy to feed?" point to the supply tank—hardly waist high. "Is it easy to wash?" Show him the simple three piece bowl. "Is it easy to turn?" Lift the gear case cap—explain how every working part is perfectly covered. "Is it durable?" Call his attention to the single ball bearing from which the bowl is hung—explain that the Tubular never wabbles—cannot bind—cannot become unbalanced—that Tubular gears need no oil cups but run in a mist of oil. "Is it sure?" Show the bottom feed—the device that helps make the Tubular the closest skimmer known.

You can tell him the Tubular is the only separator possessing any of these special, strong features.

You can sell him a Tubular when he would not buy the best of any other make. Why? Because all others are alike—antiquated bucket bowl machines—because the Tubular is different—a "right-now" separator.

Write for our complete catalog No. 144, it describes hand and power Tubular separators.

The Sharples Co., CHICAGO, ILL. **P. M. Sharples,** WEST CHESTER, PA.

90 Days' Trial

We sell more reliable merchandise by mail than any house in the world. Volume of sales regulates prices. No firm can undersell us on reliable goods; we refuse to handle the other kind.



Our Oakland Machine

Our Oakland Machine at $8.25 is warranted for 5 years and is the best machine on the market at the price. 8.25

At $12.75 our Amazon is as good as the regular $20 kind; is beyond comparison with other machines at this price. 12.75

For 14.50 our Brunswick Seven Drawer, High Arm, Ball Bearing, Drop Head Machine is a beauty, one that will do all kinds of work and can be depended upon. Price is much lower than any other firm asks for equal quality. Mounted on handsome Automatic Drop Desk Quartered Oak Cabinet like picture, only 16.95

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MONTGOMERY WARD & CO.

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DIETZ LANTERNS

are safe lanterns. They are made on the cold blast principle, that is, burn pure cold air and that gives the strong, steady, white light for which they are noted. They are not the dim, smoking, flickering kind, and they

Don't Blow Out.

They are all convenience. You never remove the globe for filling, trimming, lighting, etc. We make many styles of lanterns. Let us send you our lantern book which shows how they are superior to others. You'll find your choice on sale with your local dealer, or he'll get it for you.

R. E. DIETZ COMPANY, 94 Laight St., New York.

Established 1840.

LIGHTNING WELL MACHY IS THE STANDARD

STEAM PUMPS, AIR LIFTS, GASOLINE ENGINES

WRITE FOR CIRCULAR

THE AMERICAN WELL WORKS

AURORA, ILL. - CHICAGO. - DALLAS, TEX

STAR BRAND

MOLASSES FEED

ANALYSIS:

PROTEIN 21 FAT 3

For Dairy Cattle and Horses. If your dealers do not keep it write us for prices and sample.

M. G. RANKIN & CO.,

Herman Bldg. Milwaukee, Wis.

Alfalfa on Overflow Lands.

In a recent *Breeder's Gazette*, Mr. Spillmans says: We are continually learning new things about alfalfa, so that it becomes necessary occasionally to revise our ideas. During the past few months a number of well authenticated instances have been brought to light where alfalfa is thriving perfectly this summer, although it was flooded many feet deep last winter.

R. E. Smith, Grayson Co., Texas, tells me that part of his alfalfa field was covered seven feet deep by water, and that a large amount of sediment settled on the land. As soon as the water went down and the ground became dry enough to work, he went over the field with a disk harrow and the alfalfa showed no ill effects from the flooding.

C. M. A. Smith, Onondaga county, New York, who lives in a section where alfalfa has been grown for many years, sends me a detailed account of a field of alfalfa in his vicinity which was overflowed in 1902 to the depth of a foot or more; and in 1903 it was overflowed again and ice formed to the thickness of an inch or more. The water raised this ice an average of two or more inches and then froze solid. Quoting from Mr. Smith's letter:

"When spring broke the flats were covered with water for a considerable period before this water subsided. While the plants looked weak they still lived and the owner has just harvested the second cutting. The soil of this field is what we would call a limestone soil with gravel beds on it."

Continuing Mr. Smith says: "In visiting the place to-day I found a heavy, hardy field of alfalfa, yielding, I should judge, nearly two tons to the acre of cured alfalfa hay of very fine quality."

These facts seem to indicate that there is a difference between the overflowing of an alfalfa field by a stream and flooding it from an irrigation ditch. This may be due to the difference in the season of the year when the overflow occurs, the flooding from irrigation occurring during the growing period, while the overflow from a stream usually takes place during the dormant season.

The temperature of the water may also have something to do with it. In the summer season in the west it is practically always clear weather, and in the daytime may become quite warm. Irrigation water left standing upon the fields has its temperature considerably elevated in a few days, while the water from a flowing stream remains cold. Another possible factor may be found in the atmospheric oxygen dissolved in the water. The flowing water would be well supplied with this, which would enable the alfalfa plant to breathe normally. The standing water from irrigation would soon become exhausted of its dissolved oxygen and would tend to smother the plants.

Since alfalfa yields such large crops on good rich land I hope any of your readers who have had experience with alfalfa on land subject to overflow will give the rest of us the benefit of it.

The Great Change.

Hon. H. E. Hoard, brother of the Senior editor, and proprietor of the *Leader* at Montevideo, Minn., in writing a private letter indulges in a reminiscent glance at what has been wrought in the way of dairy improvement in the west in the past 30 years. The following paragraph from his letter is suggestive, to say the least:

"When I think of the great changes in the northwest since you and I sent to our father from Columbus, Wis. in 1867, for a tub of York-State butter, because there wasn't any to speak of, out west, and the general opinion was there never would be, I feel like commending you somewhat for the great change that has come. Not that you made the change, but that you have spent more than half your life in everlastingly pounding it into the heads of the people, until they made the change.

What would this year have been to our people if they had raised all wheat, as they did 20 years ago? It would have been about as bad as the grasshopper plague, but with cows and hogs, sheep and poultry, corn and tame grasses, creameries and practical common sense put in practice, they will do fairly well in spite of rotting grain and bad roads. The change to diversified farming has been the salvation of this region, as well as of yours, and all are benefitted—even the one-idea, wheat farmers."

BUFFALO GLUTEN FEED

Digestible.

Protein in concentrated feeds must be digestible to be of value to the dairy farmer. Indigestible protein makes fertilizer—not milk.

Buffalo Gluten Feed Protein

is almost wholly digestible; that's why it is the

Greatest Milk-Maker Known.

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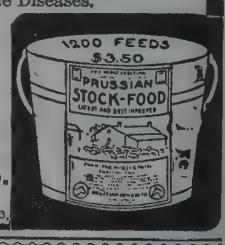
The kind that is born in March or April and goes to market before Christmas, is the kind that makes money for the farmer. These conditions are a sure result of the feeding of

Prussian Stock Food.

It only requires a small amount of the Food mixed with the regular ration. The returns will be surprising. Hogs will take on growth, fat and consequently weight away beyond your expectations. It conditions the stomach and bowels, Removes Worms and hogs fed on it digest and assimilate the greatest amount of feed and turn it to good account. Because of these things, hogs fed on Prussian Stock Food are less liable to Cholera and other Swine Diseases.

Saved 130 Hogs from Cholera.

Last fall the cholera got into my herd of 200 head of hogs and I lost 70 head, but after the free use of your food I saved the remaining 130 head. My hogs are now in a good, healthy condition and as I am still using Prussian Stock Food I believe they will keep so.—R. Chisholm, Lanark, Ill.

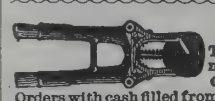


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ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

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Entered at Fort Atkinson, Wisconsin, as second-class matter.

A Month's Record of a Wisconsin Herd.

ED. HOARD'S DAIRYMAN;—I sent to you last May for some of your milk record blanks, and now enclose you the results of my work through the month of June, and would like your comments. The herd consists of fifteen high grade Holsteins, having been graded up by the use of two high grade, and then four pure bred sires. They were milked twice a day and had timothy, clover and blue grass pasture, but no grain. The cows were on rye pasture about three weeks the fore part of May, and heifer No. 2, that was two years old April 1st and due to have her first calf August 20th, had to be milked and gave between nineteen and twenty pounds of milk a day through June and I am having some difficulty now in getting her dry. Have any of your readers ever had such a one? It is our first of this kind.

Our milk is weighed every day and a composite sample taken each Wednesday and tested at the end of each month. Cow No. 13 has always been a favorite of mine and I consider has done remarkably well as she is due to calve again in September. She is the mother of Nos. 6 and 14, and they promise to be as good, showing that good blood will reproduce itself. No. 7 is also the mother of No. 4.

I enclose you under another cover a snapshot of some of my heifers. The one at the left is two years and four months old, about due to calve and weighs 1,260 lbs.

JUNE 1903. NAME OF COW.	Age at last calving.	Days from calving that test commenced.	Pounds milk for month.	Comp. samp. tested.	Pounds fat for month.
1 Venus	3-6-28	33	1248.	3.15	39.3
*2 Dora	2-1-10		585.7	3 8	22 3
3 Purity	5-0-22	46	1118.8	3.75	42.
4 Ebony	4-0- 4	64	1234.4	3.7	45 7
5 Aaggie	2-5-28	76	855.6	3.25	27.8
6 Speckking	2-6-17	62	1049.8	3.15	33.1
7 Bessie	9	62	1293 4	3.55	45 9
8 Anna	1-11-27	270	566.2	3 6	20.4
9 Daisy	2-7- 2	209	744 6	3.7	27.6
10 Belle	2-6-26	231	697.1	4.15	28 9
11 Dot	2-7- 3	199	799.3	3.55	28 4
12 Paulina	3-7- 5	238	544.5	3.45	18 8
13 Speckle	8	270	1110.8	3.6	40.
14 Respectively	5-8- 2	183	1229.5	2.9	35 7
15 Switcherina	8	175	880.4	3.	26.4
Averages	4-3- 1	151	930 5	3.46	32 1

*This heifer was on rye pasture and her udder became so distended that she had to be milked. Test started 20 days after and 80 days before first calf was due.

Hillsboro, Wis. J. M. WAGNER.

This is a highly instructive record, and one which every dairyman, not doing as well, should earnestly strive to emulate. It is by no means so extraordinary as to excite suspicion, but it does imply the exercise of good judgment and that foresight which does not expect satisfactory results with adopting the means conducive to such results.

The case of the heifer giving milk before birth of first calf is unusual, but not without precedent. Such happenings indicate pronounced dairy heredity and temperament.

Answers to Dairy Questions by Prof. Farrington.

INFLUENCE OF SALT ON BUTTER QUALITY.

In our vicinity there is a co-operative creamery which has had the same man for a butter maker for about six years. He has never had even a common school education and what he knows about butter making has been obtained by apprenticeship. He is getting $100.00 a month, plus house rent and such dairy products as he may use in his family. He has to take care of ten to fifteen thousand pounds of milk a day and hire his own helper. He has until lately always made good butter, which sold for the top market price. Lately he has been in the habit of rushing his work in order to get through and then attend to business affairs of his own and working for the neighbors. He took a vacation this summer and left as a substitute a man, who has not had any experience in butter making, to run the creamery. Not long ago our butter which came from this factory was not of its usual good quality, but seemed to be lacking in grain and body; the color was uneven and whitish. We thought it was perhaps overworked and that the next butter we got would be all right. This did not prove to be the case, as the butter has not been good for some time. We inquired among the patrons and found that all the patrons were being treated in the same way, that is, they were given butter of very poor quality. Further inquiry showed that two shipments of butter from the creamery had been cut in price and that a third was returned to the creamery because of its poor quality. The butter maker, who has to make good all losses on poor butter, had this butter put in cold storage. He sold some of it to local dealers and was trying to work the rest of it off on the patrons. This, of course, was done for the purpose of diminishing the loss on poor butter which was returned to him. When asked to explain why the butter was so bad, he said that it was on account of poor salt he had been using. The salt was the same which has been used at the factory for years and when the agent of the salt came to see what was the matter with it he was unable to find the salt defective in any way. One thing very noticeable was that the whole of one shipment was not of poor quality, but only part of it, although it was all salted with the same salt. Now what I want to know is this:

First. Is there a chance of his excuse of poor salt being the cause of the defective butter?

Second. Should not a butter maker getting the pay which he gets be able to discern between good and poor salt for butter?

Third. Can a graduate of the state dairy school do this?

Fourth. Does the state hire a man to inspect creameries?

Fifth. Does a person need to have any experience in a factory in order to enter the dairy school?

Sixth. When does the dairy school open this fall? H. A. M.

Fort Atkinson, Wis.

Replying to your questions in the order in which you ask them, I beg to say:

First. Defects in the body and texture of butter can uot be charged to salt whether it is good or poor. The texture is sometimes injured by overworking in order to thoroughly dissolve the salt if the salt has unusually large crystals, but it is not often that this is the case and I cannot understand from your description how salt may be the cause of the defects mentioned.

Second. A man who has made butter for a number of years ought certainly to be a good judge of the quality of any butter which may be brought him. It is sometimes a fact, however, that where butter makers are familiar only with their own butter they are not likely to noticecertain defects which their familiarity with the butter has led them to think are the qualities of good butter. Impartial judgment in regard to butter may be obtained from so many sources that I think it is hardly a fair question to ask as to whether or not a certain man ought to be a good judge of butter from the experience he has had.

Third. A graduate of the Wisconsin Dairy School when he leaves the school, is usually well informed in regard to the scoring of butter, but if he does not follow up the business and keep himself in training, I think he is as likely as anyone else to forget some things he has learned and on this account he may not always be a first-class judge of butter wherever you meet him.

Fourth. There is a state creamery instructor in Wisconsin. He is Mr. J. G. Moore of Albion, Wis., and his work is under the direction of the Dairy and Food Commissioner, Mr. J. Q. Emery.

Fifth. In order to enter the Wisconsin dairy school, a man should have at least five month's experience in some creamery or cheese factory before he can attend the winter term of the school which begins Nov. 4th. We have, however, a summer dairy school which may be entered any time after March 1st. Previous experience is not required of students entering this summer school.



A WISCONSIN HERD OF HEIFERS
Property of J. M. WAGNER, Hillsboro, Wis.



DINNER TIME ON A HOLSTEIN FARM

Your sixth question I have already answered in the fifth. The fall or winter term of the dairy school begins November 4th, 1903.

AVERAGE MILK PRODUCTION OF STOCKYARD HEIFERS.

I own a farm in Clark County, Wisconsin, and on it there are twenty-eight heifers, common stockyard stock. These cattle are two to two and a half years old, and will come in fresh next spring. Can you inform me what is the average yield of milk from such cattle the first milking year? Also how many pounds of cream may be expected from 100 pounds of milk. I should also like to know if possible the average price paid for a pound of cream in Wisconsin. H. J.

Chicago.

It is impossible to give a very definite answer to your question in regard to the probable yield of the cows you describe. We have tested the milk of cows supplying creameries in Wisconsin, and find that there is a great variation in the annual production. Young cows raised on the farm without any special attention to their selection or breeding, usually give about 3,000 lbs. of milk in a year testing about 4.0 per cent butter fat. This will amount to about 130 pounds of butter. One of the tested two-year-old heifers, belonging to farmers, gave 1,900 pounds of milk in a year, while another gave nearly 4,000 pounds.

The difference in milk production is influenced very much by the length of the milking period. Some heifers, as well as cows, are persistent milkers, and even if they do not give very much at one milking will keep up their milk flow for about three hundred days in the year, and this helps out their total annual production. Other heifers will not give milk for much over one hundred days in a year. I do not think it is possible to form a very close estimate beforehand of the amount of milk and butter which heifers will produce, but their first year's record will give some basis on which to judge of their future milking possibilities.

POUNDS OF CREAM FROM 100 LBS. MILK.

The number of pounds of cream that you may expect to obtain from 100 lbs. of milk will naturally vary with the richness of the cream. You may safely estimate that in every 100 lbs. of milk you will have at least 3.7 lbs. of fat. This will make—

24 pounds of cream testing 15.0 per cent fat
18 " " " " 20.0 " " "
15 " " " " 25.0 " " "
12 " " " " 30.0 " " "

You will notice from this caculation that you may easily find out how much cream can be obtained from 100 pounds of milk, if you know the test of the milk and the richness of the cream you want.

The average price paid for a pound of cream in Wisconsin is not a question that can be definitely answered. This, like the former question will depend a great deal on the richness of the cream. You may solve this problem in a fairly satisfactory way by assuming that the Elgin price of butter is paid for one pound of fat. From this you may calculate how much a pound of cream is worth by determining the richness of the cream and the market price of butter at any given time. At present the Elgin market price of butter is 21 cents. If a pound of cream contains 20.0 per cent fat there will be .2 lbs. of fat in it and the price per pound of cream will be 21 .2 which gives 4.2 cents. This is about the price that may be expected to be received for cream at factories where it is made into butter. E. H. FARRINGTON.

Wisconsin Dairy School.

Cows Bloating on Alfalfa Pasture.

ED. HOARD'S DAIRYMAN:—The DAIRYMAN has often requested its readers to write about their experience, but I have always hesitated to do so. But lately something happened in my herd that I consider my duty to report about, so the farmers, and particularly those with alfalfa fields, may take warning.

After harvesting four good crops of alfalfa hay I let the milk cows have the field for pasture. Where the first cutting was done, the young alfalfa was about 15 inches high. I was careful to let them in when it was dry and watched them all the time, because I had lost a good cow by bloating on alfalfa about a year ago. The cows got in at first on the 26th of September, and on the morning of the 29th the milker, when getting the cows out to the stable, found one young cow on her back, dead. After this I kept them out at night, thinking that the dew had caused it.

October the 3rd, I was away from home, but before I left instructed a young

man to watch the cows well, and in case of necessity, use the trocar. The day was very dry, no dew whatever, and the cows were driven off of the field at 5.15 p. m. with no signs of bloating, and then left for the night on a bare field adjoining the barn yard. When I arrived home at dark I was told by the young man and also by the milker that everything was all right. The next morning (or rather night when the cows are taken from the pasture regular at 1 a. m.) when the cows were turned in, there were two cows dead again.

Now I was watching those cows closely most all the time, carrying even the trocar with me, and while I was with them, never noticed the least sign of bloating. The cows never went hungry in the field, because they were fed before hand. I have pastured the cows on alfalfa occasionally for the last ten years and have lost the first one last year and three this year. The greatest danger with it is, that it happens when at least expected.

One of the cows I lost was in her 14th year, but such a good dairy cow, that I think it worth while to enclose her 9 year's record. This is copied from my yearly records, which are based on monthly averages. In the winter 1896-97, the *Ohio Farmer* requested its readers to send in some dairy reports. I did so, too, and will enclose the following copy of mine as then published.

BLACKIE'S RECORD FOR 9 YEARS FROM APRIL 1ST 1894, TO DATE, 1903.

	Lbs.	In milk months.	Net receipts for milk.	Received for calves.
1895	5880	10	$79.58	raised heifer
1896	6870	10	92 92	6 17
1897	7950	11	107 53	5 00
1898	9510	11	129.19	raised bull
1899	8190	10	99 96	1 50
1900	10350	12	126.31	3 00
1901	8849	10	108.04	raised bull
1902	6750	10	82.42	1 50
1903	8310	10	100.80	1 50
Total	72659		$926 75	$18 67

Yearly average, 8073 lbs. equals 938 quarts.
The price received for milk varied from 11½ cents to 10½ cents net.

Total receipts for 9 years for milk and calves sold		$945.42
Average yearly receipts for milk and calves sold		$105.05
Average cost of feed for 9 years at per year	$36.00	$324.00
Average cost for labor for 9 years at per year	$16.00	$144.00
Average cost for feed and labor	$52.00	$468.00
Total profit for 9 years above feed		$621.42
Total profit yearly average feed	$69.05	
Total profit for above feed and labor		$477.42
Total profit above yearly average labor	$53.05	

That then was my first writing to an English paper and this is the second. I don't care much to write about my farm operations, but in this case of bloating I felt it my duty to report, because a good many farmers are pasturing alfalfa, who are not aware of the danger of it.

In regard to the record will say that I have simplified the figuring by multiplying the different milkings by 60, and for reducing to gallons divide by 8.6.

I have noticed that the Illinois Experiment Station and a few others have lately published reports based on averages something similar to mine. Now, Mr. Editor, if you can find anything in this that may benefit some of your readers, you are welcome to publish it.

HENRY F. PINKVOSS.

Hamilton Co., Ohio.

A War Against Butter Color.

The oleo manufacturers, finding that they cannot violate the law except at heavy cost in fines, are looking for other means of inducing the public to buy their product. It is evident that if the public can be induced to believe that only uncolored butter should be used, then uncolored oleo would come into competition with uncolored butter and the oleo fraud would be again in full swing.

The following extract from the *National Provisioner*, shows how the crusade is to be carried on:

"The manufacturers of oleomargarine who have felt the business nudge of the secret of natural color now realize that time has been lost in the endeavor to push the manufacture of a product yellowed with selected rich cow fats. The process is expensive to obtain the yellow shade by natural coloring. Any other process of securing the tinge has failed or resulted in unpleasant controversies with Uncle Sam. The *National Provisioner* advised

CONVINCING EVIDENCE

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ROCHESTER, MINN.,
Sept. 2, 1903

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Altogether I have sold about 270 U. S. Separators.

P. D. ANDERSON KEEL.

THE U. S. SEPARATOR PLEASES OTHERS AND WILL PLEASE YOU IF YOU WILL GIVE IT AN OPPORTUNITY

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That's the name of a brand of parchment wrapping for the preservation of butter that goes before every other article manufactured for the purpose.

Pioneer Brand
Parchment Paper

keeps the delicate flavors in and prevents butter from absorbing the foreign odors it meets in commission house, cellar and shop. Has no taste or smell to impart—pure vegetable parchment, tougher wet than dry.

Don't Mistake the Brand.

There are papers made in imitation. The *"Pioneer"* is the original wrapping which put the cotton or linen cloth out of business. It differs from so-called parchments in that it is a vegetable product instead of rags and paper. Sheets for print wrapping, box and tub lining. Name or brand on sheets when desired. Write for free samples and interesting book, "Better Butter."

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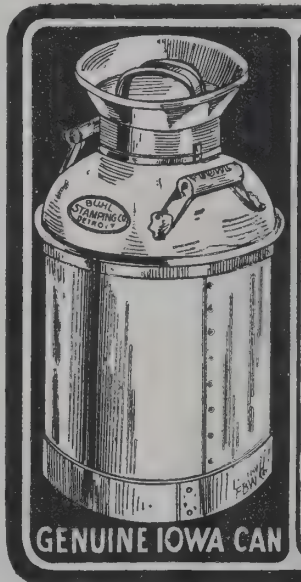
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They are tinned to stay tinned, and put together to stand years of hard service. Other cans crack easily, become dented, and being lightly tinned soon rust and go to pieces. Not so with the "Buhl Factory," "Improved Elgin" and "Genuine Iowa." They will outlast any other cans on the market, and are thoroughly and quickly cleaned. **Remember,** the Buhl is the only can in the world that is made with the **Buhl "Victor" Can Breast** and the **Buhl "Victor" Round Handle.** As here are many inferior imitations of this can, we stamp all ours with the **Milk Can Trade Mark.** Look for it. Sold by all live dealers. Ask about them, or write us direct.



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Every can sold on a guarantee.
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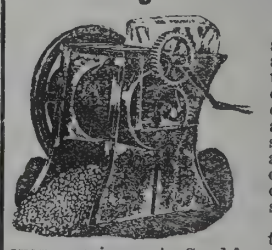
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The World's Greatest Remedy for Aches and Pains.

the butterine trade to wage its war on artificially colored butter and to carry that war right to the consumer. By thus unmasking butter and at the same time planting in the consumer's mind the value and tint of a natural oleomargarine product, the taste for the combined substance would be both cultivated and cuddled. One or two concerns did this in localities and found that it was the correct tack. The fight to a finish has to be either in Congress or on the public taste. It might cost something to wage a color war on butter, but it costs to sell oleomargarine as some makers sell it at present, fighting food inspectors and court cases, whether the grounds of the prosecution are legal or not. If the fight were shifted from color to the product the battle would turn more easily to the steer butter."

Salt and Butter Color.

ED. HOARD'S DAIRYMAN:—I am startting to make butter on a small scale and have a small separator, but am in some little doubt about the working of the butter.

Could you tell me how much butter color to put in the cream from an average of 1,000 pounds of milk?

Also, how is the best way to gauge the salt, to either weigh the butter and put in so much salt to the pound or 50 pounds, or to put in salt by gauging it with the cream? Also state amount of salt either way. A. N. D.

Glen Flora, Wis.

The amount of butter color which should be added to cream in order to give butter the acceptable shade most desired by consumers, will vary from one-half an ounce to three ounces of color per hundred pounds of butter fat.

At the present time (October) the color desired by the western market may be obtained by adding one ounce of butter color to each 100 lbs. fat. During the winter, when cows are fed nothing but dry feed, double this amount of color must be used, and in June it is sometimes unnecessary to use any color if the butter is sold in the northern markets.

The color of butter is, to a certain extent, a fad; different sections of our country prefer different colors. In the south people like a highly colored, deep yellow butter, but in the east and north a light straw shade suits the butter consumer better. The butter maker must, therefore, keep these two things in mind, first, to furnish butter of a color that suits the market supplied, and second, to increase and diminish the amount of color with the amount of green feed the cows receive.

The most important consideration in coloring butter is the preference of the consumer. If the shade of color you are making does not exactly suit your trade add more or less color, as the case may be, until your customers get what they want.

The general market will, as a rule, permit a slightly low or a trifle highly colored butter to pass without complaint, but any striking deviation from the commonly accepted color of butter for a given market will be objected to.

Butter color is used in such small quantities that it is a good plan to have a cylinder graduated into cubic centimeters for measuring it. This will permit a finer division than the ounce graduates and enable one to measure the color accurately each time it is used.

One fluid ounce is nearly 30 c. c., and if one ounce or 30 c. c. of color must be added to 100 lbs. of butter fat, the amount needed per 1,000 lbs. of milk may be estimated by finding out how much fat there is in 1,000 lbs. of milk. If the milk tests 4.0 per cent fat it will contain 40 lbs. butter fat and since the standard amouut of color to use is .3 c. c. per 1 lb. butter fat, the 40 lbs. fat will need 12 c. c. butter color. You will therefore need at the present time about 12 c. c. butter color per 1,000 lbs. milk.

SALTING BUTTER.

The standard amount of salt to use in butter is universally said to be "an ounce to the pound." This is a good rule to start with, but you cannot always be sure of having butter uniformly salted when the same proportion of salt to butter has been used. The amount of salt retained by the butter will vary with the amount of working each churning receives, and also with the dryness of the granular butter to which the salt is added.

When butter is allowed to drain in the churn a long time before salting, the granules will be so dry that a given amount of working will not remove so much salt as will be squeezed out from butter that had not been allowed to drain so thoroughly before salting it.

The size of the salt crystals must also be considered, as a fine grained salt will work out of the butter faster than a coarse grained salt.

A buttermaker must use good judgement in salting butter and take into consideration the size of the butter granules. When the churning is stopped, he should also notice the amount of moisture with the granules or the dryness of the butter and the fineness of the salt used.

When these factors which influence the retaining and the washing out of the salt are well understood, the buttermaker is able to make very uniformly salted butter in his different churnings.

In order to find out how much salt to add to each churning of butter, it is a good plan to weigh the granular butter after it has been washed, and then from the weight obtained calculate how many ounces of salt are needed and add this salt to the granular butter through a sieve.

If the weights and test of the cream churned each time are known, the salt needed for the butter may be easily estimated by adding about fifteen per cent to the weight of butter fat, and then weighing out as many ounces of salt as the pounds in weight found by such a calculation.

If you have 50 lbs. of cream testing 20 per cent fat, the pounds of fat in the cream is found by multiplying the cream by its test, this gives 10 lbs. fat; now add 15 per cent to this and we have 11.5 lbs. This is very nearly the amount of butter that should be made from the cream, and you will therefore need 11.5 ounces salt to add to the butter when it comes, in order to have it salted as usually desired by the general market.

E. H. FARRINGTON.

Wisconsin Dairy School.

Much in Little.

There is a good deal of meaning, one way and another, conveyed in the following letter which the writer sends us in response to a circular inviting him to renew his subscription:

ED. HOARD'S DAIRYMAN:—I see you are determined that I shall "take it." I really don't need it. I only milk 10 cows (scrubs), make about 80 lbs. butter a week; sell for 35 cents, or 3 pounds for a dollar. Have not fed anything but grass since last May. I use the separator, and churn every day; ripen the cream to about 70° and churn at 58°, wash in two waters. I sell most of the butter without salting. My neighbors get 25 cents, the same price they received years ago when clover hay sold for $3 to $4 a ton and bran at $7 to $12 a ton. Now prices are as follows: Clover hay, $8 to $12 per ton; bran, $15 to $20 per ton; corn, 50 cents a bushel. H. C. D.

Jackson Co., Mo.

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The wife of a well-known physician of Oakland, Cal., was brought back to health and strength by food alone at a time when she had prepared to die.

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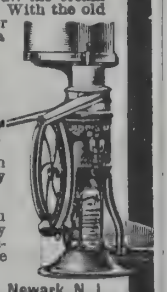
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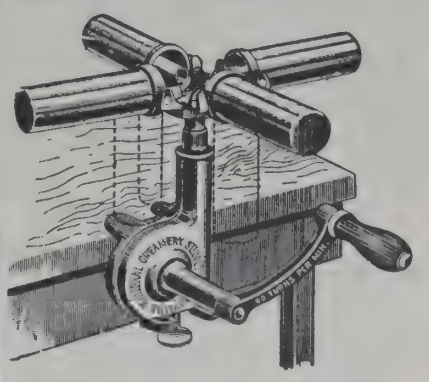
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Has enclosed cut gears.
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Best tester for dairymen ever made.

The weight of machine when boxed, approximately 11 lbs.

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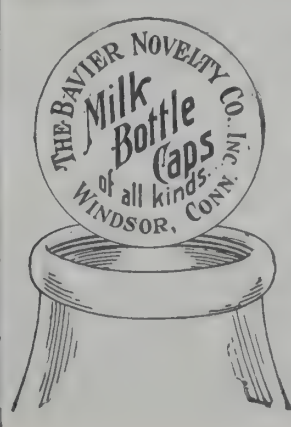
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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of them read dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

COMING EVENTS.

Indiana State Dairymen's Meeting, Plymouth, Dec. 10-11, 1903.
Minnesota Dairymen's Association, Fairmont, Dec. 15-17, 1903.
Vermont Dairymen's Association, St. Albans, Jan. 5-7, 1904.
Illinois Dairymen's Association, Greenville, Jan. 5-7, 1904.
Wisconsin Cheese Makers' Association, Milwaukee, Jan. 6-8, 1904.
Ohio Dairymen's Association, Columbus, Jan. 27-29, 1904.
Wisconsin Butter Makers' Association, Feb. 2-4, 1904.
Maine Dairy Convention, Foxcraft, Me., Dec. 2-3, 1903.
New Jersey Agricultural and Dairy Convention, Trenton, N. J., Jan. 14 15 and 16.
Eastern Ontario Dairymen's Convention, Belleville, Ont., Jan. 5, 6 and 7.
Missouri Dairymen's Meeting, Clinton, Dec. 8-10, 1903.
Iowa Dairymen's Association, Waterloo, Nov. 18-20.
Washington Dairymen's Association, North Yakima, Dec. 29-31.
Massachusetts Creamery Association, Greenfield.
Connecticut Dairymen's Association, Hartford, Jan. 20-21.
Oregon's Dairymen's Association, Corvallis, Dec. 15-16.

SAMPLES of cheese made by substituting pepsin in place of rennet have been received from Prof. Vivian, of the Ohio State University. The cheese is of fine quality, with nothing to distinguish it from the usual rennet made cheese. A pepsin cheese took first prize at the Ohio State Fair, with a score of 98, and it is stated by Prof. Vivian that several hundred pepsin cheese have been made and put on the market with no complaints as to quality. It is too soon for any definite opinion to be expressed on the practical value of this change from rennet to pepsin. Pepsin undeniably makes a cheese of excellent flavor, with no indication of any off flavor on keeping; and there is an advantage in the fact that pepsin can be obtained of uniform strength, which is not the case with rennet, and also pepsin is comparatively free from molds and bacteria.

Whether these advantages will be sufficient cause for a change in methods can only be determined by the future. Both methods make good cheese.

ANOTHER CONTRAST.

No matter how valuable a paper an editor may make, he cannot hope to please everybody. The daily correspondence of the DAIRYMAN office shows up human nature in a highly variegated shape. Here is an example: A man at Auburndale, Wis., writes us that he knows all about dairying now; that there is nothing for him to learn, and he won't have the paper. Is he not just the man to put on the Editorial Staff? Where else could we find a man who knows all about dairying?

Another man, at Wickersham, Wash., writes that the reason he let his paper run out, was because he never took time to look at the label on the wrapper; he is so anxious to get to the reading of it. He calls the DAIRYMAN his "business partner" Another, from Eugene, Oregon, says the paper has proved to him "the best all round farm paper" he ever took.

So it goes, and the old adage "What is one man's meat, is another's poison," seems to be one of the old things that keep fresh and new all the time

COST OF MILK PRODUCTION.

This is always a most important question. It is the only end of the question that the dairy farmer has any control of. The price he is to receive is far beyond him, in the market, governed by forces and conditions over which he has but slight if any control. But a penny saved in cost, is just as good as a penny gained in price, although most farmers pay but little attention to that end. Every instance where the food cost of milk has been reduced is therefore valuable knowledge for the man who is striving to increase his profits. HOARD'S DAIRYMAN has always paid especial attention to the digging up of facts bearing on this matter of the cost of production. One very quaint old New England farmer once wrote us that he "valued the DAIRYMAN very much because it kept up with the procession, so us fellows back in the rear could learn what was going on at head of the column". We will warrant that that old Yankee was once a soldier.

In "Canadian Dairying" Prof. Dean states that:

"The average food cost of milk in the Ontario Agricultural College Herd, for three years (1896, 1897 and 1898) was 46 cents per 100 pounds. The average cost of food to produce one pound of butter was 10½ cents, and the cost for one pound of cheese was 4.85 cents.

For six months (May to October) the average food cost of one pound of butter was 8.88 cents, and for one pound of cheese it was 3.96. For the six winter months (November to April,) the average food cost of one pound of butter was 12.65 cents and for 100 pounds of milk it 58.3 cents.

In this connection he says:

"We found a marked difference in individual cows with reference to economy of production. Some cows produced milk more economically than did other cows which excelled in smaller cost for the food to produce a pound of butter. It will be noticed that the difference between the cost of butter and cheese (10½ and 4.85 cents) was not near as great as is generally supposed.

At the ratio of two and a half to one, the butter should have cost 12.11 cents. It has been generally asserted that the milk that will make a pound of butter will make two and a half pounds of cheese.

Prof. Dean is eminently sound in calling attention to the fact that a good cow makes a very great difference with reducing the cost of milk. For that very reason all well posted dairy farmers pay great attention to the breeding of a good cow. Blood lines tell.

The Education of Farmers' Sons.

In that most useful magazine, the *World's Work*, August number, is a most excellent article, written by Mr. Clarence H. Poe, on the education of farmers' children. He quotes from one of the prominent Professors of Agriculture in this country, as follows:

"Statistics show in this state each year 60 young men take up the ministry, 66 law, and 72 medicine, while 13,000 annually take up agriculture as a gainful pursuit. But our school books are written for the few and not the many * * * Put such words as phosphate, protein, nitrogen, etc., in our spelling books and they will not be as meaningless as Greek and Latin to adult farmers. Let nature-lore give freshness to our reading books, and the mass of country boys will not be blind to every day life about them. Let our arithmetics apply addition, subtraction, percentage and fractions to agricultural problems and the farm boy will see the need of education as a preparation for his own life work. At present, however, the entire curriculum leads away from the farm."

The *Ohio Farmer* makes the following comment on this article:

"Not only is there no instructipn in elementary agriculture, but the ordinary text books ignore or avoid application in this direction. Attention is called to the fact that our arithmetics give plenty of space to common mechanical trades such as plastering, stone-work, carpentering, gauging, lumber measuring, etc., and to banking, commission, foreign exchange and commercial affairs generally, but very little to rules and examples that apply directly to the farm operations. In no arithmetic can you find anything relating to the compounding of rations or fertilizers. Such examples as the following, the writer says, would be of far greater practical value than those relating to stocks, bonds, insurance and banking.

1. "Calculate the value of a ton of fertilizer containing 2 per cent nitrogen, 8 per cent phosphoric acid and 2 per cent potash, nitrogen being worth 14c a lb., phosphoric acid 4c and potash 2c.

2. "Two cows produce, each 5,000 lbs. of milk a year. The butter fat test of No. 1 is 4.6 per cent, and of No. 2, 6.3 per cent. With butter selling at 25c per pound, how much greater is the income from No. 2 than from No. 1; 6 pounds of butter fat being equivalent to 7 pounds butter?

3. "Calculate the nutritive ratio in a feeding ration containing 3 lbs. digestible protein, 1 pound fat and 14 pounds carbohydrates.

"Now these are practical examples, such as the farmer is called upon to solve, and such as he should know how to solve, and for mental discipline, the drill in figures, are just as useful as the great mass of problems in our arithmetics that will never be of any direct practical use to the farmer boy. Indeed, it has become absolutely necessary to drill the boy who is to be a farmer, in computations relating to the compounding of rations and the mixing of fertilizers, as well as in the ordinary computations necessary to a proper understanding of arithmetic. Our schoolbooks, for rural schools, need revision, and a text book on elementary agriculture should be introduced, so that the prospective farmer can be equipped with the knowledge that now is essential to success in agriculture, and will leave school with enlarged ideas and greater appreciation of country life and scenery, and fully prepared to make good use of the information that is conveyed through agricultural books and papers, station reports, and institute lectures."

It is to meet just this very difficulty that the state of Wisconsin has provided for a limited number of county agricultural schools. Two of these schools have been established, one each in the counties of Dunn and Marathon, and the last legislature provided for the establishment of two more.

It is a grand scheme and one which we believe will result in a splendid advance in the intelligence of farmers' sons wherever such schools are placed. In addition, training schools for teachers of country schools have been created by virtue of state legislation, in several counties in this state. One especial object of these latter schools is to train and equip country teachers to impart knowledge concerning the elements of agriculture, as that is now one of the conditions for obtaining the certificate authorizing their employment as teachers It is important that such elements should be taught in a manner that will help the farmer's boy to grasp the meaning of the terms which are used in farm literature, giving him an understanding of the foundation principles that underlie the processes that he must deal with as a farmer. In this, as in many other things connected with agriculture, Wisconsin is taking a leading part. HOARD'S DAIRYMAN was the first journal in this country to press that greatly needed teaching reform.

Advantages and Disadvantages of Pasteurizing Milk.

The chief advantages of pasteurization for butter making are:

1. It destroys the germ life of milk or cream to a large extent, especially when heated to 185 degrees, which is the temperature to be recommended. A clean seed-bed is thus prepared for the proper germs to give fine flavor to the butter.

2. It tends to eliminate stable and feed flavors from milk and cream, especially with milk in winter.

3. The ripening of the cream may be controlled by the butter maker, which is the important point in making good butter.

4. In case of bad flavored milk, it enables the butter maker to improve very much the quality of his goods.

5. By the use of pure cultures (commonly called "starters") a more uniform quality is produced from day to day throughout the year.

6. The butter possesses an improved keeping quality, hence is better suited for the export trade, as our butter does not reach the consumer for two to four weeks after being made.

7. An improved quality of butter may be produced at cream-gathering creameries by pasteurization of the cream when sweet. The pasteurization of sour cream is attended with more labor and more difficulties, and the results are not so good. It is difficult to pasteurize milk or cream which contains more than 0.1 per cent of acid. However, after natural coagulation takes place in the cream, which will be when it contains 0.4 to 0.5 per cent of acid, the work may be done fairly well but is usually attended with considerable loss.

8. There is less loss in the skim milk when the whole milk is pasteurized before separating, especially in winter. We have used nearly all the leading makes of separators for creaming hot milk. The upper bearing of the machine needs to be somewhat more loose than when running through milk at a temperature of 100 degrees, and plenty of good oil is required to lubricate the bearing when separating pasteurized milk.

9. A better quality of skim milk may be returned to the farmers by sending it home hot. There is also less danger of spreading disease. In Denmark all skim milk and buttermilk must be heated to 180 degrees before it is returned to the farmer. This plan has materially lessened the spread of tuberculosis in that country. Hydrogen peroxide is used to test whether the dairy products have been pasteurized, and the law is rigidly enforced.

The disadvantages of pasteurization are:

1. The extra cost of labor and machinery to heat and afterward cool the milk or cream. A milk pasteurizer that will heat milk for two power separators will cost $150 to $200.

2. There is difficulty in pasteurizing milk or cream which is "overripe," and this may cause trouble in hot weather, when milk or cream is not properly cared for and cooled at the farm and is delivered in poor condition.

3. Some trouble is experienced from the froth which rises on the milk as a result of heating. No practicable remedy for this has yet been discovered.

4. There is a tendency to lack of flavor, and sometimes there is a slightly "cooked" flavor as a result of pasteurization. The cooked flavor usually disappears in less than two weeks. Lack of flavor is objectionable in local markets.

Two points are essential if pasteurization is practiced—proper means of heating and cooling the cream and the use of a proper culture to give the desired flavor to the cream and butter. Commercial cultures should be propagated three or four times in pasteurized skim milk before they are used in cream for ripening, in order to get the best results.—*Canadian Dairying.*

California Notes.

ED. HOARD'S DAIRYMAN:—Your valuable paper at hand. I dare say that there are probably very few, if any, who own only one cow, who read your paper with the interest I do. Yet, being in the professional field and making my living by keeping informed on the best and latest methods of all concerning stock and their products, it may be rather egotistical in saying for one paper alone, its a doubtful case, if there is another stock paper printed to-day, that will give the reliable information HOARD'S DAIRYMAN will. It is a great pity that Californians are rushing past so much real knowledge.

I scarcely mention your paper without one of the following answers: I take it but get no time to read it," "I take it, but there is so much theorizing. What we want is work." "If we could get men for $18 to $25 per month like at the East, we could make money."

In many instances, you will find the manure thrown out of a window, under the eaves for all the virtue to wash out, then spend a week hauling out nothing in the fall. They do not take out manure in the spring here. A quart of mud and manure in the bottom of a milk cooler of sixty quarts is common.

Carcasses of dead cows, horses, hogs and other animals left around the ranch are common. Even a month ago, a fellow who through a pull got appointed inspector of stock, had a horse shot, proclaiming the animal suffering with glanders; towed it out to the harbor entrance, turned it loose to wash ashore, when the law says cremate in all such cases.

Again, a dairy of 30 head was condemned as tuberculous just by the eye, the creamery given orders not to accept the man's milk. No doubt some were bad, yet without the tuberculin test no one could be safe in saying they all were. Still we are slowly on the up grade. The Run estate has put in five silos of 100 tons capacity each, one is for one of their large dairies of 200 cows, the other four for feeding beef cattle. They have filled them with wild grass, corn, barley, clover, and rye grass.

Mr. Run since getting the analysis of corn will fill no more with it; too deficient in protein. This gentleman informs me that their firm will build more silos. They have had several years experience. Their style is cement bottom, 2x6 studding, 26 feet high, 20 feet in diameter, boarded around with half-inch boards, a double boarding break joint, tarred paper between, 18 inches between the studding, redwood lumber used. The stock silos are in the feed barn; the dairy silo is outside of the barn, as it should be. These are probably the only two barns in the county built on sanitary basis, viz concrete gutters, concrete vat, away from the barn, wagon made to sprinkle the manure on the land in a liquid form.

Buhne Dairy is one that supplies milk to the city of Eureka of 12000 inhabitants. The promoter of the concrete gutter system was a Hollander named Helflicker The other is Fred Cornick's cow barn on McDermitt Prairie.

The butchers ran an advertisement in the *Ferndale Enterprise*, a paper with some 2,500 subscribers, as follows: "We the undersigned will not pay for animals that prove on butchering to be tubercular or otherwise diseased." We have about 12½ per cent of tuberculous dairy stock at present, while Marin county, the oldest dairy county, except Del Norte in California, has as high as 20 per cent.

I read Buff Jersey's letter in Oct. 16th. What grand talks a person could have with him. He is right on the corner proposition. We have three square silos in Humboldt all discarded; rot in the corners the cause.

A. P. Martin of Petaluma had the first square silos in the state, composed of concrete, two of them. He has a redwood one now, of the round style 20x20; stud and board with ½ inch board doubled. Corn matures well there. Mr Martin uses corn for ensilage; figures it in silos at 50 cents a ton. Many silos went up in Sonoma county the last two years.

I will say for the benefit of the Jersey's friend, H. I. Van Duzer of Loletta showed 388 pounds to the cow, for 80 head; Geo. Gries for 30 head shows 400 pounds and over. He will use only Jersey blood. Yet the beef men don't wish to buy Jersey calves, and consequently dictate what bull dairymen can do best with, when they get $8 to $10 for a Durham calf and $5 to $6 for a Jersey. They don't figure the difference between 200 lbs. of butter and 400 lbs. That article from the pen of A. S. Alexander V. S. of Wisconsin Agr'l Experiment Station is worth several years subscription alone.

Arcata, Calif. B. A. F.



A neatly mowed lawn, and buildings kept painted and in good repair on a dairy farm do not necessarily mean the produc ion of clean milk, but they indicate the thrift and industry so essential to successful dairying.

The Reason Why Cold Aids in Preserving Milk.

Dairymen at the present time understand that milk is sure to contain bacteria, in greater or less numbers, and that these bacteria are the cause of the various changes characterizing the spoiling of milk. It is the type of bacteria known as lactic bacteria that is responsible for the souring of milk, and all of the other changes which are liable to prove troublesome to the dairyman, slimy milk, bitter milk, etc., etc., are to-day well known to be due also to bacteria in the milk. It is not simply the presence of bacteria in the milk that produces these changes, but rather their growth and multiplication. If they did not multiply at all, the milk would not sour; the more rapidly they multiply, the quicker the changes of the milk take place; the longer the growth may be delayed and the slower it is, the longer the milk may be retained in its fresh condition. These facts are fundamental phenomena associated with the keeping of milk, and every milk man should therefore understand as a foundation of dairy practice, that the keeping of milk is dependent upon preventing or checking the multiplication of bacteria, rather than upon simply preventing their presence in milk.

A second fact which is not so thoroughly appreciated, but is equally true, is that the rapidity of growth of all species of bacteria is dependent upon temperature. Within certain limits, the rate of multiplication rises with the increase and falls with the decrease in temperature. At a temperature of freezing, bacteria do not grow at all, and milk, therefore, if frozen, may be kept indefinitely without any changes taking place therein.

If the milk is kept at a few degrees above freezing, the growth of bacteria begins, but at low temperatures this growth is extremely slow. As the temperature rises, the rapidity of bacterial growth increases. When the temperature reaches 70°, bacteria grow very rapidly; at a temperature of 80° to 90° they grow more rapidly still; and at a temperature of about 100°, the growth of some species of bacteria is most rapid of all.

All this is generally understood, but it is not generally recognized that if the temperature is raised somewhat above these higher limits, the bacteria do not grow so rapidly. If the temperature is raised to 120°, most of these organisms find conditions unfavorable to their life, and grow very slowly; indeed many of them cease to grow at all. At temperatures above this the ordinary milk bacteria entirely fail to develop. From these facts it will be seen that in general the growth of the kinds of bacteria that produce trouble in milk, will be found between temperatures of freezing and a little above 100° F., and that the greater the temperature, within these limits, the more rapid is the development of the bacteria, and hence the more rapid the spoiling of the milk.

From these facts of course it follows that the keeping of milk will be very closely dependent upon temperature. At high temperatures (90°) milk will sour very rapidly. At somewhat lower temperatures (70°) the souring is not quite so rapid, but still it takes place in a comparatively few hours. At lower temperatures still, in the vicinity of freezing, the souring and all other changes may be delayed for a long time; and if milk can be frozen, it may be retained indefinitely without any appreciable change taking place in it.—*Storrs Experiment Station Bulletin.*

Butter Tests Accepted for Publication by the American Jersey Cattle Club, Oct. 20, 1903.

Blue Belle Princess 157364—Sire, Blue Boy P. S. 2578 H. C; dam, Beautiful Nora 157313. Butter, 15 lbs. 1 oz.; milk, 242 lbs. 3 oz. Test made from May 22 to 28, 1903; age, 3 yrs. 10 mos., estimated weight, 900 lbs.; fed 21 lbs. corn meal, 21 lbs. ground oats and 14 lbs. bran, pasture of mixed grasses.

Elma Genevieve 149010—Sire, Marigold Pogis 38752; dam, Ida of Oakland 2d 72061. Butter, 15 lbs. 11 oz.; milk, 240 lbs. Test made from June 25 to July 1, 1903; age, 3 yrs. 10 mos.; actual weight, 900 lbs.; fed 9 qts. bran, 6 qts. ground oats, 6 qts. gluten feed and 1½ qts. oil meal, in slop, daily, fair pasture.

Elma Genevieve 149010—Fourteen days—Sire, Marigold Pogis 38752; dam, Ida of Oakland 2d 72061. Butter, 30 lbs. 5 oz.; milk, 470 lbs. 10 oz. Test made from June 18 to July 1, 1903; age 3 yrs. 10 mos.; actual weight, 900 lbs.; fed 9 qts. bran, 6 qts. ground oats, 6 qts. gluten feed and 1½ qts. oil meal, in slop, daily; fair pasture.

Fancy Reber 140825—Sire, Romp Ogden 5th's Harry 34640; dam, Ruby Fair 84594. Butter, 16 lbs. 11½ oz.; milk, 271 lbs. 13 oz. Test made from July 28 to Aug. 3, 1903; age, 6 yrs. 4 mos.; estimated weight, 950 lbs.; fed 2 lbs. oil meal, 6 qts. ground corn and oats, 5 to 6 qts. bran, 2 pks. sweet corn in husk and 2 gals. apples, daily, clover and timothy pasture.

Gertie Hugo 159747—Sire, Gen. Jamont 422212; dam, Louise Hugo 86399. Butter, 15 lbs. 4½ oz.; milk, 252 lbs. 8 oz. Test made from July 19 to 25, 1903; age, 2 yrs. 10 mos.; actual weight, 775 lbs.; fed 9 qts. bran, 6 qts. ground oats, 4 qts. gluten feed and 1 qt. oil meal, daily; fair timothy and clover pasture.

Gertie Marigold 160735—Sire, Stoke Pogis of Prospect 29121; dam, Gertie of Glynllyn 74474. Butter, 15 lbs. 6 oz.; milk, 233 lbs. 14 oz. Test made from July 24 to 30, 1903; age, 2 yrs. 10 mos. actual weight, 740 lbs.; fed 9 qts. bran, 6 qts. ground oats, 2 qts. corn meal and 1 qt. oil meal, in slop, daily; fair clover and timothy pasture.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condence the questions into plain epecific inquiry. Be careful to note if your questions eave not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Ground Rye for Cows.

I would like to know if ground rye is good for cows, mixed with corn, oats and bran, and if so, what proportion of each? L. V.
Savona, N. Y.

There is no valid objection to the use of rye for feeding milk cows, unless it be the remote possibility that it may contain enough ergot to produce abortion. This is seldom, if ever, the case. At the last convention of the Wisconsin Dairymen's Association Mr. Howie reported the feeding of boiled rye as the exclusive grain feed for a herd of royally bred and profitable milk-producing Jerseys.

Make half in weight of the proposed mixture bran and oats and the other half corn or rye, or both, and if it costs less to boil than to grind the rye, try feeding it boiled.

A Maine Feeding Inquiry.

I am starting a dairy farm here. Kindly write what grain ration I can give the cows to produce the most butter fat. G. P. C.
Bucksport, Me.

The kind of grain to feed in any case or at any time, to any kind of animal, will depend (1) upon what kind of roughage is available, (2) the prices of the different kinds of roughage and grains, and (3) upon the kind and amount of work the animal is expected to perform. The cow that produces her total live weight in milk every six weeks is hard at work and should be fed accordingly. If this inquirer can furnish us with information along the lines indicated, we shall be more than glad to offer suggestions as to the best and most economical methods of feeding.

Best Breed of Cows.

What breed of cows do you consider best for butter, and raising calves and pigs from skim milk? H. C. G. A.
Sullivan Co., N. Y.

It is a difficult matter to answer such a question as this satisfactorily. In the first place, it is not the province of an editor or teacher or preacher, to put much emphasis on his personal preference, or his likes or dislikes. And in the second place, the evidence—at least, such of it as is most credible—is so conflicting that one cannot determine which breed as a whole, has the best record.

At the Pan American Exposition the Holsteins were winners for profit on total solids, but were 4th on butter. At the Wisconsin Experiment Station with full bloods and grades, 5 Holsteins with 11 yearly records gave an average profit per year for butter and skim milk of $48.41; the best 5 Jerseys in that herd with 8 yearly records, showed $52.58 annual profit; the best 5 Guernseys with 11 yearly records, $49.72.

Similar variations will appear as often as comparisons are instituted, and the only justifiable conclusions to be drawn from them are: (1) that individuality is more important than breed, and (2) that each man should select the breed which is most to his personal liking.

Orchard Grass for Roughage.

Kindly inform me through the columns of your paper if second cutting of Henderson's mixture (largely composed of orchard grass) would suffice for a coarse feed, when fed iu connection with the following concentrates: Wheat bran and middlings, gluten and cotton seed meal, and in what proportions should they be fed, where the above feeds are the only ones on the place. O. E. W.
Hyde Park, N. Y.

The "mixture" referred to is of too uncertain composition to warrant complete reliance upon the figures which follow, wherein we have assumed that the second cutting of this Henderson's mixture was equivalent to average orchard grass hay. But the totals arrived at in this way are sufficient to allow quite a margin for any variation that may appear in practical feeding. We feel quite certain the 8 lbs. of grain will be found quite ample as an average daily allowance, and even more than necessary, unless the average daily yield of milk runs above 25 lbs. per cow. And as for hay, the inflexible rule should be to place no more before any cow than she will eat up clean, and then if there is a tendency to put on too much body fat reduce the allowance of grain.

Subject to the reservations above indicated, we submit the following as an average daily allowance per cow:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients.		
		Protein.	Carbohydrates	Ether Extract
18 lbs. hay	16.22	.79	7.61	.25
4 lbs. bran	3.52	.50	1.54	.12
2 lbs. middlings	1.76	.26	1.06	.07
2 lbs. gluten meal	1.76	.64	.82	.05
Totals	23.26	2.19	11 03	.49

To Avoid Laying on Fat.

Please tell me what and how much to feed a heifer nine months old to avoid laying on fat. Have one that calves next month, that I have made fat enough to butcher.

When drying a cow how much bran should she have while dry, and how much flax seed meal to keep her bowels free? (MRS.) A. F. W.
Los Angeles, Cal.

There is not much to be said about what to feed, except that as a whole the ration should incline to feeds carrying a goodly proportion of protein, as this is the element which is chiefly concerned in the growth of muscle, ligaments, hair, horns and bone. Alfalfa hay, common clover hay, oats, bran and similar feeds are better than such carbonaceous feeds as timothy hay, corn stover and corn. But animals may fatten on protein food stuffs if fed to excess. The remedy is to feed less or give more exercise.

The amount of bran, if any, to feed to dry cows will depend npon the kind and quality of forage. With alfalfa hay, we should prefer barley to bran, but with timothy hay, bran would be better than barley, and in either case the amount to be fed will depend upon circumstances. Feed enough to keep the cow in a good thrifty condition. And so with the flaxseed meal, feed more or less, or none at all, as circumstances may seem to require from day to day,

We were very much impressed with what Mr. VanNorman said about the conduct of the dairy herd at Wauwinet Farm. "We have no rules," he said, "only maxims." Instead of prescribing a definite rule for feeding, apply the maxim: "Feed each cow so much, and only so much, as she will make profitable use of."

Separator vs. Raised Cream.

I have a separator on trial with a man who uses a setting can in cold water. Can is 9 inches deep and 16 inches across, faucet in bottom to draw off milk He divides the milk each time, taking ½ of it in the setting can and the other ½ in the centifrugal separator. Cream will raise on skim milk from the can, but none will raise after the centrifugal separator. He admits this, but still claims to make more butter from the can. Won't cream raise if any is left in milk from centrifugal separator? Do you think this possible, unless he in some way, perhaps ignorantly, works to increase the butter yield from the can. J. W. L.
Webster City, Iowa.

A separator will remove all but a few tenths of a per cent of the fat in the milk; practically it recovers all of the fat. The can method of creaming always leaves a large per cent of fat in the milk and unless ice is used as in the Cooley system, one per cent of fat in the skim milk is not uncommon. A separator will always find cream in the skim milk set without ice, but no cream will rise on separator skim milk if the machine is run properly. It is possible that the patron may make more butter from his can cream than from separator cream, because he understands handling can cream, but not the other variety, but a good butter maker would always obtain more butter from the separator cream when the milk is divided as above stated.

A Wisconsin Feeding Inquiry.

I am just starting to try and farm. Have bought 4 cows, which are giving now from 15 to 20 pounds of milk a day. What would you advise me to feed these cows of the following feeds: Oats at 34c per bushel, shorts at $1.10 per hundred, bran at 90c and oil meal at $1.60. Have nothing but mixed hay and some oat straw for roughage. G. G. P.
Prairie Farm, Wis.

At the prices named, bran is cheaper than oats, and more especially if one must pay for grinding the oats. We should rely therefore largely on bran, although a few oats—2 lbs. a day perhaps—and a little oil meal would probably be so advantageous as to more than pay for their cost. We should consider 4 lbs. bran, 2 lbs. oats and 1 lb. oil meal, with hay and straw at will, a maximum allowance.

Mr. Wheaton's Canadian Dairy Notes.

Canadian Dairy Laws and Government Assistance—Canadian Dairy Products in Japan—Shipping Butter and Eggs—Oleo and Renovated Butter Prohibited in Canada.

ED. HOARD'S DAIRYMAN:—Canadian dairying has had much to thank the various governments, both Dominion and Provincial, for. In the early days, when our dairying methods were taking definite shape, wholesome laws were enacted, which made it practically impossible for spurious goods, or dishonest products, to be manufactured in Canada. These laws have wrought lasting good, from which the dairyman of to-day is reaping a rich reward.

But this was not all. In those early days, through the generosity of the local government, educational methods were initiated, which have proven most effective in improving the quality of the dairy products of Ontario. Later the Quebec government followed in her footsteps, and inaugurated a system of syndicate instruction that has been demonstrated as an almost ideal one for securing a uniformity of product. Ontario is now copying some of Quebec's methods with most beneficial results. To a more or less extent, the other provinces are now taking up the same line of work, to the lasting good of the dairy industry. With the advent of Prof. Robertson at Ottawa some dozen years ago, came the inauguration of the Dominion dairying service, and dairy education and instruction took on a new and broader meaning.

This service began reaching out into the outlying districts. Prince Edward Island came under its sway, and as if by magic, cheese factories sprung up in every neighborhood, the "cow" became a greater benefactor of the farmer, and the little Island "down by the sea" began life anew. The Island farmer had a new source of wealth which he has continued to make the very most of ever since.

But the good work did not stop "down by the sea." New Brunswick and Nova Scotia felt its touch. It was extended westward into the prairie land. Manitoba came under its influence, and was benefitted. The territories tasted of its sweets, and the Pacific coast, over 3,000 miles distant from the Island province, was in no way neglected. Thus, from ocean to ocean, the principles of good dairying have been advocated, and the people aided in their efforts to produce only dairy products of the highest quality.

After these years of labor and effort the Dominion service is now concentrating its energies mainly, in so far as practical educational effort is concerned, on the northwest territories. Here it is opening up the way for the pioneer and providing him with a means of greatly adding to his revenue while laying the foundations of a home in his adopted country. The work is progressing quietly but effectively, and the creameries of the far west have no reason to be ashamed of the quality and quantity of the product they are turning out.

At the present time there are eighteen creameries in the territories under the direct control of the Dairy Division at Ottawa. Last year, five carloads of butter from them were exported to Great Britain, one carload was sold for export to Australia, and shipments were also made to China, Japan and the Yukon, the balance of the year's output being disposed of in the local markets and in the mining centers of British Columbia.

The year 1903 has witnessed a large expansion in the output of these creameries. Up to Oct. 1st last, the output of butter from the government creameries in the northwest exceeded that of last

ARE YOUR KIDNEYS WEAK?

Thousands of Women Have Kidney Trouble and Never Suspect It.



MRS. SCOTT

An interesting letter to our readers from Mrs. Gertrude Warner Scott, of Vinton, Iowa.

Vinton, Iowa, July 15th, 1902.

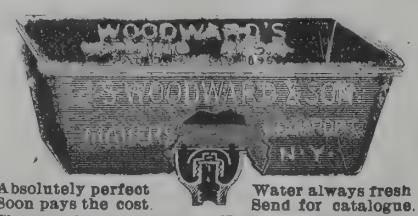
In the summer of 1893, I was taken violently ill. My trouble began with pain in my stomach, so severe that it seemed as if knives were cutting me. I was treated by two of the best physicians in the county, and consulted another. *None of them suspected that the cause of my trouble was kidney disease.* They all told me that I had cancer of the stomach, and would die. I grew so weak that I could not walk any more than a child a month old, and I only weighed sixty pounds. One day my brother saw in a paper an advertisement of Dr. Kilmer's Swamp-Root, the great kidney, liver and bladder remedy. He bought me a bottle at our drug store and I took it. My family could see a change in me for the better, so they obtained more, and I continued the use of Swamp-Root regularly. I was so weak and run down that it took considerable to build me up again. I am now well, thanks to Dr. Kilmer's Swamp-Root, and weigh 148 pounds, and am keeping house for my husband and brother, on a farm. Swamp-Root cured me after the doctors had failed to do me a particle of good.

Gratefully yours,
Gertrude Warner Scott

The mild and prompt effect of Dr. Kilmer's Swamp-Root, the great kidney, liver and bladder remedy, is soon realized. It stands the highest for its wonderful cures of the most distressing cases. Recommended and taken by physicians, used in hospitals and endorsed by people of prominence everywhere. To prove what Swamp-Root will do for you a sample bottle will be sent absolutely free, by mail, also a book telling all about Swamp-Root and its wonderful cures. Address Dr. Kilmer & Co., Binghamton, N. Y., and be sure to mention reading this generous offer in the Fort Atkinson HOARD'S DAIRYMAN.

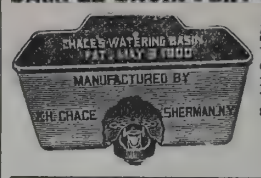
If you are already convinced that Swamp-Root is what you need, you can purchase the regular fifty-cent and one-dollor size bottles at the drug stores everywhere. Don't make any mistake, but remember the name, Swamp-Root, Dr. Kilmer's Swamp-Root, and the address, Binghamton, N. Y., on every bottle.

"1900" BALL BEARING WASHER sent free, without advance payment, freight prepaid both ways on 30 days trial. Mr. Geo. N. Burnet, Ashtabula, O., says, "Have done 1200 washings and is good for 1200 more. Beats them all, and have tried 8 different machines. Write at once to "1900" Washer Co., 219 A State St., Binghamton, N. Y



Absolutely perfect Water always fresh
Soon pays the cost. Send for catalogue.
Cheapest because best. No disease where used.

SAMPLE BASIN SENT ON APPROVAL.



Basins are fitted with **Self Closing Cover** which prevents all dirt and sediment from getting into them. Send for catalogue and price list

F. H. CHACE,
Sherman, N. Y.

Water In The Stable a Necessity.



It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. **Why not use the Best?** Write for descriptive circular.

C. E. BUCKLEY & CO., Poughkeepsie, N. Y.



Iron Troughs

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Buy You a Ticket to CROOKSTON, MINN., and call upon

The Polk County Land & Loan Company

For Choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.

360 acre farm, 4½ miles from Crookston, Minn., a city of 7,000 inhabitants, and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 feet square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x20, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre or this farm is under a high state of cultivation, and is well drained by a slight ravine running through the farm merely sufficient for self drainage. The soil is a rich, deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50.

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired. Price $19.00 per acrs.

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CHOICE HARDWOOD LANDS.

Especially selected with a view to quality, location and natural advantages. Put your savings into land that will double in value inside of a year. Ask us for the facts about them. A postal card with your address will do. Lands are now selling at $10.00 per acre. $400 in easy payments will buy 40 acres.

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Do you wish to sell or exchange your farm, reamery or cheese factory? No matter where o cated—east, west, north, or south. Write for our new plan. We put you in direct communication with buyer. Save the big commission which agents would charge.
HILES & MYERS, C-100 MATTHEWS BLDG., MILWAUKEE, WIS.

Do You Want Ten Cows?

WE make the following liberal offer to any reliable farmer who buys 160 acres of land of us: We will furnish you with 10 cows, either fresh or soon to become fresh. They cost you just the market price. You sell their cream to the creamery. Every month you have the Creamery Company send us sixty per cent. of the amount due you for cream. You do this until the cows are paid for. In one year the cows with their increase will pay for themselves. After the first year they will take care of the annual payments of principal and interest due on your farm. If you buy a half section, we will furnish you with 20 cows, and so on, selling you 10 cows for every 160 acres you buy. This is the "crop payment plan" applied to stock. We expect purchasers to pay from $2.00 to $3.00 per acre in cash—sometimes we make easier terms to good men. If our plan interests you, write us.

WHITNEY & WHEELOCK,
25 Broadway - - FARGO, NORTH DAKOTA

Modern Merchandising



Have you ever stopped to think about the question of getting your household supplies to the best advantage? Are you perfectly satisfied with the way things are running—with the prices you pay, the quality of the goods, the range of selection and the general question of making both ends meet? Perhaps you buy your supplies from the cross-roads store, just because your grandfather did. Perhaps you are tied up to the general store because you can trade in your butter and eggs at a low price and take it out in trade at a high price. Possibly you have never thought about it one way or the other. It is time to think. You have got to live and support your family. Your income is limited to so many dollars per year, and you have got to figure out the expense account so that things will come out right at the end of the year. If you can make both ends meet nicely and lay aside a tidy sum for a rainy day, you are only doing what every head of a family should endeavor to do, and if you don't do it you are simply inviting misery for the next time the crop fails. If a dollar looks as big to you as we think it does, we want you to think over this question of modern merchandising and see just what it means. It means different things to different people. To some it means buying everything on credit, then mortgaging the farm when settlement day comes around. Others think cheap goods the pathway to economy—the cheap, worthless trash that is advertised so brazenly at "the lowest price on earth." Many people send off to the city and get a jack knife at a 25 cents saving, and then fall back into the old rut in buying the balance of their supplies. Our idea of modern merchandising is to supply all your wants—everything you eat, wear or use—for yourself, your family and the hired man, at an average saving of 15 to 40 per cent, which means that if your yearly purchases amount to $200, you can save something like $50; or $100 if it costs you $400 a year to live. Are you so well off that $100, or even $50 does not interest you? Then again, consider the advantages. Absolutely reliable merchandise of the very best quality, and an unlimited range of selection. New goods. Prompt service. Prices that spell economy, and the certain knowledge that absolute satisfaction is the keynote to every transaction. To make trading with us possible, we issue a catalogue of 1128 pages, in which almost everything imaginable, including Vehicles and Farm Implements, is illustrated, described and priced. This catalogue can be absolutely depended upon and enables you to select your entire bill of merchandise without hurry or confusion and with the certainty that everything will be found exactly as described or you need not keep it. We ask you to get out of your present rut and give our methods a trial. We satisfy others and will satisfy you. There never was a better time than right now to begin, for we have just issued a new catalogue full of the things you will need to see you through this winter, and you can make no better investment than to fill out this coupon and send it to us now while the subject is in your mind. We ask 15 cents, merely as an evidence of good faith on your part. If you will risk 15 cents, we will risk sending you a catalogue that costs us over half a dollar to print and is so big that it requires 26 cents postage. It is our 76 cents against your 15 cents. Will you do it? Write today.

Laying in Supplies: Living from hand to mouth is one way of living, but why not get your supplies on a wholesale basis and avoid the petty annoyances of retail buying, to say nothing of making four dollars go as far as five dollars used to. That's the grocery list you see hanging on the wall. Supplied with loops to hang up with. A postal will bring it. Nothing like groceries for a foundation for a 100-lb. freight shipment.

Montgomery Ward & Co.

Michigan Avenue, Madison and Washington Streets, Chicago

Thousands of readers of this paper noticed our advertisement last month and sent in their application for our Catalogue No. 72. A new edition is just off the press. Requests will be filled in order of their receipt. Do not delay.

37

Montgomery Ward & Co., Chicago

Enclosed find 15 cents for partial postage on Catalogue No. 72, as advertised in Hoard's Dairyman.

Name .....
(Be sure to write very plainly)

Postoffice .....

Route No. ..... County ..... State .....

year by 100,000 pounds. This increase has been mainly in Alberta. This year no butter has been exported to Great Britain. What has not been taken by the local markets in the west has been exported to the Orient.

At the great Japanese Exposition at Osaka, the Government of Canada made an exhibit of dairy products. It has already proven an excellent advertisement and borne good fruit. The Department has secured three customers in that country as a direct result of Canada's display at Osaka.

The trade in butter for the Orient is for the European residents there and not for the natives, though the latter may acquire a taste for our butter later, which may lead to largely increased trade. Mr. J. A. Ruddick, Chief of the Dairy Division, is in hopes of developing a large trade with the warships touching at some of the Japanese ports for coal. These warships sometimes stay several weeks at these coaling stations, and in that time it might be possible to get a supply of fresh butter to them from Canada. This trade can, perhaps, be handled better by the Government than by private enterprise, especially at the beginning. The Government has better facilities for studying the market, and financing the business and can ship at once on receipt of a cablegram. After the trade has been established and permanent connections made, there is no reason why private enterprise could not conduct a satisfactory trade with the far east.

During the summer months, part of the butter for the east went forward in tins, but a considerable quantity has also been sent forward in boxes. These boxes have been of assorted sizes, and the butter in them has stood the journey very well and has been reported in very good condition on arrival. For the Yukon trade, which is also increasing, shipments have also been made in boxes with good results.

As a side line, to aid the farmers in disposing of their produce, the government has adopted the plan of egg collecting in connection with the creameries. The eggs, when collected are placed in cold storage, where they are held until marketed. The plan, when started a year or two ago, worked well and has improved ever since, the eggs collected this year being better than ever before.

It is worked out in this way: Each creamery patron has a number which he is required to mark in pencil on all the eggs he supplies. The eggs are collected by the driver who gathers the cream, and kept at the creamery for a short time, when they are sent in refrigerator cars with the butter to the cold storage at Calgary. There all the eggs are examined and classified by an expert, and every farmer is credited with the exact number of each class of eggs he has sent.

The Department advances fifteen cents a dozen on the eggs at the time they are received and later the farmer gets the balance according to the classification. This year the average price will be about twenty cents per dozen for the season, or about twice what they could be sold for locally. Last year 21,000 dozen were handled, and this year the number will be about 30,000 dozen.

People living near large centres of population where fresh eggs are at a premium most seasons of the year, can hardly realize the benefit this little side line which the Dairy Division is carrying on, is to the scattered farming population of the west. A similar plan might well be adopted in connection with many of the creameries in the more thickly settled districts.

One of the important pieces of legislature enacted by the House of Commons at Ottawa, during the session closed on Saturday last, was an act prohibiting the importation, manufacture or sale of adulterated, process or renovated butter, oleomargarine, butterine or other substitute for butter, and to prevent the improper marking of butter.

By this act a "creamery" means a place where the milk or cream of not less than fifty cows is manufactured into butter, and "dairy" means a place where less than the milk or cream of fifty cows is so manufactured. This defines the terms "creamery butter" and "dairy butter" and prevents the private dairyman unless he has fifty or more cows, from marking his butter as "creamery" if it is intended for export. An exception is made where the butter is sold locally, providing that the butter is in rolls, prints or packages of less than 25 pounds in weight.

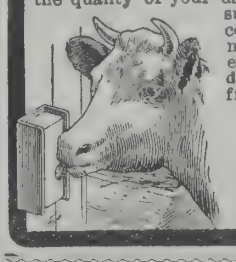
Many creamery men were anxious to prevent the marking of dairy butter as "creamery" both for the local as well as for the export trade. If this were done, it was thought that it would work a hardship upon many a private dairyman, who is making a quality equal to that of the creamery made article, and consequently the exception was made in the case of butter sold locally. J. W. WHEATON.

Toronto.

THE term "narrow ration," used by the scientific agricultural writers in government farm publications, does not perhaps convey its true meaning. A narrow ration might suggest the idea of a poor ration, which is not the case. It means a feed comparatively rich in protein (nitrogenous compounds) which supplies muscle, bone and sinew. It is contradistinguished from wide ration which is a feed composed largely of starch and fats.

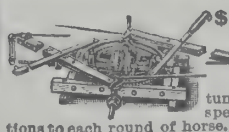
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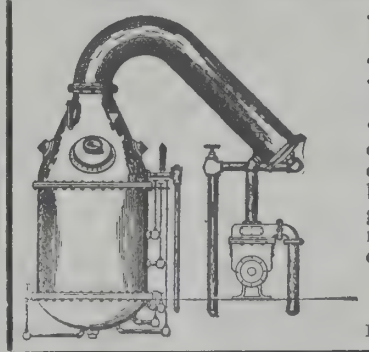


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R. R. ROGERS, Winthrop, Maine.
(Formerly of Detroit, Mich.)
I am not associated with any person, firm or company.



The Distribution of Skim Milk.

It is known that the just complaints of creamery patrons on account of unfair distribution of skim milk are the bane of the separator creamery business. Further disputes among patrons, annoyances to managers, hindrances to the best work of buttermakers, watering the skim milk, and many other ills in the same train are unnecessary, since the

Barber-Coleman Check Pump

has for more than five years been successfully solving the problem in many different creameries. When a patron has dropped in his check he can pump the amount of skim milk called for by his check, less the percentage taken out as cream, so in like proportion to all other checks. Its measuring apparatus is just an ordinary pump which everyone understands and knows how to operate.

Cornish, Curtis & Greene Mfg. Co.,
General Sales Agents De Laval Alpha Separators,
FORT ATKINSON, WIS.

Proposed Succession of Soiling Crops for Dairy Cows in Wisconsin.

CROP	Pounds of seed to the acre.	Time of Sowing.	APPROXIMATE, Time of cutting.	Daily feed to each cow.	Acreage for ten cows.	Degree of maturity.	Palatability.
Fall rye	168	Sept. 10	May 15-June 1	38	⅓	Before blooming	Poor
Alfalfa	20		June 1-15	36	⅛	Before blooming	Fair
Red clover	15		June 15-25	36	⅛	In bloom	Fair
Peas and oats	P 60 / O 48	April 16	June 25-July 5	32	1-6	In milk	Average
Peas and oats	P 60 / O 48	April 26	July 5-15	32	1 6	In milk	Average
Oats	80	May 5	July 15-25	32	1-6	In milk	Average
Second crop alfalfa			July 15-30	36		Before blooming	Average
Rape	2.5	May 26	August 1-15	42	⅛	Mature	Good
Flint corn		May 20	August 15-25	40	⅛	In silk	Very good
Sorghum	50	June 1	August 25-Sept. 10	39	1-10	When well headed	Very good
Evergreen sweet corn		May 31	Sept. 10-25	39	⅛	In silk	Very good
Rape	2.5	July 20	Sept. 25-Oct. 10	42	⅛	Mature	Good
Total acreage					1 9		

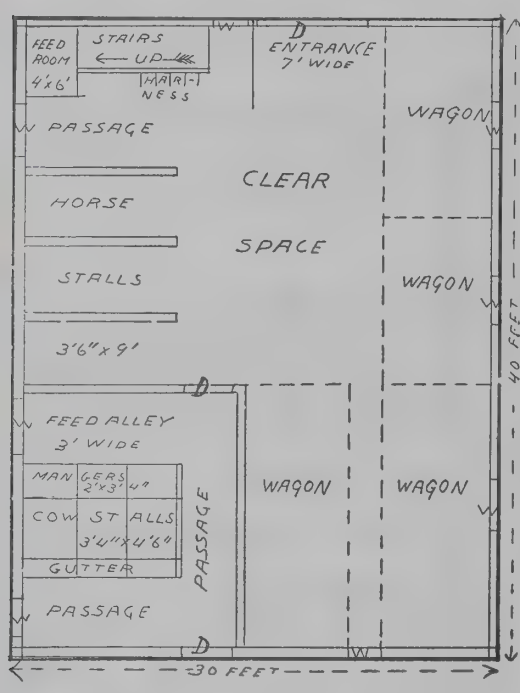
—*Wisconsin Station Bulletin.*

Suggestions for a Southern Barn Wanted.

ED. HOARD'S DAIRYMAN;—Please give me plan for a southern barn to accommodate three horses, three cows and four or five wagons, with feed room and harness rack and hay loft; this stable to be as cheap as practicable and healthy.

Scranton, Miss. A. L. D.

It will require a good sized barn to provide conveniently for this number of animals and vehicles. It would be cheaper, but probably less convenient and attractive, to provide for the wagons in an independent shed, about 35 feet long and 16 feet wide.



The diagram we submit calls for a structure 40 feet long by 30 feet wide, and, as will be seen, provides for the horses and cows and the free storage of four vehicles. By just a little crowding another wagon or carriage could be accommodated. The "clear space" between the horses and wagons, and directly in front of the entrance will be found very convenient for hitching teams to wagons and unhitching, especially in stormy weather, or where artificial light is required.

The opening for taking hay into the loft should be about midway of the side where horse stalls are located so that the last taken in will be the first to be taken out for feeding. The space between the last horse stall and stairs can be used in emergency for a fourth stall, or, if convenience requires, the place there marked for a window can be utilized for a door.

We suggest two ventilating flues, one in either end, and opening into the cow stable at one end and just over the entrance at the other end. For the climate of Mississippi, we do not think it important that these flues should extend to the lower floor.

NOTE—By an oversight in lettering the diagram the width of the stalls for horse is incorrectly given, They should be 4 ft, 6 in. wide.

Good Reasons for Reading the Dairyman.

An Oregon Subscriber's Views—Bran and Damaged Wheat—Roots—Profits from Three Cows.

ED. HOARD'S DAIRYMAN:—Enclosed you will find a dollar for renewal of my subscription, for I find your paper worth it, not alone because it contains so much that is new and original, but because it calls to one's mind things that have been forgotten, and stirs up one's thoughts and in it one finds out what his neighbors are doing, and one feels like doing a little better than they.

Last winter we had 3 cows and we had milk and cream for a family of seven and our creamery check was from $20 to $23 per month and the skimmed milk was worth enough to make $25 per month. During late summer our pasture was short and butter fat lower and the income went down to $9.

This winter we hope to have 6 cows. Have 3 tons of carrots, and chopped wheat which cost, $1.05 per hundred. It is wheat that is slightly shrivelled and was cut with binder and got wet in shock, but do not think it is damaged any for feeding purposes. Bran is $18 per ton. Would like to have your opinion as to the feeding value of the wheat and bran at those prices; also as to value of roots as compared to silage, where one has but few cows and little means. I find that the man behind the cows tells as much, as the quality of the cow; also good feed and lots of it. With me, winter dairying pays far best because cows are fresh and give a large flow, and then when grass comes they freshen up again and thus nearly double the profit by getting largest amount of milk when prices are best. L. B. Z.

Milton, Ore.

We congratulate L. B. Z. upon the success he met with from three cows, and quite agree with him that the man behind the cows is not a negligible factor in profitable dairy farming. But the best of men cannot make much of a success with poor cows.

We can hardly agree with him that his unmerchantable wheat is not damaged for feeding purposes. How much the damage will amount to is entirely problematical, and whether it is worth $3 a ton more than bran can only be ascertained by actual trial. Probably a combination of the two feeds, equal parts by weight, and about 8 lbs., per day of the mixture, will be as good a basis to start from as could be suggested.

The 3 tons of carrots (6,000 lbs.) will be at the rate of 1,000 lbs. per cow, and should be fed so as to make them last as long as possible, probably about 8 lbs. per day to each. We do not consider roots of any kind anywhere near as valuable, pound for pound, as good corn or clover silage, but where one has less than 10 or 15 cows, it is doubtful if a silo would be profitable. In such cases roots make a very desirable addition to the ration.

CONCERNING OUR ADVERTISERS.

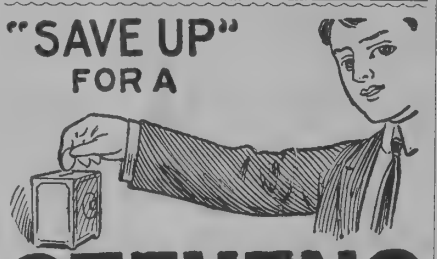
The following interesting facts concerning the Oakland Herd of Holstein-Friesian cattle at Weedsport, N. Y., has been received: It may interest you to know that at the recent fall fairs our herd of Holsteins was awarded the "Herd Prize" at New York, Indiana, Kentucky and Illinois State Fairs. At the latter place we defeated the champion western herd. At New York there were six herds competing. Many of our prize winners were sired by our bull Soldene Clothilde Artis. For instance, at Syracuse, N. Y., in the yearling heifer class there were ten entries. We were awarded 1st and 3d prizes. In heifers under one year there were twelve entries. We were awarded 1st and 2d. All four were sired by Soldene Clothilde Artis. This is evidence that we are breeding good individuals. But how about the butter capacity of our herd? For some time we have been using a son of Paul De Kol, whose dam, Mutual Friend 3d, made an offical butter record of over 21 lbs. at three years, and over 22 lbs. at 4 years, 80 per cent fat, and the average test of her milk for both years was 4.27 per cent. To further strengthen our herd in the line of rich milk, we have purchased the young bull Canary's Mercedes' Son. We believe he has a larger inheritance of rich milk than any other animal of the breed; his dam has an official record of over 25 lbs. of butter in 7 days, her milk averaging 4.92 per cent fat. The average per cent of fat of herself, five daughters 4.11, six granddaughters and two great-granddaughters, all in official tests, is over 4 per cent. The average per cent of fat of her four sisters is 4.08.

T. A. MITCHELL.

BIRD'S ECONOMIC ROOFING.

Those old reliable manufacturers of low priced roofing, F. W. Bird & Son, East Walpole, Mass., with branch house in Chicago, have again enter-

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Every true American lad should own a "Stevens"—it's worth giving up other things to be able to buy a

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AT AUCTION
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at 10 o'clock a. m., at the premises, located at Fayette, Wis. For information write to

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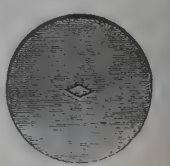
You send the Postal; We send our New Milk Dealers' Price-List, giving full information and prices.

Creamery Package Manufacturing Co.,
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Chicago, Ill., U. S. A.


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DIAMOND.

ed upon their season's advertising in our columns. This concern is fortunate in the possession of two of the best of the cheaper roofings on the market and we hardly need mention their names to tell our readers what they are. Their Neponset Red Rope roofing is the cheaper of the two, and is specially adapted to roofing and siding of poultry houses, outbuildings, sheds, etc. While it is not claimed to be a permanent roofing, yet many are the instances where it is in good condition after having done duty ten or twelve years. This quality, together with the ease of laying it and the exceedingly low price at which it is sold, have made it a familiar sight in all parts of the country. The Paroid roofing is of a highly permanent character. It is a fabric, not a paper; there's no tar in its composition, it never gets brittle or cracks, and it is noted for its smooth, flat laying and great length of service to be obtained from it. Its qualities adapt it to the use for more pretentious buildings, as barns, and even fine residences. For such service the price is exceedingly low, though sold, of course, at a higher price than the Neponset. Both roofings are alike in this, that a complete roofing kit accompanys each roll and anybody can lay them. Building Economy, a booklet about low priced roofings, distributed by the manufacturers, is well worth reaning. It is mailed free.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The official market was reported firm at 22 cents.

Former markcts:

Oct, 26, 1903, 295 lbs. at 21½ cents.
Nov. 3, 1902 0 lbs. at 24½ cents.
Nov. 4, 1901 0 lbs. 22 cents.
Nov. 5, 1900 0 lbs. 22 cents.
Nov. 6, 1899 0 lbs. at 24½ cents.

The following sales were reported:

	Tubs	*Price*	*Sold to*
Shirland	20	22c	Kilburne
Oregon	70	22c	Wolverton
Warren	50	22c	Kilburne

The output for the district was decreased 12 per cent. H. C. B.

Elgin, Nov. 2, 1903.

DAIRY MARKETS.

ELGIN, Ill., Nov. 2—Butter—Firm; official market, 22c; offerings to-day, 170 tubs; all sold at 22c.

CHICAGO, Ill, Nov. 2—Butter—Easier; creameries 15½@21½c; dairies, 14@18c.

Cheese — Steady to firm; Daisies, 10½@11c; Twins, 10½c; Young Americas, 11c.

Eggs—Firm; at mark, cases included, 19½@20½c.

Cattle—Choice to fancy beeves, 1,200 to 1,500 lbs. 5.40@5.75; good to choice steers, 4.90@5.35; fair to good export and shipping steers, 4.40@4.85; medium beef steers, 4.00@4.35; plain beef steers, 3.75@3.95; common to rough, 1,000 to 1,200 lbs. 3.50@3.75; good to fat heifers, 3.75@4.50; good to choice feeders, 3.40@4.10; good to plain stockers and feeders, 2.15@3.30; fair to good cows and heifers, 2.50@375; good cutting and fair beef cows, 1.90@2.40; common to good canning cows, 1.25@1.75; bulls poor to choice, 2.40@4.25; calves, choice to fancy 5.50@6.75; calves, common to fair, 2.75@5.25 corn fed western steers, 4.00@4.50; Texas bulls and grass steers, 2.90@3.95; fed Texas steers, fair to choice, 3.50@4.50; western range steers, 3.10@4.50.

Hogs—Good to choice heavy shipping, 5.25@5.45; fair to choice heavy packing, 485@5.10; rough and common heavy mixed, 4.55@4.80s; assorted light, 150 to 195 lbs., 5.30@5.45; good to choice butcher weights, 5.35@5.50; fair to choice light mixed, 5.00@5.25; thin to choice 50 to 130 lb. pigs, 4.25@5.35; stags and rough lots, 2.50@4.65.

MILWAUKEE. Wis., Nov. 2—Butter—Creamery, extras, 21½c; firsts, 19@19½c; seconds, 17@18c; whey, 12c. Dairy, fancy, 18c; lines, fresh, 15@16c; packing stock, 13½@14c; grease, 5@6c.

Cheese—American full cream, new: Twins, 10½@11c; Young Americas, 11½@12c; Daisies, 11¼@12c; Longhorns, 11¼@12c; low grades, 8@10c. Brick, new—Fancy, 10½@11c; low grades, 7@9c. Limburger—New—fancy, 9½@10c; off goods, 6@8c. Swiss—Old—Drum, choice, 12@12½c; Drum No. 2, 10@11c; block, choice, 11@11½c; block, No. 3, 9@19c.

Eggs—Strictly fresh laid, loss off, cases returned, 21c; strictly fresh laid, at mark, cases returned, 19½@20c; storage, city, Apr. No. 1, 20c; storage, country, 18@19c; dirties and seconds, 17c; checks, 15c.

MANITOWOC, Wis., Oct. 28—Cheese—Sales 90 boxes Twins, 10c; 850 Young Americas, 10¼c; 1,600 Daisies, 10¼c.

SHEBOYGAN FALLS, Wis., Oct. 28—Cheese—21 factories offered 1,653 boxes of cheese on the call board today and all sold as follows: 17 Twins 10¼c; 168 cases Young Americas 10⅞c; 322, 10¾c; 13, 10⅝c; 145 Daisies, 10⅞c; 116, 10¾c; 652 cases Longhorns at 10⅝c, 220, 10⅝c. Market steady.

SHEBOYGAN, Wis., Oct .28—Cheese—There was a decrease in the offerings and prices of cheese on to-day's call board. The offerings comprised 1,648 boxes, which, with the exception of 50 cases of Young Americas sold as follows: 395 Daisies, 10⅞c; 451, 10¾c; 45, 10⅝c; 212 cases Young Americas, 10¾c; 24, 10⅝c; 363, 10¾c; 36, 10⅝c; 72, 10½c.

MUSCODA, Wis. Oct. 23—Cheese—The sales today were: 60 boxes of Daisies at 10¼c; 275 boxes of Twins were offered but were withdrawn; 9¾c was bid on the Twins.

PLYMOUTH, Wis., Oct. 28—Cheese—Thirty factories were represented and offered 2,730 boxes of cheese, all of which sold as follows: 429 Longhorns at 10⅞c; 80 at 10¾c; 1,243 Daisies at 10¾c; 353 Twins at 10¼c; 196 at 10½c; 429 Young Americas at 10¾c. Market active and firm.

MARSHFIELD, Wis., Oct. 23—Cheese—Eight factories offered 809 boxes of cheese but no sales were made. 9¾c was bid for Twins and 10½@10⅝c for Daisies. Cheese makers passed on about one-half the offerings, after which the buyers present withdrew their bids on the balance. A motion was then made and carried to adjourn subject to a call of the officers next spring.

FOND DU LAC, Wis., Nov. 2—Cheese—Sales of cheese on the Dairy Board today were 143 Twins ot 10¼c and 420 Daisies at 10½c. The market was quiet.

BRILLION, Wis., Oct 22—Cheese—Sales today were: 163 Twins at 10c; 650 Daisies at 10⅜c; 287 at 10¼c; 70 Cheddars at 10c.

NEWARK, N. J., Nov. 2—Butter—Steady at 22½c.

Eggs—Extras, 27c; first, 26c.

TOPEKA, Kan., Oct. 24—Butter—Creamery butter, 21@22c; Dairy butter, 16½@17½c.

Cheese—Longhorns, 11¾c; Twins, 11½c; Daises, 11½@11¾c; Prints, 12½c.

BOSTON, Mass., Nov. 2—Butter—Creamery, western extra, 22@22½c; western firsts, 20@21c; dairy, 15@21c; imitation creamery, 16c; ladle, 14@15½c; box and print 16@23½c.

Cheese—Choice, 11@11¾c; Wisconsin Twins, 11@11¾c; Ohio flat, 10½c.

Eggs—Nearby, 36c; western best marks, 22@24c; good to choice, 20@22c; Illinois, 24@25c; refrigerator, 19@21½c.

ST. LOUIS, Nov. 2.—Butter—Steady; creamery, 18@22½c; dairy, 14@18c.

Eggs—Steady, 21½c loss off.

KANSAS CITY, Nov. 2.—Eggs—Firm; Missouri and Kansas cases returned, 20½c; new, No. 2 whitewood cases included, 21c.

Butter—Creamery, 18½@20c; dairy, fancy, 18c.

CANTON, N. Y., Oct 31—Cheese—Offered 1,700 boxes of Twin cheese, and 1,126 tubs of butter. Cheese sold at 10¾c; butter at 21¼c.

WATERTOWN, N. Y., Oct. 31—Cheese—Sales, 5,000; 10¾c for Twins and large colored; 10¾@10⅞c for large white; 11c for small singles.

NEW YORK, Nov. 2—Butter—Receipts, 4,141 pkgs; steady; extra creamery, 22½c; creamery, common to choice, 16@22c; state dairy, 15@20c.

Cheese—Receipts, 3,030 pkgs; unsettled; state full cream, fancy, small, colored, September, 11½c; October, 11c; small, white, September, 11½c; October, 11c; large, colored, September, 11½c; October, 11c; large, white, September, 11½c; October, 11c.

Eggs—Receipts, 5,249 pkgs; strong; state and Pennsylvania; average fancy, 28c; state and Pennsylvania, seconds to firsts, 22@26c; western extras, 27c; western, thirds to seconds, 19@24c; western, firsts, 25@26c; refrigerated, 18@21½c.

NEW YORK MARKET.

NEW YORK, Oct. 31—Butter—Receipts for the week, 35,213 packages. Exports for the week, 100 packages.

The amount of fancy fresh creamery butter arriving was hardly enough to supply the trade and yet prices remain about the same as they were last week, and are slightly in buyer's favor at the close. This condition is accounted for by the fact that some of the receivers have been using out of their finest June freezer butter to fill best orders and this has more than made up for the shortage of extra goods. Strictly fresh butter, however, will have the preference and best retailers will continue taking extra fresh goods whatever the price.

Under grades of fresh Creamery have been in demand and sold up clean at 18 to 22c. No New York State Dairy arriving and our prices are nominal. Outside of the small retail trade for the extreme top quality of June Creamery, there was nothing doing, and freezers are about as full as they were on September 1st.

Ladle and Packing stock were more plentiful at lower prices. We quote:

Creamery, extra, 22½c; medium, 21@22c; poor, 16@20c. Dairy, extra, 21@22c; medium, 18@20c; poor, 14@17c.

Cheese—Receipts for the week, 31,536 boxes. Exports for the week, 5,701 boxes.

The market has ruled steady for fancy Full Creams, and best makes of light skimmed cheese and prices are same as last week. Under grades of Skimmed Cheese are only salable at low prices, say 2 to 4c. We quote:

Full cream, extra, 11¾c; medium, 11@11½c; poor, 9@10½c.

Eggs—Receipts for the week, 35,402 cases.

Finest marks of new laid eggs sold quick on arrival and are scarce and wanted at the close. The scarcity of fancy stock has created a good enquiry for refrigerator eggs and best marks are in demand at full prices. We quote:

New York & Pennsylvania, best, marks, per doz., 28@30c; Northern & Western, best, marks, 27@28c; all sections, poor to fine, 20@26c; refrigerator poor to fine, 18@22c.

177 Chambers St. DAVID W. LEWIS & Co.

NEW YORK FERTILIZER MARKET.

Acid phosphate		60 @	67½
Phosphate rock, f. o. b. Char'n		5.00 @	7.00
Tenn		3.00 @	4.00
Bones, rough	℔ ton	17.00 @	18.00
ground		21.50 @	22.00
Bone meal		21.50 @	23.00
Bone black, refuse		19.00 @	19.50
Potash, dbl. m're salt	48@53%	1.12 @	1.15
dbl. m'ure salt	48@53%		
less 25 tons		25.00 @	30.00
sulph. of	basis 90@98%	2.11 @	2.18
90@98% less than 25 tons		38.00 @	40.00
Potash, Muriate	% 100 lbs.	1.83 @	1.95
less than 25 tons		36.00 @	40.00
Kainit, 25% S. of P	℔ ton	9.30 @	9.50
less than 25 tons		9.50 @	10.50
Sylvinit, 35@37% P	℔ unit	41 @	46
Nitrate of soda		2.10@	2.15
Blood, dried, red	℔ unit	2.45 @	2.50
low grade		— @	—
Concentrated tankage	℔ ton	15.00 @	16.00
Fish, guano, dried		2.60 &10.	
acidulated		2.42½ &35.	

BALTIMORE MARKET.

BALTIMORE, Oct. 22.—Butter—Since our last report there has been a further shrinkage in the general receipts of butter. The supply of extras, while rather light, is about equal to the demand. Firsts, for the time being, are in more liberal supply, owing to the fact that many lots that were shipped as extras would not grade over firsts; hence the increase. Imitation creamery of choice to fancy quality is in very light supply; there is a quick sale awaiting all arrivals of this kind. Ladles, when fresh and sweet, also meet ready sale, while defective stock is hard to move. Packing Stock—The receipts of the kind are about equal to the demand. Blocks and prints—All choice to fancy invoices meet quick sale, and in some few instances our top prices have been exceeded on extra fancy stock. The market generally closes quiet, but firm, and the advance of ½ cent over last week's prices on extra creamery have been well sustained.

Creamery separator, extras, 22½@23c; firsts, 20¼@21½c; seconds, 18@20c; imitation creamery, extras, 19@20c; firsts, 17@18c; seconds, 15@16c; Iowa & N. W. Ladle, extras, 16c; firsts, 15c; seconds, 13@14c; Ohio & Indiana Ladle, extras, 16c; firsts 15c; seconds, 13@14c; creamery blocks (2 lbs.), extras, 23½c; firsts, 21½@22½c; seconds, 20@21c; creamery prints, (½ lbs.), extra, 24½c; first, 22½@23c; seconds, 20@21c; Md. Va. & Penna. prints, extras, 23c; firsts, 20@22c; seconds, 17@19c.

Eggs—Since our last report there has been quite a falling off in the receipts, while the demand has been quite good; hence our market has been kept quite bare of all desirable stock, and closes firm at 28 cents on attractive offerings of either fresh or storage eggs.

301 Exchange Place. G. M. LAMB & BROS.

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 1901

DE LAVAL
CREAM SEPARATORS

GOOD MANAGEMENT
AND CREAMERY PROSPERITY
HAVE EVER
GONE HAND-IN-HAND

This is true of Cream Gathering from Farm Machines as well as of Factory Separation.

Now is the time to make De Laval contracts and plans for 1904.

The De Laval Separator Co.

Randolph & Canal Sts., CHICAGO.
1213 Filbert St., PHILADELPHIA.
9 & 11 Drumm St., SAN FRANCISCO.

GENERAL OFFICES:
74 Cortlandt St., NEW YORK.

121 Youville Square, MONTREAL.
75 & 77 York Street, TORONTO.
248 McDermot Avenue WINNIPEG.

READING NOTICES

All Reading Notices under this head are at the rate of 25 cents per line.

Farm For Sale—A farm of 120 acres with good buildings, 2 orchards, 2 wells, running stream of water. Cheese factory joining farm. 90 acres under cultivation, the rest timber. For particulars write to VALENTINE DIERINGER, Clintonville, Wis. 39-2

Holstein Bull—Two years old, one of the richest bred bulls in the world, price $150. His dams and sires for many generations are in the A. R., traces twice to Pauline Paul the champion butter cow of the world, 18669 lbs. milk and 1153 lbs. butter in 1 year. Twice to Pietertje 2nd, champion milch cow of the world, 30,318 lbs. in 1 year. Four times to De Kol 2d 536½ lbs. milk and 26.56 lbs. butter in 7 days under supervision of Cornell University, and many others of the greatest of the breed. His four nearest tested matured dams averaged over 27½ lbs. butter in 7 days. Speak quick. WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis.

Wanted—To rent a large farm in southern Wisconsin or northern Illinois. Dairy farm preferred. JOS. BERNER, R. 1, Stanley, Wis.

For Sale—Two fine dairy farms, vicinity of Washington City. Electric R. R. through one and near the other. For particulars address owner. L. E. WATT, 745 7th St., S. E., Washington, D. C. 39-4

Creamery—At a bargain, or will sell one-half interest to butter-maker. C. M. THURBER, Grant City, Mo.

Wanted—Position as butter maker in good creamery. Good recommendations. R. E. BROWN, Macon, Mo.

For Sale—New covered milk wagon, used less than one week. Price $35.00 f. o. b. R. E. BROWN, Macon, Mo.

Wanted—Position as first-class herdsman by man of practical experience in feeding dairy cattle. Graduate University Wisconsin Short Course and R. I. College Agriculture. Specialty of putting dairy herds in good order. References given and required. Reply, stating particulars, to C. W., Room 22, 17 Milk St., Boston, Mass.

For Sale—Five cheese factories, 20 acres landsaloon and store with stock, three houses in Appleton, Wis., two farms 60 and 80 acres. Address 775 Ida St., Appleton, Wis. 36-tf

For Sale—One choicely bred Guernsey bull by Stella P's Gold Bar, 8368, out of my best cow, 16 months old, warranted a sure stock getter. Also a few choice Berkshire sows and boars. April farrow, at reasonable prices. J. E. STORY, Successor to Nor. Wis. Live Stock Co., Stanley, Wis. 36-tf

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D, Independence, Ia. 50-tf

For Sale—Not wishing to inbreed we offer for sale our bull, De Kol Duke, grandson of Butter Boy 2nd. Also, 2 young bulls, one fit for service. E. W. MOORE, Spring Creek, Warren Co., Pa. 38-2

Wanted—Experienced butter and cheese maker wants position, address "BUTTER MAKER," P. O. Box 373, Morenci, Mich. 38-2

Wanted—Experienced butter maker, former instructor in dairying, at present in charge of sanitary milk bottling plant in eastern city, wishes to change position. Address C., care of HOARD'S DAIRYMAN, Fort Atkinson, Wis. 38-5

Wanted—Experienced herdsman for a milk farm. Applicant must state age, experience, references and wages wanted. JOHN D. WALSH, Mont Clare Station, Chicago, Ill. 38-4

For Sale—3 Scotch Collie puppies 7 months old; old male sable and some white; sire and dam registered. Also 4 Holstein bull calves 3 to 8 months old; sire, Sir Dairy B. M. DeKol, and out of choice cows. HENRY WALSH, Sheboygan Falls, Wis. 37-4

Wanted—Position by capable butter maker of 15 years experience in creamery in R. R. town, married. Use no liquor or tobacco. Address COMPETENT, care Hoard's Dairyman. 37-3

The Third Revised Edition of Buff Jersey's Popular Book Just Out of Press—Ten chapters, 25 illustrations and right up-to-date. Subjects treated are: Silos and Ensilage, All Phases of the Dairy Subject, Soil Crops, Up-to-date Farm Machinery, How to Cure Abortion and Milk Fever, Some Medicines and Remedies, The Steam Plant, its care, and many other valuabe things ably treated. Send for circular. Sent post paid, cloth binding $1.00, paper 75c. BUFF JERSEY, Monmouth, Ill. 47-tf

Guernsey Bulls For Sale—I have a few young Guernsey bulls for sale at moderate price, ranging from six months to one year old. These animals are from highly bred sires and mothers of good size and well reared. Good bargains here. W. D. HOARD, Fort Atkinson, Wis. 30-tf

For Sale—A cheese factory in good dairy country, doing good business. No opposition, (cheap.) Address S. O. U., care Hoard's Driryman. 34-tf

For Sale—Two registered yearling Guernsey bulls. RAY BICKNELL, Ft. Atkinson, Wis. 32-tf

Wanted—Position as superintendent of dairy farm within 125 miles of Chicago. Thoroughly up-to-date in all branches of farming. Have a market for high grade milk and cream at good prices. Address A. X., care Hoard,s Dairyman. 38-2

Excursion Tickets to St. Paul and Minneapolis and Return—Will be sold by the North-Western Line daily until Nov. 30, 1903, from Fort Atkinson at $14.00 for the round trip, limited to return until Dec. 15, 1903. Apply to agents Chicago & North-Western R'y. 35-8

Homeseekers' Excursions to the North-west, West and Southwest, and Colonist Low Rates West—Via the North-Western Line. Excursion tickets at greatly reduced rates are on sale to the territory indicated above. Standard and Tourist Sleeping Cars, Free Reclining Chair Cars and "The Best of Everything." For dates of sale and full particulars apply to agents Chicago & North-Western Ry. 53-sp

Dairy Bulls.

[Paper read by CHARLES L. HILL, Rosendale, Wis., at the Wisconsin Dairymen's Association.]

"How can I be reasonable sure, that any bull, that you, or any other breeder, may send me, will improve the quality of my herd,"

This question I copy from a letter, received in my mail two weeks ago.

This is with all of us the leading question, and I wish I were able to answer it with any degree of certainty.

In our few minutes talk together we may be able to exchange some ideas that will be mutually helpful.

In the discussion of this question, the first thing to do is to answer the question, "who needs a dairy bull?" and I would answer it by saying, that any man who intends to make dairying the chief aim of his live stock farming, needs a pure bred dairy bull.

"What breed," you ask. I would answer, just the breed you take a fancy to, for with this one, you will have the best success, because you will give it the best care.

The bull the dairyman will need, will possibly not be the one that the pure breeder will need, for the latter, besides utility, is seeking for good looks and many fancy points.

The essential points will be the same however.

In his search for a bull, by correspondence, the dairyman must rely largely on pedigree, and the reliability of the breeder he deals with.

If possible, I would go and see the dam of the bull I was to use in my herd.

"How good a cow shall she be?" I would say that with the improved methods of care, given by the breeders of today, to their herds, no bull should be given a place in a good dairyman's herd whose dam will not make at least 400 pounds of butter in a year, or its equivalent, 343 pounds of fat.

The greater her record, the more valuable her son, other things being equal.

An excellent plan is to buy an old bull, if still vigorous, and only in this way can you know just what kind of a sire you may have.

Many of the best sires of all the breeds have gone to the shambles long before their usefulness was known.

In the selection of a bull for his individuality, the first thing I would want would be masculinity.

This is not shown by his being coarse, or having a big head, but by his resolute, sturdy, commanding appearance.

This has nothing to do with his being cross, for this is largely education, or rather the lack of it.

He wants to show that he has energy to spare. Then I want him to have a good muzzle, showing good appetite; and then a large barrel, showing good digestive capacity.

For use in a grade herd, never mind if his great barrel has caused his back to sag a little.

Nearly the same words will apply to the selection of a young bull.

Let him be active, robust, intelligent looking and showing large capacity.

If you wish his daughters to have good shaped udders and good sized teats, see that his dam has such an udder and that the bull himself has good sized, squarely placed, rudimentary teats.

Let him be thin in the thighs and show no tendency to beefiness at any place. In fact let him be all that is different from a beef sire.

As emphasizing the thought that your bull should have a good mother, a few moments' study of some of the great dairy sires, of the different breeds will be pertinent.

The two bulls that lead the Holstein breed in the number of officially tested daughters are DeKol 2nds Paul DeKol and Aaltje Salo 3rd's Tritomia Netherland.

The first named was owned by Mr. H. D. Roe, Augusta, N. J., and he has about 45 registered daughters, and 31 of them have made tests that have placed them in the Advanced Registry. Two of them have made officially 29.26 lbs. and 28.24 lbs. butter, 80 per cent fat, in seven days at 4 years old.

This bull had for a dam DeKol 2nd, with a record of 26 lbs., 9.2 oz. of 80 per cent butter in seven days, and she was also the dam of three other bulls having together 26 Advanced Registry daughters.

Mr. Roe writes as follows concerning him: "The last three years that we owned this bull, on account of his being cross, it was necessary to keep him partly blindfolded and rather thin in flesh in order to handle him safely.

"He was fed ensilage once per day, hay twice. His grain feed was largely bran with some malt sprouts and dried grains.

"We never fed him any corn outside of what he got in the silage.

"At that time we did not have any way to exercise our bulls.

"We now use a tread power and would not think of doing without it.

The latter bull was owned by S. B. Jones & Son, Hustisford, Wis.

This bull has 38 registered daughters, and 32 of these have made records admitting them to the Advanced Registry.

This bull was bred in Wisconsin also, but I have thus far been able to find out but little about his dam.

His sire was a son of the well-known cow, Tritomia, that we have often heard Mr. Hoard tell of as winning 1st in the show ring and butter test as well, at the Minnesota State Fair.

This bull was fed 6 to 8 pounds per day of a ration of bran and oatmeal, and exercised in a yard one or two hours each day.

His picture, though a small one, shows him to have been of a very marked dairy type for the breed.

The bull of the Jersey breed that leads all others in the number of tested daughters is Exile of St. Lambert.

Ninety-four of these have made records of over 14 pounds butter per week.

He is said to have been a bull of great vigor and vitality, and retained his vigor up to the very day he died, at 13 years of age.

This bull had for a dam Allie of St. Lambert, with a record of 26 lbs., 12 oz. butter in seven days, and full sister to Ida of St. Lambert with a test of over 30 lbs. per week.

This bull was exercised in the following manner: A good strong post was firmly fixed in the ground and stayed on four sides.

Across this a strong pole of hickory, about 12 feet long was attached by means of a swivel. Exile was secured to one end of it by a chain from his nose to the pole, which was weighted down at the other end to balance it. He took his exercise in a circle.

The only picture of this bull available is a wood cut from a drawing.

As prepotent a Jersey bull as there ever was is still alive in King of St. Lambert's King, owned by Mr. F. W. Hart, of Cleveland, Ohio.

He was by King of St. Lambert, the sire of 26 tested cows, and out of his own daughter, Elsie Bonner, 21 lbs. butter in 7 days.

I never enjoyed a day much more than one spent in looking over Mr. Hart's herd, and especially looking at his bull, his mother and daughters, and last but not least a

"ADVERTISEMENT."

LIKED HIS "NIP."

Not a Whiskey but a Coffee Toper.

Give coffee half a chance and with some people it sets its grip hard and fast. "Up to a couple of years ago" says a business man of Brooklyn, N. Y. "I was as constant a coffee drinker as it was possible to be, indeed, my craving for coffee was equal to that of a drunkard for his regular "nip" and the effect of the coffee drug upon my system was indeed deplorable.

"My skin lacked its natural color, my features were pinched and my nerves were shattered to such an extent as to render me very irritable. I also suffered from palpitation of the heart.

"It was while in this condition I read an article about Postum Food Coffee and concluded to try it. It was not long before Postum had entirely destroyed my raging passion for coffee and in a short time I had entirely given up coffee for delicious Postum.

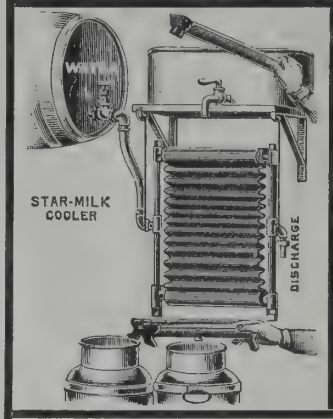
"The change that followed was so extraordinary I am unable to describe it. Suffice it to say however that all my troubles have disappeared. I am my original happy self again and on the whole the soothing and pleasant effects produced by my cup of Postum make me feel as though I have been 'landed at another station.

"Not long ago I converted one of my friends to Postum and he is now as loud in its praise as I am." Name furnished by Postum Co., Battle Creek, Mich.

Look in each package for a copy of the the famous little book, "The Road to Wellville."

DON'T INJURE YOUR PROSPECTS

By Trying to Do Without a Cooler.



You will lose your customers if you give them "smothered milk", and when you do buy

BUY THE BEST

One that is guaranteed to do the work.
Half way measures do not pay.

SEND FOR COOLER BOOKLET

STAR MILK COOLER CO., Haddonfield, N. J.



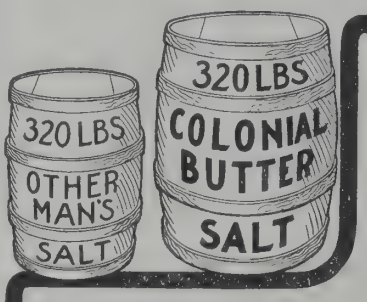
EASY. It is easy to go on losing money by taking care of milk in the old way, that is, by not taking care of it: But it is easy, too, to take proper care of your milk with a

Champion Milk Cooler-Aerator

The Champion is pre-eminently the easy Cooler—easy to buy, easy to take care of, easy to use.

A Booklet for the asking.

Champion Milk Cooler Co.
67 Main Street, CORTLAND, N. Y.



"Money Makers for Butter Makers"

Even though it were not apparent that

COLONIAL BUTTER SALT

AND

LIBERTY BUTTER SALT

are superior to all other kinds in flavor, color and purity, there would always be apparent the fact that they are superior in lightness, bulk for bulk. Take the barrel that holds 320 lbs. of the other man's salt; it will hold but 225 lbs. of Colonial Butter Salt. The usual salt barrel has a 30 inch stave and a 19 or 20 inch head. The Colonial barrel has a 34 inch stave and a 21 inch head, to hold the same net weight of salt.

The lightness of the salt makes it dissolve quickly and evenly and prevents washing out in the working, and if there is any value in the "make weight" theory, this salt stands at the head in that respect.

THE FLAVOR IS PERFECT
THE COLOR PERFECT WHITE

The purity over 99 per cent, hightest in the world. PROVE IT YOURSELF. To those who have never used Colonial Butter Salt (light, flaky grain) or Liberty Butter Salt (granulated) we shall be glad to deliver, free of charge, to creameries and cheese factories only, a 56 lb. sack of either or both, on request. We only ask, in return, that you report to us your actual success with our salt.

Won't you try it today.

COLONIAL SALT CO., AKRON, OHIO

CHICAGO OFFICE.....84 ADAMS ST.

young bull showing vigor to spare, sired by King of St. Lambert's King, and out of his own dam.

This bull is commonly called Hart's King, and he has 24 tested daughters, and Mr. Hart writes me that he has 40 of his daughters and every one of them, old enough, is capable of a record.

I have here a fairly good picture of him, and a good one of some of his daughters.

This bull is just 12 years old and is still in the pink of condition and vigor.

For exercise he is often taken out for a twenty-minute walk by the man who cares for him. He is kept tied in a corner of the cow stable in sight of the herd of cows.

Of the well known Guernsey bulls, Lily's Bonny Boy owned by Mr. N. K. Fairbank, Lake Geneva, has 41 registered daughters, and 13 of these at least have made 343 lbs. fat in a year, and Lilly Ella and Lilyta made, in official tests, 782 and 710 lbs. fat respectively.

This bull was out of Lily of Fernwood, 22 lbs. 11½ oz. butter in a week, and one of the best cows of the breed.

This bull received his exercise by daily work in a tread power to run a separator.

The Guernsey bull having the second highest number of tested daughters was also owned in Wisconsin, and was Benjamin 1931.

He had 25 registered daughters, and nine of them have records ranging from 349 to 508 lbs. fat in a year, and ten of them have weekly records ranging from 12.02 to 17.7 lbs. fat.

He was exercised twice daily in the tread power, and proved a good sire until he was nine years old.

He was never as vigorous as some bulls, due, I think, to poor care when he was about a year old.

His dam, Tricksey, was in 1888 first prize cow at the Wisconsin State Fair, and made 2 lbs. 7¾ oz. butter in one day.

Mr. S. C. Kent, who imported over 1,000 Guernseys, says she was the best cow he ever owned.

I have here a picture of Benjamin and some of his daughters.

I tried to obtain pictures of all of these bulls and their dams, but was unable to do so, and this serves to emphasize the fact that usually the great bulls are not known until they are dead.

You will note that where feed is mentioned these bulls were fed a liberal grain ration, and I think one of the serious mistakes often made is to make a bull live entirely on roughage when in heavy service.

Let them have all the good hay or corn fodder they want, but feed lightly of corn silage.

Feed a ration of bran or bran and ground oats of from 6 to 8 lbs. per day.

If a bull is quiet, and a paddock is handy, he will be much improved by being at pasture in summer until the flies get bad, but in nearly all cases it is better to keep him in the barn.

Above all things that a bull needs, and not nearly enough of them get, is plenty of exercise daily.

On many farms where the item of expenses is not counted, a man will walk and lead a bull for an hour or more daily, and while it is doubtless efficient, few of us wish to spend our time in this way.

By far the cheapest and best way to exercise a bull is a tread power, and we have so exercised our bulls for ten years.

Nearly all of them learn it readily, even if old, and it will do no harm to work them there an hour each day.

More than that, they can easily earn their board running the separator or other light machinery.

It will not do to have the power very steep for they will slip.

Another way to exercise a bull, is to work him in a harness, and I have photos showing bulls working single and double.

There are many other ways to exercise a bull; one is to tie him by a rope around his horns to an overhead wire or rope, 50 to 100 feet long.

(Continued next week.)

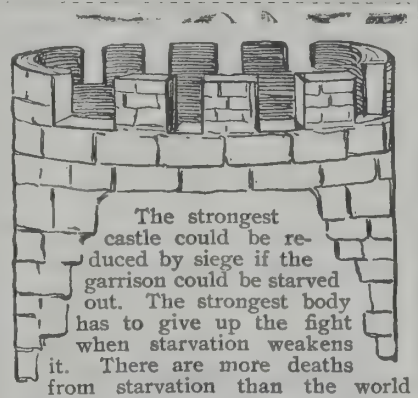
Farmers Must Be Ready.

Manufacturers of oleo are spending vast sums of money to evade the oleo law. Skilled chemists are busy hunting for a substance that can impart the accepted butter color to the manufactured article and yet keep within the bounds of law. Lawyers are seeking for weak technical points. No one is so verdant as to believe that the struggle will be given up without bitter fighting. Farmers everywhere must watch and fight for the preservation of the law secured, and see that infractions meet with a speedy and a just punishment. Be ready at any moment with voice and pen to guard well your interests.—*Farm and Fireside.*

Some Things that Influence Butter Making.

A recent Indiana Station Bulletin on care of milk and butter making contains the following tabulation of causes and effects in churning that explains many of the mysterious and unpleasant conditions that often confront the home butter maker:

CAUSE.	EFFECT.
Gluten feeds, Oil meal, High temperature	Soft butter.
Cream of unequal ripeness, High temperature, Thin cream, Sweet cream	Large loss in butter milk.
Low temperature, Ripe cream, Evenly ripe, Rich cream	Small loss.
Low temperature, Very thin cream, Very thick cream, Sweet cream, Churn too full, Slow agitation, Cream of stripper cows, Cream of unequal ripeness	Slow churning.
Cream exposed to odors, Over ripe cream, Decaying feed, Moldy feed, Impure drinking water, Stable odors, Sick Cows	Impaired flavor.
Over ripe cream, Dried cream, Foreign matter	Specks in butter.
Uneven temperature, Uneven salting, Insufficient working, Sudden chilling, Change of temperature	Mottles and streaks.
Over working, Over heating, Over churning, Slipping of tools in working	Texture injured.
Thin cream, Sweet cream, Churn too full, Cold cream, Advanced period of lactation	Difficult churning.
Succulent feeds, Summer feeds	High colored butter.
Cotton seed meal	Light colored butter. Hard butter.
Bran	Hard butter.
Legumes	Hard butter.



The strongest castle could be reduced by siege if the garrison could be starved out. The strongest body has to give up the fight when starvation weakens it. There are more deaths from starvation than the world dreams of. When the stomach is diseased and the food eaten is not digested and assimilated, then the strength of the body begins to fail because of lack of nutrition, and the weak body falls an easy victim to the microbes of disease.

Dr. Pierce's Golden Medical Discovery cures diseases of the stomach and other organs of digestion and nutrition. It restores physical strength in the only possible way, by enabling the assimilation of the nutrition contained in food.

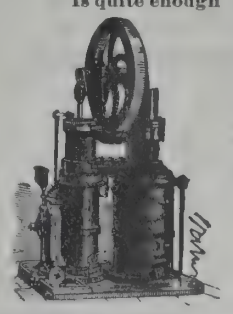
"I was sick for over three years with a complication of stomach troubles," writes Mr. John H. Castona, residing at 2942 Arch St., Chicago, Illinois. "Had tried every good physican I knew of, as well as many patent medicines, but received only temporary relief. One day a friend recommended your 'Golden Medical Discovery.' I immediately procured some and began its use. Commenced to gain the first week, and after I had taken only one bottle I could eat as well as any one without experiencing ill effects. I took five bottles, and to-day am happy to announce that I am as well and healthy as any one could be. I owe it all to Dr. Pierce's Golden Medical Discovery."

The sole motive for substitution is to permit the dealer to make the little more profit paid by the sale of less meritorious medicines. He gains. You lose. Therefore accept no substitute for "Golden Medical Discovery."

FREE. Dr. Pierce's Common Sense Medical Adviser is sent *free* on receipt of stamps to pay expense of mailing *only*. Send twenty-one one-cent stamps for the book in paper covers, or thirty-one stamps for the cloth-bound volume. Address Dr. R. V. Pierce, Buffalo, N. Y.

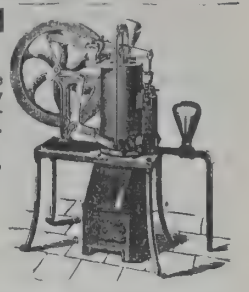
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Is quite enough or some people, but most people want water every day. If



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Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 35,000 in daily use. Catalogue "B 5" on application to nearest store.

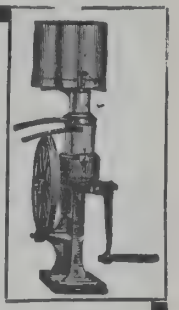


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WE TAKE THE RISK

of your being satisfied, and glad you bought the cream separator that makes money for you.



THE AMERICAN

Is Sold On Trial.

The price makes it easy for every cow owner to buy. Run this separator and make money. The catalogue is free and we want you to have one. Write to-day.

American Separator Company,

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THE



Iowa Dairy Separator.

AN UP-TO-DATE MACHINE
REPLETE WITH PRACTICAL IDEAS

It is built in the following sizes:

250, 350, 450, 600, 750 POUNDS PER HOUR

Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.

SEND FOR CATALOGUE NO. 60 AND PRINTED MATTER.

IOWA DAIRY SEPARATOR COMPANY, WATERLOO, IOWA.

The New 1903

REID HAND SEPARATOR



The 1903 Reid Hand Separator is the most exact milk skimmer ever made—it is simplest, fastest, lightest running, and affords most butter-producing material under all conditions. It creates a new source of revenue and maintains the income—

WEARS LESS, LASTS LONGEST

Every Reid Hand Separator is sent out under a positive guarantee, and is sold on its own merits. If you want a separator we will send a Reid on approval—work it ten days and if it does not excel all others return at our expense. Send for new catalogue and revised price list, mailed free.

A. H. REID, 30th and Market Sts., Philadelphia, Pa.

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FOR CLEANING HAND SEPARATORS

ENDORSED BY THE LARGEST MANUFACTURERS OF HAND SEPARATORS

NEW SIZE, 15 CENTS

LOCAL AGENTS WANTED ASK YOUR DEALER FOR PACKAGE

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SOLE MANUFACTURERS

A Low Priced Octagon Silo.

ED. HOARD'S DAIRYMAN:—The first cost of a silo usually frightens the would-be builder from building, and the building thereof is postponed for another year. The writer saw the silo here shown, built by a farmer this week in a couple of days with no expert assistance—just built by the farmer and his ordinary help. The day before the erection of the silo began, the farmer had not a stick of the material on hand.

On the day mentioned, he brought a couple loads of logs to a nearby saw mill and had them sawn into 2x7 inch planks. In the same afternoon, he went to town and brought home a couple loads of hemlock boards and a roll of felt and some spikes and nails, and the next day began to erect his silo and in two more days the silo was completed ready to receive the silage corn.

We see no reason why this silo is not a perfect silo in every particular, and as good in every way as one costing several hundreds of dollars, and which would take weeks to erect. When a perfect silo can be built as cheaply and as quickly as was this one, we see no reason why anybody may not have silage if he wills.

This style of silo is the octagon shape, or eight sided, and ceiled perpendicular



with two thicknesses of inch hemlock boards with felt paper between. A silo, 12 feet in diameter and 24 feet high, will not cost more than $25, foundation included. Such a silo calls for 2,000 feet good hemlock boards, 900 feet 2x7's, with felt and nails. The expense of roof and foundation will be the same as for any other style of silo.

A low foundation of stone and cement is first built, then the sills are placed on and corners nailed. Then the boards are set up at the corners and plumbed with a level that works vertically. One man holds the joist on the outside where it belongs, placed 2 feet apart and nailed from the inside. The joists are spiked together at the corners as the work progresses, for the first 12 feet; then the upper section is continued in the same way.

A number of joists can be sawed with a cross cut saw, by bunching them together, thus ensuring even lengths. It will be seen that the joists and boards at the corners all have the same slant, or angle of 45°. This style of silo saves latching with iron hoops, or the tedious method of making wooden hoops for the round silo. Each range of octagons forms the hoops, and the octagon avoids corners, and has every advantage that the circle has.

The illustration shows the manner of cutting and forming an octagon joist, hoop, or

SPOTSWOOD GUERNSEYS

We offer some grand Imported Cows and Heifers, large and deep milkers and high testers; a fine lot of Heifers fit for service, and a few Imported Bulls from prize winners on both sides. Any animal in the herd for sale. Address WALTER JAUNCEY, Spotswood Farms Broad Axe P. O., Pa.

Wasteland Guernseys

Herd headed by Sir Coral, 5239 (son of Coralette, 560 lbs., grandson of Fantine 2d, 607.7 lbs.) and Glenwood's Sheet Anchor of Haddon, 6372, (son of Glenwood Girl 7th, 506.5 lbs., and grandson of Rutilla's daughter, 571.4 lbs.) Some elegant young bulls and bull calves for sale.
M. M. & E. J. HOLLINGSWORTH, Landenberg, Chester Co., Pa.

GUERNSEYS

REGISTERED GUERNSEY BULLS FOR SALE from Advanced Registry, and high-grade stock. Pedigree and price furnished upon application. All animals are tuberculine tested.
WOODEND FARM, ST. BONIFACIUS, MINN.

GUERNSEY CATTLE For Show Ring or Dairy. Imported, advanced registry and high-class. Send for catalogue. M. SACER, Superintendent Clover Knoll Guernsey Herd, Orangeville, Penn.

GUERNSEYS FOR SALE.

The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

ALTA CREST FARM, SPENCER, MASS.

Home of the Yeksa Family of Guernsey Cattle. Herd contains more cows with large records and backed by large records than any other HERD OF

GUERNSEY CATTLE

IN THE COUNTRY

Herd headed by Primative 4909, a son of Primrose's Tricksey, Adv. Reg. No. 2, 592 lbs. butter in one year. Several Bull Calves from elegantly bred Dams at reasonable prices. Address A. H. SAGENDORPH, Spencer, Mass.

Rosendale Guernsey Herd

TUBERCULIN TESTED.

Sixty head of choice Guernseys headed by Coralette's Son, (see page 450) whose dam, Coralette made 479.7 lbs. fat in one year at 3½ years old, and was first prize cow at Wisconsin State Fair in 1896.

Some fine young bulls for sale.
GEO. C. HILL & SON, Rosendale, Wis.

GUERNSEYS FOR SALE.

Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.
JAS. H. BEIRNE, Oakfield, Wis.

GUERNSEYS FOR SALE

Bulls two years old out of Count Topsy 24.27 lbs. butter 7 days. She won first prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

OLD HOMESTEAD GUERNSEYS

Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.

Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL, Perry, Lake Co., Ohio.

GUERNSEYS HADDON FARMS

Home of the noted GLENWOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

Florham Guernseys.

The herd is made up of representative animals of both home and foreign breeding.

BULL CALVES,

from large producing dams for sale. Apply to J. L. HOPE, Supt., Florham Farms, Madison, N. J.

Wintergreen Hill Farm

A. J. C. C. JERSEYS.

Fall Sale List of cows and heifers is now ready and includes cows to calve for winter milking, heifers recently bred, and a few well bred calves. Some have tests, others are from tested dams. It is a very desirable offering and those applying early may secure their choice. In writing, ask for Sale List A21.

WINTERGREEN HILL FARM, Scottsville, N. Y.

HIGH CLASS JERSEY BULLS

Heifers and Cows for sale. My foundation stock is the best I could buy from a herd famous for merit. Write for what you want.
WM. B. GOODRICH, CLIMBING HILL, IOWA.

PROSPECT HILL JERSEY HERD

The cow that can DO something is what the farmers want. Eight cows have finished their official year's work making an average of 524 lbs. each. F. H. SCRIBNER, Rosendale, Wis.

THE BROWN BESSIE HERD

Offers one bull 14 months old, sired by Recorder, 29239, the only living son of Brown Bessie and has 14 tested daughters. Dam, Relay, 70353, test 17 pounds 2 ounces. She a daughter of Diploma with 61 tested daughters. Also Berkshire Pigs of English and American selected stock. H. C. TAYLOR, Orfordville, Wis.

KING OF ST. LAMBERT'S KING 30752

Sire of thirty-three tested daughters, is unquestionably the most prepotent of any Jersey sire in the land. We have 10r sale young bulls rich in his blood; also a few cows and heifers in calf, whose progeny will be attractive because of the "Hart's King" blood in them. For prices, etc., address
FRANK W. HART, CLEVELAND, OHIO.

80 HEAD OF A. J. C. C. JERSEYS

WILL BE SOLD AT

AUCTION, NOV. 19, 1903

CLYDESIDE, DERBY, VERMONT

10 Bulls, 30 Cows, 20 Heifers, and 20 Calves—all good stock. Sale will begin at 10 o'clock. If stormy, sale will be inside. Paste this in your hat. It will not appear again. For particulars, address

JOSIAH GROUT, DERBY, VERMONT.

AMERICAN JERSEY CATTLE CLUB

OFFICES: 8 W. 17TH ST., NEW YORK

President, ELMER A. DARLING.
Secretary, J. J. HEMINGWAY.

BLANKS for Registering and Transferring Jersey Cattle; also Blanks for Private Butter Tests of Registered Jersey Cows, furnished free of charge upon application to the Secretary.

FEES for Registering: To non-members; $2 each head male or female. To members of the Club, $1 each head, male or female. All animals over two years old, double fee. For registration of all dead animals, $1 each. Imported animals, $25.

TRANSFERS are recorded free, if presented within 90 days from date of delivery. Transfers presented after 90 days, $1 each.

PRICE of Herd Register, $1 per Single Volume. Butter Tests of Jersey Cows, including all tests received by the Club to August 1, 1898, $2 per volume. Private Herd Record, 330 pages, cloth, leather back and corners, $2. Pocket Herd Record, 120 pages, flexible leather, 50 cents.

VOLUME OF BUTTER TESTS from August 1, 1898, to July 15, 1902, $1. Consolidated Volume, containing all previous tests, $2.00.

THE BY-LAWS of the Club, giving full rules to be followed in securing registration and transfers, mailed free on application.

FOR SALE Grandsons of Pedro 3187, by his son Pedro's Pretty Pogus 33660, A. J. C. C., a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs.
J. Q. EMERY & SON, Albion, Wis.

DAIRY COWS and HEIFERS

Having just sold two large stock farms, must sell 75 or more cows and heifers.

18 Good Natives and Grade Short-Horns,

Bred to Full-blood Short-Horn, "Hobert," No. 125811.

15 Registered A. J. C. C. Cows.

20 Very High-grade Jerseys

Registered sires for several generations. Heifers in all above classes.

TIME GIVEN ON GOOD SECURITY.

WARREN LAND CO., Warrens, Wis.

BILTMORE JERSEYS

are great and persistent dairy workers and typical Jerseys. We ask comparison with any other herd for

YEARLY MILK & BUTTER YIELDS, SUBSTANCE AND FINISH.

The herd contains more prize winners at the leading exhibitions (including the Pan-American) than any other herd.

The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service, as you cannot get it.

Also Headquarters for Large English Berkshires and Standard Poultry.

Apply to, BILTMORE FARMS, BILTMORE, N. C.

FOR SALE. GOLDEN LAD BLOOD, sired by Golden Blyth 3d, 54569. A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

FOR SALE. Two A. J. C. C. Bulls ready for service; also some younger ones. Cows and heifers in calf to richly bred bulls. Write for pedigrees and prices. We have a few Berkshire Boar Pigs from unregistered sows left; cheap.
N. N. PALMER & SON, Broadhead, Wis.

POLLED JERSEYS

Richest Cow of all breeds in Pan-American Model Dairy. Winning Herd at Ohio and New York State Fairs, 1903. W. H. FORBES & CO., Clifton, O.

$50 Jersey Bull Calf

Dropped January 6, 1903.

Grandson in blood of Stoke Pogis 3d and Stoke Pogis 5th; great grandam, Brown Bessie, champion butter cow, Chicago 1893. Dam showed 361 lbs. ½ oz. butter, monthly fat test, 2d season 352 days. Her dam tested and 40 lbs. milker. Sire's dam tested (2d calf) and 40 lbs. milker. A very little white, brisket and thighs.
E. E. STEVENS, North Madison, Ohio

VALLEY FARM Is offering some bargains in young bulls sired by Diploma's Victor, 56310. Grandson of Brown Bessie; two yearlings; one 18 mo. old. Also bull calves. Write
FRED STUBLEY, Black Earth, Wis.

JERSEYS. ST. LAMBERT and Combination, for sale; 24 cows, 7 heifers, 36 bulls.
S. E. NIVIN, Landenburg, Pa.

CLOSING OUT

Fifteen head registered and high grade Jersey cows and heifers, several with yearly records, for sale at less than value. Apply at once. Must be sold.
WM. L. BRADBURY, NASONS, ORANGE COUNTY, VA.

HAZEL FERN HERD. A. J. C. C. Jerseys, blood of St. Lambert, Melia Ann, Combination, Pedro, and Golden Ladd. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale.
ESTATE W. S. LADD, Portland, Oregon.

ROBINSWOOD JERSEY DAIRY

is offering a few Reg. Jersey Bulls ready for service at from $25 to $50, sired by a grandson of Recorder, the only living son of Brown Bessie, out of good cows. Write, stating your wants, to
N. H. ROBINSON, Prop., Centralia, Wis.

ST. LAMBERT BULL CALVES by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.00.
W. J. HUSSEY, Mt. Pleasant, O.

Just for Nothing

We will send you THE JERSEY BULLETIN and HOARD'S DAIRYMAN to the end of 1903. But while making you this generous offer, we wish you to do something.

Subscribe for both papers for 1904, at the lowest clubbing rate, $1.75 FOR THE TWO. To make it plain, send us $1.75 and we will send THE JERSEY BULLETIN and HOARD'S DAIRYMAN to January 1st, 1905.

For Sample Copy of Jersey Bulletin address Indianapolis, Ind.

"IT'S UP TO YOU!"

sill and also a portion of the ceiling is shown. Four and one-half inch wire nails will answer for nailing the corners, having one-half inch for clinching, while three and one-half inch nails answer for nailon the ceiling. J. A. M.

P. E. I.

Weighing Cream for Testing.

ED. HOARD'S DAIRYMAN:—I was told by one of our patrons that it came out in HOARD'S DAIRYMAN that there was a $100 fine for using the tube that goes with the Babcock tester for taking samples of cream. If it was so stated by you, what and how done is a better and right way? I have said and still think so and shall until told by one that knows better, that with cream poured over three times and a sample taken at once with the tube is as near right as can be. N. T. A.

Uxbridge, Mass.

The "tube" referred to is evidently the 17.6 c. c. pipette used with the Babcock test. It was never intended that this pipette should be used for cream. It was designed especially for milk, and milk alone. Cream varies so much in physical quality, owing to varying amounts of fat, the presence of air, the physical condition of the casein that it is impossible to measure out 18 grams of cream, the proper amount for testing. On this account the cream should be weighed to obtain accurate results. The last Wisconsin legislature passed the following law to prevent such abuse of the Babcock test, when used for cream, which is sure to occur when the cream is measured.

SECTION 1. In the use of the Babcock test, the standard milk measures or pipettes shall have a capacity of 17.6 cubic centimeters, and the standard test tubes or bottles for milk shall have a capacity of 2 cubic centimeters for each ten per cent marked on the necks thereof; cream shall be tested by weight and the standard unit for testing shall be 18 grams, and it is hereby made a misdemeanor to use any other standards of milk or cream measure where milk or cream is purchased by or furnished to creameries or cheese factories and where the value of said milk or cream is determined by the per cent of butter fat contained in the same or wherever the value of milk or cream is determined by the per cent of butter fat contained in the same by the Babcock test.

SECTION 2. Any manufacturer, merchant, dealer or agent in this state who shall offer for sale or sell a milk pipette or measure, test tube or bottle which is not correctly marked or graduated as herein provided, shall be guilty of a misdemeanor, and upon conviction thereof shall be punished as provided in section 4 of this act.

SECTION 3. It shall be unlawful for the owner, manager, agent, or any employee of a cheese factory, creamery, or condensed milk factory to manipulate or under-read or over-read the Babcock test or any other contrivance used for determing the quality or value of milk or cream, or to make any false determination by said Babcock test or otherwise.

SECTION 4. Whoever shall violate any of the provisions of this act shall be guilty of a misdemeanor and upon conviction thereof shall be punished by fine of not less than twenty-five dollars nor more than one hundred dollars for each and every offense, and in default of payment thereof shall be imprisoned in the county jail not less than thirty days nor more than sixty days.

Show Us.

If the *National Stockman*, of Pittsburg, the *Dairy and Produce Review*, of San Francisco, HOARD'S DAIRYMAN, of Fort Atkinson, the *Country Gentleman*, of Albany, or any other publication or individual that has taken occasion to question the accuracy of published dairy tests, is in possession of information which will prove such fraud or inaccuracy, the duty of these papers or individuals is clear."

So says the *Jersey Bulletin*, meaning that they should furnish the proof of fraud. To the list of papers mentioned should be added the *New York Produce Review*, for in a recent issue, one of the editors of that journal, Mr. J. H. Monrad, commenting upon a statement in the *Jersey Bulletin*, advocating the abolition of the use of butter color, concludes by calling it "the misguided, one-sided *Jersey Bulletin*, the supposed Jersey breeders' friend, who so often has done them 'bear's' service, notably when it fought the Babcock test in cow records, and insisted on churn-tests in the vain hope of screening some of the ridiculous claims made by imaginative breeders."

Whether the remarkable churn records credited to some Jersey cows years ago are genuine or imaginary, it is up to the Jersey people to disregard the *Jersey Bulletin* and other influences that are at work to prevent placing the method of performance records upon a basis of authentication by some disinterested official so that the journals and the public will have faith in them. In the phrase of the Missourian, we say—"Show us."—*Dairy and Produce Review.*

Cream SEPARATORS
All about them and other things for the dairy and creamery.
A. H. REID, PHILADELPHIA

THOROUGHBRED LARGE ENGLISH YORKSHIRE
BOARS, 13½ months old, from the imported Sow, SUMMER HILL SUNSHINE 16th. This Sow won First Prize in strong competition.
Animals of this breed attain immense weight, fatten readily when young, and cross admirably with the smaller breeds. Those we offer are of the finest quality and true to type.
HENRY STEVENS & SON,
Brookside Stock Farm, Lacona, N. Y.

BUY DIRECT FROM FACTORY. BEST
MIXED PAINTS
At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.

PURE BRED SHORTHORNS
CHOICE BULLS FOR SALE.
Also Cows and Heifers bred to Clay Buttercup, 195881, a descendant of the Clay Family, champions at the World's Fair dairy test.
GEO. WENHAM, Fort Atkinson, Wis.

AYRSHIRE CATTLE of the BEST of BREEDING. Also Chester White Pigs, ready to book for season's trade. Young stock of both sexes. Prices reasonable. Come and see us.
F. TSCHUDY & SONS, Monroe, Wis.

NORTH OAKS FARM, ST. PAUL MINN.
(Jas. J. Hill, Proprietor.)
AYRSHIRE BULLS Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada.
Address, N. E. McKISSICK, Supt.
Cardigan, Minn.

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA.
President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.
FEES FOR REGISTRY.
To MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.
NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. ☞ All blanks furnished free.
Life Membership, $25.
Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.
Address F. L. HOUGHTON, Putney, Vt., for information relating to Registration of Pedigrees.

SOUTH SIDE FARM
WHITE BEAR LAKE, MINN.
HOLSTEIN-FRIESIANS—We now offer at attractive prices fine young bulls from high tested A. R. O. cows, and sired by Prince Inka Pietertje De Kol 2nd, who already has to his credit 11 A. R. O. daughters. To make room in our stables we offer a few cows and heifers for sale at low price. Write us for particulars

HOLSTEIN-FRIESIAN BULL CALVES
Do you want one for use this winter which will improve your dairy herd? Do you want him elegantly proportioned, with straight back, high rump, and all the dairy points? Do you want one whose relatives are A. R. O. and eligible to the Advanced Register himself? If so, I have a choice lot, just such as you want.
MALCOLM H. GARDNER, Darien, Wis.

STAR FARM HOLSTEINS
I HAVE RECENTLY SOLD
92
HEAD OF REGISTERED HOLSTEINS
WHY
Stock and Prices Right — Satisfaction Guaranteed
HORACE L. BRONSON, Cortland, N. Y.


HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

LOOK HERE
34 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06.; 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs. of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs. of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by Gem Pietertje Hengerveld Paul De Kol, or Sir Ormsby De Kol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days; average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd?
For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis. Residence: National Ave., near 40th. Phone, South 1601.

TYRANENA HERD
100 HOLSTEIN-FRIESIANS
A. R. O. STOCK FOR SALE.
Both sexes, all ages. Herd headed by Sir Piebe Hengeweld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz. Frank B. Fargo, Lake Mills, Wis.

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Offers 5 yearling bulls cows and heifers bred to oldest son of Mercedes Julip's Pietertje, No. 39480. Chester White Pigs in pairs and trios, not related.
W. R. GATES, Fort Atkinson, Wis.

HOME FARM HERD.
Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams, 25.1 lbs. butter in seven days. Herd numbers 125 head.
BEST FAMILIES REPRESENTED.
Special prices on six or eight bulls of serviceable age.
W. B. BARNEY & CO., Hampton, Ia.

ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.
GEO. T. McNEIL, Theresa, N. Y.

FOR SALE H.-F. A. R. O. cows and heifers, bred to Duchess Ormsby Piebe Burke, No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address Rural Route No. 2. W. H. JONES, Watertown, Wis.

THE MONONA FARM HERD
OF HOLSTEIN-FRIESIANS
Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 69.50 lbs. one day. Breeders and dairymen please write for prices.
F. W. ALLIS,
Monona Farm. Madison, Wis.

FOR SALE. H.-F. BULLS, ready for service, from A. R. O. cows and sired by Sir Johanna DeKol, 25467 A. R. O. Butter record of dam, 24.08 lbs. at 4 yrs. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis.

VALLEY FARM HERD
HOLSTEIN-FRIESIANS
Headed by Korndyke Queen De Kol's Prince, dam Korndyke Queen De Kol, 24 lbs. 6.7 oz., granddam Belle Korndyke, 25 lbs. 12.3 oz. Both sire and dam by Manor De Kol, his dam Netherland Hengerveld 26 lbs. 10.66 oz., Manor De Kol by a son of De Kol 2d, 26 lbs. 9.2 oz. All are official tests and average 25 lbs. 13.72 oz. butter for 7 days and 3.95 per cent fat in their milk. Two bull calves now for sale and young ones after Sept. 1.
DON J. WOOD, R. F. D. 2, West Winfield, N. Y.

Bulls For Sale.
Two choice bulls ready for service and some fine bull calves from good testing dams. Sire: Paul Clyde, son of Paul DeKol. Dam's record 24.88 lbs. in 7 days. Write C. A. SNOW & SONS, Athens, Ohio.

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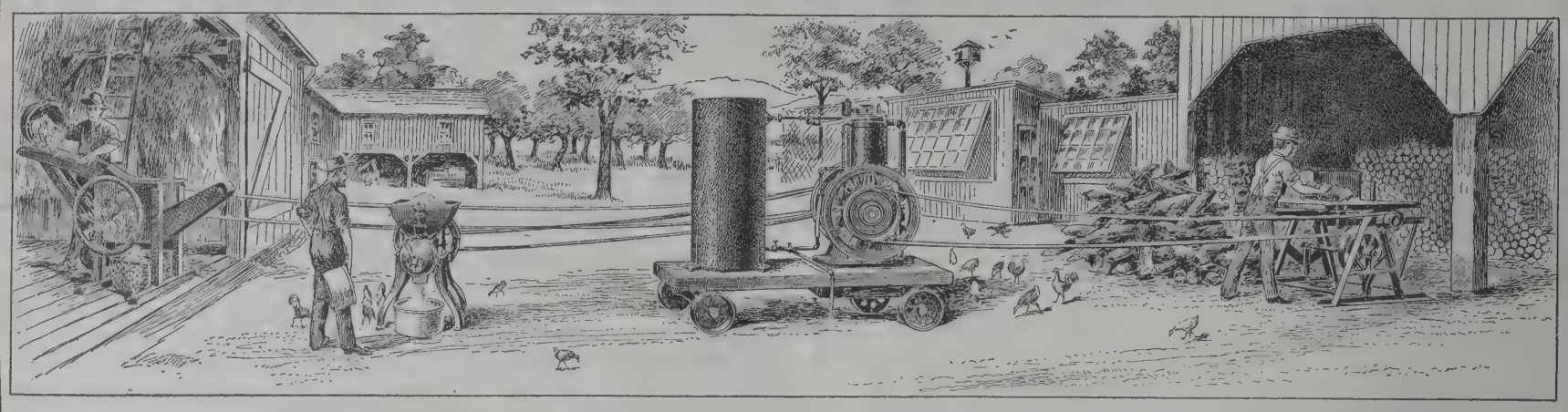
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A Study in Swine.

ED. HOARD'S DAIRYMAN:—The great state fairs and shows that have been held this season, have been object lessons of immense value to those who having eyes can see. That there were many such at these fairs, an observer of men and a student of agricultural questions could readily determine. Wherever there were exhibits of fine stock, selected fruits, grains or vegetables, improved machinery for lessening the expenditure of human labor and at the same time increasing its productivity, could be seen intelligent and well dressed men and women examining, criticising and discussing the objects at hand.

This, too, in the swine department, a place once thought to be outside the realm of woman's interest and investigation. But the American farmer and his wife are eminently practical people and always generous enough to "bless the bridge that carries them over," and this good office the lowly swine has performed over and over again; therefore, to these people the study of the hog in his great evolutionary processes is always interesting from a financial standpoint, if from no other.

As a matter of fact, however, man's inhumanity to the hog has given his swineship a bad name, and the proverbial uncleanliness of the hog is an undesirable distinction that careless and unwise men men have thrust upon him.

The well bred hog is a clean animal in his habits, if given the chance to exercise his more refined instincts, whereas under man's dominion he has been for many generations, commanded to "root hog or die," and even the alternative does not always redeem the promise of living that is implied, for by the very necessity of rooting in and being forced to inhabit uncleanliness, they die by the thousands of droves. The wonder is not that so many succumb to disease, but that their mortality is not even greater.

Would it be a "bull" to say that thousands of them are forever being saved from an untimely death by being butchered so early?

Now, it is reasonable to assume that the vital spark glows no stronger in the hog than in any of our other domestic animals, yet no other of these animals is so surrounded by conditions of environment and feed so antagonistic to life.

Swine plague and cholera lurk on the farms and in the feed lots of the western breeder. "Sure Cures" are compounded, advertised and guaranteed; but shall we suppose the skill and learning of smaller men shall suspend the working of nature's laws as touching lower animal life, when the greatest skill, learning and investigation of the most trained men doctor human ills not so much in the effect as in the cause?

Herein lies the lesson these hundreds of successful swine breeders, who show the result of their handiwork at our fairs bring to the plain farmer breeder. The animals are well fed and wisely. Their bill of fare is not forever corn, corn, corn, and that too often only what is rejected by the cattle that have passed that way.

These show hogs are given a show, a living chance, at home. Their owners study sanitary conditions for them. Their beds are clean, their food sound and balanced and their drink pure. I may add further that the producer of pork is the purveyor of human food and upon him rests the unwritten, but no less binding, obligations that this food shall go out unto the children of men carrying no contamination. Out of what he eats and drinks, the swine makes a food for man.

Pa. W. F. MCSPARRAN.

Continuous Stabling of Cows and Other Matters.

ED. HOARD'S DAIRYMAN:—Notes and Comments of Bro. Gould's are always perused with great interest and we must admit his familiarity even with Nebraska's happenings, though more than a thousand miles away. We had hoped the little matter of the overturned and accidently embalmed dairyman might have been kept out of the papers, as we had expected to catch the fellow from the East when he came around again with more of his blessing for humanity (he called it that), but he evidently got experience and concluded not to try Nebraska dairymen a second time for suckers. Had he, or should he appear again, his body will meet a similar fate to our departed brother. But such is human consistency. We are trying to show the Eastern fellows how to better their conditions by planting alfalfa as we do, notwithstanding we have wheat bran to sell, and then you send men out here to lead us astray with formaldehyde.

Woe be to him that comes on Nebraska soil with another dope! Regarding Bro. Gould's continuous stabling of his cows during the winter months, brings to my mind an experience at a Farmers' Institute at my former home in New York. I had my cows continuously stabled during two winters preceding this particular meeting. Some of the neighbors considered exercise most essential for good health. The climax came when the conductor of said Institute, Mr. VanAlstyne, late Supt. of the Model Dairy at the Pan American Exposition at Buffalo, was questioned as to the advisability of stabling dairy cows continually during the winter. Of course, it was up to me for defense, and like the boy on the burning deck, I stood alone.

The question is not as to the length of

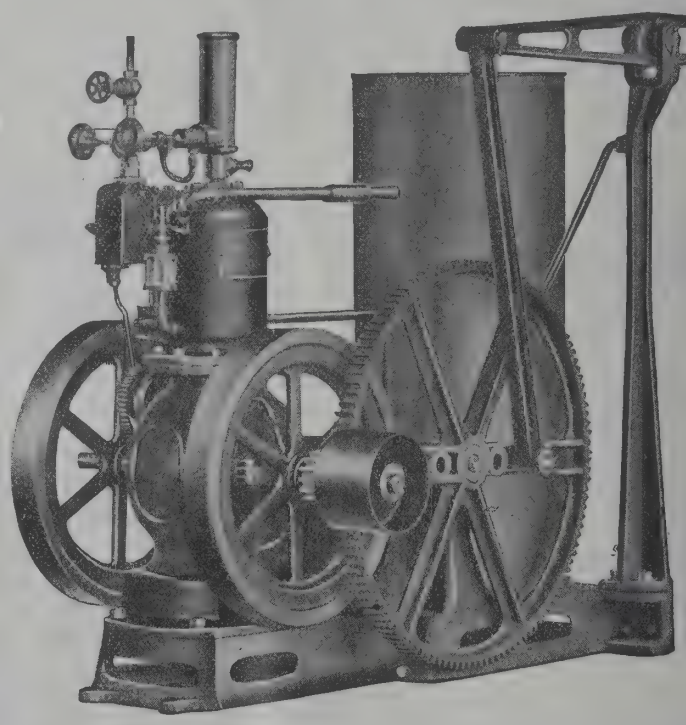
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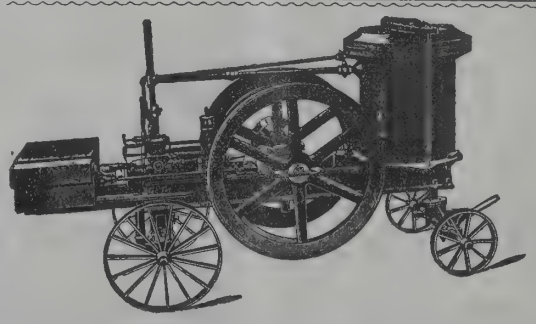
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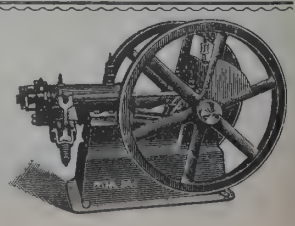
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time a dairy cow stands in one place. The question is, is she comfortable?

Since we better understand sanitary rules, ventilation perhaps the most important, there need be no fear of disease, because of their not exercising as it is called. They are exercising, but not in the manner of the horse, for instance, or any other animal not belonging to the ruminants.

I have seen dairy cows in Switzerland, France and Germany who are never out of their stalls except for a necessary reason, during the whole year, and those who know of the rigid inspection by the authorities in the countries named, will readily admit that, unless the cows and environments were satisfactory, the continuous stabling would have been condemned years ago.

It is gratifying to see the trend in the direction of continuious stabling, or at least during the winter months, and will venture to say, where we now know of but a small number who practice this system of keeping dairy cows, we will see hundreds doing so in a very few years, without ever one going back to the barb wire fence method.

I would also say in this connection, as regards the ability of the eastern dairymen being able to compete with their western brothers, bceause of their better adapted (cow) machine, what are the eastern dairymen going to do, when we too have a better cow ?

Let me say right here, when the westerner sees where he can better himself, he is not slow to do so, even if he has got to go into his pocket heavily to make the start. The aggressiveness is here and you can look for better dairy cows out in this neck of the woods any time from now on, and my suggestion to the eastern dairyman is, if he expects to continue to compete with us out here in the future—*learn to grow alfalfa.*

Lincoln, Neb. J. FRED SCHLAPPI.

The Shrinkage of Cheese.

The Wisconsin Station has been experimenting in curing cheese at different temperatures and finds that cheese cured at the usual temperature shrinks about four times as much in weight as when cured at a temperature of 40 degrees Fahrenheit or below. It is thought that the difference would be still greater under ordinary factory conditions owing to less perfect conditions of humidity in the curing room. It is estimated that in a factory making 500 pounds of cheese per day, the loss would equal at least fifteen pounds of cheese per day, or about 3 per cent. Of course the cold process cannot be employed where quick curing is necessary, as the low temperature retards the ripening process. The size and type of cheese also exert a marked influence upon the rate of loss—the loss being greater for a soft than for a firm, and for a small than for a large, cheese. Coating the outside of the cheese with paraffine also reduces the shrinkage. As some loss occurred where the atmosphere was thoroughly saturated with moisture, it was supposed that the shrinkage is not wholly due to the evaporation of moisture from the cheese, but partially to volatile products formed by processes inherent to the curing thereof.

As to the reason why swine fever is not prevalent in France, a corespondent has the following in the "*Agricultural World*":—"A short time ago, I was speaking to a veterinary professor, on the subject of swine fever, and why it makes so relatively few ravages in France. He replied, that in France the peasantry devote extreme care to rearing of pigs in point of cleanliness, in housing and regular and liberal feeding. The loss of one or two small pigs for a small holder is ruin. Then the young pigs are purchased at the maternal sty, where all precautions are observed by the breeder to keep off everything like contagion. And when the animal is fit for the butcher, the latter's agent carts it off at once to the slaughterhouse. Thus the risks of contagion are fewer. In addition to these precautions dictated by self interest, the official veterinary inspectors are ever on the watch; their districts are not large, their remuneration not high, and any neglect of duty involves dismissal, and that means professional collapse. Further, the veterinary is also a sanitary inspector. He knows all the negligent pigkeepers, whose outhouses are improperly kept, pulls their owners up in time and so lessens the risk of infection.

"A Bull By the Horns"

is apt to be dangerous. To use common soap for shaving, or any soap not especially prepared for the purpose, is more so. Such soaps not only dry quickly, but often contain poisonous matter, causing serious trouble.

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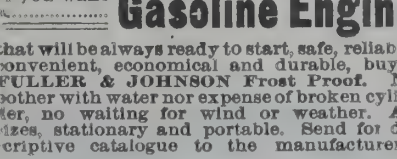
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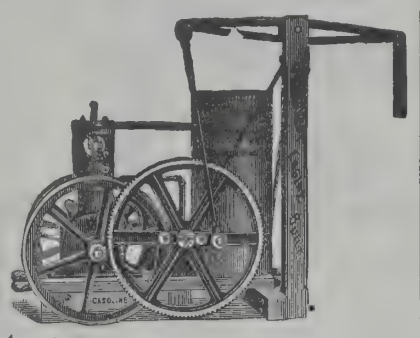
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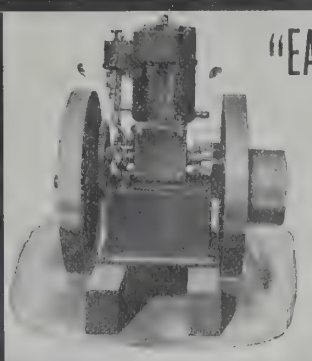
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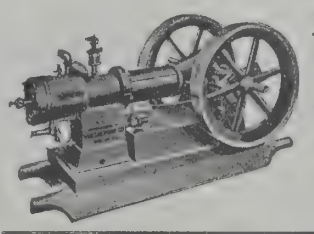
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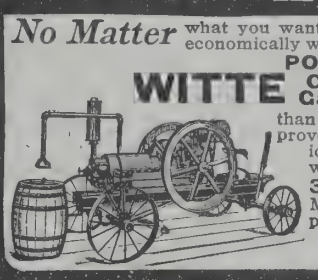
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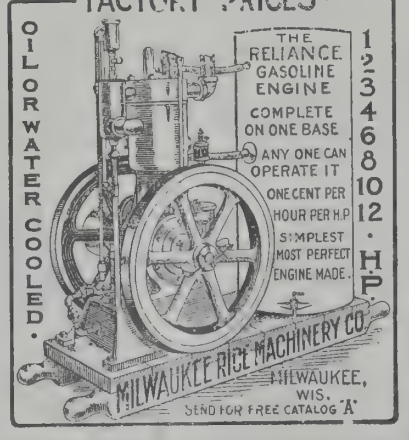


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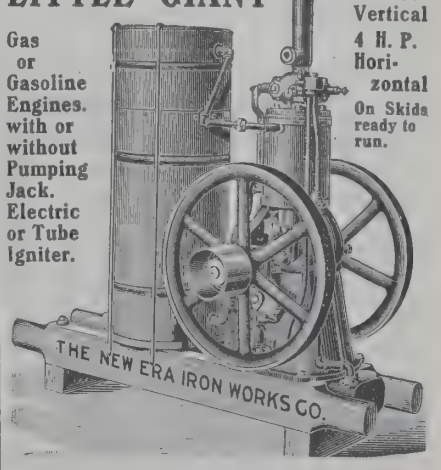
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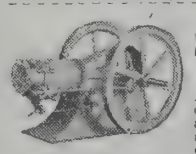
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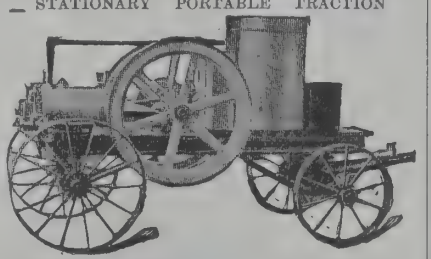
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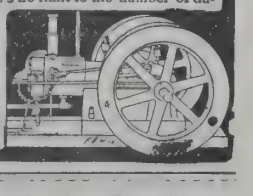
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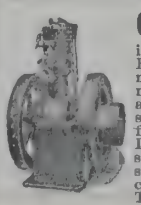
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Stuart's Catarrh Tablets strike at the root of this terrible odious disease and eradicate it from the system. They are a constitutional remedy that cleanses the system thoroughly of all poisons and purifies the blood. Under their influence the head becomes clear, the discharges at the nose and droppings into the throat cease, the lost sense of smell is restored, the eye brightens, the foul breath becomes pure and sweet and the odious, disgusting disease is thoroughly expelled from the system.

A Cincinnati man says; I suffered the mysery and humiliation of catarrh for 12 years. My case became so aggravated that it seriously interfered with all my business relations. The disease became so offensive that I would not venture into any one's presence unless it were absolutely necessary. I tried every remedy that I could get hold of. Some helped me temporarily, but as soon as I ceased taking them, I would relapse into the old condition.

"Finally a friend told me of Stuart's Catarrh Tablets and insisted that I try them. I had about dispaired of ever finding help, but bought a box anyway. I began to notice the improvement within twenty-four hours after I began taking them. Before the first box was gone I felt like another man. I kept up the treatment till I had taken three boxes and was entirely cured. I have never had a recurrence of the trouble from that day to this. My head is clear and well and none of the offensive symptoms of the disease ever trouble me. It has been two years since I stopped taking them."

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VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Abortion.

Abortion seems to have invaded my herd; have had three cows lose their calves in the pasture, and as it is six miles from home, can't say what became of the calves, whether born dead or eaten by buzzards or dogs. Had one premature birth (here at home) one month since, and another last night. My cows fail to become pregnant, sometimes returning to bull 8 or 10 times. In your paper I read of using carbolic acid, but no plain directions how to proceed. G. L. W.
Louisiana.

ANSWER.

You have infectious abortion in your herd.

We must first of all isolate the cows which have aborted, destroy the afterbirth and fœtus and thoroughly disinfect the stables in which they have aborted; whitewash the walls and give plenty of light in the stables. About the best agent to apply to the floor is air-slacked lime. Apply it once daily after cleansing. It is advantageous to put the healthy cows to pasture. The cows which have aborted should not be allowed to retain the afterbirth; the same should be promptly and completely removed, and the uterus and vagina thoroughly cleansed by irrigating same with a 1-5,000 soluiton of bichloride of mercury, or other disinfecting agents. This can be done best by using a fountain syringe, and may be repeated once daily until the disappearance of the vaginal discharge. Until this has entirely disappeared, no cow should be used for breeding purpose.

We may also increase the resistance of all the animals by means of food rich in nitrogen and a teaspoonful or two of powdered cramp bark in food once daily.

A Result of Dehorning.

I have a cow that has been dehorned 2 years. About 2 weeks ago matter commenced to run through the stump of one horn. L. V.
Savona, N. Y.

ANSWER.

It is possible that small portions of horn have been loosened during the act of dehorning, which are now sloughing out. Wash the parts clean with soap and water, and inject into the openings a two per cent solution of Creolin once daily.

Will the Schmidt Treatment Damage the Cow?

Is the Schmidt treatment likely to spoil the cow? Have had a cow dry up after the Schmidt treatment. Where can I get the tube?
Trenton, N. J. A. D. A.

ANSWER.

It is not a common occurrence for a cow to lose her milk either partially or entirely, although occasionally it will happen, and usually in such cases where the udder is not kept active by massage. The writer has best success when the massage is applied every hour, which can be done without expense and without a great deal of inconvenience. Every drug store has the small rubber hose and the glass funnel, and they usually keep in stock the ordinary milking tube.

Urticaria.

I have a fine Jersey cow that has an inclination to drink her urine. Is this from some disorder of her blood? She seems crazy for fresh dirt, too.

Every now and then her udder breaks out with a lot of small lumps just above the teats. Sometimes they look yellow, and a scab forms on them, but they never seem to discharge; in fact, some go away after a day or so without forming any scab. SUBSCRIBER.
Los Angeles, Cal.

ANSWER.

Your cow is troubled with urticaria which is due to overloading the digestive organs and causing chronic indigestion, hence the abnormal appetite for urine.

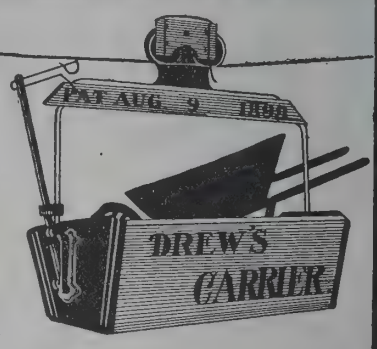
Make a complete change in your ration and give a full dose of physic and follow this with two teaspoonfuls of nitrate of potash twice daily in drinking water or food. You may wash the eruptions with a solution of bicarbonate of soda, using a teaspoonful of the soda to a pint of water. Wash twice daily.

Lump Jaw.

Two months ago I noticed that my cow's right jaw was very much swollen. We threw her and cut into the flesh to the bone, letting out quite a quantity of pus. I then commenced an outward application of spirits of turpentine; in about two weeks see appeared well except the jaw was

THE FEED FOR MILK
according to all authorities should be ground. It not only makes healthier stock and **larger flow**, but it is also an **economy of at least 25%**. But ground feed must be **soft and right** to be **nutritious and palatable.**
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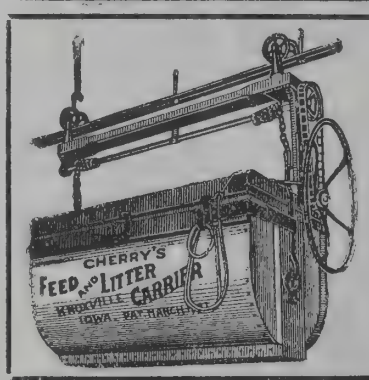
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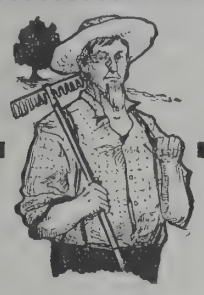
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still enlarged. I used the turpentine for about a week. About two weeks ago her jaw again became very much inflamed so she could scarcely eat or drink. On opening with a knife, a quantity of pus ran out. I commenced the use of turpentine again, and the inflammation appears to be gone. There appears to be no lump in the flesh or attached to the bone, but the jaw bone itself appears to be enlarged to twice the thickness of the bone in the other jaw and the enlargement on the inside and outside seem about equal. What would you term the disease? Will my present treatment cure her? Is her milk fit to use as a diet? I. N. S.

Monterey, Cal.

ANSWER.

Your cow has lump jaw, which has become chronic, and will likely never be cured, as it has become attached to the bone and same is diseased, which will continue to break open and discharge. There is no cure for this stage of lump jaw and it is advisable to get her out of your herd as soon as possible. It is not safe to use her milk for diet.

Abortion.

We would like to know if there is anything we could do to prevent cows heavy with calf from having them too soon? How long after can we safely breed, and whether the bull is ruined, that has been used on such cows?

Nortonville, Kan. W. BROS.

ANSWER.

See abortion this issue for full information.

You may also disinfect your bull in the same manner as cows are irrigated and with the same solution, before and after serving a cow. Introduce the rubber hose into the sheath and allow the solution to enter same and flush thoroughly.

Hog Cholera.

Some of my hogs have a disease that I can not find out what it is. They stop eating. Their eyes settle back in the head and the next symptom is that they pant like a horse with the heaves and that will last from two to three days and they die. C. L. W.

West Valley, N. Y.

ANSWER.

Pick out your healthy hogs and make new and clean quarters for them away from the diseased ones; have the pens thoroughly disinfected and do not allow them to come in contact with each other in any way. There is but little to be done if a hog is once down with it, but the secret of success is in preventing it. You may also feed a teaspoonful of creolin, to each 200 pounds of hogs, in the food twice daily.

Barrenness.

I have five young cows which all came in this spring and all did nicely except one, which aborted. I did not take her out of the barn as I had no other place for her, and I have been unable to get one of them with calf this summer. Have tried four different bulls and they have all failed. H. A. C.

Rock Elm, Wis.

ANSWER.

See Abortion, this issue, for the results of retention of the placenta. It is likely that the uterine secretions are still of an acid reaction, the result of abortion.

Inject a solution of bicarbonate of soda into the uterus via vagina with a syringe, taking a teaspoonful of soda to each pint of water. Repeat this twice or three times a week for about three weeks, or until she comes in heat, then breed her again.



Horse Owners Know

from long experience in treating such characteristic ailments of the horse as **Spavins, Ringbones, Splints, Curbs** and all forms of **Lameness** that the one reliable remedy is

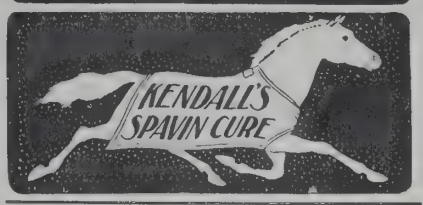
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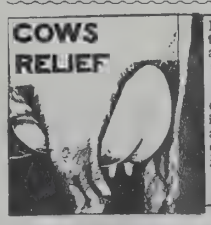
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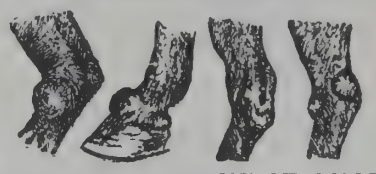
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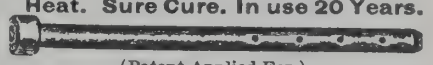
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Dried Beet Pulp.

ED. HOARD'S DAIRYMAN:—Will you kindly give me your opinion of dried beet pulp as a feed for milch cows, and what should it be fed with, and what is it worth compared with bran at $20 per ton?
Richmond, Mich. E. B. P.

The Senior Editor fed a limited quantity of the dried beet pulp a year ago, and found it desirable food. It was relished excellently well by the cows and gave a good increase to the milk flow. Owing to excessive freight rates we reluctantly were obliged to discontinue its use. We believe it would prove a valuable alternating feed in the way of giving the cows a change. Many dairymen do not appreciate the advantage of making occasional changes in the ration. It adds much in keeping up the relish for food in the cows.

For example: Feed bran as the staple grain food for a few weeks; then change to corn and oats, or barley and corn ground together; then to gluten feed, dried beet pulp, or the molasses feed, or indeed any other of the first-class concentrated feeds.

In this way the cow does not become cloyed or off her feed near as often as if one concentrate or another is fed steadily.

We find also that it is a good thing to feed all grain food on corn ensilage.

Wisconsin Law on the Right of Way.

J. L. H., Waukau, Wis.—I have forty acres of land on which I live, and it is the back 40 of 100 acres. My deed calls for a right of way along the line of the other farm. Has the other man any right to build fences across my road and compel me to open and shut gates every time I go to and from my place?

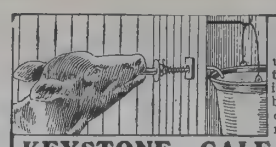
Answer: Our Supreme Court has held "that the owner of land, subject to the right of way, may maintain a gate across the way, if such a gate is necessary to rendered the reasonable use and enjoyment of his lands and does not unreasonably interfere with the use of the way." If your deed simply calls for a right of way and does not specify what kind of of a way it shall be, then your neighbor can build a fence across the right of way and compel you to open and close the gate. But as indicated in the decision quoted above, the fence must be necessary for the reasonable use of this land and must not unreasonably interfere with your use of the way. A reasonable use of his land and a reasonable use of your right of way, are the criterion by which to judge whether or not the fence is proper.—*Farmer Sentinel.*

Physic for Milk Fever.

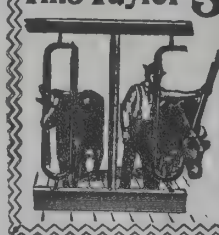
ED. HOARD'S DAIRYMAN:—The writer was recently called to treat a cow that was down with milk fever. On my arrival I found that she was unconscious and laid all stretched out and with every breath a groan, but before my arrival she had been drenched with 4 quarts of flaxseed tea and ½ pound of soap dissolved in it. The next was 4 oz. saltpeter, 40 drops aconite with a quart of water. I applied the Schmidt treatment and in the course of 2½ hours I saw some improvement. I applied the second dose and inside of 30 hours she was on her feet.

I left her for the better, but inside of 24 hours I was called again and found her much worse, labored breathing and a heavy discharge from the nose as though she had contracted a bad cold or pneumonia had set in, no appetite and had been four days sick. I applied the Schmidt treatment again with stimulants and it seemed to revive her at once. Previous to this her bowels refused to act and I gave her pound doses of salts every 2 and 5 hours till they moved. The first dose of flax and soap gave her a severe purging, then they stopped. Did the last physic injure her? After the last treatment, within 10 hours, she began to grow worse, fever increased till she died the 8th day.
Concord, Wis. J. T. G.

You should never give large doses of medicine when a cow is in a comatose condition as the medicine is liable to run down into the lungs and suffocate the animal. When you had applied the Schmidt treatment you should give no more medicine except small doses of heart stimulants. Large and repeated doses of physic are dangerous, as they deplete the animal and may cause enteritis as the mucous membranes are more or less irritable during and after this disease is in progress.

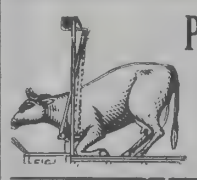


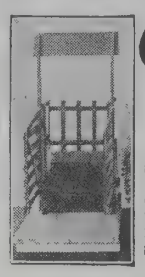
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Used and endorsed by leading dairymen, agricultural colleges and experiment stations. Complete with extra nipple, $1.50, express prepaid. Book free. Agents wanted.
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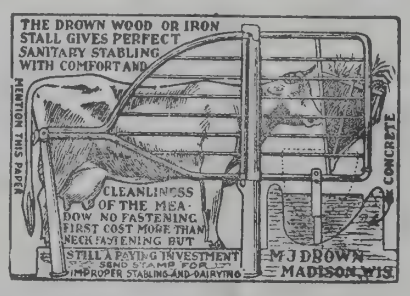
This Taylor Stanchion

is made of angle steel lined with hard wood on side next the animal's neck. It is lighter, neater and stronger than any other stanchion made. Swings on chain at top and bottom and admits of greatest freedom of motion. Cattle can lay with head on side. Easiest opened and closed. Reliable Agents Wanted. Write for special terms, prices, etc.
JAMES BOYLE, SALEM, O.

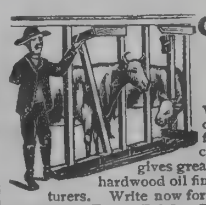
JUST OUT! UNDERHILL SELF ADJUSTING STALL

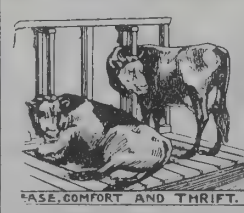
No Gutters
No Platforms
No fastenings
No Stables to clean
Cease trying to keep your cows clean. You can't do it. Give them a chance and they will do it themselves. This is the only way and the easy way. Write for circular telling what the cow has discovered to us. It is a great revelation.
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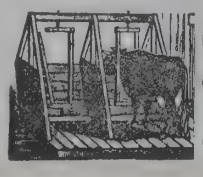

Prescott's Swinging Swivel Stanchion
Keeps Cows Clean.
Swings forward while getting up or lying down. Locks back while standing. Full particulars free.
E. PRESCOTT,
Beverly St., Boston, Mass

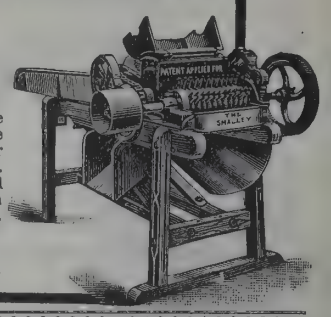
THE NEW PATENT

Cow Stall
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This is the only Cow Stall with a centering hinge. Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars.
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When open is locked ready for cattle to come in; closed, it swings freely. Best dairy cattle tie because comfortable and quiet; gives greatest freedom. Made of selected hardwood oil finished. We are the sole manufacturers. Write now for circulars and delivered prices.
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EASE, COMFORT AND THRIFT.

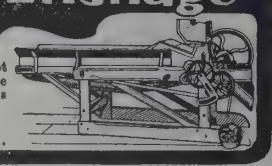

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The Most Practical CATTLE FASTENER ever invented.
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HAS NO EQUAL.

It gives fodder the greatest food value, and makes it easier for the animal to masticate and digest. Requires least power; strong and durable; will outlast a dozen of the saw pattern kind. Knives adjustable to compensate for wear. We can furnish snapper rolls to remove all the ears, just the same as a husker. This combination of cutter, shredder and snapper, costs but little more than the ordinary cutter. We also make drag and circular saws, sweep and tread powers, and ensilage cutters with carriers or blowers to reach any silo. Our free catalogue tells all about our goods. Address Box No. H
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WE GUARANTEE that under the same conditions as to power and speed applied, condition of corn, etc.,

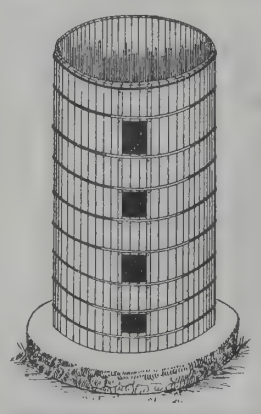
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2-Roll, 4-Roll, and 6-Roll, Down or Mounted.
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will do more and better work than any other machine of like character and corresponding size on the market; that it is simpler in construction; easier in every way to operate; easier and safer to feed and to require less power for successful operation. The proof of these claims is sent for the asking. We make also a complete line of sweep and tread horse powers, shellers, ensilage and fodder cutters, feed grinders, wood saws, windmills, etc. Remember that Appleton quality is the standard of excellence.
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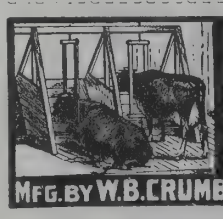

and Shredders. Try one at your own place; if it does not please you better than any other machine you can buy, we stand all expense. Get our catalogue today. It contains largest line made. On the market 35 years.
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SILOS SAVE the entire crop in the best feeding form. Ours are all round. No corners nor angles to admit air and mould and rot the silage. We make them of Cypress, White Pine and White Hemlock. Four styles and 200 sizes. Fit every requirement. Nothing so good, nothing so cheap. We make all kinds of machinery for filling Silos. Catalog free.

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TIME!

Its time for dairymen to act if they want the benefits of a silo this season. You should place your order
NOW
if you want the best, and the best is always the cheapest, especially in Silos. Write us for prices and circular.
If you are in the market we can save you money.
INDIANA SILO CO.,
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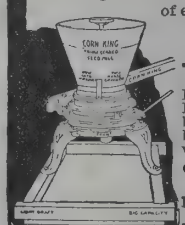
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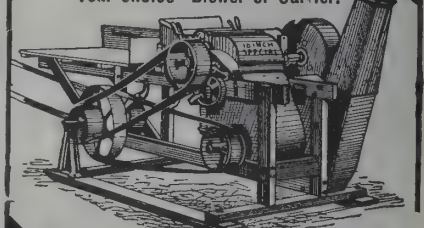

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made entirely of steel and malleable iron. Unlike all others. Affords greatest freedom and motion and always holds the animal. Hung on chains—moves all ways. Lightest, strongest, most convenient and easiest to open and close.
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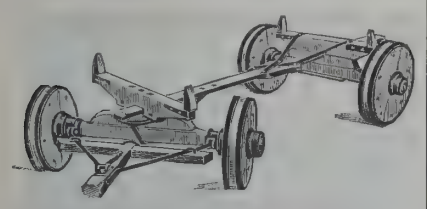
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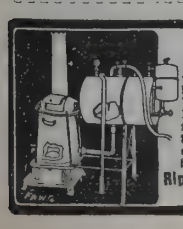
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will cook 25 bushels of feed in 2 hours; heat water in stock tank 250 feet away. Will heat dairy, hog and poultry houses. Made of boiler steel; can't blow up; no flues to rust or leak. PRICES $5 00 TO $45.00; 5 styles and 15 sizes. Sold under a guarantee. Endorsed by Experiment Stations. *Catalogue and prices free.*
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Shall we Educate the Farm Boy?

Shall we educate the farm boy? I, for one, do not dare answer "no;" but the question sets me thinking, and may I hope it sets you doing the same. Shall we, indeed, educate the farm boy? If so, how far, in what direction, by what means, for what?

For what shall we educate the farm boy? A hundred thousand farmer fathers answer in no uncertain voice, "For the farm." A million men of the work shop and the marts of trade echo the answer, "Yes, for the farm. Don't send them to us. Keep them in the free air of God's green country." But what say the boys themselves? A multitude answer, "For anything; but above all give us an education," while another great multitude look up from their toil with a vague, wondering, ambitionless gaze, and answer not at all.

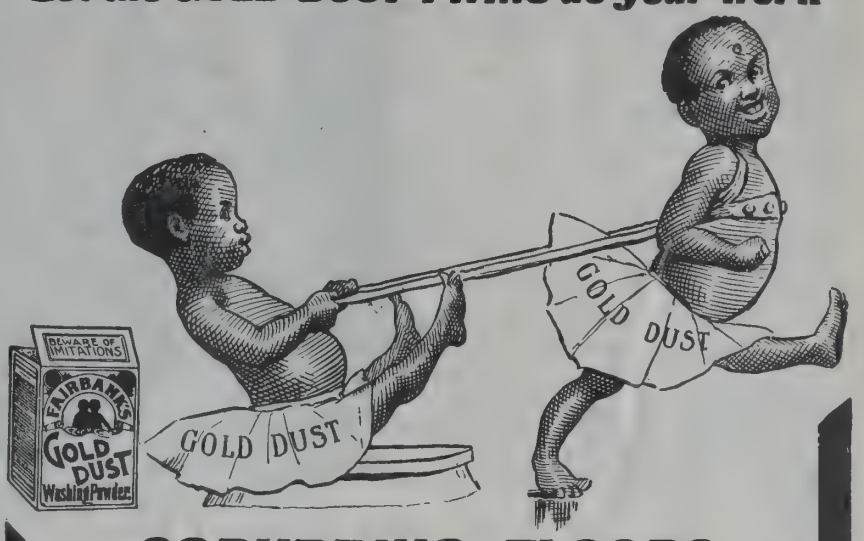
The question "For what?" must be answered in every home by the boy and his parents, after nicely weighing all the thousand and one conditions that surround the boy, and carefully studying the boy himself. It will not do to say, "This boy was born on a farm, and therefore educate him for the farm—keep him on the farm." Common sense would dictate that we educate him for that which God intended him, and it is not so hard to determine this as men suppose, if we set about it right. But if everything in and about the boy marks him for the farm, then what? Well, the question of education for this boy resolves itself into the subordinate questions, How? Where? To what extent?

Let us answer the "how." Shall we send him to college? If so, what kind of a college, and what kind of a course? Shall the course be classical, scientific, philosophical? Shall it include Greek, Latin, French, German, moral and mental philosophy, political economy, astronomy, higher mathematics? Shall we lay the foundations deep in the substrata of ethics, history, literature? Try any one of these, and the chances are that the boy will be lost to the farm forever. For every one boy who goes to the classical school for training and returns voluntarily to the plow, ten thousand turn their backs on that symbol of rural life. Send a country boy to college and expect him back to water stock and cut corn, and you are doomed to bitter disappointment. But may he not pursue at college such scientific studies as form a natural part of the equipment of an educated farmer (so called), such as chemistry and botany, and return thus equipped to take up his life work on the farm? He may and he may not. The chances are he will not. College life will have done its deadly work; the boy will have breathed in an atmosphere heavily laden with professionalism, and the allurements of law, medicine, literature, or business will have bound him with links of steel. Observation leads me to say that the farm boy who goes away from home to institutions of learning, to mingle with boys, seventy-five per cent of whom come from city and country towns, and are bound for city life, will never return, save for periodical visits to the old folks. Twenty-five per cent of the membership of my class in college were boys from the farm, and not one of them returned to the paternal roof tree.

Prof. Vincent of the Chicago University says that if he wanted to make a blacksmith of a boy he would send him to college; but we haven't yet heard from the boy. Blacksmithing is honorable; but if when a boy has gone through college and got an insight into the great world of knowledge, he has no ambition in lines of work higher than that of blacksmithing, there is something wrong with the boy.

Then the query suggests itself, What about the agricultural college? Here the objection holds to a less extent, but there is still danger. Away from the sometimes monotonous round of farm work, in an atmosphere of comparative freedom from restraint, often in a populous community, learning to ape the thoughts and manners of the city about him, with a growing insight into the broad fields of knowledge opening before his eyes by contact with books and men of culture, the chances are that he becomes restless, and wonders if after all the country is the place for him. May there not be, he asks, greater returns for his efforts, a wider scope for his abilities, in other directions? By insidious advances the city, with its myriad attractions, forces its way into his heart and mind, and the old ambition fades into an

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cleans more thoroughly and quickly than soap or any other cleanser. Makes floors bright and hearts light.

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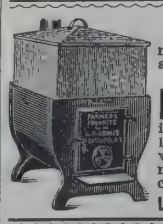
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Send for catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.



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LOW DOWN CUT-UNDER
justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.
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THIS COOKER
makes feed go twice as far, cooks all kinds of feed and serves a dozen other farm purposes. The
Farmer's Favorite
is made to last; heaviest, strongest low-priced cooker made. Model service in soap, sugar, apple butter making, butchering, etc. Write for circular and prices today.
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SAVE FEED.
Feed is fuel to the animal economy. It is burned up to supply internal heat. If it is heated (cooked) before it goes into the animal's stomach it saves that much fuel (feed).
Electric Feed Cookers
save feed, save money, and produce better results. Made of best cast iron with steel linings; boiler made of extra heavy galvanized steel. Capacity 25 to 100 gallons. Circular and price free.
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"It's the shots that hit that count." Winchester Rifle and Pistol Cartridges in all calibers hit, that is, they shoot accurately and strike a good, hard, penetrating blow. This is the kind of cartridges you will get, if you insist on having the time-tried Winchester make.
ALL DEALERS SELL WINCHESTER MAKE OF CARTRIDGES.

impossible reality. He still loves the farm, but ambition, "by which vice fell the angels," has turned his gaze to other and, as he thinks, fairer fields. Even in such schools as give to the employment of farming the most attractive coloring there lies a danger to the farm boy who would honestly strive to remain a farm boy, though an educated one.

The problem with every agricultural school must be to keep the life of the farm attractive, to teach the nobility of labor with the hands when directed by the understanding mind, to present farming as a pursuit requiring the best talent and affording the richest rewards of study and endeavor, to engender the spirit of emulation among boys of the farm class, and to religiously exclude every influence that tends to magnify the pleasures and profits of city life as compared with those of the country.

But the "how" comes fraught with the greatest significance to the boy who cannot go to either the classical or the agricultural school, and who yet wants to be an educated farm boy. This question must at times rise like Banquo's ghost before that boy's father, too, if he have conscience and heart. How shall we educate for the farm the farm boy who cannot go to the agricultural school? I offer a few suggestions. The number could be multiplied.

First, by early giving the boy a position of independence, by never making him a slave, a hired hand, mere help; by giving him, as soon as he knows the difference between "mine" and "thine," something of his own—a horse, a pig, a cow, a calf, a few hens, an acre of ground—something that he may see, and feel and enjoy, and work over and help to increase, something that shall be his own; by adding to his belongings as he grows older, letting him earn these additions of you will (and indeed, this is the better way), but at all events letting him early know the meaning of growing responsibility, and realize the value of money and work. This begets strength of character, pride of possession and purpose in life.

What of it? In addition he has also, after all, the kernel of an education. It sets him thinking, planning and working. Perhaps ere he has reached manhood's estate he has acquired to himself a quarter of the old farm, acquired self-reliant manhood, and by independent, self-directed study he has learned, until perhaps he may even teach his elders. Such a boy soon becomes a reader of farm literature and a student of farm matters. He anxiously waits the coming of the next farm paper, that he may learn to correct some mistake or improve an old method. He is found trying new things and discussing with you or with his associates ways and means which, were he a mere dependent, he would let others solve for him instead of attempting the solution of them himself.

Second, to be his companion. Too many fathers withhold from their sons the pleasure, comfort and help of their comradeship. What a mine of experience is hidden under the snowy locks of that old farmer! Some one has said that Mark Hopkins on one end of a log and a student on the other would make a university. What schools could impart the learning that the old farmer has hewn out of wood and stone and sod? And yet the boy who hungers and thirsts for that knowledge is but a boy to him—perhaps a lazy, shiftless boy, too bad to waste words on. The boy cannot go to college. because his father cannot or will not send



FREE VETERINARY ADVICE DURING NOVEMBER

Until December 1st, Dr. Hess (M.D.,D.V.S.) will furnish every reader of this paper a letter of advice and a special stock prescription, free of charge. This information is free to users of Dr. Hess preparations at all times, but this month we offer it to those who have never used our goods as a means of demonstrating Dr. Hess' ability to formulate stock preparations. If you are in need of special veterinary advice, describe your difficulty fully in a letter to Dr. Hess & Clark, Ashland, Ohio, care of Information Bureau, and the letter of advice and prescription will be furnished you free, providing you state what stock you have (number of head of each kind), what stock food you have fed, and mention this paper. Enclose 2c stamp for reply.

Feeders who use Dr. Hess Stock Food are free from the usual fears that attend the last few weeks' feeding, and the danger of failing weight from lost appetite in the very last days before marketing. Dr. Hess Stock Food, the great stock tonic, keeps up appetite and compels the digestion of all the foods eaten—that means economical feeding and a wonderful development of solid flesh and fat; shortens the feeding period thirty to sixty days; prevents disease by keeping the animal in perfect physical condition; gives that thrifty and vigorous appearance that makes cattle "top the market" at selling time.

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fine or coarse, for feed or family use. **Has shake feed** which insures regular and even work.

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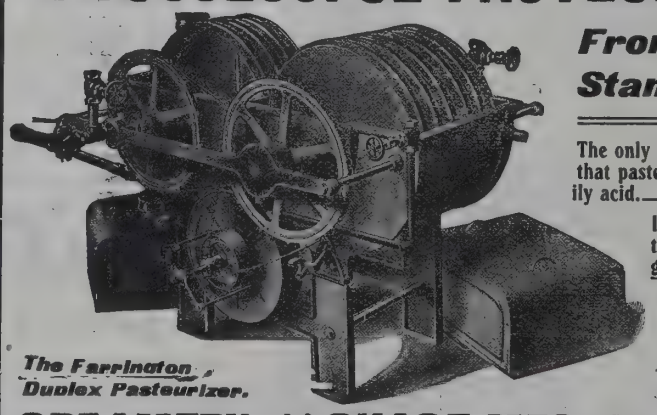
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is unconditionally the best heater made. Price $6.50. We pay the freight. Address

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and ask us to mail you our new illustrated stove catalogue, and we will forward postpaid our complete catalogue of stoves and ranges, which illustrates and describes everything in the stove line for cooking and heating worthy of your consideration—all at prices decidedly low. We sell only the best grades, avoiding the very cheapest. If you want an honestly made stove you cannot afford to place your order until you have seen our stove catalogue. A postal card will bring it.

$4.00 as here illustrated.



$3.20 is our price for a good stove with a 9¾-inch firepot. It is a much better stove than some firms sell at a higher price, but if you want the best send for our stove catalogue and read about our famous Home Oak stoves. The illustration shows our well known Home Oak stove; a very powerful heater made of No. 18 gauge cold rolled steel and finished with artistic nickelplated trimmings. It is 43 inches high, 9¾ inches round and weighs 63 pounds. $4.53 buys larger size weighing 75 lbs.

$5.87 is the price of the most popular size of the Home Oak stove. 48 inches high, 13½ inches round, 13¾ inch firepot, weight 108 pounds. The Home Oak stoves are the best, not the cheapest, and are fully guaranteed.

$1.14 Air-tight heater made better than others on the market and cheapest at our price. We do not sell the cheapest that we can make. This air-tight heater at $1.14 is a better bargain than others at 95 cents up. It pays to buy the best.



$2.88 for an honestly made kerosene oil heater. Other styles, $3.35, $3.68, $4.80, $7.00 and $7.35. 34

Don't waste your money by purchasing a cheap stove. Get an honestly made one even if does cost a trifle more. Our stoves are all honestly made and sold at remarkably low prices. Our free stove catalogue describes our handsome base burners, also a score of other styles—all good, all low priced. You cannot afford to buy until you have heard from us. Simply write a postal card and ask for stove catalogue. We will send it promptly. Address

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A Fence Machine that will make over 100 Styles of Fence and from 50 to 70 rods a day
AT ACTUAL COST OF WIRE
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him; and yet the old man, with a school in his own head, covering nearly every point of practical farming, from weeds to weather, deliberately shuts the door to the boy, and throws away the key. No wonder the boy is ignorant! The wonder is, he isn't a criminal. Maybe he is. A farmer father should himself be a student of the farm, and his boy should be his fellow student. The father should talk to the boy, explain the whys and wherefores, catechize him, teach him, drill him, until, when he is able to count twenty-one years, he has graduated from the home school and learned all that the father has learned in the hard, expensive school of that father's experience.

Third, give him an attractive home. This must be, if you are to keep him on the farm. Make the home a place where he shall want to stay. Give him company and books and papers, a room of his own and decent furniture. Surround him with the most attractive farm literature. Wherever he turns let him find wise guidance in the line of his work. At first he may read sparingly; at last he will read eagerly. Thus you can almost bring the agricultural school into your own home. Books and papers in the line of farm work are offered on every hand, much of it of a high order. Buy it. Be extravagant in this if in anything.

The farm boy who is brought up under such conditions will come very near being an educated boy. Shall we, then, educate the farm boy! Yes, a thousand times, yes. If he is to be kept on the farm, send him to a good agricultural school if you can—and the chances are you can by a little heroic sacrifice—and while he is there watch his environment and development; but most of all, give him the home schooling that every father owes his boy. Every man may be immortal on the earth, if he will but strive to live in the lives of his children. Empty your heart, your experience, your wisdom, into his life, and early let him feel the touch of your sympathetic interest. This, with the fostering in him of a spirit of independent manhood as he grows older, will make of him an educated farmer—educated enough, at least, to fill the Creator's purpose in him, and that should be enough to fill yours.—W. C. SPRAGUE, Editor of American Boy, in *The Farm Home.*

Bogus Butter.

How Solicitous for the "Poor Man" the Oleo Dealers are When they Resort to Every Trick to Sell Him Oleo for Butter.

A Washington, D. C., correspondent writes a comment to *Country Gentleman* of interest as follows:

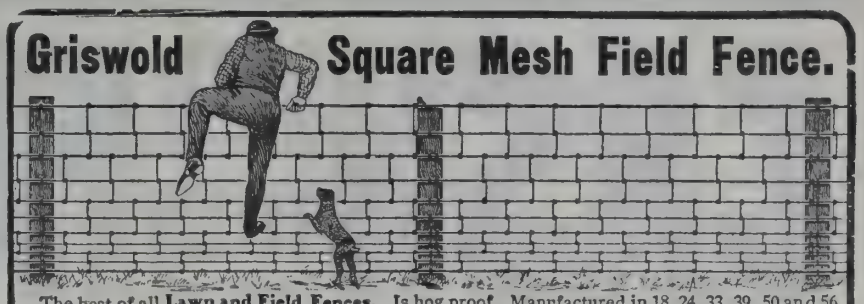
One of this city's daily papers has recently received an anonymous communication which relates to a subject of considerable interest to your readers. This letter, purporting to be from a "workman," contains the following:

"When the recent attempts of Secretary of the Treasury Shaw, to reduce the surplus accumulations in the United States Treasury are considered in connection with the tax of 10c per pound on oleomargarine, imposed by the present administration, it would seem that the republican government has done a very unwise thing, to say the least, to tax the workingman's butter on his bread, in order to pile up a surplus that threatens a financial panic. If the tax is not imposed for revenue, the bill is in itself a fraud, for it claims to be a revenue bill, which is the only basis on which it can stand. No other country on the globe taxes oleomargarine or butter, and a necessity for such taxes in a free country is not clear to any thinking mind."

The editor's comment on the above expresses some doubt as to its being the production of a workman.' Indeed suspicion strongly points to the writer as being an agent of the oleomargarine interest, because of the reference to the oleo law as a revenue producing measure. That was the Shibboleth of the oleo fighters in Congress in the attacks on the bill, and it has formed the basis of legal contentions aimed against its administration. The fact is that most laws which seek to correct evils or to achieve general results, through the imposition of taxes, are framed as revenue measures and are so treated in the formal course of their enactment.

This law was enacted, and is now enforced, as far as possible, for the purpose of putting a stop to certain frauds on the pockets of the people. Oleomargarine was sold as butter and at butter prices in enormous quantities. The producers and

Griswold Square Mesh Field Fence.



The best of all **Lawn and Field Fences.** Is hog proof. Manufactured in 18, 24, 33, 39, 50 and 56 inch heights; in 20 and 40 rod rolls. The narrow widths can be supplemented to any height desired by Barbed or Plain wire, or two strand twisted Cable wire. Manufacturers of **Diamond Mesh Fence. Plain, Galvanized, Barbed or Telephone Wire. Wire Nails and Hay Bale Ties.** Write for illustrated catalogues and price lists. **Dillon-Griswold Wire Co., Sterling, Ill.**

Flavor

The market value of butter is unquestionably its flavor, and its flavor is unquestionably affected by the quality of the salt used. Prize winning butter makers always use DIAMOND CRYSTAL SALT—"*the Salt that's ALL Salt*"—to insure that *winning flavor*. Its pure, dry flakes quickly dissolve—assimilate *evenly* through the butter, and add a keeping quality that is inestimable. No waste—no grit—no mottled effect. The only salt in the world that's all salt. Dairymen will find our illustrated booklet "Just Salt" contains valuable hints. We send it free.

DIAMOND CRYSTAL SALT CO., ST. CLAIR, MICH.

BUTTER FOR UNCLE SAM

THE CONTINENTAL CREAMERY COMPANY
TOPEKA, KANSAS

Has been awarded the contract to supply the United States Navy with half a million pounds of butter for the ensuing year.

For this purpose only the best quality of butter is used, and its keeping quality must be made of the very best, owing to the fact that the entire year's supply must be made within a few months and it is carried through all conditions of climate.

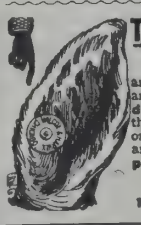
The government has made a thorough study of supplying butter to suit the requirements of the Navy and as a result it has laid down some very exacting standards to which those who bid for these contracts must comply. One of the few concerns who can fulfill these requirements is the Continental Creamery Co. and it was awarded this contract, which is the biggest single order for butter ever filled.

This company produces the greatest quantity of fancy creamery butter in the world, all of which is made from pasteurized cream. Surely it knows something about making good butter. It also knows from actual experience and the investigations of its chemists, that one of the factors in making good butter is

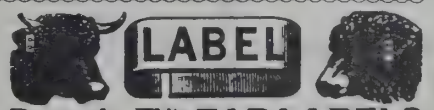
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FOR SALE BY ALL CREAMERY SUPPLY HOUSES.

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The "STAY THERE"
Aluminum Ear Markers
are the best. Being made of aluminum they are brighter, lighter, stronger and more durable than any other. Fit any part of the ear. Nothing to catch on feed trough or other obstacle. Your name, address and any series of numbers on each tag. Sample tag, catalogue and prices mailed free. Ask for them. Address
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Dana's White Metallic EAR LABELS
stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Samples free. Agents Wanted.
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New American Manure Spreaders

hold from 50 to 100 bushels. Spread just as thin or thick, fine or coarse, as ground requires. Don't have to stop team to make change. Most substantial, largest capacity, lightest draft.

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CASH FOR YOUR FARM

(OR OTHER REAL ESTATE)

NO MATTER WHERE IT IS

If I did not have the ability and facilities to sell your property, I certainly could not afford to pay for this advertisement. This "ad" (like all of my other "ads") is practically sure to place on my list a number of new properties, and I am just as sure to sell these properties, and make enough money in commissions to pay for the cost of this "ad" and make a good profit besides. That is why I have the largest real estate business in the world to-day.

Why not put your property among the number that will be listed and sold as a result of this "ad?"

I will not only be able to sell it—sometime—but will be able to sell it quickly. I am a specialist in quick sales. I have the most complete and up-to-date equipment in the world.

I do not handle any of the side lines usually carried by the ordinary real estate agent. I do not make any money through renting, conveyancing, mortgages, insurance, etc. ***I must sell*** real estate—and lots of it—or go out of business. I can assure you I am not going out of business. On the contrary, I have already sold twice as many properties this year as I did during 1902 and expect to sell ***several times*** as many next year.



Eight years' experience, offices in principal cities from Boston to San Francisco, hundreds of representatives and an expenditure of over $100,000 a year in advertising, gives me better facilities for quickly selling your property than any other broker anywhere.

It doesn't matter what kind of a property you have; it doesn't matter whether it is worth $500 or $500,000, or in what state or territory it is located. If you will send me a description including your lowest cash price, I will tell you how and why I can quickly convert it into cash, and will give you my complete plan (free) and terms for handling it. The information I will give you will be of great value to you, even if you should decide not to sell. Fill out the upper coupon on this page and mail it to me to-day.

If you want to buy any kind of a property, anywhere, fill out the lower coupon on this page and mail it to me to-day. I will guarantee to promptly fill your requirements and save you some money.

W. M. Ostrander, 250 North American Bldg. PHILADELPHIA.

CALIFORNIA.
Find enclosed check for $407.00 in full payment of balance of your commission on the sale of my timber lands in this place. I must say, at this long distance, it is certainly wonderful how you are able to find the parties who wish to purchase. I never more willingly paid for services than I do in this case. I wish you all the success which you so richly deserve.
C. P. Higgins, Monroe, Cal.

NEW JERSEY.
We have received the check in full payment for our New Jersey property. It is a remarkable fact that this property has been on the market and in the hands of various agents for more than twenty years, and your success in making a cash sale in a short time is proof to us that you are the only agent who ever made a real effort to dispose of it. Your methods are up-to-date.
Mr. & Mrs. O. C. Whittemore, Athol, Mass.

FLORIDA.
Yours, 26th inst., containing money-order for payment on Florida property is received. I thank you for the efforts you have made to effect a sale.
Wm. S. Tancre, 1120 G St., N. E., Washington, D. C.

NEW YORK.
I am in receipt of your letter acknowledging draft covering commission on the sale of my office building, at Amsterdam, N. Y., for $10,000 cash. I wish to thank you for the interest you have taken in the matter, and express my satisfaction at having entrusted you with the business.
W. G. Barnes, Seattle, Wash.

SOUTH DAKOTA.
I am in receipt to-day of your check in full settlement for my Brown Co., S. D., farm which you have sold for me. Your ability to sell at long range has been proven to my satisfaction. Thanking you for the attention given my case, I remain.
David Armstrong, Hayesville, Ohio.

COLORADO.
I received your check to-day covering the full amount realized on my building lots at Boulder, Colo. I am pleased with the way you have handled this matter, and can endorse your method of completing quick sales. I again thank you.
H. McC. Hart, Box 227 Halifax, Nova Scotia.

IOWA.
I approve of your up-to-date and thorough methods displayed in conducting your business. The several farms which you have secured for my clients have all proven satisfactory, and I shall certainly call upon you for more properties from time to time as I find the buyers.
L. T. Graves, Emmetsburg, Iowa.

VIRGINIA.
I hereby acknowledge receipt of your check, payment in full for the Bedford Co., Va., farm you sold for me. My dealings with you have been entirely satisfactory. I wish to thank you for the attention you have accorded me.
Mrs. E. B. Stevens, Baltimore, Md.

MINNESOTA.
I have to thank you, as it was through your "Monthly List" that I found my bargain, and I will truly recommend you as the safest and best real estate dealer and agent in the United States.
Frank G. Wilson, Cyrus, Minn.

PENNSYLVANIA.
I have received in cash, my price, less your commission, in full payment for my Hollidaysburg property. Your services have been highly satisfactory in every way, and your promptness in finding a cash buyer is substantial evidence of the superiority of your methods. I earnestly recommend your services to any one having real estate for sale.
J. Guss Ditting, Hollidaysburg, Pa.

OHIO.
I received the deed and papers to-day for the farm which you secured for me in exchange for my building lots. I wish to thank you for the attention you have given this matter, and from my experience can recommend you to any one wishing to find property or to any one wishing to dispose of property.
J. O. Moss, Cambridge, Ohio.

TEXAS.
I have finally completed a satisfactory trade with your client, in which he accepted in part pay for his property my Manvel, Texas, real estate. I appreciate the efforts you have made in this direction, and am satisfied with what has been accomplished. Should I have any further dealings in real estate I will certainly accord you the first opportunity of handling the business.
D. W. Lentz, Manvel, Texas.

ILLINOIS.
On September 15th I mailed you the balance of commission due you for selling my Illinois farm. I thank you for the promptness and the businesslike manner in which you handled this transaction, and wish to express my gratification that so little time elapsed between the time I placed the property in your hands and the time the buyer arrived at the farm.
P. G. Ragains, Norman, Okla.

KANSAS.
Your letter received, enclosing check for one of my Kansas farms, sale of which you have just completed. I am pleased that the many difficulties which arose in connection with this matter were successfully overcome.
Charlotte D. Knox, Peekskill, N. Y.

MICHIGAN.
I am in receipt to-day of your check and papers in final settlement on the sale of my Michigan farm. I am well pleased with the manner in which this transaction was handled, and can say from personal experience that your methods are straightforward and show results.
George Martin, Platte, Mich.

NEW MEXICO.
I have received deed and other papers for the transfer of my property in Messilla Park, New Mexico. I desire to compliment you upon the good and prompt service, and I gladly recommend your services to any one who wants to buy or sell.
F. W. Brady, Scranton, Pa.

ALABAMA.
Your letter and your personal check came duly to hand. Thanks. I really think you are a gentleman above the average, and the best and fairest real estate man I ever dealt with. No honest person can find fault with your rules governing the advertisements and sale of lots and farms.
W. T. Trammell, Scottsboro, Ala.

NEBRASKA.
I beg to acknowledge check in settlement for the Hayes Co., Nebraska, quarter section, the sale of which you have just completed. This, I believe, is the last one of the sales which you have made on my western holdings. I appreciate your success in disposing of the several properties placed in your hands, and feel satisfied with the attention you have given me.
H. J. Wynkoop, Bath, N. Y.

SOUTH CAROLINA.
The transfer of my property, made by you, was completed to my entire satisfaction. I thank you for the prompt and careful service.
R. P. Ranson, Williamston, S. C.

WISCONSIN.
I have the pleasure of acknowledging your check for $1268.00, in settlement for the Jackson County, Wis., land, sale of which you have just completed. Your efforts have been entirely satisfactory to me, particularly as the land was only placed in your hands the latter part of February.
Henry Griffeth, Shandaken, N. Y.

MARYLAND.
I received your letter this morning, enclosing check for my Maryland farm, the sale of which you have just completed. I consider your method of advertising and system of handling property furnishes the surest means of converting real estate into cash, which the present generation has an opportunity to enjoy. I thank you for your promptness in this matter.
J. Burns, 7 W. 98th St., New York City, N. Y.

MASSACHUSETTS.
Your letter notifying me of the sale of my Dorchester property through your office is at hand. I must say you have handled the matter to my complete satisfaction. I have had my property in other agents' hands before who have put it on their books and seemed to forget it at once.
V. Harris, Rochester, N. Y.

If You Want to SELL, Fill Out, Cut Out, and Mail this Coupon to me to-day

W. M. OSTRANDER *1903*
250 North American Bldg., Philadelphia.
Please send without cost to me, a plan for finding a cash buyer for my

property, which consists of.....

.....*in the town or city of*.....

County of.....*and State of*.....

and which I desire to sell for $.....
The plan is to be based upon the following brief description of the

property .....

.....

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Name.....

Address .....

If You Want to BUY, Fill Out, Cut Out, and Mail this Coupon to me to-day

W. M. OSTRANDER *1903*
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With a view of buying, I desire information about properties which correspond approximately with the following specifications.

Kind of Property.....*Size*.....

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The price must be between $.....*and $*..... *I will pay*

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retailers were reaping an exorbitant, dishonest profit. It was found that the only way to prevent this peculiarly offensive form of fraud was to impose a differential tax on artificial butter, one tax of 10 cents a pound on all such products colored to imitate butter, and an insignificant tax of a fraction of 1 cent a pound on uncolored oleomargarine. Thus it was sought to permit those who wished the cheap form of artificial butter to secure it at the former cheap rate, while those who wished it colored to resemble butter could buy at a higher rate, but one which was still somewhat lower than the price of genuine butter.

The incentive to defraud the customer, which under previous conditions proved so tempting, was removed. The act was clearly not designed as a producer of revenue, for if all oleomargarine were marketed uncolored, the revenue would be less than sufficient to meet the cost of enforcement. The workingman who demands a cheap butter imitation can obtain it today just as surely as he could before the passage of this law. And if he has compunctions against putting it uncolored on his table, he can cheaply provide himself with a coloring agent. Furthermore, this statute is not a partisan product. At no time did party politics enter into the case. The law was passed, upon the non-partisan demand of the dairymen of the country and to meet the needs of the general buying public, regardless of party.

It is learned from an official of the Internal Revenue Bureau that the Commissioner, after a full hearing, having decided that the corporation of which Wm. J. Moxley is the head, did and does use artificial coloring matter in their manufacture of oleomargarine; that the corporation has started suit in the United States circuit court at Chicago to recover $35,000, which it was compelled to pay as a penalty for alleged violation of the law. While this is known as an action in assumpsit and will probably be tried before a jury, there are important law questions in the suit which will be argued before the judge, thus giving the court the opportunity to review the argument made before the department some months ago, that palm oil was the principal ingredient used by the Moxley corporation in coloring the oleomargarine, and that such coloring matter did not constitute artificial coloration.

Milk and Brain Power.

At a public meeting held at Palo Alto, the seat of Stanford University, to discuss the movement to establish a sanitary dairy on a co-operative basis as a means of securing pure milk for the town, Prof. I. P. Roberts of Cornell University, one of the most noted authorities on agricultural affairs in the country, was present and delivered an address on the relation of food to mankind. The address was very interesting, according to the synopsis given by the *Palo Alto Times* from which the following is taken:

He spoke of the effect of food upon civilization, showing that those nations which used the most concentrated foods, which give a reserve of mental power, have attained the highest civilization. The Americans lead the world because they use more milk, butter, sugar, fruit and wheaten bread than any other nations. The Turk, for instance, uses only one-tenth of the sugar and one-fortieth of the butter that Americans use. No savage or barbarian people can be civilized until their food is improved. Neither can breeds of animals be improved without care in the food used.

Milk and butter are the most perfect foods, giving, in concentrated forms that are easy of digestion, all the elements needed. Butter, he said, is concentrated sunshine, and sunshine stimulates, as may be shown by the superior physical appearance of Californians.

Dr. Roberts showed plainly the necessity for the use of milk as food, and for the utmost care in producing and dispensing milk.

He spoke of the difficulty and danger that had arisen at Ithaca through an epidemic of typhoid. The prosperity of Ithaca depends upon Cornell, and if students fail to enter the university the town is injured financially. The prosperity of Palo Alto was closely linked with Stanford, and if conditions should arise to keep students away property values would be decreased, and the town would retrograde. It was therefore important to use the utmost care to prevent unsanitary conditions.—*Dairy and Produce Review.*

HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., NOVEMBER 13, 1903. NUMBER 40

HAND SEPARATOR BUTTER always brings a good price. We make it a specialty. Why sell your cream when you can get from 1½% to 30% more for butter? Save "the over-run" for yourself. Send for market quotations and make us a trial shipment.
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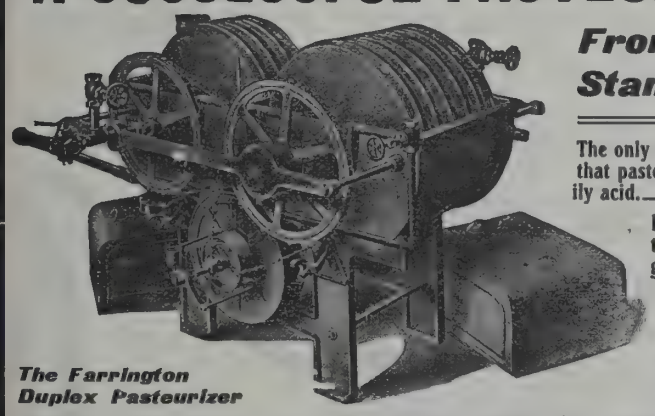
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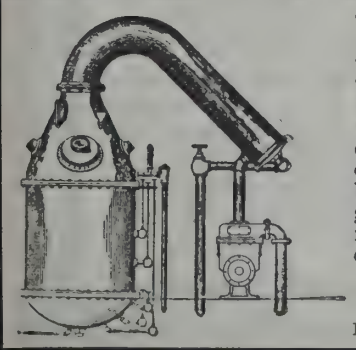


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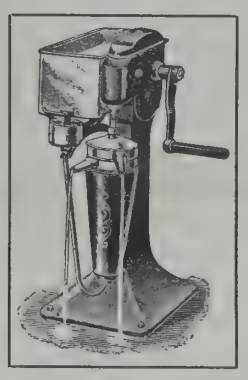
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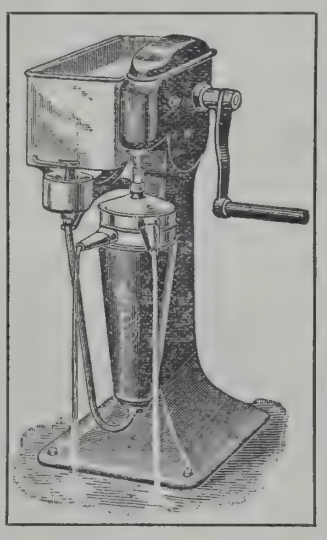
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The only Pasteurizer made that pasteurizes milk heavily acid.
It makes good Butter — that makes good business.
Your Butter will score 8 points higher.
The Farrington Duplex Pasteurizer
Write to the
CREAMERY PACKAGE MFG. COMPANY
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I supply the most improved machinery and most successful processes for manufacturing all classes of condensed milk and evaporated cream. Factories built complete, put in operation and results guaranteed. If you are interested write for my new illustrated and descriptive catalogue. The only catalogue ever published on the subject.
R. R. ROGERS, Winthrop, Maine.
(Formerly of Detroit, Mich.)
I am not associated with any person, firm or company.

A Good Word for Tubular Separators

The following item is from that great farm journal, the "New York Tribune Farmer", of October 29th, 1903. We hope it will not lessen the pleasure other separator manufacturers take in telling what sometimes seem rather large stories of the number of machines they have made—or are going to make.





"The remarkable business being done by P. M. Sharples, manufacturer of the Sharples Tubular Separator, at West Chester, Penn., is witnessed by the fact that he is again enlarging his plant. Last year large additions were made which it was supposed would meet all demands for manufacturing and storage. But the inability to keep up with their orders during the past year determined the necessity for the buildings now being erected with all possible speed. They are a brick boxing and storage building, 272 feet by 32 feet in size, and a blacksmith and tool maker's shop, with room for tinning furnaces, 45 feet by 100 feet. The West Chester factory was already the largest in the country. Nothing short of phenomenal demand for the popular Tubular Separator could make necessary the extensive enlargements at this time. The prospects for the Tubular seem to be exceedingly bright. The outlook for the immediate future gives promise of taxing to its full capacity the great plant, with all its superior facilities."

Write for Catalog No. 144

The Sharples Co., CHICAGO, ILL. **P. M. Sharples,** WEST CHESTER, PA.

MACBETH, on a lamp-chimney, stays there.

My Index tells what chimney fits your lamp. If you use that chimney, you get perhaps twice as much light, and save a dollar or two a year of chimney-money,

I send it free; am glad to.

MACBETH, Pittsburgh.

Painkiller PERRY DAVIS'

The world-known household remedy for cuts, burns, bruises—coughs, colds, sore throat.

MILL FEED We sell direct to consumers at lowest wholesale mill prices, paying no rebates to dealers in your locality. Send your name for regular quotations. No charge. COOPER COMMISSION CO., 754 Andrus Bldg., Minneapolis



Make More Money

from your hogs. If you are feeding for the market you will find they fatten faster and keep in best condition if you give a ration of the genuine

Alma Dried-Molasses Beet-Pulp with the grain. The reason for this is that this food increases the appetite and the hogs can eat more; and as it also aids digestion and assimilation they get all the good of all they eat.

Cotta & Jacobson, Kankakee, Ill., write: "Book our order now for two more tons of Dried-Molasses Beet-Pulp to be shipped immediately. We don't want to be without this feed a single day. We have never found anything we like better for hogs."

The Alma Dried-Molasses Beet-Pulp is the best food for sows before and after farrowing, and for young pigs.

It keeps them healthy and prevents disease. Send for our booklet describing how Alma Dried-Molasses Beet-Pulp is made. It will interest you.

Do not confuse this with wet beet pulp which freezes and ferments, or with common dried pulp containing no additional sugar. It takes 16 tons of wet pulp to make one ton of our Food, and it keeps indefinitely. The genuine Alma Dried-Molasses Beet-Pulp contains 72 times as much sugar as wet pulp, and nearly 5 times as much as common dried pulp. Write today. Address

Dept. 6 Alma Sugar Company, Alma, Michigan.

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MOLASSES FEED

ANALYSIS:
PROTEIN 21 FAT 3

For Dairy Cattle and Horses. If your dealers do not keep it write us for prices and sample.

M. G. RANKIN & CO.,
Herman Bldg. Milwaukee, Wis.

Official Tests by the Wisconsin Experiment Station.

ED. HOARD'S DAIRYMAN:—Your Wisconsin subscribers may be interested in the following information concerning the so-called Official Tests of Dairy Cows, conducted by this Experiment Station during the present fall. These tests are of two kinds, viz., one day tests, conducted once every month throughout the year, and tests continued for seven or more consecutive days. The former tests are conducted in conjunction with the American Guernsey Cattle Club, and, privately, for one Jersey breeder, Mr. F. H. Scribner of Rosendale, Wis.; the latter tests are conducted in conjunction with the Holstein-Friesian Association of America, and the authorities of the International Live Stock Exposition for cows entered in competition in the "Farmers' Cow Contest." All the tests are conducted under stringent rules adopted by our Station which are intended to render them absolutely reliable and beyond suspicion of deception.

During the past month we have conducted tests of pure bred cows in the herds of the following breeders of Guernsey cattle:

	No. of cows tested.
Geo. C. Hill & Son, Rosendale, Wis	5 cows
Fred Vogel, Jr., Milwaukee, Wis	5 "
Ben Clark, Whitewater, Wis	7 "
M. D. Cunningham, Kansasville, Wis	5 "
Remington & Son, Elk Mound, Wis.	1 "

In addition, five cows have been tested in Mr. Scribner's herd, making a total of 27 Guernsey or Jersey cows tested by us during the past month. The number is apt to vary somewhat from month to month, as some cows will be added to the list and others taken off, from the fact that they either freshen or are being dried off. In case of these tests the breeders keep the weights of milk produced and the feed consumed by the cows, the results of the tests being used for obtaining the average quality of the milk for each cow during the month and as a check on the weights of milk reported by the owners. In these one-day tests one of our Station representatives comes unannounced once a month to the respective farms and tests the cows for a full day, for either two or three milkings.

The greatest call for men to conduct seven or thirty-day official tests of Holstein cows comes during the winter months when most of the cows freshen and when the conditions surrounding the cows are under better control of the breeder than at any other time during the year. Applications for these tests are, therefore, only beginning to come in. Five tests have been conducted by us for the following Holstein breeders since October 1st: F. B. Fargo, Lake Mills, Wis.; E. E. Randall, Watertown, Wis.; August Seefeldt, Hochheim, Wis.; McGeoch Estate, Milwaukee, Wis.; S. B. Jones & Son, Watertown, Wis., and Rust Bros., of West Allis, Wis. The latter three tests are in progress at this writing. In addition, applications for tests to begin in the near future have been received from W. H. Jones, Watertown, M. H. Gardner, Darien, and Frank Brewster, Bowers, Wis.

It will not be necessary to describe in this place the manner of conducting official tests adopted by us or to give the rules governing these. This information is given in our annual reports and will also be found in a bulletin to be published in the near future by our Station. A full account of the official tests conducted by us during the year ending October 1st, 1903, will be given in this bulletin.

F. W. WOLL.
Wisconsin Experiment Station.

In a Nutshell.

A Vermont subscriber to the DAIRYMAN in renewing his subscription sums up the case as follows:

"It is worth a good deal more than a dollar a year to me to associate in thought and practice with the best dairymen of the country—such as, for instance, read HOARD'S DAIRYMAN. I like good society and you can't get it for nothing. It is a great thing to provide one's self with the right kind of stimulant.

AN INSTANT'S PAIN and the dehorning job is smoothly done, no crushing or bruising if the

KEYSTONE Dehorning Knife

is used. Easy, sure and most speedy in operation. No evil results can follow. Cuts from four sides at once. Endorsed by veterinarians. Guaranteed.

M. T. Phillips, Box 13, Pomeroy, Pa.



Send for free circulars.



The ordinary yellow laundry soap may do well enough for scrubbing and for the coarser work in the laundry, but to get a clear snow white in the linens and muslins, to save the costly embroideries and the sheer and delicate fabrics, to avoid the unpleasant odor that is often too perceptible in the towels and bed linen, use Ivory Soap, a pure soap made of only the cleanest, best materials.

Ivory Soap

99 44/100 Per Cent. Pure.

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Elmco Fancy White Middlings.

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F. W. WOLL, Chemist, University of Wis., Agricultural Experiment Sta.

Especially adapted for stock feeding, and well calculated to enrich any lighter feed; being easily digested and assimilated it affords greater profit than any other feed. **Elmco Fancy White Middlings** make bone and muscle which turns into money quickly.

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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairyman's Association.

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All countries in the Postal Union $2.04 a year; not in the Postal Union $2.56. Included postage.

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Reading notices, 50 cents per line (nonpariel measure) each insertion.

Entered at Fort Atkinson, Wisconsin, as second-class matter.

The World's Year's Butter Fat Record Broken.

The above is the title of a printed slip sent us by Mr. Wm. H. Caldwell, Secretary of the American Guernsey Cattle Club, and with it was the cut from which the accompanying illustration is printed. We quite agree with Mr. Caldwell that the record which follows is "certainly a credit to the cow and her owner, and to the careful management which Mr. Hope has given her."

Further comment would be superfluous, but it may be neither out of place nor out of season, to call attention to the fact that this remarkable dairy cow has the rising "pelvic arch," the "incurving thigh" and the "high arching flank," as well as the large middle piece and other outward indications which usually distinguish the good dairy cow, of whatever breed she may chance to be.

The Senior editor had the pleasure of visiting Mr. Twombly's herd last spring and made a special study of this cow, with the result that he was prepared to expect great things of her.

Following is the history, decription and record of this cow as sent us by Mr. Caldwell:

Charmante of the Gron, No. 14442, was imported by Mr. H. McK. Twombly in 1901 from the herd of Mr. E. A. Hambro of Kent, England. She was dropped July 7, 1896, and is registered on the Island as 3944 P. S., R. G. A. S. Her sire is His Magesty 952 P. S., R. G. A. S., and her dam was Charmante 5th. 2619 P. S., R. G. A. S., known in England as MaCharmante 4890 E. G. H. B. She was bred by Mr. J. Bourgaize, Gron, St. Savior's, Guernsey. Charmante of the Gron is a very well marked cow, of good dairy conformation, with excellent udder, and a great credit to the breed and to Mr. Twombly's choice herd. She dropped a bull calf Oct. 6, 1902, and he is developing into an animal of much promise and is known as Florham King No. 8401.

Her year's record began Oct. 11th, 1902, and the requirements for her admission to The Advanced Register were 10,000 lbs. milk; 360 lbs. butter fat. The results of her year's work are as follows:

IMP. CHARMANTE of the GRON.

MONTH.	*Lbs. milk.*	*Per cent butter fat.*	*Lbs. butter fat.*
Oct. 11-31	693.56	4.9	33.98
Nov.	1194.94	5.3	63.33
Dec.	1142.25	5.4	61.68
Jan.	1121.06	6.1	68.38
Feb.	1019.25	5.7	58.10
March	1108.50	5.6	62.08
April	997.40	6.0	59.84
May	1078.20	6.2	66.85
June	1013.00	5.6	56.72
July	864.85	5.7	49.30
Aug	769.45	5.7	43.86
Sept	710.25	6.0	42.62
Oct 1-10	162.05	6.0	9.72
Total	11874.76	5.7 Av.	676.46

This record was supervised in connection with the New Jersey Agricultural Experiment Station. Not only does the work of the year greatly exceed the requirements of the Register, but it is the best year's record of a cow of any breed in the world, where public supervision has been given same. It is equivalent to 789.2 pounds of butter, or an average of 2.16 pounds butter a day.

Mr. Jos. L. Hope, the able superintendent of Mr. Twombley's Florham Farms, gives the following data as to the feed consumed by the cow during the year.

	lbs.
Bran	1,726
Gluten	833
Cotton Seed Meal	160
Linseed Meal	134
Corn Meal	58
Middlings	58
Total	2,969

Or 8 lbs. a day.

For roughage she had corn ensilage, beets or mangels, and mixed hay in winter. In summer, in addition to pasturage, she had in season, oats and peas, green clover, alfalfa and corn fodder.

This record is certainly a credit to the cow and her owner, and to the careful management which Mr. Hope has given her.

Dairy Questions Answered by Prof. Farrington.

TESTING AND PAYING FOR FARM SEPARATOR CREAM.

In handling cream from patrons who skim their own milk with a hand separator, does not a patron lose something by sharing equally with the other patrons who bring milk to the factory?

In testing cream do you use more acid than 17 c. c.? I find the fat always remains white and not the natural color we get in testing milk when using the ordinary quantity of acid.

What is the average per cent of overrun from cream?

Would a man be safe in paying the Elgin price for butter fat in cream and expect to make a commission of three cents per pound on the butter churned every day? C. H.
Waunakee, Wis.

In order to justly pay cream patrons at a factory where milk is received, it is necessary to make some provision for the fat which is retained at home in the skim milk. The milk patrons are paid for the total amount of fat in the milk which they deliver to the factory. The skim milk from this whole milk is returned to them, and this skim milk usually contains somewhere near .1 of one per cent fat. The milk patrons are paid for the fat in the skim milk, because they are paid by the weight and test of the whole milk which they deliver to the factory. You must, therefore, in order to pay the cream patrons on the same basis as the milk patrons, make some provisions for calculating the amount due him for fat in the milk from which his cream is skimmed. Such an adjustment can be made by increasing the cream fat by the amount left in the skim milk at home. The fat in the skim milk can be fairly estimated to be about three per cent of the total fat in the whole milk. This does not mean that the skim milk tests 3.0 per cent but means that the skim milk tests .12 per cent fat, and when the whole milk tests 4.0 per cent this .12 is just 3.0 per cent of the 4.0 per cent, If you pay your cream patrons on this basis your account with them will be something like the following:

Patron A delivers 320 pounds of cream testing 20 per cent fat; multiplying the weight of cream by the test gives 64 lbs. fat delivered to the factory. If now we add the fat left in the skim milk, we multiply this 64 pounds by 1.03 which gives 65.9, which is very nearly the amount of fat in the milk from which this cream was skimmed. You will therefore pay this cream patron on the same basis as your milk patron if you use this 65.9 in calculating his dividends the same way as you use the weight of fat delivered by each milk patron in calculating their dividends.

This method of paying cream patrons has proved to be very satisfactory and I think it gives them their just dues when both milk and cream are received at the same factory.

COLOR OF FAT IN CREAM TESTS.

The reason why your cream test did not turn so dark colored as the milk test is because you did not let the cream test bottle stand long enough after mixing the acid with it. The difference in color is caused by the unusual amount of fat which the cream contained as compared with the fat in the milk. The cream tests will turn dark and the fat which separates in the neck of the bottle will be dark colored if you will allow the cream test bottle to stand 15 minutes at least after you have thoroughly mixed the cream and acid in the bottle. You can accomplish the same thing by setting the cream test bottles in water having a temperature of about 100°, then thoroughly shake the test bottle and you will find that the mixture will turn dark in the same way as you have noticed milk to act and that the fat which separates will be a deep yellow color like that obtained when testing milk.

The variation in the color of the fat which separates in the test bottle is caused by the intensity of the action of the acid on the fat. This action is increased by elevating the temperature or by allowing a longer time for the action of the acid on the cream than you ordinarily do in testing milk.

CREAM OVERRUN.

The overrun of butter from cream is about 18.0 per cent. This is some three per cent more than the overrun calculated from milk. You will understand that the reason for this is found in the fact that the fat which has been left in the skim milk does not come into the overrun when you are calculating it from cream. My answer to your first question in regard to paying for cream should help to explain the difference in overrun also.

PRICE TO PAY FOR CREAM.

Whether or not you can afford to pay the Elgin price for cream fat will depend a great deal on the amount of cream you receive. If your factory is located in a place where it can be economically operated and you have no unusual expenses and not much money invested in the building or equipment, I think you ought to be able to make a fair profit by paying the Elgin price for butter fat in cream. It will probably cost as much to run the factory when you churn one hundred pounds of butter per day as if you churn five hundred; that is, the wages of your buttermaker, the amount of fuel used, etc., will be nearly the same in both cases. About the only difference will be in the amount of supplies necessary for handling the five hundred pounds as compared with one hundred. You will need more butter packages, also more salt and color, but if your commission for making is three cents, as it usually will be if you get your commission from the overrun, this three cents per pound on one hundred pounds of butter made per day will amount to $3, while on five hundred pounds, it is $15 per day. You will see then, that you must determine for yourself whether or not you can afford to make butter for this price. It depends largely on the amount of butter made each day.

LOSSES AT THE CHEESE FACTORY.

"I would be very thankful for information in regard to cheese making where the factory is run by test. Will milk that tests 4.0 per cent make more cheese than that which tests 3.0 per cent? If it does ought there to be a thick coating of butter fat on the whey tank every morn-



ing? I have been told that there is a working loss which cannot be avoided but do not think this loss ought to be enough to form a thick coat on the whey tank.

Is it a fair deal to all the patrons to run a cheese factory by test, if there is a waste of butter fat? There is some dissatisfaction among our patrons, those having low tests are complaining and some of those furnishing milk with a high test think that they are getting a little more money than belongs to them.

Our cheese maker told us in the early part of the season that a variation of two-tenths of one per cent fat in the milk between the highest and lowest test of thirty-two patrons would show us that something was wrong. He has had so much as nine-tentes of one per cent difference in the test of milk from different patrons but he has not found anything wrong that I know of.

Is there any way to find out the amount of curd that 100 weight of milk contains, or does all milk have the same amount of curd in it?

How much does a machine cost that will show whether or not milk has been watered? Can such a machine be used by a cheese maker that has not had experience in that line of work?"

Mineral Point, Wis. H. E. DAVIS.

It has been shown by careful experiments that the amount of cheese which may be made from milk will increase as the richness of the milk increases. A study of the yield of cheese from many factories has been made and a comparison of these results with the tests of milk in different factories has shown that as a rule one pound of butter fat in milk is equivalent to about 2.6 pounds of cheese. You can therefore get a very fair idea of the amount of cheese which any lot of milk will produce by first testing the milk and then multiplying the pounds of fat by 2.6. According to this rule 100 pounds of milk which tests 3.0 per cent fat will make about 7.8 pounds cheese and 100 pounds milk testing 4.0 will make about 10.4 pounds of cheese.

There is no doubt whatever about the test of milk being a fair and reasonable measure of the cheese value of milk, and in factories where it is used the patrons are as well satisfied that they are receiving their full measure of the money received from the cheese when they are paid by the test as are the patrons of creameries where the Babcock test is used.

Fat in the Whey.

The amount of fat left in whey is influenced many times by the cheese maker. If the curd is agitated excessively in the vat this will have a tendency to thresh out a certain amount of fat which will be lost in the whey. This is one reason why in Swiss cheese making the factories find it profitable to make whey butter. The Swiss cheese maker stirs his curd in the kettle excessively and by so doing separates a great deal of the fat from the milk. This is taken from the curd and carried into the whey. When the whey is allowed to stand the fat rises on the surface and is skimmed off and made into what is called "whey butter."

In Cheddar cheese making the whey, under favorable conditions, ought not to test much over three-tenths of one per cent fat. A cheese maker who understands his work, if he receives good milk, ought to be able to keep the test of the whey down to this point. If more than this is lost there is some good reason for it. When there is an excessive loss of fat in the whey I do not see why all the patrons should not suffer from this loss. I cannot conceive of a good reason for confining it to certain patrons whose milk tests differently than others. Those bringing rich milk to the factory certainly should not complain, as the rich milk will make more cheese than thin milk. I think it is not probable that they receive more than belongs to them if the testing is accurately done.

The quality of the cheese will improve with the richness of the milk and this is another reason why the Babcock test is the proper thing to use in determining how much each patron should be paid at a cheese factory.

Variations in Tests.

The statements made concerning the variation in test of milk from different patrons at a factory, is a new one to me. I do not think it is possible to find a factory which is supplied by twenty or more patrons in which the milk of the different patrons does not vary more than two-tenths of one per cent. The test of different lots of milk will vary as much as one per cent in nearly all factories; it is not uncommon that milk testing 3.5 and 4.5 per cent fat is received at the same factory. I should be inclined to be more suspicious of a uniform test of the milk from many patrons than of tests that vary from one to two per cent between extremes.

Your question in regard to the amount of curd one hundred weight of milk contains, I have already answered in the first part of this letter in which I stated that the approximate value of curd (cheese) in the milk may be estimated by multiplying the pounds of fat by 2.6.

The detection of the addition of water to milk is not done with a machine designed for that purpose, but the Babcock test and a lactometer may be used to examine suspected milk. The standard in Wisconsin for legal milk is 3.0 per cent fat, and when milk containing less than this is found it should be investigated further by following it to the cows which produced it. In some cases normal milk will test below 3.0 per cent fat, but as a rule the average cow of Wisconsin will give milk testing near 4.0 per cent fat. If you have good cause to be suspicious that milk is being watered you should refer the case to the Dairy and Food Commissoner, Mr. J. Q. Emery, State Capitol, Madison, Wis.

Twenty-five Cent Butter During the Entire Year.

"The farmers here have a cheese factory but on account of poor management they have not made a success of it. This last summer it has been used as a skimming station for an outside creamery. The farmers are dissatisfied with prices and with tests, which they have received this summer. Two men are here representing creamery companies and they are working the farmers. They propose to build a new creamery and guarantee 25 cents a pound for the butter the first year. They want at least fifty farmers to buy one share of $100 each. Then the creamery will cost at least $4440. Can you recommend this company? We shall probably get the milk from 500 cows within four miles of the factory."

Canton, Wis. O A.

I have recently given some suggestions in regard to starting a creamery, in an article in this paper, and I think you will find it of interest and valuable to read that article. Probably you can get copies enough of the paper to send one to each of the farmers interested in your creamery.

The amount mentioned in your letter, of $100.00 each from fifty farmers, is rather a large sum for investment in a creamery. I think you can start the enterprise for less money than this and do it in a satisfactory way.

The number of cows mentioned ought to make a first-class creamery, and if you have canvassed the territory and know that this number are within four miles of the factory, you will undoubtedly have a successful business.

I think you will be benefitted by sending some of your number who are particularly interested in the enterprise, to visit a few successful co-operative creameries at other towns of the state. By so doing you can get a good idea of what it costs to erect a creamery in that town and the dimensions of rooms, as well as the equipment that has been satisfactory to them. I certainly would advise you to do this before accepting the proposition to raise $5,000.00 and hand it over to any company to build a factory for you.

The price mentioned, of 25 cents a pound for butter during the entire year, is an absurd one for any one to make with the expectation of living up to it. The price of butter varies during the different months of the year, and it is impossible for any one to predict what the average price of butter will be in the future. If you are guaranteed 25 cents a pound for butter, the only way you can put any dependence on such a statement, is to have the party making the guarantey place several thousand dollars in a bank and agree to forfeit it in case your creamery does not receive this price per pound for its butter during the entire year. I would not advise you to let such a statement receive the slightest consideration, but start your factory with the expectation of selling your butter at the best price possible during the entire year. You cannot expect to receive much above the market price, but you ought to get that, whatever it is.

If the farmers will unite and give the management of the creamery to some one of their number who is broad minded and businesslike, I am sure that a creamery in your neighborhood will be a paying investment for you all.

Rape: Its Value, Use and Culture.

[Press Bulletin.]

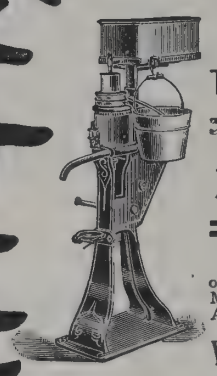
Every year the question of cheap summer forage becomes more and more pressing. To the farmer whose pasture lands are of limited area, the use of some crop capable of producing the maximum yield of the most nutritious forage is imperative. Various crops have been tried, and it is not my aim to condemn any, but rather to bring one valuable plant to your consideration and solicit for it a trial.

The crop I mean is rape. It ranks as one of the most nutritious of our forage plants. It is remarkable not only for

THOUSANDS OF PROSPEROUS DAIRYMEN POINT TO THE

U. S. CREAM SEPARATOR

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For Western Customers, we transfer our separators from Chicago, La Crosse, Minneapolis, Sioux City, and Omaha. Address all letters to Bellows Falls, Vt.

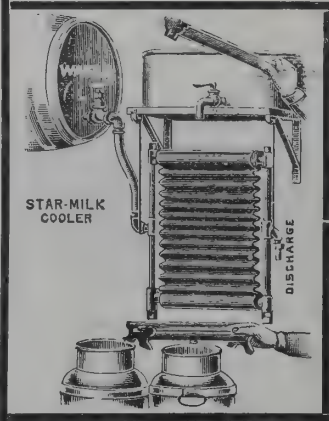
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DON'T INJURE YOUR PROSPECTS

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You will lose your customers if you give them "smothered milk", and when you do buy

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One that is guaranteed to do the work.
Half way measures do not pay.

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the old-fashioned way, with a dipper or a paddle, but get an up-to-date

Milk Cooler-Aerator.

Saves Time, Labor, Patience and Money.

A Free Booklet; ask.

Champion Milk Cooler Co.
67 Main Street, CORTLAND, N. Y.

the valuable character of the food it supplies, but also for the large amount that may be produced on a given area. It will yield two or three cuttings in the season, and the amount harvested off an acre may vary from 25 to 35 tons in the summer.

The quality of the feed produced is most excellent. Analysis shows it to be richer than clover in flesh-forming material. Feeding operations prove it to be particularly well suited for beef cattle, young stock, sheep, lambs and swine. It may be used as a pasture, and this fact rendess it all the more valuable to the busy farmer.

SOIL AND SEASON.

It will grow on almost any kind of soil. It will give a fair return off poor land. It will yield a heavy crop on average soil. It will produce an immense amount of food on very rich land. It does well on dry soil, it thrives and grows apace on moist places. It will grow on good land, no matter how dry the season, if sown in rows and cultivated. It will flourish in the most rainy weather if water does not stand in the field. Stubble or fallow should be used; sod is not suitable.

SEEDING AND CULTIVATION.

If intended for pasture, it is usually best to sow broadcast at the rate of 3 lbs. per acre. The exception is, when pigs are to be pastured, for experience has shown us that it is better under such conditions to sow in rows 21 to 24 inches apart. The space between the rows may be cultivated once or twice till the plants are well under way.

The pigs may usually be turned in 5 or 6 weeks after seeding, and an acre will carry from 25 to 40 during the season. It is better to divide the field into 2 parts and change pastures at intervals. It will be found necessary to limit the meal ration, if the most profitable results are to be looked for.

Steers do well on it at any time, but it is probably of the greatest value for beef production in the autumn. Lambs and sheep like it and do well on it at any season, but they must not be confined to rape exclusively, and care must be exercised to prevent their bloating on it. They should not be turned in when hungry, nor when the rape is wet with rain or dew. The same precaution applies to steers or young cattle.

J. H. GRISDALE.

Central Experimental Farm, Ottawa, Canada.

A West Virginia Silo.

ED. HOARD'S DAIRYMAN:—We have just finished our ensilage. I filled two silos 10×12×30 ft. high, which I believe will hold about 80 tons each. I will hold one for summer.

The construction of the silos is the most simple of any I ever heard or read of. I just took No. 1 white pine flooring 14 and 16 ft. long for siding, then used 2×12 hemlock, 12 and 14 ft. long for hoops. I then painted the inside with tar and benzine paint. I made this myself. I can buy the tar for 10 cents per gallon, then use the benzine for thinning it. I then lined the inside with 2-ply tar paper; just tacked it enough to hold it until the ensilage came against it. This makes a complete air-tight silo and one which will last forever inside. These silos cost me complete, not including my own time, $140.63.

We are now milking 20 cows, receiving on an average about 400 pounds milk daily. Cows in all stages of lactation.

The crops in this section were poor this season, owing to the continued drouth, and feed is higher than ever, and many are discouraged, selling their cows, and as they term it, "quit going in debt in winter just to crawl out in summer."

I have been dairying for seven years and have the first winter, including the months from October to April, to go in debt, or in other words, not to realize a profit. I do not keep a registered herd either, but just a herd of grade Jerseys and Holsteins of my own choosing. I do not keep a daily record of my cows, that is, by weighing each milking, but I keep a pretty close eye on the milk pail. When there is an uncalled-for decrease I go to work to investigate. If it proves to be the cow the butcher has the chance to speculate. W. S.

Wheeling, W. Va.

Renovated Butter

Can you tell me how renovated butter is made?
Willink, N. Y. B. J. C.

Renovated butter is made by first melting the butter and filtering the fat from the water and impurities. The liquid fat is treated with air to remove the material that gives the butter its off flavor. It is then churned with milk and worked and salted as usual. There are many minor points which each manufacturer considers essential to success, but they can only be known by practical work in a renovated butter factory.

Program of Indiana Dairymen's Association.

The following program is announced for the 14th Annual Convention of the Indiana State Dairy Association, to be held at Plymouth, Ind., December 10th and 11th, 1903.

Building up of Dairy Herd and Business - - - - - - Mrs. Charles Lamont
The Dairy Barn - - - W. J. Rippey
Why I have Turned Dairyman H. F. McMahan
Feeding the Dairy Herd - D. B. Johnson
The Results of Creamery Patrons Investigation in Marshall Co., Ind. - - -

A noted Wisconsin dairyman and writer, will visit fifty farms, noting number and kind of cows kept, feed used, and results secured and present a full report of the yield of milk and cost of production for one year.

Thursday, at 5:30 p.m., a banquet will be served. The first prize butter and cheese will be served. Professor H. H. Dean, of the Ontario Agricultural College, will speak on some phase of Canadian Dairying.

Development of the City Milk Business - - - I. O. Johnson, Grand Rapids, Mich.
The Troubles of the City Milk man - - - - - - - I. B. Calvin
Hand Separator from the Creameryman's Point of View - - - - W. V. Clifford
How I Ripen Cream - C. F. Hostetter
Starters. Their Value and Use - - - - - H. M. Slater, Purdue University
Pasteurized Cream and Butter - - - - - Prof. H. H. Dean, Canada
Reading of Prize essays on cost of Producing Milk and Butter.
Demonstration Butter Scoring - - - Prof. H. E. VanNorman and H. M. Slater.

The awarding of a handsome silver cup to maker of highest scoring entry of creamery butter, dairy butter, and cheese made in Indiana.

PRIZES.

Silver cups valued at $25 to $30, will be awarded to the maker of the highest scoring entry of creamery butter, dairy butter and cheese.

A pro rata fund will be divided among those scoring 90 or over, except that if the winners of the cups are not present when awarded, they will not share in the pro rata fund.

Entries from outside of the state may share in the pro rata fund. For entry blanks and rules, address Secretary, H. E. VanNorman, LaFayette, Indiana.

H. E. VanNorman, Sec.
Purdue University.

Book on Pota'o Culture.

Do you know of any book published regarding potato raising, as I wish to raise a large number next year. M. L. C.
Manchester, Iowa.

The only special book on this subject that we now recall in a work entitled, The New Potato Culture. Send to the Rural New-Yorker, 409 Pearl St., New York, for price.

"ADVERTISEMENT."

HAPPY DAYS

When Friends Say "How Well You Look."

What happy days are those when all our friends say "How well you look."

We can bring those days by a little care in the selection of food just as this young man did.

"I had suffered from dyspepsia for three years and last summer was so bad I was unable to attend school," he says: "I was very thin and my appetite at times was poor while again it was craving. I was dizzy and my food always used to ferment instead of digesting. Crossness, unhappiness and nervousness were very prominent symptoms.

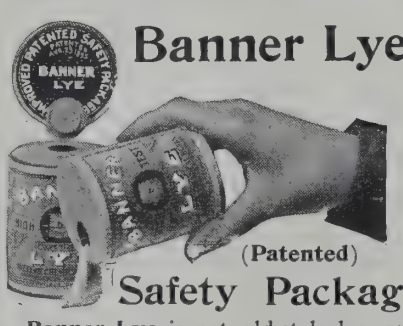
"Late in the summer I went to visit a sister and there I saw and used Grape-Nuts. I had heard of this famous food before but never was interested enough to try it, for I never knew how really good it was. But when I came home we used Grape-Nuts in our household all the time and I soon began to note changes in my health. I improved steadily and am now strong and well in every way and am back at school able to get my lessons with ease and pleasure and can remember them too, for the improvement in my mental power is very noticeable and I get good marks in my studies which always seemed difficult before.

"I have no more of the bad symptoms given above but feel fine and strong and happy and it is mighty pleasant to hear my friends say: 'How well you look.'" Name given by Postum Co., Battle Creek, Mich.

Look in each package for a copy of the famous little book, "The Road to Wellville."











NOW Is the time to Subscribe for HOARD'S DAIRYMAN.

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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of them read dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

COMING EVENTS.

Indiana State Dairymen's Meeting, Plymouth, Dec. 10-11, 1903.
Minnesota Dairymen's Association, Fairmont, Dec. 15-17, 1903.
Vermont Dairymen's Association, St. Albans, Jan. 5-7, 1904.
Illinois Dairymen's Association, Greenville, Jan. 5-7, 1904.
Wisconsin Cheese Makers' Association, Milwaukee, Jan. 6-8, 1904.
Ohio Dairymen's Association, Columbus, Jan. 27-29, 1904.
Wisconsin Butter Makers' Association, Feb. 2-4, 1904.
Maine Dairy Convention, Foxcraft, Me., Dec. 2-3, 1903.
New Jersey Agricultural and Dairy Convention, Trenton, N. J., Jan. 14 15 and 16.
Eastern Ontario Dairymen's Convention, Belleville, Ont., Jan. 5, 6 and 7.
Missouri Dairymen's Meeting, Clinton, Dec. 8-10, 1903.
Iowa Dairymen's Association, Waterloo, Nov. 18-20.
Washington Dairymen's Association, North Yakima, Dec. 29-31.
Massachusetts Creamery Association, Greenfield.
Connecticut Dairymen's Association, Hartford, Jan. 20-21.
Oregon's Dairymen's Association, Corvallis, Dec, 15-16.

COMPARATIVE VALUE OF THE DAIRY INDUSTRY.

H. R. Wright in his address before the Dairy and Food Commissioners at their recent meeting in St. Paul, quoted the following figures. Speaking of the dairy industry he said:

"Its product with a value of $590,000,000 is greater than the annual value of hogs sold in the United States, $500,000,000; it is greater than the value of all the hay and forage, $484,256,846; it is greater than the value of all the meat cattle slaughtered, $419,455,200; it is greater than the value of all the wheat produced, $369,945,320; it is greater than the value of all the eggs and poultry, $281,178,035, and it has a value almost twice as much as the value of oats, $217,098,584; sheep, $50,000,000; barley, $40,631,762; rye, $12,290,540; rice, $8,000,000, and buckwheat, $5,747,853. It far surpasses the value of cotton, $330,000,000, and is second only to the value of corn produced, $828,258,326."

SOILING COWS.

Every year we see the necessity of furnishing the cows with extra feed, from the latter part of July, even if the pasture is good. This necessity is made evident by the never failing shrinkage in milk and the fact that when the cows are afforded a good feed twice a day either of bran, ground feed or some succulent feed in the form of a soiling crop, they respond by a profitable increase of milk. The amount of the profit is governed of course by the price of butter and the quality of the cow. But the thing we wish to speak of is what is the most efficient and economical way to furnish this extra soiling food? Most farmers provide it in the way of green corn, peas, or some other green crop. This involves much extra labor and care. The cheapest and most profitable method we have ever employed is the summer silo.

Although the pastures in this part of Wisconsin have never been finer or more abundant than this year, yet the milk shrinkage came as of old, but not quite so pronounced as in ordinary dry seasons. About three weeks since, we opened the silo and have been feeding the cows ensilage night and morning, with a light sprinkling of dried malt sprouts and cheap molasses, which we purchased in Milwaukee at $15 a ton. The effect of such soiling was seen at once and we find it profitable. In no form can we soil our cows as efficiently and cheaply as by the use of good ensilage made from field corn. It is right at hand and convenient to feed, and we venture the assertion that no dairy farmer will ever employ any other method when once he has given this a fair trial.

THE SCIENCE OF MAKING HAY.

Some man, we cannot exactly remember who, once said:

"So far as I can see all there is to this thing we call science as applied to farming, consists in knowing *why* and seeing *how* best to do things."

That is a good definition. First learn *why* things are as they are; next the best *how* to do them.

There is always a big chance to improve in our methods of doing farm work. That is the *how* of it

The past season has been a very trying one for the making of hay, particularly in the middle west, owing to the great excess of rain. An immense amount of hay has been practically rendered worthless in feeding value by repeated wettings. Somehow the average farmer does not seem to take kindly to the idea of considering the cotton hay cap as a part of his indispensable machinery. HOARD'S DAIRYMAN has said more on this subject, than all the agricultural journals in the United States, yet but very few of its readers have adopted its advice. Like all other new ideas this grows very slowly into the conviction of the farmer.

Yet, just the difference of a yard and a quarter of muslin, multiplied a thousand times, has made with us the present season, the difference between good rich hay and a very much damaged article.

The hay cap made from good A sheeting, 40 inches square, will cost, weights and all, about 12 cents. Several ruling reasons call for its adoption and general use.

To have its highest feeding value hay must be cut at the right stage of growth, when it contains sufficient juice or succulence. If cut at this stage it is more difficult to cure by the ordinary open air method. For this reason farmers lose all sight of feeding value and looking only to ease and certainty of curing in the windrow, let their grass stand until it has lost most of its milk making value.

A complete reorganization of hay making methods should be had, based upon the scientific *why*. The object should be to get the best food in the best condition possible. If we obey this demand we must change our ideas.

1. We must give up the almost worthless timothy and raise the clovers, which are the red, alsike and alfalfa.

2. We must cut these clovers just as they commence to blossom, before the seed forms, when they are full of juice, in their best stage.

3. We must cure these clovers not in the windrow, thereby losing the leaves very greatly, and drying it too intensely in the sunlight, but in the cock where it will go through a sweating process—cured in the shade so to speak.

4. To do this successfully, we must add to our method the covering of the hay cocks with hay caps to prevent wetting and too rapid evaporation of moisture.

Hay cut and cured after this method, has nearly double the milk making value to what it has, cut when farmers generally cut it and cured in the windrow.

This method is particularly helpful in wet seasons like the present one.

THE SILO, AS IT APPEARS TO A MAN WHO USES IT.

The hard work that is required to convince so many farmers of the great value and economy of the silo, has always been a wonder to us. The silo is no new thing. It is 30 years ago since the first attempt was made in that direction in Wisconsin and since that time the spectacle of farmers who have silos and those who would not have them anyway, can be seen in the same neighborhood all over the West. Mr. H. D. Chapman, an experienced dairy farmer of Amherst, Mass. in writing a business letter to the DAIRYMAN says:

Some of the articles and inquiries in regard to the silo which appear in the DAIRYMAN seem a little behind the times, as seventy-five per cent of the farmers of this part of the country have them. I have two 12x16x21 feet that I put in ten years ago. I have filled them with different kinds of corn; have filled them fast and slow; have kept men treading it down some years, and some years run in a large pile and then leveled off. I always get about the same returns at the milk pail. After all I have learned or not learned, I would hesitate to advertise to tell all about the silo or how to fill one. One man may do it one way and get satisfactory results and another fill it some other way and be equally satisfied with his results.

The above reminds us that what men are *satisfied* with doing is in reality not a safe criterion for them or others to go by.

Many a man has been satisfied to milk a cow that is running him in debt every year, but the thing to enquire about, is has he a right to be satisfied?

Every dairy farmer needs knowledge, the best he can get, so he may know whether or not he is satisfied in doing his work in too expensive and inefficient a manner.

NEW ENGLAND AS A DAIRY SECTION OF THE UNITED STATES.

There are fifty-nine thousand, two hundred and ninety-nine farms in the state of Maine. Of this number seventeen thousand, seven hundred and forty are principally devoted to dairy products. In other words, a little less than twenty-nine per cent of the farms of Maine are devoted to dairying. Vermont has a little over fifty per cent of her farms devoted to dairying; Massachusetts, a little over thirty-six per cent; New Hampshire a little more than thirty-three per cent; Connecticut, with a fraction over thirty per cent, and Rhode Island, with twenty-six per cent.

The above interesting deduction taken, no doubt, from the census of 1901, we take from the address of Hon. W. C. Philbrook before the last session of the Maine State Dairymen's Association at Waterville.

Mr. Philbrook makes the statement that the reason why some of the New England states exceed Maine in extent of dairy production, is because of the "proxmity of their farms to many and excellent markets, and the ease with which those markets may be reached."

This reason is hardly satisfactory, for if it was, it ought to obtain as strongly in Iowa, Wisconsin and Minnesota, where the dairy product is largely shipped to and consumed on the Atlantic Coast and in the south.

To our mind there is a deeper and more universal reason and it is this: Wherever on this broad continent, from Canada to Georgia and from Maine to California, the farmers have been led to think, read and take an interest in dairy problems, right there has occurred a correlation or organization of their mental and material forces for the promotion of their dairy welfare. Out of this mental attitude has come dairy prosperity, even in sections remote from markets. Without dairying does not prosper, even if contiguous to good markets. There can be no doubt of the advantage of good markets or the farther advantage of cheap and quick transportation. But these are not the primary forces that solve the problem. It is just as true in dairying as it is in law, that success is dependent on the amount of mental comprehension that is brought to bear on the question. It is brains that tell. If the states of Maine or Wisconsin are not prospering as they ought in dairy farming, it is because their farmers are not bestowing the necessary amount of brain work on the question. Mix more brains, more mental interest, more study, more comprehension with the labor of the hands, and there will result at once a great increase of profitable production.

Farther along in the proceedings of the convention occurred the address of Mr. J. A. Roberts of Norway, under the title "Snap Shots at Maine Dairying." He hit the nail squarely on the head, as to the causes of dairy advancement in that, or indeed any other, state when he said:

"Through an *increased knowledge* of the principles of breeding and feeding and through more careful handling of the cow and her product has come the real advance of the dairy interest in this state, and that, in my opinion, is in the right direction."

Fourteen years ago we gave an address before the Maine dairymen on "The Dairy Temperament in Cattle." Some of the ideas we advanced at that time were vigorously combatted. Since that time we have visited the state in the same capacity several times, and each time we could see the marked advance of ideas and their result in improved practice. Some day we believe Maine will be hard to beat as a dairy state, for her agricultural brain is thoughtful and alive.

AN EXCELLENT DAIRY BOOK.

With the compliments of the author, Prof. H H. Dean of the Ontario Agricultural College, comes a neatly printed little volume of 260 pages, entitled "Canadian Dairying." We have given it a somewhat hasty examination and we are especially pleased with it in every particular. It is somewhat risky to make a book on dairying, for the reason that the methods, and general understanding of this question are in such a rapid state of change.

But Prof. Dean has succeeded admirably in presenting the whole of this dairy proposition from the farm and all the problems there involved, to the cheese factory and the creamery, in language at once simple and comprehensive This is a most valuable feature for the plain farmer who has not at his command a knowledge of scientific and technical terms.

The book is written from the Canadian standpoint and that makes it all right for the dairymen of the United States. As soon as proper arrangements can be made we hope to be able to supply the readers of HOARD'S DAIRYMAN with this latest, as well as most excellent, addition to the literature of dairying.

The Hired Man Again.

ED. HOARD'S DAIRYMAN:—Your editorial, "The Hired Man Question," interested me much. I am a hired man, or manager, just as you please. I have read the pros and cons on this subject in the agricultural press for years, but have failed to find anyone mention what I think to be the key to the problem. It is

this, the bringing together of like ideas. If a farmer has old fogy ideas, he must have a hired man of old fogy ideas. A farmer who believes in reading agricultural papers, the silo, rotation of crops, special purpose cows, etc., doesn't want a hired man like the above. I know if I were looking for a new position, I should like to find a man with ideas of farming the same as mine. Employer and employe must study each other's human nature, and try to please each other, especially employe.

I have worked around for years (four years in present place) and I find that it pays to please the man you are working for. Many hired men don't care, and they never get the best wages or the best places, nor will they make the best farmers when they get to working for themselves. The best farm hands of to-day will be the best farmers of to-morrow. Give the farm hand a word of encouragement, talk over farm affairs with him. Give him good farm papers to read, for the more he knows the better it will be for you.

I could say more, but don't want to take your time longer. I believe you are doing a good work. I wish you a long life, and success to the DAIRYMAN.

Windsor, Conn. M. H.

Note and Comment.

Succulent Food and Milk Fever—Corn for Roughage—An Open Fall and Poor Feed—Rye Pasture—Balanced Ration—Green Corn and Fruit in November.

HOARD'S DAIRYMAN asks about succulent feed, and milk fever, and the experiences of its readers who are feeding silage, and all about it in three questions. So far as the undersigned is interested, he will say that this is the eighteenth year we have fed silage to our dairy, and some of the cows have eaten silage for over ten years, and since silage and grass have formed the roughage crop for the year, we have never had a case of milk fever, though before that we could not say as much. Of course the cows now all drop their calves in the fall, some in Dec., but they are in fine flesh and by tradition have a right to have fever. Possibly this has a bearing on the matter, no grain is fed while the cows are resting and she is grassed all she will eat, and then green corn fodder is given in small quantites, with the ears snapped off. Be sure that the cow's bowels are normal at least. I have now and then given a cow a good feed of cut potatoes to loosen her up before dropping her calf, which may explain things.

Right along this same subject is that of cow buyers who buy springers by the hundreds every year, from the Ohio river to the Illinois line; ship them here, sort, grade, bunch and make ready for buyers, who may want one cow, or take five car loads. These cows run in abundant pastures, have no grain or care, and the lot may be flecked with little calves by spells, and in all these years I have never known one of these cows to have the milk fever. I asked a big buyer why? "Oh" said he, "we give 'em natural conditions, let nature dictate in the matter is all there is to it I guess." Is the above in line with the reasoning of Dr. Pearson?

I think the season of 1903 has demonstrated in Northern Ohio, that the corn crop. as a sure reliance for the great roughage feeding crop, has no equal. From the start until almost September, everything seemed to conspire against the crop, Too dry to get rapid germination, then too wet, too cold nights, too cloudy, cold days, the moon signs were all unfavorable, and weeds grew at all hours and refused to be killed with any sort of tool. Then came the September days. How the corn did grow and reach up; the ears came out in surprising numbers and developed into lusty annexes.

Corn that had been kept clean of weeds and trash, especially the silage crop, made phenomenal growth. The October weather helped the soft corn, hardened it up, and the field corn became a No. 1 yielder, and I never put more well developed ears of corn into the silo to the number of stalks, than this year. "Yes, the frost held off," says one, which is only to say that the corn crop is a greater certainty than the frost. So it's the story everywhere. The corn crop manages to pull through every year, for the man who tries to raise a crop, and helps, in a generous way, the fellow who is always saying "'tan't goin' t' be a corn year nohow."

I do not remember of any such perplexing condition of affairs in connection with late fall milk making, as exists now. The warmest, open fall ever known, bright, warm days, and traces of frosts in the morning, no rains to keep the fall feed brightened up, the succulence dried out both of the rank pasture feed, and the soiling crops; cows refusing to eat grass, and too languid to eat dry winter foods, even the finest of September cut clover rowen fails in tempting them to eat a full meal; far too warm to venture on silo feeding and those who did, got no increased yields, but when that commences, good-bye stores of nice fodder, and soiling crops just out of the green.

Well, the result has been, that the fresh cows shrank a fourth or more. Even so good a dairyman as Geo. Scott failed to keep up the messes of his cows; use "dairy straws" as he would, and even tearing his hair, and throwing dust upon himself would not stay the shrinking yields. Early in September, we put in two fields to rye with the expectation of plowing the crop under next spring for corn sod. The crop had grown up luxuriant, and the ground being very firm through lack of late rains, brought out the suggestion that it might be a good thing to turn the milkers in there an hour morning and night and with the effect of getting an increase of milk, and with it came a firm cow resolve to eschew the late grazing grounds, and stand squarely by the new 20th century dairying. As oats makes a pretty nearly frost resisting crop, why should it not be a pretty good thing to sow a few acres of combination, oat, barley and rye for late October grazing.

This fall it has been a problem what to do with the cows. They neither wanted to go afield, nor would they stay in yard, or stable, without lifting up their voices in dumb (?) protest, but this rye lot so far has stilled the concert, and fills the pails more nearly, and that is the objective point in all dairying.

The time was not so very long ago, when if Harry Hayward had said what is credited to him on page 852 about balanced rations, and that other conditions being equal, a ration any where between the limits of 1:4 and 1:12 made as much milk, and fat, as a strictly balanced ration, he would have been taken out and guillotined with a dull blade; but as it is, he is promoted and made assistant Chief of the Dairy Division at Washington. This gives the advocates of home grown grains for the dairy quite a friend at court, and makes us fellows who have "figured out rations" at the institute, and retailed a "heap of wisdom" sing quite small, to hear that some protein is as good as more, and that an excess of it passes off without apparent effect upon the cow, and did not have a stimulative effect upon the milk organs, nor was it held in reserve for future use.

Is this a surrender to the hard headed old farmer who has forged right ahead, feeding corn meal, oats and wheat shorts mixed, pound for pound, and said if his cows got a variety of foods, they were all right in milk producing. Haecker of Minnesota is strong in his belief that the smaller feeding of protein gives as satisfactory results, and Jordan of New York has a doctrine that he has been known to make public to the effect that that when proteins are high, feed some other feeds or combinations of feeds. It looks to me as if the cows on this clay farm would be told that too much protein was not good for them, and to make up their minds to get ear corn, ground with oats, and a third weight of fine bran with a trace of oil meal in it, and to get into a state of mind to believe from the start, that it is the best grain ration in the world,

It would be interesting too, to say the least, if we could now know what the ration makers will hang out on the bulletin board in 1910, as the latest demonstrated, best combination of feeds for a dairy cow. I wonder if we will not see before so very long, notices of slightly damaged and a trifle shelf worn books for sale very cheap, about how to feed and develop the dairy heifer, to make room for new editions, a summary of the latest and most exact data by the Professor of Dairying of Exploit College. With protein knocked out, dual-purpose cows boomed in the bulletins, and cheese cured by gentle freezing, it is pretty hard to tell with exactness what HOARD'S DAIRYMAN has been published for since 1886!

On the 5th of November a series of events and coincidences, somewhat intermingled with the natural, occurred on our farm that made the day to be marked as somewhat out of ordinary. During the day, swarms of snowflakes filled the air, but melted before reaching the ground, though at dark the fall was quite heavy for a half hour. That day the garden gave us, fresh from unfrosted stalks, some of the finest green corn for dinner. The red raspberry bushes gave us a showing of ripe fruit, and the golden queen raspberries gave us a presentable showing for dinner, of the largest, plumpest and fine-flavored berries of the year, and a visit to the strawberry patch gave us perfect blossoms and some large but not ripe berries. Some pretty wild violets are to be found along the wood edges, and strange, in all of this plenty of berries, there is scarcely a bird to be seen or heard. This is not strictly a dairy item, but it does show that it is better to live in the country and milk cows, than to go to the city and be a lamb when the steel stocks are being shorn.

Ohio. JOHN GOULD.

Succulent Feed and Milk Fever.

ED. HOARD'S DAIRYMAN:—In answer to your inquiries in your most valued paper of October 23, I would say: Have been dairying for 14 years. Have never lost a cow with milk fever. Am keeping 20 cows at present, with of course a smaller beginning. Have no silo yet, but feed roots. In all these years I hardly ever fed grain to cows; it is too high priced here. To dry cows I feed only a small amount of roots, but about a week before calving I give full ration viz 30 to 35 pounds a day. I raise mangel wurtzel, carrots and rutabagas and mix them. Roots yield 40 tons to the acre with me, on well manured bottom land. Have some most excellent cows (grade Guernseys.) Have one cow a (scrub) that gave for a time 9 gallons of milk a day, but have another that beats her badly on the long run. C. H. W.

Arlington, Wash.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condence the questions into plain epecific inquiry. Be careful to note if your questions eave not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

A California Feeding Problem.

Will you please give me a balanced ration for my 10 cows weighing 800 to 1,100 lbs., from the following feeds: Bran, $23; ground barley, $23; ground rye, $26; mill feed (bran and middlings), $24; alfalfa hay, $10. I have not much alfalfa, but have some mixed with good barley straw, and some grain hay and plenty of good barley straw and some green alfalfa pasture, but the pasture is getting short. The cows are at present on the pasture and allowed to have all of the straw they will eat and 5 lbs. bran and 2 lbs. rye per day. No hay, thought best to save the hay until cold weather. Will it pay to buy hay at $10 a ton? Butter at 30 cents; separate our own milk, and creamery wagon calls for the cream and charges 2 cents per lb. for manufacturing and selling, and we receive the balance. Cows averaged over $6.00 for the month of September. What ought a cow to make per month to justify milking? My cows are mixed breeds. I want a ration to get the most butter for the least amount of money. C. M.

Ceres, Cal.

It is of course quite impracticable to give a ration formula in which a mixture of alfalfa with barley straw in unknown proportions or grain hay is the main roughage. The best we can do is to submit suggestions as to what in our judgment would be a good average ration, and leave it to our correspondent to make such modifications as his environment may demand. Alfalfa hay, at the price named, is much the cheapest feed mentioned. A ton of it, if of good quality, is almost as valuable as a ton of bran.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrient.		
		Protein.	Carbohydrates	Ether Extract
12 lbs. alfalfa hay	10.99	1.32	4.75	.14
10 lbs. barley straw	8.58	.07	4.12	.06
6 lb. ground barley	5.35	.52	3.94	.10
Totals	24.92	1.91	12.81	.30

If any of the cows seem to demand it and can make profitable returns, one might add a small amount of bran to the above.

Relative Feeding Value of Cotton Seed and its Products.

Please give me the relative feed value of whole cotton seed, raw and cooked, compared to cotton seed meal, W. W. C.

Lavonia, Ga.

There have been no very satisfactory experiments along these lines. Feeding a cow for 30 days with one combination of feed stuffs, then changing to some other combination for 30 days, and then changing again, as one would change fuel under a steam boiler, fails to take into consideration the important factor that the cow is not, like the steam boiler, an inanimate machine, composed of but few parts and simple in construction, but is, on the contrary, of very complex anatomy, the different parts so interdependent and miraculously compensatory, that one cannot say what effect the feed of today may have 10 or 20 days hence. For example, we know that by some mysterious process of metabolism, the cow can draw upon her own body for material out of which to make milk. It is common speech that the dairy cow milks down in weight, and it is one of the tricks of the trade to test cows as soon as possible after freshening when they are drawing not alone on the feed eaten, but from their own surplus fat and flesh as well, for the casein, the fat and the sugar afterwards found in their milk.

Hence, as we have said above, short periods of feeding do not furnish very satisfactory data for estimating the relative feeding value of different feed stuffs. There have been several of these short time experiments with cotton seed, both cooked and raw, and cotton seed meal, and the preponderance of the testimony thus secured, indicates that the boiled seed is slightly better than raw seed, and that raw seed at six dollars per ton is cheaper than the meal at 20 dollars per ton, but how much cheaper is not stated. From the figures given we are of the opinion that the raw seed may be worth at least half as much as the meal, and that for dairy purposes the boiled seed is to be preferred to raw seed, as less liable to impart injurious flavor to the product.

For Rhode Island Holsteins.

Mr. A. F. LeG., of Greene, R. I., although a reader of HOARD'S DAIRYMAN for a long time, has only recently joined the ranks of active dairymen. He has now 15 grade Holstein cows and has purchased a registered bull from Stevens Bros., Lacona, N. Y. Feed is scarce and dear. Corn meal sells at $22.50; gluten feed, $26; hominy, $23; cotton seed meal, $28; mixed feed, $23; bran, $22; barley sprouts, $18. For roughage, he has silage (from immature corn) enough to allow 20 lbs. per day; red top and timothy hay, and also a few tons of oat hay. His cows weigh from 700 to 1,000 lbs., and are in all stages of lactation, and he asks us to submit a ration formula to suit the conditions named.

There should be nearly as much variation in the feed given these cows as there is in the quantity of milk they yield, or, if fresh, are capable of yielding. After providing the feed of maintenance, the amount above this should be strictly apportioned according to the present ability of each cow to respond. With 20 lbs. of silage and 12 to 15 lbs. of hay, 4 lbs. of malt sprouts, 2 lbs. gluten feed, and 2 lbs. corn meal, fed half at night and half in the morning, with a teaspoonful of salt each time, should suffice for cows giving 30 lbs. of milk. If any cow is capable of giving more than this amount of milk daily let her have more gluten feed; and for cows giving less than 20 lbs., reduce the allowance of grain proportionately.

A Vermont Ration.

Please give the best balanced ration for profitable feeding of cows of medium size from the following feeds:

Good mixed hay worth $10 per ton; corn silage (some with ears, some without); bran, $21.50; cotton seed meal, $28; corn meal, $23; mixed feed, (wheat product), $22.50.

Am mixing 100 lbs. bran, 100 lbs. corn meal and 50 lbs. cotton seed meal. If you will kindly publish a formula of right proportions and quantity to each cow you will confer a favor on a reader of your valuable paper. B. H. M.

West Burke, Vt.

If the "mixed feed" is equal to a feed with similar name reported in Bulletin 81 of the Vermont Experiment Station, we should favor substituting it for corn meal, but otherwise the combination named is as good as any we can suggest. If the cows are fresh in milk or nearly so they ought to make profitable use of 6 to 8 lbs. of this mixture, besides having all the hay and silage they will eat without waste. Good hay that is worth $10 per ton is too valuable a product to be fed lavishly. It is always well to feed so sparingly that the edge of appetite will not be dulled. A teaspoonful of salt night and morning on the feed is not only an appetizer, but it aids digestion and assimilation. Also, if at all practicable, feed the grain in connection with the silage.

What Should Be the Price of Butter to Patrons of a Creaemry?

There is a problem which is causing considerable discussion in this locality and would like your opinion. The question is this: When the Creamery Co. charges the patrons the average price of butter for the month for what butter the patrons draw out for their own use, does the patron pay for the making twice. Enclosed find monthly statement which explains matters more fully. F. H. C.
Hudsonville, Mich.

Certainly the patron does not pay twice for the making. It makes no difference to whom the butter is sold, whether it be a patron or a stranger, the price should be the same. If a patron may draw out fifteen pounds of butter for his own use at a price 2½ cents (the charge at this creamery for making) below the average price of sales, what is to hinder him from drawing out 500 pounds, or all that his milk makes, be the same more or less? Or suppose a man takes the milk of only one cow and has the butter from it made for his own use. The creamery sells all the butter it makes and collects full price for it. Then it pays the patron for his milk, and it is immaterial whether it pays in cash or in butter at the average price. It is just the same as it was with the old-fashioned grist mill, where toll was taken for grinding, or if it was matter that the miller did not want to "toll" cash was paid.

A New York Ration.

Please formulate me a ration for 900-lb. cows, fresh last April and not to be fresh again under a year. I have good mixed clover (red and aliske) to feed noon and night all they will eat up, and low land hay for morning feed. Bran is $1.00 per cwt.; cotton seed meal, $1.40; corn meal, $1.20; rye, $1.10; oil meal, $1.60. Your good paper is very much appreciated. E. J. H.
Dormansville, N. Y.

The proper feeding of these cows will depend very much whether they have been allowed to shrink over much in milk flow. One cannot expect to increase the flow very much now, and the amount to be fed must be graduated by the results obtained. When the cow begins to increase perceptibly in live weight the indications are that she is being fed more than is profitable, or is not receiving proper milk-making feed. It is much to be regretted in this case that there is no silage or roots to give these cows. The next best thing is oil meal, and notwithstanding its excessive cost, we believe it would pay to use at least a pound a day for each cow, possibly more, but of this only a person in daily contact with the cows can judge. For the balance of the grain part of the ration, we recommend equal parts by weight of bran and corn, and if these cows make good use of 4 lbs. of this mixture daily, it is about all that could be expected.

Snap Shots at Maine Dairying.

J. A. ROBERTS, Norway, at Maine Dairymen's Association.

I am a thorough believer in the cow, and I think I ought to be, because she has been a good friend to me. As we look at the condition of dairying in the state of Maine today, as compared with its condition a few years ago, I think we may safely say that while there has been a fairly satisfactory advance in the number of dairy animals kept upon our farms, the real advance we have made is in the keeping of the animals and the feeding of them in such a way as to secure an increased product. Our farmers have learned that the cow of moderate ability when fed only rough fodders from the farm, may become a tolerably fair cow when fed a properly balanced ration. Many cows in our state, that under poor feeding have been unprofitable cows, under a good system of feeding become profitable cows. Through an increased knowledge of the principles of breeding and feeding, and through a more careful handling of the cow and her product, has come the real advance of the dairy interest in this state, and that, in my opinion, is in the right direction. If it is desirable for us to increase the number of our dairy animals, it is still more desirable to make those which we have more profitable than they are at present.

The dairyman finds some difficulties in the way; his pathway is not perfectly smooth. Today his greatest difficulty is in the labor question, and I am fearful that unless that is solved many of us will be obliged to curtail our operations in the future, because it seems to become harder and harder every year to find men who are fitted for this work and willing to engage in it. Those of us who get our living by the care of the cow know that we must give to the business our constant attention, not only six days in the week, but seven, and from early morning until late at night. We have to look closely after the details of the business in order to make it successful, and we are finding it difficult to get men who will assist us in this work, and do it as it ought to be done. It seems to me that this labor question is one of the difficulties that stand in the way of the progress of dairying in the state of Maine.

There is another difficulty which is not a new one, and which I understand this Dairymen's Association is trying to remove. I think we might divide the dairymen into two classes. Possibly we could not draw a distinct line between them, but I would say this: There are men engaged in dairying who make a specialty of it, and from the very fact that they do make a specialty of it, they study the principles that underlie it, and they look about for the best practices. These men are usually successful. There is another class of men who engage in dairying, in connection with other lines of farming, in only a small way, and in a careless and indifferent manner. These men are to be found everywhere. There are more of them than I wish there were. Some of them you will hear talking about this business and they will say that dairying does not pay. Some of them put it a little broader and say farming does not pay. Do you know what I should say to those men? I should say to them, why are you in that business if it does not pay? Haven't you mistaken your calling? When you say that the dairy business does not pay with you, or that farming does not pay with you, is it not a commentary on your own judgment in going into this business? I believe that dairying does pay, and that farming does pay, and furthermore, there are proofs of it in every town in this state. It is only necessary for us to have faith in the business and put our soul into it, and our life into it, the way business men who succeed in their business do, in order to make farming one of the most profitable in the state. Those men who do a little dairying and do it in a slipshod manner, milking cows at one hour one day, and at another hour another day, feeding them irregularly and without any system, and who do not keep them clean, are the men that stand in the way of the progress of dairying in this state, because in some cases they are keeping down the price of the product.

Under the old system of private dairying, which is in vogue to a certain extent to-day, the man who made poor butter received his reward and the man who made good butter, got a good price and received his reward. But in the creameries, as I understand it, all cream, the good, the bad and indifferent, is pooled together, and the man who has poor cream, who is not careful in his business, gets just as good a price as the man who furnishes good cream. I think this is a difficulty that we must overcome. How are we going to do it? President Alden, in his ad-

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Swamp-Root Entirely Cured Me

Among the many famous cures of Swamp-Root advertised by HOARD'S DAIRYMAN, the one we publish this week for the benefit of our readers, speaks in the highest terms of the wonderful curative properties of this great kidney remedy.

GENTLEMEN:—I know you do not need this from me as you are daily receiving hundreds of testimonials. However, I want to say that I think you have the greatest remedy on earth for kidney, bladder and liver trouble. I had been troubled for years, was operated on several times and spent a large amount of money and received no benefit whatever. I suffered everything and it was necessary for me to get up as many as twenty times during the night. I gave Swamp-Root a thorough trial and it completely cured me. J. W. ARMANTRAUT, Sept. 12th, 1903. Greentown, Ind.

Lame back is only one symptom of kidney trouble—one of many. Other symptoms showing that you need Swamp-Root are, obliged to pass water often during the day and to get up many times at night, inability to hold your urine, smarting or irritation in passing, brick-dust or sediment in the urine, catarrh of the bladder, uric acid, constant headache, dizziness, sleeplessness, nervousness, irregular heart-beating, rheumatism, bloating, irritability, wornout feeling, lack of ambition, loss of flesh, sallow complexion.

If your water when allowed to remain undisturbed in a glass or bottle for twenty-four hours, forms a sediment or settling, or has a cloudy appearance, it is evidence that your kidneys and bladder need immediate attention.

In taking Swamp-Root you afford natural help to Nature, for Swamp-Root is the most perfect healer and gentle aid to the kidneys that is known to medical science.

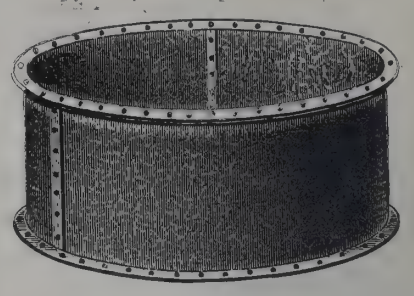
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To Prove What SWAMP-ROOT, the Great Kidney, Liver and Bladder Remedy, will do for YOU, Every Reader of Hoard's Dairyman May Have a Sample Bottle Absolutely Free by Mail.

If you have the slightest symptoms of kidney or bladder trouble, or if there is a trace of it in your family history, send at once to Dr. Kilmer & Co., Binghamton, N. Y., who will gladly send you free by mail, immediately, without cost to you, a sample bottle of Swamp-Root and a book of wonderful Swamp-Root testimonials. Be sure to say that you read this generous offer in the Fort Atkinson HOARD'S DAIRYMAN.

If you are already convinced that Swamp-Root is what you need, you can purchase the regular fifty-cent and one-dollar size bottles at the drug stores everywhere. Don't make any mistake, but remember the name, Swamp-Root, Dr. Kilmer's Swamp-Root, and the address, Binghamton, N. Y., on every bottle.

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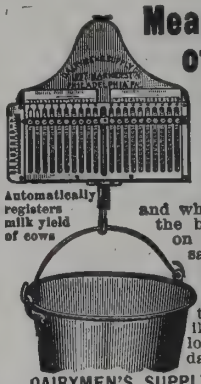
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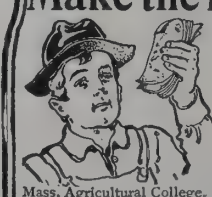
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With the Automatic Milk Scale you can keep an accurate record of the yield of each cow, and remove the unprofitable ones from the dairy. Each button on scale arm corresponds to number of cow, and when pail of milk is weighed the button registers the weight on score card. Big money saver and money maker for farmers and dairymen.
Send for testimonials and illustrated catalogue of Bestov dairy supplies.
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DAIRYMEN'S SUPPLY CO., Philadelphia, Pa.

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There's money in farming if you understand modern methods and farm intelligently as taught by our correspondence course in
Modern Agriculture.
Under Prof. Wm. P. Brooks, Ph. D., of Mass. Agricultural College. Treats of soils, tillage, drainage, fertilizers, crop rotation, stock-feeding, poultry-raising, dairying, etc. Also Horticulture under Prof. Bailey, of Cornell University, and Agricultural Bacteriology under Prof. Conn, of Wesleyan.
Full Commercial, Normal and Academic departments. Tuition nominal. Text books free to our students. Catalogue and particulars free. Write to-day.
THE HOME CORRESPONDENCE SCHOOL,
Dept. 55 Springfield, Mass.

dress this morning, told us that it would be along educational lines. Education is sometimes slow, but if it is in the right direction it usually reaches the end in view. But how are we to educate our people along this line? Of course we have meetings like this, we have farmers' institutes, which are a great educational factors, and there are courses in dairying at the University of Maine where boys and young men, and old men too, if they desire to go there, may learn the principles that underlie this noble occupation of ours, and also learn the best practices of the dairy. I believe it would pay to send our boys and our young men there. If I were a young man to-day, going upon a farm, knowing what I do about the business—and I have spent nearly all my life on a farm—I would take a two years' course in the Agricultural College, fit myself for some one or two specialties, and then I would go upon the farm and I would develop the farm. I believe that I could enjoy myself as well in doing that as in any other business, and that I would not have to labor any harder, and at all times in my life I would be in an independent position.

There is one thing that our farmers need in order to be successful dairymen. They must have enthusiasm; they must be fired by ambition. If a man has no ambition to do a little better next year than he is doing this year, to keep a better cow and make her product into better butter or better cream, then he will not be successful. But the man who is determined that as the years go by his knowledge shall increase and his practices improve, will surely be successful in the end. At the University in this state, and I think in nearly all the states in this country, all farming states, at least, there are short courses in agriculture, where young men and young women can learn dairying and orcharding and other lines of farming. My friends, it makes me feel sad to find that the boys of New England are not taking these courses. Turn to the record of the western states, and especially those great northwestern states, and we find that the young men and young women are flocking by hundreds to the short courses at the universities. They are spending a few months in the study of the business in which they are engaged, and coming back to the farm not only with increased knowledge, but with an inspiration that has been given to them from coming in contact with men who have a broader conception of the business in which they are engaged. Now I heartily wish that you would send your boys up to Orono. Send them to these short courses, this winter, and give them an opportunity to study this subject. It will be to your advantage as well as theirs.

Starting a Dairy Herd.

A correspondent in *Ohio Farmer*, in giving his experience in starting a dairy herd, says:

"At first sight it looks easy. All a man has to do is to fill his pockets with money and start out. The world is full of cows. Why should we find it difficult to buy a dairy that will fill the bill? And so, when I was thinking just what should be the heading for this article, I said to myself, 'Starting a Dairy' is all right. But it came into my mind soon after that starting and trying to start are sometimes two entirely different things.

"For instance, a chapter from my own experience has some things quite interesting about it. The first cows I ever owned (that was going on fifteen years ago), I bought. Part of them were fairly good. One was recommended to me as being perfectly gentle and a nice milker. Before she had been in the stable two days she proved the strength of her hind legs by kicking the cows either side of her out of reach every time she had a chance. The same kind of practice she began with me when I began to milk her. A rope or strap about her body, 'just in front of her bag,' as we often hear quoted, would not make the slightest difference with her. If she could do nothing else she would lean over against me so hard that I would be pushed from the stool. This got to be quite monotonous after a time, and still that cow was a good milker. She gave good milk and a nice mess of it. I worried along with her for several years, raising a number of heifer calves from her. For days at a time she would be as peaceable as a kitten, then she would let her heels fly like lightning. Every one of that cow's calves had a tendency to kick. And they had leg muscles like iron when they had a mind to use them. Finally I determined to weed every one of the breed out, and I did it. Life is too short to spend it fighting a cow. I never will try it again.

"Then, in the course of my buying, I came into possession of a cow which was subject to garget. She had it regularly every season, and I came to the conclusion that it was so far chronic that I could do nothing for her. I doctored her as faithfully as I knew how and all to no purpose. The strangest part of it is, some of the calves I raised from her had the same failing. Will some of our wise men tell us why?

"So it went on for some years and I did not seem to be getting much nearer to my desired good dairy. Then I tried buying calves of men who seemed to have good stock. This is, in my opinion, all right if one can buy of reliable men. It sometimes seems as if the men who can be called strictly honest about selling cows are quite scarce and hard to find. It is not difficult for men to remember all the good points of a cow and forget the bad ones. But there is not the same temptation about selling young calves. The owner will almost always take you into the stable and show you the father and mother of the calf you have taken a fancy to, and tell you just what the mother has done in the way of giving milk and plenty of it. So there is not nearly as much risk in buying calves as there is in purchasing cows. And yet one often gets poor cows that way, in spite of his best efforts at feeding liberally and with a view of getting a good, all around cow.

"And so I found that buying calves is not really the best way of starting a herd. And I tried buying the best bull calf I could find and putting him with my cows, varying this now and then by using the best stock my neighbors had. A farmer who has an eye on the future can make no greater mistake than to mate his cows with any kind of a sire that happens to be handy. If he does not keep a bull of his own, it is often a big job to take his cows away, and he gets careless about it and says: 'Well, this year will not make much difference.' But it is a year and the years count after a while, especially when one gets to be 50.

"And I believe this is the true way to build up a herd of dairy cows. We can not be sure what we are getting if we buy mature cows; neither is the practice of buying calves entirely free from objections. But when we raise our own calves from the best possible parentage that lies within our power we are on the right road. True, we will sometimes make mistakes by following this plan. Some of the poorest cows I ever had came from what I looked upon as good parents. It is a wonderfully interesting study to see how animals will 'take back' now and then in color, size, and other qualities."

"ADVERTISEMENT."

HARD ARGUMENTS

Coffee Uses Them Whether One Likes or Not

The ill effects of coffee are present in many coffee drinkers but some people pay no attention to the warning signals like dyspepsia, insomnia, nervousness, fluttering of the heart, etc., until coffee finally uses a knock down argument which means collapse on the part of the coffee drinker.

"I am 30 years old and have drank coffee since I can remember until four years ago when I broke down completely with nervous prostration and indigestion. I simply cannot describe the agony I suffered.

"Doctor told me he could not help me if I did not leave coffee alone so I bought some Postum to give it a trial. At first I did not know how to make it and was disappointed in the taste, but after reading the directions on the package carefully, made it right, and then I thought it better than coffee. At that time I weighed 140 pounds and now I weigh 185 pounds, that's quite a gain isn't it? I never have indigestion now and the headaches are all gone and I am otherwise entirely well and strong.

"I never had any troubles that were not due to drinking coffee and these disappeared and health came in their place when I shut off coffee and drank Postum." Name given by Postum Co., Battle Creek, Mich.

Look in each package for a copy of the famous little book, "The Road to Wellville."

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ENDORSED BY THE LARGEST MANUFACTURERS OF HAND SEPARATORS

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Pioneer Brand Parchment Paper

It holds perfectly the delicate butter flavors and keeps out contaminating odors. Pure vegetable parchment without taste or smell. There's a difference in parchments—one vegetable, some not vegetable, some so-called parchments. Don't get mixed on the brand—**It's the Pioneer.** Write us for sample sheets and book, **"Better Butter."**

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37 Eighth St., Passaic, N. J.

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Price 5c Each	6 for 20c	12 for 30c	25 for 50c

SIZE 10x16 INCHES

We also have a one cow Record Sheet, heavy Manilla paper (one month) that we will mail postpaid

Single Copy 5c	5 for 15c	10 for 25c	25 for 40c

SIZE 6x15 INCHES

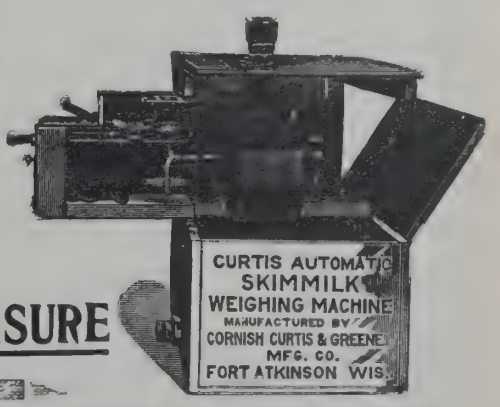
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FORT ATKINSON, WIS.

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and the last man suffers.



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Fort Atkinson, Wis.

Saving of Seed Corn.

Press Bulletin.

There is nothing of more importance to the farmers throughout the corn belt of the United States than the quality of seed corn. The Bureau of Plant Industry of the United States Department of Agriculture, states that in the northern part of this area special precautions are always necessary in saving seed on account of the short seasons and the consequent difficulty in getting seed which is fully matured. In a season like the present these conditions hold good over a larger area than usual.

Most of the corn is in the field at the present time, and if not immature, it at least contains a large percentage of moisture. If this moist corn is left in its present condition until after cold weather the freezing will kill a large part of the seed and the planting of this poor seed will mean a thin stand next year.

Where the seed corn has not already been obtained, it should be selected at once. Pick out only thoroughly matured ears, or if none can be found that are thoroughly matured, take the ripest to be had. Husk and put in a dry, well-ventilated place kept at a temperature of from 75 to 100 degrees Fahrenheit and let them remain there until the seed is thoroughly dried and cured. After it has been dried it should be stored where it will remain reasonably dry and cool. It is only when the seed contains a large pecentage of moisture that the germination is injured by freezing. If a little trouble is taken now in selecting and caring for next year's seed, the stand and the consequent yield will be greatly increased.

In all cases seed should be tested for germination a short time before planting, and only such seed planted as is found to be in the best condition. Seed tests can be made easily and often more conveniently at home, but the Seed Laboratory of the United States Department of Agriculture, so far as its working force will allow, is prepared to make tests for corn growers without charge.

IMPORTANT POINTS TO BE OBSERVED.

1. Select fully matured seed ,or at least the ripest that can be obtained.
2. Bring the corn from the field before freezing weather and keep it in a warm, dry place, with ample ventilation, until thoroughly dried.
3. Store in a dry, cool place.
4. Test for germination before planting.

Paraffined Cheese.

From the New York Agricultural Experiment Station, at Geneva, N. Y., comes the following report of tests made with paraffine coating as a protection for cheese:

"By paraffining the cheeses much of the loss in weight was prevented, especially at the highest temperature, and the quality was improved in some instances —never lowered.

"Half the cheeses in one lot were dipped in melted paraffine when a few days old and were distributed in the curing rooms at different temperatnres, to compare with the other half of the cheeses, which were untreated. The operation of paraffining, which is a very simple and inexpensive one, leaves each cheese coated with a thin layer, almost air-tight and water-tight, of a material upon which mold will not grow. Evaporation is thus checked and the cheeses are kept free from mold.

"The difference in the scores of paraffined and unparaffined cheeses was slight up to twenty-eight weeks, with the cheeses kept at 40°, and up to twenty weeks with those cured at 50°; but at 35 weeks with the 40° cheeses and at twenty-eight weeks with those kept at 50°, there was an average difference of one point on the score in favor of those paraffined. At 60° there was an average difference, when the cheeses were twenty weeks old, of one and one-half points in favor of paraffining.

"When covered with paraffine, the cheese cured at 40 degrees lost only 0.3 lbs. per 100 lbs., those cured at 50 degrees lost only 0.5 lb., and those cured at 60 degrees lost only 1.4 lbs. In the same kind of cheese not thus covered the loss was much greater at all temperatures. By covering cheese with paraffine a saving in loss of moisture can be effected amounted to 5 or 6 lbs. per 100 lbs. of cheese at 60° Fahrenheit, and at 50° or below, the total loss of moisture, can be reduced to less than 1 lb. per 100 lbs. of cheese.

"At 40°, the difference in favor of the paraffined cheese, counting both quality and quantity, was 51 cents for 100 lbs. of cheese stored; at 50° the difference is 63 cents, and at 60° $1.11. The saving is much greater at higher than at lower temperatures.

If we compare an unparaffined cheese, cured at 60°, with a paraffined cheese cured at 40 degrees—which would represent the maximum of influence under the conditions of the experiment—we find a difference of $1.76 per 100 lbs., or 1¾ cents a pound, in favor of paraffining and low temperature.

"Briefly summarized, the advantages of curing cheese at low temperatures are the following:

"1. The loss of moisture is less at low temperatures, and therefore there is more cheese to sell.

"2 The commercial quality of cheese cured at a low temperatures is better and this results in giving the cheese a higher market value.

3. Cheese can be held a long time at low temperatures without impairment of quality.

"4 By utilizing the combination of paraffining cheese and curing it at low temperatures, the greater economy can be effected."

Ayrshire Breeders' Association.

ED. HOARD'S DAIRYMAN:—The Twenty-ninth annual meeting of the Ayrshire Breeders' Association will be held in the parlor of Stanwix Hall, Albany, N. Y., Wednesday, Dec. 2, 1903, at 10 o'clock a. m., business meeting, to hear reports of secretary, treasurer and standing committees on Home Dairy Test, St. Louis Dairy Test, and the Ring Show at St. Louis, and for the election of officers.

AFTERNOON SESSION.

At 2 p. m. there will be an address of welcome by Hon. Charles A. Wieting, New York State Commissioner of Agriculture.

Response by the President.

An address will be given by Rev. Elmer F. Pember, Bangor, Maine, Subject: "The Ayrshire, the Best Cow for the New England Farmer."

A paper will be read by C. M. Winslow, Brandon, Vt., Subject: "The Relation of Structure to Dairy Capacity."

All interested in the breeding of Ayrshires are invited to attend this meeting.

Discussion will follow each paper.

There will be a banquet in the evening, given by the Association to which all members of the Association are invited.

A meeting of the Executive Committee will be held in the parlor at 8 o'clock Tuesday evening.

GEO. H. YEATON, Pres., Dover, N. H,
C. M. WINSLOW, Sec'y, Brandon, Vt.

What He Finds in the Dairyman.

Mr. Clark H. Carmer, of Middleport, N. Y., drops us a line and says:

"While I am not engaged in dairying, yet I find a great many things in HOARD'S DAIRYMAN that are a help to me and I expect to build up a good herd sometime. When I commenced farming five years ago I knew nothing of the business and I feel I do not know enough at this time to get along without the help of such papers as the DAIRYMAN, the *Rural New Yorker*, and others I take.

Heifer Twin with Bull.

An inquiry comes to us from Georgia, as to whether a heifer born a twin with a bull will prove barren. Usually such heifers will notbreed, they are technically called "free martins" and the following is copied from the Century Dictionary:

Free-martin. A cow- calf twin- born with a bull-calf. It is generally barren, and when this is the case, on dissection it is found to have parts of the organs of each sex, but neither perfect.

The bull calf in such a case is usually a normal animal.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The Quotation Committee reported the official market firm at 22 cents.

Offerings.	*Tubs.*	*Price.*
Dundee.....	40 sold	

No sales. Former markets.

Nov, 2, 1903, 140 lbs. at 21 cents.
Nov. 10, 1902 0 lbs. at 25 cents.
Nov. 11, 1901 0 lbs. 23 cents.
Nov. 12, 1900 0 lbs. 24 cents.
Nov. 13, 1899 125 lbs. at 25 cents.

On request of Treasurer Knight of the National Dairy Union, President Newman appointed Joseph Newman to audit the books of the Association.

Nov. 9, '03. H. C. B.

DAIRY MARKETS.

ELGIN, Ill., Nov. 9—Butter—Butter steady on the Board of Trade today, selling at 22c a pound. Sales in the district for the week were 551,000 pounds.

The Ohio Dairy School

Is the name given to a Special Winter Term's Course in Dairying at the **OHIO STATE UNIVERSITY.** This course has recently been extended and improved. A handsome Illustrated Bulletin which tells all about it will be mailed free.

THE CLASS IS LIMITED TO FIFTY

Those wishing longer courses of dairy work can find them here.
A group of students have entered this fall to take Special Dairy Studies during the College Year of Nine Months. Address

PROF. JOHN W. DECKER
Townshend Hall, O. S. U., Columbus, Ohio



We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity 1000 cans daily, which should enable us to fill all orders promptly.

Every can sold on a guarantee.
Write for Circular H

CREAMERYMEN DAIRYMEN and MILK DEALERS

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RURAL MAIL BOX FREE. To the first person sending us the address of any one canvassing for a new route we will give an approved, galvanized, steel mail box free.
BOND STEEL POST COMPANY, ADRIAN, MICHIGAN.

Creasey Ice Breakers



Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right.

Made is sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.

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17th Clearfield St., Philadelphia, Pa.

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Surfaced with sand or gravel and shipped direct from our factory. We make it and sell direct to you. Send for free samples and booklet.

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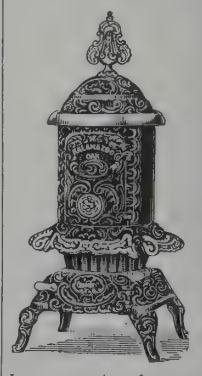


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De Loach Mill Mfg. Co., Box 801, Atlanta, Ga.
114 Liberty St., New York.

ILLUSTRATION

THE KALAMAZOO PLAN

We desire to call the especial attention of every reader of Hoard's Dairyman to the offer made in this issue by the Kalamazoo Stove Company of Kalamazoo, Mich, manufacturers of stoves and ranges, selling direct from the factory to the user at factory prices. Their proposition is this: They guarantee to save you from 25 to 40 per cent in price. They guarantee that you cannot get a better stove or range anywhere at any price. They prepay the freight. They will send you a stove or range on 30 days trial and then leave it with you 360 days on approval. If you are not perfectly satisfied, return the stove, at their expense and get your money back. All stoves are blacked, polished and ready for setting up. Their guarantee is backed by a $20,000 bank bond. The company is composed of some of the best known business men in the state of Michigan—men with ample resources to fulfill every promise they make. They are able to sell their goods at low prices simply because they are the only REAL manufacturers who sell direct to the user, thus eliminating all middlemen's, agent's and dealer's profits. They have a factory which is not excelled in equipment by any stove factory in the world, and their line of goods is as near perfection as skill and care can produce from the best materials in the markets afford. The Kalamazoo line includes ranges, oak heaters, wood burners, etc., in a variety of sizes. We show herewith one of their handsome ranges and their oak heater. A special feature of their cook stoves and ranges is the Kalamazoo oven thermometer which shows the temperature of the oven without opening the door, enabling the





cook to keep perfect control of her baking and roasting at all times. If you have a house to keep warm or a meal to cook, it will pay you well to send to the Kalamazoo Stove Company, Kalamazoo, Michigan, for Catalogue No. 163 and special prices (freight prepaid) on their famous line of stoves and ranges. They will treat you right.

CHICAGO, Ill, Nov. 9—Butter—Easy; creameries 15@21½c; dairies, 14@18½c.
Cheese—Easy; Daisies, 10½@10¾c; Twins, 10½@10c Young Americas, 11c.
Eggs—Firm; at mark, cases included, 20@22c.

Cattle—Choice to fancy beeves, 1,200 to 1,500 lbs. 5.40@3.70; good to choice steers, 4.85@5.35; fair to good export and shipping steers, 4.35@4.80; medium beef steers, 3.90@4.25; plain beef steers,3.60@3.85; common to rough, 1,000 to 1,200 lbs. 3.50@3.75; good to fat heifers, 3.75@4.35; good to choice feeders, 3.25@4.15; good to plain stockers and feeders, 2.00@3.20; fair to good cows and heifers, 2.40@3.60; good cutting and fair beef cows. 1.90@2.30; common to good canning cows, 1.25@1.85; bulls poor to choice, 2.40@4.25; calves, choice to fancy 6.25@7.25; calves, common to fair, 2.75@5.00 corn fed western steers, 4.00@4.50; Texas bulls and grass steers, 2.90@3.80; fed Texas steers, fair to choice, 3.40@4.40; western range steers, 3.20@4.40.

Hogs—Good to choice heavy shipping, 4.95@5.10; fair to choice heavy packing, 4.55@4.85; rough and common heavy mixed, 4.35@4.50; assorted light, 150 to 195 lbs., 5.00@5.25; good to choice butcher weights, 5.00@5.25; fair to choice light mixed, 4.80@5.10; thin to choice 50 to 130 lb. pigs, 4.10@5.00; stags and rough lots, 2.50@4.60.

MILWAUKEE. Wis,, Nov. 9—Butter—Creamery, extras, 22c; firsts, 20@20½c;seconds, 18@19c; whey, 12c. Dairy, fancy, 18c; lines, fresh, 15@16c; packing stock, 13½@14c; grease, 5@6c.
Cheese—American full cream, new: Twins, 10½@11c; Young Americas, 11½@12c; Daisies, 11½@12c; Longhorns,11½@12c;low grades, 8@10c. Limburger—New.fancy, 10@10½c; off goods,6@8c Swiss—Drum, choice, 12@12½c; Drum No. 2, 10@11c; block, choice, 11@11½c; block, No.2. 9@10c. Brick, new—Fancy,10½@11c; low grades, 7@9c.
Eggs—Strictly fresh laid, loss off, cases returned, 22c; strictly fresh laid, at mark, cases returned, 19½@20c; storage.city, Apr. No. 1, 20c; storage, country, 18@19c; dirties and seconds,17c; checks, 15c.

BRILLION, Wis., Oct 29—Cheese—Sales today were: 164 Twins at 10⅝c; 1,032 Daisies at 10½c; 40 cases Young Americas at 10¼c; 89 Cheddars at 9¾c.

HORTONVILLE, Wis., Oct. 29—Cheese—The offerings today were 66 Cheddars and 877 Twins. Sales 633 Twins at 10c; and 50 Twins at 9¾c. Market dull.

PLYMOUTH, Wis., Nov. 3—Cheese—Thirty-four factories offered 3,264 boxes today, of which 163 Longhorns and 330 Daisies were passed on. The balance sold as follows: 585 Longhorns at 10⅝c; 105 at 10¾c; 1,192 Daisies at 10⅝c; 109 Twins at 10c; 163 at 10½c; 245 10¼c; 175 Young Americas at 10⅝c;166 at 10¾; 36 at 10⅞c. Market firm.

MUSCODA, Wis. Oct. 31—Cheese—The sales today were: 100 boxes of Twins at 10¼c; and 280 at 9¾c; 155 Twinswere withdrawn.

SHEBOYGAN FALLS, Wis., Nov. 4—Cheese—23 factories offered 1 894 boxes of cheese on the Call Board today and all except 110 Lonhorns sold as follows:
135 cases Young Americas 10⅝c; 524, 10½c; 80 Daisies, 10⅝c; 152, 10½c; 647 cases Longhorns at 10½c, 170, 10⅜c, 76 at 10¼c, Market dull and quiet.

SHEBOYGAN, Wis., Nov.4—Cheese—On today's Call Board 1,974 boxes of cheese were offered, 66 cases of Young Americas were withdrawn, the balance selling as follows: 64 boxes Twins at 10c,410 Daisies, at 10⅝c; 407 at 10½c; 92 cases Young Americas, at 10½c; 283, at 10¼c; 367 Longhorns at 10⅜c, 265, 10¼c. Prices and market weak.

MANITOWOC, Wis., Nov.4—Cheese—75 boxes Twins, sold at 10c; 650 Young Americas, 10¼c; and 1,250 Daisies, 10¼c on the cheese board today.

NEW ORLEANS. La., Nov. 9—Butter—Extras, 23@23½c; firsts, 21@22c; ladles, 15c; renovated, 18c.

NEWARK, N. J., Nov. 9—Butter—Steady at 22½c.
Eggs—Fresh first, 29c; refrigerator firsts 22½c.

PHILADELPHIA, Nov. 9.—Butter—Unchanged; extra western creamery, 22½c; nearby prints, 23c.
Eggs—Firm, and near by 1c higher; fresh near by, 30c; loss off; western, 28@29c; southwestern, 25@27c; southern, 23@25c.
Cheese—Steady; but quiet; New York full cream, fancy, 12c; choice, 11¾c; fair to good, 11@11½c.

ST. LOUIS, Nov. 9.—Poultry unchanged, chickens, 7c; springs, 9c; turkeys, 11c; ducks, 9@9½c; geese, 7½c.
Butter—Steady; creamery, 18@23c.
Eggs—Higher, 23c loss off.

FOND DU LAC, Wis., Nov. 9—Cheese—Sales of cheese on the Dairy Board today were 210 Twins at 9¼c and 155 Daisies at 10¼c. Market quiet. Board adjourned to Nov. 23 at usual hour.

TOPEKA, Kan., Nov. 7—Butter—Creamery butter, 21½@22½c; Dairy butter, 17@18c.
Cheese—Longhorns, 11¾c; Twins, 11½c; Daises, 11½@11¾c; Prints, 12½c.

BOSTON, Mass., Nov. 9—Butter—Creamery, western extra, 22@22½c; western firsts, 20@21c; dairy, 15@21c; imitation creamery, 16c; ladle, 14@15½c; box and print 16@23½c.
Cheese—Choice, flat,10½c.
Eggs—Nearby, 39c; western selected, 24@30c; poor to fair, 20@22c; refrigerator, 19@22c.

LIVERPOOL, Nov. 9—Butter—Good United States nominal. Cheese quiet. American finest white, 53s; do colored, 54s.

NEW YORK, Nov. 9—Butter—Receipts, 5,355 pkgs; quiet to firm; extra creamery, 22½c; creamery,common to choice, 16@22c; state dairy, 15@20c.
Cheese—Receipts, 2,294 pkgs; steady; state full cream, fancy, small, colored, September, 11½c; October, 10¾c; small, white, September, 11½c; October, 10¾c; large, colored, September, 11½c; October, 10¾c; large, white, September, 11½c; October, 10¾c.
Eggs—Receipts, 4,332 pkgs; strong; state and Pennsylvania; fancy mixed, 30@31c; state and Pennsylvania, seconds to firsts, 25@29c; western firsts, 28@29c; western, seconds, 25@27c; refrigerated, 20@22½c.

UTICA, N. Y., Nov. 9—Cheese—All cheese sold at 10½c. Market dull, factories closing.

CANTON, N. Y., Nov. 7—Cheese—Offered 1,834 boxes of Twin cheese, and 1,110 tubs of butter. Cheese sold at 10½c; butter at 21½c.

WATERTOWN, N. Y., Nov. 7—Cheese—Sales, 5,000; 10½@10⅝c for large; 10¾ for small; 10½ for Twins.

NEW YORK MARKET.

NEW YORK, Nov. 7—Butter—Receipts for the week, 25,621 packages. Exports for the week, 1,493 packages.
Our market was about a repetition of last week. Fancy fresh goods were a very small proportion of the receipts and high scoring extras were hard to find, yet price was no higher, and was inclined to be weak at the close.
Every wholesaler and retailer who has any summer butter in freezers has been pushing it, with the result that the extremely light arrivals of strictly fancy butter have been enough to go around without advance in last week's prices.
Under grades fresh Creamery were plentiful and sold at 20@22c. New York State Dairy of fine quality is wanted and would sell close up with best creamery, but there is little of this kind arriving, most of the receipts being ordinary and poor and sell at 14@18c. Freezer creameries of extreme fancy quality have had some inquiry at 21½@22c, while all other grades were neglected. Imitations and Ladles and Renovated butters are dull at lower and irregular prices. We quote:
Creamery, fresh extra, 22½c; medium, 20@22c; poor, 13@19c; creamery, freezer, extra, 22c; medium, 19@21c; poor, 16@18c. Dairy, extra, 21@22c; medium, 19@20c; poor, 14@16c.
Cheese—Receipts for the week, 22,030 boxes. Exports for the week, 4,760 boxes.
Our market is extremely dull for all grades of cheese; finest September makes sold in small parcels at 11¾@11⅞c, and Octobers sold at 11@11¼c.
Skimmed cheese were more plentiful; fancy light skims sold at 9@10c, and under grades sold at 3@5c, and were hard to sell at that. We quote:
Full cream, extra, 11½@11⅞c; medium, 10@11¼c;poor, 7@9c.
Eggs—Receipts for the week, 38,941 cases.
New laid stock keeps very scarce and prices have steadily advanced until 30c has been paid for best marks and some exceptionally fancy lots have sold for more money. Market closes firm for all good sweet eggs. We quote:
New York & Pennsylvania, best, marks, per doz., 29@30c; Northern & Western, best, marks, 28c; all sections, poor to fine, 20@26c; refrigerator poor to fine, 18@23c.
177 Chambers St. DAVID W. LEWIS & Co.

BALTIMORE MARKET.

BALTIMORE, Nov. 5.—Butter—With continued light receipts of stock suitable for table purposes, business has moved along quite satisfactorily. Since our last report, notwithstanding the fact that extra creamery is in very light supply, there seems to be very little disposition to speculate. Dealers are keeping their purchases of the current receipts confined to actual needs, and are filling in the crevices with storage butter whenever a favorable opportunity presents itself. Imitations and ladles of desirable quality are quite scarce; all choice to fancy offerings meet quick sale. Rolls—Some few lots have been coming, and have met ready sale, particularly when in good condition. Packing stock—The supply, though moderate, is about, equal to the requirements. Prints and blocks of desirable quality are in good request. At the close of to-day's market the feeling was reasonably firm, but with the continued advance of prices there is a very close discrimination of quality.
Creamery separator, extras,23@23½c: firsts,21½@22½c; seconds,19@21c: creamery blocks(2 lbs.), extras, 24c; firsts, 22½@23½c; seconds, 20@22c; do prints, (½ lbs.), extra, 25c; first, 23½@24½c; seconds, 20@22c; Md. Va. & Penna. prints, extras, 24c; firsts, 22@23c; seconds, 18@20c.
Eggs—Soon after our issue last week, with quite a shrinkage in the receipts of strictly fancy stock and very good demand, the prices quoted at that time were exceeded; but so far this week, with a less urgent demand and quite an increase in the receipts, the market presents an easier appearance at 28 cents, and lower prices may be looked for at no distant day. Choice to fancy storage stock is moving out fairly well at 21½@22c.
301 Exchange Place. G. M. LAMB & BROS.

SAN FRANCISCO MARKET.

SAN FRANCISCO, Nov. 7—The demand for the better grades of butter lacked the vim that characterized Monday's trading, but as general offerings were light the market continued on a steady basis and supplies of the favored brands of creamery were well absorbed at full figures. The cheap lines of butter continued to drag slowly, despite holders' urging and their willingness to accept shaded prices. In storage goods, firm prices prevailed and a fair movement was in progress. The situation in the market for eggs was without change. Receipts were well cared for and selected Ranch were freely marketed at the top quotations, the maximum figure being an outside price for small lots of extra large whites. Storage eggs were steady at former prices. There was a fair call for cheese and the quoted rates were maintained with a marked degree of steadiness.
Receipts yesterday aggregated 13,900 pounds butter, 833 cases eggs and 13,700 pounds cheese.
Butter—Creamery, extras, 30@31c; good to fancy. 26@29c; dairy. extras, 24@25c; dairy, choice, 22@23c; store, 18@20c; California storage, 24@27c; eastern creamery, 23@25c.
Cheese—California creamery, mild new, extra, 14@15c; mild, new, choice, 13½@14c; Young America, 14@15½c; eastern, New York, Cream, Cheddars and Flats, new, 14½@16c.
Eggs—Ranch, selected large, 42½@43c; good to choice, 40@42c; store, nominal; California storage, 28@33c; eastern, 25@30.

NEW YORK FERTILIZER MARKET.

Acid phosphate	60	@	67½
Phosphate rock, f. o. b.Char'n	5.00	@	7.00
Tenn	3.50	@	4.50
Bones, rough ℔ ton	17.00	@	18.00
ground	21.50	@	22.00
Bone meal	21.50	@	23.00
Bone black, refuse	19.00	@	19.50
Potash, dbl. m're salt 48@53%	1.12	@	1.15
dbl. m'ure salt 48@53%			
less 25 tons	25.00	@	30.00
sulph. of basis 90@98%	2.11	@	2.18
90@98% less than 25 tons	38.00	@	40.00
Potash, Muriate % 100 lbs.	1.83	@	1.95
less than 25 tons	36.00	@	40.00
Kainit, 25% S. of P ℔ ton	9.30	@	9.50
less than 25 tons	9.50	@	10.50
Sylvinit, 35@37% P ℔ unit	41	@	46
Nitrate of soda	2.10	@	2.15
Blood, dried, red ℔ unit	2.45	@	2.50
low grade	—	@	—
Concentrated tankage ℔ ton	15.00	@	16.00
Fish, guano, dried	2.40	&10.	
acidulated	2.15	&35.	

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 190:

DE LAVAL
CREAM SEPARATORS

GOOD MANAGEMENT
AND CREAMERY PROSPERITY
HAVE EVER
GONE HAND-IN-HAND

This is true of Cream Gathering from Farm Machines as well as of Factory Separation.

Now is the time to make De Laval contracts and plans for 1904.

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Randolph & Canal Sts., CHICAGO.
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9 & 11 Drumm St., SAN FRANCISCO.
GENERAL OFFICES: 74 Cortlandt St., NEW YORK.
121 Youville Square, MONTREAL.
75 & 77 York Street, TORONTO.
248 McDermot Avenue WINNIPEG.

READING NOTICES

All Reading Notices under this head are at the rate of 25 cents per line.

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D, Independence, Ia. 50-tf

Foreman Wanted—One having experience in general dairying, a good milker, to have full charge of dairy of 40 cows including the care of young stock, butter making, etc. No farm work. Married man preferred. House, garden and milk furnished. Good wages. Location, northern Florida. Write JUMPIERUN DAIRY FARM, Monticello, Fla, 40-2

Wanted—A single man to work in boiler and separator room, experienced in handling milk and not afraid of work. O. H. BARROW, Roodhouse, Ill.

For Sale—Four registered Holstein bulls ready for service; also a few heifers. FRANK BREWSTER, Bowers, Wis. 40-2

Wanted—Position on Maine dairy farm. Age 21, good habits, good milker. Have had some experience. References. HAROLD STRAW, Guilford, Maine. 40-2

Wanted—A first-class man to manage a thirty cow dairy farm near Wheaton, Illinois. Good wages to the right man. 528 Marquette Building, Chicago.

A Bargain—80 acre dairy farm, all complete and fenced, one-half mile from creamery. Ten head of stock goes with it. Address "B", care Hoard's Dairyman, Fort Atkinson, Wis.

Wanted—Young married man on my dairy, 20 cows, having practical knowledge of feeds and feeding. Must be a good milker; must be neat, active and willing to work, taking an interest in my interests. $45.00 per month and four room house. Some advance as man proves valuable. MARCH, 1798 W. 39th St.. Los Angeles, Cal. 40-2

Wanted—Position by experienced book-keeper. Also capable of testing cream and wrapping butter. References furnished. Address A. B., care Hoard's Dairyman.

Wanted—Position by capable butter maker of 15 years experience in creamery in R. R. town, married. Use no liquor or tobacco. Address COMPETENT, care Hoard's Dairyman. 40-2

For Sale—Up-to-date creamery. Best location in Missouri. Runs the year around. Write promptly for bargain. Address A., care Hoard's Dairyman.

For Sale—Very handsome yearling Jersey bull, also few yearling Jersey heifers bred to freshen the coming winter and spring, all registered and of the richest breeding. A. F. PEIRCE, Winchester, N. H.

At a Bargain—Two Holstein-Friesian Bulls, both registered; one ready for service. the other six months old. Both are fine calves and will sell at a bargain to make room for winter cows. S. I. TATHAM, Licking Co., Outville, Ohio. 40-3

Two choice young Guernsey bulls for sale. MRS. A. W. LEHMANN, Neosha, Dodge Co., Wis. 12-sp

Farm For Sale—A farm of 120 acres with good buildings, 2 orchards, 2 wells, running stream of water. Cheese factory joining farm. 90 acres under cultivation, the rest timber. For particulars write to VALENTINE DIERINGER, Clintonville, Wis. 39-2

For Sale—Two fine dairy farms, vicinity of Washington City. Electric R. R. through one and near the other. For particulars address owner. L. E. WATT, 745 7th St., S. E., Washington, D. C. 39-4

For Sale—Five cheese factories, 20 acres landsaloon and store with stock, three houses in Appleton, Wis., two farms 60 and 80 acres. Address 775 Ida St., Appleton, Wis. 36-tf

For Sale—One choicely bred Guernsey bull by Stella P's Gold Bar, 8368, out of my best cow, 16 months old, warranted a sure stock getter. Also a few choice Berkshire sows and boars, April farrow, at reasonable prices. J. E. STORY, Successor to Nor. Wis. Live Stock Co., Stanley, Wis. 36-tf

Wanted—Experienced butter maker, former instructor in dairying, at present in charge of sanitary milk bottling plant in eastern city, wishes to change position. Address C., care of HOARD'S DAIRYMAN, Fort Atkinson, Wis. 38-5

Wanted—Experienced herdsman for a milk farm. Applicant must state age, experience, references and wages wanted. JOHN D. WALSH, Mont Clare Station, Chicago, Ill. 38-4

For Sale—3 Scotch Collie puppies 7 months old; old male sable and some white; sire and dam registered. Also 4 Holstein bull calves 3 to 8 months old; sire, Sir Dairy B. M. DeKol, and out of choice cows. HENRY WALSH, Sheboygan Falls, Wis. 37-4

The Third Revised Edition of Buff Jersey's Popular Book Just Out of Press—Ten chapters. 25 illustrations and right up-to-date. Subjects treated are: Silos and Ensilage, All Phases of the Dairy Subject, Soil Crops, Up-to-date Farm Machinery, How to Cure Abortion and Milk Fever, Some Medicines and Remedies, The Steam Plant, its care, and many other valuabe things ably treated. Send for circular. Sent post paid, cloth binding $1.00, paper 75c. BUFF JERSEY, Monmouth, Ill. 47-tf

Guernsey Bulls For Sale—I have a few young Guernsey bulls for sale at moderate price, ranging from six months to one year old. These animals are from highly bred sires and mothers of good size and well reared. Good bargains here. W. D. HOARD, Fort Atkinson, Wis. 30-tf

For Sale—A cheese factory in good dairy country, doing good business. No opposition, (cheap.) Address S. O. U., care Hoard's Driryman. 34-tf

For Sale—Two registered yearling Guernsey bulls. RAY BICKNELL, Ft. Atkinson, Wis. 32-tf

Very low rates to International Live Stock Exposition at Chicago—Via the North-Western Line. Excursion tickets will be sold Nov. 29, 30 and Dec. 1, limited to Dec. 7, inclusive, Apply to agents Chicago & North-Western Ry.

Excursion Tickets to St. Paul and Minneapolis and Return—Will be sold by the North-Western Line daily until Nov. 30, 1903, from Fort Atkinson at $14.00 for the round trip, limited to return until Dec. 15, 1903. Apply to agents Chicago & North-Western R'y. 35-8

A Maine Dairy Meeting at Presque Isle.

ED. HOARD'S DAIRYMAN:—Distinctly a potato growing section, Aroostook county, embracing nearly all of northern Maine, has paid little or no attention to dairying, but has devoted all its energies to raising the tubers, practicing a three years' rotation of crops. This state of affairs attracted the attention of Maine's State Dairymen's Association, who, realizing from the experience of those in the western part of Maine, as well as from that of people in the western states, to what extent the soil of this fertile garden of Maine, as it is frequently styled, is being depleted, took up the matter nearly a year ago at the annual meeting of that society and discussed it in all its bearings with the result that a special meeting was called at Presque Isle to bring to the notice of these eminently successful potato-growers, the facts of the deterioration of the soil under their present methods and the desirability of preserving its fertility by some branch of animal industry.

"It is," said State Dairy Instructor Sidney C. Thompson, who has been spending a fortnight in the locality in the interest of dairying, "impossible for us to come here and see your fertile fields lying broad and green, your newly cleared land heavily covered with tender sweet grass, your springs and streams of pure water, without saying inwardly, if not outwardly, what an ideal chance to do dairying.

I am willing to admit that you are doing successful farming without dairying, but I do maintain that you can do successful dairying in connection with your present work, and I truly believe that if you farmers of Aroostook county will use the same care, thought and study with the dairy that you are using in the raising of potatoes, you will be able to double your present profits." He substantiated his remarks at the meeting with figures computed from the actual work of a young man in his own town.

The University of Maine always contributes its quota of speakers to whatever movement may be on foot for the advancement of rural industry, and among those scheduled to address the meetings were, Professors Gowell and Hurd, the latter recently added to the faculty at Orono, from the west and bringing with him all the sturdy vigor of the westerner and the enthnsiasm of a young man thoroughly interested in his calling, the opening words of his address, "We will educate your boys to stay on the farm," speaking volumes for his worth to the farmers of the state.

Gilbert M. Gowell, Professor of Animal Industry, took for his subject, "The dairy cow and how she may be made profitable." Starting with the potato industry, he reminded the Aroostook farmers of the hard times following the failure of that crop for three successive years; referred to the gradual depletion of the fertility of the soil under the present method, and spoke eloquently in behalf of the dairy cow. "I do not advise you," said he, "to abandon potatoes, but to use the dairy cow as a means to double your output." He traced her origin from the time the first wild cow was ever milked by a human being down to the present day of special types and remarked the equal development of man and brutes. He spoke of the intensive operations carried on where the Jerseys and Guernseys originated, urged the importance of a liking for dairy work and showed how strong was the bond of sympathy between cattle and their keepers and how this bond subserved the pecuniary interests of their owners, closing with a strong plea in the interests of hired help, for the chores to be part of the day's work "instead of ex. tra work without extra pay," for he argued, "the hired man can not otherwise do good work.

Prof. Hurd treated of "Economical Dairy Food," dividing his subject into four distinct parts, viz., grasses and pastures, silage crops, root crops and soiling crops. Under the first heading Prof. Hurd said: "There are but few grasses grown in any one locality. Among those that might be raised here are Orchard and tall oat grasses, Meadow Foxtail and Russia Brome grass, the latter of which has the following characteristics to recommend it, especially for pasture lands: It can endure almost any amount of cold or, on the other hand, it can stand high temperatures during the summer months. It will withstand drought better than any of the other grasses, or it will thrive better than most grasses when considerable moisture is present. It matures early in the north, ripens soon after it heads, and stock relish it more than any of the grasses with, perhaps, the exception of Orchard grass. Its feeding value is equal to timothy. It furnishes more grazing and stands closer cropping than other cultivated grasses, is ready for pasturing earlier in spring than others, furnishes late autumn pasture and seems to me to be worthy of the strongest endorsement. The high price of seed can be overcome by raising a little and from that obtaining seed with which to start.

Clovers are unsurpassed in feeding value, and no other crop can be grown on the farm that will maintain fertility and leave the land in better shape than the clovers.

Prof. Hurd then spoke of soils in a "sour" condition, gave method of testing with blue litmus paper and prescribed the application of lime, a ton to the acre, just after ploughing, the same to be thoroughly harrowed in. For meadows not yielding as they ought, he recommended a mixture for top dressing, as follows: 200 lbs. nitrate of soda, 200 lbs. muriate of potash and 400 lbs. acid phosphate per acre, the cost of which is from $9 to $10 and the increase in yield threefold, or even more. Pasture land he would stimulate in a similar way, and would never undertake to establish a permanent pasture on lands in a low state of fertility. The growing of roots as a cheap food, he thought, should be encouraged, especially mangels, being easily raised and both succulent and nutritious.

Concerning the third class he said "the silos and silage is the greatest boon known to stock feeding. It is generally conceded that 3 tons of silage are equal in feeding value to one ton of hay. On this basis an infinitely larger amount of

"ADVERTISEMENT."

LET YOUR STOMACH HAVE ITS OWN WAY

Do Not Try to Drive and Force it to Work When it is Not Able or You Will Suffer All the More

You cannot treat your stomach as some men treat a balky horse; force, drive or even starve it into doing work at which it rebels. The stomach is a patient and faithful servant and will stand much abuse and ill treatment before it "balks," but when it does you had better go slow with it and not attempt to make it work. Some people have the mistaken idea that they can make their stomachs work by starving themselves. They might cure the stomach that way, but it would take so long that they would have no use for a stomach when they got through. The sensible way out of the difficulty is to let the stomach rest if it wants to and employ a substitute to do its work.

Stuart's Dyspepsia Tablets will do the work of your stomach for you and digest your food just as your stomach used to when it was well. You can prove this by putting your food in a glass jar with one of the tablets and sufficient water and you will see the food digested in just the same time as the digestive fluids of the stomach would do it. That will satisfy your mind. Now, to satisfy both your mind and body take one of Stuart's Dyspepsia Tablets after eating—eat all and what you want—and you will feel in your mind that your food is being digested because you will feel no disturbance or weight in your stomach, in fact, you will forget all about having a stomach just as you did when you were a healthy boy or girl.

Stuart's Dyspepsia Tablets act in a natural way because they contain only the natural elements of the gastric juices and other digestive fluids of the stomach. It makes no difference what condition the stomach is in, they go right ahead of their own accord and do their work. They know their business and surrounding conditions do not influence them in the least. They thus relieve the weak stomach of all its burdens and give it its much needed rest and permit it to become strong and healthy.

Stuart's Dyspepsia Tablets are for sale by all druggists at 50 cents a box. They are so well known and their popularity is so great that a druggist would as soon think of being out of alcohol or quinine. In fact, physicians are prescribing them all over the land and if your own doctor is real honest with you, he will tell you frankly that there is nothing on earth so good for dyspepsia as Stuart's Dyspepsia Tablets.

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Iowa Dairy Separator.



AN UP-TO-DATE MACHINE
REPLETE WITH PRACTICAL IDEAS

It is built in the following sizes:

250, 350, 450, 600, 750 POUNDS PER HOUR

Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.

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YOU DO THE TESTING
on your own farm and make sure you have a bargain and a money maker, when you buy the

AMERICAN CREAM SEPARATOR.

A friend to every man who owns a cow. A machine that is sold on its merits at a surprisingly low price. Get in touch with us. Write for our catalogue. **It Is Free.**

American Separator Company,
Won Medal at Paris in 1900. Box 1023 Bainbridge, N. Y.



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Every reader of this paper who owns a few cows to send for our new catalog of

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Cream Separators

Sent free upon request. It will tell you why the Davis Separators are money makers for their owners.

THEY ARE GUARANTEED to separate THOROUGHLY and QUICKLY. Dairymen and farmers find the "Davis" the most economical piece of machinery on the farm. Let us send you full particulars about it

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to get best results from your dairy operations is to use the

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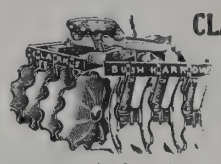
It's the one which turns easiest, skims closest, lasts longest and costs least for repairs. We issue a book called "Milk Returns" which you should see before you buy a separator of any kind. Tells all about the "Omega", and the experience of its users. We mail it free. Write for it today.

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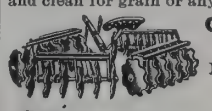
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CLARK'S REVERSIBLE
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Cuts a track 5 ft. wide, 1 ft. deep. Connects the sub-soil water. It is an excellent machine for covering in sugar cane. Strength guaranteed. Can plow a newly cut forest, stump, bush or bog land, leaves the land true and clean for grain or any crop.



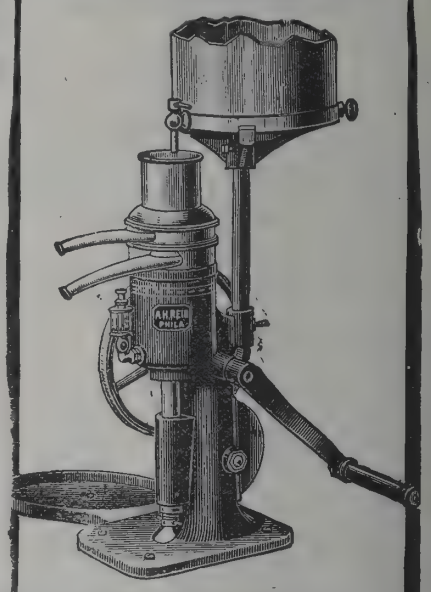
Clark's Dbl. Action Cutaway Harrow
Moves 15000 Tons of Earth a Day.



Clark's 8 foot Smoothing Harrow.
Will smooth an acre as true as a mill pond in twenty minutes.

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Reid's Hand SEPARATOR



The "best" separator is that one which does its work most thoroughly and easily, that is built of strongest material, and that is most easily washed and kept in order.

First cost is a great point with a buyer, but ease of running, perfection of skimming and simplicity in washing are even greater considerations.

The **Reid Hand Separator** has but a single cylinder inside the bowl, and skims as closely as one-hundredth of one per cent. Indeed, some tests indicate "not a trace" of fat in the skim milk.

The Reid is perfectly planned and strongly built, and it literally "runs like a watch."

As to our guarantee of excellence, we make the strongest statement that can be expressed in words: **Money back (less freight) if the buyer is not satisfied.**

There is a new (free) booklet about the Reid Hand Separator.

Sizes run from 150 lbs. to 500 lbs. per hour.

A. H. REID
CREAMERY AND DAIRY SUPPLY CO.,
PHILADELPHIA, PA.

MILK DEALERS COMBINATION Milk Protector, for cans or bottles. Prevents milk churning and souring in summer and freezing in winter. INVESTIGATE. S. C. Sullivan Mfg. Co., Erie, Pa.

food can be obtained from an acre of corn than an acre of hay and it will occupy much less room. The gentleman went on to show the cost, manner of constructing and capacity of different sizes in silos stating that their general acceptance needed no further discussion.

Prof. Hurd dwelt at length upon soiling, giving statistics which showed it to be much cheaper from a financial standpoint than pasturage because of the greater yield in product, the extra fertilizer saved and the elimination of fence building.

A system of crops for the season might he thought follow out this order. In the fall sow winter rye to be used the latter part of May or June. Where possible to grow it, wheat sown at the same time will follow it closely in maturing. Sow as early in the spring as possible oats and peas to follow the rye and wheat. Corn may be sown in the spring to follow the oats and some of the land from which the oats and peas have been cut can be sown with millet to be used in the late autumn.

Concerning exhausting the fertility of the soil, in closing he said, "better take a word of advice from your western brother who thought corn and wheat could be grown as long as desired without change of crop and who now sees Canada exporting wheat which was forced out of his section and by a careful system of rotation, retard soil exhaustion. Massachusetts, Vermont and the Provinces were represented in the list of speakers.

W. W. Hubbard, Agricultural Agent of the Canadian Pacific, told something of the conditions existing across the border and not unlike were they to those on this side the St. John Valley. The "Missing Link" which was the somewhat fanciful subject of his talks being the man who loved cattle and knew how to care for them, and a "*rara avis*" he seemed to be in Aroostook and vicinity. One thing especially interesting in his remarks was that the Canadians are raising a bacon pig and getting from 14c to 15c per pound. He is separate and distinct from the corn fed animal and is grown on the by-products of the dairy together with pasturage. With 20 cows, from 100 to 150 pigs can be kept. Mr. Hubbard compared the beef industry with dairying, showing quite a balance in favor of the latter and urged the adoption of one industry or the other, circumstances determining which, for the conservation of fertility.

Dr. J. L. Hills talked upon the dairy cow considering her in the light of a machine, her feed being the fuel; her product he looked upon as her manufactures and the "man behind the cow" as the most important of all. As a manufacturer considers the cost of production and utilizes all waste so should the dairyman; as there are good machines and poor so there are cows that eat more than they give and cows that give more than they eat and the sharp business dairyman will weed out the former class and cultivate the latter.

He should test his milk twice a year, weigh it three days in the month, and keep an observant eye on the eating habits of the cow. Too many farmers are manufacturing butter or cream with out-of-date or imperfect cow machines. The cow uses, besides water and bone building material, protein and carbohydrates, the latter usually grown on the farm, the former bought to a certain extent. Cottonseed, gluten and linseed meals and distillers grains supply this want better than other by-products on New England markets, but care should be exercised in economic feeding.

Concerning quality, Prof. Hills said: "Dirt is matter out of place, and the quality of the product is affected by it. The living dirt bacteria yields to sunshine in the tie-up and dairy, whitewash, good ventilation and boiling hot water on dairy utensils." The gentleman urged, as other speakers had done, dairying as a means of keeping up the fertility of the soil, and advised all who contemplated following the good advice so freely given to place themselves in training for the work, that the manufacturer should become the cultivated, intelligent person so needful to good work and good citizenship.

J. A. Roberts, of Norway gave his method of caring for swine, which he considered the most profitable side line. It included a liberal supply of light and air with perfect cleanliness, regularity and attention to details, matters which are shamefully neglected by most farmers who raise the porkers.

Hon. P. M. Harwood, General Agent of the Massachusetts Dairy Bureau, talked upon the Dairy Laws. He thought, if, after the farmer had educated himself along all the lines neccessary to successful dairying, he then had to contend against frauds in the market, that it was indeed hard lines. He gave a brief sketch of how the different spurious articles were manufactured, and the laws governing their sale, and told how by their enforcement the market had to a certain extent been cleared up. The Massachusetts Milk Standard law, which requires that milk shall contain 12 per cent of solids 6 months of the year, and 13 per cent the remaining 6 months, had largely done away with milk adulteration.

He explained that the first penalty of $100 for neglecting to stamp renovated butter as such, was excessive and defeated its end, but the present penalty of $25 had so far worked well, no cases being lost since the amendment. He declared oleo practically legislated out of existence by the United States law which places a tax of 10 cents per pound upon the colored article and ¼ cent upon the uncolored, although some cases are still pending.

The United States has some chemists that are sharp on the track of violators of the law and their methods of detecting fraud are carefully guarded. Mr. Harwood in closing made a powerful plea for honest work, honest goods, and honest money.

Local speakers and others made pertinent and interesting remarks. A fine display of dairy products, together with separators and other machinery go to show that some of the farmers of Aroostook have thrown out an anchor to windward in case of failure of the potato crop in the future, and do not intend to allow their potato yield to lessen through deterioration of the soil. M. B. A.

Brewer Me.

Shutting Veals in Dark Stables etc.

Was much interested in the part of the paper read by Prof. Hayward regarding the raising of veal calves. Would like your opinion of shutting them up in a dark stable, as he spoke of. He also spoke of giving them all the milk they would drink. I should think they would drink more than they ought. M. L. C.

Manchester, Iowa.

It is a common custom in Europe to confine veal calves in dark pens, but not much practiced in this country so far as we are advised. The claim is made that such treatment produces veal of a more acceptable color. After calves are two to three weeks old, there is not much danger of overfeeding on warm skim milk, when fed in limited amounts at a time.



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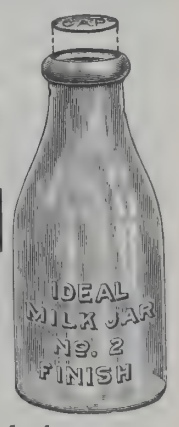
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For Sale by HOARD'S DAIRYMAN.

The Cow Demonstration at the World's Fair.

Col. H. H. Hinds, Stanton, Michigan, who has charge of the Short-horn cows that will take part in the World's Fair test, at the recent St. Louis meeting of Live Stock Herd Book Associations, spoke in part as follows:

"Mr. Chairman and Gentlemen of the Committee:—It is certainly a great honor to be invited to speak to a gathering of gentlemen engaged in such important service as that represented by this convention.

"My attendance at this meeting was largely for the purpose of hearing the address of Mr. Hemingway on The Cow Demonstration at the World's Fair. I share with you in the disappointment occasioned by the absence of Mr. Hemingway, and regret that we will not have the privilege of hearing from him on a subject in which all the breeders of cattle are interested, and especially the men who have made investments in the dairy breeds.

"Your unexpected invitation to fill in the time assigned to the paper of Mr. Hemingway, while very unexpected, is accepted with the understanding that little will be expected from an impromptu effort.

"The officers of fair associations, the managers of race tracks spend money in providing accommodations for exhibits and speed contests, and make large expenditures to provide facilities for producers and breeders to exhibit and demonstrate the excellence of their wares.

"The man who breeds trotting horses and advertises them for sale as having speed will not discharge his duty to the public, and his stud, unless he participates in public exhibitions and demonstrates the merit and winning qualities of his stock.

"Secretary Hemingway represents an association of breeders of dairy cattle, a breed that its promoters on all occasions esteem it a privilege and duty to exploit for what is claimed for the breed. I am interested in another breed of cattle, and shall make no attempt to represent him or his worthy breed on this occasion.

"The breeders of Jersey cattle and the officers of the Jersey Cattle Club are enterprising gentlemen and have faith in the breed, and, I guess, have never failed to bring their Jerseys to the fairs or to take part in any test, that provides an opportunity for demonstrating their confidence in the dairy qualities of their favorites.

"There are several other breeds of cattle for which much is claimed for milk and butter production, but their owners seldom if ever come to the scratch when an opportunity is given to publicly demonstrate their comparative excellence.

"It is about time for the men who do so much boasting about the dairy qualities of certain breeds to put up or shut up, or to be more explicit, to take part in public dairy demonstrations or to quit boasting about a breed that the owners admit by their universal absence from public trials are sadly deficient in the qualities claimed.

"I am interested in the Short-horn breed of cattle which the breeders prove on all occasions to be the best of the dual-purpose breeds. We claim and prove the Short-horn to be the best class of beef cattle. We show our cattle at the state fairs and expositions and fat stock shows, and have proved that they are first-class beef cattle. We have carried the blue ribbons won in competition with other breeds into our camp time and again, and have no lack of confidence in our ability to continue to win in hot competition.

"Now the Short-horn breeders, with the advocates of other breeds, claim not only superior beef qualities, but that the breed has much merit for dairy purposes. We claim that the Short-horn is the best dual-purpose breed of cattle, and we are eager to demonstrate that the Short-horn cow can return a good profit as a rich milker, and still produce calves that make choice steers that can win in the block test.

"Now, gentlemen, when the Louisiana Purchase Exposition provides the opportunity and the facilities for a cow demon-

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To reduce our stock we offer for sale a few Cows and Heifers. We also have some good Bull Calves sired by "Sir Coral" 5239, and "Glenwood's Sheet Anchor of Haddon" 6372. Write at once for description and prices.
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Landenberg, Chester Co., Pa.

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"IT'S UP TO YOU!"

stration, and invites the representatives of the cattle associations to make equitable rules and conditions for such a test as will meet all the requirements of the butter and cheesemaker—the farmer who wants a milk and beef breed as well as the dairyman who sells his milk for consumption—it becomes the imperative duty of the officers of cattle associations to come to the front and make good their claims. That is what the Short-horn Association is going to do. Now, it is up to the advocates of other breeds of cattle to get into line and show the public what their cows can do, or to quit boasting.

"The coming World's Fair demonstration of cows is planned upon advanced lines. The demonstration in its scope is far in advance of all former investigations and fully in keeping with the experience of the most successful, practical dairymen. The World's Fair Dairy Test covers the entire field of the producers of milk and the products made therefrom.

"The breed of cattle that has the special merit of a large flow of milk that is known as commercial milk, has a separate class.

"The breed that produces milk especially valuable for cheese making has a separate class.

"The breed that yields milk in which butter fat predominates has been provided for.

"A class has been provided for the cow that fills the requirements of a dual-purpose animal, and she will be represented with the best milkers and calf producers to be found.

"I am perhaps making this informal talk rather pointed, but I feel like talking plain and earnest about this very important matter. I feel doubtless like the breeders of all other breeds of cattle, that the men who make claims for their cows either as strictly dairy animals or as dual-purpose animals should exploit their wares in the World's Fair Demonstration.

"The managers of the World's Fair, and especially Mr. Coburn, the Chief of the Live Stock Department, has done everything that the cattle associations have asked, or that is needed to make this demonstration a success, and no sane man questions the impartiality or integrity of all connected with the Exposition who will have any part in this matter.

"Mr. Taylor, the Chief of the Department of Agriculture of the Exposition, who will have charge of the milk and the manufacture of products therefrom has personally assured the representatives of the cattle associations taking part in the World's Fair demonstration of cows, of his entire willingness to carry out any and all lines of demonstration in the manipulation of milk that will aid the dairymen in determining matters of especial interest to the maker of butter and cheese, or the milkman who provides milk for city or other consumption.

"It is the wish of the members of the cattle associations, taking part in the World's Fair cow demonstration to conduct experiments along lines of investigation that most deeply concern the practical dairyman who makes his living by the manufacture or sale of milk, or in raising dual-purpose cattle.

"Having participated in frequent meetings of the representatives of the cattle associations, called by the Exposition officals, and to which conferences all the dairy cattle and other cattle organizations were invited, I can speak advisedly as to the purpose of chiefs Coborn and Taylor to have such conditions adopted as will cover the entire field of the demonstration of cows in all matters in which the practical dairymen and breeders of cattle might be especially interested.

"I personally regret that so few breeds will be represented in the demonstration as there will certainly be a depreciation in the public estimation of breeds not participating, in proportion to the creditable performance of the breed taking part in the publicity given the same which will be world-wide.

"A very important and new departure in the World's Fair demonstration of cows is provided for in the rule which specifies that the record of the cow will be determined by her performance at the pail. No manipulation by the butter or cheese maker, or the dairyman, can detract from the cow's rating under the rules agreed upon.

Another wise provision has been made in the Exposition rules relating to the demonstration of cows at the World's Fair that will enable one or more enterprising breeders of any breed of cattle not represented by associations to enter cows as individuals. The liberal spirit of the managers of the World's Fair in this connection is very apparent when it is known that the milk or the product made therefrom is to be turned over daily to the cattle association interested or the individual owners having charge.

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Address F. L. HOUGHTON, Putney, Vt., for information relating to Registration of Pedigrees.



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THE STEVENS HERD Contains at the present time the young bull, Vale, with the largest official backing of any bull ever born. Several half-brothers and sisters to Vale, and a large number of cows and heifers bred to his sire, whose official backing is larger than that of any other bull ever in service. A cow that stands unequaled by any other that ever lived, in the official work of herself and daughters. The only cow ever officially tested for six months. Eighteen cows and heifers with official 7-day butter records averaging, by the 80 per cent. factor, over 20 lbs. each. Thirty animals whose dams have made official 7-day butter records averaging over 20 lbs. each. Why not get our prices before buying?
HENRY STEVENS & SON,
Brookside Stock Farm. Lacona, Oswego Co., N. Y.

HOLSTEIN-FRIESIAN BULL CALVES

Do you want one for use this winter which will improve your dairy herd? Do you want him elegantly proportioned, with straight back, high rump, and all the dairy points? Do you want one whose relatives are A. R. O. and eligible to the Advanced Register himself? If so, I have a choice lot, just such as you want.
MALCOLM H. GARDNER, Darien, Wis.

STAR FARM HOLSTEINS

I HAVE RECENTLY SOLD
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HEAD OF REGISTERED HOLSTEINS
WHY
Stock and Prices Right — Satisfaction Guaranteed
HORACE L. BRONSON, Cortland, N. Y.

LOOK HERE

34 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs. of butter in seven days; average per cent of fat 3.60. 8 two-year-olds average 12.16 lbs. of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by Gem Pietertje Hengerveld Paul De Kol, or Sir Ormsby De Kol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days; average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd?
For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis. Residence: National Ave., near 40th. Phone, South 1601.

TYRANENA HERD

100 HOLSTEIN-FRIESIANS

A. R. O. STOCK FOR SALE.

Both sexes, all ages. Herd headed by Sir Piebe Hengeweld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz. Frank B. Fargo, Lake Mills, Wis.

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Offers 5 yearling bulls cows and heifers bred to oldest son of Mercedes Julip's Pietertje, No. 39480. Chester White Pigs in pairs and trios, not related.
W. R. GATES, Fort Atkinson, Wis.

HOME FARM HERD.

Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams, 25.1 lbs. butter in seven days. Herd numbers 125 head.

BEST FAMILIES REPRESENTED.

Special prices on six or eight bulls of serviceable age.
W. B. BARNEY & CO.,
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ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.
GEO. T. McNEIL, Theresa, N. Y.

FOR SALE H.-F. A. R. O. cows and heifers, bred to Duchess Ormsby Piebe Burke, No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address Rural Route No. 2. W. H. JONES, Watertown, Wis.

THE MONONA FARM HERD
OF HOLSTEIN-FRIESIANS

Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 69.50 lbs. one day. Breeders and dairymen please write for prices.
F. W. ALLIS,
Monona Farm. Madison, Wis.

FOR SALE. H.-F. BULLS, ready for service, from A. R. O. cows and sired by Sir Johanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 yrs. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis.

VALLEY FARM HERD
HOLSTEIN-FRIESIANS

Headed by Korndyke Queen De Kol's Prince, dam Korndyke Queen De Kol, 24 lbs. 6.7 oz., granddam Belle Korndyke, 25 lbs. 12.8 oz. Both sire and dam by Manor De Kol, his dam Netherland Hengerveld 26 lbs. 10.66 oz., Manor De Kol by a son of De Kol 2d, 26 lbs. 9.21 oz. All are official tests and average 25 lbs. 13.72 oz. butter for 7 days and 3.95 per cent fat in their milk. Two bull calves now for sale and young ones after Sept. 1.
DON J. WOOD, R. F. D. 2, West Winfield, N. Y.

Bulls For Sale.

Two choice bulls ready for service and some fine bull calves from good testing dams. Sire: Paul Clyde, son of Paul DeKol. Dam's record 24.88 lbs. in 7 days. Write C. A. SNOW & SONS, Athens, Ohio.

HOLSTEIN-FRIESIANS INDIVIDUALITY, PERFORMANCE, BREEDING. You need it all. Write or come. 100 head.
McKAY BROS.,
Buckingham, Ia.

HOLSTEIN-FRIESIANS
FAIRVIEW HERD

We offer bulls ready for service; also heifer and bull calves not related, of the kind to suit the most particular.
O. J. GODFREY, Pennellville, N. Y.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the O. & N. W. Depot. Stock of both sexes and different ages for sale. Bulls in service are: Homesterd Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland DeKol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 ozs. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148. Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 ozs. Average per cent fat 4.92. Correspondence solicited.
WM. EVERSON & SON, Lake Mills, Wis.

OAKLAND HERD HOLSTEINS

First Prize Herd at New York State Fair, 1901, 1902 and 1903. Offers all ages, of either sex, of the very choicest breeding, at reasonable prices and on liberal terms.
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Weedsport New York

HOLSTEIN BULLS. We have some grandly bred young bulls ready for service. One of the largest and best advanced registry herds in the United States.
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REGISTERED HOLSTEIN-FRIESIAN

YEARLING BULLS AND BULL CALVES.

Write at once for special prices on them for the next thirty days. They are well bred, fine individuals; right in every way. Don't miss this opportunity to purchase. Stock at reasonable prices---prices that you can afford to pay.
JOHN C. GODFREY, Fulton, N. Y.

FOR SALE 2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.
M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

CLOVERDALE HERD
HOLSTEINS.

Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.
A. J. DAUGHERITY Streator, Ill.

Woodlake Herd.

Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN, Station D., R. 1, Minneapolis, Minn.

MARKHAM MANOR FARM,
Simonsville P. O., Andover, Vt.

Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for discription and price to J. A. THORNTON, Manager, Simmonsville, Vt.

HOLSTEINS IN CALIFORNIA

SAN ANSELMO, MARIN COUNTY
250 HEAD IN THE HERD

Sires are sons of Mercedes Julip Pietertje, Colantha 4th Belle Korndyke, Fay Barnham Princess Wayne 7th. A fine lot of bull calves
R. M. HOTALING,
Rialto Building San Francisco, Cal.

SOUTH SIDE FARM
WHITE BEAR LAKE MINN.

HOLSTEIN-FRIESIANS—We now offer at attractive prices fine young bulls from high tested A. R. O. cows, and sired by Prince Inka Pietertje De Kol 2nd, who already has to his credit 11 A. R. O. daughters. To make room in our stables we offer a few cows and heifers for sale at low price. Write us for particulars

OAK GROVE HERD Headed by Mechthilde De Kol Pietertje Paul, No. 29548. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

HOLSTEINS

High Class Advanced Registry Stock only. Best butter families. Stock for sale.
Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.



T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.
Wm. O. Jackson & Sons, South Bend, Ind.

JUST BULL CALVES

We have three, that are individually fine. They are bred right, have been fed right, and the price is right.
Ohio's Famous Herd, Holstein-Friesian Cattle. W. B. SMITH & SON.
2488 W Broad St, Columbus, O.

HOLSTEIN-FRIESIAN BULL CALVES

Of advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address
JOHN SHUGART & SONS, Marion, Ind.

FERMANAGH HERD
HOLSTEIN-FRIESIANS

Bulls ready for service from A. R. O. animals sired by Johanna Rue 2d Paul De Kol, sire of 18 A. R. O. cows. Also young bull calves by same sire. THOS. GAINES, Supt.,
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FINE POULTRY FOR SALE

I offer a very select lot of White as well as Buff Plymouth Rock Fowls of the present year's breeding for sale. Each breed have been kept on separate farms and are absolutely pure in their breeding. They will be sold at

$5.00 A TRIO

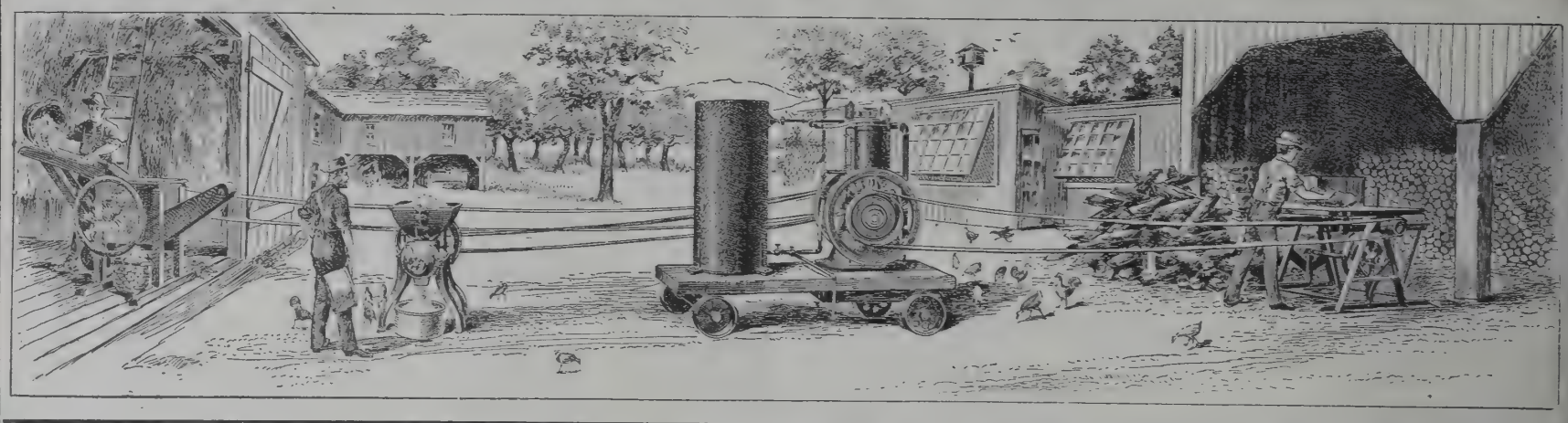
Nicely crated on board of cars here.

Single Fowls, $2.00 Eac

They have had the range of alfalfa fields the past summer and are very vigorous.
A. R. HOARD,
Fort Atkinson, Wis.

THE FAIRBANKS COMPANY

CORNER BROOME & ELM STS., NEW YORK CITY



Make the Best Horizontal and Vertical Gasoline Engines for all Farm Work. Write for Catalogue No. 360.

BRANCHES. Albany; Buffalo; Hartford; New Orleans; Baltimore; Philadelphia; Pittsburg; Boston; Montreal, Que.; Vancouver, B. C.; Winnepeg, Man.; Toronto, Ont.; London, Eng.

Butter and Cheese.

Making Home-Made Cheese.

ED. HOARD'S DAIRYMAN:—Cheese has been selling between 11 cents and 12 cents for the past month at the local board, but this high price was not sufficiently encouraging to the managers of the local cheese factory to run the season out. They stopped operations on the 10th of October for the season. "The patrons want to make butter for the winter," they said. "The milk is getting small," "The weather is getting too cold for milk." These were the reasons. Twelve cents a pound for cheese means 94 cents per cwt. for the milk net at the factory. That's about as high a price as anybody ever expects to get for milk drawn to the factory by the milk-drawer in this or any country, at any season of the year, and yet the wise and prudent (?) patrons of this particular factory thought it more profitable to keep the milk at home and make butter. They did not also think it paid to feed the cows extra and to house them nights. The above speaks volumes for the status of the industry in these parts.

They do not think it profitable to set up the factory for butter making in the fall and early winter either, as the outfit "costs too much." There is no considering the fact that they do not recover more than two-thirds of the butter fat in the milk these days, by the universal plan of creaming, deep setting and shallow pans. I believe that the loss of butter fat in creaming these days, with the average patron, is nearer two per cent than lower, and by the primitive methods in use of ripening and churning the cream, the total loss of butter fat of the milk kept at home is, at present, fifty per cent, and yet they find it more profitable to keep the milk at home than to make cheese at the factory, or put in a butter plant. A campaign of education is, therefore, badly needed in these parts. There is only one hope for about ninety per cent of them, and that is a "funeral."

Since we were forced to keep the milk at home we have begun, as usual, to make butter and cheese. It is a great additional trouble in the family to have to curd the milk twice every day and make a cheese, but it is "the devil or the deep sea," and the additional value of the milk over straight cheese or butter making pays well. Not having a separator, it would pay us better to shoot the cows, or allow them to dry up entirely, than to try to make a profit from butter making alone this time of year. The best we can do with our shallow pans and deep setting combined, with milk diluted fifteen per cent water, is three and one-half pounds butter per hundred pounds milk, and as butter must be A 1 to fetch 20 cents the pound, a cwt. of milk would only bring us 70 cents.

Of course the skim milk would go against this, but we find that warm, fresh whey is almost as appetizing to the pigs as skim milk. In order to get 3½ lbs. butter per cwt. milk, we find it necessary, besides diluting, to let the milk stand in the pans 40 hours, 36 not being long enough in this cold weather for all the cream to rise.

In our case, however, we do not want more than three pounds butter from a hundred pounds of milk as we want the skim milk fairly good for cheese making, one and one-half to two per cent fat. There is a ready market here for home made, or cottage, cheese made small, about five to ten pounds. They sell readily at eight cents per pound, and with milk containing 1.5 to 2 per cent fat, the cheese from it is not bad, if made scientifically. We believe the cheese we are making is equal in many respects to ordinary factory,—better than June factory, we are sure.

We are therefore at the present time, getting three pounds butter and 7½ lbs. cheese per cwt. milk, which makes a satisfactory profit, and we don't know of any other way of manipulatiug the milk in October and November that we could make it realize so much.

3 lbs. butter at 20c	$ .60
7½ lbs. cheese at 8 cents	.60
100 lbs. milk	$1.20

And we have the whey, fresh and warm for pig feeding, worth, at least, 10 cents per cwt. to the good. There is, of course, a lot of bother in making the cheese. but we have good appliances, and rennet and coloring, and a good thermometer. We have about 50 pounds of this half skim milk, morning and evening; as you know, we have but six cows. This fifty pounds milk is warmed in an ordinary kitchen boiler, which is, however, not the best. We warm it more than 86° F., as our milk being thirty-six hours old is over ripe, and so we warm the milk to 94° F. To this amount of milk we add one teaspoonful ordinary factory rennet diluted in a half cupful of water, and add also a half teaspoonful of coloring. We then take it off the stove and place it longside, and cover the boiler with a cloth, and so keep the temperature to 90 degrees. In fifteen minutes it coagulates sufficient for the knife; we then lift it on the stove and cut the soft curd into small pieces and allow it to cook, keeping the temperature at not over 100° F. In ten or fifteen minutes it is ready to "dip." At this time we do not bother with a hot iron, neither do we run the whey off as they do at the factories. We take it now off the stove and let the curd settle to the bottom, and when sufficiently matted take up the whole thing and drain. After a while we then cut it up, finishing with the hands, getting it into small pieces or cubes; add a little salt and put away until evening.

In the evening, the same routine is gone over and make a cheese. After we get the evening milk into small pieces of curd, we bring along the morning's curd

PERFECT POWER

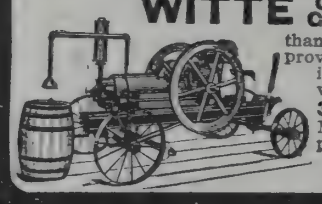
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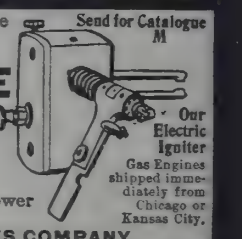
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than with any other power. To prove to you that the *WITTE* is ideal power for the farmer we will sell you one on

30 Days' Free Trial.

Made in all sizes and for all power purposes, from 4 to 25 H. P.





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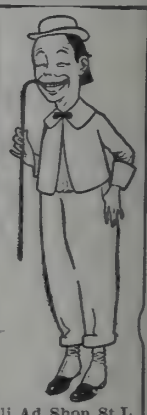
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Gas Engines shipped immediately from Chicago or Kansas City.

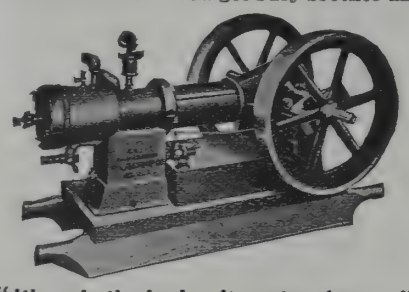
WITTE IRON WORKS COMPANY,
531 W. 5th Street, Kansas City, Mo.

FOOL-PROOF

BECAUSE IT'S SO SIMPLE



THE ELI GASOLENE ENGINE } Is the BEST because it has no gears, cams, levers or valve mechanism. Don't Be Jollied into buying a complicated engine that's always out of order—get the ELI—no trouble then. Now get busy brother and write for booklet to-day.



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Red Cross Mfg. Co., Bluffton, Ind., Michigan, Ohio, Indiana and Texas.

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"It's what's in 'er 't makes 'er go."

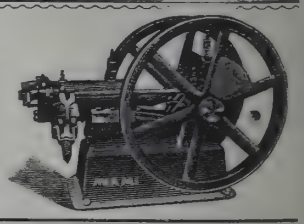
THE QUESTION OF FUEL ECONOMY IS A VERY SERIOUS ONE.

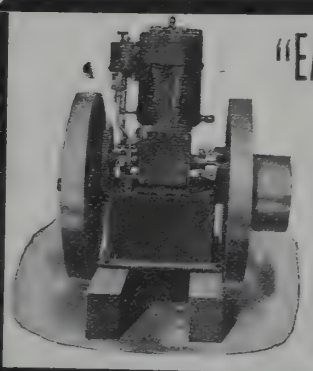
It is a very easy thing for one engine to use from $75 to $300 more fuel per year, than one more correctly designed and built. Our

Miami Gas and Gasoline Engines

represent the highest fuel economy and the longest life.
Miami Engines, Horizontal, 5 to 65 H.P., 12 Sizes.
Woodpecker Engines, Horizontal, 2½ H.P., Special.

THE MIDDLETOWN MACHINE CO., Middletown, Ohio.
Write for Catalogue and nearest Agent.





"EAGLE" 4 H. P. STATIONARY ENGINE

1904 MODEL

THIS ENGINE is of the four Cycle type and is especially designed and adapted for use on the farm—for separators, churning, pumping, elevating, hoisting, cutting ensilage, etc. No Expert or Engineer required to operate it—very simple in design and compact in construction. This engine is built so it can be easily moved from place to place. We can supply a special belt driven pumping jack to be used in connection with any pump having a wind mill head. Write for prices and description to

EAGLE BICYCLE MANUFACTURING CO.,

Engine Department. TORRINGTON, CONN.

and warm it up and mix with the evening's curd. We now have enough to make a small cheese. We salt at the rate of four and a half ounces to a hundred lbs. milk. As the cream is taken off this milk of ours, we have not more than 85 pounds of milk of the original 100 pounds, so that we salt this much with about 3½ to 4 ounces. We now put in press, lining the press first thing with a cloth, and into this cloth put the curd, wrapping the ends snugly over top. These small cheese do not require much pressure. About 20 pounds pressure is sufficient anyway, and I think less would do. In a few hours the cheese is turned in the press and is allowed to press two days, when it is taken out and placed in a room where the temperature does not go much below 60°.

The *modus operandi* is much the same as in the factory, only we are not so particular, nor do we take so long in the process. In the factory with fresh milk to begin with, the time is necessarily lengthened to get the milk, first, at the proper ripening stage to receive the rennet; then to get the proper degree of acid in the curd as shown by the hot iron test. To get the proper degree of fermentation or acidty of the curd takes, in the factory, several hours from the time the curd is ready for the knife to the mill and press. Then John Bull is more dainty than are our customers, and for export cheese enough care cannot be taken to make a respectable article, and nothing but full cream cheese is permitted to be exported.

We believe the Canadian laws are against skim cheese. We think this law, on the whole is a good one, but we see no reason why skim cheese, or rather partly skimmed cheese, could not be made in the fall months for domestic consumption, by the factories. There is no way in which the patron could get more money for his milk than by combined butter and cheese making. As good a cheese could be made in October, November and December on partly skim-milk as on whole milk in May or June, and I believe very much better.

There is money in the business for the factoryman that will contract with the farmers in the fall for their skim-milk. As the farmer's skim-milk in the late fall months contains about 2 per cent butter fat, a very fair quality of cheese could be made from it. And this farmer's skim-milk could be purchased at their doors for about fifty cents—perhaps considerably less—per cwt. and with this milk there would be no difficulty in getting 8½ lbs. cheese from the cwt. milk.

This skim-milk would be in every bit as good condition for cheese making as the whole milk in the hot month of July, while the product would be every bit as good as July full cream cheese. What is the sense therefore in having a law on the statute prohibiting the making of skim cheese. Certainly, cheese from separator milk should be prohibited, but milk from the farmer's dairy where shallow pan and deep setting is followed is widely different. I believe no cheese should be made from milk containing less than 1.5% butter fat, and this only after the middle of September. In purchasing such milk the test should be the apportioner of values.

Hermanville, P. E. I. J. A. M.

New York Dairymen's Convention, Ogdensburg, N. Y.

TUESDAY, DECEMBER 8, 8 A. M.

Exhibition hall will be open to the public. Exhibitors of Dairy Appliances and Dairy Products are requested to have their booths ready for public inspection.

PROGRAM.

TUESDAY, DECEMBER 8, 7:30 P. M.—CONVENTION HALL.

Address of Welcome by Mayor George Hall.
Response by - - Hon. George L. Flanders, Assistant Commissioner of Agriculture, Albany.
Address by - Ex-Governor W. D. Hoard, Wisconsin.
Appointment of Committees.
A fine Musical Program will be rendered at each session of the Convention.

WEDNESDAY, DECEMBER 9, 9 A. M.

Meeting of the Board of Directors in the Office of the Exhibition Hall.

WEDNESDAY, DECEMBER 9, 1:30 P. M.—CONVENTION HALL.

President's Address.
"Market Milk" - - Prof. R. A. Pearson, Dairy Department Cornell University.
Discussion opened by Jared Van Wagenen, Jr.
Two Years Experience with Consolidated Cool Cheese Curing Rooms Prof. J. A. Ruddick, Acting Commissioner of Agriculture, Ottawa
Discussion opened by - Dr. L. L. Van Slyke, Chemist, New York State Experiment Station, Geneva.

WEDNESDAY, DECEMBER 9, 7:30 P. M.

Address by - - - - Dr. W. H. Jordan, Director New York State Agricultural Experiment Station, Geneva.
Dairying in New Zealand, Illustrated with Stereopticon Views - - - - - Prof. J. A. Ruddick.

THURSDAY, DECEMBER 10, 1:30 P. M.

Report of Committees and Election of Officers.
Relation of Forage Crops to Milk Production, - Prof. Thos. F. Hunt, Cornell University.
Discussion opened by Jared Van Wagenen, Jr.
A Study of Dairy Success from the Farm Standpoint - Ex-Governor W. D. Hoard, Wisconsin.

THURSDAY, DECEMBER 10, 7:30 P. M.

Business Meeting in Exhibition Hall. Final Reports of Officers and organization for the coming year.

Starting a Creamery.

ED. HOARD'S DAIRYMAN:—Seeing the article of E. B. H., Retreat, Wis., wishing advice as to starting a creamery, I will say by all means drop the promoting agents. I can judge by experience, as ours was built that way. They generally want big pay for a lot of cheap and not satisfactory goods and sometimes give one or more subscribers their share free gratis, and such ones are a curse to any enterprise.

My plan would be to get the necessary amount of cows to insure success and then get capital as you suggest, and employ a good buttermaker, after selecting a capable and honest secretary and man-

Baby Costs Too Much

When the price paid is the mother's health and happiness. The father doesn't realize as he romps with the child what years of wifely suffering must be set against the baby's laughter.

Chronic invalidism is a high price to pay for the painful joy of maternity, yet it is at such a cost that many a woman becomes a mother. Such a price is too much because it is more than nature asks.



By the use of Doctor Pierce's Favorite Prescription maternity is made practically painless, and a quick convalescence is assured in almost every case.

"I am pleased to give my testimony and wish I could find words strong enough to induce other sufferers to use Dr Pierce's Favorite Prescription," writes Mrs. Wesley Guy, of Kemptville, Ont., Box 6. "For eight years after my little boy was born I suffered with female weakness, also soreness in ovaries, especially on my right side, and pain in back. Was so miserable sometimes did not know what I was going to do. Tried several doctors but derived no benefit until I began using Dr. Pierce's Favorite Prescription. Had only used four bottles, also some of Dr. Pierce's Antiseptic and Healing Suppositories, when I felt like another person. I recommend Dr. Pierce's medicines to all my friends, If anyone wishes to write me I will gladly answer."

Dr. Pierce's Favorite Prescription contains no alcohol and is entirely free from opium, cocaine and all other narcotics.

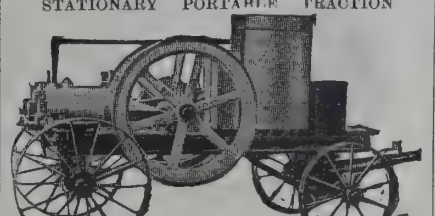
The dealer who offers a substitute for "Favorite Prescription" does so to gain the little more profit paid on the sale of less meritorious medicines. His profit is your loss; therefore, accept no substitute.

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Are easy to start, simple and economical. Highest grade at a reasonable price. Look at the governor. The smoothest running engine on the market. All sizes, both stationary and portable. Send for catalog. Specially adapted for farm work. Built by **MILWAUKEE MACHINERY CO., 290 E. Water St., Milwaukee, Wis.**

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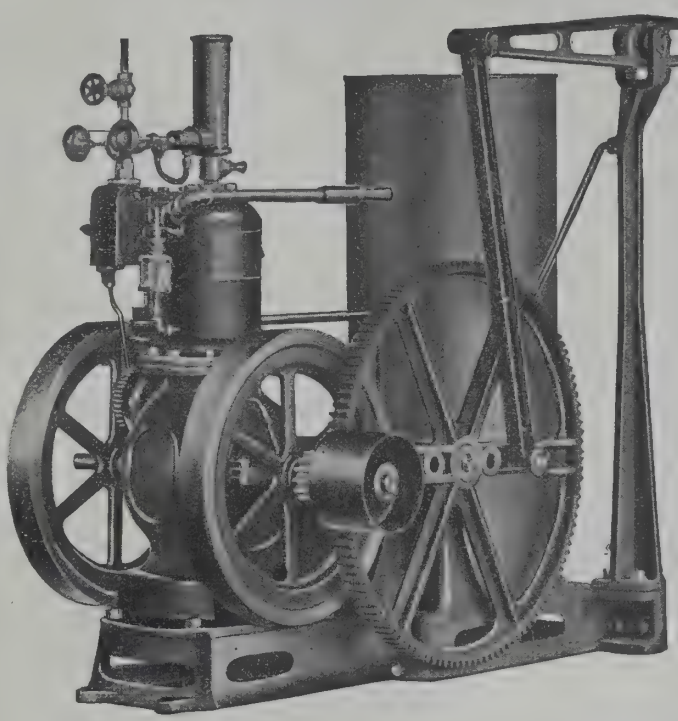


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Policy has an apt illustration in the man who buys a CHEAP gas or gasoline engine. Unreliable service, frequent and expensive repairs, wastefulness in fuel and short life offset many times over, the small saving in first cost. The "OTTO" is the original and BEST. Suppose it does cost a little more money, the extra dollars are well invested. 70000 users throughout the civilized world support us in this claim.
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MANUFACTURED BY
The Central City Iron Works, Stevens Point, Wis. and Model Gas Engine Co., Auburn, Ind.



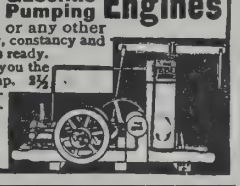
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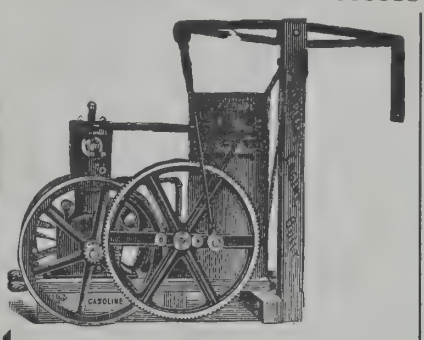
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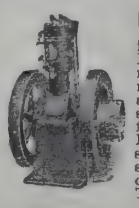
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ager. The buttermaker should know plans for a good, handy building, the best machinery that would be needed and how to place same in building to best advantage.

The greatest reason I suggest to hire buttermaker at the start is, that one will be needed when ready for actual business, and I think a man that has had experience knows best plans for a handy building and the most desirable machinery to do the work.

A good creamery is a blessing to any locality. This is the third year for ours, and we will pay $30,000 to patrons. Paid $4,300 in June. A. A. SHOEMAKER,
Buttermaker and Manager C. I. C. Co.
Nokomis, Ill.

A New York Silo.

ED. HOARD'S DAIRYMAN:—This is, perhaps, a little out of season to give a description of a silo, but I have one that is, according to my way of thinking, so much superior to the ordinary stave silo, considering cost and everything, that it seems worthy of mention, and it stood the tests of last winter without cover, more than just to keep out snow.

This silo is built of 2×4 hemlock studding, set one foot apart, spliced at 4, 8 and 12 feet, with plate and sills of 2×4, doubled. Inside the studding is bent ⅜ green hemlock, then lathed and plastered; the first coat being of lime and hair and the second of cement, put on while the first coat is yet soft and from the same staging.

The doors are of 1 inch pine nailed on heavy strips to keep them from springing, fitted to jambs that are set in the studding and plastered in. The outside is hooped with flat iron hoops over each set of joints in the studding.

The cost of material for a silo 12×30 need not exceed $50, and as the hired man and I did all the work but plastering, it surely seems as if they might soon be the "coming silo."

"LYNNDEN DAIRIES."
Jamestown, N. Y.

CONCERNING OUR ADVERTISERS

HANDY LOW DOWN WAGONS.

This is the season of the year in the corn growing sections when the man with the low wagon has the advantage of his neighbor who uses the high wheel. One has only to drive through the country and witness the loading of fodder to be forcibly impressed with the labor that's saved in one field and the energy that's needlessly wasted in the next. Another fact is equally patent and that is that there has been a remarkable increase in the number of the low wheeled wagons in recent years. The low wheel has the better of the argument for all farm work. This has been proclaimed time and again as the result of competitive draft tests, and is abundantly proven from the standpoint of convenience every day by the great army of users.

The Electric Wheel Company of Quincy, Illinois, has perhaps done more than any other one institution to popularize the low wheel and Handy Wagon. Their "Electric" Steel Wheel is the kind that is made to last. An item that has multiplied the number they are constantly sending out is that they are made to fit the skein of any make of wagon. The wheels being the first to give way in the wooden felloe high wheel style of wagon, a great many farmers take advantage of this fact and procuring the "Electric" wheels, convert their old wogons into Handy Wagons. In most cases the running gears are good and with little expense they secure a wagon as good as new, with all the conveniences which the use of the low down Handy Wagon carries with it. If any reader of this finds his old high wheels giving way, he will do well to send to the above company for their catalog and learn what their low steel wheel will do in the way of giving him practically a new wagon at but very slight cost. It must not be forgotten that the company makes the best Handy Wagon complete where parties desire it.

Milk Fever.

ED. HOARD'S DAIRYMAN:—I have been a reader of your valuable paper for many years; every week it comes to us as a friend and consoler. I am somewhat perplexed now and wish, if possible, you would advise me.

When I see the words "milk fever," I shudder. I noticed on page 822, an article by Dr. Pearson in which it is recommended to feed silage and grass to cows that were dry. Can this be possible? I lost two that were on grass last season. Neither cow was what you could call fat, and I laid it to the grass. Since then I have taken my cows off grass prior to calving, during the summer, and have withheld the silage during the winter, giving nothing but hay and water the last week or two before calving. Is this a mistake?

I am having trouble with my cows every year; there are one or two that retain the placenta. Can you advise a cure? Please give direction for administering a physic to a cow. E. G. C.
Randolph, Wis.

1. A well fed cow which is preparing to give a large flow of milk is liable to get milk fever whether fed on grass or not. It is true that more cows contract this disease during the grass season, but it must be remembered that more cows come fresh during this season than any other, which accounts for the larger per cent of cases. Your preventive measures are all right. Feeding dry feed several weeks before calving time is the proper preventive.

2. Lack of tone to the uterus is the cause of retaining the placenta. You may give the cows which you suspect, a teaspoonful of the following powder: Powdered gentian root, 4 ounces; dried sulphate of iron, 4 ounces; powdered nitrate of potash, 1½ ounces. Mix and give twice daily.

3. To physic an ordinary cow, take 1¼ pounds of Epsom salts and 2 ounces of ginger to a quart of warm water and give as a drench at one dose.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Sore Teat.

I have a cow with the skin broken on the end of her teat so the scab covers the end of the hole and when I milk her I have to open the sore every time, so it don't get a chance to heal.
Valentine, Neb. M. D. C.

ANSWER.

Apply oxide of zinc ointment after each milking.

Heart Failure.

We allow our Jersey heifers to run on a wild tract of land of about 190 acres. Most all of the grasses of this locality grow on it, such as blue grass, sage grass, and several kinds of weeds and bushes. The other day I found one of the heifers lying dead: she was lying as if she were asleep, with her head on her shoulder. She seemed to have died without a struggle and was not bloated but looked as natural as could be. Do you have any idea what was the matter?

One of our cows got her teat cut to the center. I had it sewed up, but the stitches pulled out and the teat has healed up, leaving a large hole in the side. A. W.
Mitchell, Ind.

ANSWER.

As near as can be learned from your description. your heifer died from heart failure but we cannot state positively.

The teat can be mended when the cow is dry by confining the cow and scarifying the edges of the opening, thereby making a new wound, then bring the edges closely together with a suture and cover with adhesive plaster.

To Hasten the Period of Oestrum.

What shall I give a heifer that has had one calf, to make her come in heat, she has been in now for about four months, and shows no signs of coming in heat? M. G. DeN.
Fairprot, N. Y.

ANSWER.

Feed the cow liberally with rich but easy digestible food, and add a dram of nux vomica in her food once or twice daily. There are agents which might bring it on quicker, but it will not be a natural heat.

Enlargement of Bone.

I have a mare twelve years old, which began to be lame about a year and a half ago. Was not very lame at first, but has been growing worse and is now quite lame in off fore leg. I can't find any trouble anywhere except on the point of the elbow there was a small bunch, which seemed like gristle, about an inch long and ¾ inch in diameter. It would move sideways, but not up and down very much.
Carroll. J. W. L.

ANSWER.

The enlargement of the bone seems to be the cause of the trouble, not the small bunch, as the enlargement would surely interfere with the action of that joint. The remedy depends largely upon the cause, which cannot be ascertained without a personal examination.

Faulty Secretion.

We have a cow that gave birth to a healthy calf one week ago. She has failed to give any milk, only a little water passes through the teat when she is milked, which is done regularly. J. H. W.
Freehold, N. Y.

ANSWER.

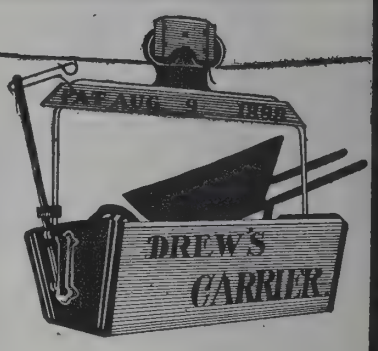
You do not state the condition of the udder. Generally this org .n is hard and

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Every farmer who gets a Drew Elevated Carrier has no more use for the barnyard wheelbarrow. The

DREW ELEVATED CARRIER

will carry the manure from the stables to any point in the barnyard, drop it, return automatically, ready for another load.

It is self operating — it turns curves and switches—dumps its load in yard or wagon. Besides carrying manure you can use it to convey ensilage, feed, grain, potatoes, cans of milk, from one point to another. It works so simple and easy that any man or boy can run it.



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carries labor off from the farm—it is the farmer's labor and money saver. No trouble to put them up—no trouble after they are up.

It leaves barnyard free from posts—keeps the barnyard clean and free from litter. Get one and

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WRITE FOR OUR ILLUSTRATED CATALOGUE, FULLY EXPLAINING ALL ABOUT IT.

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Pumping attachment as shown in cut $10.00 extra.

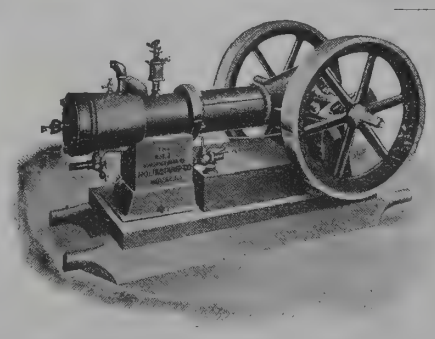
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2 Horse Power. READY TO RUN.

Chicago Gasoline Engine Co., 57 N. Jefferson St., Chicago, Ill.

ILLUSTRATION.



The "Eli" gasoline engines manufactured by the Moline Pump Co., at Moline, Ill., bears the reputation of being one of the simplest and best engines on the market. We present herewith a cut of this engine and the following from their catalog presents its good qualities in reasonable manner: "Our experience—first as jobbers, then as manufacturers of gasoline engines—has taught us that the user of an engine wants it just as simple as it possibly can be made, at the same time thoroughly reliable in every respect. Appreciating the demand for an engine simple in construction, one that anyone can understand and run, one that is built on honor, of the best materials and labor, we offer, without fear of contradiction, the "Eli" as the best gasoline engine made. The "Eli" engine has no gears, cams, levers, or any valve mechanism whatever. The only valve is a brass check valve in the air inlet. The atomizer can be taken out, cleaned and replaced in 15 seconds. It will work as well in the coldest weather as in summer. The sparking device can be removed, cleaned and replaced in half a minute. The firing pin is adjustable for wear and when entirely gone can be replaced for a few cents. The crank and pitman are solid steel with heavy bearings. The cross-head principle is used as in the steam engine, thus relieving the piston of all unnecessary wear and friction. The cross-head and crank are entirely enclosed, as shown in cut, thus keeping these moving parts free from dust and dirt. The wrist pin, cross-head pin and slide are automatically oiled from oil placed in the crank chamber." A very large number of gasoline engines are being bought by the readers of HOARD'S DAIRYMAN, and it would be to the advantage of all to send to this company for full information regarding the "Eli".



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THROUGHOUT November any reader of this publication who has an ailing animal may get the best service of a famous veterinarian free of all charge. This public benefaction comes from the determination of Dr. Hess & Clark to demonstrate to the world the unvarying success of Dr. Hess as a practical veterinarian, and to emphasize his ability to formulate a stock compound of almost universal application.

Thousands of head of valuable stock are lost yearly by the inability of breeders to grapple with the subtler phases of stock diseases, and the greater number of small owners suffer serious loss through ignorance of even the simpler disorders. To all of these comes Dr. Hess (M. D., D. V. S.), ready to freely dispense his knowledge of medicine, gained in the great medical and veterinary colleges and in half a lifetime of active and lucrative practice.

If you have an animal with any kind of disorder, write to-day to Dr. Hess & Clark, Ashland, Ohio, care Information Bureau, enclosing a two-cent stamp and describe your case fully. Also state what stock you have (number of head each kind); what stock food you have used and mention this paper. You will receive in return a special prescription, written from a scientific diagnosis of the special disorder, by this eminent veterinarian. If you want further advice, this also will be fully given.

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While waiting Dr. Hess' reply, get Dr. Hess Stock Food and feed as directed on the package. You will notice a wonderful change in the spirits and condition of your stock,

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If your dealer can't supply you, write Dr. Hess & Clark, Ashland, Ohio.

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HOOD FARM MILK FEVER CURE, $2.50.* Have it on hand. Saves the best cows.
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The safe plan is always to have a supply on hand.

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—a specific for impure blood and all diseases arising therefrom.

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Certain and inexpensive methods fully described in our two big booklets, which we send free if you have a case to treat. Over 140,000 farmers rely upon these same methods. Write for the books.

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somewhat inflamed in such cases. If so, we would advise to apply hot fomentations to the udder for a half hour at a time, three or four times daily. After each such fomentation, rub the udder dry with the flat of your hands and apply dilute alcohol about 45 per cent strength. Give ½ ounce of Poke root and 1½ ounces of acetate of potash in a quart of water three or four times daily. Keep on milking as often as possible.

Barrenness—Warts.

I have a very valuable Guernsey heifer 2½ years old. Since she is 18 months old has been put to the bull about 8 times, and can't get her with calf.

What will cure common small warts on cow teats? D. G.

Turnip Hole, Pa.

ANSWER.

1. There is evidently an abnormal condition of the generative organs. Have the same examined, and if any such abnormality can be detected, have same removed.

2. Take a sharp pair of scissors and clip them off and touch the parts lightly with a stick of lunar caustic.

Barrenness.

I have a fine Jersey heifer that I bred last spring and in 21 days she came in, and I bred her again and then never noticed her in any more until last Thursday. A week ago she came in again and left her with the bull a half day, and he served her several times. Then she came in again to-day (Sunday, Nov. 1) at 11 days and then I changed bulls. I took her to another bull and he went to her 4 or 5 times while I was there, but I left her with the bull all day.

Oregonia, O. K. E. T.

ANSWER.

See barrenness, this issue.

Unknown Disease.

We have a new disease among our cattle. They swell under the throat, grow poor, and most of them die. Some few got over last spring, but are beginning to swell again now. O. C. C.

Nashville, Ark.

ANSWER.

Please describe your case more definitely. You brief description is not sufficient to form an opinion.

Six Pounds Cotton Seed Meal Not Advised.

I have a grade Jersey cow that freshened the 11th of October. I am feeding 3 pounds of cotton seed meal, 3 pounds of wheat bran and 15 pounds of cotton seed hulls per day. There will be some pasture of poor quality through the winter. She is making a pound of butter a day, and will keep it up within two months of having another calf. I want to know if it will not be best to feed 6 pounds of cotton seed meal and no bran. The cow has shown that she could eat that amount of meal without injury. The cow ran in a good pasture until the day before calving. When she calved, the garget was so bad we could not get more than three quarts of milk a day for the first three days. In a week's time when the garget was relieved, the cow was giving three gallons of rich milk. The cow having had the garget once, will it make her liable to have it the second time?

Cotton seed meal and bran same price, $1.10 a hundred. E. C. H.

Auburn, Ala.

We cannot advise feeding 6 pounds of cottonseed meal per day to any cow, under any circumstances. We suspect that the demonstration showing that this particular cow could eat that amount without injury (?) may have been one of the exciting causes of her trouble with garget. Moreover, 6 pounds of cotton seed meal per day, especially when coupled with cotton seed hulls for roughage, would very likely impair the quality and healthfulness of the product, especially for infants and children. Cotton seed meal, as has been frequently proven, is not a fit feed for calves and pigs, and it is not a far fetched conclusion to say that milk from a cow fed largely upon cotton seed meal, may not be free from similar objections.

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A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all linaments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish!*

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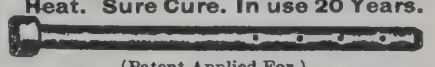


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Buff Jersey at Illinois Farmers' Institutes.

ED. HOARD'S DAIRYMAN:—I have been in six counties this fall doing Institute work and while doing the work have been well repaid by what I have seen and learned. In Hancock county I visited a DAIRYMAN reader who has a Buff Jersey silo and has filled it this fall, with a Ross ensilage cutter, blower style, and found it a good machine. I have found the blower to be a pretty dear machine to operate in the past, but am now of the impression that the manufacturers have at last given us a machine that will be satisfactory. At the same time I like the slat carrier. This fall we did our cutting without a single mishap to our 30-foot carrier.

In my trip to the Hancock meeting I stopped off at Burlington, Ia., and visited your correspondent and dairyman, F. M. Parsons, with whom is my oldest son. I found them busy filling seven of my style of silos, with a combined capacity of 1,175 tons. They were doing this with one cutter and two binders. The second binder was required owing to the corn being badly lodged. I visited several of the dairymen in Mr. Parsons' neighborhood and found them all well pleased with their silos. Two years ago Mr. Parsons was the only farmer in Des Moines county who had a silo.

I have this fall put in a traveling Babcock test outfit to illustrate my dairy talks. What a great improvement there has been in these machines over the first ones sent out. I have an eight bottle machine that fits in a neat case and is but twelve inches in diameter and ten inches high. The case is of cast iron, in globe form, and one can take a test on any ordinary table and the vibration is scarcely perceptible. At Bowen, in Hancock county, I took some tests; one of them was 1.2 per cent fat, and on making an inquiry found that the cow had been in the habit of having the calf assist in the milking, but in this case the dairyman tried to get it, but failed to get all the fat, at least.

Last week I was in Scott county at the Institute and took tests. In the meeting we discovered a Holstein breeder and I put up a job on him that created a great deal of merriment. In making some tests I was obliged to fill one bottle with water to balance the other bottles with tests, and when I came to read the tests I held up the bottle containing the water and told the people it was a Holstein cow's milk and did not show a trace of fat. I was taken to be in earnest for a time, and the way the fellows did go for our Holstein friend was a caution. After they had given him quite enough I told them what was in the bottle, which gave them another laughing spell.

At the Cass county Institute I was one of the judges on corn brought in by the boys, and the sweepstakes corn was from a field of 120 acres that was planted with a lister. Listers are not used in this state to any extent, but are coming into favor in some sections, and I think they will prove of value on a majority of the lands in the state, and those who are engaged in the production of seed corn will find them of value, as the ears throughout the fields will be of a more uniform size. I am speaking from several years' experience, having used listers in several states.

I took especial pains to get all of the information possible on the subject of alfalfa, and from all I could gather I do not know any more now as to the success of the crop than I did before the trip. Some reported the crop did fairly well; some did not get anything, while others have tried for some years to raise it and do not yet know whether it will pay or not. It looks as though we have something yet to learn that we have not as yet put in force to make the crop a success.

In one county, I visited a farm devoted to hog raising, and found devices in use that made the care of the hogs a very small matter. There were self feeders for oats and corn, all under good roof, self waterers that gave pure water at all times, and plenty of good pasture was provided a good part of the year. It is needless to say that the man who has this farm is making hog raising pay.

This morning our herd manager took a male pig over to the freight office to ship to a customer. The pig and crate weighed 280 lbs. and the crate 40 lbs., leaving 240 lbs. of pig. This pig, a pure-bred Berkshire, was born on the 14th day of May and ran with the herd of hogs and pigs up to October 10th. He got no especial attention whatever from his babyhood to the present time. His weight indicates he is a pretty good one, and there are others.

Well, Buff Jersey has met, or will meet, his Waterloo. He will attend the Dairymen's Convention at Waterloo, Ia., on the 19th, and tell all he knows of Profitable Dairy Feeds. And by the way, cow feeds are getting in line with breakfast foods these days of progress, a new one is discovered nearly every day. My son is using a new one in Iowa. It is dried brewers grains mixed with molasses, a sort of cow gingerbread. The molasses gives the lacking carbohydrates, and the whole is palatable and nearly, if not quite, balanced. BUFF JERSEY.

Monmouth, Ill.

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Cause of Cream Ripening.

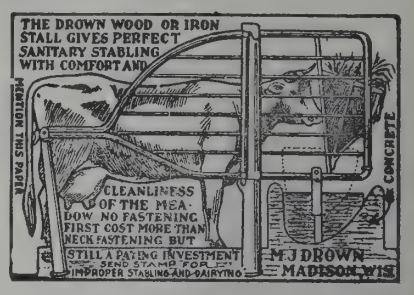
Professor Conn in his work, entitled "Bacteria and Milk," says:

The chief agency in cream ripening is the growth of bacteria. The bacteria of milk collect in the cream and multiply very rapidly at a temperature at which the cream is kept during the ripening. Normally ripened cream contains about 500,000,000 bacteria in every cubic centimeter. From this enormous growth of bacteria it can be easily understood why very pronounced changes take place in the chemical nature of the cream. The organisms not only consume a certain quantity of material for food, but they also produce by-products, either as excretions or as decomposition products, which vitally affect the charater or quality of the cream. While it is true that there are certain chemical ferments found in milk when it is freshly drawn, and while there is no proof that these enzymes may not have a part to play in cream ripening, yet it is generally believed that the part played by these is relatively small, compared with the part played by the organisms. Cream becomes acid on account of the development of lactic acid, and thickens and acquires a peculiar odor because of the presence of decomposition products; such changes are the very ones found to be produced by the growth of bacteria, and thus the general nature of the changes during the cream ripening is quite in accordance with the belief that bacteria are the primary agents in the change.

To the dairyman and the creameryman the matter of chief importance is that of keeping out of the milk or cream such organisms as are injurious to them, such, for example, as are found around stables, due to dust or odors, and also to the odors that might come from quarters in which the products are kept. The great activity of these organisms in reproducing themselves should always be kept in mind, so that their mere introduction is sufficient to undo the work of beneficial bacteria. Where milk or cream is sent to the creamery from the farm, too great pains cannot be taken by the dairyman to exclude organisms of all kinds, good and bad alike, because it is much easier for the creameryman to handle products of this character than it is to handle products in which are found a mixture of flavors.











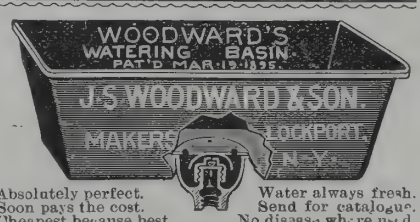




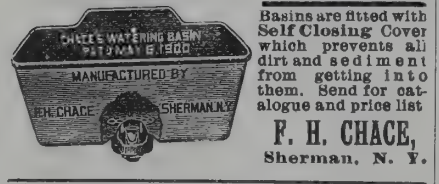




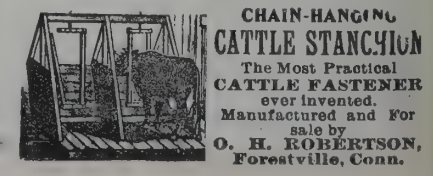


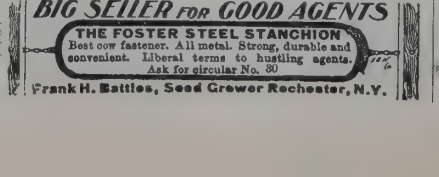












Dairy Bulls.

[Paper read by Charles L. Hill, Rosendale, Wis., at the Wisconsin Dairymen's Association.]

[Continued from last week.]

Set a post 15 feet long, four feet in the ground and run a wire from the top of this post to a tree or building.

If the wire runs through a hole in the top of the post to a short post close to the ground, you can readily arrange a tightenner with a rod with a nut on the end.

We use about the same plan to give our bull a sun bath, but use a rope running through a pulley at the top of the post, and with a 100-lb. weight which will allow some give and take, but the rope is always tight. I have here a picture of our bull tied on such a runway.

Many bulls tied out in this way will not walk around enough, and if you have such an one, let a yearling bull or two out to scrap with him and both will get plenty of exercise.

Quite an important item of a bull's care that is nearly always neglected, is the the care of his feet.

Don't let them grow like a certain breeder did his bull's feet a few years ago. The Short Course students were there judging and one of them ventured to call the attention of the breeder to the six inches or more of toes the old bull had, and the breeder replied: "Young man, don't you know it is now winter, and of course we keep him on runners."

It is a simple operation to throw a bull with a rope and to saw off his hoofs with a small saw.

Nothing else is as good as a saw, and a good job cannot be done unless the bull is thrown.

The bull should have a ring in his nose about the time he is a year old, and earlier if he is headstrong, and as soon as it is healed he should be taught to lead by it and always be handled with a staff.

A daily grooming will greatly improve his looks, and doubtless do him good.

Do not keep your bull in a foul, dark pen, but, if possible, give him a light, airy box stall, in sight of the herd of cows, and be sure and clean his stall and water him daily.

Do not abuse him, but still be firm with him.

Never fool or play with a young bull, but always make him mind, and then as he grows older never give him a chance to know he can do anything else.

Do not trust him if he is gentle, though you may do as you please about it if he acts cross.

It is always the gentle bull that kills the man.

Careless handling of bulls has cost our state some of her best dairymen and breeders.

You will at this point want to come back to the first question and desire to know what results you can expect by the use of a pure bred bull in your herd.

If you select a bull who has a long line of female ancestors that were better cows than those you expect to breed him to, you may be almost sure that he will work a marked improvement in your herd.

Just how much no one can say, for two full brothers will often, when equally as good individually, prove very different as sires.

Mr. Cogswell, the owner of Exile, speaks of a case of this kind, and the two trotters, Patron and Patronage, was a marked case of this kind.

I can remember of hearing the critics pooh at Patronage and say he was only used because his brother was a great trotter.

Of course, Patron had the best chance in the stud, but Patronage sired Alix, the queen of the turf.

You can ask any of our most successful dairymen in what one thing more than any other lies their success, and they will tell you: "The continued use of the best pure bred dairy sires I could find."

Therefore, in the words of the revered Hiram Smith, "Buy a bull."

DISCUSSION.

Mr. Jacobs: Is it a question that is quite right to leave to a man's fancy, just what breed he should select? While I do not wish to start a breed row, wouldn't it be a better rule to take a breed that is better adapted to a man's business rather than depend on his fancy?

Mr. Hill: Certainly. Perhaps that was not putting it quite right; that he should leave it to his fancy, but after a very little thought, that will be his fancy. He will have decided with study which will be the best breed for him, and that will be his fancy then, and he will look askance at the other breeds, will be looking for flaws in them.

Mr. Gurler: How would it do to feed the bull the same grain feed that you feed the milk cow?

Mr. Hill: It would do. The ration that I mentioned is what I believed to be about the best for the dairy cow as well. I would want him to have a nitrogenous ration and it seems to be an established fact that the best dairymen and breeders today have ceased feeding very much corn silage. Very many of them have impaired the usefulness of the bull by feeding him corn silage.

Mr. Jacobs: Because it is carbonaceous?

Mr. Hill: That is the reason usually given and it probably is the reason. Clover hay I think to be the very best rough feed for the bull that we have today.

Mr. Hyatt: Would roots hurt them?

Mr. Hill: No, I don't think so.

Mr. Hyatt: I have been feeding them about fifty years.

Mr. Foster: The gentleman speaks about depending upon the record of his ancestors. Is it a good record to go by when they say a cow made so much butter in a week or a day?

Mr. Hill: Personally I have very little use for any record short of a year. I have known in my own herd so many cows that have made large weekly records and only ordinary yearly records, and, on the other hand, some that scarcely made two pounds of butter a day, at their very best, have made 500 pounds a year.

A member: Do you think that a cow that has made a great yearly record will, impair her vitality enough so that it will affect her offspring, and that they will be as prepotent and strong as one that has not been crowded so hard?

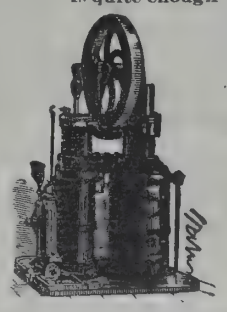
Mr. Hill: I think we are in pretty deep water; at least I am. It would be hearsay more than personal experience if I attempted to answer, except in one instance. I did have in my herd a bull from a cow that had been pushed for a large yearly record, and it in no way impaired his usefulness, although his mother was carrying this bull at the time she was making the record; but I do think that with cows that make those great records once a year, it might make a difference. I am just guessing at it, but I think it would in some measure impair the usefulness of her progeny, especially the ones immediately following such a test.

Mr. Foster: In purchasing a sire, how far back do you find you are able to go in the record of that sire in ordinary practice?

Mr. Hill: In the Guernsey breed that I am particularly interested in, about three generations of females is the longest, I think, that you can at this time get the exact yearly record, of the mother, grandmother and great-grandmother, and not that in many cases. If you are assured of two good ones I think you will be getting about all you need ask for. On the other hand, you can learn about many of the old-time cows from breeders, enough to assure you in your own mind

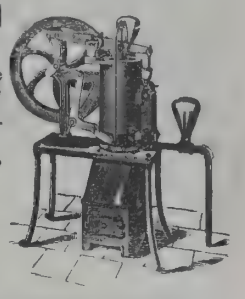
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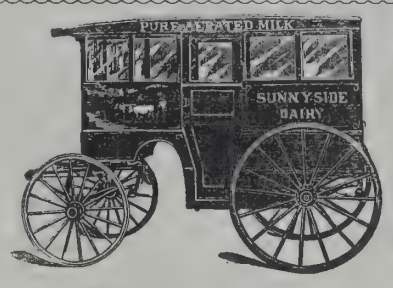


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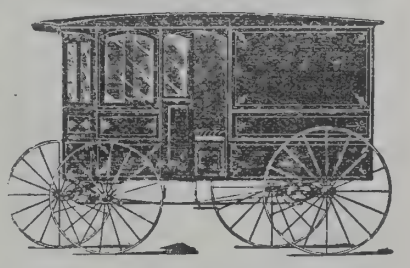
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that they were cows that were capable of making 400 or 500 pounds, which is practically just as much as you would ask as dairymen.

Mr. Hyatt: I will have to differ a little from Mr. Hill in regard to the masculinity of the bull. It may differ with different breeds. I want, when I save a calf for future use as a bull, I want him to look as much like a heifer calf as possible.

Mr. Gillette: Mr. Hill says he thinks it impairs the vitality of the offspring of an animal that has been tested. I would like to call his attention to one or two in our herd. For instance, take old Joe R—— His mother made over 30 pounds in 15 days; back 20 years ago, her mother made some 24 pounds, and right along down. I don't think it has impaired the usefulness of any one of the heifers that we ever got from old Joe.

Mr. Hill: As I said, I am merely guessing at it. Besides, I was speaking not about a weekly record, but a yearly record, in which the cow was forced to do her very best for a long time.

Mrs. Howie: If you were selecting a head for your herd, to which would you give the most attention, the pedigree of the individual, or the individual merits of the animal?

Mr. Hill: I think the pedigree; but I will say in that case I find the individuality, too, generally.

Mrs. Howie: But there are cases where the animal has been forced and sustained a set-back. Would that be the right kind of an animal to put at the head of your herd?

Mr. Hill: No. I said I would by all means see the animal and his mother, if possible. If you cannot, you must depend upon the pedigree and reliability of the breeder.

Mrs. Howie: Suppose you had a cow that made a large record that had a poor conformation in her udder? Would you consider her offspring worthy to be at the head of a fine herd?

Mr. Hill: I tried to make a distinction in my paper between the bull that the dairyman might need and the bull the breeder would want. I am quite a believer, with Professor Haecker, of Minnesota, that too much attention is paid to the shape of the udder. When it comes to the breeders' standpoint I want a good shaped udder on the mother of the bull I am to use, as much as to have a large record; I will have it. But in the case of the dairyman I don't think it is so essential.

Mr. Cobb: I have bred Jerseys for a good many years, but I never have felt that I was competent to take a record and read it, one sent me through the mails, and order a calf C. O. D. In the last four years I have bought two heads of herds, and in buying those I studied eight of his get. I want to have the herd and look over that herd, then after looking at them all and studying the bull, finally I come back to the house and look at the pedigree. I have done that in two instances, and I have met with entire success. In regard to exercise, we have used the tread power for some years. It so happened that we had two of the same aged animals at the same time, and one morning the boys thought it would be a good plan to put the two in the tread power, and the bulls ran off with the tread power and I haven't seen it since. We use a sweep which is a good thing. We turn out a few calves to attact his attention and he gets splendid exercise.

Mr. Hill: I think it is a disgrace that so many of the best proven sires should go to the shambles, for what reason I don't know, unless people get afraid of them. I saw once a bull 7 months old that would put a man to bed for 6 weeks. The old bull is no more vicious than the young one, and even if he is vicious, you can put him in the tread power aud work it out of him. Before I knew as much about that as I do now, we had a bull that became cross at two years of age, and it was impossible for us to handle him, and not knowing about working him, we sold him to a man who said he didn't care how cross he was, and we had to put a rope around his neck and choke him once in a while in order to get him to the station. The man said afterwards that he thought he knew what a cross bull was before, but it took six men and a team of horses to get him home. He drew him right up into the tread power and commenced working it, and he continued to work him, and he said in two months he was as quiet as anything he had. I believe you can work it out of any of them, so they will be glad to keep still. You can have a much better bull by buying an old bull every time.

Mr. Foster: Isn't that way of judging responsible to a great degree for the poor stock we have at present? We have been breeding stock, for instance, for dairy purposes more or less ever since old Noah came out of the ark with the original pair. We have heard all about the dairy cow in Jefferson county, where there are more cows than people, and the average cow produces two hundred pounds of butter a year. Is not this difference of things largely due to breeding from animals judged at their individual merit—upon their shape, in other words?

Mr. Hill: Yes, I think so. Perhaps they haven't even done that much; they have taken the first thing that was at hand, regardless of breeding, or individuality, or anything.

Mr. Goodrich: I heard something said about Jefferson county and I can't keep still any longer. It was 240 pounds of butter per cow that the cows of Jefferson county produced when we made a close investigation of the subject, and we are not going back to 200 pounds per cow, if we know it.

Mr. Foster: I must have seen the report that was printed before you investigated them so carefully.

Mr. Goodrich: It was before we had improved the cows so much.

Mrs. Howie: Mr. Goodrich means before he had improved the dairymen rather than the cows. Mr. Hill, you say that it would not pay for a dairyman to lay stress on the udder or the conformation. What would be your idea of the dairyman who really wished to improve the character of his herd? Should he send to the breeder and ask for the cull of the breed. Would it be policy for a first-class breeder to send out a cull from his herd even to a dairyman's herd?

Mr. Hill: Certainly not. I say only that if a cow has a record of 500 pounds of butter a year, and a dairyman could get one of her sons with that individuality less marked, I would use it in preference to the son of a cow that would make 350 pounds of butter with a good shaped udder.

Mrs. Howie: You would want him strong and with constitution and vigor.

Mr. Hill: Yes, I now am just referring to the udder.

Mr. Favill: I was out buying cows once, and I saw a good looking cow that had a real bad shaped udder, and I didn't buy her. I went around, but I didn't find things as I wanted, and I went back and got that cow. Well, the result was I attended the North-Western Dairymen's Association twenty-three years ago this winter, and I reported that I had a cow that I had milked nine thousand pounds of milk from in ten months, without any special feeding. She had a little grain, but she first came in and went out onto grass and ran to grass until she dried off, and she gave

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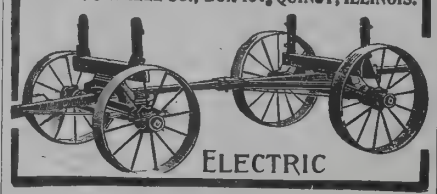
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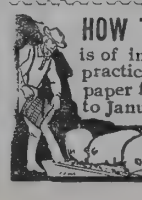
160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired. Price $19.00 per acre.

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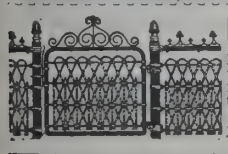
All druggists sell charcoal in one form or another, but probably the best charcoal and the most for the money is in Stuart's Absorbent Lozenges; they are composed of the finest powdered Willow charcoal, and other harmless anti-septics in tablet form or rather in the form of large, pleasant tasting lozenges, the charcoal being mixed with honey.

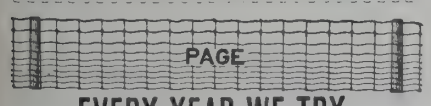
The daily use of these lozenges will soon tell in a much improved condition of the general health, better complexion, sweeter breath and purer blood, and the beauty of it is, that no possible harm can result from their continued use, but on the contrary, great benefit.

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nine thousand pounds of milk. They didn't believe me in that convention; they told me to my face they didn't believe me, but it was a fact just tbe same. She was a cow with a real bad-shaped udder, but she proved a good one.

Mr. Hill: A breeder likes to get a sire from a cow that has a good-shaped udder and a large one if he can get it, but some of the very best records are from cows with bad-shaped udders. Take the Jersey cow Eurotas that had a very bad-shaped udder, and still one of her sons sold for $12,000, and she made over 700 pounds of butter in a year.

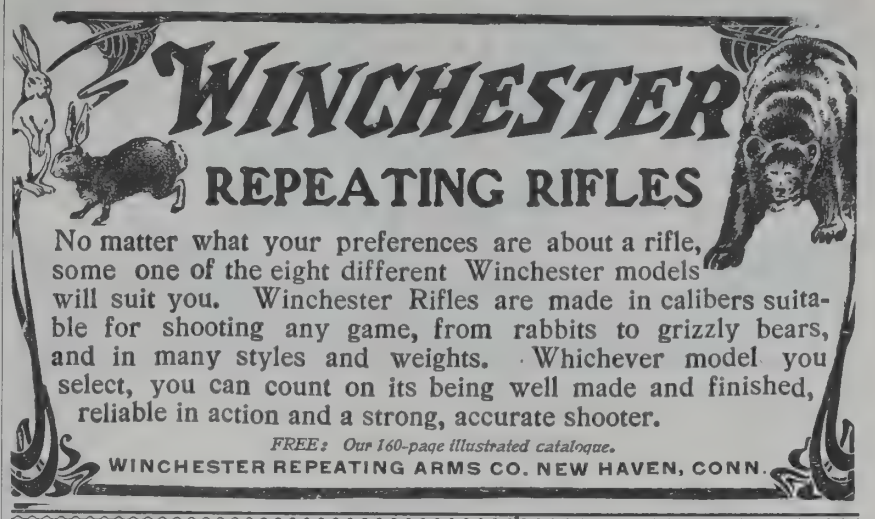
Mr. Tripp: I want to ask a question that I think will interest many of the farmers in Fond du Lac county, and that is, will it pay the ordinary dairymen of this county, or any other, to purchase and use a thoroughbred Durham bull—not raising the heifer calves?

Mr. Hill: I believe it is a foolish practice. I know it is being carried on, but it is foolish from the fact that you are not going to raise the heifers. I would not use a beef sire on my cows. I wouldn't advise any such practice.

Mr. Burchard; I have kept still almost two days. Here is a case cited by the gentleman and a case put so squarely by Mr. Hill and they are drawing in opposite directions. Now, it is quite a possible thing for a man who wants to raise veal male calves, and dairy female calves, in almost any community in Wisconsin to get the service of both kinds of bulls, and for the very best cows that he has, if he is a wise dairyman, he will use a dairy sire, irrespective of what the progeny may be, in the hope that his cows will occasionally drop him heifer calves that will be worth ten or twenty times as much as he can get for any veal calves he can raise on his farm. We are running these things too much in certain grooves. We think we have only a single track railroad in this business, and it is not true: there are three or four tracks we can use, and I want to enter my protest, although I may be working against my own interests a little, as to the distinction which Mr. Hill makes between the breeder and the dairyman. These breeders are a coterie among themselves and they have lots of fads. They think if an animal is not just up in color or horns or something, so it can be sold for $500 to some other foolish man, that it is not a typical animal and therefore it is not worth having. I don't expect to convert them, but all the same want I to enter my protest every time I hear people talking about this distinction. "Handsome is as handsome does, "and the sooner the earnest breeders of the coutry come to admit that proposition, the better it will be for the country. The gentleman said something about Jefferson county. Now, the trouble in Jefferson county is the same as in Fond du Lac county. There are herds in Jefferson county where every cow will show a profit of ten, fifteen or twenty dollars a year, and there are some foolish people down there who are content to keep herds right along without knowing what they do, and they are not bringing them in three or four or five dollars a year, oftentimes do not even pay for the feed they consume at market prices, and that is the reason this Dairymen's Association has had these cow censuses taken, to try to bring home to the attention of dairymen the importance of knowing what their cows are doing.

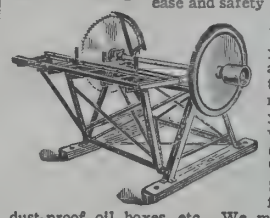
You don't need to have Mr. Goodrich or anybody else tell you about this. It is the easiest thing in the world for you to examine your herds for yourselves. There is no man so poor, there is no man so ignorant—if you want to put it that way—but what he can keep a record of each individual cow in his herd, and nine times our of ten, if he will keep that record for a year, he will find he will be saving money to sell off two, three, four or five cows from his herd, and make more money than to keep the whole number. These people that are here today do not need the starter that the State of Illinois is giving. I am giving it to you.

A Member: Where I live, quite a majority of the cows are of Jersey breed, and only a few days ago one of the veterinarians told me that the most of his practice was from the result of this very practice which the gentleman over in that part of the house mentions, using a beef sire on small cows, it was producing a great deal of trouble among the herds. It seems to me that for a dollar and a half or two dollars extra on the price of the calf, it doesn't hardly pay to take so much risk. I think the sooner a man finds out whether he wants milk or beef, the better it will be for him.


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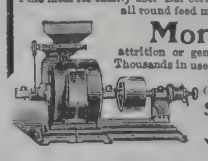

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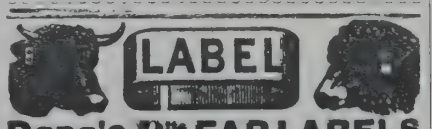
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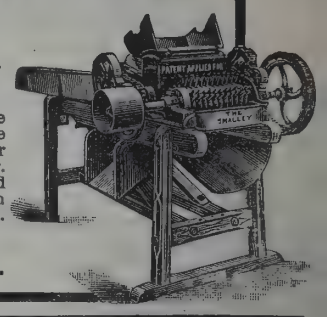
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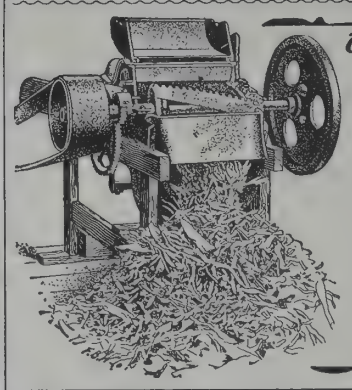
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Northwestern Steam Cooker

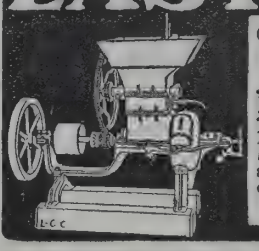


leads all others. Return draft, quick steaming, large capacity. Don't buy either mill or cooker without seeing our descriptive circulars. Write for them today.

Cascaden Mfg. Company, Waterloo, Iowa.

John Deere Plow Co., Indianapolis, Ind., Harber Bros. Co., Bloomington, Ill., Deeds & Manley, St. Louis, Mo., John Deere Plow Co., Kansas City, Mo., Lininger & Metcalf Co., Omaha, Neb., Smith & Zimmer Co., Minneapolis, Minn., Lindsay Bros., Milwaukee, Wis.

EASY GRINDING



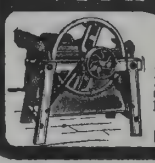
Corn in the ear and all grains, any sort of chop mixture. For speedy and perfect work, saving feed and labor, the all-purpose grinding mill is the

Fine SCIENTIFIC Quick

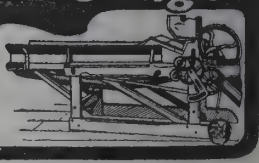
Made in a variety of styles, including **Power Mills, Sweep Mills, Mill and Power Combined.** The line that meets feeders' wants and is right in price. Don't buy until you have seen our late catalogue. Mailed free. Write for it to-day.

THE FOOS MFG. CO., Springfield, Ohio.

Wilder's Feed and Ensilage Cutters



and Shredders. Try one at your own place; if it does not please you better than any other machine you can buy, we stand all expense. Get our catalogue today. It contains largest line made. On the market 35 years.



Wilder-Strong Implement Co.,
Box 11. Monroe, Mich.

Every ounce of salt used in salting butter with

DIAMOND CRYSTAL SALT

"The Salt that's ALL Salt"

you get paid for at butter prices. It becomes a part of the butter—that's why.

Write for book "Just Salt." **Free.**

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St. Clair, Mich.

Ask your Dealer

Make your horses happy by providing them with

Pure-Salt Bricks.

Warranted to contain nothing but refined dairy salt. A great modern convenience at a cost of about 5 cents per horse per month.



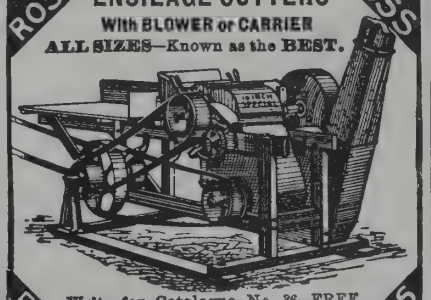
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Brooklyn, N.Y.

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With BLOWER or CARRIER

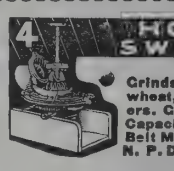
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Write for Catalogue No. 36—FREE.
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THE E. W. ROSS CO.
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4 HORSE and 2 Horse SWEEP MILL



And Horse Power.
Grinds corn with shucks, rye, barley, wheat, oats and all other grains. Self feeders. Geared 7 to 1. Light draft. Great Capacity. (Also make plain sweep and Belt Mills; 10 sizes.)
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Small size, 6 to 8 h. p. to run it. Large size for Threshermen, 14 to 18 h. p. to run it; with self-feeder. CATALOG FREE.
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WITH HUSKS ON



or off, cob corn or shelled, all grains. It will not choke. There's speed and fine or coarse grinding with

Kelly DUPLEX Grinding Mills.

Steady force feed. Double breakers, double set burrs. Little power, any kind, runs them. 4 sizes. Catalog free.

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Light Draft, High Lift, Powerful Lifting Spring; Boy can handle it. Patented Step carries the plow and lightens draft. Shipped in crate, set up and sharpened ready for use. Spring Clevis eases draft and saves harness. Automatic Lock on rear wheel. Celebrated "Garden City Clipper" bottoms used.



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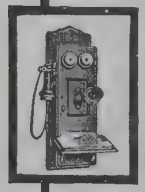


run easier and yield more power than any other. Suited to *Cutting, Sawing, Pumping, Threshing*—all farm uses. Also Threshers, Engines, Cutters, Saw Machines, Round Silos, etc. Catalogue free.

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Used and endorsed by leading dairymen, agricultural colleges and experiment stations. Complete with extra nipple, $1.50, express prepaid. Book free. Agents wanted.

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The Armsaver Husker

works with absolutely no danger. Patent guards prevent it. Works in wet, ice or snow covered corn. Husks 40 to 100 bu. per hr. Lasts a lifetime. Get booklet 11. It tells. Ask about 2 wheel windmills.



Double Power Mill Co.
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Feed all your fodder. By using Heebner's cutters with shredder attachment the whole of the nutritious stock is cut, crushed and shredded, and rendered edible. No waste. Animals eat it greedily and thrive. Shredder attachment costs $5.00. The model ensilage cutter. Also make Tread Powers, Lever Powers, Little Giant and Penna. Threshers, Wood Saws, Feed Mills, etc. Catalog free.

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BOOK FREE

How to put them up; what they cost; why they save you money. **All information and valuable book free.** Write to J. Andrae & Sons, 193 W. Water Street, Milwaukee, Wis.

HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., NOVEMBER 20, 1903. NUMBER 41

University of Ill

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REFERENCE:—Any bank or wholesale house.

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs**
Liberal Advancements Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, New York

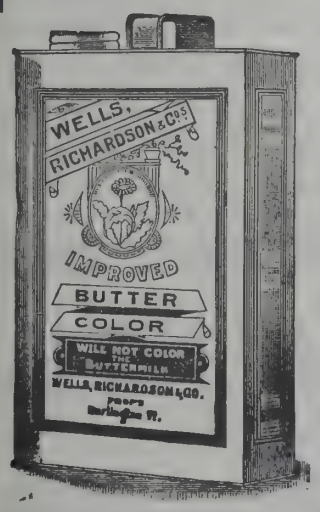


Chr. Hansen's Lactic Ferment
Ripens the Cream for Butter and the Milk for Cheese to Perfection.
The only Butter-Culture of keeping quality.
CHR HANSEN'S LABORATORY, BOX 1003, LITTLE FALLS, N. Y.

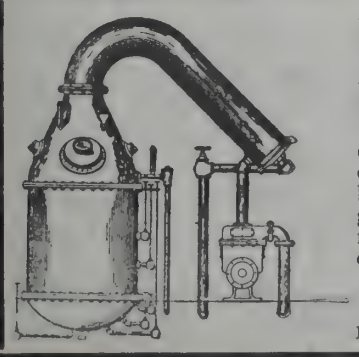
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Medals—Bronze 1878 Silver, 1887, World's Fair, 1893.

Thatcher's Orange Butter Color
CONTAINS NO COAL TAR
The pure food agitation makes it imperative that butter makers use a color that is beyond suspicion. Every drop of Thatcher's Orange Butter Color is guaranteed purely vegetable, absolutely harmless and safe anywhere.
We also call your attention to Thatcher's Cream Cheese Color which is recognized by all as the best.
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THE STANDARD VEGETABLE COLOR
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POTSDAM, · NEW YORK.

THE KIND THAT HAS NO MUD



WELLS, RICHARDSON & CO'S IMPROVED BUTTER COLOR
Has Stood the Test for Many Years, and users of color know that it can always be relied upon. It is the BEST and therefore the CHEAPEST COLOR on the market. . . . . .
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Milk Condensing Machine I supply the most improved machinery and most successful processes for manufacturing all classes of condensed milk and evaporated cream. Factories built complete, put in operation and results guaranteed. If you are interested write for my new illustrated and descriptive catalogue. The only catalogue ever published on the subject.
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(Formerly of Detroit, Mich.)
I am not associated with any person, firm or company.

A Great Big Chance

For some time we have been telling you about Tubular Cream Separators. We've tried to tell as many facts about them as we could. But an advertisement of this size doesn't give us room enough to tell you all about them. Do other separator manufacturers tell you how their machines are made?



So!

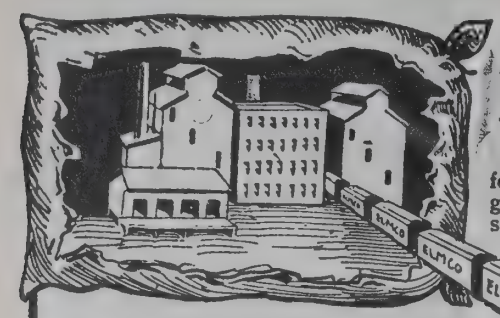
So we've got out another issue of our paper, "The Separator." It has six pages—newspaper size—is beautifully illustrated in colors—contains many fine half-tones — explains just why the Tubular is so immensely popular—so unquestionably superior to every other separator made —and is brim full of pictures you ought to see and articles you ought to read.

It shows the difference between the right-now popular Tubular separator and the used-to-be-popular "bucket-bowl" machines.

You may have noticed that all separators—except the Tubular—have old style bucket bowls. Have you wondered why? The paper tells you—gives you a great big chance to learn all about Tubular Cream Separators. We would like to send it to you absolutely free. We will, too, if you'll send us your name and address. If you'd like a handsome catalog, as well, ask for No. 144.

The Sharples Co., CHICAGO, ILL.

P. M. Sharples, WEST CHESTER, PA.



FROM MILL TO CONSUMER

You are interested in the strength, purity, uniformity and cost of the feed you buy. Direct dealing with the mill gives you information in regard to these points which you cannot secure when buying feed at random, in bulk.

Once having investigated a mill's product and finding it satisfactory, you can continue your buying from that mill with a confidence and assurance you cannot otherwise feel, providing the mill is reliable.

Buy **ELMCO** Feeds and you know exactly what you get. The Wisconsin Experiment Station has analyzed them, we herewith show the result.

University of Wisconsin, Agricultural Experiment Station, Madison, Wis., November 10, 1902.

	Moisture	Crude Protein flesh forming substances	Ether Extract (fat)
Elmco Red Dog	9.81	18.51	4.73
Elmco Fancy White Mdls.	9.37	18.96	5.87
Elmco Standard Mdls.	9.77	19 13	5.98
Elmco Fancy Bran	10.03	16.71	4.80
Elmco Mixed Feed	10.23	17.90	5.13

The analysis show the feeds to be of superior quality. I have made a careful examination of the feeds and find them to be pure goods, without any foreign admixtures. F. W. WOLL, Chemist.

ELMCO Feeds are made from carefully selected hard Spring wheat, milled for best feeding results. They are put up in 100 and 200 lb. sacks, branded with our trade mark "ELMCO," which guarantees full weight, absolute purity and strength. Quality considered, they are the most reasonable feeds you can buy. They contain more protein and fat for a Dollar than ordinary feeds. Ask us for samples and prices.

Ask your Banker as to our reliability.

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MILL FEED We sell direct to consumers at lowest wholesale mill prices, paying no rebates to dealers in your locality. Send your name for regular quotations. No charge. COOPER COMMISSION CO., 754 Andrus Bldg., Minneapolis

STAR BRAND

MOLASSES FEED

ANALYSIS:
PROTEIN 21 FAT 3

For Dairy Cattle and Horses. If your dealers do not keep it write us for prices and sample.

M. C. RANKIN & CO.,
Herman Bldg. Milwaukee, Wis.

Never Met Us!!

Wouldn't you like to meet us at the

International Live Stock Exposition?

We'd like to tell you about

Armour's Blood Meal

Most concentrated Stock Food known. Get our literature and Souvenir. Make our exhibit your headquarters.

ARMOUR FERTILIZER WORKS, CHICAGO.

PURE OIL MEAL.

USE FOR MILCH COWS AND FATTENING STOCK.

Superior to corn, oats and hay. Car Lots $20.00; Ton Lots $21.50; Half-Tons $11.50; 500 pounds $6.25; 100 pounds $1.50. Put up in 100-pound sacks f. o. b. Minneapolis. Cash with order.

This Meal is Guaranteed Absolutely Pure. We also manufacture Strictly Pure Linseed Oil.

NORTHERN LINSEED OIL CO.,
MINNEAPOLIS, MINN.
When ordering mention this paper.

SEPO-CLEANER

FOR CLEANING HAND SEPARATORS
ENDORSED BY THE LARGEST MANUFACTURERS OF HAND SEPARATORS
NEW SIZE, 15 CENTS
LOCAL AGENTS WANTED ASK YOUR DEALER FOR PACKAGE
M. H. FAIRCHILD & BRO., 198 MICHIGAN ST., CHICAGO
SOLE MANUFACTURERS

WINCHESTER



'NEW RIVAL" BLACK POWDER SHELLS.

It's the thoroughly modern and scientific system of loading and the use of only the best materials which make Winchester Factory Loaded "New Rival" Shells give better pattern, penetration and more uniform results generally than any other shells. The special paper and the Winchester patent corrugated head used in making "New Rival" shells give them strength to withstand reloading.

BE SURE TO GET WINCHESTER MAKE OF SHELLS.

Give the Boy that Stays on the Farm a Chance.

President Silvester of the Maryland Agricultural College recently addressed a plea to the farmers of that state that can be considered with profit by farmers everywhere. He said:

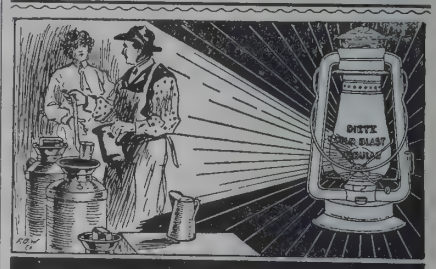
Can there be any doubt, at this time, in your minds that a great scientific training in all the branches bearing upon your profession is necessary for the greatest measure of success obtainable in your vocation? Is it true that many men engaged in cropping are obtaining a livelihood, and perhaps saving something by hard work and the strictest economy, who make no pretensions to an understanding of the scientific principles which form the foundation of the advanced agricultural work of the present generation? This condition but emphasizes how much easier it is to obtain a living by agricultural work than by any other of the vocations of man. In any other of the professions or trades the average man, to make any measure of success whatever, must be conversant with modern methods, built upon the latest contributions from scientific research. The doctor, lawyer, engineer, chemist, mechanic or merchant who should seek to build up a profitable business upon methods current twenty-five years ago would soon end in lamentable failure. That farmers who insist upon following the methods of fifty years ago obtain some measure of success, only demonstrates the fact that their vocation is the most favored among the callings of mankind.

The increasing patronage of our experiment stations is yearly reducing to the minimum this class of agriculturists. The dairyman, the orchardist, the nurseryman the trucker, the breeder and feeder of all forms of live stock, and the general farmer are each and all beginning to appreciate the value of the principles of science as they bear upon any special phase of their work. The measure of success in any of these departments is dependent upon the degree to which they use the scientific principles which thread their work. Wherever you find a man in close touch with his experiment station, taking advantage of and correctly applying its teachings, there you find the man making a success of his work. The dairyman who is developing his herd after the improved methods of breeding, who is feeding and caring for his cows by up-to date methods, who is managing the first product from these cows after well-known and well-established principles—here you find a successful dairyman who is in no danger from the competition of the "old-timer" who works on traditional plans.

Wisconsin Buttermakers' Meeting.

ED. HOARD'S DAIRYMAN:—The Executive Board of our State Association has voted to hold the next Annual Convention in Eau Claire, Feb. 2, 3 and 4, 1904. F. B. FULMER, Sec'y.

Ettrick, Wis.



You Don't Guess

about what you are doing, but you see as with the light of day if you use the

Dietz Cold Blast Lanterns

noted everywhere for their even shedding of pure white, strong, steady light. Burn on the cold blast principle. Most convenient, give most satisfactory light, safest lanterns made. Don't confound them with common lanterns which smoke, flicker and blow out. Let us send you lantern book to make a selection, then you can buy it from any dealer or have him get it for you.

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Established 1840.

ICE CUTTING is easy with DORSCH All Steel, Double-Row ICE PLOWS. Marks and cuts two rows at a time; cuts any size cake and any depth, and does it with ease and economy. Does the work of twenty men sawing by hand. Pays for itself in two days. No farmer, dairyman, hotel man or other can afford to be without it. Ask for catalogue and introductory prices.



Made in Three Sizes.

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ICE CUTTING requires fast working tools at right time. RED, WHITE AND BLUE ICE PLOW is a first class, keen, fast cutter, having our Patent Clearing Teeth. Specially adapted to the use of Dairymen, Butchers, Hotels, and Farmers. 3 sizes, 7½, 9 and 10½ ins.

Write us for Free Catalog of all kinds ICE TOOLS.



Prices Low.

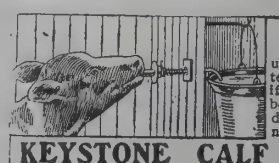
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We are the largest manufacturers of Grooved and Plain Tire Steel Farm Wagon Wheels in America. We guarantee our patent Grooved Tire Wheels to be the best made by anybody anywhere. Write us.

HAVANA METAL WHEEL CO.
HAVANA, ILL.



SENT under positive guarantee to refund money if not satisfactory. No bolting food. Perfect digestion. All tinned, no rust, easily cleaned.

KEYSTONE CALF FEEDER.
Used and endorsed by leading dairymen, agricultural colleges and experiment stations. Complete with extra nipple, $1.50, express prepaid. Book free. Agents wanted.
M. T. PHILLIPS, Box 13, Pomeroy, Pa.

Cream SEPARATORS
All about them and other things for the dairy and creamery.
A. H. REID, PHILADELPHIA

Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairyman's Association.

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Reading notices, 50 cents per line (nonpariel measure) each insertion.

Entered at Fort Atkinson, Wisconsin, as second-class matter.

Breeding and Rearing a Profitable Dairy Worker.

MRS. ADDA F. HOWIE, at the Wisconsin Cheese Makers' Meeting.

MR. PRESIDENT, LADIES AND GENTLEMEN:—While in a northern town yesterday I chanced to take up a Milwaukee paper and naturally being interested in the Cheese Makers' Convention I began reading about your meeting and was given something of a setback when I saw that a woman was to startle the cheese makers by speaking on a topic that the men had heretofore thought belonged wholly to themselves and that some of the members had expressed themselves as displeased with this innovation. Somehow I was not surprised. I had expected a number would object, for if you have ever given this matter attention you will have observed that when a man is putting forth his most commendable efforts in any line of business, he is always glad to receive the approval of some woman, but when he has a sneaking consciousness that he is not doing his best he never courts the advice or criticism of the opposite sex.

Perhaps I ought to make a slight explanation. When I was honored with an invitation from this association to speak here, womanlike I was so puffed up with vanity that I was glad of almost any excuse that would permit me to meet with this distinguished body of men and, then again, it occurred to me that I knew nothing whatever about cheese making. I had heard that the moon was made of green cheese, and yet had never been near enough that celestial orb to dispute it. Still, when I came to think the matter over I concluded there were two branches to the science of dairying, one butter making and the other cheese making, and while I belong to the butter making class, today out of courtesy I will admit that the butter makers are in the kindergarten and that the cheese makers are in the high school grades of this vocation, but shall quite as firmly insist that the foundation of all dairying is the little cow herself, and it appears to me a most fitting subject for a woman to discuss.

In fact, every woman in the land who uses the product, either milk, butter or cheese upon her table, should take an active interest in this most essential part of the business, because if we do not have good and properly cared for cattle how can we expect to produce a wholesome product? I will concede that there has been great progress made during the past few years in the methods of butter and cheese making, and yet I believe that being possessed with the prevailing American spirit, we have been just a little bit too rapid for a permanent improvement.

We have begun by putting the cart before the horse, for while much stress has been laid on the purity of milk and the consistency of curds—I must not get beyond my depth in this—we have heard little about the cleanliness of the cow barn and the care of the cattle that produce the milk from which this valuable product is made, and while I have no intention to apologize for speaking to you on this subject, it may not be amiss to remind you that if you will put your brains into active service you will readily remember that the calf that mother and the girls raised, was always made the best cow

Why was it? Not that mother and the girls were wiser or more determined in their efforts to bring about good results but because there is a tie of sympathy between the human and the bovine mother and that tie is the bond of motherhood; therefore I sincerely believe that a woman is capable of better understanding the conditions and requirements of a cow barn than a man, and I see no reason why she should not discuss—and with profit—these vital questions.

Now, I would not like to give you gentlemen too rude a shock, else I would tell you at once that all the best breeds of dairy stock in the world were developed by woman. Yes, I would emphatically make that statement, and if you regarded it with doubt I would take you to Switzerland where the cattle are held in such esteem that the very cow bells are beautified by the highest art of the engraver, where they are handed down for hundreds of years from generation to generation as a precious legacy. I would go still further and take you to England and Scotland where you might see the most beautiful cattle bred up to the highest state of refinement; again to Denmark and Sweden, to the Isles of Guernsey and Jersey, where it has been recorded of the latter, by a noted historian, that centuries of gentle care, under the management of women had developed this noble breed. And then I would go with you to Holland, for it would be a pleasure to show you those beautiful, sweet, clean barns where the Holland women have brushed and petted and loved and tended the handsome cattle with such beneficial results that the master and his herd may sleep beneath the same roof.

I once spoke of this at an Institute and a farmer jumped up and indignantly said, "You come here to teach us progressive methods, and do you advocate that we should live in a cow barn as they do in Holland?" I looked him squarely in the face and replied, "Yes, that is my ideal, that you should have a condition so perfect that it would not be detrimental to any one to live under the same roof with the cow." And, do you know that I firmly believe that if that man had been obliged to live under the same roof with a good, wholesome cow, he would have been elevated (Laughter and applause). And I feel sure that if some dairymen were compelled to inhabit the same building with their cattle, it would be a good thing; they could not live long, but that would be an extended benefit. (Laughter)

Now, if we make claim to be progressive Americans, as undoubtedly we wish to be, what is the first step to be taken in a course tending towards the betterment of our work? The last speaker told you that we send to France and Italy and elsewhere in order to secure competent instructors to teach the best methods of handling the product. Then why not send to these foreign countries and bring over some of the dairy women, and humbly ask them how to care for cows in order that we may secure the best results. Ask them, never mind if their methods are foolish and mingled with a good bit of sentiment. To the present time the American cow barn has not been overstocked with sentiment. Painstaking thought should be given to the subject before undertaking either branch of this business, such as, which line do you intend following, what breed will be best suited to your needs; and what is quite as important a factor in the elements of success, the barn and its arrangements for the health and welfare of its occupants. Many an up-to-date barn, that has been provided with every known convenience, will be found lacking in its most important features.

I have known of men who had enthusiastically entered the dairy business, had built a large barn, put on four or five lightning rods to show their good intentions and then begrudged the cattle the comfort to which they were entitled. The all-absorbing ambition seemed to have been the saving of labor. Ah, is it the saving of labor that is going to develop a superior class of stock? Why not let the first thought be, what is best for the cattle? because it is necessary to consider the health and welfare of our animals in providing for their wants. A woman would never for an instant think of permitting a cow to lie on a cement platform. Stop and give it thought. A cow with a sensitive, tender udder, that has been developed to her highest capacity in milking; no, a woman would never dream of such an inconsistent way of promoting an animal's usefulness, nor would she put a cow that was expected to freshen within a few months—or at any time for that matter—upon a sloping platform, because from the strained and unnatural position she would have every reason to expect disaster. No, she would not write furiously to the dairy papers for remedies, when by using a little common sense she might be able to avert a lamentable scourge.

I have known of men who wished to build up their herds. They had learned at some farmers' institute that the proper way to begin was by placing a pure bred sire at the head, provided that a herd was composed of native cattle. They would look about, and some breeder would offer to sell one cheap for the reason that it was not quite up to a breeder's standard, but good enough, they would explain, to grade up a herd. Is such an animal good enough? Right here we must use caution. There may be some defects in color or fancy markings, not necessary to the development of a profitable dairy worker, still there is one essential that cannot be overlooked, and that is constitution. It is a positive requisite to the upbuilding of a profitable working herd. Therefore, when selecting a sire, remember he should have an abundance of lung power in order that he may be able to breathe large quantities of oxygen; plenty of heart room; a clear, bright eye, a fine, mellow skin indicative of perfect health, and an altogether vigorous and thrifty appearance.

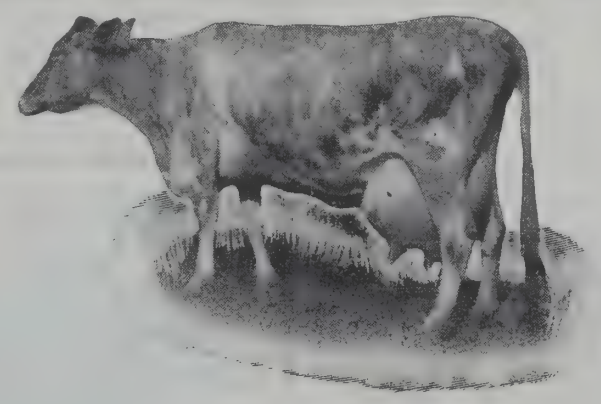
The same painstaking care should be exercised in choosing the mother. She should have proven her worth at the pail and churn. If both sire and dam are in perfect health, we now have a foundation stock worthy of our earnest thought and most careful attention. And if the mother has received proper care and food, when the little creature comes to the herd it will be a bright-eyed, lively, fearless little thing. Some dairymen of note will tell you to take the calf away at once, but, if your cow is the type I have in mind, she will be of a highly nervous temperament and any excitement caused by such a procedure may bring on serious trouble, possibly a case of milk fever,—and anyone who has ever had that disease in his herd will not wish to see it there again. So, unless the mother's milk be too rich or contains some element harmful to the calf, I would suggest that the calf be left with the cow for three days, and even then let us use humane methods when separating the mother and her little one.

The calf may be put in a pen built across one corner of the box stall, so high that it cannot reach the udder of the cow and yet the cow may lick and fondle it to her heart's content. The mother may now be turned out, but will undoubtedly return in a short time, wild-eyed and terror-stricken, because for years we have bred terror into our cattle, a terror of separation from their little ones. Now, if we are to improve our methods and our stock, let us breed it out. Leave the door of the stall open. When she returns, let her see that no harm has befallen her little one. Speak gently to her that she may be reassured of your kindly intentions. I have known many a cow treated in this manner to quietly go back to her place in the long rows of stalls and voluntarily leave the little one to the care of the herdsman.

The first step in a calf's education is to teach it to drink. I have seen men, real nice men, who belonged to a church and who would not swear only under great provocation, who would plow all day rather than attempt to teach a calf to drink. I have seen such a man take a pail of milk, roll up his sleeves, set his teeth as though he were going to a dentist's chair, and march out to that poor, little inoffensive calf Then he would put the pail down, grab it by the ears, throw one leg over its neck and then ram its head down to the bottom of the pail until the bubbles came up. Is that the humane way to teach a calf to drink? It will kick and struggle. Why, of course; wouldn't you? Yes, you certainly would if your nostrils were down in the milk and you were drawing milk instead of air into your



GUERNSEY COW, HAYES ROSIE, A. G. C. C., 15476.
Property of T. L, AMES, Boston, Mass.
This cow gave in five months 6,872.2 lbs. of milk, and 312.26 lbs. of butter fat.



GRADE GUERNSEY COW.
Property of D. S. NEWELL, Bristol, Conn.
By mistake the above cut was printed on page 843 as being the cow Hayes Rosie.

lungs. One should use a little sense.

Now, I will tell you how mother and the girls would accomplish this task. They would get the little one in a corner and pat and pet it, talking so tenderly all the time that it would never realize that it was being managed. Why, I have even seen women who would get a man in a corner and manage him so beautifully he never knew he was being managed at all. (Applause and laughter.) Well, a calf is seldom wiser than a man. A woman will dip her hand in the pail, with the finger tips showing a little above the milk, and while she is talking and stroking it the head is pushed gently down until the lips touch the milk and grasp the fingers. As soon as it begins drinking the fingers are withdrawn. Perhaps the head may come up and the same process be repeated. A little time and patience will be required, and I have known them to drink after the first lesson; again, it may take several. But humane methods from the start will pay big dividends in the cow barn. Begin with the foundation stock. One cannot pet or love them too much. It is an essential part of their training.

Until a calf is three weeks old, it should be fed three times daily, two quarts of clean, warm milk each time,—98 degrees is the proper temperature, At the end of the first week a small portion of the milk may be skimmed, and by the end of the second or third week, the entire amount may be skimmed. One should not think that because the milk is skimmed the calf would be able to take a greater amount. By skimming, the butter fat alone has been removed. There yet remains all the casein and other solids which will amply supply the bone and muscle forming elements necessary for the development of a dairy animal. After three weeks, the six quarts of milk may be divided into two feeds a day. In bringing the milk up to a proper temperature, the can should never be set directly on the stove for fear the milk may become scorched. Plunging the can in hot water is a better means of attaining the right degree of heat. It is not necessary to ever raise the quantity of milk, for as the calf grows older and requires more liquid, water may be added. However, a larger amount of milk may be given if a little is cautiously added from time to time. From the day of its birth it may be given clean, bright hay. The hay should not be thrown in the pen where the calf may walk over it until it becomes soiled and unfit for food, but should be put in a rack where it will be kept fresh and clean.

Another very important thing in raising a profitable dairy worker is plenty of sunlight and pure air. The calf pens should be so arranged that they may be flooded with sunlight. They must also be kept dry and clean. A little fresh bedding, scattered over a wet, filthy surface, is not sufficient, for the moisture beneath will prove harmful in the extreme to the rugged constitution that should be the foremost object in calf raising.

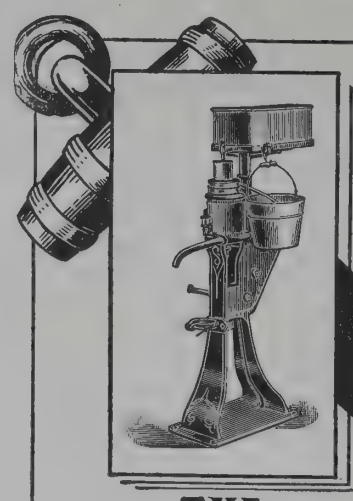
At the end of the second week a little box may be placed in one corner of the pen in which a small quantity of whole oats or bran may be put. After the calf has finished its milk, a little of the grain rubbed on its nose will soon teach it to find the box. We now have it in a thrifty condition, and if care is exercised as to the temperature of the milk, the cleanliness of the pens, the sunlight and ventilation, the calf is well started on the road to a course of future usefulness.

The fall and summer calves are left in the stable until after the first flush of grass is over. We do not want to put them out when there is too much succulence in the grass, and then if there is not enough pasture they should have a soiling crop. When a heifer is from five to six months old, take away the grain. Make her satisfied with roughage. But give her enough roughage. Be sure she has good, pure water. You may give her a little from the start. The old Connecticut rule is, 60 quarts of water a day for a cow at flush of milk. The spring and summer calves are kept until September, then are put on pasture.

Now, if a heifer is thrifty and well and has grown naturally, we do not want to force her, just a steady, natural growth. She should become a producer at an age of from 20 to 30 months. I should prefer to have her about 23 months old. Three months before she is about to freshen, give her extra care; begin and grain her gradually at first, then until she will take with profit, all that she can eat readily. Begin to groom her in order to stimulate the circulation. You may go to hundreds of farms and the horses will be found sleek, but the cattle will stand day in and day out in their stalls with never a brush or curry comb touched to them. And it is far more essential for our cows to be clean than our horses, because we are to eat the product of the cow.

This heifer should be put in a stall, should be made to feel her importance. Of course, she has never been curried with a milk stool, has never been touched up a bit with a pitchfork. You have never done any of these things if you are going to have a first-class worker. Make her think she is of some consequence. Brush her and curry her. Why, I have known men, horsemen, when they were going to drive a horse they would give it every advantage possible for freedom of limb and muscle. They would select the finest harness, carefully adjust every buckle, secure the lightest sulky they could get, and even make the driver diet that his weight might not not hamper the horse's speed; and we dairymen, who should give a cow every advantage, should give every freedom of muscle and limb and body and head, in order that she may do her best work and produce a wholesome product,—what do we do? Well, you do not do it, and I do not do it, but I have known people to put a cow in a stanchion with her head firmly held like a criminal in a stock. Now, if you have ever been out into the pasture and noticed a cow lying down in a natural position, you will have seen her resting with her head upon her side as nature intended that she should. "We can care for them better in this way, it only takes a minute," is the excuse given by some dairymen. That is where we make a mistake; it only takes a minute, and we are throwing away the greater part of the profit because we are not willing to give the time and attention necessary to insure the best results. We are not only doing that, we are doing worse. We are ill treating the animals that God has given us for our profit and pleasure.

When this heifer is in the stall, brush her and groom her and pet her, handle the udder to familiarize her with the milking process, and then, when she freshens, there will be no heart-rending "breaking-in," there will be no kicking and stamping about the stall. She may look about and step about when she hears the milk falling into the pail, but if you give her a kindly, reassuring word, in just a day or two she will stand chewing her cud like an old cow. Now, I beg of you, go to the old country and bring back another method, that is, of milking three or more times a day. I have heard Americans say, "It is all I can do to milk twice a day." But cannot you see that if you had left the calf with her, from time to



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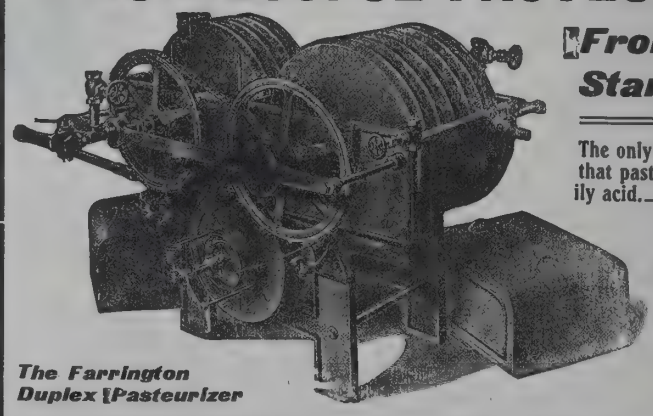
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time it would have relieved the udder? You have bred her to give a large flow of milk; you have fed her for the same purpose, and now that she gives it, be humane enough to take it from her and not allow her to suffer. The first milking season should be prolonged up to the second freshening if possible. Before she freshens for the third time, let her go dry for two months, then when she freshens you have a cow that will, as a rule, prove a profitable dairy worker.

Let us give more conscientious thought and care to the breeding and development of our dairy cattle. We Americans are willing to spend large sums of money in importing cattle, but we are unwilling to give the time and thought necessary for their proper care when we have them here. We secure the finest types of the fancy breeds which should furnish us good foundation stock, and, with the vanity that is so prevalent among Americans, our ambition is to take sweepstakes at the fair, We stimulate and cram them and work their udders until their usefulness is totally destroyed. They are unfitted either to reproduce their like or as milk producers, and then we step out of the ring with a few paltry blue ribbons that have been won by torturing the life out of these helpless creatures. We have failed to improve them in any respect, and we take our money and go back and buy more.

Boys, Stick to the Farm.

ED. HOARD'S DAIRYMAN:—The agricultural situation is yearly becoming more serious on account of the scarcity of help. In all parts of the country wages of farm help have advanced and it it is difficult to get help enough at any price. A report comes from Iowa that during haying they paid $3 per day and 35 cents an hour for time in excess of ten hours. When grain was ripe in Minnesota, travellers report seeing many binders running, but generally there was no one shocking the grain. In Kansas, thousands of acres of fine wheat were never harvested on account of the scarcity of farm help. For the same reason, in some parts of the country, it is difficult to sell a farm at any price.

What are we doing to improve the situation? Nothing whatever, and now thousands of boys reared upon the farm and disgusted with farm work are preparing to start for the city. They may find work of some kind for the present, but if we may judge the future by the past, sooner or later there will be a period of depression and hard times, when thousands in the cities will be thrown out of employment and will become beggars.

It is difficult to reach these boys through the medium of cold type. The time may come when special institutes for boys will be held in every county. Some enterprising and energetic men may try them in a few counties this winter. To draw the boys out we must amuse, as well as instruct. There is plenty of musical talent in every county; school boy orations and declamations could furnish another part of the entertainment; and some farmer, who is a good speaker, can tell the story of his success, and if I can render any assistance, will accept invitations to speak upon the subject, "How to Bring up Boys so that They Will Like the Farm.

I have made this a special study for years, and when I have put my theory in practice have been successful. A few years ago a man living in Evanston, Illinois, sent me two boys to spend their summer vacation, and wanted them to learn to work. In these few weeks the boys learned how to do many kinds of farm work and, to my astonishment, could, before they left, milk as well as myself.

For four summers I have been training two boys from Chicago, who never did any work till they came here. Now, they are as good farm help as any one could wish and helped us handle our big hay crop and then went into the corn field with their hoes and worked with me for a week, subduing the big weeds which had sprung up during the wet weather.

What was my own boy of seventeen doing at the time? He was at work alone, slashing down the bushes that had grown up along an old rail fence and setting posts for woven wire—a most disagreeable job. In regard to these two city boys, I might add, if any of the neighbors wanted help about harvesting, stacking or threshing, they were always ready, provided I could spare them. With them work seems to be a pleasure, and it is also a pleasure to hire such willing workers.

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Cows that are Thieves.

"If the 'man behind the cow' in Kansas would do his part, no unprofitable animal would masquerade under the fictitious appellation of "milch cow," and she would either go to the butcher's block or be made to return a profit by more intelligent care and management," says Secretary Coburn in the last quarterly Report of the Kansas Board of Agriculture. "It passeth understanding why theft by a cow should be tolerated more than theft by a human. In effect, the result to the loser in either case is the same. Our government has found it wisdom to study and establish far-reaching methods for the detection and the repression of the latter; and by the same token why should our farmers and dairymen be less vigilant in regard to this possible proclivity in their cows—beasts described as dumb, yet outwitting their owners? So long as cows of this class are permitted in the dairy herd, so long will there be dissatisfaction and failure. Improvement is the route to success, whether by breeding, better management, or other way, and intelligence in our cow men is the power that will force advancement in the right direction.

"Dairying has come to be one of the most important factors in Kansas agriculture, and, rightly conducted, is one of the surest money makers of our varied industries. It is incomparably more rational than any one-crop system, or even general farming, as its practice tends to rotation of crops, maintains or increases the fertility of land, and affords steady employment with returns remunerative according to the brains mixed with the business."

When to Cut Cow Peas for Hay.

Will you kindly let me know at what stage of their growth cow peas should be cut to make hay?

A. H. D'C.

Jamaica, W. I.

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"Last May I was so run down I only weighed 111 pounds and I realized that I must stop smoking and stuck to it for about 10 days but was so nervous and out of sorts my family told me I had better go back to smoking as it was impossible to live with me. It was just about this time my wife brought a package of Grape-Nuts on the table one morning and as I could eat nothing else she induced me to try a little of that. So I took a teaspoonful of it and strange to say it tasted good and by the time I had it down I knew it had gone to the right spot so I took some more and it was the first food I had relished for weeks.

"So I kept up the use of Grape-Nuts and as my appetite came back added other foods and I am now back to my old weight of 133 pounds, never felt better in my life and strange as it may seem I have no further craving for the tobacco and I thoroughly believe that only the courage and ambition I got out of the food Grape-Nuts has given me the strength to quit smoking. If everyone knew the power of this wonderful food you would not be able to build a factory big enough to supply it." Name given by Postum Co., Battle Creek, Mich.

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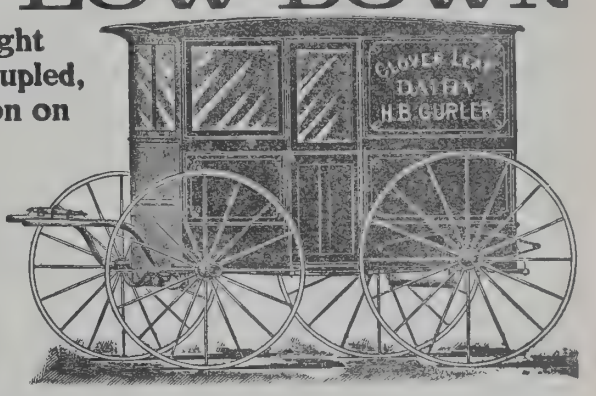
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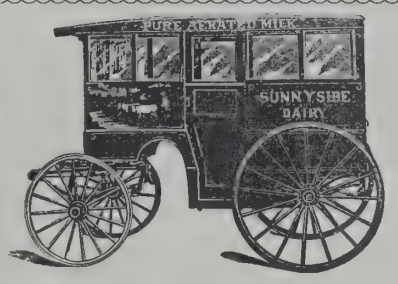
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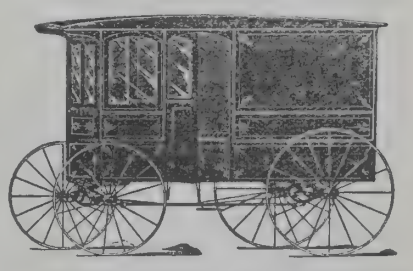


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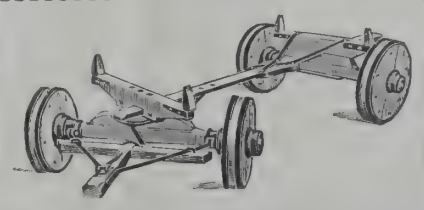
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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of them read dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

COMING EVENTS.

Vermont Dairymen's Association, Burlington, Jan. 5-7, 1904.
Indiana State Dairymen's Meeting, Plymouth, Dec. 10-11, 1903.
Minnesota Dairymen's Association, Fairmont, Dec. 15-17, 1903.
Illinois Dairymen's Association, Greenville, Jan. 5-7, 1904.
Wisconsin Cheese Makers' Association, Milwaukee, Jan. 6-8, 1904.
Ohio Dairymen's Association, Columbus, Jan. 27-29, 1904.
Wisconsin Butter Makers' Association, Feb. 2-4, 1904.
Maine Dairy Convention, Foxcraft, Me., Dec. 2-3, 1903.
New Jersey Agricultural and Dairy Convention, Trenton, N. J., Jan. 14 15 and 16.
Eastern Ontario Dairymen's Convention, Belleville, Ont., Jan. 5, 6 and 7.
Missouri Dairymen's Meeting, Clinton, Dec. 8-10, 1903.
Washington Dairymen's Association, North Yakima, Dec. 29-31.
Massachusetts Creamery Association, Greenfield.
Connecticut Dairymen's Association, Hartford, Jan. 20-21.
Oregon's Dairymen's Association, Corvallis, Dec. 15-16.
Wisconsin Buttermakers' Meeting, Eau Claire, Feb. 2-4, 1904.
Wisconsin Dairymen's Convention at Plattesville, Feb. 10–12, 1904.
New. York, Dairymen's Association, Ogdensburg, Dec. 8-11.
New Hampshire Dairymen's Association, Keene, Dec. 1-2.
Penn. Dairy Union, Lock Haven Dec. 2-3.

THE annual convention of the Wisconsin Dairymen's Association will be held at Platteville, in Grant county, February 10 and 12, 1904. As this will be the first meeting of the association in that part of the state it is expected there will be an attendance that will fully tax the capacity of Platteville's elegant and commodious opera house. The invitation comes signed by a committee consisting of the Mayor of the city and eleven of its prominent and progressive citizens, which insures active, local support and this in turn insures a good convention.

Platteville is easily reached from the east by the Chicago, Milwaukee and St. Paul Railway and from the north and south by the Chicago and Northwestern line from Madison to Galena.

TO INSURE THE KEEPING QUALITY OF MILK.

This question is submitted by a subscriber, who for reasons not stated wishes to have his identity and location held in confidence. The problem is to deliver the milk of one day by rail to a customer the next forenoon as fresh in taste and appearance as when drawn from the cow. We believe that this can be done and that the only conditions to success are cleanliness and cold, but cleanliness in these days means something more than the absence of visible dirt. It means absolutely sterile milk vessels, and something more than ordinary care of the cow and her surroundings.

Before commencing to milk, the udder and flanks of the cow must be thoroughly brushed and carefully dampened so that no hairs or dust or dirt can fall into the pail; the milker must then carefully wash his hands and put on a clean milking suit. The milk pail should not only have been washed clean, but should also have been effectively scalded out with absolutely boiling water or live steam, or baked in a hot oven. This pail should have a cover with a raised opening four to six inches in diameter, with a strainer and layer of absorbent cotton.

Immediately after milking, remove the milk from the stable and set in cold water to cool, and while cooling keep it well stirred. When cooled, fill into sterile bottles, seal and keep at a temperature of 50° F., or less. If boxes with compartments for ice can not be had, wrap each bottle with three or four thicknesses of flannel or other thick cloth well wetted. If the customer on receiving this milk, will continue to keep it at a temperature of 50° or less, no perceptible change should take place in the next 24 hours.

We mention a temperature of 50° out of abundant caution, but it is quite possible that any temperature below 60° would suffice.

SOME REASONS WHY.

The constant effort on the part of HOARD'S DAIRYMAN to stimulate the habit of more and better reading, more careful observation and study, by the dairy farmer, brings us a very interesting amount of correspondence. With all our conceit and boasted progress as a nation, we are very far yet from handling our farming operations as intelligently as we should. It will be remembered that a large body of the leading agriculturists of Germany visited the United States last summer and made a close study of our farms and our farmers. They spent a half day, nearly, at the HOARD'S DAIRYMAN farm, and we were very much impressed by the remarks of one of the leading men of that company. He said privately to us:

"You have a wonderful country in extent and natural fertility, but I can see that your farmers are not making half the profit they should make, nor that they would make if they were better educated in their business, and besides that, because they are not as well educated as they should be, they are rapidly destroying the fertility of their farms."

That was the judgment of one of the best posted and most successful farmers in Germany. Is it true?

In the opinion of the DAIRYMAN it is one of the truest statements ever uttered concerning the American farmer. There are three main points in that statement:

1. The serious lack of practical farm education. This keen student of men and farming could see all that at a glance, as he looked into the loose, slip-shod methods employed on American farms. The evidences of a lack of real serious study and cultivation of the mind, on the part of our farmers, was apparent everywhere. He saw that there was altogether too few farmers who believed in brain farming as well as hand farming. He could easily see that in the small number of farmers' sons who attended our agricultural schools; in the almost total lack of the teaching of the elements of agriculture in our common schools; and finally in the too few books and papers relating to agriculture which are read by our farmers.

2. The small profits obtained from the American farm in comparison with what they should be, and would be if the farmer had a desire for wider and better education in this thing we call farming. He was astonished that so many of our farmers were so contented to drag along year after year with poor, wasteful methods and such starvation results. He could see, what they do not see, that *net profit* in farming comes from good thinking, good management based on discriminating intelligence, and not on mere hard work.

He could see, what so many do not see, that to acquire this needed education and intelligence a farmer must train his mind in habits of reading and study just the same as men in other professions have to do.

(3) The waste of fertility. This is the great, damning sin that must be laid at the door of the American farmer in his destructive march across the continent from the Atlantic to the Pacific. All the way from New England to California can be seen the result of this brainless, stupid dealing with the original fertility of the finest country the sun ever shone on. What caused it? There can be but one answer. Men, like the man who wrote us the following letter, caused it:

"MR. HOARD:—I want you to stop sending me your paper. I know all I want to know about cows now. You are all the time talking about our reading more. There is too much reading. The more the farmers read the worse they are off. When the country was new we had no papers and we had splendid crops. Where are we now? We are dried up like a bone one year and drowned out the next. I was born on my farm, and it grows harder every year to raise a crop. Reading won't help me,"

Indiana. S. L. GRAHAM.

There is a pathos in that man's story that represses harsh criticism. The German farmer saw it in his travels across the continent, in thousands of once fertile farms, now lying shrunken, ragged and shrivelled; in the once magnificent forests cut off, and the streams dried up at the least approach of drouth; in the land robbed of a once splendid fertility through the ignorant management of men who sneered at books and papers and despised all knowledge, and now, without the intelligence to understand what they read, they cry: "Reading won't help me."

It is because we see the situation as the German farmer did, that we constantly preach the saving grace of more intelligence in dealing with this thing we call farming.

THE DAIRYMEN AT THE ST. LOUIS WORLD'S FAIR.

Several visits to the St. Louis World's Fair during the past year, has convinced us that the dairy farmers of the United States and Canada are woefully behind in their ideas and convictions of what this greatest of opportunities means to them.

In the first place, as a whole, the Louisiana Purchase Exposition will exceed many times all previous attempts to bring together the men and women of the whole world and the work of their brains and hands.

An idea of its size as compared with the Chicago World's Fair in 1893, may be gained from the following statement: The Chicago Fair occupied 400 acres. The St. Louis Exposition occupies 1300 acres. And so it goes in the size of the great buildings and the efforts that will be pnt forth, by the peoples of all the earth, to fill them with every conceivable form of human achievement,

At the Chicago World's Fair the first attempt was made in a large and adequate way to determine the dairy capacity and economy of various breeds of cattle. Great as was that opportunity, to secure in this way solid and authoritative ideas and judgments for the guidance of men, it was rejected by the leading breeders of Holsteins, Ayrshires, Devons Red Polls, and Brown Swiss, and only the Jerseys, Guernseys and Short-horns participated. But partial as was the ground covered, the harvest of real practical and scientific knowledge that followed was a rich one.

Then followed the Pan-American at Buffalo, at which there was a practical dairy contest for six months, between the following breeds of cattle: Jerseys, Guernseys, Ayrshires, Holsteins, Short-horns, Red Polls, Brown Swiss and French Canadian, with a selection of five cows each. Every well demonstrated method known to dairy science for determining the truth was applied, and the result is known to our readers.

Now these two great public tests, imperfect in rules and procedure as they may have been, stand out in history as the two greatest land marks for the guidance of human judgment, in many ways, concerning the dairy qualities of breeds of cattle. In them lie a great mass of proved facts for the instrnction of men on all questions relating to the breeding, feeding and general management of cows.

But here comes the St. Louis exposition, the greatest of all, with enhanced opportunity for the demonstration of needed truth, with the most liberal of offers on the part of its managers for the further quest of knowledge in this direction, and how is it received?

Only the Jerseys and Short-horns are making preparations to enter the test. All of the other breeds, as we understand, have rejected the opportunity. What is this, on their part, but a blank confession of cowardice, and lack of faith in their cattle?

At Chicago the Holsteins and Ayrshire associations both refused to enter the test and they suffered sorely for it, subsequently, in public estimation. At the Pan American the Holsteins, Jerseys and Ayrshires were only saved from the disgrace of non-representation by the individual enterprise of some of the breeders of these cattle who had more pride and faith than had the Associations that represented them. We are informed that at St. Louis the Holstein Association went so far as to rent a farm and make preparations to worthily enter the contest with their cattle, and then backed out, without explanation to the world or their people.

And the American Guernsey Cattle Club, with the noble record of a noble breed, has suddenly lost all courage and we will see no Guernseys in the St. Louis Test. And so it is with the Ayrshires, another grand dairy breed.

In the estimation of HOARD'S DAIRYMAN the situation reflects no credit on the enterprise or faith of the Holstein, Guernsey, Ayrshire or Red Poll cattle Associations, or on the merits of their respective breeds. Only two breeds dare enter the ring, the Jerseys and Short-horns. The spectacle is not an inspiring one. The Sioux Indians had a chief who was called "Man Afraid-of-His Horses," and he has ceased to win respect of even an Indian.

FACTS *versus* CONCLUSIONS.

Shall the Small Dairy Cow be Discarded?—A Wisconsin Bulletin Reviewed.

Bulletin 102 of the Wisconsin Experiment Station, recently issued, the joint production of W. L. Carlyle, late Professor of Animal Husbandry, and Professor F. W. Woll of the Division of Chemistry, is entitled "Studies in Milk Production" and purports to be "Based on Records of Cows in the University Dairy Herd, 1898-1903." It is unfortunate and much to be regretted, from every point of view, that a publication representing so much labor and dealing with such important problems, should have gone to press without more careful editing than appears to have been given this bulletin.

There is much in it that deserves commendation, many wise and proper things said, and sound deductions made, and it is, therefore, all the more surprising to find some judgments pronounced and some opinions expressed so utterly at

variance with the facts recited. Indeed, one of the peculiar features of this somewhat remarkable bulletin is the apparent nonchalance with which it contradicts and controverts itself.

We have no inclination to go into all the details, but we feel compelled to protest against Prof. Carlyle's unnatural and unscientific division or classification of the animals comprising the herd, and the unwarranted condemnation of the small dairy cow.

In the selection of the herd, cows were purchased or obtained by donation, to represent the dairy breeds proper, and also the so-called dual-purpose type of cow, and then the cows representing the dairy breeds were subdivided, those of "extreme dairy type," otherwise described as "small, much refined and delicate dairy cows with a very spare habit of body," were assigned to Class A, and the others, characterized as of "large dairy type," to Class B. Class C was made up of the "dual-purpose type." Our observation is, that there are large cows of the extremest dairy type—as that expression has been heretofore used and understood—and that refinement, delicacy and spare habit of body may be as pronounced in the large dairy cow as in her smaller sister. In other words, dairy type ignores size, and is exclusively concerned with conformation, temperament and the correlation of parts in the individual animal, irrespective of avoirdupois or breed. We do indeed sometimes discuss the relative merits of large cows and small cows—or rather, as in this instance, the unprejudiced reviewer must sometimes point out the errors of those who withhold just appreciation of the small cow, or condemn her altogether, and show that size is not an important factor in determining the capacity of a dairy cow for profitable production.

True it is that by making this special classification of the herd in his charge, and by combining the average annual net profits of the cows with more than one-year records, with those of the 18 cows with records for one year only, Prof. Carlyle is able to show that the "large dairy type" cow averaged $2.05 more annual profit than the small, "extreme dairy type" cow. Thereupon he says, not only that the large dairy type cow "is clearly in the lead as an economical producer of milk and butter fat" (cows were credited 20 cents per pound for butter and 15 cents per hundred pounds for skim milk), but expresses the opinion that cows weighing 1,000 lbs. or more will be found most satisfactory for the dairy farmer, apparently unmindful of the old adage that the appearance of one swallow is not a certain indication of the arrival of summer.

If it was true, which it is not, as we will show in this paragraph, that the cows in this particular herd, classified as of "extreme dairy type," fell $2.05 below those of large dairy type," in average annual profit, it would have been eminently proper to call special attention to such a circumstance, and set on foot some inquiry as to whether this was due to size or other conditions, but it does not justify such a sweeping condemnation of the whole class, especially as it is shown that some of the cows in that class were of superior merit. The whole truth in regard to the performance of this herd, so far as the bulletin discloses it, is that there were 78 yearly records, that the cows of the condemned "extreme dairy type," 14 in number, furnished 26 of these records showing a total net profit of $1,-152.23, an average of $44.31 profit each year, while the overpraised cows of "large dairy type," 12 in number, furnished 25 of the yearly records with a total net profit of $1,100.43, which is an average of only $44.02 per year.

If these figures are sufficient to prove anything, it is that there was no appreciable difference, in profitable production of milk and butter, between the groups of cows in that herd classified as being of "extreme dairy type" and "large dairy type," and hence, that the division of the dairy type cows into two classes was unwarranted, unscientific and unproductive of any good. What the dairy farmer needs, in this matter of classification, is information as to the peculiar features, if there are such, which distinguish the more profitable cows from the less profitable ones. It is patent that size is not a dominant factor, for there were the widest variations between cows in the same class, whereas, taken by groups, one group compared with another, when classified by size, there was no variation worthy of mention. It appears, therefore, that the matters of moment were overlooked, and emphasis placed where it did not belong. This is not denying, if the records of the Wisconsin University Herd show that cows weighing 1,000 lbs. or more were more profitable than cows weighing less than 1,000 lbs., that such evidence would be pertinent, even if not conclusive.

But as we have already said, the bulletin under consideration is not consistent with itself. Not only is the main table, giving a summary of the herd for four years, compiled on an erroneous basis, and the classification of the cows into "extreme dairy type" and "large dairy type" misleading, but the conclusions drawn from such premises are emphatically negatived on subsequent pages, where the cows are grouped according to live weight.

Of the 38 cows whose records for one or more years are given, eleven, 8 of them described as Jerseys and 3 as Guernseys, weighed less than 900 lbs. (average 829); twelve, 4 Jerseys, 5 Guernseys, 1 Holstein and 2 Shorthorns, weighed from 900 to 1,100 lbs. (average 1,004); and fifteen, 9 Shorthorns, 4 Holsteins, 1 Guernsey and 1 Red Poll, weighed over 1,100 lbs. (average 1,199). In this division or grouping no account was taken of type or conformation—even names of cows are not given. Presumably the Jerseys, Guernseys and Holsteins were of more or less pronounced dairy type, and we have the authority of the bulletin for saying the Short-horns fairly represented "the milking, or dual-purpose, strain of the breed as it is found in Wisconsin."

Divided in this way, group 1, cows weighing less than 900 lbs. and *nine* of the eleven, classified by Prof. Carlyle as being of the "extreme dairy type," returned an average annual net profit, according to the table on page 65, of $47.51; group 2, $37.67; and group 3, the 1,100-lb. cows, $41.89. Group 3, it should be repeated, contained 4 dairy-type Holsteins and the one phenomenal Red Poll, otherwise its average when confined to dual-purpose Shorthorns would have been much less.

Can anything be more certain than that these figures do not condemn the small dairy type cow? Is there anything in these figures to justify the dairy farmer in adhering exclusively to cows weighing 1,000 lbs. or more? It must not be assumed that this defense of the small cow is in any degree an attack upon the large cow. If it be urged that the cows in group 2, weighing from 900 to 1,100 lbs., were not as profitable producers as those in group 1, the sufficient answer is, that this was not on account of their size, but because they did not happen to be as good representatives of their respective breeds as the others. And as for those large Holsteins, it may be said that, without any fault on their part, they were found, like unfortunate dog Tray, in bad company.

On the whole, therefore, may it not be justly claimed that Bulletin 102, instead of furnishing any evidence to disprove the theories and teachings of HOARD'S DAIRYMAN or its Senior Editor, as has been hastily assumed in some quarters, does, in fact, confirm and support them? The logic of the facts set forth in that bulletin compels us to continue to advise the dairy farmer to give no heed to false prophets, but stick to the dairy-type cow regardless of size. If he has a decided preference for "cows weighing 1,000 lbs. or more," there is abundant opportunity for him to gratify that preference and still keep within the boundaries which define dairy type of pronounced character. If he is indifferent as to size, he has the widest possible field from which to select cows that would be a credit to any dairy herd. Finally, if he prefers the smaller type of dairy cow, there is no reason known to us, certainly no valid reason given in Bulletin 102, why, from the standpoint of profitable production, he should not fill his stable with cows answering that description.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condence the questions into plain epecific inquiry. Be careful to note if your questions eave not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

A Stable Query.

1 am building a barn for my cows, 24x32x16. Expect to have feed way of 6 feet in center and stand cows on one or both sides. Will use drop siding and line inside with shiplap. Will that make stable too tight for cows? How can I ventilate this barn. It will be 7½ ft. between floors. I. H. D.
Conway, Iowa.

A stable only 24 feet wide is much too narrow for two rows of cows. After taking out 6 feet for a feeding alley and at least one foot for the sides there will remain only 17 feet for mangers, platform, gutters and walks. The mangers, platform and gutter for one row of cows will occupy at least 7½ feet, and 4 feet for a walk behind the cows is certainly none too much.

It is impossible to make a stable too warm or tight, but provision should be made for introducing fresh air, for which see page 773, and for removing foul and vitiated air. The latter is accomplished by constructing a flue at any convenient place, on the same principle that a chimney is built, with an opening at the bottom, which will correspond to the old-fashioned fire place. For 20 cows this flue should be not less than 2 feet square.

Stable Queries Answered.

Will you please give me plans at once for finish ing the basement part of a 100 ft. by 40 ft. barn so that I can keep 8 horses and the rest for Holstein cows. The bridge wall will be set back 10 ft. I want to build silo on south side. The barn stands north and south.
This is to be one of the best barns in this locality. I have the privilege of finishing the basement for my business, and that is cow business.
Copley, O. W. W. S.

Cut off 25 feet at one end for horses, with a tight partition, but have rolling doors to a doorway 10 feet wide in the center, communicating with the cow stable. This will leave nearly 75 feet for cows. You should provide three box stalls, one for the bull and two for cows, and there will be need for passage ways and stairway, and there will then remain, counting both sides, about 114 lineal feet for say, 24 cows. Make the central drive way 10 feet wide with a gutter on either side. Use some one of the improved stalls for the cows. We can not undertake to advise which one, because we have not tried them all, and if we had, our judgment would probably not coincide with that of others. Send to the advertisers for their circulars and terms and then use your own judgment. Large Holstein cows will require a platform not less than 5 feet wide and mangers about 2½ feet, and there will remain from 4 to 5 feet on either side for feeding alleys.

The floors, gutters and mangers may be of cement, but the platform on which the cows stand and lie should have a plank covering.

More important than all else is provision for ventilation, that is for the removal of foul air and admission of pure, fresh air, for which see page 773.

A Texas Ration.

Please formulate a balanced ration for my cows, weighing from 700 to 1000 lbs. I have the following feeds of my own raising: Cotton seed, $12.50 per ton; crushed corn with cobs, 50c per bushel; sorghum hay at 6 or 7 dollars per ton and plenty of green sorghum and kaffir corn as long as it lasts (until frost.) Bran I can buy at $18 per ton, brewers grains dry at $15 per ton.
San Antonio, Texas. J. F. S.

We frankly admit that there is too little to be gleaned from books about the feeding of cotton seed to milch cows to warrant the expression of very decided views one way or the other and of course we are without personal experience with such a feed stuff. From the analyses which the chemists make we should much prefer the dried grains at the prices named. If this inquirer's experience and observation tend to the use of more or less cotton seed we cannot object. If the cotton seed is omitted we suggest as a good average 6 lbs. of the dried grains, 2 to 4 lbs. corn and cob meal and the sorghum hay in such amounts as the cattle will eat without waste. Cotton seed might probably be substituted for the corn and cob meal, but if fed in larger amounts we should expect the resulting milk and butter to be more or less off in flavor.

Viscogen.

Please give me formula for "viscogen" or sucrate of lime. H. R. G.
Newport, Ohio.

Dissolve 2½ parts of granulated sugar in 5 parts of water; slack one part of quick lime in 3 parts of water. Strain the milk of lime through a fine sieve to remove coarse, unslaked particles and then add to the sugar solution. Shake the mixture at intervals for 3 hours and allow to settle. The clear solution is viscogen.

Some Dry Forage Required with Silage.—A Quebec Ration.

Will you kindly give me balanced ration from the following feeds for milch cows: Ensilage (corn), gluten feed, linseed meal, wheat bran. I would be much obliged if you could answer this by letter at once. J. M. LeM.
Compton, Que.

We do not think it advisable to limit cows or other stock to silage for roughage. They need at least some dry forage. Straw of any kind will answer, if nothing better can be had, but, of course, good clover hay would be better. If dry forage is very scarce, try to get each cow to eat 50 lbs. of silage, and, if they are able to yield more than 20 lbs. of milk daily, supplement this with 4 lbs. bran and 4 lbs. gluten feed daily. Not counting any dry forage, this will give a ration containing about 20 lbs. of dry matter, in which there will be 2 lbs. of digestible protein, 10½ lbs. digestible carbohydrates, and something over a half pound digestible fat.

It is so seldom, at any time, and more particularly at this season of the year, that the editors can find time to answer inquiries by personal letter, that we are reluctantly compelled to adhere to the rule which obtains in most offices. For example, the foregoing inquiry, although mailed Nov. 5th, was not reached in its regular order until Nov. 16th. Of course it takes but a few minutes to write a single letter, but if the rule should be relaxed there would be hundreds of such letters to write.

For Some Good Missouri Holsteins.

I have plenty of the following for feeding my Holstein cows in milk; may I ask that you advise me the proper amount to feed for best results? Dry brewers grain, wheat bran, ground corn, linseed meal, clover hay. Kafir corn fodder, corn fodder.
Would like to know if it is better to feed dry brewers grain, wet or dry.
We have made some good sales by advertising in your paper. T. G.
Arcadia, Mo.

The dried grains, preferably well soaked before feeding, reinforced with ground corn should be ample, especially with a little linseed meal on hand for use whenever needed to secure proper action of the bowels, and give a finishing touch to the hair and skin.

We suggest, say, 15 lbs. clover hay, 6 lbs. dried grains, and 2 to 4 lbs. ground corn and the corn or Kafir corn fodder in such amouut as will be eaten without unnecessary waste. The hay, grains and corn would tabulate as follows;

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. clover hay.....	12.70	1.02	5.37	.26
6 lbs. dried grains...	5.51	.94	2.18	.31
2 lbs. ground corn ..	1.78	.16	1.33	.09
Totals	19.99	2.12	8.88	.66

Each cow would probably eat about 10 lbs. of the fodder in addition, and this would suffice for all but the larger milkers, and there is no rule known to us by which to determine how much to feed them except to say feed as much as they will eat with good relish and make profitable returns for.

An Arkansas Ration.

Please give me a balanced ration from the following feeds: Alfalfa hay per ton, $11; wheat bran, $25; cotton seed meal, $28; cotton seed hulls, $9; cotton seed, $15; corn per bushel, 50c.
Mineral Springs, Ark. C. C. C.

We should feed no other roughage but alfalfa hay, and for concentrates would use bran and ground corn, in equal parts by measure. For cows that can respond with, say, 20 lbs. of milk per day, 6 to 8 lbs. of the mixed grain as above, with all the alfalfa hay they will eat without waste, would be ample.

Analysis of Cotton Seed Meal—Improving Stand of Alfalfa.

I enclose card attached to each sack of meal that I have bought, and am feeding to my cows. I do not fully understand it. Does the "protein 43%" include the ammonia 8.50% and the nitrogen 7%? How about the carbohydrates? Does the law require the amount of these to be given?

I have another question. I am "one of 99" who have failed to grow alfalfa, and am still trying, following the teaching of the DAIRYMAN. Can I succeed in bettering my stand on a plot, sowed last spring, by disking, or harrowing, and seeding next spring? The stand is not good, but looks too good to turn down. If so, when, in this latitude, ought it to be done?

These are my first questions. I have often thought to write, but, by waiting and watching, the answers have come. J. M. P.

Godfrey, Ill.

The card accompanying these inquiries gives the following as the guaranteed analysis of the contents of sack to which it was attached:

Ammonia, not less than 8.50 per cent; nitrogen, 7 per cent; protein, 43 per cent; crude fat and oil, 9 per cent.

In a way this is deceiving. Ammonia and protein are in effect different forms or compounds in which nitrogen is the predominant or most valuable principle. The 43 per cent of protein contains all the nitrogen, and ammonia is the nitrogen with one-fifth of its weight of hydrogen added. These different statements of the nitrogenous part of the cotton seed meal are given presumably to show its fertilizing, as well as its feeding value. Carbohydrates are so plentiful and cheap that it is usually unimportant whether purchased feeds contain little or much.

In regard to the question about improving the stand of alfalfa, it becomes us to speak with a good deal of reservation. It is claimed that the greater part of the soil of Illinois is too deficient in lime for satisfactory succees with alfalfa, and that it is also necessary to inoculate the soil there with the special alfalfa bacteria. We do not have the same difficulty in Wisconsin, and have yet to hear of any locality where the common red clover will grow that alfalfa will not also do well. The personal experience of the writer of this reply is limited to a singie trial. We had, last spring, a small field of alfalfa with several bare spots in it and in other places a very thin stand, but elsewhere and on the greater part of the field the showing of alfalfa was satisfactory. Contrary to the advice of some of our neighbors we reseeded the bare and thin places and in addition to securing a fair growth of hay, have now a field showing a nice and even stand. We did the reseeding as early in the spring as the ground was fit to work.

Butter and Cheese Yield.

Answer in your paper. A hauls milk testing 4% to a cheese factory. B hauls milk testing 4% to a creamery. Give me the approximate yield of A's milk per cwt. in cheese, also B's yield per cwt. in butter. E. W. H.

Elmo, Kans.

Four per cent milk should yield 4.66 lbs. of butter if one-sixth overrun is taken for the average. It is probable that the average overrun is somewhat below this in actual creamery practice and that 4.50 would be nearer what may be expected. There is the same uncertainty in calculating the cheese yield, owing to difference in makers and quality of milk, but the average yield of cheese from 4.0 per cent milk is 2.50 pounds for each pound of fat, or 10.00 pounds of cheese to 100 lbs. of milk.

What to Feed with Green(?) Alfalfa Hay.

I live where we feed green alfalfa hay nearly the year round. There are no silos here at all. I feed alfalfa hay and feed three times a day all they can eat. I did feed 6 pounds of heavy wheat bran to each cow for 6 months, but got no better returns than from alfalfa alone, without the bran. Now if you can tell me what to feed with the alfalfa to make a balanced ration, I will be very much pleased. Bran is $1.20 per hundred; ground barley is $1.15 per hundred; the corn meal $1.75 per hundred; oil meal $2.50 per hundred; wheat and barley hay $10 per ton. No more this time.

Riverside Co., Calif. H. B. A.

We know that a good many California dairymen advocate feeding nothing but alfalfa, but reasoning somewhat from analogy, we have been unable to convince ourselves that it would not be profitable to add some concentrated feed. Alfalfa carries 11 per cent of digestible protein, but is deficient in carbohydrates. Corn and barley are low in protein, but rich in carbohydrates, and we therefore advise this inquirer to try a few pounds of ground barley with some of his cows and note the result.

A Mixed Feeding Problem.

Please give me a grain ration for Jersey cows, that freshened in Sept.

I have several that will freshen in January. Will the same ration apply to them when they drop their calves?

Have for roughage, mixed hay, and silage that was sown thick in drills and just commenced to ear when it was put in silo.

Corn meal, $1.20; bran, $1.20; cotton seed meal, $1.40; gluten, when we can get it, about $1.60 to $1.75. W. W. TUTTLE.

York Co. Maine.

Silage from immature corn is not a very "hearty" feed and sometimes must not be fed too liberally, as it may cause excessive looseness of the bowels. We suggest trying 30 lbs. of the silage, 15 lbs. of hay, 4 lbs. corn and 2 lbs. cotton seed meal as a maximum daily allowance. The cows that are to freshen in January, should be fed very sparingly of grain for a few days, and after that worked up to the maximum gradually, taking from 20 to 30 days to get the cow on full feed. Indeed no changes in feed should be brought about suddenly, except in cases of emergency, when necessary to arrest indigestion or other abnormal conditions.

Cost of Acid for Babcock Test.

What is the value of the acid used in making one test with the Babcock tester, using 17.5 c. c. acid measure?

What kind of a preservative should be used to keep milk samples, from a number of milkings, to be tested? W. A. R.

North Jackson, O.

The acid for a single test costs somewhat less than a quarter of a cent, depending on the price paid for the acid.

For preserving the milk samples, powdered bichromate of potash is used. For a pint of milk take as much of the preservative as will fill an empty .22 cartridge shell. An excess should not be used as it will cause trouble in testing.

Vermont Dairymen's Meeting.

ED. HOARD'S DAIRYMAN:—Owing to a mix up of dates the Annual Meeting of the Vermont Dairymen's Association has been changed from St. Albans to Burlington City Hall, January 5, 6 and 7, 1904, headquarters at the Van Ness House.

Van Ness House and Burlington Hotel, as fine hotels as any in the state, offer reduced rates where two occupy the same room.

Among the speakers already engaged are Ex-Gov. Hoard, H. C. Adams, Member of Congress from Madison, Wis.—both of National reputation as lecturers on dairy work; Prof. J. L. Hills, Burlington; Van Dresser, New York; E. Sudendorf, Secretary of National Creamery and Butter Makers Association, St. Louis; and M. A. Adams, M. H. Clarke and others of state reputation.

Tuesday eve will be given to the Ladies' Auxiliary, who have a fine program under way.

A banquet will be served Wednesday evening at the Van Ness House. D. J. Foster of Burlington, Member of Congress, is expected to act as toastmaster—a position he can most ably fill.

Large premiums and specials will be offered. It is hoped that every creamery in the state will make a special effort to exhibit a sample of butter, also their butter maker attend the meeting, as well as every dairyman, and join in the discussions and have a short experience meeting after each address.

N. Promfret, Vt. F. L. DAVIS, Sec.

Potato Blight.

ED. HOARD'S DAIRYMAN:—Will have to beg off for neglecting your paper as I have been drifting off from farming during the summer, but have gone back to dairying. I am milking twenty-eight cows at present: will have a few more soon. We have a ready market for our cream. We all have De Laval cream separators. We are located on the Columbia river bottom which is well adapted for cows.

We are bothered here with blight on the potatoes. It strikes them just about the time the small potatoes begin to set; tops turns black in spots and keep getting worse each day until the vines are all dead; the potatoes stop growing at once when the blight strikes them.

Fishers Ldg. Wash. W. A. H.

It is uncertain whether the trouble came from the true blight or the potato flea-beetle. In either case the only remedy is spraying with Bordeaux mixture.

Dairy Straws from Ohio.

ED. HOARD'S DAIRYMAN:—There may have been seasons when it was as difficult to handle cows to a satisfactory profit, but our memory fails to point to that year. With the exception of two weeks during the latter half of July, this township has had absolute drouth since the first day of April. A freeze two days and nights about the middle of April killed the clover and seared the blue grass pastures which had started with wonderful vigor during the warm rains and days of the last of March.

From illy prepared seed bed, corn made

"ADVERTISEMENT."

THERE IS GREAT DANGER IN CATARRH.

If Left to Run Its Course Unchecked, It Often Causes Death.

Catarrh scatters its poisons throughout the entire system. The stomach and lungs are affected by the droppings that fall into the throat and are swallowed during sleep. Dyspepsia, inflammation of the stomach, bronchitis and consumption are the results. The blood also becomes contaminated and carries the poisons to all parts of the system. Frequently in the more advanced stages, the bones of the head become decayed and the air passages are a putrid mass and create a stench so foul and offensive as to be unbearable. The expression "rotten with catarrh," is not overdrawn or exaggerated.

Stuart's Catarrh Tablets strike at the root of this terrible odious disease and eradicate it from the system. They are a constitutional remedy that cleanses the system thoroughly of all poisons and purifies the blood. Under their influence the head becomes clear, the discharges at the nose and droppings into the throat cease, the lost sense of smell is restored, the eye brightens, the foul breath becomes pure and sweet and the odious, disgusting disease is thoroughly expelled from the system.

A Cincinnati man says; I suffered the mysery and humiliation of catarrh for 12 years. My case became so aggravated that it seriously interfered with all my business relations. The disease became so offensive that I would not venture into any one's presence unless it were absolutely necessary. I tried every remedy that I could get hold of. Some helped me temporarily, but as soon as I ceased taking them, I would relapse into the old condition.

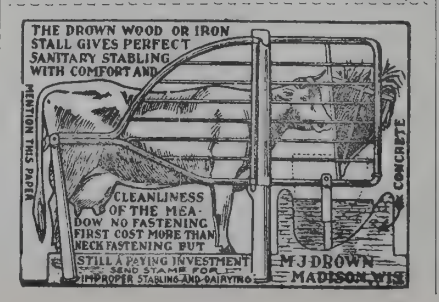
"Finally a friend told me of Stuart's Catarrh Tablets and insisted that I try them. I had about dispaired of ever finding help, but bought a box anyway. I began to notice the improvement within twenty-four hours after I began taking them. Before the first box was gone I felt like another man. I kept up the treatment till I had taken three boxes and was entirely cured. I have never had a recurrence of the trouble from that day to this. My head is clear and well and none of the offensive symptoms of the disease ever trouble me. It has been two years since I stopped taking them."

Stuart's Catarrh Tablets are for sale by all druggists at 50 cents a box.



Pioneer Brand
Parchment Paper
is the buttermakers, sure protection. A pure vegetable parchment with no smell to impart, shuts out foreign odors and preserves delicate flavors.
Sheets for Print Wrapping, Box Linings, Circles and Tub Linings. Name or brand on sheets when ordered. Write for samples. Book, "Better Butter," free.
The Paterson Parchment Paper Co.,
No. 37 8th St., Passaic, N. J.

Stops Chills **Painkiller** (PERRY DAVIS') Cures Colds



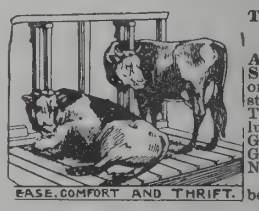
THE NEW PATENT
Cow Stall
AND FEED TROUGH.
This is the only Cow Stall with a centering hinge. Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars.
R. A. McLERY & CO.,
Palmyra, Wis.



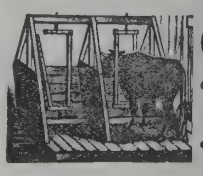
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PATENT SWING STANCHIONS
Chain or Pin Fastened.
Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.
Safest, Strongest, Most Convenient fastening made. Cheapest to put in and save room in barn. Send for Stanchion Catalog to
J. K. WILDER & SONS, BOX 11, MONROE, MICHIGAN.



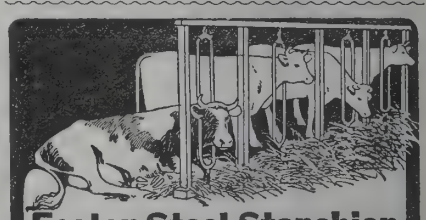
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Keeps Cows Clean.
Swings forward while getting up or lying down. Locks back while standing. Full particulars free.
E. PRESCOTT,
Beverly St., Boston, Mass.



The BEST Cattle Fastening.
SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated circular free.
GLENORA MFG. CO.,
Glenora, Yates county, N. Y.
Infringements will be prosecuted.

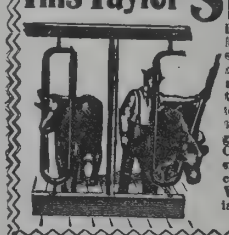


CHAIN-HANGING
CATTLE STANCHION
The Most Practical
CATTLE FASTENER
ever invented.
Manufactured and For sale by
O. H. ROBERTSON,
Forestville, Conn.



Foster Steel Stanchion
made entirely of steel and malleable iron. **Unlike all others.** Affords greatest freedom and motion and always holds the animal. Hung on chains—moves all ways. **Lightest, strongest, most convenient** and easiest to open and close.
GOOD SELLER—BIG PROFITS.
One agent sold 75 first day, Another sold 200 first week. **We want responsible agent in every Dairy Community.** Send for circular number 30
FRANK H. BATTLES, Seed Grower,
Rochester, New York.

This Taylor Stanchion



is made of angle steel lined with hard wood on side next the animal's neck. **It is lighter, neater and stronger** than any other stanchion made. Swings on casting at top and bottom and admits of greatest freedom of motion. Cattle can lay with head on side. Easiest opened and closed. **Reliable Agents Wanted.** Write for special terms, prices, etc.
JAMES BOYLE, SALEM, O.



WARRINER'S CHAIN HANGING STANCHION.
CLEAN, SAFE, COMFORTABLE.
MFG. BY W. B. CRUMB, Forestville, Conn.

a slow and feeble start in a dry and parched soil and stood dormant in a cold temperature for weeks. Pastures never revived from the set back in April. The ensilage planted June 2nd, made wonderful growth with so little rainfall. Its development was simply marvelous, making three-fourths of a crop with but one rainy spell in last of July. Then for two months it grew without rain.

Dropping back to the cows, we began to increase our grain ration by the middle of August until our soiling corn began to be ready for use. That helped to hold us out very materially, but short crop and excessive drouth began to shorten time and supply on that, and by Sept. 25, there was but little green forage left to draw on. This demanded more grain and some hay, and the demand has increased each week with no rain and decrease in pastures until we are on almost a wint r ration.

With bran at $20, oil meal $24, hay $18, oats 50 cents, corn 75 cents and stover not on the market, means that cow keepers are "scratchin" their heads in an effort to make "buckle and tongue meet." We havn't had such a year since God made little apples and don't want another for a blooming long time. The reason we haven't written for the DAIRYMAN the past summer was because there were no "dairy straws," and water was too scarce to thin the ink when it dried up.

While John Gould wades around in gum-boots, growling about mud and water, we smother in dust and wear our last year's shoes to cut down feed bills, and turn our faces each sunset and look for a cloud.

From our hills, looking away over hill, valley and forest, the eye sees many spots to which distance "lends enchantment," but our Jerseys look at the barn and long for milking time through the long afternoon hours. They, the hills and the variegated forests in the background, make a beautiful picture but for the brown, sunburnt pastures that lie between.

This is simply a passage of time against expense, wearing out the November days until we open the silo and start the cows on winter pasture, shredded corn stover and a semi-daily ration of ground grains.

It will be a relief to get the cows into winter quarters and cut out the despair of autumn days, resplendent in everything but profit from feed bills.

It is said that misery loves company. In a sense it does, but how quick a fellow will get out of its company when opportunity affords. In a measure we are all enjoying the pleasure of it, but the farmer who has been putting humus into his soil for years, found out that his good fortune lay in it as the source of profit this year. The measure of value in such land will be 35 to 40 bushels of shelled corn instead of 5 or 10 bushels of very inferior corn from fields under constant cultivation with nothing returned.

Last spring we measured up one-half acre and put it in good condition for corn. The seed was a special hybrid of our own, highly selected, and after shelling, all imperfect grain discarded. The soil was manured and corn planted with 200 lbs. of a perfect formula of fertilizer used. It was drilled, grains 13 inches apart, and rows, 3 ft. 6 in. The stand was perfect. It was cultivated four times and hoed once. These cultivations were given at opportune times, when they would do most good in the destruction of weeds and conserve the moisture. I never grew a crop under more adverse conditions, but was determined not to give it more expense than our other corn crop, and did not. Results are a good three-fourths crop of early, well matured corn, the best of which will go next year for our field crop.

I have kept an expense account with the crop and when husked will know just what it will have cost me to grow it. It is quite an easy matter to grow a good crop in a good year, but say, neighbor, it takes a lot of hedging to get anywhere near one when it neither rains nor hails.

I remember reading that it requires 300 pounds of water to mature a single pound of dry matter in a corn plant. Where that ensilage corn got its moisture is a mystery, with only one good soil-soaking rain when knee high, and nothing for near two months to even give it a drink, yet make a good three-fourths crop.

A little about our round, wooden-hoop silo that John Gould advertised in a recent article. I have seen and examined a hundred silos of every size, pattern and method of construction, and am fully persuaded that the one just completed and filled at Maple Valley farm is the silo for the future.

It is simple, cheap, strong and durable, and will keep silage as perfectly as one costing double the money. It is 13 feet in diameter, 32 feet high; has 13 hoops, 2×3 inch, made from 3 ply of ⅝×3 inch strips well nailed together with broken joints. Each hoop set above the other on short studs and built in two sections, with 3½ inch yellow pine flooring. Two carpenters put it up in five days, and we filled it on the sixth day. The cost will be about $75 with a board roof on it. We may weather board it later on, but that will not add much to its life or keeping qualities, but materially to its cost. I believe this is a model silo for the dairyman who has little money to put into one and feels the need of it in his work.

I have found that it is the expense attached to a dairy herd that makes it a failure or success, and that it becomes necessary to cut down that outside outlay at every point, and believe the same thing is incumbent upon others who are in the work for the profit they can get out of it.

For two years past we have been producing cream for ice-cream purposes. The work connected with it is not so laborious as that of making butter, but it is exacting. It requires constant watchfulness and exactness that demands the attention of one person all the time, whose business it should be to see that the density remains at a standard, that the cream is aerated or properly cooled directly from the separator. The separator must be run at a regular required speed each time to insure uniformity of fat content. Cans must be scrupulously clean and the seams gone over to eliminate foulness that sows the worst kind of bacteria broadcast into what would otherwise be fresh, sweet cream.

A chain is no stronger than the weakest link in it, and the same thing works in the handling of milk and cream. One's success depends altogether upon the application of stringent sanitary rules from start to finish. Neglect at any point from milking hour to the hour of shipment puts in a weak link that will destroy hours of honest and careful work. The greatest difficulty along the whole line is the returning cans which are either delayed by the purchaser or belated on the road unwashed, and come back so foul that they are unfit to go near decent quarters.

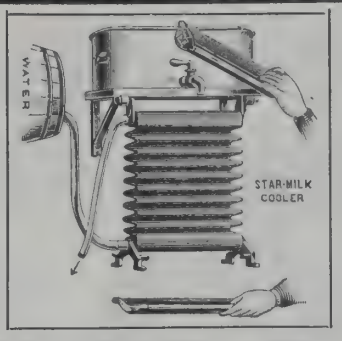
The sanitary ordinances of every city should require that every purchaser of milk or cream should cleanse the cans as soon as emptied and go back to the shipper with at least a fair degree of healthful cleanliness.

Large establishments do this and thereby insure a better and sweeter article when shipped into them daily.

It is an aggravation to the careful dairyman to have the weak link in his chain to come from a quarter that he cannot control or overcome without extra scouring, steaming and scalding.

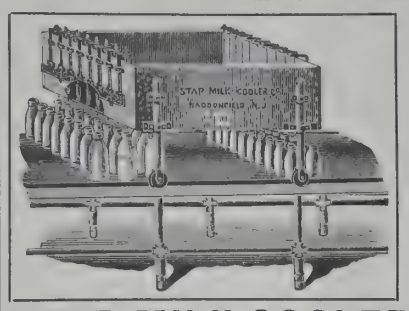
Ohio. GEO. E. SCOTT.

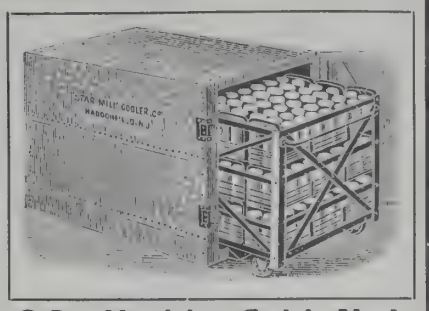
Who Does Without Us Come to Grief We Are a Power in the Dairy World



We can cool your milk, fill your milk bottles and sterilize your milk utensils in a very short space of time.

Ask us to tell you how we do it.





STAR MILK COOLER CO., Haddonfield, N. J.



Up-to-Date Dairymen

—USE A—

Milk Cooler-Aerator.

at the farm. The CHAMPION is simple, cheap, effective—it is the best there is. Our Booklet about it for the asking.

Champion Milk Cooler Co.

67 Main Street, CORTLAND, N. Y.

BUHL CANS ARE NOT Like Other Milk Cans Because They Are Better

This is equally true of the Buhl Factory, "Improved Elgin" and Genuine Iowa Cans; superior material, design, workmanship and smooth finish combine to produce those long wear qualities for which the Buhl Cans are so renowned. Remember the Buhl is the only can in the world that is made with the BUHL "VICTOR" CAN BREAST and the BUHL "VICTOR" ROUND HANDLE They may cost a little more than common cans—we do not know, for we cannot tell how badly "the trust" and others are beating you. We know that the small added cost of the Buhl Cans will prove the best can investment you ever made. Every can that is stamped with our famous Milk Can Trade Mark, as shown here is a genuine Buhl Can. The mark is a guarantee of all around excellence. Ask your local dealer for Buhl Cans. If he does not have them he can get them for you. Write us about it. We will see that you are supplied.



Buhl Stamping Company, 212 W. Larned Street, Detroit, Mich.

BITING WINDS

of winter, the burning sun of summer, have no terrors for the man whose face is kept in good condition by

WILLIAMS' SHAVING SOAP

The rich, creamy lather softens, soothes and heals all irritation and makes shaving easy. The standard for 50 years. "The only Soap fit for the face."

Sold Throughout the World.

FREE

A Trial Tablet if you mention this paper and send a 2c stamp to pay postage.
Address
THE J. B. WILLIAMS CO.,
Glastonbury, Conn.



The Distribution of Skim Milk.

It is known that the just complaints of creamery patrons on account of unfair distribution of skim milk are the bane of the separator creamery business. Further disputes among patrons, annoyances to managers, hindrances to the best work of buttermakers, watering the skim milk, and many other ills in the same train are unnecessary, since the

Barber-Coleman Check Pump

has for more than five years been successfully solving the problem in many different creameries. When a patron has dropped in his check he can pump the amount of skim milk called for by his check, less the percentage taken out as cream, so in like proportion to all other checks. Its measuring apparatus is just an ordinary pump which everyone understands and knows how to operate.

Cornish, Curtis & Greene Mfg. Co.,

General Sales Agents De Laval Alpha Separators,
FORT ATKINSON, WIS.

Modern Merchandising



Have you ever stopped to think about the question of getting your household supplies to the best advantage? Are you perfectly satisfied with the way things are running—with the prices you pay, the quality of the goods, the range of selection and the general question of making both ends meet? Perhaps you buy your supplies from the cross-roads store, just because your grandfather did. Perhaps you are tied up to the general store because you can trade in your butter and eggs at a low price and take it out in trade at a high price. Possibly you have never thought about it one way or the other. It is time to think. You have got to live and support your family. Your income is limited to so many dollars per year, and you have got to figure out the expense account so that things will come out right at the end of the year. If you can make both ends meet nicely and lay aside a tidy sum for a rainy day, you are only doing what every head of a family should endeavor to do, and if you don't do it you are simply inviting misery for the next time the crop fails. If a dollar looks as big to you as we think it does, we want you to think over this question of modern merchandising and see just what it means. It means different things to different people. To some it means buying everything on credit, then mortgaging the farm when settlement day comes around. Others think cheap goods the pathway to economy—the cheap, worthless trash that is advertised so brazenly at "the lowest price on earth." Many people send off to the city and get a jack knife at a 25 cents saving, and then fall back into the old rut in buying the balance of their supplies. Our idea of modern merchandising is to supply all your wants—everything you eat, wear or use—for yourself, your family and the hired man, at an average saving of 15 to 40 per cent, which means that if your yearly purchases amount to $200, you can save something like $50; or $100 if it costs you $400 a year to live. Are you so well off that $100, or even $50 does not interest you? Then again, consider the advantages. Absolutely reliable merchandise of the very best quality, and an unlimited range of selection. New goods. Prompt service. Prices that spell economy, and the certain knowledge that absolute satisfaction is the keynote to every transaction. To make trading with us possible, we issue a catalogue of 1128 pages, in which almost everything imaginable, including Vehicles and Farm Implements, is illustrated, described and priced. This catalogue can be absolutely depended upon and enables you to select your entire bill of merchandise without hurry or confusion and with the certainty that everything will be found exactly as described or you need not keep it. We ask you to get out of your present rut and give our methods a trial. We satisfy others and will satisfy you. There never was a better time than right now to begin, for we have just issued a new catalogue full of the things you will need to see you through this winter, and you can make no better investment than to fill out this coupon and send it to us now while the subject is in your mind. We ask 15 cents, merely as an evidence of good faith on your part. If you will risk 15 cents, we will risk sending you a catalogue that costs us over half a dollar to print and is so big that it requires 26 cents postage. It is our 76 cents against your 15 cents. Will you do it? Write today.

Laying in Supplies: Living from hand to mouth is one way of living, but why not get your supplies on a wholesale basis and avoid the petty annoyances of retail buying, to say nothing of making four dollars go as far as five dollars used to. That's the grocery list you see hanging on the wall. Supplied with loops to hang up with. A postal will bring it. Nothing like groceries for a foundation for a 100-lb. freight shipment.

Montgomery Ward & Co.

Michigan Avenue, Madison and Washington Streets, Chicago

Thousands of readers of this paper noticed our advertisement last month and sent in their application for our Catalogue No. 72. A new edition is just off the press. Requests will be filled in order of their receipt. Do not delay.

37

Montgomery Ward & Co., Chicago

Enclosed find 15 cents for partial postage on Catalogue No. 72, as advertised in Hoard's Dairyman.

Name.....
(Be sure to write very plainly)

Postoffice.....

Route No.....County.....State.....

Dairy Figures of Portage County, Wis.

County Clerk Lane reports for 1902, as follows: There are twenty-three creameries in the county, valued at $44,125. Number of patrons during the past year, 1,365. Number of cows contributory, 7,666. Number of pounds of milk received, 22,964,949. Number of pounds of butter made, 1,117,925. Amount received for products sold, $248,264.71.

Of cheese factories there are three in the county, valued at $2,300. Number of patrons, 88. Number of cows contributory, 540. Number of pounds of milk received, 405,860. Number of pounds of cheese made, 37,633. Amount received for product sold, $12,700.

In addition to this the number of pounds of butter made on the farms is given as 104,111, the value of the same being $16,361. Number of gallons of milk sold, other than to creameries and cheese factories, 155,738.

According to these figures, the total cash products of the county for the year was $294,066.

According to the above, the yield of butter per cow is 145 lbs. per year. As it takes 200 lbs. of butter to pay for the care and feed of a cow, it is evident that there is room for improvement in the Portage county cows.

A Pennsylvania Feed Inquiry.

I would like you to figure me a balanced ration out of the following feeds:

Corn stover, well eared ensilage, Timothy hay, $18.00 per ton; corn, 50 cents per bushel; wheat, 80 cents per bushel; oats, 45 cents per bushel, linseed meal, old process, $30.00 per ton; wheat bran, $20.00 per ton; middlings, $21.00 per ton; cotton seed meal and hulls 3% fat 10% protein, $15.50.

I have 16 cows in all stages of milk, 6 horses, 2 mules, 10 calves from 6 months to 1 year old, one registered Jersey bull, 15 head of swine. I make butter. I wish you would answer the above thoroughly through your paper, which I think is the best of all dairy papers, and I am very much surprised that our dairy men in this section do not read any dairy paper, as our farmers seem to be intelligent, but they think that the money and time that they spend on a dairy paper is lost. It seems that there is no way that they can be brought to see the false economy of their way. I, for my part have all to learn, but I certainly want to get all the information possible. We can never get enough, if we wish to stand at the head of any profession.

New Holland, Pa. E. M. M.

At the price named, the most profitable disposition that can be made of the timothy hay is to sell it. Give the cows 40 to 50 lbs per day of that well eared silage and have 30 to 40 tons left for young stock, horses, mules and pigs, but feed little or none to the bull. In addition let all the stock have all the corn stover they will eat without unnecessary waste. Having silage, the presumption is there is a cutter on the premises. If so, run the stover through this cutter, enough at a time to last a week or ten days or longer. Dampen a little and let lie in a pile, where it will heat and soften. This will not only prevent much of the waste but leave what is not eaten in good shape for bedding and the manure. Grind some of the corn, cob and grain together if it can be made fine, and mix with oil meal in the proportion of 4 lbs. of the former to one of the latter and feed as much of this to each cow as she will pay for. Feed the bull corn stover, bran and oats so as to keep him in good condition.

Bran or Cotton Seed Meal—Cow Peas.

Which will be the cheaper to feed with good ensilage, bran at $20 or cotton seed meal at $28 per ton? I do not want to feed heavy, say a pint of cotton seed on the ensilage morning and night, and good timothy, clover and mixed grasses for hay at noon.

Is cotton seed meal injurious to cows if fed for a long time?

I do not want to dictate what you should print in your paper but think you ought to reprint, with such changes as you think best, page 772 about feeds. It is worth more to the thinking dairyman than your paper costs per year. It ought to be in the DAIRYMAN every 4 or 6 months.

At what time should cow peas be planted with corn to make good silage (when the corn is planted.) Will cow peas grow here where the season is short? C. C. M. (M. D.)

Bar Harbor, Me.

We should prefer not to confine cows in milk to either bran or cotton seed meal alone, in connection with silage and mixed hay for roughage, but would mix them, and as a rule, limit the cotton seed meal to not more than 2 lbs. per day.

Although cotton seed meal almost invariably proves fatal to calves and pigs, there is no record, so far as our reading has gone, to show that it would be injurious to grown cows, if fed, not to exceed two pounds daily, for an indefinite time.

We do not think cow peas could be depended upon to make a profitable crop anywhere in Maine, until a variety or sub-variety could be developed, by selection of seed, adapted to that climate.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The Quotation Committee of the Elgin Board of Trade reported the official market firm at 22 cents.

Dundee offered 50 tubs but no sale was effected.

The former markets were:

Nov. 9, 1903, 22 cents.
Nov. 17, 1902, 26½ cents.
Nov. 18, 1901, 24½ cents.
Nov. 19, 1900, 26 cents.
Nov. 20, 1899, 25½ cents.

Nov. 16, 1903. H. C. B.

DAIRY MARKETS.

ELGIN, Ill., Nov. 16—Butter ruled firm on the Board of Trade to-day, selling at 22c. a pound. Sales in the district for the week were 635,000 pounds.

South Dakota

is the place to go if you have made up your mind to stop paying rent and start on the highway to independence. Farm lands can now be bought at prices that will allow a good profit on the sale of products. Recent extensions of the

Chicago, Milwaukee & St. Paul Railway

open the way to new fields where splendid opportunities for success are offered. South Dakota book, 1903 edition, sent for 2c. postage

F. A. MILLER, Gen'l Pass. Agent, Chicago

SEVERAL BARGAINS IN STOCK AND DAIRY FARM LANDS

Right in the Corn and Clover District of Central Minnesota. three to four miles of railroad stations; 300 acres, one-half mile lake frontage, at $5 per acre; 160 acres with meadow brook at $6 per acre; 160 acres adjoining at $5; terms, one-fourth cash; rest long time; come at once to get these; agents wanted. **THOS. E. SIME,** Endicott Bldg., St. Paul, Minn.

For Sale

Machinery for Creamery. New. Inquire of

BRADLEY COMPANY, TOMAHAWK, WIS.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Separators For Sale

We offer, while they last, a few separators, De Laval and other makes, at low prices. Some of the machines have never had milk run through them, others have been taken in exchange. All are in fine working order. Full information will be given upon request.

STODDARD MFG. CO., Rutland, Vt.

NO MORE RUBBING, stooping or boiling of clothes. The "1900" Ball Bearing Washer will wash a large tubfull of clothes in 6 minutes. An hour's wash in 20 minutes. The washing is done sitting down. You can try it free of expense, freight prepaid, no advance payment. "1900" Washer Co., 219A State St., Binghamton, N. Y.

CHICAGO, Ill, Nov. 16—Butter—Steady; creameries 15@21½c; dairies, 14@18½c.

Cheese — Easy; Daisies, 10½@10¾c; Twins, 10c Young Americas, 11c.

Eggs—Steady; at mark, cases included, 22@24c.

Cattle—Choice to fancy beeves, 1,200 to 1,500 lbs. 5.35@5.60; good to choice steers, 4.80@5.30; fair to good export and shipping steers, 4.30@4.75; medium beef steers, 3.90@4.25; plain beef steers, 3.75@3.85; common to rough, 1,000 to 1,200 lbs. 3.50@3.70; good to fat heifers, 3.80@4.50; good to choice feeders, 3.40@4.30; good to plain stockers and feeders, 2.00@3.35; fair to good cows and heifers, 2.50@3.65; good cutting and fair beef cows, 2.00@2.40; common to good canning cows, 1.25@1.90; bulls poor to choice, 2.40@4.25; calves, choice to fancy 6.75@7.50; calves, common to fair, 3.90@6.50 corn fed western steers, 4.00@4.50; Texas bulls and grass steers, 2.90@3.85; fed Texas steers, fair to choice, 3.40@4.40; western range steers, 3.25@4.25.

Hogs—Good to choice heavy shipping, 4.80@4.90; fair to good heavy packing, 4.40@4.75; rough and common heavy mixed, 4.25@4.40; assorted light, 150 to 195 lbs., 4.80@4.90; good to choice butcher weights, 4.85@5.00; fair to choice light mixed, 4.55@4.85; thin to choice 50 to 130 lb. pigs, 3.75@4.65; stags and rough lots, 2.00@4.00.

MILWAUKEE. Wis., Nov. 16—Butter—Creamery, extras, 22c; firsts, 20@20½c; seconds, 18@19c; whey, 10@11c. Dairy, fancy, 17c; lines, fresh, 14@15c; packing stock, 12@13c; grease, 5@6c.

Cheese—American full cream, new: Twins, 10@10½c; Young Americas, 10½@11c; Daisies, 11@11½c; Longhorns, 11@11½c; low grades, 7@9c. Limburger—New, fancy, 10@10½c; off goods, 6@8c Swiss—Drum, choice, 12@12½c; Drum No. 2, 10@11c; block, choice, 11@11½c; block, No. 2. 9@10c. Brick, new, fancy, 10½@11c; low grades, 7@9c.

Eggs—Strictly fresh laid, loss off, cases returned, 23c; do, at mark, cases returned, 20½@21c; storage, city, Apr. No. 1, 21c; storage, country, 10@20c; dirties and seconds, 18c; checks, 16c.

BRILLION, Wis., Nov, 5—Cheese—Sales today were: 461 Twins at 9¾c; 480 Daisies at 10¼c; 407 at 10c; 111 cases Young Americas at 10c; 94 Cheddars at 9½c.

MUSCODA, Wis. Nov. 7—Cheese—The offerings today were: 670 Twins and 32 Daisies. Sales: 50 Twins at 9¾c, 75 at 9c; 32 Daisies at 9½c; 545 Twins were withdrawn.

MANITOWOC, Wis., Nov. 11—Cheese—Sales; 75 boxes Twins, 9½c; 500 boxes Young Americas, 9½c; 925 Daisies, 10c.

SHEBOYGAN, Wis., Nov. 11—Cheese—On the cheese call board here to-day 1,600 boxes were offered and 67 cases of Young Americas and 18 Longhorns were withdrawn, the balance selling as follows: 218 Daisies, at 10⅝c; 419, at 10½c; 35 cases Young Americas, 9⅞c; 289, do 9¾c; 50 cases Longhorns, 10⅜c; 36, do 10¼c, 476, 10⅛ Market easy.

SHEBOYGAN FALLS, Wis., Nov. 11—Cheese—22 factories offered 1,618 boxes of cheese on the Call Board to-day. 185 were withdrawn, balance sold as follows: 276 cases Young Americas 10c; 200 Daisies, 10½c; 45, do 10⅜c; 15 do 10¼c; 50 cases Long-horns, 10¼c; 72 do, 10¼c; 760 do, 10c; 15 do, 9¾c. Market dull and weak.

PLYMOUTH, Wis., Nov. 10—Cheese—Thirty-four factories offered 2,504 boxes today, all of which sold as follows: 571 Longhorns at 10¼c; 751 Daisies at 10½c; 222 Daisies at 10⅜c; 345 Twins at 9½c; 406 Twins at 9⅝c; 201 Americas at 10⅛c; 8 Americas at 10c. Market active.

FOND DU LAC, Wis., Nov. 9—Cheese—The offerings today were: 210 Twins and 155 Daisies. Twins sold at 9¼c and Daisies at 10¼c.

ST. LOUIS, Nov. 16.— Butter—Steady; creamery, 18@23c; dairy, 13@18c.

Eggs—Steady, 24c loss off.

KANSAS CITY, Nov. 16.—Eggs—Higher; Missouri and Kansas, cases returned, 23c; new, No. 2 whitewood cases included, 23½c.

Butter—Creamery, 18½@20c; dairy, fancy, 18c.

WASHINGTON, D. C., Nov. 16.—Butter—Firm. Extras, 23@23½c; choice firsts, 22c; renovated, 17c.

TOPEKA, Kan., Nov. 14—Butter—Creamery butter, 21½@22½c; Dairy butter, 17@18c.

Cheese—Longhorns, 11½c; Single, 11½c; Twins, 11¼c; Prints, 12¼c.

PHILADELPHIA, Nov. 19— Butter— firm; good demand; extra western creamery, 22½@23c; nearby prints, 24c.

Eggs—Unchanged; fresh near by, 30c; loss off; western 28@29c; southwestern, 26@27c; southern, 24@25c.

Cheese—Steady; fair demand; New York full cream, fancy, 12c; choice, 11¾c; fair to good, 11@12c.

NEW ORLEANS, La., Nov. 16—Butter—Market is firm. Extras, 23c; ladles, 15c; renovated, 17c.

NEWARK, N. J., Nov. 16—Butter—Market steady at 22½c.

Eggs—Fresh first, 29c; refrigerator firsts 23c.

BOSTON, Mass., Nov. 16—Butter—Creamery, western extra, 22@22½c; western firsts, 20@21c; dairy, 15@21c; imitation creamery, 16c; ladle, 14@15½c; box and print 16@24c.

Cheese—Choice, flat, 11@11½c; Wisconsin Twins, 11@11½c; Ohio flat, 10½c.

Eggs—Nearby, 40c; western selected, 24@30c; poor to fair, 20@22c; refrigerator, 19@22½c.

CUBA, N. Y., Nov. 11.—Cheese—2,000 late October cheese sold at 10½c.

UTICA, N. Y., Nov. 16—Cheese—Sixteen lots, 800 large, 10c; 2,000 small, 10c.

WATERTOWN, N. Y., Nov. 14—Cheese—Sales 3,500; 10@10¼ for both large and small.

NEW YORK, Nov. 16—Butter—Firm; extra creamery, 22½c; creamery, common to choice, 16@22c; state dairy, 15@20c.

Cheese—Receipts, 2,927 pkgs; irregular; state full cream, fancy, small, colored, September, 11¾c; late made, 10¾c; small, white, September, 11¾c; late made, 10¾c; large, colored, September, 11¾c; late made, 10¾c; large, white, September, 11¾c; late made, 10¾c.

Eggs—Receipts, 8,147 pkgs; strong; state and Pennsylvania, fancy mixed, 30@31c; state and Pennsylvania, seconds to firsts, 25@29c; western extras, 30c; western, thirds to seconds, 22@27c; western firsts, 28@29c; refrigerated, 19@23c.

CANTON, N. Y., Nov. 14—Cheese—Offered 1,410 boxes of Twin cheese, and 951 tubs of butter. Cheese sold at 10c; butter at 21c.

LIVERPOOL, Nov. 16—Butter—Good United States nominal. Cheese American finest white, dull, 52s; do colored, quiet, 54s.

NEW YORK MARKET.

NEW YORK, Nov. 14—Butter—Receipts for the week, 31,960 packages. Exports for the week, 1,200 packages.

The demand continues good for the extreme top quality of fresh Creamery, but for all other grades the market is extremely dull and prices are easier and only nominal.

Fresh Western Creamery butter is coming poor and shows lack of feed and new milk, and many of the best Minnesota Creameries were turned down this week by retailers, as not good enough.

Fresh New York State goods are wintry and ordinary and are not in favor with buyers. Dairy make about done for the season. There is no wholesale business doing in Freezer Creamery butter, and while finest is quoted at 21½@22c, it would be impossible to sell any considerable line at over 20c. Ladle and packing stock is salable at 13@16c. We quote:

Creamery, fresh make, extra, 22½@22¾c; medium, 19@22c; poor, 15@18c; creamery, freezer, extra, 21½@22c; medium, 18@20c; poor, 13@17c. New York State Dairy, extra, 20@21c; medium, 16@19c; poor, 13@15c.

Cheese—Receipts for the week, 30,228 boxes.

Market ruled dull all the week, and although the prices for September makes were marked up a quarter, prices for all other grades were unchanged and favored buyers at the close.

Exporters bought mostly of low price skimmed cheese for which they paid 3@5c. We quote:

Full cream, extra, 11¾c; medium, 10¾@11½c; poor, 8@10c.

Eggs—Receipts for the week, 34,735 cases.

New laid eggs are very scarce and wanted at full prices. Other grades are in good demand at firm prices. We quote:

New York & Pennsylvania, new laid, per doz., 33@35c; Northern & Western, new laid, 20@32c; all sections, poor to good, 20@28c; refrigerator, poor to fancy, 17@23c.

177 Chambers St. DAVID W. LEWIS & CO.

BALTIMORE MARKET.

BALTIMORE, Nov. 12.—Butter—Although the weather conditions, so far this season, have been quite faverable for an increase in the make, there has been none; but on the contrary a further shrinkage of all desirable table grades is very much in evidence, particularly extras; the supply of which has been insufficient to satisfy the demand, and in many instances firsts have to be substituted. Imitation creamery continues in light supply. Ladles of desirable quality are in moderate receipt and good request. Rolls—The receipts are gradually on the increase; all good to choice lots, arriving in good condition, meet ready sale. Packing stock is in moderate supply and demand. Prints and blocks, though in moderate receipt the supply is about equal to the requirements. The market in general closes steady to firm on all desirable offeringe.

Creamery separator, extras, 23@23½c; firsts, 21½@22½c; seconds, 19@21c; imitatation creamery, extras, 19@20c; firsts, 17@18c; seconds, 15@16c; creamery blocks (2 lbs.), extras, 24c; firsts, 22½@23½c; seconds, 20@22c; do prints, (½ lbs.), extra, 25c; first, 23½@24½c; seconds, 20@22c; Md. Va. & Penna. prints, extras, 24c; firsts, 22@23c; seconds, 18@20c.

Eggs.—With the receipts of strictly fresh stock rather light and a good demand at 28 cents, our market rules firm on this kind, while held and mixed stock is moving slowly at irregular prices. Storage stock, when fancy, finds ready sale.

301 Exchange Place. G. M. LAMB & BROS.

SAN FRANCISCO MARKET.

SAN FRANCISCO, Nov. 12—A firm tone prevailed in the market for really fancy Creamery Butter yesterday and conditions generally were in sellers' favor. Supplies were fairly liberal, but as trade was fully up to the offerings of this grade, holders had no difficulty in maintaining the hardened prices. Stocks of the special brands were well absorbed at full figures, the more favored brands easily bringing the maximum quotation. Trading in the cheaper quality butter continued of a sluggish character, with values irregular and favoring buyers. Storage goods continued firm at previous prices. The percentage of really fancy Ranch Eggs in yesterday's arrivals was very small, and under a steady demand, the market was steadier, with values showing a slight improvement. Selected Whites were quickly marketed up to the top quotations and sales of the cheaper stock were liberal at the lower range of prices. In storage grades business continued of liberal proportions at maintained rates. Cheese values were without change and full quotations were easily obtained for mild, new, offerings.

Receipts yesterday aggregated 44,100 pounds butter, 657 cases eggs and 4,700 pounds of cheese.

Butter—Creamery, extras, 32@33c; good to fancy, 26@30c; dairy, extras, 24@25c; dairy, choice 22@23c; store, 18@20c; California storage, 24@27c, eastern creamery, 23@25c.

Eggs—Ranch, selected large, 44@45c; good to choice, 40@43c; store, nominal; California storage, 28@33c; eastern, 25@30.

Cheese—California creamery, mild new, extra, 14@15c; mild, new, choice, 13½@14c; Young America, 14@15½c; eastern, New York, Cream, Cheddars and Flats, new, 14½@16c.

NEW YORK FERTILIZER MARKET.

Acid phosphate		60 @	67½
Phosphate rock, f. o. b. Char'n		5.00 @	7.00
Tenn		3.50 @	4.50
Bones, rough	℔ ton.	17.00 @	18.00
ground		21.50 @	22.00
Bone meal		21.50 @	23.00
Bone black, refuse		19.00 @	19.50
Potash, dbl. m're salt	48@53%	1.12 @	1.15
dbl. m'ure salt	48@53%		
less 25 tons		25.00 @	30.00
sulph. of	basis 90@98%	2.11 @	2.18
90@98% less than 25 tons		38.00 @	40.00
Potash, Muriate	% 100 lbs.	1.83 @	1.95
less than 25 tons		36.00 @	40.00
Kainit, 25% S. of P	℔ ton	9.30 @	9.50
less than 25 tons		9.50 @	10.50
Sylvinit, 35@37% P	℔ unit	41 @	46
Nitrate of soda		2.10@	2.15
Blood, dried, red	℔ unit	2.60 @	2.65
low grade		2.45 @	2.50
Concentrated tankage	℔ ton	15.00 @	16.00
Fish, guano, dried		2.40 &	10.
acidulated		2.15 &	35.

READING NOTICES

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—Married man with one or two boys, or single man. Must be trusty and not afraid of work. Dairy of fifty cows. Ship milk to Columbus, O. H. C. WILSON, West Jefferson, Ohio.

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 190:

DE LAVAL CREAM SEPARATORS

GOOD MANAGEMENT
AND CREAMERY PROSPERITY
HAVE EVER
GONE HAND-IN-HAND

This is true of Cream Gathering from Farm Machines as well as of Factory Separation.

Now is the time to make De Laval contracts and plans for 1904.

The De Laval Separator Co.

Randolph & Canal Sts., CHICAGO.
1213 Filbert St., PHILADELPHIA.
9 & 11 Drumm St., SAN FRANCISCO.

GENERAL OFFICES:
74 Cortlandt St., NEW YORK.

121 Youville Square, MONTREAL.
75 & 77 York Street, TORONTO.
248 McDermot Avenue WINNIPEG.

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D, Independence, Ia. 50-tf

Foreman Wanted—One having experience in general dairying, a good milker, to have full charge of dairy of 40 cows including the care of young stock, butter making, etc. No farm work. Married man preferred. House, garden and milk furnished. Good wages. Location, northern Florida. Write JUMPIERUN DAIRY FARM, Monticello, Fla, 40-2

For Sale—Four registered Holstein bulls ready for service; also a few heifers. FRANK BREWSTER, Bowers, Wis. 40-2

Wanted—Young married man on my dairy, 20 cows, having practical knowledge of feeds and feeding. Must be a good milker; must be neat, active and willing to work, taking an interest in my interests. $45.00 per month and four room house. Some advance as man proves valuable. MARCH, 1798 W. 39th St., Los Angeles, Cal. 40-2

Wanted—Position by capable butter maker of 15 years experience in creamery in R. R. town, married. Use no liquor or tobacco. Address COMPETENT, care Hoard's Dairyman. 40-2

At a Bargain—Two Holstein-Friesian Bulls, both registered; one ready for service, the other six months old. Both are fine calves and will sell at a bargain to make room for winter cows. S. I. TATHAM, Licking Co., Outville, Ohio. 40-3

Milch Cows—For sale 23 head of good healthy cows at reasonable prices. Jersey blood. On Big Four 26 miles from St. Louis. H. E. DORSEY, Moro, Madison Co., Ill. 41-3

Sale of Guernseys—Ten heifers, two year olds and under. A rare lot. Send for circular. M. SAGER, Orangeville, Pa. 41-tf

Wanted—Charge of dairy herd by experienced feeder; Agricultural College and business training; understands handling men. Address L. M. N., care of Hoard's Dairyman.

Wanted—At Meramec Highland Dairies near St. Louis, experienced milkers, also a good dairy foreman thoroughly experienced as feeder and good milker. Apply at Dairies or City Office, 208 N. 4th St., St. Louis, Mo. 41-2

For Sale—One choicely bred Guernsey bull by Stella P's Gold Bar, 8368, out of my best cow, 16 months old, warranted a sure stock getter. J. E. STORY, Successor to Nor. Wis. Live Stock Co., Stanley, Wis. 41-tf

Holstein Bull—7 months old. Dam's record 80.6 lbs milk in 1 day, 24 lbs 7 ozs. butter in 7 days. Sire's dam a daughter of Pauline Paul the champion butter cow of the world, 1,153 lbs. in 1 year, by a Son of DeKol 2nd, 536½ lbs. milk and 26.56 lbs. butter in 7 days, made under supervision of Cornell University. His 3 nearest tested dams averaged over 27.30 lbs. butter in 7 days and over 80 lbs. milk in one day. Price $100. WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis.

Up-to-date Creamery Operator Wanted—Must have thorough knowledge of pasteurizing, use of starter, testing, etc. Reply at once and state wages, to ENUMCLAW CO-OPERATIVE CREAMERY CO., Enumclaw, Wash. 41-2

For Sale—Two fine dairy farms, vicinity of Washington City. Electric R. R. through one and near the other. For particulars address owner. L. E. WATT, 745 7th St., S. E., Washington, D. C. 39-4

For Sale—Five cheese factories, 20 acres landsaloon and store with stock, three houses in Appleton, Wis., two farms 60 and 80 acres. Address 775 Ida St., Appleton, Wis. 36-tf

Wanted—Experienced butter maker, former instructor in dairying, at present in charge of sanitary milk bottling plant in eastern city, wishes to change position. Address C., care of HOARD'S DAIRYMAN, Fort Atkinson, Wis. 38-5

Wanted—Experienced herdsman for a milk farm. Applicant must state age, experience, references and wages wanted. JOHN D. WALSH, Mont Clare Station, Chicago, Ill. 38-4

The Third Revised Edition of Buff Jersey's Popular Book Just Out of Press—Ten chapters, 25 illustrations and right up-to-date. Subjects treated are: Silos and Ensilage, All Phases of the Dairy Subject, Soil Crops, Up-to-date Farm Machinery, How to Cure Abortion and Milk Fever, Some Medicines and Remedies, The Steam Plant, its care, and many other valuabe things ably treated. Send for circular. Sent post paid, cloth binding $1.00, paper 75c. BUFF JERSEY, Monmouth, Ill. 47-tf

For Sale—A cheese factory in good dairy country, doing good business. No opposition, (cheap.) Address S. O. U., care Hoard's Driryman. 34-tf

For Sale—Two registered yearling Guernsey bulls. RAY BICKNELL, Ft. Atkinson, Wis. 32-tf

Wanted—Young or middle aged man who is, or wants to be, a practical farmer, to go on new farm just starting. Chance to take a claim joining, or near by. Also a carpenter and a blacksmith for same place. Must be temperate and industrious. Also want middle aged woman for housekeeper. References required. O. S. COWLEY, New Salem, N. D. 41-2

Wanted—A married man to take charge of 30 cows, feed and milk. No butter. Hollander preferred. J. M. T. WELBORN, Bridgeport, Ind.

Creamery—In a good location for rent, or will sell cheap, A good chance for the right man. Apply to E. L. POWELL, North Freedom, Wis. 41-2

Guernseys For Sale—A grandson of Fantine 2d, Young cows just fresh and young bulls fit for service, and bull calves. Also Red Polled cows just fresh and young bulls fit for service. N. E. SMITH, Harford Mills, N. Y.

Wanted—Position by middle aged man. Small family. Understand dairying in all branches Butter and cheese making included. Will work by the month or on shares. S. HELLME. 1305 Wash. Ave., Kalamazoo, Mich.

Very low rates to International Live Stock Exposition at Chicago—Via the North-Western Line. Excursion tickets will be sold Nov. 29, 30 and Dec. 1, limited to Dec. 7, inclusive, Apply to agents Chicago & North-Western Ry.

Excursion Tickets to St. Paul and Minneapolis and Return—Will be sold by the North-Western Line daily until Nov. 30, 1903, from Fort Atkinson at $14.00 for the round trip, limited to return until Dec. 15, 1903. Apply to agents Chicago & North-Western R'y. 35-8

Answers to Dairy Questions by Prof. Farrington.

Cost of Making Butter.

Would you please give me the approximate cost of making and handling butter from the delivery of cream from farm separators to time of shipment. I realize that this is a conundrum, the solution of which may be different according to location and circumstances. But as I do not know if it should be three cents or ten cents per pound, you could set me somewhere in the neighborhood. SUBSCRIBER.
Yankton, S. D.

I believe there are several firms buying cream from farmers at the present time that agree to pay the market price for butter fat in the cream when it is delivered to the railroad station nearest to the farmer producing the cream. The firm buying the cream pays the freight or express, whichever it may be, on the cream and returns the empty cans. Such an agreement as this amounts to about three cents per pound for making and handling the butter, provided the buyer makes the the cream into butter. Some ten years ago, the price for making butter from milk at creameries was four cents per pound. This price was nearly universal at that time. When a factory makes between two and three hundred pounds of butter per day, such a price per pound will give the factory a living margin with which to keep it up-to-date and warrant the employment of a competent buttermaker. Competition has reduced this price somewhat in recent years, however, and some factories now claim to make butter for their patrons at two cents per pound. The usual price, however, at the present time, is about three cents per pound.

The rate that should be charged for making butter will depend almost entirely on the amount of milk or cream which is manufactured. It will cost nearly as much to operate a factory which makes 100 pounds of butter per day, as to run one that makes three and four hundred pounds per day. Nearly the same amount of fuel will be used in one case as in the other, the wages of the operator will be the same, and the only difference between the two will be in the amount of supplies, such as salt, butter color and butter packages, used for making the larger amount of butter as compared with the smaller.

I do not think that farmers will produce milk or cream and sell it to a factory which charges ten cents a pound for making. The average price in this state at the present time is about three cents per pound, but if a smaller amount of butter is made, more than this must be charged in order to make the business a success.

Building a Skimming Station.

"The New Century Creamery Company wants to build a skimming station about seven miles from our creamery, and I am at a loss to know how to build an up-to-date plant.

We also want to know which will be the cheaper and more satisfactory, steam or gasoline power. We will have to haul coal and supplies seven miles to and from our railway station. We can raise stock at $1.00 per share, and think it would be necessary for us to have about $2,000 for this purpose.

Will you kindly give us some advice in regard to this new enterprise and inform us how best to arrange our machinery? F. B.
Green Bay, Wis.

In a great many cases skimming stations are placed in some building already erected where there is room for the machinery. Occasionally a building is erected especially for the skimming station, but this is not very common at the present time, as the general impression prevails that skimming stations are of doubtful economy.

All that you need is a room in which you can place the necessary machinery for handling the milk and skimming the cream from it. A skimming station outfit usually includes a milk-weighing scale with a weigh can which will hold about 500 pounds. This is placed near an open window through which the milk cans are received and emptied into the weighing can. A platform is built outside the window for transferring the cans from the wagon to the receiving can in the building. The receiving room need not be very large, but sufficient space ought to be provided so that a man may have plenty of room to empty the cans, weigh the milk and take samples of each lot of milk.

Shelves are usually arranged on the walls of the room around the weigh can, and on these shelves are placed the sample jars in which a sample of the milk of each patron is collected.

From the weigh-can, the milk runs into a vat, which ought to hold about 2,000 pounds of milk. It then flows from this through a heater to a separator, and the skim milk is pumped from the separator into a tank at some distance from the milk receiving window. The patrons draw their skim milk from this tank into their milk cans as is customary at a creamery.

The cream from the separator is usually run into small ten-gallon cans, which are placed in cold water and cooled to as low a temperature as possible, before being drawn the same day to the factory where the cream is ripened and churned.

A gasoline engine is sometimes used to supply the power for running the separator, milk pumps, etc. I have known of several places where such power has proved to be very satisfactory for this purpose. When a gasoline engine is used, the operator can start up his separator within half an hour at least after he arrives at the station in the morning; it is not necessary for him to get up steam in order to start the power for running the separator. A small boiler ought to be provided for heating the milk in the winter time, as it is necessary to warm the milk to near 80° F. in order to get an efficient skimming by the separator.

I should think, under the circumstances, that where you have to haul coal seven miles, the gasoline engine would probably be more economical for you than a steam engine, as you are transporting a great deal more energy in a given weight of gasoline than of coal.

If you have a building in which you can place the separator, milk receiving vat, gasoline engine and other supplies, I do not think that the necessary machinery ought to cost you over $1,500, in addition to the building.

I presume you will hire some man to operate this skimming station, and if you get one who has had some experience in creamery butter making he will be perfectly capable of setting up your machinery and starting the skimming station in a satisfactory way.

Questions in Milk Testing.

"I take the liberty to ask a few questions about the use of the Babcock test and about cheese making.

1st. Is there any danger of burning butter fat by mixing a sample of milk and acid too quickly so that it gets very hot?

2nd. How many revolutions per minute should a hand tester be turned when the bottom of the bottles make a circle 18½ inches in diameter?

3rd. How many minutes should it be turned before water is added?

4th. What is the range of temperature at which rennet may be added to milk?

5th. What is the highest temperature which the curd may be cooked without injuing it?"
Algoma, Wis. J. F. C.

Replying to these questions in the order in which they are asked, I have to say:

1st. If the sulphuric acid used in test-

"ADVERTISEMENT."

AN OLD TIMER

Has Had Experiences.

A woman who has used Postum Food Coffee since it came upon the market 8 years ago knows from experience the necessity of using Postum in place of coffee if one values health and a steady brain.

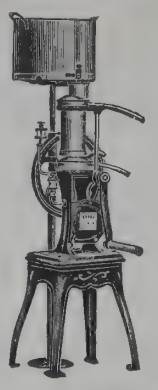
She says: "At the time Postum was first put on the market I was suffering from nervous dyspepsia and my physician had repeatedly told me not to use tea or coffee. Finally I decided to take his advice and try Postum and got a sample and had it carefully prepared, finding it delicious to the taste. So I continued its use and very soon its beneficial effects convinced me of its value for I got well of my nervousness and dyspepsia.

"My husband had been drinking coffee all his life until it had affected his nerves terribly. I persuaded him to shift to Postum and it was easy to get him to make the change for the Postum is so delicious. It certainly worked wonders for him.

"We soon learned that Postum does not exhilarate or depress and does not stimulate but steadily and honestly strengthens the nerves and the stomach. To make a long story short our entire family have now used Postum for eight years with completely satisfying results as shown in our fine condition of health and we have noticed a rather unexpected improvement in brain and nerve power." Name given by Postum Co., Battle Creek, Mich.

Increased brain and nerve power always follow the use of Postum in place of coffee, sometimes in a very marked manner.

Look in each package for a copy of the famous little book, "The Road to Wellville."



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The American

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MILK DEALERS COMBINATION Milk Protector, for cans or bottles. Prevents milk churning and souring in summer and freezing in winter. INVESTIGATE. S. C. Sullivan Mfg. Co., Erie, Pa.

ing has the right specific gravity (1.82) there will be no danger of its burning the milk so as to injure the test in any way. The acid ought to be poured into the test bottle in such a way that it will follow the sides of the bottle and form a layer separate from the milk on the bottom. As soon as the acid is all added in this way the bottle should be thoroughly shaken. This mixture will get very warm but this will do no harm if the shaking is continued until the acid and the milk are thoroughly mixed. If for any reason you should partially mix the milk and acid, then set the bottle down and come back to it a few minutes later and complete the mixing, you will find that there will be more or less black sediment mixed with the fat which separates when you have completed the test. So long as the acid is diluted with the entire quantity of milk needed for a test, the action of this acid on the fat is not strong enough to burn the fat when the acid is of the proper strength.

2nd. The speed of a tester having a diameter of 18½ inches should be about 800 revolutions per minute. A table is given in the book "Testing Milk and Its Products" which shows the number of revolutions per minute which testers having different diameters should make. From this table I take the following fignres:

A tester wheel 10 inches in diameter should have a speed of 1,074 revolutions per minute.

A 14 inch wheel should make					909	rev.	per	min.
A 18	"	"	"	"	800	"	"	"
A 20	"	"	"	"	759	"	"	"
A 24	"	"	"	"	693	"	"	"

The speed of the tester is an important matter and although the tests may not be injured by too high a speed, provided the bottles and machines will not break, a too low speed will often give clear separations of fat but fail to show all the fat there is in the milk. It is therefore advisable for anyone having a tester to determine from its diameter the speed at which it should be run. This may be found from the figures given.

3rd. The test bottles ought to be whirled from four to six minutes before hot water is added to them. The safest way is to always whirl the bottles a longer time than necessary rather than to try to economize time by whirling four minutes or less. I should say that an average of five minutes may be accepted as satisfactory in most cases.

When skim milk is tested the bottles ought to be whirled longer than for testing whole milk or cream. The fat in skim milk is in extremely small globules, much smaller than the majority of those in either milk or cream, and in order to separate these fine globules it is necessary to whirl the bottles at the maximum speed and for a longer time than is customary in whole milk testing.

4th. Rennet is usually added to milk in cheddar cheese making at a temperature of 86° F. At this temperature rennet will usually have its normal and maximum coagulating power on the milk. When the temperature rises to 100° the rennet action is diminished and at 120° and above, this will be almost entirely destroyed by the high temperature.

5th. The curd in cheese making is usually heated to about 100° F. A higher temperature than this will have a tendency to injure the texture of the cheese by making it dry and mealy. A lower temperature gives a pasty texture and leaves more whey in the curd than good cheese makers desire to have. The effect of a high temperature on the curd is noticed almost entirely in the texture of the cheese.

E. H. FARRINGTON.

Wis. Dairy School.

Transfers of Guernsey Cattle.

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Arbol 8492, Fred Vogel Jr., to Jno. H. Williams & Rowland Bros., Waukesha, Wis.
Azote of Valley View 8978, Frank A. Gifford to J. H. Hunter, Valley Falls, N. Y.
Blueboy 8964, George Mixter to Jacob C. Rogers, Peabody, Mass.
Billy of Raymond Town 8975, M. J. Shered to M. E. Valleau, Paw Paw, Mich.
Captain Gold Dust 8956, H. F. Dimock to W. W. Storrs, Willimantic, Conn.
Como of Cold Brook Place 8930, John H. Bowbly to W. D. Hoard, Ft. Atkinson, Wis.
Duke of Springhill 8954, H. F. Dimock to R. W. Gardner, Springhill, Ct.
Duke Fawcette 8965, G. B. Tallman to George M. White, Franklinton, N. Y.
Duke of Devon 7608, W. H. Walbridge to Jesse Thompson, Lisbon, N. Y.
Daylesford 8977, A. J. Cassatt to J. G. Cassatt, Berwyn, Penn.
Endymion 8916, Fred Rietbrock to H. D. Griswold, West Salem, Wis.
Golden Rex 8824, A. W. Wallis to Warren W. Briggs, Washington, D. C.
Goshen Boy 7886, Z. M. Waters Jr. to T. W. Simmons, Hagerstown, Md.
Glennside 8976, M. J. Shered to G. A. Wigent, Watervliet, Mich.
Hedalion 5409, Jesse Thompson to Mrs. Clara B. Morson, Rifton N. Y.
Hedwig's Nonpareil 2nd. 8963, Lyman Blair to H. P. Phinney, Ripley, Me.
Lip Nero 8430, M. D. Cunningham to Fred Vogel Jr., Milwaukee, Wis.
Lamesch 8967, Flora A. Waddell to Edwin Murbach, Archbold, O.
Madge's Lad 8942, C. A. Wright to D. S. Mahaffey, Williamsport, Pa.
Minda's Jim 8181, D. O. Newhall to C. M. Hemmingway, North Leverett, Mass.
Nero of Riverside 8820, A. J. Stevens to J. de Lorimeir, Belocil, Que.
Penwyn of Fairview 8962, G. B. Tallman to C. V. Mills, Mills, N. Y.
Pride of Faggs Manor 8966, E. R. Morrison to Harry E. Moore, West Grove, Pa.
Quarto of the Elms 8960, Robt. W. Lord to H. W. Perkins. Minot, Maine,
Reliance of the Elms 8958, M. I. Wheeler to E. W. Bennett, Blanford, Mass.
Robbie 8435, R. A. Borden to John A. Qua, Salem, N Y.
Sir Thomas Lipton 9861, Est. W. G. Tompson to A. C. Robinson, New Cumberland, W. Va.
Sampson of Baldwinsville 5938, T. W. Simmons to Z. M. Waters Jr., Goshen, Md.
Teddy of South Side 8690, W. J. Dawson to Geo. W. Herron, Westby, Wis.
Winnisimmet 6467, H. M. Cowles to C. B. York, Westerly, R. I.
Winnimor 8946, A. Judson Smith to Shook Bros., Spring Mills, Pa.

COWS.

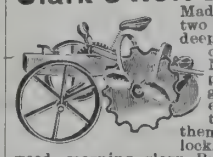
Alma V. 13050, G. B. Tallman to C. M. C. Hewes, Ripley, N. Y.
Alice of Fairview 16637, Dassie of Fairview 16688, E. D. Watkins to G. B. Tallman, Perry, N. Y.
Aggie Dandelion 15216, Ethel of Wolf Rock 9762, J. B. Palmer to Edward Hall, Plainsfield, Ct.
Angora 4th. 16364, C. Morton Smith to Henry McKean Ingersoll, Pennlyn, Pa.
Bunola 16664, Woodlawn Miriam 16665, Woodlawn Pearl 16666, A. Judson Smith to Shook Bros., Spring Mills, Pa.
Belle Vara 3rd. 10000, Lady Helen Bush 13806, James Forsyth to George Morelock, Watervliet, Mich.
Bessie of Norwood 16711, Elizabeth of Norwood 15239, Imp. Girl of Norwood 15268, Kathleen of Norwood 16712, P. H. McCormick to G. E. Tarbell, Greene, N. Y.
Bonnibel of the Glen 12894, H. A. C. Taylor to Moses Taylor, Mount Kisco, N. Y.
Coventry Agnes 14143, Coventry Quietude 15949, Esther of Wolf Rock 14952, Lady Anita 15950, Lady Maude of Wolf Rock 15772, Lavesa R. 15064, Margaret Truth 2nd. 14710, Millwood's Quest 2d. 13640, Miss Heartsease 15062, Miss Sharon 14711, H. F. Dimock to S. M. Shoemaker, Stevenson, Md.
Clare of Poplar Grove 2d. 14845, J. L. McCormick to G. E. Tarbell, Greene, N. Y.
Country Girl of Paxtang 14615, J. P. Welsh to Miss I. S. Whilhelm, Harrisburg, Pa.
Daphne of the Homestead 16673, Fernwood of the Homestead 11012, Fernwood's Fairy 16672, Lady Alworth 15129, Topsy of the Homestead 10700, A. C. Gardiner to R. V. Lindabury, Bernardsville, N. J.
Dione 11279, H. A. Pickering to Ezra Michener, Michener, Pa.
Dorothy Manners of Paxtang 14616, I. S. Wilhelm to J. P. Welsh, Bloomsburg, Pa.
Fairy of Westfield 8456, O. W. Sanford & Son to Wm. H. Spelman, Granville Center, Mass.
Flossy of Hudson Farm 16622, Amos Hudson to F. D. Kirk, Hadley, Pa.
Golden Scarf of Langwater 10454, Imp. Miss Ovid 15481, F. Lothrop Ames to C. H. Jones, Weston, Mass.
Lulu of Haddon 2nd. 16654, E. T. Gill to R. V. Lindabury, Bernardsville, N. J.
Lady Spot 16661, Liberty Bell of Woodbury 16660, Buell T. Holcomb to Edward S. Boyd, Woodbury, Conn.
Lady Edith 16709, Wm. Atkins to John Quinlan, Pellston, Mich.
Lady B. of Swatara 13644, James Boyd to J. J. Nutt, Lykens, Pa.
Maggie's Daughter 15939, O. W. Sanford & Son to Wm. H. Spelman, Granville Center, Mass.
Never Will 16667, Est. G. A. Seager to C. I. Sisson, Almond, N. Y.
Nacarat 16719, C. Morton Smith to J. A. Wood, Eden, Mount Desert, Me.
Onaway of the Elms 11763, M. I Wheeler to R. F. & A. H. Parker, Westboro, Mass.
Peseta 11132, John C. Chalmers to John W. Losie, Amadore, Mich.
Palma 11604, E. H. Phillips to Baron de Hirsch Agr'l & Industrial School, Woodbine, N. J.
Princess Agnes 16725, Joseph Cole to B. F. Smith, North Scituate, R. I.
Sultana 2d. of Paxtang 11250, J. P. Welsh to Rev. J. D. Smith, Kanona, N. Y.
Schleswig Mamie 16714, L. T. Voigt to F. F. Thielke, Kiel, Wis.
Serene of Swatara 15013, James Boyd to J. P. Welsh, Bloomsburg, Pa.
Verna of Rosendale, 15092, Joseph Harris to J. C. Chalmers, Ann Arbor, Mich.

WM. H. CALDWELL,

Peterboro, N. H., Nov. 9 1903.

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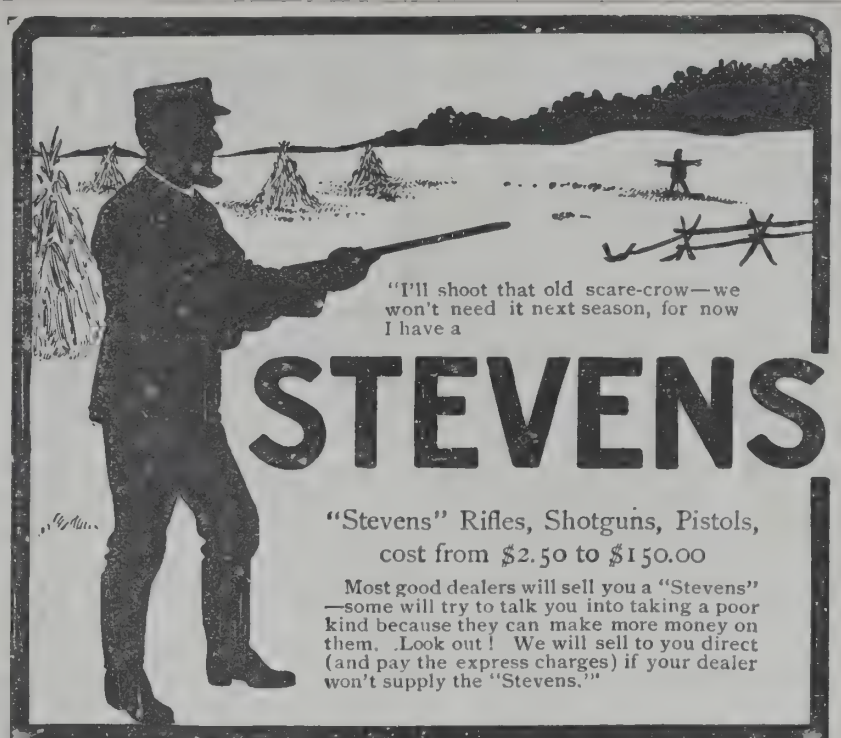
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We will mail for 4 cents in stamps our CLEVER RIFLE PUZZLE—which is something entirely new. Solve it yourself and then try it on your neighbors—great fun winter evenings.

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The accompanying cut is a true representation of our Gurler Sanitary Milk Pail. The merits of this pail have been fully discussed and endorsements have been given by many practical dairymen whose articles on this subject have appeared in recent issues of this paper.

Made of the best quality 6X block tin with all seams soldered smoothly.

Where the use of sterilized gauze and absorbent cotton is desired one has simply to remove the top, put cloths in position and replace it.

Give it a trial and be convinced of its superiority over all other kinds.

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149 to 153 East Superior Street, Chicago, Ill., U. S. A.

Thirteen Acres Support Twenty-nine Dairy Cows.

Many persons think it is impossible to make a living on a small farm except by raising special crops. The fallacy of this is shown by an article by Prof. L. H. Bailey, dean of the college of Agriculture of Cornell University, in the November number of *Country Life in America*, in which are described the operations on a fifteen-acre farm within a mile of the limits of Philadelphia owned by Rev. J. D. Detrich, a minister of the Dutch Reform Church, who came into its possession twenty years ago.

On the fifteen acres about two acres are occupied by the farm buildings, so that really only about thirteen acres are in cultivation. Prof. Bailey says there is no secret about the place, except the old-new secret of executive management in the production of staple and reliable crops and milk from the dairy. Mr. Detrich has shown a clear insight into causes and effects, and pays great attention to details.

He is no fancy farmer, but a plain man of the soil, who reads books and applies the knowledge he gains from them to the practical uses of his little farm. He is a professed "book farmer." Books and nature, and nature and books supplemented each other in the development of the intensive cropping and dairying. Success comes only from the application of knowledge that is reduced to laws preserved as records in book form.

Twenty years ago, when this little farm fell to Mr. Detrich, it supported two cows and a large, fat mortgage. He knew nothing of farming, but necessity drove him to learn it, and he has learned it so well that the little piece now supports twenty-nine Jersey cows and produces a large revenue above expenses every year.

On visiting the farm one sees no display, no fancy or elaborate buildings or devices, no pastures or yards for cattle, no manure piles, no fences, no weeds, no unusual crops.

The entire farm, which is all in one oblong field, can be seen at a glance. The different crops are grown in plots of one to five acres, one plot lying close to another and separated by no dividing fences. The buildings are ordinary, not so good as the average Pennsylvania farms of the better class possess. There is an old fashioned barn with a tin roof, and two sixty-ton silos, The cows are kept in the basement of the barn, which is extraordinarily light, clean and wholesome. The stalls are wide and the walls are whitewashed. The animals are well groomed. The stables and even the animals themselves are disinfected every few days.

The proceeds of the farm, aside from what hay may be sold, come from the herd—in the sale of milk and animals. The milk is sold at 6¼ cents to a sanitarium.

Mr. Detrich describes the details of his work in an article in the *American Agriculturalist* as follows:

"Just before our cattle are milked they are groomed and thoroughly cleaned. The attendant then washes his hands, puts on a gingham apron, and with a clean towel carried in his belt wipes off the teats and udder of the animal before he begins milking. The towel is slightly dampened, so that no dust or other material can be stirred up with it. A clean towel is used at each milking. The milk is removed from the stable as soon as possible after drawn, stirred and set away to cool. The amount of milk produced by our herd varies but slightly winter and summer. It tests about 5.80 the year round. It is not tested by us, but by the parties who get it.

"This is considered very good milk, and we use every precaution to keep it in the very best possible sanitary condition. We insist on handling the cans and having the care of the refrigerator where our milk is kept at the sanitarium. We deliver once a day in cans. The temperature is kept uniform in a refrigerator, kept scrupulously clean, according to our directions. When the milk is

Florham Guernseys.

The herd is made up of representative animals of both home and foreign breeding.

BULL CALVES,

from large producing dams for sale. Apply to J. L. HOPE, Supt., Florham Farms, Madison, N. J.

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REGISTERED GUERNSEY BULLS FOR SALE from Advanced Registry, and high-grade stock. Pedigree and price furnished upon application. All animals are tuberculine tested.

WOODEND FARM,
ST. BONIFACIUS, MINN.

GUERNSEYS FOR SALE.

The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

ALTA CREST FARM, SPENCER, MASS.

Home of the Yeksa Family of Guernsey Cattle. Herd contains more cows with large records and backed by large records than any other HERD OF

GUERNSEY CATTLE

IN THE COUNTRY

Herd headed by Primative 4909, a son of Primrose's Tricksey, Adv. Reg. No. 2, 592 lbs. butter in one year. Several Bull Calves from elegantly bred Dams at reasonable prices. Address A. H. SAGENDORPH, Spencer, Mass.

REGISTERED GUERNSEY COWS,

Heifers and Bull Calves. Tuberculin tested. Prices are reasonable.

J. G. HICKCOX,
700 Stowell Avenue. Milwaukee, Wis.

WASTELAND GUERNSEYS

SPECIAL SALE

To reduce our stock we offer for sale a few Cows and Heifers. We also have some good Bull Calves sired by "Sir Coral" 5239, and "Glenwood's Sheet Anchor of Haddon" 6372. Write at once for description and prices.

M M. & E. J. HOLLINGSWORTH,
Landenberg, Chester Co., Pa.

SPOTSWOOD GUERNSEYS

We offer some grand Imported Cows and Heifers, large and deep milkers and high testers; a fine lot of Heifers fit for service, and a few Imported Bulls from prize winners on both sides. Any animal in the herd for sale. Address WALTER JAUNCEY, Spotswood Farms Broad Axe P. O., Pa.

OLD HOMESTEAD GUERNSEYS

Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.

Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL, Perry, Lake Co., Ohio.

Public Sale

I will offer at my farm, one mile east of Dayton, Ohio, on the Springfield Pike, Third Street—Cars going east and Springfield Traction runs to the farm—on Tuesday, November 24, 1903, Fifteen Registered Guernseys, consisting of 8 Cows, 6 Heifers, and 1 Three-Year-Old Bull; 15 Grade Cows; one De Laval Separator; one Low-Down Milk Wagon. Sale to commence promptly at one o'clock p. m.

J. R. HUSTON....DAYTON, O.

GUERNSEYS HADDON FARMS

Home of the noted GLENWOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

GUERNSEYS FOR SALE

Bulls two years old out of Count Topsy 24.27 lbs. butter 7 days. She won first prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

Creamery and Cheese Factory For Sale or Exchange.

One of the best located combined plants in the state; Alpha Separators in good shape. Two and one-half acres of land. Good Dwellings, Ice House, Etc. Will sell cheap or trade for live stock or merchandise.

BOX 229, MILFORD, IOWA.

THE BROWN BESSIE HERD

Offers one bull 14 months old, sired by Recorder, 29239, the only living son of Brown Bessie and has 14 tested daughters. Dam, Relay, 70353, test 17 pounds 2 ounces. She a daughter of Diploma with 61 tested daughters. Also Berkshire Pigs of English and American selected stock. H. C, TAYLOR, Orfordville, Wis.

KING OF ST. LAMBERT'S KING 30752

Sire of thirty-three tested daughters, is unquestionably the most prepotent of any Jersey sire in the land. We have 10r sale young bulls rich in his blood; also a few cows and heifers in calf, whose progeny will be attractive because of the "Hart's King" blood in them. For prices, etc., address
FRANK W. HART, CLEVELAND, OHIO.

St. Lamberts Tormentors

The Richest Bred Members of These Families Ever Offered at

Public Sale,

POMEROY, OHIO, NOV. 24-25

If you need a Bull you cannot afford to miss this opportunity. See last week's advertisement in this paper. Send for Catalogue to the Jersey Bulletin, Indianapolis, Ind., and either attend the sale or send a bid as the catalogue directs.

CHARTER OAK HERD, Pomeroy, O. J. P. Bradbury, Prop.

GUERNSEYS FOR SALE.

Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.
JAS. H. BEIRNE, Oakfield, Wis.

Rosendale Guernsey Herd

TUBERCULIN TESTED.

Sixty head of choice Guernseys headed by Coralette's Son, (see page 450) whose dam, Coralette made 479.7 lbs. fat in one year at 3½ years old, and was first prize cow at Wisconsin State Fair in 1896.

Some fine young bulls for sale.
GEO. C. HILL & SON, Rosendale, Wis.

AMERICAN JERSEY CATTLE CLUB

OFFICES: 8 W. 17TH ST., NEW YORK

President, ELMER A. DARLING.
Secretary, J. J. HEMINGWAY.

BLANKS for Registering and Transferring Jersey Cattle; also Blanks for Private Butter Tests of Registered Jersey Cows, furnished free of charge upon application to the Secretary.

FEES for Registering: To non-members, $2 each head male or female. To members of the Club, $1 each head, male or female. All animals over two years old, double fee. For registration of all dead animals, $1 each. Imported animals, $25.

TRANSFERS are recorded free, if presented within 90 days from date of delivery. Transfers presented after 90 days, $1 each.

PRICE of Herd Register, $1 per Single Volume. Butter Tests of Jersey Cows, including all tests received by the Club to August 1, 1898, $2 per volume. Private Herd Record, 330 pages, cloth, leather back and corners, $2. Pocket Herd Record, 120 pages. flexible leather, 50 cents.

VOLUME OF BUTTER TESTS from August 1, 1898, to July 15, 1902, $1. Consolidated Volume, containing all previous tests, $2.00.

THE BY-LAWS of the Club, giving full rules to be followed in securing registration and transfers, mailed free on application.

ST. LAMBERT BULL CALVES by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.00.
W. J. HUSSEY, Mt. Pleasant, O.

HIGH CLASS JERSEY BULLS

Heifers and Cows for sale. My foundation stock is the best I could buy from a herd famous for merit. Write for what you want.
WM. B. GOODRICH, CLIMBING HILL, IOWA.

PROSPECT HILL JERSEY HERD

The cow that can DO something is what the farmers want. Eight cows have finished their official year's work making an average of 524 lbs. each. F. H. SCRIBNER, Rosendale, Wis.

BILTMORE JERSEYS

are great and persistent dairy workers and typical Jerseys. We ask comparison with any other herd for

YEARLY MILK & BUTTER YIELDS, SUBSTANCE AND FINISH.

The herd contains more prize winners at the leading exhibitions (including the Pan-American) than any other herd.

The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service, as you cannot get it.

Also Headquarters for Large English Berkshires and Standard Poultry.

Apply to
BILTMORE FARMS,
BILTMORE, N. C.

FOR SALE. GOLDEN LAD BLOOD, sired by Golden Blyth 3d, 54569, A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

FOR SALE. Two A. J. C. C. Bulls ready for service; also some younger ones. Cows and heifers in calf to richly bred bulls. Write for pedigrees and prices. We have a few Berkshire Boar Pigs from unregistered sows left; cheap.
N. N. PALMER & SON, Broadhead, Wis.

POLLED JERSEYS

Richest Cow of all breeds in Pan-American Model Dairy. Winning Herd at Ohio and New York State Fairs, 1903. W. H. FORBES & CO., Clifton, O.

Wintergreen Hill Farm

A. J. C. C. JERSEYS.

Fall Sale List of cows and heifers is now ready and includes cows to calve for winter milking, heifers recently bred, and a few well bred calves. Some have tests, others are from tested dams. It is a very desirable offering and those applying early may secure their choice. In writing ask for Sale List A21.

WINTERGREEN HILL FARM, Scottsville, N. Y.

JERSEY BULLS Now or soon to be ready for service; also several well bred HEIFERS. Let us send you prices and breeding, with milk and butter records. All stock is registered or eligible. E. E. STEVENS,
North Madison, Ohio

VALLEY FARM Is offering some bargains in young bulls sired by Diploma's Victor, 56310. Grandson of Brown Bessie; two yearlings; one 18 mo. old. Also bull calves. Write
FRED STUBLEY, Black Earth, Wis.

HAZEL FERN HERD. A. J. C. C. Jerseys, blood of St. Lambert, Melia Ann, Combination, Pedro, and Golden Lad. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale.
ESTATE W. S. LADD, Portland, Oregon.

ROBINSWOOD JERSEY DAIRY

is offering a few Reg. Jersey Bulls ready for service at from $25 to $50, sired by a grandson of Recorder, the only living son of Brown Bessie, out of good cows. Write, stating your wants, to
N. H. ROBINSON, Prop., Centralia, Wis.

FOR SALE Grandsons of Pedro 3187, by his son Pedro's Pretty Pogus 33660, A. J. C. C., a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs.
J. Q. EMERY & SON, Albion, Wis.

Just for Nothing

We will send you THE JERSEY BULLETIN and HOARD'S DAIRYMAN to the end of 1903. But while making you this generous offer, we wish you to do something.

Subscribe for both papers for 1904, at the lowest clubbing rate, $1.75 FOR THE TWO. To make it plain, send us $1.75 and we will send THE JERSEY BULLETIN and HOARD'S DAIRYMAN to January 1st., 1905.

☞ For Sample Copy of Jersey Bulletin address Indianapolis, Ind.

"IT'S UP TO YOU!"

placed in the refrigerator by my man the door is locked and the key turned over to the superintendent in charge. Thus our care of the milk is ended."

Mr. Detrich's cattle do not have the run of pasture. This plan works very well with him, as he gives his animals extra care, roomy stalls and well ventilated quarters. His opinion of exercise for dairy cattle is thus expressed:

"By careful observation the calf the first year is the better for being housed, tethered for an hour or two a day in the open air in nice weather, but if the ground is damp or cold never keep it out long enough to lie down. Damp and cold are enemies, as a rule, to the domesticated animals. The dog and cat will select a rug and mat. In extremely hot and dry weather a dog will take to water and damp places, and so will a cow. The second year the young heifer ought to be on a good, clean pasture. The action of thighs in walking helps to develop the udder, and walking itself helps to prevent taking on flesh. The modern dairy cow is extremely artificial, a fact worthy to be remembered; if turned on the buffalo plain she might revert to what she once was."

The leading crops are corn, timothy, clover, rye, barley, oats and peas.

Corn is a soiling crop entirely with Mr. Detrich—either fed directly from the field or preserved as silage. The rye is mostly cut green and made into hay, as are also the barley and peas. All feed is cut into one-fourth inch lengths by means of a feed cutter. This enables the animal to use nearly all the material. The small amount of waste is used as litter and absorbs the liquid manure

In Mr. Detrich's crop rotation, corn usually follows rye. Cattle are fed during the summer and fall from the fresh corn fodder, and as soon as the season closes in November the silos are ready for use. Oats and peas are sown together in very early spring. They are made into hay By early August the oat and pea land is ready to be fitted for and sown to timothy and clover. The next year the land gives three mowings of clover and timothy hay.

How long the land remains in grass depends wholly upon how long the yield is maintained. "I saw a wonderful stand of timothy last June," says Prof. Bailey, "on a three year's seeding, which had given three mowings last year." Barley is usually grown from two sowings, made a week or ten days apart. Early in August, the barley is made into hay.

The preparation for all these crops is exceedly thorough. Over and over again the soil is harrowed, even though loose and friable from continued application of stable manure. The manure is never allowed to accumulate at the barn. It is spread on the land every day as it is made; then the seeding is heavy. The land is rich and can support a very heavy growth. Whether the season is wet or dry the crop is assured if once the seed can be got in; and even on so small a farm as this the effort is made to keep a considerable part in grass and clover to reduce the amount of plowing.

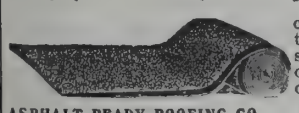
The Testimony of a Connecticut Dairyman.

ED. HOARD'S DAIRYMAN: — Inclosed find one dollar for HOARD'S DAIRYMAN to Jan. 1, 1905. You are doing good work for dairymen and they should appreciate it by reading your paper.

Some years ago I heard you lecture at Hartford in this state, to the Connecticut dairymen, and they were much profited. You talk what you know and write what you think. This often exposes errors and leaves the dairymen to do a better and more profitable business. E. P. S.

Andover, Conn.

ARROW BRAND Asphalt Ready Roofing



can be laid on top of old shingles without tearing off old roof.

ASPHALT READY ROOFING CO., 82 Pine Street, New York — Send for free samples.

PURE BRED SHORTHORNS
CHOICE BULLS FOR SALE.
Also Cows and Heifers bred to Clay Buttercup, 129681, a descendant of the Clay Family, champions at the World's Fair dairy test.
GEO. WENHAM, Fort Atkinson, Wis.

JUST OUT! UNDERHILL SELF ADJUSTING STALL



No Gutters
No Platforms
No Fastenings
No Stables to clean
Cease trying to keep your cows clean. You can't do it. Give them a chance and they will do it themselves. This is the only way and the easy way. Write for circular telling what the cow has discovered to us. It is a great revelation,
Wm. M. UNDERHILL, Oconto, Wis.

BUY DIRECT FROM FACTORY, BEST
MIXED PAINTS
At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.

AYRSHIRE CATTLE of the BEST of BREEDING. Also Chester White Pigs, ready to book for season's trade. Young stock of both sexes. Prices reasonable. Come and see us.
F. TSCHUDY & SONS, Monroe, Wis.

NORTH OAKS FARM, ST. PAUL MINN.
(Jas. J. Hill, Proprietor.)
AYRSHIRE BULLS Of all ages for sale at very low prices. These bulls are from the best Ayrshire herds in the United States and Canada.
Address, *N. E. McKISSICK, Supt.*
Cardigan, Minn.

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President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.
FEES FOR REGISTRY.
TO MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.
NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. All blanks furnished free.
Life Membership, $25.
Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.
Address F. L. HOUGHTON, Brattleboro, Vt., for information relating to Registration of Pedigrees

HOLSTEIN-FRIESIAN BULL CALVES
Do you want one for use this winter which will improve your dairy herd? Do you want him elegantly proportioned, with straight back, high rump, and all the dairy points? Do you want one whose relatives are A. R. O. and eligible to the Advanced Register himself? If so, I have a choice lot, just such as you want.
MALCOLM H. GARDNER, Darien, Wis.

STAR FARM HOLSTEINS
HAVE RECENTLY SOLD
92
HEAD OF REGISTERED HOLSTEINS
WHY
Stock and Prices Right — Satisfaction Guaranteed
HORACE L. BRONSON, Cortland, N. Y.

LOOK HERE
34 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 4 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs. of butter in seven days; average per cent of fat 3.60. 8 two-year-olds average 12.16 lbs. of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows; and sired by Gem Pietertje Hengerveld Paul De Kol, or Sir Ormsby De Kol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days; average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd?
For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis. Residence: National Ave., near 40th. Phone, South 1601.

HOLSTEIN BULLS. We have some grandly bred young bulls ready for service. One of the largest and best advanced registry herds in the United States.
PIERCE LAND & STOCK CO. 14 Turk St. San Francisco, Cal.

BROOKSIDE HERD
HOLSTEIN-FRIESIANS
To reduce herd to capacity of pasture, will sell a limited number of A No. 1 young cows of high breeding and individually right, large producers, at $150 each; also 15 bull calves at bargain prices.
STEVENS BROTHERS, Lacona, N. Y.

TYRANENA HERD
100 HOLSTEIN-FRIESIANS
A. R. O. STOCK FOR SALE.
Both sexes, all ages. Herd headed by Sir Piebe Hengeweld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz. Frank B. Fargo, Lake Mills, Wis.

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Offers 5 yearling bulls cows and heifers bred to oldest son of Mercedes Julip's Pietertje, No. 39480. Chester White Pigs in pairs and trios, not related.
W. R. GATES, Fort Atkinson, Wis.

HOME FARM HERD.
Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams, 25.1 lbs. butter in seven days. Herd numbers 125 head.
BEST FAMILIES REPRESENTED.
Special prices on six or eight bulls of serviceable age. W. B. BARNEY & CO., Hampton, Ia.

ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.
GEO. T. McNEIL, Theresa, N. Y.

FOR SALE H.-F. A. R. O. cows and heifers, bred to Duchess Ormsby Piebe Burke, No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address Rural Route No. 2. W. H. JONES, Watertown, Wis.

THE MONONA FARM HERD
OF HOLSTEIN-FRIESIANS
Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 69.50 lbs. one day. Breeders and dairymen please write for prices.
F. W. ALLIS, Monona Farm. Madison, Wis.

FOR SALE H.-F. BULLS, ready for service, from A. R. O. cows and sired by Sir Johanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 yrs. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis.

VALLEY FARM HERD
HOLSTEIN-FRIESIANS
Headed by Korndyke Queen De Kol's Prince, dam Korndyke Queen De Kol, 24 lbs. 6.7 oz., granddam Belle Korndyke, 25 lbs. 12.3 oz. Both sire and dam by Manor De Kol, his dam Netherland Hengerveld 28 lbs. 10.66 oz., Manor De Kol by a son of De Kol 2d, 26 lbs. 9.21 oz. All are official tests and average 25 lbs. 13.72 oz. butter for 7 days and 3.95 per cent fat in their milk. Two bull calves now for sale and young ones after Sept. 1.
DON J. WOOD, R. F. D. 2, West Winfield, N. Y.

Bulls For Sale.
Two choice bulls ready for service and some fine bull calves from good testing dams. Sire: Paul Clyde, son of Paul DeKol. Dam's record 24.38 lbs. in 7 days. Write C. A. SNOW & SONS, Athens, Ohio.

HOLSTEIN-FRIESIANS INDIVIDUALITY, PERFORMANCE, BREEDING. You need it all. Write or come. 100 head.
McKAY BROS., Buckingham, Ia.

HOLSTEIN-FRIESIANS
FAIRVIEW HERD
We offer bulls ready for service; also heifer and bull calves not related, of the kind to suit the most particular.
O. J. GODFREY, Pennellville, N. Y.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the O. & N. W. Depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25823. Sire: Pietertje Hengeveld Paul De kol No. 22128. Dam: Shadeland DeKol No. 41586 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 ozs. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148. Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 ozs. Average per cent fat 4.92. Correspondence solicited.
WM. EVERSON & SON, Lake Mills, Wis.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

MAPLES STOCK FARM
FULTON, NEW YORK,
Offers for sale Twenty-Five Choice Heifer Calves sired by Beryl Wayne De Kol Paul and Lilith Pauline De Kol's Count. Prices right to quick buyers. State just what you wish. JOHN C. GODFREY, R. F. D. 3. Fulton, New York

SPECIAL BARGAINS IN
Holstein-Friesian Bulls
From a few months to a year old, from official record dams, and with strong official backing on both sides. The sire is half the herd; it is important that you get the right one. We have that kind, and our prices are no higher than others are asking. HENRY STEVENS & SON, Brookside Stock Farm, Lacona, Oswego Co., N. Y.

FOR SALE 2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.
M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

CLOVERDALE HERD
HOLSTEINS.
Four choice Bulls from advanced registry cows and sire, ready for service, now for sale. Correspondence solicited.
A. J. DAUGHERTY, Streator, Ill.

Woodlake Herd.
Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN, Station D., R. 1, Minneapolis, Minn.

MARKHAM MANOR FARM,
Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Solderne Clothilde. No. 15370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for discription and price to J. A. THORNTON, Manager, Simmonsville, Vt.

HOLSTEINS IN CALIFORNIA
SAN ANSELMO, MARIN COUNTY
250 HEAD IN THE HERD
Sires are sons of Mercedes Julip Pietertje, Colantha 4th Belle Korndyke, Fay Barnham Princess Wayne 7th. A fine lot of bull calves
R. M. HOTALING,
Rialto Building San Francisco, Cal.

SOUTH SIDE FARM
WHITE BEAR LAKE MINN.
HOLSTEIN-FRIESIANS—We now offer at attractive prices fine young bulls from high tested A. R. O. cows, and sired by Prince Inka Pietertje De Kol 2nd, who already has to his credit 11 A. R. O. daughters. To make room in our stables we offer a few cows and heifers for sale at low price. Write us for particulars

OAK GROVE HERD Headed by Mechthilde De Kol Pietertje Paul, No. 29648. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

HOLSTEINS
High Class Advanced Registry Stock only. Best butter families. Stock for sale.
Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.



T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.
Wm. O. Jackson & Sons, South Bend, Ind.

JUST BULL CALVES
We have three, that are individually fine. They are bred right, have been fed right, and the price is right.
Ohio's Famous Herd, Holstein-Friesian Cattle. W. B. SMITH & SON.
2488 W Broad St, Columbus, O.

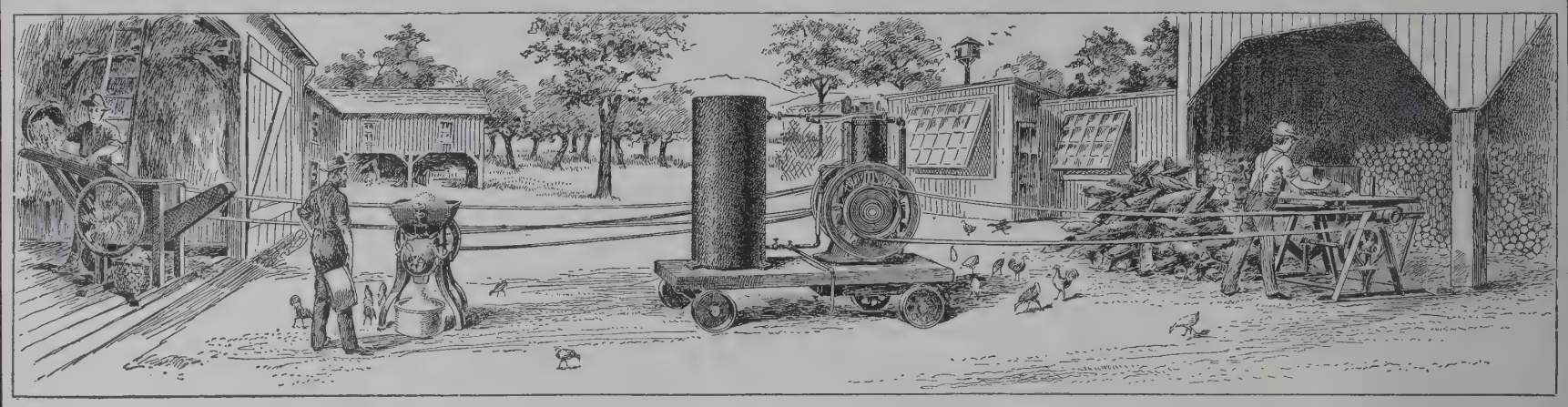
HOLSTEIN-FRIESIAN BULL CALVES
Of advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address
JOHN SHUGART & SONS, Marion, Ind.

FERMANAGH HERD
HOLSTEIN-FRIESIANS
Bulls ready for service from A. R. O. animals sired by Johanna Rue 2d Paul De Kol, sire of 13 A. R. O. cows. Also young bull calves by same sire. THOS. GAINES, Supt., Arcadia, Missouri

FINE POULTRY FOR SALE
I offer a very select lot of White as well as Buff Plymouth Rock Fowls of the present year's breeding for sale. Each breed have been kept on separate farms and are absolutely pure in their breeding. They will be sold at
$5.00 A TRIO
Nicely crated on board of cars here.
Single Fowls, $2.00 Each
They have had the range of alfalfa fields the past summer and are very vigorous.
A. R. HOARD, Fort Atkinson, Wis.

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Make the Best Horizontal and Vertical Gasoline Engines for all Farm Work. Write for Catalogue No. 360.

BRANCHES. Albany; Buffalo; Hartford; New Orleans; Baltimore; Philadelphia; Pittsburg; Boston; Montreal, Que.; Vancouver, B. C.; Winnepeg, Man.; Toronto, Ont.; London, Eng.

Mr. Wheaton's Canadian Dairy Notes.

Meeting of Government Dairy Experts—Papers Discussed.

ED. HOARD'S DAIRYMAN:—The second annual Conference of Canadian Dairy Experts took place at Ottawa last week. There were present the leading dairy instructors and investigators from all parts of the Dominion. They were present at the invitation of Mr. J. A. Ruddick, Chief of the Dairy Division, who presided at the conference. The conference was called to discuss the progress of the dairy industry during the past year, and to map out for the future a program of uniform instruction suitable for the whole of Canada.

It will be impossible in a brief article to give more than a short resumé of what took place at a three-day's conference devoted exclusively to addresses and discussions.

Mr. G. C. Creelman, Supt. of Farmers' Institutes, responded to the words of welcome by Mr. Ruddick. He emphasized the need of greater attention to the farmers' side of the business. Makers and factory owners should so aim to conduct themselves and their factories as to be object lessons for the farmers around them.

How best to secure the co-operation of dairy farmers was the topic of a well thought out address by Prof. Dean There must be something more than self interest to induce men to co-operate. To get farmers and manufacturers to work together to the best advantage, he pointed out that: (1) Manufacturers would have to win the confidence of the farmers by honesty and fair dealing. (2) They should take an interest in the farmer and his work, test his cows and offer him advice and suggestion. (3) They should put men on weigh stand who are polite, accurate in taking weights and samples and capable of winning the confidence of the farmers. (4) They should not always send back milk that was not right, but should endeavor to see the patron who was sending bad milk and convince him of the error of his way. (5) They should pay checks promptly. (6) They might also send a monthly letter to patrons giving seasonable hints regarding the care of milk, feeding of cows, etc., and ask their co-operation in making the best class of goods. (7) In a season of low prices, the manufacturer might make cheese or butter at a lower rate and so bear a part of the loss. (8) The manufacturers might offer prizes to the patrons sending the largest amount of milk or fat.

The growth of the industry this year was well put by Mr. R. M. Ballantyne of Montreal, when he stated that by the end of the season, the export trade in cheese and butter would have to its credit $6,000,000 in excess of any previous season. The high prices of the present season have been largely due to the favorable weather conditions.

The lesson to be learned was that in the future we must not allow hot seasons to injure the trade. Cool curing must be provided for in some way, either at the factory or in the storage of the exporter. Cheese should not be shipped too green. There had been marked improvement in the making of cheese during the past three years, especially in Eastern Ontario. Quebec was improving slowly, and the general run of cheese from that province still sold for ½ cent lower than at the leading Ontario markets. The legislation proposed in Quebec to prevent the granting of licenses to makers, unless they had certificates from a board of examiners, would, Mr. Ballantine thought, effect a much needed reform.

Referring to the government arrangements for refrigerator car service and the provision for inspection of cars at starting points and on arrival at Montreal, Mr. Ruddick stated that there had been complaints of mould on Canadian butter. While a great deal of this was due to the use of bad parchment paper, much was due to lack of care and cleanliness. Refrigerator chambers and cool curing rooms should be disinfected every spring with a solution, such as bi-chloride of mercury, in proportion of 1 to 1,000. Parchment paper should be soaked for 24 hours in a solution of brine made with boiling water, with about 3 ounces of formalin to a gallon of water.

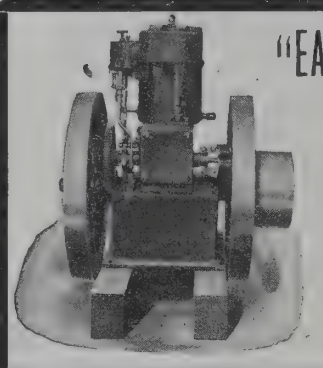
Mr. A. W. Woodward, official referee at Montreal, speaking of the common defects of butter and cheese for 1903, stated that those of cheese were due to bad flavors and bad manufacture, the patrons being usually responsible for the former and the makers for the latter. Off-flavored cheese showing deterioration are quite common. Rancid flavor is also becoming common. Acidy cheese was quite frequent, while quite a large proportion were weak in body, soft and pasty. Open cheese were common, and a great deal of poorly finished cheese was shipped. There had been little difficulty with the make of butter received at Montreal, but there had been a great deal of trouble with flavors.

Mr. E. Bourbeau, Chief Instructor for Quebec, introduced the subject of instructing farmers in milk testing. This lead up to a discussion as to the best way to induce patrons to adopt the system of paying for milk by the Babcock test. The general opinion prevailed that the lack of confidence of farmers in the test was largely due to the inabiliiy or neglect of makers to conduct the test properly.

Speaking of the aeration and cooling of milk, Prof. Dean said, that unless the aerating was done in pure air the practice was of very doubtful utility. The

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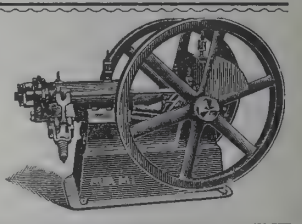
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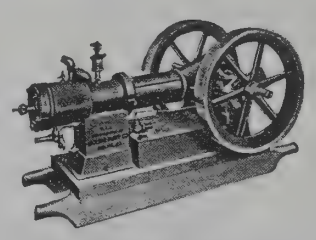
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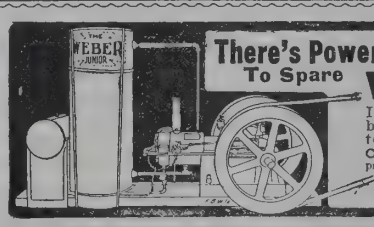
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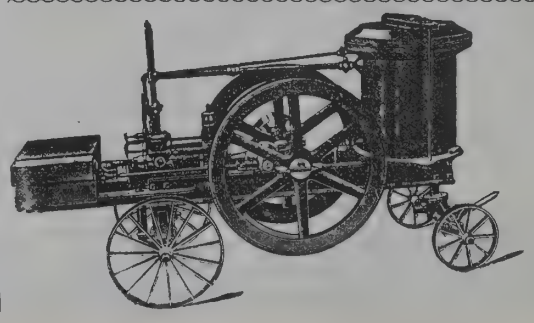


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proper cooling of milk was important. The farmer should aim to cool his milk. A better test could be gotten if milk were properly cooled and stirred to prevent the cream rising.

Dr. Connell, of Kingston, in an address on "Sanitation at Factories," said that 60 per cent of the factories in Eastern Ontario were in an unsanitary condition. Faulty drainage, improper construction of factories, particularly in the flooring, bad water and bad whey tanks were the chief faults,

Prof. Gamble, assistant chemist, and Prof. Harrison, bacteriologist at the Ontario Agricultural College, outlined the results of the experiments along dairy lines, conducted at the college during 1903. The former claimed that the alkaline solution will indicate the acidity of milk, cream or whey, and the latter that openness in cheese was often produced by bacteria found in manure and unclean stables.

The question of pasteurization in Canadian creameries brought out a warm discussion. J. F. Filley, Dairy Supt. for New Brunswick, was decidedly opposed to pasteurization and advocated proper feeding of cows, cleanliness in caring for the milk at all stages, and proper methods of manufacture at the creameries. These, he thought, would obviate the necessity for pasteurization, which was difficult to carry out satisfactorily, and was always liable to produce a cooked flavor, which is strongly objected to in the British markets.

Mr Leclair, Quebec; J. A. McTeeters, Guelph; A. W. Woodward, G. H. Barr and Professors Dean and Harrison favored pasteurization so long as we had not ideal conditions for butter making. It helped fresh butter to keep longer and tended to uniformity of product.

After an address by Mr. Ruddick on the cool curing of cheese the conference proceeded to deal with a number of resolutions that had been presented.

The resolutions adopted recommended:

1. The advisability of quoting the price of cheese and butter in fractions of tenths of a cent rather than in halves, quarters, etc., as at present.
2. That there be three grades in the classification of butter and cheese.
3. That makers should be compelled to pass an examination and secure a certificate entitling them to make tests, and that steps should be taken to acquaint patrons with the methods and advantages of testing milk with a view to adopting the Babcock test.
4. That butter and cheese be made in factories that have taken out a license, to be granted only to such factories as are in a proper sanitary condition.
5. That instructors should inspect factory buildings, milk, cream, etc., and assist makers in improving the quality of their products.
6. That the syndicate system of instruction should be extended to all parts of the Dominion as soon as possible, or as fast as competent men can be secured to act as instructors.
7. That factory men be urged to improve their curing rooms or provide some other means of curing their cheese at a cool temperature.
8. That the sciences of bacteriology and chemistry in relation to the dairy should receive more attention by dairymen.

It is reported that Prof. Robertson, who has been recruiting his health at the Isle of Wight since last spring, will return to Canada early in December. He is said to have fully recovered from the nervous trouble which overtook him.

Toronto. J. W. WHEATON.

Beginning the Retail Milk Business.

ED. HOARD'S DAIRYMAN:—In your issue of October 30, a subscriber who is a beginner in the retail milk business wants to know the best methods to be pursued in establishing a milk route Have been in the retail milk business for ten years, and have in that length of time increased my trade from $700 in 1893 to $1,450 in 1903, and in a town of less than one thousand inhabitants.

When you do not buy anyone out, but start the route yourself, it is best to make a canvass of your town; get some customers on every street, and then in traveling the route every day customers will come to you.

There are some rules which must be strictly ahhered to if success crowns your endeavors:

1. You must furnish clean and pure milk, You should be so careful in milking that no sediment will settle in the bottom of a pitcher or tumbler. This is avoided by first brushing your cow's udders and flanks and then wiping them with a dampened cloth or sponge. Arrange your pails with two thicknesses of cheese cloth and absorbent cotton between them, after the manner of H. B. Gurler. This keeps the dust from the air out of the milk.
2. You must furnish good, rich milk that will test not less than four per cent butter fat, and this you must furnish every day. The writer furnishes milk which tests 5 per cent butter fat, and so nicely handled that no town cow, with their careless owners, can compete with him. Result: Less than half the cows in town to-day that there were ten years ago.

A few other suggestions might be pertinent to a beginner: Keep your stables clean and sprinkled with lime. Keep your cows sleek and clean. Invite your customers out to inspect your dairy. Let them know that you keep your dairy in an up-to-date manner. Cool your milk as soon as drawn, so as to give it a good flavor, and nine times out of ten they will qnit the other fellow and come to you.

The writer had milk which was handled as above, keep sweet for 17 days. Some ignoramuses, who never saw a copy of HOARD'S DAIRYMAN, but knew nothing but filth and dirt in dairying, claimed that milk would not keep so long unless it had been doctored by chemicals. But strange to say the pure food inspector was in our county and arrested two or three retail dairymen, and while here visited our little town and made no arrests.

Have rented a dairy farm in a town of five thousand inhabitants, and will start another retail dairy. Have now forty-two head of Jerseys, on ninety-six acres of land, and must either start another dairy or sell some cows. The latter I do not wish to do so long as I read HOARD'S DAIRYMAN, and learn how to handle them. In this dairy, I shall have the board of health visit my stables and see that everything is kept in a sanitary condition.

Now, in conclusion, let me say to my friend: Read HOARD'S DAIRYMAN. After you have once read it, then re-read it, After you have re-read it, then read it over again, so you will be sure and remember all the essential points, and you are on the high road to success, and your neighbors will speak well of you when you die, if not before. J. A. S.

New Vienna, Ohio.

Value of Cows Fixed by Capacity.

ED. HOARD'S DAIRYMAN:—The scale of prices found by Prof. Wheaton, page 844, looks interesting. Of course everyone will recognize that the value of a cow should rise as the net income of her product rises above cost of maintenance and insurance, checked by a fair balance to sinking fund.

Has Prof. Wheaton given in his rates of rise in value per capacity, any attention to this element of risk? This particular kind of cow that comes to be worth anywhere up to ten times as much as her commonplace sister, may be more liable to disorder because she has a high pressure life work to perform and must neccessarily be fed more and better, to produce up to her capacity.

We have had some experience in developing some figures in this line from results of careful feeding where amount and cost of feed was accurately kept. After a three years' trial, one cow was found to have cleared a net profit of $69. Her best year's record was approximately 7,000 pounds of milk and 400 pounds of butter. Now, according to Prof. Whea-



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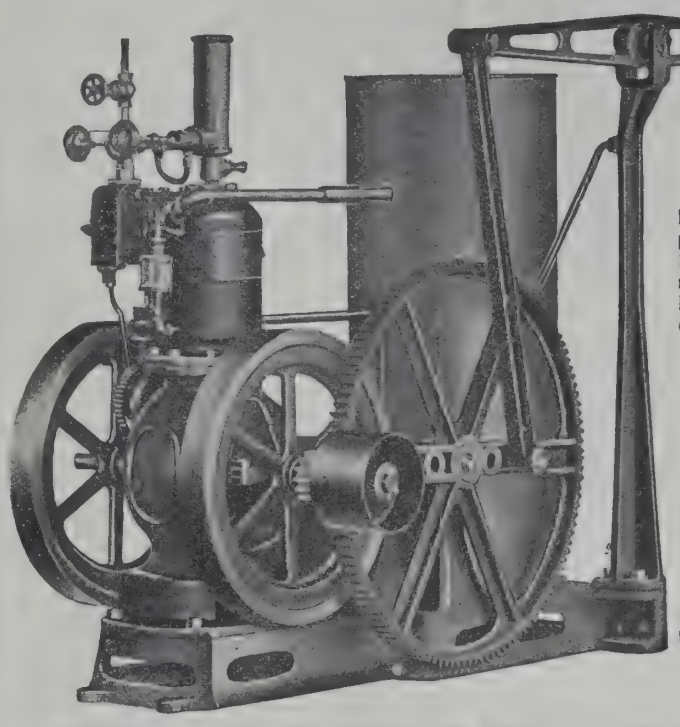
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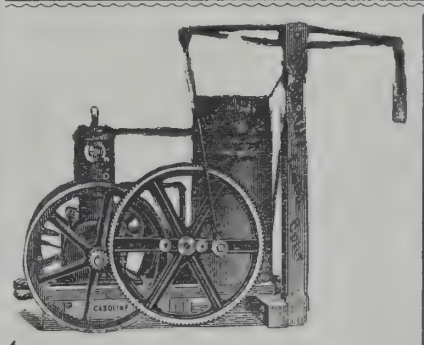
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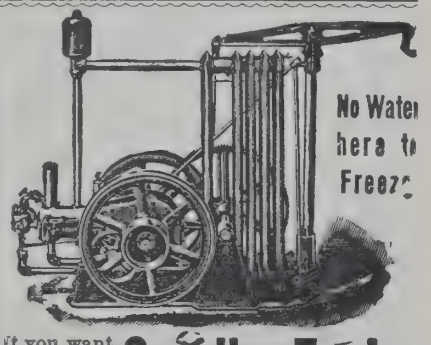


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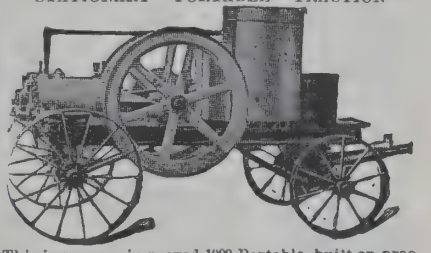
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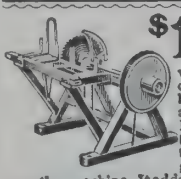
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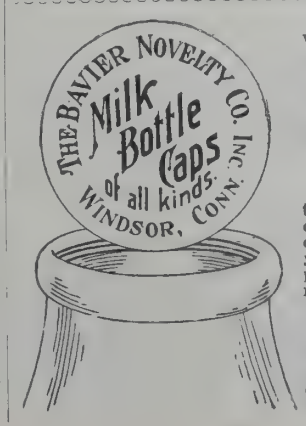
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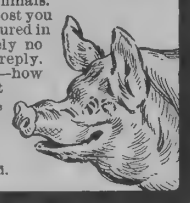
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ton's result, this cow should have been worth $50. Query. What value should have been placed on this cow?

We should like to see the reasoning which leads up to the values by capacity and to know whether they are raised by the possibilities of posterity or lowered by cost of insurance.

Maine. F. E. E.

Paying Patrons of Cheese Factory.

ED. HOARD'S DAIRYMAN:—In your issue of the DAIRYMAN of Oct. 30, 1903, my attention was called to an article of A. W. S.'s, in which the plan of paying the patrons by the "butter fat" was set forth. I was requested to write the plan of this, The Prairie City, Mo., Cheese Co., paying it patrons, one that has been in use for over 18 months, and which has given general satisfaction

The directors have adopted the Babcock milk test, and were then at a loss to know how to pay by it. I was called upon and prepared the following plan, which they adopted and now use.

PATRONS.	Butter fat.	Lbs. milk furnished. Cheese per 100 lbs. milk.	Amount of cheese. Price per lb. cheese.	Dividend.
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C. Smith.....	3.0	2500× 9.2	230.0×10	23.00
J. B. Durand..	3.2	4058× 9.5	385.5×10	38 55
A. D. Hyde....	4.0	3021×10.8	326.3×10	32.63
C. Hirni.....	3.8	1824×10.5	191.5×10	19 15
J. Yass.....	3.7	9670×10.3	996.0×10	99.60
Total.....	.....	.....	2528.3	$252 83

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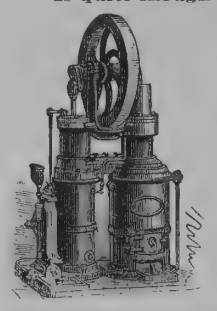


A GEORGIA CORNFIELD.

The accompanying cut was made frem a photograph of a Georgia cornfield. Not all the cornfields there make such crops, but this shows what a Georgia farmer can do when he tries. According to the census, the average value of the farm products per acre of improved land for 1900 was $8.68 in Georgia, $8.89 in Iowa, $9.35 in Indiana, $9.52 in Illinois, and $9.29 in Michigan. While the value of crops per acre was not very different there was a great difference in the cost of the farm. In Georgia the average farm has 117 acres valued at $1,016; in Illinois 124 acres valued at $7,588; in Indiana 97 acres at $4,410; in Iowa 151 acres at $8,023; in Michigan 86 acres at $3,396. The Georgia farm cost from a fourth to an eighth of the cost of a western farm, and produced approximately as much per acre. Why are Georgia lands so cheap? Because, until recently, the tide of immigration was westward and not southward. Iowa and Illinois, each with less land than Georgia, has nearly three times as much under cultivation. The same is true, in varying degree, of other western states. Georgia has not filled up and her lands are cheap. But the tide is turning, and before many years have passed, Georgia lands will be occupied and prices there will be as high as they are in the west. Georgia has a delightful climate, and conditions are very favorable for the farmer. For a moderate sum you can buy a farm which will produce good crops. If interested, write for booklet M, Greater Georgia Association, Atlanta, Georgia.

HALF ENOUGH WATER

Is quite enough for some people, but most people want water every day. If

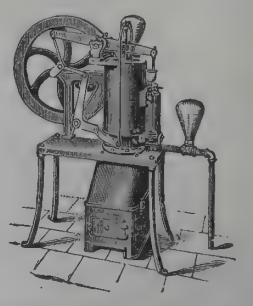


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Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.

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40 N. 7th St., PHILADELPHIA
Teniente Rey, 71 HAVANA
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COLONIAL (Flaked) **LIBERTY** (Granulated)

Butter Salts

ARE

"Money Makers for Butter Makers"

The barrel that holds 320 lbs. of the other man's salt will hold but 225 lbs. of **COLONIAL.** Colonial Butter Salt is by far the driest and lightest weight butter salt in the world. Made on purpose to make butter good and to make butter makers money.

Perfect in flavor
Perfect white in color
Purity over 99 per cent, highest known

Don't take our word for what our butter salts will do for **you,** but put it to the severest test **at our expense.** All operators of creameries and cheese factories (only), send us your name and address on a post card and we will send you absolutely free of all charge a 56-lb. sack of either or both Colonial and Liberty Butter Salts. All we ask in return is that you write us of your experience—after trial. There is no reason that we know of why you **shouldn't** give our salt a trial on these terms. If you are prejudiced in favor of some other brand, it is all the more reason why we want you to test our claims. We expect to get you "prejudiced" in our favor after thorough trial, and that means a permanent customer for **us.**

Creameries and cheese factories, please favor us with your request for free sample sacks.

COLONIAL SALT COMPANY,
Akron, Ohio

Chicago Office:
84 Adams Street.

DON'T you need a good reliable scale of some kind? Say the word and **Osgood's Silent Traveler** will appear at your door. The most beautifully illustrated scale book ever produced—shows all kinds. Our booklet "Hints for Scale Buyers" also **Free.** Give us a nod on a postal. State your business and what you need a scale for.





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$45 TOLMAN RANGES $23.75

Great Foundry Sale

with reservoir and high closet. We ship range for examination without a cent in advance. If you like it pay $23.75 and freight and take range for

30 Days FREE Trial.

If not satisfactory we agree to **refund your money.** Tolman Ranges are made of best wrought steel. Oven 17½ x 21 in. Six 8 in. holes. Best bakers and roasters on earth. Burn anything. Asbestos lined flues. ***Guaranteed 5 years.*** Will save their cost in fuel in **One Year.** Write today for our new Catalogue.



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Dept. W-37 66 Lake Street, Chicago

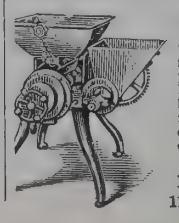
The MILWAUKEE Weekly Bulletin



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secured by type of engine, four cycle, simple design, good workmanship; oldest engine, but one, in these columns. No freaky designs, but few parts and those accessible. Portable and stationary, all sizes. Built by

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EXCEL GRINDING MILLS.

The Mill that excels them all. Best for the farmer. Grinds 5 to 2 bushels per hour of ear corn or grain of any kind, bone, shell, etc., with from 1 to 8 horse-power. Makes best feed and good meal. Furnished with or without crusher. We have larger mills for every purpose. Write for Catalogue E.

We pay the freight.

Excel Manufacturing Co.,
118 Liberty Street, New York



The Pedestal of Fame.

We are not great statesmen, inventors or conquering heroes, but we may lay modest claim to being benefactors to humanity. For a long term of years we have been making

KENDALL'S SPAVIN CURE

and supplying it to suffering horsemen all over the country. It has been found to be the only perfectly reliable remedy for Spavin, Ringbone, Curb, Splint and all forms of Lameness. It is undoubtedly the best known and most largely used veterinary remedy in the world. Thousands of people write us such letters as this about it.

Stands at the Head. Used 25 Years.

Worcester, Mass., Nov. 17, 1902.

Dr. B. J. Kendall Co.,

Gentlemen:—Will you kindly send me one of your books entitled "A Treatise on the Horse and his Diseases." My experience teaches me that Kendall's Spavin Cure as a liniment for man or beast **stands at the head. I have used and seen it used successfully all of twenty-five years.**

Very truly yours,
G. W. McHENRY.

For sale by all druggists. **Price, $1; six for $5.** As a liniment for family use it has no equal. Ask your druggist for **KENDALL'S SPAVIN CURE,** also **"A Treatise on the Horse,"** the book free, or address

DR. B. J. KENDALL CO., Enosburg Falls, Vt.

Spavin and Ring-bone

Once hard to cure—easy now. A 45-minute treatment does it. No other method so easy, quick and painless. No other method sure.

Fleming's
Spavin and Ringbone Paste

cures even the very worst cases—none too old or bad. Money back if it ever fails. Lots of information if you write. Book about Spavin, Ringbone, Curb, Splint, Bog Spavin and other horse troubles sent free.

FLEMING BROS., Chemists,
228 Union Stock Yards, - Chicago, Ill.

HOOD FARM
Abortion Treatment

Hood Farm Abortion Cure is proving the most successful remedy for this very prevalent trouble that we have yet seen.

After Abortion cows should be injected with Hood Farm Antiseptic Breeding Powder, which thoroughly disinfects, kills all germs and **makes cows breed.** Also successful where cows fail to clean and where they do not come in season regularly.

Hood Farm Abortion Cure, dollar size, prepaid to any railroad express point in the U. S., $1.25; $2.50 size, containing four times this quantity, $2.75.

Dollar size Breeding Powder, by mail $1.15; $2.50 size prepaid for $2.75.

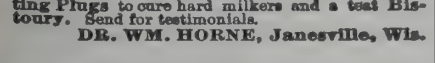
Hood Farm Flexible Injection Tube, for administering the Powder, 75 cents; by mail, 90 cents. Address

C. I. HOOD CO., Lowell, Mass.

Mention this paper in ordering.

ABORTION,

Failing to Breed and bring Cows to Heat. Sure Cure. In use 20 Years.



(Patent Applied For.)

Hard Rubber Safety Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.

DR. WM. HORNE, Janesville, Wis.



ABORTION

Can be successfully treated with **Anti-Abortion Serum.** Easily administered and permanently cures. Information free

DR. ROBERTS
VETERINARY REMEDY CO.,
547 Grand Ave., Waukesha, Wis.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Swelling in Quarter.

A 5-year-old cow had some kind of a swelling in the left hind quarter of her udder. Has been that way for about 6 weeks, about once a week off and on. M. C. D.

Humboldt, Neb.

ANLWER.

Give the cow 2 drams of iodide of potash in her drinking water, at least one hour before feeding, morning and night. Rub the quarter with the following: Dilute alcohol 12 oz., Tr. of iodine 2 oz. and oil of turpentine ½ oz. Apply after each milking to the parts affected.

Tuberculosis.

Can you give a description of symptoms that would enable a layman to determine whether his cattle were infected with tuberculosis?

Vashon, Wash. L. B. A.

ANSWER.

The only visible symptoms of this disease to be noticed by a layman are: general unthriftiness; in some cases, a deep, hollow cough, a staring coat, and sometimes enlargements may appear in any part of the body, particularly the glands; the above would indicate a chronic case. To detect the disease in its earlier stages, it is necessary to apply the tuberculin test. This should be done by an experienced veterinarian.

Lymphangitis.

Have a mare that has had a swollen hind leg for three years. It gets better at times, and then swells again. J, E. S.

New Vienna, Ohio.

ANSWER.

This trouble is commonly known as chronic big leg. It will partially disappear when the animal is worked, but only to return when rested. You may expect the leg to become inflamed at any time when the animal has been rested and well fed, and each such attack will increase the enlargement. Never feed full rations, when the animal is at leisure in the barn; if possible let her run in a paddock during such periods of idleness. Big legs of long standing cannot be cured, but you may avoid subsequent attacks.

Trocar and Cannula for Bloating—Ice-Cream.

You say that every dairyman should supply himself with a trocar and cannula. Can you tell me where they can be gotten, together with full instructions how to use the same, also the price of the same? Is there any book on the treatment and handling of cream for manufacturing of ice cream? If so, where can it be had and at what price? J. T, E. T.

Summerville, S. C.

ANSWER.

The trocar and cannula is handled by almost any hardware dealer and sometimes by druggists. If your dealers do not keep them on hand, they can get them on short notice. Insert the instrument in the left side at the most prominent portion of the bloat, which is midway between the point of the hip, the last rib and the transverse process of the lumbar vertebrae.

It is best to cut through the skin with a sharp knife before inserting the trocar, which is to be directed downward, inward and forward.

We have no personal knowledge of books on this subject, but would recommend writing to the Confectioner and Bakers' Supply Co. of Chicago, Ill., who are dealers and manufacturers in ice cream supplies, and will probably be able to recommend a practical book on the subject.

Horse Owners! Use
GOMBAULT'S
Caustic Balsam

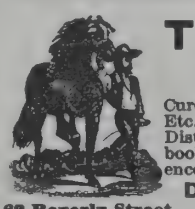


A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from **Horses and Cattle, SUPERSEDES ALL CAUTERY OR FIRING.** *Impossible to produce scar or blemish*

Every bottle sold is warranted to give satisfaction Price **$1.50** per bottle. Sold by druggists, or sent by express, **charges paid,** with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland, O.



TUTTLE'S ELIXIR

Cures Curbs, Splints, Spavins, Etc. Equally good for Colic, Distemper, Etc. Our 100-page book, "Veterinary Experience", **FREE.**

DR. S. A. TUTTLE,
63 Beverly Street. Boston, Mass.

"SAVE-THE-HORSE"
Registered Trade Mark
SPAVIN CURE



To The Troy Chemical Co
Troy N Y.
Dear Sirs Please send me one more bottle of "Save the horse" It is doing great work.
Respectfully
Millard F. Sanders
7 Irving Park Glenville Ohio

September 7, at the Fasig-Tipton sale at Sheepshead Bay, a yearling by Esher-Excellensa was being sold by Mr. William Easton, and when the animal was led into the ring he said—"This horse has been suffering from a bog spavin, of which practically no trace remains. He was treated with that remedy called 'Save-the-Horse,' which all of you know, and it did save the horse; that is, it cured him. Now, you know lots of great horses, Morello and others, were successfully raced, and there is no reason to expect that this colt will ever take a lame step." The bidding opened then at $250, and the colt was sold for $800 to Mr. J. D. Smith.

"Private Stables Jas. Galway, Race Track, Saratoga, N. Y.

I got a bottle of "Save-the-Horse" first of Moseman & Bro. of New York and used same on ringbone, curing it entirely. I next used 'Save-the-Horse' on two splints and cured them. Have also used it on a strained Pastern Joint, which made horse very lame; it cured this also. I predict a great output of 'Save-the-Horse.' It has never failed to cure any case I used it on." EDWARD FEAKS, Trainer for Jas. Galway, of 312 West 56th St., New York, the millionaire owner of Meltonian and many other noted horses.

Cured horses are absolute certainties as to the possibility of the remedy for your own case. Such results as above by men whose reliability can be readily ascertained, have carried "SAVE-THE-HORSE" over skepticism, prejudice and uncertainty. Send for booklet and copy of written guarantee, which is as binding to protect you as the best legal talent could make it. No man need see his horse suffer and become incapacitated.

"SAVE-THE-HORSE" Positively and Permanently Cures BONE and BOG SPAVIN, THOROUGHPIN, RINGBONE, (except low ringbone,) CURB, SPLINT, CAPPED HOCK, WINDPUFF, SHOE BOIL, WEAK and SPRAINED TENDONS and ALL LAMENESS. Cures without scar, blemish or loss of hair. Contains no mercury or poisonous substances. Can apply in all conditions and extremes of weather. Horses may be worked as usual.

$5.00 per bottle. Written guarantee with every bottle given under seal and signature, constructed solely to satisfy and protect you fully. Need of second bottle improbable, except in rarest cases.

$5.00 per bottle at all druggists' and dealers', or sent express prepaid.

TROY CHEMICAL CO., TROY, N.Y. Also manufacturers of **Veterinary Pixine.**

CURE "THE" COW
—NO CURE, NO PAY.—



WRITE, giving symptoms of animal sick, and will ship you by express quantity sufficient to cure your cow with full directions for use. If I do not cure the animal the advice and Cure "the" Cow costs you nothing except the express charges. If I do cure it you can send Postal order for cost of the remedy—$2.00 per puart, $3.50 per half gallon, $6.00 per gallon and pay for what you use. Generally half a gallon cures the worst cases. Give Postoffice and Express office with your order. Address

DR. EATON J. CROSS,
152 Congress St., Troy, N. Y

BLACKLEG



VACCINATE your cattle with **Blacklegoids**—the simplest, safest, surest preventive of Blackleg. Each *Blacklegoid* (or pill) is a dose. Administration with our Blacklegoid Injector is performed in one minute. We establish the purity and activity of our **Blacklegoids** by rigid tests upon animals. For sale by druggists. Write us for literature—free on request.

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BARREN COWS CURED.
Write for Pamphlet and Testimonials.
Oldest and best Treatment Extant.
MOORE BROS., V. S., Albany, N. Y.



Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.

Used Exclusively at Model Dairy

Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ⅓ lb 50c, 1⅓ lb $1.00, postpaid.

O. H. MFG. CO.,
Dept. H, Lyndon, Vt.

DR. GEORGE HOLLABUSH'S
Sure Cure for Abortion



and General Tonic for Cows. The only genuine sure cure and general tonic for cows on the market. I guarantee, and refund money if not satisfactory.

Dr. Geo. Hollabush, Ft. Atkinson, Wis.
Write for circular.

NOW Is the time to Subscribe for **HOARD'S DAIRYMAN.**

Silage.

Its Special Value for the Dairyman.

[C. P. GOODRICH before Wisconsin Farmers' Institute.]

Silage has a greater feeding value than the same forage would have if cured by drying in the field, because it is more digestible. There is more to be gained by siloing corn than by siloing crops that have finer stems that can be more quickly dried. There is usually great loss in field curing the fodder part of corn. It takes so much time that much of the leaves and finer parts becomes weather beaten by rain and wind, and is wasted; and also much of the leaves is frequently, when very dry, crumbled up and lost by handling. In drying, the thick stalks become woody and indigestible and are not eaten by stock. The ears of corn, if well matured before frost, cure well in the field, but even these are better if put in the silo at the right stage, because they remain soft and are more easily masticated and better digested than if dried. Of the fodder part of the corn, one-half of it is usually lost and wasted in the curing and feeding. It takes less labor to make silage of a corn crop than it does to prepare it for feeding in any other way.

Stock do better if they have some dry feed and some succulent feed. From what I have said it will be seen that corn is the best crop of which to make silage, while hay of some kind should be used for the dry fodder.

Corn silage is very palatable. All kinds of stock eat it greedily and prefer it to almost anything else. They eat it all up and do not leave even the thick butts of the stalks.

Silage is especially valuable to the dairyman who is carrying on winter dairying, increasing the flow of milk much over what can be obtained by dry feed alone. Fattening cattle make more rapid gains when a part of their ration is silage. Young cattle and sheep are better and more cheaply fed, when a part of their winter feed is silage. Some men have fed it to horses and report good results.

Silage is not only good winter feed, but there is nothing better to feed dairy cows to help out the pasture in times of drouth and short feed. In fact, silage is so palatable, and cows like it so well, that they will eat some of it with great relish when they have good pasture. There are many dairymen who feed silage as a part of the daily ration every day in the year, and they are some of the most successful dairymen in the country.

Silage seems to be a sort of appetizer. It is not only easily digested, but it appears to aid in the digestion of other foods fed in connection with it, Animals consume more food when part of the daily ration is silage and therefore make faster gains if beef animals, and give more milk if dairy cows.

No better milk is produced in the country than that of many herds that are fed silage every day in the year. H. B. Gurler, of Illinois, who milks 200 or more cows, and many other dairymen who produce certified milk, every quart of which is sold for twelve cents, feed their cows silage every day as part of their ration. Many of the best dairymen in the country, who are making dairying the most profitable, do not pasture at all, but feed silage in connection with other feeds, the year round.

There are many men who denounce silage and say it is not fit for cows to eat, and claim that it injures the cows and injures the milk and other dairy products. But they are men who know nothing about it; they have never had a good silo or if they have had a good one, have never had good silage because of not putting in the forage in a proper manner or in proper condition. It is true that rotten or damaged silage is not fit for cows to eat, and will injuriously affect the flavor of the milk. The same is true of any moldy, musty, or damaged feed if given to cows.

A silo may be filled quickly or slowly, as circumstances permit, with equally good results. It may be filled in one day and be all right. In that case, the silage will settle a great deal in a few days, and if the silo is to be anywhere near full, more must be put in, filling it to the top. If the silo is filled slowly, taking several days to complete the job, it will settle as the work progresses and be all right, provided that there is not a stop in the filling of more than one or two days at a time. If there is, the silage will begin to mold on top, and that injures it.

The kind of corn to raise for silage is that which will produce the greatest amount and value of food per acre, taking both ears and fodder, that will be reasonably sure to sufficiently mature in the locality where it is raised,

The stage of maturity at which it is best to put in the silo is when the corn contains the most feeding value, taking the whole plant, stalks and leaves, and ears. At that time the corn is begining to glaze if it is flint corn, or dent, if it is dent corn; the lower leaves are begining to turn yellow or white and on some of the earliest ears the husks are turning white. If the corn is more immature than this the silage will be quite sour, will lack the nutriment it would have at a later stage and not be as valuable feed. If the corn is too ripe and dry it will not heat up hot, will mold and be damaged, In case the filling can not be done until the corn is too ripe and dry, this can be remedied to a great extent by having it so arranged that water can be sprayed onto it as it goes up the carrier when filling the silo, enough to supply the needed moisture.

Various ways have been tried of covering the silage after the silo was filled to prevent the spoiling of the silage on top, but it has been found that nothing is better or less expensive than to put on water enough to thoroughly wet the top of the silage and have enough so that it runs down between the silage and the sides of the silo. Many avoid all loss from damage on top by beginning to feed immediately after filling, thus giving it no time to damage. The feeding should always be done from the top, taking about two inches from the entire top each day. If the feeding is done too slowly and part of the surface is left exposed to the air for two or three or more days then the stock will have partially damaged silage all the time.

The feeding of silage materially reduces the cost of producing dairy products, because fewer acres of land are required to keep a given number of cows, less work and expense is needed to prepare the corn for feeding, and, last, but by no means least, cows can be made to produce much more during the year by having them fresh in the fall and feeding silage in winter.

J. A. M.'s Octagon Silo.

ED. HOARD'S DAIRYMAN:—Regarding J. A. M.'s octagon silo, which he claims can be built for $25, the construction seems to be easy enough, but I fail to see how it can be put up for anything less than $75 or even $100. For the dimensions mentioned it would require at the very least 1,800 sq. feet of lumber which, if dressed one side, will cost from $30 to $40 per thousand; say $75 to $80 for lumber alone, besides the 2×7 joists, cement, nails, etc.

I should be glad to hear from J. A. M. with further particulars. Perhaps the DAIRYMAN'S type setters are responsible for this low figure,

The stave or tub silo is cheap and gives satisfactory results. S. GILLES.

Ahuntsic, Canada.

The question of cost of lumber is for J. A. M. to settle. The DAIRYMAN'S type setters have followed copy and made no mistakes. ED.

Made for the Man Who Wants the Best.

The Great Western Manure Spreader

Endless Apron



spreads all kinds of manure, fresh, well rotted, fine, coarse, hard, mixed, full of straw, full of corn stalks, etc.

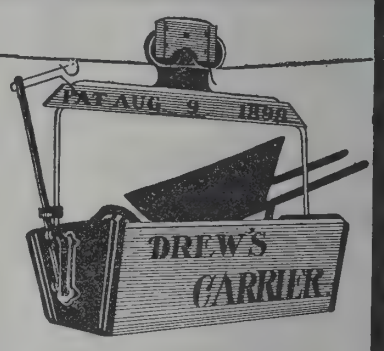
Spreads as much manure in one day as twelve men can load and spread by hand and the job is much better when done. Spreads the largest load a team can haul in 2 to 4 minutes. Makes manure go three times as far and at the same time produce better results.

REGULATED to spread much or little while in motion. Puts it on thick on poor spots—3 to 25 loads per acre. **ENDLESS APRON**—always ready to load. No turning back into position with crank.

COMBINED HOOD AND ENDGATE keeps manure away from beater while loading and acts as hood in spreading. Catches all flying sticks, stones, etc. Front wheels cut under, and machine can be turned in its own length. Capacity 30 to 70 bushels. It saves **time, labor and money** and will double the crop. Makes all manure so fine and spreads it so evenly that it is immediately available for plant food. **SEND FOR FREE CATALOGUE** giving illustrations and full descriptions. Tells also how to apply manure to secure best results; **FAT STOCK SHOW,** call at 25 Exchange Ave., Stock Yards, or at our office, and see the or if you come to the spreader. We keep a spreader at both places permanently.

SMITH MANURE SPREADER CO., 16-18 S. CLINTON STREET, CHICAGO, ILL.

GOODBYE, WHEELBARROW



Every farmer who gets a Drew Elevated Carrier has no more use for the barnyard wheelbarrow. The

DREW ELEVATED CARRIER

will carry the manure from the stables to any point in the barnyard, drop it, return automatically, ready for another load.

It is self operating — it turns curves and switches—dumps its load in yard or wagon. Besides carrying manure you can use it to convey ensilage, feed, grain, potatoes, cans of milk, from one point to another. It works so simple and easy that any man or boy can run it.



THE DREW ELEVATED CARRIER

carries labor off from the farm—it is the farmer's labor and money saver. No trouble to put them up—no trouble after they are up.

It leaves barnyard free from posts—keeps the barnyard clean and free from litter. Get one and

"WATCH IT WORK FOR YOU"

WRITE FOR OUR ILLUSTRATED CATALOGUE, FULLY EXPLAINING ALL ABOUT IT. Also receive testimonials from hundreds of farmers and dairymen who have the Drew Carrier on their farms.

DREW ELEVATED CARRIER CO., WATERLOO, WIS., U. S. A. 1



CHERRY'S Perfected Barn Equipments

Consisting of Manure Carrier, Feed Carrier, Ensilage Carrier, Grain Elevator, Swivel Hay-Carrier, Hay Forks and Barn Door Fixtures. This system of carriers is built for **Heavy Work** and **Durability.** By the use of our **Curves** and **Switches** we can equip any barn. Send for illustrated Catalogue H and price list to

CHERRY MFG. CO.,
KNOXVILLE, IOWA.

We Want You to Try Us 36

To send us a trial order and test our ability to satisfy you in every particular. We have special catalogues on almost every line you can think of. Tell us what kind of goods you are interested in, and we will send you, absolutely free, any of the following illustrated catalogues quoting wholesale prices. Be sure to mention the one you want, and we will send it Free of Charge.

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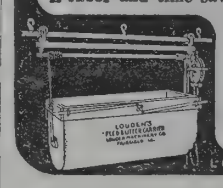
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OREN ONEAL, M. D., Suite 904, 52 Dearborn St., Chicago.

Official Records of Holstein-Friesian Cows, From Sept. 3, to Oct. 30, 1903.

These records are made under the careful supervision of our agricultural experiment stations. The Superintendent of Advanced Registry determines the equivalent butter by the rule of the American Association of Agricultural Colleges and Experiment Stations which requires 85.7 per cent of a pound of fat in the milk for a pound of finished butter.

During this period reports of thirty-eight cows have been approved.

Minnewawa Salambo 47282—5 years, 2 months, 11 days, commencing 10 days after calving: Milk 439 lbs., butter fat 16.891 lbs., equivalent butter 19 lbs., 11.3 oz.

Inka Netherland of Wayne 2d. 43869—6 years, 10 days, commencing 24 days after calving: Milk 456.9 lbs., butter fat 16.231 lbs., equivalent butter 18 lbs., 15 oz.

Woodland Lass 2d. 43812—8 years, 2 days, commencing 25 days after calving: Milk 475.4 lbs., butter fat 16.061 lbs., equivalent butter 18 lbs., 11.8 oz.

Pietertje Princess Leo 29942—12 years,3 months, commencing 7 days after calving: Milk 407.8 lbs., butter fat 15.482 lbs., equivalent butter 18 lbs., 1 oz. Owner, O. J. Godfrey, Pennellville, N. Y.

Saake 3d's Netherland 41024—9 years, 19 days, commencing 7 days after calving: Milk 358.5 lbs., butter fat 14.933 lbs., equivalent butter 17 lbs., 6.8 oz. Owner, A. A. Cortelyou, Neshanic, N. J.

Netherland Clothilde Palmyra 60726—7 years, 9 months, 13 days, commencing 41 days after calving: Milk 402.4 lbs., butter fat 14.212 lbs., equivalent butter 16 lbs. 9.3 oz. Owner, A. A. Cortelyou, Nashanic, N. J.

Select Artis Queen 40810—7 years, 6 months, 22 days, commencing 19 days after calving: Milk 362.3 lbs., butter fat 13.222 lbs.,equivalent butter 15 lbs., 6.8 oz. Owner, A. A. Cortelyou, Neshanic, N. J.

Hamilton Beauty 45176—5 years, 9 months, 9 days, commencing 12 days after calving: Milk 402.9 lbs., butter fat 12.465 lbs., equivalent butter 14 lbs., 8.7 oz.

Daisy Pietertje Zeno 50511—5 years, 6 months, 13 days, commencing 16 days after calving: Milk 368.9 lbs., butter fat, 12.302 lbs., equivalent butter 14 lbs., 5.6 oz.

Minnie Netherland Jewel 53422—5 years, 3 months, 1 day, commencing 144 days after calving: Milk 376.5 lbs., butter fat 12.256 lbs., equivalent butter 14 lbs., 4.8 oz.

Glista Gamma 51493—4 years, 2 days, commencing 12 days after calving: Milk 326.3 lbs., butter fat 11.618 lbs., equivalent butter 13 lbs., 8.9 oz. Owner, Cornell University, Ithaca, N. Y.

Juliet Blanco 55796—3 years, 1 month, 26 days, commencing 10 days after calving: Milk 351.8 lbs., butter fat 13.436 lbs., equivalent butter 15 lbs., 10.8 oz.

Eva Lamb DeKol 53236—3 years, 11 months, 20 days, commencing 29 days after calving: Milk 381.4 lbs., butter fat 13.079 lbs., equivalent butter 15 lbs., 4.1 oz. Owner Don J. Wood, West Winfield, N. Y.

Floa Pietertje Clothilde 53770—3 years,10 months, 3 days, commencing 6 days after calving: Milk 349 lbs., butter fat 12.187 lbs., equivalent butter 14 lbs., 3.5 oz.

Princess Leo Netherland 61822—3 years, 7 months, 1 day, commencing 16 days after calving: Milk 335.1 lbs., butter fat 11.041 lbs., equivalent butter 12 lbs., 14.1 oz. Owner O. J. Godfrey, Pennellville, N. Y.

Idlewild Blanco 55195—3 years, 2 months, 14 days, commencing 11 days after calving: Milk 332.4 lbs., butter fat 10.754 lbs., equivalent butter 12 lbs., 8.7 oz.

Valley Farm Gretchen 54996—3 years, 19 days, commencing 13 days after calving: Milk 290.6 lbs., butter fat 10.105 lbs., equivalent butter 11 lbs., 12.6 oz. Owner Don J. Wood, West Winfield, N. Y.

Princess Pietertje Pauline DeKol 65380—3 years, 1 month, 14 days, commencing 34 days after calving: Milk 297.9 lbs., butter fat 9.993 lbs., equivalent butter 11 lbs., 10.5 oz.

Manor DeKol's Sue 53475, —3 years,2 months, 1 day, commencing 13 days after calving: Milk 277.5 lbs., butter fat 9.113 lbs., equivelent butter 10 lbs. 10 oz.

Dossie DeKol 57118—2 years,11 months,27 days, commencing 11 days after calving: Milk 300.6 lbs., butter fat 10.875 lbs., equivelent butter 13 lbs. 3.9 oz.

Inka Lady Johanna 57563—2 years, 14 days, commencing 12 days after calving: Milk 301.5 lbs., butter fat 10.875 lbs., equivalent butter 12 lbs. 11 oz. Owner A. A. Cortelyou, Neshanic, N. J.

Columbus Beauty DeKol 57557—2 years 1 month 29 days, commencing 9 days after calving: Milk 299.4 lbs. butter fat 10.487 lbs., equivalent butter 12 lbs., 3.8 oz. Owner, A. A. Cortelyou, Neshanic, N. J.

Josephine DeKol Pietertje 59608—2 years, 1 month, 12 days, commencing 8 days after calving: Milk 268.6 lbs., butter fat 9.659 lbs., equivalent butter 11 lbs., 4.3 oz. Owner, University of Wisconsin, Madison, Wis.

Inka Ormsby 58466—2 years, 23 days,commencing 20 days after calving: Milk 299.8 lbs., butter fat 9.626 lbs., equivalent butter 11 lbs.,3.7 oz. Owner, A. N. McGeoch, Milwaukee, Wis.

Aaltje Salo 5th's Netherland 2d. 57390—2 years 10 months 27 days, commencing 17 days after calving: Milk 268.5 lbs., butter fat 9.285 lbs., equivalent butter 10 lbs., 13.3 oz. Owner, F. B. Fargo, Lake Mills, Wis.

Valley Farm Albina 60829—2 years 1 month, 4 days commencing 19 days after calving: Milk 251.1 lbs., butter fat 8.588 lbs., equivalent butter 10 lbs., 0.3 oz. Owner, Don J. Wood,West Winfield, N. Y.

Durkey Winsome DeKol 57447—2 years, 2 months, 13 days, commencing 15 days after calving: Milk 263.4 lbs., butter fat 8.520 lbs., equivalent butter 9 lbs., 15 oz.

Jane DeKol Manor Beets 59625—2 years, 1 month, 8 days, commencing 28 days after calving: Milk 245.2 lbs., butter fat 8.147 lbs., equivalent butter 9 lbs., 8.1 oz. Owner, John B. Marcou, Princeton, Mass.

Princess Calamity Jane Colantha 58893—2 years, 2 months, 19 days, commencing 21 days after calving: Milk 240.6 lbs., butter fat 8.043 lbs. equivalent butter 9 lbs. 6.1oz. Owner, John B. Marcou, Princeton, Mass.

Pet DeKol Pieterje 57445—2 years, 2 months, 28 days, commencing 10 days after calving: Milk 256.3 lbs., butter fat 7.937 lbs., equivalent butter 9 lbs. 4.2 oz.

Wayne Pauline DeKol 2d. 55840—2 years, 7 months, 9 days, commencing 16 days after calving: Milk 255.3 lbs., butter fat 10.391 lbs., equivalent butter 12 lbs., 2 oz.

Comedia Soldene Artis 55712—2 years, 10 months, 17 days, commencing 9 days after calving: Milk 345.7 lbs., butter fat 10.061 lbs., equivalent butter 11 lbs. 11.8 oz. Owner, T. A. Mitchel, Weedsport, N. Y.

Eva Von Holingen DeKol 60470—2 years, 1 month, commencing 32 days alter calving: Milk 305.1 lbs., butter fat 10.032 lbs., equivalent butter 11 lbs. 11.3 oz .Owner, A. A. Cortelyou, Neshanic, N.

Jannek Belle DeKol 60831—2 years, 8 days, commencing 20 days after calving: Milk 288.2 lbs., butter fat 9.971 lbs., equivalent butter 11 lbs. 10.1 oz. Owner, Don J. Wood, West Winfield, N. Y.

Grindetia DeKol Boon 61129—2 years, 18 days, commencing 31 days after calving: Milk 285.7 lbs., butter fat 7.750 lbs., equivalent butter 9 lbs. 0.7 oz.

Dossie Pietertje Maid 61298—1 year, 11 months, 23 days, commencing 22 days after calving: Milk 225.7 lbs., butter fat 7.742 lbs., equivalent butter 9 lbs. 0.5 oz.

Inka DeKol Hamilton 57449—2 years, 3 months, 2 days, commencing 28 days after calving: Milk 264.8 lbs., butter fat 7.737 lbs., equivalent butter 9 lbs. 0.4 oz.

Urica Netherland Lady Mercedes 57426— 1 year, 11 months, 22 days, commencing 19 days after calving: Milk 226.8 lbs., butter fat 7.424 lbs., equivalent butter 8 lbs. 10.6 oz.

S. HOXIE, Supt. of Adv. Reg.

Yorkville, N. Y., Oct. 30, 1903.

The Churn.

The Indiana Experiment Station in Bulletin No. 96 discusses in a practical way the kind, care, operation, temperature, etc., of churns. It says:

The kind of churn which has no inside fixture, but dashes the cream from one side or end to the other by the motion of the churn, has proved most satisfactory.

The paddles, dashers, etc., of whatever pattern, are apt to hurt more or less the texture of the butter, and also cause a loss of butter in the cream, which adheres to them and to the corners of the churn, especially when the cream is a little thick.

When the churning is done in such a short time as is claimed by admirers of many so-called improved churns, it is usually at a sacrifice of butter-fat left in the buttermilk, even though it may not be apparent to the eye.

Wooden churns are to be preferred to metal; because of their getting loose in dry weather if not used frequently or properly taken care of, a steel barrel-churn, tinned inside and painted outside, has been put on the market. The objections to it are that the cream warms up more easily when the room is warm, and more butter will adhere to it than to the wood. Care must be exercised to wipe it dry or it will rust. On the other hand, the cream might be kept in it until

Weight

Salt that makes weight makes money for the butter maker. DIAMOND CRYSTAL SALT—"*the Salt that's ALL Salt,*" made weight for one creamery at the rate of $8,000 a year in additional profit. The secret is simply this: Whatever weight you add in DIAMOND CRYSTAL SALT, *you obtain in increased weight of butter.* Its pure, dry flakes dissolve completely and become a part of the butter, instead of being washed out, or adhering to the worker rolls, like common, gritty, flinty salt. Our illustrated booklet "Just Salt" is just the thing for dairymen. Free on request.

DIAMOND CRYSTAL SALT CO., ST. CLAIR, MICH.

BUTTER FOR UNCLE SAM

THE CONTINENTAL CREAMERY COMPANY TOPEKA, KANSAS

Has been awarded the contract to supply the United States Navy with half a million pounds of butter for the ensuing year.

For this purpose only the best quality of butter is used, and its keeping quality must be made of the very best, owing to the fact that the entire year's supply must be made within a few months and it is carried through all conditions of climate.

The government has made a thorough study of supplying butter to suit the requirements of the Navy and as a result it has laid down some very exacting standards to which those who bid for these contracts must comply. One of the few concerns who can fulfill these requirements is the Continental Creamery Co. and it was awarded this contract, which is the biggest single order for butter ever filled.

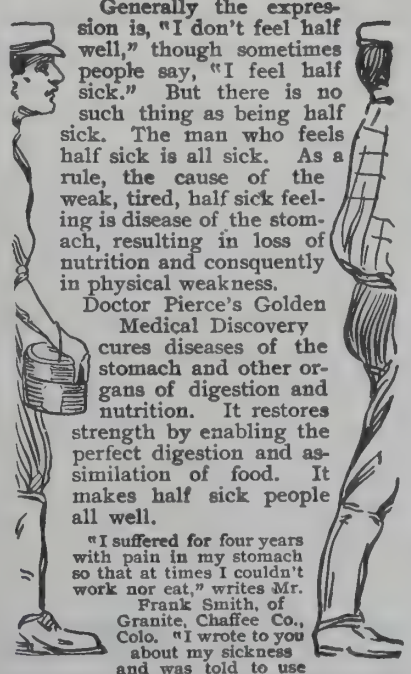
This company produces the greatest quantity of fancy creamery butter in the world, all of which is made from pasteurized cream. Surely it knows something about making good butter. It also knows from actual experience and the investigations of its chemists, that one of the factors in making good butter is

WORCESTER SALT--IT USES NO OTHER

FOR SALE BY ALL CREAMERY SUPPLY HOUSES.

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HALF SICK



Generally the expression is, "I don't feel half well," though sometimes people say, "I feel half sick." But there is no such thing as being half sick. The man who feels half sick is all sick. As a rule, the cause of the weak, tired, half sick feeling is disease of the stomach, resulting in loss of nutrition and consquently in physical weakness.

Doctor Pierce's Golden Medical Discovery cures diseases of the stomach and other organs of digestion and nutrition. It restores strength by enabling the perfect digestion and assimilation of food. It makes half sick people all well.

"I suffered for four years with pain in my stomach so that at times I couldn't work nor eat," writes Mr. Frank Smith, of Granite, Chaffee Co., Colo. "I wrote to you about my sickness and was told to use your medicines, which I did with good results. I only used four bottles of your 'Golden Medical Discovery,' and must say that I am entirely cured and feel like a new man, and I can highly recommend your medicine to any sufferer."

"Golden Medical Discovery" contains no alcohol and is entirely free from opium, cocaine and all other narcotics. It is strictly a temperance medicine.

Accept no substitute for "Golden Medical Discovery." There is nothing "just as good" for diseases of the stomach.

The "Common Sense Medical Adviser," one thousand and eight large pages, in paper covers, is sent *free* on receipt of twenty-one one-cent stamps, to pay expense of mailing *only*. Address Dr. R. V. Pierce, Buffalo, N. Y.



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We have a valuable book called "Warm the Water and Save the Feed," which we will send you FREE. It's worth $1.00.

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is unconditionally the best heater made. Price $6.50. We pay the freight. Address

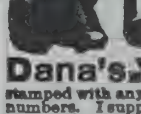
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enough is secured for a churning, making one less vessel to care for.

The size of the churn should be such that it will never be filled over half full, and better if only one-third full. Where the ordinary churning amounts to from two to five gallons of cream, a fifteen-gallon churn is a desirable size.

The speed of a barrel or box churn which revolves, should be sufficient to carry the cream to the highest point, allowing it to fall the length of the churn. If it is turned too fast, the cream will remain in the ends; if too slow, it will slip around and churn slowly, The agitation which results from concussion is more desirable than that from friction.

The time required for churing depends on the ripeness of the cream, the temperature, the fullness of the churn, the amount of agitation and the richness of the cream, and to a lesser extent to the period of lactation and feed. Quick churning usually means large loss of butter in the buttermilk. Under ordinary conditions from twenty to forty minutes is a reasonable length of time for churning, and no objection to an hour if firm butter and thorough work are desired, especially if the churning is done with other than hand power.

The only rule in regard to temperature which can be given is to "churn at as low a temperature as possible, and have the butter come in a reasonable time." A high temperature makes quick churning, large loss of butter in the buttermilk and soft butter; a low temperature requires a longer time, makes a firmer butter and reduces the loss in the buttermilk, While most cream can be satisfactorily churned in from twenty to forty minutes at some temperature between fifty and sixty degrees Fahrenheit, some unusual condition may require a little higher temperature or longer time. In the Experiment Station dairy from fifty-four degrees to fifty-six degrees is the usual churning temperature. When gluten meal or feed is fed, the churning temperature may be lowered from two to four degrees, while if much cotton seed meal is fed, it may be raised a little if the butter is slow in coming.

The variations in the churnability of cream from different cows and herds, from the same cows at different seasons of the year and varying stages of lactation, require some variation in the churning temperature. Use a thermometer; then if the butter comes quick and soft, lower the temperature of the cream next time. It is very desirable that the cream be held at the churning temperature for at least two hours previous to churning.

The Old, Old Question.

Does Feed Vary the Per Cent of Fat in Milk?

ED. HOARD'S DAIRYMAN:—At a meeting of a farmers' society a few nights ago there was quite a discussion as to whether one could increase the per cent of the butter fat in a cow's milk. Some maintained that you could and gave as evidence that they had cows that were fed on straw and other poor feed, and the milk they would give would have very little cream and the cream would make white, poor butter, while the same cows fed on unthreshed oats—although not giving any more milk—there would be double the cream, and it would make good, solid, well colored butter. I would like you to explain the question for me.

I would like also to have you make up a balanced ration of the following: Timothy hay, unthreshed oats, oats and wheat mixed, cut green. Bran, $22 per ton; shorts, $23; middlings, $24; cotton seed meal, $32; oats, 40 cents per bushel.

Would it pay to feed a ration of the above to cows if you did not live near a good market?

What price would one need to get for butter to make it pay to feed a ration of above if he has the right kind of cows?

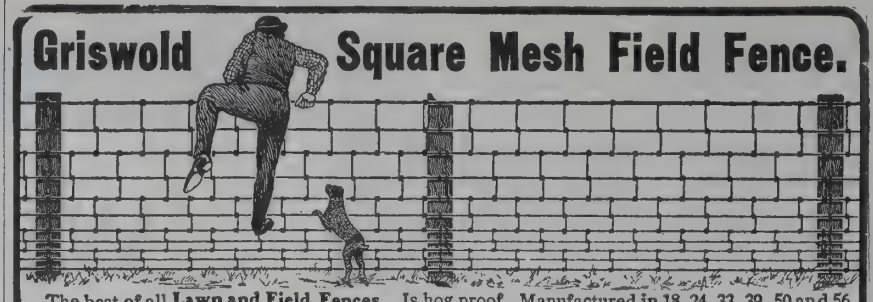
Now, you will greatly oblige a recent subscriber to your valuable paper if you would answer these questions.

Iron Ore, N. S. A. W. M.

Carefully conducted experiments where the milk has been accurately tested for butter fat, have failed to show that change of feed has any marked effect upon the per cent of fat. This is contrary to the popular belief, but we consider it correct. Change of feed will doubtless effect more or less change in the color and texture of the resulting butter.

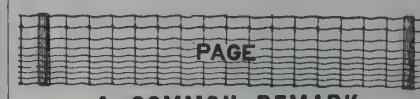
But it is also true that if a cow has been fed a starvation ration of straw, etc., so that her milk flow is almost stopped, such milk will have very little fat, and the

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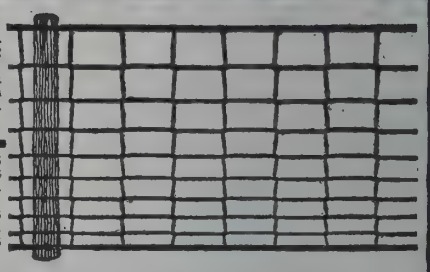
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Buy You a Ticket to CROOKSTON, MINN., and call upon

The Polk County Land & Loan Company

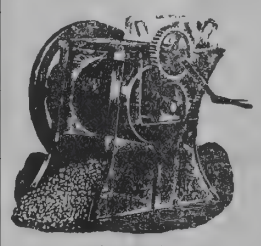
For Choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.

360 acre farm, 4½ miles from Crookston, Minn., a city of 7,000 inhabitants, and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 feet square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm is under a high state of cultivation, and is well drained by a slight ravine running through the farm merely sufficient for self drainage. The soil is a rich, deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building, This is a very choice piece of land for the price $32.50.

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired. Price $19.00 per acre.

Creasey Ice Breakers



Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right.

Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.

J. S. L. WHARTON, Mfr.,
17th Clearfield St., Philadelphia, Pa.

FARMERS WANTED

Send card for FREE MAP and Price List of Wild and Improved Lands in Wadena, Otter Tail, Becker, Todd, Hubbard, and Case Counties, Minnesota. Low prices and easy terms. We are large owners.

MURRAY'S LAND OFFICE,
WADENA, MINNESOTA

YOU CAN....

BUY A FARM

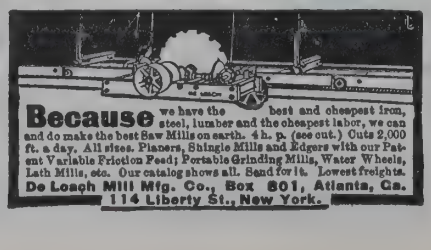
ON PAYMENTS

So easy that you will regret it if you do not investigate. Our lands are

CHOICE HARDWOOD LANDS.

Especially selected with a view to quality, location and natural advantages. Put your savings into land that will double in value inside of a year. Ask us for the facts about them. A postal card with your address will do. Lands are now selling at $10.00 per acre. $400 in easy payments will buy 40 acres.

INTERIOR LAND CO., Janesville, Wis.

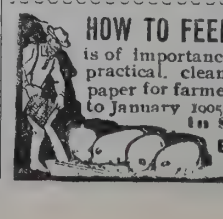


Because we have the best and cheapest iron, steel, lumber and the cheapest labor, we can and do make the best Saw Mills on earth. 4 h. p. (see cut.) Cuts 2,000 ft. a day. All sizes. Planers, Shingle Mills and Edgers with our Patent Variable Friction Feed; Portable Grinding Mills, Water Wheels, Lath Mills, etc. Our catalog shows all. Send for it. Lowest freights.
De Loach Mill Mfg. Co., Box 801, Atlanta, Ga.
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We Bring Buyer and Seller Together

Do you wish to sell or exchange your farm, reamery or cheese factory? No matter where located—east, west, north, or south. Write for our new plan. We put you in direct communication with buyer. Save the big commission which agents would charge.

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HOW TO FEED AND BREED HOGS
is of importance to swine growers. A practical, clean, common-sense swine paper for farmers can be had from now to January 1905 by sending 10 Cents in Silver at once to
BLOODED STOCK, Oxford, Pa.

Simply Send a Postal

and ask us to mail you our new illustrated stove catalogue, and we will forward postpaid our complete catalogue of stoves and ranges, which illustrates and describes everything in the stove line for cooking and heating worthy of your consideration—all at prices decidedly low. We sell only the best grades, avoiding the very cheapest. If you want an honestly made stove you cannot afford to place your order until you have seen our stove catalogue. A postal card will bring it.

$4.00 as here illustrated.



$3.20 is our price for a good stove with a 9¾-inch firepot. It is a much better stove than some firms sell at a higher price, but if you want the best send for our stove catalogue and read about our famous Home Oak stoves. The illustration shows our well known Home Oak stove; a very powerful heater made of No. 18 gauge cold rolled steel and finished with artistic nickelplated trimmings. It is 43 inches high, 9¾ inches round and weighs 63 pounds. $4.53 buys larger size weighing 75 lbs.

$5.87 is the price of the most popular size of the Home Oak stove. 48 inches high, 13¾ inches round, 13¾ inch firepot, weight 108 pounds. The Home Oak stoves are the best, not the cheapest, and are fully guaranteed.

$1.14 Air-tight heater made better than others on the market and cheapest at our price. We do not sell the cheapest that we can make. This air-tight heater at $1.14 is a better bargain than others at 95 cents up. It pays to buy the best.

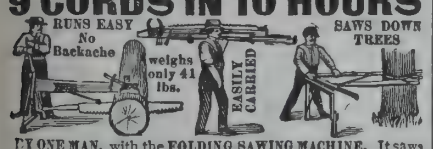


$2.88 for an honestly made kerosene oil heater. Other styles, $3.35, $3.68, $4.80, $7.00 and $7.35. 34

Don't waste your money by purchasing a cheap stove. Get an honestly made one even if does cost a trifle more. Our stoves are all honestly made and sold at remarkably low prices. Our free stove catalogue describes our handsome base burners, also a score of other styles—all good, all low priced. You cannot afford to buy until you have heard from us. Simply write a postal card and ask for stove catalogue. We will send it promptly. Address

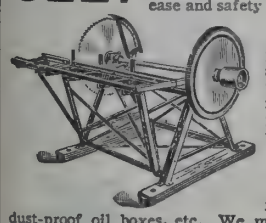
MONTGOMERY WARD & CO.
Michigan Avenue, Madison & Washington Streets
CHIGACO

9 CORDS IN 10 HOURS



BY ONE MAN, with the FOLDING SAWING MACHINE. It saws down trees. Folds like a pocketknife. Saws any kind of timber on any kind of ground. One man can saw MORE timber with it than 4 men in any other way, and do it EASIER. 239,000 in use. Send for FREE illustrated catalog, showing latest IMPROVEMENTS and testimonials from thousands. First order secures agency. Address
FOLDING SAWING MACHINE CO.,
55-57-59 No. Jefferson St., CHICAGO, ILL.

SEE! With an APPLETON WOOD SAW you can rapidly and with ease and safety



SAW your own wood and SAVE COAL, time, labor and money; or saw your neighbor's wood and make

$5 to $15 a Day

Strong, rigid frame, adjustable dust-proof oil boxes, etc. We make five styles. Also the famous "Hero" Friction-Feed Drag Saw, Feed Grinders, Ensilage and Fodder Cutters, Huskers, Shellers, Sweep Horse Powers, Tread Powers, Wind Mills, etc. Write to-day for free catalogue.

Appleton Mfg. Co. 35 Fargo St., Batavia, Ill.



Iron Troughs

First Lot at Wholesale. Can't break or rot, nice round rim, any size or shape. Write for circular of Cow Basin, Poultry and Stock Troughs. Who will be first.
D. H. BAUSMAN, Bausman, Lanc. Co., Pa. We make Steel Swings. Fine Booklet Free.

per cent of fat will be increased when the cow is fed a proper ration.

We should bar timothy hay from the list of feeds given and depend upon the unthreshed oats and the oat and wheat hay for roughage. The chances are, that the unthreshed oats may furnish all the grain feed required, especially if the oat grains reach 6 to 8 lbs. daily. If experience should show that the cows could profitably use more grain, feed sparingly of a mixture of bran and cotton seed meal, equal parts by weight.

He Wants the Paper Continued.

ED. HOARD'S DAIRYMAN:—I am very sorry to have caused you the trouble of reminding me of a duty to my own self which I had neglected. Indeed, you have only done what you are constantly doing: "Put us on the right track and keep us on it." Up to 3 months ago, I was merely a reading dairyman, but now I am putting into practice what I have gleaned from your valuable paper for two years while I was clerking in a Pork Factory House. Having come to live with my brother 3 months ago (he being a subscriber to HOARD'S DAIRYMAN), I didn't notice when my paper stopped coming, as I had the use of his own. Had he not received HOARD'S DAIRYMAN, I would have come to my senses pretty quick, as could not think of sitting down a minute without having the DAIRYMAN handy, but all the same I don't mean to give up my subscription on that account.

No, dear Editor, never fear of losing my subscription, for your paper is too good a guide in the dairy business to do without it. Even before I bought my herd of 15 grade Holsteins and a thorough bred Holstein-Friesian bull, I could not get along without the paper, so full of good, sound reading it was. I surely won't be without it now; your paper was the cause of my getting a first-class bull from Messrs Stevens Bros., Lacona, N. Y., an advertiser in the DAIRYMAN, and am very pleased with it.

Greene, R. I. A. F. KEEG.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Testing Cows with the Babcock.

ED. HOARD'S DAIRYMAN:—Since sending in my report in your issue of Oct. 23rd, of eight cows that had completed their official work for the year, another good one has come to the front. Deoines Model No. 148364 has made officially 567.71 pounds butter fat, or an equivalent of 662 pounds butter. This cow, as in fact all cows are, was tested by us personally, making 565.89 pounds, or a difference of only 1.82 pounds fat for the entire year between the test of the Experiment Station and our own test.

Our manner of making a test for the month is to take samples of four consecutive milkings, making a composite test. The Station comes and makes a one-day test each month, and it shows how accurate the Babcock test is if handled carefully. Our own tests have been made by three different persons through the year, and the Station has sent either four or five different ones, and yet we agree very closely. F. H. SCRIBNER.

Rosendale, Wis.

Does Succulent Feed Avert Milk Fever?

ED. HOARD'S DAIRYMAN:—Have dairied since I was large enough to handle a milk pail, some 40 years, and have yet to have my first case of milk fever. I fed roots up to the time the silo was adopted, and do not doubt but what the kind of feed has been my greatest safeguard against the disease.

Monmouth, Ill. BUFF JERSEY.

An Ice House without Saw Dust.

Can I build an ice house about 10 feet in ground and 10 feet above with two or three dead air spaces, that will keep ice satisfactorily without saw dust, or other material, around and over the ice? FOREST HOME FARM.

Purcellville, Va.

If your dead air spaces are tight so that there is no circulation of air, ice can be kept without saw dust.

The common ice house is usually a poorly built structure with but little attempt to make it air tight, and under these conditions sawdust is necessary.

"Let the GOLD DUST TWINS do your work"



Women who insist on doing housework in the old, old way are wasting their energy. To such women

GOLD DUST

is a boon. It does all the household cleaning, washing and brightening quicker and more economically than any other way yet devised.

Try it and you'll not deny it.

OTHER GENERAL USES FOR GOLD DUST	Scrubbing floors, washing clothes and dishes, cleaning woodwork, oilcloth, silverware and tinware, polishing brass work, cleansing bath room, pipes, etc., and making the finest soft soap.

Made by THE N. K. FAIRBANK COMPANY, Chicago—Makers of FAIRY SOAP.

GOLD DUST makes hard water soft



New American Manure Spreaders

hold from 50 to 100 bushels. Spread just as thin or thick, fine or coarse, as ground requires. Don't have to stop team to make change Most substantial, largest capacity, and lightest draft.

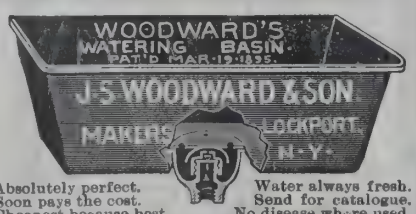
Send today for Booklet B

American Harrow Co
Detroit, Mich.



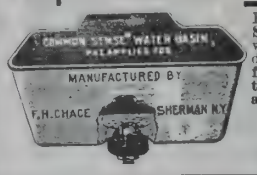
SILO SENSE

presumes the use of the modern round silo. They are the cheapest and best, and preserve the silage better than all others. There are no angles or corners to admit the air and cause the silage to mold or rot. We make them in four styles and 200 sizes. Made of Cypress, White Pine and White Hemlock. Anybody can set them up. We also make a full line of Ensilage and Fodder Cutters, Tread Powers, Wood Saws, Threshers, Engines, etc. Send for Book on Silos and Ensilage. Mailed free.
HARDER MFG. CO., Cobleskill, N. Y.



Absolutely perfect. Water always fresh.
Soon pays the cost. Send for catalogue.
Cheapest because best. No disease where used.

Sample Basin Sent ON APPROVAL.



Basins are fitted with Self Closing Cover which prevents all dirt and sediment from getting into them. Send for catalogue and price list.

F. H. CHASE,
Sherman, N. Y.

Water In The Stable a Necessity.



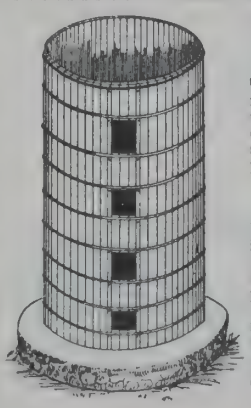
It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. Why not use the Best? Write for descriptive circular.

C. E. BUCKLEY & CO., Poughkeepsie, N. Y.

RUBEROID
(Trade Mark Registered)
ROOFING and GIANT PAPERS
FOR INSULATING SILOS

WATER PROOF, AIR TIGHT
They keep Silage dry, cool and healthful. Send for Booklet H.

THE STANDARD PAINT COMPANY
DEPT. H.
100 WILLIAM ST. NEW YORK.



TIME!

It's time for dairymen to act if they want the benefits of a silo this season. You should place your order

NOW

if you want the best, and the best is always the cheapest, especially in Silos. Write us for prices and circular. If you are in the market we can save you money.

INDIANA SILO CO.,
Anderson, Ind



MY PIGS AT 5 MONTHS OF AGE WEIGH 250 LBS.

International Stock Food Co., Minneapolis, Minn. DELL ROY, O., Sept. 24, 1903.

GENTLEMEN:—I am showing a herd of Berkshire nogs that I have fed **"International Stock Food"** from the time they came, and I am a winner in the show ring. I have pigs that came in April that weigh 250 lbs. each. I sold one pig just nine weeks old that weighed 86 lbs. Its mother was fed **"International Stock Food"** three times per day after the pigs were four days old. I fed her **"International Stock Food"** six weeks before she had her pigs.

I have a herd of short-horn cattle that I fed **"International Stock Food"** to all the year around, and it paid me big. I fed it to my ewes and lambs with the best results. To make a long story short, I can't nor won't be without it. I recommend **"International Stock Food"** to all breeders of fine stock. Very respectfully, CLARK GAMBLE.

☞We Have Hundreds of Thousands of Similar Testimonials and Will Pay You $1000 Cash to Prove That They Are Not Genuine and Unsolicited.☜

We own "International Stock Food Farm," which is located 12 miles from Minneapolis and contains 650 acres. We feed "International Stock Food" every day to all our WORLD CHAMPION STALLIONS, DAN PATCH 1:56¼, DIRECTUM 2:05¼ and ROY WILKES 2:06½; and also to our YOUNG STALLIONS, BROOD MARES, COLTS, WORK HORSES, CATTLE and HOGS. "INTERNATIONAL STOCK FOOD" 3 FEEDS FOR ONE CENT is Prepared from Roots, Herbs, Seeds and Barks and Won the Highest Medal at Paris Exposition in 1900 as a High-Class vegetable, medicinal preparation to be fed to stock in small amounts as an addition to the regular feed. It is a Great Aid in Growing or Fattening stock because it increases the appetite, Aids Digestion and Assimilation so that each animal obtains more nutrition from the grain eaten. We positively guarantee that its use will make you extra money over the usual Plan of Growing and Fattening stock. "International Stock Food" can be fed in safety to Horses, Cattle, Sheep, Goats, Hogs, Colts, Calves, Lambs or Pigs. It will make your Calves, Colts or Pigs grow amazingly and will keep them healthy. It is Absolutely Harmless even if taken into the Human System. You insist on eating the following medicinal ingredients with your Own food at every meal: Table Salt is a stomach tonic and worm medicine, Table Pepper is a powerful stimulating tonic, Table Mustard is a remedy for dyspepsia, Table Vinegar is a diuretic. You eat these medicinal ingredients almost with every mouthful of your food, and it is proven that these medicines promote health and strength for people and improve their digestion. "International Stock Food" contains pure vegetable medicinal ingredients that are just as safe and as necessary an addition to the regular feed of your stock if you desire to keep them in the best possible condition. "International Stock Food" is endorsed by Every High-Class Farm Paper and Over One Million Progressive Farmers and Stockmen. It purifies the blood, stimulates and permanently strengthens the entire system so that disease is prevented or cured. "International Stock Food" is sold on a "Spot Cash Guarantee" by Fifty Thousand Dealers throughout the World, and has the Largest Sale ever known. ☞Your Money will be Promptly Refunded in Any case of failure. We Refer You To Any Bank Or Wholesale House In Minneapolis. ☞Beware of the many Cheap and Inferior Imitations now on the market! No Chemist can separate and name all the Different powdered Roots, Herbs, Barks and Seeds that we use in our preparations. Any Chemist or Manufacturer claiming to do so Must be an Ignoramus or a Falsifier. Imitations Are Always Inferior. Insist On Having The Genuine And You Will Always Obtain Paying Results.

If You Cannot Obtain "International Stock Food" In Your Town we will agree to ship you 100 pounds or over of "International Stock Food" without money or note and you can feed it Four Months with the agreement that if you are not perfectly satisfied with results you need not pay us a cent. Write for Special Offer to International Stock Food Co., Minneapolis, Minn. Correspondence Answered Promptly.

A $3000.00 STOCK BOOK FREE

BOOK CONTAINS 183 LARGE ENGRAVINGS OF HORSES, CATTLE, SHEEP, POULTRY, ETC.

The Cover of this Book is a Beautiful Live Stock Picture ☞Printed in Six Brilliant Colors, and Without Any Advertising on it. Size of book is 6½ by 9½ inches. It cost us $3000 to have our Artists and Engravers make these Engravings, which are the finest engravings of Horses, Cattle, Sheep, Hogs and Poultry that you have ever seen. They are all made from actual photographs and are worthy of a place in any library. It also gives Description, History and Illustrations of the Different Breeds of Horses, Cattle, Sheep, Goats, Hogs and Poultry. It contains Life Engravings of many very noted Animals. ☞It Contains a Finely Illustrated Veterinary Department That Will Save You Hundreds of Dollars, because it describes all common diseases and tells you how to treat them. The Veterinary Illustrations are large and scientific and better than you can obtain in any other book regardless of price.



WE WILL PAY YOU $10.00 CASH IF BOOK IS NOT AS DESCRIBED

WE WILL MAIL ONE COPY OF THIS BOOK TO YOU ABSOLUTELY FREE, With Postage Prepaid, If You Will Write Us At Once, letter or postal card, and ANSWER THESE TWO QUESTIONS:

☞1st.—NAME THIS PAPER. ☞2nd.—HOW MUCH STOCK HAVE YOU?

Address At Once.... INTERNATIONAL STOCK FOOD CO., MINNEAPOLIS, MINN., U. S. A.

Largest Stock Food Factory in the World. Capital Paid in, $1,000,000. 775,000 Feet of Space in Our New Factory. Contains Over 16 Acres of Space.

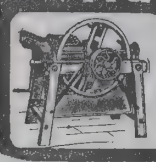
A BEAUTIFUL COLORED PICTURE OF THE CHAMPION STALLION DAN PATCH 1:56¼ (Size 21 by 28) MAILED YOU FREE IF YOU SEND FOR THIS BOOK

HEEBNER'S "UNION" FEED AND ENSILAGE CUTTERS are the only thoroughly up-to-date machines in dry fodder cutting. They cut and crush at one operation. Prepares the nutritious lower stock, making an excellent and much relished food. No waste. Easy to masticate. It is easier to grow two tons of fodder than one ton of hay on the same ground. Fodder is equal to hay in feeding value. The corn itself is clear gain. *Shredding attachment for* $5.00. You then have cutter, crusher and shredder combined in one. Not much more expensive than other machines, but far more valuable. Send for *free* booklet

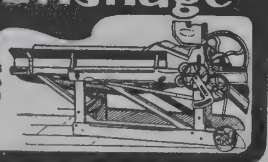


HEEBNER & SONS, 20 Broad St., Lansdale, Pa.

Wilder's Feed and Ensilage Cutters



and Shredders. Try one at your own place; if it does not please you better than any other machine you can buy, we stand all expense. Get our catalogue today. It contains largest line made. On the market 35 years.

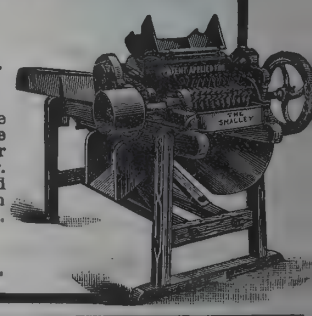


Wilder-Strong Implement Co., Box 11. Monroe, Mich.

THE SMALLEY SHREDDER

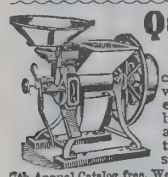
HAS NO EQUAL.

It gives fodder the greatest food value, and makes it easier for the animal to masticate and digest. Requires least power; strong and durable; will outlast a dozen of the saw pattern kind. Knives adjustable to compensate for wear. We can furnish snapper rolls to remove all the ears, just the same as a husker. This combination of cutter, shredder and snapper, costs but little more than the ordinary cutter. We also make drag and circular saws, sweep and tread powers, and ensilage cutters with carriers or blowers to reach any silo. Our free catalogue tells all about our goods. Address Box No. H



SMALLEY MFG. CO., Manitowoc, Wis.

Quaker City Grinding Mills



crush and grind ear corn, mixing in as wanted all small grains, and do it faster and easier than any other. Ball bearings make light running. Make an excellent table meal. Time given to prove these things. If you are not satisfied return and we pay charges.

17th Annual Catalog free. We sell gas and gasoline engines and other powers.

The A. W. Straub Co., 3737 Filbert St., Philadelphia, Pa. Canal & Randolph Sts., Chicago, Ill.

Giant Killer Feed Mill



Triple geared. For ear and shelled corn and all grains. Fast working. Grinds as coarse or fine as wanted and makes excellent family meal. You save feed and have more thrift in animals if you install the

Northwestern Steam Cooker

shown below. Return draft, an easy steamer and suited to large or small stablings. Don't buy either mill or cooker until you get our free circulars. They're money makers and savers.



Cascaden Mfg. Co. Waterloo, Ia.

John Deere Plow Co., Indianapolis, Ind.; Harber Bros. Co., Bloomington, Ill.; Deeds & Manley, St. Louis, Mo.; John Deere Plow Co., Kansas City, Mo.; Lininger & Metcalf Co., Omaha, Neb.; Smith & Zimmer Co., Minneapolis, Minn.; Lindsay Bros., Milwaukee, Wis.

BOWSHER

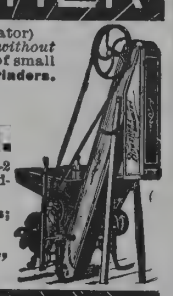
(Sold with or without elevator)

CRUSH ear corn (*with or without shucks*) and GRIND all kinds of small grain. Use Conical Shape Grinders. Different from all others.

LIGHTEST RUNNING.

Handy to Operate. 7 Sizes—2 to 25 h. p. One size for windwheel use.

Also make Sweep Grinders; Geared and Plain.



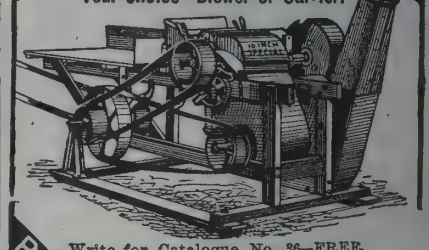
N. P. D. Bowsher Co., South Bend, Ind.

FEED MILLS

ROSS ENSILAGE MACHINERY

When you buy the ROSS you buy the best

Your choice—Blower or Carrier.

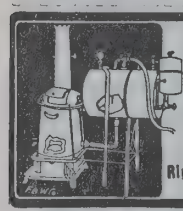


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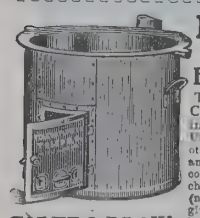
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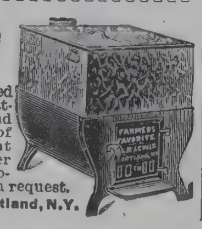
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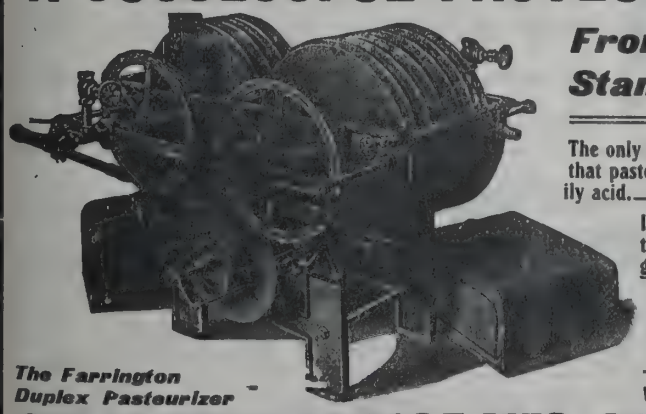
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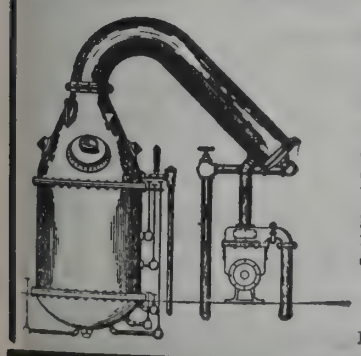


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It makes good Butter—that makes good business.
Your Butter will score 8 points higher.
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Makes Dairy Work Light — **Makes Dairy Work Neat**

Two big advantages about the Tubular Separator—aside from the greater profits resulting from its use—are lessened labor and increased neatness. Remember that pans, crocks, and complicated bucket-bowl separators are hard to wash—and you'll remember that you want something simpler. Remember how sloppy high supply cans are—how annoying oily oil cups are—and you'll remember that you want something neater.



It Practices What We Preach

It's easy to wash a simple Tubular Separator bowl. It has no complicated parts—no discs—vanes—or cones—no graters to scrape the fingers. Think how low the door knob is and you've thought about how low the supply can of the Tubular is. To think **how low** is to think **how easy to fill.** You remember the Tubular has no oil cups—that all gears are covered, and run in a mist of oil. It fills your demands and our guarantee.

If you haven't one of our handsome catalogues, wouldn't you like one? It's free—just ask or write for it.

The Sharples Co., CHICAGO, ILL. — **P. M. Sharples,** WEST CHESTER, PA.

Simply Send a Postal

and ask us to mail you our new illustrated stove catalogue, and we will forward postpaid our complete catalogue of stoves and ranges, which illustrates and describes everything in the stove line for cooking and heating worthy of your consideration—all at prices decidedly low. We sell only the best grades, avoiding the very cheapest. If you want an honestly made stove you cannot afford to place your order until you have seen our stove catalogue. A postal card will bring it.

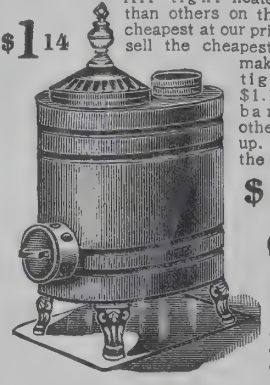
$4.00 as here illustrated.



$3.20 is our price for a good stove with a 9¾-inch firepot. It is a much better stove than some firms sell at a higher price, but if you want the best send for our stove catalogue and read about our famous Home Oak stoves. The illustration shows our well known Home Oak stove; a very powerful heater made of No. 18 gauge cold rolled steel and finished with artistic nickelplated trimmings. It is 43 inches high, 9¾ inches round and weighs 63 pounds. $4.53 buys larger size weighing 75 lbs.

$5.87 is the price of the most popular size of the Home Oak stove. 48 inches high, 13⅛ inches round, 13¾ inch firepot, weight 108 pounds. The Home Oak stoves are the best, not the cheapest, and are fully guaranteed.

$1.14 Air-tight heater made better than others on the market and cheapest at our price. We do not sell the cheapest that we can make. This air-tight heater at $1.14 is a better bargain than others at 95 cents up. It pays to buy the best.



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Don't waste your money by purchasing a cheap stove. Get an honestly made one even if does cost a trifle more. Our stoves are all honestly made and sold at remarkably low prices. Our free stove catalogue describes our handsome base burners, also a score of other styles—all good, all low priced. You cannot afford to buy until you have heard from us. Simply write a postal card and ask for stove catalogue. We will send it promptly. Address

MONTGOMERY WARD & CO.
Michigan Avenue, Madison & Washington Streets
CHICAGO

A Connecticut Ration.

Would you kindly formulate a balanced ration for grade Jersey and Ayrshire cows with different milk yields and weighing from 700 to 900 lbs. For roughage I have corn stalks (Dent variety cut when corn commenced to glaze) well eared and under cover; look bright and nice. Dry brewers grains, $17.00 per ton; gluten (Buffalo) and (Glen cove) $25.50; oil meal, $29.00; cotton seed meal, $29.00; bran, $22.00; wheat feed or middlings, $23.00; oats, $1.20 per bag, 10c per bag for grinding. Kindly state how many pounds of the grain ration should be given cows giving say from 10 to 20 lbs. milk per day, 20 to 25 lbs., 25 to 30 lbs., 30 to 35 lbs., 35 to 40 lbs.? Roughage I suppose will be the same for all. SUBSCRIBER.
Norwalk, Conn.

We should consider the following a good average ration:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
25 lbs. corn stover	14 90	.43	8.10	.18
6 lbs. dried grain	5.51	.94	2.18	.31
2 lbs. oil meal	1.82	.59	.65	.14
Totals	22 23	2.06	10.93	.63

We should want the cows to eat fully 25 lbs. of the stover, and this will necessitate feeding considerably more than that amount, as there will be quite a percentage of the butts of the coarser stalks that they cannot masticate. There would be a considerable saving if these stalks could be put through a cutting box, enough to last 10 days or more, dampened and put in a compact pile, where they will heat and soften.

Theoretically, a ration as above should suffice for a cow giving 27 lbs. of milk, daily, containing one and one-third lbs. butter fat. For every 10 lbs. increase or decrease in milk, increase or decrease the digestible protein one half-pound, but do not make such a rule as this too rigid. Watch carefully for results, and let them be the guide. We think that with only corn stover for roughage some grain should be fed even to dry cows.

A Test for Cotton Seed Meal.

The Vermont Experiment Station gives the following test which any farmer can supply himself. Place a teaspoonful of the meal, do not use more, in a tumbler and pour over it an ounce and a half to two ounces of water. Stir the mass until it is thoroughly wet up and all the particles are floating. Allow it to subside for from five to ten seconds and pour off. If a large amount of fine dark brown sediment has settled in this time, a sediment noticeably heavier than the fine mustard yellow meal, one which upon repeated treatments with boiling hot water keeps settling out, the goods are a feed meal; i. e., meal containing relatively large quantities of ground hulls. If, however, there is found a larger amount of this residue, one which persists in remaining after several washings, it is surely composed of hulls and it is a feed meal or an adulterated cotton seed meal. The results are striking when the same sample is compared with a pure cotton seed meal.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.



For shaving Ivory Soap is preferred by many. Its lather is profuse. Hot water instantly softens the surface but does not melt the cake to waste in the cup. Ivory Soap is aseptic and odorless and rinses away entirely, leaving the face smooth and absolutely clean. It costs about one-fifth as much as most of the so-called shaving soaps.

Ivory Soap—99 44/100 Per Cent. Pure.

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"THE LABORATORY OF THE HOME."
It puts the work of the kitchen upon a business basis—everything handy, sanitary, dust-proof and mouse-proof; easy to keep fresh and clean. Booklet tells why.
Thousands of our cabinets sold—eight styles. Every home-maker wants one. Write to-day for booklet. A postal card will do.
Elwell Kitchen Cabinet Co. 926 5th Ave. S. E. Minneapolis.



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Hard Spring Wheat, the strongest and best for flour or feed in America, and that means the best in the world, is used exclusively in ELMCO Feeds. But not ALL of even this wheat is used, only that which comes up to our high standard of quality.

All the wheat we use is carefully inspected by an expert Grain Inspector, member of the Minnesota Bureau of Grain Inspection, who is permanently located at our mill. The maturity of the wheat, the quantity and quality of protein and other essential points which go to make up the difference between the best grades and inferior grades of wheat, are carefully investigated.

A successful quarter of a century in the milling business is our experience record. Our trade in that time has grown from a small local patronage to one that is world wide in scope. Our mill is the largest in the country outside of the Minneapolis and Duluth combinations, the cleanest and best equipped barring none.

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LISTMAN MILL COMPANY, LA CROSSE, WIS.



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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairyman's Association.

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Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Entered at Fort Atkinson, Wisconsin, as second-class matter.

The Bang System for Stamping Out Tuberculosis in Cattle.

At the annual meeting of the American Association of Veterinary Science, held at Ottawa early in September, a valuable paper was read by the Hon. Senator Edwards giving his experience with the Bang system for the eradication of tuberculosis as practiced at his farm at Rockland, Ont.

"Coming to the subject on which I am to occupy your time for a few moments and referring to a remark made in a former sentence of this paper, viz,. the close alliance and association between human beings and domestic animals, and recalling a statement made by the great German scientist, Dr. Koch, about two years ago, the question of tuberculosis in our domestic animals would appear not to have the same significance as affecting human beings as was fomerly generally supposed. The relation or similarity as between human and bovine tuberculosis and the communicability from one to the other is, however, one for scientific and professional men to thresh out. I will not presume to express any opinion on this complex question. I will be permitted, however, I am sure, to say that for myself, I regard the safest course, while doubt still remains, is to allow the doubt to rest on the side of the greater security and continue to assume that there is danger until it is uncontrovertibly proven that there is no danger of human beings contracting tuberculosis in various ways from domestic animals so diseased. But even if finally it is proven that the disease is not communicable from animal to man, there is no reason why the efforts being made for the eradication of the disease in our animals should be stayed for a moment. In our best interests, having regard to the animals only, it is most highly desirable that the disease should be eradicated. It is to be found to the greatest extent in our pure-bred herds, the source from whence sires are obtained for the general improvement of the herds the world over, and unless our pure-bred herds are cleansed of the disease, the process of spreading it will go on until it pervades the entire live stock interests of each country where it is not eradicated, and the extent to which it will be injurious to the live stock of each country will be measured by surrounding conditions, and the loss of animals will be measured largely by the general sanitary or unsanitary and other conditions prevailing, so that regardless of the matter of the danger to human life, it is highly in the best interests of the stockmen that his herds and flocks should be free from disease of every nature.

The question arises — can tuberculosis, one of the most constant diseases present in animals, be eradicated? My answer is, "YES," most emphatically. It can be done, and once eradicated, by reasonable care healthy herds and flocks in this respect can be maintained; and the system we recommend is the Bang system which has been rigidly practiced on our farm since the year 1898. In the spring of that year, intending to ship some young bulls to Wisconsin, we asked our Dominion veterinary authorities to test them, and to our surprise and regret it was found that all responded to the tuberculin test. This was our first knowledge of the existence of the disease in our herd. For a few days we were undecided what course to pursue, but on consultation with Hon. Sydney Fisher, Minister of Agriculture, who recommended testing the whole herd, and who further urged upon me the advisability of adopting the Bang system for the eradication of the disease, and on our consenting, he at once placed us in communication with Dr. McEachern, then Chief Dominion Veterinary Inspector, who immediately had the entire herd tested and gave us full information and instructions as to the Bang system. The greater part of the herd responded to the test and a separation was at once made of the healthy from the diseased animals. The decision was to weed out and kill all but animals of desirable pedigree and individuality, and the slaughtering took place under veterinary inspection. Of the 50 to 60 animals slaughtered, only three proved unfit for human food, but in all, traces of the disease in a more or less degree were found, but in most cases, very trifling traces of it. The stables formerly occupied by the herd were most thoroughly disinfected for the reception of the healthy animals and entirely new premises were erected for the diseased animals we retained in our herd, and in like manner the diseased animals have been kept in separate and distinct pastures from the healthy ones since that time and have never mingled in any way.

RAISING THE CALVES.

In the inception of our experiments, we sterilized the milk from the diseased cows as directed by Dr. McEachern, and fed the calves from the pail. This plan we found successful in so far as raising sound calves was concerned, but it is a somewhat troublesome one, and further, we lost a few calves as we believe from the fact that they were so fed at once without first taking the mother's milk in the natural way. This plan, while successful, we have discarded entirely, and we have adopted the plan of raising the calves on nurse cows, allowing the calf always to suck the mother once before making the change. This plan we have found most successful in every particular, and in the practice of either of these plans described, we can vouch for it from our experience that healthy calves can be most successfully raised from diseased dams, or diseased sires and dams, and if all is carefully carried out, the percentage of diseased calves raised will be very small indeed, so small that it need hardly be considered. In our experiments everything has been entirely satisfactory to us, and we strongly recommend the practice to our brother breeders, many of whom we are sorry to say have, up to this time, resisted the advice in this respect of our veterinary authorities, both in the United States and Canada, and the subject has been a most controversial one. We can only say for our part that after a very considerable experience we are firm believers in the Bang system, and we are believers in the tuberculin test as the only present means, so far as we are aware, of ascertaining the existence of the disease. The only failure, so far as we have knowledge of, is in cases where the disease is in such an advanced stage that reaction does not take place. In a well conducted herd such cases will be few and far between.

Further, we have experienced none of the unfavorable results that are put up by those opposing the test. In no case have we known, in the many hundreds of animals we have had tested, of an injury to the animal; neither have we experienced any trouble in abortion in cows tested and we have had them tested at all stages of pregnancy.

We are firm believers in the tuberculin test, as we have described, and we are also firm believers in the Bang system, and until these are improved upon—if they can be improved upon—we shall practice both in the management of our herd. No matter what the practice and requirements of our government authorities may be, we on our part shall not relax our efforts in the direction I have stated until all our herds are absolutely free from disease, and until better means are known, we shall always use the tuberculine test to ascertain the conditions of the health of our herds.

EDUCATION AND UNITED EFFORT NEEDED.

Having given our practice on the farm, I may now be permitted, perhaps, to make a few general remarks. The discovery of the extent of the disease in the herds of various countries a few years ago caused such a commotion that most rigid enactments were passed by several legislative bodies; extreme conditions were imposed, doing, unfortunately, in our opinion, a great deal of harm, arousing the antagonism of breeders and stockmen. Much of this legislation has been rescinded and more reasonable measures are now adopted, as a result of a greater knowledge of the subject. Mistakes, if there have been mistakes, were not wilful but well intended on the part of the authorities of each country, but we submit that if the disease is to be eradicated from any country it must be through a campaign of education and united effort on the part of the breeders of the country. The exclusion of importations will never help to eradicate the disease just so long as the disease exists in the herds of the importing countries and our veterinary authorities will do well to show the simplicity with which the disease may be eradicated, rather than impose unnecessary conditions.

Apart from the test and the application of the Bang system, cleanly and sanitary conditions, good ventilation and plenty of sunlight, and as much outdoor life as possible are the requisites. To the beginner in stock breeding we would advise great care in seeing to it that he begins his operations with animals free from disease, and that he attends well to his ventilation and sanitary conditions, and if at any time he buys to strengthen his herd to see to it to a certainty that he does not buy disease with the animal.

To the breeder, small or large, who discovers the disease to exist generally in his herd, if the animals are of inferior pedigree and individuality, we recommend turning off to a butcher, to be killed under veterinary inspection, all animals that respond to the test, and begin anew, but in no case would we recommend the slaughtering of valuable animals where they are still in good breeding form and vigorous appearance, but we advise the system of separation we have described in this paper. The same full measure of separation may not always be possible, but the best that can be done should be done in each instance and under no circumstances neglect the matters of ventilation, good sanitary conditions, plenty of sunlight, and as much open air life as possible. I am fully convinced of the reasonable possibility of the eradication of tuberculosis from our herds and of the maintenance of sound herds, and my earnest hope is that our breeders may at no distant day be so educated in the direction I have endeavored to describe that they will put into practice the only present known means of ridding their herds of a disease which in the past has been so destructive in its consequences.



GUERNSEY BULL, SHYLOCK OF DARLINGTON, A. G. C. C., 4579.
Property of KANSAS EXPERIMENT STATION.



GUERNSEY BULL GLADYS JOHN, A. G. C. C., 6979.
Property of C. J. HAESE, Collins, Wis.

Kansas Experiment Station Guernsey Bull.

ED. HOARD'S DAIRYMAN:—We send you a photograph of our Guernsey bull, Shylock of Darlington 4579. We consider this bull a very fine specimen of his breed. His dam, Nubia's Vesta produced 556 pounds of butter in six months.

Mr. J. F. Schlappi, who was superin-

tendent of the feeding department of the Pan American Dairy Test, while in attendance at the Kansas State Dairy Association, scored this bull before the class and gave him 98 points out of a possible 100. Mr. Schlappi said: "I would not want an animal of better shape and it would be hard to find an animal with any better skin and hair than this bull has. I think this animal is a very fine one and good enough for any man's herd. The College ought to be congratulated on having such a fine animal."

D. H. OTIS.

Manhattan, Kan.

Alfalfa—Hay Caps.—Box Stalls—Queries from New York.

ED. HOARD'S DAIRYMAN:—I have an acre field of alfalfa which was sowed this spring, used 20 pounds of seed with 1½ bushels of oats as a nurse crop. The land was well prepared and enriched by some 12 loads of manure, and 500 pounds of phosphate. The oats were cut for hay when well headed out, the alfalfa plants bring very small at this time, but have grown considerable since and now stand from 8 to 12 inches high; did not cut it this fall, thought it would not grow enough afterwards to protect the roots this winter.

Should I get some soil from some old alfalfa field to inoculate this piece with, and if so, how much? There are no alfalfa fields nearer than 150 or 200 miles that I know of. Don't seem to me the plants are as vigorous as they ought to be, but this may have been caused by the drouth last spring. I am intending to sow 4 acres more next spring. Would you advise plowing a piece of land on which potatoes were raised this year, or simply go over it with a wheel harrow a number of times next spring.

I have a cow stable which is arranged as per diagram inclosed and I would like to know if you consider it advisable to add on some 14 feet in behind the stable and also behind the silo, so as to give me room for a box stall, for cows coming in and for young calves. The only objection I see is that one cannot get any sunlight, only a while in the afternoon, but there is no other place in which I can add it, and have either to add on behind, or build a little separate building nearby.

Where can one buy cotton hay caps which you speak of buying for 12 cents each? I consider HOARD'S DAIRYMAN the best paper for a dairyman, published in the United States. H. P. P.

North Bangor, N. Y.

If the alfalfa is on land which has hitherto borne good crops of common red clover, or if clover does well in that neighborhood, we should attribute the backward state of the field seeded last spring to the drouth. In the matter of infecting the soil with the special alfalfa bacteria we hope the Department of Agriculture at Washington will be able, before next spring, to supply all demands.

It would probably be quite as well to plow the land this fall for next spring's seeding, but this is not indispensable. The more important matter is to prepare a fine seed bed next spring. Work the ground over and over until every lump is pulverized and there is a fine tilth, full three inches deep.

The cotton hay caps are bought in any dry goods store by simply getting a fair article of common sheeting, 40 to 45 inches wide, and tearing it into squares and attaching a light weight—the half of a common horse shoe answers a good purpose—to each corner.

The proposed location of the building for a box stall will be better, all things considered, than a separate building. Give it as much light as practicable.

Creamery Situation in New York.

ED. HOARD'S DAIRYMAN:—The fall of 1903 has noted some interesting features in connection with the eastern creamery situation. Important changes have been made in some of the largest concerns and the future course of these corporations is a matter of some speculation among patrons and others. Meanwhile the Borden people keep calmly along and appear to be the controling force of the future.

The Franklin County Creamery Association, of Vermont, the Cannajoharie Creamery Company and the Bainbridge Creamery Company of New York, together with a few other smaller plants in the country, and some extensive distributing stations in New York city, are now understood to be under one corporation, the Creamery Products Company.

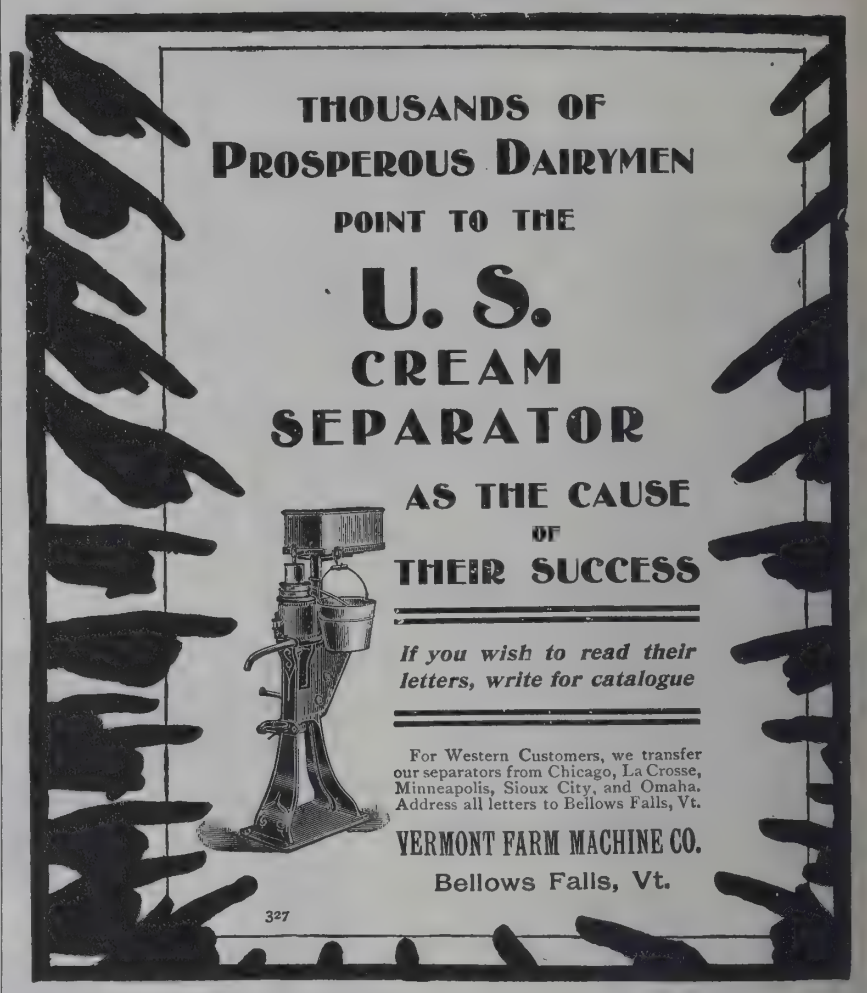
It is said that Mr. Walter Lipe, president and manager of the Cannajoharie Creamery Company for some years, is president of the Creamery Products Co., to succeed Ex-Gov. Smith of Vermont. He will continue as Supt. at Cannajoharie, and has also taken a similar position at Bainbridge, dividing the most of his time between the two plants. Mr. Geo. B. Clafflin has been appointed Supt. of the Franklin County Creamery at St. Albans, Vt., to succeed Mr. T. M. Deal, who has recently resigned, after several years labor there, he having built up the largest single concern in the east, and one that for some time was considered the largest butter making plant in the world.

Mr. W. W. Hovey who resigned the position of manager at Bainbridge, to accept a similar position with the Standard Creamery Co. at Cooperstown, was with the Bainbridge concern nearly two years. He is the son of C. C. Hovey, the founder of the Bainbridge creamery. Mr. C. C. Hovey sold out to the Casein Company of America, and they in turn parted with the title at a good profit. At present the Casein Company are not supposed to hold much of the stock of the creamery company.

Mr. Oakley T. Thorn is said to be managing the financial end of the new concern, while Mr. Walter Lipe looks after the creameries. It is a gigantic concern and well calculated to test the practicability of a large creamery enterprise. It is claimed that prices paid for milk will not be cut, though it is acknowledged that directors are looking for larger returns on their investments than they have been receiving of late.

The Bordens are not far away, though they have no plants in the immediate vicinity of any of these creameries. As regards Bainbridge, there can be no doubt but that the Bordens have, for several years, exercised a greater influence in fixing prices than any other factory. They have no plant in the Susquehanna valley, but the Chenango valley, which joins the Susquehanna thirty-five miles below, is practically controlled by them. Their prices are the criterion for all creameries for a large range of territory.

The Susquehanna valley is a good dairy section, and it would not be sur-



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prising if, some day, the Bordens should enter it. They are to all appearances the great "milk trust," if there is one, of the east. Neither the Milk Exchange, the Pure Milk Company, nor the Creamery Products Co., can compare with them at present.

At the Bainbridge plant many of the old force are retained. Mr. Geo. G. Wiley, who has been assistant in the office for a year or more, is to be assistant manager, it is said, and Mr. Frank Redfield, who has been foreman for a number of years, now has the title of Supt. of the raw products department. Mr. Searles, of the office force, is now head bookkeeper in place of Mr. B. M. Stannard, who has resigned.

Chenango Co., N. Y. H. H. LYON.

Program Missouri State Dairy Association.

FIRST SESSION, TUESDAY, DECEMBER 8, 7:30 P. M

Music - - - - Orchestra.
Address of Welcome for Clinton - - - - - - - - Mayor Armstrong
Response on behalf Association - - - - - - J. L. Erwin, Steedman
Music
President's Address - - - - - W. W. Marple, St. Joseph
Appointment of Committees.
Announcements.
Social Hour.

WEDNESDAY, DECEMBER 9, 9:30 A. M.

My Experience With the Silo. - - - - - John Patterson, Kirkville
Discussion by Joseph Elliot, Windsor, H. F. Hand, Taberville, and others.
Home Grown Balanced Rations - - - - - W. M. Love, Osceola
Discussion by E. Gauss, Columbia, H. T. Burris, Clinton, J. P. Rust, Peculiar
The Cow for the Missouri Dairyman and How to Get Her, - M. E. Moore, Cameron
Discussion by B. C. Settles, Palmyra, M. B. Coleman, Sedalia, Wm. Plummer, Grace.
1:30 p. m. Awarding Premium in Dairy Cow Contest.
Music.
2:30. The Labor Problem on the Dairy Farm - - - - - John England, Callao.
Discussion by A. Dow, Georgetown, H. C. Garman, Sedalia, E. Wolf, Holden
Alfalfa in Missouri - Dr. Geo. Tucker, Columbia, Missouri Agricultural College.
Cheese Making in Missouri - - - - - Frank Moulton, Cowgill
Discussion by F. Whaley, Appleton City, John Haitt, Polo, Geo. Curry, Cameron.
Some Mistakes I Have Made - - - - - J. L. Erwin, Steedman

WEDNESDAY EVENING 7:30.

Music - - - - - Orchestra
Bacteria and Their Relation to Milk - Miss C. Ruth Jackson, Instructor in Agriculture, Missouri State Normal School, Kirksville.
Music - - - - - Orchestra
What the Dairy Cow Would do for Missouri W. F. McSparran, Pennsylvania; Ex-President Pa. State Dairy Association.
Music.
The Problem of City Milk Supply - Robert Pethbridge, Milk Inspector, St. Louis.

THURSDAY, DECEMBER 10.

8:00 a. m. Butter Making Contest at Clinton Creamery.
10:00 a. m. Announcement of Butter and Cheese Scores followed by Business Meeting.
11:00 a. m. Butter and Cheese Exhibits Open for Public Inspection.

THURSDAY, 2 P. M.

The Hand Separator and the Creamery E. H. Webster (Dairy Expert U. S. Department of Agriculture.)
Discussion by L. A. Meyers, Sweet Springs, Rudolph Mills, Macon, A. C. Heins, Corder.
How to Build up a Successful Creamery - - - - - - - W. S. Dille, Holden
Discussion by W. S. Banta, Clinton; Frank Roher, Palmyra.
Business Management in the Creamery J. A. Walker, St. Joseph, Manager Blue Valley Creamery Co.
Discussion by J. H. Wines, Hamilton; L. A. Steel, Marshall; J. D. Ahrens, Corning.

THURSDAY EVENING, 7:30. WORLD'S FAIR SESSION.

Music - - - - - - - Orchestra
The Dairy Cow Contest at the World's Fair - - C. T. Graves, Maitland. (In charge of Jersey cattle in contest.)
Music
Address, Hon. Frederick W. Taylor, St. Louis (Chief, Division of Agriculture, Louisiana Purchase Exposition.)
Missouri at the World's Fair - - - - - Walter Williams, Columbia
(In charge of publications, Missouri World's Fair Commission.)
Music
Missouri Agriculture at the World's Fair - - - - - H. J. Waters, Columbia
Superintendent of Agriculture Missouri World's Fair Commission and Dean Agricultural College.
Music
Missouri Dairy Products at the World's Fair - - - - - - - W. W. Marple
(Superintendent Dairy Exhibit, Missouri World's Fair Commission, President State Dairy Association.)

The income from the average Missouri milch cow is $30 per year. The cows belonging to members of the Dairy Association average over $60 income per year. Come and learn how it is done and tell how you do it.

The average farm-made butter in Missouri sells for 15 cents, but the best dairymen average 25 cents. In which class do you belong?

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Columbia, Mo.

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Berwick Boy 8493, Herbert E. Coffin to C. H. Spear, Madison, Me.
Boney of Greenwood 9884, J. W. Bowman to Frank Solomon, Montgomery, Pa.
Grand Duke's First 8582, W. D. Hoard to P. C. Wied, Weyauwega, Wis.
Gold Anchor 4611, Homer E. Clarke to Ambrose S. Hurd, Monroe, Conn.
Isaleigh York 7354, J. N. Greenshields to Fred C. Jarvis, Toronto, Ont.
Isaleigh York 7354, Fred C. Jarvis to J. C. Henderson, Chilliwack, B. C.
Ned of High Rock 8983, E. S. Thomas to A. F. Clark, Westerly, R. I.
Sampson of Prospect 8602, W. D. Hoard to C. W. Gillett, North St. Paul, Minn.
Walter of Fairview 8985, N. E. Smith to Roy Buck, East Lansing, N. Y.

COWS.

Alex A, of Homestead 16729, Friezette of Homestead 16727, Mary Morgan 16728, L. V. Axtell to Harry Yates, Buffalo, N. Y.
Anna H. 16753, Belle Brandon 5671, Belle Brandon 2d 16741, Belle Brandon 4th 16749, Belle Brandon 5th 16752, Bessie K. 16750, Carrie K. 16744, Clara K. 16740, Latta T. 16746, Quoin 2nd 16736, Quoin 4th 16742, Sarsura 5687, Sarsura 3d. 16738, Sarsura 5th 16748, Sophia K. 16747, Levi O. Knudson to F. Reitbrock & Geo. C. Hill & Son, Rosendale, Wis.
Belle Brandon 3d 16745, Levi O. Knudsen to Chas. L. Hill, Rosendale, Wis.
Bessie K. 16750, Latta T. 16746, Sarsura 5th, 16748, F. Rietbrock & Geo. C. Hill & Son to J. G. Hickcox, Milwaukee, Wis.
Bundy Queen of Willow Bank 16535, Clover Leaf of Willow Bank 16536, Est. John Stebbins to P. L. Dwight, DeRuyter, N. Y.
Carrie's Jewel 16733, Cherry of Westby 16731, Dolly Westby 16734, Pink of Westby 16732, Mrs. Mary Herron to George W. Herron, Westby, Wis.
Elsie N. 13390, Eli Hawkins to C. F. Dimit, Kokomo, Ind.
Kindness Filia 8641, F. Rietbrock & Geo. C. Hill & Son to Orrin W. Jaquish, Ithaca, Wis.
Little Jewel 2nd. 15405, Thomas O. Taylor to Geo. Sam'l Tucker, Peterboro, N. H.
Mary Morgan 16728, John Morgan to L. V. Axtell, Perry, O.
Magdalene 6410, J. B. Palmer to W. E. Blaisdell East Rochester, N. H.
Norah of Lansing 16758, N. E. Smith to Roy Buck, East Lansing, N. Y.
Pansy of Green Ridge 14208, W. A. Harlow & Son to M. J. Loomis, Easthampton, Mass.
Pauline Chief 2nd. 9825, Swift, Brink & Roe to N. E. Smith, Hartford Mills, N. Y.
Sarsura 5687, F. Rietbrock & Geo. C. Hill & Son to L. J. Porter, Rosendale, Wis.
Susie of Wolf Rock 9424, Homer E. Clarke to Ambrose S. Hurd, Monroe, Ct.
Zella 14963, M. L. Welles to Orrin W. Jaquish, Ithach, Wis.

WM. H. CALDWELL,
Peterboro, N. H., Nov. 16 1903.

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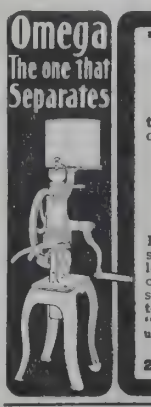
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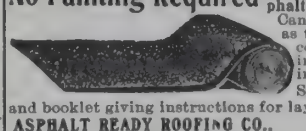
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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of them read dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

COMING EVENTS.

Vermont Dairymen's Association, Burlington, Jan. 5-7, 1904.
Indiana State Dairymen's Meeting, Plymouth, Dec. 10-11, 1903.
Minnesota Dairymen's Association, Fairmont, Dec. 15-17, 1903.
Illinois Dairymen's Association, Greenville, Jan. 5-7, 1904.
Wisconsin Cheese Makers' Association, Milwaukee, Jan. 6-8, 1904.
Ohio Dairymen's Association, Columbus, Jan. 27-29, 1904.
Wisconsin Butter Makers' Association, Feb. 2-4, 1904.
Maine Dairy Convention, Foxcraft, Me., Dec. 2-3, 1903.
New Jersey Agricultural and Dairy Convention, Trenton, N. J., Jan. 14 15 and 16.
Eastern Ontario Dairymen's Convention, Belleville, Ont., Jan. 5, 6 and 7.
Missouri Dairymen's Meeting, Clinton, Dec. 8-10, 1903.
Washington Dairymen's Association, North Yakima, Dec. 29-31.
Massachusetts Creamery Association, Greenfield.
Connecticut Dairymen's Association, Hartford, Jan. 20-21.
Oregon's Dairymen's Association, Corvallis, Dec. 15-16.
Wisconsin Buttermakers' Meeting, Eau Claire, Feb. 2-4, 1904.
Wisconsin Dairymen's Convention at Platteville, Feb. 10–12, 1904.
New. York, Dairymen's Association, Ogdensburg, Dec, 8-11.
New Hampshire Dairymen's Association, Keene, Dec. 1-2.
Penn. Dairy Union, Lock Haven Dec. 2-3.

GATHERED CREAM FROM FARM SEPARATORS AND THE PASTEURIZER.

It is quite evident that the coming evolution of creamery practice is irresistibly toward the separation of cream on the farm by the use of the farm separator, and the gathering of the same by teams. The compelling cause of this change is the saving of labor and cost in the transportation from the farm to the creamery, and the very greatly increased feeding value of the skim milk. The real foundation of the creamery rests in so conducting the business that the farmer shall get out of it all the value there is in it for him. Certain creamerymen seem to think that they should take the first and largest profit and what is left may go to the farmer. But any creamery enterprise conducted on this basis is sure to be short lived, and the capital invested in it is soon put out of commission. It is for this reason that we believe that the farm separator has come to stay, and all future evolution will be in that direction. If this system is adopted, two things become necessary at once, if the butter to be made is of first-class quality.

1. Systematic effort must be put forth on the part of the creamery to educate the cream producer how to care for his cream in a manner that will result in making the best butter possible. Every creamery has it within its power to push such a system of education. All that is necessary is a good understanding, on the part of the butter maker, of the farm and stable conditions of each of his patrons, and good tact, patience and untiring purpose. Before such qualities, the most stubborn ignorance will soon give away.

2. In every gathered cream creamery, the pasteurizer becomes an indispensable part of the machinery. This fact is almost universally recognized in Denmark, the most efficiently organized dairy country in the world.

Instead of blindly fighting the inevitable advent of the farm separator, as some American creamery people are doing, it would be much more sagacious on their part to clear out the difficulties that lie in the road, and do all that is demanded on their part to make it a success,.

The two lines of procedure that we have indicated, will, we believe, end in widely increasing the number of farmers who will become creamery patrons and also greatly improve the butter product.

THE REASON WHY.

There is a large class of dairymen who are very much dissatisfied with the results of the business. We lately sent out 12,000 letters with a stamped, return envelope, to old subscribers who in the past three years had failed to renew their subscription. We requested from them a frank, free statement why they had discontinued reading the DAIRYMAN, and if it was because of any fault on the part of the paper. Fully three-fourths of these people have paid us the especial favor of answering our letter. A large number of them subscribed for the paper again, stating that their failure to renew was mainly through inadvertence or neglect. But fully 75 per cent of those who did not renew, stated that they thoroughly enjoyed and appreciated the paper, but they had become dissatisfied and discouraged with the business from one cause or another, and had gone out of it.

The reasons these men give for their dissatisfaction constitute very instructive reading. It is a look behind the scenes. There are two reasons given that are largely in the majority. These are (1) lack of good, efficient help, and (2) the low profit they get from their cows.

The first is a condition that will require especial effort and enterprise to correct. There is no reason why dairy farmers should not break into the labor market with the same wide awake effort that manufacturers use. Anyway, staying on the farm and waiting for the hired man to present himself has not relieved the tension very much.

But this question of a larger revenue from the cow, seems to be, with a large portion of our correspondents, a most serious stumbling block. The statements they make disclose, in a great many instances, that they are trying to measure the necessities of today with the ideas and standards of fifty years ago. And they honestly wonder that they cannot secure a better fit. We cannot wonder that cows do not pay in so many instances when we note the ideas farmers have about what sort of a cow they want; what sort of a bull they want for her sire; what kind of treatment they will accord her; how they will feed her and care for her.

There seems to be a tremendous lack of real, earnest, studious determination to solve this cow question on right lines. The curse of this dual-purpose idea stands square across the way of breeding better cows. Bulls are selected that have not an ounce of dairy prepotency in them. Somebody tells the farmer that this beef bred bull is of "a milking strain," and that is enough. As well think of breeding trotting horses from two-thousand pound draft stallions if only some one would say they are from "a trotting strain." All these things fall on listless ears. The farmer grinds away with his beef bred cows from a bull still more beefy—from a milking strain—and finds himself ground to powder between the upper and lower millstones. It was for the purpose of opening the eyes of these farmers that we instituted the taking of "Cow Censuses" in various states. HOARD'S DAIRYMAN has piled up the evidence mountain high, that it does pay to have dairy ideas about breeding, feeding and caring for dairy cows. We have shown that hundreds and thousands of men do make cows pay; do get a handsome return from their cows. But in every instance, nearly, such men are doing business with dairy cows and are governed by dairy ideas.

We have shown scores of herds sending milk to the same creamery, where one man with the *right kind of cows* would receive from $1.50 to $2.00 for every dollar spent in feed, and another, because he would not be governed by dairy ideas, was sustaining a loss on every dollar spent in feed. And still the plaint goes up; "I can't make any money with cows," and because this is true, whether it ought to be true, or need to be true, farmers are going out of dairying.

It is a hard struggle, this getting men to acknowledge the truth that is before their own eyes, when their whole life training has been in a contrary direction.

The main hope the country has for a successful class of dairy farmers lies in the young men who have the brain to see and the heart to take hold of the proposition of making true dairymen of themselves.

The twelve thousand letters have proven a "flood of testimony," showing how good men have struggled against a lack of dairy understanding, and could not see that there lay the cause of their defeat. It is so hard for poor human nature to say: "I don't know enough," or "I am wrong." Yet it means that where one man with right ideas succeeds, others with wrong ideas fail.

A GREAT WASTE OF CORN FODDER.

The greatest accomplishment in the way of agricultural progress in the past quarter of a century has been in causing the farmers of the United States to see how wasteful some of their previous ideas and methods had been. Philip Armour, the great Chicago pork packer, once said to the writer:

"The finest brain, the most exhaustive purpose, and the largest employment of capital in this whole establishment is devoted to the prevention of waste."

It was Mr. Armour's boast that he "had utilized everything in a pig but his squeal." He considered it the chief glory of his great fortune to do just that thing.

What a contrast in ideas and things valued, was this man Armour and the farmer from whom he bought his hogs. They fattened hogs for him and dire waste marked every step of the pig's life, until he reached Armour. Most of the pig-raising farmers in the West fatten their hogs and cattle on corn, yet scarcely a thought is given to the question of thorough economy in utilizing the whole plant, stalk as well as ear. If Armour had thrown away 40 per cent of the hog after he had bought him, he would have been in a parallel state with the farmer who raises a hill of corn and pays little or no attention to the value of the stalk.

George B. Ellis, Secretary of the Missouri State Board of Agriculture, has recently called the attention of the farmers of his state to their almost criminal waste of corn stalks. He recounts the following experiment in Missouri to demonstrate the value of good corn stalks as compared with timothy. The experiment was conducted as follows, with good, grade yearling Hereford and Short-horn steers. The trial lasted from December 1 to April 1:

"In no case was any grain of any kind fed. The steers had access to an open shed, under which the feeding was done. A careful record was kept of the amount of feed offered, the amount refused, and eaten, and the gain or loss of live weight.

"The fodder had been cut and cured in the usual way, and allowed to stand in the field in shocks, sixteen hills square, and was hauled as required for feeding. The shredded fodder was exactly like the whole fodder, ricked and topped out with hay or straw. The silo fodder was harvested at the same time as the others, cut into half-inch lengths and stored in a silo until wanted for feeding. These fodders were from alternate rows in the same field, cut at precisely the same time, and in all cases the ears were removed before being cut. The hay was as pure timothy as could be had on the state farm, cut when the seeds were in the dough, cured in the usual way, and stacked in the field until required for feeding. It was our aim to compare the feeds under precisely the conditions the ordinary farm affords:

BIG GAINS MADE.

The results showed especially large gains in weight from shredded corn fodder. The test proved conclusively that farmers are losing big money by wasting this product.

There is not a corn state in America that is not out several million dollars annually through the neglect of this material. In Missouri, this year, at a low estimate, there are nearly seven million acres of corn. It is distressing to contemplate that 30 per cent of the total value of this crop will be wasted through the neglect of the fodder.

"As soon as the farmers learn to follow the example of business men, their waste will stop. A successful factory, packing-house or the like, wastes nothing. Some use is made of all material. If the farmers will only learn to give attention to small details, as do the business men, their profits will increase at a surprising rate."

It Was a Joke.

Surely the authors of Wisconsin Station bulletin No. 102 have perpetrated a joke on Governor Hoard. They say he selected a grade Jersey cow for the University, "to represent his type of a dairy cow for students and economical work in the dairy." Then they say: "The only criticism offered on her is her lack of substance or vitality, and a lack of capacity for feed and work." Is that all? She's like the old negro's horse; "A mighty good hoss, only one of his laigs is cut off." *Jersey Bulletin.*

"*Is that all?*" What more could anybody ask by way of humorous criticism from a Professor of Animal Husbandry in an Agritural College? You wouldn't expect him to be a Bill Nye, or a Mark Twain, would you?

Of course that cow was not the best one in the herd, or the poorest one, so there were limits even to facetiousness. But despite her lack of substance (her weight was 797 lbs.), and incapacity for feed and work, she was made to consume $35.51 worth of feed annually for three years, and gave in return a yearly average of 363 lbs. of butter and net profit of $44.03. Whether her subsequent death from septic bronchitis was due to "lack of vitality" or lack of proper care may never be known.

City Milk Supply.

Excerpt from Bulletin 92, Illinois Experiment Station.

Owing to the many evils resulting from the use of impure milk, special interest has recently been taken in the quality of milk furnished in our cities. On account of this interest Wilber J. Fraser, Chief in the Department of Dairy Husbandry at the Agricultural Experiment Station, has prepared Bulletin No. 92 on "City Milk Supply," which is now in the hands of the printer. This bulletin treats of the need and the value of high grade milk for direct consumption and the methods that should be used in its production.

The following is an abstract of this bulletin:

The consumer is especially interested in five things in connection with his milk

supply and for these the producer should be responsible:

First, that the milk furnished him have a certain known composition which is uniform from day to day.

Second, that the milk keep a reasonable length of time, at least twenty-four hours, after being delivered, if kept at a temperature of 60 degrees or below.

Third, that the flavor of the milk be not injured by improper feeding, careless methods in handling the milk, or by the development of certain species of bacteria in the milk which cause bad flavors.

Fourth, that the milk be not injurious to health; that is, that it contain no disease-producing germs, or any form of preservative.

Fifth, that the milk be clean.

The consumer has the right to demand information on the above, and unless such information be furnished should refuse to take the milk. The public has long been defrauded by dishonest and unscrupulous milk dealers and the honest dealers have been, and are still having a hard fight with dishonest competition.

The most effective remedy for this difficulty is for the public to patronize only those who furnish a good grade of milk and are willing to guarantee it.

COMMON METHODS ARE FAULTY.

The evils resulting from the use of impure milk are so numerous and the methods commonly employed in its production so faulty, that everyone interested in the public welfare should be anxious to assist in bringing about an improvement. Some of the reasous for this may be briefly stated as follows:

No other article of food is so generally used by all classes of people.

No article of food is more healthfnl and economical than milk when pure, and none is more dangerous to health when carelessly handled.

Much of the milk for direct consumption is used in its raw state.

Since the invention of the Babcock test and the cream separator, every dairyman can easily standardize the milk and cream he sells.

Milk being an opaque liquid, its quality and cleanly condition cannot be easily detected by its appearance.

Milk is an ideal medium for the growth of germs; because of this it is especially important that it be handled with the greatest care and that no disease germs be allowed to gain access to it.

Many infants and invalids subsist almost, if not entirely, upon milk and it is of vital importance that milk for such persons be as pure and free from bacteria as possible.

To secure desired results care must be exercised in every step of milk production and delivery. There is no use in observing all but one of the precautions necessary for the production of high grade milk, as this one neglect spoils the whole.

It is true that it costs more to produce milk under good conditions than in the ordinary, slovenly manner, but when the public becomes educated up to the advantages of such milk they will be willing to pay the extra cost of producing. However this extra cost is but slight and even then leaves four per cent milk at seven cents a quart, cheaper than meat.

The grade of milk known as "certified" is nothing more than milk of an known composition, as clean and free from bacteria as science and skill can make it. Some of the essential points in its production are here noted.

The yard must be covered with gravel or cinders sufficiently deep to keep the cows out of the mud.

The stable need not be of costly construction, but it must be arranged with a view to cleanliness and the comfort of the cows. This includes cleaning the stable twice a day when the cows are in all the time, whitewashing it at least once a year, and providing an abundance of light and pure air.

Since it is during the process of milking that milk as ordinarily produced receives the greatest amount of contamination, all udders must be washed before milking and the milkers must wash their hands and put on clean suits of some washable materal.

THE CONSUMER'S RESPONSIBILITY.

That milk may reach the table in first class condition, the consumer has responsibilities as well as the producer. The milkman is frequently blamed for many things for which he is not responsible. However perfect the condition and low the temperature of the milk when delivered, it cannot remain long in good condition unless carefully treated. If milk is to keep it must be held at a low temperature, at least 60° F, and below if possible.

If milk is not delivered in bottles, care must be taken to protect it from dust and it must be placed where there are no odors to be absorbed. Bottled milk being sealed with a pulp cap, cannot absorb odors and should be left in the bottle until used, not turned into an open dish.

IMPROVING CONDITIONS.

"Certified" milk should be the only standard and it points the direction for improvement over the common methods of milk production. Most of the conditions for the production of certified milk are not expensive. With the majority of dairymen only a few call for the outlay of additional money. The most important conditions, those involving cleanliness and safety can be secured without appreciable expense; here improvement can begin and should begin at once and go forward as rapidly as possible until all milk offered for direct consumption is produced according to the standard for certified milk.

Among the reforms that can be secured at insignificant expense and which should be universally insisted upon are the following:—

To keep the cows clean and not compel or allow them to wade and live in fifth. This means clean yards and clean, well-bedded stalls. Everything short of this is positively repulsive and should not be tolerated any longer in a civilized community.

To stop the filthy practice known as "wetting the teats" by which is meant the drawing of a little milk into the hands with which to wet the teats before and during milking, leaving the excess of filthy milk to drop from the hands and teats into the pail.

To wash all utensils clean by first using luke warm water; afterwards washing in warm water and rinsing in an abundance of boiling water, then exposing until the next using in direct sunlight, which is a good sterilizer.

To use milk pails, cans, etc. for no other purpose but to hold milk.

To keep out of these utensils all sour or tainted milk, even after they have been used for the day. Using them for this purpose at any time infects them so badly that no amount of washing is likely to clean them. Bacteria are invisible, and millions can find lodging place in the thin film of moisture that remains after dishes are apparently clean.

To brush down the cobwebs and keep the barn free from accumulations of dust and trash

To whitewash the barn at least once a year.

If these changes can be brought about they will secure a comparatively clean product and the improvement will amount almost to a reformation in the milk producing business. These changes involve but insignificant expense either in money or labor, and there is no rational reason why they should not be made without delay, voluntarily if possible, by compulsion if necessary.

When the dairy and surroundings are in the best shape possible for the present, a statement should be made as to the conditions under which the milk is produced, not claiming more than is actually carried out each day. By gradually raising his standard the industrious dairyman may in time work up to the grade known as certified milk.

Improving city milk supply is a matter of educating the public to demand better milk and when the advantages of high grade milk are fully appreciated, people will be willing to pay the extra cost of production. The consuming public and the better class of dairymen are alike interested in bringing about these improvements with as little delay as possible.

NEED OF INSPECTION.

There are and doubtless always will be certain men producing milk who, from the slovenly methods they practice, are a disgrace to the dairy business. Such laws should be enacted and such a system of inspection instituted as will compel these men to be decent in their practices in handling milk, or quit the business? It is time the dairymen moved in this matter and asked for inspection. If they do not the public will soon do so and when such matters are taken in hand by those who do not have the necessary technical information on the subject, unwise methods are frequently employed. In such cases the business may be injured and injustice done to good and honest dairymen who are putting out a good grade of milk.



Producing Certified Milk. Washing Udders Before Miking.

Tuberculosis and City Milk.

ED. HOARD'S DAIRYMAN:—I enclose you a clipping from a Louisville, Ky. daily paper which I would like for you to read and then give me your opinion. I am shipping milk to Louisville, Ky. and I fear we will have to test our cows for tuberculosis. From the best information I can get this disease is not conveyed from the cow to the human system by drinking the milk. I want to be prepared in case this is demanded of us. * *

Indiana.

The "clipping" simply reports the examination by tuberculin test of the cows at one of the Kentucky state institutions, with result that numbers of them reacted to such an extent as to indicate tuberculosis. Some of the cattle are to be killed and post mortem examinations made to ascertain to what extent the disease has developed. The suggestion is made that if these post mortem examinations confirm the indications of the test, other herds will be tested and possibly regulations will be made prohibiting the selling of milk in Louisville and elsewhere from herds where the tuberculin test does not indicate the absence of tuberculosis.

Our personal opinion as to whether such a regulation would be wise is of no account. It is competent for Boards of Health or City Councils to make such regulations, because the evidence as to the communicability of tuberculosis by milk from infected cows is conflicting. But aside from this, we do not hesitate to say, that for his own protection and and profit, to save his herd from impending ruin and to promote an increased demand for the milk, no dairyman should hesitate to have his herd tuberculin tested.

In this connection read carefully the address by Hon. Mr. Edwards printed on page 939.

The Georgia Experiment Station cures pea vine hay in permanent shocks of 800 to 1000 pounds and puts hay caps on them. These need sunshiny weather and to be partly cured before being piled.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condence the questions into plain epecific inquiry. Be careful to note if your questions eave not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

A Pennsylvania Ration.

Will you kindly formulate me a ration for my cows from wheat bran, $18.25; brown middlings, $18.75 per ton; red dog, $1.40 or $22.25 per ton; snow cream middlings, $22.25 per ton; oil cake meal, $25.00 per ton; timothy and straw for roughage. Will have some fodder corn but none to speak of. I think corn meal is about $22.50. My cows are mostly Jerseys and came fresh the latter part of summer and fall. G. W. A.

Sugar Creek, Pa.

We suspect the so-called brown middlings is nothing more than re-ground bran, with possibly an admixture of some weed seeds and mill sweepings. Just what snow cream middlings may be we cannot guess. Red-dog flour is about on a par with first-class, old-fashioned middlings, but we do not consider it or ground corn specially called for in this case, although it may be fed if circumstances seem to indicate the need of something a little heavier than bran. We suggest that this inquirer try 2 lbs. of the oil meal, commencing with less if cows are not used to it, with six lbs. bran as a daily allowance, and timothy hay and not overmuch straw, all the cows will eat with relish.

(Continued on page 952.)

Barn and Stable Plan.

For 40 Cows, 8 Horses, Calves, Swine and Poultry.

ED. HOARD'S DAIRYMAN:—I had my barn and machinery house, with contents of both, destroyed by fire the latter part of September. Loss $4,000 with an insurance of $1,250. Rebuilt silo the next week, and have it filled (about 150 tons). Have about seven acres good corn to husk. Will have to buy balance of feed for 26 cows and 4 horses. I have taken your paper for a number of years and have received a great deal of useful information from its pages.

Have built a temporary stable for cows for this winter. Expect to rebuild barn next summer and want to commence getting ready this fall. Want barn large enough for 40 cows, 6 or 8 horses, calf stable, hog pens and chicken house. Want all under same roof. I also want room large enough for gas engine and cream separator.

Which would be better and cheaper, a square or round barn? I would like all the information I can get through HOARD'S DAIRYMAN. I never built a barn before. Am anxious to build a convenient barn for dairying purposes and any help you can give me on the subject will be thankfully received.

Emlenton, Pa. J. C. McCOY.

In a subsequent letter Mr. McCoy says that if he locates this barn east of, and in direct line with, dwelling, he can have a good driveway to floor above basement, with entrance facing the south, while by going 250 to 300 feet south he could have a similar entrance facing north. In his opinion the location first named would be the more convenient, but the plan we suggest does not fit in with an entrance from the south, as there would be too little opportunity for getting sufficient sunlight into the stables. Abundance of sunlight is a great desideratum, and one could well afford considerable inconvenience to obtain it.

As will be seen from the diagram, our suggestion provides for a frontage 100 feet long and 20 or more feet wide, with two diagonal wings, each 34 feet wide and 85 feet long. At first sight this may appear to be an unnecessarily large and expensive structure, but one cannot house 40 cows, 8 horses, a bull and young stock in a common sized barn. The cows alone will require at least 130 lineal feet for stall room, and this with two box stalls and the necessary passages, will take all the space afforded by one of the wings. We have marked divisions in the other wing for horses, calves, swine and poultry, but our judgment is, that it would be better to provide for the swine and poultry elsewhere, and use the space allotted to them for yearlings, colts and other young stock with one or more additional box stalls.

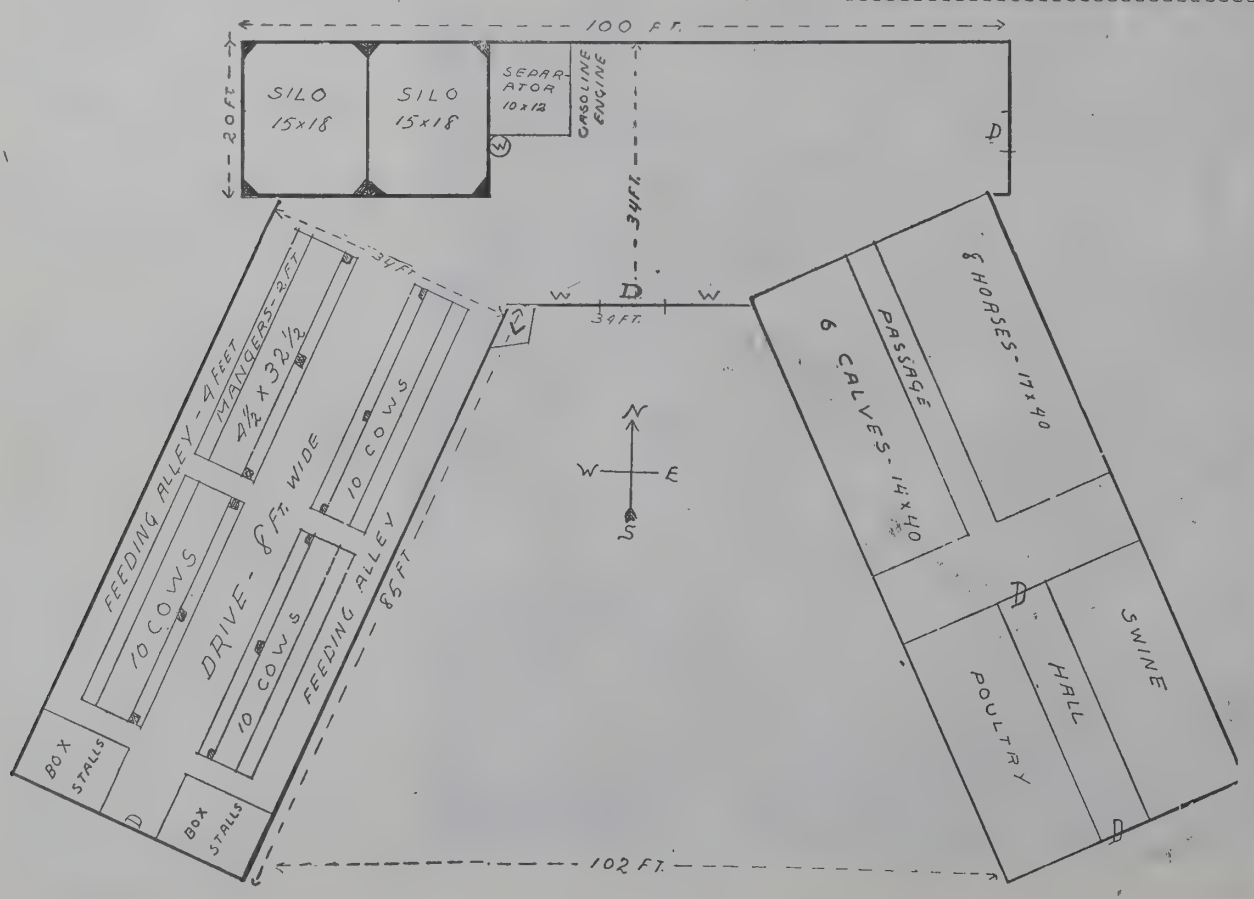
The merit of this plan, if it has any, over others which we have submitted, is that whenever the sun shines, its rays reach into the stables, but only early in the morning or late in the afternoon directly into the faces of their occupants, and by making the front or main building wider, sufficient storage room could be obtained so that the wings or stables need be only one story in height.

The gasoline engine is so located that it can easily be connected, not only with the separator, but with a pump, a grinding mill, and with the silage cutter placed in front of the division between the silos, where the carrier can be arranged to deliver the silage into either pit, and thus avoid the necessity for moving the heavy machinery.

Half of the basement under the main building is not subdivided on the plan, but can be profitably utilized for various purposes. We have marked a door on the east end, where one may drive in and out, and if not needed for other purposes this vacant space may be used for storage of vehicles of all kinds. If this entrance would fit in more conveniently with other buildings when located on the west end, it will be an easy matter to transpose the wings and locate the silos in the opposite end.

A THOUGHT ON MOTHERHOOD.

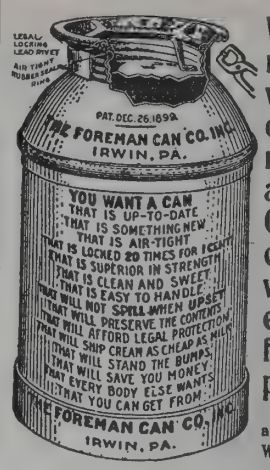
There is a good deal more to this thing of dairying than the mere selfish calculating side of cow and cash. And, let us



For Present Time
For Future Time
For All Time
ELGIN
TIME

Every Elgin Watch is fully guaranteed. All jewelers have Elgin Watches. "Timemakers and Timekeepers," an illustrated history of the watch, sent free upon request to

ELGIN NATIONAL WATCH CO., ELGIN, ILL.



We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity 1000 cans daily, which should enable us to fill all orders promptly.

Every can sold on a guarantee.

Write for Circular H

DON'T SEND A CENT Try a "1900" Washer for 30 days, free of all charges, freight prepaid both ways. The "1900" Ball Bearing Washer is the simplest, easiest machine ever made for washing clothes. Saves time, money and worry. Write at once to "1900" Washer Co., 219 A State St., Binghamton, N. Y.

PURE OIL MEAL. USE FOR MILCH COWS AND FATTENING STOCK.

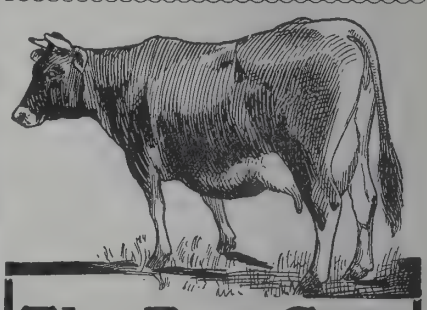
Superior to corn, oats and hay. Car Lots $20.00; Ton Lots $21.50; Half-Tons $11.50; 500 pounds $6.25; 100 pounds $1.50. Put up in 100-pound sacks f. o. b. Minneapolis. Cash with order.

This Meal is Guaranteed Absolutely Pure. We also manufacture Strictly Pure Linseed Oil.

NORTHERN LINSEED OIL CO.,
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RUBEROID
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ROOFING and GIANT PAPERS
FOR INSULATING SILOS
WATER PROOF, AIR TIGHT
They keep Silage dry, cool and healthful. Send for Booklet H.
THE STANDARD PAINT COMPANY
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The Best Cow

you ever owned would be a better cow both in general condition and milk yield if fed a regular ration of

Alma Dried-Molasses Beet-Pulp

When pasture is insufficient or altogether lacking this Food supplies just the needed elements to maintain the maximum yield of milk. It is better than bran and costs less.

Let us send you our printed matter which tells how careful we are to have it proportioned just right and absolutely clean. See, too, what others think about it.

Alma Dried-Molasses Beet-Pulp is unlike many patent "stock-foods." It is a natural product and contains no drugs or other injurious ingredients.

Sanitary Milk Co., Grand Rapids, Mich., writes: "Send a second carload. We find it as a milk producer better than bran."

If you are feeding stock for the market you will find **Alma Dried-Molasses Beet-Pulp** fed with grain the best fattener, because it increases the appetite, aids digestion and assimilation.

Do not confuse this with wet beet pulp which freezes and ferments, or with common dried pulp containing no additional sugar. It takes 16 tons of wet pulp to make one ton of our Food and it keeps indefinitely. The genuine Alma Dried Molasses Beet Pulp contains 72 times as much sugar as wet pulp, and nearly 5 times as much as common dried pulp.

Write to-day for prices, directions for feeding, analysis by U. S. Government expert, etc. Address

Dept. 6, Alma Sugar Company.
Alma, Michigan.

MILL FEED We sell direct to consumers at lowest wholesale mill prices, paying no rebates to dealers in your locality. Send your name for regular quotations. No charge. COOPER COMMISSION CO., 754 Andrus Bldg., Minneapolis

For Sale

Machinery for Creamery. New. Inquire of
BRADLEY COMPANY, TOMAHAWK, WIS.

Cream SEPARATORS
All about them and other things for the dairy and creamery.
A. H. REID, PHILADELPHIA

Christmas Presents For All



Christmas time is spending time. Jolly old St. Nick can successfully manipulate the key to our purses when all other attempts fail.

Let us suggest the advisability of buying all your Christmas presents from the largest and most reliable stock in the world selling direct to the user and saving you the jobbers', dealers' and agents' profits.

Our prices are always the same — the lowest. We cannot take advantage of the liberal Christmas spirit and advance our prices as some do, for our regular catalogue figures must stand for all seasons.

We can send you everything you want in one shipment, saving you endless effort and delay in buying from several sources.

By purchasing your entire Christmas needs from us we believe you will save almost one-third of the regular Christmas prices you would pay elsewhere.

It is easy to order from our 1128-page Catalogue No. 72, with fine pictures of the articles you desire, and you can do it all in one evening with scarcely any effort.

Once your order is mailed you need not think of it again until you get the goods, for we will take care of it promptly and carefully, guaranteeing safe delivery and perfect satisfaction.

Your neighbors who know will tell you it is a pleasure to deal with us.

We mention here a few suggestions, all taken from our Catalogue No. 72.

Thousands of other desirable presents for every member of the family, from the hired man down to the baby.

If you have never seen our big catalogue you have missed a great treat. It's never too late to begin, however. Fill in the coupon and mail to us to-day. Don't wait until it is too late to get your goods before Christmas. Although the catalogue costs us almost one dollar each, we make no charge for it, only asking you to send 15 cents to bear part of the postage expense of sending it.

For Men:

Pair of slippers.
Smoking jacket.
Smoking set.
Half dozen dress shirts.
Half dozen colored shirts.
Silk umbrella.
Pair of gloves.
Dozen initial handkerchiefs.
Morris chair.
Shaving cabinet.
Leather couch.
Shaving set.
Neckties.
Match box.
Suit case.
Watch charm or fob.
Half dozen pairs half hose.
Pair of suspenders.
Pocket or bill book.
A good warm cap.
Heavy overcoat.
Muffler.
Fleece lined mittens.
Warm overshoes.
Magnifying glass for reading purposes.
A pair of boots.
Buckskin mittens.
Sweater.
Banjo or guitar.
Box of collars.
Meerschaum pipe.
Box of cigars.
Shot gun.
Cigar Jar.
Hunting Jacket.

For Women:

A pretty apron.
Dress pattern.
Wrap or bonnet.
Toilet set.
Manicure set.
Sewing machine.
Piano or organ.
Hat.
Handkerchiefs.
Pair of fine shoes.
Books.
Leather purse.
A new carpet or rug.
Piece of cut glass.
Tableware.
Pair of glasses.
Warm mittens.
Medicine cabinet.
Easy chair.
Bible.
Cut glass flower vase.
Jewelry.
Silverware.
Fine clock.
Bronze parlor ornament.
Set furs.
Up-to-date suit or jacket.
New stove.
Dining table.
Box stationery.
Talking machine.
Pair of gloves.

Cut this slip out and send it with 15c in stamps TODAY.

MONTGOMERY WARD & Co., Chicago.

Enclosed find 15 cents for partial postage on catalogue No. **72,** as advertised in Hoard's Dairyman.

Name_____
(Be sure and write very plainly.)

Postoffice_____

Route No._____ County _____ State_____

Montgomery Ward & Co.,

Michigan Ave., Madison & Washington Sts., Chicago

44 32 years World's Headquarters for Everything.

say here, that the man who looks at it from the larger, more humane side will be rewarded by the poetic justice of a better cow and more cash. But human selfishness in its cold, dark calculations very often defeats itself. The old Bible, so wonderfully right in its views of life, carries this thought when it says:—"The merciful man is merciful to his beast." And in another place we read the old Levitical law:—"Thou shalt not muzzle the ox that treadeth out the corn."

But the sum of all this doctrine, when applied to practical affairs, is contained in that wonderfully true passage:—"The liberal man deviseth liberal things, and by liberal things shall he stand." The dairy farmer must make way for such thoughts. He of all other men cannot afford to be blind to the merciful, humane side of life, for of this is the kingdom of successful dairying. He is constantly dealing with the order of *Mammalia*, and as has been said: That is most distinctively the order of motherhood." The following from Henry Drummond is worthy the thought and consideration of every dairy farmer:

"Watch any higher animal at that most critical of all hours—for itself and for its species—the hour when it gives birth to another creature like itself. Pass over the purely physiological processes of birth; observe the behaviour of the animal-mother in the presence of the new and helpless life which palpitates before her. There it lies, trembling in the balance between life and death. Hunger tortures it; cold threatens it; danger besets it; its blind existence hangs by a thread. There is the opportunity of Evolution. There is an opening appointed in the physical order for introduction of the moral order. If there is more in Nature than the selfish Struggle for Life, the secret can now be told. Hitherto the world belonged to the Food-seeker, Self-seeker, the Struggle for Life, the Father. Now is the hour of the Mother, and animal though she be, she rises to her task. And that hour, as she ministers to her young, becomes to her, and to the world, the hour of its holiest birth."

Churning Whole Milk.

ED. HOARD'S DAIRYMAN:—Will you please tell me if I can churn a milking fresh from the cow and obtain the full amount of butter by the process? I mean, of course, the same amount of butter that could be obtained if the milk had been run through a separator.

Would the process of obtaining butter in this way take any longer than in the ordinary way? WM. M. U.

Oconto, Wis.

Churning whole milk is an exceedingly wasteful method of obtaining butter. Not only is there a large percent of fat left in the buttermilk, one per cent is not uncommon, but there is 5 times as much buttermilk as when cream is churned, which would also increase the loss of fat. Consequently churning the whole milk is one of the lost arts in dairying.

A Maryland Ration—Cotton Seed Meal and Abortion.

Will you please give me a balanced ration of the following feeds; want to feed so as to get most cream I can; have silage and shredded corn stover; corn, 45 to 50 cents per bushel; bran, $21 per ton; cotton seed meal, $1.50 per hundred. Size of cows from 600 to 1,000 lbs. each; all grade Jerseys and Durhams.

Also how much cotton seed meal does it take to make cows slip calves, or will it do it?

Frederick, Md. L. B. H.

For the smaller cows, unless they are heavy milkers, try the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
40 lbs. silage	10.66	.52	5.60	.28
10 lbs. stover	5.95	.17	3.24	.07
2 lbs. cotton seed meal	1.86	.74	.34	.17
4 lbs. bran	3.52	.50	1 54	.12
Total	21.99	1.93	10.72	.64

Or, if the cows refuse to eat so much roughage, add, say, 2 lbs. ground corn. For the larger cows, if in full flow of milk, add some ground corn to the above formula.

And do not forget salt every day, either where the cows can have access to it at will, or a large teaspoonful night and morning.

Cotton seed meal in any reasonable amount is not considered provocative of abortion, but with cows inclined that way, we should use cotton seed meal very sparingly if at all.

Rye Protegran.

You will please give feeding value of Rye Protegran as a feed for dairy cows at $17.25 per ton and would it be cheaper than Buffalo gluten at $24.00. C. T. F.

Minerva, Ohio.

"Rye Protegran" is a new name in feed stuffs nomenclature. The etymology of the term suggests that it may be dried distillers grains from rye. It is probably a good feed, but we would insist upon a guaranteed analysis from the seller. If it contains 20 per cent of crude protein it is about on a par with gluten feed at the prices named.



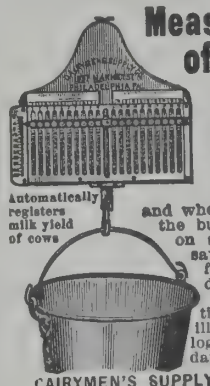
We would like to talk to you just a few seconds on the value of the telephone to the farmer. Possibly you know its worth already, but would like to know more about the right kind to buy. If you buy a

Stromberg-Carlson Telephone

you can't go wrong. Send five 2-cent stamps for our 128-page telephone book for the man that wants to know ALL. Or send for free book F-15 "Telephone Facts for Farmers." Address nearest office.

Stromberg-Carlson Tel. Mfg. Co., ROCHESTER, N. Y. CHICAGO, ILL.

Measure the Milk of each Cow



With the **Automatic Milk Scale** you can keep an accurate record of the yield of each cow, and remove the unprofitable ones from the dairy. Each button on scale arm corresponds to number of cow, and when pail of milk is weighed the button registers the weight on score card. Big money saver and money maker for farmers and dairymen.

Send for testimonials and illustrated catalogue of **Bestov** dairy supplies.

TRADE MARK BESTOV

DAIRYMEN'S SUPPLY CO., Philadelphia, Pa.



We want every dealer in and user of,

MILK BOTTLE CAPS

to receive our catalogue. We can supply your wants at prices that are right.

Write us.

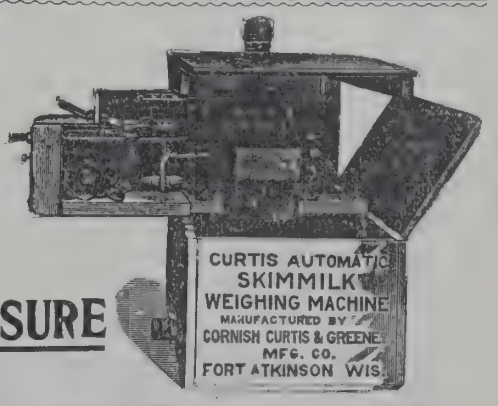
BAVIER NOVELTY CO., WINDSOR, CONN.

Skim Milk

Often goes to the wrong man for the simple reason that the patrons have no standard of

WEIGHT or MEASURE

and the last man suffers.



FULL DESCRIPTIVE CIRCULAR FREE.

Cornish, Curtis & Greene Mfg. Co.,

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for....
DE LAVAL ALPHA SEPARATORS.

Fort Atkinson, Wis.

New Hampshire Dairymen's Meeting.

The Nineteenth Annual Meeting of the Granite State Dairymen's Association will be held in connection with the Annual Winter Meeting of the State Board of Agriculture at City Hall, Keene, Dec. 1, 2 and 3, 1903. Reduced railroad rates from all parts of the state will be in effect and a most successful meeting seems assured.

PROGRAM.

TUESDAY, DEC. 1, 11 A. M,

Invocation - - Rev. F. P. Drew, Keene
Address of Welcome - - - - - Hon. James F. Taft, Mayor of Keene
Response and Address - Hon. Joseph B Walker, - Chairman State Board of Agriculture
Address, Wood Industries of Cheshire County as Effected by Forestry Movements - - - - Robert E. Faulkner, Keene

AFTERNOON SESSION, 2 O'CLOCK

Address - - Agricultural Education
Wm. D. Gibbs, Durham, President College - of Agriculture and Mechanic Arts
Address - - Adulteration of Foods - H. E. Barnard, Concord, State Chemist
Address - The Farmer's Duty as a Citizen
Hon. J. H. Bringham, Washington, D. C., - - Assistant Secretary of Agriculture.
Address - Agriculture in the Public Schools
Dr. A. C. True, Washington D. C. Director - - - - - of Experiment Stations
Address - - - Birds on the Farm
Prof. E. H. Forbush, Concord, Mass, Ornithologist Mass. Board of Agriculture
Address - - - - Rural Development - - Governor Nahum J. Bachelder

WEDNESDAY, DECEMBER 2.

President's Annual Address - - - - James L. Gerrish L. Contocook
Address - - The Red Polled Cattle - - - George H. Wadleigh, Tilton
Address - - - Silos and Silage - - - Prof. F. W. Taylor, Durham
Address - - Cheese Making on the Farm - - - Mrs. Nathan B, Cox, Ashland
Address, The Formation of a Profitable Dairy Herd - Arthur B. Hough, Lebanon
Address - A New Profession for Women
Miss Annie F. Burbank, Graduate Department Household Arts, Framingham, Mass
Address, A Comparison of the Dairy Methods of the United States and Europe - - - - Instructor Ivan C. Weld, Durham
Address - Requirements of Modern Dairying - Professor John W. Decker, Columbus, Ohio

SECOND ANNUAL BANQUET AT THE CHESHIRE HOUSE, 8 O'CLOCK.

Ex-Mayor Horatio Colany, Toastmaster.

His Honor, Mayor H. F. Taft of Keene, His Excellency, Governor Nahum J. Bachelder, President William D. Gibbs of the New Hampshire College, and other distinguished speakers have accepted invitations to participate in the exercises.

THURSDAY, DEC. 3, 9 A. M.

Address - - - - - - Dairying
Truman Gilson, Berkshire Park Farm - - - - - - - - Pembroke
Address - Feed and Care of a Dairy Cow - - - Prof. E. L, Shaw, Durham
Address, The Development of the Retail Milk Trade, W. D. Hayden, Middlebrook Farm - - - - - - - - - Dover
Address - - Dairy Insurance Policies
Prof, J. L. Hills Director Experiment Station - - - - - Burlington, Vt

Business Session, 12.45 p. m.

There is a large premium list for details of which address the secretary I. C. Weld Durham N. H.

A Grass Report from Mr. Clark.

ED. HOARD'S DAIRYMAN:—Below please find report of my second and third grass crop, together with a total crop for this year as compared with the crop of 1902. My total second crop, 1903, from 14⅝ acres was 66,212 lbs.

3½ acres, not well cultivated, produced only 2,100 lbs., 600 lbs. per acre.
2¾ acres, produced 18,900 lbs., 6,871 lbs. per acre.
⅞ acres produced 6,518 lbs., 7,732 lbs. per acre.
The balance, 7¼ acres, produced 38,690 lbs., 5,338 lbs. per acre.

First crop 1903 was ..... 110,729 lbs.
Second crop 1903 was ..... 66,211 lbs.
Third crop 1903 was ..... 1.750 lbs.

Total, first, second and third crops, 178,690 lbs.

Average 12,218 lbs., which was an average of 951 pounds per acre more than 1902 crop, which was 164,794 lbs., averge per acre 11,268 pounds.

The total crop from ⅞ of an acre in 14 years, first and second crop, one seeding, 114 tons, 428 pounds. The surface of this field to start with had little, if any, vegetable matter upon it, nothing but clay, gravel hardpan. First, it was intensely cultivated, nothing but bone, potash and nitrate of soda has been used from the start for fertilizer, at a total cost not exceeding $250 in the 14 years, or less than $2.25 per ton of hay gathered.

The seeding was 14 quarts of timothy and 14 quarts of re-cleaned red top per acre. The crop this year has the same relative amount of timothy and red top as when originally sown. Some of it will be shown at the St. Louis Fair next year, There will also be shown samples from other parts of my grass field. The most remarkable sample will be shown from a quarter-acre section where the first crop cut this year was over 4 feet in height and weighed 2,471 pounds; second crop cut this year was over 3½ feet in height weighed 2,240 pounds, making 7½ feet in height.

Each crop was fully headed and blossomed. The third crop did not blossom, but weighed 1,750 pounds, or at the rate of 3½ tons to the acre. The total weight of the three crops from this quarter acre section was 6,401 pounds, or at the rate of 25,644 pounds per acre, fertilizer cost less than $2 per ton.

A blizzard struck 8 acres of my second crop while drying and lifted tons of it into the adjoining forest; except for that I certainly should have had 40 or more tons instead of the 33 tons which I secured.

I have a hay press never used before this year but once. This year I found it necessary to press my first crop to get the second crop in the barn, which is 60x60x30 feet up to plate. The 5½ acre plum orchard still continues its phenomenal growth without fertilizers, making this year, as last, over 300 feet growth to the trees. The intense cultivation given it by the Clark's Double Action Cutaway Harrow is still doing its work and the grass crop from the same cause is giving similar results. While we had two months in the spring without any rain, yet this year's total crop, as before stated, has an average of over 6 tons to the acre, nearly 1,000 pounds gain to the acre over last year.

If your patrons will send George M. Clark, Higganum, Conn., a 2-cent stamp, they will get a circular telling how it is done. GEORGE M. CLARK.

Higganum, Conn.

He is Ahead on the Deal.

The following letter shows that it pays to keep a friend like HOARD'S DAIRYMAN close at hand for times of emergency.

ED. HOARD'S DAIRYMAN:—I saved a cow from death by milk fever a week ago through using a remedy advertised in your paper of Oct. 16th. I figure that I am about $39 ahead for this year through HOARD'S DAIRYMAN in this one instance.

Portage, Wis. E. O. R.

Slow Churning of Cream.

ED. HOARD'S DAIRYMAN:—I am an old man (74), with one cow, make butter and like to boast of quantity and quality. While able to care for her I want the best. Have had trouble last two churnings (get about 1 lb. a day); formerly 15 minutes or less was time enough, but now one hour is required.

What is the science or philosophy of churning? Is violent agitation required? Is it the idea to bring every particle of cream into contact with air? Have a thermometer and when it indicates 70° the one used in sitting room will be about 80°—about 10° difference in air. Should it be so, and if so, why?

I feed about a peck of sour apples per day, ½ morning and ½ evening. Would they affect cream so as to injure butter or require more churning? Otherwise she is fed same as when we could get butter in 10 or 15 minutes. D. F. H.

East Onondaga, N. Y.

The trouble may be due to any one of several causes. If the cow is nearing the end of her period of lactation, it would be sufficient reason for poor and slow churning. At this period the fat globule in the milk is smaller, harder and of a higher melting point than when the cow is in fresh milk.

The milk also is more viscous and the result is difficult and prolonged churning. Something may be done to help matters by washing the cream, that is by adding twice its volume of water and then running it again through the separator, or setting and allowing the cream to rise again. This washes out the albumen and makes easier churning.

In case of a single cow like the above, the physical condition of the animal may cause the difficult churning. The trouble may also come from a slight degree of ropy fermentation indicated by a want of the proper amount of acid in the cream. Which one of the above reasons is the cause for poor churning we are unable to say from the data given and the cause can only be determined by local examination.

Churning is caused by agitating the cream with sufficient violence to bring the fat globules in contact. If the temperature is correct so as to make the globules soft enough to stick together, the butter will separate and the cream will churn. If the temperature is too low and the fat globules too hard there will be no separation of butter and no churning. Air has no influence either in helping or hindering the churning, although it is claimed that air has a bad influence on the flavor of the butter.

The thermometers will register the temperature of the place where they are kept, and there is nothing strange in a difference of 10° in the temperature of the two rooms. If there is such a difference when the thermometers are side by side, one, or possibly both, may be grossly incorrect. It is not probable that the apples affect the churning, as acid silage has no such effect.

CONCERNING OUR ADVERTISERS

We are glad to call attention in this way to the steam feed cooker advertised elsewhere in this issue and made by the Purinton Mfg. Co. of Des Moines, Iowa. This is not a kettle or tank cooker, but is actually a little steam boiler, being well and durably made of sheet steel, and by means of jointed pipes can be made to cook a dozen barrels of feed without unscrewing any of the barrels. The advantages of cooked over uncooked feed need no argument from us at this time, but we are glad to emphasize the better quality of steam cooked feed. Feed prepared in this way is never burned or scorched, and consequently it is palatable to stock, and they eat and enjoy it. This boiler is useful also for many other purposes, which it is unnecessary for us to name. Now that winter is actually upou us, many who have put off buying something of this sort will be interested in this, and we hope they will write the advertiser. They make a generous offer to send out a machine on a week's free trial. This certainly shows their confidence in it. Write them today and address Purinton Mfg. Co., Dept. E., Des Moines, Ia., and mention this paper.

Prize Puzzle



Who is it?

This is a Famous President of the United States who always used

Williams' Shaving Soap.

How many bright boys and girls can tell who it is?

To any one sending us the correct name, with a two-cent stamp to cover cost of mailing, we will forward, postpaid, a most useful and ingenious pocket novelty in the shape of key ring, letter opener, paper cutter and screwdriver combined, an article that every man and boy will find many uses for every day. Handy for the chauffeur, the bicycle rider, for opening cigar boxes, watch cases, for automatic air valves, etc.

Address Dept. 10-A.

THE J. B. WILLIAMS CO.,
Glastonbury, Conn.

MILK TUBES

Patent Coin Silver 1¾" 50c. 3¾" 80c. Improved Teat Opener, 75c. Dilitating plug 25c. Postpaid on receipt of price.
G. P. Pilling & Son,
2nd and Arch Sts., Ph'l., Pa.

Big Success With Hogs

SOME farmers are more successful with hogs than others. The man that only gets 8 lbs. of pork out of a bushel of corn fed to hogs makes only half as much as the man that gets 17 lbs.

The American Swineherd is a specialist and the best authority on the hog industry.

Prof. Henry says that success is only obtained by concentrating all efforts upon one line.

A two-years' course in hog raising.

Teaching how to be successful.

How to secure the greatest profits.

How to get 17 lbs. of pork out of a bushel of corn and 19 lbs. from a bushel of wheat-fed hogs.

How to feed to double the growth and gain over usual methods; only healthy hogs profitable.

How to keep your hogs healthy.

How to utilize, without other expense than the subscription to this paper, the costly experience and gathered wisdom of the most capable and successful feeders

Prof. Kennedy of the Iowa Agricultural College says "Your paper is a leader in its line on feeding."

Every owner of hogs should take advantage of this special offer.

Send us $1 for two years' subscription to the **American Swineherd** and it will entitle you to a free copy of the Hand Book on "Hog Hygiene," with trade secrets, receipes, valuable information, etc. If the offer is accepted in ten days we will send you in addition the wonderfully suggestive picture in colors, "Uninvited Guests," suitable for framing, showing the pigs partaking of a meal uninvited.

This equips you for a successful hog business.

AMERICAN SWINEHERD,
535 Como Bldg., Chicago, Ill.

NOW Is the time to Subscribe for HOARD'S DAIRYMAN.

Everything for Everybody

Tell us what kind of goods you are interested in and we will send you without charge any of the following illustrated special catalogues quoting wholesale prices. Merely mention the number or letter of the catalogue you want.

100 Artists' Supplies, 105 Athletic Goods, 110 Blacksmiths' and Machinists' Tools, 115 Builders' Hardware and Supplies, 120 Carpenters' and Builders' Tools and Materials, 125 Crockery and Glassware, 130 Cutlery, 135 Dry Goods, 140 Fancy and Novelty Goods, 145 Farm Implements, 150 Fishing Tackle, 155 Popular Priced Furniture, 160 Harness, 165 Jewelry, 170 Kitchen Supplies, 175 Laces, Embroideries, Ribbons, Trimmings, 180 Lamps and Lanterns, 185 Linoleums, Carpets and Curtains, 190 Men's Hats and Gloves, 195 Men's Shoes, 200 Men's Wearing Apparel, 205 Music and Musical Instruments, 210 Notions, 215 Saddles and Saddlery, 220 Silverware, 225 Sporting Goods, 230 Stationery and Office Supplies, 235 Stoves, 240 Toys, Dolls and Games, 245 Underwear, 250 Vehicles, 255 Wagon Makers' Supplies, 260 Watches and Clocks, 265 Women's Shoes, 300 Women's Catalogue (Cloaks, Furs, Suits, Skirts, Waists, Hats, etc.), B Bicycles, C Baby Carriages, D Dairy Supplies, G Drugs and Patent Medicines, J Telephones and Electrical Goods, K Cameras and Photo Supplies, M Books, R Fancy Grade Furniture, T Trunks, U Youths' and Boys' Clothing, V1 Men's Made-to-Order Clothing, with samples of fabrics. Suits $10.50 to $16.50, V2 Same as V1 except suit prices $18.00 to $30.00, VO Made-to-Order Overcoats with samples, W Men's Ready-Made Clothing, Mackintosh Catalogue, Butterick Fashion Catalogue, GL Grocery List (published every 60 days).

Or, if you want our large 1100-page catalogue, containing practically everything the above smaller books contain, send us 15 cents to help pay the postage—the book itself is free.

Montgomery Ward & Co.,
Michigan Ave. and Madison St., Chicago. 52
32 years World's Headquarters for Everything.

For Sale

PLANT OF THE
AKRON PURE MILK COMPANY
COMPLETE

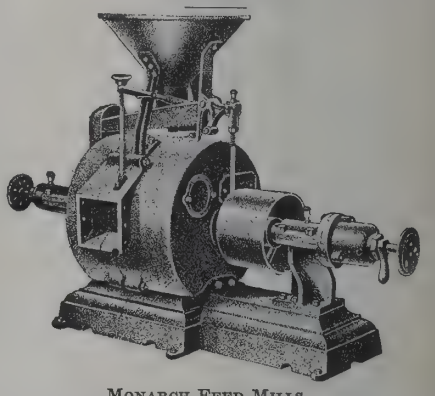
With Modern Pasteurizing Machinery; Cottage Cheese, Ice Cream and Bottle Washihg Machinery; Cold Storage; Horses; Wagons; Butter Creameries at Medina and Copley; Weighing Stations at Weymouth and Risley. Original cost over $60,000. Plants have been run for two years by incompetent and inexperienced managers, and owner is willing to sell for $25,000, which will enable him to pay the debts. Real Estate alone is worth more than that, and a practical man taking the business should be able to make a very nice thing out of it. Sales last year were $110,000. Population of Akron, 50,000. Address inquiries to

H. B. CAMP.....AKRON, OHIO

RURAL MAIL BOX FREE. To the first person sending us the address of any one canvassing for a new route we will give an approved, galvanized, steel mail box free.
BOND STEEL POST COMPANY, ADRIAN, MICHIGAN.

FARM LANDS FREE Send stamp for circulars and information. Address J. LOVERING, Mgr., G 508 Germania Building, St. Paul, Minn.

ILLUSTRATION



MONARCH FEED MILLS.

At this season of the year a subject of great interest to the farmer and feeder who studies economy in feeding is the feed mill. There are numerous mills advertised in agricultural papers, all making practically the same claims as to speed, capacity, ease of running, etc. Among so many the feeder may well be confused when it comes to making a choice. Without wishing to disparage any other good mill, we have chosen for our illustration one, which from every view point, seems to meet admirably farm requirements. It is the Monarch, manufactured by Sprout, Waldron & Co., of Muncy, Pa. It has speed, capacity, strength and lasting qualities. It grinds coarse, medium or fine, just as desired. It is alike perfectly at home in the matter of making a fine article of meal for household purposes, and for the grinding of ear corn, shelled corn, and all the feed grains either singly or mixed, for chop feed. These Monarch mills are either of the attrition pattern or are made of the famous French burr stone, than which there is nothing better for the purpose in the world. We cannot go into detailed description. The manufacturers publish an elegant catalog which shows its strong points in striking fashion. It is sold freely upon fifteen days' trial, the manufacturers being willing that it shall be put in competition by the buyer with any other mill on the market. We would urge the expediency of getting the Monarch catalog before placing an order anywhere. It is mailed free. The advertisement running in another column gives correct address.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The Quotation Committeee of the Elgin Board of Trade today reported the official market firm at 24 cents. The output of the Elgin district the past week was 549,300 pounds.

Fifty tubs of Maple Park were sold to C. S. Kilbourne for 24 cents.

Former Markets.	*Tubs Sold.*	*Price.*
Nov. 16, 1903	0	22
Nov. 24, 1902	0	27
Nov. 25, 1901	0	24½
Nov. 26, 1900	0	25
Nov. 27, 1899	97	26½

Nov. 23, 1903 H. C. B.

DAIRY MARKETS.

ELGIN, Ill., Nov. 23—Butter advanced 2 cents a pound on the Board of Trade today, selling at 24 cents. Sales in the district for the week were 549,300 pounds.

CHICAGO, Ill, Nov. 23 –Butter—Firm; creameries 16@23c; dairies, 14@19c.

Cheese —Steady; Daisies, 10¼@10½c; Twins, 10c; Young Americas, 10½c.

Eggs—Firm: at mark, cases included, 23@26c.

Cattle—Choice to fancy beeves, 1,200 to 1,500 lbs. 5.45@5.60; good to choice steers, 4.95@5.40; fair to good export and shipping steers, 4.35@4.80; medium beef steers, 4.00@4.30; plain beef steers, 3.85@3.95; common to rough, 1,000 to 1,200 lbs. 3.50@3.80; good to fat heifers, 3.90@4.60; good to choice feeders, 3.25@4.15; good to plain stockers and feeders, 1.50@3.20; fair to good cows and heifers, 2.65@3.85; good cutting and fair beef cows, 2.10@2.50; common to good canning cows, 1.10@2.00; bulls poor to choice, 2.40@4.40; calves, choice to fancy 6.50@7.00; calves, common to fair, 3.00@6.25 corn fed western steers, 4.00@5.30; Texas bulls and grass steers, 2.90@3.85; fed Texas steers, fair to choice, 3.40@4.30; western range steers, 3.25@4.20.

Hogs — Good to heavy shipping, 4.35@4.50; fair to good heavy packing, 4.15@4.35; rough and common heavy mixed, 3.90@4.10; assorted light, 150 to 195 lbs., 4.30@4.40; good to choice butcher weights, 4.35@4.50; fair to choice light mixed, 4.25@4.35; thin to choice 50 to 130 b. pigs, 3.80@4.30; stags and rough lots, 2.75@4.00.

MILWAUKEE, Wis., Nov. 23—Butter—Creamery, extras, 23c; firsts, 21@21½c; seconds, 19@20c; renovated (process), 18@19c. whey, 10@12c. Dairy, fancy, 18c; lines, fresh, 15@16c; packing stock, 12@14c; grease, 5@6c.

Cheese—American full cream, new; Twins, 10@10½c; Young Americas, 10½@11c; Daisies, 11@11½c; Longhorns, 11@11½c; low grades, 7@9c. Brick, new, fancy, 10½@11c; low grades, 7@9c; Limburger—New, fancy, 10@10½c; off goods, 6@8c Swiss—Drum, choice, 12@12½c; Drum No. 2, 10@11c; block, choice, 11@11½c; block, No. 2, 9@10c.

Eggs—Strictly fresh laid, loss off, cases returned, 25c; do, at mark, cases returned, 22½@23c; storage, city, Apr. No. 1, 23c; storage, country, 20@21c; dirties and seconds, 19c; checks, 17c.

BRILLION, Wis., Nov. 12—Cheese—Sales today were: 187 Twins at 9¾c; 542 Daisies at 10⅜c; 21 cases Young Americas at 10c. The next meeting will be held Friday, Nov., 27.

APPLETON, Wis., Nov., 12—Twenty factories offered 58 Cheddars and 1,563 Twins today. Sales: 58 Cheddars at 9¼c; 175 Twins at 9⅜c; 1,313 at 9¼c, Next meeting Friday, Nov, 27, at 2 p. m.

PLYMOUTH, Wis., Nov. 17—Cheese—Thirty-nine factories offered 2,249 boxes today, of which 40 boxes of Twins and 66 Americas were passed on. The balance sold as follows: 572 Longhorns at 10⅜c; 55 at 10½c; 969 Daisies at 10¾c; 173 Twins at 9⅝c; 144 at 9¾c; 110 Americas at 9⅞c; 120 at 10c. Market slow.

FOND DU LAC, Wis., Nov. 23—Cheese market offerings, 911 boxes: sales, 159 Twins, 9½c, 233 Daisies, 10⅜c, market easy.

MUSCODA, Wis. Nov. 14—Cheese—Today 380 boxes of Twins were sold at 9c and 60 were withdrawn.

HORTONVILLE, Wis., Nov. 18—Cheese—The offerings today were 16 Cheddars and 820 Twins. Sales 590 Twins at 9¼c. Market dull.

PHILADELPHIA, Nov. 23—Butter—Firm and ½c higher; extra western creamery, 24c; nearby prints, 25c.

Cheese—Steady: fair demand; New York full creams, fancy, 11¾@12c; choice, 11½c; fair to good, 10¾@11¼c.

Eggs—Firm; good demand; fresh nearby, 32c, loss off; western, 31@32c; southwestern, 29@30c; southern, 27@28c.

ST. LOUIS, Nov. 23— Butter—Steady; creamery, 18@23c; dairy, 13@18c.

Eggs—Firm, 26c loss off.

KANSAS CITY, Nov. 23.—Eggs—Firm; Missouri and Kansas, cases returned, 24½c; new, No. 2 whitewood cases included, 25c.

Butter—Creamery, 19@21c; dairy, fancy, 18c.

WASHINGTON, D. C., Nov. 23—Butter—Market very firm; extras, 23½c; firsts, 22½c; renovated, 17c.

NEWARK, N. J., Nov. 23—Butter—Extras, 24c.

Eggs—Fresh extra, 34c; refrigerator firsts 25c.

NEW YORK, Nov. 23—Butter—Recipts, 5,361 pkgs.; firm; extra, creamery, 24c; creamery, common to choice, 16@23½c; state dairy, 15@20c.

Cheese—Receipts, 2,087 boxes; irregular; state full cream, fancy, small, colored, September, 12c; late made, 10½c; small, white, September, 12c; late made, 10½c; large, colored, September, 12c; late made, 10½c; large, white, September, 12c; late made, 10½c.

Eggs—Receipts, 6,269 cases; firm; state and Pennsylvania, average finest, 34@35c; state and Pennsylvania, seconds to firsts, 29@33c; western extras, 34c; western, seconds to firsts, 29@33c; western thirds, 26@28c; refrigerated 21@25c.

BOSTON, Mass., Nov. 23—Butter trade was light today, but the feeling is firm. Eggs were advanced sharply, western sharing in the gains. Quotations: Butter—Creamery, western extra, 22@22½c; western firsts, 20@21c; dairy, 15@21c; imitation creamery, 16c; ladle, 14@15½c; box and print 16@24c.

Cheese—Choice, 11@11½c; Wisconsin Twins, 11@11½c; Ohio flat, 10½c.

Eggs—Nearby, 45c; western selected, 28@34c; poor to fair, 22@26c; refrigerator, 23@25c.

NEW ORLEANS, La., Nov. 23—Butter—Extras, 23½@24½c; ladles, 16c; renovated, 18c.

TOPEKA, Kan., Nov. 21—Butter—Creamery butter, 22@23c; Dairy butter, 17@18c.

Cheese—Longhorns, 11½c; Twins, 11¼c; Prints, 12¼c.

LIVERPOOL, Nov. 21—Butter—Good United States nominal. Cheese American finest white, quiet, 52s; do colored, steady, 54s.

UTICA, N. Y., Nov. 16—Cheese—The sales here today were as follows: 49 lots 3,233 boxes.

Ruling on large and general 9¾c; ruling on small 10c. On curb 500 large and small, 10⅛c. Butter 30 pks. 22c, 500 prints 23c. October cheese sold out. Only one more market day this season.

WATERTOWN, N. Y., Nov. 21—Cheese—Sales, 2,000, at 9⅛@9⅝c for large; 9¾c@10c for small; 9½c for Twins.

CANTON, N. Y., Nov. 22—Cheese—Offered 1,397 boxes of Twin cheese, and 923 tubs of butter. Cheese sold at 9½c; butter no sales, 21c offered.

NEW YORK MARKET.

NEW YORK, Nov. 21—Butter—Receipts for the week, 27,001 packages. Exports for the week, 400 packages.

Prices for fancy fresh Creamery have ruled steady all the week, and at the close there is a scarcity of this style of butter and every indication of higher prices before the New Year.

After leaving the extreme top quality, trade is dull, prices irregular, and supply of all kinds abundant. We quote:

Creamery, fresh, extra, 23½c; medium, 21@23c; poor, 15@20c; creamery, freezer, extra, 22c; medium, 19@21c; poor, 15@18c. Dairy, extra, 21@22c; medium, 17@20c; poor, 14@18c.

Cheese—Receipts for the week, 31,354 boxes. Exports for the week, 1,928 boxes.

Home trade bought some parcels of fancy September small cheese at 11¾ to 12c. and best October makes at 11 to 11½c. Trade, however, was quite moderate, and prices always favoring buyers. Skimmed Cheese were salable to exporters at 7 to 8½c, for best, and down to 3 to 5c for poor to good, but ignored full creams entirely. We puote:

Full cream, Sept. extra, 12c; medium, 11@11¾c; poor, 10@10½c. Full cream, Nov., extra, 11@11½c; medium, 9@10½c; poor, 7@8c.

Eggs—Receipts for the week, 30,014 cases.

Market was excited and prices much higher; at the close there were no new laid eggs in sight, and extreme b'ds failed to produce the stock. Refrigerators were in demand and good stock was decidedly higher. We quote:

New York & Pennsylvania, new laid, per doz., 33@38c; Northern & Western, new laid, 34@35c; all sections, poor to good, 25@33c; refrigerator, poor to fancy, 20@26c.

177 Chambers St. DAVID W. LEWIS & CO.

BALTIMORE MARKET.

BALTIMORE, Nov. 19.—Butter—There is no quotable change to note in the condition of the butter market so far this week. A continued scarcity of all grades suitable for table purposes still prevails, and it would not be at all surprising to see higher prices for this kind ere long; butmany are of the opinion that any material advance would prove detrimental. Owing to the shrinkage in the current receipts, choice to fancy freezer stock has been in fairly active demand. Imitations of desirable quality are in good request. Ladles, when quality is satisfactory, meet with prompt sale, while defective stock is very dull and prices irregular. Rolls—All fresh sweet nicely handled stock is in good demand. Packing stock is in falr supply and moderate request. Prints and Blocks—Choice to fancy invoices meet ready sale, The market generally closes in good shape and rules firm on all attractive offerings.

Creamery separator, extras, 23@23½c; firsts, 21½@22½c; seconds, 19@21c: imitation creamery, extras, 19@20c; firsts, 17@18c; seconds, 15@16c, Iowa & N. W. Ladle, extras 16c., firsts, 15c; seconds; 13@14c; creamery blocks (2 lbs.) extras, 24c; firsts, 22½@23½c; seconds, 20@22c; prints, (½ lbs.), extra, 25c; first, 23½@24½c; seconds, 20@22c; Md, Va. & Penna. prints, extras, 24c; firsts, 22@23c; seconds, 18@20c.

Eggs.—While the receipts since our last issue show somewhat of a falling off as compared with the week previous, they are equally as large if not larger than they were a year ago. The demand for strictly fancy eggs continues very good at 29c and the market is kept quite bare of stock of this kind; mixed, held and fresh are not so eagerly sought after. Storage—All choice to fancy offerings meet prompt sale,

301 Exchange Place. G. M. LAMB & BROS.

NEW YORK FERTILIZER MARKET.

Acid phosphate	60	@ 67½
Phosphate rock, f. o. b. Char'n	5.00	@ 7.00
Tenn	3.50	@ 4.50
Bones, rough ℔ ton	17.00	@18.00
ground	21.50	@22.00
Bone meal	21.50	@23.00
Bone black, refuse	19.00	@19.50
Potash, dbl. m're salt 48@53%	1.12	@ 1.15
dbl. m'ure salt 48@53% less 25 tons	25.00	@30.00
sulph. of basis 90@98%	2.11	@ 2.18
90@98% less than 25 tons	38.00	@40.00
Potash, Muriate ℔ 100 lbs.	1.83	@ 1.95
less than 25 tons	38.00	@40.00
Kainit, 25% S. of P ℔ ton	9.30	@ 9.50
less than 25 tons	9.50	@10.50
Sylvinit, 35@37% P ℔ unit	41	@ 46
Nitrate of soda	2.10@	2.15
Blood, dried, red ℔ unit	2.60	@ 2.65
low grade	2.45	@ 2.50
Concentrated tankage ℔ ton	15.00	@16.00
Fish, guano, dried	2.45	&10.
acidulated	2.22½	&35.

READING NOTICES

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—Jerseys, 7 registered heifers and 3 registered bulls, from 3 to 10 months old. Solid color. St. Lambert strains. J. ALDUS HERR, Lancaster, Pa. 42-3

Jersey Bull For Sale—Dam's recorded test is 17 lbs. 4½ ozs. He is a grandson of Landseer's Fancy 29 lbs. ½ oz. in 7 days, 936 lbs. in 1 year. Has won four 1st premiums. Write for description and price. Also two half grown Collies. J. BLACK, Bremen, O. 42-tf

Ayrshires For Sale—I have for sale two excellently bred, registered, yearling Ayrshire bulls ready for service. Price very reasonable. EDW. FINN, Whitewater, Wis. 42-2

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 190:

1903 Butter Champions.

The great 1903 national educational and championship buttermaking contest, conducted by the National Buttermakers' Association, starting in January with 429 contestants, has just been concluded, with the Championship Honors going to A. M. Sondergaard of Hutchinson, Minn., with an average score of 96.75, while second highest honors go to John Sollie of New Sweden, Minn., who was the National Champion in 1902, this time with a score of 96.66.

It need hardly be added that both Mr. Sondergaard and Mr. Sollie are users of and made their Prize Winning Butter with

De Laval Cream Separators

From Iowa comes telegraphic advices that at the State Dairymen's Association meeting just held at Waterloo, highest score of 98, with Silver Cup, goes to W. S. Smarzo, Masonville, Iowa, using an "ALPHA-DE LAVAL" Power machine, and second score of 97½, with Silver Cup, to the Dubuque Butter & Milk Company, Dubuque, Iowa, using cream from DE LAVAL Farm machines.

It has been demonstrated over and over again, in every country in the world, that while good butter can no doubt be made without a DE LAVAL cream separator, the same maker can, under the same conditions, produce a higher and better grade of butter with the help of a

De Laval Cream Separator

than is possible in any other way.

This is one of the differences between separators and one of the reasons for the overwhelming supremacy of the DE LAVAL machines, which a DE LAVAL catalogue—to be had for the asking,—will help to make plain.

The De Laval Separator Co.

Randolph & Canal Sts., CHICAGO.

1213 Filbert St., PHILADELPHIA.

9 & 11 Drumm St., SAN FRANCISCO.

GENERAL OFFICES: 74 Cortlandt St., NEW YORK.

121 Youville Square, MONTREAL.

75 & 77 York Street, TORONTO.

248 McDermot Avenue WINNIPEG.

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D, Independence, Ia. 50-tf

At a Bargain—Two Holstein-Friesian Bulls, both registered; one ready for service, the other six months old. Both are fine calves and will sell at a bargain to make room for winter cows. S. I. TATHAM, Licking Co., Outville, Ohio. 40-3

Milch Cows—For sale 23 head of good healthy cows at reasonable prices. Jersey blood. On Big Four 26 miles from St. Louis. H. E. DORSEY, Moro, Madison Co., Ill. 41-3

For Sale or Rent—Dairy farm of 200 acres, 90 improved. $1.50 per hundred for milk year around. Address J. P. SOUTHARD, Harbor Springs, Mich. 42-10

Wanted—Experienced man to manage profitably a southern dairy of seventy-five cows. Must assist with milking. Married man preferred. Address Dr. J. H. ELLIS, Kentwood, La.

For Sale—Three young pure bred Jersey Bulls ready for service. Prices reasonable. EDWARD O. RICE, Portage, Wis. 42-3

Wanted—Single man, good milker, to work in modern dairy. State wages. Write A. H. BARROW, Roodhouse, Ill.

For Sale—One registered Shropshire ram, good form and size. Address THOMAS TOMPKINS, Kendall, Wis.

Guernseys—For Sale—A Thrifty Young Bull, dropped Sept. 1902, good in type and color, well bred, ready for service. Also a grandson of Sheet Anchor, dam has given 40 lbs. milk per day, dropped June 8, 1903; a remarkably large and fine animal. Also bull calf dropped Oct. 1, 1903, out of a 400 lb. cow by a bull tracing to Mibia's Vesta-Fantine 2d, and Champion Sweet Briar 3d. R. H. WARDER, North Bend, O.

If You Contemplate investing in choice Southern California land, from ten acres up, for Dairying, Alfalfa, Fruit or Vineyards, write to DAVE BRADBEER, Norwalk, California.

For Sale—I have some first-class Belt and Steam Power Separators which I would like to exchange for a No. 1 or 2 Alpha De Laval Belt Power Separator. I have Reid's, Springer's, Sharples' Tubular, Imperial Russian, Barber Overflow, Danish Weston & Co. Also separator frames and jacks. F. M. PARKHURST, Corry, Erie Co., Pa., R. F. D. 10. 42-4

Two choice young Guernsey bulls for sale. MRS. A. W. LEHMANN, Neosha, Dodge Co., Wis. 12-sp

Wanted—A man to manage a dairy and farm of two hundred acres. Good milk route, complete outfit of stables, silo, milk room and water supply, most conveniently arranged. Adjoining city limits. Applicant must have some capital and satisfactory references. Address R. E. D., care Hoard's Dairyman.

Wanted—Position as manager of produce company. 21 years experience as buyer of butter, eggs and poultry. Also large experience with establishing creameries under the hand separator system. LOCK BOX 74, Alma, Mich.

Wanted—Good all around man with good habits, on dairy farm. Married or single. Good wages. FRANK A. SHOWERMAN, Agricultural College, Mich. 42-2

For Sale—Two fine dairy farms, vicinity of Washington City. Electric R. R. through one and near the other. For particulars address owner. L. E. WATT, 745 7th St., S. E., Washington, D. C. 39-4

For Sale—Five cheese factories, 20 acres landsaloon and store with stock, three houses in Appleton, Wis., two farms 60 and 80 acres. Address 775 Ida St., Appleton, Wis. 36-tf

Wanted—Experienced butter maker, former instructor in dairying, at present in charge of sanitary milk bottling plant in eastern city, wishes to change position. Address C., care of HOARD'S DAIRYMAN, Fort Atkinson, Wis. 38-5

The Third Revised Edition of Buff Jersey's Popular Book Just Out of Press—Ten chapters, 25 illustrations and right up-to-date. Subjects treated are: Silos and Ensilage, All Phases of the Dairy Subject, Soil Crops, Up-to-date Farm Machinery, How to Cure Abortion and Milk Fever, Some Medicines and Remedies, The Steam Plant, its care, and many other valuabe things ably treated. Send for circular. Sent post paid, cloth binding $1.00, paper 75c. BUFF JERSEY, Monmouth, Ill. 47-tf

For Sale—A cheese factory in good dairy country, doing good business. No opposition, (cheap.) Address S. O. U., care Hoard's Driryman. 34-tf

For Sale—Two registered yearling Guernsey bulls. RAY BICKNELL, Ft. Atkinson, Wis. 32-tf

Wanted—Young or middle aged man who is, or wants to be, a practical farmer, to go on new farm just starting. Chance to take a claim joining, or near by. Also a carpenter and a blacksmith for same place. Must be temperate and industrious. Also want middle aged woman for housekeeper. References required. O. S. COWLEY, New Salem, N. D. 41-2

Creamery—In a good location for rent, or will sell cheap. A good chance for the right man. Apply to E. L. POWELL, North Freedom, Wis. 41-2

Sale of Guernseys—Ten heifers, two year olds and under. A rare lot. Send for circular. M. SAGER, Orangeville, Pa. 41-tf

Wanted—At Meramec Highland Dairies near St. Louis, experienced milkers, also a good dairy foreman thoroughly experienced as feeder and good milker. Apply at Dairies or City Office, 208 N. 4th St., St. Louis, Mo. 41-2

Up-to-date Creamery Operator Wanted—Must have thorough knowledge of pasteurizing, use of starter, testing, etc. Reply at once and state wages, to ENUMCLAW CO-OPERATIVE CREAMERY CO., Enumclaw, Wash. 41-2

For Sale—Two yearling Jersey Bulls and three Heifers, all eligible for registry. M. C. VOSBURG, Fort Atkinson, Wis. 42-2

Very low rates to International Live Stock Exposition at Chicago—Via the North-Western Line. Excursion tickets will be sold Nov. 29, 30 and Dec. 1, limited to Dec. 7, inclusive, Apply to agents Chicago & North-Western Ry.

Excursion Tickets to St. Paul and Minneapolis and Return—Will be sold by the North-Western Line daily until Nov. 30, 1903, from Fort Atkinson at $14.00 for the round trip, limited to return until Dec. 15, 1903. Apply to agents Chicago & North-Western R'y. 35-8

Dairy Questions Answered by Prof. Farrington.

TESTING BUTTER WITH THE BABCOCK.

Please publish the means of testing butter by the Babcock test to find percentage of butter fat. What does the balance contain under every day creamery work? F. B.
Mongaup, N. Y.

The attention of a number of chemists and other people interested in dairy products has been frequently turned toward the application of the Babcock test to the testing of butter. Up to the present time no one has been able to devise a method by which the percentage of fat in butter may be satisfactorily determined by this or any other method at a creamery. Butter contains so much fat that the test bottles ordinarily used for testing cream will not measure the large percentage of fat in butter. Another reason why butter cannot be successfully tested is the difficulty there is in obtaining a small quantity of butter which will fairly represent the large amount from which it is taken; in other words, it is very hard to take a fair sample of butter.

The only way in which butter fat in butter may be satisfactorily determined, up to the present time, is to carefully take portions from different parts of the butter to be tested, mix this thoroughly in a glass jar or bottle and melt the butter while the cover is on the jar; then take this jar of melted butter and shake it violently while it is cooling. A chemist usually holds the jar under a stream of water in order to hasten the cooling while it is being shaken. In this way the butter will be thoroughly mixed so that a small portion of this sample will fairly represent the entire quantity.

When a sample has been prepared in this way, some five to ten grams of it are carefully weighed on a small dish, which is placed in an oven and heated to the temperature of boiling water until the water entirely evaporates from the butter. This butter is then weighed, the loss of weight showing how much water the butter contained. The salt and curd left in the dish after the water has been expelled are then determined and the percentage of these substances added to the water will give the constituents which butter contains beside fat; subtracting the sum of these three, water, salt and curd, from 100, gives the percentage of butter fat in the sample tested.

This is rather a long, tedious operation, but it is the only one that has proved to be satisfactory for determining the amount of fat in butter, if one desires to obtain accurate results.

Something of an idea of the amount of fat which butter contains may be obtained by placing a quantity of it in a tall, graduated cylinder. The butter is then melted by placing the cyclinder in hot water, and as the fat will rise on the surface with the salt, water and curd at the bottom of the column, the proportion which the fat is of the entire quantity of butter may be approximately determined. This is a very inaccurate way of estimating fat in butter, although it is used for giving a general impression on this point.

The balance of the butter, besides butter fat, is water, salt and curd. It is impossible for any buttermaker to mix the same amount of water and salt with each churning of butter he makes, and on account of this impossibility which no one has been able to overcome up to the present time, the fat in butter will naturally vary more or less with each churning.

An average of the analyses of 350 samples of butter made during the World's Fair in 1893, gives the following figures:

Water	11.57	per cent
Fat	84.70	" "
Curd	.95	" "
Salt and ash	2.78	" "
Butter	100.00	" "

Subtracting the fat, 84.70 per cent, from 100.00 leaves 15.30 per cent as the sum of the water, salt and curd which the butter contains.

The percentage of these constituents will vary in different kinds of butter, but it usually comes between ten and seventeen per cent. These are the substances which "the balance of the butter contains besides fat, in every day creamery work."

I did not write the book "Milk and its Products," but had a hand in writing the book, "Testing Milk and its Products." I shall be greatly obliged if you will inform me what parts of the book or what statements made therein need further discussion, as I am expecting soon to issue a new edition of it.

PATCHING A BOILER.

I wish to get some information regarding a boiler. I have one which has been in use for five years; it was covered with brick and mortar all over the top. Now we have discovered several small leaks around the dome under the brick and mortar, and these leaks have corroded the shell of the dome very badly. I would like to know if I can take the dome off of my boiler and put a patch over the hole and expect the boiler to do as good work as if it had the dome on it. If this is not advisable can I enlarge the dome hole, and put a larger dome on the boiler? Which is the better method to adopt in repairing this boiler? The boiler is as good as new in all other respects? A. ERICKSON.
Volga, Wis.

The corrosion of a boiler around the brick work as mentioned is not an unusual thing, and in this case the boiler may be repaired in either of the two ways mentioned. Taking the dome off and placing a patch over the hole will probably cost less than to enlarge the hole and and put on a dome larger than it had before, Boilers are now being made without domes and these can be used with good results, provided the amount of work which the boiler must do does not equal the capacity of the boiler. That is to say, if a sufficiently large steam space can be left above the water in the boiler to do the work which is desired of the boiler, the dome is unnecessary. If you are running a creamery where the work does not equal the capacity of your boiler, I think it will be better for you to take the dome off and put a patch over the hole. It will be necessary to reinforce the boiler plate at the places where the steam supply pipes are attached to it.

In case the work the boiler is now doing, or the use of the steam it makes, is nearly equal to the capacity of the boiler and there is only a small amount of steam space above the boiler flues, it will be better for you to take the dome off and put a larger one on in its place. Either one of these repairs may be easily made, and if, as you state, the boiler is in perfect condition in all other places, such repairing will probably make the boiler as good as new.

STARTING A CO-OPERATIVE CREAMERY.
SECOND INQUIRY.

Since receiving your first letter we have decided to call a meeting of all parties interested in the creamery in our locality. Some of the farmers are afraid the enterprise will meet with many obstacles. They think it will be difficult to get farmers to positively agree to send their milk or cream to a factory before the creamery has obtained recognition for good work. Several creameries have started in this neighborhood and are now remaining idle. We have never had one within twelve miles of us but five factories beyond this territory have stopped running. I do not know the reason for their making a failure of it. On account of this experience some of the farmers are afraid to start our creamery but a goodly number are talking very much in favor of it because they have learned that where factories are in operation the cow owners prosper. Our farmers think that we can agree and that there is no necessity of a jangle and a failure. We have had no experience in sending milk to a creamery and therefore need a little advice.

I fear it will be hard to get even a few of the farmers to sign a paper which will be a binding contract compelling them to keep the number of cows that they may agree to keep and I will, therefore, request that you send me either forms or some definite instructions for drawing up such a contract. We also want information

"ADVERTISEMENT."

COULDN'T FOOL HIM

Doctor Was Firm and Was Right.

Many doctors forbid their patients to drink coffee but the patients still drink it on the sly and thus spoil all the doctor's efforts and keep themselves sick. Sometimes the doctor makes sure that the patient is not drinking coffee and there was a case of that kind in St. Paul where a business man said:

"After a very severe illness last winter which almost caused my death the doctor said Postum Food Coffee was the only thing that I could drink and he just made me quit coffee and drink Postum. My illness was caused by indigestion from the use of tea and coffee.

"The state of my stomach was so bad that it became terribly inflamed and finally resulted in a rupture. I had not drank Postum very long before my lost blood was restored and my stomach was well and strong and I have now been using Postum for almost a year. When I got up from bed after my illness I weighed 98 pounds and now my weight is 120.

"There is no doubt that Postum was the reason for this wonderful improvement and I shall never go back to tea or coffee but shall always stick to the food drink that brought me back to health and strength." Name given by Postum Co., Battle Creek, Mich.

Look in each package for a copy of the famous little book, "The Road to Wellville."



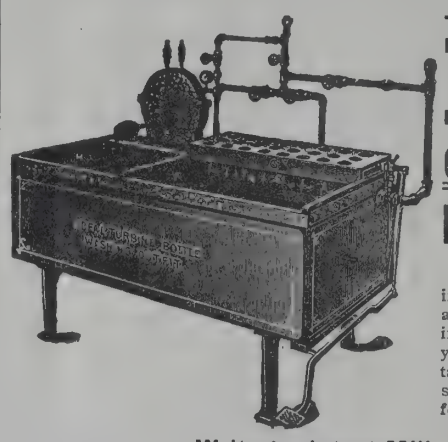
The Flavor of Good Butter

is easily destroyed by contact with foreign substances. The problem is how best to protect it for table use. Up-to-date butter makers with one accord now resort to the

Pioneer Brand Parchment Paper

for wrapping pound prints and lining boxes and tubs. **Pioneer** is not a so-called parchment. It is a pure vegetable product, without taste or smell, and seals the package from foreign smells and holds the fine flavors. Name or trade mark printed on each wrapping sheet if desired. Ask for samples and book, "Better Butter." Sent free for the asking.

The Paterson Parchment Paper Company,
37 Eighth Street, Passaic, New Jersey.



THERE AR PROBABLY MANY GOOD THINGS
THAT YOU NEED and ought to have, but don't know it.

Here is one of them:

OUR Ideal Turbine Bottle Washing Outfit

We have condensed a whole lot of good things into this outfit. Just packed them up from all around your milk depot and compressed them into one convenient piece of apparatus. Here you have washer, rinser, sprayer, and washing tanks all within easy reach. This is only one of several specialties we have in this line. Our information in this line is yours for the asking.

Write for latest Milk Dealers Price List.

Bottle Brushes, Milk Jars, Babcock Milk Testers, Milk Dealers' Tinware, Milk Jar Boxes, Cases, and Baskets, etc, etc.

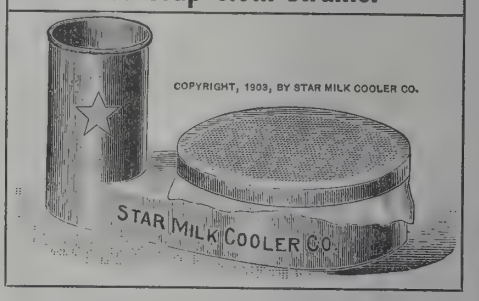
Creamery Package Manufacturing Co.,
149 to 153 East Superior St., Chicago.
BRANCHES: Kansas City, Mo., Minneapolis, Minn.; Waterloo, Iowa; Omaha, Neb. St. Louis, Mo. and Cowansville, Quebec.

Star Sanitary Dairy Pail



Send for Price List.

Star Trap Cloth Strainer



Pail is stamped out of one piece of metal. The wire strainer prevents dirt falling into the milk.

Strainer cannot choke up, neither can the sediment be drawn through the cloth.

STAR MILK COOLER CO., Haddonfield, N. J.



High and Low.

High in excellence, low in price;
High in popularity, low in stature;
High in saving powers, low in cost to operate—the

Champion Milk Cooler-Aerator

Get our Booklet about it.

Champion Milk Cooler Co.,
67 Main Street, CORTLAND, N. Y.

about the necessary articles of incorporation.

Is it a good plan to build a factory in which both butter and cheese may be made under one management?

Will the cream from cows that drink pond water be equal in value to that where they have spring, well or brook water. If not, what is the remedy?

Is the cream obtained by different processes such as hand separators, setting milk for cream to raise and that from water separators of the same value to a factory?

Can these different kinds of cream be made to harmonize and how?

The suggestions which you have made in a previous letter that five cents per hundred weight be deducted from each man's check every month in order to pay for the building and for equipping the factory, looks doubtful to me but I have never been through the experience and it may be that we can get our factory paid for in this way. If we should adopt that plan of payment what suggestions would you make to the size of shares of stock and also would all those who let us have their milk be shareholders in the creamery? Should this be mentioned in our by-laws.

Is it preferable for each stockholder to have one vote for each share of stock he owns? and is it best to limit the amount of stock each man may own? E. B. H.

Retreat, Wis.

An answer to a former letter of inquiry from these farmers has been printed in an October issue of this paper, and if they will continue their inquiries in the future we will have the history of one creamery, at least, from the beginning of the enterprise until it proves to be a success or a failure. Some of the questions asked are applicable to all creameries and cheese factories. This is especially true of the inquiry about the water supply.

Open pond water for stock is not to be recommended. When cows have access to stagnant water of any kind it is very difficult to clean them so that milking may be done in a sanitary way. The mud which sticks to their legs while walking in such places, easily finds its way into the milk pail during milking. Aside from the fact that it is very repulsive to think of pure milk being manufactured from water which cows drink from stagnant pools, the access which cows have to such places gets them in such a condition that the milk is easily contaminated by the filth which clings to them for a while and then drops into the milk bucket. The drinking of water from pond holes may not have any effect on the richness of the milk which cows produce, but it certainly will affect the purity of the milk. This is a very important factor in making a fancy dairy product of any kind as it is not possible to make either butter or cheese that will bring the highest market price unless the milk from which it is made is always clean and pure.

The remedy for such conditions is to require farmers to fence in the pond holes to which their cows have had access, and provide water for them from some other source. This may be done by digging a well and having the water pumped by wind mill, if no other source of pure water is available.

Various Kinds of Farm Cream.

The cream obtained by different processes, either by hand separators, gravity setting or water separators, may be received at the creamery and paid for according to the Babcock test. This is a matter which the creamery can control very easily by the test, because the amount of fat in each lot of cream may be determined and paid for according to the results of the test. When some patrons send milk and others cream, a slight difference in the payment of such patrons must be made in order to compensate the cream patrons for the work they have done in skimming it and for the fat left in the skim milk. This can be easily adjusted by adding three per cent to the weight of fat delivered to the factory by such cream patrons. This has been explained in another article.

Possibility of a Failure.

It may be difficult to induce farmers to continue patronizing the factory, but the success of the entire enterprise will depend largely on the amount of milk and cream delivered to the factory. If a few patrons drop out, they will lose what little they may have put into the enterprise and cause those who wish the factory to continue to lose something also, while if they will all work together and increase their herds, the creamery will grow and become a source of prosperity to all the farmers patronizing the factory.

I think it will be a good plan for someone of the patrons to visit the factories which you say have failed and find out the cause of their failure.

If you can get the milk and cream promised from three hundred cows for at least one year, I think there is no doubt but that the farmers will continue to patronize the factory the next year.

The form of agreement which farmers are usually asked to sign is a simple one. All that is necessary is to write at the top of a sheet of paper:

The undersigned hereby agree to supply the ———factory with milk from ———cows for one year or more.

Or, if you wish a more binding contract than this, consult some lawyer in your neighborhood in regard to this matter. I think, however, that if the farmers do not willingly patronize it at the start and continue their patronage, the enterprise cannot be made a success by attempting to force some of them to continue sending milk.

You first want to find out if there are enough cows in the neighborhood to support a factory and then go ahead with the enterprise with the expectation that it will succeed.

The articles of incorporation you ask for I think may be drawn up by some lawyer in your neighborhood. If the farmers prefer to draw this up themselves you can get suggestions about the methods of organizing a creamery from the book "Testing Milk and Its Products." Several pages of this book are devoted to this matter and an illustration of the constitution and by laws are also given in it.

Making Both Butter and Cheese.

I think that at the beginning it will not be necessary for you to provide for making both butter and cheese in the factory. At the meeting you expect to have you may discuss this matter and decide which sort of a factory the majority of the patrons prefer to have in operation.

Raising the Funds.

The five cents per hundred weight of milk from the three hundred cows, ought to amount to quite a respectable sum per month so that it will not take very long to pay the $3,000, and interest, which is obtained for starting the enterprise. Three hundred cows ought to supply at least 5,000 pounds of milk per day and this amount of milk at five cents per hundred weight, is $2.50 a day, which will amount to about $800.00 per year. Your factory will then be paid for in about four years so that the farmers will own it, each one's share being proportional to the pounds of milk he has delivered to the factory. Of course if the milk supply goes over 5,000 pounds per day, as it certainly will if the factory is a



"GUESS who it is?" The mother knows the touch of the soft hands too well to need to guess, and for the moment she enters into the playful spirit of the child and forgets her toil and weariness. Then a sudden movement sends a thrill of pain through her and she realizes that though love may lighten labor it cannot lighten pain.

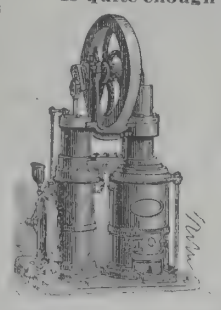
Thousands of women who have suffered from backache, headache, and other consequences of womanly disease, have been made well women by the use of Dr. Pierce's Favorite Prescription. It establishes regularity, dries unhealthy drains, heals inflammation and ulceration and cures female weakness.

"I cannot say enough in praise of Dr. Pierce's Favorite Prescription as it has done me so much good," writes Mrs. Henry Harrell, of Tarboro. N. C., Box 109. "I was swollen so I could hardly walk when I began taking the 'Favorite Prescription.' I also had uterine trouble and could neither eat nor sleep only as I took morphine. Tried four different doctors and they all failed to do me any good, so one of my friends recommended your 'Favorite Prescription' to me and I took only three bottles and am now well and hearty. Can do almost any kind of work."

Dr. Pierce's Pleasant Pellets are the most desirable laxative for delicate women.

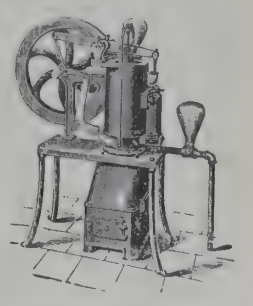
HALF ENOUGH WATER

Is quite enough for some people, but most people want water every day. If



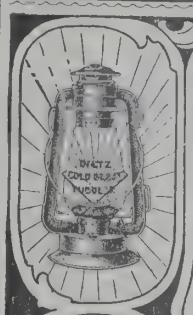
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Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.



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Teniente Rey, 71 HAVANA
22 Pitt St., SIDNEY, N. S. W.





New fancy lightings may come for the house, but the lantern must continue to be carried until there's an end of the plain home duties. That's never. Important, then, to get a good lantern.

DIETZ LANTERNS

lead all others in popularity. That's because of convenience in filling, lighting, extinguishing and trimming. Because they are absolutely safe. Because of their clear, bright, steady light. Because they never blow out. Sold by local dealers. Before buying send for our free lantern book to make your choice.

R. E. DIETZ COMPANY,
94 Laight St., New York.
Established 1840.



WILDER'S PATENT SWING STANCHIONS

Chain or Pin Fastened.

Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.

Safest, Strongest, Most Convenient fastening made. Cheapest to put in and save room in barn. Send for Stanchion Catalog to

J. K. WILDER & SONS, BOX 11, MONROE, MICHIGAN.



Foster Steel Stanchion

made entirely of steel and malleable iron. Unlike all others. Affords greatest freedom and motion and always holds the animal. Hung on chains—moves all ways. Lightest, strongest, most convenient and easiest to open and close.

GOOD SELLER—BIG PROFITS.

One agent sold 75 first day, Another sold 200 first week. We want responsible agent in every Dairy Community. Send for circular number 80

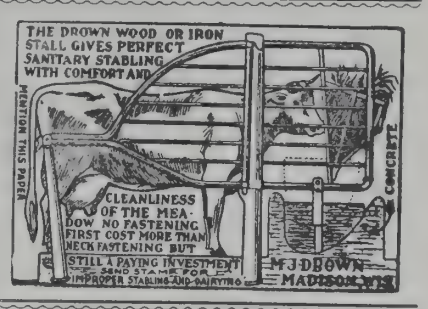
FRANK H. BATTLES, Seed Grower,
Rochester, New York.

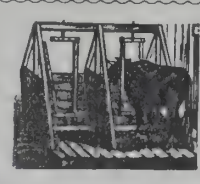
A Steel Stanchion beats anything you ever saw fo tying cattle. Lighter, stronger, neater. Swings on chains Not in the way when lying down. Agents wanted. Write for special terms and prices. Jas. Boyle, Mfr., Salem, O

Separators For Sale

We offer, while they last, a few separators, De Laval and other makes, at low prices. Some of the machines have never had milk run through them, others have been taken in exchange. All are in fine working order. Full information will be given upon request.

STODDARD MFG. CO., Rutland, Vt.





CHAIN-HANGING CATTLE STANCHION

The Most Practical CATTLE FASTENER ever invented. Manufactured and For sale by

O. H. ROBERTSON, Forestville, Conn.



WARRINER'S CHAIN HANGING STANCHION.

CLEAN, SAFE, COMFORTABLE.

MFG. BY W. B. CRUMB, Forestville, Conn.

Scott's "Perfect" Cow Stanchion

SWINGING
SELF-CLOSING
SELF-LOCKING
3 NECESSITIES FOR PERFECT STANCHIONS

Made of hard wood—strong and durable. Price $1.00. Satisfaction guaranteed.

Write for descriptive circular.

B. C. SCOTT, 212 Beach St., Bridgeport, Conn.



THE NEW PATENT Cow Stall AND FEED TROUGH.

This is the only Cow Stall with a centering hinge. Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars.

R. A. McLERY & CO.,
Palmyra, Wis.

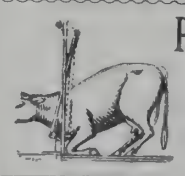
JUST OUT! UNDERHILL SELF ADJUSTING STALL



No Gutters
No Platforms
No Fastenings
No Stables to clean

Cease trying to keep your cows clean. You can't do it. Give them a chance and they will do it themselves. This is the only way and the easy way. Write for circular telling what the cow has discovered to us. It is a great revelation,

Wm. M. UNDERHILL, Oconto, Wis.

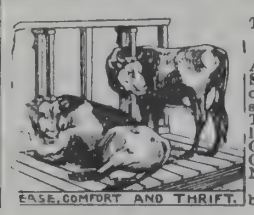


Prescott's Swinging Swivel tanchion

Keeps Cows Clean.

Swings forward while getting up or lying down. Locks back while standing. Full particulars free.

E. PRESCOTT,
Beverly St., Boston, Mass.



The BEST Cattle Fastening.

SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated circular free. GLENORA MFG. CO., Glenora, Yates county, N. Y. Infringements will be prosecuted.

success, the sum invested will be raised in less than four years.

The shareholders in the enterprise will include all those who have supplied the factory with milk. I think it will be preferable to allow each shareholder to cast as many votes as he owns stock in the company, rather than to have each patron equal to one vote. This is the way in which such business enterprises are usually conducted and I think it has been found to be satisfactory. I see no reason why a limit should be put on the amount of stock owned by any one patron, provided he owns cows and sends his milk to the factory and the amount of stock has come to him on account of the large supply of milk he has furnished the factory.

I think you will get a good many points of benefit to you in starting this enterprise if you will send some representative of your company to a co-operative creamery which has been successful in the past. Let him confer with the manager of such a factory and find out the method of dividing the stock among the patrons and of paying the patrons for milk that has been most successful and acceptable to the patrons of that factory.

E. H. FARRINGTON.

Wis. Dairy School.

The Central Maine Fair Association

ED. HOARD'S DAIRYMAN—The farmers of Kennebec, Somerset and Waldo counties assembled in adjourned meeting on the 19th inst., and completed the organization of the Central Maine Fair Association. This organization will be educational in all its departments and bearings, if its members do "not forget" the good advice received fnom the eminent speakers who held forth from the stage of the Waterville city opera house, where the meeting was called.

The state of Maine is mindful of the needs of these her children, and appropriates a part of her treasure as a school fund, for the training of the eye, ear and hand of the grown up industrial individual.

This new member of the Fair fraternity of Maine starts off with a complete and harmonious organization. All needed offices have been named and able men elected to fill the same. One of the ablest editors of central Maine was selected as president and promises a strictly business administration of the new association.

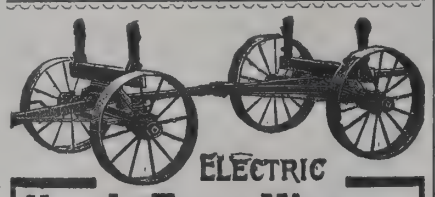
This organization has been effected with the advice and counsel of some of the most experienced managers of state and county fairs here in Maine. Then, in order to give it a better start, the organization was capped with a Farmers' Institute, and Commissioner of Agriculture, Gillman, had a faithful band of workers with him to speak on the several most important features of the fair and their management. Prof. Hurd of the State University who has had several years experience with fairs in the wilds of Michigan, has learned some things worth remembering, and gave from his ripe experience some deductions as to what to encourage and avoid in the conduct of the affairs of the new organization.

The need for full and free classification of products brought for exhibition was discussed, as was the need of securing expert judges to make awards. A judge who can make a just and scientific award and then stand by for half a day or more and explain to seekers of knowledge why he gave one first and another second prize in the competitions, is the one needed. This power of decision and explanation will be expected from the judges who will be considered the schoolmaster, or past masters, in making the awards on the products of the fields and orchards, the looms, and the work shops.

But when it comes to the byre, Prof. Phelps of Conn., raised the question of who shall be able to decide and name the points of a good cow when every college in the land is teaching a different scale and thus the agricultural college doctors are at a variance. He did, however, give a grain of comfort, when he advocated a yearly feed and milk test to determine for sure which is the best cow. No external marks or conformation can take the place of this accurate knowledge and it is impossible to replace it by a superficial examination of the exterior of the cow.

Dr. C. D. Smead, of New York, gave a very close analysis of the horse question at fairs. Dr. Smead is a middle aged man, who, coming from the Empire State, brought with him recollections coach, German or French, or draft horses, of fairs where he has been as an official and an exhibitor. He has heard what people say of the management, and, from this experience and what others have said, somehow, the audience seemed to think it had altogether the best of the case, when it learned that the earlier speakers had already used many of the words the doctor had intended to utter, and he was thrown on new resources which he brought up fluently from his varied experience with Empire state and county fairs.

This speaker has found that few successful horsemen are good judges of a horse, and if one of them can judge one class of horses, he is more than likely to default when brought into the ring with a different class, as from standard bred to



ELECTRIC

Handy Farm Wagons

make the work easier for both the man and team. The tires being wide they do not cut into the ground; the labor of loading is reduced many times, because of the short lift. They are equipped with our famous Electric Steel Wheels, either straight or stagger spokes. Wheels any height from 24 to 60 inches. White hickory axles, steel hounds. Guaranteed to carry 4000 lbs. Why not get started right by putting in one of these wagons. We make our steel wheels to fit any wagon. Write for the catalog. It is free.

ELECTRIC WHEEL CO., BOX 130 QUINCY, ILL.

GUERNSEYS

REGISTERED GUERNSEY BULLS FOR SALE from Advanced Registry, and high-grade stock. Pedigree and price furnished upon application. All animals are tuberculine tested.

WOODEND FARM,
ST. BONIFACIUS, MINN.

GUERNSEYS FOR SALE.

The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

SPOTSWOOD GUERNSEYS

We offer some grand Imported Cows and Heifers, large and deep milkers and high testers; a fine lot of Heifers fit for service, and a few Imported Bulls from prize winners on both sides. Any animal in the herd for sale. Address WALTER JAUNCEY, Spotswood Farms Broad Axe P. O., Pa.

OLD HOMESTEAD GUERNSEYS

Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.

Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL, Perry, Lake Co., Ohio.

Florham Guernseys.

The herd is made up of representative animals of both home and foreign breeding.

BULL CALVES,

from large producing dams for sale. Apply to J. L. HOPE, Supt., Florham Farms, Madison, N. J.

GUERNSEYS HADDON FARMS

Home of the noted GLENWOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

GUERNSEYS FOR SALE

Bulls two years old out of Count Topsy 24.27 lbs. butter 7 days. She won first prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

Creamery and Cheese Factory For Sale or Exchange.

One of the best located combined plants in the state; Alpha Separators in good shape. Two and one-half acres of land. Good Dwellings, Ice House, Etc. Will sell cheap or trade for live stock or merchandise.

BOX 229, MILFORD, IOWA.

THE BROWN BESSIE HERD

Offers one bull 14 months old, sired by Recorder, 29239, the only living son of Brown Bessie and has 14 tested daughters. Dam, Relay, 70353, test 17 pounds 2 ounces. She a daughter of Diploma with 61 tested daughters. Also Berkshire Pigs of English and American selected stock.
H. C. TAYLOR, Orfordville, Wis.

KING OF ST. LAMBERT'S KING 30752

Sire of thirty-three tested daughters, is unquestionably the most prepotent of any Jersey sire in the land. We have for sale young bulls rich in his blood; also a few cows and heifers in calf, whose progeny will be attractive because of the "Hart's King" blood in them. For prices, etc., address
FRANK W. HART, CLEVELAND, OHIO.

ALTA CREST FARM, SPENCER, MASS.

Home of the Yeksa Family of Guernsey Cattle. Herd contains more cows with large records and backed by large records than any other HERD OF

GUERNSEY CATTLE

IN THE COUNTRY

Herd headed by Primative 4909, a son of Primrose's Tricksey, Adv. Reg. No. 2, 592 lbs. butter in one year. Several Bull Calves from elegantly bred Dams at reasonable prices. Address
A. H. SAGENDORPH, Spencer, Mass.

REGISTERED GUERNSEY COWS,

Heifers and Bull Calves. Tuberculin tested. Prices are reasonable.
J. G. HICKCOX,
700 Stowell Avenue. Milwaukee, Wis.

WASTELAND GUERNSEYS

SPECIAL SALE

To reduce our stock we offer for sale a few Cows and Heifers. We also have some good Bull Calves sired by "Sir Coral" 5239, and "Glenwood's Sheet Anchor of Haddon" 6372. Write at once for description and prices.

M. M. & E. J. HOLLINGSWORTH,
Landenberg, Chester Co., Pa.

GUERNSEYS FOR SALE.

Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.
JAS. H. BEIRNE, Oakfield, Wis.

Rosendale Guernsey Herd

TUBERCULIN TESTED.

Sixty head of choice Guernseys headed by Coralette's Son, (see page 450) whose dam, Coralette made 479.7 lbs. fat in one year at 3½ years old, and was first prize cow at Wisconsin State Fair in 1896.

Some fine young bulls for sale.
GEO. C. HILL & SON, Rosendale, Wis.

AMERICAN JERSEY CATTLE CLUB

OFFICES: 8 W. 17TH ST., NEW YORK

President, ELMER A. DARLING.
Secretary, J. J. HEMINGWAY.

BLANKS for Registering and Transferring Jersey Cattle; also Blanks for Private Butter Tests of Registered Jersey Cows, furnished free of charge upon application to the Secretary.

FEES for Registering: To non-members, $2 each head male or female. To members of the Club, $1 each head, male or female. All animals over two years old, double fee. For registration of all dead animals, $1 each. Imported animals, $25.

TRANSFERS are recorded free, if presented within 90 days from date of delivery. Transfers presented after 90 days, $1 each.

PRICE of Herd Register, $1 per Single Volume. Butter Tests of Jersey Cows, including all tests received by the Club to August 1, 1898, $2 per volume. Private Herd Record, 330 pages, cloth, leather back and corners, $2. Pocket Herd Record, 120 pages, flexible leather, 50 cents.

VOLUME OF BUTTER TESTS from August 1, 1898, to July 15, 1902, $1. Consolidated Volume, containing all previous tests, $2.00.

THE BY-LAWS of the Club, giving full rules to be followed in securing registration and transfers, mailed free on application.

BILTMORE JERSEYS

are great and persistent dairy workers and typical Jerseys. We ask comparison with any other herd for

YEARLY MILK & BUTTER YIELDS, SUBSTANCE AND FINISH.

The herd contains more prize winners at the leading exhibitions (including the Pan-American) than any other herd.

The breeders keep us sold out of all bull calves over two months old, so please do not delay ordering until you want a young bull ready for service, as you cannot get it.

Also Headquarters for Large English Berkshires and Standard Poultry.

Apply to
BILTMORE FARMS,
BILTMORE, N. C.

ST. LAMBERT BULL CALVES by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.00.
W. J. HUSSEY, Mt. Pleasant, O.

HIGH CLASS JERSEY BULLS

Heifers and Cows for sale. My foundation stock is the best I could buy from a herd famous for merit. Write for what you want.
WM. B. GOODRICH, CLIMBING HILL, IOWA.

PROSPECT HILL JERSEY HERD

The cow that can DO something is what the farmers want. Eight cows have finished their official year's work making an average of 524 lbs. each. F. H. SCRIBNER, Rosendale, Wis.

FOR SALE. GOLDEN LAD BLOOD, sired by Golden Blyth 3d, 54569, A. J. C. C., a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Write for what is wanted. R. C. GREEN, Albion, Wis.

FOR SALE. Two A. J. C. C. Bulls ready for service; also some younger ones. Cows and heifers in calf to richly bred bulls. Write for pedigrees and prices. We have a few Berkshire Boar Pigs from unregistered sows left; cheap.
N. N. PALMER & SON, Broadhead, Wis.

POLLED JERSEYS

Richest Cow of all breeds in Pan-American Model Dairy. Winning Herd at Ohio and New York State Fairs, 1903. W. H. FORBES & CO., Yellow Springs, R. R. No. 1, Ohio.

Wintergreen Hill Farm

A. J. C. C. JERSEYS.

Fall Sale List of cows and heifers is now ready and includes cows to calve for winter milking, heifers recently bred, and a few well bred calves. Some have tests, others are from tested dams. It is a very desirable offering and those applying early may secure their choice. In writing ask for Sale List A21.

WINTERGREEN HILL FARM, Scottsville, N. Y.

JERSEY BULLS Now or soon to be ready for service; also several well bred HEIFERS. Let us send you prices and breeding, with milk and butter records. All stock is registered or eligible. E. E. STEVENS,
North Madison, Ohio

VALLEY FARM Is offering some bargains in young bulls sired by Diploma's Victor, 56310. Grandson of Brown Bessie; two yearlings; one 18 mo. old. Also bull calves. Write
FRED STUBLEY, Black Earth, Wis.

HAZEL FERN HERD. A. J. C. C. Jerseys, blood of St. Lambert, Melia Ann, Combination, Pedro, and Golden Lad. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale.
ESTATE W. S. LADD, Portland, Oregon.

MAIL AUCTION.

A rare chance to get Jersey bull calf at your own price. Dam, Ida's Runaway, 130582, a most persistent milker. Sire, Deodona's Diploma, 68818, a grandson of Recorder, 29289. Send for photo and pedigree. All bids must be in December 10, 1903.
N. H. ROBINSON, Prop., Centralia, Wis.

FOR SALE Grandsons of Pedro 3187, by his son Pedro's Pretty Pogus 33660, A. J. C. C., a prize winner at Chicago World's Fair, and at Wis. and Minn. State and La Crosse Inter-State Fairs.
J. Q. EMERY & SON, Albion, Wis.

Just for Nothing

We will send you THE JERSEY BULLETIN and HOARD'S DAIRYMAN to the end of 1903. But while making you this generous offer, we wish you to do something.

Subscribe for both papers for 1904, at the lowest clubbing rate, $1.75 FOR THE TWO. To make it plain, send us $1.75 and we will send THE JERSEY BULLETIN and HOARD'S DAIRYMAN to January 1st, 1905.

For Sample Copy of Jersey Bulletin address Indianapolis, Ind.

"IT'S UP TO YOU!"

where the division should be as wide as the number of breeds which may be induced to exhibit; bearing in mind that it is all educational, and the greater the variety the better, since more people will learn more of these useful animals, if brought out for careful inspection and comparison.

The editor of the *Maine Farmer* was called on for a speech when another had failed to arrive in time for the afternoon meeting. Dr. Twitchel, who was acting secretary, then gave an address, which for completeness and closeness to the subject had not been exceeded. This gentleman has had many years of experience in conducting the affairs of the Maine State Fair and knows all the details from start to finish in fair management.

One of the prominent features which was emphasized by most of the speakers was that the fair belongs to the members—the farmers of this section. They have elected their managers now. They must support these managers and make the fair what it is expected to be, the greatest and best object lesson for improving and increasing the quality and extent of the products of Central Maine that has ever been invoked.

As an indication of some efforts which will be made and which may be of more than passing importance is that of giving to some products which are of special value to this immediate community higher rank in premium than is usually customary. For instance, this is the home of the Baldwin apple in its best estate. This should be recognized by making a distinction in premiums offered for the Baldwin over other varieties of less value in this section.

The dairy interest has many devotees in this part of Maine, and will form an important part of the coming Central Maine fair. FRANK E. EMERY.

Maine.

Veterinary Instruction at the Wisconsin Agricultural College.

Students attending the Short Course in Agriculture at the Agricultural College at Madison this winter—commencing Nov. 28—will be given practical instruction in rudimentary veterinary science. Every owner and breeder of live stock should be able to recognize disease and act as a capable nurse of sick animals. To this end students will be taught the characteristic symptoms of common ailments, the proper care, feeding and nursing of sick animals, the best methods of administering medicines, the significance of pulse, respiration, temperature, appearance of eye, countenance, hair and excreta. "First aid" lessons will be given to equip the student as an efficient and intelligent assistant to the qualified veterinary practitioner. Measures by which diseases of live stock may be prevented and human health safeguarded will be considered, together with the study of quarantine, disinfection and State sanitary police. As an intimate knowledge of animals necessitates an understanding of anatomical structure, bones, joints, tendons, and muscles will be studied and special attention given to perfect conformation, common departures therefrom, and the causes and practical detection of lameness and unsoundness. The internal organs will be studied for knowledge of the nervous system, circulation of the blood, breathing, digestion, excretion, reproduction, etc. The recognition of age as shown by the teeth will be practically taught, while the study of common irregularities of the teeth will be taken up in relation to the feeding of animals. As an aid to the study of these rudimentary branches of veterinary science, charts, illustrations, specimens, live and dead animals and a life-sized Azoux model horse will be used and explained.

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Both sexes, all ages. Herd headed by Sir Piebe Hengeweld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz. Frank B. Fargo, Lake Mills, Wis.

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OF HOLSTEIN-FRIESIANS

Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 69.50 lbs. one day. Breeders and dairymen please write for prices.

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FOR SALE H.-F. BULLS, ready for service, from A. R. O. cows and sired by Sir Johanna DeKol, 25467 A. R. O. Butter record of dam, 24.08 lbs. at 4 yrs. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis.

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HOLSTEIN-FRIESIANS

Headed by Korndyke Queen De Kol's Prince, dam Korndyke Queen De Kol, 24 lbs. 6.7 oz., grandam Belle Korndyke, 25 lbs. 12.3 oz. Both sire and dam by Manor De Kol, his dam Netherland Hengerveld 26 lbs. 10.66 oz., Manor De Kol by a son of De Kol 2d, 26 lbs. 9.21 oz. All are official tests and average 25 lbs. 13.72 oz. butter for 7 days and 3.95 per cent fat in their milk. Two bull calves now for sale and young ones after Sept. 1.

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THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. Depot. Stock of both sexes and different ages for sale. Bulls in service are: Homesterd Prince De Kol No. 26663. Sire: Pietertje Hengeveld Paul De kol No. 22128. Dam: Shadeland DeKol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 ozs. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148. Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 ozs. Average per cent fat 4.92. Correspondence solicited.

WM. EVERSON & SON, Lake Mills, Wis.



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From a few months to a year old, from official record dams, and with strong official backing on both sides. The sire is half the herd; it is important that you get the right one. We have that kind, and our prices are no higher than others are asking. HENRY STEVENS & SON, Brookside Stock Farm, Lacona, Oswego Co., N. Y.

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Bulls ready for service from A. R. O. animals sired by Johanna Rue 2d Paul De Kol, sire of 13 A. R. O. cows. Also young bull calves by same sire. THOS. GAINES, Supt., Arcadia, Missouri

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I offer a very select lot of White as well as Buff Plymouth Rock Fowls of the present year's breeding for sale. Each breed have been kept on separate farms and are absolutely pure in their breeding. They will be sold at

$5.00 A TRIO

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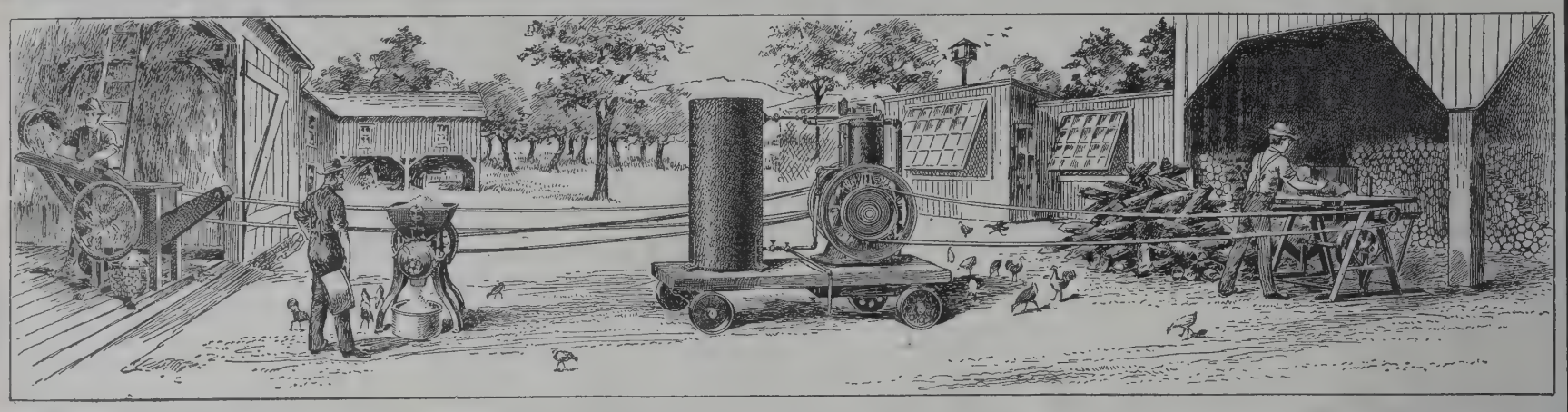
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They have had the range of alfalfa fields the past summer and are very vigorous.

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BRANCHES. Albany; Buffalo; Hartford; New Orleans; Baltimore; Philadelphia; Pittsburg; Boston; Montreal, Que.; Vancouver, B. C.; Winnepeg, Man.; Toronto, Ont.; London, Eng.

INQUIRIES AND ANSWERS.

(Continued from page 943.)

Baled Alfalfa Hay.

What can baled clean alfalfa hay be bought for, and where? If a few tons of it was fed on ground where an experimental trial was to be made next year, is there any probability of the soil becoming inoculated? J. H. O.
Danville, Ky.

Baled alfalfa hay may be bought at various points in Kansas, Nebraska and Colorado. The managers of the Jersey herd at Jerseyville, Ill., which herd is to enter the breed contest at the St. Louis World's Fair, have contracted for a quantity of the third cutting of baled alfalfa, from Colorado parties. This, with corn ensilage, will constitute an important part of the roughage ration. We hardly think feeding alfalfa on the ground would inoculate the soil with alfalfa bacteria, but we have no data on this point.

A Connecticut Ration.

I am feeding ensilage twice a day, corn fairly well eared, and seven pounds of grain mixture composed of 300 lbs. bran, 100 lbs. of gluten and 100 lbs. cotton seed meal. Am not feeding any hay yet. Am making about 110 to 115 quarts of milk a day, from 14 cows, six of which are two-year-olds milking since last spring, three of the rest were fresh this fall. How near a balanced ration am I feeding, and in your opinion can I with profit feed heavier on grain. Bran, $1.15 per cwt.; gluten $1.35, and cotton seed, $1.50.
Shelton, Conn. F. B. D.

A ration, or in other words, a daily allowance, consisting of 40 lbs. silage (which is as much as any cow should be expected to eat), and 7 lbs. of the mixture above described, would contain not far from 17 lbs. of dry matter, carrying 1.9 lbs., digestible protein, 8.2 lbs. carbohydrates and 0.6 lb. fat, costing, exclusive of silage, very nearly 9 cents. Such a ration is really deficient only in dry matter and carbohydrates, and calls for something in the form of dry forage. Add this from good clover hay and we are unable to suggest a better average. By using this word "average" we mean to be understood as suggesting that certain of the cows in this herd, we can not say which ones or how many, should receive perhaps not more than half the amount of grain specified, and that others, if copious milkers, might profitably be fed as much as 10 lbs. Only the man in daily touch with the cows and their daily record of milk production is in position to apportion the amount to be fed intelligently. It is ordinarily estimated that two-thirds of the average ration is required for the simple maintenance of the animal, whether giving milk or not. What more should be fed must be governed, if one is keeping cows for profit, by what the cow is able to use in manufacturing milk from day to day. It is self-evident that when the cow is giving 30 to 40 lbs. of milk daily she will require more material than when the yield is between 10 and 20 lbs.

Chestnut Lumber for Silos.

Could I construct a good silo out of good, traight-grained chestnut timber, say 2x4. Cost of sawing and planing $7 per thousand. Please give some idea or plan how to build. G. S. H.
Stepney, Conn.

Chestnut lumber would undoubtedly make a good silo but it is impracticable to offer any sugestions about construction without information as to the probable number of animals to be fed. It is our purpose to devote considerable attention to silo construction during the late winter and spring, but just now more pressing topics demand consideration.

Cocoanut Meal, Nutrium, Linseed Meal.

Please inform me where I can find cocoanut meal, Nutrium and linseed meal. J. N
Linton, Ind.

We do not know whether cocoanut meal is kept for sale anywhere except on the Pacific coast, and the country tributary to it. Nutrium is not quoted anywhere that we can find. Linseed oil meal is for sale by all wholesale dealers in feed stuffs.

Cow Beef—Top-dressing Wheat.

Will a cow killed while giving milk, make good meat to use? If not, how would you get her dry so she could be killed soon? When would you advise to top-dress wheat with barnyard manure, in the fall or at any time during the winter or in the spring? I have rented this land for two years, and would like to get the benefit of the manure on the two crops.
Landeck, Ohio. P. H.

The quality of the meat will depend upon the condition of the cow. In any event, if the cow is in good health, the meat will be "fit" to eat, although it may not be as tender and juicy as that from a well fattened animal. At present prices, it will not be profitable to attempt to fatten a milch cow.

Top-dress the wheat any time when the ground is dry or frozen or covered with a light fall of snow. Be careful not to put on so much as to smother the plants, and in the spring go over the field with a harrow to break up the lumps, and secure a more even distribution.

Price of Milk—Relative Value of Butter Fat and Butter.

A milk dealer in a near by city is trying to buy milk here for the winter and offers 10 cents per gallon delivered at the depot. Is this a fair price for 4% milk at the present price for butter?
I would also like to know on what basis creameries generally buy butter fat? For instance if butter is quoted on the Elgin Board of Trade at 22 cents, what would butter fat be worth per pound? Would not the overrun pay for the manufacture of the butter?
Poplar, Wis. P. A. P.

A gallon of milk weighs 8.66 lbs. and 10 cents per gallon would be at the rate of $1.15 per 100 lbs. This is more than one could expect to receive from a creamery at the present prices of butter.

The second question is quite fully answered by Prof. Farrington on page 891

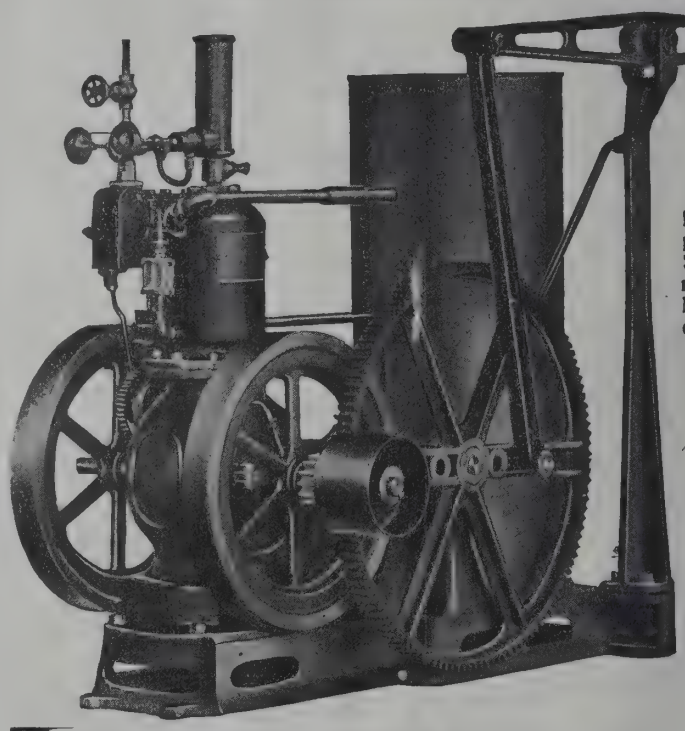
A Massachusetts Ration.

Will you please help me formulate a ration for a herd of Holsteins and Durham crosses, giving from 30 to 45 lbs. milk per day when fresh. Mixed timothy and corn stover on hand in quantity two to one. Can buy cotton seed meal at $28 per ton; spring bran, $21.50 per ton; mixed feed half bran and half middlings, $22.50 per ton; gluten feed, $27.00; linseed oil meal

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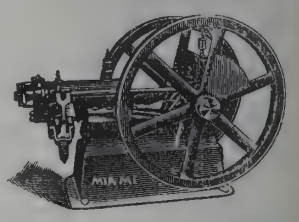
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You would probably get a **CERTAIN AMOUNT OF SATISFACTION** out of any old kind of a gas or gasoline engine. But if you want one to give you better service than a steam engine, and as good service as an electric motor, and cheaper to run than either, get a

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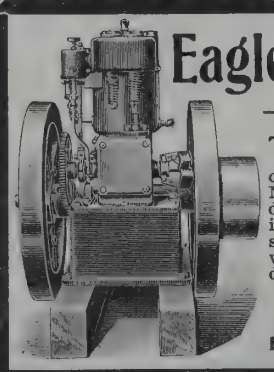
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THIS ENGINE is of the four Cycle type and is especially designed and adapted for use on the farm—for separators, churning, pumping, elevating, hoisting, cutting ensilage, etc. No Expert or Engineer required to operate it—very simple in design and compact in construction. This engine is built so it can be easily moved from place to place. We can supply a special belt driven pumping jack to be used in connection with any pump having a wind mill head. Write for prices and description to

EAGLE BICYCLE MANUFACTURING CO.,

Engine Department. TORRINGTON, CONN.

old process, $28.00 per ton; corn meal, $23.00 per ton. J. T.
Westfield, Mass.

Where there is neither silage nor roots we think it advisable to feed some linseed oil meal, quite as much however for its dietetic effect as for its nutritive properties, although the latter are by no means of small value. We therefore incline to the opinion that about as good a selection as can be made is given in the accompanying formula.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. timothy hay	13.02	.42	6.51	.21
9 " corn stover	4.76	.14	2.59	.06
2 " oil meal	1.82	.59	.65	.14
3 " gluten feed	2.70	.70	1.51	.08
4 " bran	3 52	.50	1.54	.12
Total	25.82	2.45	12.80	.61

This of course is designed for large cows giving a large yield of milk.

A Michigan Ration.

I intend to feed my cows corn fodder twice a day and mixed clover and timothy hay once a day this winter. For grain I have corn and barley and oats, but prefer not to feed my oats to my cows. Can I get the best results with these, or would it be more profitable for me to buy bran or oil meal or some of the feed stuffs advertised in the papers to make a balanced ration? If so, which would be the most profitable for me to buy and how much of each should I feed? Which is the more profitable to buy for cows, linseed oil meal or linseed meal?
Davis, Mich. B. S.

Prof. Haecker's experience in Minnesota is that a mixture of corn, barley and oats makes a satisfactory addition to a ration where one has silage, fodder corn and hay for roughage. Where there is neither silage nor roots, our opinion is that a little linseed oil meal is a profitable addition to any combination of feeds, and this would be especially true if oats were omitted from the ration:

For cows not giving over 20 lbs, of milk daily, the following would be a fair daily allowance. For cows yielding more, increase the allowance of oil meal somewhat.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. corn stover	8.93	.26	4.86	.11
10 lbs. mixed hay	8 53	.48	3.96	.16
3 lbs. corn	2.67	.24	2.00	.13
3 lbs. barley	2.67	.26	1.97	.05
1 lb. oil meal	.91	.29	.33	.07
Totals	23.71	1.53	13.12	.52

Add also a heaping teaspoonful of salt twice a day.

A New Hampshire Ration.

In looking over your feeding table analyses of October 9th, I see that a hundred lbs. of green oat fodder is worth about 200 lbs. of peas and oats; is there enough water in these peas and oats to make this difference? How would this do for a ration for cows: 40 lbs. ensilage, 10 lbs. pea and oat hay, 5 lbs. bran? C. P. O.
Lyman, N. H.

The figures in the table referred to are as we find them in the books. We should not think there would be so much difference, but have no data that would warrent us in changing them.

The ration given would tabulate as follows:

	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
40 lbs. silage	10.56	.52	5.60	.28
10 lbs. oat and pea hay	8.54	.92	3.68	.12
5 lbs. bran	4 41	.63	1.93	.15
Totals	23.51	2.07	11.21	.55

This is a good ration, containing enough nutrients for a thousand-pound cow, giving 20 to 25 lbs. milk.

A Michigan Ration—Dried Molasses Beet Pulp.

Will you please formulate for use a feed ration for milch cows from the following feeds: Bran, $18; fine middlings, $21; rye, 50 cents per bushel; corn, 50 cents; mixed clover and timothy hay and corn stalks; beet pulp dried, $12. What is your opinion of dried molasses beet pulp?
Lincoln Lake, Mich. E. J. S.

With no information as to size of cows or how long they have been in milk, or their capacity for milk giving, it is only a wild guess to suggest a ration formula.

We should expect cows weighing from 900 to 1,000 pounds to eat without unnecessary waste about 15 lbs. of that mixed hay and 8 lbs. of corn stover daily, and at the prices named should be inclined to limit the grain to bran, with possibly some ground corn added. The amount to be fed may vary from 4 to 10 lbs., depending, of course, upon the ability of individual cows to respond.

We think very favorably indeed of the dried molasses beet pulp, and from the analysis given should rate it a cheap feed at the prices named. At all events it is well worthy of trial.

"ADVERTISEMENT."

LET YOUR STOMACH HAVE ITS OWN WAY

Do Not Try to Drive and Force it to Work When it is Not Able or You Will Suffer All the More

You cannot treat your stomach as some men treat a balky horse; force, drive or even starve it into doing work at which it rebels. The stomach is a patient and faithful servant and will stand much abuse and ill treatment before it "balks," but when it does you had better go slow with it and not attempt to make it work. Some people have the mistaken idea that they can make their stomachs work by starving themselves. They might cure the stomach that way, but it would take so long that they would have no use for a stomach when they got through. The sensible way out of the difficulty is to let the stomach rest if it wants to and employ a substitute to do its work.

Stuart's Dyspepsia Tablets will do the work of your stomach for you and digest your food just as your stomach used to when it was well. You can prove this by putting your food in a glass jar with one of the tablets and sufficient water and you will see the food digested in just the same time as the digestive fluids of the stomach would do it. That will satisfy your mind. Now, to satisfy both your mind and body take one of Stuart's Dyspepsia Tablets after eating—eat all and what you want—and you will feel in your mind that your food is being digested because you will feel no disturbance or weight in your stomach, in fact, you will forget all about having a stomach just as you did when you were a healthy boy or girl.

Stuart's Dyspepsia Tablets act in a natural way because they contain only the natural elements of the gastric juices and other digestive fluids of the stomach. It makes no difference what condition the stomach is in, they go right ahead of their own accord and do their work. They know their business and surrounding conditions do not influence them in the least. They thus relieve the weak stomach of all its burdens and give it its much needed rest and permit it to become strong and healthy.

Stuart's Dyspepsia Tablets are for sale by all druggists at 50 cents a box. They are so well known and their popularity is so great that a druggist would as soon think of being out of alcohol or quinine. In fact, physicians are prescribing them all over the land and if your own doctor is real honest with you, he will tell you frankly that there is nothing on earth so good for dyspepsia as Stuart's Dyspepsia Tablets.



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(Patented)

Safety Package

Banner Lye is not old-style lye, and you can easily open our safety package and use as little or as much as you need.

Banner Lye not only keeps your kitchen, milk-room, milk-pans and dairy perfectly clean, but it makes

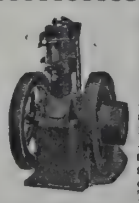
Pure Soap

without boiling or large kettles, and in only ten minutes.

A 10-cent can makes ten pounds of hard soap, or twenty gallons of soft soap—the best soap you ever saw or made.

Your grocer or druggist sells **Banner Lye** for 10 cents. If you send us your address, we will send you free our book *"Uses of Banner Lye."*

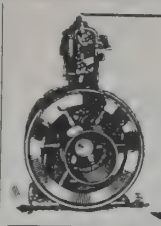
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is best represented in the **Buick Engines**—the reason why we make more small engines than any other manufacturer. Are you thinking about an engine to do the cream separating, churning, pumping, feed cutting or other farm work? Do you want guaranteed workmanship and up-to-date construction? If so, it's going to pay you to get our catalog H before buying.
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MILK DEALERS COMBINATION Milk Protector, for cans or bottles. Prevents milk churning and souring in summer and freezing in winter. INVESTIGATE. S. C. Sullivan Mfg. Co., Erie, Pa.



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Full 2 Horse Power with pulley for running all kinds of machinery by belt.

Pumping attachment as shown in cut $12.00 extra.

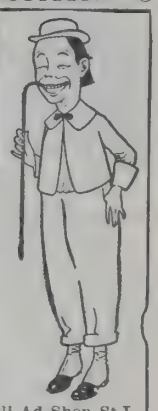
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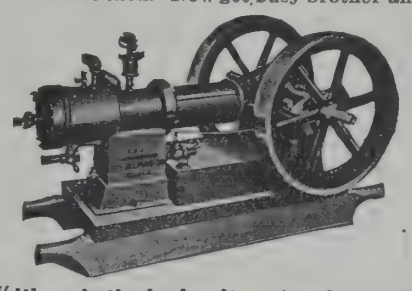
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THE **ELI** GASOLENE ENGINE } Is the **BEST** because it has no gears, cams, levers or valve mechanism. **Don't Be Jollied** into buying a complicated engine that's always out of order—get the **ELI**—no trouble then. Now get busy brother and write for booklet to-day.



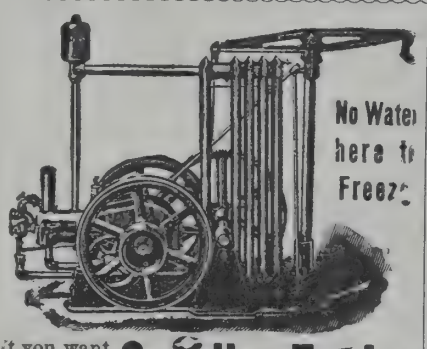
"It's what's in 'er 't makes 'er go."

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Moline, - - Illinois.

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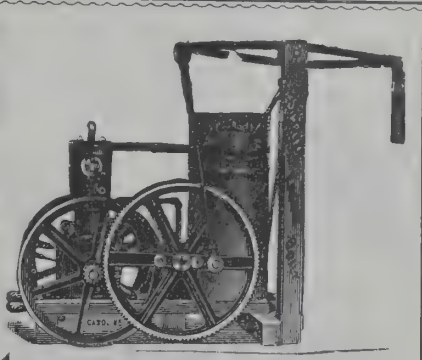
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that will be always ready to start, safe, reliable convenient, economical and durable, buy a **FULLER & JOHNSON Frost Proof.** No bother with water nor expense of broken cylinder, no waiting for wind or weather. All sizes, stationary and portable. Send for descriptive catalogue to the manufacturers

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STATIONARY PORTABLE TRACTION



This is our new improved 1903 Portable, built on practical lines. Guaranteed horse power. Easy to start; operates successfully in zero weather. No vibration when running light or on full load. Winner in appearance. Every engine sold on fair trial, fully guaranteed. Write for catalogue No. 5, prices and terms.

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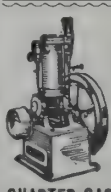
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For Grinding, Shelling, Fodder Cutting, Threshing, Pumping, Sawing, etc.
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whether you want a small pumper or an inexpensive power "plant" for any purpose, you get the best when you get the **WITTE** GAS or GASOLINE **ENGINE**
It works—doesn't kick or lay down. Will sell one on



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to prove it to be the most efficient and economical of all engines. The strongest guarantee goes with the Witte. Made in all sizes, 1½ to 40 H. P. Write for catalog M

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Good News for Stockmen

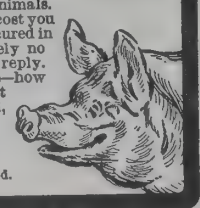
During this month, if you will write giving statement of symptoms and conditions,

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The Eminent Veterinarian,

Will Prescribe FREE

for any of your ailing animals. This service would likely cost you a good many dollars if secured in the usual way. Absolutely no charge—send 2c stamp for reply. Say what stock you have—how many head of each—what stock food you have used, and mention this paper.



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in all forms and Curb, Splint, Spavin, Sprained Cord, etc., all yield readily to and are permanently cured by

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Used and Endorsed by Adams Express Company.

Nothing equals it when used internally for Colic, Distemper, Founder, Pneumonia, etc.

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TUTTLE'S FAMILY ELIXIR cures rheumatism, sprains, bruises, etc. Kills pain instantly. Our 100-page book, "Veterinary Experience," FREE.

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Avoid all blisters; they offer only temporary relief, if any.



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The only guaranteed abortion remedy.

The most powerful germ destroyer known.

It prevents all contagious diseases. Thus far every user as far as we can learn is satisfied with results obtained. Send for descriptive booklet.

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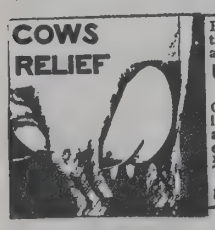
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Save the animal—save your herd—cure every case of Lump Jaw. The disease is fatal in time, and it spreads. Only one way to cure it—use

Fleming's Lump Jaw Cure

No trouble—rub it on. No risk—your money back if it ever fails. Used for seven years by nearly all the big stockmen. Free illustrated book on Lump Jaw and other diseases and blemishes of cattle and horses. Write for it today.

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Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.

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Albany, N. Y.

Iowa Dairymen's Convention.

Impressions of a Man on the Spot.

ED. HOARD'S DAIRYMAN:—Traveling over the Illinois Central Railroad from Dubuque west to Waterloo, I began to get impressions of Iowa as a dairy state before I was very far out in the country. My first impression was that the dairymen of the section I was passing through did not realize the value of the corn stalk either in the shock or silo. On every hand I saw fields of husked corn, the stalks left to menace the lives of the animals that were forced to subsist on them; the only silos seen on the trip were at Masonville. My next impression was that the dairymen of Iowa were much like those of my own state in regard to sunshine; their barns were constructed to keep it out instead of having plenty of windows to let it in, as they should. What windows there were, were used for getting the manure out of the stables, more than for letting in light.

Just about the time I had arrived at this conclusion, my eyes discovered a familiar face in the rear of my car, no less person than our genial President of the Dairymen's association of this state, Mr. Jos. Newman. He was in company with the Secretary of the Buttermakers Association of Wisconsin, and we spent the balance of the trip to Waterloo talking shop.

On reaching the hotel that was the head quarters of the boys, we were greeted by old friends in numbers. Sudendorf, as large as his 5 ft. 8 would admit of, was one of the first to greet us; then Wentworth of Marshalltown, Dairy Commissioner Wright of Des Moines, the grand old singer, Jules Lombard of Omaha, and so many more I will not take up space to name them, extended us the glad hand.

We had just time before dinner to visit the machinery hall, and there saw the most complete display of all of the necessary creamery and dairy adjuncts that we ever saw at a dairy meeting. The booths were tastefully decorated and the machinery and goods so placed that as a whole the effect was very pleasing, and by the crowded condition of the room was appreciated by the visitors.

The butter room looked like a South Water street commission house cellar as much as a display of prize competing lots of butter; 137 packages were entered and the scores were quite high on the average. W. S. Smarzo of Masonville, took first with a score of 98 (I would like to know if this butter was from cows fed from one of the silos I saw near that town); the second prize went to J. E. Scott of Dubuque. I did not get a list of balance of scores, but was told that the total average would be high.

The cash premiums were very liberal, and the amount to be pro-rated among the exhibitors scoring above 91 was $610.00.

The report of the State Dairy Commissioner was a good document and illustrated how much the dairy interests of Iowa mean to the state. The list of active creameries in the state number 792 and they made a total of 65,000,000 lbs. of butter in the past year. The hand separator has gained ground very fast in the state during the past year, an increase of 100 per cent over the previous year, and Mr. Wright estimates that of the total make of the creameries fully 15,000,000 lbs. were from the hand separator cream. This is a step in the right direction. It means several things to the dairyman who separates his milk at home. Less hauling, less time spent at the creamery delivering the goods and receiving back the skim milk, and not the least advantage is the fact of having the skim milk fresh, warm and sweet at home. There are 38 creameries in the state that are exclusive hand separator cream creameries and two-thirds of all other creameries receive such cream.

In the whole state, with its numerous cities of large size, the fact that with the oleomargarine people wishing to do so much for the poor, there were but six licenses issued from January 1st, up to October 1st, tells its own story.

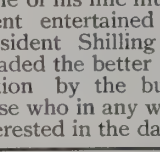
The program offered to the dairymen was a good one and many valuable ideas were presented. The Governor gave a talk that was intended to create a state pride in those present, and by the way it was received the object sought was accomplished. He made the statement that as a state, it had the least amount of waste land within its borders of any state in the Union, about 2½ per cent he thought, and as a dairy state it ranked at at the top.

The President of the Association, Mr. S. B. Shilling spoke of the past meetings and classed the present one as the best ever held, barring the one at Dubuque two years ago, and as to the dairy exhibit, it excelled anything in Iowa's history. He made the statement that the dairymen of the state had not as yet reached one-half of the possibilities of their cows, and substantiated his statement with figures from the Station reports. In this I can heartily agree with him. Not only is this true of Iowa, but of Illinois as well and all other dairy states that I am familiar with. Not only can we double our product per cow, but at the same time not increase the cost per head in feeds, a better knowledge of feeds and feeding, environments better suited to the cow's comfort and the greatest of all, systematic weeding and breeding.

Prof. Kennedy of the Iowa Station was a speaker that got a close hearing, his subject was how to know the dairy cow when you see her, and after you see her, how to feed her. He pointed out the necessity of feeding a balanced ration to a well defined, dairy formed cow, and showed the necesssity of buying the protein foods to balance the farm grown crops. This part of his talk was especially good, for it was practically what I had intended to say myself in the paper I had prepared. After his talk, I was on one leg, so to speak, as far as my prepared paper went, but I consoled myself with the fact that he left me the other half.

The next speaker was a Minnesota dairyman, a Mr. A. W. Mowbray, who is the President of the Minnesota Dairymen's Association. His theme was the silo for the Iowa dairyman, and, Oh, base ingratitude! I loaned him my model silo to illustrate his talk with and assisted him in other ways to present the most important subject of the meeting, and what did he do, but take up the half of my paper Prof. Kennedy had left, and away went my other leg, leaving me, figuratively speaking floundering, on the rostrum 190 miles from home.

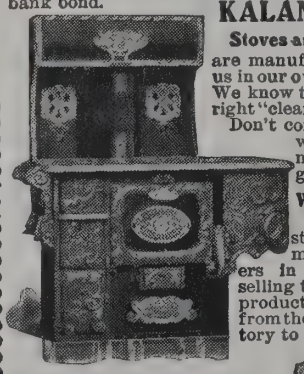
The evening session of the 19th was devoted to the National Buttermakers' Association. Jules Lombard gave us some of his fine music, and other musical talent entertained us for a time, then President Shilling in an earnest talk, pleaded the better support of the Association by the butter makers and all those who in any way were connected or interested in the dairy industry. He gave



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A better stove or range than you can get from any other source. A saving of from 25% to 40% in price. Prompt shipment from factory to user. Factory prices—no dealers' profits. Freight prepaid by us. 360 days approval test. Guarantee backed by $20,000 bank bond.



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"LEADER" Road Wagon — Imitation leather trimmed; carpet, wrench and shafts; just as illustrated. Write for further description.



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We also have better grades up to the very best and most stylish that can possibly be put together.

VEHICLE CATALOGUE FREE. Send for it today. It will give particulars about the above work. It also illustrates and describes the newest and best line of Runabouts, Stanhopes, Buggies, Phaetons, Surreys, Carriages, Carts, Spring Wagons, etc., ever quoted direct to the buyer. It explains the difference between good and unreliable work—between the hand-painted and the dipped buggy—and also explains our Guarantee of Satisfaction and

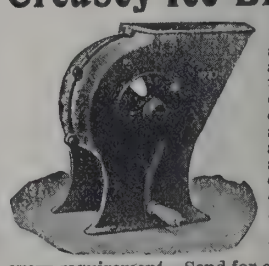
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Send a postal today for our Vehicle Cat. No. E1.

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A special circular quoting our entire line of Sleighs, Sleds, etc., will be sent at the same time, if you request it. 40

Creasey Ice Breakers



Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right.

Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.

J. S. L. WHARTON, Mfr.,
17th Clearfield St., Philadelphia, Pa.



The Best Cooling Process

It has no peer for cream gathering, quick cooling and ventilation. Milk and water are not mixed. Undiluted sweet skim milk to feed to calves and pigs. Soon pays cost of separator. More butter, richer flavored, easier to keep clean.

Write for our catalogue with pictures and our special introductory prices. Agents wanted. Pat. May 21, 1901.

THE ARRAS CREAM SEPARATOR CO., Bluffton, Ohio



The Best Cooker

for preparing feed for all kinds of stock is this

PURINTON'S No. 2 Steam Generator

Made of Boiler Steel and tested. Has safety valve and jointed pipe reaching a dozen barrels without unscrewing. All stock thrive better on cooked feed and steam cooked is the best. Never gets burned or scorched. Best boiler for scalding hogs, cleaning around dairies, etc. Quickest steamer on market. Burns any fuel and less of it than any other. Our water sup-

30 DAYS FREE



Why buy a "pig in a poke" when you can get the

ROYAL INCUBATOR on 30 Days Free Trial. Absolutely self-regulating. Try it and keep it only if you like it. Send for catalog and free trial plan. With poultry paper one year ten cents.

Royal Incb. Co., Dep. 424, Des Moines, Ia.

Oil Cure For Cancer.

The Dr. D. M. Bye Co., of Indianapolis, Ind., report the discovery of a combination of soothing and balmy oils which readily cure all forms of cancer and tumor. They have cured many very bad cases without pain or disfigurement. Their new books with full report sent free to the afflicted

reasons, a plenty, why the organization should be continued and built up; the organization being a fighting one it required funds to buy the munitions of war and the funds must come from interested parties. He cited the great work it had done in the oleo legislation, and pointed to the fact that the law now on the statute books must be kept there by a constant watch on the opposition, who are in every way trying to evade the law and create enough prejudice to get a repeal or modification.

Secretary Knight presented his report and among the things he said was that the unrestricted sale of oleo would cause the bats to roost in every creamery in the State of Iowa, while 1,000 buttermakers and as many assistants would be forced to seek other work. He spoke at length on the value of the law to the dairy interests, citing the price of butter for the past year as being 1½ cents higher than previous year. Speaking for himself, he said he was ready to give up the secretaryship to some one else, he was discouraged with the fight, not in the work accomplished, but in the lack of funds, and the hard work required to collect them; people did not realize the work required, and the amount of money it took to carry on the work, or they would be more free in the contributions. He paid a glowing tribute to ex-Governor Hoard and deplored the fact of his resigning from the organization's presidency.

The election of officers for the year resulted in retaining the entire list as follows: S. B. Shilling, Mason City, President; W. B. Barney, Hampton, Vice-President; P. H. Rieffer, Manchester, Secretary; F. A. Leighton, New Hampton, Treasurer.

Taken as a whole the 27th Session of the Dairymen's Association was, as President Shilling told us, the best in its history, and will result in much good,

Monmouth, Ill. BUFF JERSEY.

CON'T PUT OFF

Seeing your friends and having them join in for a club of subscribers.

VETERINARY.

Queries in this department answered by DR. A. H. HAETWIG, Watertown, Wis.

Injured Teats.

I have a cow that has a teat with the point stepped off, some time ago. I used a milk tube for drawing this milk, but dried up on that quarter, and on account of the pain I didn't bother her and now find that the hole is grown up. She comes in in 10 weeks. Also have a cow that has an obstruction way up in her hind quarter, I can push a milk tube, 3 inches long, up and strike it, and then comes blood, with milk for awhile, but dries up in a short time. If I have to use an instrument, what's the name, price and where can I buy it?

Dows Prairie, Cal. A. F.

ANSWER.

The only remedy in both of your cases, is the teat bistoury. In the former case, where the teat is practically closed up, it is best to wait until she comes fresh, then insert the bistoury and make your incision in four opposite directions. The flow of milk will keep a free opening and render the cure permanent. In the latter case you may use the bistoury at any time to lay open the obstruction and allow the milk to come down. A teat bistoury can be obtained from this office for $1.50 postpaid.

Infectious Abortion.

What is the best treatment for a herd of 30 cows that have abortion. I have three that have lost their calves within the last three months. Our local veterinary pronounced it abortion, but did not examine and prescribed carbolic acid. I have fed for two weeks and I believe it is drying them up. They have failed from 7 cans a day to 3½ cans. I feed 1½ ounces acid to 29 cows.

Wenas Wash. J. F. C.

ANSWER.

If your cows have infectious abortion your case requires more than ordinary precaution and strict adherence to the following directions. It is not an easy task to prevent the trouble from going through the entire herd when it is once started. Experience has taught us that carbolic acid has no favorable affect whatever when given per mouth, or even if injected hypodermically; a cow that will not abort after feeding carbolic acid, would not have aborted if it had been omitted entirely. To treat abortion successfully we must apply our antiseptic agents directly to the seat of the trouble, which is in the reproductive organs.

We must, first of all, isolate the cows which have aborted; destroy the afterbirth and foetus, and thoroughly disinfect the stables in which they have aborted; whitewash the walls and give plenty of light in the stables. About the best agent to apply to the floor is air-slaked lime. Apply it once daily after cleansing. In the absence of lime, wood ashes or land plaster may be used instead. If in the grass season it is advantageous to put the healthy cows to pasture. The cows which have aborted should not be allowed to retain the afterbirth; the same should be promptly and completely removed, and the uterus and vagina thoroughly cleansed by irrigating same with a 1-5000 solution of bichloride of mercury, or other disinfecting agents. This can best be done by using a large sized fountain syringe, and should be repeated once daily, until the disappearance of the vaginal discharge. Until this has entirely disappeared no cow should be used for breeding purpose, or be allowed to be returned into the herd among the healthy cows. We may also increase the power of resistance of all the animals by means of food rich in nitrogen, and a teaspoonful or two of powdered cramp bark in food, once daily.

Mastitis.

A year ago last August, I had a cow taken with the cow pox, and being the first case I ever saw, did not know what it was, letting it run on until her teats became quite sore before I got it healed up with iodine and vaseline ointment. About this time she had a calf and her bag caked considerable; both back quarters were badly caked and whole udder very hot. Another question, I have another cow, rather old, a very quiet disposition, and I have never yet been able to detect when she came in heat. Is there any treatment that I can give her that will bring her in heat in a short time? B. F. C.

Keokuk, Iowa.

ANSWER.

1. Your cow had a case of mastitis, and your external treatment could not be improved, but you might give two tablespoonfuls of sulphate of soda in food, twice daily, which will act as an alterative.

2. Increase your grain ration and give a teaspoonful of powdered nux vomica in food once or twice daily.

Enlarged Knee.

We have a five-year-old mare with a soft bunch on her knee, just below the knee pan, about as large as a small hen's egg. It has been there several months. Was never hurt to our knowledge. Bunch seems to increase very slowly.

Clifford, Pa. L. W. A.

ANSWER.

Clip off the hair over the enlargement and apply the following over same once daily, rubbing it well for 10 or 15 minutes each application and continue this for four days. After this let it alone; do not wash off:

Iodine resublimed, 2 ozs.; potassi iodi, 1 oz.; petrolatum, 8 ozs.

This will absorb almost any enlargement except bone. If not reduced satisfactorily, repeat in two weeks.

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Caustic Balsam



A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish*

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Breeding Powder

Makes Cows Breed After Abortion.

Corrects Failure to Come in Season and Failure to Clean.

"I had a heifer that aborted her first calf and she failed to breed again, though three different bulls were tried. I decided to give Hood Farm Antiseptic Breeding Powder a trial. After one month's treatment the heifer was bred successfully and in due time she gave me a fine heifer calf for which I have been offered $25." JOSEPH MASON, Bacon Farm, Newton Highlands, Mass.

Price, $1, sent by mail, $1.15. Size containing four times this quantity, $2.50. Sent prepaid for $2.75. Address

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SPAVIN CURE



To The Troy Chemical Co
Troy N Y.

Dear Sir Please send me one more bottle of "Save the horse" It is doing great work.

Respectfully
Millard F. Sanders
7 Spring Park Glenville O.

September 7, at the Fasig-Tipton sale at Sheepshead Bay, a yearling by Esher-Excellenza was being sold by Mr. William Easton, and when the animal was led into the ring he said:—"This horse has been suffering from a bog spavin, of which practically no trace remains. He was treated with that remedy called 'Save-the-Horse,' which all of you know, and it did save the horse; that is, it cured him. Now, you know lots of great horses, Morello and others, were successfully raced, and there is no reason to expect that this colt will ever take a hame step." The bidding opened then at $250, and the colt was sold for $300 to Mr. J. D. Smith.

"Private Stables Jas. Galway, Race Track, Saratoga, N. Y.

I got a bottle of "Save-the-Horse" first of Moseman & Bro. of New York and used same on ringbone, curing it entirely. I next used 'Save-the-Horse' on two splints and cured them. Have also used it on a strained Pastern Joint, which made horse very lame; it cured this also. I predict a great output of 'Save-the-Horse.' It has never failed to cure any case I used it on." EDWARD FEAKS, Trainer for Jas. Galway, of 312 West 56th St., New York, the millionaire owner of Meltonian and many other noted horses.

Cured horses are absolute certainties as to the possibility of the remedy for your own case. Such results as above by men whose reliability can be readily ascertained, have carried "SAVE-THE-HORSE" over skepticism, prejudice and uncertainty. Send for booklet and copy of written guarantee, which is as binding to protect you as the best legal talent could make it. No man need see his horse suffer and become incapacitated.

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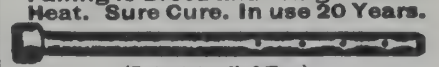


and General Tonic for Cows. The only genuine sure cure and general tonic for cows on the market. I guarantee, and refund money if not satisfactory.

Dr. Geo. Hollabush, Ft. Atkinson, Wis. Write for circular.

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Stable Queries—Disposal of Liquid Manure—Hay Slings.

I expect to fix over an old barn next spring, and I would like advice on some points. I intend to put my cows, young stock and pigs in the basement, which will be cemented.

What is best plan for saving liquid manure, by absorbents, or draining into cement cistern to be removed by a pump, or otherwise? If by cistern, how can one be made in land where the water table ordinarily stands about two feet below the surface?

Have you any experience with hay slings?

What size doors would be required to operate them if the hay is to be put in from outside the barn?

Can you suggest any books which would help me in planning the changes? SUBSCRIBER.

Southampton, Mass.

We do not know of any single book which treats upon all the topics named.

Our own practice and preference is to dispose of the liquid manure by use of absorbents. In this way we get a better distribution of the fertilizing ingredients for our purposes, but it may be easily seen that special conditions would be better served by using the liquids by themselves, especially on grass lands. However, it would be a somewhat difficult matter to construct a durable cistern in ground where the ordinary water level is so near the surface.

We have used hay slings, but our old-fashioned barns do not lend themselves to their use so acceptably as to the common horse fork. The opening for using slings will need to be not less wide than the breadth of the load and fully as high.

A Virginia Dairy Ration—Saccharine Dairy Feed.

Please formulate a ration for my herd of registered Holsteins and grades recently fresh. I have plenty of good corn ensilage and stover. Mill feed and wheat bran cost me $24 per ton; cotton seed meal, $28, and linseed meal, $34. I can also get cotton seed for 20 cents a bushel, also saccharine, concerning which I enclose a pamphlet, $24 a ton. Would you suggest anything more? SUBSCRIBER.

Crewe, Va.

The Saccharine dairy feed mentioned is represented to consist of 30 parts ground corn and oats, 20 parts cotton seed meal, 20 parts distillers dried grains, 26 parts corn molasses and 4 parts salt, all by weight, and to have a guaranteed analysis of 15 per cent protein, 55 per cent carbohydrates and 5 per cent fat. This comprises the total contents, and makes the feed correspond very closely to common bran in digestible nutrients. It is admitted that cows sometimes do not take to it very kindly at first, but soon come to relish it highly. The formula for its preparation would indicate it to be unobjectionable, except for the use of more salt than we have been accustomed to recommend. It is reported to have been in use at Biltimore Farms a year ago and was giving satisfaction. It would seem, therefore, that our inquirer would be justified in making a trial of it in connection at first with more or less bran; but if this feed is what it is represented to be, there can be no necessity for feeding it in such amount as is recommended in the pamphlet sent us.

From the other feeds named we should expect good results from, say, 35 lbs. silage, 10 lbs., more or less as the cows would eat without waste, corn stover, 5 lbs. bran and 2 lbs. cotton seed meal. We practice giving the meal, whatever it may be, in connection with the silage, and adding a good teaspoonful of salt to each mess.

Scotch Bred Ayrshires.

I am interested in Scotch Bred Ayrshire cattle, and would like your opinion on this breed of cattle. I have four heifers that will not milk until June, F. C. W.

Conneaut, Ohio.

There has been more or less of fadism in the breeding of Ayrshires in Scotland for some years. The old, dairy-type Ayrshires became unpopular at shows, and to win prizes, breeders had to sacrifice dairy points, and breed and feed for the round, smooth and fat beef outlines. A large udder and good sized teats were accounted blemishes. Not all Ayrshire breeders in Scotland,—perhaps but a comparatively few of them—adopted these heresies, but if they did not they kept their cattle at home, and, by following better methods of breeding and feeding have maintained, in considerable degree, the former prestige of the Ayrshires as a dairy breed. In this country, the dominant Ayrshire sentiment is to hold fast to dairy lines of breeding and feeding, and the result is that Ayrshires are again coming to the front as dairy cattle.

For Increasing the Butter Fat.

I have read your answer to my inquiries and in answer will write that I am feeding the cows now on orchard grass, cut early, and there is some timothy hay mixed in with it, and for a grain ration I am giving ground oats and corn, 3 parts oats, 1 corn, and a feed of beets.

What I would like to know is, if by feeding some kind of oil meal can I increase the butter fat? G. P. C.

The per cent of fat in milk cannot be materially and permanently increased by any change of feed. Probably 2 lbs. of oil meal daily would bring up the per cent of fat for a few days, but it would very soon fall back to the normal proportion the individuality of each cow determines. The only way to increase the amount of butter fat is to increase the yield of milk by generous and proper feeding. In this case, it is our opinion that a little oil meal added to the daily ration would probably increase the flow of milk somewhat, and more important than that, tend to prevent undue shrinkage. The amount to feed, must be governed entirely by circumstances and results. Commence with not more than a half-pound per day, and increase from time to time if the results warrant.

For Kansas Holsteins—Warming Water for Cows.

Will you kindly give me the daily amount of bran and oil meal required for Holstein cows producing four gallons per day, with all the clover hay they will clean up.

Is cotton seed meal, at the same price, better feed than oil meal?

What do you think about warming water for cows in winter; opinions seem to differ on this subject?

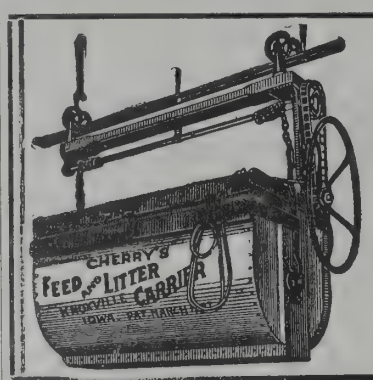
Merriam, Kansas. H. M.

We recommend trying 4 lbs. bran, 2 lbs. oil meal and 2 lbs. ground corn in connection with clover hay *ad libitum*. We add the ground corn to bring up the carbohydrates somewhat, and if the cows appeared to respond would not hesitate to increase the amount specified. Under the conditions named we should prefer the linseed oil meal, but if there was silage or roots, we should have but little choice.

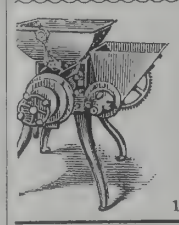
If the water is in an outside tank, where more or less ice forms at times, we unhesitatingly advise the use of a tank heater for warming the water, but if the tank is in the barn where the temperature of the water does not fall much below 50 degrees, we should not consider warming water particularly necessary. In other words, water for cows should be at about the temperature most healthful for men.

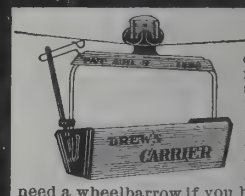


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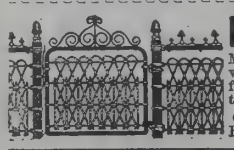

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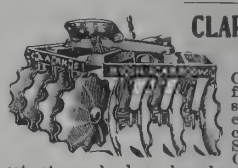
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Moves 15000 Tons of Earth a Day.

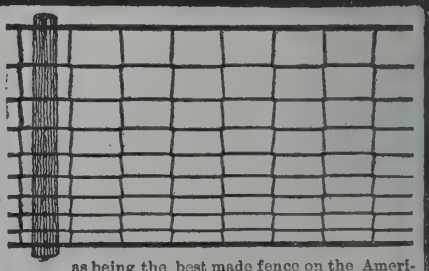
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Three Highest Scores of the National Educational Butter Tests.

ED. HOARD'S DAIRYMAN:—Enclosed I take pleasure in handing you report of the high scores of the second National Educational tests, which were conducted by the National Creamery Buttermakers' Association with the aid of the United States Department of Agriculture.

St. Louis, Mo. E. SUDENDORF,
Secretary of N. C. B. Ass'n.

THE THREE HIGHEST SCORES AT EACH OF THE SIX NATIONAL EDUCATIONAL TESTS, 1903.

	Average.
Championship, M. Sondergaard, Hutchinson, Minn	96.75
2nd, John Sollie, New Sweden, Minn	96.66

1ST TEST, JANUARY, 1903.

	Score.
1st, M. Sondergaard, Hutchinson, Minn	97½
1st, Alfred Schroeder, Lafayette, Minn	97½
2nd, M. G. Koepsell, Ridgeway, Minn	97
2nd, P. J. Peterson, Montezuma, Iowa	97
3rd, H. J. Evans, Strawberry Pt., Iowa	96½
3rd, John Sollie, New Sweden, Minn	96½
3rd, B. J. Young, Hobart, N. Y	96½
3rd, J. W. Koepsell, Lewiston, Minn	96½

2ND TEST, MARCH, 1903.

1st, M. Sondergaard, Hutchinson, Minn	97
2nd, John Sollie, New Sweden, Minn	96½
2nd, O. M. Warner, Welcome, Minn	96½
3rd, F. H. Kelling, Jefferson, Wis	96

3RD TEST, MAY, 1903.

1st, M. Sondergaard, Hutchinson, Minn	96½
1st, F. H. Kelling, Jefferson, Wis	96½
2nd, H. J. Rosenau, Meriden, Minn	96
3rd, J. A. Petersen, Chicago City, Minn	95½

4TH TEST, JUNE, 1903.

1st, M. Sondergaard, Hutchinson, Minn	98
1st, John Sollie, New Sweden, Minn	98
1st, H. J. Rosenau, Meriden, Minn	98
2nd, Alfred Schroeder, Lafayette, Minn	97½
2nd, Wm. Voight, Naugart, Wis	97½
3rd, A. E. Thompson, Poplar Grove, Ill	96
3rd, J. A. Emerson, Armstrong, Minn	96

5TH TEST, AUGUST, 1903.

1st, M. Sondergaard, Hutchinson, Minn	98
1st, John Sollie, New Sweden, Minn	98
1st, Albert Erickson, Volga, Wis	98
2nd, C. D. Elder, Manchester, Iowa	97½
2nd, C. H. Weber, Beaver Dam, Wis	97½
3rd, Alfred Schroeder, Lafayette, Minn	97

6TH TEST, OCTOBER, 1903.

1st, R. P. Bjerregaard, Green Bay, Wis	98
2nd, Elov Erickson, Mankato, Minn	97½
2nd, John Sollie, New Sweden, Minn	97½
3rd, John Wunson, Viola, Wis	97¼

	Entries	Average score
1st test, January	307	87.88
2nd test, March	297	90.65
3rd test, May	230	89.75
4th test, June	244	90.43
5th test, August	218	91.45
6th test, October	166	92.

TWO HIGHEST MONTHLY SCORES.

1ST TEST.

	Score
M. Sondergaard, Hutchinson Minn	97½
Alfred Schroeder, Lafayette, Minn	97½
M. C. Koepsell, Ridgeway, Minn	97
P. J. Peterson, Montezuma, Iowa	97

2ND TEST.

M. Sondergaard, Hutchinson Minn	97
John Sollie, New Sweden, Minn	96½
O. M. Warner, Welcome, Minn	96½

3RD TEST.

M. Sondergaard, Hutchinson, Minn	96½
F. H. Kelling, Jefferson, Wis	96½
H. J. Rosenau, Meriden, Minn	96

4TH TEST.

M. Sondergaard, Hutchinson, Minn	98
John Sollie, New Sweden, Minn	98
H. J. Rosenau, Meriden, Minn	98
Alfred Schroeder, Lafayette, Minn	97½
Wm. Voight, Naugart, Wis	97½

5TH TEST,

M. Sondergaard, Hutchison, Minn	98
John Sollie, New Sweden, Minn	98
A. Ericson, Volga, Wis	98
C. D. Elder, Manchester, Iowa	97½
C. H. Weber, Beaver Dam, Wis	97½

6TH TEST.

R. P. Bjerregaard, Green Bay, Wis	98
John Sollie, New Sweden, Minn	97½
Elov Erickson, Mankato, Minn	97½

HIGHEST STATE AVERAGES, EDUCATIONAL TESTS, 1903.

MINNESOTA.

M. Sondergaard, Hutchinson,	96.75
John Sollie, New Sweden	96.66

WISCONSIN.

F. H. Kelling, Jefferson	94.91
Albert Ericson, Volga	93.83

IOWA.

S. Petersen, New Hampton	94.50
C. D. Elder, Manchester	93.
C. A. Allison, Newell	93.

ILLINOIS.

Ernest Johnson, Hebron	93.50
A. E. Thompson, Poplar Grove	92.66

MICHIGAN.

E. E. Eggleston, Batavia	92.75
Jesse W. Cobb, Lawrence	90.86

NEW YORK.

B. J. Young, Hobart	92.83
Thos. Rutherford, Chipman	92.41

OHIO.

E. G. Carber, Belleville	92.25
O. W. Reed, Lebanon	91.50

INDIANA.

Frank Lennick, Hanna	92.08
E. E. Zook, Topeka	91.25

KANSAS.

W. C. Wolcott, Tonganoxie	90.08

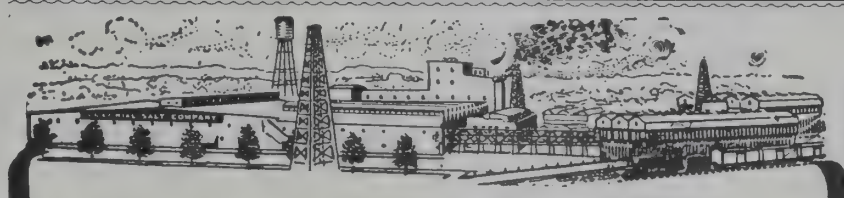
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Driest and Lightest Salts on Earth, thus retaining the moisture in the butter that would otherwise be worked out.

You don't know—you CAN'T know—what a difference these salts will make in the quality, weight, and value of your butter until you have tried them. Don't care what other salt you think is best you must try our brand before you find perfection.

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The best dehorner, the most humane and easiest to use is the **Keystone Dehorning Knife**
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The Great Western Manure Spreader

Endless Apron



spreads all kinds of manure, fresh, well rotted, fine, coarse, hard, mixed, full of straw, full of corn stalks, etc.

Will also spread **compost, lime, land plaster, salt, wood ashes, cotton seed and hulls,** and in every case do it quicker, better and more evenly than it can be done by hand. Spreads as much manure in one day as twelve men can load and spread by hand and the job is much better when done. Spreads the largest load a team can haul in 2 to 4 minutes. It makes the same amount of manure go three times as far and at the same time produce better results.

REGULATED to spread much or little while in motion. Puts it on thick on poor spots—8 to 25 loads per acre. **ENDLESS APRON**—always ready to load. No turning back into position with crank.

COMBINED HOOD AND END GATE keeps manure away from beater while loading and acts as hood in spreading. Catches all flying sticks, stones, etc. Front wheels cut under, and machine can be turned in its own length. Made in two styles and four sizes. Capacity 30 to 70 bushels. It saves **time, labor and money** and will double the crops. Makes all manure so fine and spreads it so evenly that it is immediately available for plant food.

LARGE CATALOGUE 10 by 13 inches, with 8 large cuts shows the spreader perfectly and describes it fully. Tells also how to apply manure to secure best results. **Mailed free.**

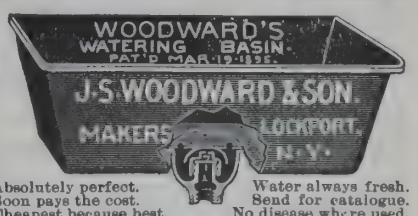
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It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. **Why not use the Best?** Write for descriptive circular.

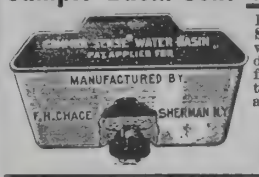
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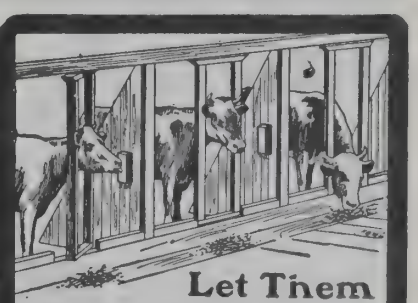
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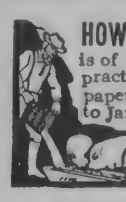
They'll not take too much, and they'll get it as they want it. Don't force animals to eat salt when they don't require it, by mixing with food.

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are all salt, no impurities. Improve the quality and yield of milk. A modern convenience, always present, animals never neglected, and costs for each only about a nickle a month. See how they enjoy helping themselves when you place it within reach. For all stock. Buy of dealers or send for free booklet to

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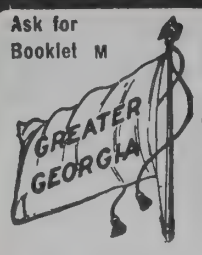


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is of importance to swine growers. A practical, clean, common-sense swine paper for farmers can be had from now to January, 1905, by sending **10 Cents in Silver** at once to

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GEORGIA offers the greatest opportunities to settlers and investors to be found in America to-day. It has been overlooked in the rush to less favored but better advertised sections. It is the ideal place for Northern farmers and their sons to locate. Grows all kinds of crops, make permanent and profitable homes, and all at a very moderate cost. The climate of Georgia is perfect, neither too hot nor too cold and is diversified as the land rises from the sea-level to an altitude of 5,000 feet. No blizzards, or violent extremes of weather. The best climate, in fact, to be found anywhere on the continent, for health and comfort with profit. Coal is cheap and abundant, educational and church advantages the very best, water plentiful, transportation facilities good. More than one-half the deposits in State Banks are owned by Georgia farmers.

LANDS in the most desirable sections of this wonderful state can be purchased on long time and at far lower prices than are asked in northern states. There is no more beautiful or fertile land outdoors than Georgia possesses in abundance. Ten months in the year there is open pasturage for cattle. So rich and fertile is the soil, so early and convenient the market, that farms here yield annually 40 per cent of their valuations. Failure of crops is almost unheard of in the entire state of Georgia, and where diversified crops are grown nothing like an unprofitable year was ever known. No better opportunity exists for poultry and dairy farming, cattle, hogs and stock breeding generally. Small fruits and in fact all fruits grow to perfection. GROW any crop here that grows in *your* state, and others that you cannot grow to profit. Ten cent cotton is like dollar wheat. Georgia peaches sell for millions. Finest grasses and open pasturage ten months yearly make dairy farming and cattle raising profitable. Don't misjudge Georgia just because you know little or nothing about it. ***Find out.*** Lay aside any prejudice you may possess and ask for facts, and then investigate for yourself.

Write **GREATER GEORGIA ASSOCIATION, Atlanta, Georgia,** and they will tell you

$10.30 BUYS This 55 Gallon **Food Cooker,**

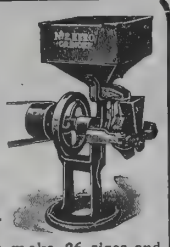


complete with cover, elbow, pipe and damper Kettle is polished and smooth. Jacket made of heavy steel. Burns any kind of fuel. Flues distribute heat all over. Boils 50 gallons in 20 minutes. Cooks anything. Handy for butchering and a hundred other things on the farm.

OTHER SIZES 18 to 100 gallons at $4.30 to $12.65. **Cut this ad out and send it to us and we will mail you free the largest farm machine catalog ever printed. Write to-day.**

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Send for free catalogue of Grinders, Cutters, Huskers, Shellers, Wood Saws, Horse Powers, Wind Mills, Farm Trucks, Seeders, etc.

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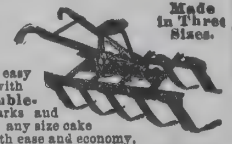
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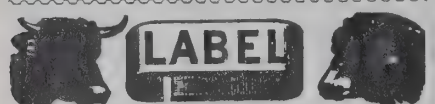
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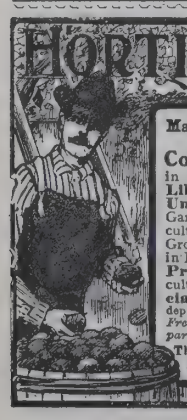


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Buy You a Ticket to **CROOKSTON, MINN.,** and call upon

The Polk County Land & Loan Company

For Choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.

360 acre farm, 4¼ miles from Crookston, Minn., a city of 7,000 inhabitants, and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 feet square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm is under a high state of cultivation, and is well drained by a slight ravine running through the farm merely sufficient for self drainage. The soil is a rich, deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50.

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired. Price $19.00 per acre.

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ON PAYMENTS

So easy that you will regret it if you do not investigate. Our lands are

CHOICE HARDWOOD LANDS.

Especially selected with a view to quality, location and natural advantages. Put your savings into land that will double in value inside of a year. Ask us for the facts about them. A postal card with your address will do. Lands are now selling at $10.00 per acre. $400 in easy payments will buy 40 acres.

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South Dakota

is the place to go if you have made up your mind to stop paying rent and start on the highway to independence. Farm lands can now be bought at prices that will allow a good profit on the sale of products. Recent extensions of the

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open the way to new fields where splendid opportunities for success are offered. South Dakota book, 1903 edition, sent for 2c. postage

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Do you wish to sell or exchange your farm, reamery or cheese factory? No matter where located—east, west, north, or south. Write for our new plan. We put you in direct communication with buyer. Save the big commission which agents would charge.

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FARMERS WANTED

Send card for FREE MAP and Price List of Wild and Improved Lands in Wadena, Otter Tail, Becker, Todd, Hubbard, and Case Counties, Minnesota. Low prices and easy terms. We are large owners.

MURRAY'S LAND OFFICE,
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"ADVERTISEMENT."

THE VALUE OF CHARCOAL

Few People Know How Useful it is in Preserving Health and Beauty.

Nearly everybody knows that charcoal is the safest and most efficient disinfectant and purifier in nature, but few realize its value when taken into the human system for the same cleansing purpose.

Charcoal is a remedy that the more you take of it the better; it is not a drug at all, but simply absorbs the gases and impurities always present in the stomach and intestines and carries them out of the system.

Charcoal sweetens the breath after smoking, drinking or after eating onions and other odorous vegetables.

Charcoal effectually clears and improves the complexion, it whitens the teeth and further acts as a natural and eminently safe cathartic.

It absorbs the injurious gases which collect in the stomach and bowels; it disinfects the mouth and throat from the poison of catarrh.

All druggists sell charcoal in one form or another, but probably the best charcoal and the most for the money is in Stuart's Absorbent Lozenges; they are composed of the finest powdered Willow charcoal, and other harmless anti-septics in tablet form or rather in the form of large, pleasant tasting lozenges, the charcoal being mixed with honey.

The daily use of these lozenges will soon tell in a much improved condition of the general health, better complexion, sweeter breath and purer blood, and the beauty of it is, that no possible harm can result from their continued use, but on the contrary, great benefit.

A Buffalo physician in speaking of the benefits of charcoal, says: "I advise Stuart's Absorbent Lozenges to all patients suffering from gas in stomach and bowels, and to clear the complexion and purify the breath, mouth and throat; I also believe the liver is greatly benefitted by the daily use of them; they cost but twenty-five cents a box at drug stores, and although in some sense a patent preparation, yet I believe I get more and better charcoal in Stuart's Absorbent Lozenges than in any of the ordinary charcoal tablets."



SENT under positive guarantee to refund money if not satisfactory. No bolting food. Perfect digestion. All tinned. no rust, easily cleaned.

KEYSTONE CALF FEEDER.

Used and endorsed by leading dairymen, agricultural colleges and experiment stations. Complete with extra nipple, $1.50, express prepaid. Book free. Agents wanted.

M. T. PHILLIPS, Box 13, Pomeroy, Pa.

DOUBLE CAM BRADLEY STEEL HAY PRESS

One horse can operate it. Very easy for two.

NOT A COG NOR CHAIN ABOUT IT.

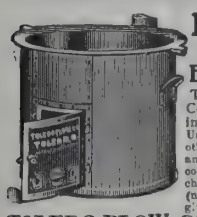
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Has an AUTOMATIC PLUNGER DRAW.

DAVID BRADLEY MFG. CO., 110 E. Broadway BRADLEY, ILL.



It Pays TO COOK STOCK FOOD

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Eonomical Feed Cookers

The best and most durably made Cooker on the market. Best for boiling sap, soap, lard; scalding, etc Uses little fuel and holds fire longer than others. 4 sizes, from 1 bbl. to 2½ bbl. Guaranteed full capacity, jacket of high carbon cold-rolled steel; large fire door takes in chunks; kettle of best quality new cast iron (no scrap), smoothly finished. Free circula. gives many other good points. Write now

TOLEDO PLOW CO., Dept. H, Toledo, O.



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TRIPLE GEARED

FEED MILL.

We give to farmers and feeders in this mill the **Largest Capacity** with the **lightest draft.** Made so it **can't choke.** Grinds Corn and Cob, Shelled Corn, Corn and Oats, coarse or fine without changing buhrs. Made o **best material** and lasts indefinitely. Don't buy until you see our circulars. Write to-day.

Corn King Feed Mill Co., Waterloo, Iowa.

Kingman-Galbraith Implement Co., Minneapolis, Minn., Hirsch Bros., Milwaukee, Wis., Merrell & Co., Toledo, Ohio, Grinly-Hardy Co., Louisville, Ky., Dooley-Ayers-Raisbeck Co., Bloomington, Ill., T. P. Dement Implement Co., St Louis, Mo., Emerson-Newton Co., Kansas City, Mo., Kingman Implement Co., Omaha, Neb.

Oregon Correspondence.

Curing Pea Hay.—Various Questions.

ED. HOARD'S DAIRYMAN:—In reading the communication of P. W. J., of Old Point Comfort, Va., I came to the conclusion that he had better watch over his dairy a little closer. Thirty-five gallons from 26 cows isn't enough. My cows, strippers and all, gave an average of about two gallons or more per day, receiving 2 to 4 lbs. oil meal, a good feed of field corn night and morning, with what hay they would eat; weather hot and flies bad.

If my advice is worth anything, will tell him how I cured my field pea hay. It gave me the best satisfaction of any hay I ever fed. Cut when little too hard for table use, let the leaves become about cured, then rake in windrow. In favorable weather let the stalk become well wilted, then shock; let stand a few days and haul in. Don't let them become too dry; they will finish curing in the barn, nice and green. If let dry too long in field they become bleached and the cows do not like them.

I wish to ask HOARD'S DAIRYMAN how large an ensilage cutter for home use would a 4 or 6-horse gasoline engine run? Are they safe?

Will it pay to feed potatoes at $4 per ton, and squashes at $1 per double box?

Will it pay me for fertilizer to buy hard wood engine ashes at $2 per ton at factory? If so, how best applied?

I run a milk dairy of 13 cows. Does not pay to deliver milk two times a day at 5 cents per quart. How can I best do it once a day and give satisfaction?

What is the relative value of milk compared to bacon, beef, etc., in dollars and cents; milk at 5 cents per quart, meat at 12½ to 15 cents per pound?

The paper of all dairy papers is the HOARD'S DAIRYMAN. G. E.

Newberg, Ore.

A 4-horse gasoline engine will run a 12-inch cutter and 24-foot carrier fairly well, but, all things considered, a 6 or 8-horse engine is much preferable for general farm use. The larger engine will require less gasoline to do the work, because there will be no halts or breaks and no cessation of work to get up motion. Gasoline engines are, and not without good reason, considered the the safest of farm powers.

In the absence of silage or other succulent fodder, a limited amount of potatoes at $4.00 per ton, would probably prove profitable, but 10 to 15 lbs. per day would be as much as should be fed. We are not so certain about squashes—in fact have never known of their being used; but they might be tried, and results determine whether to continue their use.

Ashes at $2.00 per ton would be a cheap fertilizer. Scatter broadcast at the rate of 500 to 1,000 lbs. per acre.

To handle milk successfully for city delivery once daily, the only requisites are cleanliness and cold. As we said, in reply to another correspondent, on page 918, cleanliness consists in excluding bacteria, as well as visible dirt. See that answer for further particulars.

Milk contains from 13 to 14 per cent of solids, all digestible and of the highest nutritive value. A hundred pounds of milk, after deducting for waste, will measure out about 46 quarts and will cost the consumer, at 5 cents per quart, $2.30, or say 16½ cents per pound for the milk solids. The different cuts of fresh beef, after rejecting all bones, contain only from 30 to 50 per cent of edible solids; and bacon and salt pork not more than 60 per cent. At 12½ cents per pound, the edible solids in bacon, corresponding to the solids in milk, would cost 21 cents per pound, as against 16½ cents per pound for equally nourishing milk solids.

Painkiller PERRY DAVIS' CURES COUGHS AND SORE THROAT

YOU CAN DEPEND ON

H. & R. REVOLVERS

Harrington & Richardson Arms Co.

DEPT. 22, WORCESTER, MASS.

SWEEP GRINDERS $13.75



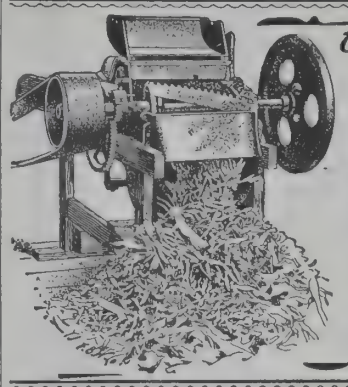
Grind 46 Bus. Baskets Ear Corn Per Hour.

$13.75 $16.50 $17.25 $17.95 $20.65 $23.25.

We have six sizes of Sweep Mills at the following prices:

This Improved Wolverine Ball Bearing, Triple Geared Grinding mill. CRUSHES AND GRINDS ear corn in any condition; shelled corn, rye, barley, Kaffir corn, etc. Makes coarse, medium or fine feed as desired. Produces an even and uniform product. It is made of the very best material money can buy. The gears are extra heavy and will CAPACITY. This is a stumbling block in the way of stand any strain. grinding mills. We have tested this one under all conditions with all kinds and quality of grains. Our statement is a guarantee. If the corn is dry, and the team makes five rounds per minute this mill will crush and grind 46 bush. baskets of ear corn per hour. If the team makes three rounds per minute it will grind 28 bus. baskets per hour. LIGHT DRAFT. It is the lightest draft sweep mill known made hardened steel Ball Bearings. OUR OFFER is: If the mill does not do just as we claim, and does not grind more than any two-horse mill made by any other manufacturer of any construction, of any size buhrs; if the mill is not made on more scientific principles. If it does not grind a more uniform quality of feed and if it is not better in every way than any other sweep mill, it may be returned to us at our expense within three days of the time you receive it. Test it in comparison with any other mill and keep the one which is best. CUT THIS AD OUT and send it to us and we will mail you our special farm machinery catalogue. Don't buy a grinding mill of any kind until you get it. It is sure to save you money.

MARVIN SMITH CO. 55. 57. 59. N. JEFFERSON STREET. CHICAGO. ILL.



The 1903 Shredder Blades

(Patent Applied for)

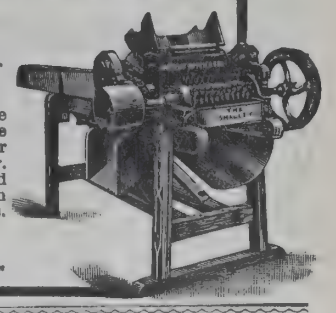
make efficient shredders out of "Ohio" Feed and Ensilage Cutters. The **New Shredder Blade** is the regular "Ohio" knife with solid integrally projecting bits which cut and tear corn stalks into a nicely shredded condition, as shown in the picture. It makes corn-hay of the fodder.

Shredder Blades are interchangeable with knives on all sizes "Ohio" Cutters. They successfully reduce fodder to the proper condition and do not pulverize the leaves like other styles. **They shred** with the same power, speed and capacity as "Ohio" Cutters, and either the Chain or Blower Elevators handle the shredded corn perfectly. **Speed,** 600 to 700 revolutions. **Power,** 2 Horse Tread up to 12 h. p. Engine according to size. Let us send the 1903 catalogue of "Ohio" Cutters and Shredders. "Modern Silage Methods" 10c, coin or stamps. Manufactured by

THE SILVER MFG. CO., Salem, Ohio. *Established 1854.*

THE SMALLEY SHREDDER

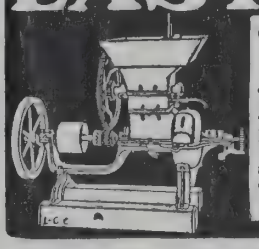
HAS NO EQUAL.



It gives fodder the greatest food value, and makes it easier for the animal to masticate and digest. Requires least power; strong and durable; will outlast a dozen of the saw pattern kind. Knives adjustable to compensate for wear. We can furnish snapper rolls to remove all the ears, just the same as a husker. This combination of cutter, shredder and snapper, costs but little more than the ordinary cutter. We also make drag and circular saws, sweep and tread powers, and ensilage cutters with carriers or blowers to reach any silo. Our free catalogue tells all about our goods. Address Box No. H

SMALLEY MFG. CO., Manitowoc, Wis.

EASY GRINDING



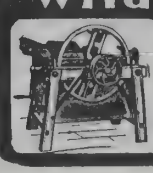
Corn in the ear and all grains, any sort of chop mixture. For speedy and perfect work, saving feed and labor, the all-purpose grinding mill is the

Fine SCIENTIFIC Quick

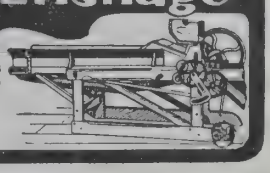
Made in a variety of styles, including **Power Mills, Sweep Mills, Mill and Power Combined.** The line that meets feeders' wants and is right in price. Don't buy until you have seen our late catalogue. Mailed free. Write for it to-day.

THE FOOS MFG. CO., Springfield, Ohio.

Wilder's Feed and Ensilage Cutters



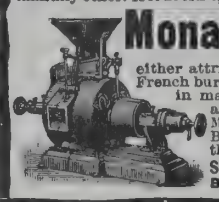
and Shredders. Try one at your own place; if it does not please you better than any other machine you can buy, we stand all expense. Get our catalogue today. It contains largest line made. On the market 35 years.



Wilder-Strong Implement Co., Box 11. Monroe, Mich.

TRY THIS MILL

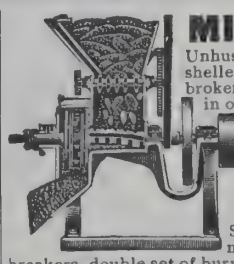
15 days to prove that it grinds meal or feed, ear corn and small grains, faster and better than any other. If it doesn't, return at our expense.



Monarch Mills

either attrition or the imported French burr, approach perfection in make and service. Lead all others in popularity. Meet every farm need. Buy none until you get the Monarch catalogue.

Sprout Waldron & Co. Box 208, Muncy, Pa.



MIXED FEED

Unhusked corn, husked ears, shelled corn and all grains broken, crushed and ground in one operation by

KELLY DUPLEX Grinding Mills.

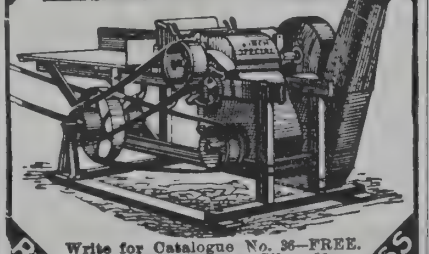
Speediest, easiest running mills made. Double breakers, double set of burrs. 4 sizes for all powers. Force feed, never choke. Get free catalogue.

O. S. KELLY WESTERN MFG. CO., IOWA CITY, IA.

ROSS ENSILAGE CUTTERS

With BLOWER or CARRIER

ALL SIZES—Known as the BEST.



Write for Catalogue No. 36—FREE. Prof. Woll's Book on Silage 10c.

THE E. W. ROSS CO. Springfield, Ohio.

4 HORSE and 2 Horse SWEEP MILL.



And Horse Power.

Grinds corn with shucks, rye, barley, wheat, oats and all other grains. Self feeders. Geared 7 to 1. Light draft. Great Capacity. (Also make plain sweep and Belt Mills; 10 sizes.)

N. P. D. Bowsher Co., South Bend, Ind.

The Armsaver Husker

works with absolutely no danger. Patent guards prevent it. Works in wet, ice or snow covered corn. Husks 40 to 100 bu. per hr. Lasts a lifetime. Get booklet 11 It tells. Ask about 2-wheel windmills.



Double Power Mill Co. Appleton, Wis. PRICE $190.00

THE $60,000

DAN PATCH 1:56¼

CHAMPION HARNESS HORSE of the WORLD

EATS

3 FEEDS FOR ONE CENT

EVERY DAY.

"International Stock Food" greatly aids Digestion and Assimilation so that More Nutrition is obtained from all grain eaten. It "tones up" and Permanently Strengthens the entire system and Purifies the Blood so that disease is prevented. Every $3.50 pail of **"International Stock Food"** is positively guaranteed to save $7.00 worth of grain. It will cause your Race Horse to have more speed and endurance. It will make your Carriage Horses healthy, fat and beautiful. It will give your Show Horses more life and action and make them glossy. It will make your Work Horses strong, healthy and of great endurance. It will make your Stallions and Brood Mares surer, and your colts will be better and grow and develop more rapidly. **"International Stock Food" is absolutely harmless** even if taken into the human system. It is prepared from Roots, Herbs, Seeds and Barks and is fed in small amounts as an addition to the regular grain allowance. It is equally profitable when fed to Horses, Cattle, Sheep, Hogs, Colts, Calves, Lambs or Pigs. It will make you a large extra profit when fed to your stock for Growing, Fattening or Working. It will increase milk 15 to 25 per cent. in Cows, Mares, Sows or Ewes, and only costs "3 FEEDS FOR ONE CENT." A Dan Patch colt commanded $5,000 at eight months of age. He looked like a yearling and was beautiful, strong and vigorous. The dam was fed **"International Stock Food"** before and after foaling, and the colt as soon as it would eat. Dan Patch became the World's Champion Harness Horse nine months after commencing to eat **"International Stock Food"** every day. If it is good for such horses don't you think it would pay you to test it on yours? Our "International Stock Food Farm" contains 650 acres, 12 miles from Minneapolis, and on it we own Dan Patch 1:56¼, Directum 2:05¼, Roy Wilkes 2:06½, and a band of brood mares. They all eat **"International Stock Food"** every day. **BEWARE OF IMITATIONS and SUBSTITUTES.** There are many worthless imitations on the market, put out by people who seem to think that the way to start a business is to steal as much as they can from some prominent firm. **No chemist can separate and name all of the ingredients used in "International Stock Food," etc., and any chemist or manufacturer claiming to do so must be an Ignoramus or a Falsifier**

A BEAUTIFUL DAN PATCH PICTURE FREE

We have a very fine, large lithograph of Dan Patch with the great driver, M. E. McHenry, in sulky. This Lithograph, Printed in Six Brilliant Colors, is one of the finest and most attractive horse pictures ever published. It is 21x28 and printed on heavy paper suitable for framing.

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1st.—Name This Paper. 2d.—State How Much Stock You Own.

Answer these questions in a letter or on a postal card and we will mail at once.

Write at once before the offer is withdrawn. Address....

Largest Stock Food Factory in the World. Capital Paid in, $1,000,000.

International Stock Food Co.

MINNEAPOLIS, MINN., U. S. A.

THE ONLY LOW DOWN

Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the market.



20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished.

Send for catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.

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Sole Manufacturers,

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The National

LOW DOWN CUT-UNDER

justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

THE NATIONAL WAGON COMPANY, Chillicothe, Ohio.



DOUBLE THE FOOD VALUE

can be secured from grain fed to live stock if it is cooked. It is more easily digested and assimilated by the animal stomach. This

ELECTRIC FEED COOKER

cooks feed in the quickest and best way and with the least amount of fuel. Made of cast iron, lined with steel. Boilers made of heavy galvanized steel, made in 12 sizes. Capacity from 25 to 100 gals. Strong, well made and will last indefinitely. Order before the cold weather catches you. Write at once for free circulars and prices.

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WE LEAD THE WORLD

We are the largest manufacturers of Grooved and Plain Tire Steel Farm Wagon Wheels in America. We guarantee our patent Grooved Tire Wheels to be the best made by anybody anywhere. Write us.

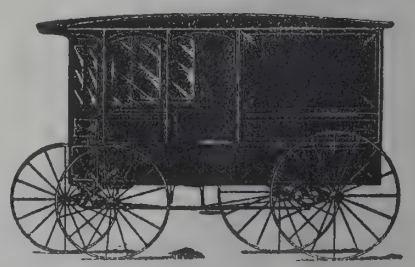
HAVANA METAL WHEEL CO.

HAVANA, ILL.

PRICE TALKS WITH QUALITY BACK OF IT.

ONLY $129

TERMS—⅓ Cash and balance 1, 2, 3, and 4 months notes or 5 per cent discount for cash



We make 10 styles. Write for our Form E. Catalogue and Price List.

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THE YOUTH'S COMPANION

The offer made by the publishers to New Subscribers for 1904 is very attractive, for it includes as a gift the Five Special Numbers shown above, and the other remaining issues of 1903. The contents of the new volume for 1904 will include

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And The Companion for the fifty-two weeks of 1904,—over two hundred and fifty stories, fifty special articles, etc.,—till January, 1905, for $1.75.

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Light Draft, High Lift, Powerful Lifting Spring; Boy can handle it. Patented Step carries the plow and lightens draft. Shipped in crate, set up and sharpened ready for use. Spring Clevis eases draft and saves harness. Automatic Lock on rear wheel. Celebrated "Garden City Clipper" bottoms used.

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BRANCH HOUSES: DAVID BRADLEY & CO., Council Bluffs, Iowa. BRADLEY, CLARK & CO., Minneapolis, Minnesota. BRADLEY, ALDERSON & CO., Kansas City, Missouri.

HEN-LIKE HEAT



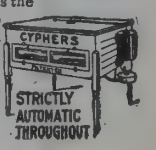
uniformly diffused; quick-to-act wafer regulator; cold-excluding walls; convenient trays; hydro-safety lamp; copper tank; every condition a duplicate of nature's way, make the **Sure Hatch Incubator** a more certain hatcher than your favorite old hen. Photos in free catalogue C14 tell the truth

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The Cyphers Guarantee

is made to you personally and is backed by every dollar we have in the world. It says the

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will give you better satisfaction, hatching more and healthier chicks, with less oil and attention than any other or your money back. Used by more successful poultrymen than all other makes combined. Catalogue free if you name this paper. Address nearest office.

CYPHERS INCUBATOR CO.,

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OF THE
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HOARD'S DAIRYMAN.

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Devoted to Dairying and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., DECEMBER 4, 1903 NUMBER 43

HAND SEPARATOR BUTTER always brings a good price. We make it a specialty. Why sell your cream when you can get from 15% to 20% more for butter? Save "the over-run" for yourself. Send for market quotations and make us a trial shipment.
C. H. WEAVER & CO., 128 South Water St. CHICAGO.
REFERENCE:—Any bank or wholesale house.

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs**
Liberal Advancements Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, New York



Chr. Hansen's Lactic Ferment
Ripens the Cream for Butter and the Milk for Cheese to Perfection.
The only Butter-Culture of keeping quality.
CHR. HANSEN'S LABORATORY, BOX 1003, LITTLE FALLS, N. Y.

HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, BOSTON.**
Medals Bronze 1878 Silver, 1887, World's Fair, 1893.

Thatcher's Orange Butter Color
CONTAINS NO COAL TAR
The pure food agitation makes it imperative that butter makers use a color that is beyond suspicion. Every drop of Thatcher's Orange Butter Color is guaranteed purely vegetable, absolutely harmless and safe anywhere.
We also call your attention to Thatcher's Cream Cheese Color which is recognized by all as the best.
Write for information.
THE STANDARD VEGETABLE COLOR
THE THATCHER MANUFACTURING CO.,
POTSDAM, - NEW YORK.

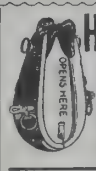
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WELLS, RICHARDSON & CO'S IMPROVED BUTTER COLOR
Has Stood the Test for Many Years, and users of color know that it can always be relied upon. It is the BEST and therefore the CHEAPEST COLOR on the market. . . . . .
. . . FOR SALE BY . . .
ALL FIRST CLASS SUPPLY HOUSES

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Machinery for Creamery. New. Inquire of
BRADLEY COMPANY, TOMAHAWK, WIS.

Cream SEPARATORS
All about them and other things for the dairy and creamery.
A. H. REID, PHILADELPHIA



Hameless Horse Collars $1
GALVANIZED STEEL; no pads; adjustable in size; is better and cheaper. Do not gall but CURE SORE SHOULDERS. Send $1.00 and we will send one to your railroad station with privilege of examination before paying balance. Write for particulars. Agents Wanted.
HOWELL & SPAULDING CO., Dept. S Caro, Mich.

$3 a Day Sure Send us your address and we will show you how to make $3 a day absolutely sure; we furnish the work and teach you free, you work in the locality where you live. Send us your address and we will explain the business fully, remember we guarantee a clear profit of $3 for every day's work, absolutely sure. Write at once.
ROYAL MANUFACTURING CO., Box 1110, Detroit, Mich.

Stop, Look and Listen



The Sharples Special No. 2, a through train consisting of forty carloads of the famous **Tubular Cream Separators** left the **Sharples Cream Separator Works** at **West Chester, Pa.,** on November 14th, 1903. This entire train load, the largest shipment of cream separators ever made, was sold to dealers in the middle west between the Mississippi River and the Rocky Mountains.

Mr. Dairyman, Mr. Farmer, Mr. Creameryman, Stop, Look, and Listen, then think; a single shipment of more than $350,000.00 worth of cream separators in November when the separator business is supposed to be slack. **Sharples Special No. 2** is the second train load shipment during the year. **Special No. 1** went forward on February 7, 1903, and was at that time the only train load shipment of cream separators ever made. No other separator manufacturer has ever found it possible to make such a sale or to get together so large a shipment. That we are able to do it is due to two facts: First; we have the largest cream separator works in the world. Second; the high state of perfection attained by the **Tubular,** its many points of superiority over competitors and our guaranty makes it the most popular and the most easily sold separator on the market. **Stop, Look and Listen;** isn't this the separator you want? Don't you want our free catalogue No. 144?

THE SHARPLES CO.,
28, 30, 32 South Canal St., Chicago, Ill.

P. M. SHARPLES,
West Chester, Pa.



MIDDLE MEN'S PROFITS
TO THE CONSUMER
THROUGH THE FEED

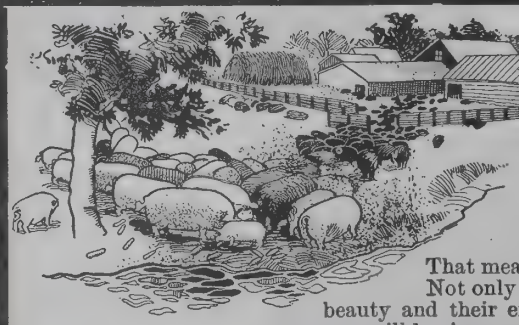
This is no experiment with us; we sell thousands of tons of Flour and Feed this way and have some of the largest buyers as customers.

Direct dealing shortens the selling expense and we give you the full benefit by furnishing you with better feed at a closer figure than you would otherwise be able to buy. We sell you at the same prices quoted our largest jobbers.

Our mill equipment is the most modern. All the wheat used in our mill is bought by an expert grain buyer, operating for us on the Minneapolis Board of Trade, ELMCO Feeds are rich in protein and possess feeding quality superior to ordinary feeds. Each department in our mill is in charge of an expert and the entire business is in charge of and under the supervision of men proficient in the milling business from wide and successful experience. ELMCO Feeds have a reputation for excellence enjoyed by no others. Samples sent and prices quoted to responsible farmers, dairymen and dairy associations.

Ask your Banker as to our reliability.

LISTMAN MILL CO...LA CROSSE, WIS.



Their Good Health.

That means to all the stock you have. Not only their health, but their growth, beauty and their energy and good feeling. If you will begin now to do the wise thing and feed

PRUSSIAN STOCK FOOD,

you will quickly notice a big difference in the entire lot. Don't feed enough to sustain them. Its first office is to purge, clean the system, invigorate and induce digestion and assimilation of the entire rations. It does all this and adds its own powerful nutritive elements. Its medicinal properties enable animals to escape infectious diseases. You have to pay something for every good thing but the cost of this is but a trifle compared with the results you gain. **50c and $1.00 pkgs. Pail, 1,200 feeds, $3.50.** Apply to your dealer for **Prussian Stock Food.** If you don't find it, write us direct. If you request it we send you our 68 page stock book free. There's value in it for you.

PRUSSIAN REMEDY COMPANY, ST. PAUL, MINNESOTA.

PURE OIL MEAL. USE FOR MILCH COWS AND FATTENING STOCK.

Superior to corn, oats and hay. Car Lots $20.00; Ton Lots $21.50; Half-Tons $11.50; 500 pounds $6.25; 100 pounds $1.50. Put up in 100-pound sacks f. o. b. Minneapolis. Cash with order.

This Meal is Guaranteed Absolutely Pure. We also manufacture Strictly Pure Linseed Oil.

NORTHERN LINSEED OIL CO.,

MINNEAPOLIS, MINN.

When ordering mention this paper.

Has Not a Larger Official Record Been Made?

ED. HOARD'S DAIRYMAN:—I have not the least disposition to detract from the credit due the great Guernsey cow, Charmante of the Gron, whose official record appears in your issue of the 13th inst. at 11,874.76 lbs. milk and 676.46 lbs. butter fat, but I question the validity of the claim that her record is the best official year's record in the world.

The following account of the record of Belle Sarcastic, a Holstein-Friesian cow owned by Michigan Agricultural College and Experiment Station is condensed from an account published by Prof. C. D. Smith of that institution.

Belle Sarcastic 23039 H. F. H. B. was calved January 1890. Her first calf was born April 1, 1893, her second April 13, 1894. and the third, February 23, 1896. Unfortunately the record of her milk fat for the first period of lactation was not preserved. It extended eleven months. Her next milking period was sixteen months in length, in which time she gave 30,514.2 lbs. of milk, 915.9 lbs. butter fat. The last period, not finished at the time Professor Smith gave account, began March 3, 1896, she gave during fifteen months and one week (up to the date of his writing) 27,219.1 lbs. of milk and 869 lbs. of butter fat. For the first twelve months of milking in 1895 the record was 21,075.8 lbs. milk and 632.78 lbs. butter fat, while for the twelve months in 1896 the record was 23,189.6 lbs. milk and 721.68 lbs. butter fat.

Yorkville, N. Y. S. HOXIE.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

The First Year's Work.

ED. HOARD'S DAIRYMAN:—We find much valuable information in your paper One year ago we began to run our dairy with Hoard for a teacher, bought some of the best native and grade cows we could find, enough to bring our herd up to sixteen, and find for the year ending Nov. 1st they averaged $67.50. These cows also furnished two families with milk and cream.

We also bought a registered Holstein bull of mature age. We find that all of our best cows have some Holstein blood in them and the more of that blood the better the cow.

We expect to make them do better the coming year as we have a silo and last year had only dry roughage. Is this a good enough showing for the first year of our schooling? We sell our milk and cream at wholesale for 12c and 60c per gallon. C. BROS.

Stevens Point, Wis.

These "students" are entitled to pass up to the next "grade."

Butter Tests Accepted for Publication by the American Jersey Cattle Club, Nov. 19, 1903.

Clarion Girl 161289—Sire, Friar's Duke 36416; dam, Lady Camelia 78458. Butter, 14 lbs., 14 oz.; milk, 300 lbs., 8 oz. Test made from June 8 to 14, 1903; age. 3 years, 6 months; actual weight, 600 lbs. Fed 3 lbs, corn meal; 3 lbs, oat meal, 3 lbs. wheat bran, and 2 lbs. cotton seed meal daily; mixed pasture.

Derby's Lady Ajax 2d 156649—Sire, Smith's St. Lamhert 30332; dam, Darcy's Lady Ajax 79553. Butter, 15 lbs., 12 oz.; milk, 295 lbs., 8 oz. Test made from May 20 to 26, 1903; age, 5 years, 8 months; estimated weight, 950 lbs. Fed about 12 lbs. daily of a mixture of two parts ground oats and one part bran, by measure; June grass pasture.

Duchess of Pioneer 127659—Sire, Mikado, of St. Lambert 30156; dam, Doris of Mt. Pleasant 73330. Butter, 16 lbs.; milk, 207 lbs. 5 oz. Test made from Sept. 17 to 23, 1903; age, 8 ycars, 11 months; estimated weight, 950 lbs. Fed 5 lbs. 8 oz. wheat bran, 6 lbs, cotton seed meal, and 2 lbs. mashed oats, daily; green corn, morning and evening, poor pasture.

Duke's Lallena 161512—Sire, Gray Friar's Duke 42754; dam, King Keffee's Lalla 130419. Butter, 14 lbs., 14 oz; milk, 294 lbs., 1 oz. Test made from May 19 to 25, 1903; age, 5 years, 6 months; estimated weight, 800 lbs. Fed 6 lbs, wheat bran, 5 lbs. corn meal, and 2 lbs. cotton seed meal, daily; silage, mixed pasture.

Geo.'s Maid 156985—Sire, Bachelor of Meridale 40730; dam, Lord Harry's Gem 104195. Test made from Oct, 14 to 20, 1903; age, 4 years, 8 months; estimated weight, 1,000 lbs. Fed 10 lbs. whole oats, and 20 lbs. ensilage, daily; short clover pasture.

King's Yellow Girl 131210—Sire, King Keffee, Jr., 12317: dam, Bachelor's Princess, 106377. Butter, 14 lbs. 10 oz.; milk. 224 lbs., 15 oz. Test made from May 2 to 8, 1903; age, 7 years, 1 month; estimated weight 800 lbs. Fed, 3 lbs. bran, 5 lbs. corn meal, and 2 lbs. cotton seed meal, daily; silage aud mixed pasture.

Smith's Lady Ajax 152048—Sire, Smith's St. Lambert 30332; dam, Darby's Lady Ajax 79558. Butter, 14 lbs., 12 oz.; milk, 269 lbs, 8 oz. Test made from May 19 to 24, 1903; age, 5 years, 8 months; estimated weight, 920 lbs. Fed about 14 lbs. daily of a mixfure of one part corn meal, two parts oats and one part wheat bran, by measure. June grass pasture.

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Eastern Guernsey Breeders Meeting.

ED. HOARD'S DAIRYMAN;–The Eastern Guernsey Breeders Association met at Spotswood Farm, owned by Mr. Edward L. Price, Broad Axe, Pa., on Nov. 19th 1903, The President, Hon. Anthony Higgins, not being present at the opening of the meeting, Hon. E. T. Gill the 1st Vice President, took the chair.

After the calling of the roll, the minutes of the previous meeting were read and adopted.

The names of T. E. Hyde, Bloomsburg, Pa.; William F. Gable, Altoona. Pa.; F. E. Traver, Wyebrook, Pa.; J. Herbert Brown, Swedesboro, N. J.; H. W. Comfort, Fallsington, Pa.; F. C. Lippincott, Camden, N. J; Dr. E. H. Phillips, Cape May, N. J., and E. C. Moore, Woodstown, N. J., were proposed for membership.

The committee on nominations reported favorably upon all names presented for membership at the last meeting. L. J. Shepard, J. M. McCamant, Penrose Larkin, Herbert Warden, C. J. Tyson, Thomas Briggs, Walter Jauncey, B. F. H. Shreve, Joseph Evans, Ezra Evans, C. B Case, W. H. Borden, Wm. I. Tomlinson, R. T. Woodward, R. T. Ridgway, John Tyler, S. H. Gardiner, and P. H. McCormick, were then elected members of the Association.

The chairman announced that Dr. E. B. Voorhees, who it was expected would read a paper at this meeting, could not be present, and to fill in his time it was proposed to discuss this question: "Has the sire or the dam the greater influence upon the offspring in regard to butter production?" The discussion was opened by Dr. C. M. Seltzer. He was of the opinion, that, "as the conditions exist, the sire has the greater influence, because he is better cared for and kept in better condition. The cow is worked hard, she is milked all the time, is expected to produce a calf every twelve months, and consequently there is a great drain upon her system."

Dr. Welsh said, "while we need to look well after the ancestry of both sides, we are likely to overlook the individual excellence of the animal. I would not select a bull of good ancestry without he was a good individual."

Ezra Michener thought the greater influence is on the side of the sire. He said, "You can raise a good cow from a poor one, but you cannot raise a good lot of cows from a poor bull."

Dr. Deitrich, a visitor said: "This is one of the most important of subjects. In the future, breeding will be reduced to a mathematical chart. The sire undoubtedly has the greater influence. The sire puts the hind quarters on his daughters, and the dam puts her hind quarters on her sons." President Higgins having arrived, he now took the chair. Mr. Gill said, "I think the dam has the greater influence on the offspring.

As an illustration, he referred to the Glenwood girl family of Guernseys, where seven daughters from one cow, sired by different bulls were all good.

Mr. Jauncey thought tbe cow exercised the greater influence. He said: "On the Island of Guernsey a bull's dam must be examined by a committee and must score 90 points before her son is allowed to serve a cow."

Dr. Seltzer said: "After all, it is prepotency we are after, and the most prepotent parent has the greater influence,"

The question on the program: "Will the Present Popularity of the Guernseys be Affected by that Breed not Being Represented in the St. Louis Dairy Demonstration?" was then taken up.



GUERNSEY BULL, GLENWOOD'S SHEET ANCHOR OF HADDON, A. G. C. C., 6372.



GLENWOOD'S MAINSTAY, A. G. C. C., 6067.
Property of E. T. GILL, Haddon Farms, Haddonfield, N. J.

Ezra Michener read a letter from Mr. Wm. H. Caldwell, Secretary of the American Guernsey Cattle Club, which explained why the Guernseys will not go to St. Louis. Mr. Michener said: "Our idea when we started the Advanced Register, was, that it would do more toward showing what the Guernseys can accomplish in the production of milk and butter than could possibly be done in public shows."

S. I. Murphy said: "As the Guernseys are showing such good work in the Advanced Register, the popularity of the breed will not be affected. Small breeders should enter their cows for the Advanced Register. I would like to see many more cows go in. A large number of cows entering with creditable records will do more for the popularity of the breed than a few cows entering with phenomenal records."

President Higgins then gave a short account of his trip through England and the Island of Guernsey last fall, after which the meeting adjourned.

When all had partaken of a good lunch the cattle and buildings were inspected. The herd numbers about sixty head and they are a remarkably fine lot. They are mostly imported animals and many of them have won prizes at the great shows in this country and England and on the Island of Guernsey.

Some of the most attractive cows are Princeps No.——; Countess Soucotte IV No. 16497; Red Rose of Sea Grove, No. 15264; Nellie of the Houquetts, No. 13263; France IX No. 16499, who is a granddaughter of France III the great cow imported by H. McK. Twombly; Topsy of the Grandes, No. 16504, and Pride of the Ring, No. 16500, who has a most wonderful founder; Rival and Cock of the Walk, two fine imported bulls head the herd. Mr. Walter Jauncey, the efficient manager at Spotswood said they were the best bulls he could buy in England and on the Island. Three very fine young bulls also claimed attention. Mr. Price deserves great credit for bringing together such a splendid herd of these beautiful animals.

The next meeting of the Association will be the annual meeting, which will be held in Philadelphia in January.

M. M. HOLLINGSWORTH, Sec'y.
Landenburg, Pa.

Wisconsin Butter Makers' Meeting.

As the next Convention of the Wisconsin Butter Makers' Association will be held in Eau Claire on Feb. 2-4, 1904, a few facts concerning the same may be of interest to the membership at large.

Eau Claire is a thriving and prosperous city of about 22,000 population situated on both banks of the Eau Claire and Chippewa rivers and has about 150 manufacturiug concerns within its limits, which employ a large number of laborers who receive annual wages amounting to over $850,000. The capital invested is upwards of $5,000,000.

The city is located upon three lines of railroads, viz., The North-Western System, The Chicago, Milwaukee & St. Paul, and the Wisconsin Central railways, which gives very direct connection to many points. This will be readily understood when it is known that over 100 traveling men make Eau Claire their headquarters.

The hotel accommodations are excellent and will be dealt with in an article later on.

The convention hall and machinery exhibit rooms will be in the new Knights of Pythias building, which is one of the finest in the state. The meeting room has a seating capacity of over 600. The machinery exhibit rooms are on the first floor with direct entrance on the main street. The rooms allow of about 250 lineal feet of exhibit space. The butter exhibit will be across the street from the convention hall, in a vacant store room. The hotels are located conveniently to the convention and exhibit halls.

The citizens are very much interested in having our convention in their city and with the two large daily papers published there, we may be assured of a hearty welcome on their part.

The city has gratuitously pledged itself to give $300 to the premium fund. Every butter maker in the state should live up to his opportunity by attending this, which promises to be, the best state convention we ever held. F. B. FULMER, Sec.
Ettrick, Wis.

Operating a Separator.

Some Factors That Effect Its Efficiency.

The thoroughness with which the separator does its work depends very much on the speed of the bowl, the temperature of the milk, and the flow of milk into the bowl.

SPEED.

The handle should be turned steadily, care being taken to keep a constant even pressure upon it, all the way around, not pushing down hard and pulling up hard, while for a moment when the crank is down and again at the top there is no pressure upon it. Turn at the speed the directions call for, or if it is found by testing the skim milk that it is not skimming clean, an increased speed of from three to five turns per minute will usually help matters. The importance of keeping up the speed is shown by the following two experiments:

"In the first the power was removed from a machine running at full speed and capacity, separating 600 pounds of milk per hour, and the skim milk caught in small lots and tested separately. The following is the record of the test of the first seven quarts of skim milk coming from the machine after the power was removed.

1st	.03 per cent fat in skim milk
2d	.03 per cent fat in skim milk
3d	.045 per cent fat in skim milk
4th	.05 per cent fat in skim milk
5th	.10 per cent fat in skim milk
6th	.12 per cent fat in skim milk
7th	.16 per cent fat in skim milk

In the second case a hand separator was turned at different rates of speed, 42 turns of the crank being recommended by the manufacturers.

The following are the results:

Per Minute.	
45 turns	.02 per cent fat in skim milk
42 turns	.04 per cent fat in skim milk
39 turns	.047 per cent fat in skim milk
36 turns	.05 per cent fat in skim milk

TEMPERATURE OF MILK.

When milk is separated at milking time, unless allowed to stand for some time, it will be at the best temperature for separation and it should be separated then if possible. Cold milk should be warmed up to 80 to 90 degrees. While a can of milk may be set on or near the stove to warm it up, it is better to place it in warm water. When the milk is cold the cream is thicker and if too cold may clog the separator. If necessary to skim cold milk, it will often help matters to adjust the cream screw so as to increase the proportion of cream. As there is usually a large loss in skimming milk too cold, it should be avoided.

Flow of milk, on most hand separators, is fixed by the manufacturers and needs no attention except to see that the faucet does not jar partially shut and that the supply of milk is kept up to the last.

CARE.

The separator does not need much oil at a time, but every bearing requiring oil should have some each time the machine is used. Occasionally the bearing requiring oil should be liberally oiled with kerosene; this will cut out any gum and dirt and help much to keep the machine in an easy running condition.

The relative loss of butter fat in the skim milk from the different methods of of securing the cream is as follows:

	Per cent.
Dilution method	.07 to 0.1
Shallow pans	.05 to 0.7
Deep setting	.02 to 0.5
Centrifugal separator	.03 to 05

There will be at least 3,000 pounds of skim milk from a good cow in one year With the above per cents as a safe basis, one may easily figure the amount of butter fat being lost by the methods he is using. The above figures are for ordinarily good conditions. The losses will be greater when the operator is careless. And on many farms they are greater.

The Michigan Experiment Station se-

cured skim milk from a number of farms and found it contained as high as 1.5 per cent of fat. With average whole milk, only testing about 4 per cent, that proportion of loss is very great.—*Bulletin from Pardue University.*

Notes from the Dairy Department of the Ontario Agricultural College.

There are at present about 50 head of cattle in the herd of the dairy, representing three different breeds and also a number of grades and a few cross-breds. Several of the cows bid fair to make a record, for the present year, of over 10,000 pounds of milk and 350 to 400 pounds of butter. As in previous years the Holsteins are in the lead. Some recent purchases of Ayrshires and Jerseys will strengthen the herd in these two breeds. Two Jersey heifers have been purchased from Dentonia Park Farm at a good price and it is expected that they will add very materially to the value of the Jerseys in the herd. These heifers are among the choicest to be found at Dentonia. They could not have been bought except for educational purposes and the students attending the short courses in Dairying and Live Stock will have the benefit of seeing and judging some good dairy stock during the coming winter.

The butter branch of the dairy has been improved during the year by the addition of a "Success" churn, having a capacity of 500 pounds butter, which is doing good work. It is of Canadian manufacture and marks a distinct advance in the manufacture of butter making machinery. A turbine separator and a carbonic anhydride ice machine are two other important additions to the dairy machinery. At present, the second year students are taking practical instruction in creamery work. This will be completed in time for the Creamery Course students to have all the butter room for their work in December. Formely, this class took work along with the Sophomores, but a change was made this year, whereby, the whole attention of the dairy department will be given to the Creamery Class. For those who can spend but two or three weeks at the Dairy School, this short course is especially commended. Unless the butter makers take more interest in this short course it is probable that it will be cut out from the list of short courses at the College, as the number of students who have been attending in the past, scarcely warrants the expense.

We practice pasteurization of the whole milk all the year, and find that the results are much better than where pasteurization is not followed.

In the cheese department we are adding a machine for making cheese boxes. The cheese box problem is becoming a serious one for many of our factories. The material is becoming very scarce in the older sections, which means that the raw material must be shipped in "knock-down" form. The freight rates are thus very much reduced, and if the cheese-maker can make his own boxes, or have them made at the factory, it will be a great help. It is hoped that students in the regular Dairy School, from January to March, will be able to get sufficient instruction to show them how to make their own cheese boxes.

The special instruction to advanced makers will be continued as in the past. Dairy chemistry, dairy bacteriology, instruction in piping, repairing, etc., will also form a part of the instruction.

Eight different makes of hand separators are now installed in the farm dairy. Setting milk, buttermaking, testing milk, poultry raising and domestic science are also included in the farm dairy instruction. H. H. DEAN.

Dairy Department, Guelph, Can.

Canada Thistles.

Dr. T. J. Burrill, in an Illinois Experiment Station bulletin recommends the following method as the best for exterminating Canada thistles when in full possession of tillable ground:

1. Cut the thistles when in full bloom as close to the ground as possible.

2. Plow about three inches deep and sow millet or Hungarian grass, seeding heavily; harrow. This may follow the preceding at once or after some two weeks' delay.

3. In September plow under the crop or save it for hay, as desired. At all events, plow and seed liberally with rye.

4. Plow under the rye in May and seed again with millet or Hungarian grass, or plant to some hoed crop (corn) and give the most thorough cultivation, with continual searching for and destruction of every remaining thistle.

5. Continue the clean cultivation and sharp lookout for thistles another year.

Although the larvae of several different kinds of insects live in the stems of Canada thistles while others feed more or less upon the roots, and still others eat the foliage, they seem to produce comparately little effect upon the vigor or productiveness of the plants. The American goldfinch, or "yellow bird" often called the "thistle bird" is sometimes unjustly accused of scattering thistle seeds. It does scatter the down from which it has detached the seeds. Thistle seeds form one of its favorite kinds of food, and it is undoubtedly one of the best natural agencies to keep the thistle in check.

Among fungus diseases which attack Canada thistle, the thistle rust, Puccinia suaveolens, is the most destructive. This often prevents the production of seeds and sometimes kills the plant to the ground. It is most effective during wet seasons, but even under the most favorable conditions it rarely spreads so as to destroy all of the plants in the patch. Experiments made thus far in New York, New Jersey and Pennsylvania, in introducing the rust into uninfested patches indicate that while it may often aid materially in checking the growth of thistles, it rarely exterminates them, and its action is too uncertain to warrent more than a qualified recommendation of its use as a thistle-destroying agent.

A Cause for Poor Milk.

ED. HOARD'S DAIRYMAN:—We have a patron at our creamery whose milk has always tested 3.70 and 3.80 and has been up to 4.00. In September it dropped to 3.30 and in October to 3.21. I went to the farm and got samples; three of them tested 2.10, 2.20, 2.20. The cows are in good condition. L. J. H.

Dorr, Mich.

It must be patent to everyone who stops to consider the difficulties in the way, that a stranger, hundreds of miles distant, may well ask to be excused from attempting to solve such a problem as the above. It is not credible that the mixed milk from a herd in which there had been no change of cows, could show such a wide and continued variation in per cent of fat, if samples were properly taken and tests made according to directions.

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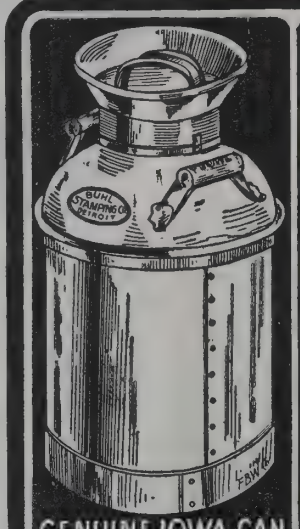
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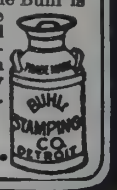


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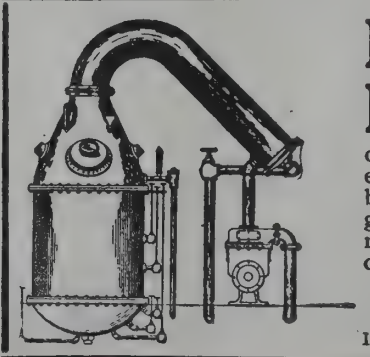
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(Formerly of Detroit, Mich.)

I am not associated with any person, firm or company.

Mr. Wheaton's Canadian Dairy Notes.

The Cheese Season.—Winter Butter.—A Successful Dairy Season.—Guelph Dairy School.

ED. HOARD'S DAIRYMAN:—The cheese season is being lengthened out this year. Many factories have prolonged their operations during November, and it was reported some weeks ago that several factories were preparing to make cheese all winter. The "slump" in values the past week or two will likely put a stop to such preparation, (and right well it should).

The production of cheese in Canada has been extended so much of late years that a good, solid season of six months will enable us to turn out all that we can dispose of at satisfactory prices in the British market in a year's time. Six months cheese and six months butter if the factories wish to operate all winter, is the plan best fitted to give our dairy business stability in market values, and a uniformity in equality of product, especially in that of cheese.

The season is closing with values lower than they were expected to be two months back. There is not much doing in September and October make just now. The bulk of this quality is now out of the factorymen's hands. Holders are asking 11 cents for straight September and October goods, which is from 1¼ to 1½ cents lower than this quality sold for a year ago at this season. This lower price, even if stocks are larger than a year ago, should cause greater consumption and clear the boards pretty well before the season of 1904 opens.

The business being done at the local markets just now is in late Novembers, which are reported to be of a rather pasty and inferior quality. If this quality prevails in late November goods, what are we likely to expect in winter cheese? The trouble would certainly be more aggravated, and a lot of cheese would be turned out that would seriously injure our reputation in the British markets if exported. The drop in prices is a veritable blessing in disguise, if it induces factories to change from cheese to butter at once.

The outlook for winter butter is good. Stocks are light and holders of choice fall creamery are not selling, believing better things are in store for them. Winter creamery butter is not altogether dependent on the export trade for a market. The local demand for this quality is increasfng every year, and many factories find a ready market for their winter's output right at home. By all means, our dairymen should make butter instead of cheese, during the winter.

Our dairy farmers have had a most successful season. The milk supply has been large, prices have been good, and the returns from the cheese factory the best that this country has seen for a number of years. The farmer with a dozen or two of reasonably good cows has found cheese the greatest cash producing branch of his farming operations.

The success of 1903 will likely prove an incentive to even greater things in 1904. The one thing that will prevent the business from being greatly extended is the scarcity of help. To run the dairy properly efficient help is needed, and this article is getting scarcer every year, especially in Ontario. What the outcome is to be is hard to say. We will have to move backward a step or two, and again introduce the women of the farms to the milking yards.

We would be sorry to see this done. Of late years, the dairy, especially in those sections where it is more or less a business, has, and rightly so, become a part of the men's work on the farm. All hired help is expected to milk and where it is made a part of the regular day's work, has not proven a task that the men have objected to. But the dairy farmer of today is satisfied if he can get a man at all, let alone one gifted in the subtle art of milking a cow. Hence, the difficulty and the possibility of the women being restored to their former duties of "doing the milking."

The dairy school at Guelp in connection with the Ontario Agricultural College, is becoming better equipped each year for giving an all-round dairy education to its students. New machinery and new appliances are being constantly added, and the student of today has a much better chance than his predecessor of a decade ago had.

The dairy stables in connection with the college, are a valuable adjunct to the school. Prof. Dean reports that there are fifty cows of three different breeds with grades and cross breds, in the stables. This year several of these cows will run over 10,000 lbs. of milk, and from 350 to 400 lbs. of butter each. As has been the case for a few of years back, the Holsteins lead. There have recently been added to the herd several first-class Ayrshires and Jerseys. Two Jerseys purchased from Dentonia Park Farm, near Toronto are reported to be of very fine quality and will likely give a good account of themselves next year.

In the buttermaking department of the school there has recently been added a "Success" churn of a capacity of 500 lbs. of butter. This churn is of Canadian make, and is a valuable addition to the equipment. Other recent additions are a turbine separator and a carbonic anhydride ice machine.

A year or two ago, short courses of two weeks' duration were established for creamery men, especially those making butter during the winter. These short courses have been held at a time when it was hoped most of the winter butter makers could attend. But whether these fellows think they need no instruction, or are prevented by other duties from attending, they have not patronized this course to any large extent. Prof. Dean threatens, if the attendance is not increased, to discontinue it altogether.

Though of short duration this course is one of the most important during the term. A great many of those who manage the winter creameries, are cheese makers who have not had an extended training in butter making, but picked it up in a more or less hap-hazard way. For these a little brushing up at the school just before the winter season begins, would be beneficial. Besides certain conditions arise peculiar to the making of winter butter, upon which even the best would be the better for a little brushing up.

An important addition to the cheese making branch of the school is the installation of a box-making machine. The object of having this machine is to teach makers to make or put together their own boxes from the "knocked down" material shipped to them.

The material for making cheese boxes in this country is becoming scarcer, and box makers have to go farther afield to get suitable timber for the purpose. To ship

(Continued on page 972.)

"ADVERTISEMENT."

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A Change of Food Cleans the Soul's House.

When the body is clogged up by the use of improper food and sickness sets in there is nothing so good as a "house cleaning" and the right way to do this is to change the food, for although taking medicines may afford temporary relief a complete change of food is much the surest and safest way.

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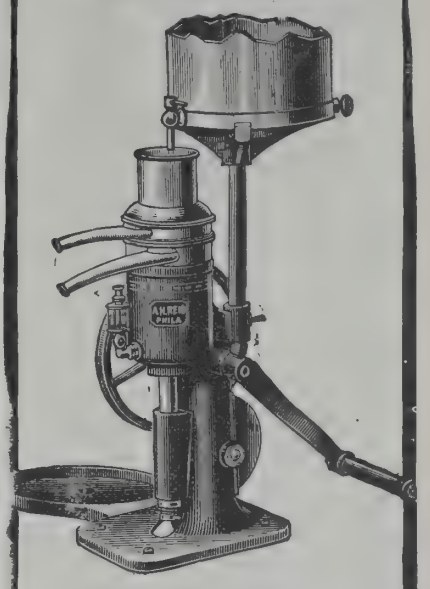
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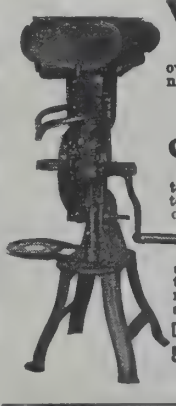
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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of them read dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

COMING EVENTS.

Vermont Dairymen's Association, Burlington, Jan. 5-7, 1904.
Indiana State Dairymen's Meeting, Plymouth, Dec. 10-11, 1903.
Minnesota Dairymen's Association, Fairmont, Dec. 15-17, 1903.
Illinois Dairymen's Association, Greenville, Jan. 5-7, 1904.
Wisconsin Cheese Makers' Association, Milwaukee, Jan. 6-8, 1904.
Ohio Dairymen's Association, Columbus, Jan. 27-29, 1904.
Wisconsin Butter Makers' Association, Feb. 2-4, 1904.
Maine Dairy Convention, Foxcraft, Me., Dec. 2-3, 1903.
New Jersey Agricultural and Dairy Convention, Trenton, N. J., Jan. 14 15 and 16.
Eastern Ontario Dairymen's Convention, Belleville, Ont., Jan. 5, 6 and 7.
Missouri Dairymen's Meeting, Clinton, Dec. 8-10, 1903.
Washington Dairymen's Association, North Yakima, Dec. 29-31.
Massachusetts Creamery Association, Greenfield.
Connecticut Dairymen's Association, Hartford, Jan. 20-21.
Oregon's Dairymen's Association, Corvallis, Dec. 15-16.
Wisconsin Buttermakers' Meeting, Eau Claire, Feb. 2-4, 1904.
Wisconsin Dairymen's Convention at Platteville, Feb. 10–12,1904.
New. York, Dairymen's Association, Ogdensburg, Dec, 8-11.
New Hampshire Dairymen's Association, Keene, Dec. 1-2.
Penn. Dairy Union, Lock Haven Dec. 2-3.

CONCERNING ALFALFA BACTERIA.

Ira Gavelt, of Hood Farm, Lowell, Mass., writes us asking if the bacteria of red clover and alfalfa are the same.

In answer we would say that it is not yet clearly determined whether the bacteria of red clover are the same in species and identity or not. On this point authorities disagree, but in practical work it is noticed that alfalfa flourishes well, as a rule, on soil where red clover flourishes.

We have very much yet to learn concerning the adaptation of alfalfa, as well as red clover, to various soils, and the conditions of those soils. We are inclined to the opinion, however, that the bacteria that infest the roots of all leguminous plants are the same generically, for the reason that the work they do and their effect on the soil is the same.

HIGH TESTING COWS.

J. C. McClymonds, of Portersville, Pa., furnishes the *Jersey Bulletin* with the following test record of his Jersey herd for fourteen months. The record is copied from the creamery books:

1902.	*Test.*
May	6.22
June	5.57
July	5.65
August	6.38
September	6.06
October	6.63
November	6.06
December	6.63
January (1903)	6.63
February	5.17
March	5.65
April	5.98
May	5.98
June	6.02
Average of tests for 14 months	6.045

The cows were registered Jerseys, with only ordinary farm care.

Dairymen who deal with creameries will recognize the fact that the above record is a very rare one. There is only one way such quality can be put into cows, and that is by breeding it in. Here is right where the work of the skillful breeder comes in.

DOES IT PAY TO READ?

Well that depends. Some men can profit by what they read; others cannot. Some men strive to acquire a knowledge of language and the technical terms used to convey information so they may understand what they read; others do not, and pretty much all they read, about the business they are engaged in, is all Greek to them. It has been computed from the best sources obtainable that not more than ten in a hundred of the farmers in the United States who keep cows for a living, provide themselves with books and papers on this question. The one-tenth think it pays. And curiously enough if we look into their ways of carrying on their business and compare it with the other nine-tenths, we almost invariably find that it does pay a big profit to read. Prof. Decker, in his new book, "The Elements of Dairying," gives a list of the bulletins from experiment stations that describe investigations into special lines of important knowledge in dairying. It is interesting to read the list and then reflect that after all they are of no immediate value except to about one-tenth of the men who need what they convey.

Here is the list and the subjects they treat upon:

BACTERIA IN MILK.

Wisconsin Bulletin, 62.
Conn's Bacillus, No. 41.
Wisconsin Bulletin 48.
The Curd Test, Wisconsin Report XV, p. 45.
Dairy Bacteriology, Bulletin 25, United States Department of Agricuture.
"Invasion of the Udder by Bacteria," Cornell Bulletin 178
The Different Species of Bacteria Producing Lactic Acid, Conn. Storrs School Report III.
Blue, Red, Reddish Brown, Bitter Milk—Minnesota Report 1893.
The Fermentations of Milk—Farmers' Bulletin, Office Experiment Station, United States Department of Agriculture.
Souring of Milk—United States Department of Agriculture, Bulletin No. 29.
Sources of Bacterial Infection—Wisconsin Report XI, pp. 150-165.
Cleanliness in Handling Milk—North Dakota Bulletin 21.
Care of Milk on the Farm—Bulletin No. 63, United States Department of Agriculture.
Sources of Gas and Taint-Producing Bacteria—Cornell Bulletin, 158.
Colored Spots in Cheese—Geneva Bulletin 225.

COLUMBIA AIR CHURN.

Test of, Wisconsin Report ZII, p. 93.

COMPOSITION OF MILK.

Milk Ash—New Hampshire Report, 1888, p. 89.
Maine Report, 1890, p. 52.
United States Experiment Station Record, Vol. III, p. 23.

OF MILK IN GENERAL.

Wisconsin Reports, V. pp. 42-63; 161-168; VII, pp. 114-119; XI, pp. 205-217; XII, pp. 120-126; XIII, pp. 73-80; XVI, pp. 140-152; XIX, pp. 107, 128, 136.
Bulletins, 15, 16, 61, 75, 96.
New Jersey Bulletins, 61, 65, 67, 68.
Massachusetts Reports, 1888, 1889, 1890, 1891, 1892.
Minnesota Bulletin, 19.

FROM DIFFERENT BREEDS.

New York State Report. 1891.
Geneva Bulletins, 18, 21, 34, 68, & 77.
Michigan Bulletin, 68.
Nevada Bulletin, 16.
Vermont Report, 1890, pp. 97-100.
United States Experiment Stations Record, Vol. IV, p, 940.
Utah Report, 1897.
Illinois Bulletin, May 1898.
United States Experiment Station Record, Vol. X, p. 781, do Vol. IX, p. 884,
Illinois Bulletin, 24 February, 1893.

MILK AS AFFECTED BY FOOD.

Storrs Report, 1897, pp. 93-112.
United States Experiment Station Record, Vol. X, p. 683; Vol. XIII, p. 385; Vol. IX, p. 985.
Feeding Fat Into Milk—Report, XIX, Bureau of Animal Industry.

MILK AFFECTED BY EXCITEMENT OF COWS.

By Dehorning — Wisconsin Reports, 1889.
United States Experiment Station Record Vol. II, p. 429.

COMPOSITION OF MILK FOR CHEESE MAKING.

Wisconsin Bulletin, 61 & Report XI, pp. 131-137.
Geneva Bulletins, 37, 43, 45, 60, 61, 62, 65, 68 and 110.

CREAMING OF MILK.

By Gravity—Cornell Bulletin, 29.
Illinois Bulletin, 18.
Indiana Bulletin, 44.
Minnesota Bulletin, 19.

CREAMING AFFECTED BY FEEDING COTTON SEED MEAL.

Texas Bulletin, 14.
Wisconsin Bulletin, 18-29.

CREAMING BY DILUTION SEPARATORS.

Wisconsin Bulletin, 29-56.
Cornell 66.

CREAMING BY CENTRIFUGAL SEPARATORS.

Wisconsin Bulletin, 29 and 56.
Cornell, 66.

CREAMING BY AIR PRESSURE.

Cornell Bulletin, 39.

FAT GLOBULES.

New York State Report, 1891, pp. 143-162, and 316-318; United States Experiment Station Record, Vol. III, p. 472; No. 2, part II p. 107, p. 23; Vol. VIII, p. 826, Vol. II, p. 430, pp. 238-247-454; 1893, p. 287; p. 559; 1894 pp. 223-239; Vol. VIII, p. 337.
New York State Report, 1891, pp. 143-162-316-318.
Vermont Report, 1890, pp. 65-69.
New Hampshire Report, 1888, pp. 84-88.
Maine Report, 1890, p. 58.
Pennsylvania Report, 1895, p. 75-85.
Wisconsin Reports, 1889, pp, 99-102-119-122.

FEEDING VALUE OF WHEY.

Wisconsin Bulletin, 27.

FLAVORS OF MILK.

Silage Flavor—Wisconsin Bulletin, 59, May 1897, p. 25-28.
United States Experiment Station Record, Vol. IX, p. 378.
Fishy Flavor—New York Bulletin, 183, December 1900.
United States Experiment Station Record, Vol. XIII, p. 85.

ABSORPTION OF FLAVORS.

Wisconsin Report, XV, p. 104.

AERATION OF MILK.

Wisconsin Report, XII, p. 104.

GALACTASE.

A ferment (enzyme) natural to milk. Wisconsin Reports, XIV, p. 161; XV, pp. 77-93; XVI, pp. 151-175.

HISTORICAL.

Wisconsin Bulletin 88; Report, XIV, 1897, pp. 113-149.
Ohio Dairymen's Report, 1902-1903.

MILK PRODUCTION.

Effect of Drouth—Geneva Bulletin, 105. Immediate Effect of Changes of Rations; Geneva Bulletin, 210; The Source of Milk Fat, Geneva Bulletins, 132-139; Cost of Milk Production—Cornell Bulletin, 52. Feeding Fat to Cows—Cornell Bulletin, 92; Studies in Milk Secretion—Cornell Bulletin, 152; The Milk Supply of Two Hundred Cities and Towns—Bulletin, 46, Bureau of Animal Industry, 1903.

PASTEURIZATION.

Wisconsin Bulletin, 44; The Efficiency of a Continuous Pasteurizer—Geneva Bulletin, 172.
Wisconsin Reports, XII, p. 158, XVI, p. 121-129, XVIII, p. 177.

SECRETION OF MILK.

Dr. A. W. Bitting, on Physiology of Milk Secretion, Indiana Report, XII; The Udder of the Cow, Indiana Bulletin 62.

SHORT'S SAPONIFICATION MILK TEST.

Saponifying and Setting Fatty Acids Free. Wisconsin Bulletin, 16.

TESTING COWS.

Wisconsin Bulletin, 75; Reports, XI, p. 205; XIII. p. 164; XIV, p. 153; XV, p. 30; XVI, p. 140; XVIII, pp. 73-85-91.

VISCOSITY IN MILK.

Wisconsin Report 1895 (XII) p. 164; Report 1896 pp. 73-80, Bulletin 54; United States Experiment Station Report, Vol. IX, p. 582.

We have taken the pains to copy the foregoing to show what a wealth of valuable knowledge on important dairy questions lies in the one domain of Experiment Station Reports, all worked out by careful experimental methods. Besides this, are the books on dairying, and last, but not least, the dairy papers like HOARD'S DAIRYMAN and others, which aim to present, constantly, the freshest and most practical experience and information obtainable.

In view of what there is to read, and the great financial importance to the dairy farmer of sound, practical and reliable knowledge, may we not ask:—Can any man who keeps cows for a living, afford *not to read*? Can any such afford to run the great risk of constant waste of his time, capital and labor by refusing to make himself as intelligent as he can on this question? If he cannot read he is excusable. If he can read and will not, what is he?

CROSS BULLS.

We once knew a man who lived among his fellow farmers with the reputation of being morose, surly and unsociable. One neighbor, who had known him from childhood, accounted for his peculiar traits by saying that "he was brought up unsocially as a boy."

There is something in this when applied to men, and we believe it to be true when applied to bulls. As a rule, the bull is kept in a separate apartment, away from all social contact with his kind. He is not made to work and consequently misses this powerful influence for the promotion of the spirit of obedience and docility. He is given but little exercise, is fed well and what wonder is there, if he soon becomes charged with all the power of a cartridge of dynamite and about as ready to go off on slight provocation.

We have never had a cross bull that we had reared to full service ourselves. At the present time there stands at the head of our herd two young Guernsey bulls nearly two years of age, who graze together in the same paddock and who take their turn, night and morning, on the tread power in separating the milk. In the stable, these bulls stand alongside of the cows.

It is astonishing how civilized a member of society it makes of a bull when he has to work like other folks, and is not shut away from his fellows as though he was a criminal.

By this, however, we do not mean to be understood as saying that every bull should be not handled with a full idea that he is liable at any time to become vicious. But the chances of such a collapse are reduced fully 75 per cent if he is

reared in a kind, firm and industrious manner. Half of the deviltry among men and bulls occurs because of a lack of employment. We have often noticed that with boys, for instance, one hour's work was worth two hours of preaching to keep them out of mischief.

The Results of Creamery Patrons' Investigation in Marshall County, Ind.

[Paper Prepared by C. P. GOODRICH for the Indiana Dairymen's Association.

I was employed, last month, by the Indiana State Dairymen's Association, in connection with HOARD'S DAIRYMAN, to gather some statistics of the dairy industry among the patrons of Schlosser Bros. Creameries in Marshall Co. Ind.

The object of this is to make a study of the cow; to find out what kind of cow and what kind of treatment would bring the most net money to her owner. This made it necessary that we should confine our investigations to those who sold the product of the cow all in the same market, and to take account of a full year, which, in this case, was the twelve months ending Oct. 31, 1903.

MANNER OF GETTING INFORMATION.

My manner of proceeding was as follows. I would go to a man and find the average number of cows he had kept, the milk of which had been sold to the creamery. All heifers, after they had had calves, were counted as cows, and all cows were counted, during the period when they were dry as well as when they were giving milk, for they were eating every day.

I then made particular inquiry as to the kinds and amounts of the different feeds the cows had eaten during the year. I charged the cows of each herd the same prices for the same kinds of feed—that which was raised on the farm at the market price at which it could have been sold, and that which was bought at the average price which it was worth in the market.

PRICES CHARGED THE COW FOR FEEDS.

For ear corn and oats ground I charged $17 per ton; wheat bran, $17; oil meal, $30; ear corn, $12; timothy hay, $10; clover hay, $8; corn stover, $2 a load; silage, $2 a ton, and pasture at the uniform price of $5 per head for the summer.

There was some uncertainity about the amounts each farmer fed, for very few of them had weighed any of the feed; most of them could tell very nearly as to the amount of the grain fed, in "gallons," and having done a good deal in the way of weighing cows' rations I could, I think, approximate quite closely to the amount fed.

I figure that a cow will eat, ordinarily, during the winter feeding season, two tons of hay, or its equivalent of corn fodder, if she is not fed too much grain food. Then she could eat less. As to corn stover, I made some inquiry to enable me to set a price on it, and found that very little had been sold, but in a few instances it had been sold at $2 a load, so I charged that for it. All it really costs is the work in saving it, for there are hundreds of acres left in the fields which are practically wasted. It takes 4 or 5 loads of corn fodder to furnish a cow with the two tons of forage she needs, when it is fed on the ground in the ordinary way, as much of it cannot be eaten.

In determining the weight of silage fed, I can come pretty close if I am told the measure. I have found that a bushel basket full, put in loose, weighs, usually about 25 pounds. If it is pressed down with the foot or otherwise it will weigh about 10 pounds more. The winter feeding season was, last year, about 200 days.

FIGURES OBTAINED FROM CREAMERY.

After I had collected all these facts from 50 patrons, I obtained from the secretary of the creamery the amount of milk or cream obtained from each, and the amount of butter fat which it contained, and the amount of money paid for it. The price paid for butter fat averaged higher to some patrons than to others because they furnished a greater proportion at the time when the butter was the highest.

I have used butter fat instead of "butter" for the reason that I believe that is the proper way when determining the ability of the cow, and for the further reason that, in this case, it was not all made into butter but much of it was sold as cream and no one could tell just how much butter it would make. But it was all tested for butter fat and each one was paid in proportion to the amount his milk or cream contained.

CONSTRUCTION OF THE TABLE.

After I had collected all these data, I used the material thus gathered with which to make up the following table, which shows in a condensed form the account with each herd. The cow is given credit here only for the butter fat sold to the creamery, making, in some instances, an addition where a part of the milk was sold to other parties or some butter churned at home. Of course, we know that she produced something more. There was the skim milk, the calf and the manure to help keep up the fertility of the farm. There is also some whole milk used in the family and fed to young calves.

On the other hand we have not charged the cow with the labor of milking and caring for her, or for the interest on the money invested. In my opinion, in most cases, the labor and interest would about balance the credits not given.

Cost of Feed and Income in 50 Herds Belonging to Patrons of Creameries in Marshall County, Indiana, for the 12 Months Ending October 31, 1903.

Patron's number.	No. of cows.	KIND OF COWS.	Cost of feed per cow.	Returns for butter fat per cow.	Pounds of milk per cow.	Pounds of butter fat per cow.	Average price of butter fat.	Average price of milk per 100 lbs.	Value of butter fat for one dollar's worth of feed.	Net profit or loss in butter fat per cow over cost of feed.
							cents	cents		
1	4	Grade Jerseys	$22 00	$39.15	4339	202.4	19.3	90.2	$1.78	$17.15
2	4	Common cows with a little Jersey blood	25.00	27.53	3510	146.1	18.8	78.4	1.10	2.53
3	6	2 Jerseys; rest common cows, dairy type	26.00	41.78	4920	215.7	19.4	84.9	1 61	15.78
4	6	Grade Durham, beefy type	25.00	25.89	3000	130.3	19.9	86.3	1 03	.89
5	4	Grade Poll Durham	20.00	23.68	3158	134.3	17.7	75.0	1.18	3.68
6	6	Grade Short-horn, a little Holstein blood	26.00	22.68	*	120.5	18.8		.87	— 3 32
7	4	3 Grade Jerseys, 1 Grade Holstein	18 50	18.17	2443	96.2	18.8	74.4	.98	— .33
8	3	2 Grade Poll Angus, one Grade Holstein	24 00	34.17	4358	179.7	19.0	77.7	1.42	10 17
9	7	Grades of Jersey, Holstein and Short-horn	22.00	29.90	3572	152.8	19.5	83.7	1.36	7 90
10	4½	1 Grade Jersey balance Grade Short-horn	20.00	36.42	5120	187.4	19.4	71.0	1.82	16.42
11	4	Hereford, Poll Angus and Short-horn grades	33.00	36.06	4074	187.0	19.3	88.5	1.09	3 06
12	4	Common cows with some Short-horn	25 00	26.55	3394	137.7	19.3	78.2	1.06	1.55
13	4	2 Jerseys, 2 Grade Jerseys	31.00	42.16	4535	213.8	19.6	93.0	1.36	11.16
14	6	2 Jersey and Holstein grades, rest common	19.50	38.27	4743	203.6	18.8	80.7	1.96	18.77
15	2	Durham and Jersey	25.00	31.10	3871	154.0	20.2	80.3	1.24	6.10
16	4	Some Jersey, Durham and Galloway blood	25 00	40.20	*	216.0	18.6		1.60	15.20
17	17	1 Guernsey, some grade Guernsey and most common cows of dairy type	27 00	46.95	5436	239.3	19.6	86.4	1.74	19 95
18	6	Common stock	30 00	31.06	3722	156.1	19.9	83.4	1.03	1.06
19	9	Grade Polled Angus	20 50	36.65	*	192.0	19.1		1.79	16.15
20	6	Common stock	24.00	23.93	3126	129.2	19.0	76.6	1.00	— .07
21	8	Grade Holsteins, except 2 common	22.00	44 41	6088	220.4	20.1	72.9	2 02	22 41
22	10	5 Grade Angus, rest Holsteins and Durham	20.00	18.43	2201	95.9	19.2	83.8	.92	— 1.57
23	7	Common stock, not dairy type	20.00	23.39	3036	124.7	18.7	77.0	1.17	3.39
24	7	Grade Jerseys	26 00	45 45	*	245.6	18.6		1.75	19.45
25	8	Grade Jerseys	29.00	33.98	*	180.6	18.8		1.17	4 98
26	4	Grade Durhams	27 00	32.71	*	184.1	17.7		1.21	5.71
27	10	Grade Short-horn	28.00	25.57	*	148.0	17.3		.91	— 2.43
28	7	Grade Jerseys, scrubby looking	23 00	23.48	*	125.8	18.7		1.02	.48
29	7	Holstein and Holstein Grades	30.00	61.09	*	316.7	19.3		2.03	31.09
30	4	Durham and Jersey Grades	22.50	26.74	2747	135.4	19.7	97.3	1 19	4.24
31	15	Grade Short-horns, beefy type	35.00	22.96	*	119.3	19.2		.66	—12.04
32	8	Common stock	18.50	16.73	1962	84.2	19.9	85.3	.90	— 1.77
33	5	Grade Jersey, dairy type	20.50	30.83	3196	160.4	19.2	96.5	1.45	10.33
34	4	Mixed, some Short-horn, some Jersey	25.50	27.32	2931	140.0	19.5	93.2	1.07	1.82
35	7	Grade Durham, beefy types and Grade Jersey	31.00	25.81	2707	132.8	19.4	95.3	.83	— 5.19
36	6	Scrubs, with a little Jersey blood	27 00	25 80	*	134.4	19.2		.96	— 1.20
37	7	Grade Jersey	20.00	30.80	3654	162.0	19.0	84.3	1.54	10.80
38	3	Grade Durham, a little Holstein and Jersey blood	25 00	39.73	4962	208.0	19.1	80.1	1.59	14.73
39	3	Grade Short-horn, dual-purpose type	23.50	28 03	3820	143.1	19.7	73.4	1 19	4.53
40	4	Short-horn, Jersey and Holstein Grades	30.00	34.79	3777	177.9	19.6	92.1	1.16	4.79
41	3	2 Grade Short-horns, 1 Jersey, dairy type	28.00	37.79	4686	194.3	19.5	81.0	1 35	9.79
42	2	1 Jersey, 1 Grade Jersey, dairy type	30 00	46.23	4378	228.5	20.2	105.6	1.54	16.23
43	3	2 Grade Durhams, 1 Grade Holstein, dairy type	27 00	49.41	5861	252.0	19.2	84.3	1.83	22.41
44	3	1 Jersey, 2 Common	21.00	29.41	3249	159.6	18.4	90.5	1.40	8.41
45	5	Grade Durham, 1 Grade Jersey	27 00	25.09	2641	129.1	19.4	95.0	.93	— 1.91
46	3½	Grade Jersey, dairy type, except one	26.00	40.80	3858	205.0	20.0	105.8	1 57	14.80
47	4	Durham and Jersey grades, 1 Scrub	25.00	23.82	2657	119.9	20.0	89 6	.95	— 1.18
48	4	Grade Jersey	22.00	23.33	2408	117.8	19.8	97.0	1.06	1.33
49	5	Grade Short-horns	30 00	23.36	3200	116.8	20.0	73.0	.78	— 6 64
50	5	Grade Short-horns	20.00	29.38	4136	155.6	19.5	73 3	1.46	9.38

* Cream from hand separators delivered to creamery instead of milk.

The patrons are here designated by numbers instead of names. If I should give their names here it might lead, in some cases, to embarrassment that would be disagreeable, (for I suppose most of the patrons I interviewed are here) and prevent me from telling some plain facts, which if told, may do good. Besides this I promised not to give names.

SOME MAKE PROFIT; SOME DO NOT.

It will be seen by looking over this table, that some made a good profit in butter fat sold over the cost of feed, while others did not get enough for butter fat to pay for feed. It would seem that one man should do about as well as another if he used as much intelligence and practiced as good methods in his business. To try and see if we cannot discover the cause of causes of this great difference in results, was the object of this investigation, and of my appearing before you today.

I have selected a few numbers which represent some of the extremes, on which I will give some of the notes I took while making the census, and some comments thereon.

DIFFERENCE IN TYPE.

No. 3. Six cows; 2 Jerseys, balance common cows, dairy type. Cost of feed per cow $26; average ration, ground ear corn, 8 lbs,; corn fodder and clover hay in winter. In summer a very little corn and pasture.

Returns for butter fat per cow, $41.78; average number pounds of milk per cow, 4,920; average number pounds butter fat per cow, 215.7; price of butter fat 19.4 cents: price of milk per 100 lbs., 84.9 cents; value of butter fat for one dollar's worth of feed, $1.61; net profit in butter fat per cow, over cost of feed, $15.78

No. 4. Six cows; grade Durham, beefy type. Cost of feed $25; ration, ear corn, clover and timothy hay and corn fodder in winter. In summer pasture only.

Returns for butter fat $25.89; number lbs milk, 3000; number lbs. butter fat, 130.3; price of butter fat, 19.9 cents; price of milk per 100 lbs., 86.3 cents; value of butter fat for one dollar's worth of feed $1.03; net profit in butter fat per cow, over cost of feed, $.89.

Now these two herds, of the same number of cows each, were fed practically alike; each has good stables, and apparently good care. Why should No. 3 make a good profit, while No. 4 was working for very small wages indeed? When I saw these herds, before I knew anything about what they had produced, I wrote in my notes on No. 3 "dairy type", and on No. 4, "beefy type". Now that is the only reason I can discover for this great difference in results. It is true, no doubt, that the steer calves of No. 4 are worth more for beef purposes than the others, but the heifer calves of No. 3 are worth most to rear for dairy purposes.

POOR FEED AND POOR CARE.

No. 7. 4 cows; 3 grade Jerseys, 1 grade Holstein. Cost of feed $18.50; ration, corn stover and straw and very little bran in winter. In summer, pasture only.

Returns for butter fat, $18.17; number pounds of milk, 2443; number lbs. butter fat, 96.2; price of butter fat, 18.8 cents; price of milk per 100 lbs, 74.4 cents; value of butter fat for one dollar's worth of feed, $0.98; received for butter fat, 33 cents less per cow than the food she ate was worth. His stable was cold, cows poorly cared for. The value of the feed was not much, but the cows did not pay for it, small as it was.

DIFFERENCE IN MEN AS WELL AS COWS FOR DAIRY WORK.

No. 17. 17 cows; one Guernsey, some grade Guernseys, but most of them common cows of no particular breeding, which the owner had selected and bought around in the country, and nearly all of good dairy type. Cost of feed, $27; ration, "oat feed" (cost $13 per ton) 6 lbs.; at times, same amount of bran instead; silage 40 lbs, clover hay and corn fodder in winter. In summer 2 lbs. oat feed and pasture.

Returns for butter fat, $46.95; number pounds milk, 5,436; number pounds butter fat, 239.3; price of butter fat, 19.6 cents; price of milk per 100 pounds, 86.4 cents; value of butter fat for one dollar's worth of feed, $1.74; net profit in butter fat over cost of feed, $19.95. Stable is excellent; cows fastened with swing stanchions.

No. 21—8 cows, ½ of them two-year-old heifers, one 3 year-old, all fresh in fall except two; grade Holsteins except 2 common stock. Cost of feed, $22; ration 2 pounds oat feed, 1¼ pounds oil meal, 45 pounds silage, and corn fodder in winter; in summer, pasture only.

Returns for butter fat, $44.41; number pounds milk, 6,088; number pounds butter fat, 220.4; price of butter fat, 20.1 cents; price of milk per 100 pounds, 72.9 cents; value of butter fat for one dollar's worth of feed, $2.02; net profit in butter fat over cost of feed, $22.41.

No. 23—7 cows. They are a mixed lot of no particular breeding; they are not good dairy type, neither are they good beef type; still they are in good condition, showing they have been well fed. Cost of feed, $20; ration, 2 ears corn, 30 pounds silage, clover hay and corn stover in winter; in summer one ear corn to call them in to be milked, and pasture.

Returns for butter fat, $23.39; number pounds milk, 3036; number pounds of butter fat, 124.7; price of butter fat, 18.7 cents; price of milk per 100 pounds, 77 cents; value of butter fat for one dollar's worth of feed, $1.17; net profit in butter fat over cost of feed, $3.39.

I must make some comments on these last three numbers. They all three fed silage and all have good comfortable stables, but Nos. 17 and 21 made large profits, while No. 23 got but little more than the value of the feed, and the chances are that he would not have got that little profit had he not fed silage. Then why the difference? It is in a great measure because of the difference in the type of cows, but I discovered another reason (no matter how) which may have, perhaps, still more to do with it. No. 21 made, considering the age of his cows, the best showing of the three. Although he did not get the greatest returns per cow, he got the most for a dollar's worth of feed. No. 21 takes excellent care of his cows, doing everything possible for their comfort. He feeds with the utmost regularity and he begins milking at the same tick of the clock every time, no matter what other things are pressing.

No. 23 is apt to consider other work of more importance than caring for the cows, so they are fed and milked when it is most convenient. When there is a rush of work, they are milked, at times, very early in the morning, and at night they are milked when everything else is done. At other times it is the reverse, they are milked late in the morning and early at night. So it happens that the cows never know when to expect to be fed or milked, and no cows can do well in giving milk with such usage.

FED SILAGE TO SOMEWHAT BEEFY TYPE COWS AND GOT FAIR RETURNS.

No. 19—9 cows; grade Angus; most of them of a rather beefy type. Cost of feed, $20.50; ration, a small amount of oat feed, 35 pounds silage, clover and timothy hay and corn fodder in winter; in summer, pasture only.

Returns for butter fat per cow, $36.65; number pounds butter fat (he has a separator and sends cream) per cow, 192; price of butter fat, 19.1 cents; value of butter fat for one dollar's worth of feed, $1.79; net profit in butter fat over cost of feed, $16.15.

It will be seen by this that with the use of silage, for winter feed, so as to provide succulent food the year round, a fair return in dairy products can be had even with cows not strictly of the dairy type.

A FINE DAIRY HERD AND A FINE BEEF HERD.

No. 29—7 cows; Holsteins and Holstein grades, excellent dairy type. Cost of feed, $30; ration, ear corn, 5 pounds; bran, 3 pounds; a little oil meal, shredded fodder, corn stover and clover hay in winter; in summer, pasture only.

Returns for butter fat per cow, $61.09; number pounds butter fat per cow, 316.7; price of butter fat, 19.3 cents; value of butter fat for one dollar's worth of feed, $2.03; net profit in butter fat over cost of feed, $31.09.

(Continued on page 970.)

Dairy Questions Answered by Prof. Farrington.

DELIVERING CREAM TO FACTORY.

We have here a creamery taking both milk and hand separator cream. The milk is delivered now four days per week, both milk and cream are nice and well cared for. How seldom can the cream patrons be allowed to deliver without injury to the product, provided cream is sweet when it reaches us. * * * *

Chippawa Falls, Wis.

On general principles it is not safe to permit the holding of cream at the farms more than two days before it is collected by the drivers drawing the cream to the factory. Even if the cream may be kept sweet a longer time than this, it ripens somewhat by age, and if sweet and old the butter made from it will not possess the fancy qualities of butter made from fresh cream.

At the dairy school, we once held some sweet cream fresh from the separator in a vat where its temperature did not rise about 50°. I wanted to find out if the aging of sweet cream would have any effect on the butter even if the cream was not tainted or soured. This cream was kept sweet for different lengths of time, two, three and four days at a time, and after keeping it, a starter was added and the cream ripened and churned. We found that the butter made from such cream when it was over two days old, had a rather old, inclined-to-be-strong flavor. This showed to us that some flavors, detrimental to fresh butter, are developed by the cream standing, even if it is not sour, for a few days before it is churned.

I was somewhat surprised by these results but was obliged to accept them because the work was repeated several times. This is the only evidence I have to offer on this point, but it seems to me to indicate that it is hardly safe for farmers to keep their cream more than two days before it it collected by the cream haulers. I know there are some instances in which cream is collected only twice a week, but such cream, if kept by itself, will surely make defective butter. The only hope of handling such cream successfully, is to mix it with so large a quantity of fresh cream that the defects of the old cream will be covered up by that of better quality.

When cream ages by standing too long a time, it is very difficult for a butter maker to rejuvenate it and make butter of a fancy flavor from it. More or less successful attempts to do this have been made by adding water to such cream and running it through a separator, then ripening the cream separated, with a carefully selected starter. This practice I think will be successful if it is carefully done by a man who understands his business. I think the final results will be equal to, if not better than when butter is made from the cream without first diluting and separating it a second time. The adding of water and separating such cream a second time will wash out some of the bad flavors and in this way it may increase the price of the butter made from it by one or two cents over what would be obtained from the butter, in case the cream had not been subjected to this treatment.

There will necessarily be a loss, however, by this second skimming because some of the fat will be left in the skim milk, and the total amount of butter made will be dimished, but the increase in price per pound should be enough to overcome the loss in weight.

SELECTING A HAND SEPARATOR.

"I am interested in dairying and will be glad to have you answer the following questions:

Have any experiments been conducted at your station to test the skimming qualities of the different makes of hand cream separators? If so, will you mail me a report containing results of the same?

What is your candid opinion as to the——— separator? Do you use it at the Experiment Station? What other makes do you use at the dairy school? * * *

Brillion, Wis.

We have not made any official tests of of separators at the Wisconsin dairy school or at the Experiment Station. This is a very difficult thing to do because different machines of the same make will vary somewhat in the efficiency with which they skim milk; it is, therefore, not always safe to say that the separators of any particular make are always poor skimmers or that others will always do the best skimming. The efficient skimming of a separator, either hand or power, depends to a certain extent on the skill of the operator running the separator each time it is used. There are, of course, some machines which will permit a greater range in variations of temperature of milk, speed of bowl, condition of the milk, etc., than others, and still do good skimming. That is to say, some separators will skim milk satisfactorily when everything is in perfect order, the milk fresh and sweet and the machine run in a uniform, steady manner. Other separators will do satisfactory skimming when there is a slight variation in speed, temperature or capacity. This characteristic of machines is certainly one that is peculiar to different makes.

The question of durability is another important matter to be considered in selecting a hand separator. This may be determined as well by the past record of separators of different makes as by any other means that I am familiar with. Where a certain make of separator has been in use a number of years and has given satisfactory results without wearing out or requiring many repairs, such a record speaks well for the separator and shows that it is doing the work for which it was made, that is, it is a cream separator that will skim milk enough to more than pay for itself in the saving made over the old method of gravity skimming.

We have each winter at the dairy school about twenty different hand separators in use by the students. The skim milk is tested each time the separators are run but the results obtained may not always be a fair representation of what the separator is capable of doing, because the students are not only learning how to run the separators, but they are also beginners, many of them, in the testing of skim milk. It will, therefore, be an erroneous opinion that would be derived from a table giving the results obtained by our students while they are using hand separators at the dairy school.

The best way to determine which of many different makes of separators is a good one to recommended or use, is to get one of these machines, set it up in the proper manner and make careful tests of the skim milk obtained from the separator when it is being run under normal conditions. It will also be a good plan to get a test of the skim milk when there is some variation from normal in the speed of the bowl, the temperature of the milk, and the amount of milk skimmed per hour. These latter results will show how much the efficiency of the separator is influenced by such abnormal conditions.

In our extensive use of many separators for the past ten years, I have noticed that the hand separator is something like other machines which people own, such as mowing machines or sewing machines. Each person becomes more or less attached to the machine he or she owns and thinks theirs is the best of all those manufactured. This certainly is a good recommendation for a separator as well as for other machines, and if such an opinion is based on carefully made tests, I think the owner of such machines ought to be perfectly satisfied with them.

FLAVOR IN PASTEURIZED MILK.

"It will soon be two years since I spent some time at your school and I feel indebted to you for the information received while there and only wish I could spend one whole year with you. I am holding the same position I accepted when I first came here—foreman of the Sanitary Milk Company which has a capital stock of $50,000. The first year we ran, the company lost money; the second summer the company made a little money and this winter we will barely make expenses as the running expenses are too great. You know when it comes to making money in the milk business the red tape must be done away with. Before I came here the company had con-

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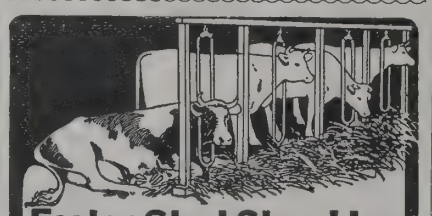
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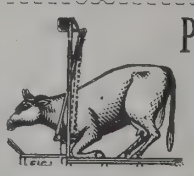
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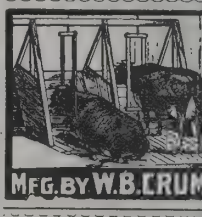
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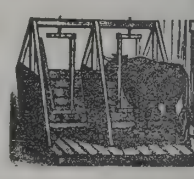




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CLEAN, SAFE, COMFORTABLE.

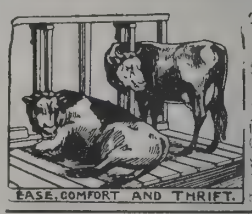
MFG. BY W.B. CRUMB, Forestville, Conn



CHAIN-HANGING CATTLE STANCHION

The Most Practical **CATTLE FASTENER** ever invented. Manufactured and For sale by

O. H. ROBERTSON, Forestville, Conn.



The BEST Cattle Fastening.

SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated circular free. GLENORA MFG. CO. Glenora, Yates county, N. Y. Infringements will be prosecuted.

EASE, COMFORT AND THRIFT.

JUST OUT! UNDERHILL SELF ADJUSTING STALL



No Gutters
No Platforms
No Fastenings
No Stables to clean

Cease trying to keep your cows clean. You can't do it. Give them a chance and they will do it themselves. This is the only way and the easy way. Write for circular telling what the cow has discovered to us. It is a great revelation,

Wm. M. UNDERHILL, Oconto, Wis.

THE NEW PATENT

Cow Stall

AND FEED TROUGH.



This is the only Cow Stall with a centering hinge. Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars.

R. A. McLERY & CO., Palmyra, Wis.



Only One Hand

needed to stanchion Cattle if you have our

Steel Latch Stanchion

When open is locked ready for cattle to come in; closed, it swings freely. Best dairy cattle tie because comfortable and quiet; gives greatest freedom. Made of selected hardwood oil finished. We are the sole manufacturers. Write now for circulars and delivered prices.

TOLEDO PLOW CO., Dept. H, TOLEDO, OHIO.

Christmas Presents For All



Christmas time is spending time. Jolly old St. Nick can successfully manipulate the key to our purses when all other attempts fail.

Let us suggest the advisability of buying all your Christmas presents from the largest and most reliable stock in the world selling direct to the user and saving you the jobbers', dealers' and agents' profits.

Our prices are always the same — the lowest. We cannot take advantage of the liberal Christmas spirit and advance our prices as some do, for our regular catalogue figures must stand for all seasons.

We can send you everything you want in one shipment, saving you endless effort and delay in buying from several sources.

By purchasing your entire Christmas needs from us we believe you will save almost one-third of the regular Christmas prices you would pay elsewhere.

It is easy to order from our 1128-page Catalogue No. 72, with fine pictures of the articles you desire, and you can do it all in one evening with scarcely any effort.

Once your order is mailed you need not think of it again until you get the goods, for we will take care of it promptly and carefully, guaranteeing safe delivery and perfect satisfaction.

Your neighbors who know will tell you it is a pleasure to deal with us.

We mention here a few suggestions, all taken from our Catalogue No. 72.

Thousands of other desirable presents for every member of the family, from the hired man down to the baby.

If you have never seen our big catalogue you have missed a great treat. It's never too late to begin, however. Fill in the coupon and mail to us to-day. Don't wait until it is too late to get your goods before Christmas. Although the catalogue costs us almost one dollar each, we make no charge for it, only asking you to send 15 cents to bear part of the postage expense of sending it.

For Men:

Pair of slippers.
Smoking jacket.
Smoking set.
Half dozen dress shirts.
Half dozen colored shirts.
Silk umbrella.
Pair of gloves.
Dozen initial handkerchiefs.
Morris chair.
Shaving cabinet.
Leather couch.
Shaving set.
Neckties.
Match box.
Suit case.
Watch charm or fob.
Half dozen pairs half hose.
Pair of suspenders.
Pocket or bill book.
A good warm cap.
Heavy overcoat.
Muffler.
Fleece lined mittens.
Warm overshoes.
Magnifying glass for reading purposes.
A pair of boots.
Buckskin mittens.
Sweater.
Banjo or guitar.
Box of collars.
Meerschaum pipe.
Box of cigars.
Shot gun.
Cigar Jar.
Hunting Jacket.

For Women:

A pretty apron.
Dress pattern.
Wrap or bonnet.
Toilet set.
Manicure set.
Sewing machine.
Piano or organ.
Hat.
Handkerchiefs.
Pair of fine shoes.
Books.
Leather purse.
A new carpet or rug.
Piece of cut glass.
Tableware.
Pair of glasses.
Warm mittens.
Medicine cabinet.
Easy chair.
Bible.
Cut glass flower vase.
Jewelry.
Silverware.
Fine clock.
Bronze parlor ornament.
Set furs.
Up-to-date suit or jacket.
New stove.
Dining table.
Box stationery.
Talking machine.
Pair of gloves.

Cut this slip out and send it with 15c in stamps TODAY.

MONTGOMERY WARD & Co., Chicago.

Enclosed find 15 cents for partial postage on catalogue No. **72,** as advertised in Hoard's Dairyman.

Name_____
(Be sure and write very plainly.)

Postoffice_____

Route No._____ County_____ State_____

Montgomery Ward & Co.,

Michigan Ave., Madison & Washington Sts., Chicago

44 32 years World's Headquarters for Everything.

tracted for over two thousand gallons of milk per day at $1.50 per hundred, thinking of course that they could sell it all at retail but as no member of the company had ever had any experience in the milk business they soon learned it was different than they expected. During the first year I made 28,000 pounds of butter, of which one-half sold at one cent above New York price, the balance at retail in this city. You will see from this that the loss was considerable. I simply write this to show you how inexperienced men can be blinded by some sanitary milk plant promoters.

This plant is now running the most successfully of any plant in this section, according to the state inspector; several other plants are closing down. We are using a continuous pasteurizer and I want to ask you if you think the Potts machine will pasteurize our milk and give it a different flavor than the continuous machine when the milk is heated to 140 degrees F, and held at this temperature for fifteen minutes?

I should like to have you send me one pint of milk and one pint cream as you pasteurize it at the school, stating the temperature and machine in which the work was done, as I would like to compare the flaver of your product with that of mine."

* * * * *

Newcastle, Pa.

The difference between the modern continuous pasteurizers now extensively used in sanitary milk depots of cities and the Pott's pasteurizer is in the length of the time that the milk or cream is heated in the two types of machines. The Potts is so constructed that either milk or cream is placed in a cylinder of the pasteurizer where it is heated and the heat maintained for ten to twenty minutes, according to the desire of the operator. With the continuous machine the milk or cream is heated only during the time while passing through the machine, probably in no case longer than one or two minutes.

The influence which these different systems of heating have on the flavor of the product will depend a great deal on the temperature to which the milk is raised. If heated too hot for a long time in the Potts pasteurizer, a cooked taste will undoubtedly be noticed in the milk or cream. This is not necessary, however, as a lower temperature will overcome this cooked flavor. The cooked flavors are not so often noticed in milk or cream heated in the continuous machines, because, although they may be subjected to a higher temperature than in the Potts pasteurizer, the heat is not continued for so long a time. I do not see how it it possible for any particular kind of pasteurizer to be responsible for anything but a cooked flavor in the products pasteurized in it.

There were several instances in this state during the past summer in which the owners of continous pasteurizers got the impression that their machines were responsible for a peculiar flavor in the milk they were selling, but in so far as I was able to investigate the matter, it seemed to me that the flavor was due to some feed the cows were receiving and that the pasteurizers were not responsible for it in any way. It was undoubtedly true that milk which was pasteurized in these machines showed this peculiar flavor more than it was noticed in the unpasteurized milk. I have not been able to discover a good explanation for this fact up to the present time, but as it was noticed in two large cities where two different kinds of pasteurizers were used, this seemed to me to be good evidence that the feed of the cows was responsible for the flavor rather than the particular kind of machine in which the milk was pasteurized.

This objectionable flavor passed away, however, after a month or so, and these two establishments are both using the same machines they used when the bad flavors were noticed. This is the only evidence I have in regard to the flavor noticed in pasteurized products, other than the cooked flavor which may be caused by over heating.

I do not think there would be anything gained by my sending you a sample of the milk and cream we pasteurize, in order that you may compare the flavor of such products with that of those you pasteurize. Such samples would be subjected to great changes in temperature by transportation at this season of the year; they would be at least two days old when you got them and when their flavors are compared with that of your fresh products, I am sure you will agree with me that such comparisous are not fair ones, and that you cannot gain much information from such samples.

I am very glad to hear of your success and shall be pleased to hear from you at any time and to discuss with you any subject that may come up in connection with your work. E. H. FARRINGTON.

Wisconsin Dairy School.

DON'T PUT OFF

Seeing your friends and having them join in for a club of subscribers.

Feeding Problem from New Mexico.

Please formulate me a ration out of the following feed stuffs: Alfalfa hay, $8 per ton; gamma grass hay, $5; sorghum fodder, $5; corn, $27; bran, $24; cotton seed meal, $30; oats, $40. No pasture obtainable. We are feeding alfalfa hay alone, and average 1½ gallons a day each, from 20 cows. Would like to do better. We sell the whole milk and get about 30c per gal.

Roswell, New Mexico. E. B. E.

Depending largely upon the present stage of lactation, that is, whether the cows have been milking some months since last freshening and have established a permanent shrinkage in their yield of milk, we should expect an addition of 4 to 8 lbs. of bran and ground corn, equal parts by weight, to the daily allowance would increase the yield; but whether enough to compensate for the extra expense can only be determined by thorough trial. And how about salt? If not now doing so, try giving a heaping teaspoonful night and morning.

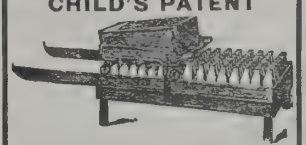
WOLL'S BOOK ON SILAGE

IS THE BEST BOOK yet published on Silos and Silage. We can Send a paper bound copy of this book, post paid for 25 cents.

HOARD'S DAIRYMAN, Fort Atkinson, Wis.

MAKE YOURSELF
A CHRISTMAS PRESENT

CHILD'S PATENT



MILK BOTTLE FILLER

Instead of buying something that will soon be used up, get an article that will lighten your labor every day for many years. Every progressive dairyman wants the easiest, cleanest and best bottling machine on the market, if he can get it at a reasonable price. He will find on investigation that

CHILD'S PATENT MILK BOTTLE FILLER

answers all these requirements and besides will save time, money and labor. IT WAS AWARDED THE ONLY PRIZE FOR AUTOMATIC MILK BOTTLE FILLERS AT THE PARIS EXPOSITION OF 1900 and has remained ever since the best machine on the market. It possesses many labor saving devises that are fully explained in our catalogue. Write for it today.

J. S. BIESECKER, 59 Murray St., New York City

Get our Prices on Dairy Supplies before ordering elsewhere and Save Money



The Distribution of Skim Milk.

It is known that the just complaints of creamery patrons on account of unfair distribution of skim milk are the bane of the separator creamery business. Further disputes among patrons, annoyances to managers, hindrances to the best work of buttermakers, watering the skim milk, and many other ills in the same train are unnecessary, since the

Barber-Coleman Check Pump

has for more than five years been successfully solving the problem in many different creameries. When a patron has dropped in his check he can pump the amount of skim milk called for by his check, less the percentage taken out as cream, so in like proportion to all other checks. Its measuring apparatus is just an ordinary pump which everyone understands and knows how to operate.

Cornish, Curtis & Greene Mfg. Co.,

General Sales Agents De Laval Alpha Separators,
FORT ATKINSON, WIS.

The Results of Creamery Patrons' Investigation in Marshall County, Indiana.

(Continued from page 967)

No. 31—15 cows; grade Short-horns, excellent beef type. Cost of feed, $35; ration, 4 pounds bran, 4 pounds corn, 2 pounds oil meal, timothy hay, and shredded corn fodder in winter; in summer, pasture only.

Returns for butter fat per cow, $22.96; number pounds butter fat, 119.3; price of butter fat, 19.2 cents; value of butter fat for one dollar's worth of feed, $.66; value of butter fat was $12.04 less than cost of feed.

This patron is in the beef business. Many of his cows he does not milk at all, but lets the calves run with them, but those 15 which he milked he selected from his herd, possibly because he thought they were the best milkers, but mainly he said, because they milked "easiest;" got a hand separator, milked the cows, separated the milk, and brought up the calves "by hand." His cows were fed high-- he says about the same as nis fattening steers, and were fat all the time. He told me his calves at weaning time were worth $15 to $20 each, and his 3-year-old steers brought $65 each.

He seems to be doing well, for his keeping so much stock is maintaining the fertility of the soil, so his land is very productive; but is he doing as well as No. 29, who gets more than 2½ times as much per cow for his dairy products, even if his calves and steers do not bring so much?

Scrubs and a Scrub Farmer.

No. 28—Seven cows; grade Jerseys, scrubby looking. Cost of feed, $23; ration, ear corn, 5 pounds; shredded fodder in winter. In summer, pasture only.

Returns for butter fat, $23.48; number pounds butter fat per cow, 125.8; price of butter fat, 18.7 cents; value of butter fat for one dollar's worth of feed, $1.02; net profit in butter fat over cost of feed per cow, $0.48.

Good Cows and Good Care.

No. 42—Two cows; 1 Jersey, 1 grade Jersey, one of them an exceptionally fine looking animal of the best dairy type. Cost of keeping, $30; ration, ear corn and oats ground, 10 pounds, and corn stover in winter; run loose in box stalls; in summer, pasture only.

Returns for butter fat, $46.23; number pounds milk per cow, 4,378; pounds butter fat, per cow, 228.5; price of butter fat, 20.2 cents; price of milk per 100 pounds 105.6 cents; value of butter fat for one dollar's worth of feed, $1.54; net profits in butter fat over cost of feed, $16.23.

Patrons Who Feed no Grain.

No. 14—Six cows; common stock with a little Jersey and Holstein blood, of very good dairy type; fresh in spring. Cost of feed, $19.50; ration good corn stover in abundance, fed in yard in pleasant weather, but when not pleasant, fed in mangers in good comfortable barn.

Returns for butter fat, $38.27; number pounds of milk, 4,743; number pounds of butter fat, 203.6; price of butter fat, 18.8 cents; price of milk per 100 pounds, 80.7 cents; value of butter for one dollar's worth of feed, $1.96; net profit in butter fat over cost of feed, $18.77.

No. 32—Eight cows, common stock, fresh in fall. Cost of feed, $18.50; ration, shredded fodder and corn stover in winter; in summer pasture only.

Returns for butter fat, $16.73; number pounds of milk, 1,962; number pounds of butter fat, 84.2; price of butter fat, 19.9 cents: price of milk per 100 pounds, 85.3 cents; value of butter fat for one dollar's worth of feed, 90 cents; value of butter fat less than cost of feed, $1.77 per cow.

Here we run up against unusual conditions. These two men feed no grain in winter to dairy cows, except what little they might chance to find in the fodder. No. 14 made a good profit and No. 32 suffered a loss. No. 14 told me he used to feed grain, but he was satisfied now that he could make more clean profit without feeding it.

He said he might get a little bigger returns by feeding it, but it was too expensive. He said when he fed grain his cows were all the time looking for it, and would not eat their coarse fodder as well as they did now when they could expect no grain.

No. 32 evidently reasoned the same way, but his results were a sad failure. I suppose you are wondering what made the difference. I think I can make it clear to you. No. 14's cows were fresh in the spring. They were wintered without grain, but fed and cared for so well that they were in fair condition, when they came fresh in the spring, and went on to good pasture, and produced well during the summer.

No. 32's cows were fresh in the fall and they could not keep up the flow of milk on dry fodder without grain in the winter, so when spring came they were so near dry that the summer flow amounted to but little.

While some men get more out of cows that are fresh in the fall than they could get from them, if fresh in the spring, they do it by feeding some grain, and providing succulent food in winter.

A Chapter of Averages.

The number of cows kept by these 50 patrons was 282. Average cost of feed per cow, $24.96; average returns in butter fat per cow, $32.20; average number pounds butter fat per cow, 166; average price of butter fat, 19.4 cents; average amount for one dollar's worth of feed, $1.29; average net profit per cow, $7.24. There were 5 patrons having 45 cows who fed silage last winter, and their average net profit was $16.74 per cow. There were 45 patrons having 237 cows, who did not feed silage, and their average net profits per cow was $5.57—$11.17 less.

Value of Skim Milk.

I asked those I interviewed what, in their opinion, was the value of skim milk for feed. I got answers from 45. They run all the way from nothing to 40 cents per 100 pounds.

The most of them said they did not know just how much it was worth, had no means of knowing very accurately, but they all, with the exception of the two extremes I have mentioned, guessed it to be worth from 10 to 25 cents a 100 pounds.

One man was very positive that the skim milk he got back from the creamery was worth absolutely nothing. One man answered promptly and in a positive manner, "40 cents."

I said, "Do you think you can get that out of it?"

"I know I can, now that I have a farm separator."

"How?"

"By feeding it in connection with other feed to such pigs as those," pointing to a splendid lot of young hogs, which, I think, were thoroughbreds. Then he added, "I could not raise as nice pigs as those without the skim milk."

Does it Pay to Take Dairy Papers?

One other question that I asked each one, was, "Do you take and read a dairy paper?"

Nearly all of them take agricultural papers with a little dairy reading in them, but only 6 of those I asked take any paper especially devoted to dairy. These 6 take Hoard's Dairyman and some of them *The Dairy and Creamery*.

I felt curious to know whether those who took dairy papers made enough more profits out of the business to pay the subscription price of the papers. I figured it up and I find that the 6 who take Hoard's Dairyman averaged in net profits per cow, for butter fat, over cost of feed, $11.07, while the 44 who do not take a dairy paper, averaged, in net profit per cow, only $5.58.— a difference of $5.49 per cow in favor of the man who tries to inform himself by reading the experience of others who are engaged in the same business as himself, and who reads the investigations of scientists, along dairy lines, in the matter of feeding cows and all the other problems that arise to confront the dairyman.

Concluding Remarks.

Now in conclusion, I have to say that you have here a very fine country with a soil naturally fertile, peopled with intelligent and enterprising inhabitants, as is evidenced by the fine farm buildings and the excellent system of drainage which I admired very much.

You have done very well in the dairy business as far as you have been engaged in it. On the average, those I have interviewed in taking this census have made it profitable. Some have made it very profitable, while others have worked for nothing or nearly nothing. It is so everywhere. Here, as elsewhere, there is great room for improvement. That is why we are doing this kind of work, hoping that we can all learn something.

There is one serious criticism I have to make about your dairying here, and that is you don't do enough of it. You ought to do four times as much, and then you could stop the depletion of the fertility of the soil which I see on many farms is going on; you could make more money, have more of the good things of this world while you live, and when you go, you would leave, in the form of a more fertile soil, a rich inheritance to those who come after you.

Program of Minnesota Dairymen's Convention.

TUESDAY, DEC. 15, 2 P. M.

Call to Order - - President Mowbray
Invocation
Address of Welcome - Mayor of Fairmont
Response - - A. G. Long, Excelsior
Annual Address President - - - - - A. W. Mowbray, St. Charles
Report of Secretary J. R. Morley, Owatonna
Report of Treasurer Aug. Ahlswede, Jordan
Paper, The Dairy Cow and her Relation to Diversified Farming L. A. Sweet, Fairmont
Appointing Committees,
Resolutions—Auditing—Legislature—Adjourn to Machinery Hall.

7:30 P. M.

Womans Auxiliary.
Address and Report of President - - - - Mrs. V. K. Wilcox, Benson
Report of Secretary and Treasurer and Auxiliary Work Mrs. C. H. Robbins, St. Charles
Paper - Mrs. J. H. McRostee, Owatonna
What Woman can do on the Farm - - - - Mrs. M. L. Holmes, Owatonna
Paper - - Mrs. A. G. Long, Excelsior
Address - Prof. G. L. McKay, Ames, Iowa
Remarks - - Col. Wilkinson, St. Paul

WEDNESDAY, DEC. 16, 9 A. M.

Recent Work of Experiment Stations in Dairying Prof. Harry Snyder, University of Minn.
Losses or Mistakes in Dairying - - Prof. G. L. McKay, Iowa State College.
Present Status and Requirements of N. W. Minnesota - Col. Wilkinson, St. Paul
Advanced Butter Making - - - - - - - - Sam Haugdahl, St Peter

2 P. M.

Announcing of Scores
Abortion in Cattle - Dr. M. H. Reynolds University Veterinarian
Dairy Barns and Ventilation Prof. Thos. Shaw, Editor Farmer, St. Paul
The Relation between Butter Maker and Patron, What it Should be P. H. Kieffer, Iowa
Reports of Committees. Election of Officers.
Unfinished business.

THURSDAY, DEC. 17, 9 A. M.

Address - W. W. P. McConnell, St. Paul, Dairy and Food Commissioner, Minn.
The Responsibility of Patron to his Creamery Prof. T. L. Haecker, University of Minn.
The Co-operative Creamery vs. Central Plants - A. J. McGuire, Farm Student's Review
Question Box. Questions to be handed in not later than Wednesday night.

1 P. M.

Public Sale of Butter at Exhibition Hall.

2 P. M.

The Economical Production of Food for the Dairy Cow - - - A. W. Grow, Glenville
Debate, The Hand Separator vs. the Whole Milk System. Affirmative, L. A. Sweet, Fairmont; J. K. Bennett, Slayton. Negative, E. R. Allen, Winnebago City.
Legislation Needed for the Dairy Industry - - - - Hon. J. L. Gibbs, Owatonna
Music will be furnished by the Fairmont band at all sessions.
Machinery Hall will be open every day until six p. m., in charge of Robt. Crickmere.
Social Banquet given by the citizens of Fairmont, Wednesday, 8 p. m.

J. R. Morley, Secretary.
Owatonna, Minn.

The Cow Demonstration at St. Louis.

Ed. Hoard's Dairyman:—I notice in your issue of Nov. 20th you state only two breeds have entered the test, to wit: the Jerseys and Short-horns at the St.



DO YOU
Need a Friend?

We carry them in stock and can ship you one on short notice.

OUR IDEAL BOTTLE FILLER

Is made in two sizes, filling two or four jars at once. Just the thing for small and medium sized dairies and milk plants. We carry a complete line of Bottle Fillers, both large and small, and can meet the needs of every one.

Our Milk Dealers' Price List tells all about them, and is yours for the asking. We carry at all times a complete line of **Milk Dealers' Supplies,** and make prompt shipments. Try us.

Pasteurizing Apparatus, Low Down Milk Wagons, Ice Cream Supplies and Apparatus, Milk and Cream Signs, Milk Jars, etc. etc.

Creamery Package Manufacturing Co.,

149 to 153 East Superior St., Chicago.

BRANCHES: Kansas City, Mo.; Minneapolis, Minn.; Waterloo, Iowa; Omaha, Neb. St. Louis, Mo. and Cowansville, Quebec.

SHIP US YOUR HIDES, FURS, Etc. A 36-Page NEW ILLUSTRATED TRAP BOOK. Calalogue of Guns, Traps, Knives, Etc., Postpaid 2c.

Price List HIDES and FURS FREE. :: : :

NORTHWESTERN HIDE AND FUR COMPANY

WE GIVE MORE VALUABLE INFORMATION on HIDES and FURS than any House in the World and PAY BEST PRICES.

N. W. Hide & Fur Co.,
Minneapolis, Minnesota.

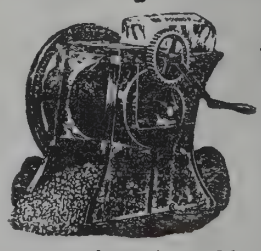


We want every dealer in and user of,
MILK BOTTLE CAPS
to receive our catalogue. We can supply your wants at prices that are right.
Write us.
BAVIER NOVELTY CO.,
WINDSOR, CONN.



This
Gem Fibre Box
is the best thing in the world in which to pack butter.
Impervious to moisture, mildew or mould.
Keeps the bad odors out and the sweet flavors in. Lined with best parchment paper throughout. Made in many sizes to suit your needs. **Illustrated Booklet and Sample Free. Write for them.**
THE GEM FIBRE PACKAGE CO.,
Dep E, Gem Bldg. Detroit, Mich.

Creasey Ice Breakers



Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right. Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.

J. S. L. WHARTON, Mfr.,
17th Clearfield St., Philadelphia, Pa.

FREE TRIAL CUTTER OFFER



For the Most Liberal Cutter Offer ever heard of, our Free Trial Proposition, our Pay After Received Terms of Shipment, a new, astonishingly low price condition, such that makes it possible for anyone to have one of the handsomest Portland cutters built, **cut this ad out and mail to us today,** and you will receive our **Big Cutter Offer** by return mail. Address, **SEARS, ROEBUCK & CO., CHICAGO.**

Louis World's Fair. You are in error, first in that the Brown Swiss are entered in the three classes and expect to compete in those classes under the rules and regulations adopted as special-purpose dairy cows, and also as general-purpose cows.

Second: That it is to be a demonstration of dairy and beef breeds and not a dairy test as you mention in your article "The Dairymen at the St. Louis World's Fair." C. D. N.

Owego, N. Y.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—There was but one offering of butter, 25 tubs by Hinckley, on Monday's Elgin Board of Trade. 25 cents was bid, but the offering was withdrawn. Wood, Kilbourne and Sherwin each offered 25c for 100 tub lots, but there were no sellers at that price. The official market was declared firm at 25 cents.

The former markets were:

Former Markets.	*Tubs Sold.*	*Price.*
Nov. 22, 1903	30	24
Dec. 1, 1902	0	28
Dec. 2, 1901	0	24½
Dec. 3, 1900	0	25
Dec. 4, 1899	0	26½

Elgin, Ill., Nov. 30, '03. H. C. B.

DAIRY MARKETS.

ELGIN, Ill., Nov. 30—Butter ruled firm on the Board of Trade this afternoon, selling at 25c a lb. an advance of 1c from last week. Sales in the district were 525,000 lbs.

CHICAGO, Ill, Nov. 30—Butter—Firm; creameries 16@24½c; dairies, 14@19c.

Cheese—Steady; Daisies, 10¼@10½c; Twins, 10c; Young Americas, 10½c.

Eggs—Steady; at mark, cases included, 23@26c.

Cattle—Choice to fancy beeves, 1,200 to 1,500 lbs. 5.50@5.75; good to choice steers, 4.05@5.45; fair to good export and shipping steers, 4.50@5.00; medium beef steers, 4.10@4.40; plain beef steers, 3.80@4.00; common to rough, 1,000 to 1,200 lbs. 3.40@3.75; good to fat heifers, 4.00@4.60; good to choice feeders, 3.25@4.15; good to plain stockers and feeders, 1.50@3.20; fair to good cows and heifers, 2.70@3.85; good cutting and fair beef cows, 2.20@2.60; common to good canning cows, 1.10@2.10; bulls poor to choice, 2.40@4.40; calves, choice to fancy 5.75@6.25; calves, common to fair, 2.75@5.50 corn fed western steers, 4.00@5.25; Texas bulls and grass steers, 2.90@3.85; fed Texas steers, fair to choice, 3.40@4.50; western range steers, 3.25@4.15.

Hogs — Good to choice heavy shipping, 4.50@4.65; fair to good heavy packing, 4.40@4.60 rough and common heavy mixed, 4.15@4.35; assorted light, 150 to 195 lbs., 4.35@4.60; good to choice butcher weights, 4.55@4.70; fair to choice light mixed, 4.35@4.55; thin to choice 50 to 120 lb. pigs, 4.00@4.75; stags and rough lots, 3.25@4.25.

MILWAUKEE, Wis., Nov. 30—Butter—Creamery, extras, 25c; firsts, 23@23½c; seconds, 21@22c, renovated (process), 18@19c. whey, 10@12c. Dairy fancy, 19c; lines, fresh, 16@17c; packing stock, 13@15c; grease, 5@6c.

Cheese—American full cream, new: Twins, 10@10½c; Young Americas, 10½@11c; Daisies, 11@11½c; Longhorns, 11@11½c; low grades, 7@9c. Brick, new, fancy, 10½@11c; low grades, 7@9c; Limburger—New, fancy, 10@10½c; off goods, 6@8c Swiss—Drum, choice, 12@12½c; Drum No. 2, 10@11c; block, choice, 11@11½c; block, No. 2, 9@10c.

Eggs—Strictly fresh laid, loss off, cases returned, 25c; do, at mark, cases returned, 22½@23c; storage, city, Apr. No. 1, 23c; storage, country, 20@21c; dirties and seconds, 19c; checks, 17c.

SHEBOYGAN FALLS, Wis., Nov. 25—Cheese—22 factories offered 1.253 boxes of cheese on the Call Board to-day and all sold as follows: 77 cases Young Americas 10⅜c; 92 at 10¼c; 94 at 10¼ 149 cases Longhorns, 10½c; 314 at 10¾c. Market fairly active.

SHEBOYGAN, Wis., Nov. 25—Cheese—Sales Sheboygan Dairy Board here to-day were 5 boxes Twins at 9½c; 130 Daisies, at 10⅞c; 92 Daises at 10¾c; 21 Young Americas at 10c; 144 at 9⅞c; 40 Longhorns, at 10⅜c, and 377 at 10¼c.

MANITOWOC, Wis., Nov. 25—Cheese—Sales on the Cheese Board, 55 boxes Twins at 9¼c; 410 boxes Young Americas, 9½c; 750 boxes Daisies, at 10¼c.

ST. LOUIS, Mo, Nov., 27—Butter—Extras, 25c; firsts, 23c; seconds, 20c.

Cheese—Cheddars, 12c; Young Americas, 11½c; Twins, 11c; Daisies, 11½@11¾c; Longhorns 11¾.

Eggs—Firm at 26c; receipts only moderate.

MUSCODA, Wis. Nov. 21—Cheese—On the Call Board today 150 boxes Twins were offered and all sold at 9c.

PLYMOUTH, Wis., Nov. 24—Cheese—Thirty-three factories offered 2,234 boxes today, of which 65 Daisies and 36 Americas were passed on. The balance sold as follows: 450 cases Longhorns at 10¼c; 65 at 10⅜c; 896 Daisies at 10⅝c; 102 at 10¾c; 325 Twins at 9½c; 139 at 9⅜c; 35 at 9¼c; 130 Americas at 9¾c. Market quiet.

NEW ORLEANS, La., Nov. 27—Butter—Extras, 25@25½c; firsts, 23½c; seconds, 20c; ladles, 15@17c.

Cheese—Young Americas, 12½c; Twins, 11½c; Daisies, 11¾c.

Eggs—Fresh, 29c; storage, 25@26c.

KANSAS CITY, Nov. 30.—Eggs—Steady; Missouri and Kansas, cases returned, 24½c; new, No. 2 whitewood cases included, 25c.

Butter—Creamery, 20@22c; dairy, fancy, 19c.

BOSTON, Mass., Nov. 30—Butter—Creamery, western extra, 23@24c; western firsts, 22c; storage, 21@22c; dairy, 15@19c; western ladle, 14@15½c; box and print 16@25c.

Cheese—Choice, 11@11½c; Wisconsin Twins, 11@11½c; Ohio flat, 10½c.

Eggs—Fancy nearby, 45c; western 27@31c; poor to fair, 22@25c; dirties, 16@20c; refrigerator, 21@25c.

PHILADELPHIA, Nov. 30—Butter—Steady; good demand; extra western creamery, 25c; nearby prints, 26c.

Cheese—Quiet and barely steady; New York full creams, fancy, 11¾c; choice, 11½c; fair to good, 10¾@11¼c.

TOPEKA, Kan., Nov. 28—Butter—Creamery butter, 23½@24½c; Dairy butter, 17@18c.

Cheese—Longhorns, 11½c; Twins, 11¼c; Daisy, 11½c; Prints, 12¼c.

LIVERPOOL, Nov. 30—Butter—Good United States nominal. Cheese American finest white, quiet, 52s; do colored, steady, 54s.

WATERTOWN, N. Y., Nov. 28—Cheese—Sales, 500, at 9¾c for large Octobers; 9⅝c for large Novembers; 9⅞c for Twin Novembers.

CANTON, N. Y., Nov. 28—Cheese—Offered 920 boxes of Twin cheese, 817 tubs creamery butter. Cheese sold at 9½c; butter 21c. Board closed.

UTICA, N. Y., Nov. 23—Cheese—The sales here today were as follows: 33 lots, 1,975 boxes. Ruling price all around 9½c. Sales all late ends. Butter 16 pkgs at 21½c; 14 at 23c; 20 at 24c.

NEW YORK, Nov. 30—Butter—Recipts, 2,698 pkgs.; firm; extra, creamery, 25c; creamery, common to choice, 16@24½c; state dairy, 15@21c.

Cheese—Receipts, 3,941 boxes; firm; state full cream, fancy, small, colored, September, 12c; late made, 10¼c; small, white, September, 12c; late made, 10¼c; large, colored, September, 12c; late made, 10¼c; large, white, September, 12c; late made, 10¼c.

Eggs—Receipts, 4,536 pkgs; steady; state and Pennsylvania, average best, 32c; state and Pennsylvania, seconds to firsts, 28@31c; western extras, 31c; western, thirds to seconds, 26@29c; western firsts, 30c; refrigerated, 22@26c.

NEW YORK MARKET.

NEW YORK, Nov. 28—Butter—Receipts for the week, 30,206 packages. Exports for the week, 725 packages.

The price for fancy, fresh creamery has advanced 2½c per pound since our last, owing to a scarcity of high scoring fancy butter, and at the close this style is wanted, while poor to good qualities are plentiful and sell at irregular prices. June make "freezer" butter is dull and to sell any large line, lower prices than our quotations would have been accepted. All under grades of butter are extremely quiet and prices all in buyers' favor. We quote:

Creamery, fresh, extra, 25c; medium, 21@24c; poor, 16@20c; creamery, freezer, extra, 22@23c; medium, 20@21c; poor, 15@18c. New York Dairy, extra, 23@24c; medium, 18@22c; poor, 15@17c.

Cheese—Receipts for the week, 24,691 boxes. Exports for the week, 8,211 boxes.

Market is dull with a full accumulation of late makes full cream and all grades skimmed cheese. These style cheese are being freely offered at lower prices. We note sales to home trade of late October and November full creams at 10 to 11c, and export purchases of poor to fine skims at 3 to 9c. Fancy September cheese are firmly held with light business doing. We quote:

Full cream, extra, 12c; medium, 10@11c; poor, 6@9c.

Eggs—Receipts for the week, 32,824 cases.

The extra price asked for new laid stock curtailed the demand and while prices are no lower, there are better offerings of so called fresh eggs at quotations. We quote:

New York & Pennsylvania, new laid, per doz., 37@38c; Western, & Northern new laid, 33@35c; all sections, poor to good, 25@30c; refrigerator stock, poor to good, 20@26c.

177 Chambers St. DAVID W. LEWIS & CO.

BALTIMORE MARKET.

BALTIMORE, Nov. 27.—Butter—The current receipts are gradually getting lighter every week, and the supply of strictly fancy stock now on the market would be totally insufficient if it were not for the high prices prevailing, which has retarded the demand to some extent, as a great many dealers are in self defense forced to shop around for something that will fill the bill for a little less money, consequently good to choice held stock is in active request. Choice to fancy June creamery is in quick demand. Imitation creamery when the quality is satisfactory meets prompt sale. Fresh, sweet ladles are also in good request. Rolls are in fair supply, and demand, there is a vast difference in quality which accounts for the wide range in values. Packing stock when sweet, meets ready sale. Choice to fancy blocks and prints are in moderate receipt. The demand is good. The market on all desirable grades closes firm.

Creamery separator, extras, @25½c; firsts, 23½@24½c; seconds, 19@22c: June creamery, extra, 24c; firsts, 22@23c; seconds, 18@20; imitation creamery, extras, 20c; firsts, 18@19c; seconds, 15@17c, Ohio & Indiana Ladle, extras 16c., firsts, 15c; seconds; 13@14c; creamery blocks (2 lbs.) extras, 24c; firsts, 22½@23½c; seconds, 20@22c; prints, (½ lbs.), extra, 25c; first, 23½@24½c; seconds, 20@22c; Md. Va. & Penna. prints, extras, 24c; firsts, 22@23c; seconds, 18@20c.

Eggs—Stock of strictly fancy quality continues in very light receipt and the demand for this kind is quite active at 31 cents, while on the other hand the receipts of mixed, held and fresh, though moderate, are fully equal to the requirements, as the trade in general much prefer straight lots of storage stock to the so-called fresh. Market firm on either fresh or storage offerings.

301 Exchange Place. G. M. LAMB & BROS.

SAN FRANCISCO MARKET.

SAN FRANCISCO, Nov. 24—Trading in really fancy creamery butter was closely confined to actual requirements yesterday, and under comparatively moderate supplies, the market continued firm at the prevailing prices. Despite the limited purchases of dealers close clearances of the finer grades were effected, and the maximum rates were obtained for the favored brands without difficulty. There were rather large lines of the cheaper grades of butter on the market, and despite considerable urging on the part of holders, the movement was slow at uneven prices. Storage goods were freely traded in at the familiar prices. The arrivals of ranch eggs were quickly cleaned up at the maximum quotation, and in instances as high as 57½ was obtained for extras. Storage eggs were actively dealt in at full quotations. The general market for eggs ruled firm in sellers' favor and close clearances in all lines were reported at the end of the day. Cheese was without any notable change either in price or market conditions.

Receipts yesterday aggregated 32,200 pounds butter, 608 cases eggs and 4,800 pounds of cheese.

Butter—Creamery, extras, 32@33c; good to fancy, 28@30c; dairy, extras, 24@25c; dairy, choice 22@23c; store, 18@20c; California storage, 24@27c, eastern creamery, 28@25c.

Eggs—Ranch, selected large, 52½@55c; good to choice, 45@50c; store, nominal; California storage, 28@32c; eastern, 25@30.

Cheese—California creamery, mild, new, extra, 14@15c; mild, new, choice, 13½@14c; Young America, 14@15½c; eastern, New York, Cream, Cheddars and Flats, new, 14½@16c.

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 190:

THE BEST AND BIGGEST USERS EVERYWHERE USE THE

De Laval

Cream Separators

They get the Best Results and Biggest Profits through doing so—that's the whole story in a nut-shell.

And so it must be in proportionate degree with every user—whether big or little, farm or factory.

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NEW YORK FERTILIZER MARKET.

Acid phosphate	60	@	67½
Phosphate rock, f. o. b. Char'n	5.00	@	7.00
Tenn	3.50	@	4.50
Bones, rough ℔ ton	17.00	@	18.00
ground	21.50	@	22.00
Bone meal	21.50	@	23.00
Bone black, refuse	19.00	@	19.50
Potash, dbl. m're salt 48@53%	1.12	@	1.15
dbl. m'ure salt 48@53% less 25 tons	25.00	@	30.00
sulph. of basis 90@98%	2.11	@	2.18
90@98% less than 25 tons	38.00	@	40.00
Potash, Muriate ℔ 100 lbs.	1.83	@	1.95
less than 25 tons	36.00	@	40.00
Kainit, 25% S. of P ℔ ton	9.30	@	9.50
less than 25 tons	9.50	@	10.50
Sylvinit, 35@37% P ℔ unit	41	@	46
Nitrate of soda	2.10	@	2¼
Blood, dried, red ℔ unit	2.70	@	2.75
low grade	2.45	@	2.50
Concentrated tankage ℔ ton	15.00	@	16.00
Fish, guano, dried	2.40	&	10
acidulated	2.15	&	35

READING NOTICES

All Reading Notices under this head are at the rate of 25 cents per line.

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D, Independence, Ia. 50-tf

Milch Cows—For sale 23 head of good healthy cows at reasonable prices. Jersey blood. On Big Four 26 miles from St. Louis. H. E. DORSEY, Moro, Madison Co., Ill. 41-3

For Sale or Rent—Dairy farm of 200 acres, 90 improved. $1.50 per hundred for milk year around. Address J. P. SOUTHARD, Harbor Springs, Mich. 42-10

For Sale—Three young pure bred Jersey Bulls ready for service. Prices reasonable. EDWARD O. RICE, Portage, Wis. 42-3

For Sale—I have some first-class Belt and Steam Power Separators which I would like to exchange for a No. 1 or 2 Alpha De Laval Belt Power Separator. I have Reid's, Springer's, Sharples' Tubular, Imperial Russian, Barber Overflow, Danish Weston & Co. Also separator frames and jacks. F. M. PARKHURST, Corry, Erie Co., Pa., R. F. D. 10. 42-4

For Sale—10 cheese factories, 5 farms 40 to 160 acres, saloon, dance hall and store. FRED HADLER, 775 Ida St., Appleton, Wis. 43-tf

For Sale Cheap—Milk route retailing 200 quarts a day at 6 cents a quart. Net proceeds $150 per month. A splendid business opening. Apply J. L. FISHER, Janesville, Wis. 43-3

Wanted—An energetic single man to work on stock farm, with fine herd of pure bred Holstein cattle. Must be good feeder and milker or one anxious to excel in this line of work. State experience, references, and wages in first letter. Address W. J. YOUNG, White Bear Lake, Minn. 43-2

The Third Revised Edition of Buff Jersey's Popular Book Just Out of Press—Ten chapters, 25 illustrations and right up-to-date. Subjects treated are: Silos and Ensilage, All Phases of the Dairy Subject, Soil Crops, Up-to-date Farm Machinery, How to Cure Abortion and Milk Fever, Some Medicines and Remedies, The Steam Plant, its care, and many other valuabe things ably treated. Send for circular. Sent post paid, cloth binding $1.00, paper 75c. BUFF JERSEY, Monmouth, Ill. 47-tf

For Sale—A cheese factory in good dairy country, doing good business. No opposition, (cheap.) Address S. O. U., care Hoard's Dryrman. 34-tf

For Sale—Two registered yearling Guernsey bulls. RAY BICKNELL, Ft. Atkinson, Wis. 32-tf

Sale of Guernseys—Ten heifers, two year olds and under. A rare lot. Send for circular. M. SAGER, Orangeville, Pa. 41-tf

For Sale—Two yearling Jersey Bulls and three Heifers, all eligible for registry. M. C. VOSBURG, Fort Atkinson, Wis. 42-2

Wanted—Good all around man with good habits, on dairy farm. Married or single. Good wages. FRANK A. SHOWERMAN, Agricultural College, Mich. 42-2

For Sale—No. 3 Squeezer, Combined Churn and Worker, No. 7 Davis Swing Churn, dairy size Vermont Farm Machine Co.'s Butter Worker, 24 Bottle Turbine Tester, Milk Heater, Steam Pump, Weigh Can. All in first-class condition. ALEXANDER A. BRUSH, Danbury, Conn. 43-3

For Sale—In carload lots, fresh to forward springers. E. M. BOURNE, Wiota, Ia, 43-2

For Sale—Registered Ayrshire cattle, all ages, milking qualities unexcelled. Special prices on bull calves, 2 weeks to 9 months old, from grand cows. F. D. STOWELL, Black Creek, N. Y. 43-4

Wanted—Second-hand hand separator. Must be good. E. M. BOURNE, Wiota, Ia.

Wanted at Once—Young married man who understands feeding stock and doing farm work. Must be industrious and like the work. Wife to do cooking for three men during harvest. House and common furniture furnished. Wages $35.00 per month. Steady work and an advance in wages after first year if satisfactory. Address R. E. SCHNEIDER, Grand Marais, Mich.

Wanted—Experienced dairymen to operate dairy of 40 cows on shares. Everything furnished. Gross sales over $5,500 per year. Good chance to man with good references. R. B. FUTHEY, Bellaire, Ohio. R. F. D. 1. 43-2

For Sale—Jerseys, 7 registered heifers and 3 registered bulls, from 3 to 10 months old. Solid color. St. Lambert strains. J. ALDUS HERR, Lancaster, Pa. 42-3

Jersey Bull For Sale—Dam's recorded test is 17 lbs. 4½ ozs. He is a grandson of Landseer's Fancy 29 lbs. ½ oz. in 7 days, 936 lbs. in 1 year. Has won four 1st premiums. Write for description and price. Also two half grown Collies. J. BLACK, Bremen, O. 42-tf

Ayrshires For Sale—I have for sale two excellently bred, registered, yearling Ayrshire bulls ready for service. Price very reasonable. EDW. FINN, Whitewater, Wis. 42-2

Mr. Wheaton's Canadian Dairy Notes.

(Continued from page 965)

the made up box means a large expenditure for some one, and that some one is the maker who usually engages to supply boxes, when he agrees to make cheese at a certain rate per cwt. If the maker could buy the raw material in a knocked down shape, as it is called, and make up the boxes at the factory himself, it would prove a great saving and enable him to get the kind of box required at a much lower cost. Hence, the value of this training in box making which the student at the Guelph school will receive.

An important branch of the school is the farm dairy. To this branch come every year increasing numbers of farmer's wives and daughters, where under the special care of Miss Rose they receive valuable training in the art of handling milk and making good butter. Eight different makes of hand separators do duty in this department.

In the November crop report just issued by the Ontario Bureau of Industries, some interesting data are given as to the position of dairying in this province during 1903. Pastures were excellent and the flow of milk large and uninterrupted. The weather was comparatively cool and large quantities of both butter and cheese made, with the honors in favor of cheese. The high price of cheese the latter part of the season caused a lot of milk to be diverted from butter to cheese. The report says that 1903 has been the most profitable year for cheese, Ontario has ever known.

Grade Durhams are the breed most generally found as dairy cows, more especially in the Western half of the province. In the cheese countries along the St. Lawrence and Ottawa rivers, Holsteins and Ayrshires, with their grades, are equally popular with the Short-horns. Jerseys and their grades come next in popularity.

All dairy cattle are reported to be in tip-top condition and in about the usual numbers. There is abundance of feed and the general outlook for the wintering of live stock is the best. The silo continues to grow in favor, although this season a portion of the corn was not in the best condition for making ensilage when cut.

Toronto, Canada. J. W. WHEATON.

DAIRY UNION'S AFFAIRS.

Full and Complete Statement by the Secretary-Treasurer.

Effects of the New Law on Oleomargarine Output — Union Needs Enthusiastic Workers.

Secretary and Treasurer C. Y. Knight's statement, before the meeting of the National Dairy Union at Waterloo, Ia., of the Union's affairs is given here in full as follows:

The oleomarganine makers of the United States during the government fiscal year ending July 1, 1902, made, according to the report of the Internal Revenue Commissioner of the Treasury department, 126,315,427 pounds of oleomargarine. That was their last year under the old law wherein colored oleomargarine was taxed but 2c per pound. In the manner that butter is loaded in refrigerators, this would amount to 6,031 cars of 20,000 pounds each, or 2,506,000 tubs of fifty pounds.

During the fiscal year ending July 1, 1903, the first year under the new law, these same oleomargarine makers produced 71,211,244 pounds of oleomargarine, of which 68,490,800 were uncolored and 2,720,440 colored, the former paying ¼c tax and the latter 10c. In car lots the production for the last fiscal year was equal to 3,550 car loads of 20,000 pounds each, or 1,424,000 tubs of fifty pounds each.

This was a decrease under the new law of 2,481 carloads or, 1,808,200 fifty pound tubs, or 44 per cent, which would load 103 trains of twenty-four cars each, in face of a market for butter which averaged under the new law 1½c higher for extras in creamery than under the last year of the old law, when the greater amount of oleomargarine was produced.

What does this mean to the dairy public?

It would require 650 average sized creameries to produce in a year the butter necessary to take the place of the 55,000,000 pounds of oleomargarine which the 10c tax law displaced. This butter at an average of 20c per pound would bring the dairymen of this country $11,020,336.

So much for the value of the increased product for which a market has been made.

But, in addition to this, dairymen for the first year under the new law received 1½c more for their butter than during the previous year under the old law. The census of 1900 shows that the creameries of the country during that year produced 439,954,173 pounds of butter. An increase of 1½c per pound upon this product means $6,195,187 in the pockets of the patrons of the creameries alone, which, divided among creameries, means an average increase of $1,500 for the year in the selling price of the butter of the average creamery.

It is safe to say, however, that instead of 1½c per pound, as estimated, the new national law has saved the producers of milk at least 3c per pound, because the market instead of having averaged 1½c higher would have averaged at least 1½c lower as a result of continued encroachments of oleomargarine, the traffic in which increased during the fiscal year ended July, 1st 1902, almost 22,000,000 pounds over the previous year.

Unless some unforeseen condition arises, I estimate that the production of oleomargarine for the present fiscal year will not exceed 50,000,000 pounds, or a falling off of another 40 per cent. I base this estimate upon the fact that during the first four months of the present fiscal year, viz., July, August, September and October, the make of oleomargarine in the city of Chicago is but 114,398 fifty-pound tubs, compared with 182,099 for the first four months of the previous fiscal year—the first under the new law, and 284,764 tubs for the same months of

"ADVERTISEMENT."

FORGET YOU EVER HAD IT.

Catarrh, the Most Odious of All Diseases Stamped Out, Root and Branch.

Catarrh is the most foul and offensive disease that afflicts the human race. Any one with social ambitions had better renounce them if he has a bad case of catarrh, for his presence, if tolerated at all, will be endured under protest. The foul, and sickening breath, the watery eyes, the hawking and spitting and fetid discharge at the nose make the unfortunate sufferer the most avoided of human beings.

Stuart's Catarrh Tablets are the hope and relief of catarrh victims all over the world. They go direct to the root of the disease and thoroughly eradicate it from the human system. They cleanse and purify the blood of all catarrhal poisons and under their influence all impurities are carried off. The blood becomes pure, the eye brightens, the head is cleared, the breath becomes sweet, the lost sense of smell is restored, the discharges cease and the sufferer again feels that he has something to live for. He is again a man among men and can meet his fellow-beings with satisfaction and pleasure.

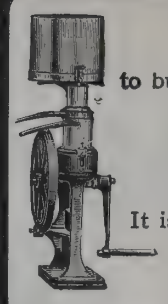
The following letter from a St. Louis lawyer is only one of thousands received praising the merits and curative powers of Stuart's Catarrh Tablets. Read what he says:

"I suffered from catarrh for 15 years. It would be worse at certain seasons than others, but never failed to annoy me and cause me more or less misery during that period. About a year ago I got so bad that I thought of abondoning my practice. I was a nuisance to myself and all who came near me. My condition was very humiliating and especially so in the court room. I had tried, I thought, every known remedy; all kinds of balms, ointments, inhalers, sprays, etc., till I thought I had completed the list. I was finally told of Stuart's Catarrh Tablets by a friend who took pity on me and, as a drowning man will catch at a straw, I got some and began taking them. I began to improve from the first day and I kept up the good work you may rest assured. In six weeks I was as free from catarrh as the day I was born, but to make assurance doubly sure, I continued the treatment for six weeks longer.

"I have had no trace of catarrh in my system since. I am entirely free from the odious disease and feel like a new man. I write this letter unsolicited for the benefit of fellow-sufferers and you may give it as widespread publicity as you wish."

Stuart's Catarrh Tablets are for sale by all druggists at 50 cts. a box.

It Costs But Little



to buy and you are enabled to try at your home and know that the one Cream Separator that satisfies is the

AMERICAN

It is simple, easy to clean and run and it saves you all your cream. That's the essence of all separators. When you've tried it you know beyond cavil. The free offer is made to you. Ask for catalogue and trial plan. Mailed free.

American Separator Co. Bx 1023, Bainbridge, N.Y.



THE

Iowa Dairy Separator.

AN UP-TO-DATE MACHINE REPLETE WITH PRACTICAL IDEAS

It is built in the following sizes:

250, 350, 450, 600, 750 POUNDS PER HOUR

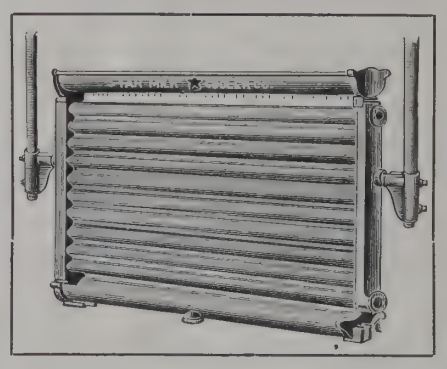
Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.

SEND FOR CATALOGUE NO. 60 AND PRINTED MATTER.

IOWA DAIRY SEPARATOR COMPANY, WATERLOO, IOWA.

STAR TUBULAR CREAM COOLERS

ARE ADAPTED FOR DAIRIES AND CREAMERIES.



Will cool a large quantity of cream as fast as it comes from the separator. Write us for Cooler Booklet which will give you illustrations and descriptions of the apparatus we manufacture for cooling milk and cream.

These machines are guaranteed to stand 100 pounds pressure per square inch.

They are made of Copper and Brass, all thoroughly tinned.

STAR MILK COOLER CO., Haddonfield, N. J.



EASY. It is easy to go on losing money by taking care of milk in the old way, that is, by not taking care of it: But it is easy, too, to take proper care of your milk with a

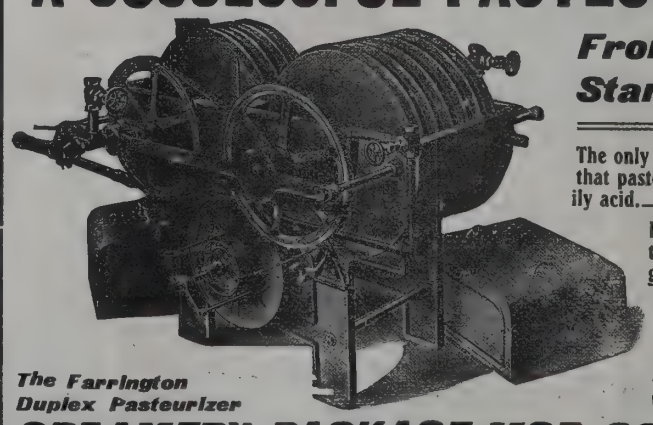
Champion Milk Cooler-Aerator

The Champion is pre-eminently the easy Cooler—easy to buy, easy to take care of, easy to use.

A Booklet for the asking.

Champion Milk Cooler Co.,
67 Main Street, CORTLAND, N. Y.

A SUCCESSFUL PASTEURIZER



From Every Standpoint.

The only Pasteurizer made that pasteurizes milk heavily acid.

It makes good Butter — that makes good business.

Your Butter will score 8 points higher.

The Farrington Duplex Pasteurizer

Write to the

CREAMERY PACKAGE MFG. COMPANY

BRANCH HOUSES: Kansas City, Mo. Minneapolis, Minn. St. Louis, Mo. Waterloo, Ia.

Canadian Branch: Cowansville, Quebec.

149 to 153 East Superior Street,
Chicago, Ill., U. S. A.

1901, when the old law was in force. This is a falling off from last year of 67,601 tubs at Chicago alone, and upon this basis (Chicago producing two-fifths of the Nation's output) there have been 169,121 tubs, or about 425 cars, less oleomargarine made in the Uuited States the first four months of this year than last. Compared with the same months of 1901, the last under the old law, the falling off the past four months has been 451,800 tubs, equaling 1,120 cars or about 70 per cent, the make for the United States for July, August, September and October of 1901 being 679,800 fifty-pound tubs, and during the past four months 228,000 tubs.

Present Legal Status.

Two cases involving the validity of the new law are now in the courts. One, taken up from Cincinnati, will be argued before the Supreme Court of the United States at Washington Nov. 30, a week from Monday, the oleo interests having retained to represent them the best legal talent in the country. The other has not yet gone through the lower court. The only court decision which has been handed down in relation to the law to date, has upheld its validity. The National Dairy Union is watching both cases in court and with the support of the dairying public will see that its interests are properly represented.

However, in the cases in the courts, the government has great incentive to protect our interests. During the first fiscal year under the new law, ended July 1st last, the government collected from makers of colored oleomargarine the sum of $272,044.48 for 10c tax stamps upon the 2,720,440 pounds of artificially colored oleomargarine which they produced in a legitimate way. Added to this are taxes at 10 cents per pound, in shape of fines, amounting to over $200,000, which have been assessed against oleomargarine makers, divided as follows, as nearly as can be ascertained:

Wm. J. Moxley	$28,449.00
Oakdale Mfg. Co	60,000.00
Globe Mfg. Co	40,000.00
Vermont Mfg. Co.	35,000.00
Kingnan & Co	14,000.00
Hammond Mfg. Co	7,000.00
Cudahy & Co.	17,000.00
Total	$201,449.00

These are penalties levied for the use of cottonseed oil containing the forbidden palm oil, used in 2,000,000 pounds of oleomargarine put out under the ¼c tax for the uncolored product. This makes a total of $473,493 in these two items for the past fiscal year alone, which the government would be compelled to refund, should oleomargarine makers win these suits, and added to this would be almost as much more on retail licenses for colored goods, and the amounts paid thus far this year for 10c tax stamps. In short, the Internal Revenue Department has in these suits a stake of nearly a million dollars for the government, making the cases so important that we believe the department will leave no stone unturned to win.

Status of the Organization.

The work of the National Dairy Union during the past year has been one of effort to establish a surplus fund to be used in case of emergency which is certain to arise. At our last annual meeting at Milwaukee, announcement was made that the Creamery Patron's Handbook had been prepared to be placed upon the market for the purpose of raising funds. It was also decided to request creameries to subscribe 1c per tub upon their product to assist in this work.

During the past year over 19,000 of these books have been sold or consigned to butter makers to be sold to patrons. These books cost the National Dairy Union $800 for engravings, composition, imposition, electrotypes and compilation; paper, press work and binding cost $4,336.51. To express them to the nearly 2,000 agents who pushed their sale cost $1,402.65, besides the services of a bookkeeper to keep track of 2,000 accounts ($371 for the year), a stenographer ($781) and the services of the vice-president for a large portion of the year, whose salary at $100 per month amounted to $800 and expenses of $827.59 in attending meetings brought this expense up to $1,627.59, a total of $9,318.75, as nearly as can be figured.

From the sale of the books to Nov. 1 we received in cash $9,487.18, and have in the hands of agents throughout the country enough more unpaid for and unsold to bring in $6,270.25 additional. In short, the profits of the National Dairy Union upon the Patron's Handbook depend upon the successful sale and collection of the 9,000 copies unaccounted for to date.

From the 1c per tub subscription and other contributions $3,940.63 has been received during the year. This has been very largely accomplished through the personal work of Vice President Schilling and Special Agent James A. Harris, the salary and expenses of the latter amounting to $773.77 for the six months he was employed by the National Dairy Union.

Other items of expense for the year are printing, aside from Patron's Handbooks, $759.28; mailing, addressing, etc., outside the office, $224.14; commissions, $62.50; exchange on checks, $60.85; office rent, $177; office expenses, typewriter, etc., $175.85, and $66.25 expense account—the only one incurred during the year by your secretary and treasurer.

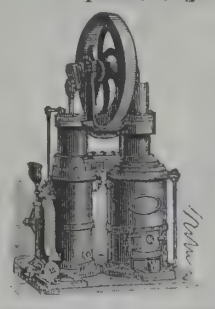
The discouraging part of our work is the effort and expense necessary to keep up interest in the cause. It is almost impossible to secure financial support from co-operative creameries without a personal visit from some representative of the National Dairy Union. An analysis of this personal work shows that upon the basis of 1c per tub it costs almost as much to get the money as it amounts to. The average creamery is supposed to turn out not far from 90,000 pounds, or 1,500 tubs of butter per year. While our representatives have only visited the more important co-operatives, those visited when sending in their subscription for the year have shown an average of only about 1,000 tubs. We have spent money visiting many where pledges have been received and no attention paid to their fulfillment. We started in the work a year ago with many promises from prominent concerns which have been forgotten by them, and repeated communications from the secretary's office fail to bring a response. Had we received all we were led to believe would be subscribed, we would have had in our treasury from $4,000 to $5,000 instead of that many hundred.

For the book, hundreds of butter makers have done their work well. Others have received consignments from us, express prepaid, and returned them collect, without even opening the package; not only failing to do anything for us, but practically eating up the efforts of others. As a matter of fact, your secretary has become weary of spending a dollar to collect a dollar, having at the end of the year only a few hundred dollars ($473.78) in the treasury and a few thousand dollars of anticipation and promises. Not only is there no satisfaction in wasting one's time in this way, but this fruitless work is very likely to create the impression that there may be a leak somewhere, particularly when it is shown that without any fight on hand more than $12,000 have been spent in a year. There are many who do not stop to consider the

(Continued on page 976)

HALF ENOUGH WATER

Is quite enough for some people, but most people want water every day. If

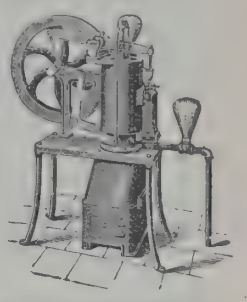


RIDER or ERICSSON HOT AIR PUMPS

Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.

RIDER-ERICSSON ENGINE CO.,

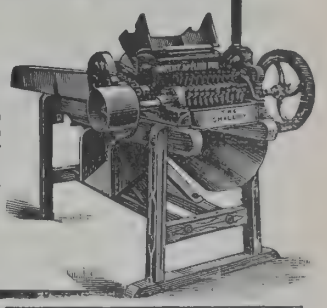
35 Warren St., NEW YORK
239 Franklin St., BOSTON
692 Craig St., MONTREAL, P. Q.
40 Dearborn St., CHICAGO
40 N. 7th St., PHILADELPHIA
Teniente Rey, 71 HAVANA
22 Pitt St., SIDNEY, N. S. W.



THE SMALLEY SHREDDER

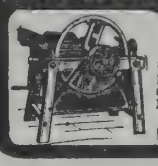
HAS NO EQUAL.

It gives fodder the greatest food value, and makes it easier for the animal to masticate and digest. Requires least power; strong and durable; will outlast a dozen of the saw pattern kind. Knives adjustable to compensate for wear. We can furnish snapper rolls to remove all the ears, just the same as a husker. This combination of cutter, shredder and snapper, costs but little more than the ordinary cutter. We also make drag and circular saws, sweep and tread powers, and ensilage cutters with carriers or blowers to reach any silo. Our free catalogue tells all about our goods. Address Box No. H

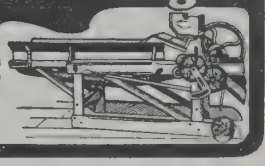


SMALLEY MFG. CO., Manitowoc, Wis.

Wilder's Feed and Ensilage Cutters



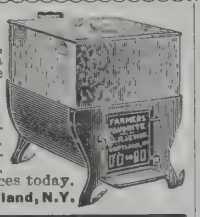
and Shredders. Try one at your own place; if it does not please you better than any other machine you can buy, we stand all expense. Get our catalogue today. It contains largest line made. On the market 35 years.



Wilder-Strong Implement Co., Box 11. Monroe, Mich.

THIS COOKER

makes feed go twice as far, cooks all kinds of feed, serves a dozen other farm purposes. The



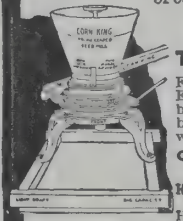
Farmers' Favorite

is made to last; heaviest strongest low-priced cooker made. Model service in soap, sugar, apple butter making, butchering, etc. Write for circular and prices today.

L. R. Lewis, 10 Main St, Cortland, N.Y.

The Fastest Sweep

No change of burrs for coarse or fine grinding of ear or shelled corn with the

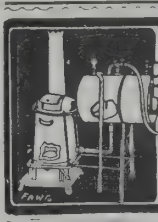


CORN KING Triple Geared Mill.

Fastest 2 horse sweep made. Easy running, never chokes, burrs self sharpening. Fine burrs for flouring wheat if wanted. Write for circular.

CORN KING FEED MILL CO. Waterloo, Iowa.

Kingman-Galbraith Implement Co., Minneapolis, Minn. Hirsch Bros., Milwaukee, Wis. Merrell & Co., Toledo, Ohio, Brinly-Hardy Co., Louisville, Ky., Dooley-Ayers-Raisbeck Co., Bloomington, Ill., T. P. Dement Implement Co., St. Louis, Mo., Emerson-Newton Co., Kansas City, Mo., Kingman Implement Co., Omaha, Neb.



RIPPLEY'S Improved Combination STEAM COOKERS will cook 25 bushels of feed in 2 hours; heat water in stock tank 250 feet away. Will heat dairy, hog and poultry houses. Made of boiler steel; can't blow up; no flues to rust or leak. PRICES $5 00 TO $45.00; 5 styles and 15 sizes. Sold under a guarantee. Endorsed by Experiment Stations. *Catalogue and prices free.*

Rippley Hdw. Co., Box 20 Grafton, Ill.



The Best Cooker

for preparing feed for all kinds of stock is this

PURINTON'S No. 2 Steam Generator

Made of Boiler Steel and tested. Has safety valve and jointed pipe reaching a dozen barrels without unscrewing. All stock thrive better on cooked feed and steam cooked is the best. Never gets burned or scorched. Best boiler for scalding hogs, cleaning around dairies, etc. Quickest steamer on market. Burns any fuel and less of it than any other. Our water supply tank is a great convenience. *We will send a Cooker complete and ready to use on* One Week's Free Trial. Catalogue free.

Purinton Mfg. Co. Dept. E, Des Moines, Ia.

BOWSHER

(Sold with or without elevator) CRUSH ear corn (*with or without shucks*) and GRIND all kinds of small grain. Use Conical Shape Grinders. Different from all others.

LIGHTEST RUNNING.



Handy to Operate. 7 Sizes—2 to 25 h. p. One size for windwheel use.

Also make Sweep Grinders; Geared and Plain.

N. P. D. Bowsher Co., South Bend, Ind.

FEED MILLS

Factory Price

Direct to You

We are the only general merchandise house which owns, controls and directly manages a vehicle factory. We build our vehicles from the ground up and know what's under the paint. We add but one small profit to the cost of material and labor, hence our customers are getting a better made job in a finer finish and at a lower price than can possibly be secured elsewhere.

$19.80



"LEADER" Road Wagon — Imitation leather trimmed; carpet, wrench and shafts; just as illustrated. Write for further description.



$25.50

"CHALLENGE" Buggy—24 in. body, cloth trimmed; top, back and side curtains, storm apron, carpet and shafts. Write for details.

We also have better grades up to the very best and most stylish that can possibly be put together.

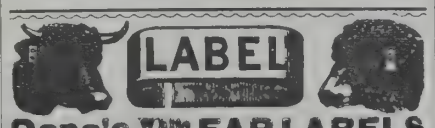
VEHICLE CATALOGUE FREE. Send for it today. It will give particulars about the above work. It also illustrates and describes the newest and best line of Runabouts, Stanhopes, Buggies, Phaetons, Surreys, Carriages, Carts, Spring Wagons, etc., ever quoted direct to the buyer. It explains the difference between good and unreliable work—between the hand-painted and the dipped buggy—and also explains our Guarantee of Satisfaction and

30 Days' Trial Offer.

Send a postal today for our Vehicle Cat. No. E1.

Montgomery Ward & Co.
Chicago

A special circular quoting our entire line of Sleighs, Sleds, etc., will be sent at the same time, if you request it. 40



LABEL

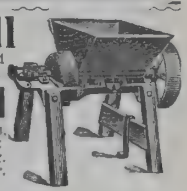
Dana's White Metallic EAR LABELS

stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Samples free. Agents Wanted.

O. H. DANA, Main St., West Lebanon, N. H.

A Feed Mill

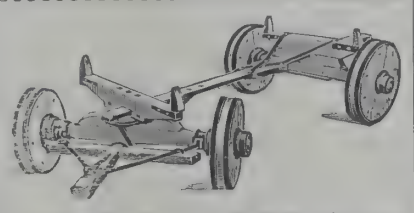
at little cost that grinds mixed grains, snelled corn or cob corn



The New Holland

meets exactly the feeder's wants, with free trial to prove it Speedy, strong, light running. 3 sizes, suited to any power. Write for free catalogue.

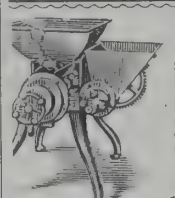
NEW HOLLAND MACHINE CO., Box 119, NEW HOLLAND, PA



The HILLSDALE LOW DOWN Wagons

and Wheels to fit your old wagons. Price reduced.

HILLSDALE WHEEL CO., Hillsdale, Mich.



EXCEL GRINDING MILLS.

The Mill that excels them all. Best for the farmer. Grinds 5 to 25 bushels per hour of ear corn or grain of any kind, bone, shell, etc., with from 1 to 8 horse-power. Makes best feed and good meal. Furnished with or without crusher. We have larger mills for every purpose. Write for Catalogue E. We pay the freight.

Excel Manufacturing Co., 118 Liberty Street, New York

RURAL MAIL BOX FREE. To the first person sending us the address of any one canvassing for a new route we will give an approved, galvanized, steel mail box free.

BOND STEEL POST COMPANY, ADRIAN, MICHIGAN.

ROSS FEED CUTTERS

will save you money. Send for our Free Booklet No. 36 and learn how you can double the value of your corn crop.

SEND 10c for Prof. Wolf's Book on Silage.

THE E. W. ROSS CO., Springfield, Ohio.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain sepecific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Premature Milk Giving.

We have a Holstein heifer, No. 57,379, Holstein-Friesian Herd-Book, was calved Feb. 15, 1901, a good, healthy heifer. She was served Jan. 21, 1903, and was sent out to pasture the middle of May, 1903. About June 1st, we received a telephone message from a man living near the pasture, saying that we had a new milch cow. We sent out there immediately and found the heifer with a very full bag, and leaking milk freely from all her teats. We could find no indication that she had lost her calf, but at that time we thought this must have happened. We continued to milk her; the mess given at the start was about two quarts morning and evening and gradually increased until she was giving about five quarts at a mess, ten quarts per day. We found out later that she had not lost her calf, and endeavored to dry her off before she come in, but this we could not do, and she dropped her first calf on Oct. 27th. last, just as was expected. The calf was large and in every way strong and healthy. The cow is now in good condition and gives about twenty pounds of milk per day. We would like your opinion as to what brought this about. W. W. B.

Little Falls, N. Y.

Cases of this kind are extremely rare, but by no means unknown. There have been probably fifteen to twenty instances of this character reported and published in this paper, most of them heifers under two years of age, and some of them heifers that had not been served. Occasionally it was stated that they had run in pasture with younger stock which had sucked them, and this was believed to be the exciting cause, but there were other instances where the heifers had had no company. Because we could give no better reason, we have thought that this precocity indicated highly developed dairy potency or temperament.

For Pennsylvania Jerseys.

Will you kindly give ration for registered Jersey cows from wheat bran, $21; cotton seed meal, $26; linseed meal, $28; malt sprouts, $17; oats, 40c; corn, 53c; corn fodder and second crop clover for roughage. WM. M. B's SONS.

Gettysburg, Pa.

Of course very much will depend upon the condition of these cows as to length of time they have been in milk and whether it is desired to force them for records. For general work, having regard to offspring as well as most profitable milk production, we should limit the average allowance of grain to about 8 lbs. daily and would use malt sprouts as liberally as each animal would eat them with relish, say 3 to 5 lbs. A little linseed oil meal is always in order—anywhere from ½ lb. to 2 lbs., and for the balance use bran. In addition give roughage *ad libitum*, that is, all each cow will eat without unnecessary waste.

Such a ration would tabulate as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Pro-tein.	Carbo-hy-drates	Ether Ex-tract
12 lbs. clover hay	10.16	.82	4.30	.20
8 lbs. corn stover	4.76	.14	2 59	.06
3 lbs. malt sprouts	2.69	.56	1.11	.05
3 lbs. bran	2.64	.38	1.16	.09
1 lb. oil meal	.91	.29	.33	.07
Totals	21.16	2.19	9.49	.47

This ration, if deficient in any respect, is too low in carbohydrates and fat, the elements most largely concerned in nourishing the animal body and keeping up the body temperature. The smaller the cow and the warmer and better ventilated the stable, the less the demand for carbohy-

MILK and HONEY
You furnish the milk and I will the honey.
Best extracted White Clover Honey, in new tin cans, holding 60 lbs. each. One can 8c. per lb.; 2 cans, 7½c per lb. Cash with order.
C. A. HATCH, Richland, Center, Wis.

BUILT TO LAST

Never outclassed—Sure Hatch Incubators. Built better than your house. No hot centers; no chilling draughts on sensitive eggs. Every cubic inch in egg chamber at uniform, blood temperature of fowl. It's a continual pleasure to hatch nearly every fertile egg with a Sure Hatch. Free catalogue, C 14 with pictures tells lively story
SURE HATCH INCUBATOR CO.
Clay Center, Neb. Indianapolis, Ind

Hillsover Farm Guernseys.
FREDONIA, Chautauqua County, NEW YORK,
Bulls and Young Stock
FOR SALE.

Free Holiday

Games
60 different games—one in each package of
Lion Coffee

GUERNSEYS FOR SALE.
Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.
JAS. H. BEIRNE, Oakfield, Wis.

GUERNSEYS
REGISTERED GUERNSEY BULLS FOR SALE from Advanced Registry, and high-grade stock. Pedigree and price furnished upon application. All animals are tuberculine tested.
WOODEND FARM,
ST. BONIFACIUS, MINN.

GUERNSEYS FOR SALE.
The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

SPOTSWOOD GUERNSEYS
We offer some grand Imported Cows and Heifers, large and deep milkers and high testers; a fine lot of Heifers fit for service, and a few Imported Bulls from prize winners on both sides. Any animal in the herd for sale. Address WALTER JAUNCEY,
Spotswood Farms Broad Axe P. O., Pa.

OLD HOMESTEAD GUERNSEYS
Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.
Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL, Perry, Lake Co., Ohio.

Florham Guernseys.
The herd is made up of representative animals of both home and foreign breeding.
BULL CALVES,
from large producing dams for sale. Apply to J. L. HOPE, Supt., Florham Farms, Madison, N. J.

GUERNSEYS HADDON FARMS
Home of the noted GLENWOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

GUERNSEYS FOR SALE
Bulls two years old out of Count Topsy 24.27 lbs. butter 7 days. She won first prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

Creamery and Cheese Factory For Sale or Exchange.
One of the best located combined plants in the state; Alpha Separators in good shape. Two and one-half acres of land. Good Dwellings, Ice House, Etc. Will sell cheap or trade for live stock or merchandise.
BOX 229, MILFORD, IOWA.

ALTA CREST FARM, SPENCER, MASS.
Home of the Yeksa Family of Guernsey Cattle. Herd contains more cows with large records and backed by large records than any other
HERD OF
GUERNSEY CATTLE
IN THE COUNTRY
Herd headed by Primative 4909, a son of Primrose's Tricksey, Adv. Reg. No. 2, 592 lbs. butter in one year. Several Bull Calves from elegantly bred Dams at reasonable prices. Address
A. H. SAGENDORPH, Spencer, Mass.

THE BROWN BESSIE HERD
Offers one bull 14 months old, sired by Recorder, 29239, the only living son of Brown Bessie and has 14 tested daughters. Dam, Relay, 70353, test 17 pounds 2 ounces. She a daughter of Diploma with 61 tested daughters. Also Berkshire Pigs of English and American selected stock. H. C, TAYLOR, Orfordville, Wis.

KING OF ST. LAMBERT'S KING 30752
Sire of thirty-three tested daughters, is unquestionably the most prepotent of any Jersey sire in the land. We have 10r sale young bulls rich in his blood; also a few cows and heifers in calf, whose progeny will be attractive because of the "Hart's King" blood in them. For prices, etc., address
FRANK W. HART, CLEVELAND, OHIO.


JERSEY BULL CALVES.
Thrifty, handsome fellows, 7 to 12 months old. sired by Golden Blyth 3rd, 54569 A. J. C. C. a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Price low if taken at once, One of these calves is out of Mildred Micawber.
R. C. GREEN & CO., Albion, Wis.

MILK BUTTER
BILTMORE JERSEYS
ILLUSTRATED CIRCULAR OF YOUNG BULLS FROM SELECTED DAMS, with very reasonable prices attached, can be secured by sending a postal.
If they don't improve the milk and butter yields of your herd we offer your selection of another free of charge.
DON'T FORGET we are headquarters also for Berkshires and Standard Poulty. Apply to
BILTMORE FARMS, BILTMORE, N. C.
CONSTITUTION TYPE

REGISTERED GUERNSEY COWS,
Heifers and Bull Calves.
Tuberculin tested. Prices are reasonable.
J. G. HICKCOX,
700 Stowell Avenue. Milwaukee, Wis.

WASTELAND GUERNSEYS
SPECIAL SALE
To reduce our stock we offer for sale a few Cows and Heifers. We also have some good Bull Calves sired by "Sir Coral" 5239, and "Glenwood's Sheet Anchor of Haddon" 6372. Write at once for description and prices.
M M. & E. J. HOLLINGSWORTH,
Landenberg, Chester Co., Pa.

Rosendale Guernsey Herd
TUBERCULIN TESTED.
Sixty head of choice Guernseys headed by Coralette's Son, (see page 450) whose dam, Coralette made 479.7 lbs. fat in one year at 3½ years old, and was first prize cow at Wisconsin State Fair in 1896.
Some fine young bulls for sale.
GEO. C. HILL & SON, Rosendale, Wis.

AMERICAN JERSEY CATTLE CLUB
OFFICES: 8 W. 17TH ST., NEW YORK
President, ELMER A. DARLING.
Secretary, J. J. HEMINGWAY.
BLANKS for Registering and Transferring Jersey Cattle; also Blanks for Private Butter Tests of Registered Jersey Cows, furnished free of charge upon application to the Secretary.
FEES for Registering: To non-members, $2 each head male or female. To members of the Club, $1 each head, male or female. All animals over two years old, double fee. For registration of all dead animals, $1 each. Imported animals, $25.
TRANSFERS are recorded free, if presented within 90 days from date of delivery. Transfers presented after 90 days, $1 each.
PRICE of Herd Register, $1 per Single Volume. Butter Tests of Jersey Cows, including all tests received by the Club to August 1, 1898, $2 per volume. Private Herd Record, 330 pages, cloth, leather back and corners, $2. Pocket Herd Record, 120 pages, flexible leather, 50 cents.
VOLUME OF BUTTER TESTS from August 1, 1898, to July 15, 1902, $1. Consolidated Volume, containing all previous tests, $2.00.
THE BY-LAWS of the Club, giving full rules to be followed in securing registration and transfers, mailed free on application.

JERSEY BULLS Now or soon to be ready for service; also several well bred HEIFERS. Let us send you prices and breeding, with milk and butter records. All stock is registered or eligible. E. E. STEVENS,
North Madison, Ohio

FOR SALE Son of Redro s Pretty Pogis, 33660, A. J. C. C., a superb son of old Pedro, both of World's Fair fame. Two yearlings from tested dams. Some royally bred Poland China Pigs, March and April farrow.
J. Q. EMERY & SON, Albion, Wis.

ST. LAMBERT BULL CALVES by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.00.
W. J. HUSSEY, Mt. Pleasant, O.

HIGH CLASS JERSEY BULLS
Heifers and Cows for sale. My foundation stock is the best I could buy from a herd famous for merit. Write for what you want.
WM. B. GOODRICH, CLIMBING HILL, IOWA.

PROSPECT HILL JERSEY HERD
The cow that can DO something is what the farmers want. Eight cows have finished their official year's work making an average of 524 lbs. each. F. H. SCRIBNER, Rosendale, Wis.

FOR SALE. Two A. J. C. C. Bulls ready for service; also some younger ones. Cows and heifers in calf to richly bred bulls. Write for pedigrees and prices. We have a few Berkshire Boar Pigs from unregistered sows left; cheap.
N. N. PALMER & SON, Broadhead, Wis.

POLLED JERSEYS
Richest Cow of all breeds in Pan-American Model Dairy. Winning Herd at Ohio and New York State Fairs, 1903. W. H. FORBES & CO., Yellow Springs, R. R. No. 1, Ohio.

Wintergreen Hill Farm
A. J. C. C. JERSEYS.
Fall Sale List of cows and heifers is now ready and includes cows to calve for winter milking, heifers recently bred, and a few well bred calves. Some have tests, others are from tested dams. It is a very desirable offering and those applying early may secure their choice. In writing ask for Sale List A21.
WINTERGREEN HILL FARM, Scottsville, N. Y.

VALLEY FARM Is offering some bargains in young bulls sired by Diploma's Victor, 56310. Grandson of Brown Bessie; two yearlings; one 18 mo. old. Also bull calves. Write
FRED STUBLEY, Black Earth, Wis.

HAZEL FERN HERD. A. J. C. C. Jerseys, blood of St. Lambert, Melia Ann, Combination, Pedro, and Golden Lad. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale.
ESTATE W. S. LADD, Portland, Oregon.

MAIL AUCTION.
A rare chance to get Jersey bull calf at your own price. Dam, Ida's Runaway, 130582, a most persistent milker. Sire, Deodona's Diploma, 63818, a grandson of Recorder, 29239. Send for photo and pedigree. All bids must be in December 10, 1903.
N. H. ROBINSON, Prop., Centralia, Wis.

Just for Nothing
We will send you THE JERSEY BULLETIN and HOARD'S DAIRYMAN to the end of 1903. But while making you this generous offer, we wish you to do something.
Subscribe for both papers for 1904, at the lowest clubbing rate, $1.75 FOR THE TWO. To make it plain, send us $1.75 and we will send THE JERSEY BULLETIN and HOARD'S DAIRYMAN to January 1st., 1905.
☞For Sample Copy of Jersey Bulletin address Indianapolis, Ind.
"IT'S UP TO YOU!"

drates and fat. If the conditions seem to call for a larger supply of these elements ground corn would be the feed to furnish them. Drop out a pound of bran or, sprouts and add 2 lbs of ground corn, or if apparently necessary, add the corn without cutting down either bran or sprouts.

For North Carolina Guernseys.

Please give me a balanced ration for herd of Guernsey cattle weighing I suppose 900 lbs. average. The man in charge says he has good corn ensilage, corn chop, wheat bran, cotton seed meal, wheat shorts or middlings. I read your paper regularly and find it a great help to me in the business I am in. I can talk feed better.
Winston-Salem, N. C. C. E. S.

Please read the answer to Wm. M. B's Sons, of Gettysburg, Pa., in this issue, where some of the general principals of feeding a herd of registered cattle are set forth.

The list of feeds given in the above inquiry lacks one important item: namely something in the line of dry forage. No one who has witnessed the avidity with which a herd of cows will follow a load of straw, even when in the most luxuriant of pastures, can for a moment doubt that this craving for dry forage indicates that the physical condition of the animals demands it. A very little will doubtless suffice, and, in the absence of anything better, cotton seed hulls may be used.

By adding salt daily, as we so frequently advise, because it is a matter sadly neglected, the combination given below ought to furnish a satisfactory average daily allowance.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
40 lbs. silage	10.56	.52	5.60	.28
6 lbs. cotton seed hulls	5.33	.02	1.99	.10
2 lbs. cotton seed meal	1.84	.74	.34	.17
4 lbs. bran	3.52	.50	1 54	.12
2 lbs. middlings	1.76	.26	1.06	.07
Total	23.01	2.04	10.53	.74

Green Alfalfa.—Corn Fodder.

Will you kindly tell me what amount in pounds of green alfalfa is considered the proper allowance for a milking cow and if more than that amount is pure waste?

Also what amount of wheat bran is the best proportion to combine with linseed meal when the cost of bran is $30 per ton and linseed meal $25 per ton?

Would it be better to feed dry corn fodder in connection with alfalfa, when the corn fodder costs twice as much per ton as green alfalfa.
Mexico, D. F. F. G, M.

While it is true that dry "corn fodder" does not contain twice as much nutriment as green alfalfa, it is also true, we think, that some dry forage should form a part of a cow's feed every day. Prof. Sanborn of New Hampshire, found that dry hay was quite as effective as grain for feeding cows at pasture. Probably this would not hold true if it was desired to crowd the cow to her utmost limit, but for every day service, cows require little or no grain when in good pasture or supplied with green clover or alfalfa. But to keep the digestive tract in good order they do require some dry feed, and corn stover or corn fodder or fodder corn should prove all-sufficient, and both might be given in such amounts as each cow will eat with relish and then lie down and "chew her cud" contentedly. The amounts will vary with different cows and with the same cow at different times but will probably average 50 to 60 lbs. of green alfalfa and 5 to 10 lbs. dry corn fodder.

In the matter of grain, if any seems to be required, we should feed at least as much bran in weight as linseed oil meal, and even then would prefer to add some ground corn to such a mixture—say, all three in equal proportions.

BUY DIRECT FROM FACTORY, BEST
MIXED PAINTS
At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.

PURE BRED SHORTHORNS
CHOICE BULLS FOR SALE.
Also Cows and Heifers bred to Clay Buttercup, 126851, a descendant of the Clay Family, champions at the World's Fair dairy test.
GEO. WENHAM, Fort Atkinson, Wis.

AYRSHIRE CATTLE of the BEST of BREEDING. Also Chester White Pigs, ready to book for season's trade. Young stock of both sexes. Prices reasonable. Come and see us.
F. TSCHUDY & SONS, Monroe, Wis.

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA.
President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.
FEES FOR REGISTRY.
TO MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.
NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. All blanks furnished free.
Life Membership, $25.
Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.
Address F. L. HOUGHTON, Brattleboro, Vt., for information relating to Registration of Pedigrees

AS IT IS NOW TIME cattle should be housed we find we must sell thirty-five of our high-bred large producing Holsteins, as we haven't room to stable but 100 head this winter. Visit the Brookside Herd now and secure something choice.
We Guarantee Stock as Represented and to be breeders. Quality unsurpassed. Prices will be reasonable.
STEVENS BROTHERS, Lacona, N. Y.

HOLSTEIN-FRIESIAN BULL CALVES
Do you want one for use this winter which will improve your dairy herd? Do you want him elegantly proportioned, with straight back, high rump, and all the dairy points? Do you want one whose relatives are A. R. O. and eligible to the Advanced Register himself? If so, I have a choice lot, just such as you want.
MALCOLM H. GARDNER, Darien, Wis.

Champion Bull OF THE WORLD
"STAR FARM" offers special opportunities to intending purchasers. Registered Holstein Cattle of choice breeding and individual excellence. The actual sale of nearly one hundred head from this herd within a comparatively recent date is strong evidence. In view of the growing demands on this herd I have determined to publish from time to time some of the many testimonials which I receive from my many customers. Your attention is respectfully called to the following:
'Mr. H. L. Bronson, Cortland, N. Y. Dear Sir: I take great pleasure in writing to you as all of the Holsteins that you shipped me have turned out better than I expected. I realized before purchasing that it was important for me to get the right kind of foundation stock, but confessed that I was a little in doubt as to how this result could be obtained. However, you have solved the problem to my perfect satisfaction. I hope to be able to visit "Star Farm" again this fall and make more liberal purchases from you than before. In the meantime let me wish you the best of success. Very cordially yours, H. WILLIS GAZLAY, Accord, N. Y., 1903.
Phoenix, Arizona, Nov., 1903
Mr. H. L. Bronson, Cortland, N. Y.
Dear Sir: Before starting for the east to purchase Holstein cattle I was informed by local buyers that eastern breeders held their cattle at such long prices that it would be impracticable for me to get a carload for this market. However, I visited "Star Farm" and had no difficulty in obtaining just what I wanted and at very reasonable prices. I can cheerfully recommend all intending purchasers to you and assure them your stock is right and your prices moderate. Expect to visit "Star Farm" again next spring and shall call on you probably for two carloads. Yours truly, A. STARKWEATHER.
Oneida, N. Y., 1903.
Mr. H. L. Bronson, Cortland, N. Y.
Dear Sir: The four Heifer Calves arrived in splendid condition and I am very much pleased with them. Their superior individuality and breeding has already been recognized by the leading breeders of this community. As evidence of more substantial nature of my appreciation of your method of transacting business will state you may book my order for a bull calf from Mercedes Julip's Pietertje's Paul and an A. R. O. cow. Thanking you for the many courtesies bestowed upon me while at "Star Farm", I am, very truly, FRED H. RIVENBURGH.
Hollyrood, Middletown, N. Y., Nov., 1903.
Mr. H. L. Bronson, Cortland, N. Y.
Dear Sir: I trusted to your intregrity as a man and your judgment as an expert to select for Hollyrood fifty registered Holstein Cattle of choice breeding and individuality. The cattle have arrived and after careful inspection I congratulate you upon doing better than you promised and better than I expected.
Very truly yours, JAS. H. WALLICK.
I solicit correspondence of all intending purchasers. I have at the present time about one hundred registered Holsteins to select from and am offering special bargains in cows, service bulls, calves of both sexes. I can save you money, write and get prices and description of cattle before purchasing elsewhere.
H. L. BRONSON, Cortland, N. Y.

LOOK HERE
84 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs. of butter in seven days; average per cent of fat 3.60. 8 two-year-olds average 12.16 lbs. of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by Gem Pietertje Hengerveld Paul De Kol, or Sir Ormsby De Kol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days; average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd?
For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis. Residence: National Ave., near 40th. Phone, South 1601.

HOLSTEIN BULLS. We have some grandly bred young bulls ready for service. One of the largest and best advanced registry herds in the United States.
PIERCE LAND & STOCK CO. 14 Turk St. San Francisco, Cal.

TYRANENA HERD
100 HOLSTEIN-FRIESIANS
A. R. O. STOCK FOR SALE.
Both sexes, all ages. Herd headed by Sir Piebe Hengeweld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz. Frank B. Fargo, Lake Mills, Wis.

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Offers 5 yearling bulls cows and heifers bred to oldest son of Mercedes Julip's Pietertje, No. 39480. Chester White Pigs in pairs and trios, not related.
W. R. GATES, Fort Atkinson, Wis.

HOME FARM HERD.
Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams, 25.1 lbs. butter in seven days. Herd numbers 125 head.
BEST FAMILIES REPRESENTED.
Special prices on six or eight bulls of serviceable age. W. B. BARNEY & CO., Hampton, Ia.

ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.
GEO. T. McNEIL, Theresa, N. Y.

FOR SALE H.-F. A. R. O. cows and heifers, bred to Duchess Ormsby Piebe Burke, No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address Rural Route No. 2. W. H. JONES, Watertown, Wis.

THE MONONA FARM HERD
OF HOLSTEIN-FRIESIANS
Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 69.50 lbs. one day. Breeders and dairymen please write for prices.
F. W. ALLIS, Monona Farm. Madison, Wis.

FOR SALE H.-F. BULLS, ready for service, from A. R. O. cows and sired by Sir Johanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 yrs. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis.

VALLEY FARM HERD
HOLSTEIN-FRIESIANS
Headed by Korndyke Queen De Kol's Prince, dam Korndyke Queen De Kol, 24 lbs. 6.7 oz., grandam Belle Korndyke, 25 lbs. 12.3 oz. Both sire and dam by Manor De Kol, his dam Netherland Hengerveld 26 lbs. 10.66 oz., Manor De Kol by a son of De Kol 2d, 26 lbs. 9.21 oz. All are official tests and average 25 lbs. 13.72 oz. butter for 7 days and 3.95 per cent fat in their milk. Two bull calves now for sale and young ones after Sept. 1.
DON J. WOOD, R. F. D. 2, West Winfield, N. Y.

Bulls For Sale.
Two choice bulls ready for service and some fine bul calves from good testing dams. Sire: Paul Clyde, son of Paul DeKol. Dam's record 24.88 lbs. in 7 days. Write C. A. SNOW & SONS, Athens, Ohio.

HOLSTEIN-FRIESIANS INDIVIDUALITY, PERFORMANCE, BREEDING. You need it all. Write or come. 150 head.
McKAY BROS., Buckingham, Ia.

HOLSTEIN-FRIESIANS
FAIRVIEW HERD
We offer bulls ready for service; also heifer and bull calves not related, of the kind to suit the most particular.
O. J. GODFREY, Pennellville, N. Y.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C & N. W. Depot. Stock of both sexes and different ages for sale. Bulls in service are: Homesterd Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De Kol No. 22128. Dam: Shadeland DeKol No. 41886 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 ozs. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148. Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 ozs. Average per cent fat 4.92. Correspondence solicited.
WM. EVERSON & SON, Lake Mills, Wis.


HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

MAPLES STOCK FARM
FULTON, NEW YORK.
Offers for sale Twenty-Five Choice Heifer Calves sired by Beryl Wayne De Kol Paul and Lilith Pauline De Kol's Count. Prices right for quick buyers. State just what you wish. JOHN C. GODFREY, R. F. D. 3. Fulton, New York

SPECIAL BARGAINS IN
Holstein-Friesian Bulls
From a few months to a year old, from official record dams, and with strong official backing on both sides. The sire is half the herd; it is important that you get the right one. We have that kind, and our prices are no higher than others are asking. HENRY STEVENS & SON, Brookside Stock Farm, Lacona, Oswego Co., N. Y.

FOR SALE 2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.
M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

CLOVERDALE HERD
HOLSTEINS
Four Choice Bulls from Advanced Registry Cows and Sire, ready for service, now for sale. Correspondence solicited.
A. J. DAUGHERITY, Streator, Ill.

Woodlake Herd.
Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN, Station D., R. 1, Minneapolis, Minn.

MARKHAM MANOR FARM,
Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 18870, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for discription and price to J. A. THORNTON, Manager, Simmonsville, Vt.

HOLSTEINS IN CALIFORNIA
SAN ANSELMO, MARIN COUNTY
250 HEAD IN THE HERD
Sires are sons of Mercedes Julip Pietertje, Colantha 4th Belle Korndyke, Fay Barnham Princess Wayne 7th. A fine lot of bull calves
R. M. HOTALING,
Rialto Building San Francisco, Cal.

SOUTH SIDE FARM
WHITE BEAR LAKE MINN.
HOLSTEIN-FRIESIANS—We now offer at attractive prices fine young bulls from high tested A. R. O. cows, and sired by Prince Inka Pietertje De Kol 2nd, who already has to his credit 11 A. R. O. daughters. To make room in our stables we offer a few cows and heifers for sale at low price. Write us for particulars

OAK GROVE HERD Headed by Mechthilde De Kol Pietertje Paul, No. 29648. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

HOLSTEINS
High Class Advanced Registry Stock only. Best butter families. Stock for sale.
Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.


T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.
Wm. O. Jackson & Sons, South Bend, Ind.

JUST BULL CALVES
We have three, that are individually fine. They are bred right, have been fed right, and the price is right.
Ohio's Famous Herd, Holstein-Friesian Cattle. W. B. SMITH & SON.
2488 W Broad St, Columbus, O.

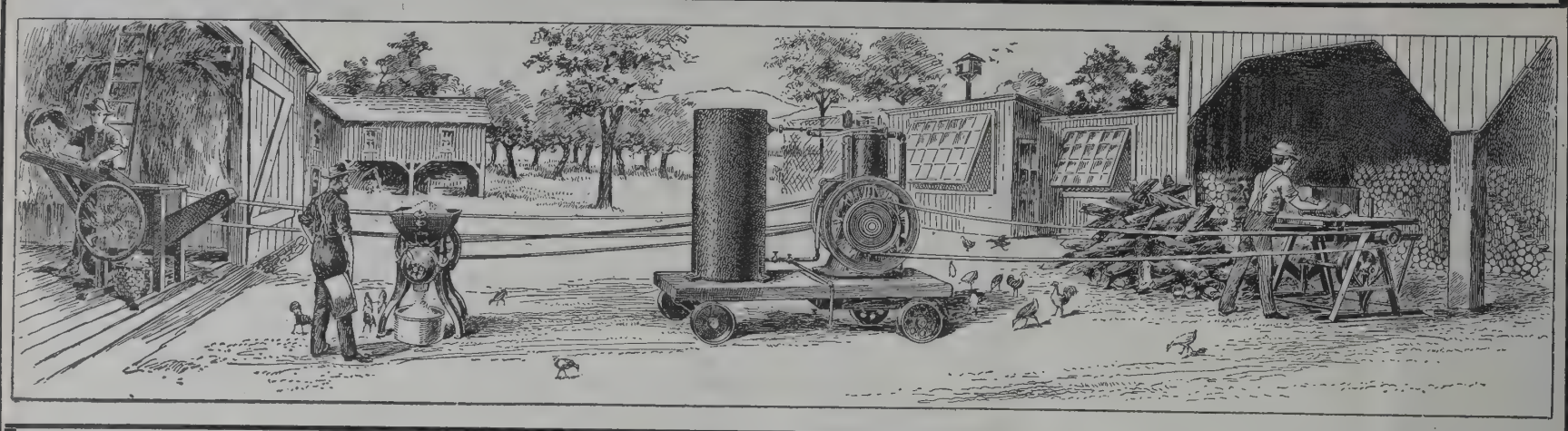
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Of advanced Registry. Young stock from cows testing high in butterfat, at reasonable prices. If you want the best address
JOHN SHUGART & SONS, Marion, Ind.

FERMANAGH HERD
HOLSTEIN-FRIESIANS
Bulls ready for service from A. R. O. animals sired by Johanna Rue 2d Paul De Kol, sire of 13 A. R. O. cows. Also young bull calves by same sire. THOS. GAINES, Supt., Arcadia, Missouri

FINE POULTRY FOR SALE
I offer a very select lot of White as well as Buff Plymouth Rock Fowls of the present year's breeding for sale. Each breed have been kept on separate farms and are absolutely pure in their breeding. They will be sold at
$5.00 A TRIO
Nicely crated on board of cars here.
Single Fowls, $2.00 Each
They have had the range of alfalfa fields the past summer and are very vigorous.
A. R. HOARD, Fort Atkinson, Wis.

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Make the Best Horizontal and Vertical Gasoline Engines for all Farm Work. Write for Catalogue No. 360.

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DAIRY UNION'S AFFAIRS.

(Continued from page 973.)

fact that the National Dairy Union has been run during the past year almost as a business venture, that it has printed a book and put it on the market at prices lower than any private individual or firm could have afforded to have done it, and that more than 75 per cent of the organization's expenditures have been in the production and handling of this book. Yet I would not think for a minute of bringing this report before the meeting without first having submitted the records of my office to an auditing committee, appointed by the president of an outside interested organization, who has been afforded every facility to verify every item which goes to make up the various totals and who will report his findings here tonight.

In conclusion, I desire to say, as you may readily understand, that I am weary of this work. I have held the office of secretary of the National Dairy Union now for six years. Five years of this time has been spent in the most aggressive warfare ever undertaken by an organization. We passed an anti-color bill in the Illinois Legislature in 1897, only after an almost hand to hand fight in the senate, and having our bill stolen in the house; in the spring of 1899 we passed a a bill creating the Illinois Food Commission to enforce the law of 1897. We then began our active work in behalf of the national law, which required three years of effort, the history of which you are familiar with. We now have before us vexatious, legal and technical questions, which are to those in places of responsibility like an aching tooth; they don't take a great deal of actual physical effort or time, but they keep one in a frame of mind and suspense which prevents him from doing much of anything else.

How are we going to get along without Governor Hoard, I do not know. His name was a source of confidence in the organization and his counsel a continuous balance wheel. It was he who gave your secretary his first insight to what is necessary in securing legistation in behalf of the farmer. So long as his name remained at the head of the organization he could not escape the responsibilites entailed. Governor Hoard has thousands of friends and acquaintances among the dairymen who know no other in the organization. Each one of these friends appeared to feel called upon to write him as president of the National Dairy Union, whenever anything happened that was not understood. He had either to retire from the office, devote a large portion of his time to answering this correspondence, or ignore it. The latter he would not do, and have we any right to expect him to further carry the former burden?

Personally, I feel that I too should be permitted to shift the responsibility which I have carried the past six years. I cannot now see my way clear to continue the work. Justice to my own personal interests and the welfare of those with whom I am associated and those depending on me, demand that I cease to spend time in this great struggle and begin to look out more for my own personal future.

I realize, of course, that during an experience of six years in this work I have made acquaintances and accumulated knowledge which is indispensable to the office. Yet there must be a change sometime. I cannot continue the work forever, and it must always be carried on by somebody or we will very rapidly lose all and more ground than we have gained. There will never be a better time to change than now. So it seems to me that right now is a good time to determine upon some plan or organization for the future, which will put the National Dairy Union upon a solid foundation. This means that promises for its financial support must be arranged for and in some manner that will not cost a hundred cents to collect a dollar.

And in final conclusion I will say I have exhausted my ability along this line. In six years I have worked every scheme which my brain can devise for raising funds to carry on the work. I confess I am at the end of my rope, and its up to those who are interested and benefited to decide in regard to the future.

The Value of Dilution in the Gravity Process.

ED. HOARD'S DAIRYMAN:—When we began setting our milk for cream raising, in both shallow pans and deep setting, this fall, we found, at first, that it took 35 pounds of milk for a pound of butter. This was certainly an abnormal amount. It left .71 pounds butter fat in the skim milk residue, which meant about 2 per cent butter fat in the skim milk, or in the buttermilk, or in both. No wonder we said that it would pay us better to shoot the cows than to continue buttermaking on this basis.

This, however, is about the basis most farmer-dairymen are making on these days of November and December. We have seen tests of whole milk no richer in butter fat than this, in the early summer. Such skim milk, certainly, should make first-rate cheese, and it does. Well, we thought this kind of cream raising was a mere fake—a delusion—and so we wanted to see if we could do better,

This action was further prompted from the fact that since we began putting up our butter in nice pound bricks, wrapped in parchment paper, with our name printed thereon, the market for these goods snapped up, while the market for our home make of cheese seemed easily glutted, as people have become so ac-

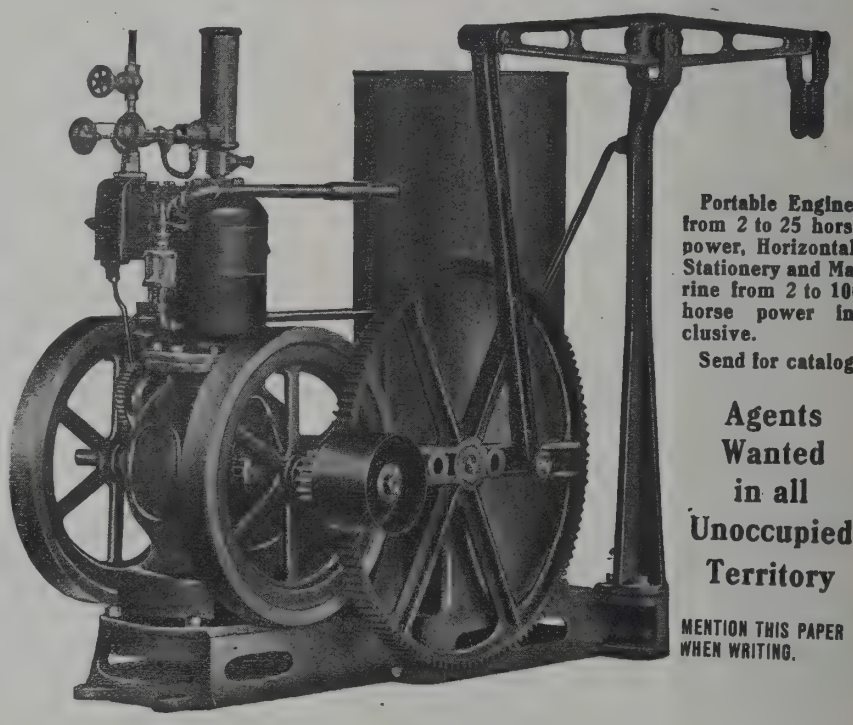
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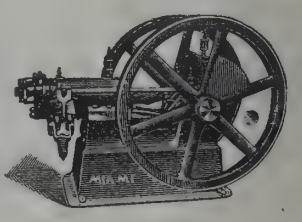
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The MILWAUKEE Weekly Bulletin



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customed to eating factory cheese, and also, by the way, so accustomad to eating inferior, home-made cheese, that the difference in price, the one costing 16 cents per lb., and the other 8 cents per lb. is hardly sufficient inducement. Also the trouble of making home-made cheese from small quantities of milk, in the household every day, makes the women folk kick pretty lively at times As our butter market began to improve, we therefore tried, if possible, to extract more of the butter fat out of the milk,

To this end we tried dilution. We read somewhere that several experiment station demonstrated that the addition of 20 per cent of water to the milk made clean creaming quite possible, but that, as 20 per cent of water was considered objectionable by deteriorating the skim milk, they advised using a dilution of 10 to 15 per cent water.

As we did not consider that the addition of 20 per cent water in any way deteriorated the quality of the skim milk for either cheese making or pig feeding, we resolved to add the full quantity of twenty per cent to the fresh warm milk, and allow it to stand, not 36 hours but 48 hours, before skimming. The result was, that by this change, we were enabled to get one pound of butter from 28 pounds of milk, a gain of seven pounds of milk for butter making. By the dilution process, therefore, we were enabled to have recovered all the fat save .3 lbs., assuming that .86 lbs. fat was required to make a pound of butter. This left 1.08 per cent fat in our skim milk and this gratifying result exceeded our most sanguine expectations.

The average fat content of the herd milk is 4.50 just now, and we think we figure correctly, though we have not tested either our skim milk or butter milk. On the three last churnings we have made, we found that we recovered 7 lbs. butter from 200 lbs. milk; 6¾ lbs. butter from 190 lbs. milk, and 7½ lbs. butter from 210 lbs. milk. These three tests made in the last ten days, show pretty conclusively a pound of salted butter from 28 lbs. milk. With a separator, properly run, we possibly could get 1.27 to 1.37 lbs. butter from this 28 lbs. milk.

The professors figure it one-sixth as the over run of butter, over and above pounds butter fat, which we are sure is too much. For example, it is good separation that skims to .2 per cent. Then a hundred weight of 4.50 milk would yield 4.30 lbs. butter fat. Now, it is also good churning that leaves but .5 of one per cent in the butter milk. If we get 21.5 lbs. 20 per cent cream from this hundred weight of milk, we have, after churning, some 16 lbs. butter milk, containing .08 pounds fat. This subtracted from 4.30 leaves 4.22 lbs. of the original 4.50 recovered. This 4.22 lbs. fat recovered will make one-sixth more butter, 15 per cent moisture, or 4.92 lbs. butter an over run of .42 lbs. This is about what is usually done in good practice when butter not over saturated with water is manufactured and means an over run of about 10 per cent.

It is evident therefore that these tests were conducted by the Babcock tester, calling a pound of commercial butter five-sixths of the fat found by test, is all wrong and impossible in good practice. Adding one-sixth to the fat and calling this a pound of butter is all wrong. Butter, therefore, should not be taken into consideration at all in making a test. It is a horse of another color. The Guernsey breeders are on the right track when they don't take the butter factor into consideration at all in making their breed tests,

The phenomenal cow, Charmante of the Gron, produced 676.48 lbs. fat, but the butter equivalent was just stated to be so—just an equivalent, depending on the skill of the buttermaker

What may be said of the Holstein people, who yet call .8 lb. fat a pound of butter? It is time these people stop imposing their ridiculous figures on the public. A pound of butter, made out of .8 lb. in the milk as it comes from the cow, is no more butter than oleomargarine is, and yet these people emblazon their weekly tests of 80 per cent butter almost every week, as if, further, a weekly test was any criterion of a cow's dairy ability.

But as to dilution. We found that diluting the fresh, warm milk with ordinary cold water, as found in November, usually about 40° F., will not bring results. The addition of this cold water has a chilly, and consequent deleterious effect upon the milk. It chills the fat globules and increases their density, so that the end sought in diluting is not achieved.

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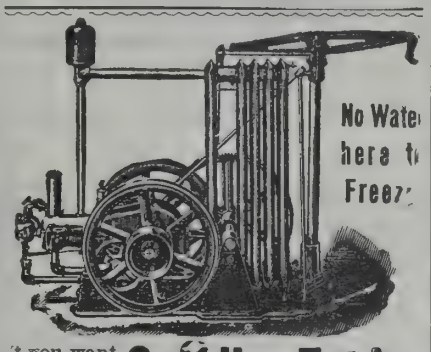
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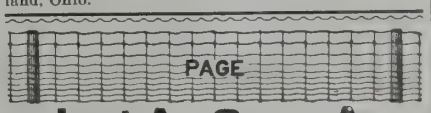


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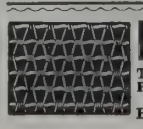


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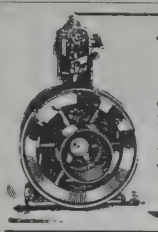
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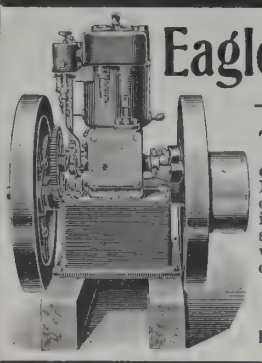


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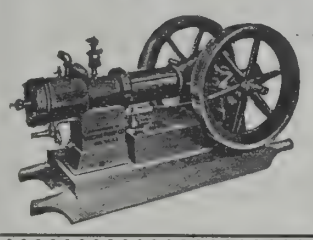
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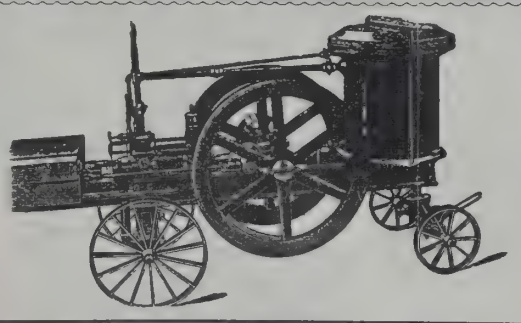
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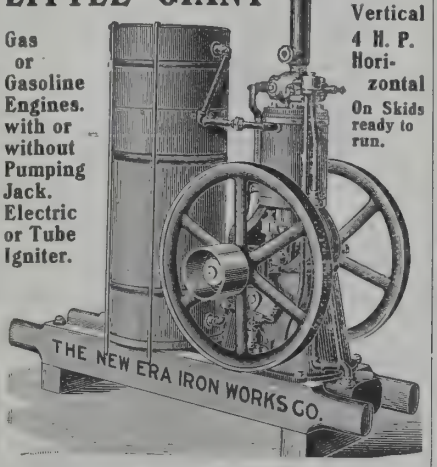
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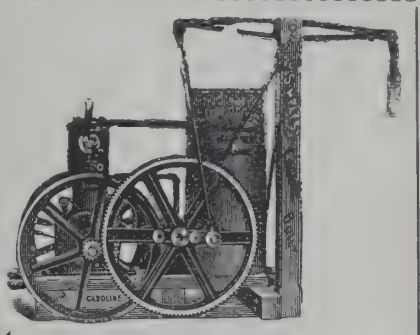
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Diluting the warm milk with cold water under 50° F. will not have the desired effect, in the fall months at least. This we determined for ourselves. The water used for diluting must be of the same temperature as the milk, say 80° to 90° F. Cooling the milk by the addition of cold water before setting will have a deleterious effect. This Prof. Robertson found, but without adding water. He found that allowing the milk to stand and become cool for an hour or so before setting meant a loss of .8 per cent butter fat.

Another point in diluting. The water used in diluting should be sterilized. It is a very risky matter to add ordinary water to milk, without boiling it, as this water may contain any number of deleterious bacteria. Heat the water, therefore, which you are going to use for diluting, and add it warm, at say 80° to 90°, and set immediately. Add a full 20 per cent; that is, add one-fifth as much milk-warm water as there is milk, and you need not yet buy a costly separator for a while. J. A. M.

P. E. I.

We would call our correspondent's attention to the fact that the Holstein records are now estimated with a factor of 85.7, and the change was made several months ago. ED.

CONCERNING OUR ADVERTISERS

HOW TO TRAP WILD ANIMALS.

We are in receipt of a beautiful illustrated trap book of 36 pages entitled "How to Trap Wild Animals" which contains so much valuable reading matter to all interested in catching the fur bearing animal for profit, or the pests on the farm such as rats, gophers, etc., that we wish all our readers had a copy. The illustrations of the wild fur bearing animal with cuts showing the right way to take off and preserve their skins are very instructive, in fact the whole book is exceedingly instructive to both old and young. This book with an illustrated catalog of guns, traps, knives and hunting boots, also price list of raw hides, furs, etc., will be sent you for a 2c stamp to partly pay the postage by the Northwestern Hide & Fur Co., of Minneapolis, Minn. This is an old reliable firm to whom it is safe to ship your hides, furs, pelts, ginseng, etc. See their ad. on another page. Be sure to mention our paper when writing.

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The following, of interest, has just been received from Horace L. Bronson, owner of Star Farm Herd of Holstein-Friesians at Cortland, N. Y.:

HOARD'S DAIRYMAN, Fort Atkinson, Wis., Gentlemen:—On Oct. 5th, 1903, I sold to Mr. J. H. Wallick of Middletown, N. Y., fifty head of registered Holstein cattle. The sale is a notable one in every feature; I believe it to be the largest in point of numbers ever made in this country at private sale, and also that the consideration paid was the largest. Mr. Wallick has for years enjoyed the reputation of a notable theatrical manager and owner. He has spent his leisure hours at his beautiful country seat, Hollyrood, situated about sixty miles from New York. Here he has bred and owned some of the most notable race horses of the day. Recently he determined to curtail the breeding of horses and stock the farm with thoroughbred cattle. After considering the merits of the several breeds he decided in favor of the registered Holsteins. After considering the several propositions submitted to him he decided to make his selections from the Star Farm herd, and he has taken away from the place many cows which the owner disliked to spare. I will not ask for space to describe Mr. Wallick's cattle in detail but will simply mention a few among the great females that he has selected. De Jong's Netherland 2d with an official butter record of nearly 20 lbs., and following this Tula 3d, Susie De Kol Paulette, Daisy Pauline Paul 2d, Rosa Molly of Woodlawn, Auzalette Pauline Paul 2d, Lavina Lily of Woodlawn, Guess Not Pauline 3d, Lady Zo Zo Pauline, Shadeland Tara Paul, Aggie Norondi, Clothilde 2d and others equally good. Many of these cows have been bred to Mercedes Julip's Pietertje's Paul and the fall's increase at Hollyrood will present many of this great bull's sons and daughters. The name of Hollyrood will hereafter be classed not only with the finest horses, but it will be known as the home of one of the greatest Holstein herds in this country today. HORACE L. BRONSON.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

The Bistoury.

Several of our cows have through sores on the end of the teat, become quite hard to milk. Is there any danger in making too large an opening with the bistoury? P. J. D.
Stevenson, Md.

ANSWER.

There is no danger in making the opening quite large, even if the milk is lost the first day or so, it soon closes to its normal size, which opening is retained by the flow of milk.

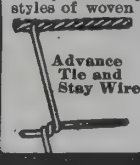
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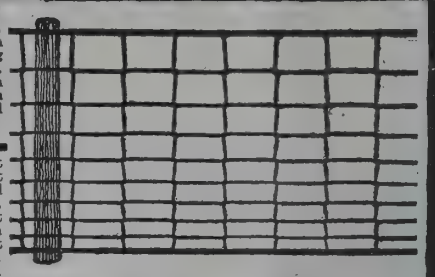
I have a dairy cow that has been milking about 4 months. Lately I noticed lumps in the milk, first in one quarter, then another, all four quarters have been affected. Now the milk ha

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Advance Tie and Stay Wire



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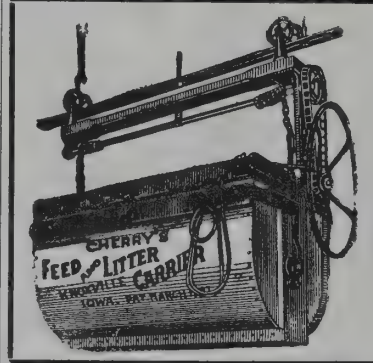
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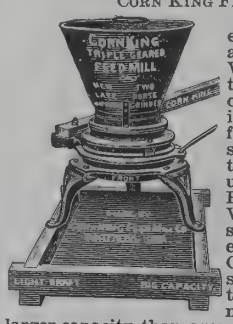
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ILLUSTRATION

CORN KING FEED MILL.



A feed mill of Western manufacture, well adapted to the use of Western feeders, where there is an abundance of corn and large feeding operations, is the fast grinding Corn King shown in the illustration. It is manufactured by the Corn King Feed Mill Company of Waterloo, Ia. It is a sweep mill for two horses, triple geared. The Company's guarantee says that, grinding to the same degree of fineness, it will develop a larger capacity than any two-horse sweep mill on the market. A strong point of difference from other mills is that no additional buhrs are needed for fine grinding, as the all-purpose rings, with which it is fitted, do a wide range of work on ear or shelled corn or corn and oats mixed. Its buhrs are self sharpening, and will continue doing rapid work without dressing until entirely worn out. The mill is most simple, which makes for its longer life and easy running, the particularly light draft in proportion to the great amount of grinding done, being one of its strongest features. Time is saved by the feed being delivered underneath in any convenient sized basket one desires to use. It provides for convenient oiling of all bearings without interrupting the work of the mill. The best way to get a good idea of a good mill is to consult the advertisements of the Corn King Company in another column, and write for their illustrated descriptive circular.

Cancer Cured by Anointing with Oil.

A combination of soothing and balmy oils has been discovered which readily cure all forms of cancer and tumor. It is safe and sure and may be used at home without pain or disfigurement. Readers should write for free book to the originators, whose home office address is Dr. D. M. Bye Co., Drawer 505, Indianapolis, Ind.

THE ONLY LOW DOWN

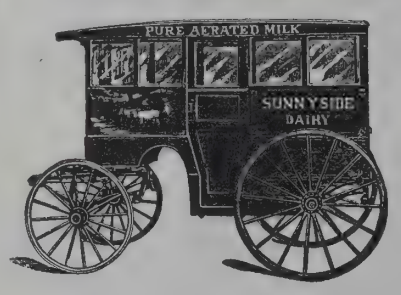
Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the market.



20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished.

Send for catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.

Shipman, Bradt & Co.
Sole Manufacturers,
DE KALB, - ILLINOIS.



The National

LOW DOWN CUT-UNDER

justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

THE NATIONAL WAGON COMPANY, Chillicothe, Ohio.

$62.75



BEST MILK WAGON ON EARTH

SOLD DIRECT TO CONSUMER ONLY

Highest Grades. Lowest Prices. Guaranteed. Shipped on Approval. Full line Buggies and Harness. Write for Catalogue and Prices.

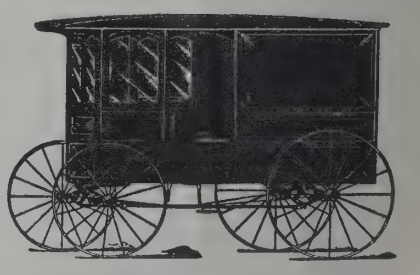
SAVE DEALERS' PROFITS

UNION BUGGY CO. Dept. B. PONTIAC, MICH.

PRICE TALKS WITH QUALITY BACK OF IT.

ONLY $129

TERMS—⅓ Cash and balance 1, 2, 3, and 4 months notes or 5 per cent discount for cash



We make 10 styles. Write for our Form E. Catalogue and Price List.

THE O. ARMLEDER CO., Cincinnati, O.

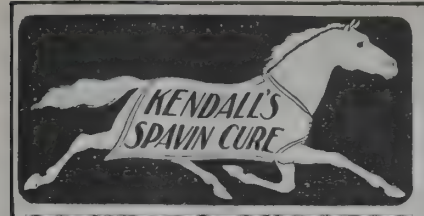


WE LEAD THE WORLD

We are the largest manufacturers of Grooved and Plain Tire Steel Farm Wagon Wheels in America. We guarantee our patent Grooved Tire Wheels to be the best made by anybody anywhere. Write us.

HAVANA METAL WHEEL CO.
HAVANA, ILL.

YOU CAN DEPEND ON
H. & R. REVOLVERS
Harrington & Richardson Arms Co.
DEPT. 22, WORCESTER, MASS.



20 YEARS SUCCESS

Here is a man who has used our **Kendall's Spavin Cure** for over 20 years with entire success. Your experience would be the same if you but tried it.

Fulton, Oregon, Feb. 10, 1903.
Dr. B. J. Kendall Co.,
Gentlemen:—Will you please send me your book "A Treatise on the Horse and his Diseases." I have used your Kendall's Spavin Cure for over twenty years and know of no better **liniment for man or beast.** Have also used one of your books until it is worn out.
Very truly yours,
F. J. NELSON.

It is an absolutely reliable remedy for **Spavins, Splints, Curbs, Ringbones, etc.** Removes the bunch and leaves no scar. **Price $1; six for $5.** As a liniment for family use it has no equal. Ask your druggist for **KENDALL'S SPAVIN CURE,** also **"A Treatise on the Horse,"** the book free, or address

DR. B. J. KENDALL CO., ENOSBURG FALLS, VT.

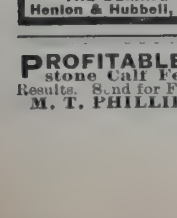
Fistula and Poll Evil

Do yourself what horse doctors charge big prices for trying to do. Cure Fistula or Poll Evil in 15 to 30 days.

Fleming's Fistula and Poll Evil Cure

is a wonder—guaranteed to cure any case—money back if it fails. No cutting—no scar. Leaves the horse sound and smooth. Free Book tells all about it—a good book for any horse owner to have. Write for it.

FLEMING BROS., Chemists,
228 Union Stock Yards, - Chicago, Ill.



TUTTLE'S ELIXIR

Cures Curbs, Splints, Spavins, Etc. Equally good for Colic, Distemper, Etc. Our 100-page book, "Veterinary Experience", FREE.

DR. S. A. TUTTLE,
62 Beverly Street. Boston, Mass.

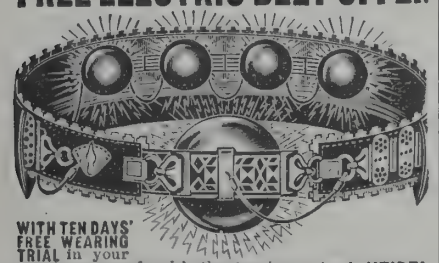
BARREN COWS CURED.
Write for Pamphlet and Testimonials.
Oldest and best Treatment Extant.
MOORE BROS., V. S., Albany, N. Y.

DR. GEORGE HOLLABUSH'S
Sure Cure for Abortion



and General Tonic for Cows. The only genuine sure cure and general tonic for cows on the market. I guarantee, and refund money if not satisfactory.
Dr. Geo. Hollabush, Ft. Atkinson, Wis.
Write for circular.

FREE ELECTRIC BELT OFFER



WITH TEN DAYS' FREE WEARING TRIAL in your own home, we furnish the **genuine and only HEIDELBERG ALTERNATING CURRENT ELECTRIC BELT** to any reader of this paper. No money in advance; very low cost; positive guarantee. **COSTS ALMOST NOTHING** compared with most all other treatments. **Cures when all other electric belts, appliances and remedies fail. QUICK CURE for more than 50 ailments. Only sure cure for all nervous diseases, weaknesses and disorders. For complete sealed confidential catalogue,** cut this ad. out and mail to us
SEARS, ROEBUCK & CO., CHICAGO

KEROSENE SPRAYER.



One act of pumping and making kerosene emulsion. Detachable kerosene tank. In knapsack form, most conveniently handled. As well adapted to foliage spraying as

For Poultry Plants

killing lice on animals, etc. Ours is the ideal line of sprayers—20 styles, suited to every want, large or small operations. **Hand, Bucket, Knapsack, Barrel, Power, Field.** As for free catalog. Booklet on insects and plant an fruit diseases for 10c.

THE DEMING COMPANY, SALEM, OHIO.
Henion & Hubbell, Western Agents, Chicago, Ills.

PROFITABLE CALVES raised with Keystone Calf Feeder. Easy Cleaned. Perfect Results. Send for Free Book.
M. T. PHILLIPS, Box 13, Pomeroy, Pa.

turned into yellow matter. The cow has great pain when I milk her.

How can I tell if a mare is safe in foal or not?
Racine, Wis. G. S. K.

ANSWER.

1. See garget, this issue.

2. If the mare is pregnant six or seven months, you may detect the foetus by exploring same through the rectum. Insert your hand into the rectum and direct it to the right, downward and forward until you feel the foetus, which can not be mistaken for anything else.

Unknown Disease.

My fresh cows come in apparently well; milk well after cleaning for week or so and then go off feed suddenly, seem feverish, breath feverish and peculiar, seem drawn in and up at flank and eyes sunken. Have to throw away such milk, of course. Attack lasts a week or ten days before they improve. J. M. T.
Port Gibson, Miss.

ANSWER.

Your trouble must be treated according to its cause, which can only be determined by a thorough investigation. It may be an error in feeding.

Treatment for Abortion.

We have a dairy with about 100 cows and have had many premature births and misscarriages in the last six months. In your directions for the treatment of such cases I would like to know whether it is necessary to insert the point of the syringe into the mouth or neck of the womb, or is it sufficient to enter the vagina or cavity before reaching the womb proper?

One of your correspondents speaks of leaving his cow with the bull all day and getting several services. Is not one good service as good as a dozen? F. G. M.
Mexico, D, F.

ANSWER.

No. 1. When injecting for this disease, it is always necessary to introdnce the fluid into the womb, simply letting it run into the vagina is not sufficient.

No. 2. One service is usually considered better than more.

Blood Trouble.

I have a grade Holstein, five years old. She seems well at heart and eats hearty and her hair looks good, but her whole body is covered with blotches the size of a bean; they form in a bunch and they seem to be hard and dry. I noticed it first about ten days ago. M. S. A.
Canisteo, N. Y.

ANSWER.

The enlargements may be due to some humor in the blood. Give the cow 1¼ pounds of Epsom salts with 1 or 2 ozs. of powdered ginger dissolved in 2 quarts of warm water. Give at one dose. Follow this with a tablespoonful each of sublimed sulphur and powdered charcoal in food, morning and night until relieved.

Catarrh, Perhaps.

Last January my colt had distemper or strangles; the disease settled all over him; during the summer he was very weak and poor. Now he is gaining in flesh, but still discharges from the nose; the discharge is a milky color. N. P.
Grafton Co., N. H.

ANSWER.

Your colt may have developed a case of chronic catarrh, the result of strangles. But it is not safe to guess at a case of this kind, as the symptoms also resemble those of glanders to some extent. Have a qualified veterinarian make a careful examination.



GOMBAULT'S
CAUSTIC BALSAM

A safe, speedy and positive cure for

Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a **HUMAN REMEDY** for **Rheumatism, Sprains, Sore Throat,** etc., it is invaluable.

Every bottle of **Caustic Balsam** sold is Warranted to give satisfaction. Price **$1.50** per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

THE LAWRENCE-WILLIAMS COMPANY, Cleveland, Ohio.

"SAVE-THE-HORSE"
Registered Trade Mark
SPAVIN CURE



To The Troy Chemical Co
Troy N Y.
Dear Sir Please send me one more bottle of "Save the horse" It is doing great work.
Respectfully
Millard F. Sanders
To Driving Park Glenville O.

NOTE DIFFERENCE IN DATES OF THESE TWO LETTERS.

PLANTERS HOTEL
C. M. DAVIS, PROPRIETOR.
STEAM HEAT. NEW SAMPLE ROOMS. RATES, $2 PER DAY.

LOUISIANA, Mo., Nov. 2nd, 1903. TROY CHEMICAL CO., Troy, N. Y. Dear Sirs:—Inclosed find draft for $5.00 for which please send me at once bottle of (Save The Horse). It has done good work on my horses tendons, also splints. But on a horse that has a curb I can't see that it has reduced or removed that much. —. Yours, C. M. DAVIS.

PLANTERS HOTEL
C. M. DAVIS, PROPRIETOR.
STEAM HEAT. NEW SAMPLE ROOMS. RATES, $2.00 PER DAY

LOUISIANA, Mo., Nov. 6th, 1903. TROY CHEMICAL CO., Troy, N. Y. Gentlemen:—The curb on my horse that I was complaining about your medicine, Save The Horse, not removing, has disappeared as if by magic. It was of two years standing. You can't tell he was ever curbed. Only used one bottle. Yours truly, C. M. DAVIS.

Cured horses are absolute certainties as to the possibility of the remedy for your own case. Such results as above by men whose reliability can be readily ascertained have carried "SAVE-THE-HORSE" over skepticism, prejudice and uncertainty. Send for booklet and copy of written guarantee, which is as binding to protect you as the best legal talent could make it. No man need see his horse suffer and become incapacitated.

"SAVE-THE-HORSE" Positively and Permanently Cures BONE and BOG SPAVIN, THOROUGHPIN, RING-BONE, (except low ring-bone,) CURB, SPLINT, CAPPED HOCK, WINDPUFF, SHOE BOIL, WEAK and SPRAINED TENDONS and ALL LAMENESS. Cures without scar, blemish or loss of hair. Contains no mercury or poisonous substances. Can apply in all conditions and extremes of weather. Horses may be worked as usual.

$5.00 per bottle. Written guarantee with every bottle given under seal and signature, constructed solely to satisfy and protect you fully. Need of second bottle improbable, except in rarest cases.
$5.00 per bottle at all druggists' and dealers', or sent by express prepaid.

TROY CHEMICAL CO., TROY, N. Y. Also manufacturers of **Veterinary Pixine.**

BLACKLEG



VACCINATE your cattle with **Blacklegoids**—the simplest, safest, surest preventive of Blackleg. Each *Blacklegoid* (or pill) is a dose. Administration with our Blacklegoid Injector is performed in one minute. We establish the purity and activity of our **Blacklegoids** by rigid tests upon animals. For sale by druggists. Write us for literature—free on request.

PARKE, DAVIS & CO.
DETROIT, MICHIGAN.
BRANCHES: New York, Chicago, St. Louis, Boston, Baltimore, New Orleans, Kansas City, Minneapolis, Indianapolis, Memphis; Walkerville, Ont.; Montreal, Que.; London, Eng.

Cow Profits
come from the conditioned animals. None in the barren, aborting kind or those that have calving or after birth troubles.

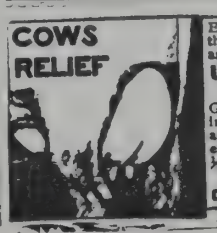
KOW-KURE (For Cows Only)
is for the cow's case. It conditions, prepares for calving difficulties, cures barrenness, milk fever, garget, all breeding difficulties. 100,000 cow owners call it the one true specific cow remedy. Dealers sell it. Kow-Kure book **mailed free**

Dairy Association Co.,
Lyndonville, Vt.





ABORTION
Can be successfully treated with **Anti-Abortion Serum.** Easily administered and permanently cures. Information free.
DR. ROBERTS
VETERINARY REMEDY CO.,
549 Grand Ave., Waukesha, Wis



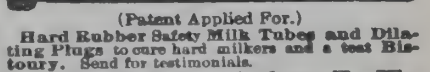
Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.

Used Exclusively at Model Dairy

Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.

O. H. MFG. CO.,
Dept. H, Lyndon, Vt.

ABORTION,
Failing to Breed and bring Cows to Heat. Sure Cure. In use 20 Years.



(Patent Applied For.)

Hard Rubber Safety Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.

DR. WM. HORNE, Janesville, Wis.

Inquiries and Corrections From Oregon.

Milk Record Blanks—High Priced Feeds.

ED. HOARD'S DAIRYMAN:—Please send me a sample sheet of your record for 10 cows for one month.

Also, I should like to know a good way to feed cows, out here for, milk. There is the best kind of mixed hay here clover, (red and alsike) with different kinds of grasses mixed. Feed is terribly high out here. Wheat bran brings $1.50, middlings $1.75, and oilmeal $2.25 per 100 lbs. Oats are about 60 cents per bushel.

Also, I would like to correct your example in No. October 30, page 849. A. with 190 lbs fat 20¾ cents should be $39.42½ instead of $39.33; and B with 225 lbs. fat, at same price should be $46.68¾ instead of $46.57. GEO. H.

Tillanook, Ore.

If there is any one thing that is especially welcome to us, it is to be assured by evidence like the foregoing, that we have close and discriminating readers. The circumstances, that the errors noted and corrected are comparatively trivial, in no way detracts from the welcome accorded the correction, for the main point is that the reader attends to his reading and intends to profit thereby.

The sample milk record sheet has been sent as requested, and the inquiry for it prompts us to say once more, that the habit of keeping a daily record of what each cow produces daily is one of the essential conditions to largest success in dairying, just as a daily record of sales is a stimulus, guide and help to successful merchandising. When the merchant finds from his daily records that sales are diminishing, he sets about discovering the cause and applying the remedy. It may be the fault of one or more of his clerks, or it may be that old methods are not adapted to modern and changing conditions. Just so the dairyman, with his daily record of what each cow is doing, is in a position to apply a corrective wherever it may be needed. The blanks we have prepared for keeping these records, while not in dispensable, will be found very convenient.

We hardly know what to say about using those high-priced feeds. If the cows have recently freshened, and are what are termed winter milkers, we think it will pay to give them more or less grain, so as to keep up the milk flow. If this is not done, there will be no perceptible increase when the cows go to pasture next spring. Therefore, regard should be had not alone to present returns, but to future profit as well. On the other hand, if the cows are to freshen next spring the main point now is to feed only so much as the cows can use with profit from day to day, and this will vary so widely with different cows that no general rule can be given or average suggested. If the cows appear to need it to keep the digestive tract (stomach and bowels) in good condition, a half-pound of oil meal daily might not be amiss, and more or less bran.

Hungarian Brome Grass—Bermuda Grass—High Priced Feeds in California.

What is the feeding value of Hungarian Brome Grass, also of Bermuda grass for cows? I feed good oat hay, all they will eat and carrots, that's the best I can raise here, but they don't do well on it. What ration would you suggest for each 10 pounds of milk yield. Wheat bran, $27.50, middlings, $30, corn meal, $37.50, rolled barley, $35 to $37.50, oil meal, $40 per ton. Have 12 cows coming in between November and March. Will it pay to feed those high priced feeds to cows that are not large milkers? In April I have vetches, wheat and rye. A, F,

Dows Prairie, Cal,

We are unable to find any satisfactory analysis of Hungarian Brome Grass, otherwise known as *Bromus Inermis*, or of Bermuda Grass, but Prof. Lamson-Scribner of the United States Department of Agriculture says of the former that "its nutritive value is comparatively low" and of the latter that it makes "excellent hay" but because of the difficulty in eradicating it, it should not be introduced upon land which is likely to be used for other crops."

Answering the further inquiry as to using high priced feeds we can do no better than to refer to the answer made to Mr. Geo. Haag, of Oregon, on page 980 who sends us a similar inquiry.

A Big Yield

in comfort, ease and satisfaction is guaranteed to the man who uses

WILLIAMS' SHAVING SOAP

Its rich, thick, cream-like lather softens the heaviest beard, allowing the razor to cut easily and smoothly, and leaves the face comfortable and refreshed.

"The only Soap fit for the face."

Sold Throughout the World.

FREE

A Trial Tablet if you mention this paper and send a 2c stamp to pay postage.

Address

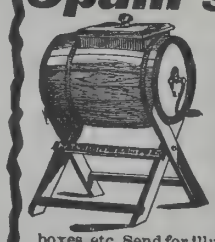
The J. B. Williams Co.,
Glastonbury, Conn.

MILK TUBES

Patent Coin Silver 1¾" 50c. 3¾" 80c. Improved Teat Opener, 75c. Dilitating plug 25c. Postpaid on receipt of price.

G. P. Pilling & Son,
2nd and Arch Sts., Ph'l., Pa.

Spain's Churn



Hand made of thoroughly seasoned white cedar. Has large opening. Never gets water soaked or sours. Easy to clean. Simple to operate. A 30 years' test has proved it the best. Everything for the dairy or creamery—automatic milk scales, glass jars, butter workers, printers, shipping boxes, etc. Send for illustrated catalog of "Bestov" dairy supplies.

TRADE MARK BESTOV

DAIRYMEN'S SUPPLY CO., Dept. Philadelphia, Pa.

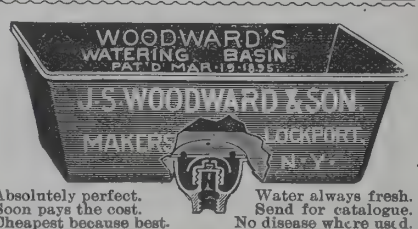
To add weight and winning flavor to your butter, salt it with

DIAMOND CRYSTAL SALT

"The Salt that's ALL Salt."

Quickly dissolves, becoming a part of the butter. Not washed out in the working like common salt. Send for free book—"Just Salt."

DIAMOND CRYSTAL SALT COMPANY,
St. Clair, Mich.



Absolutely perfect. Soon pays the cost. Cheapest because best.

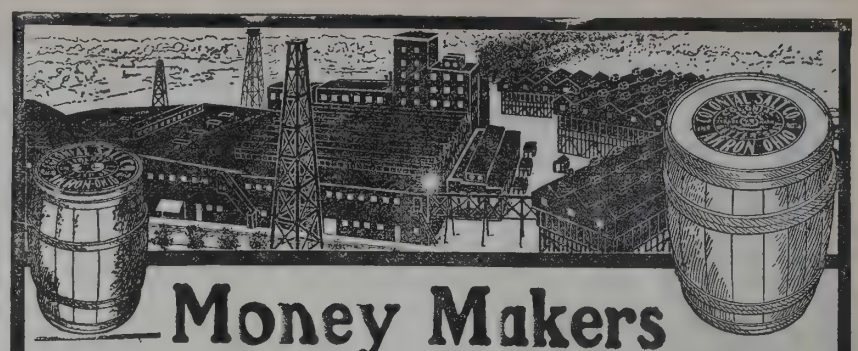
Water always fresh. Send for catalogue. No disease where used.

Water In The Stable a Necessity.



It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. Why not use the Best? Write for descriptive circular.

O. E. BUCKLEY & CO., Poughkeepsie, N. Y.



Money Makers For Butter Makers

Behind "Colonial" and "Liberty" Butter Salts stands the great Colonial Salt Company plant—absolutely sanitary, modern, and cleanly

Daily output 750,000 pounds.
Storage capacity 25,000 tons.
Six salt wells 3,000 feet below the surface at our plant—the purest bed of rock salt in the country—daily capacity 400 tons of salt.
Cooper shop capacity 2,000 barrels daily.
3,000 horse power boilers.
Daily supply of coal for evaporating salt, 150 tons.
Absolutely pure water from wells 150 feet deep used to dissolve the salt.
Loading tracks under cover hold 22 cars, while switch outside holds 11 additional cars.
Three trunk lines to the plant, Erie, Pennsylvania, and B. & O., facilitate immediate shipment of orders.
Every step in the process is here done by machinery, from the brine to the salt in the package, thus avoiding any chance of impurities of any kind getting into the salt. All packages are made at the works fresh every day; all cars are packed under cover; thus insuring delivery to the consumer in fresh, sweet, clean packages not soiled in any way.
Of "Colonial" and "Liberty" brands of Butter Salt

THE FLAVOR IS PERFECT
THE COLOR PERFECT WHITE

The purity the highest known, over 99 per cent. They are the lightest salts for the same bulk that there is on the market today; dissolve quickly and evenly, do not wash out in the working nor leave the butter gritty or mottled.

"Colonial" Butter Salt (light flaky grain) and "Liberty" Butter Salt (granulated, every grain the same size and perfectly square) may be tried absolutely free of cost by all who have never used them. A 56 pound sack of either or both will be delivered free on request, in return for which you are asked to report to us your actual success with them.

COLONIAL SALT COMPANY, AKRON, OHIO.

BUTTER FOR UNCLE SAM

THE CONTINENTAL CREAMERY COMPANY
TOPEKA, KANSAS

Has been awarded the contract to supply the United States Navy with half a million pounds of butter for the ensuing year.

For this purpose only the best quality of butter is used, and its keeping quality must be made of the very best, owing to the fact that the entire year's supply must be made within a few months and it is carried through all conditions of climate.

The government has made a thorough study of supplying butter to suit the requirements of the Navy and as a result it has laid down some very exacting standards to which those who bid for these contracts must comply. One of the few concerns who can fulfill these requirements is the Continental Creamery Co. and it was awarded this contract, which is the biggest single order for butter ever filled.

This company produces the greatest quantity of fancy creamery butter in the world, all of which is made from pasteurized cream. Surely it knows something about making good butter. It also knows from actual experience and the investigations of its chemists, that one of the factors in making good butter is

WORCESTER SALT--IT USES NO OTHER

FOR SALE BY ALL CREAMERY SUPPLY HOUSES.

WORCESTER SALT COMPANY
168 DUANE STREET, NEW YORK.



Iron Troughs

First Lot at Wholesale. Can't break or rot, nice round rim, any size or shape. Write for circular of Cow Basin, Poultry and Stock Troughs. Who will be first.

D. H. BAUSMAN, Bausman, Lanc. Co., Pa. We make Steel Swings. Fine Booklet Free.

Sample Basin Sent ON APPROVAL.

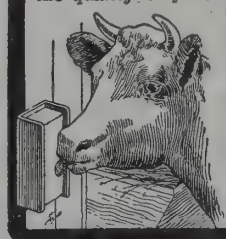


Basins are fitted with Self Closing Cover which prevents all dirt and sediment from gitting into them. Send for catalogue and price list.

F. H. CHASE,
Sherman, N. Y.

Compressed Pure-Salt Bricks.

Increase the quantity and improve the quality of your dairy products by supplying your cows with this modern convenience. Ask your dealer or send for free booklet to the



Belmont Stable Supply Co.,
Brooklyn, N. Y.

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Dairying in Kansas.

[Introductory by Secretary F. D. Coburn, in the September, 1903, Quarterly Report of the Kansas State Board of Agriculture, entitled "Modern Dairying."]

Twenty years ago Kansas had but 471,548 milch cows, and scarcely a creamery worth the name, and their product was unsought.

Ten years ago Kansas had 567,353 milch cows; creameries of a better class were being slowly established, but their output begged a market.

Today Kansas has 802,738 milch cows, or more than at any previous time, and many high-grade creameries and cheese factories, including the largest creamery in the world, hundreds of contributary receiving and skim stations, and their product is not only favorably known in the principal markets, but sought beyond the supply.

Thus is marked the progress of this industry in Kansas—in a decade become one of the most prominent of successful dairy states. While this is true, and within that time the aggregate annual value of our dairy products has nearly doubled, and while our foremost dairymen, by constantly striving to raise the standard of production, now have excellent high-yielding herds, it is unquestionably a fact that large numbers of our cow population are not paying for their keep, judging by the low annual average value of produce per herd.

The cause for this is to be found either in the man or the cow, or both, as Kansas, with her wealth of grain and grass, produced at the minimum cost, mild winters, and convenience to market, furnishes ready made a territory nowhere excelled for profitable dairying; but brains in the man and blood and feed in the cow are essential to success in Kansas, as elsewhere, although here nature has seemed to be most lavish in her beneficence.

If the "man behind the cow" in Kansas would do his part, no unprofitable animal would masquerade under the fictitious appellation of "milch cow," and she would either go to the butcher's block or be made to return a profit by more intelligent care and management. It passeth understanding why theft by a cow should be tolerated more than theft by a human. In effect, the result to the loser in either case is the same. Our government has found it wisdom to study and establish far-reaching methods for the detection and repression of the latter; and by the same token, why should our farmers and dairymen be less vigilant in regard to this possible proclivity in their cows—beasts described as dumb, yet outwitting their owners? So long as cows of this class are permitted in the dairy herd, so long will there be dissatisfaction and failure. Improvement is the route to success, whether by breeding, better management, or other way, and intelligence in our cowmen is the power that will force advancement in the right direction.

Dairying has come to be one of the most important factors in Kansas agriculture, and, rightly conducted, is one of the surest money-makers of our varied industries. It is incomparably more rational than any one-crop system, or even general farming, as its practice tends to rotation of crops, maintains or increases the fertility of land, and affords steady employment, with return remunerative according to the brains mixed with the business.

Ever since the issuance of this Board's publication entitled "Cow Culture" there has been an extraordinary demand for kindred literature, and editions of former reports on the subject of dairying have been early exhausted. The spirit of education is abroad in our state, and in order in a measure to meet the increasing urgency for light and literature concerning dairying, this volume is prepared. The information it contains covers the best modern thought of well known authorities upon the respective topics treated, and is intended to be of practical value to our farmers aud dairymen, as well as to promote the prosperity of our creameries and cheese factories—the interests of all these being inseparable.

As dairying in our state has assumed such immense proportions, a matter that has been given comparatively but little attention heretofore is also taken up, viz., the advisability of observing certain sanitary and other precautions in the production of milk, in order that the output, in whatever form, from cow to consumer, may be the most wholesome possible. This is not only prudent, but certainly



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There is not a time in the life of a mature beef when Dr. Hess Stock Food cannot be fed with a decided profit, as the test of the scales will prove. Dr. Hess Stock Food causes every organ to perform its proper function, it furnishes the laxatives so liberally supplied in grass, improves digestion and assimilation, regulates the kidneys and liver, and in fact forces growth and development by compelling the system to appropriate to bone and muscle building the nutrition contained in the food eaten.

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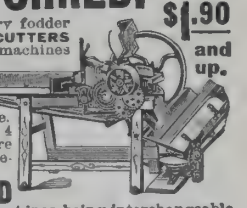
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all kinds of green and dry fodder with the **WOLVERINE CUTTERS AND SHREDDERS.** No machines of this kind have ever been made which will do more good work with less power than these. They have knives with 4 cutting edges—a measure of economy. We have devised a special

SHREDDER HEAD

which fits any of these machines, being interchangeable with the same size of knife head. It makes two complete machines out of one. Each machine is equipped with a safety fly-wheel which insures the machine against breakage. Equipped with safety stop feed lever which insures the feeder against accident.

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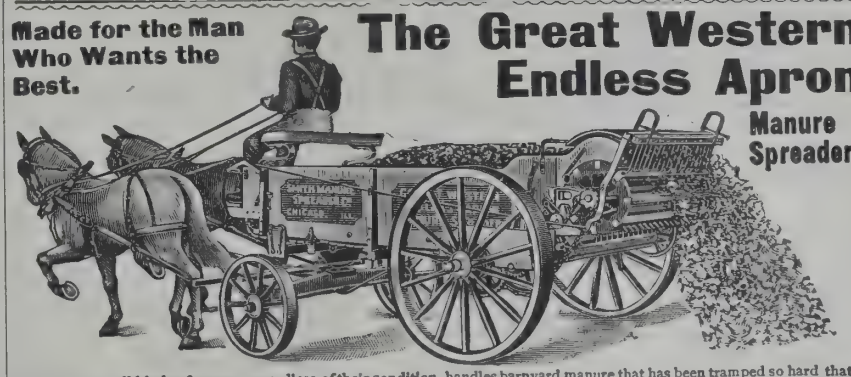
58 STYLES AND SIZES. We have these machines in all these styles and sizes and can supply anything which anybody could possibly want. They range in price from $1.90 up. Our largest machine will cut a ton of feed in 5 minutes. Every machine is guaranteed as to quality of material, workmanship, capacity and quality of work.

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SPREADS all kinds of manure regardless of their condition, handles barnyard manure that has been tramped so hard that it is necessary to loosen with pick, fresh stable manure, containing wet or dry straw, corn stalks, etc. Old straw stack bottoms, whether rotted or not. Cow manure fresh from the gutter, sheep manure, lime, salt, ashes, and in fact all kinds of manure and fertilizers and does it quicker, better and more evenly than by hand. Spreads as much manure in one day as 15 men can by hand. Spreads the largest load in 2 to 4 minutes. Makes the same amount of manure go three times as far and produce better results. **NON-BUNCHABLE RAKE** which forms a hopper and holds all hard chunks of manure in contact with beater until thoroughly pulverized before discharging, therefore no bunching or uneven work. The **ENDLESS APRON** is one continuous apron (Not a ½ apron) and therefore is always ready to load, no turning back into position with crank or reverse gears to cause breakage. Apron does not extend below axle. The Combined **HOOD AND END GATE** keeps manure away from beater while loading, prevents choking of beater when starting and acts as a hood and wind shield in spreading. Starts the manure in the right direction, therefore spreads more evenly. **It has a graduating lever and can be regulated to spread thick or thin 8 to 25 loads per acre while in motion. It catches the poor spots with a double dose. LIGHT DRAFT** 1st. Because the load is nearly equally balanced on front and rear wheels. 2nd. The team is as near load as it can work. 3rd. Front and rear axles are same length and wheels track. 4th. Beater shaft runs **in a ball and socket bearing,** therefore no friction. **Beater** is 23 inches in diameter. Has a shipper that **positively** throws machine into and out of gear and holds it there. Our machine is **STRENGTH AND DURABILITY.** Seat turns over when loading. Machine turns in its own length. made so strong that it is almost impossible to break it. Every piece is made extra strong regardless of cost. Every gear and sprocket wheel is keyed on. We use no pins or cheap contrivance to come loose, get out of order, break and cause trouble. **GUARANTEE.** Should any part break, wear out, or get out of order within one year, we replace free of charge. **LARGE CATALOGUE.** 10 by 13 inches, with 8 large cuts shows spreader perfectly and describes it fully. Gives 34 reasons why the **Great Western Endless Apron Manure Spreader** is the best and most complete machine made and why you should have one. Also tells how to apply manure to secure best results. **Mailed free.**

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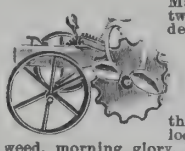
hold from 50 to 100 bushels. Spread just as thin or thick, fine or coarse, as ground requires. Don't have to stop team to make change. Most substantial, largest capacity, and lightest draft.

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profitable, as it will do much to assist in placing our standard of production on the same high plane as, or above, that of older competitors.

Indisputably, Kansas affords unexcelled advantages and possibilities in the dairy business to those who most intelligently respond to opportunity's invitation. Cows of higher grade, if not pure-bloods, educated, practical dairymen and creamerymen, co-operating, applying skill and modern methods to their undertaking, with the aid of new and impoved machinery, will serve to create within her borders a dairy industry that will long survive and permanently prosper.

It is to be regretted that we are behind the more progressive states in having no dairy commissioner, inspectors, or adequate pure-food laws. There is need for these, and the industry is of a magnitude to entitle it to such recognition. Favorable environments make the dairy conditions here, on the whole, as nearly perfect as are to be found, but human nature is the same everywhere; there is always room for improvement, and Kansas in this respect, as in others, wishes to lead and not follow. In many of the older, successful dairy states the inauguration of such supervision, assuring careful inspection of farm dairies and creameries, with their methods and products, has proven of inestimable value, and has had a most wholesome effect.

Abortion in the Dairy.

ED. HOARD'S DAIRYMAN:—For quite a good many years this disease has prevailed to a greater or less extent in my own county, Franklin, Vt., as well as in some other parts of the state. It has been the source of a good deal of annoyance and loss to the farmers in whose herds it has from time to time made its appearance.

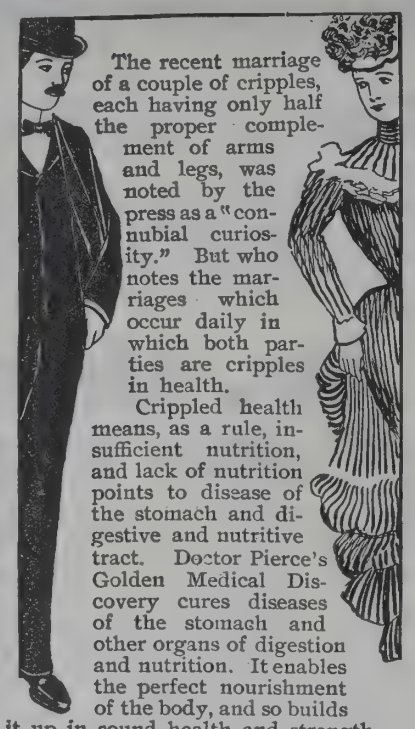
It has acted strangely in its conduct—that is, when it gets into a dairy, it seems as if it were contagious and will usually go through the herd; while when once in the neighborhood it does not show an epidemic character, or that it can be easily transmitted from one farm to another, and that perhaps adjoining. Years ago, this disease first made its appearance in a herd in an adjoining town, had its run and then became extinct. After an interval of perhaps ten years, it has again broken out on this farm and is running a second course. This is the first case I know where the disease has thus made a second appearance after the lapse of several years. Perhaps in other places this may have been the case.

During the long time since it has been showing its presence and effects in my immediate neighborhood, it has not taken the herds as they came, but here and there one, leaving others immediately adjoining, free. This would seem to indicate that it can be easily transmitted from one herd to another without actual contact.

But the isolated cases are growing less in number, and it is possible that in time the herds will be rare where there have been no cases. A herd near-by that had hitherto remained immune, has, during the past year, suffered terribly from this disease, more than one-half being affected by it, while just across the road there is another farm where there has not as yet been any trouble. In another town, a farmer with a herd of 50 to 60 cows had 35 cases in one season. He had a lot of heifers off in a pasture by themselves, and quite a number of these lost their first calves. Heifers are quite subject to the disease.

It used to be generally supposed that in two or three years the disease would run its course in a herd and then disappear. In some instances this appears to be the case, while in others it will remain for several years, perhaps because in large dairies there are heifers being continually raised for the needs of the farm. It has been in my own herd for two or three years, not so generally as on some farms, but quite sufficient to show its character and effects.

I think its run is about over, for which



The recent marriage of a couple of cripples, each having only half the proper complement of arms and legs, was noted by the press as a "connubial curiosity." But who notes the marriages which occur daily in which both parties are cripples in health.

Crippled health means, as a rule, insufficient nutrition, and lack of nutrition points to disease of the stomach and digestive and nutritive tract. Doctor Pierce's Golden Medical Discovery cures diseases of the stomach and other organs of digestion and nutrition. It enables the perfect nourishment of the body, and so builds it up in sound health and strength.

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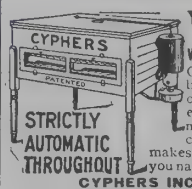
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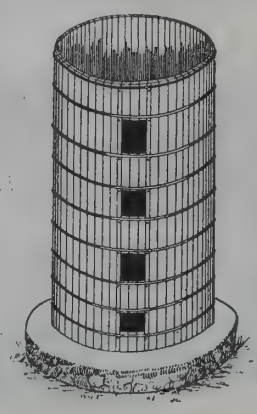
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360 acre farm, 4½ miles from Crookston, Minn., a city of 7,000 inhabitants, and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 feet square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm is under a high state of cultivation, and is well drained by a slight ravine running through the farm merely sufficient for self drainage. The soil is a rich, deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50.

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired. Price $19.00 per acre.

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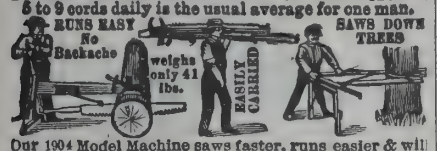
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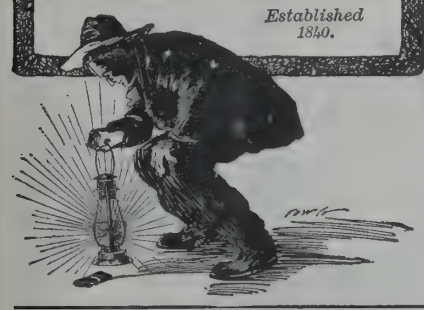
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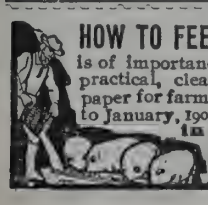
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is of importance to swine growers. A practical, clean, common-sense swine paper for farmers can be had from now to January, 1905, by sending **10 Cents in Silver** at once to

BLOODED STOCK, Oxford, Pa.

we shall feel greatly relieved. Its effects in a dairy are very bad indeed according to our own and other's experience in the matter.

A small portion of the cows or heifers aborting are a total loss to the dairy as they cannot be brought to the successful stage for milking, and quite a per cent more do not amount to more than an ordinary farrow cow. Now and then one will do very well, and the nearer they come to their full time before calving, usually the better they will do, but the larger part are much injured for milking purposes or ruined entirely for the dairy.

Another serious difficulty we find is getting these cows in calf again, one-half I think proving a failure in this respect.

And in connection with this matter, I would add that we also have considerable difficulty in breeding some of the cows that are apparently all right, not having miscarried. This is a serious matter, as these cows are among our best and the value of the dairy suffers in consequence. The cows are Jerseys or grades, and we have always, since using this breed, had more or less difficulty in this direction. Some think this failure to breed in such cases as I have stated, is in some way connected in its characteristics with abortion, but we were troubled in this way to some extent before we knew anything about abortion as a disease.

One spring we tried a remedy for non-breeding cows, and it worked well with two, but the next year it had no effect on such cows or those that had lost their calves.

It has been said that the same cows would not suffer from this disease a second time, but that is not always the case, as has been found. It would be a relief certainly if something more of the nature of this disease so afflicting to our dairies, could be made plain to our farmers, and if there could be found an effective remedy for the same. Perhaps in time this will be the case.

In a visit to Grand Isle Co., this state, situated in Lake Champlain, I found on inquiry that there was no trouble of this kind as yet among their herds. This is a little singular, but possibly the immunity may be owing in a measure to the isolated condition of these islands, being surrounded by water. At any rate, the farmers should consider themselves fortunate in thus far escaping this infliction, which has been and still continues to be, such a serious drawback to the dairy interests of our country. E. R. TOWLE.

Franklin Co., Vt.

New Hampshire Dairy School.

The Ninth Annual Dairy School of the New Hampshire College of Agriculture and the Mechanic Arts will open on Tuesday, January 5th, and continue ten weeks, closing on March 15th.

The object of this school will be to furnish a broad and substantial foundation for those who would become successful as creamery managers or dairy farmers. In other words, it offers a short route to a successful career which otherwise must require years of experience to attain. All available space in the Dairy Building will be occupied by the various forms of separators, and other dairy appliances, which will be for the use of dairy students.

The subjects considered are those which have a practical bearing on everyday affairs connected with the various branches of the dairy industry, and will include a study of the conditions covering the production of milk, and the manufacturing of milk into other products, milk testing, dairy bacteriology, the chemistry of milk and butter, and the use of dairy machinery. The subject of the dairy farm will also be considered, and will include the study of the breeds of dairy cattle, their care and management, and a discussion of the more common diseases, their causes and the methods of treatment. Especial attention will be given to the subject of feeds and feeding; a careful study will be made of the different dairy feeds and their value in a feeding ration. Practice will also be given in computing and compounding rations for dairy animals.

No entrance examination is required and there is no age limit for students. A tuition fee of five dollars is payable at the beginning of the term. Other expenses, including books, room and board for ten weeks, will amount to from between fifty to sixty dollars. For further information and description, address New Hampshire College of Agriculture and the Mechanic Arts, Durham, New Hampshire.



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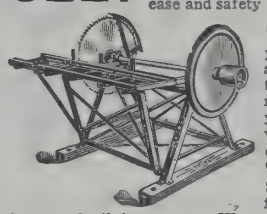
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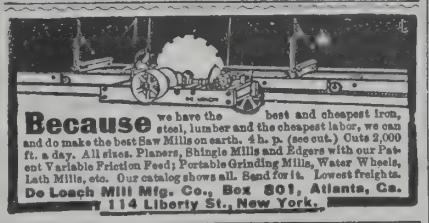
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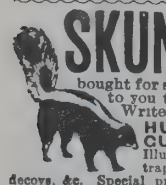
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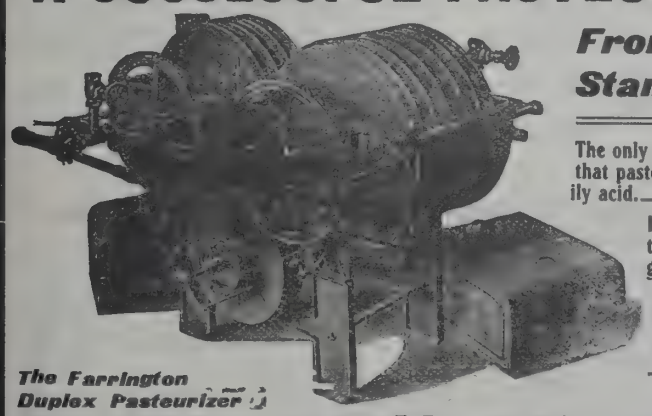
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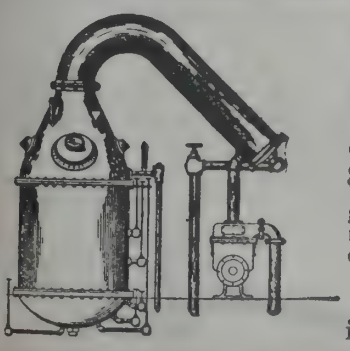


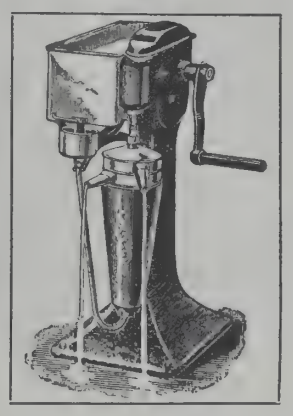
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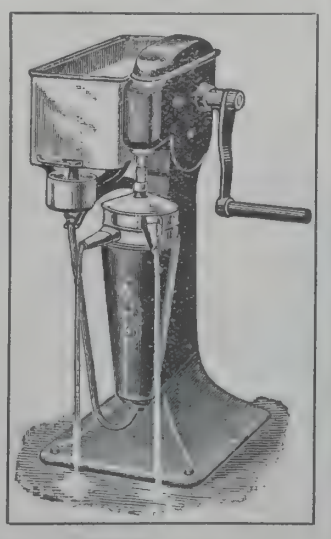
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A lantern that blows out is but little better than none. There's no necessity of having that kind. There are lanterns that don't blow out.

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are the kind and they beat all others in the clear, white, steady light they shed. Then there's the safety and convenience where Dietz Lanterns shine. Safety is absolute. You never remove the globe to light, extinguish, trim or fill. Sold the world over by dealers. Before you go to buy write for lantern book and make your choice.

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hurts much less than a bruise, crush or tear.
DEHORNING Done with the **KEYSTONE KNIFE**
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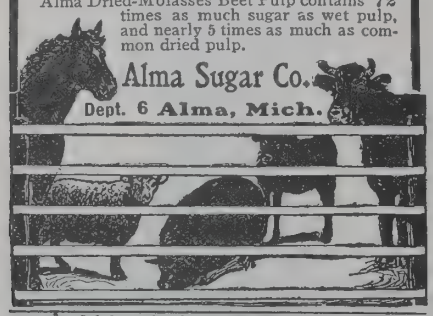
It is superior to the many patented "stock foods" as it is a natural product and contains no drugs or dangerous ingredients.

Better than bran and costs less. Keeps the animals in prime condition and when fed with grain is the best fattener known because it improves both appetite and digestion.

E. C. Cummings, Carson City, Mich., writes: "Send 2 tons first freight. Am feeding 35 steers to top the market. This is my 6th order."

It is the best food for milch cows; splendid for calves. All stock thrive on it.

Do not confuse this with wet beet pulp which freezes and ferments, or with common dried pulp containing no additional sugar. It takes 16 tons of wet pulp to make one ton of our Food, and it keeps indefinitely. The genuine Alma Dried-Molasses Beet Pulp contains 72 times as much sugar as wet pulp, and nearly 5 times as much as common dried pulp.



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Educate the Hired Man.

ED. HOARD'S DAIRYMAN:—How plainly the writer of the above lines, signing himself as "Ex Hired Man", shows his own failings. He says he gets $20 a month or at the most $25. What does that mean? At the very least from $30 to $40 when he counts in his board, and this does not count in the wear and tear to his employer, and I can assure him that 25 per cent of the average farm hands to be had to day are the gump heads, he so kindly calls them, and I am very much afraid he is one of them.

In almost every walk in life a man is snpposed to educate himself for the business he intends to follow, but there are a great many men who think a man does not need an education to be a farmer and as a result that class of men never get much farther than the man who styles himself a gump head.

There are a great many men in this world like a man we ran upon in a New York store, caught in a pouring rain, without an umbrella. We stepped into the first open door we came to, which happened to be a gentleman's furnishing store; hats, umbrellas, and such things. A dapper young fellow came up and asked our wants; we informed him we wanted the rain to stop more than anything else just then. During the few minutes we were standing there, he informed us that he was really the man who made the store a success. The firm was of course of no consequence. If he had not been the man he was they would not have amounted to anything. But the height of his ambition was to be a farmer, to manage some large farm. We simply inquired if he knew anything about farming? Why no, but that was nothing to learn, a man who had been the success he had, could certainly succeed. But we have never recommended him yet. We are very much afraid he could be classed with the gump head variety.

But as to the money end, there is no business that one can begin without capital, with good, sound common sense and a willingness to try, that will, properly cared for, put by more money than being a good hired man.

Three brothers came to this country in debt for their passage. Each one of them worked in turn eight years for the same farmer. Their average for the eight years was about $170 a year and board. Two of them, at the end of the eight years, had over $1,000 in capital, rented farms and are both doing well. The third worked ten years, invested in a farm at $80 per acre and is paying for it. These men when they came to Wisconsin, were totally ignorant of farm work as done in this country, but they knew they were ignorant and were ready to learn. It makes no difference if on a farm or store, railroad or shops, it makes no difference what his wages, whether great or small. If he wants to be out every night of the week he cannot do justice to his work, and he cannot save his wages, and he can blame no living man but himself for being a gump head.

ONE OF THE FARMERS.

Wis.



A simple and proper method of cleaning costly and easily-injured articles is to make a suds of hot water and Ivory Soap, and allow it to cool until lukewarm. This solution, while very effective, is perfectly harmless.

Ivory Soap contains no alkali. It will not destroy the surface or texture of any material, however delicate.

Ivory Soap differs from other soaps. It is more carefully made, and the materials used in its manufacture are the purest and best.

IT FLOATS.

SEEDS **THE ALBERT DICKINSON CO.**
DEALERS IN
GRASS SEEDS, CLOVERS, FLAX SEEDS, LAWN GRASS, BEANS, PEAS, POP CORN, BIRD SEEDS, BUCKWHEAT, BAGS, ETC.
CHICAGO, ILL. BRANCH: MINNEAPOLIS, MINN.

PROFIT AND PROTECTION
THROUGH ELMCO FEED

Had you the time and facilities to analyze all the feed you use, it might be safe for you to buy in bulk. But you haven't and to buy bulk feed without applying chemical test, is like buying a horse on his looks.

Feed may look all right but be light in nutrition or heavily adulterated. Twenty-five per cent of seventy-eight samples of bulk feed analyzed by the Massachusetts Experiment Station showed serious adulteration. Ground corn cobs, coffee bean hulls and other purely fibrous substances were discovered.

The feeders protection against such fraud, is the purchase of feeds which have been analyzed by the Agricultural Experiment Station and are packed in sacks, bearing the trade mark of some responsible miller who guarantees the quality, strength and weight of the feeds contained in the sacks.

ELMCO Feeds have been analyzed by the Wisconsin Experiment Station and found to be pure, unadulterated and profitable feeds for milk or fattening. They are not patented or medicated stock foods, but hard Spring wheat feeds, carefully milled for best feeding results, packed in the ordinary sized sacks, branded with our copy-righted trade mark, "ELMCO" which guarantees weight, purity and uniform quality of the feeds.

We should like to correspond with a few more large feeders with a view to furnishing them ELMCO Feeds direct from the Mill. Prices and samples sent upon request. Ask your Banker as to our responsibility.



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LA CROSSE, WIS.

Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairyman's Association.

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ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Entered at Fort Atkinson, Wisconsin, as second-class matter.

Erecting a Silo.

ED. HOARD'S DAIRYMAN:—Picture No. 1 shows our method of putting up a 2×6 stave silo. The door frames are made of 4×6, well bolted together with 2×6 cross pieces to hold them apart. It is put in place and thoroughly braced. And then a 4×6 is placed one-third of the way from the door and it is braced also, and then a hoop of the right length is put in the top holes as shown in cut. And now every thing is ready for the staves, one man on the ladder at top and one on the ground. The staves are braced from the back side at times.

Picture No. 2 shows silo one-third up, also the other 4×6 in place with rod. Mr. F. M. Parsons is on top of post.

Picture No. 3 shows the way the silo looked at six o'clock the first day. The rest of the hoops were put on the second day.

We had 1,100 tons of ensilage to cut this fall in the neighborhood. We used a Ross ensilage cutter. N. H. C.

Burlington, Ia.

The Farm Help Problem.

ED. HOARD'S DAIRYMAN:—One cause for the scarcity of farm help has recently come to my notice. This is the uncertainty of the pay. It is very discouraging for a man to work hard and then find at the end of a month or season that his employer either cannot or will not pay him his wages. After several such experiences is it strange if the smartest and most intelligent farm hands go into some other kind of work where the pay is sure?

This state of affairs makes it difficult for farmers who do pay their bills to get help. The innocent suffer for the guilty.

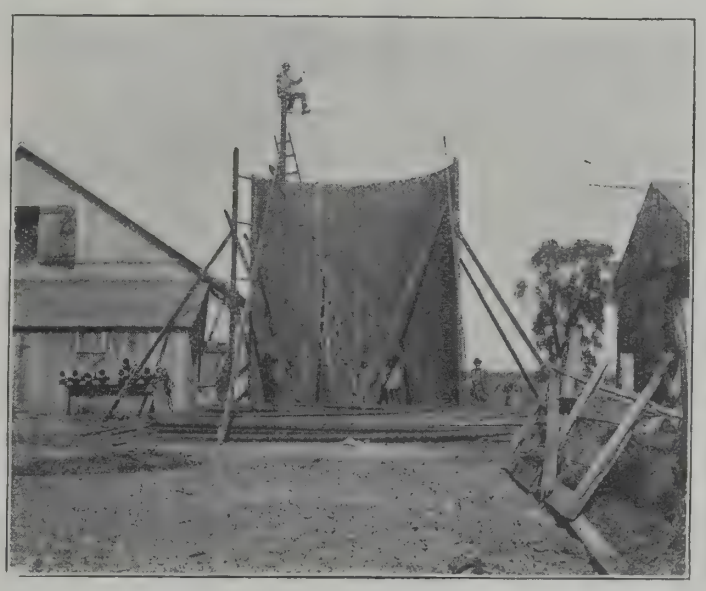
There are some farmers who want to pay their men and try hard to do it, but their crops fail, or they are not good managers, so the men have to wait.

There is also a class of dead-beats, and these are more often the ones who take advantage of the unfortunate or aged. I know of one man who runs a large city milk route and does not calculate to pay any of his men if he can possibly help it. He holds them off with promises and excuses till they are utterly discouraged and leave him—perhaps to be cheated the same way at the next place. One old man I know of worked all one winter on the understanding that he was to get twenty-five cents a week in addition to his board, and did not even get that small sum. He was old and deaf, but he was temperate and moral and a good worker. Another younger man, an exceptionally honest and faithful hand, was cheated in a similar way. I know of other such cases. These men are not perhaps the most intelligent class of farm help, and would not command the highest wages, but are honest and trustworthy, and a farmer would feel safe in taking them into his family.

It seems to me that if farmers would plan more carefully and make it a rule to pay their men promptly at the end of every week, they would more easily obtain good help. Most men would be satisfied with smaller wages if the money came surely and promptly.

Abington, Mass. S. B. R.







Erecting a Silo on the Farm of H. N. COBB, Burlington, Ia.

The Farmer as a Factor in Creamery Butter Production.

This is the farmer's part in the production of good creamery butter:

1. Keeping a sufficient number of cows to make it well worth while to provide for them the kind of feeds and give them the care they should have.

2. The cows must be of a recognized milk-producing type. A cow that does not yield 200 pounds of butter fat during one year's period of lactation can seldom be kept at a profit. The best dairy herds now produce over 300 pounds per cow per year, and already some have set even a much higher mark.

3. The cows must have an ample supply of nourishing and palatable food both summer and winter, and of course plenty of pure water. For a palatable and nourishing food for winter use, there is nothing better than corn ensilage.

4. Fully as important as any other of the many requirements in profitable dairy farming is the care given the milk.

Good milk—good buttermaker—good butter. Here is a trinity that stands all powerful between the dairy farmer and his profit—the willing dollars of the butter consumer. Good butter—good buttermaker—good milk—a trinity one and inseparable, and the farmer is the beginning and the ending. His part is to furnish the good milk—the alpha and omega of getting a fancy butter product, which again means a good market demand and price and a goodly share of honest profit dollars in the pocket of the owners of the cows.

The necessity for producing good milk cannot be too strongly impressed on all who have the handling of it. Though many suggestions may be found of great practical utility by the patron, such as prompt removal from the milking stalls, rapid cooling in tanks of water to drive out quickly the animal heat, clean washing of cans followed by exposure of them to sun and air, etc., one general law, well observed, will suffice.

Aim to deliver the milk at the weighing room of the creamery as clean, as pure and as sweet as though every drop of it was to be used on your own table!

Can dirty milk, unstrained, turning sour, smothered, tainted from stable exposure or otherwise, or carried in ill-smelling cans, ever reach the weigh-can of the creamery under that rule?

Whether operated by an association of farmer shareholders, by a stock company, by a corporation located in a distant city, or by a locally resident owner, the creamery is ever a co-operative institution. No one patron can deliver milk below grade and flatter himself that because it passed the receiver he is thereby the gainer. It is true he has gained temporarily what is lost by his more careful neighbors, for he has lowered the quality of their product to his own level, but it is not written that a man shall continue to prosper at the expense of others indefinitely.

Let every milk can stand on its own bottom. Let every patron feel that in the chain of association for the production of good butter he forms no weak link, but equally with his neighbors stand steadfast and true, giving his best and asking equal worth of every other. The organization is not perfect if any part is weak or wanting, and thus the milk producer must do his full share toward the attainment of that perfect result—a market for the highest grade butter, through a well managed creamery well patronized by well satisfied, intelligent patrons.

Do what the buttermaker may, the purity of the butter will never rise above the purity of its source, therefore the better the milk the better the butter. Every hour, every minute the milk is exposed in stables, barns, or other surroundings laden with flavor-destroying taints or exposed at temperatures above 60 degrees, its quality is impaired for the making of the best grade of butter. Every time it is closed tightly into the creamery can while warm, or the warm morning's milk is poured into the cold milk of the evening before, it means a loss of butter quality because of "smothered" milk. Every exposure of the cans to the hot sun of summer, while the milk is on the way to the creamery, means a lessening of that fine delicate taste that is to butter what the fine edge produced by honing is to the axe or other sharp cutting tool. It is not in nature that the stream shall rise above its source—neither may it be that butter shall be better than the milk that it is made from.

Something can be done, it is true, in the creamery to overcome provious neglect of the milk, through the cleaning process of centrifugal cream separation and through the use of heat to stop further deterioration, as cooking will check for a time the spoiling of food. But neither of these processes will restore a tenth part of the fine flavor the milk has lost through neglect of the simplest precautions against absorption of taints and the keeping of it at a properly low temperature.

There can be no good butter if the farmer has not done his part to produce good milk and if the butter maker has not done his part to handle that milk in a skillful manner to concentrate its good qualities into the finished product.—JOSEPH KOLARIK, in *Creamery Patrons' Handbook.*

A Banner Potato Crop.

ED. HOARD'S DAIRYMAN:—Knowing that nearly all dairymen are somewhat interested in potato culture, I thought I would give a synopsis of what we call in this country, a banner potato crop.

My neighbor, P. B. Daley, has harvested this season from seventy acres of land, 15,200 bushels of market potatoes. They were loaded on three canal boats, holding a little over 5,000 bushels each—the boats being used for transportation to New York and as storehouses after the arrival.

Mr. Daley says the system of produc-

ing such a wonderful crop on so large an area is no secret. The first great requsite was a favorable season. The next was fertile soil, but he lay no great stress on intensive culture.

Thirty-five acres of this land have been planted to potatoes for 40 years consectively, and some of it longer, and on that land he got the largest yields.

The kinds of potatoes planted were Early Rose, Hebrons, and Peerless or Sixes. The Early Rose, as a rule, is considered a light yielder, but Mr. Daley harvested 1,000 bushels from one three-acre piece, and from another three-acre plat, 1,050 bushels of Peerless, and from ten acres of the same, 3,150 bushels. The potatoes are all weighed and 65 pounds allowed per bushel.

The natural soil was a cold, sour, swamp land that in its natural state will produce nothing but white birch and tag alder bushes of a feeble growth, but when cleared up and drained and fertilized, seems almost inexhaustible for potato culture. The system followed is to cover a piece one year with stable manure (horse manure being preferable), and the next year use a high-grade potato fertilizer at the average of about 500 pounds per acre. Plant in rows 2 feet, 10 inches each way and do as little cultivating as possible and keep the weeds and grass down. That must be done at all hazards, and when the tops nearly or quite shade the ground, hill them in good shape with the hoe and wait developments.

We open our boats about the middle of January and wholesale them from the boat. The early varieties are sold to the Long Island farmers for seed and the late varieties are shipped to Cuba. They all go for seed as they are not first-class for table use, but have excellent keeping qualities and always sell a little above the market. F. S.

Sandy Hill, New York.

The Oleo Question in Washington.

Arguments This Week Before Supreme Court of United States on National Oleo Law—Validity of Rulings at Stake.

WASHINGTON, D. C., Nov. 30—The oleomargarine forces are here in Washington with six of the leading attorneys of the country in an effort to overthrow the National Oleomargarine Law Four cases involving the validity of this act are before the Supreme Court of the United States and were set for argument to-day, but the court will probably not reach them before late tomorrow or Wednesday. The decision may be handed down in a month or may hang fire for a year.

The oleomargarine interests are represented by Wm. D. Guthrie of income tax fame, New York city; Miller Outcalt and Chas. E. Prior of Cincinnati, law partner of United States Senator Foraker, Francis J. Kearful, Delovan B. Cole and Chas. C. Carahan, six in all and in addition Kingman & Company of Indianapolis, have sent ex-Attorney General Miller to look after their interests.

The government is represented by the Solictor General whose brief is one of the most able and complete ever filed with the court, and he has been ably assisted in the preparation of the case by Commissioner of Internal Revenue J. W. Yerkes, who is also an able attorney. The Internal Revenue Department will not permit outside counsel in the cases involving taxation, and it is plain from the thoroughness of the government brief, which covers 180 pages, that no assistance is needed. This is considered by the Internal Revenue Department to be a most important case, as it involves the right of the Commissioner to rule regarding the collection of all commodities which Congress has taxed internally. CHAS. Y. KNIGHT

Profit of the Dairy Cow.

Very few farmers realize the income to be had from a good cow. The farmer who keeps a cow a year to raise a $15 or $20 calf usually thinks he has done as well as anyone, but his profits do not compare with those of the dairyman. Except with high-priced registered cattle, as a rule, the milk, not the calf, is the most valuable product of the cow.

The milk produced by the average Missouri cow will sell for about $30 at the creamery or when made into first-class butter. A good cow of the dairy breeds will make at least $50 cash income every year.

I have a list of about fifty Missouri farmers who report a cash income of from $50 to $100 per cow every year, and these figures do not include the income from the calves and pigs fed on the skim milk. But, says one, milking is a tremendous task. As a matter of fact, it takes only sixty hours' time, worth about $6 to milk a cow ten months.

Now, a few facts and figures from our experience on the state farm. Last year the cash income from the herd was $82.50 per cow for butter sold and $12.50 per cow for milk, skim milk and calves, making a total income from each cow of $95. This year the average income from the same source will be over $100 for the entire herd of twenty-eight.

These incomes do not come from feeding expensive feeds or excessive feeding. They are not due to fine barns or unusual treatment of any kind. But they are the result of doing the right thing at the right time in the proper way.—C. H. ECKLES, Professor of Dairy Husbandry, Columbia, Mo.

An Ohio Guernsey Sale.

ED. HOARD'S DAIRYMAN:—The sale of J. R. Austen's small herd of Guernseys was most successful in point of attendance. Many prominent breeders of Ohio were present, including A. R. Potts representing H. B. Van Cleve, Cleveland; Wm. Conley, Cedarville; Joe Defrees, Piqua; Albert French, Levanna; Andrew Sill, Middletown; G. R. Griffin, Lodi; E. L. Benedict, Stantentown; A. R. Collins, Xenia; Earl Stormant, Cedarville; W. Voorhees and Mr. Warder, North Bend.

Lady Osborn No. 9671, H. B. Van Cleve		$81.00
Miss Beth No. 10057,	"	126.00
Julia P No. 10404,	"	160.00
Alice Spencer No. 10415,	"	175.00
Ruby Allen No. 15831,	"	120.00
Cora Osborn No. 12810,	"	86.00
Lady Spencer No. 7982, A. R. Collins		71.00
Sallie Spencer No. 15830, H. B. Van Cleve		97.00
Clara Spencer 1 year old,	"	59.50
Barbra Allen 1 year old, W. D. Austen		65.00
Lucy Spencer 1 year old,	"	71.00
Laura Beth 6 months old, R. C. Kuhus		26.00
Fanny Osborn 6 months old, Earl Stormant		41.00
Dora Spencer 6 months old,	"	41.00

Dayton, Ohio. J. R. A.

Beet Pulp.

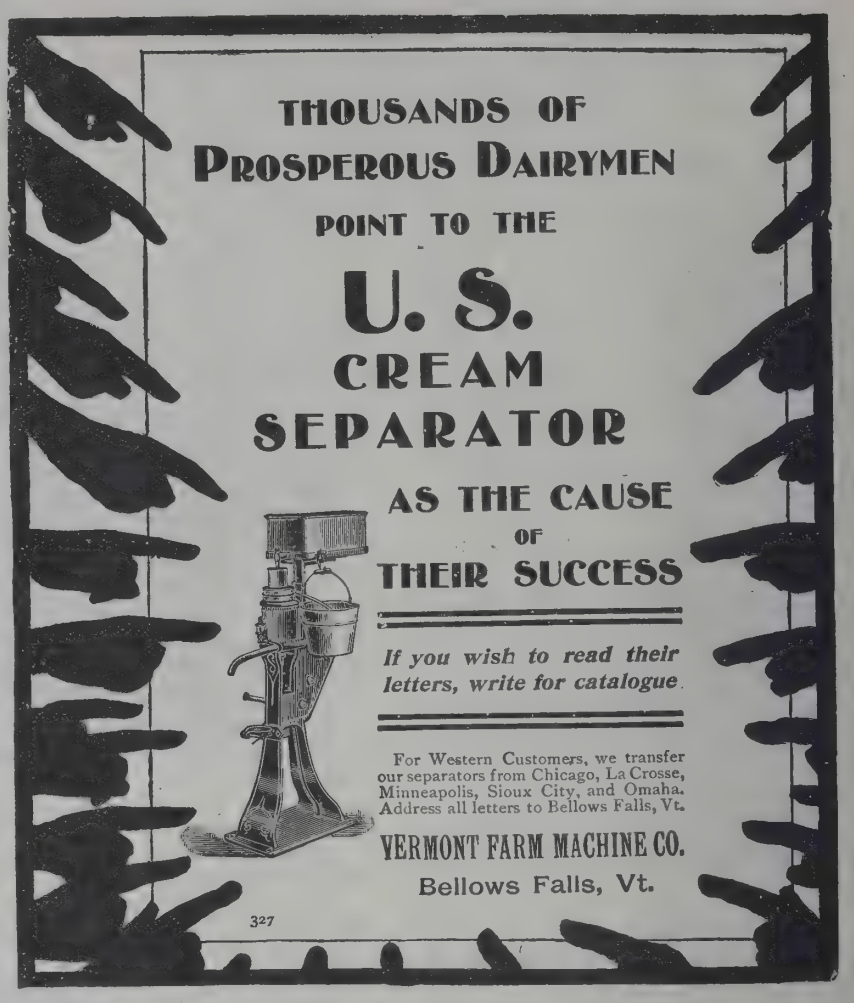
Please advise in your next issue how to feed beet pulp, and which is the most profitable, bran and shorts mixed, say at $13 per ton or beet pulp at $ 2 per ton both delivered at R. R. Station ½ half mile distant.

Beet pulp is being introduced and can be had in abundance at above prices. Publish in your next issue everything that is of interest in the matter as it is a new thing with us. Do so and you will oblige many of your subscribers as well as myself, as I have stated in a gathering that I would write the DAIRYMAN for information and they will be anxiously awating an answer from you. R. L. R.

Spokane Bridge.

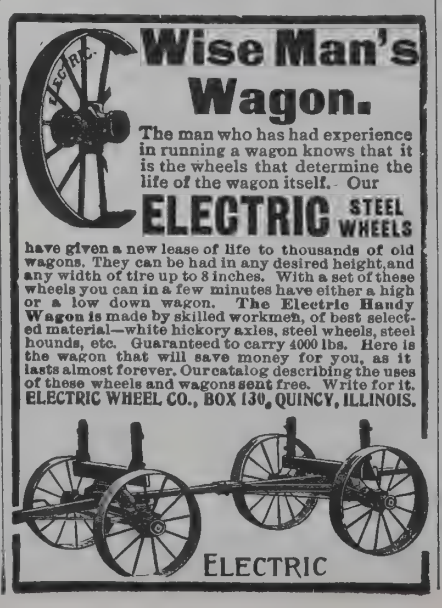
If these anxious inquirers will refer to page 772 in the issue of HOARD'S DAIRYMAN for October 9, 1903 they will find a table giving the average amount of digestible nutrients in all the more common American feeding stuffs, including beet pulp.

Beet pulp as it comes from the sugar factory contains practically ninety per cent of water and only ten per cent of dry matter. In one hundred pounds of this pulp there are only 7.9 lbs. of digestible nutrients. In one hundred lbs. of bran there are 58 lbs. or a little more than seven times as much. In one hundred lbs. of middlings there are 82 lbs. or more than 10 times as much as the pulp carries. Under ordinary conditions beet pulp is accounted to have about half the feeding value of good silage, and can be fed up to 50 to 75 lbs. per day.



WHEN YOU SEND IN YOUR RENEWAL speak to a few of your neighbors and have them join you.
CLUB RATES: 2 Subscriptions, $1.50; 3 Subscriptions, $2.00; 4 Subscriptions, $2.50; 5 Subscriptions, $3.00.





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This Meal is Guaranteed Absolutely Pure. We also manufacture Strictly Pure Linseed Oil.
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When ordering mention this paper.

Pure Milk in Binghamton, N. Y.

ED. HOARD'S DAIRYMAN:—Binghampton, N. Y., although a city of only about half the size of Albany, is making a more determined effort for the purpose of securing a pure milk supply than do most cities of fifty thousand inhabitants. It so happens that the surrounding country, being decidedly a dairy section, produces practically the amount of milk that is needed for the use of the city. No milk is shipped away, nor is any brought in except by teams. Some butter is made at times when there is a surplus of milk, but not enough to meet the demands of consumers. Consequently, a considerable quantity of butter is purchased from outside.

So long as the supply is so near the place where used, it becomes an easier matter to procure milk of good quality; at least, inspection is easier, as well as enforcement of requirements. Besides, public sentiment appears to demand proper conditions for producing and handling milk, and in reality it is that which determines what the conditions shall be. From what I could learn, the dairymen are, as a rule, as much in favor of right conditions and good milk as are the purchasers, not but what there are many cases of indifference, however, among both classes.

Up to a dozen or fifteen years ago, the milk trade was in the hands of any number of farmers that might happen to care trying the retail business, and even now there are a good many farmers who are engaged both in producing and in retailing.

A few years ago Mr. S. Mills Ely, a prominent wholesale grocer in the city, became interested in a large farm just outside the city limits. He came to the conclusion that an improvement in the milk supply of the city would be welcomed by many purchasers, and might prove profitable as an investment.

He secured the services of an experienced farmer as foreman, Mr. W. Haney, and put the whole matter into his hands. The foreman was instructed to procure cows and equip the farm and the dairy with such an outfit as would best serve the purposes of the business, consistent with economy.

The price of milk was fixed slightly above that charged by the other dealers, it being kept at six cents per quart throughout the year. People were invited to come and see the premises and inspect the methods. The demand for milk from "Honey Bee Farm," as it was called, kept on the increase till finally it was necessary to refuse any additional customers. Upon visiting this farm I found a fine herd of cows. Many are Jersey or Guernsey, though some Holstein and Ayrshire cows are kept there.

The stables are light and airy and are kept clean. Every cow is brushed, and before milking a damp cloth is used in cleaning off dust and dirt. The stable is kept free from manure at milking time, and planer shavings are scattered over the floor and in the gutters.

Each cow has a stall and is kept in by a chain across just behind her. The milk is at once removed from the stable after milking and it is passed through three strainers into cans. A truck conveys it to the milk house. Here it is pasteurized and immediately cooled, and kept in the refrigerator till put on board the delivery wagon.

The milk is liked by customers, is wholesome and keeps, when well cared for, as long as one could wish to keep it.

A few years later Judge Lyon, who is interested in the farm of his boyhood, and in one or two other farms, opened a creamery on one of the principal streets of the city, and in conjunction with a few other people commenced to buy and sell milk, in addition to what they furnish from their own farms. "Clover Dale Creamery" is the name it goes by, and it is one of the prettiest little concerns that I have visited. It has sanitary conditions that are first-class, and exceptional care is taken to keep everything neat and attractive. The milk is carefully inspected when taken in. No pasteurizing is done for the manager says it is better to cool milk than to heat it.

It is clarified by the centrifugal process, bottled and cooled. This concern now handles a greater quantity of milk than any other in the city. There are three or four smaller creameries that are doing fairly well, and a number of farmers who sell a carefully prepared article. A few farmers might improve their stables to the advantage of themselves and their customers, but the number of those open to any considerable criticism is continually becoming smaller.

Some public meetings have been held in the city under the auspices of the Board of Health, where the subject of a pure milk supply, and its bearings upon life and health, have been calmly discussed. Local papers gave full accounts of these meetings, and the public have had excellent opportunities to become informed both as to proper conditions and the conditions which prevail.

Health Officer Hix is entitled to no small credit for the earnest efforts which he has put forth to bring about what appears, at least on the surface, to be a desirable conditions of affairs. It may not be out of order to suggest that the efforts and accomplishments in this particular direction may have been largely instrumental in teaching the citizens of the place to demand a pure water supply, which is now furnished by the use of a fine filter plant. Binghamton appears to be fortunate respecting supplies of healthful drinkables. H. H. LYON.

Chenango Co., N. Y.

Filling Silo With Shredder.

ED. HOARD'S DAIRYMAN:—I wish to build a silo for next year and wish to know whether I can fill it successfully with my Plano shredder and husker, provided I can put corn and all through the machine. H. S. J.

Anamosa, Ia.

Although we have never tried it, or seen it tried, we feel quite certain that it would not be practicable to attempt to silo shredded fodder. In the first place, it would be difficult to get such material into the silo, unless it was cut as well as shredded, and if this difficulty could be overcome we should fear the shredded fodder would not pack close enough to exclude the air.

A FRENCH chemist has discovered that the purity of milk can be tested by electricity, and the irreverent newspaper man of Chicago sees things as follows:

There are always new ways finding
Testing milk.
Each his business busy minding
Testing milk.
Thus we hear from far-off France
That the lightning gets a chance
Human skill there to enhance
Testing milk.
If it's watered they can tell it,
Testing milk,
For the pure stuff they can't sell it,
If the current flows too easy,
It has lost the casein cheesy
And the Paris air gets breezy
Testing milk.
—*Chicago "Daily Produce."*

"ADVERTISEMENT."

ABOUT FEAR

Often Comes From Lack of Right Food.

Napoleon said that the best fed soldiers were his best soldiers, for fear and nervousness come quickly when the stomach is not nourished. Nervous fear is a sure sign that the body is not supplied with the right food.

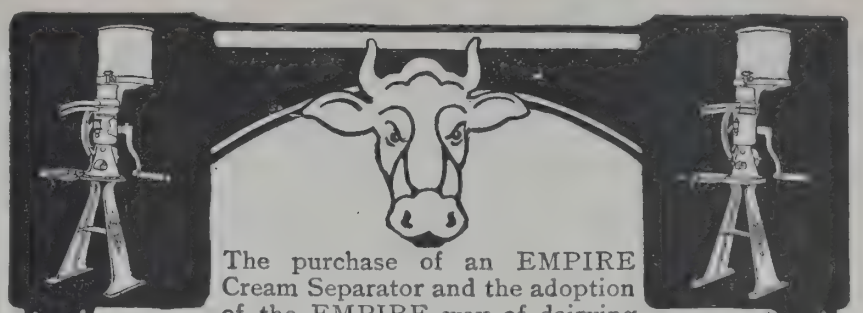
A Connecticut lady says: "For many years I had been a sufferer from indigestion and heart trouble and in almost constant fear of sudden death, the most acute suffering possible. Dieting brought on weakness, emaciation and nervous exhaustion and I was a complete wreck physically and almost a wreck mentally.

"I tried many foods but could not avoid the terrible nausea followed by vomiting that came after eating until I tried Grape-Nuts. This food agreed with my palate and stomach from the start. This was about a year ago. Steadily and surely a change from sickness to health came until now I have no symptoms of dyspepsia and can walk ten miles a day without being greatly fatigued. I have not taken a drop of medicine since I began Grape-Nuts and people say I look many years younger than I really am.

"My poor old sick body has been made over and I feel as though my head has been too. Life is worth living now and I expect to enjoy it for many years to come if I can keep away from bad foods and have Grape-Nuts." Name given by Postum Co., Battle Creek, Mich.

There's a reason.

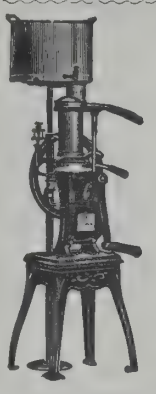
Look in each package for a copy of the famous little book, "The Road to Wellville."



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Bloomfield, New Jersey.
Western Office,
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Iowa Dairy Separator.
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REPLETE WITH PRACTICAL IDEAS

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250, 350, 450, 600, 750 POUNDS PER HOUR

Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.

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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of them read dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

COMING EVENTS.

Vermont Dairymen's Association, Burlington, Jan. 5-7, 1904.
Indiana State Dairymen's Meeting, Plymouth, Dec. 10-11, 1903.
Minnesota Dairymen's Association, Fairmont, Dec. 15-17, 1903.
Illinois Dairymen's Association, Greenville, Jan. 5-7, 1904.
Wisconsin Cheese Makers' Association, Milwaukee, Jan. 6-8, 1904.
Ohio Dairymen's Association, Columbus, Jan. 27-29, 1904.
Maine Dairy Convention, Foxcraft, Me., Dec. 2-3, 1903.
New Jersey Agricultural and Dairy Convention, Trenton, N. J., Jan. 14 15 and 16.
Eastern Ontario Dairymen's Convention, Belleville, Ont., Jan. 5, 6 and 7.
Missouri Dairymen's Meeting, Clinton, Dec. 8-10, 1903.
Washington Dairymen's Association, North Yakima, Dec. 29-31.
Massachusetts Creamery Association, Greenfield.
Connecticut Dairymen's Association, Hartford, Jan. 20-21.
Oregon's Dairymen's Association, Corvallis, Dec. 15-16.
Wisconsin Buttermakers' Meeting, Eau Claire, Feb. 2-4, 1904.
Wisconsin Dairymen's Convention at Platteville, Feb. 10–12,1904.

A NEW BOOK BY DECKER.

The latest claimant for public favor in the form of a book on dairying is from the well known author, teacher and lecturer, Prof. John W. Decker, Professor of Dairying in the Ohio State University. It is a modest volume of 115 pages, and bears the significant title, "Elements of Dairying." In his preface the author tells us that the book is written for the "two-fold purpose; first for those in the class room, and second for the public."

This is a good idea, for the student wishes to have the latest and best expression of what has been learned in dairy truth, and the public wants the same.

We like the book and its simple, clear expression and arrangement of the subject matter.

The following is the division into chapters:

Introductory; The Secretion of Milk; Water and Solids in Milk; Milk Fat; Milk Solids Not Fat; The Physical Properties of Milk; Butter and Cheese; Contamination of Milk; Testing Cows; Market Milk; Dairy Refrigeration; Experiment Station Bulletins; Dairy Literature.

In these several chapters the author has condensed in various sub-heads what he considers the latest and most valuable essentials of dairy information.

The book should be read by every dairy farmer who is striving to secure a compact as well as comprehensive understanding of what this thing we call "dairying" means as a whole, and particularly what it means to him. Price, $1.00, and may be obtained by writing to HOARD'S DAIRYMAN.

EXTRACTS FROM "ELEMENTS OF DAIRYING" BY PROF. JOHN DECKER.

DIFFERENCE BETWEEN MEAN AND AVERAGE.

"Sometimes patrons at creameries take samples from the milk of each of their cows to have them tested. The percentage will be added and the sum divided by the number of cows. The result quite often shows a higher percentage than the average weekly test, and there is trouble ahead for the buttermaker. The result so obtained is not an average, but an arithmetical mean. In securing an average, the weights of milk given by the cows must be taken into consideration, as well as the fat tests.

The following example will explain this. A man has two cows which give milk and test as follows:

	Pounds milk.	*Per cent fat.*	*Pounds fat.*
No. 1	50	3.0	1.50
No. 2	20	5.0	1.00
Total	70		2.50

The arithmetical mean is obtained by adding the percentages and dividing by 2, which gives 4 as the mean.

The average is obtained by dividing 2.5 by 70 and multiplying by 100, which gives 3.57 per cent as the average.

VALUE OF PEDIGREE.

"As an illustration of the value of registered full blood cows over common stock, a record of official tests of Guernsey cows in Wisconsin 1898-1899, published in the Wisconsin Experiment Station Report XVII, is given below:

NAME.	*Registry number.*	*Age.*	*Pounds milk in 1 year.*	*Pounds fat.*	*Per cent fat.*
Lilly Ella	7240	5	12282.68	782.16	6.42
Lillyita	7241	5	12812.73	710 53	5.69
Countess Bishop	7869	4	7387.3	452.23	6.42
Madame Trickesy	6519	6	7024.6	405 19	5.85
Lady Bishop	6518	7	6608.9	381.1	5.40
Pristoun	6570	7	6868.3	355.68	5.19
Nounon	6569	9	6338.0	351.7	5.51

A year's record established in this way may have points for criticism, but is more valuable in estimating the value of an animal than a test for a short period under pressure, as in a seven days' test.

PROF. FARRINGTON'S EXPERIMENTS ON AVERAGES.

"Prof. Farrington has for several years conducted careful tests of cows in the herds of patrons of the creamery at the University of Wisconsin.

Composite samples of all the milk given in a year by the cows were tested once a week.

Samples for single days (two milkings) were taken at different lengths of time apart to determine, as compared with the record of samples of all the milk given by the cows, the accuracy of computing averages when testing and weighing once in seven, ten, fifteen and thirty days. Averaging the results from seven of the most variable cows, the results were as follows:

Once in seven days, gave 98 per cent of the total milk and 98 per cent of total butter fat.

Once in ten days gave 98 per cent of the total milk and 99.4 per cent of the total butter fat.

Once in fifteen days, gave 97.6 per cent of the total milk and 98.5 per cent of the total butter fat.

Once in thirty days gave 96.4 per cent of the total milk and 97 per cent of the total butter fat.

HOW BACTERIA ARE PRODUCED BY UNCLEAN COWS.

"Milk from four dirty cows in a clean barn with clean milkers, gave an average of 90,000 bacteria in each cubic centimeter of milk, while clean cows under the same conditions gave only 2,000, or only one-forty-fifth as many.

In a case where there were twelve cows in a stable, a bacterial count showed the milk of eleven to contain a few bacteria, but the milk of the twelfth one standing next to a pile of dry feed, contained 100,000 per cubic centimeter. Dry feed handled just previous to, or during the time of, milking may furnish bacteria-laden dust.

Raising Alfalfa Seed.—Alfalfa Bacteria.

ED. HOARD'S DAIRYMAN:—The latest reports of the results of the experiments with alfalfa have created a desire to learn how alfalfa seed can be grown on a small plat with a view to get seed for larger experiments. Will you give us your experience in that direction in the DAIRYMAN.

Geo. E. McEathron of Beadle county, South Dakota, gives his experience in the *Record-Herald* as follows:

A tract of land was selected that sloped from what is known as the first rise from the river, or, more properly, it was the top of the river bank, but it never overflows, nor does water stand on it as the drainage is good. The sod was broken deep and twenty pounds of alfalfa seed was sown broadcast, without a nurse crop and harrowed in. The stand was good. It was not cut the first season, but pastured close which did not appear to damage it any. It was protected during the winter with a heavy coat of snow. This season it was cut June 17th with the followfng results:

The lowest part of the tract, which was near the edge of the water, had a heavy growth, estimated at 2½ tons to the acre. This gradually decreased as the distance from the water increased, until on the highest point of land and farthest from the water the yield decreased to an estimated yield of one ton to the acre. Later in the season the yield became more uniform.

In the November number of the monthly journal, *Success*, is an article by Herbert Wallace about extracting nitrogen from the air. In referring to the bacteria the article says:

It has been found that the bacteria common to certain families of legumes will not make their homes on the roots of legumes of other families. For instance, the bacteria that subsist on the roots of alfalfa, will not live on the roots of red clover. The bacteria on red clover, however will inoculate white clover, crimson clover, alsike, buffalo clover and all the rest of the trifolium clovers. The bacteria of bird clover, which is common in some parts of the country, will inoculate alfalfa. The bacteria of soy beans will work on cow peas and similar members of the bean family. CHARLES W. GROTE.

Mauston, Wis.

The editors have never attempted to harvest alfalfa for seed, but they cannot conceive that this would be particularly difficult. Their observation leads to the conviction that it is dangerous, at least in Wisconsin, to pasture alfalfa fields to any considerable extent. Instead of that, the first year's growth should be clipped with a mower, but not close to the ground, and a good growth should be left standing in the fall to protect the plants during our winter and spring, when there is frequently no snow to serve that purpose.

The second year cut the first crop for hay and let the second mature seed, which it will do if there are plenty of bees to effect polinization.

A Pennsylvania Ration.

ED. HOARD'S DAIRYMAN:—Please give give a balanced, economical ration from the following: I have a limited supply of mixed hay (timothy and clover, mostly timothy), oat straw and a liberal supply of corn silage, cut in the early roasting stage. The feed stuffs I have to buy at prices enclosed, adding $1.70 per ton for freight. R. H. D.

Corydon, Pa.

Adding freight, feeds will cost this inquirer as follows: Corn meal, $22.70; gluten, $26.95; corn, $22.45; cracked corn, $22.70; ground oats, $30.70; buckwheat middlings, $26.70; middlings, $26.70; bran, $22.70; oil meal, $29.20; cotton seed meal, $30.70. At these prices and considering the character of the roughage available we should be disposed to select the buckwheat middlings and wheat bran, and use equal amounts (by weight) of each.

For cows weighing in the neighborhood of 1,000 lbs. and yielding 20 to 30 lbs. of 4 per cent milk or better, we recommend for trial as follows:

FORMULA FOR RATION.	*Dry Matter*	*Digestible Nutrients* Protein	Carbohydrates	Ether Extract
40 lbs. silage	8.36	.36	4.52	.28
5 lbs. hay	4.34	.14	2.17	.07
5 lbs. straw	4.54	.06	1.93	.04
4 lbs. buckwheat middlings	3.49	.88	1.34	.22
4 lbs. bran	3 52	.50	1 54	.12
Totals	24.25	1.94	11.50	.73

The silage from such immature corn is not likely to be of highest feeding value, but will likely come up to the figures given, and if it does we can see no reason why cows given proper care should not prove such a ration to be economic. In order to be quite sure on this point we strongly urge the weighing of each cow's milk at every milking and occasional testing of it for butter fat. A record made up in this way will probably disclose a wide variation in the productive capacity of the several cows and indicate that there should be more or less of a corresponding variation in the amount of feed given them. The chances are that there will be few or no cows in the herd requiring more than is specified in the formula, but it will be a very exceptional herd if there are not some cows in it where the grain allowance should be cut down 50 per cent or more. There can be no economical feeding where there is not a regular system of apportioning feed according to the ability of the cow to make profitable use of it from day to day.

Charmante of the Gron's Record.

ED. HOARD'S DAIRYMAN:—Enclosed you will find one dollar for renewal of my subscriptlon to your valuable paper.

I should like to take a few minutes of your time in regard to a statement in issue of Nov. 13th about Guernsey cow, Charmante of the Gron. You said her record is the best of any cow of any breed in the world. I don't intend to dispute it, only a couple of years ago I bought a book called "Dairy Fortunes," and the author claimed to have a cow named Carmena that produced 869½ lbs. of butter in a year. Now was it a real live cow, or did he imagine it, if so, what breed was it? J. F. H.

Buskirks, N. Y.

It always gives us pleasure to receive evidence that whatever is published in HOARD'S DAIRYMAN finds attentive and critical readers. Of course, there is a great difference between the honest, inquisitive critic and the mere quibbling fault-finder, but either one, in any reasonable degree, may be sure of a welcome.

As to the record of this famous Guernsey cow, Charmante of the Gron, and the accompanying statement, it may be noted that the claim was not put quite so broadly as stated by this correspondent, but rather that it was the best officially authenticated, yearly record. What other cows may have done without any official supervision, is not called in question. The public is growing to be more particular and discriminating in the matter of milk and butter records than it was before the invention of the Babcock test, and seems indisposed to yield full credence to claims not accompanied by the corroborating testimony of the test, and at least an occasional checking up by a competent and disinterested witness in extraordinary cases.

We have no other comment to make on the case reported in the book referred to, but it is only fair to state that the claim made for Charmante of the Gron is contested by Mr. Hoxie on page 562, and the record of the Holstein cow, Belle Sarcastic, at the Michigan Agricultural College, is cited as coming practically within the demand for official authentication.

A Letter from Hawaii.

Young Men Anxious to Come to the "States."

ED. HOARD'S DAIRYMAN:—I am a subscriber for your paper. I am not working on a farm, but I am coachman for the manager who owns a little farm. I have been studying the little things about the farm.

There are some very nice young fellows out here that were born and raised on the farm. They can ride, lasso, kill, or take care of well bred cows or wild cows. Some are full blooded natives, some are half white. They have asked me to write to you when I showed them the jobs in your paper and how cheap they could buy a farm on easy payment. They want to know if there are some big dairymen out there that would pay their fare out in that country and give them a job and take it out of their wages. They all talk good English. If there is any such a chance for them, put the answer in your HOARD'S DAIRYMAN and oblige.

L. J. SANBORN.

Olaa Plantation, Hawaii.

In the interest of these young Hawaiians, who are ambitious to learn something of the methods of American dairymen and are willing to work their way up, we publish the above letter and affix the name and address of the writer. It would seem quite possible that some of the dairymen in this country, particularly those on the Pacific Slope, might be disposed to avail themselves of this opportunity to get help on their farms and at the same time give help to some of the young men whose destiny, for better or for worse, is so closely interwoven with our own.

Central Guernsey Breeders' Association.

ED. HOARD'S DAIRYMAN:—The annual meeting of the Central Guernsey Breeders' Association will be held at the Vanderbilt Hotel, Syracuse, New York, Wednesday, Dec. 16, at 2 p. m.

Secretary Wm. H. Caldwell will give an address on "The Guernsey Interests on the Island of Guernsey."

Perry, N. Y G. B. TALLMAN, Secretary.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain sepecific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Preservatives for Composite Samples.

I would like to know how to keep the milk of each week for a composite test once a month.

Amity, Ore. G. M.

The easiest way to keep composite samples is to use a preservative of some kind. This may be bi-chloride of mercury tablets such as may be obtained from dealers in dairy supplies, or bi-chromate of potash in powdered form, which can be obtained from any drug store. As much bi-chromate as can be held in an empty 22 cartridge case is enough to keep a pint of milk.

What Should Heifer Do?—Relation of Feed to Yield.

How many pounds of milk a day ought a heifer with her first calf give to show promise of becoming a good cow.

How do you apportion a ration to the milk flow? I know how to balance a ration but have no rule for reduction as the cow advances in lactation. Is it practical and wise to make the reduction? Upon what would you feed cows two months before calving? J. L. C.

Elmer, N. J.

This inquirer appears to be asking for specific, mathematical rules, that shall in large measure take the place of personal care and judgment in the management of a dairy herd. It is impossible to give such rules. For example, it happens quite frequently that a very promising heifer will do poorly with first calf, and no satisfactory explanation can be given. Sometimes a heifer will do remarkably well with first calf and fall down completely with second calf. In either case one must take all the circumstances into consideration and not simply the daily yield of milk. If the heifer has a good dairy ancestry behind her, and does not show too much tendency to fatten at the expense of her udder, she should be given a second year's trial, without much regard to how poorly she may have done with first calf. Then again, it should not be forgotten that quantity is not the sole measure of profitable milk giving. Quality is an equally important factor.

Much the same style of answer must be returned to the second inquiry. One cannot feed by set rules, but must be guided by careful observation of results. Cows vary in their ability to make proper use of feed and the personal equation is always present. The only rule that can be given, and this is more a maxim than a rule, is to feed at all times up to the limit of profitable return, prospective as well as present. When the animal begins to convert feed into surplus body fat, the time has arrived to reduce the daily allowance.

The third inquiry may be answered in a general way by saying, give them any kind of wholesome feed and in such amount as to keep them in good condition, being especially careful to see that the bowels move normally free. We are not in favor of starvation rations, unless it be in extreme cases, where the cow has shown some tendency to milk fever.

Poor Churning.

What is the cause of butter not gathering? Am having all kinds of trouble with it, and what the remedy? R. C. S.

Warsaw, Mo.

It is difficult to prescribe for a case of poor churning, when nothing is known regarding conditions, and consequently the most that can be done is to state the conditions that may cause poor churning and allow our correspondent to select the one that seems to apply to his case.

Some of these conditions are the advance of lactation, improper ripening of cream, and low temperature.

The lactation period influences the churning by making the fat globules of higher melting point, and also by increasing the viscosity of the milk serum. Both of these changes influence the churning very decidedly by increasing the resistance offered to the uniting of the fat globules. When cows come fresh in the spring these conditions are observed in the winter months, especially when the food is largely dry, and when large amounts of hay and straw are fed. In such cases much may be done by feeding silage or roots, and in extreme cases diluting the cream with warm water, or sometimes adding dilute salt brine, or perhaps a handful of salt to the cream before churning.

Thin cream is another cause of poor churning; the butter does not separate well, and there is an additional loss from the fat in the extra amount of butter milk. Cream containing 35 per cent fat is easy to work with less loss in the buttermilk.

Low temperature is responsible more than any one thing for poor results in churning. Cold cream froths and swells and there is no separation of butter fat. Under these conditions it is best to allow the cream to stand several hours, and then warm up slowly to the proper churning point before trying to churn again. When the churning stops just short of the breaking point, the trouble may be overcome by adding a little dry salt or a little warm water at 85 to 90° F.

Feeding Corn Stover and Fodder—Stacked Silage—Ground Peas.

I have corn stalks and also considerable sweet corn, ears and all, to feed this winter. My plan is to run them through the cutting box together to get them thoroughly mixed. Is it better to feed this mixture fresh cut to milch cows, or to cut a quantity and allow it to stand a few days and ferment before feeding it?

Would it be a good plan to feed my clover and alfalfa hay alone or to cut and mix it with the corn fodder?

I attempted to stack some sweet corn by putting on a layer of wheat straw between each layer of corn to keep it from heating. The entire stack is now a steaming mass. Will it make good cow feed? At present they seem to relish it.

Do ground peas make a good feed for milch cows, mixed with wheat bran and corn meal? I find the peas give the meal a strong taste.

I should be pleased if you can answer the above questions through the DAIRYMAN. I hope to be able to renew all the subscriptions I sent you a year ago and get some new ones.

Tuscarora, N. Y. S. E. McN.

We prefer to have corn stover and corn fodder cut some days in advance of feeding, and leaving it in a pile to heat and soften.

Feed the hay by itself, otherwise the cows will "nose" over the mixture, select out the clover and alfalfa, and "muss" the corn fodder to such an extent that it will become unpalatable.

Unless the stacked sweet corn gets to a stage where it moulds and decays, there would seem to be no reason why it should not be good feed for cows.

A limited amount of pea meal is considered a valuable addition to a ration, but both it and corn meal are highly concentrated, heavy feeds and should be mixed with something much lighter, such as bran or some quite finely cut or chaffed fodder.

Stable too Warm (?)—Lumber for Silo.

Have bought me a farm and have 10 cows to start with. My cow barn is a lean-to on the north side of the hay barn which is 24x96 ft, and the lean-to is 20x40 ft. Alley in front of the cows is 7 feet; the barn is too warm if the doors are all shut. Can you give me plans to ventilate my barn so it will carry off the foul air?

Have a wall built for a silo next spring; do you think that one thickness of rough boards and two thickness of tar paper and another thickness of rough boards and wooden hoops out side, will be all right? Want to build as cheap as can, or could you suggest a better way?

Bloomer, Wis, C. W. B.

The air in the stable may be foul and oppressive, and thus create the sensations which are attributed to excessive warmth, but is extremely doubtful whether a thermometer hung up in the stable would confirm such a conclusion. But no matter about this, the thing to do without delay is to construct a tight flue, (not less than 17 inches square on the inside, for 10 cows) running from the stable floor to a point higher than the ridge of the barn. Build this flue on the same plan one would build a chimney in order to secure a good draft. That is, avoid sharp turns and angles as much as possible, and see that it is practically air tight from start to finish, except for one full size opening at the bottom, and another at the ceiling of the stable; the latter provided with a slide so that it may be opened or closed at will.

Then, if the stable is too close to admit fresh air, some provision must be made to secure this, for which see page 773.

The plan proposed for constructing the silo would probably prove satisfactory, but the inner course of boards would better be not more than six inches wide and should be planed on the side so as to give a smooth surface next to the silage to facilitate settling. So too, in filling the silo, the settling next to the wall is much aided by keeping the wall wet.

For Some Michigan Jerseys.

Please formulate a ration from the following feeds for Jersey cows, fresh and of average size: silage composed of well eared corn and medium green soy beans (3½ qts. corn, 5 of beans per acre drilled) beans well filled but dropped part of foliage, Shredded corn stover, clover hay, $8 per ton; buckwheat bran and middlings, mixed, $12.50; wheat bran, $20. We have the silage and stover, the others we will have to buy.

Paw Paw, Mich. (MRS.) T. F. P.

Unfortunately there is no satisfactory analysis of mixed corn and soy bean silage. All who have tried it, pronounce it a most satisfactory fodder. Pure soy bean silage is estimated to be nearly twice as valuable as silage from corn, but we incline to the opinion that this is too low an estimate. If the mixed buckwheat bran and middlings is to be fed to these Jersey cows, we should want the bran part re-ground, as the sharp, cutting angles of the hulls would otherwise prove too irritating to the stomach and intestines. If this cannot be done, we should prefer to sift the mixture, feed only the middlings and use the hulls for bedding, where they would prove a valuable addition to the manure. This however would necessitate mixing some wheat bran with the buckwheat middlings.

It follows, from what is said above, that we do not feel competent to give a specific formula, but by way of experiment would suggest trying about 30 lbs. of the silage, 5 to 8 lbs. clover hay, corn stover *ad libitum* and 4 lbs. of pure buckwheat middlings mixed with enough bran, of one or the other kind, to make them palatable, with salt twice daily.

An Illinois Ration.

Kindly formulate us the most economical ration from following feeds: Part of herd are high grade Holsteins and the other part pure bred and grade Jerseys, all fresh in September and October. Bran, $16 per ton; ear corn, 40 cents per bu.; old process linseed meal, $23 per ton, Buffalo gluten feed, $25; for roughage have to limit, cut clover hay and oat straw good, half and half, to 8 lbs. per day; fair corn stover, shredded, to 6 lbs. per day; wheat straw, *ad libitum*. Have the bran and old process linseed meal on hand, but have to buy the other feeds, corn and gluten feed. J. T. D.

Carlye, Ill.

If the price stated for corn means 40 cents for 70 lbs., corn is the cheapest of the feeds named and it would be advisable to use as much of it as each cow will use to good advantage, that is, as much as she could eat without putting on too much body fat. We therefore suggest as follows for an average:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
4 lbs. clover hay	3.39	.27	1.43	.07
4 lbs. oat straw	3 63	.05	1.54	.03
6 lbs. corn stover	2.38	.07	1.30	.03
3 lbs. oil meal	2.72	.88	.98	.21
4 lbs. bran	3.52	.50	1.54	.12
3 lbs. ground corn	2.67	.24	2.00	.13
Totals	18.31	2,01	8.78	.59

Add, of course, wheat straw *ad libitum* and a liberal allowance of salt every day.

Buckwheat Bran and Middlings.

Will you please tell me what effect buckwheat shorts or middlings will have on dairy cows? We can buy this feed much cheaper than wheat bran and shorts. Also please formulate me a ration for our Jerseys. They are all fresh and giving a good flow of milk. We have good clover hay and corn stover for rough feed and can buy buckwheat shorts for $15; wheat bran, $18; wheat shorts, $22; corn and oat chop, $22. We have oats and corn. Would it pay to sell and buy mill feed? J. H. B.

Steamboat Rock, Iowa.

Buckwheat middlings make an excellent feed for milch cows, but on account of pastiness cannot well be used unless mixed with wheat bran or something similar. We speak now of the pure middlings, unmixed with the black, outer covering (bran) of the grain. Buckwheat hulls are about on a par with cotton seed hulls; if anything, inferior. The mixture of the middlings with the hulls is known commercially as buckwheat bran. See table of analyses on page 772.

We should expect very satisfactory results from the following as the average daily allowance:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
12 lbs clover hay	10 12	.82	4.30	.20
8 lbs. corn stover	4.76	.14	2.59	.06
4 lbs. buckwheat middlings	3.49	.88	1.34	.22
2 lbs. wheat bran	1.66	.25	.77	.06
2 lbs. corn and cob meal	1 78	.13	1.26	.07
Totals	21 81	2.22	10.26	.61

A New York Ration.

Please give me a ration from the following feeds: Ensilage, from corn not quite mature, New York dairy feed, dried distillers grains, $23; buckwheat middlings, $15.50; wheat bran, $19; and hay, mostly timothy, a little clover in it, $10. Also a ration of the above without the wheat bran. What is your opinion of this feed and do you think that we can feed winter wheat bran at $19 per ton at a profit selling milk at 2⅝ net. What difference in the feeding value is there between winter wheat bran and spring wheat bran?

Avon, N. Y. M. & P.

If the cows in this herd are now giving but a half mess or less of milk, preparatory to freshening in the spring, as is the case on too many farms in New York, it will not be profitable to feed very much of that high priced grain. On the contrary, if they are winter milkers, not expected to freshen until next fall or early winter, the milk flow must be kept up almost regardless of expense, so that when the cows go to pasture in the spring, they will be in a condition to make good use of the luxuriant grasses of late spring and early summer.

To the latter class of cows, varying amounts to conform to the varying milk giving capacity of the several animals, we recommend a trial of the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
40 lbs. silage	8.36	.36	4.52	.28
10 lbs. hay	8.68	.38	4.34	.15
4 lbs. buckwheat middlings	3.49	.88	1.34	.22
4 lbs. bran	3.52	.50	1 54	.12
Totals	24.05	2.16	11.74	.77

Or in lieu of the bran as above, substitute 3 pounds of the dried distillers grains or use some of both.

There is no material difference in the feeding value of bran, whether from spring or winter wheat. As a rule, the lighter the bran, the more valuable it is. Because the corn for silage was not quite as mature as desirable, we have estimated its feeding value much below the customary figures.

A Vermont Feeding Problem.

Please give me the cheapest ration which can be made from the following feeds:

Wheat bran and mixed feed, $1.15; corn meal, $1.15; cotton seed meal, 40% protein, $1.40. I can feed my cows about 25 lbs. of silage (not eared) and all the early cut timothy they will clean up. R. E. B.

Bethel, Vt.

Please read answer to M & P. Avon, N. Y. in this issue. If, as explained there, the cows are expected to freshen in the spring a very different system should be followed from what would be advisable if they are not to freshen again until next fall and winter.

According to a Vermont bulletin, mixed wheat feed, as found in that state in 1900, contains about 12 per cent more available nutriment than average wheat bran, but nothing is said as to its palatability. We therefore specify bran, subject however, to substituting the mixed feed, if our correspondent prefers. In addition to the 25 lbs. of silage, we should expect cows to eat daily 12 to 15 lbs. hay and to keep up the flow of milk, say, 2 lbs. cotton seed meal, 2 lbs. ground corn and 3 to 4 lbs. bran.

Feeding a Milkman's Cows.

I am in the retail milk business with cows coming fresh at all times of the year.

Please formulate me a ration of the following feeds: Corn meal, $22 per ton, wheat bran, $22, gluten feed, $25, oil meal. $28, cotton seed meal, $28, distillers dried grain $28, middlings wheat, 25, middlings buckwheat $22, oats, 35 cents per bushel.

I have clover and timothy hay, corn fodder and a few roots; also oat straw,

Please give me the name of a good book on the care and feeding of dairy cows.

I have been at this business only one year and I wish to learn all I can in regard to it.

Westfield. C. H. S.

No one formula could be given that would be applicable as a guide for feeding a herd of cows coming fresh at all seasons of the year. In fact, feeding by rule is not so much in vogue as it was a few years ago, when almost everybody, who gave the matter thought, was rather blindly following the Wolff standards. Those standards served a good purpose. They set students to thinking and experimenting. The editors of this paper, in the absence of any better light, followed them for some time, but always with a protest and an appeal to our American Experiment Stations for "more light." This has been coming as rapidly as could be expected, but the proper feeding of milch cows is yet very far from being an exact science, and probably never will become such, largely because of the individual equation in each animal.

The cow has been, not inaptly in many respects, compared to the steam boiler, and concerning the latter it is known that a careful, intelligent and attentive fireman will get much more and better service from a given amount of fuel than an indifferent and inattentive one can get, although he may use—or shall we say, waste—fifty per cent more fuel.

If such differences occur with an insensate, man-made, iron apparatus, what may not be expected from the delicately sensitive and intelligent, warm-blooded milch cow. She must have kindly sympathetic care and attention, must be fed with reason and judgment brought into requisition every day, with amounts graduated according to her health and the amount and quality of the work expected of her.

For these and other reasons which might be given, a satisfactory book on the care and feeding of dairy cows—and especially the feeding—remains to be written. Possibly as satisfying a publication as any, at the present time, is Mr. N. B. White's "Thirty Years Among Cows" to be had from this office for $.50. Professor Henry's book, "Feeds and Feeding" price $2.00 is still a standard work and without a rival.

From the feeds named, we should be inclined to choose buckwheat middlings, distillers dried grains (if of prime quality) and gluten feeds. Give the cows what hay and corn fodder they will eat without waste, and supplement this with a mixture of any two or all three of the above feeds in such amount to each cow as she will eat and use for making milk, instead of adding to her live weight. For some cows this amount may reach 8 lbs. or more, and for others 4 lbs. or less will be all sufficient.

Oil Meal for Swine.

How is old process oil meal for fatting hogs and pigs? Our milk goes to milk station, so we have no whey or skim milk. We feed 10 pigs 3 months old, 3 lbs. of oil meal a day. Mix it thin with cold water from one feeding time to next, then turn on boiling water to thin it thin enough to drink. We give ground oats and corn meal equal parts by weight all they will eat. They are growing fine apparently.

Oil meal costs $26.35 per ton delivered, and corn meal $25. Oats same as corn.

What we want to know is if this is the most economical way to feed.

Would ask a few questions in regard to my ration for cows, but will wait till some other time for fear this will use too much of your valuable space. W. H. J.

So. Hammond, N. Y.

At the present (Chicago) prices for hogs it is very doubtful if there can be much profit in feeding them, even in the best portions of the corn belt. These 3-months-old pigs should weigh now approximately 50 lbs., and it will require nearly 4 lbs. of grain to make one pound of gain in live weight. These 4 lbs. of grain will cost five cents at the prices named. The method of feeding described is as good as anything we could suggest under the conditions set forth.

A Maine Feeding Problem.

Please advise me as to the best rations to feed my cows from the following feeds at the prices stated. I am selling milk at wholesale and want all the milk I can, and still have it good. My cows are in all stages of lactation. Corn meal $24; Biles distillery grains, $29; wheat middlings, $27; bran, $24; gluten meal, $30.40, cotton seed meal, $30; linseed meal, $30. My hay is very poor, being late cut June grass; some oat and pea hay that I will feed later on; have no ensilage; have about 300 bushels of carrots and potatoes that I intended to feed my hogs. Will it pay to feed them to the cows and buy grain for the hogs? J. T. M.

La Grange, Me.

We incline to the opinion that it would be advisable to reserve the carrots and potatoes for the cows and especially for the fresh milkers, feeding very moderately of the potatoes, certainly not more than 10 to 15 lbs. per day. In cases of this kind particular attention must be given to the cows that have recently freshened to insure against abnormal shrinkage, and to this end, if possible do not put off using that oat and pea hay for them. One cannot expect to increase the flow of milk after a shrinkage is well established. Neither can the quality of milk be varied by feed.

As it is manifestly impossible to give a formula that will fit cows in all stages of lactation, the best we can do is to suggest that each individual cow be given what hay she will eat with relish and not any more. Compel her to eat practically every spear of the hay that is in any way fit to be eaten. In other words, do not put more hay before her than she will eat, no matter what may be its quality.

For concentrates, the distillers grains are probably as good and as cheap as any of the feeds named, although it may be advisable to use something else to give variety, and possibly some of the linseed oil meal to keep the bowels in good condition.

We should expect a daily allowance of 4 lbs. distillers grains, 2 lbs. ground corn and 2 lbs. bran in connection with hay as above, would be ample for the fresh cows, and for others the rule should be, feed no more than the cow will use for milk. Laying on flesh brings no profit in milk production.

A Missouri Ration.

Please give to me the best balanced ration for profitable feeding for my 15 cows, weighing 8 or 9 hundred pounds. Bran, $20; middlings, $23; oil meal, $28; corn 40 cents per bushel; oats 30 cents. We have mixed timothy and clover hay and a small amount of clover. We do not raise alfalfa in this section. At what price do you think we could ship it in at, to feed?

While I have only been reading your paper a short time, I have realized a great deal of good from it and never tire of reading its items. The dairy business is practically new in this section. We ship our cream about 60 miles. Very few people around here ever heard of a silo. We are much interested in your articles concerning them and we think of having one another season. W. C. C.

Grant City, Mo.

Abating nothing of our estimate of the value of alfalfa hay, we should consider it questionable whether it would pay to ship in alfalfa hay where one has clover and timothy in abundance. On the contrary, if hay is scarce and must be shipped in and alfalfa of good quality could be delivered at $10 to $12 per ton, it would prove an economical feed stuff, especially if parties have had the good judgment to save some of the corn stover. Otherwise, from the feeds named, we suggest for trial as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. mixed hay	17.06	.96	7.92	.32
4 lbs. ground oats	3.56	.37	1.89	.17
3 lbs. ground corn	2.67	.24	2.00	.13
1 lb. oil meal	.91	.29	.33	.07
Totals	24.20	1.86	12.15	.69

The probabilities are, we think, that the amount of hay specified may be more than most of the cows will eat without considerable waste and that for cows that have already commenced to shrink considerably in milk flow, the allowance of grain could be reduced. There is no rule for feeding that can be blindly followed, or supplant the exercise of good judgment by the feeder.

Abundant Feed but Poor Returns.

My cows freshened in August and September. They had fine pasture, and were fed three pounds of bran. After threshing, I began mixing oats with the bran, am now feeding three pounds bran and four pounds oats with all the alfalfa hay they will eat. They have never done so poorly. They have shrunk fully half their yield in two months; some tell me it is the oats. I have plenty of oats and corn; bran is $15 per ton. I am completely discouraged. Can you tell me the cause and remedy for my trouble? Have a young son of "Hart's King" to breed to now, but if cows won't give milk, I don't want any more.

A KANSAS DAIRYMAN.

We are quite positive the oats were not concerned with the shrinkage, and also quite positive that we are unable to say what was its cause. It may have been poor milkers, or leaving the cows out in the cold, or irregularities in the time and order of milking and feeding; or, if the cows have not been on the place for a year or more, it may have been homesickness. Possibly the cows got started on the wrong road, and are laying on flesh instead of making milk. It may be too late now to recover from this shrinkage, but it is worth while trying to do so. Try a pretty thorough change of feed. Get some linseed oil meal, and feed a half-pound per day at first, and increase to a full pound or more; grind some corn, cob and grain together, very fine and mix with bran 4 to 7 lbs. per day, with a large teaspoonful of salt, night and morning. Be absolutely regular in the hours and order of milking and feeding, and give plenty of time between meals for remastication (chewing the cud). Weigh the milk, night and morning, so as to know positively what changes take place. And, quite as important as anything else, get into a more hopeful and courageous state of mind. Other men make cows pay handsomely, and so may you. The young bull may be depended upon to give you profitable dairy stock, if it is handled with reasonably good judgment.

New York State Normal Farmers' Institute at Geneva.

ED. HOARD'S DAIRYMAN:—Director of Farmers' Institutes, F. E. Dawley, Com. of Agriculture, C. A. Wieting, Ass't Com. George L. Flanders, with Directors W. H. Jordan, of Geneva State Experiment Station, and L. H. Bailey, of the Agricultural College at Cornell University, are the originators of a new movement in institute work in this state, from which excellent results are expected.

This is the holding of Normal Institutes, one at the Geneva Experiment Station Nov. 23 to 25, the other at Cornell University State Agricultural College Nov. 30 to Dec. 3, inclusive. These institutes are intended not for the general public, but rather to increase the efficiency of the Institute lecturers in their regular work.

It is hoped to accomplish this by better posting them on all that is new in agricultural work and investigation, to bring them in closer touch with the Experiment Station and the Agricultural College, to compare notes and experiences and to secure greater uniformity in Institute work.

Dr. Jordan, Director, and Dr. L. L. VanSlyke, Chemist, on Animal Nutrition, Fertilizer and Feed Questions and other dairy topics, and Prof. S. A. Beach, Horticulturist, Prof. F. C. Stewart, Botanist, Prof. H. J. Eustace, Ass't Botanist, and Prof. Parrott on Horticultural topics, and Prof. H. A. Harding, Dairy Bacteriologist on Germ Life, Sources and Control and Cheese Biology and Diseases were the lecturers of the Station staff who had been selected to address the classes on the various subjects under discussion.

Each of these speakers had prepared a syllabus of his lecture, copies of which with blank pages for notes of the same were furnished to each speaker, thus furnishing valuable references for use in their work during the coming Institute season.

To advance the work of the Farmers' Institutes and raise them to a higher plane educationally, is the aim of Director Dawley and his associates, and the attendance at this meeting and the interest manifested are a good guaranty of benefits to be derived from this innovation in the opening of the season's institute work.

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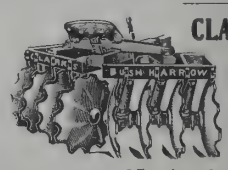


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Nutrition was given at the Monday forenoon session, and was considered of great value to the class of students in attendance.

Under the heading of Feeding Stuffs, he said in part: "All feeding stuffs (a few by-products excepted) contain essentially similar compounds, differing chiefly in proportions of compounds present.

These compounds may be classified into groups as follows: 1st, water; 2nd, mineral compounds, the principal substances aiding in nutrition being phosphorus, sulphur, lime, potash, chlorine, magnesia and soda; 3rd, protein as found in all the nitrogen compounds of the plant, such as albumens, globulins, amides, etc., differing greatly in composition; 4th, crude fiber, the woody part of the plant; 5th, nitrogen-free-extracts which include sugars, starches, gums, waxes, etc., containing no nitrogen; and 6th, ether extract (fats), various fats, coloring matter, waxes, etc.

The water of plants contains no element of special nutritive value above that of water drank by the animal. Its presence affects only the physical condition and palatableness of the food.

The mineral compounds enumerated are as important in their functions as any other food elements, all being required to a greater or less extent, in the growth and healthy development of the animal economy. The proteids, divided into albuminoids and collagena or gelatinoids, are of special value and importance, the albuminoids being the flesh-forming elements in the food while other compounds are not regarded as such. The proportion of protein in the form of albuminoids is much greater in grains than in coarse fodders and are also more readily assimilated. Crude fiber, the woody portion of the plant, is very abundant in coarse fodders and increases with ripeness of plants. This is found in very small proportion in grains. Its presence greatly affects the digestibility and value of the food.

The nitrogen-free-extracts, sometimes called carbohydrates, but which are not wholly such, vary greatly in different foods. In tubers and grains these are found chiefly in the form of starch, while in hays and other fodders, gums are abundant with but a very small proportion of starch; sugar is abundant in sugar beets, corn and sorghum. Ether extract (fats), as determined by chemical analysis, is a mixture of several fats and fatty acids with the impurities removed by a solvent. The per cents of these more nearly represent pure fats in grains than in coarse fodders, the coarse fodder extract being very impure.

The purposes served by feeding stuffs are to supply the animal's needs in providing body substance, energy for internal and external work and keeping up animal heat.

All groups of substances contribute to body tissues. Water is deposited, mineral compounds build up bone and are found in other tissues, albuminoids are the source of red tissue, hair, horn, etc., and possibly of fats; carbohydrates are a source of fats, and fats are directly deposited as such. Digested fiber probably may serve the same purpose as other carbohydrates. Digested protein, nitrogen-free extract, fiber and fats all supply energy and heat when consumed in the animal. Protein, fibre and nitrogen-free-extract have about the same heat value, fat 2¼ to 2½ times greater.

The energy function of food is one of great importance. The animal is a machine, performing work internally, as in the circulation of blood, digestion of food and the manufacture of new compounds; and externally, as in walking, drawing, trotting, etc., besides the warming of the body. All this requires energy, and such energy has its source wholly in the food, when the animal is not losing substance in its production. Whenever food is insufficient for these demands upon the animal, body substance is being used.

With a full producing cow, not over ⅓ of the food digested is used for milk, the remainder being used for work and heat; nd in a fattening animal not more than ⅙ of the same is used to increase body substance, the rest is converted into heat and work. It will thus be seen that energy function is very important, requiring, as it does, the larger part of food consumed by the animal.

The total energy of food is found by burning it and measuring the amount of heat evolved. This is not all available to the animal, there being a loss in the feces, urine and gases, and the remainder only being available. A portion of the available energy is used in masticating and digesting the food, and the larger the work of mastication the less is the proportion of net energy.

Digestible matter from all sources has not the same energy value per unit. The dry matter of coarse foods has a lower per cent of available energy than the dry matter of grains because less digestible and because of a greater loss of gases. Less of the available energy of the former is net because, also, the work of mastication and digestion is greater than with the grains.

This is an important consideration with an animal that is working hard or producing intensively, as is practically recognized by feeders who supply to highly-fed, hard-working animals a small proportion of coarse-fodder and a correspondingly larger proportion of grain. The same rule, too, holds good in compounding a ration of maximum efficiency for cows.

The factors that determine the nutritive value of a feeding stuff are: The dry matter it contains, the proportions of nutrients and its digestibility. Other things being the same, cattle foods are valuable in proportion to their dry matter. The proportions of nutrients determine in part the value of feed for a particular purpose. All vegetable foods are only partially dissolved and taken into the circulation, the feces being the indigestible portion. Their digestibility varies greatly and in comparing feeds of the same class digestibility is the nearest measure of value. E. J. BROWNELL.

Delhi, N. Y.

A Poorly Balanced Ration.

DEAR SIR:—In what respect is the ration I am now feeding deficient? My cows are giving a good flow of milk; but are too thin in flesh to look well. I would like them to look a little fatter. A fat cow seems to take the fancy of a prospective purchaser much better than a good milker, even when they are looking for a milch cow.

I feed as follows:

One bushel bran and two bushels fresh brewers grains, well mixed. Each cow gets ½ bushel to a feed of this. Some of the very large cows get a little more. This is given twice per day after milking.

They get all the mixed hay they can consume, clover and timothy. I have no silo, get warmed water twice per day. Do not go out of the barn.

I also have a quantity of Japanese millet hay; but owing to the extremely wet season it was put into the barn too damp and in consequence it moulded badly. Will this injure the pregnant cows if allowed to pick it over? I do not force them to eat it all. They also get of the mixed hay, as the milking cows.

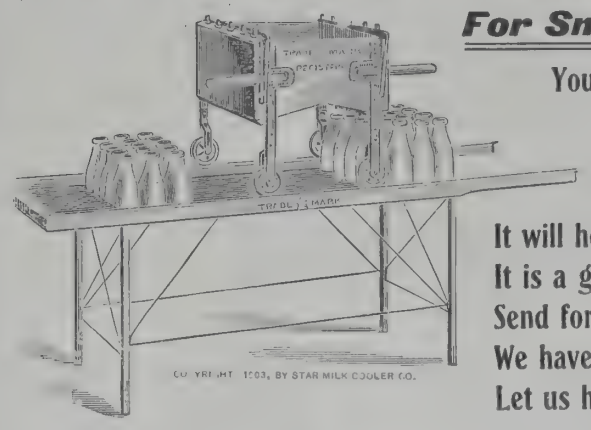
Marshfield Wis. F. F. V.

The inclosed letter is an excellent illustration of how cows can be fed for good milk production and yet remain thin in flesh. The ration which these cows get is probably ample for them from a strictly milk-producing point. It is rich in protein but low in carbohydrates; hence the animals keep thin in flesh while giving a good flow of milk. These results, coming as they do, should be a good lesson to one who is trying to post himself on the best manner of feeding dairy cows. It stands in strong contrast with the operations of some dairymen who feed their cows excessively on corn meal, corn stalks, timothy hay, etc., in which case there is a tendency with the cows not to produce a large quantity of milk, but rather to dry up in milk flow and at the same time to lay on fat. Let one bear these two extremes in mind, and guide himself according to the desired results. If our correspondent wishes his cows to fatten toward the last of their lactation period, when he may wish to dispose of them, then let him make free use of Indian corn for such purpose. If our correspondent can secure shock corn, he can feed some of this unhusked, thereby affording grain in most palatable form, provided the ears are not too large, or corn meal may be fed. To fatten a cow as much as six or eight pounds, of corn or corn meal may be fed daily along with a reasonable allowance of other concentrates. W. A. HENRY.

Wis. Agril. Exp. Sta.

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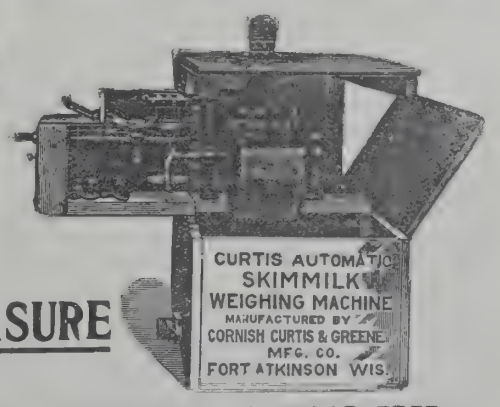
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FORT ATKINSON, WIS.

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Fort Atkinson, Wis.

Strangles.

ED. HOARD'S DAIRYMAN:—Is the disease contagious? The general conclusion which appears to be most consonant with the evidence at hand, is that the discharge from the nose of a horse affected with strangles, or the matter from the abscess which is one of the common features of the disease, is capable, under favorable conditions, of causing catarrh of the mucous membrane of the respiratory passages, swelling of the submaxillary glands and the formation of abscesses.

It is also in evidence that a microbe, the streptococcus of strangles, has, in a state of pure cultivation, caused the same form of disease, and further, it has been shown that the organism of ordinary pus has, by inoculation, induced abscesses. Under all the circumstances, horse owners are advised that the evidence of contagion is sufficiently strong to justify the use of proper precaution against the spreading of catarrhal affections, whether they are classed as common colds, influenza or strangles.

An epizootic of strangles, such as sometimes occurs among animals, which are leading a half-wild existence, may be dealt with by the employment of severe repressive measures. But generally, the idea of stamping out strangles would not be entertained for a moment, as, with common care, the disease is expected to end, and generally does end, in restoration to health.

Symptoms of strangles, in the first instance, are those of a mild attack of catarrh, and in an adult animal it would not be suspected that strangles existed until the special indications of the disease declared themselves.

One of the most characteristic signs of strangles is the pointing the nose in a forward direction, as the result of a feeling of stiffness at the bend of the neck. Swelling of the throat soon follows, and one or more small, hard nodules may be felt in the submaxillary space. Up to this time there may not have been anything beyond the ordinary watery discharge from the eyes and nostrils, which indicates the beginning of an attack of catarrh, but it may be remarked that symptoms of catarrh in young animals are naturally looked upon with suspicion which becomes certainty as soon as signs of the formation of an abscess under the jaw are apparent.

As strangles advances, the discharge from eyes and nostrils becomes thicker and assumes a purulent character. The swelling under the jaw increases, the head is thrust out in a more pronounced manner than at first and the fact of the disease being strangles is established.

Swelling of the throat in some cases leads to some difficulty in breathing, which is carried on with a peculiar noise suggesting strangulation, hence the name given to the disease.

Maturation, ripening and pointing of the abscess under the jaw are preceded and attended by a certain amount of fever, but in the common or mild form of the disorder it is not so severe as to give rise to any apprehension.

Presuming that the course of the disease is favorable, the pointing or softening of the abscess is followed by the diminution of the febrile symptoms, and, as soon as the abscess bursts, or is opened, the animal is considered to be on the road to recovery.

Sometimes the favorable progress is arrested from no assignable cause, the swelling does not take on the character of an abscess, but remains hard, and it is said by the attendant that "there are no signs of ripening." Such a state of things is always deemed to be serious, and it usually happens that the animal makes a slow recovery and does not improve in condition, but remains for a long time in an unthrifty state.

Cases in which the swelling under the jaw does not suppurate, occasionally terminate fatally from the supervention of disease of the lungs on the formation of abscesses in the internal organs. The old writers affirmed that such cases commonly ended in glanders, and in recent times this result has been repeatedly observed, but with the knowledge now possessed of the true character of glanders, it can only be concluded that the disease already existed in the animal's system in a chronic and obscure form, as it often does, and was roused to an active state by the general derangement of the organism, due to the presence of febrile disease.

Treatment of strangles may be summed up in the words "good nursing."

Fomentations and poulticing are necessary to encourage the pointing of the abscess. Attention to the diet is particularly demanded in the state of the throat, which prevents the horse from eating the usual provender. Gruel, linseed tea and soft mashes, milk with eggs, and, in cases of great weakness, good meat soup are all available, and in the selection of the diet the sick animal's taste must be consulted, so that the food may be taken voluntarily.

In all cases the risk of damage done by forcing liquid nutriment down the sore throat, should by all means be avoided.

Puncturing the abscess at the proper time is much to be preferred to leaving it to break, but premature lancing has been the cause of many disastrous terminations to cases which were going on satisfactorily. A bungling operator may cut into a vein or artery, and so carry some of the pus into the blood stream, with the almost certain result of inducing pyemia, or in other words distributing abscesses all over the body, and destroying the patient by a painful process of blood poisoning.

The foals of a common class, animals which are not worth special or luxurious care, and are accordingly left to the maternal protective instinct, strangles may run its course through the stages of febrile catarrh and formation of abscesses, which may point, burst and heal without anyone offering help or even knowing what is going on. When animals are running loose in droves, an outbreak of strangles left unchecked by sanitary measures, or medical aid, doubtless may, indeed does, assume a fatal form, and the killing, instead of the curing system, may be the most economical one to adopt.

An alternative plan of treatment, which may fitly be called the repressive method, was at one time advocated, under the belief that the disease was in no way specific in its nature, but merely an acute form of common catarrh, which could be cured by the employment of the antiphlogistic plan of treatment, or to employ a more intelligible term, a depletive system. Instead of fomentations and poultices to encourage the formation of the abscess, cold lotions were used to the throat, or a blister was applied as soon as the slightest swelling was seen, with the idea of dispersing it. Bleeding and purging were also advocated as the best means of lessening the fever.

It was claimed for the repressive system of treatment that strangles was now properly cured, or, at any rate arrested under its action, and also that the animal's recovery of its condition was more rapid and complete than when the milder methods of cure were used. Whether or not this was really the case was never determined, that I have heard of, owing to the strong prejudice among breeders against any attempt to check the natural course. It was considered better to let the malady "come to a head," and clear itself out of the system, than to stop it by heroic measures, an alternative which was, perhaps, rightly estimated rather as a device for putting off the evil day, than as a reasonable method of cure. In support of this conviction it might be urged that strangles left entirely to itself would naturally run a well defined course to a satisfactory termination, while to check the natural course of the disease would be attended with risk, and at the best could not be more satisfactory than the old-fashioned plan had proved.

Montreal, Canada. W. R. GILBERT.

Is it Practicable to Keep Cows Continuously on Dry Feed?

ED. HOARD'S DAIRYMAN:—I have been a reader of HOARD'S DAIRYMAN for five years and would not think of getting along without it, as it is brimful of information for every dairyman, and many an issue is worth double the price of a year's subscription. And still I am not a graduate, as there is always something to learn, and now may I bother you with a few questions?

I am now thinking of moving into the city and would like to know if cows can be successfully kept on dry feed the year round, as we will have no pasture and will be obliged to depend on the market for feed. If it is practicable to keep cows under such conditions, please give me a formula for a balanced ration from the following feed stuffs: Bran, $18; shorts, $19; rolled barley, $23; corn meal, $27; oil meal, $30; alfalfa hay, $16; wheat hay, $17; timothy and clover hay, $16.

I expect to sell milk to private families and shall cater to a high class trade. Milk is now worth from 7 to 8 cents per quart. My cows are Jerseys and will weigh from 800 to 900 lbs. M. B.

Portage, Wash.

It is practicable to keep cows continuously on dry feed, but it cannot be expected that they will do as well or remain in profit as long as they would if given succulent feed a part of the time, or could have at least a few weeks each year at pasture. They should have a yard in which to take more or less exercise and opportunity to get the benefit of perfectly fresh air, and the stable should be well ventilated, well lighted and kept scrupulously clean.

The feeds mentioned afford a wide margin for choice and it would be wise to change more or less from time to time. We should, however, place main dependence upon the alfalfa hay, bran and shorts, with a little oil meal most of the time to keep the digestive tract in good order and the bowels free.

We suggest as a basic daily allowance as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
18 lbs. alfalfa hay	16.49	1.98	7.13	.21
2 lbs. bran	1.76	.25	.77	.06
4 lbs. middlings	3.52	.51	2.12	.14
1 lb. oil meal	.91	.29	.33	.07
Totals	22.68	3.03	10.35	.48

There is really one pound more protein in such a ration than is necessary, but the protein in the alfalfa hay is as cheap as carbohydrates in other feeds, and the surplus protein is available by the animal for the same purposes as carbohydrates

It would be well, as before indicated to change, in whole or in part and from time to time, from the middlings to ground corn or barley, and have salt where the cows can help themselves at will, or give them a good teaspoonful night and morning.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN;—On Monday's Elgin Board of Trade there were no offerings of butter and consequently no sales. The Quotation Committee reported the official market firm at 25 cents, the same price as last week.

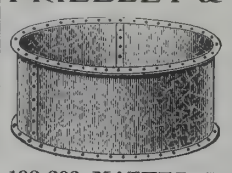
The output for the district aggregated 459,200 pounds.

The former markets were;

	Tubs Sold.	Price.
Nov. 30, 1903	0	25
Dec. 8, 1902	0	29
Dec. 9, 1901	0	24½
Dec. 10, 1900	0	25
Dec. 11, 1899	75	26

Elgin, Ill, Dec. 7. H. C. B.

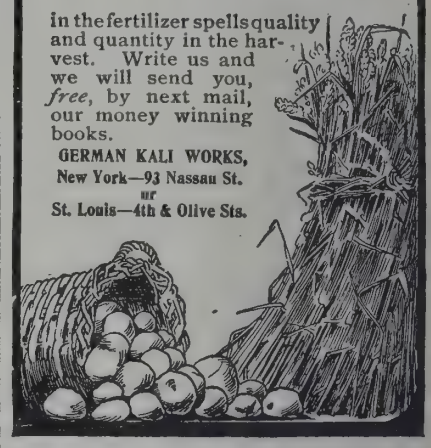
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T. O. CURRIE,
12 B. Callahan Bldg., Milwaukee, Wis.



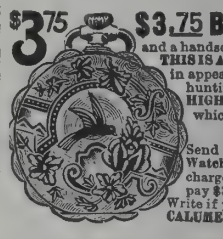
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SOUTHERN LAND CO., 12 FAIRCHILD BLOCK, MADISON, WIS.

ILLUSTRATION

GIANT KILLER FEED GRINDER.

If the time ever was when Iowans felt they could be wasteful of the corn crop, that time has passed. That state not only takes the lead in the growing of that great crop, but produces some of the best patterned machinery for its provident use. A single instance of this is shown in the illustration herewith, the Giant Killer Triple Geared Feed Grinder, manufactured by the Cascadan Manufacturing Company at Waterloo. It



may be a surprise to some to know that this mill has been on the market for twenty-seven years, though not in its present perfected form. By many it is now accounted a leader amoung sweep mills. Though primarily intended as an ear and shelled corn grinder, it does equally satisfactory work in wheat, oats, rye, etc. The capacity, which runs from 20 to 40 bushels of ground feed per hour, is not marked by a corresponding increase in draft. For the great amount of work done the draft is exceedingly light. A special feature of this mill is its fitting with the Cascadan patent self-sharpening grinding buhrs. This mill appears in an advertisement elsewhere with the Northwestern Return Draft Steam Cooker, another excellent appliance for the feeder manufactured by the same company. Together they administer perfectly to the wants of every feeder, large or small. Circular fully describing may be had free by consulting the advertisement and directing to the Company at Waterloo, Ia.

DAIRY MARKETS.

ELGIN, Ill., Dec. 7—Butter ruled firm on the Board of Trade today, selling at 25c a pound, the same as last week. Sales in the region for the week were 459,000 pounds.

CHICAGO, Ill, Dec. 7—Butter—Steady; creameries, 16@25c; dairies, 14@21c.

Cheese—Steady; Daisies, 10¼@10½c; Twins, 10c; Young Americas, 10½c.

Eggs—Easy; at mark, cases included, 23@25c.

Cattle—Choice to fancy beeves, 1,200 to 1,400 lbs. 5.30@5.60; good to choice heavy steers, 4.80@5.25; fair to good export and shipping steers, 4.50@5.10; medium beef steers, 4.10@4.40; plain beef steers, 3.80@4.00; common to rough, 1,000 to 1,200 lbs. 3.40@3.75; good to fat heifers, 4.00@4.60; good to choice feeders, 3.50@4.25; good to plain stockers and feeders, 1.75@3.45: fair to good cows and heifers, 2.70@3.85; good cutting and fair beef cows, 2.20@2.60; common to good canning cows, 1.20@2.10; bulls poor to choice, 2.40@4.40; calves, choice to fancy 5.50@6.25; calves, common to fair, 3.00@5.25; corn-fed, western steers, 4.00@5.40; Texas bulls and grass steers, 2.90@3.85; fed Texas steers, fair to choice, 3.40@4.50.

Hogs — Good to choice heavy shipping, 4.45@4.60; fair to good heavy packing, 4.35@4.55; rough and common heavy mixed, 4.20@4.30; assorted light, 150 to 195 lbs., 4.35@4.55; good to choice butcher weights, 4.50@4.60; fair to choice light mixed, 4.30@4.50; thin to choice 50 to 120 lbs., 4.10@4.60; stags and rough lots, 3.00@4.15.

MILWAUKEE. Wis,, Dec. 7—Butter—Creamery, extras, 25c; firsts, 23@23½c; seconds, 21@22c, renovated (process), 18@19c. whey, 10@12c. Dairy fancy, 19c; lines, fresh, 16@17c; packing stock, 13@15c; grease, 5@6c.

Cheese—American full cream, new: Twins, 10@10½c; Young Americas, 10½@11c; Daisies, 11@11½c; Longhorns, 11@11½c; low grades, 7@9c. Brick, new, fancy, 10½@11c; low grades, 7@9c; Limburger—New, fancy, 10@10½c; off goods, 6@8c Swiss—Drum, choice, 12@12½c; Drum No. 2, 10@11c; block, choice, 11@11½c; block, No. 2, 9@10c.

Eggs—Strictly fresh laid, loss off, cases returned, 25c; strictly fresh laid, at mark, cases returned, 22½@23c; storage, city, Apr. No. 1, 23c; storage, country, 20@21c; dirties and seconds, 19c; checks, 17c.

PLYMOUTH, Wis., Dec. 1—Cheese—Thirty factories offered 1,868 boxes of cheese, of which 23 Twins were passed on, the balance selling as follows: 350 cases Longhorns at 10¾c; 60 at 10⅞c; 429 Daisies at 10¾c; 599 at 10⅞c; 105 at 11c; 200 Twins at 9½c; 60 at 9⅜c; 42 Young Americas at 10c. Market active.

HORTONVILLE, Wis., Nov. 27—Cheese—The last meeting of the Call Board this season was held today. The offerings were 18 Cheddars and 454 Twins. Sales, 229 Twins at 9¼c. Market dull.

SHEBOYGAN, Wis., Dec. 2—Cheese—On the Call Board here to-day 1,233 boxes of cheese were offered and sold, excepting 63 cases, as follows: 35 boxes Twins at 9½c; 330 Daisies, at 10⅞c; 294 10¾c; 20 cases Young Americas at 10½c; 32 at 10c; 40 Longhorns, at 10⅞c, and 429 at 10¾c. The Board will meet every two weeks hereafter.

SHEBOYGAN FALLS, Wis., Dec. 2—Cheese—25 factories offered 1,675 boxes of cheese on the Call Board to-day and all sold as follows: 154 cases Young Americas 10½c; 75 at 10c; 259 Daisies 10⅞c; 402 at 10¾c; 222 boxes Longhorns, 10¾c; 540 at 10⅝c; 24 at 10½c. Next meeting Wednesday, Dec. 9.

MANITOWOC, Wis., Dec. 2—Cheese—Sales: 50 boxes Twins at 9¼c; 300 Young Americas, 9¾c; 650 Daisies, at 10½c.

SEYMOUR, Wis., Dec, 1—Cheese—Sales today were: 144 Twins at 9½c; 488 double Daisies at 10¾c; 50 Twins and 92 double Daisies were withdrawn.

BRILLION, Wis., Nov. 27—Cheese—Sales today were: 246 Twins at 9⅜c; 160 at 9½c; 539 Daisies at 10⅝c, and 440 at 10½c. This is the last meeting of the season.

FOND DU LAC, Wis., Dec. 7—Cheese—Only fifty Daisies were sold and these went at 10c. Bids were passed on all the rest. The Board adjourned, subject to the call of the president.

NEW ORLEANS, La., Dec. 4—Butter—Extras, 26½@27c; firsts, 24c; seconds, 20c; ladles, 15@17c.

Cheese—Young Americas, 12½c; Twins, 12c; Daisies, 12½c.

Eggs—Fresh, 29@30c: storage, 26@27c.

Butter, firm, active, Eggs, firm, active, Cheese, quiet.

ST. LOUIS, Mo, Dec., 4—Butter—Extras, 26c; firsts, 24c; seconds, 21c. Dull.

Cheese—Young Americas, 11½c; Twins, 11½c; Daisies, 12c; Longhorns 12.

Eggs—Steady, fresh, 28; storage, 24c.

PHILADELPHIA. Dec. 7—Butter—Firm; ½c higher; extra western creamery, 25½c; nearby prints, 27c.

Cheese—Unchanged; New York full creams, fancy, 11¾c; choice, 11½c; fair to good, 10¾@11¼c.

Eggs—Steady; fair demand; fresh near by, 31c; loss off, western, 31c; southwestern, 30@31c; southern, 28@29c.

KANSAS CITY, Dec. 7.—Eggs—Firm; Missouri and Kansas, cases returned, 27c; new, No. 2 whitewood cases included, 27½c.

Butter—Creamery, 21@22c; dairy, fancy, 20c.

NEWARK, N. J., Dec. 7—Butter—Extra Elgins steady at 25½c.

Eggs—Extra, 31c; firsts 30c.

TOPEKA, KANSAS, Dec. 5—Creamery—Butter 24@25½c; Dairy butter 17½@18c.

Cheese—Longhorns 11½c; Daisy 11¼@11½c; Prints 12¼c.

LIVERPOOL, Dec. 7—Butter—Good United States nominal. Cheese American finest white, quiet, 52s: do colored, steady, 54s.

NEW YORK, Dec, 7—Butter—Recipts, 4,498 pkgs.; firm; extra, creamery, 25c; creamery, common to choice, 16@25c; limitation creamery, 15@18c; state dairy, 15@22c; renovated, 13@18½c; factory, 13½@15c.

Cheese—Receipts, 5,604 boxes; dull; state full cream, fancy, small, colored, September, 12c; late made, 10c; small, white, 12c; late made, 10c; large, colored, September, 12c; late made, 10c; large, white, September, 12c; late made, 10c.

Eggs—Receipts, 5,604 cases; firm; state and Pennsylvania, nearby, average best, 31c; state and Pennsylvania, seconds to firsts, 28@30c; western extras, 31c; western, seconds, 28@29c; refrigerated, 22@26c. western firsts, 30c.

NEW YORK MARKET.

NEW YORK, Dec. 5—Butter—Receipts for the week, 29,145 packages. Exports for the week, 1,400 packages.

The quality of the fresh butter arriving has been so ordinary and poor that many retailers in town and out of town have taken finest freezer goods to take its place. High scoring extra butter however, is scarce and wanted at full prices, and is the correct goods for best grocers to use. The market for freezer creamery butter is dull, only very top qualities selling in small way at 22½c to 23c, and holders are growing anxious about the disposition to be made of the immense stock of June and summer butter held throughout the country.

Low grades are in full supply and prices favor buyers. We quote:

Creamery, fresh, extra, 25c; medium, 21@24c; poor, 18@20c; creamery, freezer, extra, 22@23c; medium, 20@21c; poor, 15@19c. New York Dairy, extra, 22@23c; medium, 18@20c; poor, 14@17c.

Cheese—Receipts for the week, 27,323 boxes. Exports for the week, 5,693 boxes.

Receipts were largely made up of western full cream, late made state and skimmed cheese. These styles were freely offered at all kinds of prices at 3 to 9c. Finest Sept. makes are in few hands and firmly held at quotations. We quote:

Full cream, extra, 12@12½c; medium, 10@11½c; poor, 6@9c.

Eggs—Receipts for the week, 30,447 cases.

Prices were forced too high for free consumption, and with lessened demand, prices dropped off 3 to 4c per dozen and are easy at the close. We quote:

New York & Pennsylvania, fresh laid per doz., 31@32c; Northern & Western, fresh per doz., 30@31c; all sections, poor to good, 20@28c. refrigerator poor to good, 20@28c.

177 Chambers St. DAVID W. LEWIS & CO.

BALTIMORE MARKET.

BALTIMORE, Dec 3.—Butter—With a continued scarcity of grades suitable for table purposes, there has been a further advance in prices and the market for the time being is quite favorable to the selling interest, Owing to the shrinkage in the current receipts of creamery, there is a brisk demand for all choice to fancy held creamery. Imitation creamery—There are no fancy lots arriving at all. Fresh ladles, when free from objectionable features, meet ready sale at quotations. while June and other held ladles are in ample supply and slow sale. Choice to fancy rolls meet quick sale. Packing stock is in moderate supply and demand. Blocks and Prints—There is a prompt sale awaiting all arrivals of choice to fancy stock. The general market closes firm, particularly on attractive qualities.

Creamery separator, extras, 26@26½c; firsts, 23½@25c; seconds, 19@23c: June creamery, extra, 24@24½c; firsts, 22@23c; seconds, 18@21; imitation creamery, extras, 20c; firsts, 18@19c; seconds, 14@16c, Iowa & N. W, Ladle, extras 16½c., firsts, 15@15½c; seconds; 13@14c; Roll Ohio, extras, 16c; firsts, 14@15c; seconds, 13c. Ohio Storepacked, firsts, 13@13½c; seconds, 12½c. creamery blocks (2 lbs.) extras, 26½c; firsts, 25@25½c; seconds, 21@23c. Creamery prints, (½ lbs.), extra, 27c; first, 25@26c; seconds, 21@23c; Md, Va. & Penna. prints, extras, 25@26c; firsts, 22@23c; seconds, 19@21c. Renovated butter, extras, 19c; firsts, 17@18c; seconds, 15@16c.

Eggs—Although stock good enough for strictly fancy trade continues in light receipt, the supply is about equal to the requirements. as the prevailing prices have been the means of retarding the demand no little; consequently there has been a big demand for choice to fancy storage, which in many instances has proven more desirable than the so-called fresh. Judging from present appearance, eggs have reached the high water mark, and it would not be at all surprising to see lower prices at no distant day. The market today on fresh eggs closes quiet and barely steady at 30 cents.

301 Exchange Place. G. M. LAMB & BROS.

SAN FRANCISCO MARKET.

SAN FRANCISCO, Dec. 7—While general supplies of butter were heavy yesterday, they included but a small percentage of really fancy offerings and with the principal buying interest centered in this grade the market maintained a steady tone at the recently revised figures. The special brands of Creamery were held well in hand at the top quotation and despite the cautious buying of operators, offerings were well absorbed. In small ways as high as 31c was still paid for the more favored marks, but this price was too exceptional to be justified as a quotation. The demand for the medium and undergrade butter was sluggish and despite the inducements offered, sellers reported an unsatisfactory market. The day closed with a heavy surplus uncared for and prices leaning strongly toward easiness. Prices for Ranch eggs eased off slightly under a less brisk demand and larger offerings. Supplies were well cared for at the revised figures and the market ruled steady, with the best grades of Ranch easily bringing the outside price. Storage eggs were in good demand, and the ruling rates were firmly held. Cheese was in good supply and prices remained the same as for some time past.

Receipts yesterday aggregated 26,200 pounds butter. 611 cases eggs and 4,300 pounds cheese.

Butter—Creamery, extras, 30c; good to fancy, 25@29c; dairy, extras, 23@24c; dairy, choice, 21@22c; store, 18@20c; California storage, 24@27c, eastern creamery, 23@25c.

Eggs—Ranch, selected large, 52½@53c; good to choice, 45@50c; store, nominal; California storage, 28@32½c; eastern, 25@30.

Cheese—California creamery, mild, new, extra, 14@15c; mild, new, choice, 13½@14c: Young America, 14@15½c; eastern, New York, Cream, Cheddars and Flats, new, 14½@16c.

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Phosphate rock, f. o. b. Char'n		5.00 @	7.00
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Bones, rough	℔ ton	17.00 @	18.00
ground		21.50 @	22.00
Bone meal		21.50 @	23.00
Bone black, refuse		19.00 @	19.50
Potash, dbl. m're salt	48@53%	1.12 @	1.15
dbl. m'ure salt	48@53%		
less 25 tons		25.00 @	30.00
sulph. of	basis 90@98%	2.11 @	2.18
90@98% less than 25 tons		38.00 @	40.00
Potash, Muriate	℔ 100 lbs.	1.83 @	1.95
less than 25 tons		36.00 @	40.00
Kainit, 25% S. of P	℔ ton	9.30 @	9.50
less than 25 tons		9.50 @	10.50
Sylvinit, 35@37% P	℔ unit	41 @	46
Nitrate of soda		2.15@	2¼
Blood, dried, red	℔ unit	2.55 @	2.60
low grade		2.45 @	2.50
Concentrated tankage	℔ ton	15.00 @	16.00
Fish, guano, dried		2.42½ &	10
acidulated		2.20 &	35

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THE BEST AND BIGGEST USERS EVERYWHERE USE THE

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They get the Best Results and Biggest Profits through doing so—that's the whole story in a nut-shell.

And so it must be in proportionate degree with every user—whether big or little, farm or factory.

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Cream $1.00 Per Gallon on the farm; pork 9c per pound. Work the land 52 weeks and get two silage and one forage crops per year. Land as good as any in Wisconsin. $20 to $40 per acre. Tidewater, Virginia. Let us tell you about it. A postal brings booklet. SOUTHERN LAND CO., 13 Fairchild Block, Madison, Wis.

Holstein Bull—Grand individual; ready for service; richest breeding. His dam and four nearest tested dams averaged over 80 lbs. milk in 1 day, and 26.30 lbs. butter in 7 days. Speak quick. $125. WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis.

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For Sale—I have some first-class Belt and Steam Power Separators which I would like to exchange for a No. 1 or 2 Alpha De Laval Belt Power Separator. I have Reid's, Springer's, Sharples' Tubular, Imperial Russian, Barber Overflow, Danish Weston & Co. Also separator frames and jacks. F. M. PARKHURST, Corry, Erie Co., Pa., R. F. D. 10. 42-4

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Wanted—A man to manage a dairy and farm of two hundred acres. Good milk route, complete outfit of stables, silo, milk room and water supply, most conveniently arranged. Adjoining city limits. Applicant must have some capital and satisfactory references. Address R. E. D., care Hoard's Dairyman. 44-2

Wanted—Position as buttermaker by graduate of Penna. Dairy School. 9 years experience; references furnished. Address S., care Hoard's Dairyman.

Feed Protegran—For economy and best results. Write the DEWEY BROS. CO., Blanchester, O. 44-tf

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Two choice young Guernsey bulls for sale. MRS. A. W. LEHMANN, Neosha, Dodge Co., Wis. 12-sp

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A Snap—Paying milk route at cost, for cash. Going west. Address S-7, care Hoard's Dairyman. 44-2

The Third Revised Edition of Buff Jersey's Popular Book Just Out of Press—Ten chapters, 25 illustrations and right up-to-date. Subjects treated are: Silos and Ensilage, All Phases of the Dairy Subject, Soil Crops, Up-to-date Farm Machinery, How to Cure Abortion and Milk Fever, Some Medicines and Remedies, The Steam Plant, its care, and many other valuabe things ably treated. Send for circular. Sent post paid, cloth binding $1.00, paper 75c. BUFF JERSEY, Monmouth, Ill. 47-tf

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For Sale—Registered Ayrshire cattle, all ages, milking qualities unexcelled. Special prices on bull calves, 2 weeks to 9 months old, from grand cows. F. D. STOWELL, Black Creek, N. Y. 43-4

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Jersey Bull For Sale—Dam's recorded test is 17 lbs. 4½ ozs. He is a grandson of Landseer's Fancy 29 lbs. ½ oz. in 7 days, 936 lbs. in 1 year. Has won four 1st premiums. Write for description and price. Also two half grown Collies. J. BLACK, Bremen, O. 42-tf

Wanted—An energetic single man to work on stock farm, with fine herd of pure bred Holstein cattle. Must be good feeder and milker or one anxious to excel in this line of work. State experience, references, and wages in first letter. Address W. J. YOUNG, White Bear Lake, Minn. 43-2

Milk Business For Sale—A 70 gallon milk business for sale at a bargain if taken within the next six weeks. No cows, all milk bought. Address W. M. T., care Hoard's Dairyman. 44-2

Wanted—Practical dairyman of experience. One who thoroughly understands feeds and feeding and can feed for profit. Must be sober, good milker, active, and willing to work. State wages and experience and give references. Address CHAS. E. POLLEY, Van Tassel Farm, DuBois, Pa. 44-2

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Wanted—Position as superintendent by practical farmer, dairyman and breeder, or will take farm on shares. E. R. AUSTIN, Three Rivers, Mich. R. F. D., No. 2. 44-2

Dairy Questions Answered by Prof. Farrington.

HEATING the CREAMERY.

"I must soon put in steam pipes in order to be ready to warm the creamery in preparation for cold weather and I want to know the best way to arrange these pipes. I am of the opinion that if the steam pipes were hung up near the ceiling and one end connected to the main steam pipe with the other end draining back to the blow-off pipe or feed water pipe, that the condensed steam will drain back into the boiler. I want to know if the steam pressure in the top of the boiler will force the condensed water from the heating pipes back into the bottom of the boiler? If this can be done I will save all the condensed steam. If this will not work please tell me how to arrange the steam heating of my creamery from the boiler. In other factories where I have worked, the condensed steam from the heating pipes was allowed to flow into the drain. This it seems to me is an unnecessary waste of good, soft water. If you will suggest some good method for heating my creamery by way of the high pressure boiler I shall be much obliged to you."
West De Pere, Wis. * * *

As the boiler used in the creamery is run under high pressure, it will be necessary to adopt one of two systems for heating the various rooms in your creamery.

The first one of these is to place all the pipes in the different rooms so that they will be higher than the boiler and the condensed steam will drain back to the boiler by gravity.

The second one is to place the heating pipes in the rooms below the water level of the boiler, and if the condensed steam is collected and saved by means of a steam trap and hot well, this water may be pumped back into the boiler.

The principle objections to the first system of heating, that is, placing the heating pipes all higher than the boiler, is that you will be obliged to leave the steam supply valve always open in the heating coils in order to give a free passage of the condensed steam back to the boiler. You can only shut off the heat from them by closing the valve that connects all the heating pipes with the boiler. By this arrangement you cannot regulate the heat, you will be obliged to have either the pipes all full of steam or all empty. Another objection to this system is the waste of heat which will be caused by making it necessary to put all the pipes so high up in the different rooms, as will probably be the case if they are all placed at a height which will enable the water to drain back into the boiler. If you have only a small room to heat and will need it heated most of the time when you are running the boiler, you can make such an arrangement as this very easily and it will not need much attention, but with any great amount of space to heat you will not be able to regulate the temperature at will.

If you wish the heating pipes in the different rooms at places where they will be below the water level of the boiler, you can invest about $25.00 in a steam trap and collect the condensed steam in a hot well from which it can be pumped back in the boiler. With this arrangement you can put in valves and shut off the heating coils in different rooms as you wish. You will at the same time save the steam which condenses and can use it in the boiler, over and over again.

I think you will like the latter system much better than the former and if your factory is heated it will pay you to make an effort to have this work well done.

PASTEURIZING SOUR CREAM.

"As a former Wisconsin buttermaker I beg to ask your advice on pasteurizing hand separator cream of high acidity. I want to know if the machines now in use are adapted to the pasteurization of ripe, heavy cream containing from thirty to forty per cent fat. I have just begun work in a new plant and find that the pasteurizing of the cream will be a necessity if we hope to turn out a high scoring butter. I am well acquainted with the use of commercial starters, but I have had no practical experience in pasteurizing and I am anxious to start right so have written you.
Wisheth, N. D. * * *

We have done some work in the pasteurization of sour cream and find that it can be very successfully done in the Farrington pasteurizer. I am making some experiments on this point at the present time, but so far as I have gone I feel safe in saying that success will attend the introduction of this practice into creamery work.

The extensive use of hand separators by farmers has changed the creamery business in certain lines to a great extent and new methods and machinery must be designed and used for adapting ourselves to these changed conditions.

The hand separator cream which comes from farms is received at creameries or central churning stations in all conditions from sweet to ripe and over-ripe. Butter makers who have had experience in creamery butter making will realize that if the lots of sweet cream may be separated from those which are somewhat tainted, an extra quality of butter may be made from the sweet cream, even if it has been separated on the farm. The making of fancy butter, however, from the tainted and sour cream which is received from hand separators is a problem which will tax the ingenuity and experience of the most expert butter maker.

In so far as my experiments have gone they seem to show that rich, sour cream, even if it contains, as you suggest, thirty to forty per cent fat, will be improved and a good quality of butter made from it if such cream is pasteurized as soon as it is received at the factory. I think as a rule that it is not advisable to attempt to ripen such sour cream with a starter. This is especially true when the cream on arrival contains in the neighborhood of .5 of one per cent acid. Such cream will not develop much more acidity than this and if a starter is added to it, the acidity of the starter will simply exaggerate the defective flavors already present in the milk or cream. I once thought that a well selected starter would cover up the defects in tainted sour cream, but some experiments which I made at a gathered cream factory, have led me to believe that this is a very difficult thing to do and that more satisfactory results will be obtained with such cream if it is pasteurized at the earliest possible moment after receiving it and then churn as soon as pasteurized, than will be the case if this cream is pasteurized and an attempt is made to ripen it after pasteurizing.

These suggestions only apply to the very sour, small lots of cream that are received from many sources at one factory. When the hand separator cream is in good condition, that is, perfectly sweet and contains no fermentations which may cause defects in the general flavor, such cream may be pasteurized and ripened with a well selected starter to good advantage. Pasteurization I am sure will prove to be very beneficial in the handling of this new product which is being received from the farms in many sections at the present time.

SAVING COMPOSITE SAMPLES OF CREAM.

This creamery for which I do the testing has about 2,300 patrons. The cream which is received averages 17 per cent fat and each month the composite samples amount to nearly seventy gallons of cream. We use bi-chromate of potash for a preservative. All this cream goes to waste. Now, can you tell me of a preservative that is "just as good" and not poisonous; one that will color the cream and still allow it to be churned and made into pure butter? It hurts me to see so much value going into the sewer. * * *
Auburn, Me,

The only suggestion I have to make that will help you in saving the seventy gallons of cream you throw down the sewer every month, is to churn this cream drain off the butter milk; wash the granular butter thoroughly in the churn, and then use it, either as it is when taken out of the churn, or, after melting it, for soap grease. I think you will find that in this way the fat may be safely utilized, and it ought to make a good soap.

If you do not care to make soap from it, the grease can be used for lubricating purposes, although it will hardly be ad-

"ADVERTISEMENT."

A SURE TEST

Of Whether Coffee Really Hurts or Not.

Some folks drink coffee and suffer day after day but console themselves by saying "I don't believe it hurts me or at any rate I am not sure that it does."

"The sensible thing to do is to make sure by leaving off coffee and using Postum for a week or so. The trial is pleasant and you may learn something worth more than money to you in the way of health and strength.

An intelligent woman who valued her health and comfort made sure. She says: "I have proved positively that when I used coffee I had kidney and bladder trouble, palpitation of the heart, stomach trouble, insomnia and my complexion was sallow and muddy, but I got rid of all these troubles when I quit coffee and took on Postum Food Coffee. All my troubles disappeared quickly, almost as if by magic, and in their place I became strong and well.

"I soon learned to like Postum as well as I ever liked coffee and I would not exchange my delicious cup of Postum for coffee and sickness for anything in the world." Name given by Postum Co., Battle Creek, Mich.

Look in each package for a copy of the famous little book, "The Road to Wellville."

If You DON'T Want

Mottled or Gritty Butter

Use the SALT that is made on purpose to do away with these difficulties

"COLONIAL" and "LIBERTY"

(Light, Flaky Grain) (Granulated)

COLONIAL SALT CO. COLONIAL BRAND 320 Lbs. BUTTER SALT AKRON-OHIO

BUTTER SALTS

COLONIAL SALT CO. LIBERTY BRAND TRADE MARK 320 Lbs. BUTTER SALT AKRON-OHIO

"Money Makers for Butter Makers"

YOU NEEDN'T TAKE OUR WORD FOR IT. We offer every Creamery and every Cheese Factory an opportunity to try either or both of these perfect butter salts at our expense. **We know** that these are the lightest salts for the same bulk that there is on the market, that they dissolve quickly and evenly, do not wash out in working nor leave the butter gritty or mottled.

Perfect Flavor
Color Pure White
Purity Over 99%, the highest known.

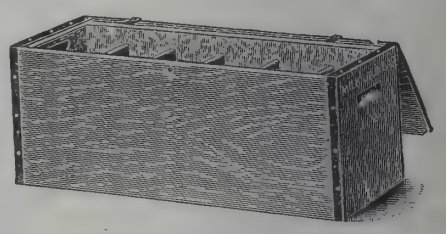
If you have a Creamery or Cheese Factory and are not a regular customer of ours, we **WANT** you to try a **FREE SAMPLE.**

If you don't find it the best salt for your purpose you ever saw or heard of, you are under no obligations to us whatever.

There is a 56-pound sack of **"COLONIAL"** or **"LIBERTY"** Butter Salt (or of each, if you say so) that we will send free, charges prepaid, to the railroad station of every Creamery and Cheese Factory in the country. Try it, **at our expense,** and let us know how you like it.

Colonial Salt Co., - Akron, Ohio

Our Milk Jar Cases....



Are made of the best material throughout. We have a variety of styles at prices to suit everybody. Our best cases are lined with galvanized steel, ends reinforced with band iron, covers hinged inside, removable wood racks, etc. We will be glad to describe the entire line if you are interested.

Pasteurizing Apparatus, Low Down Milk Wagons, Ice Cream Supplies and Apparatus, Milk and Cream Signs, Milk Jars, etc., etc.

Creamery Package Manufacturing Co.,

149 to 153 East Superior St., Chicago.

BRANCHES: Kansas City, Mo., Minneapolis, Minn.; Waterloo, Iowa; Omaha, Neb. St. Louis, Mo. and Cowansville, Quebec.



Do not Cool Your Milk

the old-fashioned way, with a dipper or a paddle, but get an up-to-date

Milk Cooler-Aerator.

Saves Time, Labor, Patience and Money.

A Booklet for the asking.

Champion Milk Cooler Co.,
67 Main Street, CORTLAND, N. Y.

visable to attempt to use it in any kind of food.

I do not know of any preservative that it will be safe to use in your composite samples with the expectation of making butter from the samples after they have been tested. All the preservatives that are capable of keeping cream sweet, so far as I know, are injurious when used in any kind of food. I would not therefore attempt to use the fat left in these composite samples for any other purpose than as grease, either for lubricating machinery or for making soap.

The loss which you mention, of seventy gallons of cream per month, containing 17 per cent fat, is not such a very heavy one when yon consider the advantage which this testing is to the factory and to the patrons; 70 gallons at 8 lbs. per gallon, is equal to 560 lbs; if this tests 17 per cent fat, it contains 17 × 560 or 95.2 lbs. fat. Assuming then, that you lose on an average about 100 lbs. of butter a month by throwing away the composite samples, this, at 25 cents per lb. is only $25, which sum is worth saving if it is possible to save it, but at the same time it is not a very great loss compared with the benefit the large number of patrons derive from the testing. I think that probably you and all the patrons would be willing to pay even more than this rather than to run the business without testing the cream.

Your letter does not state how you take these composite samples, but the amount used in sampling may be reduced to a minimum if the drivers on the different routes will take with them a box of sample bottles and add a sample of the cream at each farm to a bottle labled with the name of the patron. This box of sample bottles ought to be well protected from heat in summer and cold in winter, so that when it arrives at the creamery, the manager, or the man who receives the samples, may examine them as they first come in, and find out which ones of the patrons are responsible for the good and for the bad cream, which may have been collected by each driver every time he makes a cream-gathering trip. Such samples as these give the butter-maker a fine opportunity for inspecting the cream that was delivered to the driver at the farms, and he may be able to locate the cause of any defects which may be noticed in his butter at the factory.

When these samples arrive at the factory it is not necessary to use all of each sample for the composite test, but after each bottle of cream is inspected, a small quantity of it, if in good condition (perhaps 10 c. c.) may be added to each patron's composite sample jar at the factory. This sort of an arrangement may help to reduce to a minimum the amount of cream used for the composite samples and reduce your loss of fat from these samples to its lowest terms.

E. H. FARRINGTON.

Wisconsin Dairy School.

Cultivating Corn with Smoothing Harrow.

ED. HOARD'S DAIRYMAN:--I would like to ask through the columns of your paper regarding cultivating corn Is it safe and good farming to run a smoothing harrow over the corn as a weeder when the corn is ½ to 1 inch high, that is, with the teeth turned partly down and the horses going lengthwise of the rows? Is the corn injured by the use of the smoothing harrow or will it spring up as good as ever if knocked over? A gentleman of farming experience informs me the smoothing harrow adjusted as above is much better than the wire weeders and that the same being used twice a week on corn until it gets 4 to 6 inches high will keep the corn free from weeds; that no hoe will be required and that no injury is done, notwithstanding it may so appear on the day of use. Have any of the readers of HOARD'S DAIRYMAN had experience in the above method, which would seem rather rough to me? T. R. W.

St. Albans, Vt.

As this inquiry invites answers from our readers, it is respectfully referred to them without editorial comment.

Carbolic Acid for Abortion.

Some Satisfactory Practical Experience.

ED. HOARD'S DAIRYMAN:—I see you think carbolic acid is not a specific for abortion unless applied to the affected parts. You may be correct, but from my experience, I question the correctness of it. Carbolic acid taken into the stomach enters the circulation, and tells upon the entire system. But let me give my experience with abortion in a herd of 50 cows.

A few years ago I got several Jersey heifers from a herd in western Massachusetts. Soon after their arrival, I noticed one only a few months in calf, making bag unnaturally, with other maternal developments. Soon a less than a half grown calf appeared and soon others followed. From that time on I have been troubled with it both in stable and pasture. I applied remedies as recommended to the stables, but could not do it away from home, at pasture. In the fall of 1902, I brought several from pasture and six of them showed unnatural, maternal development, prominent bags and other sexual parts. From previous observation, I was satisfied abortion was on the road at a rapid pace. I determined to make a faithful test of carbolic acid. I commenced in November to give each one twenty drops in a little water every two days. I continued the treatment until spring and kept the abnormal development in check so that at the due time they each brought healthy calves. Also gave the acid occasionally to several others which had previously aborted. You can say that I might be mistaken about the six heifers, but I am satisfied my judgment was not at fault, for I have had a large experience, with close observation in this matter. GEO. W. HUMPHREY.

Plymouth Co., Mass.

"ADVERTISEMENT."

GIVE YOUR STOMACH A NICE VACATION.

Don't Do It By Starving it Either—Let a Substitute Do the Work.

The old adage, "All work and no play makes Jack a dull boy," applies just as well to the stomach, one of the most important organs of the human system, as it does to the man himself.

If your stomach is worn out and rebels against being further taxed beyond its limit, the only sensible thing you can do is to give it a rest. Employ a substitute for a short time and see if it will not more than repay you in results.

Stuart's Dyspepsia Tablets are a willing and most efficient substitute. They themselves digest every bit of food in the stomach in just the same way that the stomach itself would, were it well. They contain all the essential elements that the gastric juice and other digestive fluids of the stomach contain and actually act just the same and do just the same work as the natural fluids would do, were the stomach well and sound. They, therefore, relieve the stomach, just as one workman relieves another, and permit it to rest and recuperate and regain its normal health and strength.

This "vacation" idea was suggested by the letter of a prominent lawyer in Chicago. Read what he says: "I was engaged in the most momentous undertaking of my life in bringing about the coalition of certain great interests that meant much to me as well as my clients. It was not the work of days, but of months. I was working night and day almost, when at a very critical time my stomach went clear back on me. The undue mental strain brought it about and hurried up what would have happened later on.

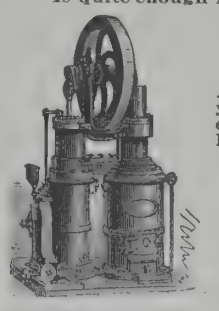
"What I ate I had to literally force down and that was a source of misery as I had a sour stomach much of the time. My head ached, I was sluggish and began to lose my ambition to carry out my undertaking. It looked pretty gloomy for me and I confided my plight to one of my clients. He had been cured by Stuart's Dyspepsia Tablets and at once went down to a drug store and brought a box up to the office.

"I had not taken a quarter of that box before I found that they would do all the work my stomach ever did; and as a rest or vacation was out of the question for me, I determined to give my stomach a vacation. I kept right on taking the tablets and braced up and went ahead with my work with renewed vigor, ate just as much as I ever did and carried out that undertaking to a successful issue. I feel that I have Stuart's Dyspepsia Tablets to thank for saving me the handsomest fee I ever received as well as my reputation and last but not least my stomach."

Stuart's Dyspepsia Tablets are for sale by all druggists at 50 cts. a box.

HALF ENOUGH WATER

Is quite enough for some people, but most people want water every day. If

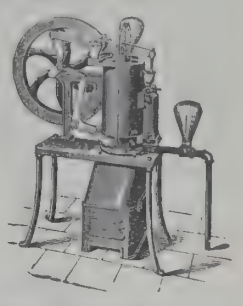


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Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.

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Scott's "Perfect" Cow Stanchion

SWINGING
SELF-CLOSING
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3 NECESSITIES FOR PERFECT STANCHIONS

Made of hard wood—strong and durable. Price $1.00. Satisfaction guaranteed.

Write for descriptive circular.

B. C. SCOTT, 212 Beach St., Bridgeport, Conn.



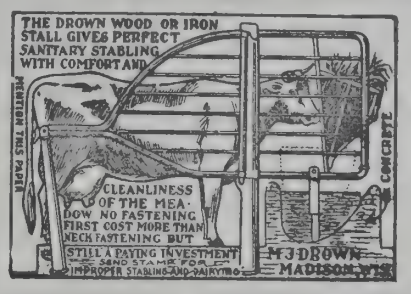
WILDER'S PATENT SWING STANCHIONS

Chain or Pin Fastened.

Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.

Safest, Strongest, Most Convenient fastening made. Cheapest to put in and save room in barn. Send for Stanchion Catalog to

J. K. WILDER & SONS, BOX , MONROE, MICHIGAN.

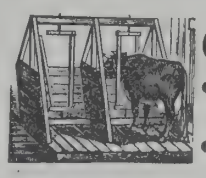




WARRINER'S CHAIN HANGING STANCHION.

CLEAN, SAFE, COMFORTABLE.

MFG. BY W. B. CRUMB, Forestville, Conn.



CHAIN-HANGING CATTLE STANCHION

The Most Practical **CATTLE FASTENER** ever invented. Manufactured and For sale by

O. H. ROBERTSON Forestville, Conn.



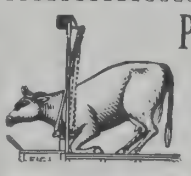
Only One Hand

needed to stanchion Cattle if you have our

Steel Latch Stanchion

When open is locked ready for cattle to come in; closed, it swings freely. Best dairy cattle tie because comfortable and quiet; gives greatest freedom. Made of selected hardwood oil finished. We are the sole manufacturers. Write now for circulars and delivered prices.

TOLEDO PLOW CO., Dept. H, TOLEDO, OHIO.



Prescott's Swinging Swivel tanchion

Keeps Cows Clean.

Swings forward while getting up or lying down. Locks back while standing. Full particulars free.

E. PRESCOTT,
Beverly St., Boston, Mass.

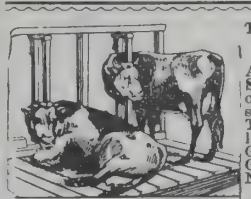
Paying Cows

out of worthless ones are worth while. Barren cows are made to breed, calving and after birth difficulties are safely passed, garget, milk fever, scours, caked bag, etc. are cured by using

Kow-Kure.

A specific remedy for cows only, adapted to their peculiar troubles. Conditions, prepares for breeding and bearing difficulties, cures cow weakness. It makes cows pay. Nearly 100,000 cow owners attest its power. Sold by dealers. Write for free Kow-Kure book.

Dairy Association Co., Lyndonville, Vt.



The BEST Cattle Fastening.

SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated circular free. GLENORA MFG. CO. Glenora, Yates county, N. Y. Infringements will be prosecuted.

MILK TUBES

Patent Coin Silver 1¾" 50c. 3¾" 80c. Improved Teat Opener, 75c. Dilitating plug 25c. Postpaid on receipt of price.

G. P. Pilling & Son, 2nd and Arch Sts., Ph'l., Pa.

JUST OUT! UNDERHILL SELF ADJUSTING STALL



No Gutters
No Platforms
No Fastenings
No Stables to clean

Cease trying to keep your cows clean. You can't do it. Give them a chance and they will do it themselves. This is the only way and the easy way. Write for circular telling what the cow has discovered to us. It is a great revelation,

Wm. M. UNDERHILL, Oconto, Wis.

NO HUMBUG. Farmer Brighton's



Swine V, Stock Marker and Calf Dehorner. Stops swine from rooting. Makes 48 different ear marks. Extracts Horns. Price $1.50. Send $1 for trial. If it suits, send balance. Pat'd May 6, 1902. Hog and Calf Holder only 75c.

GEORGE BOOS, Mfr., FAIRFIELD, IOWA.

LINE YOUR SILOS WITH GIANT INSULATING PAPER

KEEPS THEM AIR TIGHT

Damp-Proof
Frost-Proof

Keeps Silage Fresh; Lasts Indefinitely.

STANDARD FOR 18 YEARS.

Used Everywhere.

MANUFACTURED SOLELY BY

The Standard Paint Co., 100 Williams St., New York.

THE NEW PATENT

Cow Stall

AND FEED TROUGH.



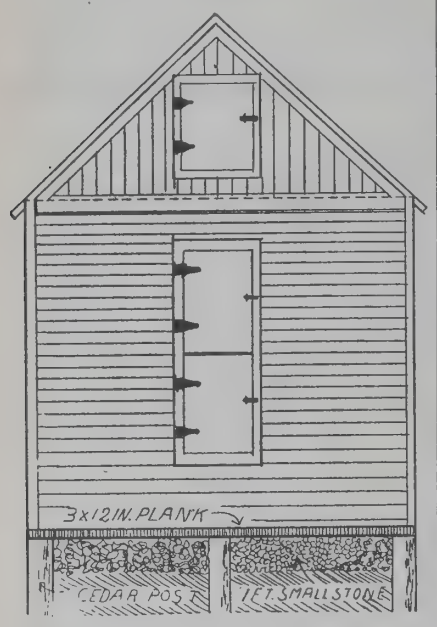
This is the only Cow Stall with a centering hinge. Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars.

R. A. McLERY & CO., Palmyra, Wis.

A Steel Stanchion beats anything you ever saw for tying cattle. Lighter, stronger, neater. Swings on chains Not in the way when lying down. Agents wanted. Write for special terms and prices. **Jas. Boyle, Mfr., Salem, O**

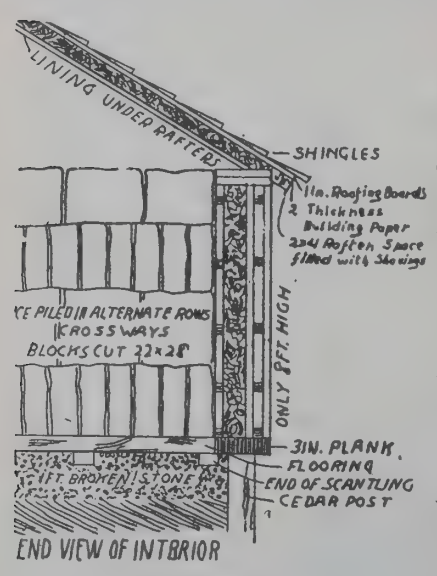
Constructing an Ice House.

From my experience in building ice houses, there are two or three weak points in the general construction of this class of buildings. The first is in making a poor foundation, thus securing a lack of drainage. The second is a roof, on which the sun generates such intense heat that the inside of the house is more like an oven than a place for keeping ice. Sometime ago I desired to build a house that would hold over forty tons of ice, and it was built on the following plan: I give you herewith only the general directions, for those who are differently located may



want to change the plans somewhat. While little scope is usually given in the selection of a site, there are certain precautions to be taken in order to secure a good bed of ice.

If the site chosen be on a little rise above the adjacent ground level, surface drainage will give no trouble; otherwise provision for it as well as the water from the melting ice, must be made. For preparation for the foundation of the house, which can be placed on stone or cement walls, or on cedar posts set in the ground two feet at least, excavate at least one foot below sills, and fill with cobble stones or very coarse gravel the whole of the inside between sills, smoothing off the surface with fine gravel or cinders. If the digging shows a clay soil, a drain should be put in to carry off surplus moisture, carrying drain well under the gravel. Scantlings can be bedded in the fine gravel on which to place a floor of cheap lumber, placed one inch apart to permit the water to pass through readily. It takes on an average from 40 to 45 cubic feet to hold a ton of ice, consequently a building 12 by 16 feet by 12 feet high, would hold about 45 tons of ice well packed. I use 3×12 sound pine plank for sills and for uprights 2×6 scantling 12 feet long, placed two feet apart, at each corner, putting in an extra piece to catch lining on the inside. On the top I spiked 2×6 scantling doubled for plates. On



END VIEW OF INTERIOR

the outside of house. I nailed sheeting of common lumber, on which I tacked a double thickness of building paper, then strips 1×2×12 feet long. Over this a double thickness of building paper and finished with matched siding. This gives a hollow space of dead air of one inch to prevent heat of the sun penetrating to inside lining, care being used to see that

BUY DIRECT FROM FACTORY, BEST
MIXED PAINTS
At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.

PURE BRED SHORTHORNS
CHOICE BULLS FOR SALE.
Also Cows and Heifers bred to Clay Buttercup, 195881, a descendant of the Clay Family, champions at the World's Fair dairy test.
GEO. WENHAM, Fort Atkinson, Wis.

AYRSHIRE CATTLE of the BEST of BREEDING. Also Chester White Pigs, ready to book for season's trade. Young stock of both sexes. Prices reasonable. Come and see us.
F. TSCHUDY & SONS, Monroe, Wis.

REGISTERED GUERNSEYS Tuberculin Tested.
Standard bred Prices Low. **WHITE PLYMOUTH ROCKS**
J. G. HICKCOX,
700 Stowell Avenue. Milwaukee, Wis.

GUERNSEYS
REGISTERED GUERNSEY BULLS FOR SALE from Advanced Registry, and high-grade stock. Pedigree and price furnished upon application. All animals are tuberculine tested.
WOODEND FARM,
ST. BONIFACIUS, MINN.

GUERNSEYS FOR SALE.
The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

SPOTSWOOD GUERNSEYS
We offer some grand Imported Cows and Heifers, large and deep milkers and high testers; a fine lot of Heifers fit for service, and a few Imported Bulls from prize winners on both sides. Any animal in the herd for sale. Address WALTER JAUNCEY,
Spotswood Farms Broad Axe P. O., Pa.

OLD HOMESTEAD GUERNSEYS
Greatest Prize Winning Herd of the Breed, defeating all competitors at 22-state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.
Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL, Perry, Lake Co., Ohio.

Florham Guernseys.
The herd is made up of representative animals of both home and foreign breeding.
BULL CALVES,
from large producing dams for sale. Apply to J. L. HOPE, Supt., Florham Farms, Madison, N. J.

GUERNSEYS HADDON FARMS
Home of the noted GLENWOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

GUERNSEYS FOR SALE
Bulls two years old out of Count Topsy 24.27 lbs. butter 7 days. She won first prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

Hillsover Farm Guernseys.
FREDONIA, Chautauqua County, NEW YORK,
Bulls and Young Stock
FOR SALE.

ALTA CREST FARM, SPENCER, MASS.
Home of the Yeksa Family of Guernsey Cattle. Herd contains more cows with large records and backed by large records than any other HERD OF
GUERNSEY CATTLE
IN THE COUNTRY
Herd headed by Primative 4909, a son of Primrose's Tricksey, Adv. Reg. No. 2, 592 lbs. butter in one year. Several Bull Calves from elegantly bred Dams at reasonable prices. Address
A. H. SAGENDORPH, Spencer, Mass.

THE BROWN BESSIE HERD Offers one bull 14 months old, sired by Recorder, 29239, the only living son of Brown Bessie and has 14 tested daughters. Dam, Relay, 70353, test 17 pounds 2 ounces. She a daughter of Diploma with 61 tested daughters. Also Berkshire Pigs of English and American selected stock. H. C, TAYLOR, Orfordville, Wis.

KING OF ST. LAMBERT'S KING 30752
Sire of thirty-three tested daughters, is unquestionably the most prepotent of any Jersey sire in the land. We have for sale young bulls rich in his blood; also a few cows and heifers in calf, whose progeny will be attractive because of the "Hart's King" blood in them. For prices, etc., address
FRANK W. HART, CLEVELAND, OHIO.



JERSEY BULL CALVES.
Thrifty, handsome fellows, 7 to 12 months old. sired by Golden Blyth 3rd, 54569 A. J. C. C. a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Price low if taken at once. One of these calves is out of Mildred Micawber.
R. C. GREEN & CO., Albion, Wis.

MILK BUTTER
BILTMORE JERSEYS
ILLUSTRATED CIRCULAR OF YOUNG BULLS FROM SELECTED DAMS, with very reasonable prices attached, can be secured by sending a postal.
If they don't improve the milk and butter yields of your herd we offer your selection of another free of charge.
DON'T FORGET we are headquarters also for Berkshires and Standard Poulty. Apply to
BILTMORE FARMS, BILTMORE, N. C.
CONSTITUTION TYPE

GUERNSEYS FOR SALE.
Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.
JAS. H. BEIRNE, Oakfield, Wis.

WASTELAND GUERNSEYS
SPECIAL SALE
To reduce our stock we offer for sale a few Cows and Heifers. We also have some good Bull Calves sired by "Sir Coral" 5239, and "Glenwood's Sheet Anchor of Haddon" 6372. Write at once for description and prices.
M M. & E. J. HOLLINGSWORTH,
Landenberg, Chester Co., Pa.

Rosendale Guernsey Herd
TUBERCULIN TESTED.
Sixty head of choice Guernseys headed by Coralette's Son, (see page 450) whose dam, Coralette made 479.7 lbs. fat in one year at 3½ years old, and was first prize cow at Wisconsin State Fair in 1896.
Some fine young bulls for sale.
GEO. C. HILL & SON, Rosendale, Wis.

AMERICAN JERSEY CATTLE CLUB
OFFICES: 8 W. 17TH ST., NEW YORK
President, ELMER A. DARLING.
Secretary, J. J. HEMINGWAY.
BLANKS for Registering and Transferring Jersey Cattle; also Blanks for Private Butter Tests of Registered Jersey Cows, furnished free of charge upon application to the Secretary.
FEES for Registering: To non-members, $2 each head male or female. To members of the Club, $1 each head, male or female. All animals over two years old, double fee. For registration of all dead animals, $1 each. Imported animals, $25.
TRANSFERS are recorded free, if presented within 90 days from date of delivery. Transfers presented after 90 days, $1 each.
PRICE of Herd Register, $1 per Single Volume. Butter Tests of Jersey Cows, including all tests received by the Club to August 1, 1898, $2 per volume. Private Herd Record, 330 pages, cloth, leather back and corners, $2. Pocket Herd Record, 120 pages, flexible leather, 50 cents.
VOLUME OF BUTTER TESTS from August 1, 1898, to July 15, 1902, $1. Consolidated Volume, containing all previous tests, $2.00.
THE BY-LAWS of the Club, giving full rules to be followed in securing registration and transfers, mailed free on application.

JERSEY BULLS Now or soon to be ready for service; also several well bred HEIFERS. Let us send you prices and breeding, with milk and butter records. All stock is registered or eligible. E. E. STEVENS,
North Madison, Ohio

FOR SALE Son of Pedro's Pretty Pogis, 33660, A. J. C. C., a superb son of old Pedro, both of World's Fair fame. Two yearlings from tested dams. Some royally bred Poland China Pigs, March and April farrow.
J. Q. EMERY & SON, Albion, Wis.

ST. LAMBERT BULL CALVES by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.00.
W. J. HUSSEY, Mt. Pleasant, O.

HIGH CLASS JERSEY BULLS
Heifers and Cows for sale. My foundation stock is the best I could buy from a herd famous for merit. Write for what you want.
WM. B. GOODRICH, CLIMBING HILL, IOWA.

PROSPECT HILL JERSEY HERD
The cow that can DO something is what the farmers want. Eight cows have finished their official year's work making an average of 524 lbs. each. F. H. SCRIBNER, Rosendale, Wis.

FOR SALE. Two A. J. C. C. Bulls ready for service; also some younger ones. Cows and heifers in calf to richly bred bulls. Write for pedigrees and prices. We have a few Berkshire Boar Pigs from unregistered sows left; cheap.
N. N. PALMER & SON, Broadhead, Wis.

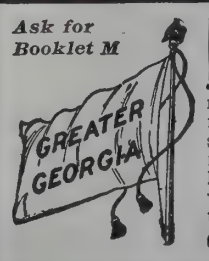
POLLED JERSEYS
Richest Cow of all breeds in Pan-American Model Dairy. Winning Herd at Ohio and New York State Fairs, 1903. W. H. FORBES & CO., Yellow Springs, R. R. No. 1, Ohio.

Wintergreen Hill Farm
A. J. C. C. JERSEYS.
Fall Sale List of cows and heifers is now ready and includes cows to calve for winter milking, heifers recently bred, and a few well bred calves. Some have tests, others are from tested dams. It is a very desirable offering and those applying early may secure their choice. In writing ask for Sale List A21.
WINTERGREEN HILL FARM, Scottsville, N. Y.

VALLEY FARM Offers five Yearling Heifers sired by "Diploma's Victor 56810" and safe in calf to a grandson of "Golden Lad." Also 1 yr. bull. The 6 head in a young herd cheap to make room for Winter. Write for particulars to
FRED STUBLEY, Black Earth, Wis.

ROBINSWOOD JERSEY DAIRY has a few head of Young Jerseys, either sex, they are offering below their value, being overstocked. Also a few Barred, Buff, and White Plymouth Rock Cockerels, and one two-year-old Berkshire Boar, (registered.)
N. H. ROBINSON, Prop., Centralia, Wis.

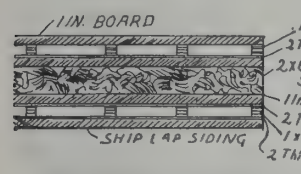
HAZEL FERN HERD. A. J. C. C. Jerseys, blood of St. Lambert, Melia Ann, Combination, Pedro, and Golden Lad. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale.
ESTATE W. S. LADD, Portland, Oregon.

Ask for Booklet M


GEORGIA LANDS are as well adapted to wheat and diversified crops as to cotton and sugar cane; as well adapted to wheat as any state in north or west. There's everything in Georgia, from gold mines to fat hogs. It is the largest state east of the Mississippi river; has varied altitude, from ocean to mile-high mountains, and climate to suit all. Here are health, happiness, homes, wealth for your industry. Don't guess wrong about Georgia. Get figures and facts. We send them free.
GREATER GEORGIA ASSOCIATION, - Atlanta, Georgia.

the space is well cut off at top and bottom. On the inside I nailed sheeting, filling the six-inch space with cinders, shavings or sawdust, as is most convenient, (I used cinders). Over this sheeting I nailed a double thickness of paper, on which was nailed one-half inch strips again, and on these, sheeting, thus making two hollow spaces of dead air one inch each and one space of six inches filled; six thicknesses of building paper, three of sheeting and one of good siding.

For the roof I used 2×4 for rafters, lining the under side and filling between the rafters with dry shavings; under the shingles I placed two thicknesses of building paper, placing a ventilator in the center of the roof, made so that it can be closed inside if desirable. The door should be made in two halves, and a door in the gable over the plate to put in and take out the ice for two top layers. The gables should be built the same as the walls. If the outside of the building is painted white it will help to keep the building cool. At the time of writing (July 22) there has been no waste of ice around the outer edge. I believe I have secured a good house at the cost of $65 and my own time in building. Any



farmer should be able to do this work himself in slack times. In filling the house I placed the ice on its edge, placing every alternate layer crossways. Ice will keep better and come out easier packed this way. Opposite the doors I laid short pieces of boards and filled the door space with shavings. When the house was filled I placed two feet of straw over the ice, tramping it well. Marsh hay would answer the purpose better.

We are using the hay and straw for our cold storage house and all of the large ice-houses are doing the same. I can keep my ice through the summer with the loss of only one ton.

COST OF HOUSE, BILL OF LUMBER, ETC., USED.

Sills, 2 pieces, 3-12-12	72 ft. pine	
Sills, 2 pieces, 3-12-16	96 ft. pine	
Cornice boards	75 ft. pine	
	243 ft. at $15.00	$3.65
Studs, 32 pieces, 2-6-12	384 ft. pine	
Plates, 4 pieces, 2-6-12	48 ft. pine	
Plates, 4 pieces, 2-6-16	64 ft. pine	
Studding for:		
Gables, 4 pieces, 2-4-14	37 ft. pine	
Rafters, 18 pieces, 2-4-9	108 ft. pine	
Strips, 60 pieces, 1-2-12	120 ft. pine	
3 thicknesses sheeting over all	2268 ft. pine	
Roofing	325 ft. pine	
Lining roof	250 ft. pine	
Flooring	140 ft. pine	
Scantling for floor, 5 pieces, 2-4-10	35 ft. pine	
	3,779 ft at $11.00	$41.57
Siding matched, 450 ft. pine, at $15.00		6.75
Shingles 3¼ sq, xxx cedar, at $1.75		5.69
12 rolls sulphite building paper, per roll 50c		6.00
		$63.66

—ROBERT THOMPSON, in *Prairie Farmer.*

A South Dakota Ration.

Please make out a ration for my cows for profit and health. I have five now and will have five more. They consist of half cows and half heifers having their first calves. My herd consists of grade Holsteins, Short-horns and Red Polls. They give 100 lbs. milk a day. I get 20 cents a pound for butter, from which 5 cents a pound has been taken off for hauling, shipping and manufacturing the cream, by the Hanford-Haselwood Cream Co., Sioux City, Ia. I feed them as follows:

Eight pounds of millet hay, containing the millet seeds; 6 lbs. of hay, consisting of ⅓ green foxtail, ⅓ yellow foxtail, ⅓ slough grass; 6 lbs. of soft, immature corn, containing cob and husks, about 3 lbs. of this is corn; 2 lbs. bran. They get all the corn stover they want to eat; little salt twice a day. I have all the feed of my own, except bran, middlings and oil meal. Bran, $14; middlings, 16; oil meal, $30. J. B. S.
Perkins, S. D.

If these cows are fresh in milk, or nearly so, and are not expected to freshen again for 10 or 12 months, we think it would be profitable to increase the allowance of grain by, say, 2 lbs. of bran and 1 lb. of oil meal, making in all 8 lbs. of grain daily. A dairyman should remember that his entire profit comes from that part of the daily feed which is not required for the cow's bodily maintenance. The cow, by the very law of her nature, looks out for herself first, and only after the demands of her own body are satisfied, does she commence to transform feed into milk—and some cows make a poor showing, no matter how much they eat. It therefore behooves every dairyman, who is keeping cows for profit, rather than for show, to watch results carefully and feed accordingly.

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA.

President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.

FEES FOR REGISTRY.

TO MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.
NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. ☞ All blanks furnished free.

Life Membership, $25.

Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.

Address F. L. HOUGHTON, Brattleboro, Vt., for information relating to Registration of Pedigrees

HOLSTEIN-FRIESIAN BULL CALVES

Do you want one for use this winter which will improve your dairy herd? Do you want him elegantly proportioned, with straight back, high rump, and all the dairy points? Do you want one whose relatives are A. R. O. and eligible to the Advanced Register himself? If so, I have a choice lot, just such as you want.

MALCOLM H. GARDNER, Darien, Wis.

STAR FARM

REGISTERED HOLSTEIN-FRIESIAN CATTLE

CORTLAND, NEW YORK

HOME OF
MERCEDES JULIP'S PIETERTJE PAUL
No. 29830

CHAMPION BULL OF THE WORLD

"STAR FARM" offers special opportunities to intending purchasers. Registered Holstein Cattle of choice breeding and individual excellence. The actual sale of nearly one hundred head from this herd within a comparatively recent date is strong evidence. In view of the growing demands on this herd I have determined to publish from time to time some of the many testimonials which I receive from my many customers. Your attention is respectfully called to the following:

'Mr. H. L. Bronson, Cortland, N. Y. Dear Sir: I take great pleasure in writing to you as all of the Holsteins that you shipped me have turned out better than I expected. I realized before purchasing that it was important for me to get the right kind of foundation stock, but confessed that I was a little in doubt as to how this result could be obtained. However, you have solved the problem to my perfect satisfaction. I hope to be able to visit "Star Farm" again this fall and make more liberal purchases from you than before. In the meantime let me wish you the best of success. Very cordially yours, H. WILLIS GAZLAY, Accord, N. Y., 1903.

Phoenix, Arizona, Nov., 1903
Mr. H. L. Bronson, Cortland, N. Y.
Dear Sir: Before starting for the east to purchase Holstein cattle I was informed by local buyers that eastern breeders held their cattle at such long prices that it would be impracticable for me to get a carload for this market. However, I visited "Star Farm" and had no difficulty in obtaining just what I wanted and at very reasonable prices. I can cheerfully recommend all intending purchasers to you and assure them your stock is right and your prices moderate. Expect to visit "Star Farm" again next spring and shall call on you probably for two carloads. Yours truly, A. STARKWEATHER.

Oneida, N. Y., 1903.
Mr. H. L. Bronson, Cortland, N. Y.
Dear Sir: The four Heifer Calves arrived in splendid condition and I am very much pleased with them. Their superior individuality and breeding has already been recognized by the leading breeders of this community. As evidence of more substantial nature of my appreciation of your method of transacting business will state you may book my order for a bull calf from Mercedes Julip's Pietertje's Paul and an A. R. O. cow: Thanking you for the many courtesies bestowed upon me while at "Star Farm", I am, very truly, FRED H. RIVENBURGH.

Hollyrood, Middletown, N. Y., Nov., 1903.
Mr. H. L. Bronson, Cortland, N. Y.
Dear Sir: I trusted to your intregrity as a man and your judgment as an expert to select for Hollyrood fifty registered Holstein Cattle of choice breeding and individuality. The cattle have arrived and after careful inspection I congratulate you upon doing better than you promised and better than I expected.
Very truly yours, JAS. H. WALLICK.

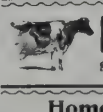
I solicit correspondence of all intending purchasers. I have at the present time about one hundred registered Holsteins to select from and am offering special bargains in cows, service bulls, calves of both sexes. I can save you money, write and get prices and description of cattle before purchasing elsewhere.

H. L. BRONSON, Cortland, N. Y.

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34 cows and heifers in the **McGEOCH HERD** have been **officially tested** with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs. of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs. of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by **Gem Pietertje Hengerveld Paul De Kol,** or **Sir Ormsby De Kol** for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days; average per cent of fat 4.47. Are these the kind of **Holstein-Friesians** you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd?

For particulars address **H. B. Daggett, Mgr., Station A, Milwaukee, Wis.** Residence: National Ave., near 40th. Phone, South 1601.



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TYRANENA HERD
100 HOLSTEIN-FRIESIANS
A. R. O. STOCK FOR SALE.

Both sexes, all ages. Herd headed by Sir Piebe Hengeweld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz. **Frank B. Fargo, Lake Mills, Wis.**

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Offers 5 yearling bulls cows and heifers bred to oldest son of Mercedes Julip's Pietertje, No. 39480. Chester White Pigs in pairs and trios, not related.
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Headed by **COLANTHA 4TH'S LAD.** Official test of three nearest dams, 25.1 lbs. butter in seven days. Herd numbers 125 head.

BEST FAMILIES REPRESENTED.

Special prices on six or eight bulls of serviceable age. **W. B. BARNEY & CO., Hampton, Ia.**

ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.
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FOR SALE H.-F. A. R. O. cows and heifers, bred to Duchess Ormsby Piebe Burke, No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address Rural Route No. 2. **W. H. JONES, Watertown, Wis.**

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OF HOLSTEIN-FRIESIANS

Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 169.50 lbs. one day. Breeders and dairymen please write for prices.
F. W. ALLIS,
Monona Farm. Madison, Wis.

FOR SALE **H.-F. BULLS,** ready for service, from A. R. O. cows and sired by Sir Johanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 yrs. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis.

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HOLSTEIN-FRIESIANS

Headed by Korndyke Queen De Kol's Prince, dam Korndyke Queen De Kol, 24 lbs. 6.7 oz., grandam Belle Korndyke, 25 lbs. 12.3 oz. Both sire and dam by Manor De Kol, his dam Netherland Hengerveld 28 lbs. 10.66 oz., Manor De Kol by a son of De Kol 2d, 26 lbs. 9.21 oz. All are official tests and average 25 lbs. 13.72 oz. butter for 7 days and 3.95 per cent fat in their milk. Two bull calves now for sale and young ones after Sept. 1.
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Bulls For Sale.

Two choice bulls ready for service and some fine bul calves from good testing dams. Sire: Paul Clyde, son of Paul DeKol. Dam's record 24.88 lbs. in 7 days. Write **C. A. SNOW & SONS, Athens, Ohio.**

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We offer bulls ready for service; also heifer and bull calves not related, of the kind to suit the most particular.
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THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. Depot. Stock of both sexes and different ages for sale. Bulls in service are: Homesterd Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De kol No. 22128. Dam: Shadeland DeKol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 6.3 ozs. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148. Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 ozs. Average per cent fat 4.92. Correspondence solicited.
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HOLSTEIN BULLS. We have some grandly bred young bulls ready for service. One of the largest and best advanced registry herds in the United States.
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Offers for sale Twenty-Five Choice Heifer Calves sired by Beryl Wayne De Kol Paul and Lilith Pauline De Kol's Count. Prices right to quick buyers. State just what you wish. JOHN C. GODFREY, R. F. D. 3. Fulton, New York

SPECIAL BARGAINS IN
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From a few months to a year old, from official record dams, and with strong official backing on both sides. The sire is half the herd; it is important that you get the right one. We have that kind, and our prices are no higher than others are asking. **HENRY STEVENS & SON,** Brookside Stock Farm, Lacona, Oswego Co., N. Y.

FOR SALE 2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.
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A. J. DAUGHERITY, Streator, Ill.

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Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. **JOHN B. IRWIN,** Station D., R. 1. Minneapolis, Minn.

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Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 15870, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for discription and price to **J. A. THORNTON,** Manager, **Simmonsville, Vt.**

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Sires are sons of Mercedes Julip Pietertje, Colantha 4th Belle Korndyke, Fay Barnham Princess Wayne 7th. A fine lot of bull calves
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HOLSTEIN-FRIESIANS—We now offer at attractive prices fine young bulls from high tested A. R. O. cows, and sired by Prince Inka Pietertje De Kol 2nd, who already has to his credit 11 A. R. O. daughters. To make room in our stables we offer a few cows and heifers for sale at low price. Write us for particulars

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Bulls ready for service from A. R. O. animals sired by Johanna Rue 2d Paul De Kol, sire of 13 A. R. O. cows. Also young bull calves by same sire. **THOS. GAINES, Supt., Arcadia, Missouri**

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$5.00 A TRIO

Nicely crated on board of cars here.

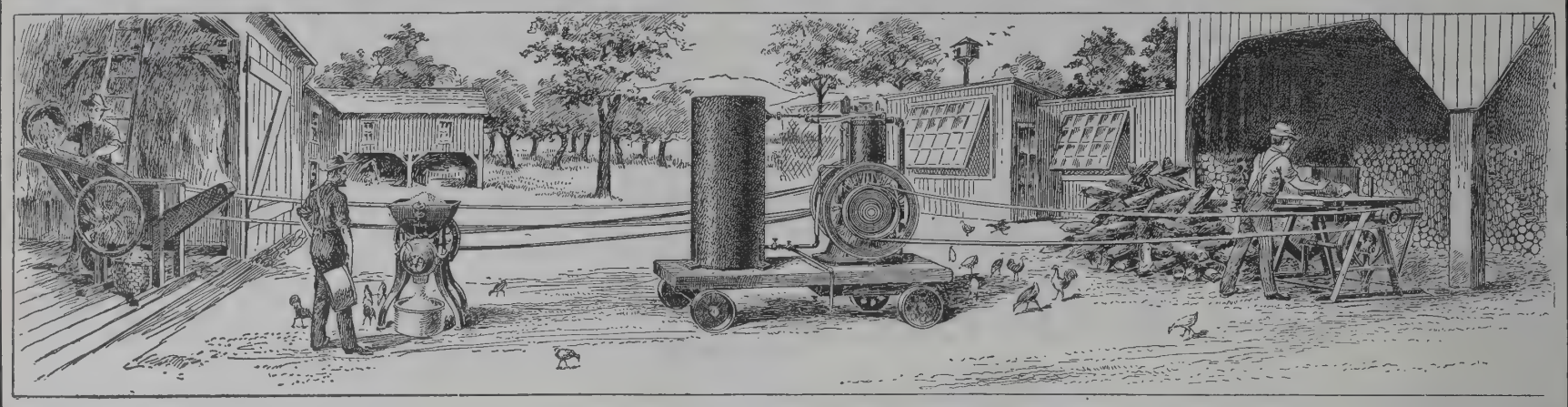
Single Fowls, $2.00 Each

They have had the range of alfalfa fields the past summer and are very vigorous.

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"Breeding and Rearing a Profitable Dairy Worker."

ED. HOARD'S DAIRYMAN:—It is good to see an article by a woman in the DAIRYMAN now and again. An article by a woman more particularly interests the women folks on the dairy farm; and if this writer is to be heeded—and she surely ought to be—we want more women in the dairy so that the work of attending to the matrons of the dairy be not left entirely to the sterner sex. On this farm, women take a very important part in the dairy, and it is only simple justice to state that whatever success has been achieved in our dairy practice, the credit should be given to the women on our farm, few as their numbers are.

It is our privilege to have a little business acquaintance with Mrs. Howie, and on this account perhaps our folks are more interested in the lady's article than some others might be. The article in question was read with much interest by "our women", and commented on freely in the household. When it was stated that the calf should be left with the cow for three days, "That's me" asserted "our women." "I never go for taking a calf away from the cow, as some writers advise. I always leave the little calf three days with the cow, and after that time place the little calf in a pen where the cow can see and fondle it. What sympathy can you expect men to have for cows?"

A second proposition laid down by Mrs. Howie is sound, in that the cow, at least when fresh, should be milked three times a day, and be repaid for the extra trouble, not only in the charity toward the cow, but as the mere dollars and cents man would have it, in more milk. I do not, however, think it necessary to milk three times a day for more than two months after freshening, though, with a heavy milker, I am sure it will pay good interest to milk three times a day right along.

A third proposition laid down by Mrs. Howie, did not receive general approbation in our house, viz; to stop feeding grain after six months of age. My father who has some good ideas of live stock management, when this was read, would not agree to this proposition, asserting "That is something that I would not agree with, and think a little strange. Our heifers would not be what they are, if grain was withheld after six months of age. They received grain till they were 12 months of age.

Be this as it may, there may be local conditions which prompt the lady in withholding grain after six months of age; but we do not understand what they can be, or upon what physiological reasoning this practice is arrived at. We have a heifer now milking fifteen pounds per day, after some five months in lactation, having freshened when twenty-three months old; received grain right along, until almost fourteen months of age, and was only six months in her life time that she did not receive any grain, and we have never seen a heifer that would make more and better use of roughage. Another heifer now due to calve at twenty months of age, much larger and robust, never was a day in her life but she received a small grain ration. We are sorry we cannot agree with Mrs. Howie in this instance.

A fourth proposition, to milk the heifer right along until she freshens is certainly sound, and of course feed must accompany this persistent milking. When she says also, that three months before calving the heifer should receive particular attention in both feed and manipulation of the udder, etc., we are with her, only that we would go a little farther, and not wait until three months, but begin six months instead of three, handling and caring for the young mother to be. We are sure that handling and manipulating and massaging of the udder, abdomen, and milk veins for some considerable time before freshening is the most important point of all; at least we have found it so with our native cattle. Probably with high bred Jerseys this may not be so important, but we never had any experience with pure breds, not even grades. Probably in this we are not living up to our privileges, but we are working out original problems of our own in sticking only to native or scrub cattle, and we rather like it. We are under no obligations to the people in the European countries for giving us a dairy cow ready made.

Not for our own interest alone, therefore, are we glad to see this article of by a woman, but from the fact that such articles will more likely interest the women on the farm to take greater interest in the cows. Women beat men as milkers, and we believe if only women milked, there would be more and better milk, and better cows, and more money from the dairy. There is too much arithmetical dairying—too much dairying by figures and intellectual deduction, and not enough of sentiment and emotion. Milk giving is an emotive act, an act of affection, sympathy or love, as you will. It is not at all the matter of finding the value of x in an algebraical calculation. Talking about labor saving devices, indeed, why! what is wanted is conditions which keep the dairyman and the cow almost continually in each other's company. This is well put by Mrs. Howie. We advise the dairyman with the modern conveniences and the labor saving devices, to read this article of Mrs. Howie's over and over again, and commit it to memory. We believe it will materially change his practice, if heeded, and also change his bank account.

J. A. M's. OCTAGON SILO.

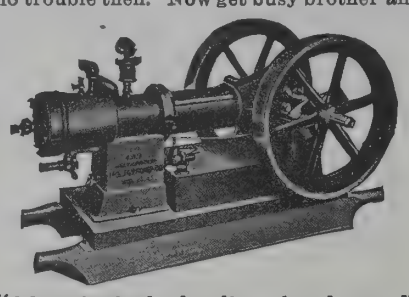
A correspondent doubts that the silo mentioned can be built by a farmer handy with tools and with good help, for the sum of $25. In the silo referred to it was

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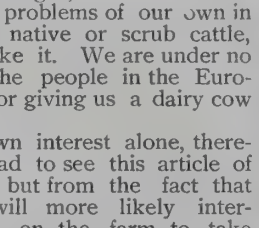
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There are **GOOD SOLID REASONS** why our

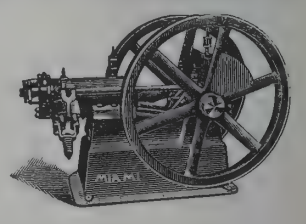
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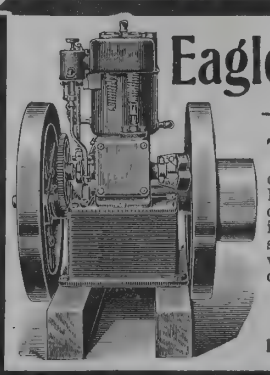
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EAGLE BICYCLE MANUFACTURING CO.,

Engine Department. TORRINGTON, CONN.

stated that the owner drew logs to the mill and considerable of the lumber required sawing. When one has his own lumber, the cost is greatly reduced, but that is not all, for in getting material sawn to order, one can get a first rate job done, while lumber purchased in the ordinary city lumber yard is not always right for use unless made so by running through a planer.

Admitting that 1,800 ft., inch or seven-eighths boards are required for the lining of this silo, why should it cost $75 to $80? We never knew rough boards to cost one-third of thirty dollars per thousand. I can go this minute to our saw mill, a mile away, and purchase 1,800 feet of ⅞ inch boards for $14.40. Finding the logs, I could get the joists sawed for $3.00. I can buy a keg of spikes for $2.70, and enough paper for $2.30 and a barrel of cement for $2.50, and begin erecting this silo myself, with our ordinary help, and have it ready for silage in less than three days. That means a total outlay of about $25. In the silo mentioned in November 6th issue, the owner found the scantling, that is the 2x7 stuff, and there is no charge for it. With regard to the hemlock boards, I would go to a saw mill for them if possible, and not to a city lumber yard, where they might be all thicknesses, and would have to be run through a planer to make even thickness. They do not need to be planed on one side at all, nor do they need to be of equal widths to break joints if the boards are sawed reasonably well, and any mill man who takes any pride in his work will turn them out. Spruce is usually dearer than hemlock, but it is on spruce I have figured above. A full seven-eighths, (which means 15-16), is plenty thick for this silo, and these boards do not need to be even widths, but are butted square at say twelve feet. Such boards are the cheapest sold on any market, and I never knew them to go as high as $10 per thousand here. The market price of such boards, no feather edge, no dry rot, is $8 to $9 per thousand at the mills.

If I were building the silo under consideration, I would not have to make a cash outlay of as much as $25. I would go to my own woods, cut the logs for both boards and joists and bring them to the mill and have them sawed to the size required. I would either pay the miller in cash or logs. Our miller will now saw three logs for two. It used to be one for one, so that my lumber bill would not amount to eight or nine dollars, or nothing at all. In the article refered to it was especially stated that the party "drew a couple loads of logs to a nearby sawmill." Of course when one has to go to a lumber yard and pick out material, if rough material is wanted, one cannot always get what is wanted in the rough. And these parties want to keep their machinery agoing, and insist on running the rough boards through a planing machine, and in fact the rough boards are no doubt obtained of uneven thickness, so that this extra work is required before they become serviceable.

This ocatagon style of silo is certainly the cheapest method of building known so far. It is also easily erected, as all the angles are alike, being of 45 degrees, or half the square. All of the corner boards, on the eight corners, have the same bevel, so that they may be all bevelled at the same time and at leisure, and the bevel which fits one corner fits the other seven. The joists or "hoops" are also all of the same size, and may be cut from the pattern of one short one. They are not nailed together, and have to be raised with great trouble, as has the wooden round hoop. They are nailed at the corners as they are raised.

The octagon has every advantage that the circle has, in practically avoiding corners. The octagon is really a circle divided into eight parts. The construction of an octagon hoop is much simpler than that of a circle, and very much stronger. There is no danger of the octagon joist hoop spalling and bursting out at the ends as the built round hoop must certainly do unless fixed immovable by bands of thin iron on the ends where they meet. Then with the built wooden hoop, only narrow lumber can be used, not more than three or three and one half inches for a silo of 12 feet diameter, while with the octagon style of this size a double tier of rough boards with paper between, and of any widths can be used. An octagon silo of the kind here described can also be erected in half the time the circle can. The octagon style of silo only needs to be seen and seen building, to be appreciated. Everybody is welcome to build on whatever style he pleases, but the octagon style of silo is the cheapest and simplest style of silo that can be built today.

PAYING PATRONS OF CHEESE FACTORY.

That the straight butter fat method of paying patrons of cheese factories leads to conflict even in Missouri, there is no room for doubt. The plan of apportioning the dividends, as given by J. N. P., is certainly ingenious. Such a scale is just what is required to justly and fairly apportion dividends to the different patrons. This scale may not be just right, but no doubt it is proportional. By this scale the man supplying the 4 per cent milk does not receive one-third more than the man supplying the 3 per cent milk, which the straight fat method would do, and which Prof. Farrington would do if he were apportioning the dividends instead of J. N. P.

According to Prof. Farrington, the man supplying the 4 per cent milk would be paid for 12.2 lb. cheese, instead of 10.8, or one-third more than the 3 per cent man whose milk is supposed to have made 9.2 pounds cheese. An ascending scale of this kind is a very ingenious method of apportioning the dividends at the cheese factory with the Babcock test, and I heartily congratulate J. N. P. on his ingenuity in getting up and employing such a scale. The scale is truly proportionate, and will give justice to all kinds and qualities of milk. J. A. M.

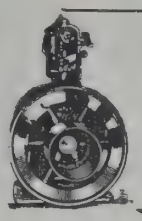
P. E. I.

The Village Cow.

Many readers of the *Tribune Farmer* are residents of villages and are able to keep only a single cow, yet their garden, chickens and cow form a large portion of the support of the family. Hence, these villagers have an interest in the dairy.

Milk is a most important food, especially valuable where there are children. It can be used in many ways in cooking. If purchased it is expensive. It varies greatly in quality. Hence, when it can be produced it is an economy to produce it.

There are eight in our family. The children have never found much difficulty in disposing of all the milk one cow would give. At times we have kept two, but usually only one. With a good cow, this gives all the milk the family really seems to need. When the cow is fresh, a little can be sold to neighbors, which



The "Penny Wise and Pound Foolish"

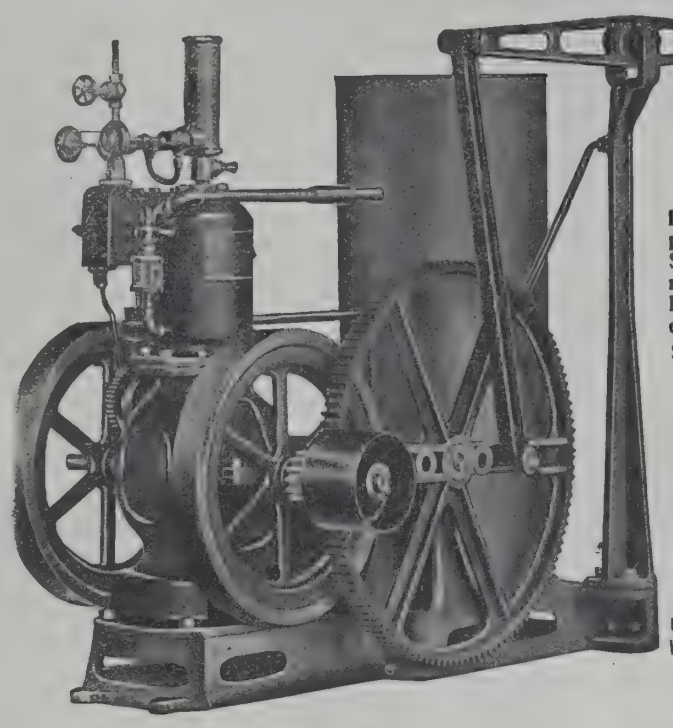
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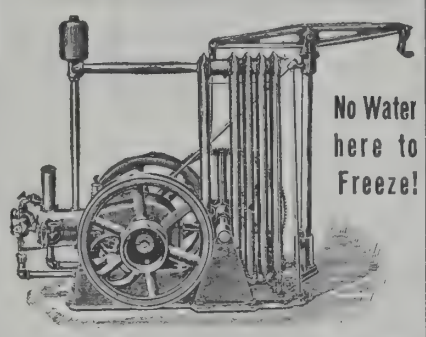
CURES BACKACHE NERVOUSNESS HEADACHE AND FEMALE WEAKNESS



Gas Engine Excellence

is best represented in the Buick Engines---the reason why we make more small engines than any other manufacturer. Are you thinking about an engine to do the cream separating, churning, pumping, feed cutting or other farm work? Do you want guaranteed workmanship and up-to-date construction! If so, it's going to pay you to get our catalog H before buying.

THE BUICK MFG. CO., Detroit, Mich

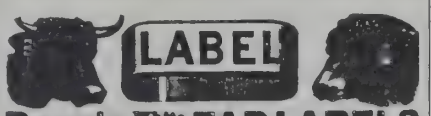


No Water here to Freeze!

If you want a..... **Gasoline Engine**

that will be always ready to start, safe, reliable convenient, economical and durable, buy a FULLER & JOHNSON Frost Proof. No bother with water nor expense of broken cylinder, no waiting for wind or weather. All sizes, stationary and portable. Send for descriptive catalogue to the manufacturers.

FULLER & JOHNSON MFG. CO., Madison, Wis.



Dana's White Metallic EAR LABELS

stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Samples free. Agents Wanted.

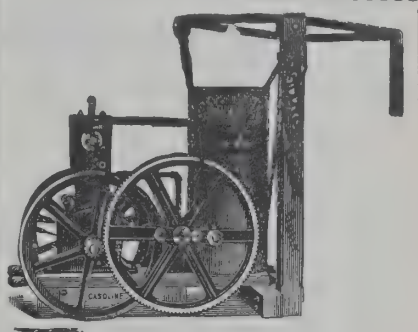
C. M. DANA, Main St., West Lebanon, N. H.

YOU CAN DEPEND ON

H. & R. REVOLVERS

Harrington & Richardson Arms Co.

DEPT. 22, WORCESTER, MASS.



You will be well pleased if you buy a

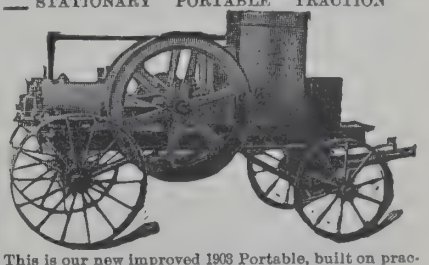
WATERLOO GASOLINE ENGINE

Write for catalogue descriptive of Stationary, Portable and Pumping Engines.

WATERLOO MOTOR WORKS, WATERLOO, IOWA.

BADGER GASOLINE ENGINES

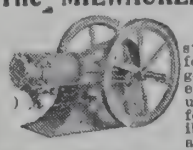
STATIONARY PORTABLE TRACTION



This is our new improved 1903 Portable, built on practical lines. Guaranteed horse power. Easy to start; operates successfully in zero weather. No vibration when running light or on full load. Winner in appearance. Every engine sold on fair trial, fully guaranteed. Write for catalogue No. 5, prices and terms.

C. P. & J. LAUSON, 103 West Water Street. Milwaukee, Wis

The MILWAUKEE Weekly Bulletin



RELIABILITY,

secured by type of engine, four cycle, simple design, good workmanship; oldest engine, but one, in these columns. No freaky designs, but few parts and those accessible. Portable and station ary, all sizes. Built by

MILWAUKEE MACHINERY COMPANY, 290 East Water Street. Milwaukee, Wis.

nearly balances the cost of the milk purchased when the cow is dry.

After a number of years' experience, we are able to state our expense and income from the cow quite accurately. The last year she has done exceptionally well, and the expenses have been at a minimum. The following is the account:

Milk produced in eight months, 2,658 qts.	
at 6 cents	$159.48
Calf sold	9.80
Total receipts	$169.28
Cost for nine months' hay and fodder	20.00
Bran	10 00
Total expenditure	$30.00
Total profit	139.28

Some explanation as to feed is necessary. We rent a pasture, and then sublet a portion of it, reserving feed for our animal. This transaction brings our bill for rough feed to $20. For bedding we are able to get forest leaves without cost. We have an orchard, which furnishes all the apples the cow can safely eat from August to April, and some pasture in addition. The boys in the family do the work, as one means to keep them out of mischief. We have figured the milk at exactly what we would have paid for it. Except a very few days, we could have used more than we had. The excess, if any, has been fed to the chickens and returned as eggs.

In case there were not members of the family to do the work, it would be more convenient to buy the milk needed; yet there would still be the question of quality and purity, always to be considered when one wishes to care for health.

DR. GEORGE G. GROFF.

Lewisburg. Penn.

A Ten Cow Stable.

ED. HOARD'S DAIRYMAN:—I should like a little advice from you in regard to a dairy barn. I have a barn, 25x35 feet outside. What I want is to raise it up and put in a basemeut with wood bent on the south side. The barn will face the west and the cows face the south. How much room will I have to allow for 10 cows, 2 horses, and 2 calf stalls, and feed, stairs, etc? I will build on the east end as much room as needed. I don't care anything about driving through as I will have manure shed near and run the manure out in wheelbarrow. Please give me the proper width and length of stall for common Jersey cattle. My idea was to have cattle on the south side and have a door in the middle of same side so as not to carry manure the whole length. Where would be the best place for my silo, chutes for hay, etc? Also what about allowing for ventilation? The floor above basement will be, (or rather is) all open.

Earlville, N. Y. H. B. C.

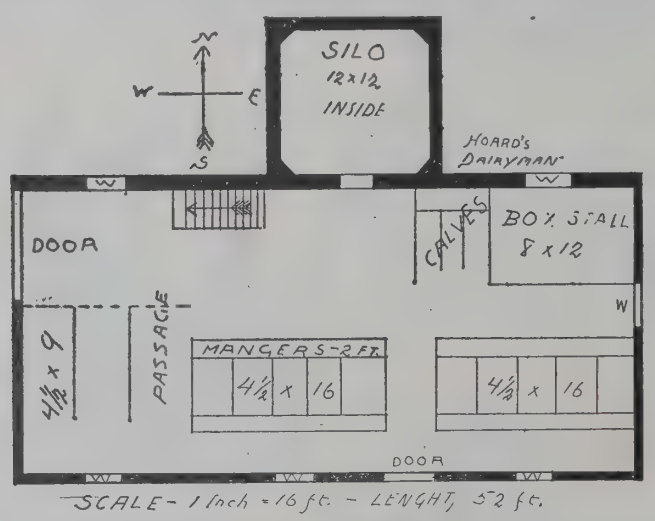
We are always glad to answer as best we can all inquiries, and especially such as may be of more than personal interest. There are doubtless many 10-cow dairymen among our readers who may be contemplating a re-arrangement of their stables, and the suggestions submitted in reply to H. B. C. may be of some help to them. It is not to be expected that we can cover every phase of convenience without knowing something of the relation of the barn to other buildings and the multitude of little things which differentiate one situation from all others.

H. B. C. says his barn will face the west, which means, we suppose, that he will habitually enter and leave the barn at its west end, and probably take in his hay at that end. If this is the case, he should arrange to take out the hay from that end first, through a chute or trap door not far from the northwest corner, or just beyond the landing at the top of the stairway. Later on, as the hay is fed out, another opening further back could be used which would deliver the hay in front of the silo.

Under the conditions named, we would face the cows towards the north, in the center of the stable. Such an arrangement will be more convenient both for feeding and removing the manure, as well as giving the cows more direct access to their stalls and keeping the main part of the stable much cleaner. For similar reasons we locate the horses in the southwest corner, with a passage way from the center, which may also be used for a third horse in case of emergency. A door leads from the rear of the horse stalls into the cow stable, for facilitating the removal of litter or manure.

We also specify a box stall, as no stable for 10 cows can otherwise be considered complete.

There should be a tight floor above the stable, no matter what other things are omitted, as in no other way can the stable be kept comfortably warm in winter. The matter of ventilation has been so fully discussed recently that it does not seem necessary to go over that subject again.



DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

New York Bulletins on Cheese Ripening.

The problems which confront the cheese maker are among the most perplexing of any relating to agricultural practice. He must not only provide against various contingencies and defects which affect the curd before it is placed on the curing shelves, but must also, in the manufacture, lay the foundation for a series of complex chemical and physical transformations, from which arise the perfect texture, the nutty flavor and the easy digestibility of well-made and well cured cheese. In these processes both inanimate and animate forces are at work, and their character, amounts and interactions materially influence the character of the cheese. It is, consequently, upon knowledge of these agencies and their relations that scientific explanations of the processes of cheese making and cheese ripening depend; and this knowledge can only come through long, careful and deep study.

Such investigations have been in progress for many months at the New York Agricultural Experiment Station (Gene-


$13.75 buys Sweep Grinder. We have 7 styles and sizes. Crushes and grinds ear corn coarse or fine, shelled corn, wheat, rye, barley, kaffir corn, etc. singly or mixed. **Special Inducements Now.** Write for circular, "Feeding Experiments."


$5.35 to $12.65 for our Economy Food Cookers. Heavy cast iron kettle and steel jacket. Burn any kind fuel. Cook anything. Handy for butchering and 100 other farm uses. 3 other styles, prices $4.30 and up.


$13.25 buys Best Tilting Table Buzz Saw ever made. Guaranteed superior to any $25.00 saw. 6 styles for sawing cord wood or long poles. Price 24 inch saw blade $5.20, 26 in. $6.00, 28 in. $6.80, 30 in. $7.60. All described in our Agricultural Implement catalog.


60c for family corn sheller. Use it for shelling pop corn or largest field corn. 10 styles shellers for hand and power.

$1.70 and up for Family Grist Mills. Grind all grains, coarse or fine. 7 styles and sizes for hand use.


$18.95 for this two horses sweep power complete, two sweeps, spring hitches, 22 ft. tumbling rod, 3 couplings. Two speeds, 32 and 10½ revolutions to each round of team. 4 horse power $27.45. 6 horse power $30.80. Also Tread Powers, Steam Engines, Boilers, etc.


$29.00 for Self Feed Power Corn Sheller. Has positive self feed, shells clean. Capacity 40 to 70 bu. per hour. Hard wood frame, steel shafts, 10 inch pulley. Sacking and wagon box elevator extra. One hole hand sheller $4.10. Warehouse Power Sheller $40.65. Get our catalogue.


$16.25 for No. 9 Diamond grinder with 3 sets 6 in. burrs. Grinds coarse or fine. All sizes for 2 to 15 h. p.

Rubber Belting 2 inch 3¾c ft., 3 inch 5½c ft., 4 inch 8½c ft., 6 inch 13c. All sizes at lowest prices.

Pulleys. Wood or iron. Shafting, hangers, sprocket chain, and all supplies.


GRINDS ear corn, shelled corn, wheat, rye, oats, barley, kaffir corn and all grains, coarse or fine, singly or mixed. Only mill which will crush and grind ear corn with 2 to 6 h. p. Capacity 10 to 45 bu. per hour. Furnished with or without crushers and elevators. 41 other styles and sizes.

SEND FOR FREE CATALOGUE. Write your name and address in the blank space ☞ Make an X to show what article you are specially interested in. Cut ad out, send to us and we will mail you our New Large Free Agricultural Implement Catalog and special Free Trial offer. Write today

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SHIPPED ON FREE TRIAL. Most liberal terms ever made. Don't fail to get our Special Free Trial Offer. Address

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CHICAGO. ILLINOIS.

WISCONSIN FARMERS' INSTITUTE BULLETIN NO. 17

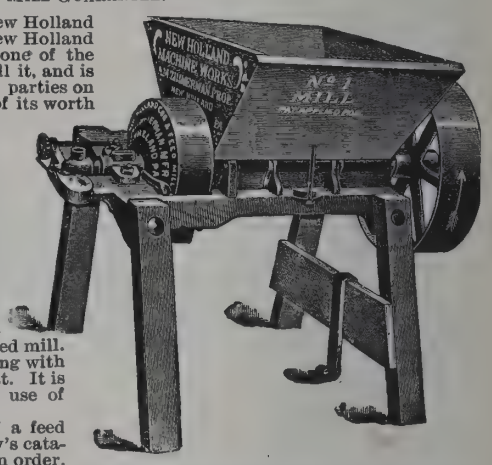
Is now ready for distribution. A 320 page hand-book for the farmer and stockman. Treats of the dairy, sheep and swine husbandry, horse breeding, poultry, fruits, etc.

To Wisconsin farmers—25c for cloth bound and 10c for paper covered copies. Outside of Wisconsin—40c for cloth bound and 25c for paper covered copies.

Address GEO. McKERROW, Supt., Madison, Wis.

ILLUSTRATION

A FEED MILL GUARANTEE.



The subject of this illustration is the New Holland Cob and Feed Mill, manufactured by the New Holland Machine Works, New Holland, Pa. It is one of the mills that depends on its own work to sell it, and is therefore, freely sent forth to responsible parties on trial. With the opportunity to make test of its worth at the buyers own home goes a remarkable guarantee of the manufacturers, which shows the faith they have in its adaptability and superior working qualities. This guarantee says that it may be tested freely on ear corn, shelled corn, small grains and all feed stuffs, and that it must establish the fact to the proposed buyer's satisfaction that it will do the work "easier, better and faster than any other mill." Failing to sustain such a broad challenge, it is no sale, and the mill can be returned at the Company's expense.

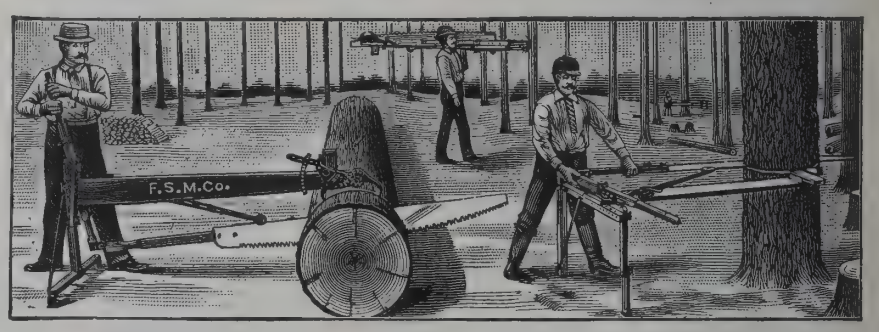
This broad guarantee covers most satisfactorily just those things required in a feed mill. It does not seem possible for one to go wrong with the added opportunity to put it to the test. It is made in three sizes, and is adapted to the use of any kind of power.

Anyone contemplating the purchase of a feed mill, should at least send for this Company's catalog and make investigation before placing an order.

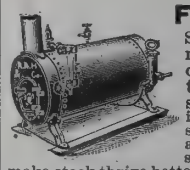
ILLUSTRATION

THE WOOD CUTTER'S MACHINE.

The man who follows the time-honored custom of sawing wood will find a piece of machinery that will save him great labor in the Folding Sawing Machine pictured here. It is manufactured by a company of the same name in Chicago and is regularly advertised in our columns. This



machine takes the place of the old time cross-cut saw. It can be used in any situation where the cross cut can be used, and its great value is seen in this, that one man can saw more wood with it than two men can with the old cross cut saw. It has a record of nine cords of wood in a single working day by one man. It is not only adapted to sawing felled trees, but to sawing down trees. It is so adjusted that the operator is not at all discommoded whether working on the fallen log, the standing tree, on the hillside, etc. By a spring adjustment it is made to suit the strength of a boy as well as a man. Sawing with it is not a back-breaking performance, for the operator always stands straight. Easy and fast sawing by one man alone in all locations are strong inducements to its use, but it has others. When through with one job it can be folded up in compact form, "like a jack knife," placed on the shoulder and carried off to other work. It is perfectly adapted to the needs of the tie chopper, cordwood and saw log man, cutting posts, rail timber, etc. The blade is of the best saw steel. The whole machine, though small and light, is staunch and well made out of select materials. Any one interested should consult the advertisement elsewhere for correct address and write the company for catalog and full information.


FEED COOKERS Steam can be got up in ten minutes, and will cook a kerosene barrel of meal, or potatoes in 20 minutes. Will steam quicker with less fuel, is better built, more durable, safer, easier to operate than any other on the market. Will save one-third of feed, and make stock thrive better. To introduce, one at wholesale price where we have no agents. Prices and catalog free. R. R. HOWELL & CO., Minneapolis, Minn.

DON'T BREAK YOUR BACK washing clothes 52 times a year. Get a "1900" washer and save labor, time and money. You need not send a cent for pay freight. It is sent absolutely free, freight prepaid on 30 days trial A word to the wise is sufficient. Write at once to "1900" Washer Co., 9A State St., Binghamton, N. Y.

FARM TELEPHONES BOOK FREE How to put them up, what they cost, why they save you money. **All information and valuable book free.** Write to J. ANDRAE & SONS, 250 W. Water Street, Milwaukee, Wis.

Cream SEPARATORS All about them and other things for the dairy and creamery. A. H. REID, PHILADELPHIA

AN UNEQUALLED PROPOSITION

AGENTS WANTED.
$1800.00
MADE IN FOUR DAYS.

ONE of our agents, a Baraboo man, made $1800.00 in four days; an Oshkosh man made $600.00 in two days. We can furnish a few parties a very paying business; choice locality.

We have an article of interest and value to every farmer. Investigation invited. Best bank reference. Write at once for particulars. BUTLER BROS., U. S. Agents. Beaver Dam, Wis.

va), and the results, as announced in various bulletins of the station, have excited great scientific interest.

These various bulletins have now been condensed in a "Popular Edition," in which the principal points of general interest developed in the study are stated in simple terms. This bulletin should be carefully studied by every cheese maker; for while it may not indicate new or revolutionary methods in cheese making, it gives the first satisfactory "Reasons Why" of many points in cheese manufacture and curing.

The bulletin, "Some Changes in a Ripening Cheese," will be sent free to all applicants.

Freezing the Test.

Please inform me what effect the freezing of the test bottles will have on the test of the butter fat. I saw in our co-operative creamery at Fennimore that the test bottles were frozen solid.
Fennimore, Wis. R. D.

Freezing the milk in the bottles should have no influence on the test, if the milk is thawed out before the test is made.

CONCERNING OUR ADVERTISERS.

PREPARE FOR THE ICE HARVEST.

The appearance in our columns of advertisement of ice harvesting machinery, suggests the propriety of a timely warning. The ice crop must be taken care of in its prime. Frequently there are but a few days in which to harvest it. With this crop, more than any other, perhaps, there is necessity of having all things in readiness. Happily there are modern machinery and appliances which now make rapid harvesting an easy matter. A copy of the catalog of ice harvesting and handling machinery of the Ames Plow Company of Boston, is before us. One cannot escape the conclusion that it shows machinery and devices that are especially well adapted to every branch of the ice business. The famous Red, White and Blue Ice Plows are a central figure. Prominent mention is made of these in the advertisement. But every other contrivance, it would seem, that pertains to the ice handling business, is shown in this book. There is nothing better made or more perfectly adapted to the work than the tools of this company. We urge readers, who will be harvesting and handling ice, to send now for this catalog, before the ice making weather sets in. It is mailed free. It will show plainly the best, fastest and most economical means of handling ice. It may put you in the way of saving a valuable crop you have heretofore neglected, and one for which every year sees more demand, either in the sale of the product itself, or for use in the preservation of other more valuable products.

FARM TELEPHONES.

The day is not far distant when the rural districts of this country will be as completely covered with telephone systems as are the cities today. Progressive farmers, ranchmen, and fruit growers are taking an active interest in telephones and they are eagerly seeking knowledge on the subject. The Julius Andrae & Sons Co., of Milwaukee, Wis,, one of the largest manufacturers of telephones in the world have just issued a book containing full and complete information on telephones. They advise us that a copy of this book will be sent free of any charge to those of our readers who are interested in the subject. The book can be secured by addressing the Julius Andrae & Sons Co., at their Milwaukee Office, 450 West Water St.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Heaves.

Do you know of any cure for heaves in a horse, or a remedy? State whether it is a cure or only a releief. Also tell me a good way to fatten a horse? W. A, O'M.
St. Paul, Minn,

ANSWER.

If heaves are not of longer standing than two or three weeks, they can be permanently cured by abstaining from hay and straw as much as possible, thereby giving the lungs more room. A horse with heaves is always inclined to overload his stomach which diminishes the lung capacity, therefore this must be avoided. Give the horse ½ oz. Fowler's Solution of Arsenic in food twice daily and slightly increase the dose each week up to a full ounce; keep this up until relieved.

No. 2 To fatten a horse you must first of all see that his teeth are right, then look after the digestive organs and when these are in good order, begin to increase your grain ration and see that you do not overtax the digestive organs, always keep the bowels open by giving an occasional bran mash and salt.

Obstructed Quarter.

I have a Jersey cow, in calving some time ago got a very bad gathered udder, and I had a veterinary to lance same near one of the back teats, and since then have been unable to get any milk out of this teat. Do you think a teat bistoury would be of any assistance? If so, please advise, and I will remit for one.
Frederick, Maryland. J. R. McS.

ANSWER.

If you can induce the milk to flow with a long milking tube the bistuory will emedy your case, otherwise the obtruction is too high to reach.

Retention of Placenta.

For the benefit of a Massachusetts subscriber, please give a brief, but comprehensive description of the methods to be pursued in removing the afterbirth in cows, which do not expel it normally. B.

ANSWER.

When a cow retains her placenta, it should not be allowed to remain so for more than forty-eight hours. There are within the uterus, attached to its walls, from thirty to forty cotyledons, commonly termed buttons, over which the placenta is attached. Introduce your hand into the uterus and manipulate each one of these cotyledons with your fingers, in such a manner as to separate the placental membranes from these cotyledons. Continue this operation until all have been separated. Then pull gently with the other hand, helping with the one inside. Never tear off any of the membranes nor any of the cotyledons. When all of the placenta has been removed, you may flush the uterus with a ½ per cent solution of permanganate of potash in warm water. The water should never be cooler than the body temperature.

Failure to Come in Heat.

How can I bring a cow in heat? She has not been that way for two years. Is about 10 years old; a fine full blood Jersey cow. H. C. A.
Maitland, Fla.

ANSWER.

Give the cow 1½ ozs. of powdered aloes dissolved in a quart of warm water. Drench at one dose. Repeat this in a week and continue your nux vomica. After this give the cow a chance to show when she comes in heat, by allowing her to be in company with other cows, or try her once a week by letting the bull coax her. Sometimes they come in heat and do not show it only for a short time. Watch her closely.

Warts.

Jersey heifer has got warts all over her (bag, ears, legs). They look like the inside of a cow's stomach. Do you think better to do away with the animal? Is this a contagious disease?
Florida. A. VANE.

ANSWER.

Clip off the warts with a sharp pair of scissors and touch up the parts with a stick of lunar caustic.

Bloody Stools.

Please inform why my cows have blood in their voidings. SUBSCRIBER.
Manchester, Vt.

ANSWER.

This is due to constipation. Keep the bowels open and this will be done away with.

Abortion.

1 have had four cows abort this season and am afraid my whole herd is infected; have seventy head and all will be in between now and March 1st. Two of the abortions were very small and two were about six or seven months along. Herd seems to be in good heath generally. R. F. H.
Ohio.

ANSWER.

See abortion, last issue.

Garget.

We have two cows with badly caked udders.
Howell, Mich. J M.

ANSWER.

Give the cows each an ounce of acetate of potash and ½ ounce of fluid extract of poke root in a quart of warm water twice daily as a drench, and rub the udder with the following ointment after milking, twice daily: Iodine resublimed, 1 oz.; lanolin, 16 ozs. and apply warm with plenty of hand rubbing.

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all liniaments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish* Every bottle sold is warranted to give satisfaction Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O

$1000 forfeited if our PERMANENT WEANER fails to cure your sucking cow or calf.
PERMANENT WEANER CO.
KINDERHOOK, N. Y.

Spavin and Ring-bone

Once hard to cure—easy now. A 45-minute treatment does it. No other method so easy, quick and painless. No other method sure.

Fleming's Spavin and Ringbone Paste

cures even the very worst cases—none too old or bad. Money back if it ever fails. Lots of information if you write. Book about Spavin, Ringbone, Curb, Splint, Bog Spavin and other horse troubles sent free.

FLEMING BROS., Chemists,
228 Union Stock Yards, - Chicago, Ill.

The Best Horse



is liable to "go lame" at any time. Curbs, Splints, Spavins and other forms of Lameness yield readily and are cured permanently by

Tuttle's Elixir

Used and Endorsed by Adams Express Company.

Used internally it is infallible for Colic, Distemper, Founder, Pneumonia, etc.

Tuttle's American Condition Powders

—A specific for impure blood and all diseases arising therefrom.

TUTTLE'S FAMILY ELIXIR cures rheumatism, sprains, bruises, etc. Kills pain instantly. Our 100-page book, "Veterinary Experience," FREE.

Dr. S. A. TUTTLE, 62 Beverly St., Boston, Mass.
Beware of so-called Elixirs—none genuine but Tuttle's.
Avoid all blisters; they offer only temporary relief, if any.



PREVENTIVE

The only guaranteed abortion remedy.
The most powerful germ destroyer known.
It prevents all contagious diseases. Thus far every user as far as we can learn is satisfied with results obtained. Send for descriptive booklet.
STEVENS BROTHERS
Holstein Breeders
LACONA, - NEW YORK

MILK FEVER

WHY NOT PREVENT IT?

PREVENTION IS CHEAPER THAN CURE.

Write for Moore Bros. "General Cow Drink" Pamphlet, Free.

Address, MOORE BROS., V. S., Albany, N. Y



Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.

Used Exclusively at Model Dairy

Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ¼ lb 50c, 1¼ lb $1.00, postpaid.
O. H. MFG. CO.,
Dept. H, Lyndon, Vt.

READY FOR WINTER

WITH A PAIR OF

BARNEY & BERRY SKATES



Buy Skates for Christmas Gifts

Send now for our Free Catalog. A postal card request brings it to you. Our well-known skates are sold everywhere. If your dealer hasn't the style you want, we'll sell direct.

BARNEY & BERRY
157 Broad St., Springfield, Mass.

MILK DEALERS COMBINATION Milk Protector, for cans or bottles. Prevents milk churning and souring in summer and freezing in winter. INVESTIGATE. S. C. Sullivan Mfg. Co., Erie, Pa.

Breeder's Friend

"During the winter and spring nearly one half of my dairy of 35 cows aborted. I began feeding Kellogg's Condition Powder in August following and but one cow aborted during the winter and spring. It gave perfect satisfaction so far as I can judge from one trial." Josiah D. Smith, Delhi, Delaware Co., N.Y.

KELLOGG'S CONDITION POWDER

is the great remedy for Barrenness, Failure to Come in Heat, Abortion, Retention of Placenta and all breeding difficulties. A simple, prompt remedy, much relished by all animals. Hundreds of experienced stockmen now regard it as indispensable. Our Condition Powder booklet shows you how they talk about it. Ask us for it. Free

H. W. KELLOGG CO.,
Dept. Q, St. Paul, Minn.

ABORTION

POSITIVELY PREVENTED AND CURED BY THE USE OF

ANTI-ABORTION SERUM

PREPARED BY DR. DAVID ROBERTS.

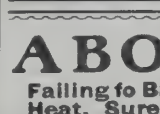
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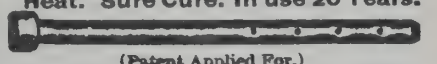
Sure Cure for Abortion



and General Tonic for Cows. The only genuine sure cure and general tonic for cows on the market. I guarantee, and refund money if not satisfactory.
Dr. Geo. Hollabush, Ft. Atkinson, Wis.
Write for circular.

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Failing to Breed and bring Cows to Heat. Sure Cure. In use 20 Years.



(Patent Applied For.)

Hard Rubber Safety Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.

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HAVE A PERMANENTLY SOUND HORSE FOR SPRING.

Cured horses are absolute certainties as to the possibility of the remedy for your own case. Such results as shown in our booklet, by business men whose reliability can be readily ascertained, have carried "SAVE-THE-HORSE" over skepticism, prejudice and uncertainty. Send for booklet and copy of written guarantee, which is as binding to protect you as the best legal talent could make it. No man need see his horse suffer and become incapacitated.

"SAVE-THE-HORSE" Positively and Permanently Cures BONE and BOG SPAVIN, THOROUGH-PIN, RINGBONE (except low ringbone,) CURB, SPLINT, CAPPED HOCK, WINDPUFF, SHOE BOIL, WEAK and SPRAINED TENDONS and all LAMENESS. Cures without scar, blemish or loss of hair. Horse may work as usual.

$5.00 per bottle. Written guarantee with every bottle. Need of second bottle improbable, except in rarest cases. If your case is different we advise frankly as to possibility of the remedy effecting a cure. Give veterinarian's diagnosis, if he is competent. Describe age, development, location of swellings, lameness, and way horse carries and holds leg.

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DETROIT, MICHIGAN.
BRANCHES: New York, Chicago, St. Louis, Boston, Baltimore, New Orleans, Kansas City, Minneapolis, Indianapolis, Memphis; Walkerville, Ont.; Montreal, Que.; London, Eng.

Program for the 12th Annual Meeting of the Wisconsin Cheese Makers' Association.

ED. HOARD'S DAIRYMAN:—I am pleased to report that the advanced sheets for the program of the 12th annual meeting of the Wisconsin Cheese Makers' Association to be held in Milwaukee, January 6th, 7th and 8th, 1904, have gone to the printer.

Headquarters will be at the Republican Hotel where club rooms for the daily sessions and for the cheese exhibits have been secured. Special accommodations are assured all visiting delegates. Transportation at reduced rates for the round trip to Milwaukee and return will apply to all points in the state.

The program includes addresses of great interest, not only to practical cheesemakers, but also to patrons and dairy farmers. The fancy or foreign cheese interests of the state will receive especial attention.

A part of the many good features in store for the cheesemaker is hereby announced:

Cheese Making in Ontario and Instruction in Cheese Factories in Western Ontario, Prof. G. H. Barr, Chief Instructor for Western Ontario, Strathroy, Ontario.

Address, Sidney C. Thompson, Maine State Dairy and Food Commissioner, Winterport, Maine.

Laws Relating to Clean and Sanitary Conditions in Cheese Factories, Professor. J. Q. Emery, Wisconsin State Dairy and Food Commissioner, Madison, Wis.

The Factory Operator an Organizer for the Betterment of Rural Communities, Prof. R. A. Moore, Agronomist, Wisconsin Agricultural Experiment Station, Madison, Wis.

United States Department of Agriculture, Represented by Mr. W. D. Collyer, Chicago, Ill.

The Cheese Maker and the Patron. C. H. Everett, Editor *Wisconsin Agriculturist*, Racine, Wis.

Some Things Outside the Cheese Factory, Prof. F. G. Short, Fort Atkinson, Wis.

Address, E. J. Piggott, Chicago.

A Few Stray Thoughts, W. C. Thomas, Sheboygan Falls, Wis.

Economy in Marketing Cheese, H. J. Bamford, Plymouth, Wis.

The Paraffining of Cheese, H. J. Noyes, Muscoda, Wisconsin.

Cheese Factory Accounting, Frank Dewhirst, Madison, Wis.

Benefits of Septic Tank, M. Michels, Garnet, Wis,

Benefits Derived From Using the Automatic Curd Agitators, H. M. Scott, Sheboygan Falls, Wisconsin.

The Cheese Makers' Association as an Educator, R. A. Murray, Yuba, Wisconsin.

Preparation and Propagation of the Pure Commercial Culture, W. A. Austin, Spring Green, Wis.

The Manufacture and Sale of Fancy Cheese in Wisconsin. Carl Marty, Brodhead, Wis.

Hints Upon the Construction of Cheese Factory Buildings, U. S. Baer. Madison, Wisconsin.

Discussion: What is a Fair Compensation for Making Cheese?

A number of speakers whose names do not appear in this announcement have been invited and will be heard during the various sessions. After the reading of each paper all persons present are requested to ask questions and discuss thoroughly the articles read.

Something entirely new as applied to cheese scoring in the way of a numerical and descriptive score card has been prepared. The services of an expert cheese instructor have been secured to follow the work of the judges, and take notes of the points criticised by them. From the data thus secured, in connection with the method of manufacture as reported on the entry blanks, he will point out in a personal letter to the exhibitor the faults and defects, if there be any, and offer suggestions and instructions whereby such defects may be overcome and avoided in the future.

This educational cheese contest is open to the world. Every exhibitor must be a member of the Association. One dollar secures a membership.

Following is a list of contributors to the premium fund; the list is not yet complete:

Colonial Salt Company, Akron, Ohio	$25.00
Creamery Package M'fg. Co , Chicago, Ill.	25.00
Wisconsin Dairy Supply Co., Whitewater, Wis	15.00
Chr. Hansen's Laboratory, Little Falls, N. Y.	10.00
Monarch Refrigerating Co., Chicago, Ill.	10.00
The Preservaline Manufacturing Co., Chicago, Ill	10.00
J. and M. Steiner, Milwaukee, Wis	10.00
Worcester Salt Co., New York, N. Y.	10.00
Sturges & Burn Manufacturing Co., Chicago, Ill	10.00
Francis D. Moulton & Co., Chicago, Ill	10.00
Republican Hotel, Milwaukee, Wis.	10.00
Sharples Separator Co., West Chester, Pa.	10.00
Wells & Richardson Co., Burlington, Vt.	10.09
Diamond Crystal Salt Co., St. Clair, Mich	$10.00
E. A. Roser & Co., Chicago, Ill.	10,00
A. H. Barber Supply Co., Chicago, Ill.	10.00
A. H. Barber Co., (Wholesale Cheese and Butter) Chicago, Ill	10,00
J. B. Ford Co., Wyandotte, Mich,	10.00
De Laval Separator Co., Chicago, Ill.	10.00
Dundas Wooden Ware Co., Dundas, Wis.	10.00
M. H. Fairchild and Brother, Chicago, Ill.	5.00
A. J. Decker, Fond du Lac, Wis.	5.00
John Muir, Chicago, Ill.	5.00

The program now in the printer's hands, will give complete instructions to exhibitors and also will give a complete list of premiums. Entry blanks and any information in regard to hotels, transportation, etc., will be gladly furnished upon application.

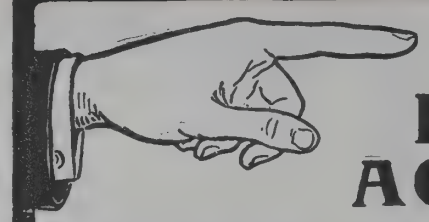
U. S. BAER, Secr'y.
450--452 West Gilman street, Madison, Wisconsin.

Is Barley a Good Feed for Milch Cows?

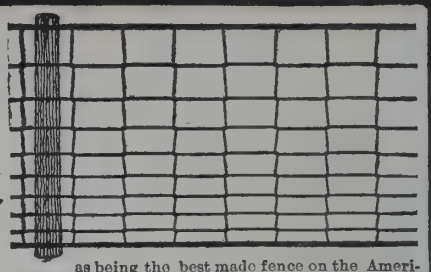
ED. HOARD'S DAIRYMAN:—I saw in your paper of Nov. 20, an answer to H. B. A., of California, to try ground barley with alfalfa hay. I am not an experienced dairyman, but have tried ground barley on six milk cows and they decreased about two quarts of milk to the cow at a milking and decreased ½ lb. of cream at each skimming, as I use a separator. I find the best results from bran and shorts mixed half and half and plenty of alfalfa. I feed this to my cows all the year round and get more from my cows than with ground barley, and the cream tests better at the creamery with shorts and bran than barley. E. F. A.

Payette, Idaho.

While we are much obliged to our Idaho correspondent for this report of his experience with barley we hardly feel justified in accepting it as a conclusive condemation of barley as a complement to alfalfa hay for milch cows. Doubtless other readers of HOARD'S DAIRYMAN in the sections where alfalfa has been fed for several years have had experience with barley and we should be much gratified if they would favor us with reports.



LET US POINT OUT A GOOD FENCE



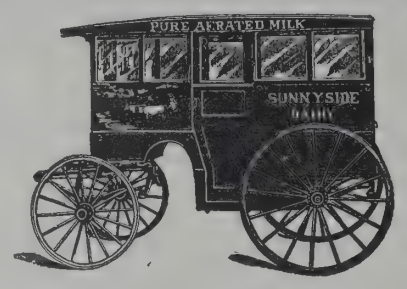
If you are going to buy any fencing this season, it is important that you buy the best fence on the market, and that you buy it at the Right Price. WE POINT OUT OUR

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as being the best made fence on the American market. It has a continuous stay wire which is woven into the top and bottom strands from one stay to the next without leaving any loose ends. The stay wire cannot slip or slide on the horizontal strands. We have a Free Fence Book, which tells all about our twenty-three different styles of ADVANCE FENCING, a fence for every need on the farm. This book also tells how we sell our ADVANCE FENCING direct to the farmer, giving him the advantage of the dealer's and jobber's profits. It also tells how we sell Advance Fencing on 30 Days' Free Trial which gives you ample opportunity to be absolutely satisfied that you are getting just what you want. We Pay the Freight. This enables you to know just what the fencing is going to cost laid down at your railroad station. It is the fairest fence offer ever made by anyone anywhere. Send for our FREE FENCE BOOK and find out all about ADVANCE FENCING and our liberal offer before purchasing. Write for it at once. DO IT NOW.



ADVANCE FENCE COMPANY, - 33 H Street, Peoria, Illinois.



The National

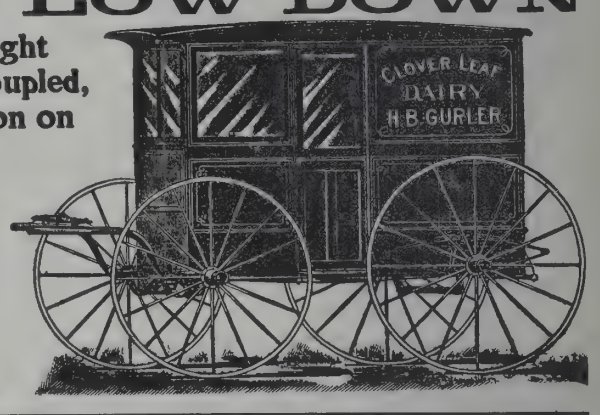
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justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

THE NATIONAL WAGON COMPANY, Chillicothe, Ohio.

THE ONLY LOW DOWN

Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the market.



20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished.

Send for catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.

Shipman, Bradt & Co.

Sole Manufacturers,
DE KALB, - ILLINOIS.

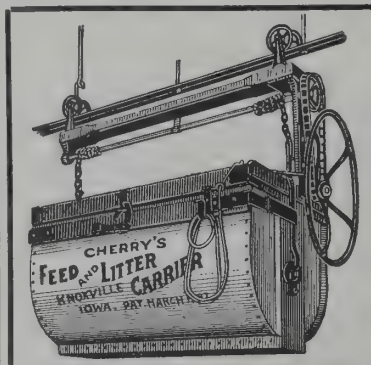
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60 different games—one in each package of

Lion Coffee



CHERRY'S
Perfected Barn Equipments

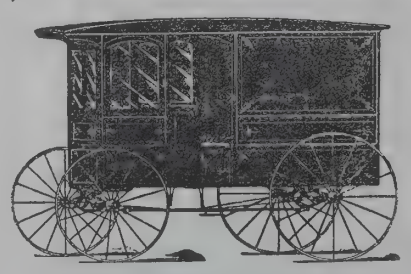
Consisting of Manure Carrier, Feed Carrier, Ensilage Carrier, Grain Elevator, Swivel Hay-Carrier, Hay Forks and Barn Door Fixtures. This system of carriers is built for **Heavy Work** and **Durability.** By the use of our **Curves** and **Switches** we can equip any barn. Send for illustrated Catalogue H and price list to

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THE O. ARMLEDER CO., Cincinnati, O.

$62.75



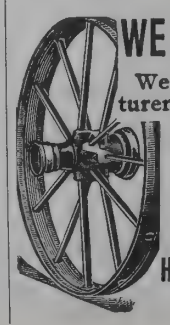
BEST MILK WAGON ON EARTH

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Highest Grades. Lowest Prices. Guaranteed. Shipped on Approval. Full line Buggies and Harness. Write for Catalogue and Prices.

SAVE DEALERS' PROFITS

UNION BUGGY CO. Dept. B. PONTIAC, MICH.

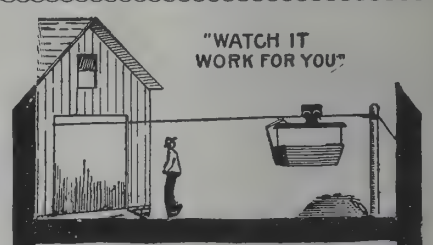


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We are the largest manufacturers of Grooved and Plain Tire Steel Farm Wagon Wheels in America. We guarantee our patent Grooved Tire Wheels to be the best made by anybody anywhere. Write us.

HAVANA METAL WHEEL CO.

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BUY A HIRED MAN

Hundreds and hundreds of farmers have a Drew Elevated Carrier to carry the manure from the stable to any point in the barnyard, drop it and return automatically to take out another load. It does the work of a hired man without salary or board.

THE DREW ELEVATED CARRIER

is self-operating—easy to run—never out of order and we guarantee it to work perfectly. It will carry ensilage, feed, grain, etc., from one point to another. It is the hired man that is within the reach of every farmer.

WRITE FOR CATALOG

which explains in detail, how it works, what it costs, and why you ought to have one. Write for it to-day.

DREW ELEVATED CARRIER CO.
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At The Post

Up and doing, to live and help to live, the old reliable

St. Jacobs Oil

is an universal benefactor in the cure of

Hurts, Sprains and Bruises

Price, 25c. and 50c.

CHILLS ILLS AND DOCTORS' BILLS Painkiller PERRY DAVIS' CURES THEM ALL



COW BASIN

New Pattern with Self-Closing Lid.

Pure white Porcelain. No rust, no filth, no splashing.

D. H. BAUSMAN, Bausman Lanc. Co., Pa. Iron, Pig, Chick, and Stock Troughs.

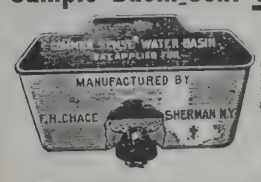
Water In The Stable a Necessity.



It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. **Why not use the Best?** Write for descriptive circular.

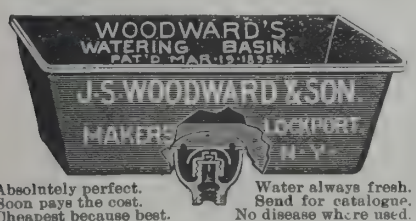
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Sample Basin Sent ON APPROVAL.



Basins are fitted with **Self Closing** Cover which prevents all dirt and sediment from gitting into them. Send for catalogue and price list.

F. H. CHASE,
Sherman, N. Y.



Absolutely perfect. Soon pays the cost. Cheapest because best.

Water always fresh. Send for catalogue. No disease where used.

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(Bates-Hawley Patent) is the original Rural Service Box. Especially commended by P. M. Gen'l. Full govt. size. Only complete box which meets every need Write to-day for handsome booklet and our Free Offer

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RURAL MAIL BOX FREE. To the first person sending us the address of any one canvassing for a new route we will give an approved, galvanized, steel mail box free.

BOND STEEL POST COMPANY, ADRIAN, MICHIGAN.

Oleo Law and Butter.

The Effect on the Market as Observed by the Grocery World.

In an article, by the *Grocery World*, Philadelphia, on "What the Federal oleo law has done for the butter market," it states the situation as that paper observes it as follows:

The federal oleo act of 1901, under which colored oleo is taxed 10c per pound, has undoubtedly been a godsend to the butter market for the last year at least. For the practical elimination of oleo as a competitor of butter has enabled the butter people, in a year of tremendous production, to keep their prices up several cents above what they would have been with colored oleo freely in the market.

The make of butter has been enormous for the last two years, and there has been some glut, but nothing like what would have come had the sale of oleo been unrestricted. As a matter of fact, the price of butter for the last two years has been so much above the price of other exporting countries that American butter has had no export outlet, and this has naturally increased the domestic supply. These high prices have not been wholly caused by the elimination of oleo, as one direct factor has been the high price of milk, caused by the demand from the condensaries. The falling off in the sale of oleo, however, has unquestionably had much to do with it.

The recent federal act and other causes have greatly changed the complexion of the butter market in the last two years. In the large cities a great horde of peddlers who formerly sold oleo are now forced to sell butter. They are after the cheaper grades, and this has caused activity in those.

Another change which is worthy of note is the decrease in the production of dairy butter, which is the sort of butter made by farmers and turned in to the country stores to be sold. The concerns that sell separators have placed them in the rural districts all over the country. With a cream separator the farmer no longer turns his cream into butter, but separates it and ships it away to some creamery. This in turn has caused a local demand for creamery butter since there was little or no dairy butter, and a large number of creameries are not shipping to the large markets, but are disposing of their production locally. Dairy butter, it is to be said, invariably sold cheaper than fine creamery, and the absence of it also strengthens the creamery market.

To come back to the effects of the oleo law, the prices of butter would have almost surely been lower had the act referred to not been passed. As it is, the heavy production has forced prices to a point 2c or 3c lower than a year ago, but a plane lower yet—probably much lower yet—would have been reached had the enormous make of butter had to compete with the usual quantity of yellow oleo.

The butter market last June was higher than supply and demand would have made it, but this was by reason of speculation and the fact that the season was three weeks late. Since June, however, the conditions have been more normal, and prices have kept a lower level.

The make of butter was so heavy last summer that there is an enormous quantity of butter in cold storage, which will have to be consumed some time. There was also large storings in June, but at such a high price that the present market will not allow it to be withdrawn.

Apple Pomace for Feed.

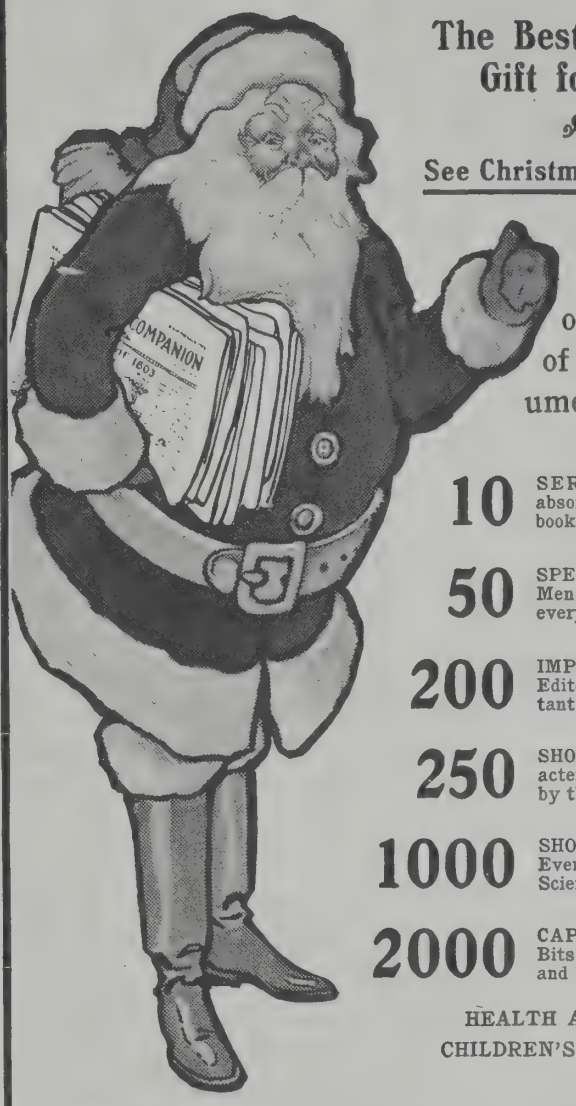
ED. HOARD'S DAIRYMAN:—How many of the DAIRYMAN'S readers are aware that the by-product of the cider mill is an excellent dairy feed, ranking with corn ensilage, beet pulp and roots?

I first became interested in it a year ago, when a neighbor living much further from the mill, bought the entire fall's make for almost a song, drawing it every day as made, and packing in a bin in regular silo fashion.

On inquiry, was told that it lasted thirty head of cattle until the middle of February, fed once a day in conjunction with silage and hay, and that the cows not only did well, but preferred it to silage or even grain. The latter assertion, to tell the truth, rather staggered me, but have found by actual experience that it was really so.

This fall I secured one-half of the pomace made at a neighboring mill, and drew my first load October 12. From

THE YOUTH'S COMPANION



The Best Christmas Gift for $1.75.

See Christmas Offer Below.

The contents of the 52 issues of the 1904 volume will include

10 SERIAL STORIES of absorbing interest, each a book in itself.

50 SPECIAL ARTICLES by Men and Women famous in every walk of life.

200 IMPARTIAL and Timely Editorial Articles on Important Public Questions.

250 SHORT STORIES of Character, Adventure and Humor by the best story-writers.

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Christmas Present Coupon.

If you cut out and send this slip or the name of this paper at once, with name and address and $1.75, we will send

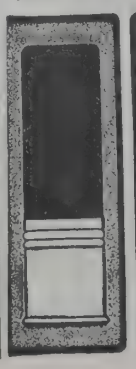
Gift 1 and *Gift 2* — *All the issues of The Companion for the remaining weeks of 1903, including the beautiful Holiday Numbers; also*

The Youth's Companion Calendar for 1904, lithographed in 12 colors and gold, for Companion subscribers only. CH 161

Then the fifty-two issues of The Companion for 1904—a library of the best reading for every member of the family.

THE YOUTH'S COMPANION, BOSTON, MASS.

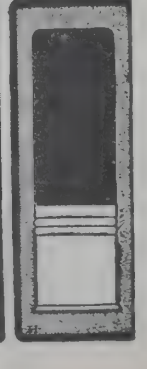
WINCHESTER



Factory Loaded Smokeless Powder Shells.

It's not sentiment — it's not the price — that makes the most intelligent and successful shots shoot Winchester Factory Loaded Shotgun Shells. It's the results they give. It's their entire reliability, evenness of pattern and uniform shooting. Winchester "Leader" shells, loaded with smokeless powder, are the best loaded shells on the market. Winchester "Repeater" shells loaded with smokeless powder are cheap in price but not in quality. Try either of these brands and you will be well pleased. Be sure to get Winchester Factory Loaded shells.

THE SHELLS THE CHAMPIONS SHOOT.



that date until November 10, I fed it twice a day to twenty cows, one-half bushel per cow to a feed. Since the tenth have fed it once daily with corn ensilage and hay, with a grain ration of bran and gluten, and never have my cows done better.

The stock relish it greatly, and when grain is poured upon it, will eat the pomace first.

Pomace is very heavy, and half a bushel is plenty for any cow, and that much should not be given at first. Start with a small shoveful and gradually work up.

Another thing that I have learned, surprised me, the cows seemed to relish it more after it had been well settled in the bin, and fermented or steamed a week or more, than fed fresh from the mill, which is contrary to most reports; have always supposed that it was much better fed fresh.

As for milk, it is the equal in my opinion of good ensilage, but probably no better;but providing it has not to be carted far, and can be bought reasonable, as it usually can, it makes a very cheap, palatable and healthy food.

Well, some one will say, "I don't need it, as I have plenty of good hay and ensilage." That may be true, but is it policy to feed a high-priced ration simply because you have got it and would have to buy a cheaper one; or would it be any crime if you had a few tons of nice clover hay left over next spring, or a few feet of good ensilage to feed next summer when the pastures get short and dry?

Indeed, it seems to me that this might come under the same head as the DAIRYMAN'S policy in advocating the selling of high priced home grown grains and buying the cheaper brans and glutens, for it is what every farmer is, or ought to be striving for to produce the most milk at the least cost, and in this matter the roughage part of the ration should be considered as well as the grain.

N. Y. H. J. K.

Holstein Cows at the World's Fair.

The Holstein-Friesian breed of cattle is to be creditably represented at the Universal Exposition of 1904 in the Demonstration of Cows. The recent organization of the World's Fair Holstein-Friesian Association,having for its sole object the assembling of the best cows of this popular dairy breed at St. Lonis for participation in the competitive demonstration will undoubtedly insure a showing most satisfactory to the entire dairy industry and especially to the confident advocates of the Holstein-Friesian.

The World's Fair Holstein-Friesian Association is composed of men who have attained a high degree of success as representative exhibitors and breeders. Its officers have filed with the Exposition,application for the entry of their animals, and a barn with all conveniences for the care and comfort of the Holstein-Friesian cows taking part in the Demonstration will be provided by the Exposition.

The following address to Holstein breeders will soon be sent by the association to all likely to be interested in placing cows in the World's Fair Demonsration:

To the Breeders of Holstein-Friesian Cattle:—The Holstein-Friesian breed of cattle certainly ranks second to none of the dairy breeds in the matter of large flow of rich milk and in the beef-making qualities. The butter and beef records made by the Holstein-Friesian cow demonstrate her great value as a dual-purpose breed of cattle. She stands without a successful rival in large and continued flow of market milk, and when judged for quantity and quality of milk of a given standard she heads the list. Her popularity as a profitable producer of cheese has made her a leading favorite wherever tested under favorable conditions.

The butter record is held by a Holstein-Friesian cow, and there will be cows at the World's Fair that will make a new mark for the breed. The recognized Queen of the Dairy is not lacking in friends who have the fullest confidence in the ability of the Holstein-Friesian to make the most favorable comparison at the World's Fair with any of the dairy breeds, either as a producer of milk, butter, cheese,or as a dual-purpose breed.

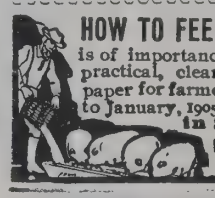
A successful exhibit of the Holstein-Friesian breed of cattle in the Demonstration of Cows at the Universal Exposition of 1904 will more than double the value of every good specimen in public estimation. The owners of exceptionally good cows cannot demonstrate their faith in this grand breed to better advan-

If you have any trouble with lamps—any trouble whatever—send for my Index.

I know of no lamp-disease that it does not cure immediately.

Costs nothing.

MACBETH, Pittsburgh.



HOW TO FEED AND BREED HOGS is of importance to swine growers. A practical, clean, common-sense swine paper for farmers can be had from now to January, 1905, by sending 10 Cents in Silver at once to BLOODED STOCK, Oxford, Pa.

$3 a Day Sure Send us your address and we will show you how to make $3 a day absolutely sure. we furnish the work and teach you free, you work in the locality where you live. Send us your address and we will explain the business fully,remember we guarantee a clear profit of $3 for every day's work, absolutely sure. Write at once ROYAL MANUFACTURING CO., Box 1110, Detroit, Mich

FARM LANDS FREE Send stamp for circulars and information. Address J. LOVERING, Mgr., G 508 Germania Building, St. Paul, Minn

Buy You a Ticket to CROOKSTON, MINN., and call upon

The Polk County Land & Loan Company

For Choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.

360 acre farm, 4½ miles from Crookston, Minn., a city of 7,000 inhabitants, and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 feet square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm is under a high state of cultivation, and is well drained by a slight ravine running through the farm merely sufficient for self drainage. The soil is a rich, deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a 320 acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building, This is a very choice piece of land for the price $32.50.

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired. Price $19.00 per acre.

FARMERS WANTED

Send card for FREE MAP and Price List of Wild and Improved Lands in Wadena, Otter Tail, Becker, Todd, Hubbard, and Case Counties, Minnesota. Low prices and easy terms. We are large owners.

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WISCONSIN FARM AND DAIRY LANDS

Full information by asking for it.

INTERIOR LAND COMPANY, JANESVILLE, WISCONSIN.

GROOM YOUR CATTLE BY POWER

Our Improved Grooming Brushes, revolving 1200 times a minute, insure glossy coat, clean skin, active pores, health and beauty. Their use increases value of all stock. Indispensible for prize winning show cattle. Will groom 30 to 50 head an hour, and do it better than by hand. Get our Free Booklet and learn to groom your cattle, horses, and all stock the best way.

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A RARE CHANCE FOR A GOOD DAIRY FARMER

A farm of 465 acres will be sold cheap and on easy terms to right party. Farm is located at Waucota, Goodhue county, Minn., on river division of the Milwaukee road. East line of farm Lake Pepin. West line the railroad. Station within a hundred yards of buildings. Waucota is less than 50 miles from St. Paul and Minneapolis. Farm has 300 acres under plow, 100 acres pasture, balance timber. Barns for 40 cows, horse barn, granary, buildings for small stock, etc. House, 8 rooms. A rare chance for either a butter maker or one desiring to ship milk to the Twin Cities. For further particulars address

J. NEWTON NIND, Kimball Building, Chicago, Ill.



Labor and Capital Work Together in Georgia.

If you think it would be pleasant and profitable to live in a country where this is true write for book A. **Greater Georgia Association, Atlanta, Ga.**

Give County and Occupation, Farming, Dairying, Livestock or Fruit, etc.

FARM One Season, FREE

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NET $4,560.00 From Five Acres

Planting in rotation cauliflower, cucumbers, egg-plant, in beautiful health giving Manatee County. The most fertile section in the United States, where marvelous profits are being realized by farmers, truckers and fruit growers. Thousands of acres open to

Free Homestead Entry

Full particulars, handsomely illustrated booklets, with list of properties for sale or exchange in Virginia, the Carolinas, Georgia, Florida, and Alabama sent free.

JAMES WHITE

Seaboard Air Line Railway

PORTSMOUTH, VA.

NET $4,560.00 From Five Acres

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Entry

South Dakota

is the place to go if you have made up your mind to stop paying rent and start on the highway to independence. Farm lands can now be bought at prices that will allow a good profit on the sale of products. Recent extensions of the

Chicago, Milwaukee & St. Paul Railway

open the way to new fields where splendid opportunities for success are offered. South Dakota book, 1903 edition, sent for 2c. postage

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"ADVERTISEMENT."

THE VALUE OF CHARCOAL

Few People Know How Useful it is in Preserving Health and Beauty.

Nearly everybody knows that charcoal is the safest and most efficient disinfectant and purifier in nature, but few realize its value when taken into the human system for the same cleansing purpose.

Charcoal is a remedy that the more you take of it the better; it is not a drug at all, but simply absorbs the gases and impurities always present in the stomach and intestines and carries them out of the system.

Charcoal sweetens the breath after smoking, drinking or after eating onions and other odorous vegetables.

Charcoal effectually clears and improves the complexion, it whitens the teeth and further acts as a natural and eminently safe cathartic.

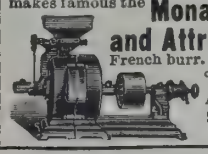
It absorbs the injurious gases which collect in the stomach and bowels; it disinfects the mouth and throat from the poison of catarrh.

All druggists sell charcoal in one form or another, but probably the best charcoal and the most for the money is in Stuart's Absorbent Lozenges; they are composed of the finest powdered Willow charcoal, and other harmless anti-septics in tablet form or rather in the form of large, pleasant tasting lozenges, the charcoal being mixed with honey.

The daily use of these lozenges will soon tell in a much improved condition of the general health, better complexion, sweeter breath and purer blood, and the beauty of it is, that no possible harm can result from their continued use, but on the contrary, great benefit.

A Buffalo physician in speaking of the benefits of charcoal, says: "I advise Stuart's Absorbent Lozenges to all patients suffering from gas in stomach and bowels, and to clear the complexion and purify the breath, mouth and throat; I also believe the liver is greatly benefitted by the daily use of them; they cost but twenty-five cents a box at drug stores, and although in some sense a patent preparation, yet I believe I get more and better charcoal in Stuart's Absorbent Lozenges than in any of the ordinary charcoal tablets."

FAST GRINDING of family meal or ear corn and grains makes famous the **Monarch French Burr and Attrition Mills.** Genuine imported French burr. None to compare in speed or character of work is the guarantee.



Sold on 15 days trial. All sizes and styles. Catalogue free.

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Box 208, Muncy, Pa.



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to know what happens to your butter on its way to the consumer's table. It's likely to encounter enough noisome smells in commission house, storage cellar and shop to ruin your reputation. There's safety in

Pioneer Brand
Parchment Paper.

A pure vegetable parchment which holds the delicate flavors in and shuts the foreign odors out. Don't confound it with common or so-called parchments. The Pioneer has no taste or smell of its own to impart and your butter stays sweet as a nut. **Sheets for print wrapping, rolls for box linings, circles and linings for tubs.**

Your name or brand on wrapping sheets is good advertising. It will not come off to discolor the butter if we print it. Let us send you sample sheets and copy of book, "Better Butter."

The Paterson Parchment Paper Co.,
37 Eighth St., Passaic, N. J.

THE PATERSON PARCHMENT PAPER CO. PASSAIC, N.J.

Watch for the Pioneer Trademark.

tage than by sending them to take part in the Demonstration of Cows at the World's Fair. One of the best barns ever constructed for the exhibition, comfort and care of dairy cows has been provided by the Exposition for the accommodation of the Holstein-Friesian herd.

All the products of the cows in the Demonstration will belong to the contributors of the cows, which will leave little, if any, expense to the owners, who will find the value of each cow increased many fold, while the advantage of the wide advertising the herds participating will receive, cannot be computed.

The Holstein-Friesian breed can be represented at St. Louis next year with twenty-five cows that can make new records in every test provided. The owner of every superior Holstein-Friesian cow bred to calve in April, 1904, who is interested in promoting the best interests of the breed through the best agency ever provided, is requested to advise the Secretary of the World's Fair Holstein-Friesian Association at the earliest possible date. The Universal Exposition of 1904 provides the most auspicious occasion for exploiting the excellences of the Holstein-Friesian breed, that has ever or will be presented to the American breeder.

The champions of the breeds claim the Holstein-Friesian cow the best for all dairy purposes, while our competitors are crowding every available publication with the challenge for the Holstein-Friesian advocates to either "put up or shut up."

Let every breeder of Holstein-Friesian cattle from this time forward, widely publish the fact that the World's Fair Holstein-Friesian Association has accepted the challenge and will "put up" and continue the contest and effectively "shut up" all the avenues of adverse criticism.

M. E. MOORE, Cameron, Mo., President.
DR. GEO. C. MOSHER, Kansas City, Mo., Treasurer.
R. W. MAGUIRE, 5737 Bartmer Avenue, St. Louis, Mo., Secretary.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Manure Cisterns.

ED. HOARD'S DAIRYMAN:—We are remodeling our dairy barn at the institution and intend putting in cisterns for liquid manure. How much capacity would you advise, say for 100 cows? Would you construct them much like an ordinary cistern?

I have just been looking through the advertising columns of your paper to find something advertised to haul the liquids to the fields, but fail to find such. How large should the holes be made in the perforated plate at the point where the liquid leaves the gutter? What information you can give me will be gladly received. D. M. A.

Lawrence, Kans.

You may estimate the liquid voided at from 2½ to 3 gallons from each cow daily which will amount from 8 to 10 barrels per day from 100 cows. We can give no estimate as to how frequently the contents of the cistern can be removed under the conditions attaching to your environment. And having had no experience in such matters, we are unable to advise definitely as to the size of mesh in the plate at the end of gutter, but it is apparent that much will depend upon whether any considerable amount of the solids and litter are carried forward with the liquid, and this in turn will depend a good deal upon the care and attention given the matter, by the stable attendants. If we were installing such a system, we should provide at least two strainers, the first with comparatively large openings to arrest the coarser matter, and the second with smaller openings. In addition, it will be expedient to provide a large opening into the cistern through which the "settlings," could be removed.

Perhaps some of our readers with experience in disposing of liquid manure in this way, may be able to give more definite information and if so we shall be gratified to hear from them.

CORN HUSKERS Small size, 6 to 8 h. p. to run 1½. Large size for Threshermen, 14 to 18 h. p. to run it with self-feeder. CATALOG FREE.
ROSENTHAL CORN HUSKER CO., Box 13 Milwaukee, Wis.

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We make a specialty of these Rifles:

"Stevens-Maynard, Jr."	**$3.00**
"Crack Shot"	**$4.00**
"Favorite" No. 17,	**$6.00**

Send for Our Free Book

of 128 pages which tells about the "Stevens"—gives pictures and prices. Contains interesting articles on Hunting, Fishing, Canoeing, Target Shooting, etc.

PUZZLE A Clever Rifle Puzzle will be mailed postpaid for 4c in stamps. It is lots of fun—"easy when you know how"—but everyone can't solve it. Can you? Try it and see.

Ask your dealer for the "Stevens" and don't be misled—insist on getting our goods. If you cannot obtain them, let us know and we will ship direct, express prepaid, upon receipt of price.

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Under Prof. Wm. P. Brooks, Ph. D., of the Mass. Agricultural College. Treats of soils, tillage, drainage, fertilizers, crop rotation, stock-feeding, poultry-raising, dairying, etc. Also Horticulture under Prof. Bailey, of Cornell University, and Agricultural Bacteriology under Prof. Conn, of Wesleyan. Full Commercial, Normal and Academic Departments. Tuition nominal. Text-books FREE to our students. *Cata. and particulars free. Write to-day.*
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"The Salt that's ALL Salt"

you get paid for at butter prices. It becomes a part of the butter—that's why.

Write for book "Just Salt." Free.

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They'll not take too much, and they'll get it as they want it. Don't force animals to eat salt when they don't require it, by mixing with food.

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Pure-Salt Bricks

are all salt, no impurities. Improve the quality and yield of milk. A modern convenience, always present, animals never neglected, and costs for each only about a nickle a month. See how they enjoy helping themselves when you place it within reach For all stock. Buy of dealers or send for free booklet to

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DOUBLE CAM BRADLEY STEEL HAY PRESS

One horse can operate it. Very easy for two. Send for circular.

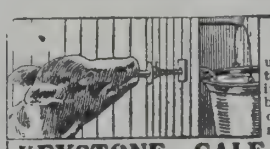
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Simplest Press Made.

Has an AUTOMATIC PLUNGER DRAW.

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SENT under positive guarantee to refund money if not satisfactory. No boiling food. Perfect digestion. All tinned, no rust, easily cleaned.

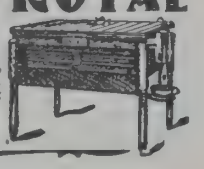
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WE say it's the best incubator made. Try it and see what YOU think. No pay until satisfied. Automatic and certain. Send for trial plan. Catalog free, with poultry paper 1 year 10c.

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THE $60,000

DAN PATCH 1:56¼

CHAMPION HARNESS HORSE of the WORLD

EATS

3 FEEDS FOR ONE CENT

EVERY DAY.

"International Stock Food" greatly aids Digestion and Assimilation so that More Nutrition is obtained from all grain eaten. It "tones up" and Permanently Strengthens the entire system and Purifies the Blood so that disease is prevented. Every $3.50 pail of "International Stock Food" is positively guaranteed to save $7.00 worth of grain. It will cause your Race Horse to have more speed and endurance. It will make your Carriage Horses healthy, fat and beautiful. It will give your Show Horses more life and action and make them glossy. It will make your Work Horses strong, healthy and of great endurance. It will make your Stallions and Brood Mares surer, and your colts will be better and grow and develop more rapidly. "International Stock Food" is absolutely harmless even if taken into the human system. It is prepared from Roots, Herbs, Seeds and Barks and is fed in small amounts as an addition to the regular grain allowance. It is equally profitable when fed to Horses, Cattle, Sheep, Hogs, Colts, Calves, Lambs or Pigs. It will make you a large extra profit when fed to your stock for Growing, Fattening or Working. It will increase milk 15 to 25 per cent. in Cows, Mares, Sows or Ewes, and only costs 3 FEEDS FOR ONE CENT. A Dan Patch colt commanded $5,000 at eight months of age. He looked like a yearling and was beautiful, strong and vigorous. The dam was fed "International Stock Food" before and after foaling, and the colt as soon as it would eat. Dan Patch became the World's Champion Harness Horse nine months after commencing to eat "International Stock Food" every day. If it is good for such horses don't you think it would pay you to test it on yours? Our "International Stock Food Farm" contains 650 acres, 12 miles from Minneapolis, and on it we own Dan Patch 1:56¼, Directum 2:05¼, Roy Wilkes 2:06½, and a band of brood mares. They all eat "International Stock Food" every day. BEWARE OF IMITATIONS and SUBSTITUTES. There are many worthless imitations on the market, put out by people who seem to think that the way to start a business is to steal as much as they can from some prominent firm. No chemist can separate and name all of the ingredients used in "International Stock Food," etc., and any chemist or manufacturer claiming to do so must be an Ignoramus or a Falsifier

A BEAUTIFUL DAN PATCH PICTURE FREE

We have a very fine, large lithograph of Dan Patch with the great driver, M. E. McHenry, in sulky. This Lithograph, Printed in Six Brilliant Colors, is one of the finest and most attractive horse pictures ever published. It is 21x28 and printed on heavy paper suitable for framing.

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1st.—Name This Paper. 2d.—State How Much Stock You Own.

Answer these questions in a letter or on a postal card and we will mail at once.

Write at once before the offer is withdrawn. Address....

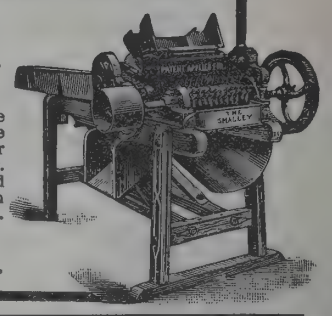
Largest Stock Food Factory in the World. Capital Paid in, $1,000,000.

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THE SMALLEY SHREDDER

HAS NO EQUAL.



It gives fodder the greatest food value, and makes it easier for the animal to masticate and digest. Requires least power; strong and durable; will outlast a dozen of the saw pattern kind. Knives adjustable to compensate for wear. We can furnish snapper rolls to remove all the ears, just the same as a husker. This combination of cutter, shredder and snapper, costs but little more than the ordinary cutter. We also make drag and circular saws, sweep and tread powers, and ensilage cutters with carriers or blowers to reach any silo. Our free catalogue tells all about our goods. Address Box No. H

SMALLEY MFG. CO., Manitowoc, Wis.

FEED GRINDERS AND COOKERS

Most perfectly adapted to wants of feeders. Feed goes twice as far and makes better beef. Our

Giant Killer Triple Geared Feed Mill



is the fastest sweep mill made. Light running and grinds ear and shelled corn and all grains coarse or fine. Strong and durable.

Northwestern Steam Cooker

leads all others. Return draft, quick steaming, large capacity. Don't buy either mill or cooker without seeing our descriptive circulars. Write for them today.



Cascaden Mfg. Company, Waterloo, Iowa.

John Deere Plow Co., Indianapolis, Ind., Harber Bros. Co., Bloomington, Ill., Deeds & Manley, St. Louis, Mo., John Deere Plow Co., Kansas City, Mo., Lininger & Metcalf Co., Omaha, Neb., Smith & Zimmer Co., Minneapolis, Minn., Lindsay Bros., Milwaukee, Wis.

MOST HEAT=LEAST FUEL



Largest firebox. Least expense and trouble. Burns wood, cobs, straw, etc. Jacket and bottom of heavy galvanized iron (double rivited.) Two heavy cast iron plates 8 inches apart compose the double top (our patent.) This double top space connects with manhole and smoke-stacks, forming dead air compartment and keeping fire below water surface which saves the heat.

We have a valuable book called "Warm the Water and Save the Feed," which we will send you FREE. It's worth $1.00.

WINONA TANK HEATER

is unconditionally the best heater made. Price $6.50. We pay the freight. Address

WINONA TANK HEATER CO., 82-2ND ST. WINONA, MINN.

SULKY AND GANG PLOWS

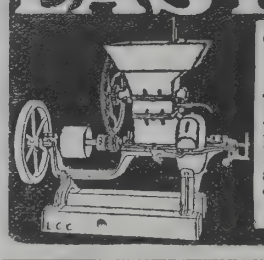
Light Draft, High Lift, Powerful Lifting Spring; Boy can handle it. Patented Step carries the plow and lightens draft. Shipped in crate, set up and sharpened ready for use. Spring Clevis eases draft and saves harness. Automatic Lock on rear wheel. Celebrated "Garden City Clipper" bottoms used.



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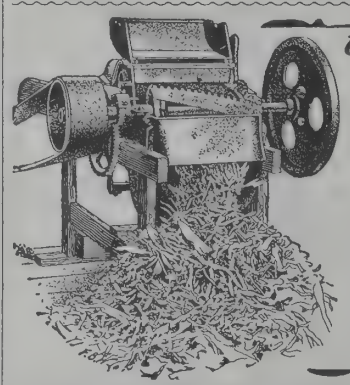


Corn in the ear and all grains, any sort of chop mixture. For speedy and perfect work, saving feed and labor, the all-purpose grinding mill is the

Fine **SCIENTIFIC** Quick

Made in a variety of styles, including Power Mills, Sweep Mills, Mill and Power Combined. The line that meets feeders' wants and is right in price. Don't buy until you have seen our late catalogue. Mailed free. Write for it to-day.

THE FOOS MFG. CO., Springfield, Ohio.



The 1903 Shredder Blades

(Patent Applied for)

make efficient shredders out of "Ohio" Feed and Ensilage Cutters. The **New Shredder Blade** is the regular "Ohio" knife with solid integrally projecting bits which cut and tear corn stalks into a nicely shredded condition, as shown in the picture. It makes corn-hay of the fodder.

Shredder Blades are interchangeable with knives on all sizes "Ohio" Cutters. They successfully reduce fodder to the proper condition and do not pulverize the leaves like other styles. **They shred** with the same power, speed and capacity as "Ohio" Cutters, and either the Chain or Blower Elevators handle the shredded corn perfectly. **Speed,** 600 to 700 revolutions. **Power,** 2 Horse Tread up to 12 h. p. Engine according to size. Let us send the 1903 catalogue of "Ohio" Cutters and Shredders. "Modern Silage Methods" 10c, coin or stamps. Manufactured by

THE SILVER MFG. CO., Salem, Ohio. *Established 1854.*



The Best Cooker

for preparing feed for all kinds of stock is this

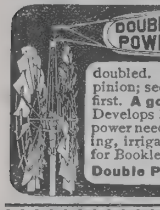
PURINTON'S No. 2 Steam Generator

Made of Boiler Steel and tested. Has safety valve and jointed pipe reaching a dozen barrels without unscrewing. All stock thrive better on cooked feed and steam cooked is the best. Never get burned or scorched. Best boiler for scalding hogs, cleaning around dairies etc. Quickest steamer on market. Burns any fuel and less of it than any other. Our water supply tank is a great convenience. *We will send a Cooker complete and ready to use on* One Week's Free Trial. Catalogue free.

Purinton Mfg. Co. Dept. E, Des Moines, Ia.

DOUBLE POWER

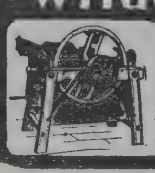
$1,000 REWARD



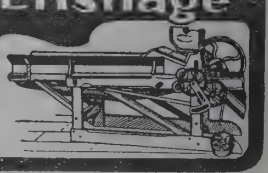
for its equal. Wind power doubled. Two 14 ft. wheels work on same pinion; second wheel gives more power than first. **A governor that governs** in all winds Develops 10 full h. p. in 25 mile wind. All power needed for farm, shop machinery, pumping, irrigating, etc. for $1.00 a month. Ask for Booklet . Ask about Armsaver Husker.

Double Power Mill CO., Appleton, Wis.

Wilder's Feed and Ensilage Cutters



and Shredders. Try one at your own place; if it does not please you better than any other machine you can buy, we stand all expense. Get our catalogue today. It contains largest line made. On the market 35 years.



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Because we have the best and cheapest iron, steel, lumber and the cheapest labor, we can and do make the best Saw Mills on earth. 4 h. p. (see cut.) Cuts 2,000 ft. a day. All sizes. Planers, Shingle Mills and Edgers with our Patent Variable Friction Feed; Portable Grinding Mills, Water Wheels, Lath Mills, etc. Our catalog shows all. Send for it. Lowest freights.

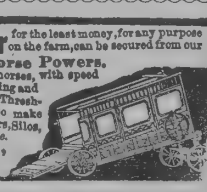
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The Most Power

for the least money, for any purpose on the farm, can be secured from our

Fearless Railway Horse Powers.

We make them for 1, 2, 3 and 4 horses, with speed regulators. Unequalled for Cutting and Grinding Feed, Sawing Wood, Threshing, Pumping Water, etc. Also make Threshers, Engines, Feed Cutters, Silos, etc. *Illustrated Catalog Free.*



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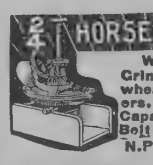
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AT ACTUAL COST OF WIRE

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With Horse Power Attachment. Grinds corn with shucks, head kaffir, wheat, oats and all other grains. Self feeders. Geared 7 to 1. Light draft. Great Capacity. (Also make plain sweep and Belt Mills; 10 sizes.)

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the TOP WIRE is 3-16 inch in diameter, and a double-strength wire at that. So much stronger.

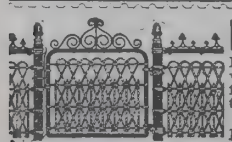
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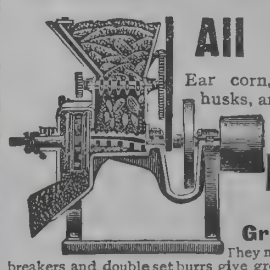


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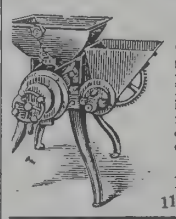


Ear corn, with or without husks, and all grains ground fine or coarse as wanted with the

KELLY DUPLEX Grinding Mills.

They never choke. Double cob breakers and double set burrs give greatest speed. Take little power, any kind. Strong and durable. 4 sizes. Catalog free

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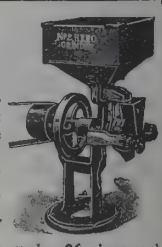
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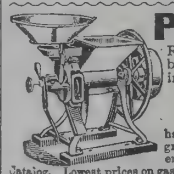
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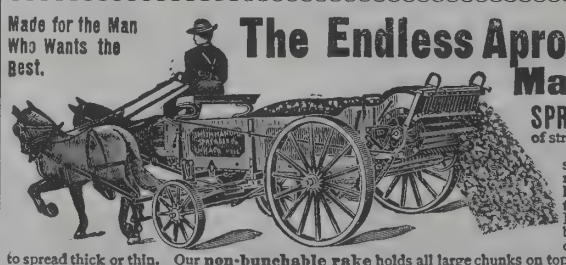
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Devoted to Dairying and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., DECEMBER 18, 1903. NUMBER 45

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REFERENCE:—Any bank or wholesale house.

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Liberal Advancements Made on Consignments.
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Ripens the Cream for Butter and the Milk for Cheese to Perfection.
The only Butter-Culture of keeping quality.
CHR HANSEN'S LABORATORY, BOX 1003, LITTLE FALLS, N. Y.

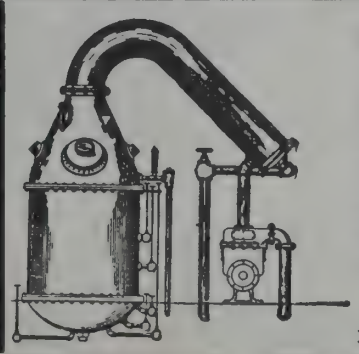
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CONTAINS NO COAL TAR
The pure food agitation makes it imperative that butter makers use a color that is beyond suspicion. Every drop of Thatcher's Orange Butter Color is guaranteed purely vegetable, absolutely harmless and safe anywhere.
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THE KIND THAT HAS NO MUD



WELLS, RICHARDSON & CO'S IMPROVED BUTTER COLOR
Has Stood the Test for Many Years, and users of color know that it can always be relied upon. It is the BEST and therefore the CHEAPEST COLOR on the market. . . . . .
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ALL FIRST CLASS SUPPLY HOUSES



Milk Condensing Machine I supply the most improved machinery and most successful processes for manufacturing all classes of condensed milk and evaporated cream. Factories built complete, put in operation and results guaranteed. If you are interested write for my new illustrated and descriptive catalogue. The only catalogue ever published on the subject.
R. R. ROGERS, Winthrop, Maine.
(Formerly of Detroit, Mich.)
I am not associated with any person, firm or company.

Your Christmas and Ours.

Creamerymen, butter makers, dairymen, farmers, our employees in the field, our thousands of agents, our friends, and our competitors; to each and every one of you we extend our best wishes for a **Merry Christmas,** and may you have many happy returns of the day.

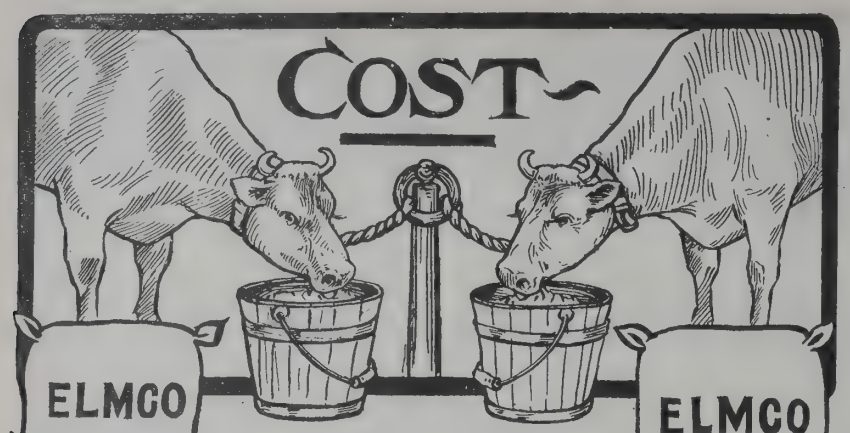
Our Christmas will be made merry by the knowledge that, since last Christmas, we have added **30,000 new members** to the **Tubular** fraternity and that every one of these users of **Tubular** separators is better prepared to have a good Christmas dinner, and enjoy it, as a result of what the **Tubular** has done for him.

The Tubular Christmas extends to every dairy section of the earth, and we rejoice in the fact that its joys are as deep as its scope is far reaching.

If you desire to know more about why the Tubular fraternity is a happy one write for Catalog No. 144.

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P. M. SHARPLES,
West Chester. Pa.,
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In comparison with feeds analyzed by the Mass. Experiment Station, **ELMCO** Feeds show the following superiority:

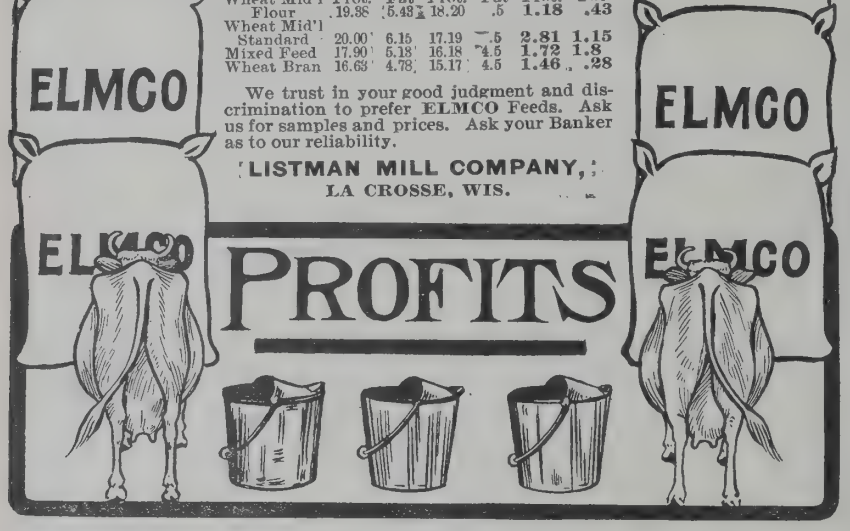
CHEMICAL ANALYSIS

	ELMCO Feeds		Other Feeds		ELMCO Superiority	
	Prot.	Fat	Prot.	Fat	Prot.	Fat
Wheat Mid'l Flour	19.38	5.43	18.20	.5	1.18	.43
Wheat Mid'l Standard	20.00	6.15	17.19	5	2.81	1.15
Mixed Feed	17.90	5.18	16.18	4.5	1.72	1.8
Wheat Bran	16.63	4.78	15.17	4.5	1.46	.28

We trust in your good judgment and discrimination to prefer **ELMCO** Feeds. Ask us for samples and prices. Ask your Banker as to our reliability.

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USE FOR MILCH COWS AND FATTENING STOCK.

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This Meal is Guaranteed Absolutely Pure. We also manufacture Strictly Pure Linseed Oil.

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Cures Scours in Calves.

First proved by the Kansas Agricultural Experiment Station, and since corroborated by thousands of leading stockmen who have used it without a single failure. Equally effective for the diarrhea of all animals.

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Harry of Maple Glen 8338, Corydon Peck to H. McK. Twombly, Madison, N. J.
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Quinton Emerande 9708, George D. Robinson to John Tyler, Salem, N. J.
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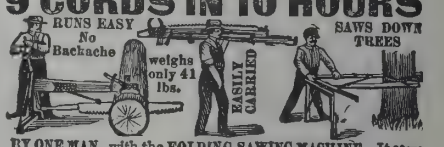
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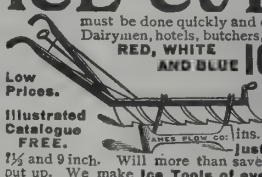


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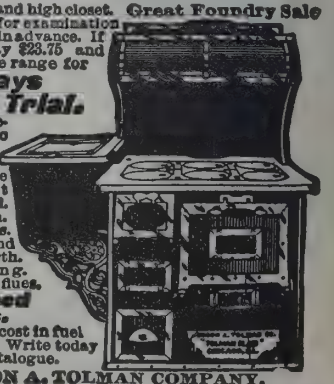
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ED. HOARD'S DAIRYMAN:—I enclose a snap shot of a cow that has been a "bread winner" in our dairy. In Janurary 1899, she gave 59 lbs. milk in 24 hours, testing 2.45 lbs. butter fat. Her feed consisted of ensilage, clover hay and eight pounds of gluten feed. Have tested her when her milk showed 5% fat.

No regular record has been kept of her milk, but in 31 days in July and August, 1900, she gave 1610 lbs., and we feel sure she has given us over 60,000 lbs. of milk in six consecutive years. She is a grade Holstein, purchased of the late C. W. Horr, Wellington, Ohio, in 1895.

GEORGD R. CREHORE.

Lorain, Ohio.

The Pennsylvania Dairy Union.

ED. HOARD'S DAIRYMAN:—The Sixth Annual Meeting of the Pennsylvania Dairy Union was held at Loch Haven, Pa., Dec. 2nd and 3rd.

The President, Dr. H. P. Armsby, Dean of State College, called the meeting to order. The Mayor of Loch Haven, Hon. John T. Cupper welcomed the visiting members of the Dairy Union, and Dr. Armsby gave the response in behalf of the Dairy Union.

Dr. A. T. Neal, Director of Delaware College, Agricultural Experiment Station, spoke informally upon "Some of the Sources of Nitrogenous Food for Dairy Cows." It was assumed fundamentally that on a farm of 200 acres, 1,800 bushels of corn might be raised, of which one-third would be given to pay for the labor, and two-thirds would be left as the portion falling to the land. Of this 1,200 bushels of corn, the support of the horses and poultry and pork production would consume the entire amount, leaving to the herd as its portion of the corn crop, the stover alone. From 50 acres this should be sufficient to nourish 30 milking cows, when properly combined with other sources of food. Twenty pounds per head per day of this stover, would furnish one-seventh of the protein and one-half of the starchy matter necessary to maintain a full flow of milk in a cow of the normal weight of 1,000 pounds. To secure the sixth-sevenths of protein and one-half remaining of the starchy food, alfalfa was suggested. In addition to the 12 lbs. of alfalfa required for this purpose, 2 lbs. of cotton seed meal would be required to make a normal ration.

In order to secure the complete consumption of 20 lbs. of dried stover, it was found desirable to pack many tons of it into a silo, and add thereto one ton of water for each ton of stover. This caused the entire mass to heat to 165°, bringing about a rather agreeable aromatic odor and such changes in the composition of the stover necessary to attract the live stock and render it palatable. So prepared, this stover was eaten with practically no loss. Alfalfa hay is an extremely difficult crop to grow, but it is also so extremely valuable that no effort should be spared to secure it; and, whenever it can be bought more cheaply than it can be raised, no sentiment or theory should stand in the way of its purchase. Its price in Central Nebraska today of $6.75 per ton baled, F. O. B. cars, is low enough to attract the attention of buyers; but the freight rate of nearly $10 per ton charged by the transportation companies to Pennsylvania points makes it a question whether the farmers can afford to get it this way. Even at this price, however, of $17 per ton, in round numbers, it is $2 per ton cheaper than bran, and preferable to bran in the minds of practical feeders.

To those, however, in the long run, who lack confidence to attempt the cultivation of alfalfa, a substitute for it can be found in the crimson clover and the Southern cow pea. Neither of these crops taken alone is the equal of alfalfa in quantity, although strangely enough, either one is fully equal to alfalfa in quality. The clover occupies the land from September until the middle of May, and the maximum crop of it would make about 2½ tons of hay per acre. After the removal of the hay, about the middle of May, there remains ample time to plow the land and seed it to one of the early maturing upright-growing varieties of the cow pea. For this, the New Era variety is especially desirable. This crop can be secured by the last of August, and with favorable surroundings, a maximum yield of 2¼ tons of dried hay per acre may be expected. As a substitute for alfalfa, therefore, the crimson clover occupied the land in winter; the cow pea, in summer. They are also recommended, for in quality the products equal that of alfalfa, and in quantity the combined crop will slightly surpass a maximum crop of alfalfa hay per acre.

Questions were asked as to the safety of feeding clover hay to horses and cows. The reply was that there never has been danger in feeding it to cows, but that in certain cases, if the clover is allowed to become too mature, portions of it, and particularly portions of the blossoms or seed heads become practically indigestible and result in inflammation and in death. This danger is avoided by cutting the clover shortly after the blossoms are well developed and before the seed is formed.

A substitute for packing the shredded fodder in the silo was proposed by Dr. Conard, namely to utilize the steam remaining in the boiler after the separation of milk and the cleaning of cans, in scalding fodder intended for the subsequent day's feeding. Attention was brought to the fact that the concensus of opinion is strongly against cooking food for cows, as in every case it seems to interfere with digestibility. It was conceded, however, that Dr. Conard's end, namely: softening the food for its better mastication by the cows, would likewise be attained by his method.

As to the question, whether the small amount of cotton seed meal added to the ration of shredded fodder and alfalfa hay may be avoided, and the total supply of food gained from the farm itself, the reply was that whenever the market prices of food products are lower than the farmer's cost of production, he should produce rather than raise his food; but, that in this case it was highly probable that by the judicious selection of seed then the percentage of protein in both stalk and grain could be so materially increased that the cotton seed meal might possibly be reduced to one-half or entirely omitted.



A GRADE HOLSTEIN COW.
Property of GEO. R. CREHORE, Lorain, Ohio.



BUFF JERSEY'S HERD.

The method of selecting seed corn with the special end in view of raising a product richer than the average in protein, was then discussed somewhat at length. These methods are well known to the readers of this paper who have familiarized themselves with the work of the experiment stations of the central West.

Major H. E. Alvord, Chief of the Dairy Division of the Agricultural Department, Washington, D. C., gave an illustrated lecture on Dairying in This and Foreign Countries. Pictures were shown of dairying conditions in Denmark, Holland, Normandy, and other places; of cheese making in Roquefort, together with many of incidental interest.

Twenty Years Experience in the Science and Art of a Dairy Herd was the subject discussed by the Rev. J. D. Dietrich of Flourtown, Pa. Scientific knowledge, it was stated, is the foundation of agriculture today, and all that has been secured in this line by scientific men is accessible to all and should be taken advantage of. In the last twenty-five years more has been discovered in the science of growing crops than in the previous history of the world. That which has been done before is guess work. Such rapid progress has been made in husbandry that no man could keep pace with its advance and be satisfied to see his name to a published article two years afterward. In proportion as the farmer complies with the laws of the Deity is he successful with his farm and his flock, and it must be remembered that God is not going to feed the man's flock, if he himself has neglected it.

As a man would not desire to have one stalk of corn 20 feet high and the others below the average, so is it better to so improve the dairy herd that the average cow will give 20 quarts of milk, rather than that there should be an unusually large yield from a few. Mr. Dietrich's system is to keep his cows in the dairy barn, and to exercise them only by leading them out with a halter. Whenever, however, the cow is thus brought within the walls of a stable she must be watched, that her powers are not weakened. The East wind, Mr. Dietrich says, affects the cows markedly, lessening the amount of milk, no matter how well they are fed. The cold North-west wind has a bracing effect upon the animal. The South and West winds do not seem to have any effect. For this reason the ventilation of the dairy barn is a matter of importance. After fifteen years' experience in stabling dairy cows, Mr. Dietrich does not believe that the domesticity of an animal weakens its constitution. The temperature of the barn should be an even one, and in cleaning, care should be taken to avoid having a draft. The comfort of the animal is as much to be considered as its food, and the atmosphere of the barn should be kept pure.

The care of the manure is mentioned as of great importance in improving the fields. It is not left in the barn yard, but put at once upon the fields. As a result of this method his soil at a recent examination showed five millions of bacteria to the one-thirtieth of a cubic inch, just four times more than the best soil ever examined by the chemist.

In the discussion of Mr. Dietrich's paper he replied that the temperature of his dairy barn was kept at fifty-five. In support of his system of soiling, he quoted the statement of one man who after following his plan sold $1,900 worth of products as against the previous yearly output of $900 worth. By his method Mr. Dietrich averages nearly 30 tons of silage to the acre. The rye is sown broadcast and the field top-dressed, which gives a heavy yield. Thirty-five lbs. of ensilage he employs as a daily ration, and always has a mixed feed. By feeding three times a day he finds that more milk is given in the evening. The ration is mixed to suit the lactation of a cow. Table salt is used in preference to the coarse salt. It is suggested to milk three times a day, measuring how much more milk is thus given. To make a cow dry he gives timothy and water; exercises the cow with the halter, and skips teats in milking. By this method the animal will go dry in six days.

Professor George C. Watson, Professor of Agriculture at Pennsylvania State College, read a paper on The Silo and Silage Crops. He said in part: "The history of the silo in the United States, in many respects, resembles that of other new and important inventions which have tended more or less to revolutionize well established practices and customs of the agricultural people. Many farmers who have had comparatively little knowledge of silos or of feeding silage have constructed silos in an endeavor to make silage an important part of the ration of various classes of domestic animals. Failures have resulted; expensive lessons have been learned. Not only did these farmers not know how to harvest and preserve most efficiently and cheaply, but they did not understand how to feed to the best advantage, that which they had preserved.

With the advent of the silo the American farmer came to a fuller realization of the importance of providing some succulent food for dairy cattle. Those who persisted in raising mangel-wurtzels for dairy cattle first learned the true value of succulent food and the manner in which it should be fed. The feeders of roots learned a lesson that was not learned so early by those who fed corn silage, and even yet corn silage is not fully appreciated by the majority of feeders. The value of the roots as a food is due, in a broad sense, to their relation to other foods.

Agriculturists are becoming more and more like business men in looking for profitable returns on investments. With improved machinery for harvesting and handling the silage crop, the advantage has turned somewhat in favor of the silage when compared with field cured corn, on the basis of digestible nutrients alone. The standard of conditions as to food and temperature is best provided by Nature in May and June. Those who have added materially to that with which they

have been dealing, or who have made the breed of live stock better than they have found it, have had clear-cut standards. High standards continually kept in mind are essentials to systematic improvement. In very recent times marked changes have been made in the kind and quality of food provided for the dairy stock. Generations of time alone will record the results. As a basis, conservative Americans will adhere to that which has been proven to be wholesome and economical. In my judgment the safest and most successful feeder of the future will be he who will make the best use of America's most abundant and cheapest food plant, corn.

It was resolved that the Pennsylvania Dairy Union hereby expresses its great satisfaction at the unanimous passage by the legislature and the approval by the Governor of a bill appropriating $100,000 for beginning the construction at the Pennsylvania State College of an agricultural building; and that copies of the resolution be sent to the Governor and to the chairman of the Senate and House committees on appropriations.

A resolution was passed recording the Pennsylvania Dairy Union's commendation of the administration of the pure food laws of the Commonwealth by the Dairy and Food Commissioner, Hon. B. D. Warren, and pledging its support in the enforcement of the laws upon this subject.

It was also resolved that the Pennsylvania Dairy Union be officially represented at the dedication of the new Dairy building at the Pennsylvania State College.

The following officers were elected: President, Dr. H. P. Armsby, State College; 1st Vice-President, Mr. Austin Leonard, Troy; 2nd Vice-President, Rev. J. T. Dietrich, Flourtown; Treasurer, Mr. W. E. Perham, Niagara; Secretary, Dr. M. E. Conard, West Grove.

Philadelphia, Pa. L. C. ALEXANDER.

Maine State Dairy Meeting.

ED. HOARD'S DAIRYMAN:—This young state association met Dec. 1-3, at Dover, the twin town of Foxcroft, which is the county seat, and home of hale and wholehearted State Commissioner of Agriculture, A. W. Gilman.

A well arranged program greeted friends and visitors, and there was the usual strong array of eminent speakers.

The Association held out $110 in prizes for butter, and $20 for cheese, with a prorata, or consolation prize of $50 for non-winning contestants in the nine classes for which first, second and third prizes were offered.

Special prizes were offered by Vermont Farm Machine Co., Worcester Salt Co., Heller & Merz Co., *Lewiston Journal*, *Maine Farmer*, *Turf, Farm and Home*, and *Piscataquis Observer*, the local newspaper.

Usual addresses of welcome and responses were made, and the first day culminated in a grand banquet which had its full mead of eloquence and flow of soul without the bowl. No stimulating beverage is needed in the Pine Tree state along with the refreshments, for the physical man to give a proper degree of enjoyment to these social hours. The banquet was a great success, and many fine sentiments were expressed by the eloquent speakers.

The annual address of the President, Hon. Rutillus Alden, of Winthrop was brief and businesslike. He voiced the sentiments of this association and many people outside of it, when he scored the appropriation of $40,000 to represent Maine at St. Louis with a log cabin, and show of wild animals, instead of as she really is, a progressive state, with a display of her agricultural and horticultural products.

"Producing and Handling Milk for Retail Trade" was discussed by George H. Ellis, of Boston, Mass. The subject was handled as was to have been expected by one familiar with every detail. Keeping the milk clean and in its natural condition is considered far better than any kind of manipulation to kill bacteria. The speaker believes in, and practices, weeding diseased animals out of the dairy herd, taking every possible precaution to produce good milk, free from any taint, and to keep it scrupulously clean in conveying it to customers. When his cows have been culled down to those which pay to keep, he finds they cost $60 apiece.

Up here in Central Maine he is sure farmers can raise heifers to 31 months for $25, which cost him $40 at that age. This Massachusetts milkman buys Nebraska alfalfa and considers it a third better than clover hay. Mr. Ellis stated that the people want 5 per cent milk, and he breeds Jerseys and their grades to produce it. He had no prejudice against Holsteins, but the people rather water their milk themselves.

An effort is being made to make the fairs, for which the state is paying out considerable money, as strongly educational as possible. To this end the score card is superceding the old methods of judging exhibits, aud the experts are thereby giving the reasons for their choice of subjects for premiums, and those who are in attendance to learn, thereby receive the benefits of the expert judge's work, and premium offers, by seeing and studying the tangible points on which the decisions are rendered.

The score card is still conceded to be unpopular with stock exhibitors, and old time comparison judges, but this is expected to wear away with increase of knowledge. Toward this end the address of Prof. G. M. Gowell on "The Score Card in Show Rings" was a strong plea for this advance in judging at fairs. It was asserted that the Short-horn breeder can not judge a Jersey cow and *vice versa*. The judge must keep the ideal cow of the breed he is judging in mind, and make his score card record of the individuals as he goes over them, in comparison with the form of this ideal cow.

The score card system is the one lawfully in force in Maine now. The judges at the recent fairs do not like it but "shall we allow this advanced system to be overthrown simply because we do not understand it?" (Applause).

Under the subject, The Holsteins the Most Profitable Breed, Mr. W. S. Keene, Boston, Mass, gave an address that is hard to answer by advocates of the supremacy of other breeds. He cited records and tests that are becoming numerous and familiar to the public, by reason of the work being done with unquestionable exactness, under the direction of Mr. S. Hoxie, Superintendent of Advanced Registry.

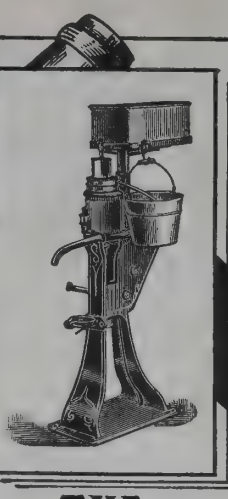
This speaker not only supported the records as to the Holstein-Friesian being the best and most profitable cow, but he claimed for this breed that it is without a peer for making veal, and when you are through with the cow in the dairy she will bring as much as any of the beef breeds. Mr. Keene has a stock farm near Newport, Me. and produces milk for the Gail Borden Condensed Milk Co's plant at that place. He began nine years ago and with scrub cows. These were kept in the common way for three years. Then scales were purchased and records kept, so from that time every cow has been kept on her merit. A registered Holstein-Friesian bull has been at the head of this herd and the pure-bred female calves are raised, while the grades, when a few days old, readily bring $10 each to be raised for cows. The male calves at the same age sell for $5 to $10 to make veal or oxen.

The standard at first was 2800 quarts of milk per cow per year. Now 2-year-old heifers average 4000 quarts and mature cows 5000 quarts. Thoroughbred bull calves sell readily at $30 to $40 each when a few days old and one five months old sold for $80. The only way a start was made in order to accomplish this, was to find out by the record what each cow was doing. The milk is sold by weight, so it is not regularly tested as it would be if sold as cream, or made into butter. It does, however, average about 4 per cent at the factory, which is considered all right there.

Following the above, Mr. Z. A. Gilbert, well known as a leading spirit in agricultural affairs for a quarter of a century, read a discussion on the breeding and care of dairy cows. He finds the temptation to feed to push up production has had an effect in reducing the vitality of cows in this state, to a point where many cows do not transmit vitality enough to their calves so they can be raised. He lamented the facts, and urged reform in this line of dairy husbandry.

Mr. C. L. Jones gave a practical talk on this subject. He and others seemed to agree that cows are and have been subjected to conditions in Maine which were of the nature of hardships for the Jersey cow, and she has deteriorated here in Maine as it is not so easy to find a good Jersey cow now as it was in the early days after her introduction here. One speaker asserted that the bluff, hardy, old Maine farmer is a strict disciplinarian

(Continued on page 1031).



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Siloing Timothy and Alfalfa.

ED. HOARD'S DAIRYMAN:—I wish to give a little of my experience and also wish for some information. For two seasons I have filled a round silo that holds abont fifty tons of silage with the second cutting of mixed grass, that is clover and timothy, cut and drawn direct from the field and put in the silo without cutting, tramping as hard as possible. The first season, made some mistakes by putting in when the grass was too dry and some was cut and exposed to the sun for two hours and then put in, although with quite a little waste on top. It was pretty good feed and our cows milked well on that feed and corn silage and bran.

By observing our mistakes of last season we adopted, for the last filling, putting in the silo only fresh cut, that is, we would cut early in the morning when wet with dew or cut no faster than we could draw, and put in the silo without wilting at all; in fact, the last was cut and put in right away after a rain and the grass was so wet that the water dripped from the load as it was drawn up to the silo.

Now for the result. We have some feed greatly relished by the cows, so much so that they have to be fed a limited quantity or they will over feed, and but little waste on top. I think all the waste could have been wheeled away on a barrow at four or five loads. The feed is greener and has not so strong a smell as last season. I am so well pleased with the result that I would like to know if any of your numerous readers have ever tried using alfalfa in that way. I saw a little this fall of the last cutting and it was fine feed.

As I have no alfalfa growing as yet, I have this plan in my mind. I have a small field of about three acres near the barn that I shall prepare for silage corn for next season and then seed with alfalfa and cut the first crop for the sllo, the second crop for hay and in the meantime, if a drouth comes, feed from the silo the first cutting and fill with the last or cut the last and cover the silos that are filled with corn. The trouble of making hay of the first and last cutting of alfalfa in this section is, about that time it is almost impossible to cure it and save the leaves on, and I thought by putting it in the silo I would save all the feeding value and as grass is considered as nearly a perfect food for cows it would be an easy and desirable way to dispose of the first and last cutting. Can I get any information on the subject through your paper and if any of your numerous readers have had any experience will they kindly let me hear from them through your columns?

A. D. BAKER.

Auburn, N. Y.

Handling a Bull.—Apple Pomace.

ED. HOARD'S DAIRYMAN:—I have been much interested in the articles lately written in the DAIRYMAN in regard to handling the bull. My little experience in the past six years would not permit me to be authority on the care or handling the bull. The grand-sires of the bull I have at this writing, were both very cross, so I am told. My neighbors tell me he will kill me, but I have no fear of him and he knows it. I believe the very first lesson a young bull should be taught is to learn who is boss, and I taught this fellow his first lesson while he was running with the herd.

Now, I do not advocate whipping the bull every time he does not get the proper move on him, but I do think when he needs correction there is nothing better for his bullship than a good dose of whalebone elixir. At any rate I find it works well with mine. I believe there are more bulls spoiled by cross men than any other way. I do not agree with some that the bull should not be petted or spoken to kindly. A well-bred bull is no fool and knows who his friends are and will appreciate a kind word and friendly pat when one goes to feed him.

I fasten my bull with a small chain around the horns, then fastening to the rings in nose by snap. The tie rope is then fastened to chain about six inches from nose. They give less strain on the nose if he should pull. I prefer the ground for the bull rather than the floor with plenty good bedding. I am going to set a good, hard wood post in ground about four feet deep, about the same above ground. In top of post will put a heavy round, iron bar; on the bar a good ring. This will give him a chance to walk around the post for his exercise, and if he wants to butt off some of his surplus energy, he can go at it.

I have never seen anything in the DAIRYMAN in regard to the feeding of apple pomace. I have been experimenting a little with it this fall. Put about 15 tons in silo and three or four loads of green corn in the bottom of silo, also put three loads of pomace on store room floor. So far, I like it very much; it will heat the same as ensilage; while heating becomes quite acid, but seems to lose some of the acidity after heating.

I feed about twenty-five lbs. per day to my cows, putting the grain on it, but they will eat the pomace first. Calves are getting along well on it; bull gets about the same as the cows. I believe, where it can be drawn within two or three miles, it will make a very good and cheap succulent food.

I drew mine about two miles; it cost me nothing but the drawing. I have a Holstein cow that gave 1,214 lbs., one month, milk. Her ration was 12 lbs. wheat bran and white middlings mixed, and 25 lbs. pomace for roughage. She had corn stover and unthreshed oats.

Perhaps this letter is like the young minister who preached his first sermon; after he had finished the old minister said not a word, so the young preacher wanting to know how his sermon suited, said, "I hope the length of my sermon did not tire you." "No, nor the depth of it either," said the old preacher. So, Mr. Editor, if the length of this does not tire you, the depth surely will not. That the DAIRYMAN is without a peer is the judgment of your esteemed reader and countryman. W. W. G.

Gloversville, N. Y.

A North Dakota Ration.

Can you formulate for me a ration for milk cows from the following feed stuffs: Bran and shorts, that is, not separated at the mill, per ton, $16; bran, from another mill, $18; shorts from another mill, $.0; middlings, $22; ground oats, $30.20; ground rye, $30; ground barley, hard to get, $25, and all the native prairie hay they will eat that was cut in season and stacked in good shape. Please state amount of feed per pound of milk or proportionally. O. B.

Dickinson, N. D.

Unless there are some objections that do not appear in the written statement, we should select the unseparated bran and shorts which can be had at $16. Give the cows what hay they will eat and from 6 to 10 pounds of this mixed feed, or at the rate of one pound for each 3 pounds of milk.

In regard to apportioning feed to product, read what we have to say concerning Revised Feeding Standards for Cows in Milk.

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ON FOOD

The Right Foundation of Health.

Proper food is the foundation of health. People can eat improper food for a time and not feel any ill results until there is a sudden colapse of the digestive organs and then all kinds of trouble follows.

The proper way out of the difficulty is to shift to the pure, scientific food, Grape-Nuts, for it rebuilds from the foundation up. A New Hampshire woman says: "Last summer I was suddenly taken with indigestion and severe stomach trouble and could not eat food without great pain; my stomach was so sore I could hardly move about. This kept up until I was so miserable life was not worth living.

"Then a friend finally, after much argument, induced me to try Grape-Nuts food and quit my regular food. Although I had but little faith I commenced to use it and great was my surprise to find that I could eat it without the usual pain and distress in my stomach. So I kept on using Grape-Nuts and soon a marked improvement was shown, for my stomach was performing its regular work in a normal way without pain or distress.

"Very soon the yellow coating disappeared from my tongue, the dull, heavy feeling in my head disappeared and my mind felt light and clear; the languid, tired feeling left, and altogether I felt as if I had been rebuilt. Strength and weight came back rapidly and I went back to my work with renewed ambition. Today I am a new woman in mind as well as body and I owe it all to this natural food Grape-Nuts." Name given by Postum Co., Battle Creek, Mich.

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Look in each package for a copy of the famous little book, "The Road to Wellville."

There's just this about the
EMPIRE CREAM SEPARATOR

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The more you use the other fellow's machine, the better you like—the EMPIRE.

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EMPIRE CREAM SEPARATOR Co.
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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of them read dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

COMING EVENTS.

Vermont Dairymen's Association, Burlington, Jan. 5-7, 1904.
Illinois Dairymen's Association, Greenville, Jan. 5-7, 1904.
Wisconsin Cheese Makers' Association, Milwaukee, Jan. 6-8, 1904.
Ohio Dairymen's Association, Columbus, Jan. 27-29, 1904.
New Jersey Agricultural and Dairy Convention, Trenton, N. J., Jan. 14 15 and 16.
Eastern Ontario Dairymen's Convention, Belleville, Ont., Jan. 5, 6 and 7.
Washington Dairymen's Association, North Yakima, Dec. 29-31.
Massachusetts Creamery Association, Greenfield.
Connecticut Dairymen's Association, Hartford, Jan. 20-21.
Wisconsin Buttermakers' Meeting, Eau Claire, Feb. 2-4, 1904.
Wisconsin Dairymen's Convention at Platteville, Feb. 10–12, 1904.

CHICAGO FAT STOCK SHOW.

The fat stock show, at Chicago, last week, is not of a class in which dairymen can have much interest, it is so entirely outside of their methods and experience. Fat stock and dairying are at opposite extremes, and a 2,000-pound steer don't fill a dairymen's eye half so well as a smaller 1,000-lb. cow of one of the dairy breeds; but none the less, it is a most excellent place for a dairyman to visit and then go home and think things regarding his own business.

It is true, he would cut but a small figure among the crowd of fat steers, sheep, hogs, big horses, and many thousand visitors, and it might be necessary to get himself off in a corner and cogitate all by his lonesome, unless he had been fortunate enough to pick up another wandering dairyman, who had also been rash enough to invade the enemies' country.

Everything on four legs is fat and round and smooth at this show. You see no examples of enormous udders with a cow as a side issue, no sharp back bones, incurving thighs nor pelvic arches; all these are carefully hidden under many folds of red meat and white fat and in proportion as the enveloping flesh and fat are placed according to rule, so are prizes given.

A chattering, disputing, gossiping throng surrounds the animals; enough noise and light to stop the milk flow of a true dairy animal. But amid the blaring band, cheering students, etc., the animals stand and chew their cud in sleepy content. Any nerves, if they have them, are hidden under so many layers of fat that all disturbing noises are deadened before reaching them.

It may be asked, what is all this to the dairyman? Well that depends on the man. For one thing, let him take to heart the fact that for the last two years, the despised "book feeder" or "book farmer" has produced the prize steer. It was not chance that did it, but design. With malice aforethought, the Professor of the Nebraska Station hunted out the animal when he was a calf, and his judgment and feeding have produced an animal that has taken $450.00 in premiums, and then sold at auction for nearly $500.00. If this is the result of "book feeding" let us have more of it.

Agricultural students were very much in evidence, both to sight and hearing; each prize animal having its own knot of admirers discussing its points, and endeavoring to settle why the judge did thus and so.

Of course it is impossible for more ways than one, to hold a corresponding exhibition of dairy cattle. A cow can not be handled like a fat steer, and the combination of crowds, light and noise would be disastrous to the future use of a champion butter producer; but none the less dairymen should attend the Chicago show, if for no other reason than to observe the methods employed, the results obtained and the enthusiasm that the cattle men put into their business.

REVISED FEEDING STANDARDS FOR COWS IN MILK.

Close readers of HOARD'S DAIRYMAN cannot fail to have noticed that we long ago repudiated the so-called German (Wolff) feeding standard for milch cows, with its inflexible requirement of 2.5 lbs. of digestible protein and a nutritive ratio of 1 part digestible protein to 5.4 parts carbohydrates, and that we are but little better pleased with the Wolff-Lehmann standards, although the latter recognize to a degree the fact that the amount of milk yielded should be considered.

We were not so situated as to make carefully conducted experiments practicable, but observations in our own herds indicated that there was a rich field here for Experiment Station work. For example, if a cow weighing 1,000 lbs., requires .7 of a pound of digestible protein for daily maintenance and yields 30 lbs. of 4 per cent milk, containing approximately one pound of protein in the form of casein and albumen, we asked them to tell us what became of the remaining .8 of a pound of digestible protein, or failing in that, tell how much protein was actually needed to enable such a cow to produce that or any other amount of milk.

Prof. Woll, of the Wisconsin Station, made an attempt to solve this problem by getting the average ration fed by successful dairymen in Wisconsin and elsewhere. As might have expected, there was very little uniformity in the reports received, but after a careful study of the figures he proposed an American standard of 2.2 lbs. digestible protein, 13.3 lbs. carbohydrates and .7 of a pound of fat.

This was a long step in the right direction, but it could hardly be called a scientific conclusion, because it had no definite, well-ascertained figures upon which to rest, and we continued to clamor for more light. We confess that the answer to our demand has been very slow in coming and that the great majority of Experiment Stations—in fact all but three or four—have preferred apparently to accept the German standards and plod along in old ruts, rather than undertake original research work in this direction.

Indeed, only one Station has set itself strenuously at the problem of undertaking through a succession of years to ascertain the exact relation of food consumed to milk produced. We refer, of course, to the Minnesota Station, where the powers in control have permitted Prof. Haecker to study and experiment on milk problems. This work has been going on for nearly or quite nine years now, and, although a mass of valuable data has been accumulated, the end has not been reached. Like every careful experimenter, Prof. Haecker makes haste slowly, and does not jump at conclusions.

He has published three bulletins reporting progress, the last one in the early summer of the present year, and from it we compile the following table of feeding standards:

FOR COWS WEIGHING ONE THOUSAND POUNDS.

YIELDING MILK.		DIGESTIBLE NUTRIENTS REQUIRED.		
Amount	*Testing*	*Protein*	*Carbohydrates*	*Fat*
Lbs.	%	Lbs.	Lbs.	Lbs.
10	3	1.10	8.81	0.24
	4	1.17	9.14	.26
	5	1.24	9.47	.28
20	3	1.50	10.62	.38
	4	1.63	11.28	.42
	5	1.78	11.94	.47
30	3	1.90	12.43	.51
	4	2.10	13 42	.58
	5	2.31	14.41	.65
40	3	2.29	14.24	.65
	4	2.57	15.56	.74
	5	2.85	16.88	.83

For variations in live weight above or below 1,000 pounds, add or substract for each 100 lbs. .07 pounds protein, .7 pounds carbohydrates and .01 pounds fat.

It should not be forgotten in this connection that the foregoing figures are deduced from experiments with cows that were housed in warm and well ventilated stables, had the best of care, and were milked, fed and watered with clock-like regularity.

And it may be said that Bulletin 102 from the Wisconsin Experiment Station, entitled, "Studies in Milk Production," substantially corroborates the foregoing figures in the item of amount of digestible protein required, although the Wisconsin cows consumed considerably more carbohydrates and fat, which may be explained, in part at least, by the circumstances that many of them were growing heifers.

A CHANCE TO STUDY.

I have brought along a few hundred copies of last week's issue of HOARD'S DAIRYMAN for distribution here to-day. This issue contains a "Cow Census" or investigation of fifty patrons of Creameries about Plymouth, Indiana. This census was taken to throw a strong light on the inside facts on the difference in the actual outcome for a year among dairy farmers. At the request of the Indiana Dairymen's Association, Mr. C. P. Goodrich of Wisconsin went to Plymouth and spent a week in digging up these bottom facts. These constitute a part of the 830 farmers and their herds that I told you had been investigated and the results published in HOARD'S DAIRYMAN. They will be used especially at the Indiana Dairy Convention this week. I wish every farmer here to take a copy home with him and read this report. He will then see how a low plane of thinking and management of a dairy farm comes out. Follow Mr. Goodrich faithfully as he reasons out the actual conditions of things.

You will please note especially how his investigations and statements on page 970 bear out and confirm what I have said to you in regard to the great cash value of making a special effort to read more, study more, and think more on this business of dairying. Please consider also that I am not talking this because I am an editor of a dairy paper.

My labor, my money, my thought are deeply invested in this question. Eight hundred farmers bring milk every morning to the 10 Hoard Creameries.

I have followed these men up in the mistakes as well as the successes of their yearly work. I can easily know what their cows earn. I have seen them for years handicapping themselves with wrong ideas of how to conduct this business, the kind of cows they should employ, and the kind of management they should give their farms and herds. I have seen one patron make 600 per cent more net profit than another only a mile away. I have seen why he did this. That it was because the successful man would read and study and the other would not. Can you wonder then that I preach the gospel of intelligence as earnestly as I do.

(Remarks by the Senior Editor, at N. Y. Dairymen's Convention.)

PUT THIS AND THAT TOGETHER.

There is a strong indisposition on the part of the average farmer, and that means the majority, to believe that he needs any special study or information on this matter of feeding and caring for the farm animals, especially the cows. Ask nine out of ten farmers if they believe that they do not understand all about the best methods of feeding, how to get the most out of their feed, as well as how to feed so as to best promote the health of their stock, and they will tell you frankly that they do not believe any such thing.

Yet strangely enough, those whose business it is to observe and study the farmer and his animals most closely, do not agree with them. Take it on the one thing of promoting health and vigor in the animals. A while ago that experienced veterinarian, Dr. Smead, told us on page 843, that "60 per cent of diseases of farm animals are caused directly and indirectly by *lack of wisdom* in feeding."

He states that the two things in the mind of the farmer that cause this state of things are either "fad notions of feeding" or "ignorance." One of course, is about as bad on the animal as the other. The difficulty lies way back, in the unwillingness of this kind of a farmer to believe that any man or set of men know any more about feeding than he does. He rejects the idea of a science of feeding, or that men who give a life time to its study are in the situation to teach him. This is not good sense.

It would prove a great eye opener if we could have a series of cow censuses taken, say twenty-five of them, covering 10,000 cows, and each devoted to some single point. Take for instance, the point made by Dr. Smead, that of conducing to the health of the cows by right methods of feeding and stabling. In our own experience, we have been powerfully impressed with this view of the case. We try to provide a comfortable method of tying the cows, one that shall keep them clean, and to that extent keep them healthy. The old fashioned stanchion does not do this. Then we keep the stable clean and sprinkle land plaster in the gutters twice a day, to absorb all the gasses and disease breeding odors possible. We are paid for the cost of the land plaster twice over in the added value of the manure from the absorption of ammonia.

Then we provide as perfect a system of ventilation as possible, one that shall prevent undue drafts of cold air, and yet when the stable is closed change the entire air content once an hour. Then we try to feed these cows in the light of the best modern sense and intelligence. What effect have all these things on health and efficiency? We can only say this: That as to health we have had but one case of sickness in the entire herd in five years and that a slight attack from indigestion. We have not had a single case of stopped teats or garget with the loss of a quarter. Practically we have sustained no expense for veterinary services except in abortion and the anual testing for tuberculosis which the herd undergoes.

In the last two years we have not found a case of tuberculosis and we never

had a case except in some animals we purchased.

As for the efficiency of the cows, we can say this: The herd averaged 30 cows for the year ending March 1st, 1903. The cream is separated on the farm and the local creamery paid us within a fraction of $70 per cow for the same. The skim milk we calculate was worth to us over $20 per cow.

Now in the light of all these facts, putting this and that together, does it pay to heed the teachings of good science and good sense?

Change of Volume of Milk by Cooling —Loss in Separating.

ED. HOARD'S DAIRYMAN:—How much will one hundred gallons of milk shrink in being cooled from animal heat temperature, 98½ to a correct cooling temperature, 38 degrees? In separating one hundred gallons of milk, what shrinkage will arise in the resulting product, that is, skim milk and cream?

KEYES FARM & DAIRY CO.

St. Louis, Mo.

Cooling 100 gallons of milk from 98½ to 38 would diminish the volume very nearly a gallon, with milk containing 4.0 per cent fat.

This loss would increase slightly with richer milk but not enough to make a practical difference.

No definite figures can be given on the loss in separating 100 gallons of milk, as it depends so largely on the conditions, separator used, etc. It is evident that aside from carelessness, 10,000 lbs. would have no greater loss than 1,000 lbs. if loss in bowl and waste are considered. The amount lost by evaporation of the warm milk as it comes from the separator, will depend on local conditions and cannot be estimated. Only a practical trial under your own conditions can determine the actual loss.

Granite State Dairy Meeting.

ED. HOARD'S DAIRYMAN:—The nineteenth annual meeting of the Granite State Dairymen's Aosociation was held in connection with the winter meeting of the State Board of Agriculture at Keene, N. H., on Dec. 1st, 2nd and 3rd.

The three sessions on Dec. 1st. were under the auspices of the State Board of Agriculture. At the morning session, the Mayor of the city welcomed the members of the board and visiting agriculturists, and Mr. Jos. B. Walker, President of the Board, responded.

Mr. Robert E. Faulkner, of Keene, followed these addresses with a talk about the "Wood Industries of Keene as affected by Forestry." Keene has acquired quite a reputation for the wood working industries within her borders and Mr. Faulkner spoke in a general manner of the relationship of the supply to the demand for wood for manufacturing purposes. He exhibited photographs and referred to the care and thought necessary to keep the wood lots in the best bearing and profitable condition.

The session of the afternoon was devoted to a discussion of the State College of Agriculture and of the Adulteration of Foods. Pres. Wm. D. Gibbs, recently chosen as the head of the New Hampshire College, reviewed the condition of the college, the work being done there, and its relationship to the interests of the citizens of the state. He impressed upon his hearers the value of education to all classes of people and that the opportunities at the state college at Durham were ever open to their will and call.

Mr. H. E. Barnard, State Chemist at Concord, gave an interesting talk on the adulteration of foods and spoke of the work of his department. The pure food laws of the state and nation were referred to and their value and relationship to the citizens of the state given. This is a comparatively new department of the state, having been established but little over two years. At first the work was mainly with water analyses; soon the inspection of milk was taken up. Now with better laws in the state the work of examining the food products sold in the state is vigorously carried on.

Three strong addresses were given in the evening to an appreciative audience. Dr. A. C. True, Director of the Office of Experiment Stations connected with the Department of Agriculture at Washington, opened the meeting with a paper on "Agriculture in the Public Schools." He felt that the public was in danger of forgetting the importance of the elementary schools to the prosperity of the country and of the greatest importance to the farm or country children. Larger communities have provided trade and technical courses and schools to develop the boys and girls in the line of business and manufacture peculiar to the sections in which they are located. The rural communities have not provided like facilities to teach the principles of husbandry or the study of Nature. He spoke of the work that had been done in this direction in some sections of the country and of the plans and aid which was accessible through the Department of Agriculture by any community. The introduction of this work into rural schools was of utmost importance to those who were unable to follow same in larger fields of learning, while to such as entered any of the many excellent technical schools and colleges, the early training thus received greatly benefitted them in their advanced studies.

Prof. E. H. Forbush, Ornithologist of the Massachusetts State Board of Agriculture, followed with stereopticon illustrations of "Birds of the Farm." He alluded to the habits of common birds and to their great usefulness.

Gov. N. J. Batchelder was introduced at the close of Prof. Forbush's talk on birds and gave with his accustomed energy and practical manner a talk on the "Rural Development of New Hampshire." He urged a stronger agricultural sentiment and belief among the rural people, the better appreciation of the advantages which the state offers for successful farming, and the true relation of the farming interests to the general prosperity of trade and manufacture.

THE DAIRY MEETINGS.

With the opening of the forenoon meeting of the second day the work of the Dairymen's Association properly began.

President James L. Gerrish, of Contoocook, gave his annual address, in which he reviewed the conditions under which the dairymen had labored during the year. He spoke of the demands for dairy products which the Boston markets called for, and referred to the growing up of the pasture to bushes and pines. With such conditions confronting the dairymen of the state, he urged all to consider the question of greater production. He advocated the use of farm separators, and the rigid enforcement of dairy laws. His address was an able and instructive one. Mr. Gerrish has served the association long and well, both as secretary and president, and his closing address was most fitting as he retired from the presidency, after twenty years of hard work for the dairy interests of the state.

The merits of Red Polled cattle were discussed by ex-President George H. Wadleigh, of Tilton. After referring to their foundation and early development, he said their special advantages lay in their being the best of feeders, quiet and docile, indoors and out, bulls weighing 2,000 pounds and over, cows 1,200 to 1,700 lbs., combining in the greatest degree the production of milk and beef; yielding 8,000 to 12,000 lbs. milk in a year. As an instance of the dual-purpose advantages of the breed, he cited a bull that weighed 3,024 lbs., whose daughter gave 43,118 lbs. milk in four years that would average 4.35 per cent, and a cow that gives 7,000 pounds milk that makes 300 pounds butter in a year, whose calf at 9 months weighed 700 pounds.

Prof. F. W. Taylor, of Durham, gave an address on "Silos and Silage," reviewing the history from early times, telling of the principles that influence the building and filling of the silo, and as to feeding of same.

The final address of the morning session was given by Mrs. Nathan B. Cox, of Ashland, on "Cheese Making on the Farm." She believed that the housewife could make 30 to 50 per cent more by making cheese than butter, and described the manner in which she carried out the work.

At the afternoon session, Mr. Arthur B. Hough, of Lebanon spoke on "The Formation of a Profitable Dairy Herd."

The key note of success in this respect he believes lies in better production which can best be secured through better cows; know your cows and their work; weed out unprofitable ones, and feed and handle them with intelligence. In a word, he said, good breeding, good feeding, good care and management, and the little dairy cow will do her part towards lifting the mortgage.

Miss Annie F. Burbank of Webster, Mass., gave an excellent address on "A New Profession for Women." She said home making had not always been ranked as a new profession. It has now become necessary for the housewife to be something more than a mere cook and toiler. The speaker believed in young women being able to earn a living outside of home, but she should as well regard the ideal home maker of today as one thoroughly conversant with the physiological effects and chemical composition of food. She must know and manage the sanitation, water supply and disposal of waste of the home. Homemaking is a science, an art and a profession. The home must be attractive, the home-maker companionable and hospitable and the children must be kept in touch with. Surely a field calling for broad intellectual training and culture.

Prof. Ivan C. Weld, Instructor in dairying and Secretary of the Association, gave an excellent talk on the comparison of dairy methods in this country and in Europe. His recent trip abroad gave him excellent material from which to speak. It is as a skillful and intelligent breeder and thrifty care-taker, that the European farmer overshadows us. We have nothing to learn from him in handling and marketing our product. Our problem lies in production.

At the business session of the Association, the following officers were elected for 1904:

President, Wm. H. Caldwell, Peterboro; Vice. Presidents, A. J. Richardson, Littleton, Freeman Gilson, Pembrooke; Secretary, Ivan C. Weld, Durham; Treasurer, E. E. Bishop, Bethelhem; Supt. of Exhibits, W. D. Baker, Rumney; Auditors, Jas. L. Gerrish, Contoocook, Geo. H. Wadleigh Tilton.

Trustees, Rockingham Co., B. E. Sanborn, Leavits Hills; Strafford Co., Geo. H. Yeaton, Dover; Belknap Co., Geo. H. Wadleigh Tilton; Carroll Co., D. R. Slade, Centre Harbor; Merrimack Co., G. M. Putnam, Hopkinton; Hillsboro Co., H. O. Hadley, Temple; Cheshire Co., J. J. Donelly. Keene; Sullivan Co., Chas. F. Rossiter, Clarement; Grafton Co., Arthur B. Hough, Lebanon; Coos Co., T. M. Casey, Stratford.

The occasion of relaxation and enjoyment, was the banquet at the Cheshire House on Wednesday evening. Two hundred persons sat down to an excellent dinner, after which, under the careful guidance of Ex. Mayor Colony, afterdinner speaking was indulged in. Mayor Tafte told of the beauties and influence, past and present of the city of Keene; Gov. Batcheller, in a fitting manner, of the state of New Hampshire; President Gibbs, of the New Hampshire College and its influence; Overseer Hadley, of the State Grange; President Gerrish, of the Dairymen's Association; while Prof. Decker of Ohio, gave kindly words of greeting and advice; Trueman Gilson recited the poem, "Honest John Thompkins" and Col. Rossman of the Governor's Staff, spoke of Good Cheer.

At the session on the following morning Trueman Gilson of Pembrooke, read a paper on dairying, telling what he had accomplished by intensive farming on twelve acres. He urged cleanliness and attention to details, as the elements of success.

Prof. E. L. Shaw of Durham spoke of the feed and care of the cow, giving general directions as to rations, watering, housing and caring for the cows.

Mr. W. D. Hayden of Dover told of his development of a retail milk business and of the necessities for successful competition, as well as trials undergone.

Prof. Decker of Ohio gave a grand talk on the "Requirements of Modern Dairying." In an off-hand manner, plain and practical, and intensified by ample illustrations, he told of the composition of milk, the principles of its secretion, the danger and manner of contamination, how to detect as well as to know the effects of preservatives. The address was highly appreciated and every one was sorry it could not have been given earlier in the session. Thus closed a most successful meeting of the association.

The display of dairy products and dairy machinery was held in the Y. M. C. A. building. The results of the judging was as follows.

The judges stated that the exhibit here, although not large in quantity, was one of the finest in quality they had ever seen. The winning scores are very high and so was the average.

The judges awarded a gratuity to the

(Continued on page 1022)

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain sepecific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Brown Middlings and White Middlings.

I would like to have your personal opinion through the DAIRYMAN as to the difference in feeding value between flour middlings and standard brown middlings. Some say the brown middlings are ground bran, mill sweepings, dirt and weed seed. I have always thought that brown middlings were made from spring wheat and flour middlings from winter wheat, and that the brown middlings were the best for growing stock.

Which of the following feeds do you consider the most economical for feeding growing calves and pigs in connection with sweet separator skim milk fed warm? Bran, $19 per ton; brown middlings, $21; flour middlings, $25; bran and corn meal, $20. Why would not bran and gluten feed make a good ration for calves and pigs? Gluten costs $25 per ton. We feed oil meal jelly to calves up to three months. Any light you may give me on this subject will be gratefully received. C. M. K.

Shushan, N. Y.

All middlings are more or less brown, but there is not, to our knowledge, any considerable difference in the middlings whether from spring wheat or winter wheat. What we now call middlings, was in our younger days known as "canaille." If decidedly brown, we should expect more or less bran had been mixed with the middlings.

Bran will do very well for calves, but is not a good feed for pigs. Middlings make the best addition to skim milk for young pigs, and when 4 to 6 months old ground corn may be used. For greatest profit, feed one pound of middlings or ground corn to 3 lbs. of skim milk, and plenty of clean, fresh water to satisfy thirst.

Massachusetts Queries.

I have only known of your paper but a month but during that time have become much interested in it as I have found much useful information, but would like to ask you one or two questions I have not yet seen in your paper. I keep about 200 milch cows of all sorts and kinds, mostly grades. This fall I have been troubled by the afterbirth not coming away, and have, as I have been taught, taken them away myself. I should like to ask you for advice as to taking them away.

As to feed: Our cows average anywhere from 700 to 1,000, and over, pounds, most of them fresh, giving anywhere from 15 to 30 pounds and some more. Cotton seed, $27; linseed meal or flaxseed meal $24; corn meal $23; also good timothy hay. I can also buy Ajax flakes for $26. Would you advise me to substitute in place of the linseed or flax meal, and can you tell me what it is made of?

A cordial welcome is extended to you all to visit me if ever in this part of the country.

Unionville, Mass. J. G. R.

Thanks for the courteous invitation which it will be a pleasure to accept and profit by whenever circumstances make it possible.

For answer to the first inquiry see page 1003, where Dr. Hartwig has described the method to be followed as well as it can be put in words.

Ajax Flakes, we understand, is a new name for what was formerly known as Atlas Gluten Meal, and that was simply a more euphonious title for the kiln-dried by-product of a distillery, in other words, distillers dried grains. There may have been some trifling changes in the methods of manipulating the product and possibly some additions to it, but we are told they are substantially the same thing.

For the larger cows and those yielding 25 to 30 lbs. of milk, we should expect a daily allowance, substantially as follows, would be sufficient:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. timothy hay	17.36	.56	8.68	.28
4 lbs. "flakes"	3.68	.97	1.55	.46
3 lbs. ground corn	2.67	.24	2.00	.13
4 lbs. linseed oil meal	.91	.29	.33	.07
Totals	24.62	2.06	12.56	.94

Smaller cows and especially the smaller milkers, should have less grain.

A Rhode Island Ration.

Will you please give me a good ration for dairy cows. Wheat bran, $1.25 per cwt; linseed oil meal $1.60 per cwt; cream gluten, $1.70 per cwt; corn meal, $1.30 per cwt. Cows are grade Jerseys weighing from eight to nine hundred, in different periods of lactation and for fodder, I have oat hay and intervale hay. W. E. S.

North Scituate, R. I.

"Intervale hay" is a variety not mentioned in the tables of analyses, and we are therefore unable to set forth a tabulated formula, but it is practically safe to say that all these cows should have approximately 20 lbs. of roughage and the cows that have not materially slackened in their flow of milk, about 4 pounds of bran and 2 pounds of oil meal daily.

An Ohio Ration.

Please give me a balanced ration from the following feeds: Bran, $17.50 per ton; oil meal, $23; corn and cob meal, corn worth 40 cents; corn stover and clover hay. A. J. F.
Lebanon, O.

As we have said in reply to another Ohio inquiry, please read the article in this issue on the editorial page entitled, Revised Feeding Standards for Cows in Milk, and then note how incomplete this inquiry is.

The very best we can do is to suggest what might be termed an average ration, trusting to the good judgment of the inquirer to make such modifications as his conditions demand. If he attempts to drive over this road with closed eyes, or with the major part of attention given to other matters, he may reach his destination in safety or he may not.

Subject to the modifications which these revised feeding standards may call for a good average ration might be compounded as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. clover hay	12.70	1.02	5 36	.26
10 lbs. corn stover	5 95	.17	3.24	.07
4 lbs. corn and cob meal	3.56	.26	2.52	.14
2 lbs. bran	1 76	.25	.77	.06
Totals	23.91	1.70	11.89	.53

An Oregon Ration

Please tell me how much and what proportion to feed of rolled oats, rolled barley and fresh ground linseed meal with oat hay, and how much hay. H. R.
The Dalles, Oregon.

Ordinarily, where hay of any kind is the only roughage, cows will eat about 20 lbs. daily. and this will form the basis of the ration, the character of the hay indicating what kind of grain to select. The 20 lbs. of oat hay, if of average quality, will contain about .86 of a pound of digestible protein, and the grain should supply an additional pound, or more. This will require about 3 pounds each of the oats and barley, and 2 lbs. of the oil meal. Such a ration will tabulate as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. oat hay	18.22	.86	9.28	.30
3 lbs. barley	2.67	.26	1 97	.05
3 lbs. oats	2 67	.28	1.42	.13
2 lbs. oil meal	1.82	.59	.65	.14
Total	25.38	1.99	13 32	.62

As will be seen by reference to our revised feeding standards, such a ration as this should suffice, if cows are given proper care, for cows weighing 1,000 lbs. and yielding 30 lbs. of 4 per cent milk.

An Ohio Ration.

Please formulate a balanced ration for my cows, weighing from 800 to 1,200 lbs., grade Guernseys and Jerseys. Wheat bran, $19; wheat middlings, $23; old process oil meal, $26; corn meal, $26, with all the wet brewers grain we can feed. For roughage we have timothy and clover hay mixed, and shredded corn fodder. F. S.
Hubbard, O.

Please read the article in this issue on editorial page entitled Revised Feeding Standards for Cows in Milk, and note how impracticable it is, in view of what is said there, to submit a ration formula, that can be applied indiscriminately to all cows in a herd of the character described in the above inquiry.

For cows weighing 1,000 lbs. and giving 25 lbs. of 4 per cent milk daily, we recommend a trial of the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. mixed hay	12.79	.72	5 94	.24
8 lbs. corn stover	4.76	.14	2 59	.06
25 lbs. wet grains	6 08	.98	2.32	.35
3 lbs. ground corn	2.67	.24	2 00	.13
Total	26.30	2.08	12.85	.78

One must not be too "finicky" about small fractions of a pound one way or the other. Feed stuffs vary more or less in composition, some being slightly better and some poorer than the average. So, too, cows vary more or less, and conditions are not always uniform. Formulas and feeding standards are simply guide boards which indicate the direction the feeder should travel, but they do not show the condition of the road, the character of the team or the adaptability of the vehicle to the work in hand. Shall we then condemn guide boards and dispense with them because an inattentive driver does not avoid obstructions, or is not in constant touch with his team? Certainly not. So with feeding formulas, the herdsman must know his cows and have regard from day to day to the ever varying conditions which encompass them.

Abnormal Shrinkage in a Georgia Herd of Jerseys.

From the many agricultural papers we subscribe to, have selected HOARD'S DAIRYMAN to help straighten us out of our present difficulties. We are feeding ensilage, pea vine hay, corn fodder and about 2 lbs. cottonseed meal, but cannot get satisfactory results. Cows, grade Jerseys. Will start out with about 20 lbs. milk daily, but will gradually and quickly drop to 8 or 10 lbs. daily and within 4 to 6 months dry up. In this connection will ask you to kindly formulate a ration for us from the following: Corn ensilage (fairly well eared) limited quantity; pea vine hay $15; oat straw, $7; fodder, $8; cottonseed meal, $22; bran, (inferior) $24; dried brewers grains, $15; oats, $31; corn meal, $29.

Does it not require very close attention on part of attendant to ensure cows freshening in fall? We have been allowing bull to run with herd and found it a difficult and costly matter to change our methods. Had a high grade Jersey with lump formed in chest or brisket, concluded it was a tumor, but now find it is gradually diminishing in size or scattering. Have you any idea what is was? SUBSCRIBER.
Augusta, Ga.

Although these cows when fresh were fed less than we would advise, we incline to the opinion that inefficient milking was not without considerable influence in causing the abnormal shrinkage reported. Cows should not only be milked rapidly—6 to 8 minutes per cow is ample time—but it is more important that practically no milk should be left in the udder. If one is handicapped with careless milkers, it is sometimes a good plan for the most careful one of the lot to go to each cow a second time and strip her out completely. While we are not able to explain fully the physiological or nervous action resulting from leaving more or less of the last milk in the udder, it is universal experience that there is no surer way to dry a cow off.

When shrinkage from any cause has become well established, it is impossible to restore what would otherwise be a normal yield. The most that can be done is to arrest further abnormal shrinkage by proper feed, proper care and proper milking and await another freshening. And even then extra attention is required to prevent the cow from lapsing into old habits, especially if these habits date back to the first period of lactation.

For cows recently freshened we recommend a trial of the following as the average daily allowance to each one:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. corn silage	6.27	.27	3.39	.21
10 lbs. corn stover	5.95	.17	3.24	.07
6 lbs. cow pea hay	5.36	.65	2.32	.07
4 lbs. dried grains	3.67	.63	1.45	.20
1 lb. cotton seed meal	.92	.37	.17	.08
Totals	22.17	2.09	10.57	.63

The forage called fodder by our correspondent we construe to be the blades and possibly the tops of the corn plant, and estimate it to be similar in feeding value to ordinary corn stover. Let the cows have a good teaspoonful of salt night and morning with their feed and all the fresh, pure water they will drink, see that they are properly milked and kindly treated at all times, and the chances will be that they will respond satisfactorily at the pail.

We do not approve of allowing the bull to run with the herd, and incline to the opinion that this practice is one of the causes of the trouble reported.

A Wisconsin Ration.

Please give me a ration for cows fresh in milk, weighing 800 to 900 lbs., grade Guernseys and Jerseys, from bran, $18; middlings, $18; ground corn, $23; oil meal, $30. Have for roughage, clover hay, corn stover shredded, and corn fodder.

Does oil meal lose feeding value with age, or how does oil meal, three years old at $25, compare with above price? E. O. T.
Iola, Wis.

We suggest a trial of 10 lbs. clover hay and what stover and corn fodder each cow will eat. For grain let them have daily, say, 3 lbs. each of bran and middlings and one pound of oil meal.

It is very doubtful, in our opinion, if that three-year-old oil meal is as sweet and clean and fresh as cow feed ought to be. Oil meal, with its large per cent of fat, is apt to grow rancid with age.

Some Inquiries from an Ohio Subscriber.

How would you advise feeding heifers that are to freshen for the first time this coming winter?

How would you feed matured cows that are just dry, but will freshen in about six weeks, that are heavy milkers, to avoid milk fever?

Please formulate me a balanced ration for registered Jersey cows that average 900 pounds each from the following feeds: Wheat bran, $18; gluten meal, $23; corn meal, $23; and linseed oil meal $25 per ton; oats 39 cents for 32 pounds; for roughage, have plenty of well matured corn ensilage, corn stover shredded, oat straw and at present, timothy hay. By the first of next month will have clover hay instead of timothy.
Painesville, Ohio. F. R. P.

1. See answer to J. M. O., of Pennsylvania in this issue.

2. Mostly on dry forage, with possibly a little bran. See to it especially that the bowels are in good order, and to this end you may use a little linseed oil meal or may give laxative doses of Epsom salts. At time of freshening, be sure to avoid all drafts of air, give only warm water to drink and a handful or more of bran in the water; do not milk out clean. If practicable, leave cow with calf for three days.

3. After these cows freshen, bring up gradually to a daily allowance substantially as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
35 lbs. silage	9.24	.46	4 90	.25
8 lbs. clover hay	6.78	.52	2.86	.14
4 lbs. bran	3.52	.50	1.54	.12
2 lbs. gluten meal	1.76	.64	.82	.05
Totals	21.30	2.12	10.12	.56

Possibly some of these cows, if not all of them, will eata little more silage or hay or both, than above specified. If so, let them have, but bear in mind it is better they should be a few mouthfuls short rather than a little more than they will care to eat. They should be so fed that they will come to each meal with a keen appetite.

"ADVERTISEMENT."

TWICE WON.

Wife Fell in Love with Husband "All Over Again."

The wife of a well known attorney at law of Seward, Neb., tells the tale worth reading: "My husband was a soldier in the Civil War and was, as he called himself, 'an old coffee cooler', and had always drank very strong coffee.

"About a year ago he complained of a feeling of faintness every time after climbing his office stairs and was also troubled by terrible headaches that almost drove him wild.

"He gradually grew weaker and weaker until his affliction culminated in nervous collapse and for weeks he seemed to be fading away from us in spite of all our efforts.

"The physician pronounced him strong and well with no organic trouble whatever and there seemed to be nothing the matter except the complete giving out of his nervous system.

"The doctors decided that coffee was at the bottom of all his trouble and ordered Postum Cereal in its place. He improved daily since he quit coffee and began drinking Postum and now says he feels better than he has felt for 20 years, headaches are gone, no more fainting spells and is gaining in flesh every day and he seems so much younger and heartier and happier than he has for years that I have fallen in love with him over again.

"Now for my brother's case; a few years ago he had a peculiar trouble. His tongue was swollen and sore at the roots and covered underneath with festers.

"He thought his affliction was of a cancerous nature and his doctor was of the same opinion. He could scarcely eat anything and became so poor and run down he was simply a nervous wreck. He consulted various physicians but none were able to diagnose his case or help him in the least.

"At last a doctor to whom he applied said he believed my brother was coffee poisoned and advised him to quit coffee and drink Postum. He gave him no medicine but told him to give Postum fair trial and return to him in six weeks. My brother had used Postum only about ten days when the festers disappeared from his tongue and at the end of two weeks the soreness and swelling were gone and he began to pick up in flesh and spirits.

"He has never touched coffee since but drinks Postum all the time and has never had the slightest return of the trouble.

"To look at my experience is it any wonder I can write a heartfelt testimonial for Postum." Name given by Postum Co., Battle Creek, Mich.

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and your worst, are easily found by using ***Meloney's*** Automatic ***Milk Scale.*** It registers automatically the daily individual yield of your cows—the records enabling you to rid the dairy of the unprofitable ones. Simple, Practical; no dairyman can afford to be without it.

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BESTOV

Caponizing Instruments--Feeding Formula.

Where can I procure necessary instruments for caponizing fowls, and also give me formula for feeding my Holstein and Jersey cows on the following feeds: Wheat bran, $21 per ton; cotton seed meal, $25; corn meal, 55 cents per bushel, and I have dry fodder, hay and ensilage,
Herndon, Va. B. H. B.

Instruments for caponizing can be had at any of the instrument houses. Write to Chas. Truax, Greene & Co., 75 Wabash Ave., Chicago, Ill., or William H. Wigmore, 107 S. Eighth St., Philadelphia, Pa.

It is simply impossible to give any specific suggestions for feeding a herd of cows varying in weights and in all stages of lactation. The best that can be done in cases of this kind is to say, in a general way, feed all the coarse fodder each cow will eat and let as much of it as practicable be silage. In addition give each cow as much grain as she can use with profit, that is, as much as she can eat without undue increase in live weight. At least half in bulk of the grain should be bran, and the amount of cotton seed meal should not, as a rule, exceed two pounds.

Feeding a Guernsey Heifer.

Would you kindly give formula for ration for a registered Guernsey heifer, first calf, with mixed hay (timothy and clover), corn stover, gluten feed, wheat bran, cake meal, corn meal? As I am a beginner in Guernseys, I wish to feed for best result, also for the best for the heifer,
Buckingham, Pa. J. M. O.

This is a very welcome inquiry as it raises an important question that has been somewhat overlooked of late. If the heifer has not yet dropped her calf, feed her liberally, but avoid as much as possible the fat forming foods. Wheat bran, gluten feed and, if necessary to keep the bowels free, a little oil meal would be strictly in order, but not in such amounts as to cause the heifer to become over fat. There is no fear of milk fever, and but little of caked udder.

If the heifer is already in milk, pursue much the same regimen, only being still more careful not to feed so much as to induce a habit of storing up body fat. Give her at all times all the roughage she will clean up, without unnecessary waste (one cannot expect a cow or heifer to eat all the butts of corn stalks), and then as much grain as she will turn to good account through her udder.

For Cows to Freshen Next April.

Will you please formulate me a ration for cows large and small to freshen in April. Bran, $22; cotton seed meal, $29; corn meal, $23; have good mowed hay, oats cured green. E. B.
Manchester Depot, Vt.

First, give each cow what hay she will eat with good relish and without leaving any to be thrown away and wasted, and in addition, for each three pounds of milk one pound of a mixture in equal parts, by weight of bran and ground corn.

A Daily Average of 2 1-2 gallons of Milk Wanted—Distillery Slop.

We have a dairy of 30 cows and they are all fresh or about. Can we feed them so as to make them average 2½ gallons of milk per day, each, during the winter? What feed would you recomend as a milk producer? We have as our chief feed clover hay, shredded fodder, wheat bran and crushed corn. Also is it good to dampen the bran and corn with distillery slop as we can get that easily and how much of that ought to be allowed to each cow in quantity? We keep our cows up in bad weather and water in buckets. They get in general, good treatment. S. D. Co.
Xenia, O.

It would not be a difficult matter to feed and care for some cows in a manner to justify an expectation of 21.5 lbs. (2½ gallons) milk from each through the winter, but whether the cows in this herd belong to that class we cannot say.

We cannot advise feeding distillery slop in any amount to cows in milk. Every well regulated city has specific ordinances against such a practice, if there is any chance for getting that material.

For cows weighing 1000 lbs. and yielding 20 to 30 lbs. milk daily we should be disposed to try about as follows for average daily allowance.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. clover hay	12.70	1.02	5.37	.26
8 lbs. shredded stover	4.76	.14	2.59	.06
4 lbs. bran	3.52	.50	1.54	.12
4 lbs. crushed corn	3.54	.32	2 67	.17
Totals	24.56	1.98	12.17	.61

Stock Foods.—Dilution Separators.

ED. HOARD'S DAIRYMAN:—As a reader of your valuable dairy paper, I would like to ask your opinion on the value of such stock foods as the International and the Prussian.

In an article on operating a Separator, taken from an Indiana bulletin, it seems to me the amount of fat left in the skim milk by the dilution and deep setting systems is too low for ordinary conditions. They are lower than figures given by some other reports.

On page 976 of your last issue is an article on this subject, which says that the loss by dilution may run from 1.08 per cent of fat to 2.0 per cent of fat. What is the average per cent of fat lost by this method in general practice? R. S.
Champaign, Ill.

In view of all the evidence concerning these much advertised stock foods we have not felt at liberty to join the various experiment stations in their wholesale condemnation. It is not claimed for them that in the amounts recommended for use there is any considerable nutritive value, but, as is the case with a good many medicines and tonics prescribed by doctors and the accompanying directions as to diet, etc., a little money paid out seems to insure better care in other matters, and thus indirectly, if not directly, they may accomplish very desirable results.

There is no denying but what they do impart an agreeable savor to the feed with which they may be mixed, and thus stimulate appetite. But apart from all this, or other matters which may be urged for or against them, the manufacturers make the fair proposition that any purchaser who is not satisfied with results, need not pay.

Nobody knows and nobody can ascertain what is the average loss of fat in the general use of dilution separators, but that it must be excessive has been abundantly demonstrated by carefully conducted experiments.

A Wisconsin Herd Record.

ED. HOARD'S DAIRYMAN:—In response to your request that dairymen send in the yearly performances of their herds, I enclose the butter yield of the "Richmond Guernsey Herd" for the year ending Nov. 30, 1903.

There has been some variation in the number milked, owing to the sale of cows, and the calving of heifers; but 17 cows is approximately correct. This number includes 7 two-year-olds milking with first calf, and one cow kept for progeny.

During the year they produced 5,555.25 pounds of churned butter, or an average of 325.6 lbs. per cow. The most careful estimates of the whole milk fed to calves and used in the household show that had the entire product of the herd been manufactured into butter, that the yield would have averaged at least 340 lbs. per cow.

The butter was sold at ½ cent below the Elgin market until Nov. 1st, since when full Elgin prices have been paid; $1,231.96 has been received from the sale of butter, or an average of $72.47 per cow, exclusive of butter used in the household. The winter ration of the cows consisted of an average of 7 lbs. grain, principally bran and ground barley, equal parts, by weight. In the case of extra heavy milkers, 10 lbs. of this grain and 1 lb. oilmeal were fed.

Their roughage consisted of all the mixed hay and silage that they cared to clean up. In summer they had excellent blue grass and white clover pasture, supplemented with a little grain. Silage was added as the season advanced. They were sprayed daily during the fly season with a preparation of Zenoleum. At present we are feeding silage composed of corn and soy beans grown together; cured sorghum forage. and about 4 or 5 lbs. mixed hay for roughage. We hope to have some alfalfa hay next year.

Our favorite grain feed is the barley and bran mixture, with a little oil meal. We are feeding it to young calves with satisfactory results.

Any one who applies the teachings of the DAIRYMAN in a practical manner can milk cows profitably.

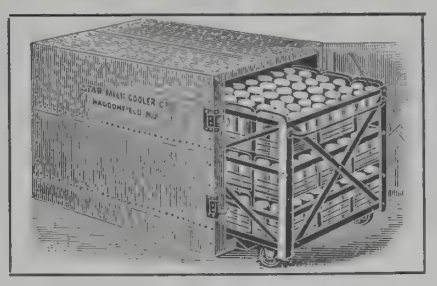
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IF SO, you have felt the need of a convenient, simple and handy Record Sheet. We have had so many requests for these Record Sheets that we concluded to get up one that would "fill the long felt want." We have a very simple and complete Record Sheet for 10 cows, one month, that is printed on heavy Manilla Paper, we can send postpaid at following prices:

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HOARD'S DAIRYMAN.
FORT ATKINSON, WIS.



The Distribution of Skim Milk.

It is known that the just complaints of creamery patrons on account of unfair distribution of skim milk are the bane of the separator creamery business. Further disputes among patrons, annoyances to managers, hindrances to the best work of buttermakers, watering the skim milk, and many other ills in the same train are unnecessary, since the

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has for more than five years been successfully solving the problem in many different creameries. When a patron has dropped in his check he can pump the amount of skim milk called for by his check, less the percentage taken out as cream, so in like proportion to all other checks. Its measuring apparatus is just an ordinary pump which everyone understands and knows how to operate.

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General Sales Agents De Laval Alpha Separators,
FORT ATKINSON, WIS.

Ohio Dairymen's Association.

ED. HOARD'S DAIRYMAN:—The Ohio State Dairymen's Association will hold its annual meeting in Townshend Hall, Ohio State University, Columbus, O., January 27, 28, 29, 1904. Everything looks towards the banner meeting of the Association. The large room that is used as the agricultural museum, was about filled with dairy supplies and exhibits last year. This year, the entire space of this room has been taken up by applicants for space, and the adjoining room has been set aside for the over-flow exhibit.

The donation from the supply-men for the pro-rata fund has already exceeded that of last year. The following have given to this purpose:

Colonial Salt Company, Akron, O.....	$25.00
The J. B. Ford Co., Wyandotte, Mich ...	15.00
D. H. Burrell & Co., Little Falls, N. Y...	20.00
Heller-Merz Co., New York City.....	10.00
Diamond Crystal Salt Co., St. Clair, Mich.	10.00
DeLaval Separator Co., New York City..	10.00
P. M. Sharples, West Chester, Pa.....	15.00
Worcester Salt Co., New York City.....	10.00
Great Southern Hotel, Columbus, O.....	10.00
Total.....	$125.00

Last year, the Association guaranteed the pro-rata would be fifty dollars. The Secretary expects it to exceed $200 this year. If a good pro-rata fund will bring a large exhibit, a large number of buttermakers, cheesemakers, cheese-factory and creamery owners, we ought to have a crowd this year, at the meeting.

With the same number of exhibitors we have had in the past, the winners will probably get a larger slice of the good stuff than the winners in some of the other states, which have a very much larger pro-rata.

The program is to be supported by some of the best men the country affords and are, on the whole, the men that are known to take conventions right with them The program has not all been arranged yet, but it will soon be ready for distribution. D. A. CROWNER,

West Jefferson, O. Sec'y-Treas.

Waiting for the Oleo Decision.

ED. HOARD'S DAIRYMAN:—Another chapter has been added to the history of the dairymen's fight to protect their industry from the encroachment and fraudulent sale of a spurious substitute for the product of the dairy.

In the argument just finished before the Supreme Court in which the oleo manufacturers seek to have our present oleomargarine law declared unconstitutional, another event is chronicled that in the end will go to make up the record of one of the most persistent and aggressive efforts by the oleomargarine manufacturers, met by the most determined resistance of the dairymen ever known. For five years has the conflict been waged through justice, district and federal courts, before state and national legislatures, and now before the Supreme Court—and yet there is no end in sight.

In the meantime, while awaiting a decision, one of the greatest industries in the country stands wavering and uncertain, not knowing just what to do. Seven thousand creameries in the United States don't know whether to branch out and increase their output or be prepared to put out the fires under their boilers, lock their doors and turn their attention to other lines.

Thousands of manufacturers of dairy and creamery machinery, with a vast army of workmen, don't know whether to go on and prepare for a big season's trade by making a big surplus of goods to supply a big demand, which is sure to exist, providing the fraudulent sale of oleomargarine can be prevented, or whether to await the result and have a shortage of goods for the coming season. Ten thousand commission men with their assistants, don't know whether to get ready for next season's trade by enlarging quarters or improving their facilities to better accommodate their trade, for the reason they don't know whether there is going to be any dairy business to do or not; and above all, hundreds of thousands of dairymen throughout the country are in the same condition of uncertainty as to what to do.

It matters not what the ultimate decision may be, the present uncertainty is working a great injury to the dairy and other branches of business depending upon it. This is a gloomy picture to draw of the situation, but the facts warrant it. While we have an abiding faith in the justice of our cause, and that right will prevail, still no one can read the argument of the eminent counsel employed to break down our law and have the same feeling of security and assurance that our position is absolutely secure, as he did before reading it.

The feeling of uncertainty arises probably more from the eminence and number of the counsel employed, than from any new point they made in their argument. The benefits of the law are apparent to us every day in the way the markets respond to every little shortage in receipts. There being no substitute to fraudulently take its place, all demands must be filled with butter, and, although we have just passed through a year of unprecedented large make of butter and when there was never known to be such an immense amount in cold storage warehouses, yet the consumptive demand is gradually drawing from these stores and at a small profit to the holders, and indications point to the fact that all will be used and leave the market in a good healthy condition for the coming year.

Is there any reason why the organization that has been instrumental in bringing about these results should not have the hearty and united support of the dairymen and dairy interests?

S. B. SHILLING,
President National Dairy Union
Chicago, Ill.

Cocoanut Meal and Nutrium.

ED. HOARD'S DAIRYMAN:—Referring to inquiry and answer concerning above feeds, in your issue of Nov. 27, it may be of interest to some of your readers to know that cocoanut meal can be obtained of the India Product Food Co., 50 Chatham St., Boston, Mass. Nutrium is a powder prepared by the National Nutrient Co, of Jersey City, N. J., and consists of skim milk evaported at a low temperature. This company also puts out the same article in granular form. The Experiment Station has used both of these substances in compounding milk substitutes for dairy calves. P. H. S.

Amherst, Mass.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The Quotation Committee of the Elgin Board of Trade reported the official market firm at 25 cents. There were no offerings and no sales. The output of the district indicated a decrease of 3 per cent.

The former markets were as follows:

	Tubs sold.	*Price.*
Dec. 14, 1903.....	0	25
Dec. 15, 1902.....	0	29
Dec. 16, 1901.....	0	24½
Dec. 17, 1900.....	0	24½
Dec. 18, 1899.....	0	26

The annual caucus was held today, A. M. C. Todson presiding. The Nominating Committee was composed of H. H. Hopkins, chairman; F. B. Cornell, F. A. Carr. The following ticket was placed in nomination:

For Board of Directors—John Newman, G. H. Gurler, W. W. Sherwin, George Reed, M. Richmond.

For Committee of Arbitration—C. S. Kilbourne, A. Nolting, F. B. Cornell, J. P. Younger, D. C. Woolverton.

For Committee of Appeal—C. H. Potter, G. F. Oatman, T. W. Brennan.

The annual election occurs next Monday. H. C. B.

Elgin, Ill, Dec. 14.

IS there going to be a Farmers' Institute, Convention, Farmers' Club, or Patrons' Meeting near you? If so why not take a few copies of Hoard's Dairyman for distribution. A good club of subscribers can be secured at these meetings with less trouble than at any other time. Drop us a card about ten days before meeting saying how many sample copies you want for distribution. The rates of subscriptions sent in clubs are:

TWO SUBSCRIBERS, $1.50 THREE SUBSCRIBERS, $2.00
FOUR SUBSCRIBERS, $2.50 FIVE SUBSCRIBERS, . $3.00

Send for the Samples.

WISCONSIN FARMERS' INSTITUTE BULLETIN NO. 17

Is now ready for distribution. A 320 page hand-book for the farmer and stockman. Treats of the dairy, sheep and swine husbandry, horse breeding, poultry, fruits, etc.
To Wisconsin farmers—25c for cloth bound and 10c for paper covered copies. Outside of Wisconsin—40c for cloth bound and 25c for paper covered copies.

Address GEO. McKERROW, Supt., Madison, Wis.

Virginia Farms

Productive soil, delightful climate. Free catalogue.
R. B. CHAFFIN & CO., Incorp., Richmond, Va.

Milk Flow Shrinking.

A Remedy Suggested.

ED. HOARD'S DAIRYMAN:—On page 979, J. M. T. wishes to know what is the matter with his cows, which go off their feed soon after freshening, and are drawn up in the flank, with their eyes sunken.

Having had a number of cows similiarly affected, I would say that the treatment that has always given satisfactory results is Epsom salts, in quantities sufficient to thoroughly soften the droppings. If he will give physic immediately after calving, he will prevent the attack.

Gouverneur, N. Y. J. E. H.

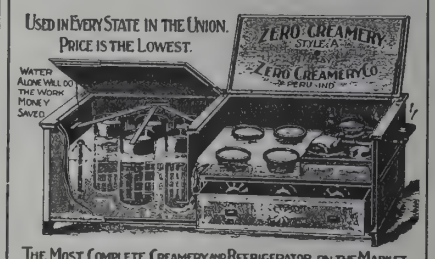
Note and Comment.

Using a Smoothing Harrow on Corn.

ED. HOARD'S DAIRYMAN:—On page 997 T. R. W. asks about using a smoothing harrow on just coming up corn, if it is safe, and other kindred matters. Certainly it is safe, if the field is free of trash and small flat stones that otherwise would lodge among the harrow teeth and become little shovel plows. We harrowed our corn for years, before we ever owned a weeder, and use it now, more than the latter. The only trouble about the harrow on good soil is tearing up the corn by the roots and that because of hill and shallow planting, and that is avoided by rolling the land before marking and planting the corn full two inches deep. Right behind the planter run the weeder, and if the weather will warrant follow the weeder with the roller again to make soil compact, push small stones, etc. into the soil.

Keep watch of the sprouting corn, and when it has a good show of a root and a stub of a sprout, harrow the land and that kills a countless million of weeds that have sprouted on the surface and makes finer the surface soil. Weeds never germinate anywhere else. When the corn rows show, harrow again. Use the regular, straight tooth harrow with teeth set up and down, and never slanting. Do not have the teeth sharp. A somewhat dull tooth is the best. Drive lengthwise of the rows, drive very slow so that there will be no snap or jerk to the harrow, and then always harrow after dinner when the sprouts have been toughened. Night air and dew make them brittle and tender and easily broken off. Then the fine dirt both sides of the corn row made by marker, planter and

REFRIGERATOR



THE MOST COMPLETE CREAMERY AND REFRIGERATOR ON THE MARKET.

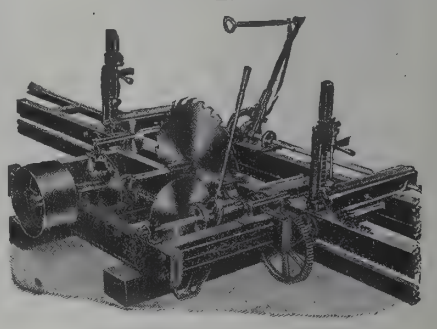
Simple and durable.

It is the only device that is worth the money.

Recommended by the largest Dairymen and experiment stations. Strictly high class. For Catalogue and prices address

ZERO CREAMERY COMPANY,
PERU, INDIANA.

ILLUSTRATION



THE DE LOACH PONY SAW MILL.

The illustration herewith, is of a small size saw mill manufactured by the De Loach Mill Mfg. Co., of Atlanta, Ga., who advertise regularly in our columns. It is known as their Pony Saw Mill, which will run with as low as four horse power and cut a matter of 2000 feet a day, thus well adapting it to the individual lumberman's use. It can be operated as well with any horse power up to 20 and reach a capacity of 10,000 feet of inch boards a day. We give the illustration merely as a suggestion of the business of the De Loach Company. They manufacture a long line of mills of all capacities. They have the largest saw mill manufacturing plant in the world, and being located in this new southern city where labor is cheap, and the best materials of every character are abundant, they have every facility for turning out, as they undoubtedly do, the best line of saw mills in the world at low prices. They also utilize this wealth of resource to the full in making shingle, lath and planing mills, edgers, water wheels, grinding mills, gearings, etc. It is a good concern to look to for every article of machinery of this general character. A large saw mill and a general machinery catalogue giving detailed information will be sent free to any one writing for it.

roller will comb in very nicely about the sprouts and few will be injured.

Now, within the next four days cultivate, and put a cross bar onto the cultivator, so that by no chance it can go into the soil over two inches. The next time use the weeder and again the cultivator, and then for the last time the harrow and from then on alternate weeder and cultivator. About six of these alternate workings will give an acre of corn what may be called perfect culture, and the six workings with weeder, harrow and cultivator combined, need not require over five to six hours, half as long as one hand hoeing, and the weeder and harrow have done six men's work in weed killing, and that is all we cultivate for anyway—the rest is incidental.

Ohio. JOHN GOULD.

DAIRY MARKETS.

ELGIN, Ill., Dec. 14—Butter ruled firm on the Board of Trade this afternoon, selling at 25c a pound, the same as last week. Sales in the region for the week were 450,000

CHICAGO, Ill, Dec. 14—Butter—Steady; creameries, 16@25c; dairies, 14@21c.

Cheese—Steady; Daisies, 10¼@10½c; Twins, 10c; Young Americas, 10½c.

Eggs—Firm; at mark, cases included, 25@27½c.

Cattle—Choice to fancy beeves, 1,200 to 1,400 lbs. 5.25@5.75; good to choice heavy steers, 4.50@5.00; fair to good export and shipping steers, 4.40@5.10; medium beef steers, 4.00@4.30; plain beef steers, 3.65@3.90; common to rough, 1,000 to 1,200 lbs. 3.30@3.60; good to fat heifers, 3.85@4.10; good to choice feeders, 3.35@4.10; good to plain stockers and feeders, 1.75@3.25; fair to good cows and heifers, 2.70@3.70; good cutting and fair beef cows, 2.20@2.60; common to good canning cows, 1.25@2.10; bulls poor to choice, 2.40@4.35; calves, choice to fancy 4.50@5.50; calves, common to fair, 2.50@4.25; corn-fed, western steers, 4.00@5.35; Texas bulls and grass steers, 2.75@3.80; fed Texas steers, fair to choice, 3.40@4.50.

Hogs — Good to choice heavy packing, 4.00@4.70; fair to good heavy packing, 4.50@4.65; rough and common heavy mixed, 4.35@4.45; assorted light, 150 to 195 lbs., 4.45@4.62½; good to choice butcher weights, 4.55@4.70; fair to choice light mixed, 4.40@4.60; thin to choice 50 to 120 lbs., 4.05@4.40; stags and rough lots, 3.00@4.15.

MILWAUKEE, Wis., Dec. 14—Butter—Creamery, extras, 25c; firsts, 23@23½c; seconds, 21@22c, renovated (process), 18@19c. whey, 10@12c. Dairy fancy, 19c; lines, fresh, 16@17c; packing stock, 13@15c; grease, 5@6c.

Cheese—American full cream, new: Twins, 10@10½c; Young Americas, 10½@11c; Daisies, 11@11½c; Longhorns, 11@11½c; low grades, 7@9c. Brick, new, fancy, 10@10½c; low grades, 7@9c; Limburger—New, fancy, 10@10½c; off goods, 8@8c Swiss—Drum, choice, 12@12½c; Drum No. 2, 10@11c; block, choice, 11@11½c; block, No. 2, 9@10c.

Eggs—Strictly fresh laid, loss off, cases returned, 25c; strictly fresh laid, at mark, cases returned, 22½@23c; storage, city, Apr. No. 1, 23c; storage, country, 20@21c; dirties and seconds, 19c; checks, 17c.

MANITOWOC, Wis. Dec. 9—Cheese—Sales on the Dariy Board were: Forty-five Twins at 9¼c, 350 boxes Young Americas at 9¾c, 600 boxes Daisies at 10¼c.

ST. LOUIS, Mo., Dec. 12—Butter—Extras, at 26c; firsts, 23c; seconds, 20c.

Cheese—Cheddars, at 11½c; Young Americas, at 11½c; Twins, at 11½c; Daisies, at 12c; Long horns, at 12c.

Eggs.—Firm and scarce at 27@28c.

NEW ORLEANS, La., Dec. 11—Butter—Extras, 26@26½c; firsts, 23c; seconds, 20c.

Cheese—Young Americas, 12c; Twins, 11c; Daisies, 11½c.

Eggs—Fresh, 30c; storage, 26@27c.

PHILADELPHIA, Dec. 14—Butter—Firm; good demand; extra western creamery, 25@25½c; near-by prints, 27c.

Cheese—Steady but dull; New York full creams, fancy, 11¾c; choice, 11½c; fair to good, 10¾@11¼c.

Eggs—Strong; 2c higher; fresh near by, 34c; at the mark; western, 34c, loss off; southwestern, 33@34c; southern, 31@32c.

KANSAS CITY, Dec. 14.—Eggs—Fresh, 28c.

Butter—Creamery, 21@22c; dairy, fancy, 20c.

BOSTON, Mass., Dec. 14—Butter—Creamery, western, extra, 24@24½c; western firsts, 22c; storage, 21@23c; dairy, 15@19c; western ladle, 14@15½c; box and print 16@25c.

Cheese—Choice, 12c; Wisconsin Twins, 11@11½c.

Eggs—Fancy nearby, 40c; western 26@32c; poor to fair, 20@25c; dirties, 16@22c; refrigerator, 21@26c.

NEW YORK, Dec. 14—Butter—Recipts, 5,442 pkgs.; steady; extra, creamery, 25c; creamery, common to choice, 16@24½c; state dairy, 15@22c; held creamery, 16@22c.

Cheese—Receipts, 2,047 pkgs; quiet; state full cream, fancy, small, colored, September, 12c; late made, 10c; small, white, 12c; late made, 10c; large, colored, September, 12c; late made, 10c; large, white, September, 12c; late made, 10c.

Eggs—Receipts, 4,088 pkgs; strong; state and Pennsylvania, nearby, average best, 34c; state and Pennsylvania, seconds to firsts, 28@32c; western seconds, 28@30c; western firsts, 31@32c; refrigerated, 23@27c.

NEW YORK MARKET.

NEW YORK, Dec. 12—Butter—Receipts for the week, 32,269 packages. Exports for the week, 926 packages.

Conditions were about the same as last week, with perhaps a trifle easier feeling on all grades of freezer butter. Fancy fresh creamery was marked up a half cent early in the week and later dropped back to 25c and at the close there is more of this style butter in stock than any time this winter and prices are barely steady. June goods have been freely offered all the week and some full sales are reported at 21 to 21½c, but the general market is dull ahd lifeless with some goods selling at 20 to 20½c.

Market closes with big stocks of all grades butter and prices in buyers' favor. We quote:

Creamery, fresh, extra, 25c; medium, 22@24c; poor, 18@21c; creamery, 'June extra, 22c—; medium, 20@21c; poor, 15@18c. New York Dairy, extra, 22@23c; medium, 18@20c; poor, 14@17c.

Cheese—Receipts for the week, 32,707 boxes. Exports for the week, 6,991 boxes.

The receipts were heavy this week, but were largely made up of November make full creams and skimmed cheese; these kinds were pressed for sale, home buyers taking the full creams at 9 to 10c, and exporters paid 3 to 9c for very poor to very finest skimmed cheese. Fancy September cheese are firmly held and are only offered to buyers willing to pay 12c, and some special marks are held a fraction higher. We quote:

Full cream, extra, 12c; medium, 10@11c; poor, 6@9c.

Eggs—Receipts for the week, 36,415 cases.

High prices have curtailed the consumption and the demand is very light and prices easier for all grades. We quote:

New York & Pennsylvania, new laid per doz., 30@33c; Northern & Western, new laid, 30@31c; all sections, poor to good, 20@28c. refrigerator poor to good, 18@26c.

177 Chambers St. DAVID W. LEWIS & Co.

NEW YORK FERTILIZER MARKET.

Fish scrap, dried, 11 p. c ammonia, per ton	@
and 15 p. c. bone phosphato	2.40 & 10
wet, acidulated. 6 p. c. ammonia	2.15 & 35
Azotine, per unit	2.60@ 2.65
Tankage, 9 and 20 p. c. f. o. b. Chicago, per ton	21.00@22.00
Tankage, 8 and 20 p. c. f. o. b. Chicago	18.00@19.00
Tankage, 7 and 30 p. c. f. o. b. Chicago	15.00@16.00
Tankage, 9 and 35 p. c. f. o. b. Chicago	14.00@15.00
Garbage, tankage	7.00@ 9.00
Dried blood 12-13 p. c. ammonia	2.50@ 2.55
Dried blood, high grade	2.65@ 2.70
Nitrate of soda for 100 lbs	2.15@ 2.25
future	2.15@ 2.12½
Acid phosphate	60 @ 67½
Phosphate rock, f. o. b. Char'n	5.00@ 7.00
Tenn	3.50@ 4.50
Bones, rough ℔ ton	16.00@17.00
ground	20.00@21.00
Bone meal	21.50@23.00
steamed	22.00@23.00
Bone black, refuse	19.00@19.50
South Carolina phosphate rock, ground per 2,000 lbs. f. o. b. Charleston	6,50@ 7.75
South Carolina phosphate rock, undried, f. o. b. Ashley river, per 2,400 lbs	3.50@3.75
do, dried	3.75@4.00
Muriate Potash, 80 p. c. ℔ 100 lbs.	1.83@ 1.86½
Muriate potash 80 p. c., future	1.80@ 1.90
dbl. m're salt 48@53%	1.12@ 1.15
dbl. m'ure salt 48@53% less 25 tons	25.00@30.00
sulph. of basis 90@98%	2.11@ 2.14
90@98% less than 25 tons	38.00@40.00
Sulphate potash (basis 90 p. c.)	2.08@ 2.20
Sylvinit, 30@36p. c ℔ unit	.39@ 40
Kainit	8.95@ 9,50
Kainit, in bulk	9.50@ 9.60
Kieserit	7.00@ 7.25

BALTIMORE MARKET.

BALTIMORE, Dec 10.—Butter—There is very little, if any, change to note in the condition of the market this week. A continued scarcity of all desirable table grades still prevails, and it would not be surprising to see still higher prices. Many seem to be of the opinion, however, that stock is high enough, and a further advance would prove detrimental. There has been considerable inquiry for fancy Junes and other desirable held creameries. Imitation creamery continues in light supply. Ladles, when the quality is satisfactory, find ready sale at full values. Rolls—All fresh, sweet, nicely handled stock is eagerly sought after. Packing stock is in moderate receipt; all good to choice offerings meet ready sale. Blocks and prints—Choice to fancy invoices are in quick demand. The market in general closes in good shape and very firm on all desirable offerings.

Creamery separator, extras, 26c; firsts, 24½@25c; seconds, 20@23c: Held creamery, extra, 24@25c; firsts, 22@23c; seconds, 18@21; imitation creamery, extras, 20c; firsts, 18@19c; seconds, 14@16c, Iowa & N. W, Ladle, extras 16½c., firsts, 15@15½c; seconds; 13@14c; Ohio & Indiana Ladle, extras, 16c; firsts, 15c; seconds, 13@14c Roll Ohio, extras, 17c; firsts, 16c; seconds 13@14c Roll, W. Va., firsts, 16c; firsts, 15c; seconds, 13@14c. creamery blocks (2 lbs.) extras, 27@27½c; firsts, 25@26c; seconds, 22@24c. Creamery prints, (½ lbs.), extra, 28c; first, 26@27c; seconds, 22@24c; Md, Va. & Penna prints, extras, 26@27c; firsts, 23@25c; seconds, 19@22c. Renovated butter, extras, 19c; firsts, 17@18c; seconds, 15@16c.

Eggs—At the time of our last issue the market presented a rather unsettled appearance; but since that time, with the receipts of strictly fresh laid eggs very light and quite a good demand at 30 cents, the market appears to be in better shape on choice to fancy stock, while held and mixed are in ample supply and have to be sold at slightly reduced prices in order to prevent accumulation. Storage Eggs—The supply of choice to fancy stock is pretty well exhausted, but stock of medium quality is very much in evidenc and slow sale. G. M. LAMB & BROS.

301 Exchange Place.

SAN FRANCISCO MARKET.

SAN FRANCISCO, Dec. 7—Business throughout the market for Dairy Products was quite seriously hampered yesterday by the closing of many of the largest public eating places and the general tone was more or less easy. Jobbers purchasing limited quantities of the better grades of butter for the family trade furnished the principal movement noted during the day. While prices for this quality of stock showed no marked reductions a certain easiness was apparent and the top rate was only obtained for a few of the most favored brands. The market for the under grades, and the qualities used by the restaurant trade, was depressed, with values irregular and holders endeavoring to urge business by accepting almost any reasonable figure. In the market for eggs trading was sluggish, and while the top quotation was still obtained in a small way for extra ranch, large buyers readily filled orders with 52c as the extreme. Cheese was quiet at former prices.

Receipts yesterday aggregated 25,000 pounds butter, 665 cases eggs and 4,700 pounds of cheese.

Butter—Creamery, extras, 28@29c; good to fancy, 25@27c; dairy, extras, 23@24c; dairy, choice, 21@22c; store, 18@20c; California storage, 24@27c, eastern creamery, 23@25c.

Eggs—Ranch, selected large, 52@52½c; good to choice, 45@50c; store, nominal; California storage, 28@32½c; eastern, 25@30.

Cheese—California creamery, mild, new, extra, 14@15c; mild, new, choice, 13½@14c: Young America, 14@15½c; eastern, New York, Cream, Cheddars and Flats, new, 14½@16c.

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 1901

THE BEST AND BIGGEST USERS EVERYWHERE USE THE

De Laval

Cream Separators

They get the Best Results and Biggest Profits through doing so—that's the whole story in a nut-shell.

And so it must be in proportionate degree with every user—whether big or little, farm or factory.

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248 McDermot Avenue WINNIPEG.

READING NOTICES

All Reading Notices under this head are at the rate of 25 cents per line.

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D, Independence, Ia. 50-tf

For Sale or Rent—Dairy farm of 200 acres, 90 improved. $1.50 per hundred for milk year around. Address J. P. SOUTHARD, Harbor Springs, Mich. 42-10

For Sale—10 cheese factories, 5 farms 40 to 160 acres, saloon, dance hall and store. FRED HADLER, 775 Ida St., Appleton, Wis. 43-tf

For Sale Cheap—Milk route retailing 200 quarts a day at 6 cents a quart. Net proceeds $150 per month. A splendid business opening. Apply J. L. FISHER, Janesville, Wis. 43-3

Wanted—A man to manage a dairy and farm of two hundred acres. Good milk route, complete outfit of stables, silo, milk room and water supply, most conveniently arranged. Adjoining city limits. Applicant must have some capital and satisfactory references. Address R. E. D., care Hoard's Dairyman. 44-2

For Sale—Four officially tested Holstein cows, also two yearling bulls. Sire and dams, advance registry. FRANK BREWSTER, Bowers, Wis. 45-2

Wanted—A competent man with three or four good milkers in the family to care for a dairy of 50 cows, commencing the first of the year. Write to me at once. Ship milk. A. P. BOOTH, Festus, Mo.

Would like to engage with creamery wanting butter maker, or creamery wanting traveling salesman in creamery supplies or agricultural line of any kind. References furnished. Address W. C. S., Box 118, Mohawk, N. Y.

Rare Opening—Controls Southern Piedmont, city of 25,000. Suburban dairy farm, herd, stock and complete outfit. Wholesale contract at fancy price. Sell all or half. Owner disabled. Write to "PIEDMONT," care Hoard's Dairyman.

Wanted—Position by single, middle aged man who understands dairying in all its branches; butter and cheese making included. Address P. R., care Hoard's Dairyman.

For Sale—Cheese factory, complete. M. S. MORSE, Williamsfield, Ohio. 45-4

Wanted—An experienced man, good milker and willing to work, on a dairy farm and other general work. GEO. A. STIVARIUS, Stitger, Wis. 45-2

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For Sale—No. 3 Squeezer, Combined Churn and Worker, No. 7 Davis Swing Churn, dairy size Vermont Farm Machine Co.'s Butter Worker, 24 Bottle Turbine Tester, Milk Heater, Steam Pump, Weigh Can. All in first-class condition. ALEXANDER A. BRUSH, Danbury, Conn. 43-3

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Milk Business For Sale—A 70 gallon milk business for sale at a bargain if taken within the next six weeks. No cows, all milk bought. Address W. M. T., care Hoard's Dairyman. 44-2

Wanted—Practical dairyman of experience. One who thoroughly understands feeds and feeding and can feed for profit. Must be sober, good milker, active, and willing to work. State wages and experience and give references. Address CHAS. E. POLLEY, Van Tassel Farm, DuBois, Pa. 44-2

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Wanted—Position in New York or Vermont by experienced cheese maker. Best of references. CHAS. R. CONANT, Gransville, N. Y.

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For Sale Cheap—One 10-h. p. verticle boiler, one 8-h. p. verticle engine, one 2-roller Milwaukee one 4-roller McCormick corn husker, also portable steam sawing engine. Write for price and particulars. A. ZWEIBLE, JR., Burlington, Wis.

Dairy Questions Answered by Prof. Farrington.

TEST OF SALT.

"We have recently had a couple of barrels of new salt. From ordinary observation of this salt it seems to be all right. We have kept very close tab on the amount of butter sold and cannot see but what a ounce of it salted as much butter as an ounce of any other salt we have used. We have, however, made a test on which I would like your opinion. It was made as follows. We placed a teaspoonful of salt of each brand in glasses and dissolved them in water. We notice that one salt gave a much clearer brine than the other. I should like to know if the cloudy brine indicates that that salt has more impurities than the other. We presume these are minerals, such as gypsum, lime or something of that nature. Now the question arises with us, are these minerals detrimental to the butter and if so in what way? I am of the opinion that if they are tasteless and odorless they will not impart any bad flavors to butter or cause any defects to develop in the butter on account of them. Can you give us any information on this subject?" * * * *

Johnsons Creek, Wis.

The cloudy appearance of brine formed by adding water to salt does not necessarily show that the salt contains more or greater impurities than other samples which may show an entirely clear brine. The slightly milky appearance which is produced by disolving some salts in water is probably caused by a little sulphate of lime. This of course is not salt but very small quantities of it will not necessarily introduce any bad flavors into the butter or be of any particular damage to the quality of the butter. Salt may contain some injurious substances which will completely dissolve in water and give a perfectly clear brine. It is not, therefore, safe to conclude that the simple dissolving of salt in water and noting the clearness or cloudiness of the brine will show which one of the two salts is better that the other. Magnesium chloride is entirely soluble in water and its appearance in salt will not be shown by producing a cloudy brine when it is dissolved. This substance, however, is much more injurious to salt than sulphate of lime which will not dissolve in water and may be the cause of a cloudy brine. This test is not an absolute proof of good or bad qualities in salt although salt which contains nothing but sodium chloride should give an entirely clear brine.

Questions regarding the exact purity of butter salts may be decided by having samples of them analyzed by some chemist. It is not safe to apply a general statement to all samples of salt but each one should be considered by itself.

COMBINED CHURN VS. TABLE WORKER

"This creamery produces about 10,000 lbs. of butter per month and has for many years used a square box churn and Mason worker. A combined churn and worker has been suggested and I write to know if you will advise me whether such a change would be wise when butter is handled in such large quantities. We do not like to experiment in this matter nor disturb the very uniform, good quality which our butter now possess. What advantages, if any, are there to be obtained from a combined churn over the table worker? * * * *

Canton Ctr., Conn.

There are a number of factories in this state, making from 1000 to 3000 pounds of butter per day. In most cases they use the combined churn and worker with good results. I think you will have no difficulty in changing your practice from the old style box churn and table worker, to the use of a combined churn and worker, if you have a teachable man and one who is willing to learn from his own and other people's experience. The fact that these combined churns are extensively used in large factories in many places, is good evidence that they have proved to be satisfactory and do not injure the quality of the butter in any way. It is probable that a butter maker may not get butter of the same grain and texture the first few days he uses the combined churn, that he has been accustomed to get with the old table worker, but after a little experience, I am sure that he will find the combined churn and worker a very satisfactory machine to have in a creamery.

One of the principle advantages claimed for the combined churn is the fact that in the hot weather of summer time, the butter can be worked without exposing it to the warm air as is necessarily the case when it is worked on a table worker. If the cream is churned cold, and cold water is used to wash the granular butter, the hard, firm texture which the granules retain by such treatment may be preserved, by holding it in the combined churn and doing the working there instead of taking it out and exposing it to the warm air of a hot room.

Another advantage of the combined churn is the opportunity the butter maker has to give the butter a uniform amount of working each time he makes a churning, as he is able with uniform temperature and the same size in granular butter each time, to work this butter a certain number of revolutions of the churn and worker and in this way be more exact in the amount of working each lot of butter receives than is the case when he uses a table worker.

A COMPLAINT ABOUT RENNET.

We are sending you a sample of rennet in which it is reported there is some kind of acid that is not usually found in pure rennet. We sell large quantities of it and would like to know if this is true.

Is there an easy way to determine whether cheese color is annatto or aniline? * * * *

Sheboygan, Wis.

The sample of rennet you sent us has been examined and we find that it contains .43 of one per cent acid. This is about twice as much acid as the rennet we are using at the dairy school contains.

We have also made a comparison of your rennet with ours to note its milk coagulating strength and find that at a temperature of 85° a given quantity of your rennet coagulates milk in 54 seconds while ours will coagulate the same amount of milk in 42 seconds. We made several comparative tests at different temperatures and found in every case indications that the rennet you sent us is a trifle weaker than that we are using. A comparison of the two indicates that such rennet as you sent us should be used in the proportion of about four and one-half ounces to a thousand pounds of milk at this season of the year.

There is quite a difference in the acidity between your rennet and that we are using, but when we consider what a very small quantity of rennet is used in cheese making, that it is three to four ounces to a thousand pounds of milk, I do not see how it is possible to claim that this difference in acidity would have any appreciable effect on the coagulating power of the rennet. The amount is so extremely small that the difference in acidity will not probably have any effect on the milk.

It is not possible for us to determine whether the acid in your rennet is different from that ordinarily used in rennet extract. I do not know as the kind of acid will have much effect on the coagulating power of rennet. Lactic acid is sometimes used in rennet and the coagulating action of rennet takes place as readily in the presence of lactic acid as of muriatic and possibly other kinds.

There is no easy way of determining the difference between annatto and aniline colors that I know of. They are both organic compounds and while the difference between them may be discovered by an expert analyst, no factory method which may be applied by the general public has been suggested up to the present time.

IS MILK BENEFITTED BY THE SEPARATOR?

Can you tell me what is the composition of the substance which is deposited in separator bowls when milk passes through them? Is this substance a normal element of pure, healthy milk, essential to its natural condition or is it a foreign substance? Does its removal in any way benefit the quality or condition of the milk and improve it as an article of food? Have you ever made an analysis of this bowl slime and if so, what does it contain?

Does running milk through a separator improve it for bottling? Would you advise running the milk directly through a separator while it is still warm from the cow, or should it be cooled, aerated and then warmed up a second time for separating? What is the best plan for mixing the cream and skim milk as it comes from the separator so as to get the most perfect fusion of them into milk?

If milk has been properly drawn in hygienic and sanitary pails, thoroughly strained through many wire strainers, cloths, and absorbent cotton, well aerated and cooled after it is drawn, do you still consider it necessary or advisable to run such milk through a separator to clarify it?

Ashville, N. C. * * *

The questions you ask in regard to milk would require a letter of considerable length to answer them in a satisfactory way. I may say briefly, however, that many analyses of separator bowl slime have been made and you can find them in reports of the different experiment stations. The substance which separates is highly nitrogenous in character and it is removed from the best and cleanest of cream. It apparently is a natural constituent of milk but it is in suspension and being somewhat heavier than the other constituents is deposited in the bowl instead of passing out with the skim milk or cream. There is such a small quantity of it present in the milk that I do not think its removal changes the food value of milk to any extent.

It does improve milk to run it through a cream separator, especially if it is to be bottled and sold at retail. This improvement is undoubtedly caused by the aeration which the milk receives when running through the separator.

I certainly should run the milk through a separator immediately after it is drawn from the cow and while it is still warm. This is much better than to allow the milk to cool and then warm it for separating. The skim milk and cream spouts of the separator are so turned that the cream and milk will both run into the same can and mix as fast as separated.

It has been found that milk which has been obtained under the very best conditions, where sanitary milk pails, absorbent cotton, etc., are used, may be improved by running it through the separator. The reason for this is found, I think, in the thorough mixing of the air with the milk which is done by passing it through the separator.

E. H. FARRINGTON,
Wisconsin Dairy School.

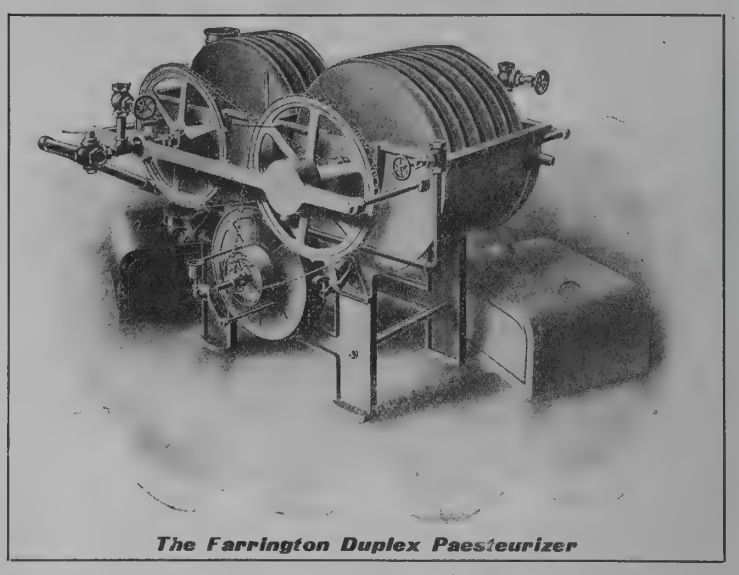
Note and Comment.

The Dual-Purpose Cow is Found.—Prof. Decker and the Ohio Dairy School.—The Farmer's Life and the Help Question.—Silage vs. Shredded Fodder—Continuous Stabling.

ED. HOARD'S DAIRYMAN:—Ewereky! it are found—the dual-purpose cow! No mistake about it, as the receipt for the same was given in a late, and most reputable stock journal, and more, the discovery of the process of breeding; and maintainance of this "long felt want" in cows is credited to Wisconsin, and not so very far from the DAIRYMAN office. It's awfully simple, when you come to know about it; and once in possession of, the farmer at once has a flow of milk going to the creamery, and a line of prime beef going to Chicago, and the two revenues united beat Standard Oil stock. To accomplish this, you need a dairy of good Short-horn cows and get a Jersey sire of approved breeding and cross on this dairy; raising all the best heifer calves, and in time breeding them back to their own sire. These heifers in turn are to be bred to the best type of Short-

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horn bull and his get bred back to him, and then a Jersey bull is to be again introduced and two breedings made to him. By that time the characteristics are so firmly intermingled, that one gets great and persistent milk yields, embodied in a beef producing form, and the offspring of this herd, like wireless telegraphy, goes profitably in any direction desired.

It is hard to understand why Frank Coburn has not secured some of this double and twisted, all wool, and 44 inches wide, dairy stock for the St. Louis Fair. The DAIRYMAN would be doing a great service in giving its readers some representative half tones of this remarkable Wisconsin, dual-purpose stock, warranted not to revert, or untwist.

"Note and Comment" would be very remiss in its notes, if mention was not made of the splendid dairy work, and the already far reaching influence of Prof. J. W. Decker at the head of our Ohio State University Dairy School, and the newer impulse he is giving to the dairy life of the state. Ohio as a dairy state—well, better say section—is somewhat "sot" in her traditions, and it needs a heap of teaching and preaching as well as example to turn her from old customs, but I think Prof. Decker is being recognized more and more as the coming dairy prophet, and his methods and practices endorsed. The dairy school under him is sending out classes of bright boys, and even older men, each of whom will carry the better ways learned to their localities, and the result is that the dairy sections are becoming "deckerized" to a noticeable extent, and no one is more willing to acknowledge the fact than the writer who has watched with interest his growing popularity, and with pleasure, and his coming to Ohio with more than common welcome.

A recent writer says that there are many compensations in a farmer's life,—fresh air, pure water, garden sass fresh from the soil, no strikes, anarchy is afar off, and he is outside of the "ring" where the strife between labor and capital is going on. That's all true, but it is not a compensation, when the tax man comes around, or when he wants hired help in, or out of doors. The rush to the city where all of the mentioned evils are being exhibited, is going on without abatement. This morning I counted twenty-five of the young men and women of our town going to the city-commuters to their "situations"—they do not call it work, and twenty-five more have previously gone, and to stay. It is an impossibility to-day to hire two good men in this vicinity.

It's all "shop talk" now, and it's having a serious effect upon the dairy industry, getting reliable hired help, and dairies are being reduced, and given up entirely, because of this exodus to the city. Can the city forever keep on devouring and assimilating this human offering, so largely sent from the farm? That now and then a millionaire comes to the country and sets up a "country seat," and spends thousands in establishing it, is no solution to this perplexing labor question. It actually adds to the scarcity of help, and the dairyman's discomfort.

Says one: "Break in the new emigrants." Yes, but if broken in, they quickly leave, and its more profitable to sell the dairy than to make dairy help out of wild Italians, Magyars, and unspeakable Turks. I can see as much clear sky as any one, but this farm help problem is unsolved, and I see no solution of it in sight. Who can see ahead?

The fellows who are still "agin" the silo as the best way to preserve the corn crop, are having their "whirl" about here this winter with shredded corn fodder, and the shredders were, and still are pretty busy. The feeding results are varied. Northern Ohio conditions of atmosphere are against the perfect curing of shredded fodder, necessary for its good keeping. A fine field of fodder near me was shredded into the big mow of the barn, and its sequel is best told in the words of the owner: "It began to mould right away; dried off the cows; and don't make very good bedding. It's the last I'll ever shred."

Yesterday a silo that had been emptied of its silage, was filled with shredded fodder. It was not wet down more than what moisture it would get from the snow that came from the field with it, and I shall watch the outcome carefully. I think the cost of cutting, and shocking in the field, and the after shredding and help—as shredding is so much slower a process, is as great as silo filling, and the wastage is about as great as when uncut fodder is fed, and in the instance noted, it turned out all waste, and all of this experimental bother, and often loss, is to try and get around building a silo, and owning up that your way is not as good as silage making. Some one has said that "it costs more in effort to keep out of heaven, than to attain it."

I want to thank Fred Schlappi for his defence of continous stabling of cows. I am sure that the real need of exercise, comes more from lack of ventilation and plenty of light, than any constitutional demand for it on the part of the cow. Yesterday a noted cow man was at the stable looking at things. "How long have these cows been in here?" "About two weeks." "Why, I do not detect any cow smell, or odor, how do you keep it down?" I don't try to keep it down. I take it up as fast as it forms, if it can form with dry floors and absorbents." "Tell me how," and we took him round to the floor-opening ventilator, and the indicator was telling as plain as it could, that the shaft was taking up about 1,000 cubic feet of air an hour. "Why, that's pulling all the time, isn't it?" "Yes, that's what its for." "How warm is it in here?" Just fifty now. It won't vary six degrees from that any time this winter. "Why won't it?" Well, all I know about it is that a well, floor-ventilated apartment, will be warmer, and at a more uniform temperature, and maintained with less fuel, than a room unventilated.

This floor ventilator is drawing off and up the shaft the damp, heavy air. The evaporation from a cow's body and breath, is about seven pounds a day from these two sources alone; carry this off as fast as produced, and before it has time to condense, and you have dry air. The intakes provide fresh air as fast as wanted, and you then have the proper conditions of warmth, and uniformity without chills, and extremes of temperature." Then he looked the cow veterans over to find bunches, spavins and knee boils, but returned gameless. "Water in front of the cows, silage pits not 30 feet away, and clover in the mows. Well, what do they want to go out for, after all?" I do not know, and for 15 years with all sorts of variations of the experiment, I have not been able to find out. To do this, one wants a stable floor of the best, with much bedding, sunlight, easy, comfortable ties, no ice water, and regularity in all care, milking and a study of cow individuality.

JOHN GOULD.

Ohio.

A Strange Malady.

Was it Caused by Corn and Sorghum Silage?

ED. HOARD'S DAIRYMAN:—Your answer to my letter did not say anything about the acetic acid in the ensilage, mentioned in the clipping sent you in my letter of inquiry. I have a matter of great importance to ask you about. This has happened since I wrote to you as referred to above. I built a hundred ton silo this summer; put corn and sorghum into same.

I commenced feeding that about two weeks ago; noticed nothing out of the way for about ten days, when some of my cows commenced to get sick. I never had cows act as they do now. Stopped feeding the silage four or five days ago. I will state that some of my cows ate the silage from the start, some ate some of it and some would not eat any at all. However, I first noticed four or five cows acted stiff, staggered about, trembled and the flank twitched continually. They did not refuse to eat. Partly dried up, and would fall down.

One got down and could not get up. After she had been down about a day I had her lifted up and braced up in stall so she could not get down, and is there now; shall take her out tomorrow and see if she can get about. I stopped feeding the silage and no more have taken the same complaint and those not badly affected are getting better. If I cannot use this silage I shall be at great expense this winter to buy grains, and have from first to last spent about $500 in building and filling this silo.

I was somewhat afraid of sorghum and had heard of the bad effects when fed green, but all my inquiries left me devoid of any information about sorghum ensilage (I mean against it). I had F. W. Woll's book on silage, and on page 31 it speaks of sorghum as superior silage.

I may be wrong in laying this trouble to the silage. Another thing, my cows have always been eager to get into the barn at feeding time, but as they commenced to get sick they (none of them), would come, and they had to be driven into the barn and sometimes it was hard to get them in. Since I stopped feeding silage and feed bran and cotton seed meal they come as formerly. I am at a total loss to account for this state of affairs.

I have read HOARD'S DAIRYMAN for some time and had high hopes of my silo for this winter. Now I dare not feed the silage, although I shall take one cow and try it again. Some of the cows that I fed say 20 pounds to each day never showed any sign of being sick when I stopped, and some that I did not feed 10 pounds to, were more sick than any. Those that were the worst were strippers, except one. The symptoms are trembling, stiffness all over, reeling and falling about just as if drunk, and finally down and can not get up, although they have good appetite, and show no other signs of being sick. Kindly let me know if possible.

Ocala, Fla. G. B. T.

We are as much at a loss to account for this strange malady as our correspondent can be. The symptoms in a way indicate poisoning, but not necessarily. We find it quite impossible to think that the silage is the cause of the trouble, partly because only a part of the cows are affected, but largely because corn and sorghum silage has been fed elsewhere so freely and without any results of a similar kind. We have never heard of any silage being so sour as to be unhealthful, and it stands to reason that if the acid in this silage was in any degree objectionable, the larger amounts eaten should have shown the most effect.

We do not feel at liberty to advise the indiscriminate and wholesale feeding of this silage under existing circumstances, but if the case were our own would experiment with it further in a cautious way and be governed by the developments.

A Washington Feeding Inquiry.

I am feeding my cows, grade Jerseys, 4 lbs. bran and shorts mixed, 2 lbs. oil meal, 20 lbs. of mangels, with all the oat and pea hay they will eat up clean. I feed the meal in the morning and the mangels in the evening. Am I feeding enough meal? T. L.

Seguin, Wash.

The best answer we can give to the above inquiry is to say, read carefully what we have written in reply to other inquiries.

At all events from the information furnished, we are unable to suggest any modification in the present style of feeding.


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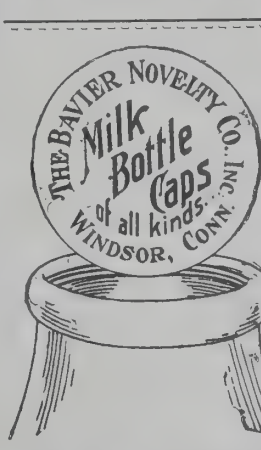

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Granite State Dairy Meeting.

(Continued from page 1015)

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John M. Pulsifer, Plymouth	1st
H. C. Smith, Plymouth	2d
Jos. W. Pulsifer, Plymouth	3d

SPECIAL PREMIUMS BY WORCESTER SALT CO.

CREAMERY BUTTER.

Kelsea Knapp Colebrook.

DAIRY BUTTER.

Monadnock Creamery, Monadnock.

SPECIAL PREMIUMS BY ALDERNEY BUTTER COLOR.

CREAMERY BUTTER.

E. L. Child, Cornish Creamery, Cornish Flat	1st
H. W. Sedgell, Hillside Creamery, Cornish	2d

DAIRY BUTTER.

Monadock Farms, Monadnock	1st
John M. Pulsifer, Plymouth	2d

SPECIAL PREMIUM BY INDIA ALKALI WORKS.

Kelsea Knapp, Colebrook.

SPECIALS BY VERMONT FARM MACHINE CO.

CREAMERY.

Kelsea Knapp, Colebrook.
H. W. Sedgell, Cornish.
Claremont.
W. C. Phillips, Sanborn Creamery, Leavitt's Hill.

DAIRY.

Monadnock Farm, Monodnock.
John M. Pulsifer, Plymouth.
G. E. Pulsifer, Plymouth.
W. B. Smith, Plymouth.

No. of entries of butter	65
No. of entries of cheese	15
Average score of butter	95 32-100
Average score of butter, creamery	95.7
Average score of butter, dairy	95
Highest creamery	98
Lowest creamery	90
Highest dairy	97¾
Lowest dairy	90

The following are those who share in the $25 to be divided pro rata among those not winning premiums. On account of the excellence of the exhibits the percentage to which this division was limited was raised from 93 to 94.

	Per Cent.
C. E. Hartford, Lancaster	95½
W. C. Pulsifer, Plymouth	95
C. D. Atwood, Lisbon	96
Contoocook Valley Creamery, Henniker	95
Mrs. A. J. Bachelder, Wilton	95
C. B. McClure, Munsonville	95
F. R. Sanders, Laconia	95½
G. E. Pulsifer, Plymouth	96½
Jos. W. Pulsifer, Plymouth	95¼
Woodsville Creamery, Woodsville	97
Peterboro Creamery, Peterboro	95½
W. B. Smith, Plymouth	96
Gilmanton Creamery, Gilmanton	96½
Lovell Lake Creamery, Sanbornville	96
Truman Gilson Creamery, Pembroke	96
C. H. Camp, Aerna	94
S. T. Noyes, Colebrook	94
O. J. Wilson, Keene	94
Plymouth Creamery, Plymouth	94½
F. P. Handy, Swanzey	94

The association cup offered for excellence in creamery butter was won by Kelsea Knapp of Colebrook.

WM. H. CALDWELL.

Peterboro, N. H.

The Indiana State Dairy Convention.

ED. HOARD'S DAIRYMAN:—The fourteenth annual meeting of this association was held Dec. 10 and 11, 1903, at Plymouth, the county seat of Marshall county, situated on the Pittsburg & Ft. Wayne R. R., 84 miles southeast of Chicago.

The weather was fine and the attendance said to be larger than at any previous meeting held by the association. At times there were nearly 300 present and the interest was good, much better than it had been at meetings of this kind for several years past.

The state of Indiana has not been much

MILK DEALERS COMBINATION Milk Protector, for cans or bottles. Prevents milk churning and souring in summer and freezing in winter. INVESTIGATE. S. C. Sullivan Mfg. Co., Erie, Pa.

PURE BRED SHORTHORNS
CHOICE BULLS FOR SALE.
Also Cows and Heifers bred to Clay Buttercup, 125881, a descendant of the Clay Family, champions at the World's Fair dairy test.
GEO. WENHAM, Fort Atkinson, Wis.

AYRSHIRE CATTLE of the BEST of BREEDING. Also Chester White Pigs, ready to book for season's trade. Young stock of both sexes. Prices reasonable. Come and see us.
F. TSCHUDY & SONS, Monroe, Wis.

REGISTERED GUERNSEYS Tuberculin Tested.
Standard bred Prices Low. **WHITE PLYMOUTH ROCKS**
J. G. HICKCOX,
700 Stowell Avenue. Milwaukee, Wis.

GUERNSEYS
REGISTERED GUERNSEY BULLS FOR SALE from Advanced Registry, and high-grade stock. Pedigree and price furnished upon application. All animals are tuberculine tested.
WOODEND FARM,
ST. BONIFACIUS, MINN.

GUERNSEYS FOR SALE.
The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

SPOTSWOOD GUERNSEYS
We offer some grand Imported Cows and Heifers, large and deep milkers and high testers; a fine lot of Heifers fit for service, and a few Imported Bulls from prize winners on both sides. Any animal in the herd for sale. Address WALTER JAUNCEY,
Spotswood Farms Broad Axe P. O., Pa.

OLD HOMESTEAD GUERNSEYS
Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.
Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL, Perry, Lake Co., Ohio.

Florham Guernseys.
The herd is made up of representative animals of both home and foreign breeding.
BULL CALVES,
from large producing dams for sale. Apply to J. L. HOPE, Supt., Florham Farms, Madison, N. J.

GUERNSEYS HADDON FARMS
Home of the noted GLENWOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

GUERNSEYS FOR SALE
Bulls two years old out of Count Topsy 24.27 lbs. butter 7 days. She won first prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

Hillsover Farm Guernseys.
FREDONIA, Chautauqua County, NEW YORK,
Bulls and Young Stock
FOR SALE.

ALTA CREST FARM, SPENCER, MASS.
Home of the Yeksa Family of Guernsey Cattle. Herd contains more cows with large records and backed by large records than any other
HERD OF
GUERNSEY CATTLE
IN THE COUNTRY
Herd headed by Primative 4909, a son of Primrose's Tricksey, Adv. Reg. No. 2, 592 lbs. butter in one year. Several Bull Calves from elegantly bred Dams at reasonable prices. Address
A. H. SAGENDORPH, Spencer, Mass.

GUERNSEYS FOR SALE.
Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.
JAS. H. BEIRNE, Oakfield, Wis.

THE BROWN BESSIE HERD Offers one bull 14 months old, sired by Recorder, 29239, the only living son of Brown Bessie and has 14 tested daughters. Dam, Relay, 70353, test 17 pounds 2 ounces. She a daughter of Diploma with 61 tested daughters. Also Berkshire Pigs of English and American selected stock.
H. C. TAYLOR, Orfordville, Wis.

KING OF ST. LAMBERT'S KING 30752
Sire of thirty-three tested daughters, is unquestionably the most prepotent of any Jersey sire in the land. We have for sale young bulls rich in his blood; also a few cows and heifers in calf, whose progeny will be attractive because of the "Hart's King" blood in them. For prices, etc., address
FRANK W. HART, CLEVELAND, OHIO.



JERSEY BULL CALVES.
Thrifty, handsome fellows, 7 to 12 months old, sired by Golden Blyth 3rd, 54569 A. J. C. C. a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Price low if taken at once, One of these calves is out of Mildred Micawber.
R. C. GREEN & CO., Albion, Wis.

MILK BUTTER
BILTMORE JERSEYS
ILLUSTRATED CIRCULAR OF YOUNG BULLS FROM SELECTED DAMS, with very reasonable prices attached, can be secured by sending a postal.
If they don't improve the milk and butter yields of your herd we offer your selection of another free of charge.
DON'T FORGET we are headquarters also for Berkshires and Standard Poulty. Apply to
BILTMORE FARMS, BILTMORE, N. C.
CONSTITUTION TYPE

WASTELAND GUERNSEYS
SPECIAL SALE
To reduce our stock we offer for sale a few Cows and Heifers. We also have some good Bull Calves sired by "Sir Coral" 5239, and "Glenwood's Sheet Anchor of Haddon" 6372. Write at once for description and prices.
M M. & E. J. HOLLINGSWORTH,
Landenberg, Chester Co., Pa.

Rosendale Guernsey Herd
TUBERCULIN TESTED.
Sixty head of choice Guernseys headed by Coralette's Son, (see page 450) whose dam, Coralette made 479.7 lbs. fat in one year at 3½ years old, and was first prize cow at Wisconsin State Fair in 1896.
Some fine young bulls for sale.
GEO. C. HILL & SON, Rosendale, Wis.

AMERICAN JERSEY CATTLE CLUB
OFFICES: 8 W. 17TH ST., NEW YORK
President, ELMER A. DARLING.
Secretary, J. J. HEMINGWAY.
BLANKS for Registering and Transferring Jersey Cattle; also Blanks for Private Butter Tests of Registered Jersey Cows, furnished free of charge upon application to the Secretary.
FEES for Registering: To non-members, $2 each head male or female. To members of the Club, $1 each head, male or female. All animals over two years old, double fee. For registration of all dead animals, $1 each. Imported animals, $25.
TRANSFERS are recorded free, if presented within 90 days from date of delivery. Transfers presented after 90 days, $1 each.
PRICE of Herd Register, $1 per Single Volume. Butter Tests of Jersey Cows, including all tests received by the Club to August 1, 1898, $2 per volume. Private Herd Record, 890 pages, cloth, leather back and corners, $2. Pocket Herd Record, 120 pages, flexible leather, 50 cents.
VOLUME OF BUTTER TESTS from August 1, 1898, to July 15, 1902, $1. Consolidated Volume, containing all previous tests, $2.00.
THE BY-LAWS of the Club, giving full rules to be followed in securing registration and transfers, mailed free on application.

FOR SALE A lot of solid colored, registered Jersey Heifers, either singly or by carload, cheap.
N. F. BERRY . . . LEXINGTON, KY.

JERSEY BULLS Now or soon to be ready for service; also several well bred HEIFERS. Let us send you prices and breeding, with milk and butter records. All stock is registered or eligible. E. E. STEVENS,
North Madison, Ohio

FOR SALE Son of Pedro's Pretty Pogis, 33660, A. J. C. C., a superb son of old Pedro, both of World's Fair fame. Two yearlings from tested dams. Some royally bred Poland China Pigs, March and April farrow.
J. Q. EMERY & SON, Albion, Wis.

ST. LAMBERT BULL CALVES by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.00.
W. J. HUSSEY, Mt. Pleasant, O.

HIGH CLASS JERSEY BULLS
Heifers and Cows for sale. My foundation stock the best I could buy from a herd famous for merit. Write for what you want.
WM. B. GOODRICH, CLIMBING HILL, IOWA.

PROSPECT HILL JERSEY HERD
The cow that can DO something is what the farmers want. Eight cows have finished their official year's work making an average of 524 lbs. each. F. H. SCRIBNER, Rosendale, Wis.

FOR SALE. Two A. J. C. C. Bulls ready for service; also some younger ones. Cows and heifers in calf to richly bred bulls. Write for pedigrees and prices. We have a few Berkshire Boar Pigs from unregistered sows left; cheap.
N. N. PALMER & SON, Broadhead, Wis.

POLLED JERSEYS
Richest Cow of all breeds in Pan-American Model Dairy. Winning Herd at Ohio and New York State Fairs, 1903. W. H. FORBES & CO., Yellow Springs, R. R. No. 1, Ohio.

But Two Bulls Remain
That are old enough for service. One combines the blood of Stoke Pogis 5th, "Exile", "Ida's Rioter", Mary Anne", "Naiad", "Crocus", Allie", and Mollie Garfield", and the other four crosses of "Eurotas", through three of her sons, with some of the best St. Lambert blood.
To induce immediate sale these are priced far below their worth. If in need it is for your interest to write for pedigrees, and to do it TODAY. Ask for Sale List A20.
WINTERGREEN HILL FARM
SCOTTSVILLE, N. Y.

VALLEY FARM Offers five Yearling Heifers sired by "Diploma's Victor 56310" and safe in calf to a grandson of "Golden Lad." Also 1 yr. bull. The 6 head in a young herd cheap to make room for Winter. Write for particulars to
FRED STUBLEY, Black Earth, Wis.

ROBINSWOOD JERSEY DAIRY has a few head of Young Jerseys, either sex, they are offering below their value, being overstocked. Also a few Barred, Buff, and White Plymouth Rock Cockrels, and one two-year-old Berkshire Boar, (registered.)
N. H. ROBINSON, Prop., Centralia, Wis.

HAZEL FERN HERD. A. J. C. C. Jerseys, blood of St. Lambert, Melia Ann, Combination, Pedro, and Golden Lad. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale.
ESTATE W. S. LADD, Portland, Oregon.

Just for Nothing
We will send you THE JERSEY BULLETIN and HOARD'S DAIRYMAN to the end of 1903. But while making you this generous offer, we wish you to do something.
Subscribe for both papers for 1904, at the lowest clubbing rate, $1.75 FOR THE TWO. To make it plain, send us $1.75 and we will send THE JERSEY BULLETIN and HOARD'S DAIRYMAN to January 1st., 1905.
For Sample Copy of Jersey Bulletin address Indianapolis, Ind.
"IT'S UP TO YOU!"

of a dairy state, though there have been for many years some few first-class dairymen, but the majority of the farmers are engaged largely in grain raising, and those who kept stock paid more attention to producing beef than milk.

But now beef is low, hogs are low and they are beginning to realize that raising grain to sell off the farm is a ruinous business, and the effect of it is plainly visible on many farms that were once naturally very fertile.

Thus it comes about that the Indiana farmer is beginning to take a lively interest in the dairy cow, and many are beginning to think that after all it may be possible that she can be made to return the most money for food consumed of any animal.

The first subject was

THE DAIRY BARN.

Mr. M. J. Rippey of Syracuse led off with an excellent paper. He prefers a basement with a "half bank," but with windows all around once in 8 feet, and have a provision for ventilation. The barn should be wide enough to have a drive way between the two rows of cows. They should face outward with feed mangers next the wall. He has cement floors and cement gutters.

There was quite a discussion concerning cement floors, many claiming they were cold and often caused garget by a cow lying with her udder on the cold floor. But Mr. Rippey said he thought it was all right if plenty of bedding was kept under the cows.

"The Value and Use of One of the By-products of the Dairy," was Mr. D. B. Johnson's subject. The by-product he talked about and which he thought was much more important than any other, was the manure.

He handled the subject in a masterly manner. He is an old Farmers' Institute worker and a ready talker. He says save all the manure, both liquid and solid. Get it on the land as soon as practical after it is made. Use it as a top dressing for grass or winter grain. Do not put on too thick. From 6 to 10 loads to the acre is enough, but it should be spread even and fine with a manure spreader.

Mrs. Charles Lamont had for her subject "Building up a Dairy Herd." She had a very nicely written paper in which she told of their early struggles with poverty and with land impoverished with grain raising, and of their final success in building up a good herd and bringing back the fertility to the soil. Two years ago her cows produced 255 lbs. butter each, last year 290 lbs., and when this year, 1903, is ended she is quite sure the average yield, heifers and all, will be 300 lbs.

CREAMERY PATRON INVESTIGATION

Drew the largest audience of the convention. It had been well advertised that this subject would be up Thursday afternoon, and a great deal of curiosity had been aroused. Close attention was paid for an hour and half while this subject and the discussion was on. It greatly astonished many persons to see what a difference there was between intelligent dairying and careless work.

TROUBLES OF A RETAIL MILK DEALER

Was J. B. Calom's subject. He presented it in a very humorous style which provoked much laughter. He made some excellent points. If you want your customers to be prompt and not hinder you, you must be punctual with them, and be there at the same time every day. He said he had got his patrons so well trained that he was able once, when he timed himself, to deliver milk to 50 customers in 55 minutes. His milk, of course, was in bottles.

RIPENING CREAM.

This was talked by C. F. Hostetter. There was nothing particularly new brought out. He said an even temperature during ripening was essential. He had it 72 to 75, and when ripened cooled it down. A skim milk starter was good, but he was inclined to prefer some one of the commercial starters. Mr. Slater also talked on starters. He put in 10% of starter and ripened at 62 degrees. Always had the same temperature winter and summer.

Mr. Rippey said cream would ripen and make good butter without any starter. He was told that might do for a private dairyman like him, but it would not do for a creameryman to think of doing that way.

Prof. H. H. Dean, Ontario Agricultural College, gave a very interesting talk on making butter from pasteurized milk or cream. He preferred pasteurizing the milk before it was separated. At the college they had experimented with different temperatures from 140 to 185 degrees. He preferred the latter temperature. The milk was heated up to that and run through the separator hot. This made always very close skimming, and the skim milk was also pasteurized.

Wis. C. P. GOODRICH.

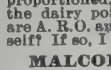
NO MORE RUBBING, stooping or boiling of clothes. The "1900" Ball Bearing Washer will wash a large tubfull of clothes in 6 minutes. An hour's wash in 20 minutes. The washing is done sitting down. You can try it free of expense, freight prepaid, no advance payment. "1900" Washer Co., 219A State St., Binghamton, N. Y.

Cream SEPARATORS All about them and other things for the dairy and creamery. A. H. REID, PHILADELPHIA

$1000 forfeited if our PERMANENT WEANER fails to cure your sucking cow or calf. PERMANENT WEANER CO. KINDERHOOK, N. Y.

BUY DIRECT FROM FACTORY, BEST
MIXED PAINTS
At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA.
President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.
FEES FOR REGISTRY.
TO MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.
NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. All blanks furnished free.
Life Membership, $25.
Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.
Address F. L. HOUGHTON, Brattleboro, Vt., for information relating to Registration of Pedigrees


HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

HOLSTEIN-FRIESIAN BULL CALVES
Do you want one for use this winter which will improve your dairy herd? Do you want him elegantly proportioned, with straight back, high rump, and all the dairy points? Do you want one whose relatives are A. R. O. and eligible to the Advanced Register himself? If so, I have a choice lot, just such as you want.
MALCOLM H. GARDNER, Darien, Wis.

AS IT IS NOW TIME cattle should be housed we find we must sell thirty-five of our high-bred large producing Holsteins, as we haven't room to stable but 100 head this winter. Visit the Brookside Herd now and secure something choice.
We Guarantee Stock as Represented and to be breeders. Quality unsurpassed. Prices will be reasonable.
STEVENS BROTHERS, Lacona, N. Y.

STAR FARM HOLSTEINS
Mercedes Julip's Pietertje Paul 2d advertised last week is sold. Mercedes Julip's Pietertje Paul 3d has arrived and is for sale, sired by the Champion Bull Mercedes Julip's Pietertje Paul. Dam is an in-bred grand-daughter of De Kol 2d. She has just completed an official butter record. Write for tabulated pedigrees, markings, etc., today. First acceptance takes him.
HORACE L. BRONSON, Cortland, N. Y.
Grand lot of cows, heifers, bulls and calves for sale.

GREEN VALE HERD Offers Sir Mercedes De Kol, No. 27097, four years old, and bull calves sired by him from choice cows, best families. Write for prices.
M. F. PECK & SONS.....MARSHALL, WIS.

LOOK HERE
34 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.98. 9 three-year-olds average 15.06 lbs. of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs. of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by Gem Pietertje Hengerveld Paul De Kol, or Sir Ormsby De Kol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days; average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd?
For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis. Residence: National Ave., near 40th. Phone, South 1601.

TYRANENA HERD
100 HOLSTEIN-FRIESIANS
A. R. O. STOCK FOR SALE.
Both sexes, all ages. Herd headed by Sir Piebe Hengeweld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz. Frank B. Fargo, Lake Mills, Wis.

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Offers 5 yearling bulls cows and heifers bred to oldest son of Mercedes Julip's Pietertje, No. 39480. Chester White Pigs in pairs and trios, not related.
W. R. GATES, Fort Atkinson, Wis.

HOME FARM HERD.
Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams, 25.1 lbs. butter in seven days. Herd numbers 125 head.
BEST FAMILIES REPRESENTED.
Special prices on six or eight bulls of serviceable age. W. B. BARNEY & CO., Hampton, Ia.

ELMWOOD Home of Leila Pietertje 27 lbs 5 oz. butter in 7 days, A. R. O Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.
GEO. T. McNEIL, Theresa, N. Y.

FOR SALE H.-F. A. R. O. cows and heifers, bred to Duchess Ormsby Piebe Burke, No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address Rural Route No. 2. W. H. JONES, Watertown, Wis.

THE MONONA FARM HERD
OF HOLSTEIN-FRIESIANS
Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 69.50 lbs. one day. Breeders and dairymen please write for prices.
F. W. ALLIS, Monona Farm. Madison, Wis.

FOR SALE H.-F. BULLS, ready for service, from A. R. O. cows and sired by Sir Johanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 yrs. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis.

VALLEY FARM HERD
HOLSTEIN-FRIESIANS
Headed by Korndyke Queen De Kol's Prince, dam Korndyke Queen De Kol, 24 lbs. 6.7 oz., gran. dam Belle Korndyke, 25 lbs. 12.3 oz. Both sire and dam by Manor De Kol, his dam Netherland Hengerveld 28 lbs. 10.66 oz., Manor De Kol by a son of De Kol 2d, 26 lbs. 9.21 oz. All are official tests and average 25 lbs. 13.72 oz. butter for 7 days and 3.95 per cent fat in their milk. Two bull calves now for sale and young ones after Sept. 1.
DON J. WOOD, R. F. D. 2, West Winfield, N. Y.

SUNNY SIDE HERD Offers for sale a young bull whose dam as a three-year-old and sire's dam have an average official record of over 20 lbs. in 7 days. Price right. Address C. A. SNOW & SONS, Athens, Ohio.

HOLSTEIN-FRIESIANS INDIVIDUALITY, PERFORMANCE, BREEDING. You need it all. Write or come. 100 head. McKAY BROS., Huddingham, Ia.

HOLSTEIN-FRIESIANS
FAIRVIEW HERD
We offer bulls ready for service; also heifer and bull calves not related, of the kind to suit the most particular.
O. J. GODFREY, Pennellville, N. Y.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. Depot. Stock of both sexes and different ages for sale. Bulls in service are: Homesterd Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De kol No. 22128. Dam: Shadeland DeKol No. 41886 A. R. O. in 2 y. f. milk 388.2 lbs., butter 15 lbs. 5.8 ozs. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148. Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 ozs. Average per cent fat 4.92. Correspondence solicited.
WM. EVERSON & SON, Lake Mills, Wis.

HOLSTEIN BULLS. We have some grandly bred young bulls ready for service. One of the largest and best advanced registry herds in the United States.
PIERCE LAND & STOCK CO. 14 Turk St. San Francisco, Cal.

MAPLES STOCK FARM
FULTON, NEW YORK.
Offers for sale Twenty-Five Choice Heifer Calves sired by Beryl Wayne De Kol Paul and Lilith Pauline De Kol's Count. Prices right to quick buyers. State just what you wish. JOHN C. GODFREY, R. F. D. 3. Fulton, New York

SPECIAL BARGAINS IN
Holstein-Friesian Bulls
From a few months to a year old, from official record dams, and with strong official backing on both sides. The sire is half the herd; it is important that you get the right one. We have that kind, and our prices are no higher than others are asking. HENRY STEVENS & SON, Brookside Stock Farm, Lacona, Oswego Co., N. Y.

FOR SALE 2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.
M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

CLOVERDALE HERD
Is now better than ever prepared to fill your orders for a foundation herd of young Holsteins. For individual merit and performance our herd ranks well up among the best in America. Write us your wants before buying. Address
A. J. DAUGHERITY, Streator, Ill.

Woodlake Herd.
Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN, Station D., R. L. Minneapolis, Minn.

MARKHAM MANOR FARM,
Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 18870, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for discription and price to J. A. THORNTON, Manager, Simmonsville, Vt.

HOLSTEINS IN CALIFORNIA
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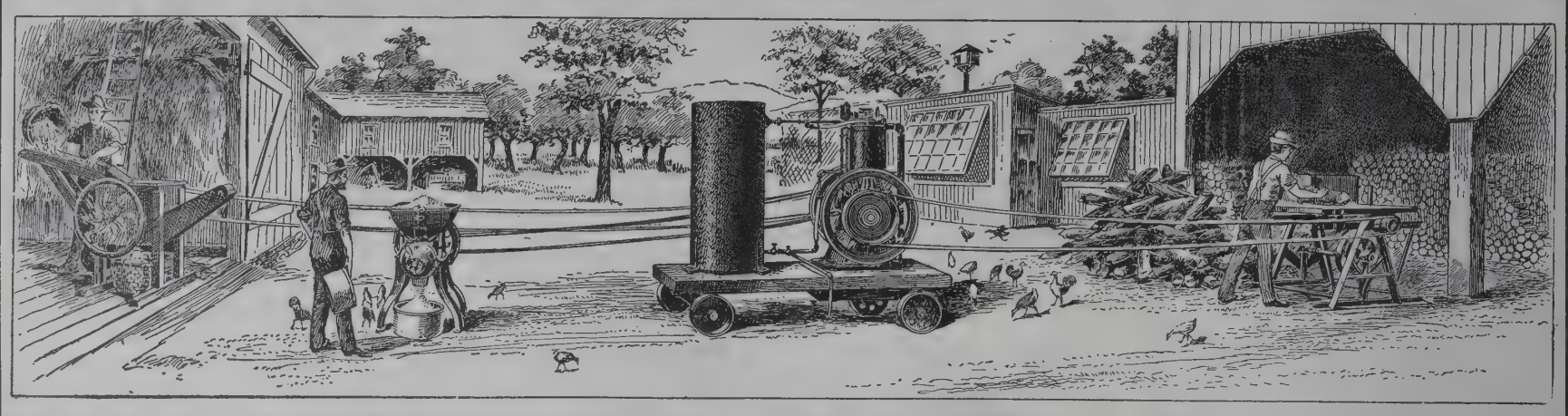
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Stock Troubles.

HIDE BOUND.

ED. HOARD'S DAIRYMAN:—This disease in cattle is commonly due to indigestion or faulty feeding of some sort. In cases where it exists, the following remedy may be found of some usefulness: Give one pint of raw linseed oil. As soon as this operates freely, give warm bran mashes twice a day. In each add a tablespoonful of an even mixture of ground ginger, gentian and sulphate of iron.

This, with green feeding, will usually relieve the cattle in a short time. Costiveness is one of the most effective causes of hide-bound, and an active laxative medicine generally speedily leads to recovery.

CARE OF HORSES' SHOULDERS.

Horses' shoulders need attention during the hot weather. When the hardest work is finished the shoulders should be washed with salt and water, and the top of the neck where the collar goes, also. Wash them every night after the day's work is done; do not wait till the horse galls. Commence early, and may be you can prevent your horses from having sore shoulders.

Do not be afraid of the water, as a good, clean pail of water, with a handful of salt in it, is refreshing to a horse's shoulders as water is to a person's body.

If farmers would pay more attention to the fitting of collars to their horses' shoulders, and rub them when they are to work, and keep the mane out from under the collar, the shoulders would be less liable to get sore.

There is many a horse to-day has to work with a sore neck or shoulders, which, by a little care, could soon be made well. Get a pint of arnica and keep it in the stable, and after you have washed the shoulders, bathe them with a little of the drug.

There is nothing better than arnica to take out the soreness, and, for a gall on top of the neck, you can use pulverized black lead, or common stove polish, and have good results. Put it on dry. When you harness up in the morning, put a little on under the collar.

If we could only get collars to fit the shoulders snug, without sweat pads, I think we should have less trouble with galls. There can be no doubt but that a sweat pad tends to make a horse's shoulders tender, as it soaks up the sweat from the shoulder, and when a pad once gets wet through, you cannot get it dry again overnight. Then the more your horse sweats the harder your pad gets, and when it is hot and dusty, as it generally is through harvest work, the dust and grit collects on the pads, and the result will be, you will soon have sore shoulders to contend with. Now, if we had some good leather collars, kept them clean and discarded the pads, I think it would be better for both man and beast, as the sweat will not penetrate through a leather collar, like it will through a pad, as the cooler you keep your horse's shoulders, the less liable is he to gall.

There are some horses that will gall with the very best of care, no matter how careful you are of them, or how clean you keep their shoulders. In the spring we often see horses with what we call collar boils. These come from the blood being foul or the system being clogged. Saltpetre should be given in bran mash, to clean the system.

MILK FEVER.

In regard to this disease, Mr. Schmidt a Danish expert, seems to have been very successful with his method of treatment, as it appears that 86% of the cows which have been treated, have recovered.

Although the disease is still obscure, Mr. Schmidt believes that it is due to the elaboration of a poison in the udder of the cow. But, so far as I know, he has afforded no explanation of the reason why the poison appears more generally in the udder of cows of a given age, and why it is seldom found in the cow, which is kept on short commons a few weeks before calving, or when she has been drenched two or three times with such a purgative as Epsom salts. That young and old cows are seldom attacked, is a matter of common knowledge, and it is also well known that cows which are well bred, which are maintained in good condition, and which are between the ages, speaking broadly, of 5 and 9 years, are those which are most generally attacked.

To be ready for treatment, it is necessary to obtain 4 or 5 feet of ¼ inch rubber tubing, a glass pipette or tube, one end of which may be introduced into the teat, and a 3 inch funnel. The pipette and the funnel are attached to the rubber tube, one at each end. The cow, which is naturally lying in the usual posture recognized in this disease, and probably in a state of coma, is milked clean. The udder is protected from the stall floor by a piece of waterproof sheeting, and then thoroughly soaked with soap and water and rinsed with disinfectant or antiseptic fluid with which the instruments just referred to are also cleaned.

The pipette is introduced into the teats, one at a time, and a small quantity of a solution of iodide of potash is passed; 120 grains of iodide crystals are disolved in a quart of water which has been boiled and cooled to blood heat. In all probability the cow will soon show sign of returning consciousness and recovery; in which case she can be again milked in six or seven hours; but should there be no such change, the iodide may again be injected at the end of a similar period, but also

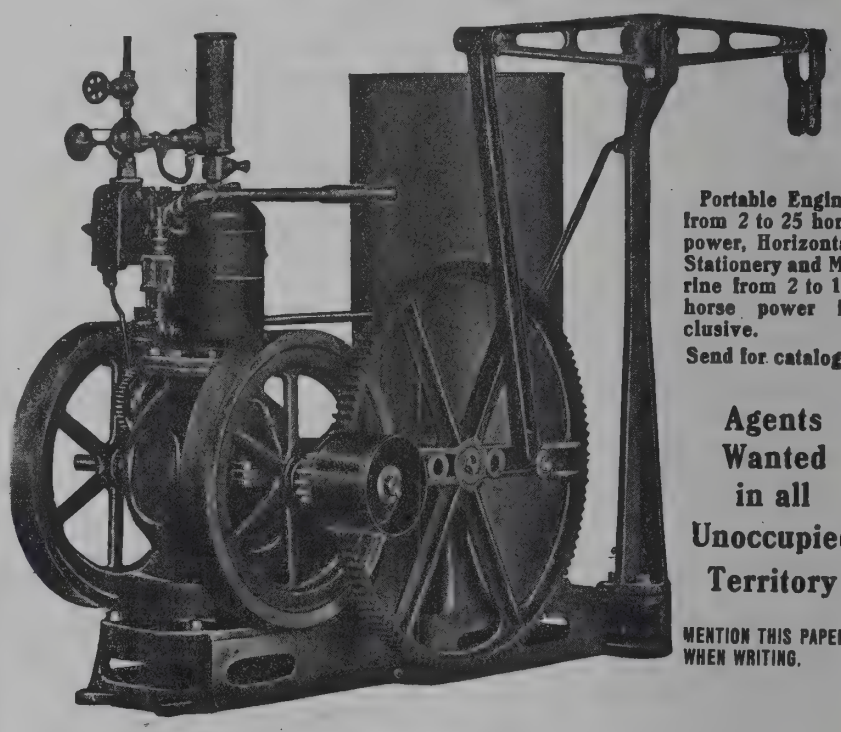
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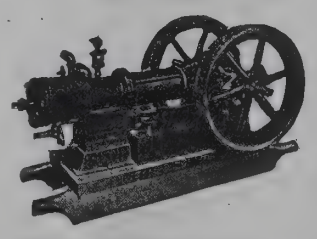
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after clean milking. It is important that after the solution has been introduced, each quarter of the udder should be well rubbed upward, or massaged, that the iodide may be the better distributed. After the second milking, and in the case of partial recovery, it will be well to bathe the udder with pure water at a temperature of 160° Fah. This process it will be seen, is very simple, and can be performed by any one who will take the trouble to be careful in every detail, not the least being the passing of the point of the tube into the teat which is finely and delicately organized.

SEE TO THE HORSES FEET.

The horse's feet should be frequently examined, if he is to be protected from such accidents as the picking up of nails, glass and strips of metal of various forms and sizes. The frequency with which such accidents occur should cause increased vigilance on the part of those who handle horses.

If the horse steps on a nail, even though the head be up, he may catch it in a part of the foot that forces it out of the rotten board in which it was previously held. The next step of the horse drives the nail further into its resting place in the foot. The point of the foot that is most subject to such mishaps is the frog and the cleft just behind the frog. Not only metal but splinters of wood find their way into this vulnerable region, and become the cause of pain to the horse, with subsequent lameness.

It is fortunate for the horse if the injury is such that he shows lameness, thus leading to an investigation of the feet and discovery of the cause. But a good many times the injury is not sufficiently great to cause a show of lameness, but is great enough to cause pain to the poor beast, and that for days at a time. Frequently this is manifested by a disinclination to rest the weight on this foot when in the stable. In motion the pain is not sufficient to prevent the horse from putting his foot down as usual. Such injuries are found for the first time when the horse has to be rushed. Humanity should lead us to frequently examine the feet to see that all things are in a normal condition. W. R. GILBERT.

What Some Oregon Jerseys Have Been Doing.

ED. HOARD'S DAIRYMAN:—I am now milking nine cows, all grade Jerseys, except two, they being full bloods and registered. My income in ten months for the butter fat, at the creamery was $531.62. I have never figured what my family uses, but it would be a large amount. We churn our own butter and use lots of it; six in the family most of the time, besides lots of company; cream on the table every meal.

Have sold $100 worth of milk-fed hogs in this time, besides our own meat. Have vealed five calves off the milk, which brought me $30. I have four I am keeping.

My cost of feed for six months (as that is the length of time I feed), is $120 for chop, $12.50 for oil meal, $100 for hay.

Now, I would like to know what you think of this. Are these cows worth milking? D. P.

Carlton, Ore.

We estimate that these nine cows have earned somewhat over $90 each, and that the full cost of keeping for a full year will not exceed $33, or a net profit for the herd of over $500. This is not exactly a bonanza, a get-rich-quick business, but a fairly good profit. It means competence, health, self-respect, and good citizenship, which are better than great riches.

Adulterated Cotton Seed Meal.

ED. HOARD'S DAIRYMAN:—I send you under separate cover, a sample of cotton seed meal, upon which I would like to have your opinion as to purity. I applied test given on page 938 of the DAIRYMAN and came to the conclusion it is not pure. What I bought last, has no tags on bags as to analysis. The lot before contained tags, guaranteed analysis as follows:

Ammonia	4½ to 5 per cent.
Phosphoric acid	1¾ to 2 " "
Potash	1½ to 2 " "

Both samples are the same if tested as above. An answer in the DAIRYMAN will be thankfully received. The meal cost me $28 per ton in Toronto. Do you think that too dear, if not pure? S. H.

Markham, Ont.

The sample is not pure cotton seed meal, but is a mixture of meal and hulls, the latter finely ground. "Cotton seed meal when pure," we quote from a Tennessee Bulletin, "is of a deep yellow color, looks clean and smells clean. If brown or reddish brown it has undergone more or less fermentation and is unfit, even dangerous, for food." This sample is decidedly brown, but whether this is caused by the admixture of the hulls we are unable to say. Waiving objections on this point, we should not consider it a profitable feed at the price named.

Michigan Educational Butter Scoring Contest.

ED. HOARD'S DAIRYMAN:—The Michigan educational butter scoring test, carried out under the auspices of the Agricultural College is now completed. Of the fifty-eight that participated, fifty were creamery butter makers and eight were private dairymen.

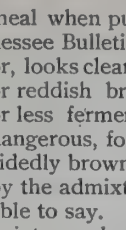
By a rather unlooked for coincidence two men tied for first place in the creamery class. This is a little unfortunate for the Governor who, at the time the test was inaugurated, very generously offered a gold medal for each of the victors in the two classes, and who now as generously offers a third gold medal to maintain the peace between the fortunate victors in the creamery class.

In the dairy class Mrs. James Harris, Traverse City, Mich., received the gold medal with an average score of 90.2.

The recipients of prizes in the creamery class are the following:

Helmer Rabild, Chesterfield Mich., Gold Medal Average score, 93.3.
L. J. Heaton, Dorr, Mich., Gold Medal, Average score, 93.3.
J. B. Gilbert, Zeeland, Michigan Diploma.
J. A. Smith, Manchester, " "
Walter Hall, Hilliards, " "
A. J. Walter, Keeler, " "
Jesse W. Cobb, Lawrence " "
B. C. Martin, Concord " "
F. E. Stafford, Vicksburg, " "
E. J. Kneibehler, Bad Axe, " "
Jacob Herriman, Freeland, " "
E. M. Lamos, Charlotte, " "
Chas. Liebum, Orleans, " "
Angus McCallum, Davis, " "
S. R. Miles, Buchanan, " "
Chas. Linton, Berlamont, " "

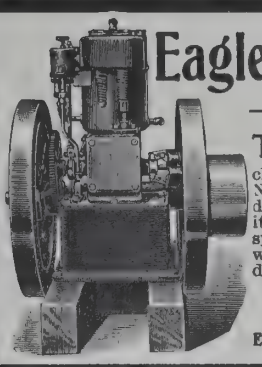
Judging from the numerous expressions of appreciation received from butter makers, the test was a success and will be continued next year. In many cases the improvement in the quality of the butter was a steady progression throughout the test, which would seem to indicate that the scores and criticisms had the desired effect. Thus, one cream-



The "Penny Wise and Pound Foolish"

Policy has an apt illustration in the man who buys a CHEAP gas or gasoline engine. Unreliable service, frequent and expensive repairs, wastefulness in fuel and short life offset many times over, the small saving in first cost. The "OTTO" is the original and BEST. Suppose it does cost a little more money, the extra dollars are well invested. 70000 users throughout the civilized world support us in this claim.

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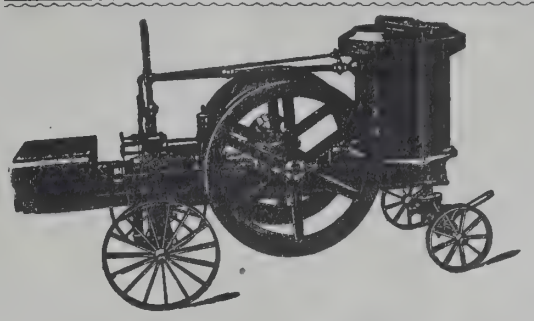


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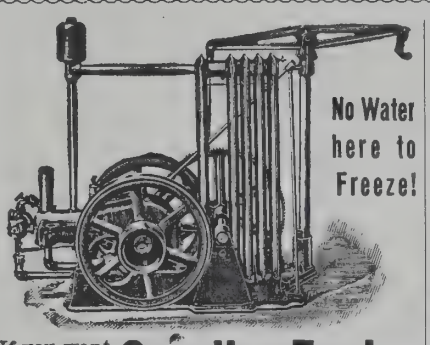
EAGLE BICYCLE MANUFACTURING CO.,
Engine Department. TORRINGTON, CONN.



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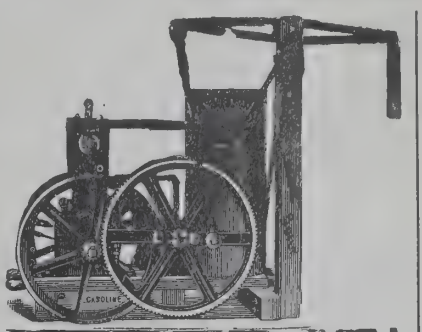
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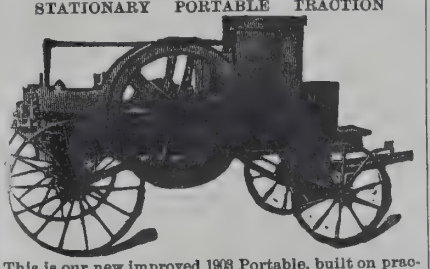
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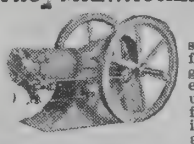
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The MILWAUKEE Weekly Bulletin



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Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.

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17th Clearfield St., Philadelphia, Pa.

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Made single or double. One or two furrows five to ten inches deep; 14 inches wide. For two or four horses. Light draft. No side draft. No similiar plow made. When Clark's grass tools are used as directed in his grass circular, we, the C. H. Co., guarantee them to kill wild mustard, charlock, hard hack, sunflower, milk weed, morning glory, Russian thistle or any other foul plant that grows, or money refunded. Now is the time to commence work for next year's seeding to grass.

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HIGGANUM, CT., U. S. A.

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Red is the color of danger, whether on the semaphore or on the skin. When the face is reddened by eruptions, when boils break out on the body, or the angry red of sores and ulcers is displayed in the flesh, it is nature's danger signal. The blood is obstructed and tainted by impurities, and there can be no safety until the blood is made pure.

Dr. Pierce's Golden Medical Discovery purifies the blood, and removes the effete matter which clogs and corrupts it. It cures pimples, boils, eczema, scrofula, sores, ulcers and other consequences of impure blood.

"I feel greatly thankful for what your medicine has done for me," writes Mrs. Chas. Hood, of Kalkaska, Mich. "I suffered with scrofula of the head for twelve years. Tried every kind of medicine that I heard of but found no cure. Every one that looked at my head said they never saw anything like it. The last doctor I doctored with before applying to you I got worse every day. Was so miserable that I was unable to do any work at all. After taking two or three bottles of your 'Golden Medical Discovery' and using the local treatment you prescribed for me, I was cured and my head was entirely free from scrofula."

Accept no substitute for Doctor Pierce's Golden Medical Discovery. There is no other medicine which is "just as good" for diseases of the blood and the eruptions which are caused by the blood's impurity.

FREE. Dr. Pierce's Common Sense Medical Adviser is sent *free* on receipt of stamps to pay expense of mailing *only*. Send twenty-one one-cent stamps for the book in paper covers, or thirty-one stamps for the cloth-bound volume. Address Dr. R. V. Pierce, Buffalo, N. Y.

ery product progressed from 87 to 94.5; another from 89 to 96 and still another from 88 to 93, etc. One contestant writes: "Have adopted your suggestion as to acid test in cream ripening and find we have habitually ripened too much."

It may be of interest to note that the two highest scoring samples of butter in the creamery class were made, one with commercial starter, the other with natural. The amount of starter used varied from 8 per cent to 15 per cent. The cream in both cases was ripened at a temperature of 70° F. and churned with an acidity of from .50 per cent to .55 per cent.

The presentation of prizes will take place at the meeting of the Michigan Dairymen's Association in February. Plans for the 1904 test will also be presented at this meeting and we hope to see every butter maker present.

JOHN MICHELS, in charge of Test.
Agricultural College, Mich.

A Word with Prof. Farrington's "Losses at the Cheese Factory."

ED. HOARD'S DAIRYMAN:—We have very great respect for the words of Prof. Farrington, speaking *ex-cathedra* from a great agricultural University. The professor, who writes so smoothly and glibly, is not always a safe teacher, though he may be perfectly infallible in the school rooms at Madison, and we have no doubt that he is. Some of his writings are not, however, so. A case in point is his reply to H. E. Davis, DAIRYMAN Nov. 13th.

Now, those extremists of the Babcock milk test have hard work reconciling the patrons of the cheese factories where milk is taken on the straight fat basis, and this case of Mr. Davis is one of them. There is no use for Prof. Farrington to assert that the straight fat method of apportioning the dividends is correct, for the reason that it is unfair to the patron furnishing the poor milk. A pound of fat in three per cent milk will be worth much more for cheese making than a pound of fat in four per cent milk, and again the percentages of loss in the whey is much greater for rich milk, while the cheese made from 3.50 per cent milk will not bring a fraction of a cent more per lb., than cheese made from 4.50 per cent milk. For these vital reasons the straight fat method, viewed from every point of view, is unfair to the patron furnishing poor milk, and it is not to be wondered at, that it has not given satisfaction, and that many factories that have tried it for a year or so, have gone back to the pooling method. The straight fat method is ahead of the pooling, yet both are objectionable. The one favors the patron furnishing the poor milk, and the other favors the patron furnishing the rich milk. We are not, therefore, a bit surprised to see Mr. Davis kick. We see similar complaints periodically in all of the agricultural papers.

Prof. Farrington says that as a rule one pound of butter fat in milk is equivalent to about 2.6 pounds of cheese. This is but an average, and an average made from a mixture ranging in fat content from 3 per cent to 4.50 per cent. Eliminate the 3 per cent milk from the sum of the averages and a pound of fat will not make 2.6 pounds cheese. One pound of 1% milk fat will not make 2.6 lbs. cheese. It will scarcely make 2.5 lbs. While 1 lb. of 4.25% milk fat will make, under ordinary factory conditions, 2.45 lbs. cheese. One pound of fat in 5.20 milk will make about 2.33 lbs. of cheese, 2⅓ lbs. cheese, please remember, and yet the man furnishing this 5.20 milk will be paid double what the man, if such there are, who furnishes 2.60 milk.

Now, let us see about the poor milk. One pound of fat in milk testing 2.92 per cent fat, will make 2.94 pounds cheese. There is no doubt about this, as these figures have been arrived at after many tests, carried on for several years. Another example: 13,800 pounds milk, containing 2.87 per cent fat, made 1,207.75 pounds cheese, or 3.05 pounds cheese to one pound fat—3.05 pounds, please note, and not 2.60 as the Professor would have us believe all per cent of fat make. This 13,800 pounds milk of 2.87 fat content per cwt, contained a total of 396 lbs. fat, which made 1,207.75 pounds cheese.

Now, if this large quantity of milk, which was furnished by one patron, was paid on the straight fat system he would receive at 10 cents per pound, $106.41, while the actual sales value of the cheese amounted to $120.77. That is, this man's 13,800 pounds, 2.87 milk sold at the factory in cheese, for $120.77, while by the fat test he was paid but $106.41.

Had this 13,800 pounds of 2.87 milk been taken by weight, by pooling, the patron would receive $133.73, or $12.96 more than the cheese from his milk actually sold for, which also is bad, not at all so bad, as if he was paid by the straight fat method, when he would receive $14.36 less money than the cheese sold for. Here are two evils indeed, one only a little worse than the other, and yet, Prof. Farrington assures his correspondent that the fat test is "a fair and reasonable measure of the cheese value of milk."

The Professor further states that "100 lbs. of milk, which tests 3.0 per cent fat, will make about 7.8 lbs. cheese." In making such a statement the Professor largely presumes on the credulity of the readers of HOARD'S DAIRYMAN, who, if they have been readers of the paper long enough, ought to have known enough not to believe that. Why, we get that much cheese and more, from 100 lbs. of skim milk, certainly less than 2 per cent fat, in our work here every day.

Why, it would be a poor cheesemaker indeed, who would get less than 8.4 to 8½ lbs. cheese from 100 lbs. 3 per cent milk. We know of many trials, at dairy schools and dairy stations, that proves the assertion; 300 lbs. of 3 per cent milk at Ringwood (official figures) made 26½ lbs. cheese; 900 lbs. of the same kind of milk, at Guelph made 77.-26 lbs. cheese. The facts are that as the fat content of milk diminishes the more cheese will a pound of fat make, so that when we get down to 2 per cent fat, one lb. fat will make 3.50 lbs. cheese. One lb. fat of 3 per cent milk will very nearly make 3 lbs. cheese. While one lb. fat in rich milk testing 5.20 per cent fat, will make but 2.33 lbs. of cheese.

Now if buyers discriminated in the price paid, as cheese was made from a high or low fat content of the milk, there would be more fair play in paying by the fat method. But the skill of the cheesemaker counts for more than the richness of the milk, and one maker can make as good, perhaps better, cheese, from 3 per cent milk than another can with 5 per cent milk.

Another point of some importance, is the loss of the fat when the milk is rich, in the whey. In 3 per cent milk the loss is about 0.13, while with 5 per cent milk, the loss in the whey is never less than 0.3, but more frequently 0.5. How then shall milk be taken at the cheese factroy?

Answer—By the Babcock + 2 or better but more figuring, the fat test plus 2.5. Simple way to give fair play to all, is it it not? J. A.M.

P. E. I.

It must suffice, for the present at least, to say that HOARD'S DAIRYMAN does not agree with J. A. M.'s argument or conclusions.

CONCERNING OUR ADVERTISERS

Undoubtedly a good many of our readers have horses that are spavined, ringboned, or blemished in some manner and have never yet replied to the advertisement of Fleming Bros., which has appeared in this paper for a long time. This firm manufactures a line of veterinary remedies, spavin cures, fistula and poll evil cure, lump jaw cure, etc., guaranteeing every preparation to do the work it is intended to do. A sixty-four page illustrated booklet entitled "Stock Ailments that You Can Cure," will be mailed free to those who will write Fleming Bros., Chemists, Union Stock Yards, Chicago, Ill., mentioning this paper.

WHAT ONE CARRIAGE CONCERN DOES.—CARRIAGES DIRECT FROM FACTORY TO USERS AT WHOLESALE PRICES.

The Columbus Carriage and Harness Company is a large carriage and harness manufacturing concern that formerly sold its output through dealers, in the usual way. Later they adopted their present plan of selling direct from their factory to users.

Under this plan the man who wants a carriage can get it for a third less than he could of a dealer, because he saves all the dealer's profits. He can buy one carriage for the same price that a dealer who buys a hundred would have to pay.

Horse owners have been quick to see the great economies offered them under this plan, and in consequence the business of the Columbus Carriage and Harness Company has grown rapidly and has proved their plan a practical one.

Nothing could be fairer or straighter than the business methods of this house. They will send you upon request their large illustrated catalogue, giving exact reproductions and full descriptions of their vehicles and harness; you select what you want and send in your order If upon receipt of your purchase, you should be dissatisfied they will refund your money in full and pay the freight both ways, thus eliminating all risk from the transaction.

You can get the illustrated catalogue free by writing to The Columbus Carriage and Harness Company, Columbus, Ohio.

COOK THE FEED.

This is the season of the year when the average farmer is considering how to make the most out of the feed he has on hand. He may be studying and experimenting in a small way with stock foods, but he knows that for the main body of what sustains and fattens his animals he must look to the hay, grain and vegetables that he produces on the land. The problem being the best results with the minimum consumption of these products, the argument leads him directly

"ADVERTISEMENT."

PARALYSIS IN HOGS



BY this we refer more particularly to the loss of use of the hind quarters. The first symptoms are shown by slight stiffness, disinclination to move, the back may also be slightly arched and the hind legs will knuckle forward.

During the growth of young animals food rich in nitrogenous material must be supplied, such as bran, middlings, and oats, milk, beans and peas, as these go directly to the construction of bone, lean meat, tendons, hoofs, hair, etc. If such materials are not supplied and much fat forming food is allowed, such as corn, the weight of the animal becomes too great. The muscular structures are not sufficient to sustain it. The conducting power of the nerves is impaired, and from some slight exciting cause complete paraplegia, or paralysis of the hind quarters, will ensue.

When attacks come on give good surroundings and give a physic. For a pig castor oil in one or two-ounce doses; for older animals, one to two or even three ounces of Epsom salts dissolved in a half-pint of water should be given in gruel or as a drench at once.

This should be followed by the administration of iodide of pottassium in 10 to 15-grain doses three times a day. If this is not followed by improvements, nerve tonics should be employed, such as tincture of nux vomica in 10 to 30 drop doses, three times a day in gruel. Stimulating liniments or friction to the back is often valuable.

As after treatment or as a preventative—there is nothing else equal to Dr. Hess Stock Food, the great hog tonic—the great live stock reconstructive. It takes a hold of every vital organ; revives every function; gives a sharp appetite and strong digestion, which is followed by quick assimilation of the food eaten and very rapid growth in solid flesh. It keeps the animal free from disease by giving it the vitality necessary to resist and throw off the cause of disease.

Dr. Hess Stock Food is the scientific compound for horses, cattle, hogs and sheep, formulated by Dr. Hess (M. D., D. V. S.) Sold on a written guarantee, 100 lbs. for $5.00—except in Canada and on Pacific Slope—smaller quantities at a slight advance; fed in small dose. For any disease or condition for which Dr. Hess Stock Food is not recommended, the little yellow card in every package entitles you to a letter of advice and special prescription from Dr. Hess.

Dr. Hess has written a book on the diseases of stock and poultry. It is the only complete treatise for farmers and stockmen published.

Write and state what stock you have, and how many head of each; what stock food you have used; also mention this paper. Address Dr. Hess and Clark, Ashland, Ohio, and for this information you will receive this valuable book free, postage free.

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Made by a Baraboo paper hanger in less than a week.

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Cleaned up by an Evansville man in one week.

If interested we can furnish names and addresses of these parties and many others who have done equally as well.
We can give a few parties who can secure $1,500 or give security to that amount a very paying business.
Choice locality. We have an article of value and interest to every farmer.
Full investigation invited. Best bank references. Write at once for particulars.

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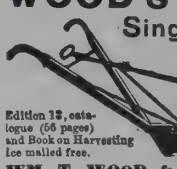


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By warming water for your stock with a Howell Steel Tank Heater. Heats water quickly and with little fuel as it radiates heat from its entire surface. Has large fire box, burns any fuel, no trouble to operate. Until fully introduced, will sell you one at one-half of our regular prices. Don't miss a chance of a life time. Write for prices and catalogue free.
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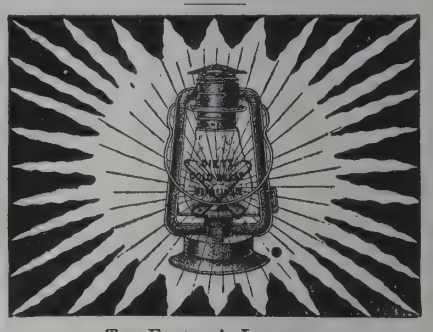
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ILLUSTRATION.



The Bowsher Feed Mills (one size of which is shown with wagon box elevator in our illustration) are considered by thousands of users in all parts of the country as the most successful machine for the purpose; at least, we have just seen hundreds of letters from users all speaking to that effect. Many of our readers are among the number. The Bowsher mills are now entering their fifteenth season. No radical changes have been made, but the Bowsher Co. are always awake to improvements and it is possible that machines of this year's production are even a little better than those of last. The Bowsher Co. make a line of mills suitable for the requirements of all classes, from the farmer who has only a few head of stock, to the feeder who grinds 100,000 bushels in a single season. The Bowsher mills grind all kinds of grain, crush and grind ear corn, *with* or without *shuck*, and are capable of grinding grain in all kinds of conditions. This applies to both the belt power and sweep mills. The entire Bowsher line is claimed by the manufacturers to be different from all others in the market and in many respects heavier and stronger than others. Anyone purposing to invest in feed grinding machinery should secure circulars and carefully investigate the Bowsher line. The makers are the N. P. D. Bowsher Co., South Bend, Ind.

ILLUSTRATION



THE FARMER'S LANTERN.

We are showing herewith one of the ever popular Dietz lanterns. This is done, not so much to bespeak the virtues of this particular lantern, for Deitz makes many kinds and styles, but to call the attention of readers to the fact that Dietz lanterns in general are typical of all that is best. It is but natural that this concern should know all about the lantern business. It was established in New York City in 1840, and has consistently followed and confined its energies to this one branch of manufacture ever since. A good lantern is absolutely indispensable on the farm. A poor one is an intolerable nuisance. The good kind is as cheap and as easy to buy as the poor one. When you see a man that is satisfied with his lantern, if he uses it daily because there's no worry about it, easily lighted, extinguished, cleaned and filled, and if it burns steadily without flickering and sheds a strong, clear, white light, the chances are his lantern is a Dietz. The name of Dietz appears plainly on all his lanterns, so there's no chance for deception when one goes to buy. A Dietz lantern book will be mailed free to any one writing for it. See advertisement in another column for correct address.

Oils Cure Cancer.

All forms of cancer and tumor, internal and external, cured by soothing, balmy oil, and without pain or disfigurement. No experiment, but successfully used ten years. Write to the Home Office of the Originator for free book—Dr. D. M. Bye Co., Drawer 505, Indianopolis, Ind.

back to the reasonable and now generally adopted practice of cooking the food. It is no longer a matter of experiment. It has passed into general practice. There is no escaping the conclusion that cooking the food is the most economical method of feeding, and produces noticeably, even in a short period, better condition and more satisfactory results with all domestic animals. Rather than expediency of cooking, therefore, the problem is one of means. This question any practical feeder of stock upon investigation will find most satisfactorily solved by the Electric Feed Cookers, made by the Electric Wheel Co., of Quincy, Ill. They are advertised elsewhere. They may be had in sizes from 25 to 100 gallons. They combine the valuable requisites of strength, durability, easy and quick heating and with little fuel consumption. All are arranged so that either coal or wood may be used. The most reasonable prices at which each of the several sizes is sold, brings them within the reach of every feeder, and really leaves no valid excuse to any one for not adopting the cooking practice. Readers interested should consult the advertisement and write the company for their descriptive matter and full information.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Abortion.

I fear my herd of cows have infectious abortion, as two have lost their calves lately. I have had afterbirth removed, and am injecting daily a solution of carbolic acid. I see by the DAIRYMAN that you recommend powdered cramp bark. Where can I get it? Local druggists do not know of it? Would it be beneficial to inject the 2 per cent carbolic acid solution into the cows who have not as yet aborted? F. S.
Peshtigo, Wis.

ANSWER.

Cramp bark is technically known as *Viburnum Opulus*. Every druggist knows what it is, and can get it for you, if he does not keep it in stock. Its physiological actions are, tonic, astringent, antispasmodic, nerve sedative, and anti-abortive. It is a sedative and tonic to the uterine and ovarian nerve centers, hence it is especially indicated in these cases. You will notice it is not intended to kill germs but to aid the system in resisting their attacks. You can do no harm by injectnig as you propose, but a 2 per cent solution of carbolic acid is too strong; a ½ to 1 per cent is strong enough.

Tape Worm in Calves.

What can you tell me about the treatment of tape worm (Facnia) in calves? F. H. S.
Fairbanks, Tex.

ANSWER.

To expel these worms you must compel the animal to fast for at least 24 hours as the medicine must be given on an absolutely empty stomach. Then you may give a calf 3 months old ½ ounce of Areca nut (powdered) and follow this dose with a pint of raw linseed oil in from 4 to 5 hours. This usually makes them come but every segment of the worm which is expelled must be destroyed by fire as it is liable to become epidemic in your herd. Remove all healthy calves from the pasture where such segments have been dropped to prevent further infection.

Ringworms.

I had some cattle away from home on pasture last summer, and now some of them have some kind of skin disease. It begins around one eye and spreads over the body, here and there in round spots. The hair comes off first and then it looks white and scaly. The spots are quite small at first, but get larger. Cattle are all hearty and in good order. I washed the first one with a 1-1000 solution of bi-chloride of mercury for a while, and now am using carbolic acid in vaseline. I succeeded in curing some places, but it breaks out in other spots, and the number of diseased animals is steadily increasing. G. P.
Hiram, O.

ANSWER.

Your cattle are troubled with ringworms. These can easily be destroyed by applying either zenoleum or chloronaptholeum, full strength, to the parts affected. Apply with a brush, or if you are afraid you will get it into the eyes, rub it in with your fingers. This may be repeated in a week.

To Cure a Hard Milker.

Have a heifer that gives about 3 gallons of milk per day, but she milks hard. At first thought calf might starve but she milks some easier now. Never used or saw a bistoury or dilator. Would you advise use of one on her?
Martin, Tenn. R. C. B.

ANSWER.

The bistoury is the only reliable remedy. Make your incision in the four opposite directions, so that the openings at the bottom of the teat will represent the letter X. At first she will lose some of the milk which will drop away for 6 to 8 hours, but the swelling will close the excessive opening and the natural flow while milking will govern the closure so as to leave a normal opening which will be larger than formerly, and the cow will milk much easier in the future. The bistoury can be obtained from this office for $1.50.

Inflamed Quarter.

I have a cow whose right hind quarter of the udder has become perfectly hard. It began to get hard six weeks ago and gradually kept getting harder till it has become as hard as a rock, and she has shrunk fully 50% in her milk.
Escondido, Cal. M. M. B.

ANSWER.

Rub the quarter twice daily with the following ointment: Lanolin, 12 ozs.; Iodine resublimed, 2 ozs., and apply with plenty of hand rubbing.

Proud Flesh.

I have a cow that cut herself by kicking against the corner of a shovel. The wound was bruised, and proud flesh, a large mass, is in the cut now. I have used blue vitriol to eat it out, but it does not work very fast. The cut is on the cords just between the gambrel joint and her foot. C. L. L.
Dorset, Vt.

ANSWER.

Wash the parts clean once daily with soap and warm water. When dry apply calomel over the entire cut; dust it on with a little cotton batting and give it a good covering with same.

Parasites, Perhaps.

I have a three-year-old Holstein heifer that has spells of being sick. She had the first one last April and has had them at times ever since. Sometimes she will go two or three months and again she will have them once every week or two.

Her ears droop and she holds her head out straight, and her eyes roll back into her head, then before long she lays down and lays her head around on her side. She does not seem to bloat much, but seems to be in some pain. She generally has a chill, sometimes quite hard. Her bowels are always in good condition. W. A. B.
Dorr, Mich.

ANSWER.

Your trouble may be due to intestinal parasites, but we can not tell positively without a personal examination. If you have a qualified veterinarian within your reach it would be well to have him make an examination.

Chorea.

I have a colt two years old that has got springhalt hitch in both hind legs on first starting out, but after traveling a few steps you don't notice it much. He is somewhat overgrown as I think he will weigh fully 1,600 pounds. P. E. W.
Mt. Vernon, Wash.

ANSWER.

Your colt has chorea, which is characteristic of fast growing colts. There is no cure for this trouble. As a rule they grow worse as they grow older.

Fail to Come in Heat.

I have pure bred Durhams that freshened in fall. I let calves suck them and they fail to come in heat, which leaves too long space between calves. What shall I do?

I also have very fine ⅞ Jersey cow 4 years old, freshened in September. Right front quarter of bag has been hard and caked several times, caused, I think, from fighting with another cow.
Bankers, Mich. B. E. K.

ANSWER.

Wean your calves and increase your grain ration. You may give a teaspoonful of nux vomica ¼ (powdered) in food twice daily.

See Inflamed Quarter, this issue.

KENDALL'S SPAVIN CURE
TRADE MARK.
When you see the above trade mark on a label you are sure that you are getting the genuine
KENDALL'S SPAVIN CURE.
That means that you are getting the only absolutely time tested and reliable remedy for Spavin, Ring Bone, Curb, Splint and all forms of lameness in horses. A single bottle may save your horse. It has worked that way in thousands of cases. Note this man's experience:
Wausau, Neb., March 13, 1902, P. O. Box 347.
Dr. B. J. Kendall Co., Enosburg Falls, Vt.
Gentlemen:—You may remember I sent for your book, "A Treatise on the Horse and His Diseases," about a year ago. At that time I was using your Kendall's Spavin Cure on a *Bone Spavin* of about eighteen months standing. **I used two and one-half bottles and now there is no spavin,** not even a bunch. You may use my name among your testimonials if you wish.
Yours truly, D. E. SEGER.
For sale by all druggists. Price, $1; six for $5. As a liniment for family use it has no equal. Ask your druggist for Kendall's Spavin Cure, also "A Treatise on the Horse," the book free for the asking, or address
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KENDALL'S SPAVIN CURE

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SPAVIN CURE
BEGIN TREATMENT AT ONCE!
HAVE A PERMANENTLY SOUND HORSE FOR SPRING.
Cured horses are absolute certainties as to the possibility of the remedy for your own case. Such results as shown in our booklet, by business men whose reliability can be readily ascertained, have carried "SAVE-THE-HORSE" over skepticism, prejudice and uncertainty. Send for booklet and copy of written guarantee, which is as binding to protect you as the best legal talent could make it. No man need see his horse suffer and become incapacitated.
"SAVE-THE-HORSE" Positively and Permanently Cures BONE and BOG SPAVIN, THOROUGH-PIN, RINGBONE (except low ringbone,) CURB, SPLINT, CAPPED HOCK, WINDPUFF, SHOE BOIL, WEAK and SPRAINED TENDONS and all LAMENESS. Cures without scar, blemish or loss of hair. Horse may work as usual.
$5.00 per bottle. Written guarantee with every bottle. Need of second bottle improbable, except in rarest cases. If your case is different we advise frankly as to possibility of the remedy effecting a cure. Give veterinarian's diagnosis, if he is competent. Describe age, development, location of swellings, lameness, and way horse carries and holds leg.
$5.00 per bottle at all druggists and dealers, or sent express prepaid.
TROY CHEMICAL CO., Troy, N. Y.
Also manufacturers of Veterinary Pixine.

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Hood Farm Abortion Cure is proving the most successful remedy for this very prevalent trouble that we have yet seen.
After Abortion cows should be injected with Hood Farm Antiseptic Breeding Powder, which thoroughly disinfects, kills all germs and **makes cows breed.** Also successful where cows fail to clean and where they do not come in season regularly.
Hood Farm Abortion Cure, dollar size, prepaid to any railroad express point in the U. S., $1.25; $2.50 size, containing four times this quantity, $2.75.
Dollar size Breeding Powder, by mail $1.15; $2.50 size prepaid for $2.75.
Hood Farm Flexible Injection Tube, for administering the Powder, 75 cents; by mail, 90 cents. Address
C. I. HOOD CO., Lowell, Mass.
Mention this paper in ordering.

BARREN COWS CURED.
Write for Pamphlet and Testimonials.
Oldest and best Treatment Extant.
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POSITIVELY PREVENTED AND CURED BY THE USE OF
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GOMBAULT'S
Caustic Balsam
A Safe, Speedy, and Positive Cure
The safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle, SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*
Every bottle sold is warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O

DR. GEORGE HOLLABUSH'S
Sure Cure for Abortion
and General Tonic for Cows. The only genuine sure cure and general tonic for cows on the market. I guarantee, and refund money if not satisfactory.
Dr. Geo. Hollabush, Ft. Atkinson, Wis.
Write for circular.

Lump Jaw
Save the animal—save your herd—cure every case of Lump Jaw. The disease is fatal in time, and it spreads. Only one way to cure it—use
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No trouble—rub it on. No risk—your money back if it ever fails. Used for seven years by nearly all the big stockmen. Free illustrated book on Lump Jaw and other diseases and blemishes of cattle and horses. Write for it today.
FLEMING BROS., Chemists,
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ABORTION,
Failing to Breed and bring Cows to Heat. Sure Cure. In use 20 Years.
(Patent Applied For.)
Hard Rubber Safety Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.
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Cures Curbs, Splints, Spavins, Etc. Equally good for Colic, Distemper, Etc. Our 100-page book, "Veterinary Experience", FREE.
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ZENOLEUM
Famous *COAL-TAR* Carbolic Dip.
For general use on live-stock. Send for "Piggies' Troubles" and "Zenoleum Veterinary Advisor" and learn its uses and what prominent stockmen say about it. Books mailed free. All druggists, or one gal., express paid, $1.50; 5 gal., freight paid, $6.25.
ZENNER DISINFECTANT CO., 34 Bates St. Detroit, Mich.

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BEST PREVENTIVE
VACCINATE your cattle with Blacklegoids—the simplest, safest, surest preventive of Blackleg. Each *Blacklegoid* (or pill) is a dose. Administration with our Blacklegoid Injector is performed in one minute. We establish the purity and activity of our Blacklegoids by rigid tests upon animals. For sale by druggists. Write us for literature—free on request.
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Supreme Court Now Considering Oleo Cases.

Hearings Were Granted Oleo People Last Wedn sday Before the Full Bench.

The fate of the national oleomargarine law now rests with the Supreme Court of the United States.

Both the oleomargarine makers and the government had an oral hearing before this court last Wednesday afternoon. Attorneys Guthrie, of New York, and Outcalt, of Cincinnati, spoke for the oleomargarine interests, while the government was represented by Solicitor General Hoyt of the Department of Justice.

The hearing lasted four hours, and was marked by extraordinary interest upon the part of the court, counsel for both sides being sharply questioned by various members of the court, Justices Harlan, Peckham, White, Holmes and Brown displaying particular interest.

In the hearing the oleomargarine makers claimed that colored oleomargarine could not be sold as a substitute for butter; Mr. Dadie, representing Moxley & Co., of Chicago, was shown to have testified in court that the uncolored goods were being very largely used to replace lard.

In his closing arguments, Attorney Outcalt, representing the oleo makers, stated that the manufacturers were simply awaiting the determination of the cases before the court to decide whether or not they should close business.

Official Records of Holstein-Friesian Cows, From Oct. 30 to Nov. 12, 1903.

During this period the records of forty-one cows have been received. Nine full-aged cows averaged, age 7 years, 3 months, 16 days, days from calving 14; Milk 434 lbs.; butter fat 15.588 lbs., equivalent butter 18 lbs,, 3 oz., per cent of fat shown in the milk 3.61. Eight four-year-olds averaged, age 4 years, 5 months, 9 days, days from calving 23; Milk 395.1 lbs,, butter fat 13.067 lbs., equivalent butter 15 lbs., 3.5 oz., per cent of fat showu in milk 3.34. Fiiteen three-year-olds averaged, age 3 years, 3 months, 19 days, days from calving 13; Milk 336.4 lbs., butter fat 11,399 lbs., equivalent butter, 13 lbs., 4.8 oz. per cent of fat shown in the milk 3.34. Nine two-year-olds averaged, age 2 years, 3 months, 9 days, days from calving 31; Milk 279.6 lbs., butter fat 9.221 lbs., equivalent butter 10 lbs., 12.1 oz. per cent of fat shown in milk 3.34.

It must be borne in mind that these records are made under the careful supervision of agricultural experiment stations and that 85.7 per cent of fat found in the milk is equivalent to 1a pound of butter. In detail the records wers as follows:

Chloe Mechthilde 49535—5 years, 1 month, 8 days, days from calving 9: Milk 479.3 lbs., butter fat 18.895 lbs., equivalent butter 22 lbs., 0.7 oz. Owner John B. Irwin, Minneapolis, Minn.

Edith Prescott DeKol 44886—6 years, 4 months, 19 days, days from calving 16; Milk 467,6 lbs., butter fat 18,046 lbs., equivalent butter 21 lbs. 0.9 oz. Fourteen-day record: days from calving 10: Milk 899.3 lbs,, butter fat 34.944 lbs., equivalent butter 39 lbs, 6.1 oz. Owner Henry Stevens & Son, Lacona, N. Y.

Aaggie Clothilde Bawn 2d. 43421—6 years, 4 months, 26 days, days from calving 13: Milk 531.4 lbs., butter fat 16.949 lbs., equivalent butter 19 lbs., 12.4 oz.

Agnes DeKol's Queen DeKol 41232—10 years, 6 months, 6 days, days from calving 22: Milk 421.4 lbs. butter fat 16.571 lbs., equivalent butter 19 lbs., 5.3 oz.

Western Duchess 40069—8 years, 5 months, 18 days, days from calving 6: Milk 372.8 lbs., butter fat 15,970 lbs., equivalent butter 18 lbs., 10.1 oz.

Magali 2d 60 W.,—10 years, 8 months, 2 days, days from calving, 7: Milk 442.1 lbs., butter fat 14.565 lbs., equivalent butter, 6 lbs,, 15.9 oz. Owner, John B. Irwin, Minneapolis, Minn.

Queen Alma Marie 49532—5 years, 6 days, days from calving, 27; Milk 450.6 lbs,, butter fat 13.276 lbs., equivalent butter, 15 lbs., 7.8 oz. Owner, John B. Irwin, Minneapolis, Minn.

Lady Kurt Alpha 42193—7 years, 5 months, 21 days, days from calving, 7: Milk 393.5 lbs., butter fat 13.094 lbs., equivalent butter, 15 lbs., 4.4 oz.

DeKol Echo Molly 47140—5 years, 6 months, 19 days, days from calving, 16: Milk 347 lbs., butter fat 12.922 lbs., equivalent butter, 15 lbs., 1.2 oz. Owner, T. A. Mitchell, Weedsport, N. Y.

Lady Bettina Herbert 50553—4 years, 8 months, 29 days, days from calving, 25: Milk 845.3 lbs., butter fat 15.719 lbs., equivalent butter, 18 lbs., 5.4 oz. Owner, T. S. Tompkins, White Bear Lake, Minn.

Nellie Pietertje Hartog 49313-4 years, 7 months, 5 days, days from calving, 20: Milk 521.7 lbs., butter fat 14.958 lbs., equivalent butter, 17 lbs., 7.2 oz.

Kitty Gale DeKol 52870—4 years, 2 months, 7 days, days from calving, 15: Milk 390.3 lbs., butter fat 13.332 lbs., equivalent butter, 15 lbs., 8.9 oz.

Western Princess 49649—4 years, 5 months, 1 day, days from calving, 12: Milk 368 lbs., butter fat 13.090 lbs., equivalent butter, 15 lbs., 4.4 oz.

Princess DeKol Artis 49947—4 years, 7 months, 9 days' days from calving, 17: Milk 352.3 lbs., butter fat 12.335 lbs., equivalent butter 14 lbs., 6.3 oz. Owner, T. A. Mitchell, Weedsport, N. Y.

Miranda Arcturus 50970—4 years, 1 month, 5 days, days from calving, 20: Milk 389 lbs., butter fat 11.750 lbs., equivalent butter 13 lbs., 11.3 oz.

Jessie Griepe 2d 50668—4 years, 4 months, 24 days, days from calving, 33: Milk 326.8 lbs., butter fat 11.610 lbs., equivalent butter, 13 lbs., 8.7 oz.

Violet Netherland DeKol 48353 — 4 years, 5 months, 19 days, days from calving, 39: Milk 327.6 lbs., butter fat 11.544 lbs., equivalent butter 13 lbs., 7.5 oz.

Aaltje Salo Erna 53933—3 years, 6 months, 19 days, days from calving, 20: Milk 434.1 lbs., butter fat 14.032 lbs., equivalent butter, 16 lbs., 5.9 oz. Owner, T. S. Tompkins, White Bear Lake, Minn.

Kaan Marie Mechthilde 53732—3 years, 10 months. 1 day, days after calving 49: Milk 403.6 lbs., butter fat 13.989 lbs., equivalent butter 16 lbs., 5.1 oz. Thirty day record: days from calving 35: Milk 1.702.3 lbs., butter fat 54.826 lbs., equivalent butter 63 lbs., 15.4 oz. Owner, John B. Irwin, Minneapolis, Minn.

Sierra Blanco 52257—3 years, 8 months, 10 days, days from calving 8: Milk 382.7 lbs., butter fat 13.390 lbs., equivalent butter 15 lbs., 10 oz.

Pantomime Blanco 55199—3 years, 3 months, 10 days, days from calving 11: Milk 442.6 lbs., butter fat 12.866 lbs., equivalent butter 15 lbs., 0.2 oz.

Heilo Aaggie Johanna 3d. 55020—3 years, 2 months, 13 days, days from calving 6: Milk 318.5 lbs., butter fat 12.192 lbs., equivalent butter 14 lbs., 3.6 oz.

Pontiac Hesseltje Hengerveld 53432—3 years, 5 months, 13 days, days from calvivg 6: Milk 321 lbs., butter fat 11.730 lbs., equivalent butter 13 lbs., 11 oz.

Wisconsin Bess 3d. 55018—3 years, 3 months, 10 days, days from calving 7; Milk 303.1 lbs., butter fat 11.717 lbs., equivalent butter 13 lbs., 10.7 oz.

Manor Josie Jane 54502—3 years, 1 month, 6 days, days from calving 7: Milk 347 lbs. butter fat 11.416 lbs., equivalent butter 13 lbs., 5.1 oz.

Jewel Colantha Mercedes 56650—3 years, 1 month, 25 days, days from calving 10: Milk 293 lbs., butter fat 10.530 lbs., equivalent butter 12 lbs., 4.6 oz. Owner, T. S. Tompkins, White Bear Lake, Minn.

Mabel Haskins Mechthilde 55876—3 years, 29 days, days from calving 11: Milk 381.5 lbs., butter fat 10.359 lbs., equivalent butter 12 lbs., 1.4 oz.

Helena Burke Butter Cup 54491—3 years, 1 month. 23 days, days from calving 9: Milk 309.9 lbs., butter fat 10.302 lbs., equivalent butter 12 lbs., 0.3 oz.

Pontiac Erato 53448—3 years, 25 days, days from calving 8: Milk 255 lbs., butter fat 9.571 lbs., equivalent butter 11 lbs., 2.7 oz.

Pontiac Euterpe 53442—3 years, 2 months, 24 days, days from calving 9: Milk 268 lbs., butter fat 9.986 lbs., equivalent butter 11 lbs., 10.4 oz.

Korndyke Artis Duchess 56393—3 years, 3 months, 12 days, days after calving, 9: Milk 338.5 lbs., butter fat 9.328 lbs., equivalent butter 10 lbs., 14.1 oz. Owner T. A. Mitchell, Weedsport, N. Y.

Pontiac Pauline Hengerveld 53444—3 years, 1 month, 28 days, days from calving, 22: Milk 248 lbs., butter fat 9.573 lbs., equivalent butter, 11 lbs., 2.7 oz.

Pauline Paul Georgie 2d 56544—2 years, 4 months, 21 days, days from calving 15: Milk 324.7 lbs., butter fat 11.734 lbs., equivalent butter, 13 lbs., 11 oz. Fourteen day record: days from calving 9: Milk 616.4 lbs., butter fat 23.064 lbs., equivalent butter 26 lbs., 14.5 oz. Owner Henry Stevens & Son, Lacona, N. Y.

Terra Alba DeKol 55201—2 years, 10 months, 14 days, days from calving 15: Milk, 274 lbs., butter fat 10.964 lbs., equivalent butter 12 lbs., 12.7 oz.

Wilhelma Butter Girl 65048—2 years, 6 months, 14 days, days from calving 18: Milk 336.7 lbs., butter fat 10.518 lbs., equivalent butter 12 lbs., 4.3 oz. Fourteen-day record, days from calving, 13: Milk 662.2 lbs., butter fat 20.547 lbs., equivalent butter 23 lbs., 15.6 oz. Owner Henry Stevens & Son, Lacona, N. Y.

Aaltje Salo Freda 61564—2 years, 5 days, days from calving 11: Milk 278.5 lbs., butter fat 9.828 lbs., equivalent butter 11 lbs., 7.5 oz. Owner T. S. Tompkins, White Bear Lake, Minn.

Gerben DeKol Mercedes 61091—2 years,16 days, days from calving 26: Milk 255.7 lbs., butter fat 8.476 lbs., equivalent butter, 9 lbs., 14.2 oz. Owner T. S. Tompkins, White Bear Lake, Minn,

Lillian Walker 2d 57094—2 years, 4 months, 17 days, days from calving, 19: Milk 334.4 lbs., butter fat 8.187 lbs., equivalent butter, 9 lbs., 8.8 oz.

Kaan Marie Jewel 61132—1 year, 10 months, 23 days, days from calving, 34: Milk 252.6 lbs., butter fat 8.077 lbs., equivalent butter, 9 lbs., 6.8 oz. Owner John B. Irwin, Minneapolis, Minn.

Snowball Pink 59077—2 years,4 months, 8 days, days from calving 96: Milk 197.2 lbs., butter fat 7.941 lbs., equivalent butter 9 lbs., 4.2 oz.

Mercedes Jewel DeKol 61095—1 year,11 months, 22 days, days from calving 42: Milk 262.4 lbs., butter fat 7.261 lbs., equivalent butter, 8 lbs., 7.5 oz. Owner T. S. Thompkins, White Bear Lake, Minn.

S. HOXIE,
Supt. of Advanced Registry.

Yorkville, N. Y., Nov. 12, 1903.

DON'T PUT OFF

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360 acre farm, 4½ miles from Crookston, Minn., a city of 7,000 inhabitants, and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 feet square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm is under a high state of cultivation, and is well drained by a slight ravine running through the farm merely sufficient for self drainage. The soil is a rich, deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building, This is a very choice piece of land for the price $32.50.

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Wise Words on Swine Husbandry.

In the Wisconsin Farmers' Institute Bulletin No. 10 of 1896, will be found one of the splendid talks of that wonderfully wise old man, Theodore Louis, on Swine Husbandry. There is so much wisdom in it that we wish we had room for the whole address but we must be content with the following extracts:

We must learn to become breeders. I do not mean that we can be elevated all at once to the standard of a scientific breeder, but I believe that it is the mission of every farmer, and especially of the younger men, that they should understand the principles of breeding in order that the animal that we have upon our hands shall be of benefit to our herd.

We say we have an animal of early maturity today. Very true, we have; we have improved the hog immensely; we have increased its digestive capacity. The intestines of the old type of hog were only nine times the length of his body. Man has increased that to twenty-two times the length of his body. We have an animal of early maturity—we have an animal that can consume more food. Let us not forget at the same time that we have an animal that eats the greatest amount of food in the shortest given time, and gives the greatest returns, digesting it more quickly.

Market Them Young.

What does early maturity mean? As generally accepted it means that we dare breed the animal at an early age, but what is early maturity? Early maturity means that we have created an animal that we can put upon the market at an early age. Ten years ago when I spoke in this city at a Farmers' Institute, three-quarters of the farmers of the state wintered their animals, and it was the eighteen or nineteen months old hog that was put upon the market. I said then, "Why, it takes so much more food to feed an animal up to that age, it don't pay." And I was often ridiculed. I labored hard to bring the subject before the farmers of the state of Wisconsin. Our Experiment Station came to my assistance in later years, and we have demonstrated to the farmers that when we raise a hog that weighs 400 pounds, that it takes at least eight pounds for the food of support, while it takes only two and a half pounds for food of support for a 100-pound animal, and it only takes four and a half pounds of food to make one pound of gain on the animal that we have before us. It seemed to be a new thought, a new idea, at the time that I made that assertion. The intelligent farmer who has attended the institute and kept pace with the improvements, knows now that this is true. I met an old acquaintance this morning in the street, and I said: "Are you coming to the institute?" He said: "No, sir, there is no need for me or my boys to come. You men are well paid for talking, and you are simply book-farmers and I can't learn from you." Oh, it is a pity that we know so much, and know it all, and have nothing to forget.

Grow Proper Feeds.

But this is not alone what you are doing, many of you. You are not only feeding corn to shoats, but you are carrying hogs, keeping them over and you are feeding that same corn to your brood sows at the same time. First we ruin the mother, then we ruin the growing pig by feeding him on corn, and corn alone. He is not growing. He is simply accumulating fat, and is making a slow growth. It is not the weak bone that you complain of, that you got from your breeder, from the stock you have paid money for—no, it is your own ignorance of the principles of feeding. You are ruining the young animal on food that is not making muscle, bone or strength. There is one principle of feeding. The other principle of feeding is to ask ourselves what shall we grow when we intend to raise hogs upon the farm? I know that here in the state of Wisconsin I do not meet with the difficulty that I met in the states west, because you have clover upon your farms—you can grow clover to advantage, while to the Western man upon those big prairies and plains, it is yet a great question how to grow clover. Then let us that are in a position to do so, grow feeds that we need, in order to feed the breeding animal, and at the same time grow the growing pig before we fatten and finish him for the market. If young brood sows and sires would receive more attention during the time of their development by being fed on foods and feeding material calculated in its nature to build up their frames and constitutional vigor, we would have less to complain of in the line of heriditary ailments, loss of prolificness, size and inability at the time of parturition. We are the architects, and nature furnishes an abundance of material from which to build successfully.

Mistakes That Are Made.

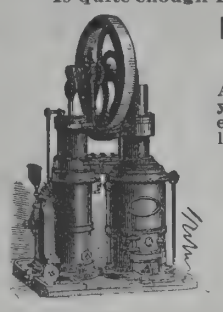
The principle of early maturity was what I might really call the salvation of the swine breeder. He often grumbled that the market demanded an animal of only 200 or 250 lbs., and did not know that that was his advantage, that the hog is an animal that must grow from the time it is born till it goes to the block, and it can be made a very profitable animal. I have had 60 and 70 hogs that I carried through the winter, and my corn cribs were full in Dec. and my hogs weighed 100 lbs. apiece. The next year I wanted to put them on the market because I wanted to run them upon the clover field, so as to have a heavy hog on the market. We were selling our hogs in those days upon the lumberman's market. What was the result? I fed these hogs, I gave them about three lbs of grain each day, which was simply the food of support, and they weighed 100 lbs in March just as they did in December, and my corn cribs were empty. There are lots of men doing the same thing to-day. Now, then, while I have stated that early maturity is our advantage so far as feeding and selling of the animal is concerned, we are many of us making another mistake—we are breeding the animals too early. I often receive letters asking me what ails the pigs. I cannot enumerate all the different ailments and all the besetments and trouble that I am told about in these letters. We must be careful not to breed from immature animals. I will venture to say, and it is quite a venture, that nine-tenths of the swine breeders in this audience are breeding from immature animals. That is a venture, for me, because I am not acquainted any more with the agriculture of my state, but I believe that the improvement in this respect has been as slow in Wisconsin as it is in any other state. Let us remember that while an animal is mature as an improved animal at 12 months of age, it is not in any sense a mature animal for breeding purposes. The parent stock should first perfect itself in growth and maturity, in constitution and vigor, before we can expect perfect offspring. The man who each year sacrifices the old sow from his farm, that has been a good mother and a good milker, and has given him a good profit, sacrifices one of the best pieces of property away from his farm. The sow must stand in the place of the cow. I know I am talking to dairymen in this section of the country. I know you are depending upon your by-products. You must save yourselves from immature stock and stock that is liable to disease, and that will not give you the same result for the food consumed as if the stock had been bred from a larger and more perfect mother. On my place the sow must stand in the place of the cow, and do you know that the sow will give as much milk as your average dairy cow during the twenty-four hours? Don't ask me if I ever milked one. I believe that every young man should have a pair of scales upon his farm. A thousand-pound Chicago scale costs only $12.00. I gave a pair to my son, and I believe that nothing ever went upon the farm that paid itself better. It is only when we pass an animal over the scales and see what we are gaining in our feeding that we become intelligent feeders.

Select Good Breeders.

If you take a litter of pigs the morning after they are born, and put them in a basket and on the scales, you will find they weigh all the way from sixteen to eighteen pounds, according to the age and size of the mother; then if you weigh them the next morning and every twenty-four hours in succession, you will find that they have made a live weight gain of all the way from two pounds, three, three and a half, four, and as high as five lbs., and in order to gain this weight the sow must have given at the least consideration twenty-five or thirty pounds of milk during the twenty-four hours. That is the way I have milked her. It takes eleven pounds of milk to make one pound of live weight in a fifty-pound pig, and so I can easily calculate. I don't know how many litters of pigs I have weighed on my place. Now, then, gentleman, if you have a mother that is a good milker, a good mother of a kind disposition, and of good bearing, keep her on the farm, and do not discard her and breed from immature hogs at the age of 8 or 9

HALF ENOUGH WATER

Is quite enough for some people, but most people want water every day. If

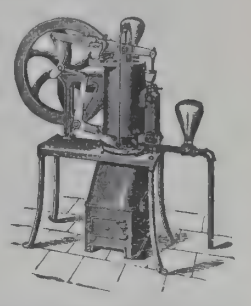


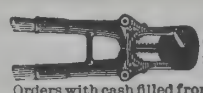
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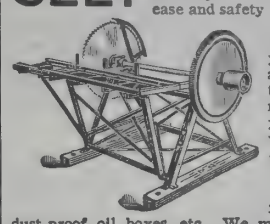
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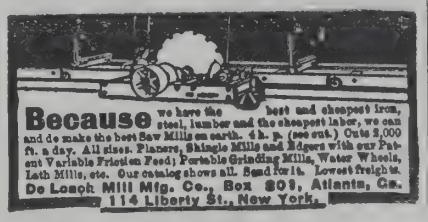
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De Loach Mill Mfg. Co., Box 801, Atlanta, Ga. 114 Liberty St., New York.

PAGE

THE FIVE BOTTOM WIRES

in Page Hog Fences are only three inches apart That's closer, and catches small pigs.

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DOUBLE CAM BRADLEY STEEL HAY PRESS

One horse can operate it. Very easy for two. Send for circular.

NOT A COG NOR CHAIN ABOUT IT.



Simplest Press Made.

Lifting Jack goes with each Press. Powerful—puts full weight into box car. Tracks with a wagon; 2 horses draw it on common roads.

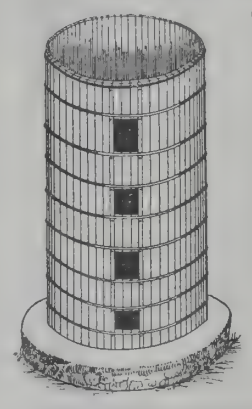
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Square Mesh, Dimond Mesh Fence Plain, Galvanized, Barbed, or Telephone Wire. Write for illustrated catalog and price list.

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TIME!

Its time for dairymen to act if they want the benefits of a silo this season. You should place your order NOW.

if you want the best, and the best is always the cheapest, especially in Silos. Write us for prices and circular.

If you are in the market we can save you money.

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ROUND SILOS. No corners, no angles, hence no moulding, rotting and waste. Cypress, White Pine and White Hemlock. 4 styles; 200 sizes. Best and cheapest Silos on earth. All kinds Silo machinery. Catalog free.

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Perfection in design, simplicity, and superior workmanship and finish make the

H. & R. Single Gun

the best holiday gift. Your dealer can supply or we will sell to you direct.

Harrington & Richardson Arms Co.

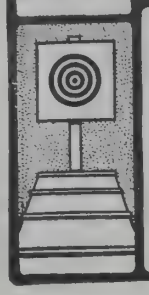
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Makers of H. & R. Revolvers.

CATALOG FOR POSTAL

WINCHESTER

RIFLE & PISTOL CARTRIDGES.



"It's the shots that hit that count." Winchester Rifle and Pistol Cartridges in all calibers hit, that is, they shoot accurately and strike a good, hard, penetrating blow. This is the kind of cartridges you will get, if you insist on having the time-tried Winchester make.

ALL DEALERS SELL WINCHESTER MAKE OF CARTRIDGES.

months; that is to say, they should not farrow until 12 months old.

You complain of your swine breeders; when your stock goes down, you say they grow too fine a bone, they grow too small in size, and you say your litters are not enough in number. Do not charge the breeders with the imperfections of your stock. You ought not to, but blame yourself—your ignorance in not knowing how to breed or make a selection.

Selection is the first point in breeding, and I say every young man should become an intelligent selector, and should learn when he has a good mother to keep her on his place as long as she remains a good mother, and treat her with the kindest regard. All such animals are representative of motherhood, and should be treated with the utmost kindness.

FEED AND SHELTER.

Now, then, in regard to feeding and shelter. We have heard today of barn building. We have heard of house building. We have had most all the steps of agriculture before us, but where does your hog sleep, if you please? Who of you men have a hog house? Not very long ago a man whom I respected highly said to me: "Mr. Louis, a hog house is a nuisance, it breeds disease." He is a dairyman, and I asked him if his cow barn and his horse barn bred disease among his cows and horses. He said: "No, of course not. We clean them out." "Well, then," said I, "why don't you clean out your hog house?" On what do the hogs depend for shelter on the majority of farms? On the straw pile; that is where it is. I have no doubt that some of the men who are here today at this institute let their hogs sleep in the straw pile, and they told their wives this morning that they were going to feed the hogs before they left, and then forgot to do it. That is always the last chore on the farm, because the farmer thinks it is of no importance. If he didn't forget it, he went out, took a bushel of corn, and called the hogs, throwing it, regardless of any condition the ground may offer for a feeding place; that was the first step toward profitable or unprofitable feeding. He did not notice that the hogs were standing there trembling, and that they had slept in a condition where they had become heated, being piled on top of each other, and when they came out in the morning they began coughing. This man goes to his neighbor and says: "Do you know what is good for hogs that cough?" Yes, I know; hogs have worms when they cough. Give them some turpentine." Or he will write me a letter, and will say: "Mr. Louis, my hogs are breaking down in the loins; they have paralysis; they are dragging their hind legs behind them; they can't walk or stand up. My neighbors say they have kidney worms." No, they haven't anything of the kind, but they have slept in a position where they could not help but take cold, or else they are overfed, and paralysis of the loins had taken place. Then, again, when this man threw down the corn, did he notice to see that it was masticated, or that it was digested? Has he ever looked into the excrement of his animals? The intelligent feeder knows about these things. One December day my son was feeding thirty or forty shoats; he is an intelligent feeder and I said to him: "My dear sir, is it not time that you commenced to grind your corn?" He said: "Why?" Said I: "The excrement of these animals shows that they are not digesting and assimilating their food as they should." Said he: "Father, corn is cheap. We in the West here raised an immense crop." I will tell you what I told him then. I told him to come "Joseph" on that corn, for we didn't know what the next year would bring forth. I think we must come "Joseph" on our feed at all times and obtain the best possible results for grain consumed, be it cheap or dear.

A Connecticut Ration—Brewers Grains.

Will you please formulate a feed ration for me, for milch cows weighing 1,000 lbs. or more, consisting of dried brewers grains, good ensilage and mixed hay. For grain, can use bran, cotton seed, or corn meal. Being somewhat short of hay and ensilage, I have purchased a car of the dried brewers grains to help out, and wishing to make the brewers grains the "basis" of my ration, will you, in formulating a ration, include as much of the brewers grains as will be possible, and still be in the bounds of safety. Do the brewers grains need to be soaked, and if so, how much? Will it do to feed them to dry cows? Will it do to feed them to yearling heifers? Which are the best, the brewers grains or malt sprouts? R. L. S.

Wapping, Conn.

There is but little difference in the feeding value of brewers grains (dried) and malt sprouts, but the latter are not quite as palatable to some cows and can be fed only in limited amounts.

We think it would be safe to bring cows up by degrees to eat 10 lbs. per day of the dried grains, with 4 to 6 lbs. of ground corn, and silage and hay *ad libitum*, but in feeding that amount of grains we should prefer to soak them for 12 hours before feeding, in order that the stomach might be fully distended during the process of eating.

It is entirely probable that some cows fed as above would lay on too much body fat, and soon as such a condition is observed the allowance of grains and corn should be lessened. A dairyman should always be a careful feeder, with his eyes constantly on the milk pail and the condition of his cows. The cow that does not give a good account at the pail for the feed consumed, but is turning it into unprofitable body fat, should be called to account and have her allowance curtailed. The "grains" can be safely fed to dry cows and yearling heifers, but the amount should be carefully adjusted to results.

Jamaica Queries.

Where can I get a book that teaches the making of butter and cheese; also the best way to teach cows to eat grain that never ate it before; also please say which breed is the best milkers, viz.: the Guernseys, Jerseys or the Holsteins? R. A. T.

Jamaica, W. I.

Gurler's "American Dairying" and Monrad's A. B. C. of Cheesemaking, are among the best books for the beginner in butter and cheese making. They can be had from this office, postage prepaid, the former for $1 and the latter for $.50.

It is impossible to lay down any rule for teaching cows to eat grain. We have no difficulty of that kind here, except that our cows will sometimes refuse to eat some of the new varieties of feeds put upon the market. In such cases, we try first one way, perhaps by mixing salt with the feed, and if that does not win, some other way, perhaps by crowding a little of the feed into the mouth, so that taste will overbalance odor, or as a last resort, let hunger sharpen the appetite and dispel prejudice.

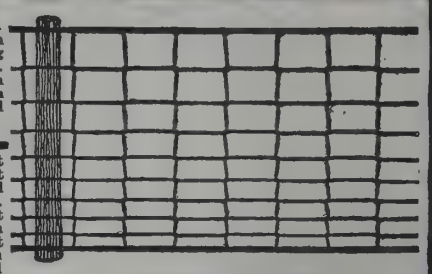
The Holstein breed of cows is especially noted for yielding a large flow of milk carrying a comparatively low per cent fat—generally between 3 and 4—whereas Guernseys and Jerseys yield less milk, but with a larger per cent of fat—usually from 4½ to 6 per cent. There are deep milking Guernseys and Jerseys, approaching the average Holstein in this respect—the general rule with all being that the greater the yield of milk the less the per cent of fat. If one has a centrifugal separator for creaming milk there is so little room for a choice between the breeds named, whether for butter or cheese, that one may safely follow his individual preferences. Undoubtedly the average Holstein will make more cheese, but what the Guernsey or Jersey may lack in quantity will be made up in quality.

The First Thing to do

If you are going to buy any fence this season, the first to do, for your own protection, is to send for FREE FENCE BOOK

It tells all about ADVANCE FENCING which is without question of doubt the best fencing on the American market. It also tells how you can buy this fence Direct from the Factory at wholesale prices, freight paid to your station, doing away with all dealer's and jobber's profits. It also tells how Advance Fencing is sent to you ON 30 DAYS' FREE TRIAL so that you may have every opportunity of being perfectly satisfied that you have the best that your money can buy. Our Fence Book gives description and prices on twenty-three different styles of woven wire fencing, a fence for every need on the farm, garden or poultry yards, and also tells why Advance Fencing is the most desirable kind to have on the farm. It has many points of merit. It has no loose ends, the stay wire is not cut at the top and bottom as in other fence, but is woven into the top and bottom strands between the stays. The Advance Tie is perfect, the stays cannot slip. ADVANCE FENCE is made of heavy material throughout. You should send for our Fence Book at once, it is FREE. Your name and address on a postal card, directed to us will bring the Fence Book. It pays to keep posted. Write today. Do It Now.





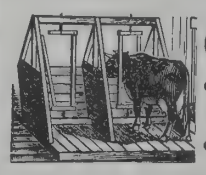
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The Most Practical CATTLE FASTENER ever invented. Manufactured and For sale by O. H. ROBERTSON, Forestville, Conn.

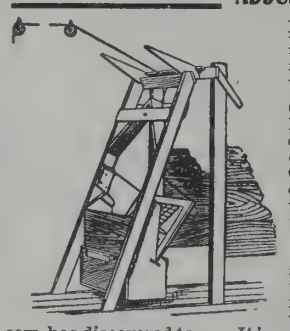


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Consisting of Manure Carrier, Feed Carrier, Ensilage Carrier, Grain Elevator, Swivel Hay-Carrier, Hay Forks and Barn Door Fixtures. This system of carriers is built for Heavy Work and Durability. By the use of our Curves and Switches we can equip any barn. Send for illustrated Catalogue H and price list to

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JUST OUT! UNDERHILL SELF ADJUSTING STALL

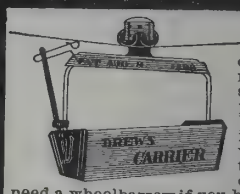


No Gutters
No Platforms
No Fastenings
No Stables to clean

Cease trying to keep your cows clean. You can't do it. Give them a chance and they will do it themselves. This is the only way and the easy way. Write for circular telling what the cow has discovered to us. It is a great revelation,

Wm. M. UNDERHILL, Oconto, Wis.

"WATCH IT WORK FOR YOU"



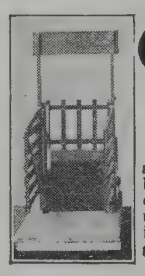
A Drew Elevated Carrier carries the manure from your stables to any point in your barnyard, drops it on pile or in wagon, and returns automatically. You don't need a wheelbarrow if you have a

DREW ELEVATED CARRIER

It's simple—costs but little—always works. Hundreds of farmers have them. Write for our illustrated catalogue, etc. It's FREE.

Drew Elevated Carrier Co., Waterloo, Wis. U. S. A.

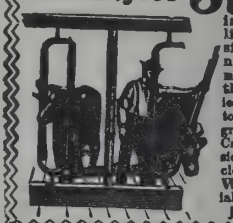
THE NEW PATENT Cow Stall AND FEED TROUGH.



This is the only Cow Stall with a centering hinge. Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars.

R. A. McLERY & CO., Palmyra, Wis.

This Taylor Stanchion

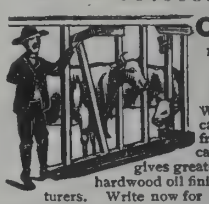


is made of angle steel lined with hard wood on side next the animal's neck. It is lighter, neater and stronger than any other stanchion made. Swings on chain at top and bottom and admits of greatest freedom of motion. Cattle can lay with head on side. Easiest opened and closed. Reliable Agents Wanted. Write for special terms, prices, etc.

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The BEST Cattle Fastening. SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated circular free. GLENORA MFG. CO. Glenora, Yates county, N. Y. Infringements will be prosecuted.



Only One Hand needed to stanchion Cattle if you have our Steel Latch Stanchion

When open is locked ready for cattle to come in; closed, it swings freely. Best dairy cattle tie because comfortable and quiet; gives greatest freedom. Made of selected hardwood oil finished. We are the sole manufacturers. Write now for circulars and delivered prices.

TOLEDO PLOW CO., Dept. H, TOLEDO, OHIO.





Prescott's Swinging Swivel tanchion



Keeps Cows Clean.

Swings forward while getting up or lying down. Locks back while standing. Full particulars free.

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WILDER'S PATENT SWING STANCHIONS

Chain or Pin Fastened.

Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.

Safest, Strongest, Most Convenient

fastening made. Cheapest to put in and save room in barn. Send for Stanchion Catalog to

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BIG SELLER FOR GOOD AGENTS

THE FOSTER STEEL STANCHION

Best cow fastener. All metal. Strong, durable and convenient. Liberal terms to hustling agents. Ask for circular No. 3

Frank H. Battles, Seed Grower Rochester, N.Y.

Maine State Dairy Meeting.

(Continued from page 1012)

and he has insisted that the cows take the hardy treatment, which along with the cracks in the barns are responsible for the decline of a breed accustomed to better things and capable of greater development under more congenial environment.

Under the title, the Relation of State to Rural Schools, Prof. Sanborn of Gilmanton, N. H. opened the evening session of second day and gave an address on the Origin of the Public School System in New England. He showed that the State claims the right to control the education of the child, and that in a Republic that is right. He also showed that the country schools are in session often less than three months in the year and that the children can make little advancement under this state of afiairs. He insisted that political lines be obliterated, and children be brought by the state to points where good graded schools can be established—schools that will equal those of the large town and cities.

Dr. Fellows, President of the University of Maine, followed with an address on Technical Training for Practical Life. This was given in the easy, off-hand manner of one accustomed to talking on this subject. The illustrations were apt and easily understood.

The Cow, the Friend of the Family, was the theme of R. W. Ellis, who gave some personal experience of early days in the family of an old-time Methodist minister, and how a cow reinforced by her own progeny, helped the family to pay for a little place and thus to own a home of its own. He then enumerated some of the luxuries and necessaries of life, which would be sadly missed if it were not for the cow.

Eight o'clock of the third day was set for examination of the exhibits of machinery and awards of the judges. The cards showing prizes were not in place, however, until midday, and a number of members with ladies inspected a fox farm in the surburbs.

The annual election of officers was set for 8:45 a. m., and occupied a considerable part of the session.

President Alden was unanimously re-elected, but declined to serve longer and after some eloquent urging, he still persisted, whereupon Mr. F. S. Adams, Bowdoinham, was elected president.

The full list of officers elected follow: Vice-President, C. L. Jones, Corinna; Secretary, L. W. Dyer, Woodford's; Treasurer, Rutillus Alden, Winthrop; Trustee, W. K. Hamlin, So. Waterford; Advisary member Experiment Station, Rutillus Alden; Committee on Resolutions, G. M. Gowell, Orono; L. C. Bateman, Auburn, and Z. A. Gilbert, North Greene.

The corresponding secretaries were all re-elected. Some every-day problems on a dairy farm were discussed by the President-elect, and Prof. Hurd, University of Maine, read a very practical, scientific paper on, Relation of the Farm to the Dairy Cow. Hon. S. M. King, South Paris, upheld the Jersey breed with a paper quite as full of facts and figures as was that of the Holstein-Friesian advocate.

Dr. W. H. Jordan, of New York, failed to arrive, and his place on the program was filled, as announced at end of morning session but by whom and the address we did not stop to hear, and also missed Dairy Laws and Their Enforcement by Geo. M. Whittaker, Boston.

The University speakers were accompanied by the Freshman class in Agriculture, a sturdy lot of boys who evidently were alive as to the time and place in which to applaud vigorously. The boys seemed to be attentive to all speakers and profiting by this opportunity to attend a state dairymen's association meeting.

As a source of much deep thought the coming year it seemed to us that the Maine farmers must take into consideration the arraignment of themselves in the careful statements concerning the retrograde movement of the Jersey breed in Maine. They must give their stock more favorable conditions, if they keep the state up in the procession as one of the recognized dairy states. The cows must be bred at home to do this, and they must be born with constitution enough to live, and equal or excel the records of their dams.

The paper by Mr. Gilbert was not much unlike one by one of England's greatest authors and veterinarians, on abuses, which at one period in his time threatened the Ayrshire breed in their native country; but in that case the Scots neglected to breed their own cows, depending on purchase, until the breed was reduced, but here it has been admitted that there are two causes for deterioration; in one case, over stimulation for the encouraging of the milking habit, and keeping the newly introduced breed under conditions less favorable than those to which the breed had been accustomed.

A knowledge of the causes and pointing out the evil effects are the most important steps toward the move to recover the ground lost with these dairy cows. It is not flattering, but the brave friend who has courageously pointed out what he has seen, is thereby doing the state and his brother dairymen a high service. We shall look for a reform and improvement here.

FRANK E. EMERY.

Maine.

"ADVERTISEMENT."

FORGET YOU EVER HAD IT.

Catarrh, the Most Odious of All Diseases Stamped Out, Root and Branch.

Catarrh is the most foul and offensive disease that afflicts the human race. Any one with social ambitions had better renounce them if he has a bad case of catarrh, for his presence, if tolerated at all, will be endured under protest. The foul, and sickening breath, the watery eyes, the hawking and spitting and fetid discharge at the nose make the unfortunate sufferer the most avoided of human beings.

Stuart's Catarrh Tablets are the hope and relief of catarrh victims all over the world. They go direct to the root of the disease and thoroughly eradicate it from the human system. They cleanse and purify the blood of all catarrhal poisons and under their influence all impurities are carried off. The blood becomes pure, the eye brightens, the head is cleared, the breath becomes sweet, the lost sense of smell is restored, the discharges cease and the sufferer again feels that he has something to live for. He is again a man among men and can meet his fellow-beings with satisfaction and pleasure.

The following letter from a St. Louis lawyer is only one of thousands received praising the merits and curative powers of Stuart's Catarrh Tablets. Read what he says:

"I suffered from catarrh for 15 years. It would be worse at certain seasons than others, but never failed to annoy me and cause me more or less misery during that period. About a year ago I got so bad that I thought of abandoning my practice. I was a nuisance to myself and all who came near me. My condition was very humiliating and especially so in the court room. I had tried, I thought, every known remedy; all kinds of balms, ointments, inhalers, sprays, etc., till I thought I had completed the list. I was finally told of Stuart's Catarrh Tablets by a friend who took pity on me and, as a drowning man will catch at a straw, I got some and began taking them. I began to improve from the first day and I kept up the good work you may rest assured. In six weeks I was as free from catarrh as the day I was born, but to make assurance doubly sure, I continued the treatment for six weeks longer.

"I have had no trace of catarrh in my system since. I am entirely free from the odious disease and feel like a new man. I write this letter unsolicited for the benefit of fellow-sufferers and you may give it as widespread publicity as you wish."

Stuart's Catarrh Tablets are for sale by all druggists at 50 cts. a box.

SURE CURE! RUPTURE



Brooks Appliance. New discovery. No obnoxious springs or pads. Automatic Air Cushion. **Binds and draws the broken parts together as you would a broken limb.** No salves. No lymphol. No lies. Durable, cheap. Pat. Sept. 10, '01. Sent on trial. Catalogue free.

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St. Jacobs Oil

CURES.

THE ONLY LOW DOWN

Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the market.

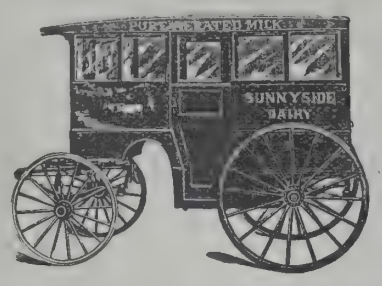


20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished.

Send for catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.

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Sole Manufacturers,
DE KALB, - ILLINOIS.



The National

LOW DOWN CUT-UNDER

justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

THE NATIONAL WAGON COMPANY, Chillicothe, Ohio.

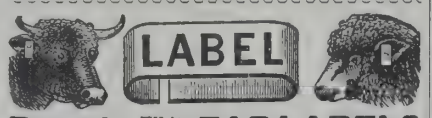


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Aluminum Ear Markers

are the best. Being made of aluminum they are brighter, lighter, stronger and more durable than any other. Fit any part of the ear. Nothing to catch on feed trough or other obstacle. Your name, address and any series of numbers on each tag. **Sample tag,** catalogue and prices **mailed free.** Ask for them. Address

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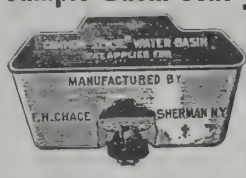


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stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Sample free. **Agents Wanted.**

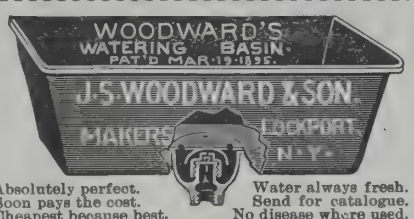
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Basins are fitted with **Self Closing** Cover which prevents all dirt and sediment from gitting into them. Send for catalogue and price list.

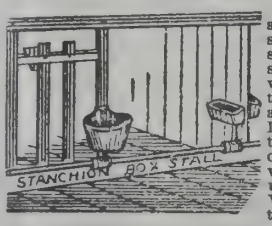
F. H. CHASE,
Sherman, N. Y.



Absolutely perfect. Soon pays the cost. Cheapest because best.

Water always fresh. Send for catalogue. No disease where used.

Water In The Stable a Necessity.



It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. **Why not use the Best?** Write for descriptive circular.

C. E. BUCKLEY & CO., Poughkeepsie, N. Y.

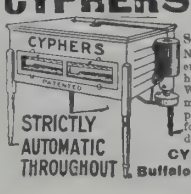


Iron Troughs

First Lot at Wholesale. Can't break or rot, nice round rim, any size or shape. Write for circular of **Cow Basin,** Poultry and Stock Troughs. Who will be first.

D. H. BAUSMAN, Bausman, Lanc. Co., Pa. We make Steel Swings. Fine Booklet Free.

CYPHERS Incubators



Patent Diaphragm, Non-Moisture, Self-Ventilating, Self-Regulating. No other Incubator has or can have our patented features. No other Incubator will hatch so many large and vigorous chicks. We guarantee this or will refund your money. Adopted by 36 Government Experiment Stations. Complete catalogue for 1904 free if you name this paper. Address nearest office when writing.

CYPHERS INCUBATOR CO.
Buffalo, Chicago, Boston, New York,



$62.75

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Highest Grades. Lowest Prices. Guaranteed. Shipped on Approval. Full line Buggies and Harness. Write for Catalogue and Prices.

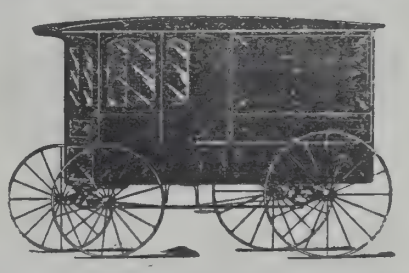
SAVE DEALERS' PROFITS

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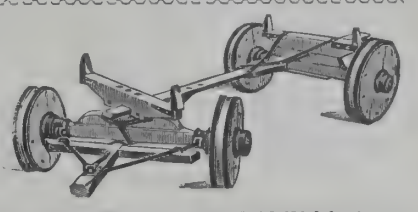
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TERMS—½ Cash and balance 1, 2, 3, and 4 months notes or 5 per cent discount for cash



We make 10 styles. Write for our Form E. Catalogue and Price List.

THE O. ARMLEDER CO., Cincinnati, O



The HILLSDALE LOW DOWN Wagons

and Wheels to fit your old wagons. Price reduced.

HILLSDALE WHEEL CO., Hillsdale, Mich.

PROFITABLE CALVES raised with **Keystone Calf Feeder.** Easy Cleaned. Perfect Results. Send for Free Book.

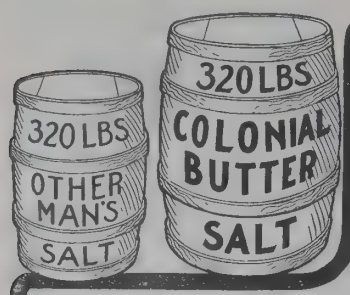
M. T. PHILLIPS, Box 13, Pomeroy, Pa.



WE LEAD THE WORLD

We are the largest manufacturers of Grooved and Plain Tire Steel Farm Wagon Wheels in America. We guarantee our patent Grooved Tire Wheels to be the best made by anybody anywhere. Write us.

HAVANA METAL WHEEL CO,
HAVANA, ILL.



"Money Makers for Butter Makers"

Even though it were not apparent that

COLONIAL BUTTER SALT

AND

LIBERTY BUTTER SALT

are superior to all other kinds in flavor, color and purity, there would always be apparent the fact that they are superior in lightness, bulk for bulk. Take the barrel that holds 320 lbs. of the other man's salt; it will hold but 225 lbs. of Colonial Butter Salt. The usual salt barrel has a 30 inch stave and a 19 or 20 inch head. The Colonial barrel has a 34 inch stave and a 21 inch head, to hold the same net weight of salt.

The lightness of the salt makes it dissolve quickly and evenly and prevents washing out in the working, and if there is any value in the "make weight" theory, this salt stands at the head in that respect.

THE FLAVOR IS PERFECT
THE COLOR PERFECT WHITE

The purity over 99 per cent, hightest in the world. PROVE IT YOURSELF. To those who have never used Colonial Butter Salt (light, flaky grain) or Liberty Butter Salt (granulated) we shall be glad to deliver, free of charge, to creameries and cheese factories only, a 56 lb. sack of either or both, on request. We only ask, in return, that you report to us your actual success with our salt.

Won't you try it today.

COLONIAL SALT CO., AKRON, OHIO

CHICAGO OFFICE.....841ADAMS ST.

BUTTER FOR UNCLE SAM

THE CONTINENTAL CREAMERY COMPANY
TOPEKA, KANSAS

Has been awarded the contract to supply the United States Navy with half a million pounds of butter for the ensuing year.

For this purpose only the best quality of butter is used, and its keeping quality must be made of the very best, owing to the fact that the entire year's supply must be made within a few months and it is carried through all conditions of climate.

The government has made a thorough study of supplying butter to suit the requirements of the Navy and as a result it has laid down some very exacting standards to which those who bid for these contracts must comply. One of the few concerns who can fulfill these requirements is the Continental Creamery Co. and it was awarded this contract, which is the biggest single order for butter ever filled.

This company produces the greatest quantity of fancy creamery butter in the world, all of which is made from pasteurized cream. Surely it knows something about making good butter. It also knows from actual experience and the investigations of its chemists, that one of the factors in making good butter is

WORCESTER SALT--IT USES NO OTHER

FOR SALE BY ALL CREAMERY SUPPLY HOUSES.

WORCESTER SALT COMPANY
168 DUANE STREET, NEW YORK.

Made for the Man Who Wants the Best.



THE GREAT WESTERN Manure Spreader

is the only Spreader **ENDLESS APRON** and made that has an the many advantages which it possesses. It's always in place and ready to receive the load without any turning back either by hand or complicated, easily broken machinery. The front and rear axles are of same length which, with the

Broad Tires Prevents Rutting

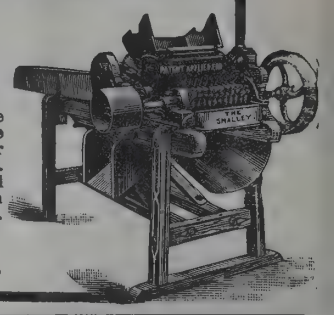
of fields, meadows, etc. and makes wet, dry, frozen, light, chaffy, packed or caked. Spreads lime, plaster, wood ashes, cotton-seed and hulls, etc. **Can be changed instantly to spread thick or thin while the machine is in motion—8 to 25 loads per acre.** Has the only successful **END GATE AND BEATER AND HOOD PROTECTOR IN USE.** Made of best material in every way and sold under a **POSITIVE GUARANTEE** as to **quality, capacity and durability.** All parts breaking within one year will be replaced without charge. **Write for free Illustrated and Descriptive Catalogue**—the best and most complete spreader catalog ever published.

LIGHT DRAFT. SPREADS ALL KINDS OF MANURE,

SMITH MANURE SPREADER CO.16 & 18 S. CLINTON STREET, CHICAGO, ILL.

THE SMALLEY SHREDDER

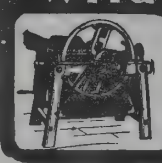
HAS NO EQUAL.



It gives fodder the greatest food value, and makes it easier for the animal to masticate and digest. Requires least power; strong and durable; will outlast a dozen of the saw pattern kind. Knives adjustable to compensate for wear. We can furnish snapper rolls to remove all the ears, just the same as a husker. This combination of cutter, shredder and snapper, costs but little more than the ordinary cutter. We also make drag and circular saws, sweep and tread powers, and ensilage cutters with carriers or blowers to reach any silo. Our free catalogue tells all about our goods. Address Box No. H

SMALLEY MFG. CO., Manitowoc, Wis.

Wilder's Feed and Ensilage Cutters





and Shredders. Try one at your own place; if it does not please you better than any other machine you can buy, we stand all expense. Get our catalogue today. It contains largest line made. On the market 35 years.

Wilder-Strong Implement Co.,
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A Free Trial

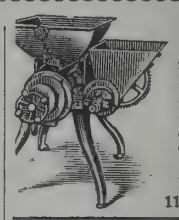


convinces you that this mill grinds the small grains, shelled corn, cob and corn or all mixed, better and faster than any other. Return at our expense if it does not.

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in 3 sizes, are made to meet every feeder's needs and sold at right prices. Suited to any power. It takes but little. Write us for catalogue. It's mailed free.

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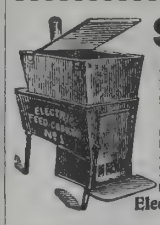


EXCEL GRINDING MILLS.

The Mill that excels them all. Best for the farmer. Grinds 5 to 25 bushels per hour of ear corn or grain of any kind, bone, shell, etc., with from 1 to 8 horse-power. Makes best feed and good meal. Furnished with or without crusher. We have larger mills for every purpose. Write for Catalogue E.

We pay the freight.

Excel Manufacturing Co.,
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SAVE FEED.

Feed is fuel to the animal economy. It is burned up to supply internal heat. If it is heated (cooked) before it goes into the animal's stomach it saves that much fuel (feed).

Electric Feed Cookers

save feed, save money, and produce better results. Made of best cast iron with steel linings; boiler made of extra heavy galvanized steel. Capacity 25 to 100 gallons. Circular and price free.

Electric Wheel Co., Box 130 Quincy, Ills.

ROSS FEED CUTTERS

will save you money. Send for our Free Booklet No. 36 and learn how you can double the value of your corn crop.

SEND 10c for Prof. Wolf's Book on Silage.

THE E. W. ROSS CO.,
Springfield, Ohio.

ROSS ROSS

Farmer's Favorite Feed Cooker



is the model for cooking feed and best adapted to water heating, soap, apple butter and sugar making, etc.—a score of uses. It's made to last. Weight greater than any other cooker of same low price. Write today for circular. Sent free on request.

L. R. Lewis, 10 Main St. Cortland, N.Y.

BOWSHER

(Sold with or without elevator)
CRUSH ear corn *(with or without shucks)* and **GRIND** all kinds of small grain. **Use Conical Shape Grinders. Different from all others.**

LIGHTEST RUNNING.



Handy to Operate. 7 Sizes—2 to 25 h.p. One size for windwheel use.

Also make Sweep Grinders; Geared and Plain.

N.P.D. Bowsher Co., South Bend, Ind.

FEED MILLS



The Best Cooker

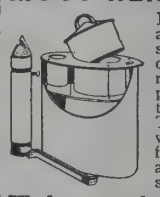
for preparing feed for all kinds of stock is this

PURINTON'S No. 2 Steam Generator

Made of Boiler Steel and tested. Has safety valve and jointed pipe reaching a dozen barrels without unscrewing. All stock thrive better on cooked feed and steam cooked is the best. Never gets burned or scorched. Best boiler for scalding hogs, cleaning around dairies, etc. Quickest steamer on market. Burns any fuel and less of it than any other. Our water supply tank is a great convenience. *We will send a Cooker complete and ready to use on* **One Week's Free Trial.** Catalogue free.

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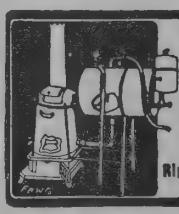
MOST HEAT—LEAST FUEL



Largest firebox. Least expense and trouble. Burns wood, cobs, straw, etc. Jacket and bottom of heavy galvanized iron (double rivited.) Two heavy cast iron plates 8 inches apart compose the double top (our patent.) This double top space connects with manhole and smoke-stack, forming dead air compartment and keeping fire below water surface which saves the heat.

We have a valuable book called "Warm the Water and Save the Feed," which we will send you FREE. It's worth $1.00.

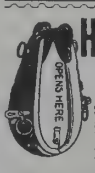
WINONA TANK HEATER
is unconditionally the best heater made. Price $6.50. We pay the freight. Address
WINONA TANK HEATER CO., 82-2ND ST. WINONA, MINN.



RIPPLEY'S Improved Combination STEAM COOKERS

will cook 25 bushels of feed in 2 hours; heat water in stock tank 250 feet away. Will heat dairy, hog and poultry houses. Made of boiler steel; can't blow up; no flues to rust or leak. PRICES $5.00 TO $45.00; 5 styles and 15 sizes. Sold under a guarantee. Endorsed by Experiment Stations. *Catalogue and prices free.*

Rippley Mdw. Co., Box 20 Grafton, Ill.

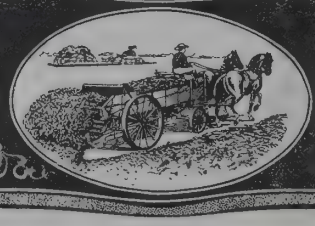


Hameless Horse Collars $1

GALVANIZED STEEL; no pads; adjustable in size; is better and cheaper. Do not gall but CURE SORE SHOULDERS. Send $1.00 and we will send one to your railroad station with privilege of examination before paying balance. Write for particulars. Agents Wanted.

HOWELL & SPAULDING CO., Dept. 5 Caro, Mich.

NEW AMERICAN MANURE SPREADERS



hold from 50 to 100 bushels. Spread just as thin or thick, fine or coarse, as the ground requires. Don't have to stop team to make change. Most substantial, largest capacity, lightest draft. Finely illustrated catalogue free.

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1436 HASTINGS ST. DETROIT, MICH.

HOARD'S DAIRYMAN.

Devoted to [illegible]ng and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., DECEMBER 25, 1903. NUMBER 46

HAND SEPARATOR BUTTER always brings a good price. We make it a specialty. Why sell your cream when you can get from 15% to 20% more for butter? Save "the over-run" for yourself. Send for market quotations and make us a trial shipment.
C. H. WEAVER & CO., 128 South Water St. CHICAGO.
REFERENCE:—Any bank or wholesale house.

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs**
Liberal Advancements Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, New York



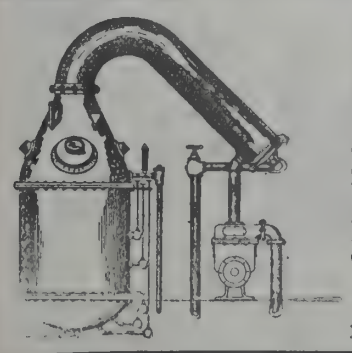
NO COAL TAR IN OURS!
Chr. Hansen's Danish Butter Color
IMPARTS THE PERFECT "JUNE COLOR" TO BUTTER
Has stood the test of more than 30 years. Absolutely pure and harmless
CHR. HANSEN'S LABORATORY, BOX 1003, LITTLE FALLS, N. Y.

HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, BOSTON.**
Medals Bronze 1878 Silver. 1887. World's Fair. 1893.

Thatcher's Orange Butter Color
CONTAINS NO COAL TAR
The pure food agitation makes it imperative that butter makers use a color that is beyond suspicion. Every drop of Thatcher's Orange Butter Color is guaranteed purely vegetable, absolutely harmless and safe anywhere.
We also call your attention to Thatcher's Cream Cheese Color which is recognized by all as the best.
Write for information.
THE STANDARD VEGETABLE COLOR
THE THATCHER MANUFACTURING CO.,
POTSDAM, - NEW YORK.



Milk Pails
The accompanying cut is a true representation of our Gurler Sanitary Milk Pail. The merits of this pail have been fully discussed and endorsements have been given by many practical dairymen whose articles on this subject have appeared in recent issues of this paper.
Made of the best quality 6X block tin with all seams soldered smoothly.
Where the use of sterilized gauze and absorbent cotton is desired one has simply to remove the top, put cloths in position and replace it.
Give it a trial and be convinced of its superiority over all other kinds.
CREAMERY PACKAGE MFG. COMPANY
BRANCH HOUSES: Kansas City, Mo. Minneapolis, Minn. St. Louis, Mo. Waterloo, Ia.
Canadian Branch: Cowansville, Quebec.
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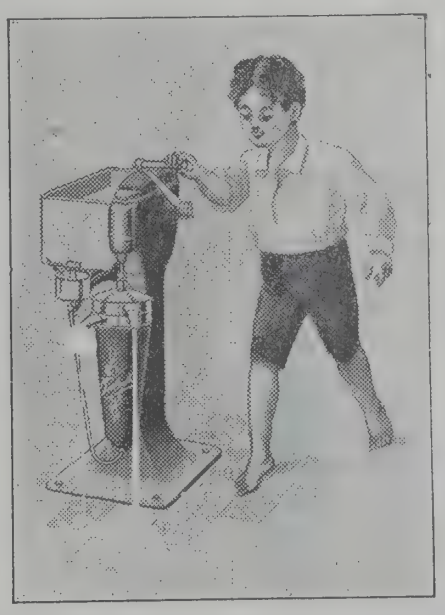


Milk Condensing Machine
I supply the most improved machinery and most successful processes for manufacturing all classes of condensed milk and evaporated cream. Factories built complete, put in operation and results guaranteed. If you are interested write for my new illustrated and descriptive catalogue. The only catalogue ever published on the subject.
R. R. ROGERS, Winthrop, Maine.
(Formerly of Detroit, Mich.)
I am not associated with any person, firm or company.

Let The TUBULAR Help You

PERHAPS—if your dairy had paid one-third, one-quarter, or one-tenth more—you'd feel that the past season had been a success.

The TUBULAR would have saved from 10 to 30 per cent of cream that was wasted by other methods of skimming. This means making more butter—more money.



PERHAPS—if you and the wife had less work to do you'd feel that dairying was more of a pleasure—that life was easier. Perhaps your wife would be stronger and happier.

The TUBULAR would have saved both of you almost half the work of caring for the milk. There would have been no pans or cans to wash—no milk to warm for calves and pigs. The Tubular would have made all that unnecessary.

PERHAPS you've made up your mind to get a cream separator and make your work easier—your wife happier—your bank account bigger—last season's failure the last one.

The TUBULAR will naturally suit you best, because it has a low supply can—enclosed, self-oiling gears—no oil cups—no bowl complications—won't bind, or require costly repairs—because it's the only separator having these labor saving, money saving features.

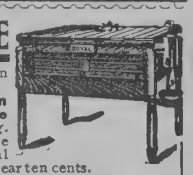
YOU'LL learn all about it if you'll write for free Catalog No. 144

THE SHARPLES CO.,
28, 30, 32 So. Canal Street,
CHICAGO, ILL.

P. M. SHARPLES,
West Chester. Pa.,
U. S. A.



DR. HESS
Great Stock Book
Free If you will write and say what stock you have—how many head of each, what stock food you have used—and mention this paper. This book is a comprehensive treatise on the care of all live stock and poultry, based on the scientific knowledge and attainments of the eminent veterinarian, Dr. Hess (M.D., D.V.S.); written in popular language; commended and used by veterinarians everywhere. Get it and become a master of all stock diseases. Write to-day, to
DR. HESS & CLARK, Ashland, Ohio.
Makers of Dr. Hess Stock Food.

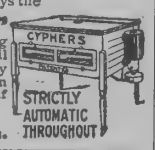
30 DAYS FREE

Why buy a "pig in a poke" when you can get the
ROYAL INCUBATOR on 30 Days Free Trial. Absolutely self-regulating. Try it and keep it only if you like it. Send for catalog and free trial plan. With poultry paper one year ten cents.
Royal Incb. Co., Dep. 424, Des Moines, Ia.

OLD TRUSTY Incubator.
30 Days Trial.

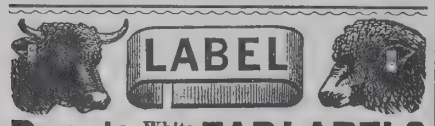
If you want to know about the chicken business, write for Johnson's catalogue. **Great $10 offer this year.** Write and find out.
M. M. JOHNSON, Clay Center, Neb.

NO GAS TO KILL
Very little lamp gas in an incubator egg chamber often kills every germ. No gas can possibly creep into the

SURE HATCH INCUBATOR
because it's heated by our rustless, heavy copper, hot water circulator. Don't waste money and lose good eggs experimenting with poor incubators. Send for free catalogue, C 11 and learn why the Sure Hatch hatches *sure*. **Sure Hatch Incubator Co., Clay Center, Neb. and Indianapolis, Ind.**

***The Cyphers* Guarantee**
is made to you personally and is backed by every dollar we have in the world. It says the
Cyphers Incubator


will give you better satisfaction, hatching more and healthier chicks, with less oil and attention than any other or your money back. Used by more successful poultrymen than all other makes combined. Catalogue free if you name this paper. Address nearest office.
CYPHERS INCUBATOR CO., Buffalo, Chicago, New York, Boston.



Dana's White Metallic EAR LABELS
stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Sample free. **Agents Wanted.**
C. H. DANA, 55 Main St., West Lebanon, N. H.

MILL FEED We sell direct to consumers at lowest wholesale mill prices, paying no rebates to dealers in your locality. Send your name for regular quotations. No charge. COOPER COMMISSION CO., 754 Andrus Bldg., Minneapolis

The Elwell Kitchen Cabinet
SOLD ON APPROVAL

We shall not attempt to describe it here but invite you to send for our new booklet.
"THE LABORATORY OF THE HOME."
It puts the work of the kitchen upon a business basis—everything handy, sanitary, dust-proof and mouse-proof; easy to keep fresh and clean. Booklet tells why.
Thousands of our cabinets sold—eight styles. Every home-maker wants one. Write to-day for booklet. A postal card will do.
Elwell Kitchen Cabinet Co. 926 5th Ave. SE. Minneapolis.

U. S. VICE-CONSUL ADOLPHE DANZIGER writing from Madrid under date of October 12, 1903, says that the government of Spain is to open 14 agricultural schools in various parts of the peninsula. They are to be practical means of educating farmers not only in regard to the crops raised, but in the use of agricultural machinery and implements. While they will be governmental institutions, the contracts to equip them will be let to private parties and bids are soon to be asked for.

Using the Smoothing Harrow on Corn.

ED. HOARD'S DAIRYMAN:—In your last paper, of Dec. 11th, T. R. W. asks for experience in regard to harrowing corn after it is up.

I always try to keep the ground mellow and free from lumps and weeds by dragging once or twice before corn is up. Then when it is two or three inches high drag again and if possible once or twice more until it is all of six inches high and large enough to cultivate.

If the ground is not lumpy it will not injure the corn, and it preserves the moisture by forming an earth mulch, and kills the weeds at the right time. It not only kills the weeds that are up, but the seeds that are just sprouting are exposed to the sun and killed. It also starts the corn to growing wonderfully.

I drill all of my corn and put it in plenty thick and then if a little is covered up or dragged out, it doesn't matter. The corn should not be dragged the first two or three days it is up, for then it is so brittle it will break off.

As T. R. W. says, it does seem rough, and while you are doing it you will be tempted to stop at once. But don't watch your drag. An old farmer once said that "a blind man was the best man to drag corn." Just try a few acres next year and see which does the best. I generally drag across the rows, but many people prefer to go lengthwise.

Oshkosh, Wis. R. F. M.

ED. HOARD'S DAIRYMAN:—In reply to the inquiry of T. R. W., page 997, would say that I have secured very satisfactory results from the use of smoothing harrows in the cornfield.

Start the harrow with teeth pointing backward as soon as the corn is planted and repeat at least once a week until the corn is 6 or 8 inches high and the benefit secured will far offset any damage from uprooted corn or the tramping of the horses.

Harrowing across the rows once or twice, before the corn is two inches high, has been a marked advantage in my experience.

I have had just as good results from the use of the harrow in the various small grains, when sown for soiling or hay, and I am satisfied that if T. R. W. gives the above treatment a careful trial, he will find it both "safe and good farming."

Amherst, Mass. L. L.

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University of Wisconsin Agricultural Experiment Station, Madison, Wis., November 10, 1902.

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ELMCO Standard Mdls.	9.30	20.00	6.15
ELMCO Fancy Bran	10.00	16.63	4.78
ELMCO Mixed Feed	10.23	17.50	5.13

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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Fourteenth Annual Meeting of the Missouri State Dairy Association.

ED. HOARD'S DAIRYMAN:—They held it, as announced in the DAIRYMAN, at Clinton this year, And Clinton was a very nice place to hold it. The men of that country all extend to the dairymen the glad hand, and the young ladies all sing and play songs; and music has charms for the Missouri dairyman.

The meetings were held in the rooms of the Clinton Business College, and connected with this excellent institution is a wonderful conservatory of music, and every time President Marples would come to a vacant place on the programme, he would throw some kind of a sign, and out of the repository or depository of music would come a brand new girl, who with her music would drive from the troubled souls of the dairymen every dairy care. Then there was an orchestra every evening, and more sweet-singing of girls we had never heard before and may never hear again, alas! with especial mention of one sweet singer, who always came with the orchestra, and she should have been made an honorary member. They made Secretary of Agriculture, Geo. B. Ellis, Prof. E. H. Webster, Dr. Geo. Tucker and W. F. McSparran, honorary members and even that good array could have been improved as above suggested.

Mr. Mayor Armstrong gave the Association a wide open welcome to the city, and J. L. Erwin responded for the association. W. W Marples, president, in his very happy address, spoke of what the dairymen in Missouri had done and listed a few of the things they should do and told everybody to keep busy during the short time of meeting, and everybody did so. Mr. Marples is a strenuous officer and has been ably assisted by secretary C. H. Eckles and treasurer B. C. Settles. The membership now amounts to something over two hundred; the treasury has a balance of over $50 on hand, and this, too, without any state aid.

That veteran dairyman from Kirksville, Uncle John Patterson, told "My Experience with the Silo." His first experience was that he wanted one for some time before he got one. Then in 1897 he built a 300 ton stave circular silo. He filled it with corn and cow peas and only observed the full value of such feed as he got out of it, when upon turning his cows to pasture they shrank in milk, notwithstanding he fed them grain with the pasture. Since that experience he has built three more, 16x16x30 feet, giving him in the four, 600 tons. Last season he used sixty-six acres of corn and thirty-seven acres of good cow peas to fill them.

Following was his cost of filling per day:

Engine and engineer	$5.00
3 men cutting in field	3.75
4 men with 3 wagons	5.00
2 men at machine	2.50
1 man cutting cow peas	1.25
3 men hauling cow peas	3.75
1 man in silo	1.25
	$22.50

Day hands began at seven o'clock and quit at six, witn an hour at noon. Regular hands who helped milk, worked at filling only between milkings. Required 20¼ days to do the filling. In addition to this silage, fed twice a day, he feeds about three pounds of bran and at night a little mixed hay. He is now milking 71 cows. Mr. Patterson regards silage so highly as a dairy ration that he cannot understand why so many corn farmers are satisfied to waste so much valuable feed in their neglected stalks.

"Home Grown Balanced Rations" was the topic most carefnlly treated by Judge W. M. Love, of Osceola. The balanced ration was defined in its relation to growing the cows and the subsequent feeding of them. By using the leguminous crops, such as clover, cow peas, soy beans and alfalfa, in the Judge's opinion, a profitable ration can be grown at home. He would take corn silage as his base and supply the other needs of the ration from hays from the legumes.

The small grains grown on a given land will not buy from their proceeds as much protein as the same land will produce in the clover, alfalfa or peas. He cures cowpeas into hay by raking immediately after the mower, making small cocks and letting the vines cure in these without being disturbed. The cocks are so small they dry readily if they are rained upon. The cocks are not touched till ready to haul to barn and thus handled with minimum loss of leaves.

Mr. Jos. Elliott prefers corn to sorghum and mixes corn and cow peas for silage when he has the peas, and likes the combination.

Mr. Brens has a silo built of 2×4's painted with gas tar inside and it has been very satisfactory. Grows corn and cow peas together and harvests with a binder and gets a good feed; uses Clay and Whip-poorwill peas. Uses corn and peas for fall feeding in pasture till frost kills the peas.

"The Cow for Missouri and How to Get Her" was discussed by W. F. Mc Sparran, who had judged the cows in competition for two prizes offered by the citizens of Clinton, and was asked to give his reasons for his judgment. B. C. Settles followed on this subject and of course the Jersey got some talking about at the hands of those fellows. Mr. Settles said he was milking twenty pure bred Jersey cows, and last year made $75.15 each from them in sales of cream alone, with calves and skim milk for additional profits. This present year is not ended, but will have a better showing for it.

President Marples said he had recently made a trip through part of Canada and some of the best dairy sections of the east and found the Canadians were selling butter fat for three cents a pound less than than dairymen in Clinton were getting, and within fifty miles of New York city the price was no higher than here.

Mr. Plummer began with a good Jersey bull to use on good Shorthorn cows and has bred up a profitable herd. Always uses the best Jersey bull he can get. He finds he must breed good cows if he wants them. Sold $2,040 worth of butter last year from 40 cows and at present production for this year will sell 2,000 pounds more from 43 cows, and gives the credit for part of the increase to his having fed corn and bran while on pasture.

Dr. George Tucker of Columbia, Mo., by a colored map of the state, showed the distribution and location of land on which alfalfa grows satisfactorily and all the stages of success down to failure. Much of the Missouri land has been so continuously cropped that organic matter is largely exhausted and the soil is acid. Alfalfa will not grow on this land. In many cases this acidity will probably be corrected by the use of lime, and the experiment station is now making experiments to determine the amount of lime necessary to neutralize this acid. He is encouraged to think that with a little more light on the needs of the plant, alfalfa can be grown in most parts of the state. On land in alfalfa that was overflowed last June and under water for fifteen days, the plants were not destroyed, but sent up new green shoots as soon as the water passed off.

Major Day said that he was growing alfalfa on hard-pan land with eight inches of soil and about the same depth of hard-pan, and was surprised to find the roots had grown through the hard-pan.

"The Labor Problem on the Dairy Farm" was handled variously. Mr. Goodrich finds the Golden Rule in dealing with his hands, good to have in operation. Judge Love does, also, and gives many privileges to his hands. He disclaims making much money but they all have a living and are glad of it. Mr. Wolf finds his wife and daughters his best milkers and they like to do the milking. Mr. Patterson says hands have changed greatly within the last few years. They used to respect a contract, while now many of them respect nothing. They are here today and gone tomorrow. He says he hears much complaint about his countrymen—Swedes—being unreliable as workmen but he thinks they are better when they first come than they are after being here some time. "Many farmers," said Mr. Patterson complain that dairying is so confining. It may be, but it confines a man at home, and that is a pretty good place to be confined."

"Cheese Making in Missouri" was treated masterfully by Frank Moulton, of Cowgill. He made a plea for better cheese factories so that the operator would have full control of temperature and ventilation; for better handled milk and, better understanding of the needs of the markets. Cheese should be ripened at the factory where conditions favorable to best curing can be governed.

At the Wednesday evening session, W. F. McSparran of Pennsylyania read a paper entitled "What the Dairy Cow Would Do for Missouri," and Milk Inspector Robert Pethebridge, of St. Louis, took up "The Problem of City Milk Supply."

The butter making contest at the Clinton Creamery Thursday morning was participated in by Inspector Pethebridge and a woman butter maker, the former winning the victory and carrying off a gold medal.

There were a number of butter and cheese entries in their classes. The scoring was done by Prof. Webster. Henry Green, butter maker for Mr. Patterson, won first on butter, on a score of 96½, entitling him to the Association gold medal and silver cup and a special prize of five dollars, offered by Prof. Eckles to the first prize winner if he had been a student at the Columbia University. The second prize went to the Blue Valley Creamery Co., of St. Joseph, score 96¼.

Thursday morning, "The Hand Separator and the Creamery" was discussed by Prof. Webster and Rudolph Miller, from the standpoint that the system of cream gathering instead of the old system of milk gathering, is more profitable and much less laborious for the dairyman.

J. A. Walker, manager of Blue Valley Creamery Company, read a very exhaustive and valuable paper on "Business Management in the Creamery." There should be good business management in creameries, for only by such management can fair and equitable returns be made to the producer of dairy products. What often would represent a clear profit for the business is lost for lack of careful oversight on the part of a good manager.

Few creamery managers regard it as necessary to qualify themselves for their business and for very lack of such qualification, many a creamery that should succeed, is added to the list of failures.







GUERNSEYS AT PASTURE.

Management of the whole business is too often turned over to the butter maker, who, in his anxiety to make a good showing of his management frequently fails in making good butter, by reason of some false idea of economy. There should be definite market quotation for butter fat, for only by that means can the abuse be stopped of allowing the creamery to be run loosely and wastefully, leaving the dairyman an unsatisfactory return when the creameryman gives him what is left.

In many cases there can be a fearful waste in the one item of salt, while a spoonful of cream left in each can where a thousand cans a day are received, will mean a loss of over a thousand dollars in a year. The old officers were re-elected for president, secretary and treasurer, with Wm. Plummer and W. M. Love, first and second vice-presidents.

Penn. W.F. Mc S.

A Visit to Geo. M. Clark's Grass Farm.

ED. HOARD'S DAIRYMAN:—It was a pleasant trip that the writer made last Labor Day morning from Hartford, Conn., down the Connecticut Valley railroad, to Higannum, to visit the almost world renowned grass farm belonging to Mr. Geo. M. Clark. Mr. Clark is an elderly gentleman, but robust and resolute, capable of carrying on, as he does, a half-dozen lines of work and thoroughly enjoying the task.

From the station one can look across the river to the old Clark homestead, where Geo. M. and his brothers fought out the debts on the old farm, bought adjoining land, erected the house with their own hands by working on it at odd hours for two or three years, and here they studied with only their books for teachers. Mr. Clark says there are 1,400 mortises in that house and he seems to remember every one of them. Interesting country there and the Connecticut is an attractive stream.

Below the station is the site of the old ship-yard, where Mr. Clark built sailing craft when sail ships were the fashion and New England held the industry. It was down on the coast of the Sound, however, that he built, in 1851, the largest ship that up to that time, had ever been constructed, a boat of 1,700 tons capacity. How different from the boats of these days, which have a tonnage of eighteen to twenty-two thousand, and what a change in one man's lifetime! The Great Eastern of 24,000 tons capacity followed within a few years the construction of Mr. Clark's modest boat.

Back to Higannum, and we start up the highway, along which are numerous evidences of Mr. Clark's forethought, enterprise and industry as exhibited in the excellent roadway with improved grades, bridges, etc.

The Clark factory is soon in sight, with its three or more acres of floor space, and, although silent, as behooves on a holiday, yet in the office is Mr. Clark as busy as though Labor Day had never been invented. Not too busy, however, to go up to the farm and point out the plots of ground of exactly so many square rods area, from which a certain definite number of crops have been harvested, in just so many years. The figures of pounds of hay and pounds of fertilizer are ready for you at a moment's notice.

Some people have expressed doubts as to Mr. Clark's statements, but I have no hesitancy in accepting them, nor do I doubt that it is intense cultivation that has been instrumental in bringing about the results he claims. The little plot of ground in one corner still in its original condition, with its rocks and weeds, is suggestive of the labor that has been done on the improved areas.

The stand of red top and timothy, free from weeds or other grasses, is proof that cultivation must have been intense, and long-continued to kill out all vegetation not wanted. The closely standing spires of grass are evidence not only of thick seeding, but of a fine soil for seed bed, such as would enable the germination of a larger proportion of seeds sown, than is usual. Go to the barn and see the hay, bright and green in color, stalks of a length that suggest getting lost in a grass field, and almost as fine as silk.

All these things are in evidence and speak for themselves. These and the full mows almost tell the story of production, especially after seeing the fields September first, and noting the growth that is being made. Almost the only item that one needs to have corroborated is the amount of fertilizer used, and it is hardly necessary to call into the account Mr. Clark's well-known record for honesty when one reads the figures representing the amount of commercial fertilizer applied. To suggest 700 pounds of high grade fertilizer per acre each year might tend to frighten some farmers, but Mr. Clark makes it pay. Of course, he believes that the liberal use of his cut-away harrow has done much to increase profits.

Why should it be thought any more difficult to secure the growth of 8,000 pounds of hay per acre than to get 8,000 pounds of milk from a cow in one year? True it is only an occasional cow that can be made to produce that amount, while Mr. Clark thinks it is possible to equal his records on almost all fields, if one will take the necessary steps to do it.

Recent soil investigations, conducted by the National Government, indicate that there is sufficient plant food in practically all soils to produce abundant harvests, and that the supply is maintained indefinitely by the disintegration of soil particles. It is the method then of handling them that determines crop returns. This appears to be the foundation of the Clark method.

Some of the characteristics of that Connecticut valley soil, what others have done with it, and what may be done with other soils, may well be discussed at another time. H. H. LYON.

Chenango Co., N. Y.

Marples' Tribute to the Farmer.

ED. HOARD'S DAIRYMAN:—In his opening address to the fourteenth annual meeting of the Missouri State Dairy Association, President Marples said in part:

"The farmer of yesterday had hay seeds in his hair. He hasn't today and is not accused of it. He was yesterday simply a voter, and as such was convenient. He was the recipient of one hearty hand shake every year, from the man, who, when elected, had marked on his door, "Private," which practically meant that no farmer need apply. His children were kissed once a year by the man who went to the legislature and voted against an appropriation for an agricultural school.

Today he not only exercises the right of franchise, but his voice is heard among the law makers, and his children don't have to go outside the family to kiss a senator. Yesterday he got his information from Ayre's Almanac to day are found in his library the leading periodicals of the times. Yesterday he didn't want work on a farm if he could read and write; today he can't get it unless he can read and write. Yesterday he responded to his country's call when it was in trouble and followed the would-be leader even to defeat; today he stands at the head of a battalion and leads them to victory.

Yesterday, he was pitied; today, he is envied; yesterday, he was the laughing stock of society; today, he is the admiration of the world. Yesterday, he worked only with his hands; today, he works with his head. Yesterday, his success was luck. Today, it is science. Yesterday, his work was drudgery; today, it is pleasure. Yesterday, his acquaintanceship was circumscribed. Today, it is boundless. Yesterday, the bank owned him. Today, he owns the bank. Yesterday, he furnished the brawn. Today, he furnishes the brain and we will continue to draw upon him as our stock becomes exhausted, and he will be depended upon, not only to promote his own business, but to look after other lines.

Yesterday there was a little log schoolhouse in his district, where they had a very common school three months in the year, and his children attended when the weather was too bad to shuck corn; to-day he is provided with a good, strong agricultural school, where the children can attend and graduate, not only in those things that fit them for their particular line of work, but in other of the arts and sciences if they desire. Yesterday he sent to town for his mail and he seldom got any; to-day the town sends it out to him and he always gets some. Yesterday he was the victim of unscrupulous speculators in selling his products; to-day when he sees the stock buyer approaching, he learns what the market is from the commercial centers of the world before the man has time to hitch his horses.

Penn. W. F. Mc SPARRAN.

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MRS. W. M. CORRINGTON.

We find by reference to our list of premiums paid on Dairy Exhibits at the Illinois State Fair of 1903, that Mrs. W. M. Corrington received premiums amounting to over $53.00 in that Department as stated above.

W. C. GARRARD,
Sec'y Illinois State Fair.

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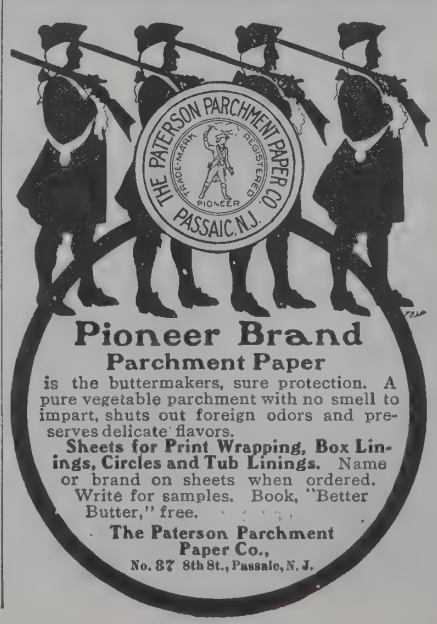
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THE NEW YORK DAIRY CONVENTION.

[Editorial Correspondence.]

I have been spending nearly two weeks in the grand old dairy county of St. Lawrence, New York. Last week was occupied almost entirely in attendance upon the New York State Dairy Convention at Ogdensburg.

In point of attendance, quality of the papers and addresses delivered, and the show of butter and cheese, as well as the exhibit of dairy machinery and supplies, it was by far the finest state convention I have attended in many a year, if I except those of Wisconsin. The daily attendance was large. The great Opera House with two galleries, was filled each afternoon and evening. The morning sessions of each day were given up to the dairy display. I could hardly endorse this feature, for the reason that the display of dairy machinery, although an attractive feature on such occasions, is not the first and most important consideration. The first great object is to get hold of the mind of the farmer, the man who makes the milk, and just in proportion as he is instructed and educated in the knowledge that makes for larger success in dairy practice, will the dairy supply men be benefited. Reverse the process and the business will soon die out.

There were some splendid contributions to the knowledge and understanding of men, on this great general topic of dairying. Among the most valuable were the following:

"On the Potential Cost in the Saving of Labor on the Farm in the Last Fifty Years," by Hon. Geo. L. Flanders, Assistant Agricultural Commissioner of New York. This was a profound and most valuable address.

The address of President H. E. Cook, which was full of the meat of good things; "Market Milk" by Prof. R. A. Pearson of Cornell College. This was indeed a most thorough review of what must have been done at every step in the way to produce milk that is pure and truly marketable. The facts and ideas brought out are just as valuable for the patron of a creamery or cheese factory, as for the producer of city milk. The topic was ably discussed also by Mr. Jared Van Wagenen Jr. of Lawyersville, N. Y. "Two Years' Experience With Consolidated Cool Cheese Curing Rooms" was an address by the able Assistant Dairy Commissioner of Canada, Prof. J. A. Ruddick. It was most exhaustively treated by Prof. Ruddick and most ably supplemented by Prof. L. L. Van Slyke of the New York Experiment Station. It would be to the great advantage of every cheese maker in the land if they could have heard these two learned as well as skillful experts on the subject of Curing Cheese.

Prof. Ruddick also gave a fine lecture Wednesday evening on "Dairying in New Zealand" illustrated with stereopticon views. Then came the splendid address of Dr. W. H. Jordan of the Geneva Station on "The Status of Agricultural Practice." In short, this address was a condensed review of the progress in ideas, methods and scientific uuderstanding which has come to the American farmer in the last one hundred years.

His lecture was a good illustration of the great fact that the most unwilling and ignorant of farmers are unconsciously worked upon and lifted up in their practice by the progress that takes place around them. Many a farmer is pursuing methods today for which he is indebted to the enterprise and intelligence of other men, while he himself is almost unconscious of where he got his knowledge, or how he arrived where he is.

Thursday afternoon the Senior Editor of the DAIRYMAN gave an address on "A Study of Dairy Success from a Farm Standpoint."

A most valuable address was that of Prof. Thos. F. Hunt, of Cornell, formerly of the Ohio State University. His topic was "Relation of Forage Crops to Milk Production." A world of valuable suggestions, drawn from close, accurate experiment and trial, was given in this lecture. Then Dr. Bailey, Dean of the Cornell College of Agriculture, gave an able and comprehensive review of "New York as an Agricultural State."

A most cheering feature of this great convention was that every speaker, nearly, and the central idea of the officers was directed toward the dairy farm.

This was not merely a creamery or cheese factory convention, a taking up of a secondary idea to the exclusion of a primary one. Every one seemed to feel that the whole procession, every step of progress, must wait upon the man who produces the milk. If he can be made to move, if he can be awakened and made to cry out, "Men and brethen, what shall we do to be saved?" then progress of the most desirable character will quickly come to every branch of the great dairy interest.

The New York Dairymen's Association is ably officered. There are no better men in the field today than its earnest secretary, Mr. W. H. Hall, and its president, H. E. Cook, as well as the treasurer, F. E. Dawley. These three men "live, move and have their being," with an eye single to the efficiency of the work given to the Association to do. It was a comfort and source of instruction for us to attend this memorable convention.

The week following we had the privilege of addressing meetings composed of dairymen, under the auspices of local granges in West Stockholm and at Madrid. We found that the dairy farmers of St. Lawrence county are arousing themselves to a realizing sense of the problems that confront them. They have been going on for years, hardly conscious, we might say, that gradually their farms were losing fertility, the value per acre was constantly going lower, and but little real earnest attention was being paid to an economic study of what good dairy farming meant.

The young men of the Grange are doing good work here. One of the most earnest is Mr. W. E. Griffith, who is an instructor in Cornell College. It cheers our heart greatly to see this sign of a better order of things in the grand old Empire state. W. D. H.

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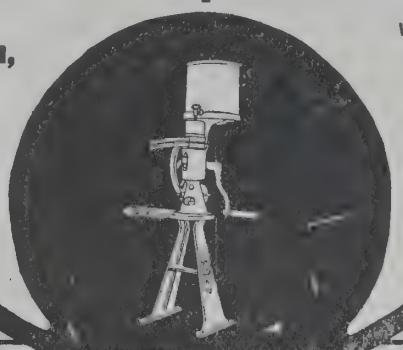
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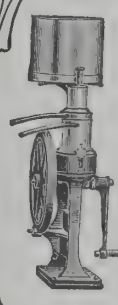
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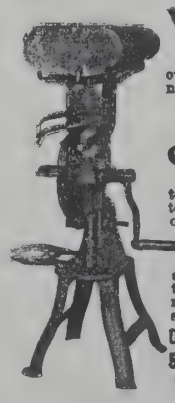
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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of them read dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

COMING EVENTS.

Vermont Dairymen's Association, Burlington, Jan. 5-7, 1904.
Illinois Dairymen's Association, Greenville, Jan. 5-7, 1904.
Wisconsin Cheese Makers' Association, Milwaukee, Jan. 6-8, 1904.
Ohio Dairymen's Association, Columbus, Jan. 27-29, 1904.
New Jersey Agricultural and Dairy Convention, Trenton, N. J., Jan. 14 15 and 16.
Eastern Ontario Dairymen's Convention, Belleville, Ont., Jan. 5, 6 and 7.
Washington Dairymen's Association, North Yakima, Dec. 29-31.
Massachusetts Creamery Association, Greenfield.
Connecticut Dairymen's Association, Hartford, Jan. 20-21.
Wisconsin Buttermakers' Meeting, Eau Claire, Feb. 2-4, 1904.
Wisconsin Dairymen's Convention at Platteville, Feb. 10–12, 1904.

SKIM MILK FOR POULTRY.

It has long been a conviction with us that the farmer could use his skim milk more profitably feeding to poultry than in any other way.

As the matter now stands, farmers feed it almost wholly to pigs or to calves. To get the most money possible out of it should be the business instinct and purpose of every farmer. Poultry of all kinds, whether devoted to egg-laying or meat purposes, are in strong demand. Then, besides, there is a strong, growing demand for poultry of the best improved breeds. Mr. T. E. Orr, Secretary of the American Poultry Association makes the following statement:

"My experiments have demonstrated these facts: A hen eats sixteen times her own weight in one year; her eggs in the year are six times her weight; they bring 16 cents per pound; her food costs 1 cent per pound, and her yearly product is worth six times the cost of her food."

Other authorities estimate that the farm hen costs in feed from 47 to 83 cents a year, the average being about 65 cents.

As the farm separator system increases and the farmers succeed in producing skim milk in the best possible condition for feeding, they are gradually awaking to an understanding of the importance of the skim milk question in cold cash.

It becomes then a vital and important point to determine what we will feed the skim milk to. A certain number of calves we must and should raise. Well handled, the skim milk fed to nice grade heifer calves will return fully double the money that it will if fed to pigs. But we do not need to raise pigs if it is more profitable to raise poultry and feed our skim milk to them instead. The figures Mr. Orr gives, affords us guide lines for study, and our readers will find it profitable to consider them in connection with their skim milk.

Some experiments by the Indiana Experiment Station are pertinent to this question: Two pens of ten chickens each were taken; the chickens were from four to six weeks of age. One pen was fed all the skim milk it wanted; the other was fed none. The grain fed consisted of two parts of crushed corn, one part bran and one part ground oats. They were also fed cracked bone, cabbage and lettuce. At the beginning of the experiment, July 11, the total weight of one lot of chickens was only a half ounce greater than the other. Sept. 5, the result showed the skim milk chickens ate considerable more grain than the other.

The chickens of the lot receiving no skim milk, made an average weekly gain of 2.62 ounces, while the lot that were fed skim milk, made a gain per week of 4.46 ounces or over one-fourth of a pound. This experiment will serve well to show the comparative difference caused by the skim milk.

THE IOWA DAIRY SITUATION.

Statistics show a decided falling off in Iowa dairy products. This is explained, in part at least, by the fact that more and more attention has been given to raising and fattening steers, and less and less attention given to breeding better dairy cows and handling them in accordance with modern dairy ideas. In view of the present and prospective prices for beef and pork we wonder how those Iowa farmers feel who switched off from the straight dairy track, expecting to gather fortunes from steers and hogs. While it is true that dairying does not now offer, and, for that matter, has never offered, sudden wealth, it is equally true that the farmer who has consistently and persistently made the dairy cow his friend, and has treated her as a friend should be treated, has never, in any year, had occasion to regret misplaced confidence.

Iowa farmers have been peculiarly unfortunate in the advice given them, to the effect that it was practicable to have a paying dairy herd where all the male calves could be profitably turned into beef, and the heifer calves become in turn better cows than their dams. HOARD'S DAIRYMAN has shown by carefully compiled cow censuses that, in Iowa, as in Wisconsin, Indiana, Ohio, New York and other states, whatever claims may be made for her theoretically and in exceptional cases, the dual-purpose cow on the farm is always a delusion and not infrequently a robber. The cow that makes only 200 lbs. of butter in twelve months, is just about on the dead line, making neither profit nor loss for her owner. The average for all the cows in Iowa is considerably less than this. Why not then, by an intelligent system of breeding and weeding, get cows that will do better. There are plenty of examples in Iowa where the average yield of all the cows in the herd reaches 300 lbs. of butter per year, but this has not resulted from hap-hazard breeding or futile attempts to combine milk and meat potency in one animal.

Isn't it about time for the Iowa milk producer to look these facts squarely in the face.

The Wisconsin Feeding Stuffs Law.

Altogether too few Wisconsin dairy farmers know that we have a very stringent and effective law for protecting them from adulterated feeds. This law was passed in 1901 and provides that all feed stuffs sold in this state, (except hays and straws, the whole seeds and the unmixed meals made directly from the entire grains of wheat, rye, barley, oats, corn, buckwheat, dry or wet brewers grains, malt sprouts, sorghum and broom corn, pure brans and middlings), must be accompanied with a guaranty showing the amount of protein and fat they contain.

It is made the duty of the Experiment Station to analyze feeds and issue permits to the manufacturers to do business in Wisconsin, and at the meeting of the Wisconsin Dairymen's Association last February, Prof. Henry, in an address on this subject, under the sub-title, "How the Farmer May Post Himself on Feeding Stuffs", said:

First, every farmer should have his name on the mailing list of Wisconsin Experiment Station in order to receive its frequent bulletins. When about to purchase a feeding stuff of a new name or not well known, consult the last bulletin on feeding stuffs and see if it is licensed. *Remember that licensing does not indicate that the feeding stuff licensed has a high value.* It simply means that the dealers are complying with the law and the material comes up to guaranty, which may be a low one so far as real feeding value is concerned. Unless one is short of roughage, such as hay, straw or corn stalks, always purchase a feed with a high protein content, a fairly high fat content and a low percentage of crude fiber. Remember that the crude fiber is the woody part of the feeding stuff and not particularly valuable. In purchasing ground corn and oats, deal only with reliable people and see that there is no admixture, the material being just what it pretends to be, and that no light oats were used in producing the mixture. Better yet, buy pure grains ground separately, and do your own mixing. Where by-products containing oat hulls, etc., are purchased, never pay high prices for such material nor expect high returns from their use. As said in the beginning, they have a legitimate place among feeding stuffs, but oat hulls, oat dust, ground corn-cobs and ground corn stalks can never take the place of the richer parts of the flax seed, the bran and the middlings of the wheat grain, the rich grains of corn and the meats of the oat kernel. Avoid buying anything that is mysterious or carries a high-sounding name, just because it is a novelty. When you purchase a high grade feeding stuff be willing to pay a fair price for it, and for the cheaper portion of the ration with the heavy percentage of crude fiber, draw on the straw stack, the corn shock or the forage in the silo.

Value of Leguminous Crops.

ED. HOARD'S DAIRYMAN:—Although the system of green manuring or ploughing under green crops raised for that purpose, is one of the oldest means of improving the fertility of the soil, and although it was advocated by the Romans more than 2,000 years ago, it may not be unprofitable to again direct attention to the value of leguminous plants for green manuring and feeding.

From the expressions of opinion of those whose opinion is worthy of notice, the key note has always been that farmers generally should grow more leguminous crops, such, for instance, as clover, peas, beans, lupines, vetches, alfalfa, cow peas, etc, etc. These furnish the cheapest food for stock, and the cheapest manure for the soil; this they do because they obtain from the air a substance necessary for plants and animals alike, which costs, in the form of fertilizers and feeding stuffs from 15 to 25 cents per pound.

But although green manuring may be the cheapest means of supplying the soil with nitrogen, it must be remembered that animals, as well as plants require nitrogen for food. It may be estimated that by feeding the crops of clover, cow pea, etc., only one-fourth of the fertilizing materials of the crop is lost, if the manure is properly cared for. The nitrogen of the air, as well as being the cheapest source of nitrogen for plants, is also the cheapest source of protein (nitrogen) for animals.

The leguminous crop, therefore, is best utilized when it is fed out on the farm, and manure saved and applied to the soil, for by this method the greatest profit is secured, and nearly the same fertility is maintained as in green manuring. For renovating worn or barren soils, and for maintaining the fertility where the barnyard manure is not properly cared for, green manuring with such leguminous crops as cowpeas, clovers and lupines is very beneficial.

A dressing of potash and phosphates will be usually sufficient for the green manuring crops. But there is no doubt that green manuring on medium and better classes of soil is irrational and wasteful. The farmer should mend his system, so that the barnyard manure will be as well cared for as any other farm product, and loss from surface washing, leaching, fermentation and decay must be guarded against. By this means the feeding of richer foods, will mean richer manure and better and cheaper crops.

Then, again, leguminous crops which are extremely valuable in the system of soiling, or feeding crops in the barn in place of pasturage, enable a larger number of animals to be kept on a given area of land, and the manure to be more completely saved. Hay from leguminous crops has been found to be about twice as rich in protein as hay from grasses. In the one case this protein (nitrogen) is obtained very largely from the atmosphere; in the other, it is drawn from the fertility of the soil.

Leguminous crops yield larger crops of hay to the acre than grasses. Hence, the production of food materials on an acre, especially protein, is several times larger with leguminous crops. It has also been found that, if allowed to ripen, the seeds of the cow pea and soja beans, furnish an extremely rich, concentrated feed, which can be ground and fed in place of expensive commercial feeds. The straw remaining may be fed as coarse fodder, for it is richer than ordinary hay.

The following table may be of interest and instruction:

FERTILIZING INGREDIENTS IN 100 LBS. OF LEGUMINOUS CROPS.

	Moisture	*Nitrogen*	*Phosphoric Acid*	*Potassium Oxide*
	Lbs.	Lbs.	Lbs.	Lbs.
Red clover	80.00	0.53	0.13	0.46
White clover	81.00	0.59	0.20	0.24
Alsike clover	81.80	0.44	0.11	0.20
Alfalfa	75.30	0.72	0.13	0.56
Cow pea	78.81	0.27	0.10	0.31
Soja bean	73.20	0.26	0.15	0.23
Horse bean	74.71	0.68	0.33	1.37
White Lupine	85.35	0.44	0.35	1.73
Common vetch	84.50	0.59	1.19	0.70
Serradella	82.59	0.41	0.14	0.42

Green manuring on good soils can only be recommended when the conditions of farming do not admit of the careful preservation of manure. Leguminous crops are unusually rich in protein—far richer than most other coarse fodders. For instance, while hay from grasses contains from 6 to 8 per cent of protein, red clover hay contains 12.5 per cent, alfalfa hay, 14.3 per cent, and cow pea hay, 16.6 per cent of protein. If grass hay and corn are fed, such concentrated feeding stuffs as cotton seed meal, gluten meal, linseed meal, etc,, must be fed to make up the supply of protein needed. If leguminous crops are fed, much less grain will be required. The only true economy of material is obtained when the leguminous crop is fed. The carbohydrates and fat serve to nourish the animal, and a portion in turn passes into the barnyard manure, and when applied to the soil has a favorable effect on the humus formation.

A German authority on feeding and farm management has calculated the matter on a financial basis. Assuming an average crop of 17,600 lbs. of green serradella, which is a moderate crop, he finds the nitrogen in the crop from an acre to be worth $11.06. This is taken as the value of the crop for green manuring, as the nitrogen is the only fertilizing element not derived from the soil, and the barnyard manure furnishes nearly as much humus as green manuring. The estimated profit from feeding the crop of 17,600 lb. of green serradella to milch cows, when the barnyard manure is re-

turned to the soil, is $23.12. In this calculation, every possible expense attending the feeding is taken into account, including care of animals, interest on money, cost of carting the barnyard manure to the land,etc., and allowance is made for the phosphoric acid and potash sold in the milk. The comparison stands thus:

Profit from feeding crop of serradella 1 acre	$23.12
Value of crop of serradella 1 acre green manuring	$11.06
Difference	$12.06

This calculation, therefore, shows the crop of serradella to be more than twice as valuable for feeding as for green manuring. The above calculation assumed a daily milk yield of seven and a half quarts sold at 2¼ cents per quart.

Although the green manuring of light sandy soils with lupines is often of very great advantage in enriching the soil in humus, this advantage does not hold good in the case of better soils. Now the question is: Why should the farmer go on raising meadow hay as his main supply of coarse fodder, and buying grain to supplement it, when by growing leguminous crops, the nitrogen required by animals can be produced at the lowest cost.

The cultivation of these leguminous plants certainly involves somewhat more labor, as a rule, than raising grass hay, but the extra expense will prove profitable, for it enables the farmer to raise his own concentrated feed at the same time he raises his coarse fodder. It has been proved that soja bean meal is fully equal to cotton seed meal for milk and butter production.

This meal is one of the richest feeding stuffs, and the beans can be threshed out and ground, and the straw used as coarse fodder. This straw is richer in food materials than a good meadow hay. It may be said in general that 100 lbs. of hay from leguminous crops contains about twice as much protein as 100 lbs. from grasses. The leguminous hay may be safely estimated as worth from one-fourth to one-third more for feeding than common hay. It should be remembered that under favorable conditions, leguminous crops may draw a large proportion of nitrogen from the air, and that their long roots enable them to feed on the potash deep down in the soil, beyond the reach of surface feeding plants.

Montreal, Can. W. R. GILBERT.

Notes from New York.

Success as a Dairyman—Hired Men.

ED. HOARD'S DAIRYMAN:—Success, the one great object of life, demands the careful study and attention upon the part of the individual himself. Success as a dairyman requires no less a constant, ceaseless, watchful care on the part of every man connected with that particular branch of farm business and affairs; success means ambition, gumption, go-at-it-tiveness, if there could be such a word put together.

It means to the man who starts without capital that something will have to be done, that he can not spend his days in idleness, but with his sleeves rolled up and the sweat starting from every pore, strive to accomplish as much as possible. The cows cannot be milked, fed and cared for without putting forth some effort, yes, a whole lot of it and the more effort, the more success.

Now, I don't mean that one can do everything to the best advantage with just main strength and ignorance. No, you must have plans, harness the intellect, call on the brain to do its share of the work, in short, work intelligently from the cows, their feed, and care to the finished product you offer to the market in competition with others in your class. There are as many failures to complete success as there are individuals. Some fail in one essential, while some other man is all right in that part of the work, but fails at some other point before attaining success in its completeness. Now the ferreting out of that weak point in our several structures of success and remedying it, is where the intellect comes into action. There is where one tries his brain capacity and power. Many people seem to drift along through life, never seeming to have a care for tomorrow, unmindful of the result, what it will be. But I can't do it. I want success and must have it,—the success from a financial standpoint, based on honest, legitimate business principles. Neither am I afraid to work with brawn and brain to that end.

Every day a full day. Every day something actually accomplished to that end. Today success many times is a fine point. To discern the margin of profit in dairying requires a microscopic vision; but the man of gumption will soon find a means of placing the balance on the right side of the ledger. Push, Pluck and Perseverance win out every time. Give me the earnest man, the man who has success firmly fixed in mind and keeps his head clear.

I've no use for the one who is fickle minded and has spasms of gumption. The trouble is, the spasms are far between and the space between them gets farther as the years advance. It has been quite a few months since I have written anything for the farm papers because I have been taking large doses of my own medicine. I have been my own hired man this summer and therefore can, I think, have a word on that vexed problem.

I think the best result can be attained with hired help in treating them on a plane of equality. I am speaking of our own American help. We always use them as though they were one of the family. Counsel with them in the details of the work and let them have considerable of the success of the operations to their credit, and if there is a failure shoulder it myself and say nothing. A man cannot afford to have the ill will of the hired man.

Another thing, don't boss him every move. He will work better if he can do things his way, and as long as he does it quick and well what difference does it make to you. Don't destroy his own self esteem. Every man has more or less of that quality and when he is once shown that you have no regard for that quality in him, you have lost your man; he may stay but his interests in your work is gone and he might about as well go too. Let him have opinions of his own; don't argue with him, don't keep telling him that wages are too high. If you can't agree with him change the subject. Keep the good will of your hired help or don't keep them. I never had a poor hired man. If they didn't do their work good enough for me I always encouraged them to take more time and do a little better job if possible.

A clean looking tramp came to our place and asked for something to eat; it was in the early morning. I told him certainly, and he was given a chair and a seat at the table and a good cup of coffee together with a good square meal. I surprised him. After breakfast he said "I h'aint a dead beat, I would like to work for you to pay for that breakfast." I asked him if he would hoe for me a few days if I would pay him for it and he readily consented. I took him to the field and showed him a patch of mangels that needed hoeing and thinning, showed him what I wanted and left him with this injunction, "I am going to be away from home today so you will have to work alone and if you kill yourself at this job you will be to blame." One of the neighbors was in a field near at work and he said the fellow never looked up in all day; the result was I hired him longer, and through haying, and a better, more faithful fellow I never had around, but I never called him a tramp. I should have called him a trump if any thing.

New York. JAS. M. PLATO.

The Farm Horse.

[Synopsis of a Talk on the Farm Horse at a Farmers' Institute at Bainbridge, N. Y., by FRANK D. WARD, of Batavia, N. Y.]

I am glad to speak upon this subject, for it is a question in which all are interested.

Some people are preaching that we are coming to a horseless age. Now, our children and grandchildren will never see that time. It was prophesied that the trolley car and the bicycle would supercede the horse, but that time will never come. Neither will the automobile nor any other means of locomotion. No, the time will never come when the class of horses demanded in the best markets will not be grown with profit. Europeans are looking to this country for horses, for we can grow better horses than anywhere else, and while some other parts of our country can grow them equally well as we can here in New York, that territory is limited, and nowhere can they grow them better than here.

One of the greatest troubles with our breeders is, we have been breeding from unsound or vicious horses. The saying of Paul, "Whatsoever a man soweth that shall he reap," is as true to-day as when uttered, and nowhere is it more true than in the breeding of horses.

The different types of horses may be divided into four classes: The heavy draft horse, the heavy coach or carriage horse, the trotting horse and the general-purpose horse. And the successful breeder must hew close to the line and confine himself to one breed.

First as to the trotting horse, I wouldn't let a boy and a trotting bred colt grow upon the same farm, for I would expect it to prove the ruin of the boy, and between the boy and the horse I will take the boy every time. So we will cut the trotting horse right out of this question. The general-purpose horse, too, will not be found profitable, for the class commonly known as general-purpose horses, are too light for profit.

So we are now limited to the heavy draft horse, and the heavy coach and carriage horse. What shall we breed then? I think we will find every merit in heavy draft horses in three breeds: the Clydesdale, the Percheron and the Shire; and for coach horses, I would also confine myself to three breeds: the French coach, the Hackney, the German or Oldenberg coach. As to the weight of the former, I would have one weighing about 1,400 lbs., and in coach horses a weight of not less than 1,200 lbs. Some one will say these heavy horses cannot stand it to work on plowed ground or on the farm, but there was never a greater mistake.

Now, how shall we breed them, and what time of year? I believe with a spring colt, it is much better to keep the colt in a good box stall than to allow it to follow the mare when working her. But I believe though that fall bred colts are greatly preferable. The colt should be fed liberally and intelligently, and begin by feeding some grain when quite young. Feed at first with regular but moderate feedings of ground oats, some oil meal and a little bran.

The disposition in the dam is a question of great importance. A vicious, uncertain disposition in the dam will be transmitted to the offspring. Always halter break the colt while running with the dam, but never use a rope halter. Always use a good, five-ring leather halter. Handle always with the greatest care, never to frighten the colt with the harness. Never use a bitting rig of any kind on the colt. Never check up the colt until he has been taught to drive. Always hitch the colt up with a good, young, snappy, vigorous horse, but never hitch it with an old horse that will teach it to walk slowly. A colt will learn more mean tricks from some slow, old plug in a few days than it will forget in years.

Having bred a horse of this class then how shall we sell him? Why, we will not have to consider this question at all, for they will sell themselves. The man who will breed this kind of stock in any locality need never fear a lack of market, for the time will never come when such horses as these, if clean of limb, of good action and life will not be in demand, and that too, at profitable prices.

And also, these good horses will do better work upon the farm. They will, as I have already said, be found profitable for the market, and best of all they will make the farm work more pleasant, and thus, as you will find, will have an influence in keeping the boys contented on the farm.

Now for the dairy farmer in New York, Wisconsin, or any other section equally well adapted to the growth of this class of strong, vigorous and hardy horses I have indicated, who is looking about for some profitable adjunct upon his dairy farm to add to the resources, I believe horse breeding, if intelligently directed, offers better advantages today than almost any other line of work.

Delhi, N. Y. E. J. BROWNELL.

Reading Helped to Make the Herd Profitable.

ED. HOARD'S DAIRYMAN:—I find both pleasure and profit in the DAIRYMAN; where three years ago my cows did not pay their keeping, now, thanks to the teachings of the DAIRYMAN, they are returning me a satisfactory profit. For the past year I have sold over one thousand dollars worth of butter from a herd of fifteen cows—$70 per cow on an average—besides supplying our house wants. I count the cost of keeping cows thirty dollars per year. I raise nearly all I feed and count the selling value when harvested. Two-thirds of my herd are under four years old at this time, two of them under two years, dropped calves at fifteen and sixteen months old.

Good cows, suitable environment and the right kind of a man behind the cow makes dairying pay in the Palouse country. For more than two years I have weighed and recorded the weight of each cow's milk every milking and know that it pays to do so. I also use the Babcock test. My cows are mostly Jersey grades of my own raising. Where can I obtain blanks for recording weights of milk?

Moscow, Ida. H. L. C.

The blanks can be obtained from this office at the following rates:

10 Cows.	*1 Cow.*
1 for 5 cents.	5 for 15 cents.
6 " 20 "	10 " 25 "
12 " 30 "	25 " 50 "
25 " 50 "	

United States Dairy Statistics.

The following table, taken from the census, shows the number, distribution and classification of butter, cheese and condensed milk factories for 1900;

STATES	Number	Butter	Cheese	Condensed milk	Cream	Two or more products reported
Alabama	4	3	1			
Arizona	7	1	1			5
Arkansas	8	7				1
California	178	143	17	2	1	15
Colorado	38	20	9		1	8
Connecticut	71	62	2			7
Delaware	22	21	1			
Georgia	4	4				
Idaho	19	11	4			4
Illinois	527	393	51	6	5	72
Indiana	112	75	26			11
Iowa	907	816	81		2	8
Kansas	171	133	30	1		7
Kentucky	9	7	1			1
Maine	61	44	16	1		
Maryland	84	78			6	
Massachusetts	50	46	1		1	2
Michigan	286	146	130	3	1	6
Minnesota	596	538	47		3	8
Mississippi	2	2				
Missouri	79	48	24	1		6
Montana	3	3				
Nebraska	93	82	5		1	5
Nevada	4	2				2
N. Hampshire	53	47	4	1	1	
New Jersey	53	47	1	1	4	
New York	1,908	575	1,151	12	4	166
North Dakota	21	13	8			
Ohio	479	147	221	1	11	99
Oklahoma	5	2	3			
Oregon	68	39	16		1	12
Pennsylvania	749	603	124	3	3	16
Rhode Island	3	3				
South Dakota	138	122	14			2
Tennessee	12	11	1			
Texas	12	9	2			1
Utah	57	21	7			19
Vermont	255	180	61	2	2	10
Virginia	10	8	2			
Washington	60	33	8	1		18
West Virginia	4	1	2			1
Wisconsin	2,018	728	1,227	3		60
Wyoming	2	1				1
United States	9,242	5,275	3,299	38	47	583

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain sepecific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

A Washington Ration.

Being new in the dairy business and desiring to get the most out of my cows without hurting them, will you kindly give ration for a mixed herd of cows. Alfalfa hay; bran, $20; shorts, $21; oil cake meal, $29; middlings, $27; dairy chopped feed, $20; sprouts 25 cents sack.

I am retailing milk in the city of Seattle.

Seattle, Wash. M. J. L.

Alfalfa hay being a highly nitrogenous feed stuff, we ought to have the grain part of the ration incline strongly to carbohydrates. The wheat shorts, if it really is what its name imports, would be the most suitable and cheapest. The amount to be fed daily must be governed wholly by circumstances. One may safely feed as much as 10 to 12 lbs. daily, but it is exceedingly doubtful whether it would prove profitable. The probability is that an average for the herd of 20 lbs. alfalfa hay and 6 lbs. of shorts would be ample. This would allow 8 lbs. of shorts to the heaviest milkers and 4 or less to strippers and others without ability to respond.

Potatoes.

Are potatoes injurious to a milch cow, that is, to feed them say, a half a gallon of fine cut potatoes at a feed twice a day? And how is the best way to feed them, cooked or raw, to get the best results? T. D.

Soledad, Cal.

Potatoes in moderate amounts are not only not injurious, but under many conditions, beneficial to milch cows. They may be fed up to 15 to 20 lbs. per day, and should not be cooked.

A Maryland Ration.

Kindly suggest the most advantageous ration for 800 lb. to 1000 lb. cows, Ayrshires and Jerseys mixed, about half blood of each. I have well eared, corn ensilage, timothy hay, $12 per ton; ground corn and cob corn, 50 cts. per bu; dried brewers grain, $16 per ton; bran $19; object the most 4½ per cent, entire milk for the Baltimore market. C. G. E.
Parkton Md.

Subject to modifications noted in our revised feeding standards on page 1014 we suggest as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
40 lbs. silage	10.56	.52	5.60	.28
6 lbs hay	5 21	.17	2.60	.08
5 lbs dried grains	4 59	.79	1.82	.26
3 lbs. corn and corn meal	2.67	.19	1.89	.11
Totals	23.03	1.67	11.91	.73

The per cent of fat in the milk will be governed by the individuality of the cows and not by the feed given them. See that they have salt every day.

Feeding Value of Sugar Beets.

Of what value are sugar beets for feeding, compared with bean and ground oats? Would you consider them of more value for fat than for milk. O. J. R.
Elroy, Wis.

Sugar beets carry 11.5 per cent of digestible nutrients, and bran 58 per cent. Bran is therefore worth five times as much as sugar beets, except that in the absence of silage, the beets afford succulence, which is a decided benefit, but one that cannot well be measured in money.

A New York Ration.

Please give me a ration from the following; Cows are giving now about 22 lbs. milk a day. Ensilage, mixed hay, $10 to $12; wheat middlings, $21; wheat bran, $20; Ajax flakes (distillers grains) 34% protein, 12% fat, $25.50; H.O. dairy feed, gluten feed, oat refuse 18% protein $26. A. A.
Darien, N. Y.

If practicable, let these cows have 40 lbs. of silage daily and all the hay they will eat with good relish and without waste, and 4 to 6 lbs. equal parts of the Ajax flakes and gluten feed, with a large teaspoonful of salt, morning and night

Pure Breds.—Cross Breds.—Grades.

As I have been somewhat confused by the terms pure bred, cross bred, grade, scrub, etc., as applied to cattle, will you kindly give me some information on the following questions:
1. What is the difference betwen a pure bred bull and a registered bull?
2. What is a grade bull?
3. What is the "social status" of the offspring of a pure bred bull and a grade cow?
4. If a Jersey cow be put to a Holstein bull, each being pure bred, and the offspring, if a heifer, subsequently put to another bull, what would the calf be if the second bull were: (a) a pure bred Holstein, (b) a grade Holstein, (c) a pure bred Durham, (d) a grade Durham?
Abbottsford, B. C, W, A. C.

1. The difference between a pure bred bull and a registered bull is simply a matter of evidence. The latter has his name and breeding registered, that is, recorded in the books of the cattle association of the breed to which he belongs, while the former is a waif without any recorded evidence as to his sire or dam.
2. A grade is an animal with a registered sire or dam, the other parent being without registered evidence as to breeding, usually a native or another grade.
3. A grade.
4. (a) Cross bred; (b) (c) and (d) grades. The term "cross-bred" is reserved for the offspring of pure bred sires and dams.

A Wisconsin Ration.

Please formulate me a ration for my milk cows from the following feeds: Shock corn, plenty of fine corn fodder, oats, mixed timothy and clover hay, mostly clover.
Corn, $10 per ton; oats, 31 cents per bushel; bran, $17 per ton. A. P.
Brooklyn, Wis,

It is very evident that oats are not as cheap as bran or corn, and with mostly clover hay and shock corn for roughage, we should be disposed to rely upon the bran exclusively for the additional protein required.

How much bran? Information as to the kind of cows, their condition as to lactation, when expected to freshen again being withheld we have no basis for making an estimate. A careful perusal of answers given to other inquirers will give some indication as to the general course we would pursue.

A New York Ration.

Is this ration right? Ajax flakes (which is a distillers' feed), I mixed 100 lbs. and wheat middlings 100 lbs, The Ajax flakes were guaranteed protein, 34 per cent, and cost $25.25, and the middlings 19 per cent, cost me $21.00 I feed ten quarts or seven quarts every day to each cow with silage and hay. Gluten feed is 26 per cent protein, and costs me $25, Shall I use this or the other? C. H.
East Aurora, N. Y.

As we have no means of ascertaining how much a quart of the mixture above described weighs, we cannot say whether our inquirer is feeding properly. We should consider 8 lbs. of the mixture daily all that would be necessary as a rule, and probably more than some of the cows could use with profit. If the "flakes" are prime in quality and palatable to the cows, we see no necessity for changing.

Using Bull in Tread Power.

I have a thoroughbred Holstein bull nearly two years old that I would like to use for running a churn and separator with a tread power. Would it be too much to have him on a power a few hours at a time?
Where could I get a good tread power? Will it run a separator regular enough? Would like to separate the milk of about 40 cows. The churn is a combined churn and worker.
Lewisburg, Penn.

There will be no necessity for keeping the bull in the tread power a "few hours at a time," but if it was no harm would result. The Senior Editor uses a bull for running a separator and has for some years. The only trouble is that the power furnished is more than is necessary. With a large bull it would be expedient to have a quick acting brake to control the motion.

The St. Albans Foundry and Machine Co. St. Albans, Vt. make single tread powers, and would advise corresponding with them.

A Wisconsin Ration.

Please formulate a balanced ration for my herd of 10 milch cows, weighing 1000 lbs. I have on hand good corn silage and plenty of well cured clover with some timothy hay and corn stover, which I run through the feed cutter. Cows were all fresh in October and November.
Bran, $18.00; linseed oil meal, $25.00; oats, 32c; wheat middlings, $18.00.
Am feeding at present, 40 lbs. silage, 15 lbs. hay, 4 lbs. bran, 2 lbs. oats and 1 lb. oil meal, with salt twice a day. Cows are giving twenty to thirty lbs. milk per day. Can I feed for better results? They have all the stover they will eat, without waste. W. P. K.
Weyauwega, Wis.

We do not undertand how these cows can be induced to eat so much roughage. Probably the amount of hay is over estimated. We should think that 40 lbs. silage, 10 lbs. hay, and grain as specified, would be ample for cows giving not more than 30 lbs. of 4 per cent milk. If corn stover takes the place of part of the hay, you might add another pound of oats to the heaviest milkers.

A Massachusetts Ration.

I have ensilage (not much corn in it) and mixed hay; am feeding 30 to 35 lbs. ensilage and all the hay the milking cows will eat. Can get grain at following prices. Please print ration for cows giving from 16 to 44 lbs. of milk a day. Biles four-ex, $28: gluten feed, $28; oil meal (old process), $30; cotton seed meal $31; middlings, $26; meal, $23; bran, $24. W. H. P.
Petersham, Mass.

Inasmuch as milk is a product manufactured from feed consumed by the cow, it is manifest that the cow yielding 44 lbs. of milk daily will require very much more raw material than one yielding only 16 lbs.; but not in the proportion of 44 to 16, because first of all the food of maintenance must be supplied, which will be practically the same whether the cow gives much or little milk. The quality of the milk is also an important factor in determining the amount of feed required. For example, 100 lbs. of 4 per cent milk, contains fully two pounds more milk solids, than 100 lbs. of 3 per cent milk, and these extra two pounds of milk solids must come from the feed, eaten and digested.

For the largest milkers we recommend not less than 10 lbs. of concentrates, of which 2 lbs. may be cotton seed meal and 4 lbs. of the Biles grains (or gluten feed) and 4 lbs. bran.

Plan for Manure Shed.

Please send me a plan of a manure shed to contain the manure of fifty head of cows for six months. The same to be spread with a manure spreader in the fall. J. B. W.
Cuyler, N. Y.

As we have never had experience with manure sheds, we refer this inquiry to our readers for reply. We can plainly see that such a structure should have a slightly concave bottom and preferably covered with a durable cement lining.

From the Ex-Hired Man.

ED. HOARD'S DAIRYMAN:—Granting that I am the gumphead which one of the farmers from Wisconsin calls me, I can now earn from $20 to $25 per month and board. I wonder how much more I could earn working out for any farmer who manages his own farm, had I all the wisdom of a Solomon or even of this Wisconsin farmer.

What I tried to make plain in my former letter and what I still say is, that intelligence and education and even experience above a certain small amount are of no value, pecuniarily, to the average single hired man so long as he remains a hired man.

Somebody, somewhere, has said something like this: "Men are paid for what they can do, not for what they know; but what they can do is limited by what they know." I wonder if this is true on the farm. Is the hired man any more able because he has knowledge and experience and brains? If so, why doesn't the educated and experienced farm hand command more wages than the novice? He certainly doesn't.

We farmers, (I am a farmer myself, in heart, if not in fact) are about as consistent as the religious man I know who leaves all the Sunday chores for the hired man to do while he goes to church and prayer meeting. Then, when his man leaves, he wonders how he has so much trouble keeping help. We farmers pay taxes and scrimp and save to give our boys a high school and perhaps a college education. When they graduate they can get from 50 to 100 per cent more as a clerk or bookkeeper than can the non-educated boy of the same age, but not one cent more on the farm. Then we wonder why the boy doesn't stay on the farm. Wouldn't he be a gumphead if he did?

Now, about the farm hand being out late nights. In all too many homes the hired man is treated only as a necessary part of the farm and domestic machinery. He is given a place to sleep and three good square meals, but no place in the family circle. What wonder then, that homesick and longing for congenial society, he spends most of his spare time running around and trying to get a little pleasure out of life.

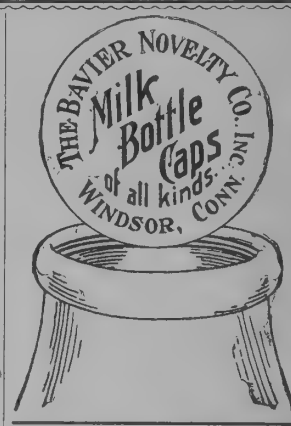
I don't say that the hired man isn't to blame for his condition. Perhaps he is to blame in the first place for being a hired man, but honestly, I don't see how the hired man working for the average American farmer can be very much different than what he is today. You educate him, and in a few years at least, if he isn't a gumphead, you lose him.
Bath, N. H. AN EX-HIRED MAN.

Smoothing Harrow for Corn.

ED. HOARD'S DAIRYMAN:—Answer to T. R. W., on page 997, Dec. 11. I have used smoothing harrow to good advantage on ground free from stone and rubbish, when corn was 1 to 2 inches high, and on stony ground, when the corn had sprouted ½ to 1 inch (corn planted 2½ to 3 inches deep). As the weather may not permit of this, I cultivate 6 to 10 days before planting, and then shallow just before planting, this kills many of the weeds. N. K. S
Pottstown, Pa.

ED. HOARD'S DAIRYMAN:—I saw an article on cultivating corn with a smoothing harrow by T. R. W. As I have had some experience in tending corn in this way for a number of years, and on different ground, I would like to give my opinion on the subject. It won't do to harrow corn when it is ½ to 1 inch high, because it is too tender when it is just through the ground, but it is all right to harrow it after it is 2 inches high if the ground is clean from trash, such as corn stalks, straw or anything that will be caught by the harrow and be dragged a ways, as this would destroy some of it if it happened to be on the row. But if the ound is properly plowed and harrowed

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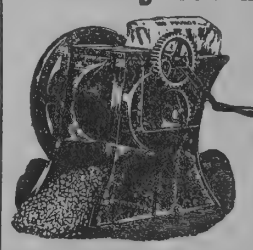
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before planting and after, so that there are no clods to bother the young corn it will work well. If the ground is cloddy a roller or plank should be used to crush the clods.

I drill my corn in rows and try to get it 6 to 8 inches apart, 1 kernel in a place. After harrowing it 2 or 3 times, then I plow it with a disk cultivator, with it set so that the inside disks throw the dirt away from the row and the two outside disks throw the dirt to the row so as to more than fill the furrow made by the head disk.

When this is done I harrow it, cross the rows, letting the harrow lap half, but do not harrow the corn early in the morning. The corn will stand it better, and you will kill more weeds after the sun gets hot, from 9:30 till night. Then two good plowings with the disk cultivator will insure a perfectly clean field.

This will leave the field somewhat ridged and the corn is well hilled up, but this is so much the better, it will stand hard winds better, and a fine, well pulverized surface will draw and hold moisture in a dry season. The corn being in the ridges will run the water away from the corn in a wet season, so it is better for this, than if small grain is put on this ground. The next year sow it broadcast, then use a spring tooth harrow, disk or a spading harrow. I prefer the spader because it will work in all kinds of ground and do better work. Always drive diagonal of field so as to level the ground. Then harrow with a smoothing harrow.

Worthington, Minn. F. A. L.

Vealing Calves With Skim Milk and Flour.—A Fifteen-year-old Silo. —Experience With Silage.

ED. HOARD'S DAIRYMAN:—Enclosed please find one dollar to renew my subscription. I think it well worth the money. I read an item in the DAIRYMAN last spring about feeding flour in the skim milk to young calves, that has been worth a year's subscription to me.

I use a hand separator and veal my calves on fresh skim milk, and by mixing a handful of cheap flour with each feed of milk the calves do first rate, but care must be taken not to overfeed.

Some silo experience: I have a square silo, 19×22 feet and 23 feet deep, with partition, which has been in use 15 years. It began to give out two years ago so silage spoiled a considerable. Last year we lined the worst places with tarred paper put on perpendicular; also lined the doors with paper. and the silage kept as well, if not better, than it ever did.

I have had considerable experience feeding ensilage and I don't think the grain in the silage is equal to dry corn.

Green Lake Co., Wis. CLARK PAGE.

Feeding a Milkman's Cows.

ED. HOARD'S DAIRYMAN:—I will give you an answer to feeding a milkman's cows in paper of Dec. 11. Take 700 lbs. of winter bran, 100 lbs. cotton seed meal, 100 lbs. of corn meal, 100 lbs. of oil meal, 100 lbs. of gluten meal; mix thoroughly on the floor and you will find it will weigh about one pound to the quart and feed from 4 to 6 quarts at a feed night and morning, in dry form, to cows that have been in milk for four weeks and longer. To cows just after calving, give warm bran gruel for nine days. After nine days take half of the mixture named above and as much bran and mix together, and after 4 weeks leave out the bran a little at a time, and put in the mixture in place of it until you have them on the regular feed of the mixed grain. Feed grain dry with a little fine salt in each feed.

Brockton, Mass. M. C. S.

Erecting a Stave Silo.

ED. HOARD'S DAIRYMAN:—Your illustrations of silo construction, on first page of last week's DAIRYMAN, by N. H. C., shows the construction of a round silo, 2x6's. This is a form of silo used by myself for 5 years and paid for itself five times over, now sold to a neighbor and moved and set up by us. By reason of our moving next spring to a larger farm (420 acres) we can not use so many (three) silos, as we had on our 100 acre place.

We made a concrete foundation, circular, one foot above ground, the lumber was tarred and left to dry while we built foundation. We then made the continuous doorway and stood in position, bracing both ways with 2x6's as shown in cut 1; as 2x6's were used instead of 2x4's, we could not spike through one edgeways into the other, so put up a section of the top hoop to hold them from falling out as we toe-nailed them together.

As the lumber was rotted somewhat at the bottom, by reason of sawdust and manure piled up against it, we turned it upside down, piece by piece as put up, this accounts for the ragged appearance of the top.

By using ladders on the inside, we avoided the necessity of building scaffolding, which would take so much time. After the first section was nailed up, we set up another 4x6, braced it both ways and put up another top hoop section, when photo number two was taken. This section was nailed up and also the third section in the same manner. Then the hoops were put on, beginning at the bottom and working up.

This I think is the best way to erect a silo of 2x6's, but it is much better to build of 2x4's and spike together edgeways, (Buff Jersey plan) it is easier and quicker built, stronger, and kept in shape much better. F. M. PARSONS,

Illinois.

Corn Stalk Disease.

ED. HOARD'S DAIRYMAN:—We have been farming aud raising stock for the last six years, and have always let the cattle feed in the stalk fields in the fall and never lost any until this week when two cows died.

From reading a piece in the DAIRYMAN of Dec. 6, 1901, I believe they had "corn stalk disease." Is there any cure when they have it?

In the piece I have mentioned I find a sentence I do not understand. "After one outbreak has occurred, it is rarely the case that a second will follow." Does that mean for that year, or that herd?

There was some corn left in the field. Would the symptoms be the the same if the animal had eaten too much corn?

There was some smut in the corn. Would eating that cause the "corn stalk disease?"

Would horses be affected? Several have been feeding with the stock.

Mandan, N. Dak. R. S. V.

Veterinarians are not yet certain whether the so-called "corn stalk disease" is caused by simply over-eating of the dry and largely indigestible corn stalks or whether under peculiar conditions some poison is produced in the stalks, but they seem to be agreed that there is no effective medicinal treatment. Corn smut will not produce the disease. Prevention is the only remedy. Cattle should not be turned into stalk fields when they have empty stomachs and are ravenously hungry, and for the first few days for no more than an hour a day.

We have not heard of any fatality among horses, but it would be no more than prudent to pursue the same course with them as with cattle when first turning into stalk fields.

We understand the sentence quoted to mean that a second attack is unlikely in one season.

"ADVERTISEMENT."

ON THE BABY

Coffee Even the Babies Thrive On

The little daughter of a College President was saved by the use of Postum Food Coffee at a time when she could not take any solid food.

Baby's aunt says: "My sister and her husband (who is President of a College in Georgia) visited me last Christmas and their little baby two months old was very sick. I thought it was not properly nourished so I began feeding it on Postum which I have used in my own home for years with such grand results.

"You would be surprised to know how that little thing improved. Sister had been feeding it on artifical food that did not agree with it. The baby continued to get stronger all the time we were feeding her on Postum and when sister left here she took Postum with her for she feels certain that with Postum to feed the baby on she is sure of good healthy nourishing food drink." Name given by Postum Co., Battle Creek, Mich.

Postum is made of the purest Cereals with absolutely no medication whatever and when boiled according to directions it is heavy with food value and a great nourisher and rebuilder as well as a delicious drink. It is also a specific for all of the dozens of different diseases caused by coffee. Trial proves this.

Look in each package for a copy of the famous little book, "The Road to Wellville."

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IN THE DAIRY LINE?

Will you not allow us to assist you in making the contemplated changes in your Dairy Building?

Kindly give us an opportunity to fill your order for Milk and Cream Coolers, Bottle Fillers and Tables. Sterilizers complete, including Bottle Cars, Bottle Carriers, Reversing Racks, Spacers, Etc. Bottles, Brushes, and Caps.

STAR MILK COOLER CO. TRADE MARK STAR HADDONFIELD, N.J.

We are not only manufacturers of Star Sanitary Dairy Apparatus, but we have an Architectural Department devoted exclusively to making plans and specifications for all Dairy Buildings, Pipework, Etc.

We have had experience. You may depend on us.

TRY OUR APPARATUS

STAR MILK COOLER CO., Haddonfield, N. J.



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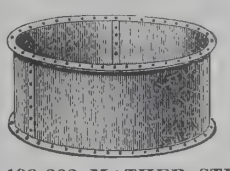
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Did You Ever Keep a Record Of Your Cows?

IF SO, you have felt the need of a convenient, simple and handy Record Sheet. We have had so many requests for these Record Sheets that we concluded to get up one that would "fill the long felt want."

DAILY MILK RECORD SHEET FOR TEN COWS

We have a very simple and complete Record Sheet for 10 cows, one month, that is printed on heavy Manilla Paper, we can send postpaid at the following prices:

Price 5c Each	6 for 20c	12 for 30c	25 for 50c

SIZE 10x16 INCHES

We also have a one cow Record Sheet, heavy Manilla paper (one month) that we will mail postpaid

Single Copy 5c	5 for 15c	10 for 25c	25 for 40c

SIZE 6x15 INCHES

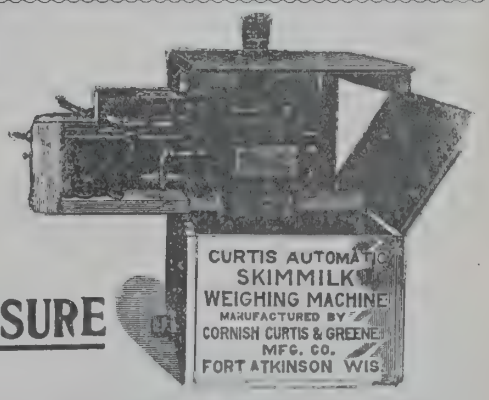
HOARD'S DAIRYMAN.
FORT ATKINSON, WIS.

Skim Milk

Often goes to the wrong man for the simple reason that the patrons have no standard of

WEIGHT or MEASURE

and the last man suffers.



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Cornish, Curtis & Greene Mfg. Co.,
Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.
Agents for....
DE LAVAL ALPHA SEPARATORS.
Fort Atkinson, Wis.

The Whey Butter Question.

ED. HOARD'S DAIRYMAN:—The proposition to tax whey butter containing more than 16% moisture as an adulterated product at the rate of 10 cents per pound, amounts to taxing out of existence a most wholesome, valuable and cheap article of food, a food that is not an artificial product, nor an adulterated one, no matter if it contains 16 or more per cent of moisture.

The law under which it is proposed to rule this food out of existence, has relation to, and was expressly framed, against artificial or adulterated products. It provides in express terms that butter which contains any foreign substance whereby it is enabled to absorb more moisture than is natural (exceeding 16%), shall be subject to a tax of 10 cents a lb. as artificial, adulterated or renovated butter.

Whey butter is in no sense other than a natural product. It is just as much a natural product of the whey of certain kinds of cheese as is the cheese itself, or the milk sugar made from such whey. It is not a table butter. It is never sold by the makers for anything else but whey butter, whatever may be done with it afterwards Even a very poor judge of butter could not be deceived.

Its manufacture and sale has been honest and open. It was offered and sold as whey butter, never as butter, for centuries in Europe and for fifty years in Wisconsin. Its use is mainly in fine cooking, baking and confectionery, and for such purposes it is superior to lard or any other fat or oil, giving to the food prepared with it a fine creamy flavor all its own, especially if before it is used it has been melted, skimmed and again cooled. It is a favorite with all who have once used it, for there is no taint or suspicion of filth, cholera or scrofula attached to it.

It is usually sold at about one-half the price of creamery butter. Its production is confined to the sections of the country where sweet curd cheese is produced, mainly the Swiss variety. The high temperature at which this cheese is cooked and the absence of acid formation in the whey causes it to retain from ½ to one per cent of cream. This cream or fat, by a well known process, is separated and churned, and the result is whey butter. To tax such a wholesome and cheap food out of existence by means of a law aimed at adulterations and unwholesome mixtures would be a gross perversion of its intent and a wrong to producer and consumer. JOHN LUCHSINGER.

Monroe, Wis.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The Quotation Committee of the Elgin Board of Trade decided on 24c firm as the market price of butter.

Sales	Tubs	Price	Sold
Sharon	40	24	Kilbourne
Maple Park	35	24	"
Warren	35	24	"
Nursery	35	24	"
	145		

Output, 443,824 pounds.

Former markets:

	Tubs sold.	Price.
Dec. 14, 1903	0	25
Dec. 15, 1902	0	29
Dec. 16, 1901	0	24½
Dec. 17, 1900	0	24½
Dec. 18, 1899	0	26

In the election the "Regular" or Caucus ticket won by a large majority over the "Independent" ticket put up later.

The heads of the two tickets received 75 and 14 votes respectively. The ticket elected was as follows:

For Board of Directors—John Newman, G. H. Gurler, W. W. Sherwin, George Reed, M. Richmond.

For Committee of Arbitration—C. S. Kilbourne, A. Nolting, F. B. Cornell, J. P. Younger, D. C. Woolverton.

For Committee of Appeal—C. H. Potter, G. F. Oatman, T. W. Brennan.

Elgin, Ill, Dec. 21. H. C. B.

Dehorning Calves.

ED. HOARD'S DAIRYMAN:— -One morning as the class in Feeding and Stable management, were finishing their work, their attention was attracted by the Professor calling out "We have two calves that ought to be dehorned this morning. Are there any of you men who wish to experiment on them? How about you Mr. S." "Yes sir, I should like to," answered that gentleman, and the calf being produced and thrown in front of the window, in order to get the best light, the operation was begun by cutting all the hair very closely near the protuberance, and then wetting the spot where the horn would naturally come through. A stick of caustic potash was next dipped into the water and rubbed on the wetted spot until the skin loosened.

"When should a calf be dehorned, Professor?" asked a student. "After it is two weeks, and before it is three weeks old," was the answer. "Turn him over and operate as before," was the order next given. A student wished to know if that was all there was to it, and was answered that that was all there was necessary to kill the horn. E. K. MORSE,

Sanitary Manager of Cornell Dairy.

The Kansas State Dairy Association.

ED. HOARD'S DAIRYMAN:—The fifteenth annual meeting of the Kansas State Dairy Association will be held at Topeka, Kansas, January 26th, 27th and 28th, T. A. Borman, 1109 Throop St., Topeka, Kansas, Secretary; Geo. H. Littlefield, Parsons, Kansas, President.

T. A. BORMAN, Sec'y.

Topeka, Kansas.

Of Interest to Farmers.

Cultivating Corn with the Smoothing Harrow.

ED. HOARD'S DAIRYMAN:—T. R. W., of St. Albans. Vt., inquires through the DAIRYMAN for Dec. 11, as to the experience of farmers in relation to the early cultivation of corn with what is termed a smoothing harrow, and if it is a safe and economical process.

These harrows were in use to quite an extent a considerable number of years ago in this state for light, smooth work and the cultivation of corn in the early stages of growth, but later on the implement known as the "weeder," largely took its place in the corn field, and where rightly used, with good results.

Some years ago the smoothing harrow was used to a good purpose on my own corn.

But a few things are essential for the best success with either of these implements in the corn fields.

First, the land should be free from any obstructions, such as stones, strawy manure or loose sods, that might be dragged along and cover the corn in its small growth.

The corn should always be planted with a machine that leaves the hills or drills somewhat depressed, that is, a little lower than the surface of the ground. This prevents the harrow from tearing out the hills of corn, which it would be pretty apt to do if raised above the surface.

It is very essential also that the smoothing harrow or weeder be brought into use quite early. Do not even wait for the corn to get above the ground.

By using it before, the soil will have no time to become compact or hard, and the weeds or grass will be kept from getting a start. That should be the aim, for if the work is delayed until the soil becomes hard, or the weeds get well started, it will be difficult making a succses with this method of cultivation.

Go between the rows and after covering the field, if necessary turn about and harrow the second time, as this will render the work doubly effective and much ground can be gone over in a day.

The corn may get bent over some and look a little bad perhaps, at the first, but it will soon straighten up again all right and grow all the better for this thorough treatment. Very little will be torn up. Now and then a hill may be covered, and it might be well to pass over the field and make all right. No fear need be entertained of permanent injury, if the work is properly performed, and it will be a surprise to note how thriftily the corn will grow after such effective treatment, and how clean the ground will be. This will make a good begining and the after cultivation with some other implement will be necessary and satisfactory, that is, after the corn becomes too large for the smoothing harrow.

The implement I used was the Thomas smoothing harrow, the first of the kind to be used for this purpose. The numerous small round teeth had a bent backward slant of 45 degrees and worked nicely.

A PROFITABLE CROP OF ENSILAGE CORN AND HOW IT WAS GROWN.

A young farmer living in the town of Enosburg, raised a most satisfactory crop of ensilage corn the past season which was not very favorable for this purpose.

Four acres, probably, greensward, were heavily manured and plowed under. After the field was properly prepared it was planted with what is known as Mastodon corn, a large variety and which, under favorable conditions, ears well. Three hundred pounds of phosphate were used in the hill.

The early cultivation of this crop was with the weeder. With this he went

DON'T OVERLOOK

YOUR NEIGHBORS AND FRIENDS

A good many of them would join you in a club if you would speak to them about it. This favor will help them and help us greatly. Won't you do it?

WISCONSIN FARMERS' INSTITUTE BULLETIN NO. 17

Is now ready for distribution. A 320 page hand-book for the farmer and stockman. Treats of the dairy, sheep and swine husbandry, horse breeding, poultry, fruits, etc.
To Wisconsin farmers—25c for cloth bound and 10c for paper covered copies. Outside of Wisconsin—40c for cloth bound and 25c for paper covered copies.

Address GEO. McKERROW, Supt., Madison, Wis.

JUST OUT! UNDERHILL SELF ADJUSTING STALL



No Gutters
No Platforms
No Fastenings
No Stables to clean

Cease trying to keep your cows clean. Give them a chance and they will do it themselves. This is the only way and the easy way. Write for circular.

Wm. M. UNDERHILL, Oconto, Wis.

AN INSTANT'S PAIN and the dehorning job is smoothly done, no crushing or bruising if the KEYSTONE Dehorning Knife is used. Easy, sure and most speedy in operation. No evil results can follow. Cuts from four sides at once. Endorsed by veterinarians. Guaranteed.



Send for free circulars.

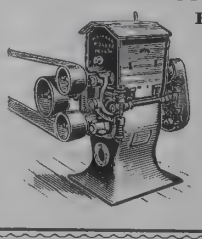
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RECORD $4.45 TANK HEATER

The only successful tank heater made. Size 14x22, 24 inches deep. Water passes through pipes in heater and heats water in tank quickly. Orders filled promptly, C. O. D., subject to examination, or if you prefer to send cash with order, deduct 25c.

JUDSON A. TOLMAN CO., 66 Lake St., Chicago



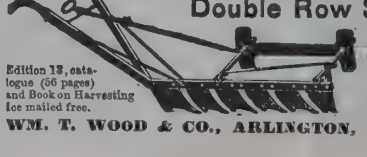
ROLLER FEED MILL

Great capacity, takes little power, lasts indefinitely. Hundreds in use, tremendous earning power. Keep your engine earning money through the year. Big profit in grinding feed with our Roller Mill. Don't lose the opportunity of your life, write for our catalog "D" and prices, free.

R. R. Howell & Co., Mfgs., Minneapolis, Minn.

WOOD'S ICE PLOWS

Single Row Style
Double Row Style



Stocks Carried In All Large Cities.

Edition 13, catalogue (56 pages) and Book on Harvesting Ice mailed free.

WM. T. WOOD & CO., ARLINGTON, MASS.

crosswise of the rows. This continued, resulted in the most thorough stirring up of the soil, no part escaping, and the growth was rapid and strong. This implement was used until the corn was too large for the purpose, then another kind of cultivator completed the work. The result was a heavy crop of corn. The phosphate in the hill gave it a quick, early start and when the roots reached the manure and decaying sod, enough nutriment was added, along with the thorough cultivation to assure the best results. Some of the stalks were fifteen feet in height and quite a proportion of them had two ears. From this crop of four acres, a silo 12x16, and 23 feet deep was filled. This would mean about double the average crop and shows what can be done in this line, when the conditions are the best, even in a latitude so far north.

E. R. TOWLE.

Franklin Co., Vt.

DAIRY MARKETS.

ELGIN, Ill., Dec. 21—Butter ruled firm on the Board of Trade this afternoon, selling at 24c a pound, a cent below last weeks quotation. The sales for the week were 443,000

CHICAGO, Ill, Dec. 21—Butter—Easier; creameries, 16@23c; dairies, 14@21c.

Cheese—Steady; Daisies, 10¼@10½c; Twins, 10c; Young Americas, 10½c.

Eggs—Weaker; at mark, cases included, 26@28c.

Cattle—Choice to fancy beeves, 1,200 to 1,400 lbs. 5.40@5.75; good to choice heavy steers, 4.75@6.50; fair to good export and shipping steers, 4.60@5.35; medium beef steers, 4.00@4.50; plain beef steers, 3.60@3.90; common to rough, 1,000 to 1,200 lbs. 3.00@3.50; good to fat heifers, 3.60@4.35; good to choice feeders, 3.25@4.00; good to plain stockers and feeders, 1.75@3.20; fair to good cows and heifers, 2.70@3.60; good cutting and fair beef cows, 2.20@2.60; common to good canning cows, 1.25@2.10; bulls, poor to choice, 2.40@4.30; calves, choice to fancy 4.75@5.75; calves, common to fair, 2.50@4.50; corn-fed, western steers, 4.00@5.40; Texas bulls and grass steers, 2.25@3.75; fed Texas steers, fair to choice, 3.40@4.50.

Hogs—Good to choice heavy shipping, 4.45@4.55; fair to good heavy packing, 4.30@4.40; rough and common heavy mixed, 4.15@4.30; assorted light, 150 to 175 lbs., 4.25@4.40; good to choice butcher weights, 4.40@4.55; fair to choice light mixed, 4.25@4.40; thin to choice 50 to 120 lbs., 3.90@4.50; stags and rough lots, 3.00@4.00.

MILWAUKEE, Wis., Dec. 21—Butter—Creamery, extras, 24c; firsts, 22@22½c; seconds, 20@21c, renovated (process), 17@18c, whey, 10@12c. Dairy fancy, 19c; lines, fresh, 16@17c; packing stock, 13@15c; grease, 5@6c.

Cheese—American full cream, new: Twins, 10@10½c; Young Americas, 10¼@11c; Daisies, 11@11¼c; Longhorns, 11@11½c; low grades, 7@9c. Brick, new, fancy, 10@10½c; low grades, 7@9c; Limburger—New, fancy, 10@10½c; off goods, 6@8c. Swiss—Drum, choice, 12@12½c; Drum No. 2, 10@11c; block, choice, 11@11½c; block, No. 2, 9@10c.

Eggs—Strictly fresh laid, loss off, cases returned, 27c; strictly fresh laid, at mark, cases returned, 24½@25c; storage, city, Apr. No. 1, 24c; storage, country, 21@22c; dirties and seconds, 20c; checks, 18c.

PLYMOUTH, Wis., Dec. 15—Cheese—On the Call Board today 21 factories offered 1,154 boxes of cheese, of which 145 Longhorns were passed on, the balance sold as follows: 91 Longhorns at 10¼c; 43 at 10⅜c; 683 Daisies at 10½c; 54 at 10¾c; 57 Twins at 9¼c; 71 at 9⅜c; 10 Americas at 10c. Market quiet. The next meeting will be held Dec. 29 at 3:15 p. m.

MANITOWOC, Wis., Dec. 16—Cheese—Sales today were: 25 boxes Twins at 9c, 200 boxes Young Americas at 9½c, 300 boxes Daisies at 10c.

SHEBOYGAN, Wis., Dec. 16—Cheese—On the Call Board here to-day 1,774 boxes of cheese were offered, of which 54 Daisies and 40 Longhorns were withdrawn. Sales were: 24 boxes Twins at 9⅜c; 208 Daisies at 10⅜c; 568 at 10¼c; 150 cases Young Americas at 10½c; 174 at 10c; 516 Longhorns at 10⅜c, 40 at 10¼c. Board adjourned for two weeks.

SHEBOYGAN FALLS, Wis., Dec. 16—Cheese—22 factories offered 1,375 boxes of cheese on the Call Board today and all sold as follows: 43 cases Young Americas at 10¼c, 48 at 10⅜c; 217 Daisies at 10⅜c; 387 at 10¼c; 680 cases Longhorns at 10¼c. Market steady. Next meeting, Dec. 30, at 3:30 p. m.

ST. LOUIS, Mo., Dec. 19—Butter—Steady, extras at 26c; firsts, 23c; seconds, 20c.

Cheese—Cheddars, at 11½c; Young Americas, at 12c; Twins, at 11½c; Daisies, at 12c; Long horns, at 12c.

Eggs—Steady; fresh at 29@30c. storage, 26½@27c.

PHILADELPHIA, Dec. 21—Butter—Quiet and steady; extra western creamery, 23½c; near-by prints, 27c.

Cheese—dull; New York full creams, fancy, 11¾c; choice, 11½c; fair to good, 10¾@11¼c.

Eggs—Steady fair demand; fresh near by, 36c; at the mark; western, 35c, loss off; southwestern, 34@35c; southern, 30@32c.

KANSAS CITY, Dec. 21.—Eggs—Week, Missouri and Kansas, cases returned, 26½cr new No. 2 whitewood cases included, 27c.

NEWARK, N. J., Dec. 21—Butter—Market steady 24c for extras.

Eggs—Extra, 36c; firsts 34c.

NEW ORLEANS, La., Dec. 18—Butter—Extras, 26c; firsts, 24c; seconds, 20c. Ladles 16c.

Cheese—Cheddars, no demand; Young Americas, 12c; Twins, 11c½; Daisies, 12c.

Eggs—Fresh, 32c; storage, 28c.

BOSTON, Mass., Dec. 21—Butter—Creamery, western, extra, 23@23½c; western firsts, 21c; storage, 20@22½c; dairy, 15@19c; western ladle, 14@15½c; box and print 16@25c.

Cheese—Choice, 12c; Wisconsin Twins, 11@11½c.

Eggs—Fancy nearby, 41c; western 28@35c; poor to fair, 22@28c; dirties, 18@23c; refrigerator, 22@28c.

TOPEKA, KANSAS, Dec. 19—Creamery—Butter 24½@25½c; Dairy butter 17½@18½c.

Cheese—Longhorns 11½c; Daisy 11@11½c; Prints 12¼c.

LIVERPOOL, Dec. 21—Butter—Nominal.

Cheese quiet, American finest white, 51s; do colored, 53, 6d,

NEW YORK, Dec. 21—Butter—Recipts, 3,834 pkgs.; quiet; extra, creamery, 23c; creamery, common to choice, 15@22c; state dairy, 15@20c; held creamery, 15@21c.

Cheese—Receipts, 5,107 pkgs; quiet; state full cream, fancy, small, colored, September, 12c; late made, 10c; small, white, 12c; late made, 10c; large, colored, September, 12c; late made, 10c; large, white September, 12c; late made, 10c.

Eggs—Receipts, 3,329 pkgs; strong; state and Pennsylvania, nearby, average finest, 36c; state and Pennsylvania, seconds to firsts, 30@34c; western firsts, 36c; western seconds to firsts, 30@34c; refrigerated, 26@28c.

NEW YORK MARKET.

NEW YORK, Dec. 19—Butter—Receipts for the week, 28,962 packages. Exports for the week, 885 packages.

Our market dropped two cents per pound on extra fresh creamery butter, and has been dull and out of joint all the week. The supply of strictly fancy fresh butter is not excessive, and sold well to best grocery trade at top prices, but most of the creameries arriving are more or less off in quality and to move them, receivers are willing to cut prices 3 to 4 cents per pound. At the close there is more or less stock of this kind in every store.

There was some business reported in best June creameries, one long line selling at about 19 cents, and several lots of 50 to 100 tubs each at 20 to 21½ cents, and there are many anxious holders hoping for more demand even at low prices. Low grade butters are in full supply and sell slowly at prices always favoring the buyer, We quote:

Creamery, fresh, extra, 22@23c; medium, 20@22c; poor, 15@19c; creamery, June extra, 21c; medium, 18@20c; poor, 15@17c; Dairy, extra, 20c; medium, 17@19c; poor, 14@15c.

Cheese—Receipts for the week, 18,013 boxes. Exports for the week, 5,927 boxes.

Dull trade is reported from all quarters and will contiuue so until after the New Year. Exporters took some late make full cream and skimmed cheese at low prices. We quote:

Full cream, extra, 12c; medium, 10@11½c; poor, 6@9c.

Eggs—Receipts for the week, 20,381 cases.

Receipts quite moderate, but trade is light and prices very sensitive. We quote:

New York & Pennsylvania, fancy, per doz., 35@36c; Northern & Western, fancy, 35@36c; all sections, poor to good, 22@33c. refrigerator poor to good, 22@28c.

177 Chambers St. DAVID W. LEWIS & Co.

NEW YORK FERTILIZER MARKET.

Fish scrap, dried, 11 p. c ammonia, and 15 p. c. bone phosphate f. o. b. fish works, per ton	2.40 & 10
wet, acidulated. 6 p. c. ammonia f. o. b. fish works	2.15 & 35
ground	33.00@35.00
Azotine, per unit	2.60@ 2.65
Tankage, 9 and 20 p. c. f. o. b. Chicago, per ton	21.00@22.00
Tankage, 8 and 20 p. c. f. o. b. Chicago	18.00@19.00
Tankage, 7 and 30 p. c. f. o. b. Chicago	15.00@16.00
Tankage, 6 and 35 p. c. f. o. b. Chicago	14.00@15.00
Garbage, tankage	8.00@ 9.00
Dried blood 12-13 p. c. ammonia	2.50@ 2.55
Dried blood, high grade	2.65@ 2.70
Nitrate of soda for 100 lbs	2.25@
future	2.10@ 2.12½
Acid phosphate	60 @ 67½
Phosphate rock, f. o. b. Char'n	5.00@ 7.00
Tenn	3.50@ 4.50
Bones, rough ℔ ton	17.00@19.00
ground	20.00@21.00
Bone meal	21.50@23.00
steamed	22.00@23.00
Bone black, refuse	19.00@19.50
South Carolina phosphate rock, ground per 2,000 lbs. f. o. b. Charleston	6.50@ 7.75
South Carolina phosphate rock, undried, f. o. b. Ashley river, per 2,400 lbs	3.50@3.75
do, dried	3.75@4.00
Muriate Potash, 80 p. c. ℔ 100 lbs	1.83@ 1.86½
Muriate potash 80 p. c., future	1.80@ 1.90
dbl. m're salt	48@53% 1.12@ 1.15
dbl. m'ure salt less 25 tons	48@53% 25.00@30.00
sulph. of basis	90@98% 2.11@ 2.14
90@98% less than 25 tons	38.00@40.00
Sulphate potash (basis 90 p. c.)	2.08@ 2.20
Sylvinit, 30@36p. c ℔ unit	.39@ .40
Kainit	8.95@ 9.50
Kainit, in bulk	9.05@ 9.55
Kieserit	7.00@ 7.25

BALTIMORE MARKET.

BALTIMORE, Dec 17.—Butter—The receipts of extras, though rather light, are about equal the present requirements, as the prevailing prices have had a tendency to retard the demand to some extent. Firsts and seconds have been in fair request. There is also a good demand for choice to fancy grades of storage creamery when they can be bought under the price of current receipts. There is quite a scarcity of choice imatition creamery. Good to choice fresh ladles are in moderate supply and good demand, while held is in ample supply and slow sale. Roll—While there is some little increase in the receipts the supply of desirable is insufficient to satisfy the demand. Packing stock, when fresh and sweet, is in fair demand. Blocks and prints—All choice to fancy lots meet quick sale. The general market closes steady and firm on all desirable stock.

Creamery separator, extras, 26c; firsts, 24½@25c; seconds, 20@23c: Held creamery, extra, 24c; firsts, 22@23c; seconds, 19@21; imitation creamery, extras, 20c; firsts, 18@19c; seconds, 14@16c, Iowa & N. W, Ladle, extras 16½c., firsts, 15@15½c; seconds; 13@14c; Ohio & Indiana Ladle, extras, 16c; firsts, 15c; seconds, 13@14c Roll Ohio, extras, 17c; firsts, 16c; seconds 13@14cRoll, W. Va., firsts, 16c; firsts, 15c; seconds, 13@14c. Ohio storepacked, extras,—firsts, 14c; seconds, 12@13c; W. Va, firsts, 14c; seconds, 12@13c. Creamery blocks (2lbs.) extras, 27@27½c; firsts, 25@26c; seconds, 22@24c. Creamery prints, (½ lbs.), extra, 28c; first, 26@27c; seconds, 22@24c; Md, Va. & Penna prints, extras, 26@27c; firsts, 23@25c; seconds 19@22c. Renovated butter, extras, 19c; firsts, 17@18c; seconds, 15@16c.

Eggs—We made mention in our last issue that the egg market was in better shape since that time owing to continued light receipts of choice fresh stock and a brisk demand, the market has developed a much firmer feeling, and prices have been advanced materially over last week's prices close, active, and firm at 33 cents.

G. M. LAMB & BROS.

301 Exchange Place.

SAN FRANCISCO MARKET.

SAN FRANCISCO, Dec. 21—Under the influence of liberal supplies and the cautious operations of buyers, the general market for butter continued on an easy basis yesterday. The principal trading of the day was the filling of small orders of the better grades of creamery for immediate consumptive needs and for the favored brands the top quotation was demanded. Large lines of good scoring butter were available, with 27c as the extreme, but buying was small and indifferent. The stock from nearby producing sections is steadily improving in quality and having a weakening effect on values for some of the brands that have been in favor for some time past. Holdings of the medium and lower grades of butter were heavy, and sellers were unable to force sales, although willing to accept marked concessions. Supplies of eggs were heavier and the market displayed an easier undertone. For fine selected ranch the maximum quotation was still demanded in small ways, but buyers of round lots had little difficulty in filling their wants, with 48c as the extreme. Cheese was in liberal supply and easy at former rates.

Receipts yesterday aggregated 34,300 pounds butter, 705 cases eggs and 4,100 pounds of cheese.

Butter—Creamery, extras, 28c; good to fancy, 25@27c; dairy, extras, 23@24c; dairy, choice, 20@22c; store, 18@19c; California storage, 24@27c, eastern creamery, 23@25c.

Eggs—Ranch, selected large, 50c; good to choice, 45@48c; store, nominal; California storage, 28@32½c; eastern, 25@30.

Cheese—California creamery, mild, new, extra, 14@15c; mild, new, choice, 13½@14c: Young America, 14@15½c; eastern, New York, Cream, Cheddars and Flats, new, 14½@16c.

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READING NOTICES

All Reading Notices under this head are at the rate of 25 cents per line.

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D, Independence, Ia. 50-tf

My Barred Rocks are hard to beat. 75 ckrls., 50 pullets, $1 to $5 each; 12 hens and cock, $10. W. E. SNAVELY, Hudson, Ill.

For Sale—De Laval Cream Separator; capacity 650 lbs., turbine, good as new. A bargain. E. F. BARKER, Franklin, Ind.

Wanted—Immediately, thirty-five high grade five and six-year-old Guernsey cows, preferably fresh or springers. Also a few strictly choice pure blood registered cows and heifers. X. Z., care Hoard's Dairyman.

"Little Giant" Cream Separator in running order, cap. 80 gal., run by steam. Also a new 6 bottle tester to exchange for Jersey, or offers. W. E. SNAVELY, Hudson, Ill.

The Third Revised Edition of Buff Jersey's Popular Book Just Out of Press—Ten chapters, 25 illustrations and right up-to-date. Subjects treated are: Silos and Ensilage, All Phases of the Dairy Subject, Soil Crops, Up-to-date Farm Machinery, How to Cure Abortion and Milk Fever, Some Medicines and Remedies, The Steam Plant, its care, and many other valuabe things ably treated. Send for circular. Sent post paid, cloth binding $1.00, paper 75c. BUFF JERSEY, Monmouth, Ill. 47-tf

For Sale—Two registered yearling Guernsey bulls. RAY BICKNELL, Ft. Atkinson, Wis. 32-tf

For Sale—Registered Ayrshire cattle, all ages, milking qualities unexcelled. Special prices on bull calves, 2 weeks to 9 months old, from grand cows. F. D. STOWELL, Black Creek, N. Y. 43-4

Jersey Bull For Sale—Dam's recorded test is 17 lbs. 4½ ozs. He is a grandson of Landseer's Fancy 29 lbs. ½ oz. in 7 days, 936 lbs. in 1 year. Has won four 1st premiums. Write for description and price. Also two half grown Collies. J. BLACK, Bremen, O. 42-tf

Wanted—Position by a butter and cheese maker with 23 years experience in business. Never drink or gamble. Married and has one son. Address A. W. N., 679 Arkwright street, St. Paul, Minn.

For Sale—Two De Laval Separators, 1000 lbs. capacity; No. 3 Hand and Dairy Turbine; 1 Four-Horse Engine and Boiler; 90 gal. Barrel Churn; 12-bottle Babcock Test; Big Ice Box; 2 Scales; Plumbing Tools; several Milk Cans; 1 Dairy Wagon and Harness; 1 Reed Butter Worker, and an Office Desk. Will sell together or separate. All the above practically new and in good condition. Address LOCK BOX 212, Carmel, Indiania.

Wanted—Position by butter-maker at once; preferably in Iowa or Ill. Have had fifteen years experience. Can give references. E. L. BEERS, Epworth, Iowa.

For Sale—One Low-Down Milk Wagon; one De Laval Hand Separator; one Star Milk Cooler. All as good as new. Will exchange for registered Guernsey heifers or good work horses. J. R. HUSTON, Dayton, Ohio. 46-4

Guernsey Cattle—All ages, both sexes for sale. Cir. free. CLOVER KNOLL GUERNSEY HERD, Orangeville, Pa. M. Sager, Supt. 41-tf

For Sale or Rent—Dairy farm of 200 acres, 90 improved. $1.50 per hundred for milk year around. Address J. P. SOUTHARD, Harbor Springs, Mich. 42-10

For Sale—10 cheese factories, 5 farms 40 to 160 acres, saloon, dance hall and store. FRED HADLER, 775 Ida St., Appleton, Wis. 43-tf

For Sale—Four officially tested Holstein cows, also two yearling bulls. Sire and dams, advance registry. FRANK BREWSTER, Bowers, Wis. 45-2

For Sale—Cheese factory, complete. M. S. MORSE, Williamsfield, Ohio. 45-4

Wanted—An experienced man, good milker and willing to work, on a dairy farm and other general work. GEO. A. STIVARIUS, Stitger, Wis. 45-2

Mr. Wheaton's Canadian Dairy Notes.

Dairying in Manitoba—Prince Edward's Island—Guelph Winter Fair—Canadian Holsteins—College Herd Record—Belleville Dairy Convention—Cheese Exports.

ED. HOARD'S DAIRYMAN:—In the Eastern portion of Manitoba, cattle raising and dairying largely take the place of grain growing. It is here that most of the dairy products of the province are produced and where wheat has to take a back seat.

1903 has been a very successful year in dairying. Though pastures were early, they were not of the best quality until June when the flow of milk reached its maximum. The dry weather towards the close of the season was somewhat of a drawback and the shortage of hay or rough feed may cause a falling off in winter production.

But in spite of these difficulties, the production of cheese shows an increase of 26 per cent over that of 1902, creamery butter 8 per cent and dairy butter 9 per cent. Cheese sold for 76 cents per hundred lbs., and dairy butter for 78c per 100 pounds more than in 1902, while creamery butter sold for 47 cents less than the average price of 1902.

There were manufactured during the season, 2,738,868 pounds of dairy butter, which sold for $15.70 per cwt., realizing $429,445; 1,532,835 pounds of creamery butter which sold for an average price of $18.13 per cwt., realizing $277,901; 1,382,304 pounds of cheese which averaged $10.95 per cwt., realizing $151,362. The total value of the dairy products of the province for the season of 1903 was $858,708.

While the total value of the dairy products of the province, including both butter and cheese, will not equal that of some of the counties of Ontario in cheese production alone, it is satisfactory to know that progress is being made. A 26 per cent increase is a pretty big one in a year's time and indicates that Ontario's big industry has obtained a pretty strong foothold in the wheat growing west. A year or two ago it was stated by those who professed to know, that cheese production would soon cease in the west and that dairying would be confined almost entirely to butter production. But it would seem from the above that cheese making had taken on a new lease of life.

Considering the distances farmers are apart and other conditions peculiar to the prairie province, it would seem as if butter making could be operated with greater success than cheese making. The farm separator system would seem to be specially suited to western conditions. The distances are so great that the hauling of the whole milk to a cheese factory or separator creamery would prove a costly process. But by each farmer separating his own milk and sending only the cream to the factory, the cost of hauling can be reduced almost to a minimum. This system is practiced almost entirely in the government creameries in the Territories, and has proven most successful.

Unlike Manitoba, Prince Edward Island, away down by the sea is going behind in cheese production. That province is not producing as much cheese as it did last year or the year before. And this in spite of the more favorable prices of 1903.

Why there is this decrease in production is not definitely stated by those in position to know. Activity in other branches may have something to do with it.

Last week the Provincial Winter Fair was held at Guelph. This is one of the most unique fairs of its kind on the continent. It is an educational fair, pure and simple. The animals shown, are there primarily for educational purposes. The visitor sees the animal on foot and if he waits long enough, will see the carcass of his own animal hung up in the cooling room attached to the show building. And this is not all. The judges in making the awards give their reason for so doing. A large lecture-room is provided, where, morning, afternoon and night, lectures and demonstrations are given on the proper types of animals for fattening and for milking purposes and how to feed them to get the best returns. In short, the fair is a kind of school for farmers, where they can come and ask questions and receive instruction from experts as to the best way of carrying on stock raising of all kinds. Because of these strong educational features this fair in several points excels even the great Chicago International. While the fair itself is primarily a fat stock show, a well conducted dairy test is no small part of the educational attraction.

A 48 hour test was conducted this year in which 37 cows and heifers competed, representing all our leading dairy breeds, excepting Jerseys and Guernseys. The dairy show this year was exceptionally good. There were 10 pure bred Holsteins, 11 pure bred Ayrshires, 9 pure bred Short-horns and 7 grades. There was one cow in the test that has been present for seven years. She is a brindle, a fine type of a grade dairy cow, and has that quality of stick-to-a-tiveness that brings her up to the scratch every winter. Not only did she come herself this year, but she brought two daughters with her. She is certainly bringing her family up to correct habits of quantity and quality. A generation or two of cows with the exact, definite training that even two days every year in a milking test would give them, should prove a boon to the dairyman.

For several years the Holsteins have had things pretty much their own way in so far as the sweepstakes prizes were concerned. Last year a grade Holstein swept the boards. This year a complete change has resulted and an Ayrshire heads the list. She was a good type of cow, owned by H. and J. McKee, Norwich, Ont. During the 48 hours she gave 123.87 lbs. of milk with an average fat of 4 per cent. A Holstein cow, owned by James Rettie, also of Norwich, was second with a record of 116.21 lbs. of milk and 4.2 per cent of fat. A grade Holstein was third with a record of 106.88 lbs. of milk and 4.4 per cent of fat. The brindle cow referred to above was fourth with 107.01 lbs. of milk and 4.2 per cent of fat to her credit.

The Holsteins bred in Canada seem to be gradually coming up in the quality of their milk. One grade Holstein gave milk testing 4.8 per cent, or something near to the Jersey ideal in her first test, while a three-year-old, pure-bred Holstein went 4.5 per cent and gave 60 lbs. of milk a day. It would seem, however, as if this increase in fat percentage was obtained at the expense of the loss of the sweepstates. But this is only a surmise as other conditions likely intervened.

One-half day of the lectures during the show was given up to dairying, or more strictly speaking, to talk on the dairy cow. Henry Glendinning, of Manilla, Ont., discussed the feeding of the dairy cow.

An interesting talk was given by Prof. Dean on the value of keeping daily records of dairy herds. He advised a close study and a close watch of the individual cow in order to find out what she is doing. It is only by so doing that the dairyman can feed and care for his cows intelligently and make a profit out of the business of dairying.

To show the effect of a daily individual record upon a herd, Prof. Dean gave the production of the college herd for the past three years, which is as follows:

		Lbs. of milk.	Lbs. of butter.
1900	Largest yield	9477	391
	Lowest yield	4157	190
	Average yield	7179	310
1901	Largest yield	11379	437
	Lowest yield	4727	250
	Average yield	8114	326
1902	Largest yield	10795	461
	Lowest yield	3489	149
	Average yield	6673	289

According to this, 1902 was not as good a year for the college herd as 1901. The Professor, however, expects that the herd will have a better record to show for 1903. However, progress has been made. At the college a record has been kept of each cow in the dairy herd for the past thirteen years.

The essentials for making an individual daily record of a herd, as given by Prof. Dean are; 1. Have a name or number for each cow. 2. Have pails of uniform weight. 3. Have scales that give the net weight of milk. 4. Keep a monthly record of weight of each day's milk. 5. Test the fat in the milk by preserving samples till the end of the month and then test. 6. Keep a permanent record, to which each month's record is transferred. 7. The breeders' associations should assist the work by supplying the utensils and giving prizes. 8. The fair test should be continued during the year by the owners of the cows. A two-day test was not of much practical value.

The dairy convention to be held at Belleville on January 6-8, and at St. Thomas on January 12-14, 1904, promise to be gatherings of unusual interest. Among the important topics to be discussed will be the proper curing of cheese, the transportation of dairy products and the best way of operating creameries. It is probable that the conventions this year will be without the presence of Prof. Robertson, who has rendered such valuable service at former gatherings of this kind. He has not returned from his sojourn in England, where he went last spring in search of health. It is reported however, that he is progressing favorably towards his former vigor and strength.

The total exports of cheese from Montreal for the season of navigation, closed near the end of November, were 2,382,426 boxes, as compared with 2,110,666 in 1902 or an increase of 270,758. The exports from Portland for the same time were 60,602 boxes for 1903, as against 56,948 for 1902, or a gain of 3,654, and from New York, 225,471 boxes for 1903, as against 160,472 for 1902, or a gain of 64,999. The total shipments of cheese from Canada and the United States for the season as above were therefore 2,668,497 boxes as against 2,328,086 for 1902, or a gain of 340,411 boxes.

Toronto. J. W. WHEATON.

Note and Comment.

Skim Milk vs Grain Protein in the Ration—Drawing Manure on the Land—Barn Comments—Slippery Cement Floors—Cheap Silos.

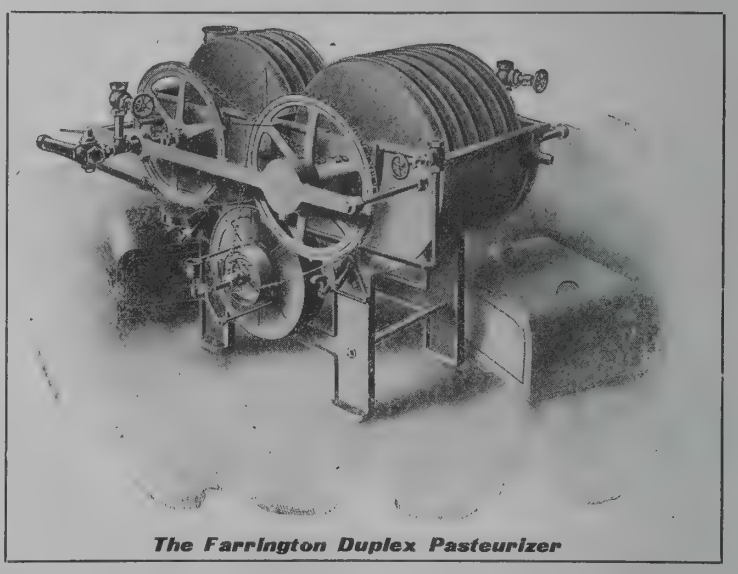
ED. HOARD'S DAIRYMAN:—In reading a long article the other day about protein in the rations, and getting it in this and that, I wondered what had become of Menzo Wilcox of N. Y., and his plan of feeding the skim milk of his dairy back to the same cows, a sort of endless chain affair it is true, but as I remember it, this man bought the best red cows he could buy of his neighbors, fed them early cut hay and secured a made butter average of 465 pounds per cow. With this ration he fed a small grain feed made up of corn and cotton seed meal and buckwheat middlings, and with skim milk added, his ration would figure down to an even 1 to 4, a ratio that would make Harry Hayward think twice before he said 1 to 11.

Has any one any figures to know about the comparative feeding value of skim milk to cows, as against grain proteins? I remember one claim Mr. Wilcox made, that the milk stimulated and maintained the milk flow better than any grain food he had ever fed. There is one thing in favor of a skim milk ration. One knows that the protein is not adulterated, and in fact, he would not be compelled to consult Dr. Jordan's feed tables to see how much cob dust, or pulverized oat hulls, such a brand of cow feed contained before buying it. Are those eastern fellows feeding skim milk yet? If so, why hide their lights, when make believe bran is $20 per ton?

The old question so often asked is up again "shall manure be drawn to the fields as fast as made," and it is somewhat important to the dairyman who is more largely soiling his stock year by year. One thing is certain, the man who keeps stable and yard clear of manure, has the cleanest time of it, and has far less trouble to keep his stock in presentable shape, let alone unpleasant smells. The chief objection to the plan is, that of great loss to the manure by washing, but such men as Prof. Roberts and others equally posted, say that the loss is inconsiderable as compared with fermentation,

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washing and leaching in the yard, and about the barn. I think Prof. Roberts found that the summer's loss on a pile of good manure was 60 per cent, and in a year 90 per cent of all the fertilizing elements had disappeared. This is apparent, that where manure is drawn, and applied to sod ground, especially clover, a great corn crop will result, and where one commences to spread the manure in November, there the rankest growing corn will be found. To the dairyman this fertility question is one of moment. Profit now comes from cheapened feed, and cheapened feed means in a large measure the home grown crop.

To a certain extent the grain ration has, and is undergoing considerable of a revision, and oats and corn,—and no reason why barley should be made an outcast—now are allowed as the larger half of the ration of grain, and if these are to be grown on the farm, the more important the stable manure supply should be made the most of, as both these crops are natural feeders on stable fertility. The evidence goes to show that the losses in the field of winter spread manure are not as great as the wastage of pile and yard, and certain it is, that manure is never better for farm crops, or ever again as rich in available plant food, as the day, when made complete by absorbents, it carries with it the liquids of the stable and is ready to be carried out of that stable. A good cow and plenty of good fertility are two of the essentials of successful dairying, and the third essential is a level headed man, who does not already know it all, to keep the other two busy.

***

It was the same old story, a $2,000 barn with half basement, built on the north side of the slope; the south wall a dead one, because of the driveway and cistern, also had all of its few windows upon the north side and west end. The sunlight could never get into the stable. The architect had never thought of that. He had made the stable close, and all that, and wonder it was that he had provided ventilation. But the owner said the stable smelled bad, was damp, and always cold. Yes, there was no reason why it should be otherwise. Six ventilators, six inches square came down from somewhere, and stopped just six inches below the overhead floor. Sometimes the cold air came *down* them, and then again they "drew" and took the warm, and what was dry, air up the spout, and left all the damp, heavy, gas charged air on the floor. Combined, these six air shafts had a square inch surface of 216 inches, hardly half enough for the stable and stock. "I'll put a leg onto each of those tubes, that will reach within six inches, of the floor, and then if they don't draw, out they will all come, and some 40 foot high air shafts go up in their places." He can do that, but he can never make the sun go on the north side of the barn and shine into those windows.

***

A letter tells me of a man who followed out directions of advance dairymen and cemented his stable floor, and it is so slippery that his cows slip and slide upon it to their possible injury. What remedy? Well, next summer put on a very light coat of cement again and then "block" a garden rake so the teeth will be only a fourth inch long and cross-rake the floor and platform both, so to make them rough. It will smooth out a little before it sets, but there will be no more slipping and sliding and the bedding will stay under the cows and not slip back into the gutter. Instead of the rake you can use a stiff stub broom to roughen with. While cement floors are, as a rule, permanent and the best, they do need a good soft bed between them and the cows. It will save bunches, puffed knees, and stiffened joints with rheumatic tendencies. A cement floor without bedding is too cold a floor even for a cow to come in direct contact with.

***

Speaking about building silos as depicted in a late DAIRYMAN makes even the old "breath stoppers" laugh. First, we had Geo. Scott sail in with his $65 silo, made out of three wooden-rimmed cheese boxes set upon end and stayed into perpendicular with four rails, that, trigged out with Dairy Straws, made us all wonder; but now comes a fellow from the isles of the sea and J. A. M.'s silo to cost $25, and announces that he can cut this price by a wide margin. One could not steal the lumber and build one for $25 in the states, even if one was in with the lumber trusts and a government pull.

This evolution in silo building is liable to do away with all the cost of building the things, and silage will get so cheap that the cows will refuse to eat it, and this last disaster of the dairy will be its undoing. Out in Oregon they saw off a suitable length of a hollow redwood log, end it up, and call that a silo, but one of these log silos costs $26.75 when ready to fill, so the Island silo is ahead. I think if Scott will revise his figures he will find a mistake. His silo could not have cost $65, as he brought the entire material home on a one horse wagon, and he and another friend, built and filled the silo in two days and wrote the Dairy Straw letter besides. We are still standing by Scott until he is J. A. M.-ed a great deal harder.

JOHN GOULD.

Ohio.

Bermuda Grass.

ED. HOARD'S DAIRYMAN:—I note on page 980, in answer to A. F., that you do not speak very highly of our Bermuda grass. This must be a slip from some Junior—when the Senior, or Prof. Henry was not around as, after their experience in their trips south, I think they will bear me out in saying: "There is no better grass for summer pasture for the Southland." We have many pastures, 1 acre to 2 cows, and doing well, and if our farmers would today plant ⅓ of their ground to it and alfalfa and Johnson grass to raise stock, the south would not be so badly scared about the Mexican cotton boll weevils.

I. C. W.

Cornelia, Ga.

While it is true that the answer referred to was written by "some junior," it is also true that it was a quotation from what is supposed to be good authority. We are very glad to be set right, in so far as "authority" was at fault, and can most heartily subscribe to the doctrine that more grass and less cotton would be a decided advantage to southern agriculture.

Disposing of Glue Waste.

ED. HOARD'S DAIRYMAN:—I would like to ask for information in regard to using hide shavings after glue has been extracted, using the refuse as a fertilizer. What would it be adapted for and would it be necessary to put anything with it to make it a first class fertilizer.

Housatonic, Mass. R. O. H.

These refuse shavings can be disposed of in two ways, either by composting them with loam or sod until they are decomposed and then spreading the mixture thinly on the land, or by dissolving them in sulphuric acid and then using the acid for decomposing bones or other forms of phosphates. Not knowing the condition in which the waste is in nor the amount available, we cannot say which would be the best method, but if there is a comparative small amount of it, and especially if it is very wet, composting it would be the best method to dispose of it. In either case it would make a highly nitrogenous fertilizer and should be used sparingly.

IS there going to be a Farmers' Institute, Convention, Farmers' Club, or Patrons' Meeting near you? If so why not take a few copies of Hoard's Dairyman for distribution. A good club of subscribers can be secured at these meetings with less trouble than at any other time. Drop us a card about ten days before meeting saying how many sample copies you want for distribution. The rates of subscriptions sent in clubs are:

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A Kansas Expert on Alfalfa.

H. M. Cottrell, Manager of the Brookmont Farm in Iowa, Gives the Result of Many Year's Study and Experiment With This Plant—Soil, Seed and Cultivation.

H. M. Cottrell, manager of the great Brookmont farm near Odebolt, Iowa, knows more about alfalfa, according to Chief F. D. Corborn of the bureau of animal industry of the world's fair, than any other man in the West. Mr. Cottrell has lived in Kansas twenty-one years, and nine years of that time were spent on the state experiment farm. He has made a special study of alfalfa, and was invited by the Farmer's Institute of Iowa to talk about it before that body. He discussed the subject in all its phases, and the following summary of the information he gave will be of great interest:

The conditions demanded by alfalfa are a perfect seed bed, fertile soil and freedom from weeds at time of seeding, and good drainage. It is probable that alfalfa will do best in Iowa on the naturally well drained fields, and when the land is sufficiently rolling to afford good drainage, may be expected to do well under proper treatment.

Alfalfa needs a good supply of lime and is short lived in sandy soils. It is probable that alfalfa will do well on many level lands, where the drainage has put the land in good shape. Alfalfa will not grow with wet feet, and the land must be well drained either naturally or artificially. On close soils alfalfa sometimes kills out in low places and small depressions where water stands.

With land that has been under cultivation for many years, crops must be grown that will free the land from weeds and put it in a good mechanical condition. Barley, oats and millet may be recommended for Iowa, followed by fall plowing thoroughly done.

The best crop to raise on land before seeding to alfalfa is some legume like clover, Canada field peas, soy beans or cow peas. Red clover is a good plant to grow before seeding to alfalfa on soils that have a subsoil, which holds water and prevents good drainage. Red clover is much more vigorous than young alfalfa, and will grow down into bad subsoil under conditions that will kill young alfalfa. After the red clover has stood for two years and has penetrated the subsoil to a good depth the ground can be prepared and seeded to alfalfa. The decaying clover roots will keep the subsoil open and well drained, and will furnish nitrogen to the alfalfa plant until it reaches full vigor, when it will yield a much larger crop than clover, and each pound of alfalfa will be worth considerably more than an equal amount of clover.

The ground for alfalfa should be thoroughly pulverized and deeply plowed, but it must be well settled before seeding and only the surface loose. Alfalfa will usually fail if seeded on freshly plowed ground. If it is necessary to plow the ground before seeding, plow as early as possible, harrow thoroughly, making a good seed bed, and then wait until a good rain has settled the soil before seeding. The seed bed is the most important factor in securing a stand of alfalfa.

Seeding in Iowa should be done in the spring, after the danger from hard frost is over. On Brookmont farm sixty-five acres were seeded April 24, 1903, and made a good stand. Severe frosts will kill alfalfa if they occur just as the first two leaves appear. Mr. Cottrell recommends twenty pounds of seed per acre. With every condition favorable, experienced alfalfa growers sometimes succeed in getting a good stand by using ten to fifteen pounds of seed per acre, but this small quantity is not generally sufficient. It pays to use enough seed to secure a good stand, as alfalfa, unlike clover, never thickens, and the number of plants per acre tends to continually decrease.

The most even stand is secured by sowing with a broadcast seeder and harrowing lightly. Alfalfa should be sown alone. It does not want a nurse crop. Sometimes a good stand is secured when alfalfa is seeded with some other crop, but many times it fails utterly. Young alfalfa is a delicate plant, and needs all the plant food and sunshine available, and usually when it has to share these with another crop it dies.

The young alfalfa is one of the weakest plants grown. It grows slowly, is a weak feeder, and is easily checked or killed by weeds and by unfavorable conditions of soil, weather or treatment. Mature alfalfa is a most vigorous plant. It grows deeply into the soil, is a vigorous feeder, and lives and yields well

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Sixty head of choice Guernseys headed by Coralette's Son, (see page 450) whose dam, Coralette made 479.7 lbs. fat in one year at 3½ years old, and was first prize cow at Wisconsin State Fair in 1896.
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under many unfavorable conditions. For this reason it will pay well to give the baby alfalfa plants good care and favorable surroundings for the first year of its life,

Young alfalfa responds most vigorously to a top dressing of fifteen to thirty loads per acre of manure. The top dressing is of especial value when done after the ground is frozen, the fall after seeding, as it checks the alternate freezing and thawing that causes lifting. Young alfalfa must have a fertile soil.

Alfalfa should be run over with a mower three or four times the first season, to keep the weeds down. The mower should be set high, and the weeds mowed so often that when cut and allowed to remain on the ground will not smother the alfalfa. Some good alfalfa growers mow the alfalfa three or four times the first season, when there are no weeds, as they find that the pruning of young plants makes them more vigorous. The cut vegetation should be left on the ground to act as a mulch. If mowing has been delayed until the weed growth is heavy, it is often necessary to cut the weeds, rake, and take them off the ground, to prevent smothering of the alfalfa.

No stock of any kind should be allowed on alfalfa the first year of its growth. Cutting acts as a tonic to alfalfa. Whenever alfalfa does not thrive, cut it. This applies throughout the life of the plant, from the time it first becomes high enough to cut with a mower, and through all the years of its life. Whenever alfalfa begins to bloom, cut it, no matter how short, unless seed is desired.

Alfalfa should be cut when not more than one-tenth of the plants are in bloom. Cut at this early stage the yield of hay for the season will be much greater than if the alfalfa is cut near maturity, and every pound of hay secured will be worth more for feed.

The late cutting of the first crop seems to injure the plant more than at any other time, and Mr. Cottrell says he found it profitable to cut alfalfa the first time as soon as one-tenth was in bloom, even though the weather was bad, and he knew that the crop would spoil in curing. The increased yield from succeeding cuttings over that cut late, much more than makes up for the loss of the first crop.

Successful clover growers the first time they try alfalfa often ruin the stand, so that it has to be plowed up, by waiting to cut until it reaches the stage at which clover is usually cut. Mr. Cottrell says: "It is going to be difficult to cure the first crop of alfalfa hay in Iowa. On Brookmont farm we are going to save straw for the first crop and stack straw and alfalfa in alternate layers. With ordinary weather no difficulty will be experienced in stacking the second and third cuttings."

Shredded Silage.

ED. HOARD'S DAIRYMAN:--I saw in your paper of this date, a question and answer in regard to shredded silage. Thought perhaps the enclosed, copied from Woll's Book on Silage, had escaped your observation, and I copy it as printed. If you think Mr. Dawley authority, I would be glad to see this printed, for I am interested in getting at the facts as to shredded silage. This may bring out additional facts on the subject.

"The Director of Farmers' Institutes for the state of New York, Mr. F. E. Dawley, in recent letters to the writer, speaks of shredded silage: "I am not apt to become enthusiastic over any agricultural implement which I use, but I think the nearest I have ever come to it, is over the shredder. I have had ten years' experience with silage and two with the shredder, so I feel that I know a little something about the keeping qualities of corn silage. I am inclined to think the idea, which is probably correct scientifically, that the more you break down the tissues of the corn plant, thus exposing a large surface to the air, the more sour the silage will be, is generally correct in practice.

But I find by these two seasons' experience that the corn which is cut off finely by the shredder, will pack in the silo very much more compactly, and in these two instances at least the silage has been the sweetest we ever had. * * The material packs more closely than the shortest cut silage that I have ever put in, no matter how finely it was cut. The ears are all torn to pieces so that the grain is more thoroughly distributed in the mass than it is in cutting, and as the stalk is all torn to pieces, this and the leaves are more thoroughly intermingled. I have weighed corn into my silo and know from actual experience that I got practically one-fifth more corn in when shredded, than when cut. * * As far as the results in feeding are concerned, I can see no particular difference, the advantage of shredding being in the finer cutting of the corn, compactness of the material in the silo, and the results in keeping, which one would naturally expect from this condition. * * The only disadvantage that I have noted is that a little more power is required, * * As an indication of the favor with which shredded silage is received here, I can say to you that from the small beginning which I made two years ago, three or four shredders have been purchased in this section, and if I wished to send my machine out with men to run it, I believe that nine-tenths of the silos in this community would be filled with shredded silage. J. A.

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Address F. L. HOUGHTON, Brattleboro, Vt., for information relating to Registration of Pedigrees

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Mercedes Julip's Pietertje Paul 2d advertised last week is sold. Mercedes Julip's Pietertje Paul 3d has arrived and is for sale, sired by the Champion Bull Mercedes Julip's Pietertje Paul. Dam is an in-bred grand-daughter of De Kol 2d. She has just completed an official butter record. Write for tabulated pedigrees, markings, etc., today. First acceptance takes him.
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Grand lot of cows, heifers, bulls and calves for sale.

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For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis. Residence: National Ave., near 40th. Phone, South 1601.

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A. R. O. STOCK FOR SALE.
Both sexes, all ages. Herd headed by Sir Piebe Hengeweld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz. Frank B. Fargo, Lake Mills, Wis.

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Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams, 25.1 lbs. butter in seven days. Herd numbers 125 head.
BEST FAMILIES REPRESENTED.
Special prices on six or eight bulls of serviceable age. W. B. BARNEY & CO., Hampton, Ia.

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OF HOLSTEIN-FRIESIANS
Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 169.50 lbs. one day. Breeders and dairymen please write for prices.
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HOLSTEIN-FRIESIANS
Headed by Korndyke Queen De Kol's Prince, dam Korndyke Queen De Kol, 24 lbs. 6.7 oz., grandam Belle Korndyke, 25 lbs. 12.3 oz. Both sire and dam by Manor De Kol, his dam Netherland Hengerveld 25 lbs. 10.66 oz., Manor De Kol by a son of De Kol 2d, 26 lbs. 9.21 oz. All are official tests and average 25 lbs. 13.72 oz. butter for 7 days and 3.95 per cent fat in their milk. Two bull calves now for sale and young ones after Sept. 1.
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Offers for sale Twenty-Five Choice Heifer Calves sired by Beryl Wayne De Kol Paul and Lilith Pauline De Kol's Count. Prices right to quick buyers. State just what you wish. JOHN C. GODFREY, R. F. D. 3. Fulton, New York

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Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN, Station D., R. 1, Minneapolis, Minn.

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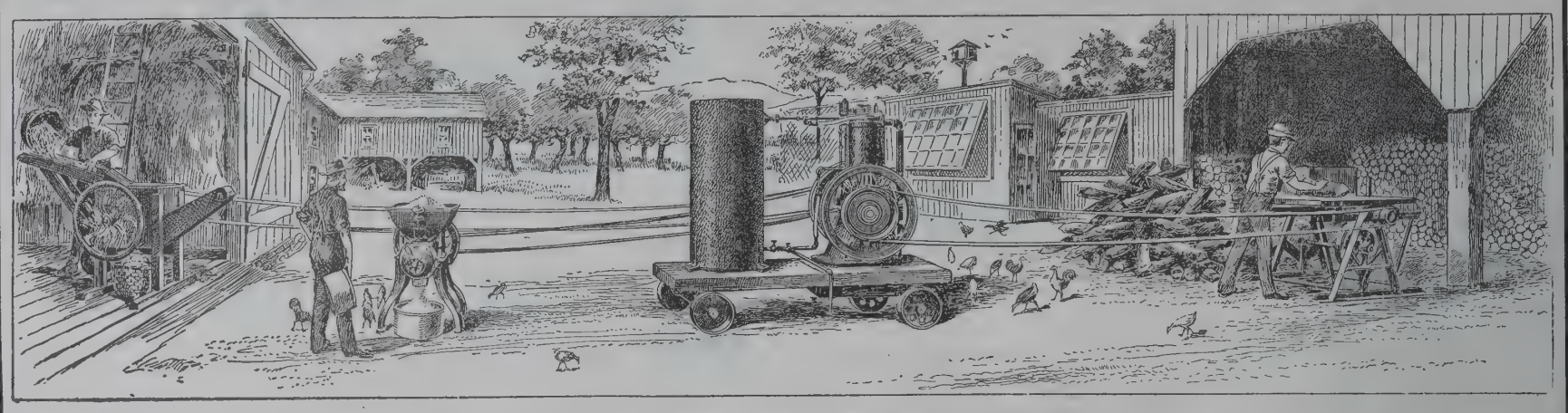
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Dairy Questions Answered by Prof. Farrington.

BUTTER STORED AT DIFFERENT TEMPERATURES.

"We have some butter that was put into cold storage in the latter part of July and August. The butter seemed very fine when made and the color, salt and grain are perfect now, but it is strong. We put only our surplus in storage and sold a part of the other batch at top prices. We cannot, therefore, understand what the matter is with the butter now. Can you suggest anything that will give light on this subject? I am making butter every day that is selling one cent above the market, and cannot understand what made my butter in storage go off so in flavor. Is there any way of re-working butter to sweeten it and take away that strong flavor and make it marketable? * * *

Van Dyne, Wis.

It has been demonstrated in the last few years that the peculiar flavor of June butter can be best retained by holding the butter while in storage at a very low temperature. A few years ago June butter was put in the freezers and held at a temperature of 10° to 15° above zero. This butter came out in the fall and winter fairly good in quality, but in some cases it showed its age very perceptibly. Within the past year or two the temperature of holding butter has been reduced until now a great deal of it is stored at so low a temperature as five degrees below zero. We have put our surplus from the dairy school creamery, during June and July, into two cold storage establishments during the past year. At one of these the butter was held at 15° above zero and at the other 5° below zero. Some of this June butter has been returned to us recently from both places and the difference in quality is very noticeable. That which was stored at 15° above zero, although it has remained frozen during the months it has been in storage, is not nearly so clean, sweet and fresh as some of the same butter that has been stored at 5° below zero during the same time.

This is the first demonstration of the sort that we have made in this direction, but the difference in the quality of the butter stored at the two temperatures is noticeable, and we are fully convinced of the superiority there is in storing butter at the lower temperature over the higher.

If your butter was of fancy quality when put in storage, and you find it is now strong and has an old taste, I think the cause of this deterioration is undoubtedly the temperature at which your butter was held while in storage. If you attempt the storing of butter in the future, I will suggest that you place it in some freezer where the temperature goes below zero, and is held there until the butter is taken out.

I presume you know that butter will not keep very long after it is taken from cold storage, and it should be sold and consumed within a week or so of the time it is removed from storage. Frozen butter, when it thaws, will go "off flavor" very quickly, but if it is held below zero the quality of such butter, when first taken from storage, is excellent, provided it was good butter when placed in storage.

In connection with our experiment made during the past season, of placing butter in storage at two different temperatures, we colored the butter with two kinds of color, one of which was a vegetable color and the other made from coal tar. We did this in order to secure evidence on the question as to whether or not butter colored with a vegetable color will change more in storage than that colored with the coal tar color. Some butter colored with each of the two kinds of color was placed in each of the two refrigerators mentioned, at the different temperatures. This butter has just been taken out and examined, and that which was colored with the vegetable color proved to be fully as uniform and as deep a color as that which was colored with coal tar when the butter was made. This shows to our satisfaction that the use of vegetable colors in coloring butter for storage will undoubtedly be perfectly satisfactory, and no one need fear that the color will fade or change in any way while in storage, on account of the butter being colored with a vegetable color.

There are methods of re-working strong butter so as to sweeten it and improve its flavor. Process butter is made from strong, old butter collected from various sources and sweetened by the process through which it is put at the process factory. I do not know that this has ever been successfully attempted at a creamery on a small scale, but the large process factories undoubtedly change the quality of old, strong butter decidedly, and turn out a product that is far superior in flavor to the material from which it was made.

CEMENT FLOORS IN CREAMERIES.

The creamery here has a poor cement floor in it. The floor in the churning room is the worst. The cement is broken and a part of the top layer is all off; the cement in some places is also washing out. It is in such bad shape that we must put in a new floor. I am thinking of patching the old floor as best we can with cement and then lay a good floor of southern pine boards over this cement. Would you advise our filling in between the cement and the wooden floor with anything or shall we lay the boards directly on the cement? We have a good factory with the exception of this poor floor and have made butter which sold as extras during the entire season. * * *

Norwalk, Wis.

The cement floor which you describe is similar to many that have been put into creameries and farm dairies. The defects from cracking and crumbling are caused by either the ignorance or the incompetency of the parties who laid the cement. It has been demonstrated over and over again that a cement floor can be laid in a creamery, that will not crack or crumble. It is useless, however, for a mason to attempt to make a cement floor unless he is thoroughly posted on mixing cement with sand in proper proportions and knows what is good cement when he is using it.

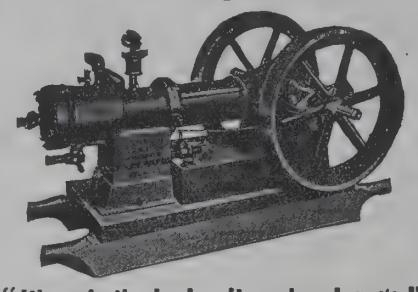
You can easily have this old cement floor taken up and a new one laid if you prefer a cement to a wooden floor. A floor of southern pine which you mention laid over the cement will undoubtedly be satisfactory, if the boards are laid on joist above the cement and the space be-

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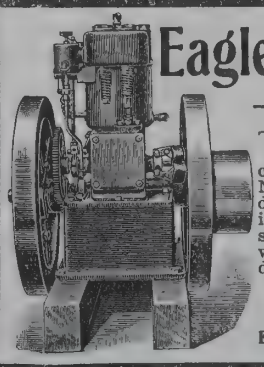
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tween the joists is filled in with cinders or some sort of material that will absorb the moisture and dampness and in this way prevent the decaying of the wooden joists. If you lay the boards on the old cement floor without any protection, your wooden floor will undoubtedly decay in places in a short time, but where it is raised above the cement, I think you will find a wooden floor will give good satisfaction.

COLD CURING OF CHEESE AND OTHER QUESTIONS.

"We are figuring on putting in a storage plant here and wish to put in a room or several rooms for curing cheese. Can you give us the proper temperature? Also explain how cheese should be handled when put into a cold room? How soon, after cheese are made, should they be put in storage? When should the cheese be paraffined, and what is the cost of handling cheese this way as compared with the old method of curing? Does the cold curing of cheese add greatly to its flavor and market value? Do you think we can make a success by turning creameries into factories for a few months in the summer time, by having a cheese making instructor visit and take charge of a number of such factories?

What do you think of handling separator cream by repasteurizing it after it is sour? Do you think that in a large plant where a great deal of churning is done, that it will be cheaper to take the cream out of the vats after cooling and heating and forcing it by compressed air over a cooler, than to run this ripened cream through a pasteurizer and to do the tempering in the pasteurizer? Will it not be better to run the cream through a continuous pasteurizer than to place it in a dozen small vats and try to change the temperature by stirring it in the vats?"

* * * *

Portland, Oregon.

It will be impossible for me to go into very great detail in regard to the questions asked in your letter. I shall, however, be pleased to give what information I may be able to write on these questions.

First. The proper temperature for curing cheese by the cold-curing process is near 40° F. We have found that by holding cheese at this temperature, within two degrees above or below 40°, for 6 months, that the flavor of the cheese and its texture are far superior to that of cheese cured for a short time at a high temperature, ranging from 60° to 90°. It has been found that cheese may be taken directly from the hoop and placed at this low temperature. They are usually paraffined, simply by dipping them in melted paraffine when taken out of the hoop, and then placed in the curing room at 40° F. We have no exact figures in regard to the cost of handling cheese in this way; that will depend a great deal on the cost of maintaining the temperature. In some places this will cost a great deal more than in others, according as a business concern has a surplus or a scant supply of storage room. The flavor and texture of cheese are certainly greatly improved by curing at this low temperature and both are much more uniform than is the case when cured in the old way. I think you can easily arrange to have such cheese made at creameries as you suggest, if a good cheese maker has the work in charge.

A condensed statement of the work which has been done on the cold curing of cheese is contained in the bulletin recently issued by the dairy division of the Agricultural Department at Washington, D. C. You can probably get a copy of this bulletin, by writing to Major Henry E. Alvord.

Second. The pasteurizing of sour cream will be a success I believe, if the sour cream is rich enough when it is heated. We have found that a thin sour cream testing in the neighborhood of 20 per cent fat, will not churn exhaustively. I have not been able to discover a theoretical or a practical reason for this fact up to the present time, but have noticed when we pasteurize sour cream testing under 30 per cent fat, that the butter milk often shows one-half per cent and even more, fat in it. We have not noticed the same thing when sour cream testing over 30 per cent fat is pasteurized. I do not think there will ever be any difficulty in pasteurizing sour cream. We have done it repeatedly this summer. It heats and leaves the pasteurizer in fine condition. There is, however, this point about the yield of high testing buttermilk, that has not yet been cleared up. I hope to do some work on it this summer.

BITTER BUTTER.

"Can you give me some information about butter making and farming in general? We are city people who have suddenly gone to farming and are having some trouble in our dairy. Our butter is bitter, so is the buttermilk, and our butter does not keep well. We have to churn some four hours in order to get the butter. Can you explain the cause of our troubles and help us to overcome them.

* * *

Milwaukee, Wis.

The bitter flavor that is often noticed in cream and butter is sometimes caused by holding cream at too low a temperature before it is churned. The bacteria which cause the bitter fermentations seem to develop rapidly in the cold and are noticed in the winter season more than in the summer. I think you can overcome the trouble you are having by holding the cream at a higher temperature and for a shorter time than it is being held now. If you will churn every other day and keep the cream always above 55° F., I think you will not be troubled by the bitter flavor either in the butter or the buttermilk.

The fact that you are obliged to churn four hours before the butter comes is another indication that the cream is too cold. Long churnings are nearly always caused by too cold and too thin cream. If you will arrange matters so that your cream will test at least 30 per cent fat and then ripen this cream between 55 and 65° F. until it develops about six-tenths of one per cent acid, then churn this cream at a temperature of 60°., I think you will find the butter will come in about three-fourths of an hour, and that the long churning and the bitter flavor will both be overcome.

If you have only a small herd of cows and most of them are in the latter part of their period of lactation, this cream from stripper's milk will also require an unusually long time to churn. You can help your churning a great deal by having your herd so arranged that the cows will not all be strippers at one time, but an occasional fresh milker will be coming in and this milk will so change the consistency of the cream that it will churn in a normal way.

TESTING SOUR CREAM.

Will you kindly advise me by return mail how I can test sour cream in ordinary cream test bottles? I have not had experience in this kind of testing.

* * * *

Portage, Wis.

The testing of sour cream is best done by warming the cream to a temperature of about 100 degrees, so as to soften the lumpy portions, and make it thin and limpid so that the cream may be uniformly mixed. If the cream is so sour that such heating separates the curd in the shape of hard lumps, you will find it necessary to pour this cream through a small wire strainer. When this is done and the lumps are caught on the strainer, they may be pressed through the wire, and gotten into a condition so that the cream will after a while become limpid and a sample can be taken from it with a pipette. It is very essential that the mixing should be thoroughly done, as any lumps of fat that are distributed through it will clog up the tip of the pipette when you come to measure it into the test bottle, and fail to be taken into consideration in the test.

It is a good plan also to add a small quantity of some alkali to the sour cream. The powdered alkali, which is usually called potash and sold at groceries in small cans, is a very good thing to use for this purpose. Too much of this powder ought not to be added to the cream; about one-fourth of the amount that would be held comfortably on a dime is sufficient to neutralize the acidity in a pint sample of cream. When too much of this alkali is used the action of the acid on the cream will be so intense that the fat will be somewhat charred and blackened. A reasonable amount of it, however, helps very materially in getting sour, lumpy cream into proper shape for testing. The only difficulty there is in testing sour cream comes from its lumpy condition; the fat is not changed in composition nor disturbed in any way by the souring. As soon as you are able, by means of heating and using a fine wire strainer, also a little alkali, to break up the lumps of curd and fat in the sour cream, and get the entire sample thoroughly mixed, you can go ahead with the testing in the same way that you would test sweet cream. E. H. FARRINGTON.

Wisconsin Dairy School.

Trouble With Hairy Vetch.

ED. HOARD'S DAIRYMAN:—Can some of your readers tell why my Hairy Vetch does not seed, that is, mature seed in proportion to flowers and pods? All through May and until cut or dried down, the vines were one mass of purple blooms and flat pods, but very few filled out. The ground will make the vine and pod, now could I use some chemical to aid in forming seed? G. M. C.

Columbus, Ga.

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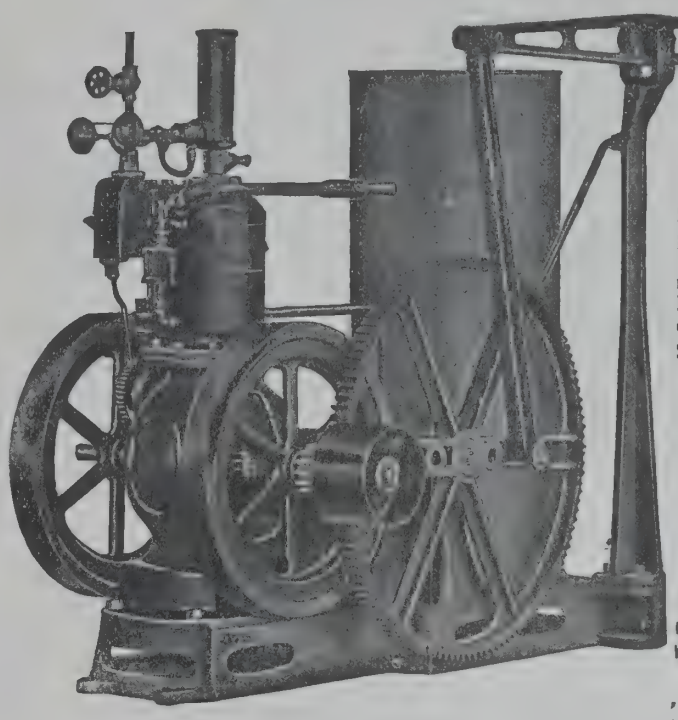
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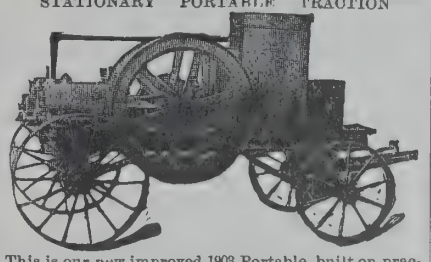
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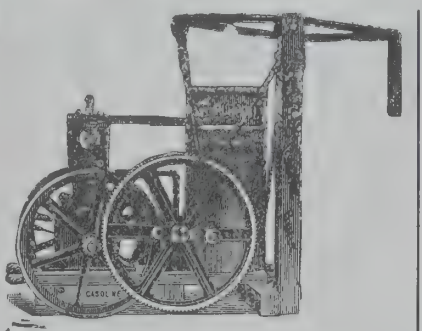
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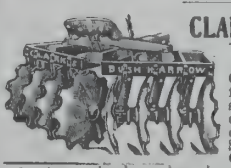
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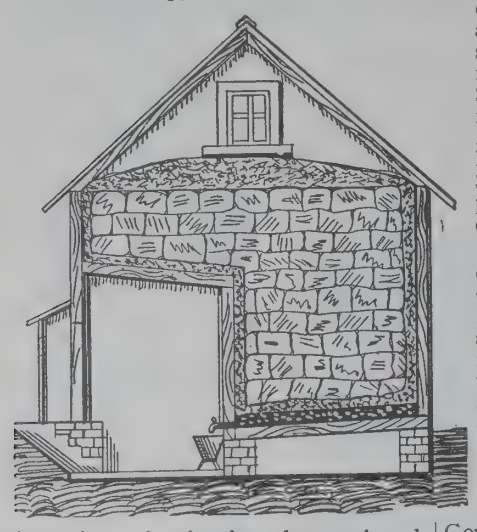
THE CUTAWAY HARROW CO., HIGGANUM, CT., U. S. A.

An Ice House with Cold Storage.

ED. HOARD'S DAIRYMAN:—Will please print in your paper if you have space to spare, the plans of an ice house with a small cold storage room in it large enough to hold fifteen to twenty cases of eggs, besides a quarter of beef or a side pork or two. C. S. L.

Portage, Wis.

The following cut represents a section of a building with a room partitioned off in such a manner that it has ice on three sides and the top, and its floor is below



the surface a few feet in order to take advantage of the coolness of the earth. The double wall of the ice house extends in front of the open room and the door is protected by a porch. A shallow cellar under the floor of the ice house admits ventilation by the passage of cool air under the ice and thence off through a flue. The floor and ceiling of the room slope to secure the necessary drainage.—*Barn Plans and Outbuildings.*

New York Breeders' Meetings.

ED. HOARD'S DAIRYMAN:—The annual meetings of the New York State Breeders' Associations, held this year at Syracuse on December 16th and 27th, were quite as interesting and valuable to the attendants, as a whole, as formerly, though, on account of a fortunate selection of speakers by the sheep interest, that industry was rather better provided than any other. Still the dairy cow was not forgotten, especially as the paper of President Hoxie of the Holstein-Friesian Association was a most comprehensive one and would well merit publication as a whole, though quite long.

Some points made by Mr. Hoxie merit especial attention. For instance, he maintains that Holstein milk at a percentage of 3.55 butter fat, is richer than that of the human mother, thus sustaining that it is the best cow's milk for feeding infants and children, and also that it is just as easily separated from the milk as in case of a greater proportion of it. Hence, it is of no account, so long as the desired amount of fat is present to make the milk sufficiently profitable. Noting how greatly England is taking to this milk and butter he declared that so much of this butter had been taken from Holland in a single year that it amounted to more than 200 pounds to the cow the country over.

Quoting Prof. Roberts of Cornell, at length, he finds the latter saying that the Holstein beef he obtained in London tasted to him better than that of the famous English Short-horn cattle. The theory that the Holstein fat is laid on the ribs and muscles and not about the kidneys and intestines, as in case of some dairy cattle, is made the basis of a suggestion that it is a sufficient explanation of the reason for all differences between the Holstein and other dairy breeds as beef producers. He does not say that such is the reason, but asks if it is not.

The Hollander has kept his herds so good because he takes his surplus animals to market to sell and sells what he does not care to keep, whereas it usually happens that the buyer goes to the herd direct and picks out what he wants. Considerable space was given to a description of the Holstein cow at home and of the way the milk and its products are handled.

In a racy address on the selection of Sire and Dam, James Wood, of Mt. Kisco, maintained that it was the constant reversion to the old established type of any animal that established its excellence. If it was found necessary to go outside for something else wanted, the old cross should follow at once to fix it. There were dangers of too close inbreeding, but they could be avoided. Referring to the attention paid to dairying in the Danish districts, he said that Denmark was sending its butter all over the world. He had found it away up the Nile and in Mexico. In fact, it was the only butter that would stand shipment into the tropics. England, he said, still clung to the Short-horn cow and made her a leading dairy animal. It was asserted by another speaker that a good breeder could so modify and mould animals that any Short-horn herd could be transformed into a fine dairy herd in 25 years. And so England milked the Short-horn, in spite of the preference of Scotland for the Ayrshire and of the presence of the other dairy herds every where in Britain.

Secretary Caldwell, of the American Guernsey Cattle Club, told of the Guernsey at home in the Channel Islands, where she was always a pet and had been kept without change of momemt, from the cow of far older time. But the Guernsey is now raised away from her native home to a great extent, as Guernsey is found too valuable as raiser of flowers and plants for the London market.

The Jersey Cattle Club of Western New York invited Director Jordan of the Geneva Experiment Station to read a paper before it, but he chose his favorite theme of feeding and did not go into dairy specializing to any great extent. He held that we are generally feeding our stock too much protein and showed that as the great crops of the country begin with hay they are of first importance. Another speaker had said that the crop was but the rough material and only the beginning of agriculture, so it followed that feeding was the equally important part, especially as a second opportunity to make a profit, was afforded by feeding out the crop, not to mention the fact that the farm is enriched in that way, while it is impoverished by selling the crop out right.

One of the sheep lecturers declared that he could double the productiveness of a farm in 15, if not in 10, years, by feeding animals on it and that only one-fifth of the nutriment was taken out of any food by the animal.

Milo H. Olin of Perry, a well known breeder of Jersey cattle, was re-elected president of the Breeders' Association. By virtue of this office he is made one of the State Fair commissioners, of which there are eleven. JOHN CHAMBERLAIN.

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CONCERNING OUR ADVERTISERS.

"SURE HATCH CATALOGUE"

Our new 1904 catalogue is now ready for mailing. No poultryman or fancier should be without this valuable book. It is beautifully illustrated and gives dozens of photos of the machines in actual operation in the hands of the people in all parts of the country. The incubators and brooders are described fully in every section, and in addition this book contains sound poultry sense. Send for one; they are free. SURE HATCH INCUBATOR CO., Clay Center, Nebraska, and Indianapolis, Ind.

ABOUT GOOD SEEDS.

The successful planter owes his success mainly to sowing good, fresh seed. He knows the value of buying the home-grown product direct from the reliable grower. The well-known seedmen, James J. H. Gregory & Son, of Marblehead, Mass., have for nearly half a century sustained the reputation among planters, farmers and gardeners throughout the country of producing and selling only fresh, pure and reliable seed; a reputation founded not merely upon growth, selection and care of the seed stock, but also on the purity and thorough reliability of the seed raised from it. These famous seeds are sold under three guarantees, which proves the sincerity of the growers while they insure safety to the planter. Messrs. Gregory & Son are sending out their annual catalogue for 1904, which contains many new improved varieties in vegetables, small fruits and flowers, and a vast number of farm and garden facts, which should be of great utility to every one who plants seed. This valuable book will be sent free for the asking.

THE JOY OF OWNING A GUN.

"A boy gets out of owning a gun all the joy there is in it," says a well known writer in the Illustrated Sporting News. "There are mighty few pleasures, anyway, that a man can have that a boy does not have on a smaller scale, but more intensely. Some boys are hungrier for guns than others—that is partly a matter of what there is handy to shoot—but I never knew a boy who did not want a gun, and did not delight in it when he got it. It is not because of any innate murderousness in the boyish disposition, but merely because the gun means power, suggests the relaxation of apron strings and is an exceedingly important and interesting piece of mechanism." Such opinions have been offered by writers the country over. The movement for this "gun education" of the American boy was begun by the J. Stevens Arms & Tool Co., of Chicopee Falls, Mass., makers of the famous "Stevens" firearms. The catalogue of this company is a mine of information on gun owning and makes excellent winter night reading for grown-ups as well as for the boy. It will be mailed free.

WHAT IS GEORGIA DOING?

The attention of the public has recently been attracted by frequent advertisements of Georgia and its resources, and a great many wonder what this means. It seems to be the forerunner of a new movement of people on this continent, similar to that which occurred in Europe. The northern part of Europe filled up with people of the Aryan stock and then they began to go south. In a comparatively short time they overrun France, Italy, Spain and the British Isles. For nearly a century there has been a rush of people from the Eastern States and from foreign countries to the western part of this continent. First the upper part of the Ohio Valley was filled, then States farther west, and so on. The rush to the West naturally raised prices of land, and now it has come to pass that young men looking about for cheap farms must look to the extreme West. Of late some of them have begun to talk about the South, particularly Georgia, where the climate is fine and the people are enterprising. The Georgians are hospitable and give a warm welcome to good citizens from any quarter and the northern people now living there are delighted with their surroundings and enthusiastic on the climate and natural resources. The Greater Georgia Association has in press a little volume composed entirely of letters from northern people who have settled in Georgia and done well there. This list will be sent free to anyone on application, by Mr. W. G. Cooper, the secretary, whose office is in the Atlanta Chamber of Commerce. The Association will also send, upon request, an illustrated booklet which describes in a concise but practical way the resources and products of the State.

There will be a meeting of the Guernsey cattle breeders at the State House in Indianapolis, Ind., 1 p. m., Jan. 7th, 1904, for the purpose of organizing a Guernsey Cattle Club of Indiana. Every owner of a Guernsey is requested to be present.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Injecting for Abortion,

In treatment for abortion (page 879, Dec. 4th) is it safe for an amateur to attempt inserting the point of the syringe into the womb. In treatment of a large number of cows, if he were mistaken in diagnosis, and treated one that had not aborted, would this cause abortion? C.

Nashville, Tenn.

ANSWER.

If a cow is pregnant, it is decidedly dangerous to attempt to introduce a syringe into the uterus as it is very apt to produce abortion as well as other complications. Therefore you should make sure that the cow had aborted before injecting.

Wire Cut.

I have a young mare that got her right hind foot caught in a barb wire fence about six weeks ago. Have had a veterinary treating all the time but it is now still quite sore. The cut is in the back side of the foot and the leg is swoolen up to the hock. H. S,

Wyandotte, Mich.

ANSWER.

Wash the parts clean with castile soap and warm water, then apply the following lotion:

Sulphate of zinc, 1 oz; sugar of lead, 6 dr's: rain water enough to make a pint. Shake well and apply twice daily after washing.

Excessive Thirst.

I have a cow to come in fresh Dec. 24, that drinks an enormous amount of water, about 150 pounds. I give her a teaspoonful of salt night and morning. Is it well to take the salt from her? She don't seem to feel well after drinking. O, S. S.

West Denmark, Wis.

ANSWER.

It is advisable to limit the amount of water given to a nominal quantity and

New Games

A FREE game—60 kinds—inside each package of

Lion Coffee

IF YOU'RE A GOOD FARMER

As good as any in your Township, we have a business proposition to submit to you. You can earn a few hundred dollars without interfering with your regular work, representing us on your own farm with an article needed by every farmer. Write today.
F. E. SANBORN CO., OMAHA, NEB.

"ADVERTISEMENT."

GIVE YOUR STOMACH A NICE VACATION.

Don't Do It By Starving it Either—Let a Substitute Do the Work.

The old adage, "All work and no play makes Jack a dull boy," applies just as well to the stomach, one of the most important organs of the human system, as it does to the man himself.

If your stomach is worn out and rebels against being further taxed beyond its limit, the only sensible thing you can do is to give it a rest. Employ a substitute for a short time and see if it will not more than repay you in results.

Stuart's Dyspepsia Tablets are a willing and most efficient substitute. They themselves digest every bit of food in the stomach in just the same way that the stomach itself would, were it well. They contain all the essential elements that the gastric juice and other digestive fluids of the stomach contain and actually act just the same and do just the same work as the natural fluids would do, were the stomach well and sound. They, therefore, relieve the stomach, just as one workman relieves another, and permit it to rest and recuperate and regain its normal health and strength.

This "vacation" idea was suggested by the letter of a prominent lawyer in Chicago. Read what he says: "I was engaged in the most momentous undertaking of my life in bringing about the coalition of certain great interests that meant much to me as well as my clients. It was not the work of days, but of months. I was working night and day almost, when at a very critical time my stomach went clear back on me. The undue mental strain brought it about and hurried up what would have happened later on.

"What I ate I had to literally force down and that was a source of misery as I had a sour stomach much of the time. My head ached, I was sluggish and began to lose my ambition to carry out my undertaking. It looked pretty gloomy for me and I confided my plight to one of my clients. He had been cured by Stuart's Dyspepsia Tablets and at once went down to a drug store and brought a box up to the office.

"I had not taken a quarter of that box before I found that they would do all the work my stomach ever did; and as a rest or vacation was out of the question for me, I determined to give my stomach a vacation. I kept right on taking the tablets and braced up and went ahead with my work with renewed vigor, ate just as much as I ever did and carried out that undertaking to a successful issue. I feel that I have Stuart's Dyspepsia Tablets to thank for saving me the handsomest fee I ever received as well as my reputation and last but not least my stomach."

Stuart's Dyspepsia Tablets are for sale by all druggists at 50 cts. a box.



THIS WOLF AND 45 OTHER FUR BEARING ANIMALS, Handsomely lithographed in natural colors, each animal numbered and described, together with 36 page book, "HOW TO TRAP WILD ANIMALS." Postpaid for 10cts. Stamps, Silver or Money Order. *Price Lists of Raw Furs and Hides Free.*

NORTHWESTERN HIDE & FUR CO.
200-4 1st St. N. MINNEAPOLIS, MINN.



ECONOMY Feed Box and Manger.
Saves its cost in one year's use. Used and endorsed by leading stockmen. Write at once for descriptive circular. State how many head you feed,
E. E. FULTON COMPANY,
7259 Langley Ave., Chicago, Ills.

TREES Fruit and Ornamental, Shrubs, Roses, Bulbs & PLANTS
TESTED 50 YEARS.
Send for Descriptive Priced Catalog FREE
600 Acres. 13 Greenhouses. Established 1852.
PHOENIX NURSERY CO. 1300 Park St., Bloomington, Ill.

Horse Owners! Use

GOMBAULT'S



Caustic Balsam

A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish* Every bottle sold is warranted to give satisfaction Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O.

HOOD FARM
Antiseptic
Breeding Powder

Makes Cows Breed After Abortion. Corrects Failure to Come in Season and Failure to Clean.

"I had a heifer that aborted her first calf and she failed to breed again, though three different bulls were tried. I decided to give Hood Farm Antiseptic Breeding Powder a trial. After one month's treatment the heifer was bred successfully and in due time she gave me a fine heifer calf for which I have been offered $25." JOSEPH MASON, Bacon Farm, Newton Highlands, Mass.

Price, $1, sent by mail, $1.15. Size containing four times this quantity, $2.50. Sent prepaid for $2.75. Address
C. I. HOOD CO., Lowell, Mass.
Mention this paper.

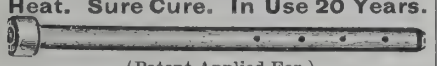
ABORTION
POSITIVELY PREVENTED AND CURED BY THE USE OF
ANTI-ABORTION SERUM
PREPARED BY DR. DAVID ROBERTS.
CATTLE SPECIALIST
WRITE FOR SWORN TESTIMONIALS.
DR. ROBERTS VETERINARY REMEDY CO
900 GRAND AVE WAUKESHA, WISCONSIN

COWS RELIEF



Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.
Used Exclusively at Model Dairy
Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.
O. H. MFG. CO.,
Dept. H, Lyndon, Vt.

ABORTION,
Failing to Breed and Bring Cows to Heat. Sure Cure. In Use 20 Years.



(Patent Applied For,)
Hard Rubber Safety Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.
DR. WM. HORNE, Janesville, Wis.

ZENOLEUM
Famous *COAL-TAR* Carbolic Dip.
For general use on live-stock. Send for "Piggies' Troubles" and "Zenoleum Veterinary Advisor" and learn its uses and what prominent stockmen say about it. Books mailed free. All druggists, or one gal., express paid, $1.50; 5 gal., freight paid, $6.25.
ZENNER DISINFECTANT CO., 34 Bates St. Detroit, Mich.

AN UNEQUALED PROPOSITION

$5,000
Made by a Beaver Dam farmer in less than a month.
$1,800
Made by a Baraboo paper hanger in less than a week.
$1,200
Cleaned up by an Evansville man in one week.

If interested we can furnish names and addresses of these parties and many others who have done equally as well.
We can give a few parties who can secure $1,500 or give security to that amount a very paying business.
Choice locality. We have an article of value and interest to every farmer.
Full investigation invited. Best bank references. Write at once for particulars.
BUTLER BROS., BEAVER DAM, WIS.
U. S. Agents. Box 365.

omit the salt for awhile. The trouble will likely subside when she comes fresh.

Abscess.

I have a registered bull calf that bloated on alfalfa in Sept., I tapped him with my pocket knife and he seemed to be all right for a while, but in the course of a week or ten days I noticed it had caused a sore and was discharging a very offensive smelling matter of a yellowish color. washed it with a solution of carbolic acid and it apparently got well. But I notice a lump there now, nearly as large as a hen's egg, and when I take hold of it, he flinches as if it were painful. W. C.
Juliaetta, Idaho.

ANSWER.

The bunch is the result of an abscess, which is liable to form after tapping with a knife. If it does not disappear of its own accord, it may be dissected out, but usually they are not harmful and in many cases will disappear without treatment.

Ophthalmia.

I have 20 head of calves from 3 to 6 months old that have some eye disease. They first get sore in one eye. In a short time there is a white film forms over it, and soon after, the other eye is affected the same, with some of them. Some of them are nearly blind. G. C.
Cordelia, Cal.

ANSWER.

Your calves have a form of ophthalmia which requires the attention of a qualified veterinarian, especially so if the disease threatens to become epidemic.

Thorough Pin.

I have a valuable colt that started a thorough pin while being broken. C. L. D.
Madrid, N. Y.

ANSWER.

Apply a smart fly blister of ¼ strength. Rub once daily for three days and do not wash off, but allow the scabs to drop off of their own accord. Keep the colt tied short to that he can not reach the leg with his mouth. If this does not reduce the enlargements sufficiently, the above may be repeated in a month.

Disinfection for Pneumonia.

My cattle had last winter what the State Veterinarian called lobular pneumonia. We lost several head, the rest we disposed of in October. Will there be any danger in my putting cattle in this same barn where those cattle were last winter, if I thoroughly disinfect? What is best for a disinfectant? If there is any danger will young stock take the disease quicker than older ones? J. A.
Village Creek, Ia.

ANSWER.

If you thoroughly disinfect the premises and stable there ought not to be any danger in the future. We would advise to whitewash all the stables and add to each bucket of prepared whitewash a dram of bichloride of mercury. Thoroughly cleanse the floors and cover them with a thin layer of slacked lime.

Loose Horn.

Will you please advise me what to do for a year old Jersey heifer with one of her horns loose from her head and moves with the skin. A neighbor tells me it will have to be removed.
Brooklyn, Wis. A. P.

ANSWER.

The heifer has evidently loosened the horn by fighting with other cows or heifers. It is not dangerous, nor will it require an amputation as they usually grow on without treatment, unless it is so loose that it will hang down of its own weight.

Bloating.

Please give remedy for bloating in cattle, I have one cow that seems to be ravenous and she cannot eat much hay without being bloated and in distress, W. H. P.
Petersham, Mass.

ANSWER.

Bloating is a sign of indigestion. Feeding all she may eat (if she is a natural glutton) may be the cause.

Avoid overloading the digestive organs, and give the cow an ounce each of hyposulphite of soda and powdered ginger in food twice daily for a week or two.

Eczema.

I have a Jersey cow 3½ years old, has been milking now for thirteen months. She is 6½ months with calf. She has done very well until the past three months. She has hard places on her udder just above teats, some of them come to a head, while others seem to disappear.

I was very much interested in your answer to "Subscriber" from Los Angeles, Cal., in your issue of November 6th. My cow's symptoms being somewhat similar, except that she never has been caught trying to drink her urine, nor has she been seen recently eating dirt, and when she did I thought same to be the want of salt, as at the time I was giving her only rock salt.
Macon, Ga. C. E. H.

ANSWER.

Judging from your description your cow has eczema. Keep the bowels open with a full dose of Epsom salts, once or twice a week, and give two tablepoonsful of Fowler's solution of arsenic in food twice daily.

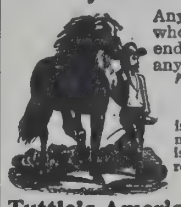
"SAVE-THE-HORSE"
Registered Trade Mark
SPAVIN CURE
BEGIN TREATMENT AT ONCE!
HAVE A PERMANENTLY SOUND HORSE FOR SPRING.

Cured horses are absolute certainties as to the possibility of the remedy for your own case. Such results as shown in our booklet, by business men whose reliability can be readily ascertained, have carried **"SAVE-THE-HORSE"** over skepticism, prejudice and uncertainty. Send for booklet and copy of written guarantee, which is as binding to protect you as the best legal talent could make it. No man need see his horse suffer and become incapacitated.

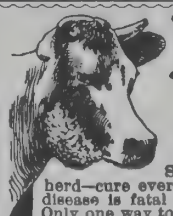
"SAVE-THE-HORSE" Positively and Permanently Cures BONE and BOG SPAVIN, THOROUGH-PIN, RINGBONE (except low ringbone,) CURB, SPLINT, CAPPED HOCK, WINDPUFF, SHOE BOIL, WEAK and SPRAINED TENDONS and all LAMENESS. Cures without scar, blemish or loss of hair. Horse may work as usual.

$5.00 per bottle. Written guarantee with every bottle. Need of second bottle improbable, except in rarest cases. If your case is different we advise frankly as to possibility of the remedy effecting a cure. Give veterinarian's diagnosis, if he is competent. Describe age, development, location of swellings, lameness, and way horse carries and holds leg.
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TROY CHEMICAL CO., Troy, N. Y.
Also manufacturers of Veterinary Pixine.

$5,000 Reward.



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Tuttle's Elixir
is spurious or untruthful. It needs nothing but the truth to support it. It is undoubtedly the best veterinary remedy known to man.
Used and Endorsed by Adams Express Company.
Tuttle's American Condition Powders
—A specific for impure blood and all diseases arising therefrom
TUTTLE'S FAMILY ELIXIR cures rheumatism sprains, bruises, etc. Kills pain instantly. Our 100-page book "Veterinary Experience." **FREE.**
Dr. S. A. TUTTLE, 62 Beverly St., Boston, Mass
Beware of so-called Elixirs—none genuine but Tuttle's.
Avoid all blisters; they offer only temporary relief. If any



Lump Jaw
Save the animal—save your herd—cure every case of Lump Jaw. The disease is fatal in time, and it spreads. Only one way to cure it—use
Fleming's Lump Jaw Cure
No trouble—rub it on. No risk—your money back if it ever fails. Used for seven years by nearly all the big stockmen. **Free illustrated book** on Lump Jaw and other diseases and blemishes of cattle and horses. Write for it today.
FLEMING BROS., Chemists,
228 Union Stock Yards, Chicago, Ill.



Cures Abortion.
"Used your Abortion Powder on 50 cows and got 48 calves out of the 50. There were 75 head I did not use it on and I only got 25 calves."
J. M. EATON, Belle Fourche, S. Dak.
KELLOGG'S CONDITION POWDER.
is the unfailing remedy for all aborting and barren animals. Cures abortion, induces regular breeding, prevents retention of placenta and all breeding troubles. Hundreds testify to its efficiency. Ask for free booklet and read what they say.
H. W. KELLOGG CO., Dept. Q, St. Paul, Minn.

BLACKLEG



VACCINATE your cattle with **Blacklegoids**—the simplest, safest, surest preventive of Blackleg. Each *Blacklegoid* (or pill) is a dose. Administration with our Blacklegoid Injector is performed in one minute. We establish the purity and activity of our **Blacklegoids** by rigid tests upon animals. For sale by druggists. Write us for literature—free on request.
PARKE, DAVIS & CO.
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Care for Her
and the cow has profits for you. She is subject to serious ailments. She may be barren, may abort, have calving difficulties, milk fever, scours, a dozen things may happen if she's out of condition. The specific remedy for just such things is
Kow-Kure
(For Cows Only)
Adapted exactly and only to the cow's peculiar troubles. A powdered remedy to mix with food and return to every user many times its cost. Nearly 100,000 cow owners are now using it. Endorsed by all. Sold by all dealers.
Ask for the free Kow-Kure book.
Dairy Association Company,
Lyndonville, Vermont.

DR. GEORGE HOLLABUSH'S
Sure Cure for Abortion



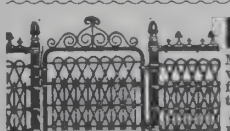
and General Tonic for Cows. The only genuine sure cure and general tonic for cows on the market. I guarantee, and refund money if not satisfactory.
Dr. Geo. Hollabush, Ft. Atkinson, Wis.
Write for circular.

MILK FEVER
WHY NOT PREVENT IT?
PREVENTION IS CHEAPER THAN CURE.
Write for Moore Bros. "General Cow Drink" Pamphlet, Free.
Address, MOORE BROS., V. S., Albany, N. Y

PREVENTIVE

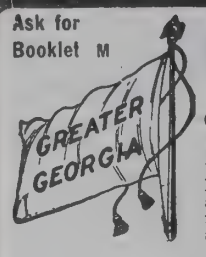


The only guaranteed abortion remedy.
The most powerful germ destroyer known.
It prevents all contagious diseases. Thus far every user as far as we can learn is satisfied with results obtained. Send for descriptive booklet.
STEVENS BROTHERS
Holstein Breeders
LACONA, - NEW YORK



LAWN FENCE
Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address
COILED SPRING FENCE CO.
Box 425 Winchester, Ind.

Ask for Booklet M



GEORGIA Lands Grow Everything

GEORGIA offers the greatest opportunities to settlers and investors to be found in America to-day. It has been overlooked in the rush to less favored but better advertised sections. It is the ideal place for Northern farmers and their sons to locate. Grows all kinds of crops, make permanent and profitable homes, and all at a very moderate cost. The climate of Georgia is perfect, neither too hot nor too cold and is diversified as the land rises from the sea-level to an altitude of 5,000 feet. No blizzards, or violent extremes of weather. The best climate, in fact, to be found anywhere on the continent, for health and comfort with profit. Coal is cheap and abundant, educational and church advantages the very best, water plentiful, transportation facilities good. More than one-half the deposits in State Banks are owned by Georgia farmers.

LANDS in the most desirable sections of this wonderful state can be purchased on long time and at far lower prices than are asked in northern states. There is no more beautiful or fertile land outdoors than Georgia possesses in abundance. Ten months in the year there is open pasturage for cattle. So rich and fertile is the soil, so early and convenient the market, that farms here yield annually 40 per cent of their valuations. Failure of crops is almost unheard of in the entire state of Georgia, and where diversified crops are grown nothing like an unprofitable year was ever known. No better opportunity exists for poultry and dairy farming, cattle, hogs and stock breeding generally. Small fruits and in fact all fruits grow to perfection. GROW any crop here that grows in *your* state, and others that you cannot grow to profit. Ten cent cotton is like dollar wheat. Georgia peaches sell for millions. Finest grasses and open pasturage ten months yearly make dairy farming and cattle raising profitable. Don't misjudge Georgia just because you know little or nothing about it. *Find out.* Lay aside any prejudice you may possess and ask for facts, and then investigate for yourself.

Write GREATER GEORGIA ASSOCIATION, Atlanta, Georgia, and they will tell you

An Iowa Inquiry and Report.

ED. HOARD'S DAIRYMAN:—Will you give us a balanced ration from the following in your next issue: Bran, $17.50 per ton; oil meal, old process, $24; barley, 34 cents per bushel; corn, 35 cents per bushel.

We grind the corn with cob, also grind the barley ourselves. Bran and oil meal we can get at the elevator at the above prices. Would it pay us to sell the barley and buy bran and oil meal?

We began dairying one year ago last November 5. At that time we bought the cream of two herds—16 cows in all. During the year ending Nov. 5, we made 4,160 lbs. butter, which averaged us 20 cents per lb., retailing it in Belle Plaine. This gives us $52 per cow, besides the skim milk and cream for a family of 7.

We expect to make our cows bring us $75 per cow or more a year, by selling off the poor ones and buying others, and raising the heifers—thanks to HOARD'S DAIRYMAN which is our teacher.

Belle Plaine, Iowa. R. BROS.

It is not practicable to set forth a ration formula unless one knows what roughage is available. Have you silage and clover hay, or timothy hay and corn stover? In the former case you could feed a mixture of bran, barley and corn and cob meal, but without silage and clover, oil meal would be indicated to take the place of a part of the barley and corn.

Your report for the first year is most encouraging, and your plans for the future point in the right direction.

Value of the Manure Spreader.

ED. HOARD'S DAIRYMAN:—The manure spreader is not an implement of very recent production, as might be judged by its growing popularity and the extent of its recently being advertised. Its day was pretty slow in coming, but it has come as fully as it has suddenly. Its place on the best conducted farms is as established as that of any of our other indispensable farm implements. But in a great many of our farms the places are not filled, and alongside the empty places are many needs for their filling.

This may read very much like a manure spreader advertisement, and so it may be considered, but from the standpoint of the farmer and not that of the sellers of spreaders. I have no interest in the selling of spreaders, but as an agricultural teacher, I have in the farmers using them, for I know that by the use of this machine, the farmer will get much more value from the manure, both by reason of his ability to make a given quantity cover more land and to get it more readily and completely incorporated with the soil. Frequent light dressings of manure produce better results in crop growing, than less frequent and heavier coats.

In the light dressing, the roots of the plants appropriate the food elements as fast as the elements become available. The soluble parts in the heavier applications may leech away during times of excessive rain-fall, and part of them be lost. Translocation of active potential plant foods in the soil is very little so that the plant to use the food, must go after it and come in contact with it.

Thus the more the manure is divided and broken up, the more points of contact for the feeding roots and the more quickly as well as completely it nourishes the crop.

The ownership of a manure spreader, is an earnest that the farmer is more fully appreciating the value of the manure, and following this will come his more careful saving of it, and this one item alone will make the purchase of the spreader a highly paying investment.

The consideration of the labor-saving functions of the machine is one we farmers cannot afford to ignore, for the scarcity of laborers makes labor higher priced and in many cases compels us to use that which is less efficient than we desire.

Therefore, as a demand of farm policy, we must make the work as easily performed as posible and by the use of implements of expedition, reduce the cost of labor by increasing its output,

Penn. W. F. MCSPARRAN.

A Query Concerning the Indiana Cow Census.

ED. HOARD'S DAIRYMAN:—May I ask if Nos. 21 and 29, grade Holsteins, in cow census report on page 967, have not a good sprinkling of Jersey in them? We have a herd of mostly Jerseys, some 20 odd in number, and I believe we could make a better showing than any of these men, unless it be the numbers above referred to. As we are about starting another herd I want the best. Am selling butter fat. J. W. K.

Erie, Mich.

The presumption is that the cows in the herds mentioned had no appreciable infusion of Jersey blood. If they had that fact would have been mentioned. But one must not take these figures as settling the relative merits of the breeds represented, for the man behind the cow is a most important factor. A careful reading of the comments accompanying the tabular statement explains a good many of the discrepancies found in the table. As regards breeds, all experience shows that a man does best with that particular breed, which best pleases his fancy, provided they are of good dairy type.



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The Polk County Land & Loan Company

For Choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.

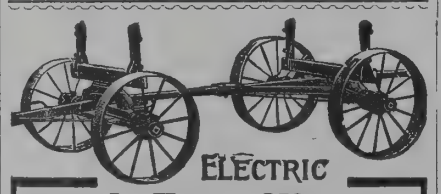
360 acre farm, 4½ miles from Crookston, Minn., a city of 7,000 inhabitants, and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 feet square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm is under a high state of cultivation, and is well drained by a slight ravine running through the farm merely sufficient for self drainage. The soil is a rich, deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50.

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired. Price $18.00 per acre.

FARM LANDS FREE Send stamp for circulars and information. Address J. LOVERING, Mgr., G 508 Germania Building, St. Paul, Minn

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Full information by asking for it.
INTERIOR LAND COMPANY,
JANESVILLE, WISCONSIN.

Structure and Capacity.

How to Breed Dairy C tle.

[Paper by SECRETARY WINSLOW, read at the Albany meeting of the Ayrshire Association.]

There is an inherent ability in cattle to produce from the same kind of food either flesh or dairy product, and while it is probable that in the far past the cattle of a given section were uniformly of the same type and characteristics, and probably bred true to that type, the same as do wild animals, yet when the hand of man began to utilize them for his needs, they began to take on changed form and characteristics in response to the efforts of their owner to conform them more and more to his ideas of what would be the most for his own benefit in supplying his daily wants. Thus, the natural law of selection changed some into beef producers, and others into dairy producers; but with every change of ownership there was likely to be a change of purpose in their management, and while all were more or less useful, there was little marked diversity until later enterprise, with concerted action, began to form fixed types for the highest production of either beef or dairy products.

While it is true that certain exterior structural characteristics seem, as a general rule, to produce the same results in a desired product, it is also true that this given line has not been followed long enough in either direction so firmly to fix the type, as to enable a breeder to feel certain as to what he may produce from any careful coupling of his cattle; so that while we may reasonably hope that by the uniting of like we can hope for a like result, we are not sure, because none of our cattle have been bred in that line long enough to eliminate a tendency to scatter or take back to some of the varied ancestry from which they sprung. But the longer a breeder or successive breeders pursue the same course, the less likely is there to be disappointment in the offspring of judicious coupling of animals possessed of similar structure, and descended from that same type. While we have various so-called breeds of cattle, there are two distinct divisions which might be laid down, dividing them into two classes--the producer of beef, and the producer of dairy products. We find structural differences in the highest type of each, which indicate inherent capacity, and we find, as a rule, that irrespective of breeds, the same structural difference is followed by the same comparative difference in the result.

Take the animals of the highest type of beef production, we find that all their parts that are non-essential are eliminated, or reduced to a minimum—head small and bony, horns either entirely gone or of small size, bones small and of fine texture, neck short, back and ribs compact, and closely set together, and in fact, the whole structure put together on the most economical plan of saving everything and losing nothing, and the body, as you look at it standing, presenting the form of an oblong square box, simply leaving out the head, neck and legs. The beef animal might be called a miser, hoarding up all its gains, and giving up nothing except with the surrender of life, often not even giving milk enough to raise its own offspring, while on the other hand the highest type of the dairy producer, as we find in all breeds, has a comparatively uniform structure that in most parts is directly the opposite from the beef producer, but with the non-essential parts quite similar--head small and bony, horns small, bones small and of fine texture, neck long and slim, with strong junction with the head, clean throat, shoulders light and thin, withers sharp, with backbone rising above the blades, ribs arching out and swelling immediately after leaving the shoulders, giving abundant room for the heart and lungs, and the whole formation of ribs gradually enlarging to the hind quarters, giving plenty of room for food; the ribs being wide and flat, and with considerable space between them. The backbone is strong and corrugated, showing a looseness to the touch, hips wide, pelvic arch high, rump bones wide spread, tail long and slim, flanks high and arched, open between thighs and in-curving, giving plenty of room for the udder, legs short, bones flat, udder capacious, running well forward and back, with the four quarters, of uniform size, teats of medium length and of good size, and uniform from udder to end, placed wide apart at the four corners of the udder; milk veins large, long and tortuous, entering the abdomen through one or more large holes on each side the veins, and holes on either side being equal in size and length. Color conforming to requirements of the breed.

I have left out the distinctly breed characteristics, as the animals in all breeds that have made themselves famous, had almost uniformly the same structural make-up, indicating that there was a uniform build that in itself denoted ability to produce either beef or dairy product.

In studying the outward form of the cows of all breeds that have given the highest yields at the dairy, you will find them lacking in that shapeliness ascribed to the beef animal, and which to a beef breeder would be considered homely and ill-shaped.

It has always seemed that the breeder of dairy cattle was trying to obtain the highest results at the pail from a beef type and let go the straight contour of the beef producer with the greatest reluctance.

It is almost proverbial that a great producer in the dairy breeds stands no show in the ring, beside her more shapely sister of the best beef type, in winning the ribbons which should denote superiority. I have heard our Canadian cousins, in the ring, condemn a crumpled horned Ayrshire cow, regardless of her milking appearance, because her horns were not

The Trying Time

In a young girl's life is reached when Nature leads her uncertain steps across the line which divides girlhood from womanhood. Ignorance and neglect at this critical period are largely responsible for much of the after misery of womanhood. Not only does Nature often need help in the regular establishment of the womanly function, but there is almost always need of some safe, strengthening tonic, to overcome the languor, nervousness and weakness, commonly experienced at this time.



If there is an invalid woman, suffering from female weakness, prolapsus, or falling of womb, or from leucorrhea who has used Dr. Pierce's Favorite Prescription without complete success, Dr. Pierce would like to hear from such person—and it will be to her advantage to write as he offers in perfect good faith, a reward of $500 for any case of the above maladies which he cannot cure.

"I wish to tell you the benefit we have received from using your remedies," writes Mrs. Dan Hall, of Brodhead, Green Co., Wis. "Two years ago my daughter's health began to fail. Everything that could be thought of was done to help her but it was of no use. When she began to complain she was quite stout; weighed 170, the picture of good health, until about the age of fourteen, then in six months she was so run down her weight was but 120. She kept failing and I gave up, thinking there was no use, she must die. Friends all said, 'You will lose your daughter.' I said I fear I shall. I must say, doctor, that only for your 'Favorite Prescription' my daughter would have been in her grave to-day. When she had taken one-half bottle the natural function was established and we bought another one, making only two bottles in all, and she completely recovered. Since then she is as well as can be."

Doctor Pierce's Common Sense Medical Adviser, in paper covers, is sent *free* on receipt of 21 one-cent stamps to pay expense of mailing *only*. Address Dr. R. V. Pierce, Buffalo, N. Y.



Let Them Help Themselves.

They'll not take too much, and they'll get it as they want it. Don't force animals to eat salt when they don't require it, by mixing with food.

COMPRESSED

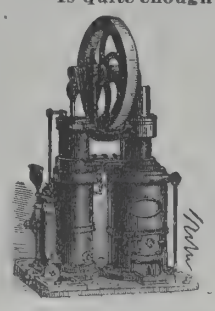
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are all salt, no impurities. Improve the quality and yield of milk. A modern convenience, always present, animals never neglected, and costs for each only about a nickle a month. See how they enjoy helping themselves when you place it within reach. For all stock. Buy of dealers or send for free booklet to

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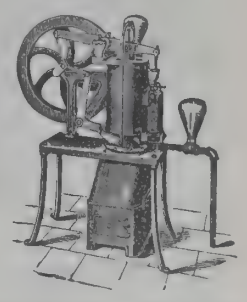


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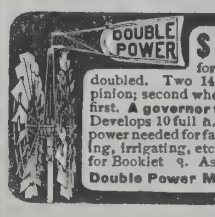
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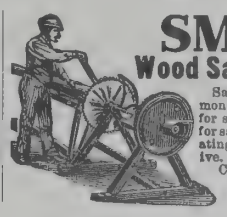
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"MONEY MAKERS FOR BUTTER MAKERS"

Are freely credited, by the creameries who use them, with improving the quality of the butter over any other salt, being perfect in flavor, color, and purity, lighter and drier than any other, dissolving more quickly, preventing danger of streaked or mottled butter, while it is safe to work the butter less with these salts than with other makes. Regarding our two brands,

COLONIAL Butter Salt is a light, flaky grain, the lightest for the same bulk that there is on the market. While other makes use a barrel with but a 30 inch stave and a 19 or 20 inch head to hold 320 lbs., Colonial requires a barrel with a 34 inch stave and a 21 inch head to hold the same weight.

LIBERTY Butter Salt is granulated, every grain of the same size and perfectly square; contains one-tenth of one per cent. moisture, so it, as well as the Colonial brand, has the "make weight" feature. It is a little coarser in grain than any other granulated salt, which is a decided improvement, and because of its uniform grain it dissolves evenly and does not leave the butter gritty or mottled.

Send for Free Sack

of either or both these brands. Your request on a postal card will assure the prompt delivery to creameries and cheese factories only, without cost, a 56 lb. sack of either or both. Let us know your success with it after trial.

COLONIAL SALT COMPANY, AKRON, OHIO.

CHICAGO OFFICE.....84 ADAMS STREET

characteristic of the breed, and should be upright.

The highest excellence of a dairy cow is her capacity to give the largest dairy product from the least food consumed, and when you study the outward formation of the great producers you do not find them having large horns or straight backs. While you may now and then get a fairly good product from a cow lacking in one or more of the dairy characteristics, still it is the exception, and inbreeding should not be encouraged. Perfection in all those points that in themselves fit the cow to do her highest work, should be encouraged, and those points which are not found in cows doing the highest work should be discouraged.

Constitution is the foundation of excellence, because without it the best of other points are useless. By constitution in a dairy cow I do not mean that she shall be like a beef animal, any more than I would require a running thoroughbred to have the form of a Clyde or a Percheron. I have heard it said that you must have width between the fore legs of a dairy cow, to insure constitution, but which has the stronger constitution to endure a hard strain, the race horse or the draft? Which has the stronger constitution, the dairy cow thin in the withers and light in the shoulders, that can produce ten times her weight in milk during the year, and half her weight in butter, or the beef cow that can in two or three years of her lifetime produce half a ton of meat?

Perhaps the next point in importance is the inclination and ability to consume and digest a large amount of coarse fodder. Then follows the perfection of udder and milk development, and while we would allow a material departure from straight lines in shape of the dairy cow, her udder should, when young, have a good degree of conformity to straight lines, because, other things being equal, the squarer and straighter the udder the greater the capacity, and the lines of beauty are here the signs of utility.

Our interests here today centers in the Ayrshire breed of cattle, and it is for us to inquire how we may breed the Ayrshire cow so as to have her constantly progressing in ability to produce a large amount of dairy product of good quality, at a minimum cost. It is only recently that any concerted action has been taken to find out what was really her dairy ability, and while we have not as large a number of cases as we could wish to allow us to compare the form with the dairy result, we have a few; and as far as I have been able to observe, the same rule holds true in Ayrshires as in other breeds, as to the dairy form that excels at the pail, and as you depart from that form the yield as a rule decreases.

The question for Ayrshire breeders to decide is whether they will hold to the Ayrshire model as laid down by Scotch breeders for the show ring, or will change somewhat the ideal type as laid down in the scale of points, and allow a more decided dairy type to be the standard of excellence. Are the breeders of Ayrshires to stand still and keep the standard of the Ayrshire cow at a medium grade, or are they ready to push her to the front as a producer?

There is a limit to the product almost in proportion to her shapeliness as laid down in the scale of points for the show ring. The question is, are you breeding show Ayrshires or dairy Ayrshires? The scale of points as issued by the association is supposed to be the standard of excellence and the rule to guide breeders. Now let any breeder go through his herd and keep a careful record of the dairy yield and compare it with the perfect type as laid down in the scale of points, and see where it lands him. Are the cows that scale the highest the ones that pay the best? Every breeder should, as far as he is able, have his herd close to the type of the breed, and which shall he sacrifice, looks or utility? If the scale of points is not such as will encourage breeding Ayrshires of the highest utility, then the scale should be changed so as not only to allow but to encourage breeders to develop the highest type of a dairy Ayrshire.

The photograph of noted Ayrshires at the pail, both in Scotland and here, indicate that the greatest dairy yields come from a different looking cow from the one you usually see led into the show ring, a cow of more distinctively dairy type.

I saw two imported Ayrshire cows at the Experimental Farm at Ottawa, and the record of the dairy type was far ahead of the show type. There is no good reason why there should be such a scarcity of 10,000 pound Ayrshire cows, and if breeders would pay more attention to the dairy type of their Ayrshire cows the 500-pound cows would be more plentiful.

I see no good reason why our American breeders of Ayrshires should follow after the Scotch type of large horns and small teats. If the Ayrshire breeders of Scotland have departed from the original type of their breed, that about the time our early importations were made, and from which the best Ayrshires of the United States and Canada have descended—I do not see the wisdom of our following their lead, especially when it gives us poorer dairy cows, because removed from the standard dairy type that excels in milk production.

Cost of Shredding Corn Fodder.

ED. HOARD'S DAIRYMAN—The boys shredded 10 acres of heavy fodder last week and I give the readers of the DAIRYMAN the cost of the operation:

Three men and teams at $2.50, 1½ days	$11.25
Two men in field at $1.50, 1½ days	4.50
One man at crib at $1.50, 1½ days	2.25
Engine and two men	10.00
Board of men	3.00
Coal	4.50
Total	$35.50
By 425 bu. of corn husked at 3c per bu	$12.75
By 25 tons of fodder at $2 per ton	50.00

We yet have the manurial value of the stalks that is not accounted for, but that will offset the cutting of the fodder in the field. Besides, we have the satisfaction of knowing we are saving a feed that is relished by all of our farm animals, and are sure that the feeding of it will not result in the death of our stock. I find in traveling over the corn belt this fall that there was but a very small amount of fodder cut up. This was owing to the great amount of hay raised and the good pastures. At the same time the farmers would have been well paid in cutting up their fodder. They could have their hay crop to sell, and at the same time their fields of corn would be in much better condition to crop another year. I visited the farm of a progressive farmer in Scott county this fall, and he informed me that he could husk his corn as cheaply with the shredder as he could in the usual way and he had the fodder clear of expense. His statement was backed up by the figures.

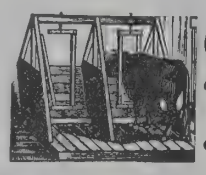
When one attends farmers' institutes and conventions weekly for five or six months, he is sure to learn a great many things, good, bad and middling. I caught on to a good thing, last week in Henry county of this state, and as there is no patent on it I will give it to the DAIRYMAN readers who are in the milk peddling business. The good thing was a milk cooler and aerator combined, and there was an attachment that made the pump of but little use, which is worth making a note of. The device consisted of a shallow pan with a spout at one edge to conduct the milk into the cans, and on this pan a large cake of ice was placed over which the milk was allowed to drip. The only kick the user of the device had was it took too much ice. Now, as but few of the milkmen I know are kickers I do not think a little thing like that will bar their using this new aerator and cooler.

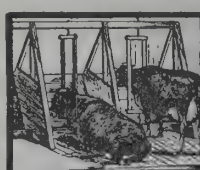
I watched for a barn that had windows enough in it on my recent trip to Iowa, and in the 195 miles I did not see one such. How strange! I would like to have the reports of creamery patrons that are given in the DAIRYMAN contain the

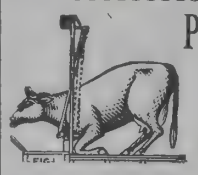


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Loaded Black Powder Shells
shoot stronger and reload better than any other black powder shells on the market, because they are loaded more carefully and made more scientifically. Try them. They are
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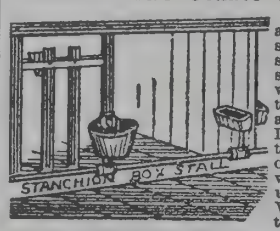
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Superior to corn, oats and hay. Car Lots $20.00; Ton Lots $21.50; Half-Tons $11.50; 500 pounds $6.25; 100 pounds $1.50. Put up in 100-pound sacks f. o. b. Minneapolis. Cash with order.
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The Most Practical CATTLE FASTENER ever invented. Manufactured and For sale by
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CLEAN, SAFE, COMFORTABLE.
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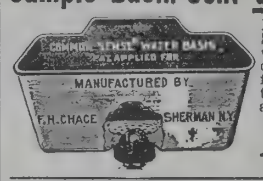

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Keeps Cows Clean.
Swings forward while getting up or lying down. Locks back while standing. Full particulars free.
E. PRESCOTT, Beverly St., Boston, Mass.


A Steel Stanchion beats anything you ever saw for tying cattle. Lighter, stronger, neater. Swings on chains Not in the way when lying down. Agents wanted. Write for special terms and prices. Jas. Boyle, Mfr., Salem, O

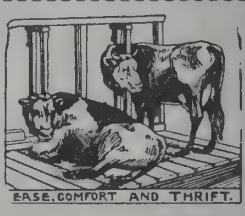
Water In The Stable a Necessity.


It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. Why not use the Best? Write for descriptive circular.
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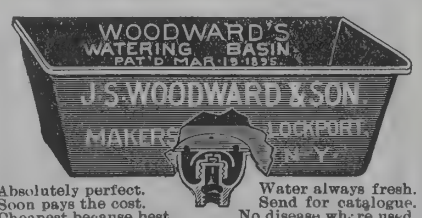
WILDER'S PATENT SWING STANCHIONS
Chain or Pin Fastened.
Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.
Safest, Strongest, Most Convenient fastening made. Cheapest to put in and save room in barn. Send for Stanchion Catalog to
J. K. WILDER & SONS, BOX 11, MONROE, MICHIGAN.

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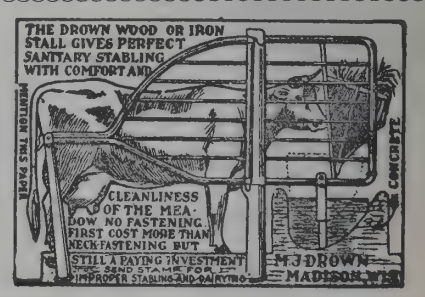
Basins are fitted with Self Closing Cover which prevents all dirt and sediment from gitting into them. Send for catalogue and price list.
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New Pattern with Self-Closing Lid.
Pure white Porcelain. No rust, no filth, no splashing.
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Better read my Index; I send it free.
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Nearly everybody knows that charcoal is the safest and most efficient disinfectant and purifier in nature, but few realize its value when taken into the human system for the same cleansing purpose.

Charcoal is a remedy that the more you take of it the better; it is not a drug at all, but simply absorbs the gases and impurities always present in the stomach and intestines and carries them out of the system.

Charcoal sweetens the breath after smoking, drinking or after eating onions and other odorous vegetables.

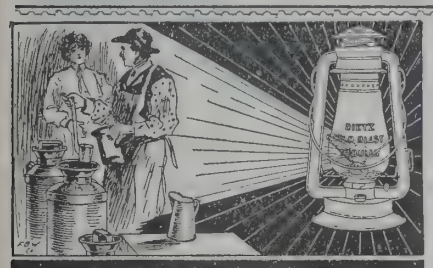
Charcoal effectually clears and improves the complexion, it whitens the teeth and further acts as a natural and eminently safe cathartic.

It absorbs the injurious gases which collect in the stomach and bowels; it disinfects the mouth and throat from the poison of catarrh.

All druggists sell charcoal in one form or another, but probably the best charcoal and the most for the money is in Stuart's Absorbent Lozenges; they are composed of the finest powdered Willow charcoal, and other harmless anti-septics in tablet form or rather in the form of large, pleasant tasting lozenges, the charcoal being mixed with honey.

The daily use of these lozenges will soon tell in a much improved condition of the general health, better complexion, sweeter breath and purer blood, and the beauty of it is, that no possible harm can result from their continued use, but on the contrary, great benefit.

A Buffalo physician in speaking of the benefits of charcoal, says: "I advise Stuart's Absorbent Lozenges to all patients suffering from gas in stomach and bowels, and to clear the complexion and purify the breath, mouth and throat; I also believe the liver is greatly benefitted by the daily use of them; they cost but twenty-five cents a box at drug stores, and although in some sense a patent preparation, yet I believe I get more and better charcoal in Stuart's Absorbent Lozenges than in any of the ordinary charcoal tablets."



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about what you are doing, but you see as with the light of day if you use the

Dietz Cold Blast Lanterns

noted everywhere for their even shedding of pure white, strong, steady light. Burn on the cold blast principle. Most convenient, give most satisfactory light, safest lanterns made. Don't confound them with common lanterns which smoke, flicker and blow out. Let us send you lantern book to make a selection, then you can buy it from any dealer or have him get it for you.

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presumes the use of the modern round silo. They are the cheapest and best, and preserve the silage better than all others. There are no angles or corners to admit the air and cause the silage to mold or rot. We make them in four styles and 200 sizes. Made of Cypress, White Pine and White Hemlock. Anybody can set them up. We also make a full line of Ensilage and Fodder Cutters, Tread Powers, Wood Saws, Threshers, Engines, etc. Send for Book on Silos and Ensilage. Mailed free.

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THE HOME CORRESPONDENCE SCHOOL,
Dept. 55, Springfield, Mass.

Butter Tests Accepted for Publication by the American Jersey Cattle Club, Dec. 10, 1903.

Adelaide Marigold 158219—Sire, Stoke Pogis of Prospect 29121; dam, Adelaide's Daughter 129440. Butter, 15 lbs., 13 oz.; milk, 230 lbs., 12 oz. Test made from Oct. 8 to 14, 1903; age 3 years, 6 months; estimated weight, 900 lbs.; fed 4 lbs. bran 4 lbs. oats; 3 lbs. oilmeal, 20 lbs. green corn and 35 lbs. mangel-wurzels daily, hay *ad lib.*, poor pasture. Property of Estate of W. S. Ladd, Portland, Ore.

Adelaide Marigold 158219—Fourteen days—Butter 31 lbs., 7 oz. in 14 days; milk, 448 lbs., 8 oz. Test made from Oct. 8 to 21, 1903; age 3 years, 6 months; estimated weight, 900 lbs.; fed 4 lbs. bran, 4 lbs. oats and 3 lbs. oil meal, mixed. daily; during first week, 20 lbs. green corn and during last week, 40 lbs green corn, daily: 35 lbs. mangel-wurzels, daily, hay *ad lib.*, poor pasture. Property of Estate of W. S. Ladd, Portland, Ore.

Camilla Rio 168019—Sire, Rioter of Brook Farm 2d 55536; dam, Ahwhar 127379. Butter 15 lbs., 3 oz.; milk, 197 lbs., 6 oz. Test made from Oct. 3 to 9, 1903; age, 2 years, 1 month; estimated weight, 550 lbs.; fed 2 qts. corn meal and 2 qts. brewers grains daily, pasture.

Drusilla Rio 168015—Sire Rioter of Brook Farm 2d 55536; dam, Dot Ramsey 2d 87930. Butter, 18 lbs.; milk, 202 lbs. Test made from Oct. 3 to 9, 1903; age 2 years, 4 months; estimated weight, 600 lbs.; fed 2 qts. corn meal and 2 qts. brewer's grains daily, pasture.

Gertie's Sister 151594—Sire, Fairview Prince 43904; dam, Girletta 61472, Butter, 14 lbs., 12 oz.; milk, 248 lbs., 10 oz. Test made from October 8 to 14, 1903; age 4 years; estimated weight, 800 lbs.; fed 5 lbs. bran, 5 lbs. oats, 4 lbs. oil meal, 20 lbs. green corn, and 35 lbs mangel-wurzels, daily; hay *ad libitum*, poor pasture. Property of Estate of W. S. Ladd, Portland, Oregon.

Gertie's Sister 151594—Fourteen days: Butter, 29 lbs., 4 oz.; milk, 486 lbs., 6 oz. Test made from Oct. 8 to 21, 1903, age, 4 years; estimated weight, 800 lbs.; fed 5 lbs. bran, 5 lbs. oats, 4 lbs. oil meal and 35 lbs. mangel-wurzels, daily; 20 lbs. green corn daily during first week, and 40 lbs. daily during second; hay *ad libitum*, poor pastures. Property of Estate of W. S. Ladd, Portland, Oregon.

Landseer's Betsy 139724—Sire, Maple Glen's Stoke Pogis 34712; dam, Landseer's Blanche 98802. Butter, 15 lbs., 15 oz.; milk, 224 lbs. 4 oz. Test made from Nov, 4 to 10, 1903, age, 6 years, 8 months; estimated weight, 800 lbs.; fed 50 lbs. wheat bran, 45 lbs. corn and cob meal, 20 lbs. old process oil meal and 20 lbs. potatoes; hay *ad libitum*, poor pasture.

Nettie Newcastle 160833—Sire, Vida's Stoke Pogis 47856; dam, Queen Nettie 113948. Butter, 14 lbs., 8 oz.; milk, 260 lbs, 8 oz. Test made from Oct. 30 to Nov, 5, 1903; age, 3 years, 3 months; estimated weight, 850 lbs.; fed 10 lbs., ground oats, corn meal and bran in equal parts by weight, and 5 lbs. broken ear corn, daily, timothy and blue grass pasture.

Pauline Paul's Record.

ED. HOARD'S DAIRYMAN:—On page 990 of the DAIRYMAN, J. F. H. seems in doubt about your account of the record of the Guernsey cow, "Charmante of the Gron." I was also somewhat mystified by this record, as I had been taught to believe that the Holstein cow Pauline Paul, owned by D. F. Wilbur of Onconta, N. Y., held the world's record for butter production for one year, with a yield of 1,154 lbs. 15 ozs. of butter.

I had always supposed this to be an official test.

What constitutes an official test? I wish to be informed, as I have made the statement several times that Pauline Paul's test was an official test.

Canajoharie, N. Y. L. L. ST. J.

Pauline Paul's record as given above was made thirteen years ago, some time before what are now recognized as officially authenticated records were thought of, or possible. There was no Babcock test then, or other convenient and expeditious way, to ascertain how much fat the cow put in her milk, or otherwise put a check on the herdsman and buttermaker. Our understanding is, that Pauline Paul's record was strictly a private one, authenticated by affidavits of the persons in charge of the cow, but without supervision from outside sources. Nobody questions the integrity of her then owners, or that she was a great and prepotent dairy cow, but the evidence as to the yield of butter is not as convincing as that furnished by present day methods of verifying records.

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Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the market.



20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished.

Send for catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.

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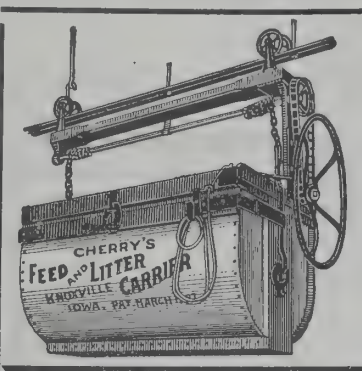


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justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

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Consisting of Manure Carrier, Feed Carrier, Ensilage Carrier, Grain Elevator, Swivel Hay-Carrier, Hay Forks and Barn Door Fixtures. This system of carriers is built for **Heavy Work** and **Durability.** By the use of our **Curves** and **Switches** we can equip any barn. Send for illustrated Catalogue H and price list to

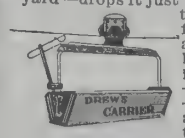
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Every farmer should write for our illustrated catalog, explaining all about the

DREW ELEVATED CARRIER

—how it does the work of a hired man—carries the manure from stable to barnyard—drops it just where desired—returns automatically for another load—and you stay in the barn and **"Watch it work for you"**—it is self-operating—works perfectly and passes over anything on its trips in and out of the barn. The Drew Elevated Carrier saves more each year than it costs and every farmer should have one. It also carries ensilage, grain, fodder, etc., from one point to another. It does away with the barnyard wheelbarrow.



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See it Work!

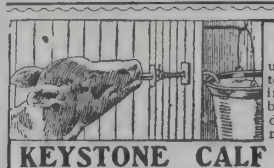
Any responsible party may try on his own premises for 10 days and return at our expense if not the best.



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under positive guarantee to refund money if not satisfactory. No bolting food. Perfect digestion. All tinned, no rust, easily cleaned.

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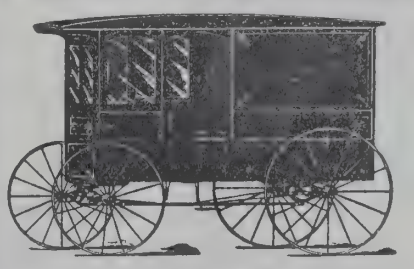


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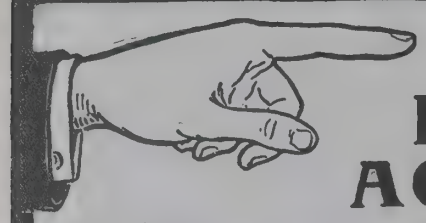
UNION BUGGY CO. Dept. B. PONTIAC, MICH.



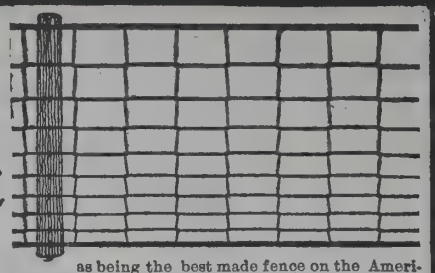
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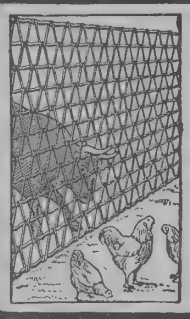
Unless the Potash be restored to the soil, good crops can not continue.



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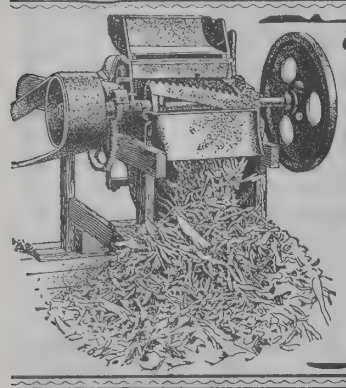
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make efficient shredders out of "Ohio" Feed and Ensilage Cutters. The **New Shredder Blade** is the regular "Ohio" knife with solid integrally projecting bits which cut and tear corn stalks into a nicely shredded condition, as shown in the picture. It makes corn-hay of the fodder.

Shredder Blades are interchangeable with knives on all sizes "Ohio" Cutters. They successfully reduce fodder to the proper condition and do not pulverize the leaves like other styles. **They shred** with the same power, speed and capacity as "Ohio" Cutters, and either the Chain or Blower Elevators handle the shredded corn perfectly. **Speed,** 600 to 700 revolutions. **Power,** 2 Horse Tread up to 12 h. p. Engine according to size. Let us send the 1903 catalogue of "Ohio" Cutters and Shredders. "Modern Silage Methods" 10c, coin or stamps. Manufactured by

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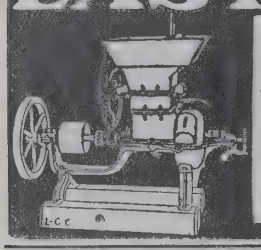
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Horse-high, Bull-strong, Pig and Chicken-tight Wire at Wholesale Prices. Catalogue Free

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EASY GRINDING



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Fine **SCIENTIFIC** Quick

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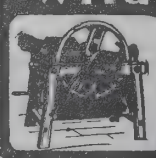


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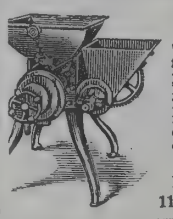


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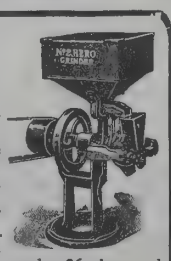
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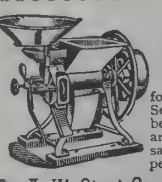
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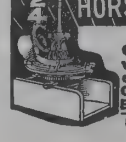
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VOLUME XXXIV. FORT ATKINSON, WIS., JANUARY 1, 1904. NUMBER 47

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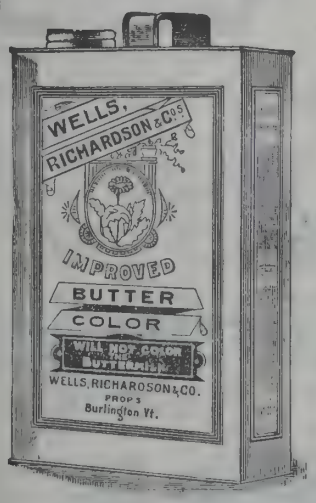


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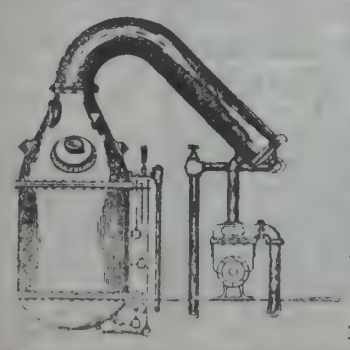
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1904

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To every user of a cream separator, whether a TUBULAR or a "bucket bowl" machine; to all our agents, our friends and our competitors, we extend our best wishes for a happy and prosperous New Year.

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The course in Horticulture treats of fruit and vegetable growing, commercial orcharding and market gardening, probblems in marketing fruit, laying out and embellishing of home and school grounds; beneficial and injurious insects of the farm, orchard and garden; vegetable parasites, including rusts, smuts, blights, mildews, etc., and spraying devices and mixtures for combatting insect pests and plant diseases.

The course in Animal Husbandry includes systematic studies of the classes, types and breeds of beef and dairy cattle, swine, sheep and horses; principles of feeding, breeding and improvement of live stock; value of a good pedigree, and the making and tracing of pedigrees; animal diseases and their causes and prevention, sanitary care of flock and herd, etc.

The course in Dairying is designed for two classes: 1. Milk producers and private dairymen. 2. Those who wish to become creamery managers, creamery butter makers, etc. The lines of instruction will include studies of milk and its products, milk testing and cream ripening, churning, working, salting and packing butter; the care and use of the utensils and machinery employed in the private dairy and in the commercial creamery. The equipment, operation and repair of dairy and creamery machinery will also receive due consideration.

Regular laboratory exercises in the study of soils and draft problems; in budding, grafting and making cuttings; in scoring corn and in judging live stock; in separting milk and testing milk and cream for the per cent of butter fat, and in the making and scoring of butter, fix the instruction given and make it of direct practical value in the every day work of the farm.

Most winter course students return to the home farm. Many of these write that the instruction received has added greatly to their sucess. Many return for a second term, which they find even more valuable than the first. Several bright, earnest young men have been able to enter lucrative positions after taking one or two winter courses at Purdee.

An illustrated circular of the winter school of Agriculture, giving full information, will be sent you on request.

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Seeing your friends and having them join in for a good club of subscribers.

Of Interest to Wisconsin Farmers.

The College of Agriculture, University of Wisconsin, offers to the farmers of Wisconsin, what will hereafter be known as the Farmers' Course in Agriculture. This course will immediately follow the annual meeting of the State Board of Agriculture, the first session being held at eight o'clock a. m., Friday, February 5th. There will be lectures on many subjects by the professors in the College of Agriculture. Special attention will be given in corn judging and stock judging. In addition to the regular instructors, half a dozen experts in animal husbandry, drainage, etc., will be present to render assistance.

No person under twenty-five years of age will be registered in this course.

Residents of the state will pay no fees. For a printed circular and other information concerning the new farmers' course, address W. A. Henry, Dean, Madison, Wis,

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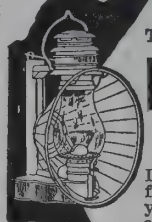
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Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Remit by draft on Chicago or New York, or Post Office or Express Order (never by personal check), addressing Hoard's Dairyman, Fort Atkinson, Wis.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch. each insertion.

Entered at Fort Atkinson, Wisconsin, as second-class matter.

Corn and Cow Peas in Missouri.

Ed. Hoard's Dairyman:—I here send you two pictures of my corn and cow peas and cane and cow peas as you asked me to do some time ago. They were taken just about the right time, just before frost came on.

The picture of the corn and cane is as good as could be. I think the man standing in the cane has an eight foot stick in his hand so you see how much taller the cane is than the stick and the pea vines running over the cane like morning glories. The picture of the corn and cow peas is not quite right as it does not come just down to the ground, it only shows the man down to the knees, but otherwise it shows the corn and cow peas plain. The pea vines can be seen running all over the corn tassels. If you think it will be worth while I will tell you how I raise them together. Wm. H. B.

Concordia, Mo.

We shall be glad to hear from our correspondent on the above subject.

Dairy Questions Answered by Prof. Farrington.

Dividends of Milk and Cream Patrons at the Same Factory.

In regard to the answer of Prof. Farrington as to the advantage that should be given a cream patron over a milk patron of a creamery, I beg to challenge the correctness of the Professor's statement, Granting a loss of .03 in the skim milk and the average test of milk 4, that means a loss of .03 butter fat in every 100 lbs. milk or 4 lbs. butter fat. Then if you have a loss of .03 on 4 lbs. butter fat on 1 lb. butter fat, you would have ¼ of .03=.0075 loss. 64 lbs. butter fat multiplied by .0075 gives 64.48 lbs. against the Professor's 65.92. On 1,000 lbs. butter fat his figures would claim 30 lbs. to be given cream patron, while I claim 7½ lbs. as correct. If the loss was .02, on 1,000 lbs. it would be 5 lbs. * * *

Lockford, Cal.

The statements made in the above letter show that the writer does not fully comprehend the calculations which I made in a former article.

In stating the difference between the payment of milk and of cream patrons at the same factory, I have always tried to make it plain that the three per cent which is added to the butter fat in order to make up for the loss in the skim milk of the milk patron, does not represent a test of .03 (three-hundredths of one per cent fat) in the skim milk, but rather a test of about .12 per cent fat in the skim milk. This test of .12 is three per cent of the fat in milk testing 4 per cent fat. I have assumed that the average test of whole milk as it is received at factories is 4 per cent fat and that the average farm skimming leaves .12 of one per cent fat in the skim milk. Based on this assumption, the loss of .12 is 3 per cent of the fat in milk testing 4 per cent fat.

This three per cent is then added to the total weight of cream delivered to the factory by the cream patrons, and the figures obtained show approximately the amount of fat in the milk from which the cream was skimmed. In this way both the milk patrons and the cream patrons will be paid for the fat in their milk.

This test of .12 in the farm separator skim milk, I am positive, is none too great. Tests of farm separator skim milk may be made which show .03 or less per cent fat in the test bottle, but these tests are undoubtedly incorrect. We have used about twenty different sizes and makes of hand separators at our dairy school every winter for the past five years. They are operated by students who come from farms and I think that it is safe to assume that the work they do will compare well with the hand separator skimming at farms in general. It often happens that they test samples of skim milk and get results which show as low as .03 of one per cent fat, but we try to teach them that the testing was not properly done and show them how they can get more fat out of the skim milk by adding an excess of acid and whirling the bottles at a high speed and in a hot tester.

The statement of this correspondent is, therefore, incorrect, first because the test of .03 per cent fat in skim milk is too low and, second, because his calculation does not take into consideration the paying of the cream patron in any way for the labor of skimming his milk at the farm. When cream is collected and delivered to a factory, there is no need of running a power separator at the factory. This expense is therefore saved when the skimming is done at the farm and the cream patron should receive the benefit of it. As near as I can make out from your correspondent's statement, he has not taken into consideration in his calculations the work which is done by the farmer in skimming his milk at home and the saving which this skimming makes for the factory.

I think a careful study of the calculations as I have given them, if they are considered without confusing the test of .03 per cent fat in the skim milk with the addition of three per cent to the total weight of fat, will show that the milk patron and the cream patron are fairly treated when they are paid on the basis of a three per cent loss in skimming at the farm, that is three per cent of the total fat in the milk, or a skim milk test of 0.12% fat.

Yield of Cheese from Milk.

I have seen letters in Hoard's Dairyman that you have written in regard to paying the patrons of cheese factories by the test. Now it may seem a cheeky thing to say, but I can not agree with you that the test is the correct basis to pay by. I do not doubt but the reports of factories show the yield of cheese to be 2.6 to each pound of fat, but they do not say how much fat went into the whey tank; that is what you ought to find out. Bulletin No. 28 U. S. Agricultural Department gives the chemical composition of whole milk cheese as follows:



CORN AND COW PEAS.



A Stand of Cane and Cow Peas on the Farm of W. H. Bruns, Concordia, Mo.

Water	34.3
Protein	26.1
Fat	33.5
Carbohydrates	2.3
Ash	3.8

This is the average of perhaps five hundred different samples of cheese. Now you make the fat in cheese like this: 1÷2.6 equal 38.46 per cent fat in one pound cheese; the authority quoted says 33.5 per cent is the amount of fat in cheese, a difference of 4.96 per cent. That is not much, but where has it gone? I think into the whey tank, and to be sure about it I want you to experiment and find out if there is not a great waste of fat in making high test milk into cheese.

Another thing you say, or fail to say, is to fix a limit to the amount of fat that can be held in cheese. You reason that whatever the test is, it means 2.6 pounds of cheese for each pound of fat, that is, take 100 pounds of cream that tests 20 per cent fat and make it into cheese and the result would be 20×2.6 or 52 pounds of cheese. That is nonsense, but where is the limit? Now it seems to me that the Station at Madison is for the purpose of experimenting and to give the people some reliable and exact facts about making cheese and not to take reports from factories and pass it around as gospel.

In conclusion I think cheese makers should test their milk, then pay their patrons by weight and allow the high test chaps the privilege of skimming the whey tank." * * * *

Spokeville, Wis.

There is a slight error in your calculations as given and your assumptions in one or two cases are also incorrect.

First, the per cent of fat in one pound of cheese, which, according to your calculation is 38.46, is not accurately figured, as the method you have used for getting these figures shows the amount of fat in the milk which will make 100 pounds of cheese, instead of the fat in 100 pounds of cheese itself. I think by looking over your figures a little more carefully you will notice your error in this particular.

It will take about a thousand pounds of milk to make 100 pounds of cheese, in which, according to the figures you quote from bulletin No. 28 of the U. S. Agricultural Department, the 33.5 pounds of fat will be held. This 33.5 pounds of cheese fat does not represent the entire quantity of fat in a thousand pounds of milk, because about .4 of one per cent fat is lost in the whey. This on 1,000 pounds would amount to 4 pounds, which added to the 33.5 makes 37.5 pounds fat in the 1,000 pounds of milk from which the cheese whose composition is quoted in the U. S. bulletin would be made. This 37.5 per cent is not very much different than the 38.4 which is the fat in the milk from which the cheese is made according to your calculation and then compared with the 33.5 per cent fat in cheese. I think you will agree with me that this difference of one pound in a hundred is not very much when the nature of cheese and its composition are considered; that is to say, cheese made from two lots of 1,000 pounds of milk each will naturally vary at least this much in composition. It is not possible to make cheese having absolutely the same composition each time and you will see by these figures that there is not a difference of 4.9 pounds, which your figures would seem to indicate, but the difference is a little less than one pound.

It has been shown by many careful experiments that the test of whey in cheese making does not vary greatly when cheese is made from milk containing different per cents of fat. This has been shown to be true by repeated experiments and observations made at cheese factories in both Wisconsin and New York. The average test of whey is about .4 per cent fat and this does not vary very much with the richness of the milk. Milk testing 3.0 per cent fat will give whey testing about .4 per cent and the whey from milk testing 6.0 fat will hold about the same amount of fat. You will see, therefore, that the richness of the cheese increases with the richness of the milk and the limit of the amount of fat that cheese will hold is not dependent on the loss of fat in the whey under normal conditions.

The example which you give of 100 pounds of cream testing 20.0 per cent fat is not a fair one because cheese is not commonly made from cream and the figures which I have used in discussing this question are intended only to apply to normal milk and not to absurd conditions and illustrations such as the making of cheese from cream testing 20 per cent.

The figures I gave, which was that one pound of fat in milk will make 2.6 pounds of cheese, is only an approximation, as I have always stated in everything that I have written on this subject. It will, however, give a fair idea of the cheese producing value of milk, because repeated experiments have shown that the richness of normal milk does not influence to any great extent the test of the whey, but the fat in the thin milk and rich milk, excepting about .4 of one per cent, all goes into the cheese and on this account the whey from low testing and from high testing, normal milk does not vary very much in the amount of fat it contains.

Average Test of Wisconsin Factory Milk.

Can you give me any idea about what the average Babcock test is of the milk received at the creameries of your state? * * * *

Niagara, Penn.

A few years ago the dairy school sent representatives to some 50 creameries and 104 cheese factories in the state of Wisconsin. These visits were made during the summer and at each factory considerable information and statistics were obtained. The results of these observations showed that the average test of the milk received at 52 creameries during the summer months was 3.75 per cent fat. This milk represented that sent to the creameries from the 2,189 patrons who contributed about 250,000 pounds of

milk, making over 10,000 pounds of butter per day, to these factories. The average daily amount of milk delivered per patron was about 130 pounds.

During the same season, 104 cheese factories were visited during the months of July, August and September. The total milk received at all these factories was about 430,000 pounds per day, or a little over 4,000 pounds per factory. This milk was contributed by 2,800 patrons at the rate of about 154 pounds of milk per patron. The Babcock test was not used in all these factories but at 56, or about one-half the number of factories which were paying for their milk by the test. The average test of the milk was 3.61 per cent fat. In 54 of these factories the difference between the highest and the lowest test of the milk delivered by the different patrons was in one case 2.4 per cent, and in other cases about one per cent. In one factory the lowest test of the milk of any patron was 2.6 per cent, the average 3.2, and the highest 5.0 per cent. I think investigation will show that the use of the Babcock test in cheese factories will have a tendency to cause the milk to be more uniform in quality from day to day than is the case where no tester is owned at a factory. The results of these observations indicate that the average test of the milk sent to Wisconsin factories during the summer months is very nearly 3.7 per cent fat.

THE WEIGHT OF A PIPETTE FULL OF MILK.

"With my scales for weighing samples of cream it takes about 17.8 c. c. of milk to weigh 18 grams. How is that? Should it not balance with 17.6 c. c. milk? I have just bought a new scale for testing the cream, although formerly I have been using the pipette. If it is going to take so much more cream, than milk, this will make my overchurn very small. I have been getting from 15 to 18 per cent by using the pipette.

If samples are carefully taken and tested correctly, what should be the overchurn on hand separator cream testing 25 per cent fat?"

Rock Falls, Wis. * * *

The Babcock milk test pipette has a capacity of 17.6 c. c.; this is supposed to deliver 17.5 c. c. milk. The one-tenth difference between these two figures includes the milk which clings to the inner walls of the pipette and is not drained out during the time that pipettes are ordinarily allowed to drain when milk is measured with them into the test bottles.

This 17.5 c. c. of milk is supposed to weigh 18 grams. This weight is obtained by multiplying the 17.5 c. c. by 1.032, which, it is assumed, is the average specific gravity of milk.

There is a difference between the weight and the volume of many liquids, and as milk is heavier than water, the specific gravity shows just how much heavier a given quantity of milk is than the same quantity of water at a given temperature. Your Babcock milk test pipette should, therefore, deliver 17.5 c. c. of milk, and this ought to weigh 18 grams. If the pipette is correctly graduated and your scales are correct, you will find this result every time. If you do not get such figures by repeated trials you ought to have either the scales or the pipette tested by a competent person. In many cases the local druggist is able to do this, and if you will take your pipette to him and explain what you want, he will probably have sufficiently delicate scales so that you can test the accuracy of both your scales and your pipette.

The figures already mentioned apply to milk. When you are testing cream the fat in the cream lightens it so much that a pipette full will not weigh 18 grams. I think very likely that it would take 17.8 c. c. of cream to weigh 18 grams, but this will depend entirely on the richness of the cream. The more fat the cream contains the lighter will be a given quantity of it, such as your pipette full.

A cream containing 25 per cent fat weighs about the same as water and a pipette full of such cream will weigh about 17.5 grams; as cream grows richer than this it is lighter than water, but as the fat diminishes it becomes heavier until it reaches its maximum weight as milk. If, according to your scale and pipette, it requires 17.8 c. c. of milk of average quality to weigh 18 grams, either your scales or your pipette need investigation, but I should repeat the weighings with different samples of milk, first warming them to a temperature of about 60° before finally deciding that a mistake has been made in the results.

The overchurn from hand separator cream will range from 18 to 20 per cent. It is a little higher than the overchurn from milk, because when the overchurn is calculated directly from the cream you do not have to take into consideration the fat left in the skim milk, as is the case when you calculate the overchurn from fat in whole milk.

E. H. FARRINGTON.

Wis. Dairy School.

Wisconsin Buttermakers' Premium Fund.

ED. HOARD'S DAIRYMAN:—The premium fund for the Wisconsin Buttermakers' Convention stands as follows:

Previously reported	$818.44
J. B. Ford Company, Wyandotte, Mich.	15.00
Elgin Butter Tub Co., Elgin, Ill	10.00
Empire Cream Separator Co., Chicago, Ill.	10.00
International Cream Separator Co., Chicago, Ill	10.00
Farnsworth, Benjamin & Mills, Boston, Mass	10.00
Chapin & Adams, Boston, Mass	5.00
Coyne Brothers, Chicago, Ill	5.00
Miscellaneous contributions	1.56
Total	$885.00

The above magnificent fund will be divided pro rata among exhibitors who score above 87 points.

Mr. W. D. Collyer will score the butter again in the presence of the buttermakers which excellent opportunity for first hand, expert criticism ought to be worth the personal attendance of all buttermakers who can possibly avail themselves of this exceptional privilege.

Mr. Jules G. Lombard has kindly consented to be present at our convention and again thrill us with his old-time melodies.

Ex-Gov. W. D. Hoard and several other speakers of note will be present during the different sessions.

Ettrick, Wis. F. B. FULMER, Sec.

Johnson Grass.

This grass is a native of the Mediterranean region. It was introduced into the southern states about 1830, and for some time was known by the name of Mean's grass, which name it still retains in some localities. About ten years later it was introduced into Alabama from South Carolina by William Johnson, and has since been quite generally known as Johnson grass. Its botanical name is *Andropogon halapensis*, or *Sorghum halapense*. It is sometimes called Guinea grass, but this name properly belongs to *Panicum maximum*, a tropical forage grass sometimes cultivated in southern Florida.

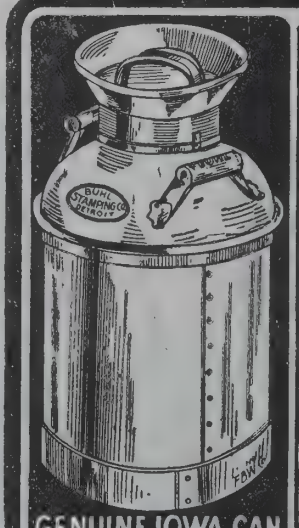
Johnson grass has received considerable attention in Kansas lately. It has been grown in the plats of the Kansas Experiment Station for several seasons, and its behavior in our climate tested. It is a rank-growing perennial, with numerous strong, rather fleshy creeping root-stocks, by which it propagates. The stems and leaves are coarse but quite succulent. It seeds abundantly, and seed can be purchased at all seed houses. If the seed is clean, about one bushel per acre is sufficient for sowing. Johnson grass is chiefly used for hay, for which purpose it should be cut early, before the stems become too old and hard. Usually two or three cuttings can be made. The seed should not be sown until the ground is warm, or it will not germinate well. Johnson grass prefers rich, moist soil, though it will grow in quite a variety of soils. It is injured by severe winters, but the cold winter of 1898-'99 did not entirely kill out the experimental plat, and it quickly recovered from the effects of the cold. It is not a success as a pasture grass, as it is injured by grazing to such an extent that a pasture soon becomes useless, yet the vitality of the root-stocks is such that it is never entirely killed out in this way, and, after a rest, soon recovers from the effects.

Throughout the south, under proper conditions, it is considered an excellent hay grass, and in all parts of Kansas where there is sufficient moisture it will undoubtedly be valuable for the same purpose.

However, it is exceedingly difficult to eradicate the grass on land where it has obtained a foothold, and for this reason it may become a pestiferous weed. Hogs are rather fond of the root-stocks and when confined upon a plat of the grass will destroy it. But on soil adapted to its growth it requires great care to eradicate it. If one wishes to grow Johnson grass, the best plan is to devote a field to the purpose without expecting to subsequently put the field in cultivation. With care it can be confined to this field. After a few years the ground becomes so full of root-stocks that the development is hindered. To rejuvenate a field, it should be plowed and harrowed in the spring, or else thoroughly disked.

All these points should be carefully considered before the grass is given a





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and your worst, are easily found by using *Meloney's* Automatic *Milk Scale.* It registers automatically the daily individual yield of your cows—the records enabling you to rid the dairy of the unprofitable ones. Simple, Practical; no dairyman can afford to be without it.

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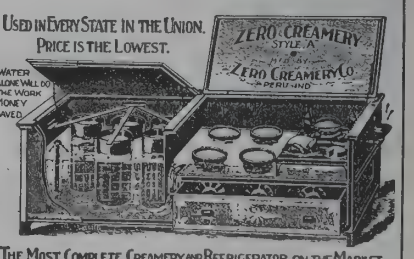
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ZERO CREAMERY COMPANY,
PERU, INDIANA.

trial. As a forage grass it may prove of great value, and the fact that it is difficult to eradicate may be in its favor in those parts of Kansas where it is not easy to grow forage plants successfully. But if tried, great care should be taken to keep it under control. A. S. HITCHCOCK.

Kansas Exp. Sta.

The Sceptic Tank for Disposing of Sewage at Creameries.

ED. HOARD'S DAIRYMAN:—In some one's report of the North Western Dairy Association not long ago, we noticed a speaker brought to the notice of the meeting the matter of creamery sewage, and suggested the tank method. This method is somewhat new, not only to creameries but to private houses in town and country where there is no public system of sewage. We believe the sceptic tank system the only thorough system of sewage disposal for private houses and creameries, and will endeavor to describe and illustrate the system. It may not be out of place to say that the average creamery is one of the greatest dangers and menaces to the public health of the surrounding country in which it is located, and the wonder is that there are not more evidences of typhoid emanating from the polluted surroundings.

We cannot think of anything more putrid than the rotten slime which comes from the separator, and when this spreads itself through the ground and water, the volume of contamination is fearful. Some day folks will awaken to an experience of creamery contamination, and then sanitary measures will be the order of the day. It is however, not the time to lock the stable after the horse is stolen. The time to act is now. The sceptic tank system of sewage is not at all expensive, and is certain in its cleansing and purifying results. Many private houses are adopting them as the only perfect system of private sewage.

We briefly outline the construction and operation of the sceptic tank system and hope it will be of value to those creamery men who are willing and anxious to have their premises in the best possible sanitary condition. Referring to the accompanying cuts it will be seen that the tank, Fig. 1, constructed preferably of brick or stone well bedded in cement to prevent leakage, is built at such a level as to allow the discharge pipe, D, which is of glazed tile to leave it at a depth of not more than twelve inches beneath the surface of the earth. Where the surrounding land is level, this tank may be located quite close to the building, where, if covered with, earth, and nicely sodded over if desired, it will not cause any inconvenience.

If more convenient, it may be placed any distance from the building and the inlet pipe E, laid along a mound or ridge of earth, and covered with earth to protect it from frost; this must have a slight fall from the building too, and must enter the tank at the top as shown. If, however, there is a considerable slope to the land, the tank may be buried beneath the surface, it being borne in mind this pipe D, with its branches, must not be more than twelve inches beneath the surface and must be perfectly level.

From pipe D. about every two feet are run branches of field tiles, see Fig 2, the total contents of which should be equal to the amount of water which will be discharged at each operation of the valve. The band connecting the system of sub-surface tiles should be of iron, solidly cemented into the bottom of the tank to allow of the caulking in of the valve with lead.

This valve is a somewhat recent invention and the only one of its kind which can be set at any level, will open and close atuomatically, and as it needs no adjusting, it can be put in by almost any person. It overcomes the only objection ever made to the sceptic tank system, that where the emptying of the tank depended on some person to pull a plug at regular intervals, replacing it when all the liquids had escaped, it was sometimes forgotten and the tank overflowing caused the pipe between it and the house to fill up, thereby causing a great deal of annoyance and expense.

It will be noticed that a dividing wall is built in the centre of the tank to the height of about two inches from the top, the latter space being left to the free passage of fresh air, and a subdividing partition of planks with small spaces left between to allow the liquid to pass through, is built in compartment No. 1. The object of the latter partition is to keep the bulk of the solids from overflow F. Pipe J, the mouth of which is turned down, permits the entry of fresh air, which passes over the sewerage and up through the soil pipe E to the roof. Manholes G G provide access to both tanks.

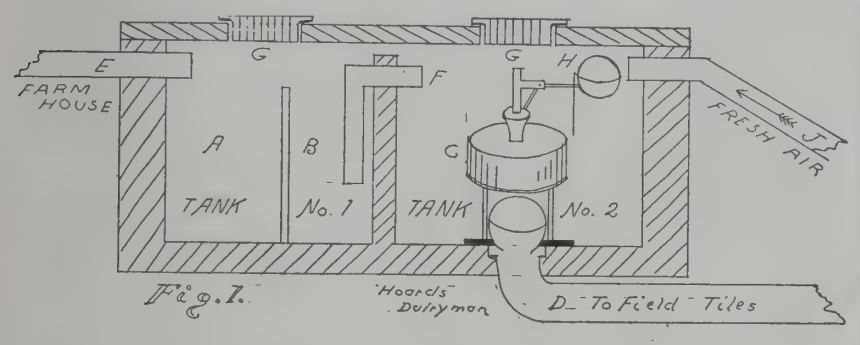
The operation of the tank works this way: All the sewage from the building enters the tank through pipe E, filling compartment No. 1, the solids being compelled to float by the gases generated underneath. When this compartment is filled the liquid overflows through F into compartment No. 2, the valve C, of which is closed.

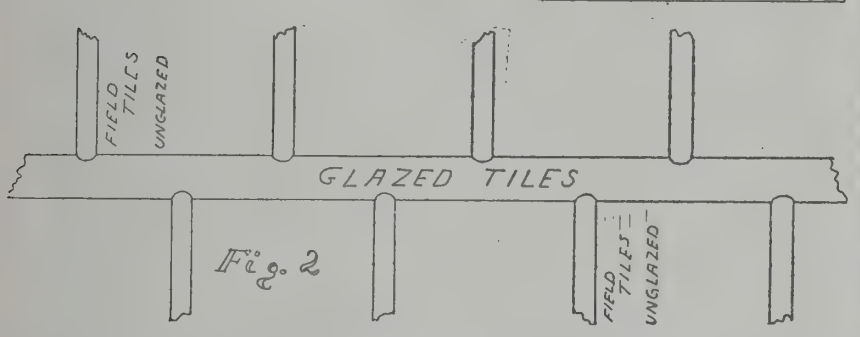
When however the liquid rises to the level at which float H is set, the valve opens, discharging the whole contents of compartment No. 2, be it fifty or five thousand gallons, into the system of subsurface tiles through which it soaks into the earth, there to be taken care of by natural agents. As the valve closes automatically when the tank is nearly empty, it will be seen that sufficient time will be given for that which has just been discharged to soak away before the tank fills again and the operation is repeated.

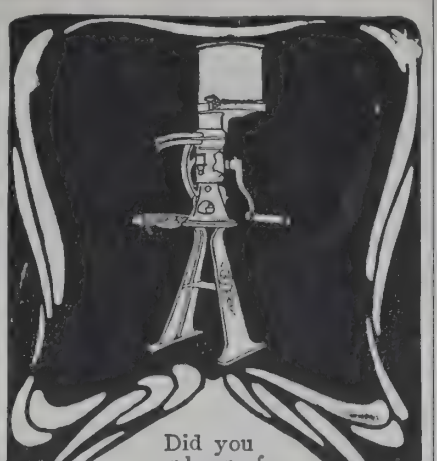
About the solid portion of the sewage retained in compartment No. 1, the value of the system will be appreciated when it is stated that so thorough is the action of the millions of bacteria on this body, causing the almost immediate disintegration and decomposition of everything entering the tank, that tanks when opened after a year's use, and into which the sewage from buildings containing many inmates was emptied, were found to contain not more than two or three pails full of a kind of earthy substance, from which scarcely any odor was perceptible. It must be borne in mind that no disinfectants are necessary with this system, and nothing in the shape of chemicals should ever be allowed to enter the tank if the life of the bacteria, which is so essential to its success, is to be preserved.

As to size, it may be said that for any ordinary creamery a tank six to eight feet long by four to six feet wide, and from three to three and one-half feet high, would be sufficient. J. A. M.

P. E. I.







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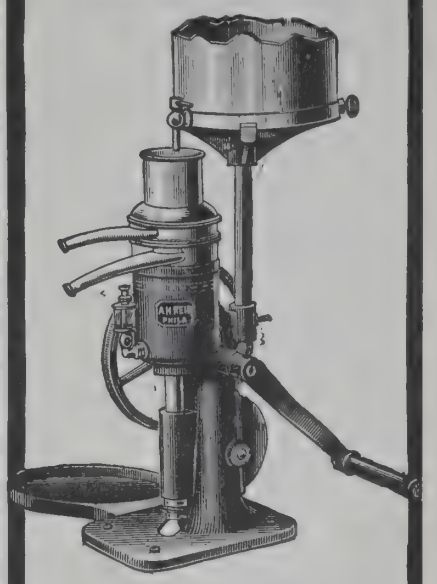
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Sizes run from 150 lbs. to 500 lbs. per hour.

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CREAMERY AND DAIRY SUPPLY CO.,
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NATIONAL Cream Separator

It's a big saver in the dairy. Separates about one gallon a minute, or 450 lbs. in an hour. A light running machine—does quick and close work under all conditions.

The price of the No. 6 National is $100. You take no risk in ordering, as the machine has stood the tests of Experiment Stations, and the severer trial of constant use in private dairies. Hundreds of practical dairymen have proved that the National way makes the dairy pay.

Send for free pamphlet No. 30. It will save you money and increase your profits. Write *now*.

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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of them read dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

AS IT IS IN INDIANA.

C. P. Goodrich took a cow census at Plymouth, Ind., a few weeks since of 50 farmers patrons of a creamery. Note the following facts: The total number of cows was 250: the average cost of keeping per cow was $24.96, the average returns in butter fat per cow was $32.20; the average number of pounds of butter fat per cow was only 166; the average net price was 19.4 cents: the average net profit per cow above cost of feed was $7.24; the average returns for $1 worth of fead was $1.29. The six patrons who read a dairy paper averaged $21 per cow over and above the cost of feed, while the 44 who did not read a dairy paper received only $5.58 per cow above the cost of feed. Does it pay to go without sound dairy reading?

COMING EVENTS.

Vermont Dairymen's Association, Burlington, Jan. 5-7, 1904.

Illinois Dairymen's Association, Greenville, Jan. 5-7, 1904.

Wisconsin Cheese Makers' Association, Milwaukee, Jan. 6-8, 1904.

Ohio Dairymen's Association, Columbus, Jan. 27-29, 1904.

New Jersey Agricultural and Dairy Convention, Trenton, N. J., Jan. 14 15 and 16.

Eastern Ontario Dairymen's Convention, Belleville, Ont., Jan. 5, 6 and 7.

Washington Dairymen's Association, North Yakima, Dec. 29-31.

Massachusetts Creamery Association, Greenfield.

Connecticut Dairymen's Association, Hartford, Jan. 20-21.

Wisconsin Buttermakers' Meeting, Eau Claire, Feb. 2-4, 1904.

Wisconsin Dairymen's Convention at Platteville, Feb. 10–12,1904.

NEW YORK DAIRYMEN WAKING UP.

A trip to Madison, St. Lawrence and other counties in New York last week brought forcible evidence to view that the dairy farmers of that state are arousing themselves concerning the adoption of more intelligent methods in dairying, as never before. More silos were built last season in many sections than had ever previously existed. Greater interest is being manifested in the growing of clover and alfalfa, not alone as a cow food, but also as a means of soil enrichment. We believe the New York and eastern farmers generally have placed too much reliance upon mineral manures.

It was easier and simpler to buy some phosphate or nitrogen or potash, than it was to change the system of tillage and grow more clover. This system left out of consideration the important factor of adding more humus or organic matter to the soil, putting it more nearly in the condition in which it existed when in a state of nature. When we stated before a convention that we used 20 pounds of clover seed to the acre, sowing it with all grain crops, largely as a system of manuring, plowing it under in the fall, we were met with the protest that such an outlay was too expensive. When we replied that the seed cost 12 cents a pound, or $2.40 an acre, and that in no other way could we manure as heavily for so little money, no reply was heard, but we could see that it produced thought. We can hardly understand how it is that in many sections of New York, where clover was largely used in rotation 40 years ago, and greatly depended upon to keep up fertility, that the farmers are sowing but little in later years.

Greater interest than ever is manifested in the construction of healthy and well ventilated stables. New York has a large cow population and they must be kept in the stable fully six months of the year. The old fashioned, dark, badly lighted and ventilated stone stable, still exists in all its glory.

The great and increasing demand for milk by the cities, has set up the accompanying demand for better stables. The farmers feel it, and realize its great importance. They must make sanitary milk, and it is hard to do this in unsanitary stables. And this situation is stirring their thought as never before.

There is also increasing interest felt concerning the great importance of keeping better cows. To this end the New York farmers are paying more attention than ever to the better breeding and development of the special dairy cow.

The beef or dual-purpose craze has not debauched the iudgment of dairy farmers in the Empire state, as it has in some of the western states. It is not considered good economy to "skin a flint for a sixpence, and spoil a knife worth two shillings" or what is the same thing, to sacrifice $25 or $30 worth of milk to get $15 worth of beef, particularly when beef is growing less in price every day.

The dairy idea has had possession of the New York farmers for over a half century and as a result there is greater interest than ever manifested in the breeding and development of the true dairy cow.

These manifest signs of improvement are hailed by HOARD'S DAIRYMAN with great satisfaction.

A VALUABLE ADDRESS.

We hope every reader of the DAIRYMAN read the splendid address of Mr. Winslow, Secretary of the Ayrshire Breeder's Association, which was given on page 1053 of last week's issue of HOARD'S DAIRYMAN.

Mr. Winslow in this address, shows conclusively that he is a profund student of the principles that govern in the breeding of dairy cattle. He works out these principles in an admirable manner, and in doing so adheres faithfully to the lines of the specific dairy temperament. He has been a close student of practical utility, which demands that the dairy cow shall be bred and fed for her highest development as a *dairy* cow. Rightly enough, he has scant patience with faddist notions of mere breed type, when they stand as a bar to the development of the dairy type. For that reason his protest against the show ring notions, that have forced the Ayrshire cow away from her true purpose and best development, is well timed, and should sink deep in the minds and convictions of the breeders of all families of dairy cattle. A few years ago many Holstein breeders were bound to follow in the destructive "general purpose" path with their cattle, which course had well nigh destroyed all the dairy qualities of the Short-horns. To this end, they were selecting the most beefy bulls they could find. HOARD'S DAIRYMAN made a strong protest against such a suicidal course.

The following extract from Mr. Winslow's address is worth repeating:

"The question for Ayrshire breeders to decide is whether they will hold to the Ayrshire model as laid down by Scotch breeders for the show ring, or will change somewhat the ideal type as laid down in the scale of points, and *allow a more decided dairy type* to be the standard of excellence. Are the breeders of Ayrshires to stand still and keep the standard of the Ayrshire cow at a medium grade, or are they ready to push her to the front as a producer?"

To this important question, HOARD'S DAIRYMAN desires to make a single assertion. If the Ayrshire breed or any other breed, is pushed to the front as a producer, the standard or type that shall guide the breeders must be the producing type. Breeders in so many instances are but shallow students of the physiological side of this question.

They cannot see that great universal law of Nature, that function, when left to itself, nearly always fashions form to suit that function or purpose. More than this, no man is wise enough to set bounds or fashion for Nature to follow. Therefore, it is supreme folly for any set of men to attempt to establish an outline of the dairy cow that is not governed at every point by Nature. Nature always works obediently to the domination of the law of purpose or function. All animal forms are fashioned to suit the great central purpose for which they are made to serve; every true breeder of animals *for a purpose* must recognize this law. If we breed cattle for the show ring purpose, artificial and unnatural in outline, then we must be content to accept show ring results, and that alone.

Why should not the Ayrshire breeders do as the Guernsey breeders have done, make a thorough revision of their scale of points so as to bring the same within the meaning and definition of the best practical American idea of what a true dairy cow should be?

VERY TRUE.

Writing on "Some Hints on Cow Comfort" in the *Jersey Bulletin*, E. R. Wood has the following to say concerning the man side of the business:

So true is it that a cow's performance varies radically under different conditions, that the careful man hesitates when a would-be purchaser asks what she can do. Because under Mr. A.'s care and feeding, any individual animal has done so-and-so, is no sign she will do the same for Mr. B., who manages his cows in an entirely different manner.

Supposing Mr. A. assures Mr. B. that the cow he is purchasing of him will make 300 pounds of butter in a year, or that she gives a certain amount of milk night and morning. In her new home she may stand all day in the snow or cold wind of winter, with food not of the best in quality or quantity, yet, if she fails to come up to the standard as set by her former owner, her present one does not hesitate to state that Mr. A. misrepresented the animal to him. It is always safer when selling a cow to say: "She has done so-and-so for me; what she will do for you depends upon how you feed and care for her."

ONE WHO OWNS FINE STOCK

of any kind should, it seems to me, take pride in giving them the best of care. Yet occasionally a man is found who does not do it. Concerning certain owners of choice Jerseys, with pedigrees among the best, and able under favorable circumstances to rank high as performers, I have heard it said: "So-and-so has fine cows, but he does not take care of them."

No one in his right mind would think of throwing dimes, quarters, and larger coins into the gutter to be absolutely lost, yet the man who neglects his stock, allowing it to suffer from cold or for want of adequate food to perform the functions for which it is kept, is doing that very thing.

One of the most frequent things we note among dairy farmers is their lack of faith in liberal feeding of their cows. Somehow they cannot be prevailed upon to believe it will pay to study this feed question, or to provide an abundance of the right kind of food. We believe that fully three-fourths of the patrons of creameries in the land honestly believe it does not pay to feed their cows liberally. As a consequence there are more underfed than overfed cows. Another thing they don't believe in is the balanced ration. A great many do not understand what is meant by a balanced ration.

This is evident all about us in Wisconsin and in other States. Here we have thousands of farmers feeding oats with 9 per cent protein, at 40 cents a bushel. That is a cent and a quarter a pound or $25.00 a ton. They can buy gluten feed containing 27 per cent protein, or four times as much, for the same price per ton, yet they cannot be prevailed upon to sell their oats and buy the gluten.

If they understood this principle of a balanced ration they could not be fooled into such an unwise and wasteful course of feeding as they are continually following. If these farmers were readers and students of their business, if they recognized the fact that a little intelligence pays a big profit, if they would get rid of their silly notions about "book farming" they would save a mint of money they are now throwing away. And then there is the kind of a cow that is best to put this feed into. The same lack of discernment exists there as exists in the feed question. Men are feeding poor cows, wasting the feed, when a little effort and gumption would show them the difficulty. But they will not make the effort. They comfort themselves with the saying; "I guess I am doing as well as my neighbor."

ADVERTISING VS. READING MATTER.

A subscriber in recently writing us complained that we carried too much advertising. It was not so much more reading matter that this man wanted, but less advertising, for the more advertising we carry, the more reading matter we give, as, when our advertising reaches certain limits we add extra pages. The advertising colums of HOARD'S DAIRYMAN should be invaluable to the reader. These columns contain no cheap, trashy advertising. They contain not merely the announcements of some one that has something to sell, but make it possible for you to obtain information regarding an improved method or device that you may or will want. Bear in mind that it is the progressive man of the day that advertises. If a man has anything that you want, it ought to be worth his while to tell you about it,—that's advertising.

The columns of HOARD'S DAIRYMAN enable you to know all that the men who make cream separators can tell you about separators. Every manufacturer who makes a separator, that he thinks a dairyman would buy, has his ad. in HOARD'S DAIRYMAN, for that is where he reaches the buyer; and these columns enable you to know about all the different kinds. We advertise the manufacturers of the best and improved dairy machinery of all kinds; the columns make it easy for you to find anything that you want, and often something you needed, and didn't know you wanted.

If you want to ship your butter, you can find reliable and first-class commission firms in these columns. They also give you all the leading firms making butter color, the best dairy salt, and other supplies. They tell you of the best

manufacturers of gasoline engines, treadpowers, dog powers, etc.

The paper carries to you the special propositions of the great mail order houses, like Montgomery, Ward & Co.; gives you the manufacturers (not dealers) of the leading feeds; tells you where you can get the best milk cans made, and the preparations made for keeping them sweet and wholesome. It tells you of the firms who make roofing and building papers, milk delivery wagons, and retail milk dealers' supplies of every nature. It tells you of good bargains in farm lands. It is a meeting place for those who want help of any kind, and those who seek employment. Parchment paper for butter wrappers is advertised.

Anyone making a pasteurizer worthy of your attention, can afford to tell you about it in these columns; it is the same with dairy tinware and sanitary dairy apparatus of all kinds; with hydraulic rams or hot air pumping machines. These columns give you opportunity to know and study over all the leading and improved cow stalls and stanchions. They tell you of the breeders and what they have to sell in all dairy breeds, and give you a chance to know their special offers when they make them; let you know where you can buy low-down wagons; tell you of all the reliable remedies for sick animals, manufacturers of the best machinery for cutting ensilage and fodder and grinding feed. They introduce you to the leading manufacturers of fencing on the market; inform you where to get stock watering basins, carriers for barn equipment, manure spreaders, and in fact every kind of machinery wanted on the farm.

In short these advertisements constitute a record of all that is old, well tested and approved, and a revelation of whatever is new and worthy of consideration.

If you do not study the advertising columns, how are you to know of these things? Do not think that all the brains and intelligence of the commercial and manufacturing world in these lines has nothing to tell you, that is worth your valuable time to read and listen to. When you reach this point move into town and let one of the boys run the farm; the youngest can fill your place.

Every reader should be interested in the advertising columns. They should be of much convenience and help, and positively worth money to him. It costs the reader nothing. A dollar's worth of postal cards, consumed in the year for information relative to things advertised, may not only effect large saving in money, but give you the satisfaction of having what you want and not having what you don't want, and the still larger satisfaction of knowing about things.

Milk Serum as a Medicine.

Monsieur Blondel of Paris read before the Medical Congress of Madrid an exceedingly interesting article on the physiological and therapeutic properties of a serum made from milk. The results of Monsieur Blondel's conclusions were reached through numerous cases in diverse infectious diseases mostly taken from among the severe ones, in which the proportion of cures obtained showed the great value of the remedy. Under its influence the appetite became sharper, and the general condition was much improved. There was a notable increase of urea, uric acid, and phosphates in the urine. As the serum has a marked action on the nutrition by hastening the process of the oxidation and disassimilation it is particularly indicated against gout. Administered the day following the attack of this disease it caused a new crisis within twenty-four hours with an enormous discharge of uric acid. The immediate effect of the subcutaneous injection of milk serum is the lessening of the pressure of the blood; on this account Monsieur Blondel found it specially indicated in sufferers from arteriosclerosis, whose stiff, friable blood vessels threatened ruptture. Its application should be progressive to avoid syncope. In 30 patients in the Hospital de' Pitie, the serum administered to subjects suffering from various infections and with temperatures varying from 39° to 31° Cent. produced a lowering temperature which never failed. In pneumonia, typhoid fever and puerperal fever there was a marked lowering of temperature.

The serum is obtained by the rapid coagulation of milk at 30° Cent. by means of an acid, neutralization by soda, and filtering by the Chamberland Porcelaine Bougie.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain sepecific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

An Ohio Ration.

I have a couple of Jersey cows that I would like a ration formulated for from the following: Corn and oats, equal parts by measure, ground together at $1.20 per 100 lbs.; bran, $1.10; middlings, $1.20; oil meal, $1.50; roughage, good clover hay and corn stover, not very good, grown on sandy soil and much of it dried up before cut. These cows get a large basketful of this hay and fodder steamed twice a day. This basket holds a bushel of ear corn and this feed is run through Tornado cutter and they eat it clean; they also have all the dry fodder and hay they will eat. Make your ration for cows weighing from 750 to 900 lbs. just fresh. W. F.
Eaton, Ohio.

It is a pretty difficult proposition to suggest a ration formula where any considerable part of the roughage is "corn stover, not very good," and equally difficult to estimate the weight of a basket full of steamed fodder. We think these cows ought to have about 15 lbs. daily of that good clover hay, and say 4 lbs. of the corn and oat mixture, 2 lbs. bran and 1 lb. oil meal, with a teaspoonful of salt night and morning. This would furnish 1.90 lbs. digestible protein, 8.85 lbs. carbohydrates and .56 lbs. fat. Add to this 6 to 10 lbs. of that inferior corn stover, or as much as each cow will care to eat, and there would seem to be no good reason why they should not do well at the pail.

A Washington (State) Feeding Problem.

I am feeding my grade Jersey cows all the good clover and timothy eay they will eat, some beets and about 6 pounds ground oats and barley per day. Three of them are nearly fresh, two more coming in soon, give on an average 20 to 24 pounds of milk a day, each. Not being satisfied with results I want you to formulate a balanced ration, as near as possible, out of following:
Hay, barley and oats at $1.25; bran, $1.10; oil meal, $1.75 per 100 lbs.
Would it be to good advantage to feed ground wheat that is mixed with vetches and wild oats to cows, or would it better be used for hogs and chickens? SUBSCRIBER.
Washington.

We estimate that these cows are receiving not to exceed 1½ lbs. of digestible protein daily, which is about enough to suffice for 20 lbs. of 3 per cent milk. We suggest that the amount of protein be increased by adding 1 lb. of oil meal daily for the lightest milkers and 1½ to 2 lbs. for those giving 25 lbs. or more of milk.

Whether the mixed grains mentioned would be better than barley and oats would depend upon the amount of vetch seed present. It might be tried in a small way with a part of the herd and results observed for future guidance.

Amount of Cream from Milk.

The same inquirer asks how many quarts of cream can be had from an 8-gallon can of milk testing 4 per cent fat. This, of course, will depend upon how rich a cream is desired. Ordinary market cream usually contains from 20 to 25 per cent fat, while cream for best results in churning should contain not less than 30 to 35 per cent fat. Eight gallons of 4 per cent milk will weigh 68.8 lbs. and contain 2.75 lbs fat, enough to make nearly 6 quarts of cream 22 per cent fat, or 4½ quarts 30 per cent fat.

An Illinois Feeding Inquiry.

Please form me a balanced ratiin for cows weighing about 900 lbs. apiece, which will be fresh in April and May. For feed I have good corn silage and dry brewers grains and mixed hay, mostly clover. Dried brewers grains are $17 a ton. How would it be to buy good clover hay at $8 a ton to feed with the silage and not feed any grain, and how much clover and silage should be fed daily? H. B.
Glenn Ellyn, Ill.

Cows that are to be fresh next spring cannot be expected to be very profitable producers now. If they barely pay for the cost of the feed consumed they may be considered as doing fairly well. Good clover hay contains approximately 46.4 per cent of digestible nutrients, and dried brewers grains, 63.5 per cent. Clover hay at $8 is therefore much cheaper than the dried grains at $17. It does not necessarily follow that silage and clover hay would be the most economical ration, for possibly the cows could not eat enough of the roughage to enable them to produce up to even their present capacity as strippers. If they could be induced to eat 30 lbs. of silage and 12 lbs. of clover hay daily, one ought to expect in return from 10 to 12 lbs. of 5 per cent milk, or say ⅔ of a pound of butter, at an expense for feed of 10½ cents. For cows that can do better than this add 2 to 3 lbs. of the dried grains.

California or Tennessee for Dairying.

Will you be kind enough to advise me through the columns of your paper or by letter, which section of the country is best for dairying, California or Tennessee? Are prices better in California and the west, or are they the same as here in Memphis? Do cows do better in the west than here? A. M. H.
Memphis, Tenn.

Doubtless each locality has some advantages not possessed by the other. Choice dairy products probably bring better prices in San Francisco than in Memphis, but see our market columns for greater certainty. It is safe to say, however, that generally this is a world of compensations, and, as Dr. Holland said years ago, "Cost of worth, is closest neighbor." Where it costs most to produce milk, there milk and butter and cheese usually command the highest prices. Excessive competition or local conditions may for a time supersede this general law, but reaction is almost sure to follow and the pendulum of prices swings to the other extreme, temporarily. On the whole, therefore, it may be said that it is not so much the locality as it is the man, that determines the degree of profit in dairying.

A Query Concerning Silo Construction.

Will you advise me through the columns of your paper if the following idea in silo construction is practicable. I wish to build two silos this spring—about twenty feet in diameter and thirty-six feet high.

Can I build these of two by six pine joists, set edge wise twelve inches from centers, with two by four ties or braces between studs—covering both inside and outside with expanded metal lath and an inch of strong portland cement,

This will certainly be impervious to air and cheap to build. Will it have resistiug power to withstand wind when empty? Would it help to anchor the foot of the studding in cement?
Rockford, Ill. W. C. T.

Silos built as suggested would not be likely to withstand the lateral pressure of the silage, unless reinforced by wooden or other hoops on the outside. If the outside was covered with two thicknesses of half-inch boards with paper between and thoroughly nailed to the studding, and the inside finished as suggested, we should expect very perfect silos. But why not go down to Mr. Gurler's place at De Kalb and take a look at his silos?

How Many Cows on Sixty Acres?

I have a small farm of sixty acres; how many cows can I keep on it? M. J. E.
Buchanan, Mich.

If the entire sixty acres is in productive form, you can, by proper management, keep 25 cows, 2 horses and a limited number of young stock. But to do this one must practice intensive farming, and allow nothing to go to waste, or many square feet of ground to be unproductive. The ordinary farmer would probably limit himself to not more than 15 cows, and rather less than more.

Close Breeding.

I would like to know if it would be injurious to the offspring to use a bull with a cow whose dam was by the same? G. S. S.
Livermore Falls, Me.

Not at all, provided the bull is individually and by inheritance what he ought to be. We believe the true rule ought to be: Use the best bull you can have, regardless of consanguinity. Many of the most noted animals have been the product of mating full brother and sister, or sire or dam with their own offspring. But if there is any weakness or other defect, beware of mating closely related animals.

Prices and Qualities of Oil Meal—A New York Ration.

How much difference should there be in price between two brands of linseed oil meal, which analyze as follows:
No. 1—Protein, 36.70: fat, 8.63; retails at $35.
No. 2—Protein, 32.50; fat, 6.50; retails at $30.
Please formulate a ration for cows in full milk from ensilage made from matured corn with a fair quantity of grain in it. Hay, mixed timothy, red top, some clover, daisies, etc, etc., mixed $10; feed, bran and middlings, $22; oil meal, No.1 $35; No. 2, $30 as in above question. Bran, $20; flour middlings, $24; corn meal, $20: oats, $25.
Fernwood, N. Y. J. D. B.

When we purchase linseed oil meal, it is largely, if not exclusively, for the protein and fat. If, therefore, the two kinds of meal are equally fresh, sweet and palatable, the difference in the prices named correspond almost exactly with the difference in analyses.

The hay mentioned is of such a character that no one would be justified in carrying out its feeding value in figures, but it will probably answer every practical purpose to suggest feeding daily 30 to 40 lbs. silage, 5 to 10 lbs. hay, 4 lbs. bran, 2 lbs. corn meal and one lb. to two lbs. of the oil meal, and in our judgment the No. 2 would prove satisfactory.

Stale Bread for Nebraska Jerseys.

Wheat bran, $12; corn and oats, ground, $16, and prairie hay, $5 per ton. Would you please give ration for dairy thoroughbred Jerseys, 700 to 900 lbs., in different periods of lactation.
Can old dry bread be fed to advantage, and in what proportion? It costs nothing.
We are highly pleased with benefit derived from your paper. R. M.
Norfolk, Neb.

There would seem to be no reason why stale bread, if not moldy, might not be used in limited quantity for feeding milch cows, although we have to confess that there are no recorded experiments on this point. It is our opinion that these cows would respond favorably if there was added to the feeds named 1 lb. to 2 lbs. linseed oil meal daily. In the absence of the succulence furnished by silage or roots, oil meal appears to confer benefits out of all proportion of its mere nutritive value. We therefore suggest for trial, as an average daily allowance for these cows, 3 lbs. stale bread, 3 lbs. bran, 2 lbs. oil meal, and hay *ad libitum*, with salt morning and evening.

Questions in Breeding.

We have in our herd (26 head in all) some very fine full blooded Jersey cows, also some grade Jerseys and 2 full-blooded Jersey bulls, past seven years old, the other one will be one year old this coming spring. We also have 5 heifers we are raising from the old bull, and as we have been raising one or two every year from our best cows, we intend to continue to do so for the improvement of our dairy in the future.

Will ask you (as we have had but very little experience in in-breeding) would it be your advice to dispose of the old bull when the young bull is large enough to take charge of the dairy, or would you keep the old one? The old bull is the sire of the young bull.

I would like to ask also if a full-blooded Jersey bull is bred to a full-blooded Short-horn cow, and then again to this same cow's offspring, and so on, could you ever get a full-blooded Jersey calf? If so, how long would it take?
I say, "never;" my neighbor says, "yes."
Wheeling, W. Va. W. J. L.

See answer to G. S. S., of Maine, where the first question is briefly discussed. If the dam of the young bull is a full-blooded cow, and a satisfactory performer at the pail, the chances are he may be an improvement on his sire. On the other hand, if the dam has more or less native or scrub blood coursing in her veins, the probabilities are that some of the young bull's get will hark back to those ancestors and not prove profitable producers. It is this probability which makes it unwise to use a grade sire, notwithstanding his dam may have been a superior cow.

No animal can be registered in the American Jersey Cattle Club's book that cannot trace an unbroken pedigree through sire and dam to Island bred ancestors, and no number of crosses can make a full blooded Jersey where there is a Short-horn dam in the back ground.

Acid for the Babcock Test.

Will you please tell me whether the sulphuric acid sold here in our drug stores is all right for use in testing milk? If not, what is wrong?
Martin, Tenn. K. C. H.

Have the druggist try the specific gravity of the acid. If it is 1.83 the acid is all right for testing milk; if it is lower than 1.83 it should not be used in the Babcock test.

Electric Light for the Farm.

We have a creek running through this ranch which would furnish ample water power. We are thinking about putting in an electric light plant. Will you please tell us through the DAIRYMAN where we can get the necessary machinery? E. W. McC.
Big Horn, Wy.

Write to the General Electric Co., of Chicago, Ill., or the Fairbanks-Morse Co., of Chicago, Ill., for information on electric apparatus for farm lighting purposes.

Water Power From a Fish Pond.

I have a fish pond that is half an acre in area. I measured the water according to the Weir measurement, and it runs 10 inches by 1 inch, which is a 10 square inch flow. I can use two feet deep of the pond. My race will be one hundred and twenty yards long. I have sixteen feet fall, and use a 16-foot overshot wheel and can get two additional feet fall by lowering the branch, which will give me 16 feet clear fall from the bottom of the race.
McDonough, Ga. J. B. L.

The power would be sufficient to run a 6-horse power silage cutter for between two and three hours; depending on the efficiency of the water wheel, before it would be necessary to allow the pond to refill.

A Half Yearly Herd Statement From Prince Edward Island.

ED. HOARD'S DAIRYMAN:—While our cows are bringing us just now the magnificent profit of 5 cents per day each, and bids fair to be much less by the time this catches the reader's eye, and by the end of January be probably a minus instead of a plus, it has not been always thus, as the tabulated statement hereunto annexed very forcibly shows.

Our statement embraces a half year, or six mouths only, and of course is not a criterion of the yearly profits and losses of the herd. It was not possible to give a yearly statement without much estimating, as no account of the milk product of the herd was taken before June 15th. It could be estimated no doubt, but in that case it would be unfair to set values on the product, for during the months previous to June 15, the milk was fed, fresh from the cows to hogs, and it is difficult to estimate its value used in this way.

For several years past we have been in the habit of feeding the milk in the months of April, May and part of June to our breeding hogs, that is to young pigs from three weeks up. Last spring we made no other use of the milk. All we had was fed the pigs, except what was needed in the house, and no butter was made made till after the fifteenth of June when the milk began to go to the dairy and be weighed. We keep cows because we keep hogs, and we keep hogs because we keep cows.

Most of the cows freshen in the spring and early summer months with one exception, while one failed to freshen at all. The tabulated statement herein given was no simple job to get out, and cost the writer the best part of two days to complete. It is believed to be original, comprehensive and succinct.

Day of Guelph, the greatest authority on hog feeding we have, does not think so either. By the average method of feeding whey by the patron, it is not worth half of 14 cents however.

"Skim milk." Of skim milk, we had 6,366 pounds which we valued at 24 cents, which is probably below its actual value to us, gravity skim milk as it was. It is said that Armour makes his profits by the by-products. We believe we would make very poor showing were it not that we utilized the by-products to the very best advantage. The value of the by-products, whey and skim milk, paid half our feed bill, and if the home-made cheese was included in the by-products, which it legitimately should be, and may be, the by-products of our dairy paid five-sixths of our feed bill. This should be an eye opener to some of our dairymen. These by-products, whey and skim milk, are charged to our hogs at these figures, the same as the meal bought and fed them, while the cheese at 7 cts. is actually lower than sales we have made.

Without the by-products, dairying would be a poor business indeed for us. About 75 cents per cwt. would be what we could get out of the milk either in butter or cheese, creamery or cheese factory. At this price, our cows for the last month or two would as much as ever pay for their feed. At this minute, Dec, 15th, they would not do it at all, as they do not now give milk enough to pay for their feed, let alone a profit. In fact with the additional value of the by-product they are not this minute more than doing it. It costs 11¼ cents per day to feed each cow, and to pay this the cow would need to give nearly 16 pounds per day, at the price for milk alone, 75 cents per cwt.

For these reasons it will be our aim to stop milking our unproductive cows pretty soon now, and only keep on milking those that pay for their feed at some

SIX MONTHS RECORD OF HERD; NATIVES, JUNE 15 TO DECEMBER 15, 1903.
OWNED BY J. A. McDONALD, HERMANVILLE, P. E. I.

	June 15	July 1	August 1	September 1	October 1	November 1	December 15	Total	Cash value
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	
Milk manufactured into butter	1500	741			1573	1900	1260	7074	$51.60
Milk manufactured into cheese at factory		2659	3207	2507	827			9000	67.50
Milk fed to young pigs and used in household	888	600	300	300	400	400	150	3038	22.78
Milk total by months	2388	3900	3307	2807	2800	2300	1410	18912	
Milk per cow per month	34₁	650	661	561	560	460	235		
Milk per cow per day	22.6	21.	21.3	18.7	18.	15.3	15.6		
Cheese, home made, 7 cents per pound.								330	23.10
By-product, whey, 14 cents per cwt.								12359	17.30
By-product, skim milk, 24 cents per cwt.								6366	15.27
Total value									$197.55
Net value milk by months	$24.93	$40.71	$34.53	$29.42	$29.23	$25 01	$14 72		
Net value milk, per cow, per month	3.56	6.79	6.90	5.88	5.84	4.80	2.45		
Net value milk, per cow, per day	0.23	0 22	0.22	0.19	0.19	0.16	0.16		
CHARGES AND EXPENSE									
Pasture	1.50	3.00	2.50	2.50	2.50				
Grain and meal	2.70	5.58	4.65	3.00	3.10	7.50	4.50		
Green feed, roots and roughage,			1.50	3.00	4.50	7.50	5.50		
Total cost feed	4.20	8.58	8.65	8.50	10.10	15.00	10.00		65.03
Total cost feed, per cow	.60	1.43	1.73	1.70	2.02	3.00	1.66		
Total cost feed, per cow, per day	0.04	0.046	0.056	0.056	0.065	0.10	0.111		
Net profit by months	20.73	32.13	25.88	20.92	19.23	9.01	4a72		132.52
Net profit, per cow, per month	2.96	5.36	5.17	4.18	3.82	1.80	0.79		24.08
Net profit, per cow, per day	0.19	0.174	0.164	0.134	0.125	0.06	0.05		

A word of explanation of some of the terms may be necessary. "Milk manufactured into butter." The value of this was based on butter at 20 cents per pound. "Milk manufactured into cheese at factory." This is the net amount paid by factory, which was 75 cents per cwt. of the milk furnished. "Milk fed to young pigs, and used in household." This was valued at 75 cents per cwt., the price which the factory paid. "Total by months" gives the amount of milk of the milking herd in each month. "Milk per cow per day." The average here began at 22.6 and ended at 15.6 lbs., which shows that none of our "natives" are phenomenal milkers; but shows the "staying power" of our cows very well, and that they are at least persistent milkers.

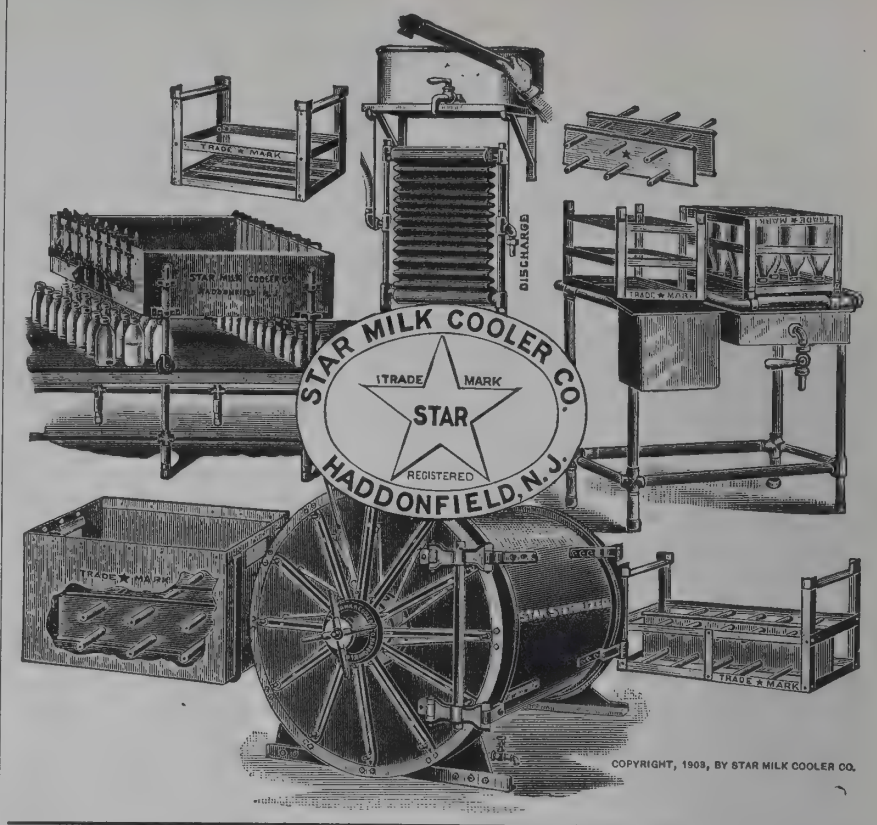
"Cheese home-made," only began after we stopped hauling milk to the factory in early October, something which has already been said in late numbers of the DAIRYMAN. The amount here given is the total amount made and is certainly a bargain at 7 cents per pound, as factory retails for 16 cents. This should be termed, perhaps, a by-product. However, if we did not curd our skim milk, we would have to add twenty-five cents or more for the butter fat it contained, set as it was by gravity process. "By-products,"—Whey, in rating whey at 14 cents per cwt., some may consider it too high. We do not think so, after feeding 12,000 lb. of it in the past six months, and Prof.

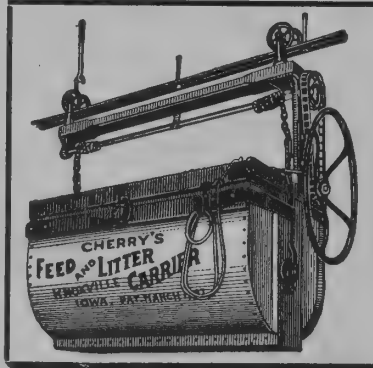
little profit, then with our small herd it will not be worth while attempting to make butter at all.

"Net value per cow per day." We think this is a good showing; June, 23 cents per day, falling to 19 cents per day in October and November, and December 16 cents. The average for the six months is not far from 20 cents per day for each cow in our herd. Coming down to "net profits," our cows show up very much brighter, and it is here that our herd compares with the best. It is not the cow that gives seven or eight thousand pounds milk and eats up the profits, that we want. It is the final balancing up that tells the business man, or business farmer, how he stands. It is not the merchants that sell the most goods that comes out at the end of the year with the largest profits. We know something of this.

CHARGES AND EXPENSE.

"Pasture," this is very low charge, but it is actual nevertheless. We have a neighbor's farm at a nominal rent for pasturage only, and what pasture of our own only interest is charged, and the milking cows charged proportionately with the other kinds of stock, horses, pigs, sheep, etc. "Grain and Meal," this is also a low charge. The secret of this is that by a little foresight, and watching the local newspaper we were enabled to purchase our feed very cheap according to prevailing market prices.





CHERRY'S
Perfected Barn Equipments

Consisting of Manure Carrier, Feed Carrier, Ensilage Carrier, Grain Elevator, Swivel Hay-Carrier, Hay Forks and Barn Door Fixtures. This system of carriers is built for **Heavy Work** and **Durability.** By the use of our **Curves** and **Switches** we can equip any barn. Send for illustrated Catalogue H and price list to

CHERRY MFG. CO.,
KNOXVILLE, IOWA.



It Depends On the Wrapping

whether butter comes sweet to the table. If you would shield yours from the deleterious odors it encounters—you know how quickly butter absorbs odors—and preserve its own delicate flavors, wrap the prints and line boxes and tubs with

Pioneer Brand
Parchment Paper.

It's the ideal butter preserver. Pure vegetable parchment, no smell, no taste. Name of brand printed on sheets so it will not discolor, if desired. But there are parchments and so-called parchments. See that yours is the **Pioneer Brand.** Write us for free samples and book, "Better Butter."

The Paterson Parchment Paper Co.,
37 Eighth Street,
Passaic, N. J.



BUY A HIRED MAN

Hundreds and hundreds of farmers have a Drew Elevated Carrier to carry the manure from the stable to any point in the barnyard, drop it and return automatically to take out another load. It does the work of a hired man without salary or board.

THE DREW ELEVATED CARRIER

is self-operating—easy to run—never out of order and we guarantee it to work perfectly. It will carry ensilage, feed, grain, etc., from one point to another. It is the hired man that is within the reach of every farmer.

WRITE FOR CATALOG

which explains in detail, how it works, what it costs, and why you ought to have one. Write for it to-day.

DREW ELEVATED CARRIER CO.
WATERLOO, WIS., U.S.A.



We want every dealer in and user of

MILK BOTTLE CAPS

to receive our catalogue. We can supply your wants at prices that are right. Write us.

BAVIER NOVELTY CO.,
WINDSOR, CONN

CALIFORNIA FOR 25¢
Big illustrated magazine one year 25 cents. Questions answered.
Western Empire, 72 Times Bldg., Los Angeles.



This
Gem Fibre Box
is the best thing in the world in which to pack butter.
Impervious to moisture, mildew or mould.
Keeps the bad odors out and the sweet flavors in. Lined with best parchment paper throughout. Made in many sizes to suit your needs. **Illustrated Booklet and Sample Free. Write for them.**

THE GEM FIBRE PACKAGE CO.,
Dep E, Gem Bldg. Detroit, Mich.



32 years ago we occupied one room with two clerks and published a catalogue a quarter the size of a hymn-book.

"Grandfather Traded With Us"

One of the greatest joys of this great business is the many kind letters we receive daily from our customers, expressing their pleasure and satisfaction with our goods and methods.

Often the most significant part of the letter is embodied in the few words: "My grandfather traded with you years ago." It is the complete confidence of our customers in our honesty, born of past experience in dealing here, that enables us to hold their continued trade.

One-time special "below cost offerings" to catch an occasional customer, and making up the loss on subsequent orders, would never build a business like ours.

It is the constant saving and steady stream of pleasant business relations which makes our patrons eager to speak a good word for us at every opportunity.

Our prices are 15 to 50 per cent below regular retail figures.

We Want You to Try Us

and test for yourself our ability to please you. Tell us what kind of goods you are interested in and we will send you without charge any of the following illustrated special catalogues quoting wholesale prices. Merely mention the number or letter of the catalogue you want.

100 Artists' Supplies
105 Athletic Goods
110 Blacksmiths' and Machinists' Tools
115 Builders' Hardware and Supplies
120 Carpentor and Builders' Tools and Materials
125 Crockery and Glassware
130 Cutlery
135 Dry Goods
140 Fancy and Novelty Goods
145 Farm Implements
150 Fishing tackle
155 Popularpriced Furniture
160 Harness
165 Jewelry
170 Kitchen Supplies
175 Laces, Embroideries, Ribbons, Trimmings
180 Lamps and Lanterns
185 Linoleums, Carpets and Curtains
190 Men's Hats and Gloves
195 Men's Shoes
200 Men's Wearing Apparel
205 Music and Musical Instruments
210 Notions
215 Saddles and Saddlery
220 Silverware
225 Sporting Goods
230 Stationary and Office Supplies
235 Stoves
240 Toys, Dolls and Games
245 Underwear
250 Vehicles
255 Wagon Makers' Supplies
260 Watches and Clocks
265 Women's Shoes
300 Women's Catalogue (Cloaks, Furs, Suits, Skirts, Waists, Hats, etc.)
B Bicycles
C Baby Carriages
D Dairy Supplies
G Drugs and Patent Medicines
J Telephones and Electrical Goods
K Cameras and Photo Supplies
M Books
R Fancy Grade Furniture
T Trunks
U Youths' and Boy's Clothing
V1 Men's Made-to-order Clothing with samples of fabrics. Suits $10.50 to $16.50
V2 Same as V1 except suit prices $18.00 to $30.00
VO Made-to-order Overcoats with samples
W Men's Ready-Made Clothing
Mackintosh Catalogue
Butterick Fashion Catalogue
GL Grocery List (published every 60 days).

Our Big Catalogue contains over 1100 pages and wholesale prices on Groceries, Dry Goods, Crockery, Hardware, Furniture, Harness, Implements, Vehicles, Clothing (all kinds for Men, Women and Children), Millinery, Musical Instruments, Sewing Machines, Bicycles, Sporting Goods—practically everything that anybody could want.

It also contains freight rates, full instructions for ordering, and tells you everything you might want to know about us.

Ordering is easy from this wonderful book, which costs us almost one dollar apiece to print and send out.

Send for it today and save the profit you pay your dealer. You can get your money back if your purchases are not satisfactory. Fill out this slip, enclosing 15 cents for partial postage as a guarantee of good faith.

Send four 2-cent stamps for our

10 Color Wall Hanger

showing the inside of this building, with the goods and the clerks at work. One of the most complex and complicated pieces of lithography ever attempted. Very interesting and attractive. You can get it for what it cost us—four 2c stamps.



Today, we occupy more than 200 times as much floor space, employ over 3000 people and our catalogue contains over 1100 large pages.

Cut this slip out and send it TODAY

Enclosed find 15 cents for partial postage on Catalogue No. 72, four 2c stamps for Wall Hanger or 20c for both.

Name_____
(Be sure and write very plainly.)

Postoffice_____

Route No._____ County_____ State_____

48

Montgomery Ward & Co.,

Michigan Ave., Madison & Washington Sts., Chicago

Complete satisfaction or money refunded without question.

Our ground corn was purchased delivered at our Station, in ton lots, at $22; ground oats, $20. These were the feeds used, with a little bran and whole oats.

"Green feed, roots and roughage." Green feed was valued at $2.50 per ton, and roots, except potatoes, the same. Roughage consisted of corn fodder while it lasted after being cut, and oats in the sheaf and good hay. Oats in the sheaf is our principal food. The only trouble with sheaf oats is that cows will eat no other feed if they can get sheaf oats, not even hay, sometimes not even meal, and they will eat so much of it that it becomes a dear feed. I actually believe there is no other feed grown under God's sunshine that will compare with sheaf oats for a cow giving milk. It is laxative; it is sweet; it is nourishing; it is wholesome; it is the *creme de la creme* of milk-giving foods,—but it is a dear food,—*dear* in what ever meaning you take for the word.

Who says winter dairying pays better than summer dairying? Not I, I can feed a milk cow for 4c. per day in June, while the same cow requires 11¼c worth of feed in December; 4.6c. per day in July and 10c in November; I would need to get quite an extra price in November and December over June and July, indeed, to make an equal profit.

Our net profits held out very well until we began putting our cows on winter rations November first. Then the fall began. A profit of 12½c. per cow per day, in the month of October, for an average was certainly encouraging. 6c in November was not so bad either. on the whole, the net profits of the six months are satisfactory.

The "finals" show that for one dollar's worth of feed, we were able to get $3 in product from our herd. When cows are giving only milk enough to make a half pound butter or less per day, it is given as a rule by some authorites to feed about as much grain per day, as the cow gives in butter per week. If a cow gives but ½ lb. butter per day, this would mean feeding her 3½ lbs. meal or grain per day.

It is our experience that when a cow shrinks below ½ lb. butter per day, it takes more than 3½ lbs meal per day to keep her from rapidly shrinking below that. So this rule is of no value. A cow needs a good ration every day she is giving milk, and 3½ lbs. meal is but a bagatelle as a part of a winter ration. To base the grain ration therefore on the product of butter, daily, when the cow is is sometime in lactation, and on winter ration, is erroneous. We believe five lbs. of concentrates is the minimum that any cow should be expected to work on in winter, as none of our cows are getting so little as five lbs. of grain, is probably why our direct profits, just now, don't show up better.

Another important question to dairymen is this:

If a cow is not just paying for her feed, is it right to stop feeding and milking her? Of course I mean a cow well along in lactation. Did such a cow give no milk at all, would she not have to be maintained? A maintenance ration means 15 to 20 lbs. dry matter, of which, at least .75 is protein. Does this cost nothing? A maintenance ration for a cow is about 20 lbs. of hay, worth any where from 8c. to 10 or 15c., say 10c. as an average. Here then, is a straight loss, so to speak, of 10c. per day right along. Now, if by the addition of 5c. worth of meal per day, we are able to get 10c. worth of milk, is not the adding of the 5c. worth of meal a good investment? By feeding the hay only, we got no product; by feeding meal in addition, we get 10c., thereby reducing the daily cost of feeding or wintering our cow just one-half. When the cow was a non-producer, she cost us 10c. per day; when we kept her along producing, she cost us but 5c. per day. This is a business proposition that should be easily understood.

What matter, therefore, if our own cows do not pay exactly their daily feed cost? Were they non-producing, as 75% of the cows of the country are this minute, they would be costing us about double what they now are. Another thing: If our cows are not showing any profit, does that mean a loss? By no means. If the cows are about paying their way, are we not getting market prices for our feed, and particularly our roughage, at our very doors? Should we not be at least satisfied if our cows, sheep and pigs pay market prices for our farm raised feed? Yes, and the purchased feed, too? Are there not some indirect profits from feeding our crude products on the farm, rather than market them by the bushel or cwt.? J. A. M.

P. E. I.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Old Cows and Milk Fever.

ED. HOARD'S DAIRYMAN:—I see in the DAIRYMAN of Dec. 18th inst a communication headed, Stock Troubles, and signed W. R. Gilbert, in which he states that it is a matter of common knowledge that young and old cows are seldom attacked with milk fever. In the former I agree with him but the latter is altogether contrary to my experience.

I have kept from 40 to 80 cows for more than 12 years. During that time I suppose that I have lost with milk fever from 12 to 15 fine old cows, none of them under 9 years old and the majority of them more than 10 years old.

Norfolk. Va. F. A. M.

Did You Ever Keep a Record Of Your Cows?

IF SO, you have felt the need of a convenient, simple and handy Record Sheet. We have had so many requests for these Record Sheets that we concluded to get up one that would "fill the long felt want."

DAILY MILK RECORD SHEET FOR TEN COWS

We have a very simple and complete Record Sheet for 10 cows, one month, that is printed on heavy Manilla Paper, we can send postpaid at the following prices:

Price 5c Each	6 for 20c	12 for 30c	25 for 50c

SIZE 10x16 INCHES

We also have a one cow Record Sheet, heavy Manilla paper (one month) that we will mail postpaid

Single Copy 5c	5 for 15c	10 for 25c	25 for 40c

SIZE 6x15 INCHES

HOARD'S DAIRYMAN.
FORT ATKINSON, WIS.



The Distribution of Skim Milk.

It is known that the just complaints of creamery patrons on account of unfair distribution of skim milk are the bane of the separator creamery business. Further disputes among patrons, annoyances to managers, hindrances to the best work of buttermakers, watering the skim milk, and many other ills in the same train are unnecessary, since the

Barber-Coleman Check Pump

has for more than five years been successfully solving the problem in many different creameries. When a patron has dropped in his check he can pump the amount of skim milk called for by his check, less the percentage taken out as cream, so in like proportion to all other checks. Its measuring apparatus is just an ordinary pump which everyone understands and knows how to operate.

Cornish, Curtis & Greene Mfg. Co.,

General Sales Agents De Laval Alpha Separators,
FORT ATKINSON, WIS.

Gasoline Engines.

ED. HOARD'S DAIRYMAN:—Enclosed find my renewal and four new subscribers. You publish a great paper. Am getting my neighbors interested in HOARD'S DAIRYMAN and hope soon to have a good respectable list of readers here for you.

I'm in a quandary about buying a gasoline engine. The DAIRYMAN has had a good deal to say about this kind of power and I am convinced that it is about the only power for a dairy farmer to buy. Can't you tell me the best engine.

Ohio. Z. E. TRAVIT.

We thank our friend for his helping us to an audience in his neighborhood. We want to preach the true dairy gospel everywhere. The backsliders and sinners from the ways of sound, good, practical dairy sense have a strong hold on some communities and the dairy morals need an exhorter, that is "sot" in his faith, to rouse them to even a suspicion that they can do better.

As to gasoline engines we can say that we do not know which is the best, and further might say that the success of a piece of machinery depends not alone on the manufacturer, but as well on the user. A gasoline engine is very simple in its principles and mechanism. The first thing for you to do is to write to different manufacturers for their circulars and prices for different sizes within your needs. Get your material together and take an evening for looking them up. If it is not worth this trouble, you certainly don't need the engine.

The columns of HOARD'S DAIRYMAN contain much gasoline engine advertising, and we may say, without reserve, that they are among the best manufacturers of these goods in the country. In the last few months we have refused advertising of gasoline engines from a number of irresponsible firms. We do our best to keep these columns so they will be of practical value to our readers.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—Today the Quotation Committee of the Elgin Board of Trade reported the official market firm at 24 cents. There were no offerings and no sales.

Prior to the opening of the Call Board, the directors met and re-elected the following officers: President. John Newman; Vice-president, G. H. Gurler, Treasurer, W. W. Sherwin; Secretary, L. B. Judson.

The former markets were:

	Tubs sold.	*Price.*
Dec. 21, 1903	145	24
Dec. 29, 1902	0	29
Dec. 30, 1901	0	24½
Dec. 31, 1900	0	24½
Jan. 4, 1899	0	26½

The output for the district is 440,700 pounds. H. C. B.

Elgin, Ill., Dec. 28, '03.

Paying off a $3,500 Debt.

Mrs. Chas. Lamont tells How the Way was Found Through the Farm Dairy.

The following paper by Mrs. Chas. Lamont of Mooresville, Ind., read at the Indiana State Dairymen's Convention, is of interest as showing how the dairy—whether the butter is churned at home or milk sold to the creamery—will pay off the farm debt if given a chance under intelligent direction. Mrs. Lamont entitles her paper, "Building Up a Dairy." How well the result was accomplished is told as follows:

To save us moving in quest of a suitable position, we, five years ago, went in debt entirely for our farm of seventy acres, as well as for nearly all of the cows, horses and farm implements with which to begin work, and even for feed to carry our stock over the approaching winter. It was rather a large undertaking for us to face a debt of $3,500 for the farm alone, with the very small cash capital we possessed, but we were firmly convinced that we could and would succeed, and strange as it may seem, while lack of knowledge of the dairy business has been our greatest obstacle, we have never really suffered for want of financial aid; perhaps because we have made it our business to discharge all obligations at the time agreed on and so kept our credit good. We had a retail butter route all ready to step into, otherwise we would scarcely have made the venture. We bought a sufficient number of Jersey cows to supply our trade—one here and one there just wherever we could, but mostly from dairymen who were going out of the business, and we put in a cream separator and modern butter-making appliances. There was what seemed an epidemic of abortion among the dairies around us at the time and our small herd had the disease from the first. Several of our cows lost their calves and of these cows some gave very little milk afterward. But the greatest trouble was that so many of them failed to breed, either for a long time or not at all, and these last we had finally to dispose of and replace with others. We sent away for a remedy much advertised for the cure of abortion, but we relied most on keeping the cows clean and disinfecting the premises with lime and carbolic acid, and after some months the disease died out.

We lost two cows from milk fever the first winter. They were allowed to take on too much fat before calving. These losses were far from being encouraging, but they taught us a lesson in care we have not yet forgotten. We do not now allow a cow to go dry more than eight weeks before calving, and keep the bowels loose before and at the time, by the aid of Epsom salts, it necessary. Feed sparingly for several days after calving and give warm bran mashes, and warm the drinking water, and no matter what kind of weather, the cow is kept housed for three or four days after she calves, and now milk fever does not possess the terror for us it once did. The heifer calves are left with the cow not more than three days and then are given the mother's milk for a week or two and are afterward fed warm skim milk until they are as much as six months old. We seldom feed anything in the milk, though at present we are giving a little corn meal alone and sometimes we have used linseed. They soon learn to eat clover hay and grain and we have had little trouble with scours.

Our cow barn is a very ordinary affair, but by the use of whitewash, cemented gutters behind the cows and daily cleaning, we keep it in a fairly sanitary condition; and by using building paper along the inside walls, and other aids, we manage to keep the cows comfortable during the cold weather.

At the end of the first year we built a stave silo just outside the barn and the cows are fed ensilage from November (often before) until they are turned on pasture in May, with clover hay, corn stover and wheat bran, to make up the winter ration. All of the feed, with the exception of bran, is grown on the farm, and no grain is sold off except wheat. We give salt daily, and bed with wheat straw. We allow a little bran or corn at the milking time all through the summer. When the grass gets short in in July, we generally feed some clover hay and an added allowance of grain, until the second crop of clover is ready to pasture, and we also feed some green corn in its season, but here we must confess that too often our cows are let shrink in their milk-giving before the green feed is ready—even more than the heat and the flies are excuse for—and it is our intention to put up a smaller silo next summer and fill with corn for summer feeding. In this way we think we shall be able to provide for our cows better than any other, as well as materially reduce the summer grain bill. The manure is drawn out and spread on clover sod as often as convenient.

We have always kept a registered Jersey sire to head the herd, and we save the heifer calves from what we judge are our best cows. Two-thirds of the herd are at present composed of young animals of our own raising, and we now expect to raise all the cows we may require. While more of our cows freshen in the fall and winter months, we have some of them bring their calves at different seasons for the reason that it helps to keep the butter good and also to keep up a certain supply the year round. The heifers usually freshen when twenty to twenty-four months old. The skim milk left after calves are fed, as well as the buttermilk, is fed to the pigs. Of these, we try to rear twenty-five to thirty-five twice in a year. These are, we find, a profitable combination with the dairy.

We have a weigh scale hanging in the barn, also sheet of card board and pencil, and the milk of each cow is weighed at every milking and a note made of amount, so we know just how much milk each cow gives in a week or a year, and we test the milk occa-

Tables for Reference

In planning the "grain" portion of your ration, consult the following table:

One hundred pounds of			Contains Protein
Ajax Flakes	equals	**135** qts.	**34** lbs.
Gluten Feed	"	80 "	26 "
Wheat Bran	"	200 "	16 "
Wheat Middlings	"	120 "	18 "
Fancy Middlings	"	110 "	19 "
Feed Flour	"	100 "	20 "
Wheat Mixed Feed	"	140 "	17 "
Cottonseed Meal	"	70 "	43 "
Linseed Meal	"	90 "	34 "
Hominy Feed	"	80 "	11 "
Corn	"	60 "	9 "
Corn Meal	"	70 "	9 "
Corn and Cob Meal	"	70 "	8½ "
Clipped Oats	"	90 "	11 "

The table can be used as follows:

	Equals	Contains Protein
100 lbs. Cottonseed Meal	70 qts.	43 lbs.
200 " Bran	400 "	32 "
300 " Corn Meal	210 "	27 "
	680 qts.	102 lbs.

You have a mixture containing 102 lbs. of protein in 680 quarts; hence, to feed the necessary 1½ lbs. of protein, which you do not get in your roughage, you should feed about 10 quarts per day of the above mixture. The carbohydrates will also be brought up to practically the required amount at the same time.

13

The above is a page from our Ajax Flakes Book. If you are interested, we will send you the book, Free. Apply to

CHAPIN & CO.,
1101 Morgan Bldg.,
Buffalo, N. Y.

WISCONSIN FARMERS' INSTITUTE BULLETIN NO. 17

Is now ready for distribution. A 320 page hand-book for the farmer and stockman. Treats of the dairy, sheep and swine husbandry, horse breeding, poultry, fruits, etc.
To Wisconsin farmers—25c for cloth bound and 10c for paper covered copies. Outside of Wisconsin—40c for cloth bound and 25c for paper covered copies.

Address GEO. McKERROW, Supt., Madison, Wis.

A Planet Jr. For Every Garden.

The No. 25 Planet Jr. is a combination tool for large family gardens. The illustration to the left suggests its several uses as Hill and Drill Planter, Single and Double Wheel Hoe, Cultivator and Plow. In planting in hills 4, 6, 8, 12 or 24 inches apart, in drill seeding, killing weeds, scuffling, cultivating, furrowing, ridging, working between and astride the rows, it combines in one tool almost universal usefulness in the garden.
No. 16 Planet Jr. is an admirable Single Wheel Hoe, Cultivator, Rake and Plow. Note its equipment. Its handles adjust for height, the wheel for depth, and by setting the wheel to one side both sides of the row can be cultivated at one passage.



Planet Jr. 1904 Catalogue

shows forty different machines, including Seeders, Single and Double Wheel Hoes, Hand, One and Two Horse Cultivators, Horse Hoes, Beet Sugar Cultivators, etc. Over 100 illustrations, including 16 beautiful half tones of home and foreign farm and garden scenes. Mailed free to all.

S. L. ALLEN & CO.,
Box 1107-D
Philadelphia, Pa.

sionally to find the percentage of butter fat it contains, which enables us to know which are our most profitable cows. By using a corrosive sublimate tablet to each sample, we now collect a sample of each cow's milk for a week or perhaps less in hot weather and then test with little more trouble. We think we get a more correct test than when taken for only one day. (For this method we are indebted to Professor Van Norman.)

The first year's record could not be called a fair test of what our cows have done, but the second year they gave an average of 255 pounds butter each. Last year they averaged 290 pounds each. They will almost, if not quite, reach the 300 pound mark this year, though there are four heifers included in the herd. We have at present fifteen cows and a number of in-calf heifers and calves.

We have much to accomplish yet beore we have either a dairy or a farm we can feel proud of, but as a result of our little herd and its products, our debt, so long like a black cloud hanging over us, is steadily decreasing. Our farm is yearly growing more productive. The herd itself is increasing and we have a ready market for all our butter, and we are a little at a time putting in much needed improvements and planning for more extensive ones in the future.

Picking Stone with a Grub Hook.

ED. HOARD'S DAIRYMAN:—Some time ago one of your contributors inquired about a machine for picking stone. I have found the common grub hook, used by hop growers, a great help. It is similar to the hoe, having four strong tines in place of a blade. With this, a man can pick stone when it is wet or frosty, and when they are sod bound. It saves hands and back, and if manufacturers would only shape the tines a little hollowing, it would be an admirable substitute for the hand, and vastly better than a fork, which is sometimes used. L. M. STJ.

Canajoharie, N. Y.

Handling a Bull.

ED. HOARD'S DAIRYMAN—W. W. G., on page 1013, gives his plan of handling a bull. We are now using our fourth pure bred Holstein-Friesian bull—the present one—Sir Mercedes DeKol 27097, four years old, and our plan has been so successful we would like to give it to others.

Our idea is, that it is partly through fear that a bull first thinks of fight and mastery. While he may be kept in subjection through fear, he would like to be master of those he fears. With that idea in mind, we commence with a bull to not be afraid of our hurting him. We do not encourage him to play with us. Just simply be kind to him. If we want to catch him, offer him something to eat. Never drive, or try to corner him. Cornering a bull is the quickest way to offend him. While we are careful not to offend we never let him think we fear him.

We do not think it best to let him run with the herd, for it is there he is liable to get it into his head that it is his business to protect the herd and will take offence, when if alone he would not. Before he has a chance to get into any bad habits we put a ring in his nose, a heavy, not a light, ring; if you do when he is full grown he will break it; 3-8 wire is light enough; then put him in a strong yard.

When we want to lead him to water we take a small ear of corn, get him to take it from our hand. As he takes the corn we take him by the ring, fasten the staff. We have a soft rope, binding twine rope, fastened to the staff, so if he pulls the staff out of our hand we have the rope to fall back on. We use a short staff about 5 feet long. It is handy and less liable to get broken. We feed from the outside. Open the door only when we want to catch him; in that way he learns to come to the door to be caught.

Our present bull is very playful and has several times got the staff snap out of the ring, but as soon as he finds he is loose stops playing and comes up to see if we have got something for him. No matter how he gets loose, or where he is, as soon as he sees one of us he comes right up to us.

To handle a bull this way we have got to get their confidence and keep it, in getting him where we want him. Sometimes he is lawless, but we get along with that without losing our temper and so does he, and this plan has never failed with any bull we have ever owned. There may be other ways as good as this to handle a bull, but we have never tried any that has worked as well. But always keep on the safe side of a bull. Do not get where he can take the advantage of you. M. F. P.

Marshall, Wis.

DAIRY MARKETS.

ELGIN, Ill., Dec. 28—Butter ruled firm and unchanged on the Board of Trade today, selling at 24c a pound, the sales in this district for the week were 440,700 pounds.

CHICAGO, Ill, Dec. 28—Butter—Steady; creameries, 16@23c; dairies, 14@21c.

Cheese—Steady; Daisies, 10¼@10½c; Twins, 10c; Young Americas, 10½c.

Eggs—Easy; at mark, cases included, 26@27½c.

Cattle—Choice to fancy beeves, 1,200 lbs. up, 5.55@5.75; good to choice heavy steers, 4.85@5.50; fair to good export and shipping steers, 4.00@4.35; medium beef steers, 4.00@4.35; plain beef steers, 3.60@3.90; common to rough, 1,000 to 1,200 lbs. 3.00@3.50; good to fat heifers, 3.60@4.35; good to choice feeders, 3.25@4.00; good to plain stockers and feeders, 1.75@3.25; fair to good cows and heifers, 2.70@3.50; good cutting and fair beef cows, 2.30@2.75; common to good canning cows, 1.35@2.25; bulls, poor to choice, 2.40@4.50; calves, good to fancy 5.75@6.50; calves, common to fair, 2.75@5.00; corn-fed, western steers, 4.00@5.40; Texas bulls and grass steers, 2.25@3.75; fed Texas steers, fair to choice, 3.40@4.50.

Hogs—Good to choice heavy shipping, 4.70@4.85; fair to good heavy packing, 4.60@4.75; rough and common heavy mixed, 4.35@4.55; assorted light, 150 to 175 lbs., 4.60@4.75; good to choice butcher weights, 4.80@4.90; fair to choice light mixed, 4.50@4.70; thin to choice 50 to 120 lbs., 4.20@4.85; stags and rough lots, 3.00@4.30.

MILWAUKEE, Wis., Dec. 28—Butter—Creamery, extras, 24c; firsts, 22@22½c; seconds, 20@21c, renovated (process), 17@18c. whey, 10@12c. Dairy fancy, 19c; lines, fresh, 16@17c; packing stock, 13@15c; grease, 5@6c.

Cheese—American full cream, new: Twins, 10@10½c; Young Americas, 10½@11c; Daisies, 11@11½c; Longhorns, 11@11½c; low grades, 7@9c. Brick, new, fancy, 10@10½c; low grades, 7@9c; Limburger—New, fancy, 10@10½c; off goods, 6@8c Swiss—Drum, choice, 12@12½c; Drum No. 2, 10@11c; block, choice, 11@11½c; block, No. 2, 9@10c.

Eggs—Strictly fresh laid, loss off, cases returned, 27c; strictly fresh laid, at mark, cases returned, 24½@25c; storage, city, Apr. No. 1, 24c; storage, country, 21@22c; dirties and seconds, 20c; checks, 18c.

ST. LOUIS, Mo, Dec., 26—Butter—Extras, 24c; firsts, 21c; seconds, 19c.

Cheese—Young Americas, 11¼c; Twins, 11¼c; Daisies, 11c½; Longhorns 11¾c; Cheddars, 11c.

Eggs—Firm, 28c.

NEW ORLEANS, La., Dec. 23—Butter—Extras, 25@25½c; firsts, 23c; seconds, 19@20c. Ladles, 15@16c.

Cheese—Young Americas, 12c; Twins, 11½c; Daisies, 12c. Limburgers 21c per stone Domestic Swiss 14@16c.

Eggs—Fresh, 31c; storage, 27c.

TOPEKA, Kan., Dec. 26—Butter—Creamery butter, 23½@24½c; Dairy butter, 17½@18½c.

Cheese—Longhorns, 11¼c; Daisy, 10¾@11¼c; Prints, 12c.

NEWARK, N. J., Dec. 28—Butter—Steady; 23c.

Eggs—Firm; fresh extras, 37c.

PHILADELPHIA, Nov. 28—Butter—firmer; good demand; extra western creamery, 23½@24c; nearby prints, 27c.

Eggs—Firm and 2c higher; fresh near by, 34c; at the mark; do western, 34c.

Cheese—Quiet but steady; New York full cream, fancy, 11¾c.

BALTIMORE, Dec. 28—Butter—Receipts of desirable stock have been very light: but as is the case at this season, trade has been slow and uneven except the best grades of fancy creamery or fancy storage. The supply is not large in any line, but sufficient for the moderate demand. Market closes barely steady. Fancy Creamery, 24c; Imitation, 20c; Prints, 26@27c; Storage extras, 22c.

BOSTON, Mass., Dec. 28—Quotations: Butter—Creamery, western, extra, 23@23½c; western firsts, 21c; storage, 20@21c; dairy, 15@19c; western ladle, 14@15½c; box and print 16@25c.

Cheese—Choice, 12c; Wisconsin Twins, 11@11½c.

Eggs—Fancy nearby, 42c; western 25@30c; poor to fair, 25@28c; dirties, 20@23c; refrigerator, 24@29c.

LIVERPOOL, Dec. 28—Butter—Nominal.

Cheese quiet, American finest white, 51s; do colored, 53s, 6d.

BALTIMORE MARKET.

BALTIMORE, Dec 24.—Butter—It is generally the case during Christmas week that there is a lull in the demand for butter; hence, although the receipts of all desirable grades still continue light, they have so far this week proven fully equal to the wants of the trade, and we do not look for any improvement until the New Year's festivities are over; then we hope that the market will resume its normal conditions. Imitation creamery, when the quality is satisfactory, is in fair request. Ladles are in ample supply. Choice to fancy rolls have so far met ready sale. Packing stock is in moderate supply and demand. Blocks and prints are in light receipt; the demand is quite good for all choice to fancy invoices. The market in general closes quiet and barely steady.

Creamery separator, extras, 24c; firsts, 22@23c; seconds, 19@21c: Held creamery, extra, 22c; firsts, 20@21c; seconds, 17@19; imitation creamery, extras, 20c; firsts, 18@19c; seconds, 15@16c; Iowa & N. W. Ladle, extras 16½c.; firsts, 15@15½c; seconds, 13@14c; Roll, Ohio, extras, 16@17c; firsts, 15c; seconds, 13@14c: Creamery blocks (2lbs.) extras, 26@26½c; firsts, 25@25½c; seconds, 23@24c. Creamery prints, (½ lbs.), extra, 27c; firsts, 25@26c; seconds, 23@24c; Md, Va. & Penna prints, extras, 25@26c; firsts, 23@24c; seconds, 18@22c. Renovated butter, extras, 19c; firsts, 18c; seconds, 16@17c.

Eggs—Soon after our last issue, owing to very light receipts of all desirable stock of good, healthy demand, there was a sharp advance and the market was kept quite bare of all attractive offerings; but to-day with increased receipts and less active demand, there is an easier feeling prevailing and lower prices are looked for at any time, the market closes barely steady at 33 cents.

301 Exchange Place. G. M. LAMB & BROS.

SAN FRANCISCO MARKET.

SAN FRANCISCO, Dec. 24—Large supplies and a slow and cautious demand had a weakening influence upon the general butter market yesterday and an easy undertone was apparent in values for all lines. Really fancy creamery grades were freely offered in round lots at the 26c rate, only small parcels of the favored brands bringing the maximum quotation. Buyers, however, limited their orders to absolute requirements and the market closed with a heavy carry-over on hand. The market continued heavily burdened with cheap stock and was depressed, as holders were unable to force any outlet, although willing to accept almost any reasonable price. The easiness in the fresh lines has caused the demand for storage stock to cease, as the ruling rates for the former are comparatively lower than the values for held goods. The market for eggs was freely supplied and the top quotation for ranch was an outside price for the very finest whites. The demand was of moderate volume Cheese remained as previously quoted.

Receipts yesterday aggregated 42,000 pounds butter, 690 cases eggs and 4,000 pounds of cheese.

Butter—Creamery, extras, 26@27c; good to fancy, 23@25c; dairy, extras, 22@23c; dairy, choice, 19@21c; store, 18@19c; California storage, nominal; eastern creamery, nominal.

Eggs—Ranch, selected large, 40c; good to choice, 35@37½c; store, 30@32½c; California storage, 28@32½c; eastern, 25@30.

Cheese—California creamery, mild, new, extra, 14@15c; mild, new, choice, 13½@14c: Young America, 14@15½c; eastern, New York, Cream, Cheddars and Flats, new, 14½@16c.

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Position Wanted—In a butter or cheese factory by an experienced Danish dairyman. State wages. At the present time in Boston, Mass. Address S. P., care Hoard's Dairyman.

Wanted—One single, and one married man with two grown sons for dairy farm State wages expected. A. J. DAUGHERITY, Streator, Ill. 47-tf

Wanted—A position on farm or dairy. Experienced on farm and good milker. ALBERT VOOGT, 10240 Emerald Ave., Chicago, Ill.

Wanted—Practical dairyman, one who thoroughly understands feeds and feeding and can feed for profit. Must be single, sober, good milker, active, and willing to work. A good place for the right man. State wages wanted, experience and references. H. F. PROBERT, Jackson, Mich.

Milk Route—For Sale. Ill. At cost for cash. Rent 50-acre farm; chance for small creamery; modern machinery. Buy milk, four loads daily. Going west. Address BOX 535, Madison, Wis.

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For Sale—One Low-Down Milk Wagon; one De Laval Hand Separator; one Star Milk Cooler. All as good as new. Will exchange for registered Guernsey heifers or good work horses. J. R. HUSTON, Dayton, Ohio. 46-4

Guernsey Cattle—All ages, both sexes for sale. Cir. free. CLOVER KNOLL GUERNSEY HERD, Orangeville, Pa. M. Sager, Supt. 41-tf

For Sale or Rent—Dairy farm of 200 acres, 90 improved. $1.50 per hundred for milk year around. Address J. P. SOUTHARD, Harbor Springs, Mich. 42-10

For Sale—10 cheese factories, 5 farms 40 to 160 acres, saloon, dance hall and store. FRED HADLER, 775 Ida St., Appleton, Wis. 43-tf

For Sale—Cheese factory, complete. M. S. MORSE, Williamsfield, Ohio. 45-4

For Sale—Two registered yearling Guernsey bulls. RAY BICKNELL, Ft. Atkinson, Wis. 32-tf

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Wanted—Position on southern dairy by practical up-to-date dairyman. Good milker, and understands care and feeding of stock; also making high-grade butter. K. F. du MAULIN, Chandler, Okla. 47-2

For Sale—Fine home and business. "Model cheese factory, 10-room house and barn, all new. Orchard and small fruit. This business will pay for itself in three years, besides a good living. Good reasons for selling. Price $3,500. One-half mile from R. R. station, grand roads past the house. J. B. CAMERON, R. F. D., Swanton, O.

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Market Milk.

[Paper by R. A. PEARSON, Professor of Dairy Industry, Cornell University, N. Y. State Dairymen's Association, Ogdensburg, Dec. 9. 1903.

The rapid increase of the demand for market milk is shown in no better way than by the extension each year of milk transportation service into territory farther and farther from the cities. According to official statistics, 105 miles is the average length of the farthest hauls of milk into 34 of the largest cities of this country, and 6 of these cities receive milk from points distant 200 miles or more. New York City and Philadelphia are now drawing milk from points in the extreme northern and western part of this state and many miles beyond the most distant places from which their milk supply was received only a few years ago. The demand for market milk has become so great that butter factories and cheese factories have been crowded from districts where they have long been established, because the milk they would use is now turned to the cities. In this way the character of dairy work has been transformed over a considerable part of our state and so long as the cities continue to increase in number and size, we may expect the transformation of dairying to take place over a constantly enlarging territory. Certainly, we have not yet found the farthest point from which market milk can be shipped.

The production and handling of market milk is a very important industry in New York State, and its importance is increasing daily. It is stated on good authority that one-third of all the cows in the country are producing milk to be consumed in its natural form. We may add that in no state is this branch of dairying of greater importance than our own.

There are many unsolved problems in connection with this growing industry. Some of them are being worked out slowly by practical experience, and by careful, scientific experiments and observations. Others are still mysteries that we recognize but cannot understand. They all have to do with the great question, how to economically produce and market milk, and the question is not materially different whether the milk be for the market or the factory.

Milk must be produced before it is marketed, so we will first briefly consider this branch of the business. It goes without saying that we want to produce good milk. Those who are indifferent upon this point fail to appreciate the great responsibility of their work and need to have it impressed upon them that milk is our most delicate food product and, unlike most other foods, it is almost always used raw. Gross carelessness, ignorance or neglect on the part of the dairyman may endanger human lives. The production of a uniformly good milk results in an immediate advantage to the individual producer and to dairymen as a class, because every gallon of good milk tends to enlarge the market, while every gallon of poor milk or bad milk tends to lessen the market. The dairyman who establishes a reputation for the high quality of milk he produces will seldom lack for a profitable outlet. Sometimes it seems to be hard to get a fair price for high grade milk, but so many are doing it that the possibility is plainly shown.

In the main, the old doctrines regarding the production of wholesome milk remain true. Cleanliness continues to be the great need. Its neglect is the chief drawback of dairying in too many places. Neither the scientist nor the inventor has been able to suggest any measure to replace cleanliness in dairy work. It may come, but it has not yet. Aeration, straining, filtering, clarifying and pasteurizing are only ways of partially reducing the effects of contamination that should not have occurred, and the benefits of some of these forms of treatment are vastly overestimated. The fact is, that good, reliable milk cannot be produced in a dairy where cleanliness does not rule.

Bacteria and dirt are close friends. Wherever dirt goes bacteria go, and the moment they get into warm milk, their objectionable work begins. The more dirt the more bacteria and the worse the contamination. Fraser has shown that from 22 to 90 times as much dirt falls into the milking pail from a soiled udder as from a cleaned udder, and Stocking has shown that by the use of a partially covered milk pail about two-thirds of the dirt that would fall into the milk during milking, is excluded. The special milking pail devised by Dr. Freeman, of New York, is probably the best for this purpose.

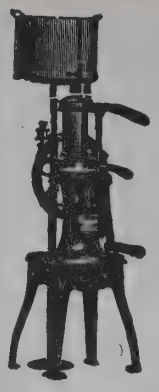
By following cleanly methods, the number of bacteria finding their way into milk can be reduced from millions to a few thousand, and by promptly cooling the milk and holding it at a temperature below 50 deg. F. they will be prevented from rapidly increasing. The idea that milk need not be cooled promptly because of its so-called bactericidal action seems to be shown by recent investigations to be incorrect. As to the proper temperature to which milk should be cooled, Conn has shown that the number of bacteria in milk held at 50 deg. F., will increase only five times in 24 hours, while at 70 deg. F., they will increase 750 times. The need of having cows and persons who handle the milk, in good health, is obvious.

The whole secret of producing good milk can be generalized in a few words: Healthy, clean and well-fed cows having a clean, comfortable stable; healthy, clean and quiet milkers having a disposition to treat the cows at least fairly; sound, clean and sterilized utensils; prompt cooling and protection of the milk. This is the secret that is bringing success to some dairymen while their neighbors fail. These conditions could be introduced easily, cheaply and profitably into thousands of dairies. Too many dairymen make the mistake of thinking that a large outlay of money is necessary before high grade milk can be produced. They are scared off by a phantom. The fact is, many dairies could be changed to a sanitary from an unsanitary condition without the expenditure of a single dollar in cash. More light, more fresh air, better arrangements for bringing the feed and for removing manure, a little time each day to clean the stable and the cows, a coat of fresh whitewash once or twice a year to cover and kill the bacteria on the walls and partitions—these things are not expensive—and perhaps a new ceiling or floor above the cows to exclude dust from the hay mow.

It should be remembered that unsanitary conditions in a dairy produce heavy losses. Many head of stock and many thousand gallons of milk are lost or injured annually on this account. This is shown by scientific experiments, as well as by common observation. Sanitary measures tend to prevent such losses, and they should, therefore, be looked upon as a cheap form of insurance. Some dairymen are running greater risk of loss due to unsanitary conditions than loss by fire, and the improvement of their dairies and methods of dairy work would be a cheaper form of protection against loss than the purchase of a fire insurance policy. There is then a distinct advantage in dollars and cents in the operation of a dairy in a sanitary manner.

The one who produces market milk, must ever be on guard to avoid all conditions that may make his milk unmarketable. These include flavors or taints that may be caused by feeds. In this respect much is said against ensilage, but I am convinced by experience that good ensilage, properly used, will produce good milk. I have seen cases where milk was seriously affected by the use of spoiled ensilage, and I believe such are responsible for the bad name given to ensilage in some quarters. Feeds that would taint the milk should be avoided, but to a limited extent may be used without injury if fed immediately after milking. Care should be taken to use only wholesome feeds and these in proper proportions.

In one respect the marketing of milk is a simple matter and this is in the fact that practically all consumers can be satisfied by one standard. Few people will complain of clean, wholesome milk containing about four per cent fat. In other respects this branch of the market milk business is one of great difficulties.

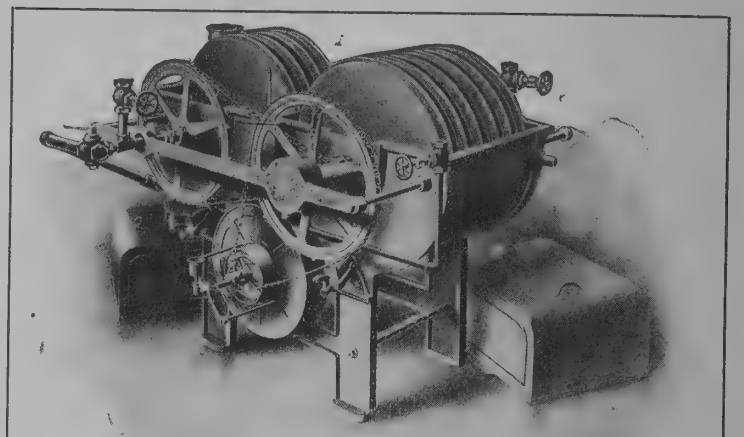


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Milk is such a delicate product and so susceptible to unfavorable conditions that it must be handled with extreme care and despatch.

Sometimes dairymen are too anxious to ship their milk and they send it to the retail market when it would give them better return if disposed of in another way. This results in their own loss as well as depressing the milk market. They should remember that they can take a lower price from a creamery than from a shipping station, and one of the chief reasons is that they may retain the skimmed milk which is valued by many authorities at from one-half to one cent per quart, as a feed for young stock. If it cannot be used for this purpose it has some value as a fertilizer. Furthermore the same extreme care does not have to be exercised to prevent the growth of lactic acid bacteria in milk for the butter or cheese factory as in milk for the market. Then too, the dairyman may be attracted by a temporary high price offered for market milk and he commences to ship, only to find that in a short time the price is reduced to an unprofitable point. Unless milk shipping is firmly established in a locality, it is a serious mistake to close up every other outlet for the milk. But where the business is well established and well conducted it is generally more profitable to the dairyman than any other of the usual ways of disposing of milk.

Milk for the market should be bought from the producers on a basis of its fat content and its sanitary condition; its value as a salable product depends upon these two things. Everyone knows that 4 per cent milk is worth more than 3 per cent to the dealer, and milk that has been carefully handled is worth more than that which has not. Why should not these two desirable factors be paid for at a fair rate? Almost every argument in favor of paying for milk delivered to a factory, on a fat basis, applies with equal force to market milk and there are just as strong arguments in favor of having the value governed also by the sanitary condition. The Babcock test shows the fat content quickly and accurately. An occasional examination of the producing premises supplemented by tasting and smelling the milk when delivered and the simple acid test or the fermentation test, clearly shows the sanitary condition of the milk. A few milk buyers are now purchasing milk on the basis of its fat content and, roughly we may say, its sanitary condition. It is to the dairymen's own interest to have this practice extended.

A western creamery has built up a very large and successful business of making butter from hand separator cream which is shipped from all directions and from some points 500 miles distant. They pay two cents more per pound for butter fat that comes in good condition than for that which comes in bad condition. They make high-class, prize-winning butter. The dairy industry is rapidly developing in their section, showing that their methods are wise. The president of that company told me recently that most patrons deliver the higher price cream, or soon patronize another creamery where there is no discrimination between good and bad. If a creamery finds it profitable to differentiate between good and poor cream at the rate of 6 to 10 cents per hundred pounds of milk, the buyer of market milk would find it profitable also to adopt such a plan.

Dairymen as a class should make greater efforts to build up and protect the good reputation of their products. Steps should be taken to counteract the bad effects of articles occasionally published in the press which serve to condemn all milk, and sometimes in the strongest terms. In an editorial in one of the great city newspapers this sentence recently appeared: "If there is one statement on which the whole medical fraternity of all kinds is agreed, it is that untreated milk is a source of disease at all times." Such a claim is idiotic and it will fall of its own weight. It need not be noticed. But if newspaper condemnation is based even remotely on definite facts then it is to the interest of all dairymen to see that the objectionable conditions are improved so there will be no grounds for a repetition of the complaint.

Each member of this Association should constitute himself a committee of one to do what he can toward lessening the abuses to which the dairy interests are sometimes subjected. When our Secretary wrote his strong letter to a leading dairy paper a few months ago calling attention to the condition of many of the milk cans returned to shippers by city dealers, he rendered a service to the dairymen that is appreciated less than it deserves. That letter, parts of it, or statements commenting upon it, was largely read. It told of the filthy, sometimes indescribable condition in which empty milk cans may arrive at their shipping points from the city and placed the responsibility pretty nearly where it belongs.

It is not putting it too strongly to say such cans are a menace to the public health. Some measures should be taken to require that all cans be cleaned before they are put onto the returning trains and protected while in transit. It would be within reason to go farther and require that they be sterilized always previous to being filled with fresh milk. It seems to me this would be a proper subject for this Association to take up through the appropriate committee. It might render great service to many dairymen of the state as well as to milk consumers by investigating the matter and proposing suitable remedies. A well-conducted effort of this kind would serve to promote "the dairy interests of the state" which is one of the purposes of our organization as given in the act of incorporation.

I believe that we are entering upon an era that will see great improvement in the market milk business. The public is being slowly educated and a discriminating demand is becoming evident. To partly supply this demand a large number of very high class dairies have been established within the last few years and their products are being retailed at prices from 10 to 18 cents per quart. It may be answered that some of these have failed, but from my personal knowledge of a number of them I am satisfied that the failures are more often due to lack of good business management than any other cause.

One of the chief causes for the noticeable change in public opinion is the intelligent interest in the milk supply which is shown by some physicians. We know that many physicians are very ignorant and some are very unreasonable when it comes to dairy questions, but some are well posted upon practical dairying as well as the theory, and they are leavening the entire profession. It is especially worthy of note that medical students are now receiving more instruction on milk than formerly. Milk commissions have been organized by physicians in some cities to encourage the production of high grade milk. They endorse the product of dairies that are conducted in the careful manner prescribed by the commission, and their endorsement assists in developing trade. A step toward better milk is again shown by the fact that in one of our large cities arrangements are now being made toward the purchase of all milk for public institutions under a contract that will require certain sanitary conditions as well as a minimum fat content. Heretofore, the only requirement has been that the milk should contain the legal amount of fat and not be sour.

Most decidedly there is a small, but growing, demand for better market milk and at a fair price. It is to the interest of every dairyman to look well to his own work and see that it is being conducted in the best possible manner. Sanitary principles must be observed, where pure milk is produced or handled, and the time is past for discounting the common sense idea of introducing ordinary cleanly methods into places where our most delicate and most important food is produced and handled.

The DAIRYMAN congratulates Mr. Robt. H. Pethebridge, City Milk Inspector, of St. Louis, on winning the Gold Medal in the butter making contest at the late Missouri Dairymen's Convention at Clinton, Mo. This fact gives evidence that Mr. Pethebridge is the right man in the right place in the important work of inspecting city milk.



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TIME PRIZE To the person sending the largest number of counts before March 1st, we will give $1.00 a day from the time the first count is received until March 1st, 1904. For example, if you send in the largest number of counts and your first count is received 10 days before March 1st, you will receive 10.00; if first count is received 100 days before March 1st you will receive $100.00, so you see it will cost you $1.00 a day for every day you delay.

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EXTRA PRIZE Every person sending 50 cents for a year's subscription to the MAIL ORDER MONTHLY MAGAZINE and one count, will receive a beautiful three color Lithographed Map of the World—one of the latest made, instructive and useful. No home should be without it.

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REMEMBER THE MAIL ORDER MONTHLY MAGAZINE is a family magazine, illustrated. It has a Woman's Page and Farmer's Page, a Fashion Page, and lot of good things for the whole family including the Children, and is well worth the money. Send in your subscription and count at once. The farms we give as prizes are located in the heart of the potato and dairy district in Polk Co. Wisconsin, and will greatly increase in value as the soil is rich and fertile and this section is being well settled.

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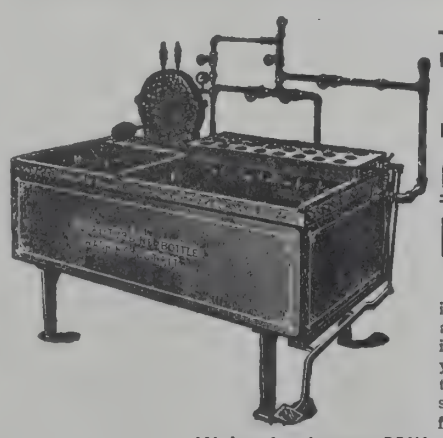
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Note and Comment.

Siloing Shredded Corn —Plea for the Silo.—Siloing Clover and Mixed Grasses —Feeding and Health—Dairying in Indiana.—Dairying and Education.

ED. HOARD'S DAIRYMAN:—The December 18th No. of the DAIRYMAN, is one of much interest and can be read with profit by dairymen generally, though some are away and beyond it in their own ways and practices and as Uncle Theodore puts it, "know it all, and have nothing to forget." While I had supposed the DAIRYMAN to pretty nearly cover the entire field of dairying, I found a man recently who had stopped taking it because "he was taking his milk to a cheese factory and the DAIRYMAN had no factory department." If he were taking the paper now and had read J. A. M's. criticism of Prof. Farrington, in the last number, he would have gotten a lot of information in the "factory department" that would have confirmed him in his belief that educated cheese makers and scientific apparatus were only other ways of "defrauding farmers without detection." Whatever one may think in the matter they cannot help but admire the dash and vim of J. A. M.'s foray upon the Madison citadel, and anxiously await the explosion of Maximite that is pretty sure to follow.

Dr. A. T. Neal, of Delaware, is usually especially well informed in all of his utterances, and the synopsis of his address on page 1011 is very interesting and his figures about that 50 acre cornfield will attract attention from more than Note and Comment. It would at first seem that his 36 bushels to the acre, would be pretty low in yield; and that 20 pounds of cut stover would be too little daily roughage for a winter milch cow, and it would need considerable corn meal and good hay, in addition, to secure as much more needed starch. In certain sections, crimson clover and alfalfa are not as yet to the "manor born," and when it comes to putting that stover into the silo shredded, and wet down ton for ton with water, I think that the northern dairymen will say, let us fill the silo with the maturing corn, filled with its own natural juices, and excuse us from handling a ton of water with each ton of stover.

I am not so sure this wetting down stover in the silo will prove a great success every time. I have never tried it, but my near neighbor recently filled his silo with shredded fodder, and put on 8,000 pounds of water to dampen it, and it is moulding, fire fanging, and is rapidly becoming worthless as feed in spite of his precautions; and what its condition is, deep down in the silo, remains to be seen.

While we have great faith in Dr. Neal's judgment for Delaware, we have doubts about crimson clover, cow peas and the like in the north to go with shredded stover. It looks that if 18 acres of the 50 had been put into silage corn, and made into silage when mature, ears and all, the dairyman would make a distinct gain over the 50 acres of stover and its equal weight of added water, and the dairy of 30 cows would give more milk, and let the other 32 acres of field corn supply the balance of the stock, etc.

Dr. Watson's plea for the silo, on the same page, is a just tribute to the farmer, and the doctor might have added that in the evolution and revolution of the silo, the farmers have led the way all the time in the matter, and the scientists have been following along and explaining things, and for this all praise is due. The Editor of this paper can well remember when Prof. Henry of Wisconsin, was about the only agricultural college man in the country who dared to stand up and say silo, out loud, but the farmer held on, and now he has every scientific institution at his back, aiding him. While giving the scientific man full and deserved credit which is rightfully his, we still hold it has been the farmer who in a practical and yet often blind way has led in the matter of silage, and to him is due, in the larger degree, the discovery, and "made the best use of and in the most economical way, of America's best and most abundant food plant."

I note what A. D. Baker says about putting clover and mixed grasses into the silo, and found that the wetter it was with rain or dew, the better it kept. Several years ago I was at Bushrod Conant's when he was filling his silo with clover. It was quite a rainy day and he was rushing matters, the clover coming direct from the cutter bar of the mower, and both the clover and the men were dripping, but he said very wet clover would not overheat in the silo, so he either cut and filled rainy days or wet down the mass, and he had fine silage as a result, and while he did not know that clover took on a greater heat in siloing because of its extra amount of proteins, he had discovered that water in addition would prevent and make up for what would be otherwise a greater evaporation of moisture as compared with corn silage, a matter now made known in books. Out in Washington they silo the alfalfa in the rainy season when it would be next to impossible to cure it, and I think Adam Stevens of Ellensburg could give the DAIRYMAN a most interesting article on that subject if he would kindly consent.

The editorial on page 1014 about "Putting this and that together," is worth reading twice, and very slowly so as to get its purpose, and absorb it fully, and if read conjointly with the "Feeding standards" a dairyman will be put on the track of securing some excellent thinking matter and practical information to put into his dairy business. I once heard Dr. Smead say that if the farm animals were fed well and intelligently, that he would loose two-thirds of his practice at once, a frank admission to say the least, and he might have added that it was because of this ill prompted feeding that so many try to conceal their ignorance by buying so much lauded "stock foods" at $300 a ton, and making their solemn "Afferdavids" that three feeds a day for a cent, had driven all bad luck away from their farms, doubled the flow of milk, and the like, and they did not have to bother to learn it out of a book, to do it, either.

I think the word "comfortable" stable

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The cow that can DO something is what the farmers want. Eight cows have finished their official year's work making an average of 524 lbs. each. F. H. SCRIBNER, Rosendale, Wis.

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FOR SALE. Two A. J. C. C. Bulls ready for service; also some younger ones. Cows and heifers in calf to richly bred bulls. Write for pedigrees and pric s. We have a few Berkshire Boar Pigs from unregistered sows left; cheap.
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That are old enough for service. One combines the blood of Stoke Pogis 5th, "Exile", "Ida's Rioter", Mary Anne", "Naiad", "Crocus", Allie", and Mollie Garfield", and the other four crosses of "Eurotas", through three of her sons, with some of the best St. Lambert blood.
To induce immediate sale these are priced far below their worth. If in need it is for your interest to write for pedigrees, and to do it TODAY. Ask for Sale List A20.
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J. Q. EMERY & SON, Albion, Wis

comes pretty near covering the whole subject when its definition is fully comprehended and carried out. It seems as if some men tried to see how uncomfortable they can make a stable, and these are the strenuous advocates for exercise for cows and much northwest air. It costs so little to have ventilation, suitable foods, and regular care and attention for the stock, it would seem that the subject matter of the editorial in question would be quickly adopted everywhere, by the cow owners at least.

There are a lot of men who can give President Roosevelt pointers in the Panama business, and are authority on treaties and international affairs, who are unable to feed, or care for a cow intelligently, let alone profit, and while they are wise in matters of state, they decry the need, or necessity of special knowledge or investigation as applied to their farm business, and stoutly maintain that luck and experience are the only ways by which success is attained, and still are asserting all the time that farming does not pay, and no feller in the editor's office can tell them anything about farming.

Uncle Perry Goodrich, going down into Marshall Co., Indiana, taking a cow census and rubbing it in at their dairy meeting, was a good deal like carrying war into an enemy's country, for Indiana is not greatly enamoured of the dairy, and a fat steer comes nearer filling their eye, than does a Jersey cow, albeit there are scores of fine dairymen in the state. I know of no one better equipped than Uncle Perry to stand up and preach the gospel of the true dairy cow, and I am sure his talks there will be of lasting benefit. Nor do I wonder that many who came, "were astonished" at his doctrine, as he set out the contrasts between intelligent and careless dairying, judging them from their own confessions.

Still I do not suppose he found them sinners above all in Jerusalem, for careless work is something that is quite prevalent everywhere, and I dare say that some of his listeners, at the conclusion of this investigation, were in accord with the opinion of the Confederate general in war time, when Uncle Perry was spying, and let him off because he thought him lacking in intellect. I wonder if Uncle Perry had not better tell that war experience in the DAIRYMAN, as one of his investigations that had no connection with dairying.

***

It was a great innovation to bring rural school matters into a dairy convention, as they did in Maine, but I know of no one better qualified to present it, than my old friend, Prof. J. W. Sanborn, and I congratulate him over his presentation of the centralized plan of one, large, graded school in a town, with the rank and the equal of the city schools, and still retaining its home and rural influence. We have referred to this before in the DAIRYMAN, and may again, as it is a practical solution of the question of how shall the mass of country children get the education to which they are entitled, and, as at present, only about three in twenty get.

Our own township is a signal example of the efficient and progressive work of this centralized plan, and the attainments of the scholars, as compared with the district plan, are wonderful. While I cannot say that it solves completely the question of why the boy leaves the farm, it does economically and satisfactorily solve the question of rural education, and is being recognized and adopted in the dairy sections of our state in a four to one ratio, as compared with other sections, and this is why we make a dairy item of it. Good reason, is it not?

Ohio. JOHN GOULD.

DON'T PUT OFF

Seeing your friends and having them join in for a club of subscribers.

Trouble from Feeding Sorghum Silage.

ED. HOARD'S DAIRYMAN: — In the DAIRYMAN of Dec. 18th, there is an article on sorghum and corn silage signed by G. B. T., Ocala, Fla.

The symptoms he noticed correspond exactly with those of sorghum poisoning.

I have frequently seen cattle poisoned from eating young sorghum, while at other times it does not seem to hurt them.

I have never had any experience with sorghum in silo but never knew thrifty, well matured sorghum to hurt cattle.

I do not know of any help for the situation, for a few mouthsfull seem to be as fatal as larger quantities.

Pasadena, Calif. W. W. COKE.

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Cream SEPARATORS All about them and other things for the dairy and creamery. A. H. REID, PHILADELPHIA

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Mercedes Julip's Pietertje Paul 2d advertised last week is sold. Mercedes Julip's Pietertje Paul 3d has arrived and is for sale, sired by the Champion Bull Mercedes Julip's Pietertje Paul. Dam is an in-bred grand-daughter of De Kol 2d. She has just completed an official butter record. Write for tabulated pedigrees, markings, etc., today. First acceptance takes him.

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GREEN VALE HERD Offers Sir Mercedes De Kol, No. 27097, four years old, and bull calves sired by him from choice cows, best families. Write for prices. M. F. PECK & SONS.....MARSHALL, WIS.

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34 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06. 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs. of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs. of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by Gem Pietertje Hengerveld Paul De Kol, or Sir Ormsby De Kol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days; average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd?

For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis. Residence: National Ave., near 40th. Phone, South 1601.

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A. R. O. STOCK FOR SALE.

Both sexes, all ages. Herd headed by Sir Piebe Hengeweld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz. Frank B. Fargo, Lake Mills, Wis.

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OF HOLSTEIN-FRIESIANS

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HOLSTEIN-FRIESIANS

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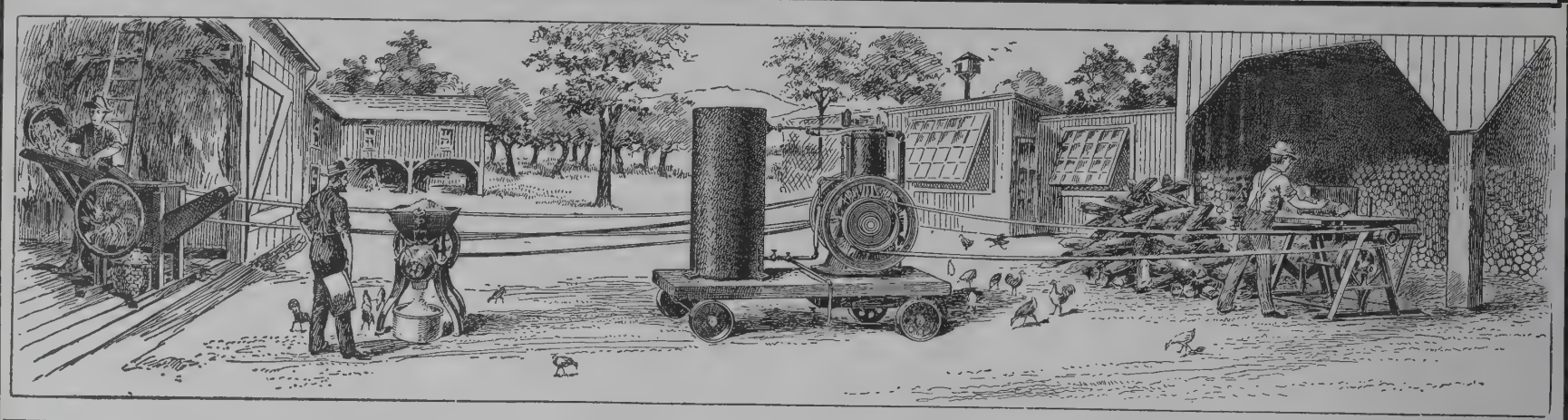
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India, a Government Dairy Operated By Black Convicts.

A Doctor as Dairy Manager—the Customers—Dishonest Officials.

(By George Cecil, London.)

To the stay at home reader who has not penetrated the mysteries of the East the above heading will, perhaps, read as though it were a page from "A thousand and one Nights" or from a book of fairy tales. But the patron of this journal who is under the impression that he is about to be elaborately hoaxed need have no such fears, for though it is admitted that "India, a Government Dairy Operated by Black Convicts" sounds unlikely, the fact nevertheless remains that at Bareilly (an important Civil and Military "station" in the North West provinces of India) a portion of the gaol has been converted into a Government Dairy, the dairymen being drawn from amongst the convicts.

The virtual head of this peculiar dairy is the gaol superintendent, a doctor in the employ of the Government, whose duties consist in looking after the health of the prisoners, awarding them corporal punishment—and seeing that the sentences are duly carried out, keeping an eye to all returns and forms, and, in a word, being responsible for the welfare of the establishment.

It will, under these circumstances, be wondered why a doctor in charge of a gaol must necessarily be a glorified dairy manager. As a matter of fact it does not follow that the doctor in question is any more fit to "run" (in India everything is "run"—from one of Lord Curzon's levees to a regimental cricket-match) the Bareilly Gaol Government Dairy than a fully qualified bootblack is fit to undertake the duties as President. This, however does not deter the powers-that-be from entrusting the medico with the onerous duties in question, it being the policy of Anglo-Indian rulers to make appointments upon principles which are for the most part devoid of common sense. It will perhaps be asked how, under the circumstances, the dairy in question exists. The awswer is that the European understrapper who acts as head gaoler includes amongst his duties looking after the dairy and that, having plenty of leisure, he has no difficulty in mastering every detail of the work. He may thus be described as a qualified dairy manager.

A word as to the activity displayed by the dairy which forms the subject of this article, and which is (so far as the writer is aware) unique—there being no other establishment of this nature in any part of the world. The butter, cream and milk which forms the output of the dairy is advertised in various Anglo-Indian papers, with a view to securing orders from all parts of India. A goodly proportion of such orders arrive every day and are duly executed by the head gaoler; amongst the customers being corpulent "Commissariat" captains who, by dint of accepting secret commissions and bribes, are able to afford luxuries which they would otherwise have to do without; well-to-do "Commissioners"—who are suspected of augmenting their strictly legitimate pay by receiving gratuities for recommending Rajahs and other undeserving Eastern potentates for decorations and recognition at the hands of the Government Indian Staff Corps; Colonels—who prefer to cultivate the size of their waists to improving their minds; and wealthy Calcutta merchants—who believe in the pleasures of the table; and various other representatives of the Anglo-Indian population.

Orders are also received from rich natives, who, on the strength of having passed a few years in England, have imbibed a taste for fresh butter and cream. A fair trade is also done with the English residents of Barielly, much to the disgust of the local "Dudh-Wallahs"—who, with a view to gaining custom for themselves, spread scandalous reports about the so-called impurity of the milk and butter vended at the gaol dairy. They also endeavor to secure custom by drawing attention to the fact that their prices arh far lower than are the rates charged by their competitor. It may be added that their importunities carry little weight wite the white population of Bareilly, since these people know better than to risk their health by purchasing inferior stores, though the half caste element are only too glad to purchase in the cheapest market, preferring to buy typhoid fever infected meat than to pay a higher rate for stores, the excellence of which cannot be questioned.

Although the post of dairy manager does not carry with it a large increase of salary, both the civil surgeon and the Head Gaoler are only too glad to be allowed to have the care of the dairy thrust upon them, for the position carries with it certain perquisites. For instance, when entertaining his friends there is nothing to prevent the Head Gaoler from offering them rich milk and thick cream from the gaol dairy, whilst should he think that they will prefer the gaol dairy butter to that which they are accustomed to in their own homes, it is highly probable he will press upon them pat after pat. In the same way, when entertaining the Lieutenant-Governor at luncheon, it is highly probable that "His Honour" will be generously helped to the produce of the gaol dairy.

Of course it is quite possible that both the Goal Superintendent and the Head Gaoler will debit themselves with the cost of such articles; it is also probable

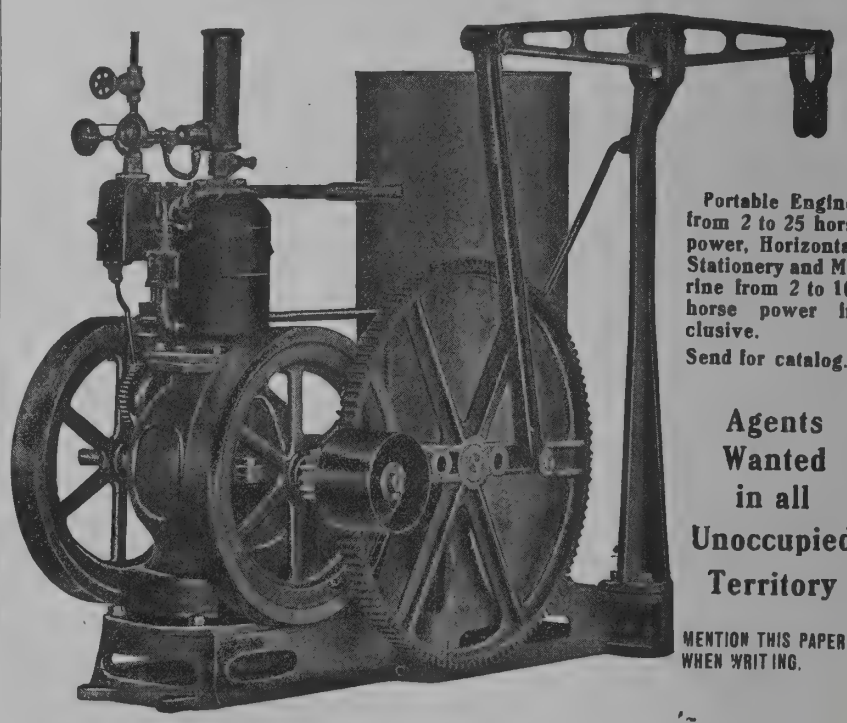
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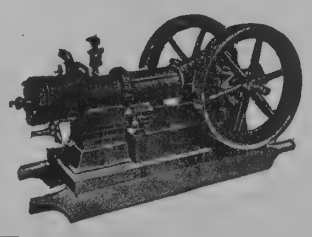
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that they will do no such thing. And when it is borne in mind that in a hot country like India, butter, cream and milk are liable to go bad at a moment's notice, it will readily be understood that the Head Gaoler will find it an easy matter to account for delicacies consumed by himself and his friends as forming part of that which has become unfit for human consumption. And should he desire to stand well with his official superior, the Gaol Superintendent, nothing is easier than for him to adopt the same principle when supplying that worthy.

It may, in conclusion, be pointed out that although the appliances used in the Bareilly Gaol Government dairy are of a more or less primitive nature, they are scrupulously clean—a thing which cannot be said for those utensils used in the ordinary native dairy. And when it is borne in mind that in addition to observing sanitary precautions of a high order, the goods are of first-rate quality, it will readily be understood that all who value their health, make a point of dealing with this remarkable institution.

London, England.

Handling Liquid Manure.

ED. HOARD'S DAIRYMAN:—Referring to the letter of D. M. A., on page 1007 of December DAIRYMAN, would say that I have had a similar need, and not finding anything in the shape of liquid manure hauler and sprinkler on the market within reasonable prices, I invented one and had it made according to drawings and find it to be both successful and cheap, and will advertise as soon as arrangements for manufacture are completed. If D. M. A. will write me, I will put him in the way of getting one immediately.

I have long been convinced that handling manure in the liquid form is the true solution of the manure problem, at least for cow stables, and have planned my stable now being constructed, for the installment of the liquid manure system. A short description may be helpful to D. M. A. and others.

I use a cement gutter back of my four and a half foot stall platform. This gutter is semi-circular in cross section with a ten inch radius, with the upper edges rounded off to an inch radius to prevent chipping. It is level from end to end. Sometimes a cow will stand back in this gutter, but not often, and on the whole no oftener than is the case with sloping-bottom gutters, and much less than where a flat-bottom gutter is used. At the end of this gutter I place an air-tight sluice gate that can be opened and connect the gutter with the cistern or a closed drain leading to it. No strainers or sieves should be used here, but the straining takes place later in the process.

A wooden swab is now made that will fit a section of the gutter, the last three-fourths of an inch being leather or rubber belting to be slightly pliable and yet closely fit the gutter. A long handle for pushing is fitted to the swab. The cow usually voids enough of urine to carry off the excrement and the cut bedding that has fallen back from the stall, at least over the smooth surface of a cement drain with no cracks and corners. A little water can be added however to advantage if an ample cistern has been provided. Now open the sluice gate and go to the other end with the swab, and with a slow, steady push the whole mass runs down into the cistern, leaving a gutter that only needs a little flushing or scrubbing to be clean enough to lie down in.

Having the manure in the cistern where it can all rot thoroughly and rapidly, the strainers and separators can be used between that and the faucet or outlet, so that ordinarily only the liquid manure is drawn away. A larger opening should be left in the cistern however so that the solid matter that remains after draining can be easily removed. To this end the cistern should be double, so that one-half can be filling while the other half is being emptied—at least where the soiling system is used.

It is well also, though not essential, to have the cistern on a hillside where a roadway can be made below it, and the manure sprinkler filled by simply opening a faucet or valve—as locomotives are filled from elevated tanks.

This system has several advantages:

1. The semi-circular gutter is the most sanitary. The gutter is the dirtiest and most dangerous place in the stable, and so ought to be the most cleanable instead of the hardest to clean.

2. The never-ending, dreaded, back-breaking task of lifting up the filthy mass by nasty shovelfuls, fouling one's clothes and polluting the air of the stable, is in great part eliminated and dairying made easier. Not a pound has to be lifted. Gravity does it all from beginning to end.

3. Much time is saved. A few minutes daily suffice to clean the stable.

4. Last, but not least, not an ounce of fertilizer is lost—everything is saved.

The plan you recommend to D. M A., on page 1007, will not work very satisfactorily. The strainers will soon clog, even though put in double as recommended. But the principal objection will be that where many cows are standing in line, the excrement from each is liable to stop up the current in the gutter and you will have a succession of little dams, and but a small portion of the urine will drain off without work each time. Any slope you may give the gutter will help but slightly. A subsidiary drain, connecting with the gutter behind each cow, would remedy this evil, but only by introducing a worse one—a microbe refuge. False bottoms, removable bottoms, etc., in a drain are a "delusion and a snare." Better put your extra money and work into a big double cistern, and enjoy dairy farming ever after.

E. M. H.

Centreview, Mo.

Ayrshire Breeders' Assoctation.

The 29th Annual Meeting of the Ayrshire Breeders' Association was held December 2d in the parlor of Stanwix Hall, Albany, with twenty-five members present and some ten visitors.

The report of the Secretary showed nineteen new members added during the past year, and seven lost by death.

The report of the Treasurer showed a balance of $5,469.

It was voted to continue the Home Dairy Test for the next year.

It was voted to appropriate $1,000 in aid of approved exhibits at the World's Fair at St. Louis in 1904, and a committee was elected to look after the selection of animals for the show. C. M. Winslow, Brandon, Vt., Charles C. Doe, South Newbury, Vt., and Geo. E. Pike, Gouverneur, N. Y.

The scale of points was revised to give a more decided dairy conformation to the Ayrshire cow.

The following officers were elected:

President, Dr. Thomas Turnbull, Jr., Casanova, Vt.

Vice-Presidents, Obediah Brown, Providence, R. I., Charles C. Doe, South Newbury, Vt., E. J. Fletcher, South Lyndeboro, N. H., S. M. Wells, Newington, Conn.

Secretary and Editor, Charles M. Winslow, Brandon, Vt.

Treasurer, N. S. Winsor, Greenville, R. I.

Executive Committee in place of J. O. Magie, deceased, Andy Holt, South Lyndeboro, N. H.

Executive Committee for three years, J. Andrew Casterline, Dover, N. J., J. F. Converse, Woodville, N. Y.

At the opening of the afternoon session an address of welcome was given by Assistant State Commissioner Flanders, which was responded to by President Turnbull.

A paper was read by Rev. E. F. Pember of Bangor, Maine. Subject: "The Ayrshire Cow for New England," and a paper by the Secretary on the "Relation of Structure to Dairy Yield."

A banquet was served in the evening.

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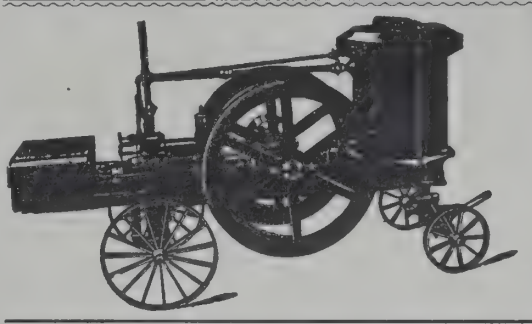
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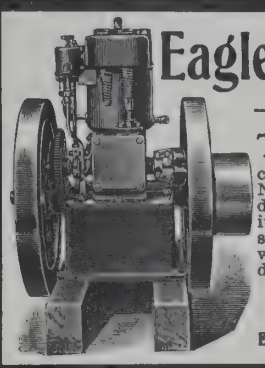
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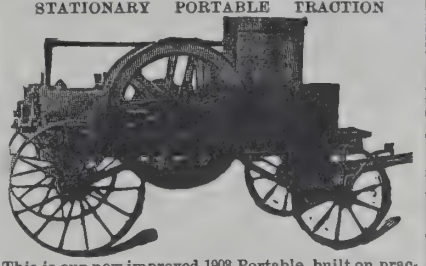
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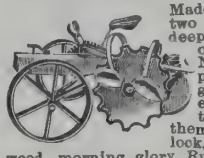


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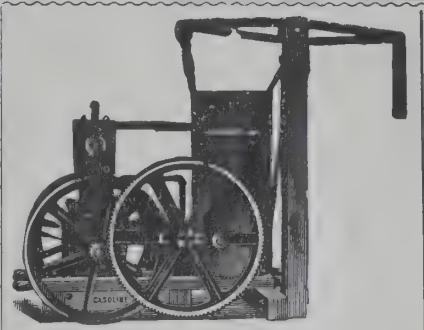
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The Moo-Cow-Moo.

[By Edward Vance Cooke.]

My pa held me up to the moo-cow-moo
So clost I could almost touch,
En I fed him a couple of times, or two
En I wasn't a fraid-cat—*much*,

But ef my papa goes into the house,
En mamma, she goes in, too,
I just keep still, like a little mouse,
Fer the moo-cow-moo might moo!

The moo-cow-moo's got a tail like a rope
En it's raveled down where it grows,
En it's just like feeling a piece of soap
All over the moo cow's nose.

En the moo-cow-moo has lots of fun
Just swinging his tail about;
En he opens his mouth and then I run—
'Cause that's where the moo comes out!

En the moo-cow-moo's got *deers* on his head
En his eyes stick out o' their place,
En the nose o' the moo-cow moo is spread
All over the end of his face.

En his feet is nothing but finger-nails
En his mamma don't keep 'em cut,
En he gives folks milk in water-pails
If he don't keep his handles shut.

'Cause ef you er me pulls the handles, why
The moo-cow-moo says it hurts,
But the hired man he sits down clost by
En squirts en squirts en squirts!

—*Saturday Evening Post.*

CONCERNING OUR ADVERTISERS.

The Foster Steel Stanchion.

An article which is always of interest to up-to-date dairymen is the cow stanchion. The Foster Steel Stanchion, manufactured and sold by Frank H. Battles, Rochester, N. Y., is worthy of special commendation In make it is of steel and malleable iron, combining lightness with all needed strength. Its first important point is the perfect freedom of movement it affords the animal, up and down, right and left. This is secured by its chain fastenings above and below. Another valuable point is its simplicity and convenience for fastening in and releasing the animal. There is no possibility of its becoming accidentally unfastened or being unlocked by the cow, and yet a man with mittened hands has no trouble in locking or unlocking. Fastens with a single motion; no danger of pinching or smashing the fingers, affords the greatest possible comfort to the animal. Any one interested in cow fastenings should not fail to write Mr. Battles at the above address for circular and full particulars.

When You Dream

On a warm summer day of the pleasures of winter driving, it all seems delightful—the spirited horses, the crisp air, the scintillant snow. But when you try to enjoy it, in its season—the real thing—how different. The only sensation you can think of, is that you are cold. The luxurious vehicle only serves to remind you of the comfortable, warm rooms at home; the jingling sleigh bells become a jangle, harsh and irritating. But if you have at your feet a Clark Heater, why, then, it's quite another matter. Your feet are warm. In fact, you are warm all over. There is "no fun" without it. For sale by jobbers everywhere. Manufactured by the Chicago Flexible Shaft Co., LaSalle Ave. and Ontario St., Chicago.

Cause for a Strange Malady.

Ed. Hoard's Dairyman:—I have just read on page 1021 of your paper, of a strange malady and am of the opinion that there is something in the condition of the silage that makes it poisonous. What causes me to think thus is: Some 4 or 5 years ago a dairyman whom I know well, turned his herd of cattle into a field where he had grown sorghum for soiling, had been cut two times and had made quite a good start when the frost came. The cattle began to eat ravenously, but in less than 20 minutes nearly the entire herd was lying down. The owner went and drove them out at once, but six died the same day without bloating scarcely at all.

I wrote to Bureau of Animal Industry at Washington, D. C., about the case, but they had never heard of a similar case.

I have read of one or two since. Now, my opinion is, sorghum can get in a condition to make it very poisonous. Whether it is the frost or not, I of course can't say. J. W. B.

Silverton, O.

An Ohio Feeding Problem.

Stale Bread for Cows.

Ed. Hoard's Dairyman:—Am now in charge of a dairy of 30 to 35 head here at the Home, and would like a ration formulated from the following: roughage, mixed hay (⅓ clover, balance timothy) also corn fodder, planted for fodder only and has good many nubbins in; this is all run through a Tornado cutter and cut quite fine and steamed. We are feeding one part fodder and two of the hay in bulk, and the grain feed, consisting of bread, ship stuff and oil meal is mixed in with as much of this steamed feed as they will eat. Then they have all of the dry hay they will eat besides. This bread consists of crusts and mostly nice, light bread that accumulates from the dining halls. We get two barrels of 75 pounds each, to feed each day. We can get pure bran at about the same price or less than the ship stuff we are feeding, and in my opinion ought to be included largely with this bread. Our herd of cows consists of eight thoroughbred Holsteins, weighing from 1,000 to 1,200 lbs., five or six Shorthorns (fine beef type) of about the same weight, the balance of herd is grades of various kinds and will weigh on an average 1,000 pounds or over. These cows are in all stages of milk, ⅓ of them fresh within the last two months; 20 out of 29 of those in milk now, average 3⅓ gallons per day. Please formulate a ration for cows in full milk, and we will gauge the others. W. F.

National Military Home, Ohio.

In the first place, we recommend discontinuing the practice of mixing the grain with the steamed fodder, so that the amount of grain fed to each cow may be better apportioned to her capacity for using it to good advantage. Then feed all the coarse fodder each cow will eat with relish, and 8 to 10 pounds of grain to the heaviest milkers, remembering that the 5 lbs. of bread is equivalent to only about 3¾ pounds flour. We should prefer good bran to the average "ship stuff" and should expect to use, say, 4 lbs. daily and 2 lbs. oil meal. Watch the effect on



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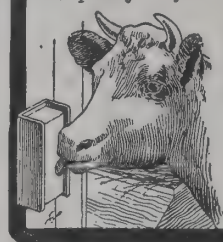
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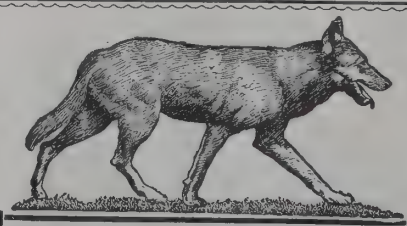
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each cow, and, if practicable, weigh them frequently to ascertain whether they are increasing too much in live weight. If they do thus increase, cut down the allowance of grain. On the contrary, if they do not increase in live weight, and especially if they fall off, the indications are they they could make good use of more grain.

Consult the article on Revised Feeding Standards, page 1014, and the table of analyses on page 772.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Eating the Placenta, Etc.

Is it natural and proper for a cow to eat the placenta when it comes away?

Should a cow be allowed to drink the first milk taken from her after calving?

Is there any positive way of knowing whether a cow is with calf?

Would it be positive proof that a cow 12 years old was with calf, if she had been coming in heat, and then failed to do so, or at least to show it?

Will a cow with calf ever act as though in heat at what would be her first period after service? B. J. P.

Moores Junction, Mich.

ANSWER.

It is not natural for a cow to eat the placenta; as a rule cows in good health will not eat it, nor is it natural for a cow to drink her own milk, especially if it be the first milk (colostrum) which belongs to the calf.

The only positive way to tell whether or not a cow is with calf is to explore through the rectum with your hand. The foetus can be plainly felt by directing your hand toward the right side a little downward at full arm's length.

Indigestion.

I have a three months old calf that is not doing well, acts dumpish: every few days his manure is thin as water, with some gas. He has a humor on his nose and ears. G. S. S.

Livermore Falls, Me.

ANSWER.

Omit the second crop of clover in your ration and see that your feeding utensils are clean; also, see that all other food is of good quality. Give a teaspoonful of bicarbonate of soda in milk twice daily. Physic with 2 table-spoonfuls of castor oil.

You may give a tablespoonful of powdered white oak bard in food twice daily and place the calf in a warm, comfortable stall.

Chronic Diarrhoea.

My horse is a gelding ten years old. He eats fair, but his hair looks rough and he drinks lots of water. He seems dry most of the time. His droppings are very thin, it seems to end with a clear liquid. He has been that way for nearly a year H. W.H.

Barron, Wis.

ANSWER.

If possible ascertain the cause. In long standing cases we generally suspect intestinal worms.

Do not give any food whatever, for at least 12 hours, then give the following at one dose:

Santonin 20 grs., aloes (Barb) 1 oz., oil of turpentine 1 oz., raw linseed oil, 1 pint. After this you may give in moistened food twice daily, 2 teaspoonfulls of the following:

Powdered charcoal, 2 oz, powdered gentain root, 2 oz., dried sulphate of iron, 3 oz. Limit the water to ½ bucket 4 or 5 times daily.

Scours in Calves.

My yearling calves get weak and dumpish-like and then begin to run off at the bowels at a fearful rate. G. H. T.

Cherryvale, Kan.

ANSWER.

Your trouble appears to be in your method of feeding and stabling. Thoroughly cleanse your feeding utensils by washing with soda, and give plenty of light to the stables. Also look after the ventilation, whitewash the walls and disinfect occasionally.

A teaspoonful of bicarbonate of soda in the milk twice daily for each calf, will greatly aid in stopping scours when they first start.

Leaking Milk.

Bought registered Ayrshire in August. Calved 3 weeks ago; has small hole about 1 inch up one of the hind quarters from which milk leaks from about 4 p. m. to milking time. C. S.

Red Deer, Can,

ANSWER.

The opening cannot be closed until the cow is dry, then she must be hobbled and cast, the edges of the wound scarified and brought together with sutures. Dress once daily with any good antiseptic and keep thoroughly clean at all times.

Infection After Abortion.

When a cow has aborted how long is it necessary to keep her from the others, or when is the danger of infection over? E. R.

Boonville, N. Y.

ANSWER.

A cow may carry the germs of abortion for months if she is not properly disinfected; therefore irrigation with disinfecting fluids is absolutely necessary. If a cow has been properly disinfected in this manner, we would consider it advisable to keep her isolated at least 10 days or 2 weeks after abortion has taken place.

Brain Trouble.

Two-months-old Durham calf, while feeding in the morning with others of same bunch, started to run as if scared. By the time it made the circle of the pen it bawled and tail drawn under, muscles all drawn to high tension and twitching. Hind quarters appeared for half hour to be stiff.

Janesville, Wis. E. Z.

ANSWER.

Your calf appears to have an affection of the brain and nervous system, the cause of which may be the presence of parasites. Your case requires the attention of a qualified veterinarian.



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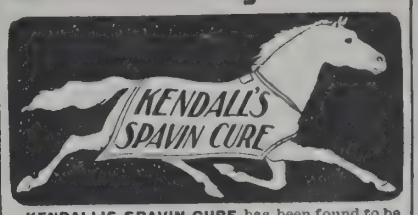
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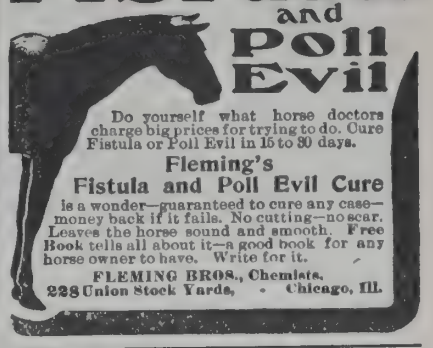
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"SAVE-THE-HORSE" Positively and Permanently Cures BONE and BOG SPAVIN, THOROUGH-PIN, RINGBONE (except low ringbone,) CURB, SPLINT, CAPPED HOCK, WINDPUFF, SHOE BOIL, WEAK and SPRAINED TENDONS and all LAMENESS. Cures without scar, blemish or loss of hair. Horse may work as usual.

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TROY CHEMICAL CO., Troy, N. Y.
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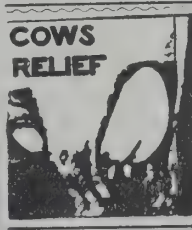


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Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1¼ lb $1.00, postpaid.

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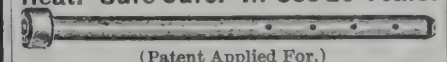
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Write for Pamphlet and Testimonials.
Oldest and best Treatment Extant.
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ABORTION,
Failing to Breed and Bring Cows to Heat. Sure Cure. In Use 20 Years.



(Patent Applied For,)
Hard Rubber Safety Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.
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Put your money to work
It can earn with absolute safety 5%

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AN UNEQUALED PROPOSITION

$5,000
Made by a Beaver Dam farmer in less than a month.

$1,800
Made by a Baraboo paper hanger in less than a week.

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Cleaned up by an Evansville man in one week.

If interested we can furnish names and addresses of these parties and many others who have done equally as well.

We can give a few parties who can secure $1,500 or give security to that amount a very paying business.

Choice locality. We have an article of value and interest to every farmer.

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Sir Richard Carvel 9061, Wm. Thompson Jr., to Hon. Wm. Flinn, Pittsburg, Pa.
B. O. K, 6808, Fred Riethbock to Ed. Heller, Thorp, Wis.
Blendon Lad 9003 McCormick & Edgerly to R. C. & W. D. Phelps, Westerville, O.
Betsey Boy of Riverside 8959, James Forsyth to Charlton Industrial Farm School, Charlton, N. Y.
Champion W.8512, M.M.& E. J. Hollingsworth to Fred S. Davies, Bascobel, Pa.
Captain Somers 6536, Thomas Crane to George W. Harris, Wethersfield, Ct,
Condon 8989, Elmer Sampson 8988, F. S. Gorton to Fred Rietbrock, Milwaukee.
Imp. Chilmark Fawn 8687, V. Everit Macy to A. C. Gardiner, Mullica Hill, N. J.
Chief of Greensburg, 9074, W. W, VanKirk to E. A. Goodlin, Greensburg, Pa.
Don Juan of Los Angeles 9024, W. M. March to A. L. Wilson, Pescadero, Cal.
Delphi 9033, J. C. Grupe to F. L. & E. Shepard, Rerkeley, Cal.
Daisy's Boy 9006, McCormick & Edgerly to S. C. Cartar, Csborn, Mo.
Governor Max 9025, M. I. Wheeler to Mrs. S. C. Goodhue, New Preston, Ct.
Golden Knight of Rosendale 8699, Chas. L. Hill to E. T. Gill, Haddonfield.
Gold Coin of Rapid Transit 9010, Md. Agr'l Experiment Station to Edward Daniels, Berwyn, Md.
Gypsy John 5613, Fred Rietbrock to William Schiller, Pittsville, Wis.
Hillside King 9056, J. J. Bush to W. H. Walbridge, Milford, N. H.
Hizey 9004, McCormich & Edgerly to John Hamilton, Kokomo, Ind.
Isaac Lyons 8655, D. O. Newhall to J. K. Sargent, Merrimac, Mass.
Jed of Guernsey Hill 6999, Nelson Poorbaugh to William Dumick, Monongahela, Pa.
Johnnie Bull 9013, Montgomery Rollins to B. B. Plummer, Milton, N. H.
Lord of Edgewater 9055, M. I. Wheeler to Edgewater Dairy Co., Attleboro.
Lamont's Prince, 9071, Wm. C. Lamont to Wm. H. Voorhees, Amsterdam, N. Y.
Miss Vanity's Prince 8649, Wm. Conley to Mrs. H. E. Irwin, Springfield, O.
Mapleton Lad 881, C. J. Tyson to A. H. Benjamin, New Albany, Pa.
Mia's Rowland 9057, H. Riedeburg to M. W. Rowell, Hartland, Wis.
Maltie's Gold Mine 9070, W. M. March to F. L. & E. Shepard, Berkeley Cal.
McQueen of Woodend 8889, A. C. Loring to Peter Lees, Excelsior, Minn.
Philwood 5th 9030, F. W. Kimball to A. Colony, Ashby, Minn.
Philwood 6th 9931, F. W. Kimball to L. L. Davis, Mankato, Minn.
Philwood 7th 9032, F. W. Kimball to J, A. Lundborg, Belle Plaine, Minn.
Prince Louie 8991, Chas. Solveson to Kuonch Bros., Hartland, Wis.
Prince of Stillwater 9058, Jas. H. Beirne to James Ashburnes, Stillwater, Minn.
Royal Boy 9026, Strafford County Farm to James C. Poor, North Andover, Mass.
Rotha's Glenduke of Kingston 6947, Va. Agr'l. Exp. Station to Va. Polytechnic Institute, Blacksburg, Va.
Reward of Merit 8419, Geo. C. Hill & Son to Theodore Kuderer, Wilton, Wis.
Spotswood's Marker 9040, Edward T. Price to Mark Hughes, West Grove. Pa.
Sir Endeavor 8850, M. M. & E. J. Hollingsworth to Rert H. Nelson, West Pawlet, Vt.
Tony of Maple Glen 8339, Corydon Peck to R. I. College of Agr'l, Kingston.
Tray Vertish 9035, Jesse Thompson to Joseph Walker, Nineveh, N. Y.
Tramp of the Glen 9011, H. A. C. Taylor to Frances C. Bishop, Mt. Kisco, N. Y.
William B. 9059, Joe Defrees to C. H. Mills, Grove City, O.
Wharton Lad 9005, McCormick & Edgerly to J. D. Wickiser, Wharton, O.
Wolfram 5640, F. Rietbrock & Geo. C. Hill & Son to O, E. Wells, Wausau, Wis,

COWS.

Anna Kate 5854, Buell T. Holcomb to Edward T. Baldwin, West Simsbury, Ct.
Cypers 12483, Fraulein Smith 12482, C. H. Sessions to Wilbur M. March, Los Angeles, Cal.
Carrie A. of Homstead 16839, Mariana of Homestead 16840, L. V. Axtell to Harry Yates, Buffalo, N. Y.
Cathleen of Chatham 16813, Maurine of Chatham 16812, John I. Carter to Swithin Shortledge, Landenburg, Pa.
Clara Spencer 16874, J. R. Huston to H. B. Van Cleve, Cleveland, O.
Daisy Bell B. 16822, Hillside Beauty 16717, Miss Eyebright 12308, Thomas Briggs to Va. Polytechnic Institute, Blacksburg, Va.
Dentonia's White Star 16721, Mrs. W. E. H. Massey to Mrs. Agnes Legh, Salt Springs, B. C.
Dora's Mildred 2d. 16787, McCormick & Edgerly to R. C. & W. D. Phelps, Westerville, O.
Emeline of West Grove 16869, Mark Hughes to Edward T. Price, Broad Axe, Pa.
Empress of Roanoke 11217, Va. Agr'l Exp. Station to Va. Polytechnic Institute, Blacksburg, Va.
Ecstasy of Paxtang 12294, J. P. Welsh to T. E. Hyde, Bloomsburg, Pa.
Florodora of Tawawa 14485, Wm. Conley to Univerity of Wisconsin, Madison, Wis.
Fair Maid of Watervliet 16687, James Forsyth to George Morelock, Watervliet, Mich.
Gold Dust of Hop City L. 16862, L. F. Pettee to Cary Lasher, Ballston Spa, N. Y.
Gem's Grizel 10130, Regan of Blacksburg 10131, Rizpah 14288, Sagrada 12149, Virginia Bright 6387, Va. Agr'l Exp. Station to Va. Polytechnic Institute, Blacksburg, Va.
Helen of Willow Bank 5981, Est. John Stebbins to M. S. Potter, Syracuse, N. Y.
Jessie May 16841, Margaret Muriel 16842, Nora G. 16843, L. O. Knudsen to F. Rietbrock & Geo. C. Hill & Son, Rosendale, Wis.
Loraine of Seneca 16615, Gertrude G. of Seneca 16616, Rachel Asch to W. E. Black & Bro., Charlestown, Md.
Louise of Homestead 16837, Vena of Homestead 16838, L. V. Axtell to Peter Lees, Minneapolis, Minn.
Nan T. 12373, Aaron H. Robbins to R. T. Ridgway, Cream Ridge, N. J.
Peggy Short 11780, Lady Expectation 16847, Geo. LaMonte to S. I. Murphy, Woodbine, Pa.
Princess Fay 16784, McCormick & Edgerly to L. V. Axtell, Perry, O.
Questa Bloom 16262, Tangray 2d. 15883, S. I. Murphy to R. V. Lindabury, Bernardville, N. J.
Roxy of Hop City L. 15446, Golden Acorn of Hop City L. 16597, Clifton Hill Daisy 11790, Mattie of Hop City L. 16603, The Belle of Hop City L. 16599, The Pride of Hop City L. 16600, Burton Lady of Hop City L. 16602, Jessie of Hop City L. 16601, Cary Lasher to G. B. Tallman, Perry, N. Y.
Rebecca of Seneca 16617, Rachel Asch to W. E. Black, Charlestown, Md.
Spring's Buttercup 16849, Mrs. Mary Herron to Geo. W. Herron, Westby, Wis.
Stylish Lady of Dentonia 16642, Mrs. W. E. H. Massey to S. W. Hartt, Port Angeles, Wash.
Sweet Clover of Hop City L. 16656, Cary Lasher to G. B. Tallman, Perry, N. Y.

WM. H. CALDWELL, Sec'y.
Peterboro, N. H., Dec. 14, 1903.

"ADVERTISEMENT."

For Singers and Speakers.

The New Remedy for Catarrh is Very Valuable.

A Grand Rapids gentleman who represents a prominent manufacturing concern and travels through central and southern Michigan, relates the following regarding the new catarrh cure, he says:

"After suffering from catarrh of the head, throat and stomach for several years, I heard of Stuart's Catarrh Tablets quite accidently and like everything else I immediately bought a package and was decidedly surprised at the immediate relief it afforded me and still more to find a complete cure after several weeks' use.



"I have a little son who sings in a boys' choir in one of our prominent churches, and he is greatly troubled with hoarseness and throat weakness, and on my return home from a trip I gave him a few of the tablets one Sunday morning when he had complained of hoarseness. He was delighted with their effect, removing all huskiness in a few minutes and making the voice clear and strong.

"As the tablets are very pleasant to the taste, I had no difficulty in persuading him to use them regularly.

"Our family physician told us they were an antiseptic preparation of undoubted merit and that he himself had no hesitation in using and recommending Stuart's Catarrh Tablets for any form of catarrh.

"I have since met many public speakers and professional singers who used them constantly. A prominent Detroit lawyer told me that Stuart's Catarrh Tablets kept his throat in fine shape during the most trying weather, and that he had long since discarded the use of cheap lozenges and troches on the advise of his physician that they contained so much tolu, potash and opium as to render their use a danger to health."

Stuart's Catarrh Tablets are large pleasant tasting lozenges composed of catarrhal antiseptics, like Red Gum, Blood Root, etc., and sold by druggists everywhere at 50 cents for full treatment.

They act upon the blood and mucous membrane and their composition and remarkable success has won the approval of physicians, as well as thousands of sufferers from nasal catarrh, throat troubles and catarrh of the stomach.

A little book on treatment of catarrh mailed free by addressing F. A. Stuart Co., Marshall, Mich.

St. Jacobs Oil

continues to be the sure, prompt cure for Rheumatism of the muscles and joints.

ACROSS THE CONTINENT

One may travel through Europe and explore the Far East, but the trip to California never fails to impress the tourist with a new sense of the grandeur, the immensity, and the possibilities of this republic. California is quickly reached by the through trains of the

Chicago, Milwaukee & St. Paul and Union Pacific Line

Of these, The Overland Limited is the most famous. A handsome book descriptive of California and the Overland service there, mailed for the postage,

F. A. MILLER, General Passenger Agent. **CHICAGO**

Buy You a Ticket to CROOKSTON, MINN., and call upon

The Polk County Land & Loan Company

For Choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.

360 acre farm, 4½ miles from Crookston, Minn., a city of 7,000 inhabitants, and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 feet square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm is under a high state of cultivation, and is well drained by a slight ravine running through the farm merely sufficient for self drainage. The soil is a rich, deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50.

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired. Price $19.00 per acre.

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Looking for a Home?



Then why not keep in view the fact that the farming lands of

Western Canada



are sufficient to support a population of 50,000,000 or over? The immigration to Western Canada during the past six years has been phenomenal.

FREE Homestead Lands

easily accessible, and other lands may be purchased from Railway and Land Companies. Western Canada's grain lands produce marvellous crops, while the grazing lands contain all the nutritive qualities for fattening cattle and other stock.

Markets, Schools, Railways and all other conditions make Western Canada a desirable spot for the homeseeker.

Write to the Superintendent Immigration, Ottawa, Canada, for a descriptive Atlas, and other information; or to the authorized Canadian Government Agent—

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So easy that you will regret it if you do not investigate. Our lands are

CHOICE HARDWOOD LANDS.

Especially selected with a view to quality, location and natural advantages. Put your savings into land that will double in value inside of a year. Ask us for the facts about them. A postal card with your address will do. Lands are now selling at $10.00 per acre. $400 in easy payments will buy 40 acres.

INTERIOR LAND CO., Janesville, Wis.

Virginia Farms

Productive soil, delightful climate. Free catalogue.
R. B. CHAFFIN & CO., Incorp., Richmond, Va.

The Problem of City Milk Supply.

[Address before Missouri State Dairy Meeting by ROB'T. PETHEBRIDGE, City Milk Inspector, St. Louis, Mo.]

Pure milk is a matter of great importance to the health of every community. Good, genuine milk is hard to obtain with certainty in a large city.

The problem of the milk supply of St. Louis, next year, during the World's Fair is claiming the attention of many thoughtful farmers and dairymen. For myself I see but little difficulty, when the matter is brought forward and managed on its true merits, and the prospects for a successful year in the milk shipping business are very bright, and should be taken advantage of wherever possible. Certain rules must govern your actions in determining the course to pursue, and I will endeavor to make some suggestions which may be easily understood and carried out without any difficulty. The first point that strikes me is with reference to the profits which are accruing to a well managed dairy. It is a well known fact that about one-half of the dairy cows in the state of Missouri are unprofitable, yet Missouri is one of the best dairy states, and sometime in the near future will be the leading dairy state.

I wish to impress on all who are keeping cows that it is a waste of labor, time and feed to keep 20 cows, for instance, when only ten are paying their way, and their owners are in a puzzle as to which these ten are. I suggest that everyone should possess a good Babcock Tester, and a pair of scales, and each day's test and weight of milk of every cow be taken and entered on a sheet for the purpose, together with the quantity and kind of feed each cow consumed, or in other words, a debit and credit account kept. If a cow does not give at least 5,000 lbs. of milk, testing about 3.5 per cent butter fat and 9.0 per cent of solids, not fat, my advice would be to get rid of her. It must be remembered the milking should be done properly and at regular hours. Kind treatment must not be forgotten and a cow should be treated like a lady.

Good and persistent milking produces milkers and the development of milking qualities, whereas on the contrary if irregularity and neglect is practiced the talents which would develop with use will naturally disappear, even what there is. It is a great mistake to suppose that dairy cows all belong to one breed. They vary from the Small Kerry of Ireland, the fine Jersey and Guernsey of the Channel Islands, the hardy Ayrshire of Scotland, the dual-purpose Short-horn and Devon of the west of England, to the Red Polled Norfolk of the East of England and others, all of which with selection and development produce magnificent dairy cows.

It is the character of the food more than anything else that determines the size. As we know, in those districts which do not produce rich and abundant grasses you will not find large cows, and in those districts which do produce the necessary constituents for growth and milk producing, in a few years a small bred animal will become the parent of a large type, and with continuous milking will furnish many good milkers. Select and test your cows and use a bull from a family which has a milk record, and remember that your bull is half your herd.

My second point is the labor question, for successful dairying cannot be carried on where labor is short, or where the hired help is lacking. In my travels I find this to be a great complaint among dairymen that they cannot get help, but I am sure it is mostly their own fault, for I can name many successful dairymen who have no difficulty in that line, because they are treated in a proper and business like manner, such as fair wages, regular hours and liberal treatment. He must compare the dairy help with the city laborer in wages; they will vary in different parts of the country in hours of labor; the city man has his 10 hours daily and pay for overtime, whereas the country man as a rule works longer hours, and no pay for overtime. This is one of the great objections of the man working on the farm, for I have known by experience that many a day I have been at work 14 hours in the field with a team and previous to that did the milking and feeding of 10 cows and 4 horses, and then at night have to do the same thing again, when I ought to have been studying or taking some recreation to improve my mind and body, to render it better fit for the duties of the morrow.

Liberal treatment will do more to bring employer and employed together, than wages. The giving of a cottage with a garden patch and allowing them to keep a cow for the use of the children in addition to the weekly wage gives the country employer the advantage over the city, and more work can be accomplished and your man can be relied on, which is very important. In the hiring of labor, there are many good dairy hands coming from England, Ireland, Germany and Scandinavian countries, who are glad to get a job when they arrive in New York, and they naturally seek an employment agency, and those who wish to hire this class can make application, and they will not be disappointed if they are willing to do the fair thing.

In the production of milk I have but little to say, and I suggest that milk-making rations be fed, such as clover and alfalfa hay and silage for rough feed, and for grain and meal feeds such nitrogenous foods as will enter into the production of milk. It is not wise to feed a heavy carbonaceous feed to a milk cow, for you may just as well expect to put corn through a mill and get out wheat flour.

Remember that the quality of a cow's milk in butterfat and solids-not-fat is as natural to her as the color of her hair, and can be but little affected by the food, but with improper rations the quantity will tell the tale at a loss.

THE HANDLING OF MILK.

During the past year, we have had in operation a new milk ordinance, which we consider one of the best in the United States. It is a protection to the honest dairyman as well as the consumer, and its provisions are being enforced in a manner in which all straight minded men will agree.

It contains several sections in which instructions are laid out for the quality, cooling, prevention of use of preservatives, and adulterants, which I would earnestly advise all who think of shipping milk to St. Louis to follow. I will name a few so that you can understand which they are.

THE MILK ORDINANCE AS PASSED ON AUGUST 27, 1902.

I will give you an outline of the various sections as regards the milkmen and citizens:

Section 6 gives the city chemist, assistant chemists, and milk inspectors the right to have full access, ingress or egrees to all places where milk is stored

"I had scrofula and erysipelas for eighteen years, until I heard

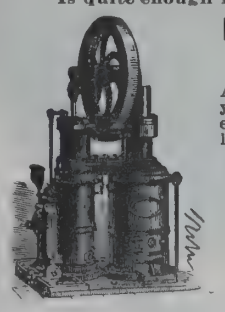
Of Dr. Pierce's Golden Medical Discovery," writes Mr. Hilery Koous, of Queens, W. Va. "When I commenced to take this medicine I weighed one hundred and thirty pounds. I have taken six bottles of Dr. Pierce's Golden Medical Discovery and three vials of his 'Pleasant Pellets,' and am glad to say I feel like a new man. I now weigh one hundred and seventy-five pounds. When I had used one bottle of the medicine I could feel it was helping me. I realize Dr. Pierce's Golden Medical Discovery is the best medicine on earth."

Dr. Pierce's Golden Medical Discovery purifies the blood and entirely eradicates the poisons that breed and feed disease. It cures scrofula, eczema, erysipelas, boils, pimples and other eruptions that mar and scar the skin. Pure blood is essential to good health. The weak, run-down, debilitated condition which so many people experience is commonly the effect of impure blood. Dr. Pierce's Golden Medical Discovery not only cleanses the blood of impurities, but it increases the activity of the blood-making glands, and it enriches the body with an abundant supply of pure, rich blood.

FREE. Dr. Pierce's Common Sense Medical Adviser is sent *free* on receipt of stamps to pay expense of mailing *only*. Send 21 one-cent stamps for the book in paper covers, or 31 stamps for the cloth-bound volume. Address Dr. R. V. Pierce, Buffalo, N. Y.

HALF ENOUGH WATER

Is quite enough for some people, but most people want water every day. If

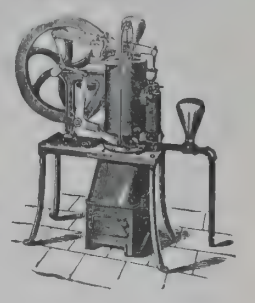


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Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.

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22 Pitt St., SIDNEY, N. S. W.



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COLONIAL (Flaked) **LIBERTY** (Granulated)

Butter Salts

ARE

"Money Makers for Butter Makers"

The barrel that holds 320 lbs. of the other man's salt will hold but 225 lbs. of **COLONIAL.** Colonial Butter Salt is by far the driest and lightest weight butter salt in the world. Made on purpose to make butter good and to make butter makers money.

Perfect in flavor
Perfect white in color
Purity over 99 per cent, highest known

Don't take our word for what our butter salts will do for **you,** but put it to the severest test **at our expense.** All operators of creameries and cheese factories (only), send us your name and address on a post card and we will send you absolutely free of all charge a 56-lb. sack of either or both Colonial and Liberty Butter Salts. All we ask in return is that you write us of your experience—after trial. There is no reason that we know of why you **shouldn't** give our salt a trial on these terms. If you are prejudiced in favor of some other brand, it is all the more reason why we want you to test our claims. We expect to get you "prejudiced" **in our** favor after thorough trial, and that means a permanent customer for **us.**

Creameries and cheese factories, please favor us with your request for free sample sacks.

COLONIAL SALT COMPANY,
Akron, Ohio

Chicago Office:
84 Adams Street

BUTTER FOR UNCLE SAM

THE CONTINENTAL CREAMERY COMPANY
TOPEKA, KANSAS

Has been awarded the contract to supply the United States Navy with half a million pounds of butter for the ensuing year.

For this purpose only the best quality of butter is used, and its keeping quality must be made of the very best, owing to the fact that the entire year's supply must be made within a few months and it is carried through all conditions of climate.

The government has made a thorough study of supplying butter to suit the requirements of the Navy and, as a result it has laid down some very exacting standards to which those who bid for these contracts must comply. One of the few concerns who can fulfill these requirements is the Continental Creamery Co. and it was awarded this contract, which is the biggest single order for butter ever filled.

This company produces the greatest quantity of fancy creamery butter in the world, all of which is made from pasteurized cream. Surely it knows something about making good butter. It also knows from actual experience and the investigations of its chemists, that one of the factors in making good butter is

WORCESTER SALT--IT USES NO OTHER

FOR SALE BY ALL CREAMERY SUPPLY HOUSES.

WORCESTER SALT COMPANY
168 DUANE STREET, NEW YORK.

or kept for sale, and to take samples of milk or cream not to exceed one pint each.

Section 7 orders these samples to be tested or analyzed by the city chemist or his assistants.

Section 8 provides that when necessary any sample of milk or cream when purchased for his own or family consumption may be submitted for examination by any citizen.

Section 9 provides for cleanliness in handling and hauling milk and cream.

Section 10, all persons who handle milk for sale must register at the city chemist's office and pay a fee of one dollar per year and get a license to sell milk on wagon for which he must pay $2.50 every six months for each wagon, and if he is in the wholesale business and sells in one day to one man or firm 16 gallons of milk or cream, must pay a wholesale license fee of $25 every six months.

Section 11 says that no registration certificate or license shall be transferred, and gives instructions how to obtain same and provides for notice to be given in case of any changes in the business.

Section 12 provides for names on wagons and carriages.

Section 13 provides that all licenses granted shall be on the blank forms to the collector by the register under the seal of the city as prescribed by law.

Section 14 deals with the sale of impure milk or adulterated or skimmed milk when sold as whole milk and must be cooled immediately after milking to at least 45°, and delivered to consumers at or below 50°.

Section 15 deals with the products of impure or diseased milk or cream which is manufactured from unhealthy cows or unwholesome milk.

Section 16 deals with the adulteration of milk or cream by adding water or skimming, with the exception of cases where same is modified for infant or invalid feeding according to a registered doctor's prescription.

Section 17 provides for persons selling milk or cream containing preservatives, coloring matter or any other adulteration, same being rigidly enforced.

Section 18 fixes the quality and method of analysis. Not less than 3 per cent butter fat, 8.5 per cent solids not fat, and .7 per cent of ash, 50 per cent of which shall be insoluble in hot water.

Section 19 fixes the minimum standard for cream, viz. 12 per cent.

Section 20 regulates the sale of condensed milk.

Section 21 provides for the sale of buttermilk,

Section 22 provides for the sale of skim milk, to contain not less than 10.5 per cent total solids of which .15 per cent is butter fat and a specific gravity of between 1.032 and 1.038 and which is free from any foreign additions of any kind. Wagons carrying same, to have signs of skim milk in 3-inch letters on each side of the wagon. All vessels, cans and packages from which skim milk is sold or delivered, shall be marked with the words "Skimmed Milk" in uncondensed Gothic letters, not less than 1 inch in height above the center. Each store, depot of other places where skimmed milk is sold, shall have a sign in plain view or anyone entering, marked "Skimmed Milk", in not less than 2-inch letters. All persons selling or delivering skimmed milk shall place a sticker or lable, 1 inch by 2 inch on which is printed in heavy faced Gothic letters reading "Skimmed Milk", upon the customer's vessel or container, to prevent its being used instead of whole milk for infant feeding.

Manufacturers who make affidavit in the form prescribed by the city chemist, that the skimmed milk they handel shall not be sold at retail as milk, but solely used for manufacturing purposes, shall be exempt from the foregoing provisions of this section.

Section 23 deals with unclean milk.

Section 24 deals with the prevention of carrying out of the duties by others of the inspection officers, in refusing to allow them to perform their duties of inspection.

Section 26 deals with milk or cream from diseased cows and the protection granted by the city to the officers in case of confiscation.

Section 27 provides for sick or diseased cows or other sick animals, on dairy premises.

Section 28 forbids the manufacture and sale of any preservative, coloring matter or other adulteration.

Section 29 instructs the milk inspection officers regarding the inspection of dairies.

The penalties for the offenses against the various sections are not less than $25 or more than $100

I especially call your attention to section 14, in which it provides for the cooling of milk to 45°, immediately after milking and maintaining a temperature of 50° or below, until delivered to customer. This is essential to the welfare of the producer and obviates the use of preservatives, as forbidden in section 17.

The equipment of the dairy is as necessary as the cows, and should be taken into consideration when commencing. The best kind of milking pails and a good cooler and aerator, together with plenty of ice and spring or well water. A steam boiler is a great help in many ways, such as cooking food, providing hot water, and for steaming utensils, and also for running a cream separator, if the shipment of cream is desired.

In the case of these dairymen who live a long way from the market, for their milk, I would advise a line of stations on the rail road for the handling of their milk and cream, and get the rail road to put on refrigerator cars to carry the goods, so that it would be kept cool in the summer and from freezing in winter. There are many stations which could be started and run at good profit, and I am sure the Rail Road Co. would be only too delighted to entertain a proposition for their establishment.

The prospects of a million extra people in St. Louis the coming year, must claim the attention of all dairymen and that the milk inspection department, is taking strenuous measures for cutting out the added water to milk, which in a number of cases is being sold as the pure article, and that alone will necessarily require a large addition to the shipments which are daily being received.

Official Records of Holstein-Friesian Cows, From Nov. 12 to Dec. 3, 1903.

During this period the records of forty-one cows have been received.

Fourteen full-age cows averaged 7 years, 3 months, 8 days; days from calving, 25: Milk 425.4 lbs., butter fat 14.800 lbs.; equivalent butter, 17 lbs., 4.3 oz., per cent fat shown in the milk, 3.52. Twelve four-year-olds averaged 4 years, 6 months, 1 day; days from calving, 18: Milk 382.9 lbs., butter fat 13.342 lbs.; equivalent butter, 15 lbs., 9.1 oz.; per cent of fat shown in the milk, 3.50. Six three-year-olds averaged 3 years, 5 months, 29 days; days from calving, 16: Milk 248.6 lbs., butter fat 12.142 lbs.; equivalent butter, 14 lbs., 2.6 oz.; per cent of fat shown in the milk, 3.47. Nine two-year-olds averaged 2 years, 4



Meat and Milk

Whether you are feeding for market or for milk, you will find nothing else equal to Dr. Hess Stock Food for rapidly producing the results desired. The capacious udder of the improved cow and the long milking period have been produced by special feeding and breeding. The same is true of the improvement of animals bred for weight. A certain per cent. of the feed consumed must be applied to maintaining the system, and it is the food assimilated above this requirement that furnishes the profit. The addition of Dr. Hess Stock Food, the great stock tonic, to regular feed so invigorates and improves the organs of digestion and assimilation, that a minimum amount of feed is required to sustain life, repair waste, etc., and a greater amount is available for the production of meat and milk. If you have a stringy calf, a lean hog, a backward steer or a poor milker, get

Dr. Hess Stock Food

to-day and you will be astonished at the results. It is the only scientific compound for horses, cattle, hogs and sheep. Formulated by Dr. Hess (M. D., D. V. S.) If the medical and veterinary colleges know of nothing better it must be good. No unprofessional manufacturer can equal it.

Our Information Bureau For any disease or condition for which Dr. Hess Stock Food is not recommended, a little yellow card enclosed in every package entitles you to a letter of advice and a *special prescription* from Dr. Hess (M. D., D. V. S.) In this manner you are provided with a universal treatment for all stock diseases, either in the Stock Food itself or in the special prescription to which the little yellow card entitles you. Endorsements from physicians, scientists and feeders furnished on application.

DR. HESS & CLARK, Ashland, Ohio.

Also Manufacturers of Dr. Hess Poultry Pan-a-ce-a and Dr. Hess Healing Powder.

Dr. Hess Stock Book Free. A complete treatise on stock and poultry diseases, written by Dr. Hess (M. D., D. V. S.), and sent free postage paid, if you will write Dr. Hess & Clark, Ashland, Ohio, and say what stock you have—how many head of each kind; what stock food you have fed, and mention this paper.

Prof. W. S. Goss, Dean of Talladega (Ala.) College, says of it: "I think Dr. Hess' Book a little gem, I shall keep it near me for reference."

Dr. Hess Stock Food is sold on a written guarantee, 100 lbs. for $5.00 (except in Canada and Pacific Slope) **smaller quantities at slight advance. Fed in a small dose.**

Instant Louse Killer Kills Lice.

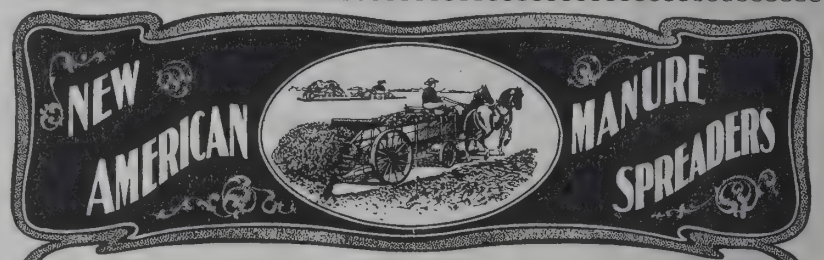


A BUSY HEN is a profitable hen whether she be laying, hatching or taking on fat for market. Nothing will aid so much in all of these occupations as small daily feeds of **Prussian Poultry Food.** It not only helps in eggs, growth, etc., but also prevents and cures **gapes, cholera, roup** etc. and helps in **moulting.** "I have tried the Prussian Poultry Food for roup and it cured my flock. For keeping poultry in condition, and especially as an egg producer, it stands without an equal. Every one that keeps poultry ought to give it a trial and be convinced."—B. H. PAYNE, Painesville, Ohio.

Price 25 and 50 cents. If by mail, 40 and 75 cents, Pails $3.50. Ask your dealer. If not there, write us. We will see that you are supplied and send you our **68 page book free.**

PRUSSIAN REMEDY CO., St. Paul, Minn.





Hold from 50 to 100 bushels. Spread just as thin or thick, fine or coarse, as the ground requires. Don't have to stop team to make change. Most substantial, largest capacity, lightest draft. Finely illustrated catalogue free.

AMERICAN HARROW CO.

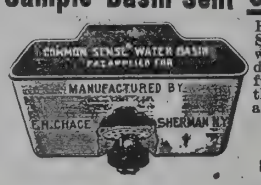
1436 HASTINGS ST. DETROIT, MICH.



Absolutely perfect. Soon pays the cost. Cheapest because best.

Water always fresh. Send for catalogue. No disease where used.

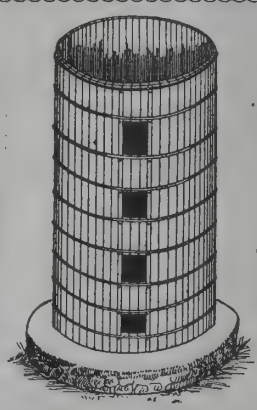
Sample Basin Sent ON APPROVAL.



Basins are fitted with **Self Closing** Cover which prevents all dirt and sediment from getting into them. Send for catalogue and price list.

F. H. CHASE,

Sherman, N. Y.



TIME!

Its time for dairymen to act if they want the benefits of a silo this season. You should place your order

NOW!

if you want the best, and the best is always the cheapest, especially in Silos. Write us for prices and circular.

If you are in the market we can save you money.

INDIANA SILO CO.,

Anderson, Ind.

$3 a Day Sure Send us your address and we will show you how to make $3 a day absolutely sure; we furnish the work and teach you free, you work in the locality where you live. Send us your address and we will explain the business fully, remember we guarantee a clear profit of $3 for every day's work, absolutely sure. Write at once. **ROYAL MANUFACTURING CO., Box 110, Detroit, Mich.**



Iron Troughs

First Lot at Wholesale. Can't break or rot, nice round rim, any size or shape. Write for circular of **Cow Basin,** Poultry and Stock Troughs. Who will be first.

D. H. BAUSMAN, Bausman, Lanc. Co., Pa. We make Steel Swings. Fine Booklet Free.

"1900" BALL BEARING WASHER

sent free, without advance payment, freight prepaid both ways on 30 days trial. Mr. Geo. N. Burnet, Ashtabula, O., says, "Have done 1200 washings and is good for 1200 more. Beats them all, and have tried 8 different machines. Write at once to "1900," Washer Co., 214 A State St., Binghamton, N. Y.

Water In The Stable a Necessity.



It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. **Why not use the Best?** Write for descriptive circular.

O. E. BUCKLEY & CO., Poughkeepsie, N. Y.

months, 4 days; days from calving, 68: Milk 282.1 lbs., butter fat 9.817 lbs.; equivalent butter, 11 lbs., 7.2 oz., per cent of fat shown in the milk, 3.51.

It must be borne in mind that these records are made under the careful supervision of agricultural experiment stations and that 85.7 per cent of fat found in the milk is equivalent to a pound of butter. In detail the records were as follows:

Hat Lady Barnum Mechthilde 61262—6 years, 21 days; days from calving, 23: Milk 494.3 lbs., butter fat 16.989 lbs.; equivalent butter, 19 lbs., 13.1 oz.

Minnewawa Lily 47277—5 years, 4 months, 10 days; days from calving, 7: Milk 385.2 lbs., butter fat 16.527 lbs.; equivalent butter, 19 lbs., 4.5 oz. Owner, Chas. D. Pierce, San Francisco, Cal.

Lady Oak 2d 39947—8 years, 6 months, 16 days; days from calving, 28: Milk, 429 3 lbs.. butter fat 16.250 lbs.; equivalent butter, 18 lbs., 15.3 oz.

Tidy Abbekirk DeKol 60965—5 years, 3 months, 4 days; days from calving, 12: Milk 505.6 lbs., butter fat 16.042 lbs.; equivalent butter, 18 lbs., 11.5 oz. Owner, John B. Marcou, Princeton, Mass.

Lorine 39244—8 years, 7 month, 26 days; days from calving, 57: Milk 525 lbs., butter fat 15.843 lbs.; equivalent butter, 18 lbs., 7.7 oz.

Minnewawa Isobel 47281—5 years, 4 months, 1 day; days from calving, 8: Milk 438 lbs., butter fat 15.338 lbs.; equivalent butter, 17 lbs., 14.3 oz. Owner, Chas. D. Pierce, San Francisco, Cal.

Jessie Fobes 5th 39948—8 years, 6 months, 17 days; days from calving, 31: Milk 479.6 lbs., butter fat 15,201 lbs.: equivalent butter, 17 lbs., 11.8 oz.

Pauline Whitney 39946—8 years, 7 months, 1 day; days from calving, 25: Milk 404.9 lbs., butter fat 14997 lbs.; equivalent butter, 17 lbs., 8 oz.

Empress Josephine of Brookside 39515—8 years, 8 months, 1 day; days from calving, 46: Milk 473.3 lbs., butter fat 14.915 lbs.; equivalent butter, 17 lbs., 6.4 oz.

Glista Beta 47312—5 years, 1 month, 22 days; days from calving, 8: Milk 328.9 lbs., butter fat 13.998 lbs.; equivalent butter, 16 lbs., 5.3 oz.

Ruda 2d A. 38875—8 years, 9 months, 28 days; days from calving, 9: Milk 421.4 lbs., butter fat 13.785 lbs.; equivalent butter, 16 lbs., 1.3 oz. Owner, Chas. D. Pierce, San Francisco, Cal.

Wietske 6th's Mercedes 2d 46782—6 years. 1 month; days from calving, 37: Milk 360.6 lbs., butter fat 12.997 lbs., equivalent butter, 15 lbs., 2.6 oz.

Concordia Aaggie Netherland 41397—7 years, 8 months, 3 days: days from calving, 37: Milk 379.9 lbs., butter fat 12.199 lbs.; equivalent butter, 14 lbs., 3.7 oz.

Aaltje Salo 5th's Netherland 38798—9 years, 22 days; days from calving, 24: Milk 329.7 lbs., butter fat 12.119 lbs.; equivalent butter, 14 lbs., 2.2 oz.

Genie Clothilde 48097—4 years, 7 months, 26 days; days from calving, 25: Milk 446.2 lbs., butter fat 15.315 lbs.; equivalent butter, 17 lbs., 13.9 oz.

Oak DeKol 51297—4 years, 7 months, 21 days; days from calving, 30: Milk, 381.2 lbs., butter fat 15.290 lbs.: equivalent butter, 17 lbs., 13.4 oz.

Heilo Aaggie Johanna 2d 50799—4 years, 3 months, 25 days; days from calving, 15: Milk, 385.5 lbs., butter fat 14.774 lbs.; equivalent butter, 17 lbs., 3.8 oz.

Edith Prescott DeKol 2d 52073—4 years, 5 months, 12 days; days from calving, 10: Milk 450.6 lbs., butter fat 14.212 lbs.; equivalent butter, 16 lbs., 9.3 oz.

Canary Beauty 51143—4 years, 7 months, 29 days; days from calving, 6: Milk 365.3 lbs., butter fat 13.450 lbs.; equivalent butter, 15 lbs., 11.1 oz.

Gewina 2d's Lilly 2d 50670—4 years, 4 months, 4 days; days from calving, 22: Milk 364.3 lbs., butter fat 13.168 lbs.: equivalent butter, 15 lbs., 5.8 oz.

Norine 2d's Mechthilde 60901—4 years, 1 month, 7 days; days from calving, 16: Milk 339.5 lbs., butter fat 12.697 lbs.; equivalent butter, 14 lbs., 13 oz.

Rena Myrtle DeKol 51298,—4 years, 8 months; days from calving 29: Milk 371.9 lbs., butter fat 12.598 lbs.; equivalent butter, 14 lbs. 11.2 oz.

Faultless Queen DeKol 61184—4 years, 2 months: days from calving 6: Milk 398.5 lbs., butter fat 12.556 lbs.: equivalent butter, 14 lbs., 10.4.

Lady Edith Alphia 53086,— 4 years. 11 months, 24 days; days from calving 14: Milk 310.9 lbs.; butter fat 12.540 lbs; equivalent butter, 14 lbs., 10.1 oz.

Ida Lotta 50027—4 years, 6 months, 25 days; days from calving 38: Milk 380.3 lbs., butter fat, 12.157 lbs.; equivalent butter, 14 lbs. 2,09 oz.

Ruda Princess 49647—4 years, 5 months 23 days; days from calving 9: Milk 400.6 lbs.; butter fat 11.342; equivalent butter, 13 lbs., 3,7 oz. Owner, Chas. D. Pierce, San Francisco, Cal.

Manor DeKol Belle 2d. 54086—3 years, 7 months, 7 days; days from calving 10: Milk 439 lbs., butter fat 16.314 lbs.; equivalent butter, 19 lbs, 0.5 oz. Owner, Chas. D. Pierce, San Francisco, Cal.

Glista Epslion 51494— 3 years, 7 months 19 days; days from calving 6: Milk 338.7 lbs., butter fat 13.904 lbs.; equivalent butter, 16 lbs., 3.5 oz,

Becky Hengerveld DeKol 54953—3 years, 7 months, 15 days; days from calving 31: Milk 352.9 lbs., butter fat 11.314 lbs.; equivalent butter, 13 lbs. 3,2 oz.

Bewunde Aaggie Mechthilde 67125—3 years 11 months, 10 days; days from calving 25: Milk 314.7 lbs. butter fat 10.853 lbs.; equivalent butter, 12 lbs, 10.6 oz.

Daisy Burke DeKol 3d. 56065—3 years, 26 days; days from calving 13: Milk 323.1 lbs., butter fat 10.752 lbs,; equivalent butter, 12 lbs., 8.7 oz. Owner Stevens Bros., Lacona, N. Y.

Jane Keyes DeKol 54503—6 years, 1 month, 12 days; days from calving, 11: Milk 323.5 lbs., butter fat 9.714 lbs.; equivalent butter, 11 lbs., 5.3 oz. Owner, Chas. D. Pierce, San Francisco, Cal.

Bessie Ward Tritomia Piebe 56946—2 years, 11 months, 21 days; days from calving, 40: Milk 355.4 lbs., butter fat 12.857 lbs.; equivalent butter, 15 lbs.

Lost Wonder Piebe 56944—2 years, 11 months, 22 days, days from calving 43: Milk 388 lbs., butter fat 12.138 lbs.; equivalent butter 14 lbs., 2.6 oz.

Miss Ophelia DeKol 56334—2 years. 6 months, 2 days; days from calving 44: Milk 275 lbs., butter fat 10.188 lbs.; equivalent butter 11 lbs., 14.2 oz.

Aaltje Salo 5th's Netherland 3d 61563—1 year, 11 months, 4 days; days from calving 15: Milk 262.4 lbs., butter fat 9.581 lbs.; equivalent butter 11 lbs., 2.8 oz.

Jane DeKol Manor Beets 59625—2 years, 1 month, 8 days; days from calving 76: Milk 279 lbs., butter fat 9.493 lbs.: equivalent butter 11 lbs. 1.2 oz. Owner, John B Marcou, Princeton, Mass.

Princess Calamity Jane Colantha 58893—2 years, 2 months, 19 days; days from calving 70: Milk 297.4 lbs., butter fat, 9.301 lbs.; equivalent butter 10 lbs., 13.8 oz. Owner, John B. Marcou, Princeton, Mass.

Sara Jewel Hengerveld 55841—2 years,1 month, 9 days, days from calving 228: Milk 265.3 lbs., butter fat 9.052 lbs.; equivalent butter 10 lbs., 9 oz.

Tirania DeKol 59570—2 years, 4 months; days from calving 86: Milk 210.7 lbs., butter fat 8.073 lbs.; equivalent butter 9 lbs., 6.7 oz.

Glista Eta 58200—1 year, 11 months, 8 days, days from calving 9: Milk 209.1 lbs.. butter fat 7.657 lbs.; equivalent butter 8 lbs., 14.9 oz.

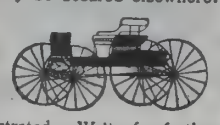
S. HOXIE, Supt. of Advanced Registry.
Yorkville, N. Y., Dec. 3, 1903.

Factory Price

Direct to You

We are the only general merchandise house which owns, controls and directly manages a vehicle factory. We build our vehicles from the ground up and know what's under the paint. We add but one small profit to the cost of material and labor, hence our customers are getting a better made job in a finer finish and at a lower price than can possibly be secured elsewhere.

$19.80



"LEADER" Road Wagon — Imitation leather trimmed; carpet, wrench and shafts; just as illustrated. Write for further description.



$25.50

"CHALLENGE" Buggy—24 in. body, cloth trimmed; top, back and side curtains, storm apron, carpet and shafts. Write for details.

We also have better grades up to the very best and most stylish that can possibly be put together.

VEHICLE CATALOGUE FREE. Send for it today. It will give particulars about the above work. It also illustrates and describes the newest and best line of Runabouts, Stanhopes, Buggies, Phaetons, Surreys, Carriages, Carts, Spring Wagons, etc., ever quoted direct to the buyer. It explains the difference between good and unreliable work—between the hand-painted and the dipped buggy—and also explains our Guarantee of Satisfaction and

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Send a postal today for our Vehicle Cat. No. E1.

Montgomery Ward & Co.
Chicago

A special circular quoting our entire line of Sleighs, Sleds, etc., will be sent at the same time, if you request it. 40

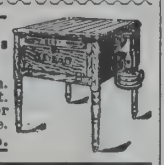
A Guarantee That Guarantees.

We desire to call special attention to the guarantee made poultry raisers by the Cyphers Incubatot Co., Buffalo, N. Y. They warrant their incubators for ten years, and guarantee that they will hatch a larger percentage of fertile eggs and produce more vigorous chicks than any other incubator in the world, at the same time consuming less oil and requiring less attention. As the guarantee is backed by a large and responsible company, it certainly means something to our readers. They agree to refund the purchase price in case the purchaser does not get satisfactory results. The Cyphers incubator, as is now well known, is constructed on a patented principle entirely different from any other machine on the market; it is absolutely self-ventilating, self regulating, requires no supplied moisture, is automatic in action and has the most sensitive and accurate regulator made.

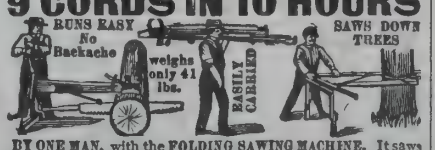
The company carries in addition a full line of "poultryman's necessities," standard articles specially prepared for the poultryman who wants to make money. They will send their new complete catalog for 1904 free if you tell them that you are one of our readers.

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30 Days Trial.

Made by Johnson the chicken man. Great $10 Special. Find out. Write to Johnson. Best incubator catalog ever published. Sent free.
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BY ONE MAN, with the FOLDING SAWING MACHINE. It saws down trees. Folds like a pocketknife. Saws any kind of timber on any kind of ground. One man can saw MORE timber with it than 2 men in any other way, and do it EASIER. 239,000 in use. Send for FREE illustrated catalog, showing latest IMPROVEMENTS and testimonials from thousands. First order secures agency. Address
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LINE YOUR SILOS WITH GIANT INSULATING PAPER

KEEPS THEM AIR TIGHT

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Keeps Silage Fresh; Lasts Indefinitely.

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Used Everywhere.

MANUFACTURED SOLELY BY
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WINCHESTER



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"It's the shots that hit that count." Winchester Rifle and Pistol Cartridges in all calibers hit, that is, they shoot accurately and strike a good, hard, penetrating blow. This is the kind of cartridges you will get, if you insist on having the time-tried Winchester make.

ALL DEALERS SELL WINCHESTER MAKE OF CARTRIDGES.

Here is the Split Hickory Special For 1904

The thousands of well-pleased customers throughout the whole United States to whom we have sold this truly wonderful bargain in the past few years know what we mean when we say "Split Hickory Special." We have taken a great pride in building up a mammoth business on this one particular job, bending every effort in our manufacturing plant to give our customers a buggy for $50 that had every good feature put on a buggy at any price. Our efforts have been rewarded Our sales last year on this one particular job ran into hundreds every day. With such an immense output, selling direct to the customer, we are enabled to offer many new inducements this year. If you are thinking of buying a buggy you cannot afford to overlook the Split Hickory line. Remember, this Split Hickory Special is made of first grade Split Hickory—split, not sawed—and has 100 points of merit. Space in this advertisement will not permit our giving a description of this vehicle. It is fully described in our new 136-page Split Hickory Catalogue of vehicles and harness, now ready for distribution. It's free. Send for one at once. NOTE—We carry a full line of high grade harness, sold direct at wholesale.



$50
Sent anywhere on 30 Days' FREE TRIAL.

THE OHIO CARRIAGE MFG. CO., H. C. Phelps, Pres.,
1557 Sixth Street, Cincinnati, Ohio.

THE ONLY LOW DOWN

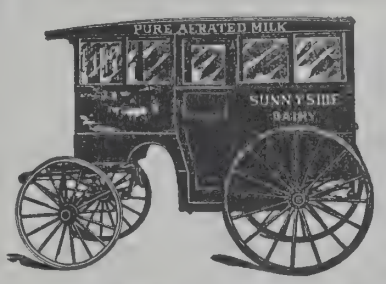
Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the market.



20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished.

Send for catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.

Shipman, Bradt & Co.
Sole Manufacturers,
DE KALB, - ILLINOIS.



The National

LOW DOWN CUT-UNDER

justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

THE NATIONAL WAGON COMPANY, Chillicothe, Ohio.

$62.75



BEST MILK WAGON ON EARTH

SOLD DIRECT TO CONSUMER ONLY

Highest Grades. Lowest Prices. Guaranteed. Shipped on Approval. Full line Buggies and Harness. Write for Catalogue and Prices.

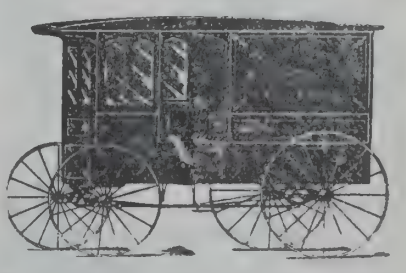
SAVE DEALERS' PROFITS

UNION BUGGY CO. Dept. B. PONTIAC, MICH.

PRICE TALKS WITH QUALITY BACK OF IT.

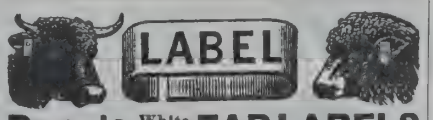
ONLY **$129**

TERMS—⅓ Cash and balance 1, 2, 3, and 4 months notes or 5 per cent discount for cash



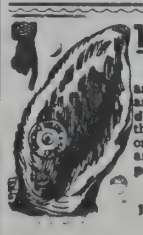
We make 10 styles. Write for our Form E. Catalogue and Price List.

THE O. ARMLEDER CO., Cincinnati, O



Dana's White Metallic EAR LABELS

stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Sample free. Agents Wanted.
C. H. DANA, 55 Main St., West Lebanon, N. H.



The "STAY THERE"
Aluminum Ear Markers

are the best. Being made of aluminum they are brighter, lighter, stronger and more durable than any other. Fit any part of the ear. Nothing to catch on feed trough or other obstacle. Your name, address and any series of numbers on each tag. Sample tag, catalogue and prices mailed free. Ask for them. Address
WILCOX & HARVEY MFG. CO.,
100 Lake St., Chicago, Ills.

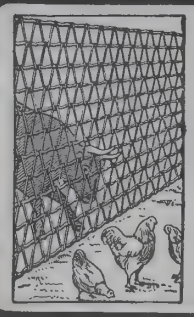


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We are the largest manufacturers of Grooved and Plain Tire Steel Farm Wagon Wheels in America. We guarantee our patent Grooved Tire Wheels to be the best made by anybody anywhere. Write us.

HAVANA METAL WHEEL CO.
HAVANA, ILL.

The Strongest Fence Made



To sell direct to the farmer the strongest fence in the world, we must not only use the best ***HIGH CARBON SPRING STEEL WIRE,*** heavily galvanized, but we must build so that the greatest textile strength of material is maintained. Sixteen years, spent in perfecting ***Coiled Spring Fence,*** each year showing an added degree of perfection, has brought us to a point where we can proclaim with a confidence born of attainment that

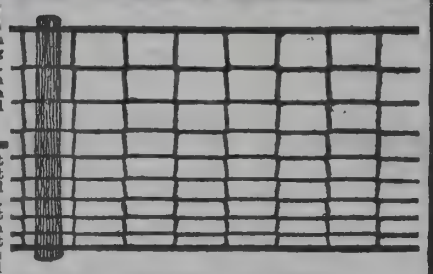
OUR FENCE IS THE CHEAPEST AND BEST

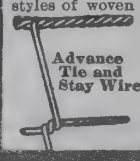
Cheapest because the highest skill of the craft has been utilized to reduce the cost of manufacture, and this achievement, coupled with the largest output of the largest and best equipped plant in the United States devoted to fence manufacture, enables us to name you the ***VERY LOWEST PRICE AND WE PAY THE FREIGHT.*** Buy direct. We sell to you as cheap as dealers can buy. Put the dealer's profit in your own pocket. Examination permitted at your station; your money back if not as represented. Completion of sale rests wholly upon your judgment. Write us; we have something more to say to you. After correspondence is opened, you have your judgment to defend your interests at every advance of the deal. Our Catalogue is free, and is full of fence lore.

COILED SPRING FENCE COMPANY,
Box 103 **Winchester, Indiana, U. S. A.**

The First Thing to do

If you are going to buy any fence this season, the first to do, for your own protection, is to send for **FREE FENCE BOOK** It tells all about **ADVANCE FENCING** which is without question of doubt the best fencing on the American market. It also tells how you can buy this fence **Direct from the Factory** at wholesale prices, freight paid to your station, doing away with all dealer's and jobber's profits. It also tells how **Advance Fencing** is sent to you **ON 30 DAYS' FREE TRIAL** so that you may have every opportunity of being perfectly satisfied that you have the best that your money can buy. Our **Fence Book** gives description and prices on twenty-three different styles of woven wire fencing, a fence for every need on the farm, garden or poultry yards, and also tells why **Advance Fencing** is the most desirable kind to have on the farm. It has many points of merit. It has no loose ends, the stay wire is not cut at the top and bottom as in other fence, but is woven into the top and bottom strands between the stays. The **Advance Tie** is perfect, the stays cannot slip. **ADVANCE FENCE** is made of heavy material throughout. You should send for our **Fence Book** at once, it is **FREE.** Your name and address on a postal card, directed to us will bring the **Fence Book.** It pays to keep posted. **Write today. Do It Now.**





Advance Tie and Stay Wire

ADVANCE FENCE COMPANY, 33 H Street, Peoria, Ill.

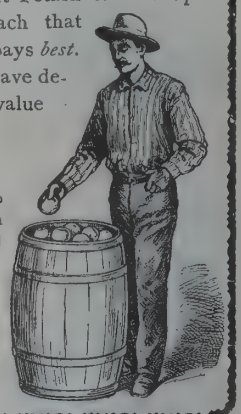
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A crop that pays may not pay as well as it should.

Potash

is a plant food which all crops must have. Without sufficient Potash to feed upon no crop can reach that point where it pays *best.*

Experiments have demonstrated the value of Potash.



We will send free, to any farmer who will write for it, a little book that will give facts in full.

GERMAN KALI WORKS
New York—
93 Nassau Street, or
St. Louis, Mo.—
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$48 TOLMAN RANGES $25.75

with high closet and white enamel lined reservoir (or water front.) **Great Foundry Sale.** We ship range for examination without a cent in advance. If you like it pay 25.75 and freight and take range for



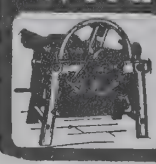
30 Days FREE Trial.

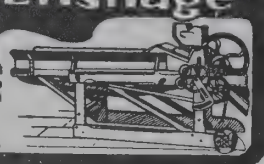
If not satisfactory we agree to **refund your money.** Tolman Ranges are made of best wrought steel. Oven 18 x 20 ins. Six 8 in. holes. Best bakers and roasters on earth. Burn anything. Asbestos lined flues.

Guaranteed 5 years. Will save their cost in fuel in **One Year.** Write today for our catalogue.

JUDSON A. TOLMAN COMPANY,
Dept. W-87 **66 Lake Street, Chicago.**

Wilder's Feed and Ensilage Cutters





and Shredders. Try one at your own place, if it does not please you better than any other machine you can buy, we stand all expense. Get our catalogue today. It contains largest line made. On the market 35 years.

Wilder-Strong Implement Co.,
Box 11. Monroe, Mich.

GRISWOLD WIRE FENCE

Square Mesh, Dimond Mesh Fence Plain, Galvanized, Barbed, or Telephone Wire. Write for illustrated catalog and price list
DILLON-GRISWOLD WIRE CO., Sterling, Ill

BROWN

16 to 35 Cents Per Rod.

Heaviest, strongest, most durable fence made. All wires extra large. *We sell to farmers at wholesale prices.* Coiled Spring, Barb and Soft Galvanized Wire.

WRITE FOR CATALOGUE
The Brown Fence & Wire Co.
Cleveland, O.

KEROSENE SPRAYER.



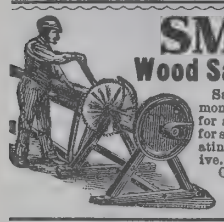
One act of pumping and making kerosene emulsion. Detachable kerosene tank. In knapsack form, most conveniently handled. As well adapted to foliage spraying as

For Poultry Plants

killing lice on animals, etc. Ours is the ideal line of sprayers—20 styles, suited to every want, large or small operations. **Hand, Bucket, Knapsack, Barrel, Power, Field.** As for free catalog. Booklet on insects and plant and fruit diseases for 10c.

THE DEMING COMPANY, SALEM, OHIO.
Henion & Hubbell, Western Agents, Chicago, Ills.

SMALLEY
Wood Sawing Machinery



Saves power; saves labor; saves money. A full line of Circular Saws for sawing stovewood, Drag Saws for sawing logs and powers for operating both. Our prices are attractive. Let us tell you what they are. Catalogue free.

SMALLEY MFG. CO.,
Box H Manitowoc, Wis.

MOST HEAT=LEAST FUEL



Largest firebox. Least expense and trouble. Burns wood, cobs, straw, etc. Jacket and bottom of heavy galvanized iron (double rivited.) Two heavy cast iron plates 8 inches apart compose the double top (our patent.) This double top space connects with manhole and smoke-stack, forming dead air compartment and keeping fire below water surface which saves the heat.

We have a valuable book called "Warm the Water and Save the Feed," which we will send you FREE. It's worth $1.00.

WINONA TANK HEATER
is unconditionally the best heater made. Price $6.50. We pay the freight. Address
WINONA TANK HEATER CO., 82-2ND ST. WINONA, MINN.

It Will Be a Long

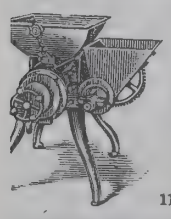
PAGE

time before you have to renew the Page Fence you put up these last years. It lasts so long.
PAGE WOVEN WIRE FENCE CO., Adrian, Mich

Hameless Horse Collars $1



GALVANIZED STEEL; no pads; adjustable in size; is better and cheaper. Do not gall but **CURE SORE SHOULDERS.** Send $1.00 and we will send one to your railroad station with privilege of examination before paying balance. Write for particulars. **Agents Wanted.**
HOWELL & SPAULDING CO., Dept. Caro, Mich.



EXCEL GRINDING MILLS.

The Mill that excels them all. Best for the farmer. Grinds 5 to 25 bushels per hour of ear corn or grain of any kind, bone, shell, etc., with from 1 to 5 horse-power. Makes best feed and good meal. Furnished with or without crusher. We have larger mills for every purpose. Write for Catalogue" We pay the freight.

Excel Manufacturing Co.
118 Liberty Street, New York

SENT ON TRIAL

A Fence Machine that will make over 100 Styles of Fence and from 50 to 70 rods a day

AT ACTUAL COST OF WIRE

Horse-high, Bull-strong, Pig and Chicken-tight. Wire at Wholesale Prices. Catalogue Free.
Kitselman Bros. Box 178 **Muncie, Ind.**

ROSS FEED CUTTERS

will save you money. Send for our **Free** Booklet No. 36 and learn how you can double the value of your corn crop.

SEND 10c for Prof. Wolf's Book on Silage.

THE E. W. ROSS CO.,
Springfield, Ohio.

The Best Cooker



for preparing feed for all kinds of stock is this

PURINTON'S No. 2 Steam Generator

Made of Boiler Steel and tested. Has safety valve and jointed pipe reaching a dozen barrels without unscrewing. All stock thrive better on cooked feed and steam cooked is the best. Never gets burned or scorched. Best boiler for scalding hogs, cleaning around dairies, etc. Quickest steamer on market. Burns any fuel and less of it than any other. Our water supply tank is a great convenience. *We will send a Cooker complete and ready to use on* **One Week's Free Trial.** Catalogue free.

Purinton Mfg. Co. Dept. E, Des Moines, Ia.

DOUBLE POWER $1,000 REWARD

for its equal. Wind power doubled. Two 14 ft. wheels work on same pinion; second wheel gives more power than first. **A governor that governs** in all winds. Develops 10 full h. p. in 25 mile wind. All power needed for farm, shop machinery, pumping, irrigating, etc. for $1.00 a month. Ask for Booklet °. Ask about Armsaver Husker.

Double Power Mill CO., Appleton, Wis.

Because



we have the best and cheapest iron, steel, lumber and the cheapest labor, we can and do make the best Saw Mills on earth. 4 h. p. (see cut.) Cuts 2,000 ft. a day. All sizes. Planers, Shingle Mills and Edgers with our Patent Variable Friction Feed; Portable Grinding Mills, Water Wheels, Lath Mills, etc. Our catalog shows all. Send for it. Lowest freights.

De Loach Mill Mfg. Co., Box 801, Atlanta, Ga.
114 Liberty St., New York.

BOWSHER

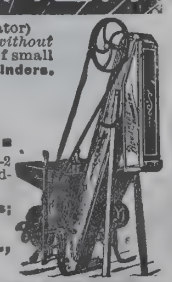
(Sold with or without elevator)
CRUSH ear corn (*with or without shucks*) and **GRIND** all kinds of small grain. **Use Conical Shape Grinders. Different from all others.**

LIGHTEST RUNNING.

Handy to Operate. 7 Sizes—2 to 25 h.p. One size for windwheel use.

Also make Sweep Grinders; Geared and Plain.

N.P.D. Bowsher Co.,
South Bend, Ind.



FEED MILLS

LIGHTNING WELL MACHY

IS THE STANDARD

STEAM PUMPS, AIR LIFTS, GASOLINE ENGINES

WRITE FOR CIRCULAR

THE AMERICAN WELL WORKS
AURORA, ILL.- CHICAGO.- DALLAS, TEX.

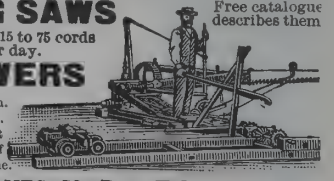


DRAG SAWS

Capacity 15 to 75 cords per day.

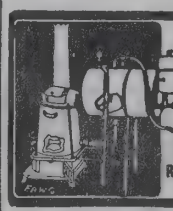
POWERS

Free catalogue describes them



to operate them. Seven sizes. Complete outfit pays for itself in a week's time.

SMALLEY MFG. CO., Box H Manitowoc, Wis.



RIPPLEY'S Improved Combination STEAM COOKERS

will cook 25 bushels of feed in 2 hours; heat water in stock tank 250 feet away. Will heat dairy, hog and poultry houses. Made of boiler steel; can't blow up; no flues to rust or leak. PRICES $5.00 TO $45.00; 5 styles and 15 sizes. Sold under a guarantee. Endorsed by Experiment Stations. *Catalogue and prices free.*

Rippley Hdw. Co., Box 20 Grafton, Ill.

ICE CUTTING



requires fast working tools at right time. **RED, WHITE AND BLUE ICE PLOW** is a first class, keen, fast cutter, having our Patent Clearing Teeth. Specially adapted to the use of Dairymen, Butchers, Hotels, and Farmers. 3 sizes, 7½, 9 and 10½ ins. Prices Low.

Write us for Free Catalog of all kinds ICE TOOLS.

AMES PLOW COMPANY,
40 Market St., Boston, Mass.

BUY A MILL

that grinds small grains, corn on cob, shelled corn, either or all mixed.



The New Holland

grinds in any form to desired fineness, runs easy, grinds fast and costs half what others do.

Sold on Free Trial Plan. Return if not satisfied. Ask for catalogue.

New Holland Machine Co., Box 119, New Holland, Pa



It Pays TO COOK STOCK FOOD

if you own one of our

Economical Feed Cookers

The best and most durably made Cooker on the market. Best for boiling sap, soap, lard; scalding, etc Uses little fuel and holds fire longer than others. 4 sizes, from 1 bbl. to 2¾ bbl. Guaranteed full capacity. Jacket of high carbon cold-rolled steel; large fire door takes in chunks; kettle of best quality new cast iron (no scrap), smoothly finished. Free circulates many other good points. Write now

TOLEDO PLOW CO., Dept. H, Toledo, O

THIS COOKER



makes feed go twice as far, cooks all kinds of feed, serves a dozen other farm purposes. The

Farmers' Favorite

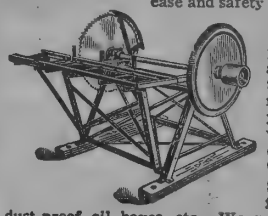
is made to last; heaviest strongest low-priced cooker made. Model service in soap, sugar, apple butter making, butchering, etc. Write for circular and prices today.

L. R. Lewis, 10 Main St, Cortland, N.Y.

SEE!

With an **APPLETON WOOD SAW** you can rapidly and with ease and safety

SAW



your own wood and **SAVE COAL,** time, labor and money; or saw your neighbor's wood and make

$5 to $15 a Day

Strong, rigid frame, adjustable dust-proof oil boxes, etc. We make five styles. Also the famous **"Hero" Friction-Feed Drag Saw,** Feed Grinders, Ensilage and Fodder Cutters, Huskers, Shellers, Sweep Horse Powers, Tread Powers, Wind Mills, etc. Write to-day for **free catalogue.**

Appleton Mfg. Co. 35 Fargo St., Batavia, Ill.

HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., JANUARY 8, 1904. NUMBER 48

HAND SEPARATOR BUTTER always brings a good price. We make it a specialty. Why sell your cream when you can get from 15% to 20% more for butter? Save "the over-run" for yourself. Send for market quotations and make us a trial shipment.
C. H. WEAVER & CO., 128 South Water St. CHICAGO.
REFERENCE: Any bank or wholesale house

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs**
Liberal Advancements Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, New York

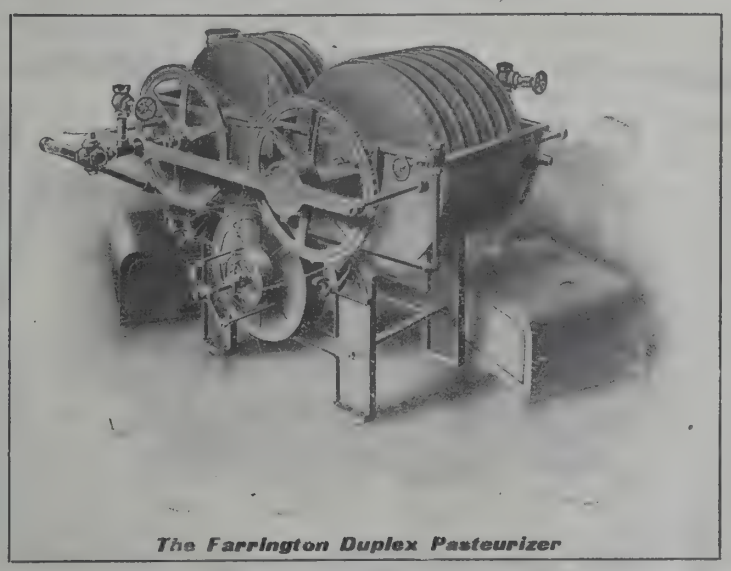
HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, BOSTON.**
Medals—Bronze 1878 Silver, 1887, World's Fair, 1893.



NO COAL TAR IN OURS!
Chr. Hansen's Danish Butter Color
IMPARTS THE PERFECT "JUNE COLOR" TO BUTTER
Has stood the test of more than 30 years. Absolutely pure and harmless
CHR. HANSEN'S LABORATORY, BOX 1003, LITTLE FALLS, N. Y.

Thatcher's Orange Butter Color
CONTAINS NO COAL TAR
The pure food agitation makes it imperative that butter makers use a color that is beyond suspicion. Every drop of Thatcher's Orange Butter Color is guaranteed purely vegetable, absolutely harmless and safe anywhere.
We also call your attention to Thatcher's Cream Cheese Color which is recognized by all as the best.
Write for information.
THE STANDARD VEGETABLE COLOR
THE THATCHER MANUFACTURING CO.,
POTSDAM, · NEW YORK.

A SUCCESSFUL PASTEURIZER
From Every Standpoint.


The Farrington Duplex Pasteurizer

The only Pasteurizer made that pasteurizes milk heavily acid.
It makes good Butter—that makes good business.
Your Butter will score 8 points higher. Write to the
CREAMERY PACKAGE MFG. COMPANY
BRANCH HOUSES: Kansas City, Mo. Minneapolis, Minn. St. Louis, Mo. Waterloo, Ia.
Canadian Branch: Cowansville, Quebec.
149 to 153 East Superior Street, Chicago, Ill., U. S. A.

TUBULAR WINS AGAIN

BUCKET BOWLS CHALLENGE IN A BUNCH AND GET A TERRIBLE BEATING

The following is an extract from the Minneapolis, Minn., Tribune, of December 18th, 1903, and should be positive proof that we make no unjust claims for Tubular Cream Separators. We have won too many contests to leave a shadow of a doubt of Tubular superiority.

FAIRMONT, MINN., Dec. 18th.—The most important event in the Minnesota Dairymen's Convention, held here this week, was the contest over close skimming, between the manufacturers of the various cream separators. The test was made in public, over a hundred of the leading creamerymen watching it with the closest attention.

The four leading makes of cream separators were in the contest. The judges were: Robert Crickmore, manager of the Co-operative Creamery, Pratt, Minn.; A. W. Trow, president of the Minnesota State Daitymen's Association; and E. J. Henry, traveler for the Diamond Crystal Salt Company, and an acknowledged expert with the Babcock tester.

The matter grew out of the claim made by the Deere & Webber Co. of Minneapolis, who are Northwestern agents of the Sharples Cream Separator, that this separator would skim more than twice as close as any other separator on the market; and, further, that the saving would pay for the machine in the course of one year's ordinary use.

In order that the matter may be fully understood, the Tribune gives herewith the challenge of the other manufacturers and the official report of the judges.

The claims of the Sharples are more than borne out by the figures, and there is evidence of rejoicing in the Deere & Webber establishment in Minneapolis today over the result. The challenge read as follows:

THE CHALLENGE

TO THE AGENT OR AGENTS OF THE SHARPLES CREAM SEPARATOR:

Gentleman: In the catalogue published by the Sharples Cream Separator Company, with Deere-Webber attached, and used by them in their trade catalogue, on pages 24 and 25 we note the following:

"Notwithstanding the fact that we resort to no complications whatever, we will place a Sharples Tubular Dairy Separator beside the best separator of the best other make in existence, and absolutely guarantee to cut in half any other record for clean skimming which such other machine may make.

"On hot milk or cold milk, fresh milk or stale milk, cow's milk or goat's milk, rich milk or poor milk, thick skimming or thin skimming, we will guarantee the Tubular to skim so as to leave but one-half the fat in the skim milk that any other machine will leave under the same conditions.

"If the other machine skims to one-tenth, the Tubular will skim to half a tenth; if the other skims to two hundredths, the Tubular will skim to one hundredth; if the other skims to one hundredth, the Sharples will skim to a half.

"Furthermore we will guarantee that when used regularly in a dairy, proportioned to the capacity of the machine, that the Sharples Tubular will give enough more butter from the same milk, than any other known machine will give, to pay not less than 6 per cent yearly interest on the whole cost of the separator."

We, the undersigned, offer this as a fair consideration to enable you to prove what is contained in the above assertion. We agree to furnish enough milk free of charge and agree to use the same quality and temperature of milk. We offer to make two runs of 200 pounds each with each machine. The first run to be at a temperature of 70 degrees, the second run to be at a temperature of 96 degrees, no machine to skim a cream of a density of less than 30 per cent butter fat. We agree to run our machine of as nearly equal claim capacity according to book of instructions. The runs to be made in a building known as "Machinery Hall" in Fairmont, Minn., on December 17th., 1903. Competent judges to be selected to determine the results.

To show our good intentions we hand the treasurer of the Minnesota State Dairymen's Association a certificate of deposit against the Martin County National Bank, Fairmont, Minn., for ($100) one hundred dollars, said $100 to be used as said association may wish, if you can prove your claims as published in said catalogue.

This offer to be accepted or rejected at once in the presence of not less than three witnesses.

The challenge was signed by the representatives of the parties in interest and was accepted by the representative of the Deere & Webber Company.

THE REPORT

THIS IS WHAT THE JUDGES SAY ABOUT THE CREAM SEPARATOR TEST:

Fairmont, Minn., Dec. 17, 1903.

We, the undersigned, judges in the above contest, hereby certify that the run made by the following separators in pursuance of the above agreement was as follows:

As milk could not be obtained for only one run, it was made at a temperature of from 62 to 70 degrees, each machine being given 200 pounds under identically the same conditions. The tests were as follows:

	SKIMMED MILK	CREAM TEST
Alpha	.175	32.5
United States	.125	50.
Empire	.450	19.5
Sharples	.05	25.

[SIGNED] ROBERT CRICKMORE, A. W. TROW, E. J. HENRY.

WRITE FOR CATALOGUE NO. 144.

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P. M. SHARPLES, West Chester, Pa., U. S. A.



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Makers of Dr. Hess Stock Food.

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J. S. BIESECKER,
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Alfalfa in North DaKota.

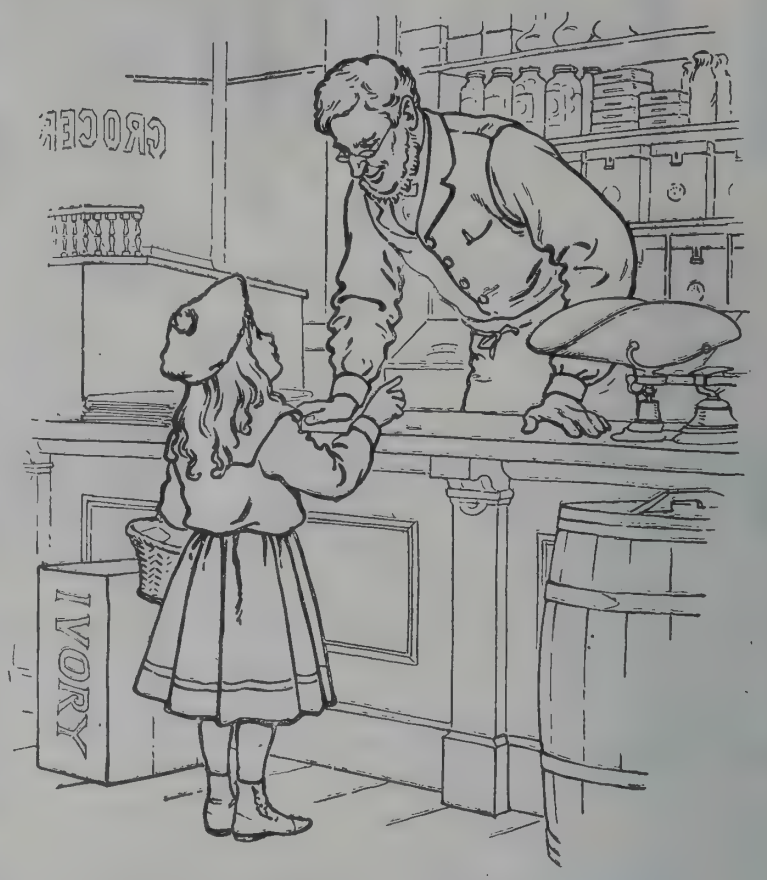
As I am a believer in alfalfa I wish to give my experience in growing it without irrigation. I have a farm at Eldridge, Stutsman county, N. D., and in the spring of 1901, I secured 100 pounds of Turkestan seed and thirty of Grimm's Minnetonka, and sowed it on about ten acres of very rich land which had been heavily manured several times. It came up nicely and was about a foot high August 1st, when we cut it, securing fourteen loads of hay which was mostly weeds and pigeon grass. It made very good hay for sheep. When the stock came from the herd about Oct. 1st, the second growth was up nicely and quite thick, but the sheep and cattle would not let it alone, and it went into the winter without a spear in sight. Much to my surprise it started up nicely in the spring of 1902, and the sheep again kept it nipped until they went to the herd, June 12th. I am now surprised that this pasturing did not kill it, and I think it did injure it, making it quite thin in places. About August 1, 1902, we cut a very good crop and could have cut another crop in the fall, but the stock again helped themselves to it before we got at it.

In the spring of 1903, it came up nicely, though thin in places, as the result of pasturing, I now think. We cut our first crop June 21st, and the second was ready to cut August 1st, but we saved it for seed, and cut it for that purpose about Sept. 20th. We threshed this seed with a common threshing machine, securing 360 pounds of seed and chaff. When cleaned, we expect to have about 200 pounds of good seed which I shall sow on ten acres more of heavily manured land by the side of the other. I doubt if the thresher secured more than half of the seed, but we had no clover huller within reasonable distance, so did the best we could.

Last spring, I secured 20 pounds of seed which came from the far north in Russia, and sowed it with barley on two acres of rich ground. The season was so dry in June and July that it did not do very well, but is all alive at the present time, and about as high as the barley stubble, which was cut when ripe. Where the barley was best, the alfalfa is best, showing that the barley did not hurt it, but rather helped it. I am now convinced that alfalfa can be raised in all the James River country of Dakota, if you get the proper seed, and if you manure the land heavily. We got as much seed this season from the Grimm's Minnetonka, of which I have about two acres, as from the 8 acres of Turkestan. I know parties who are trying seed from Wisconsin and from Utah and their fields have done well for two seasons; but, it is hard to tell what the next two seasons will bring to any of us. My field to-day (Nov. 1st.), is green and, by far, the best feed on the farm—CHAS. B. CLARK, in *Dakota Farmer.*

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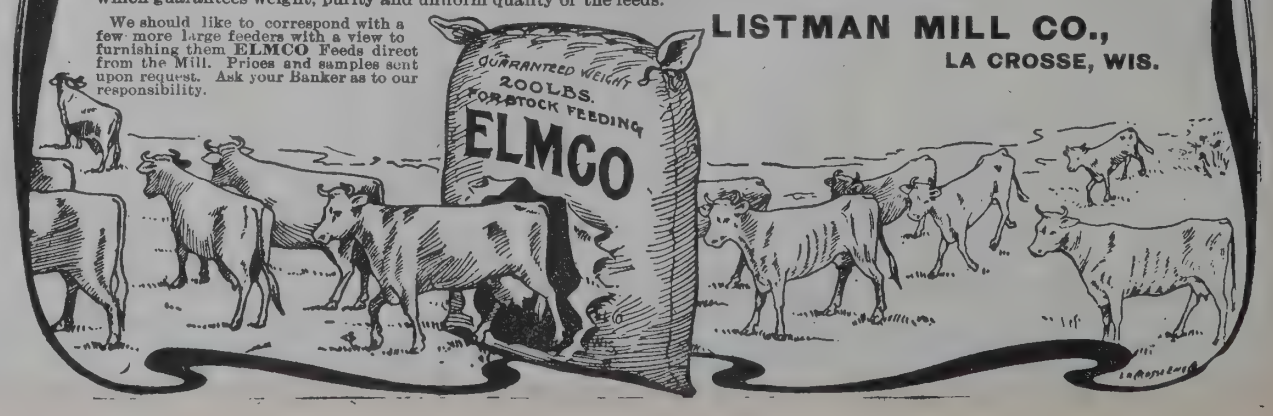
Feed may look all right but be light in nutrition or heavily adulterated. Twenty-five per cent of seventy-eight samples of bulk feed analyzed by the Massachusetts Experiment Station showed serious adulteration. Ground corn cobs, coffee bean hulls and other purely fibrous substances were discovered.

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Convention Afterthoughts.

Features Commendable and Otherwise at the N. Y. State Dairymen's Meeting.

ED. HOARD'S DAIRYMAN:—Taking it as a whole, the meeting at Ogdensburg, N. Y., certainly must be called a success. What reports I have thus far seen about it unanimously express the same verdict. Still it seems to me that it would be more beneficial to all concerned, certainly more interesting, if reporters and observers would not try quite so much to say only things pleasant to all, patting people on the back, so to speak, but would mingle their praises with a few well-aimed kicks, which might temporarily make the receivers feel a little sore, but undoubtedly would in the end have the desired effect. I suppose I am a born kicker, the only trouble is, I do not always get the chance I want (as it just happened at the late convention) and then, the only way I have to give vent to my ire is to ask for space in the dairy papers. How many will read and heed my kicks is another question; some may kick back, which I rather like.

The various dairy papers have given a pretty correct idea both of the numerous exhibits as well as a resumé of the too numerous addresses by the many well-known specialists present. I shall only pick such subjects to kick about or comment upon, in which I am specially interested, and upon which my readers will admit that I have a considerable experience.

A REPORTER'S IMAGINATION.

All probably agree that the great labor necessary in advance of the convention to make it the success it was, was admirably carried out by Sec. W. W. Hall, and the only sad thing was that the overexertion undoubtedly was the cause of his illness, which even prevented his sharing the results of his work during the meeting. But not even his illness or absence could prevent the ever alert reporter of the New York *American* from publishing some extracts from an address by Mr. Hall (which he never made!) in which he had dwelt upon the terrible condition of the shipping cans as returned by the city dealers to the country, and suggested as the best remedy, that cans of the very cheapest material should be used so they might be thrown away after a few trips! Great Scott! Well, I showed Mr. Hall what he had said and hope it did not give him a backset! As I hardly can credit the reporter for quite so much invention, I guess some friendly joker had "posted" him. And that was all the New York *American* had to say about the whole convention.

It is far more pleasant to quarrel with our friends than with our enemies, and as I sat listening to the good things Professor Pearson said, waiting to hear the still better ones he left unsaid, I was just aching for an opportunity to pick a friendly quarrel with him regarding the possible and practical means to supply better and purer milk to all the people of our cities. My chance never came, but that is another kick to be applied separarately. Remembering a bulletin by Mr. Pearson on "Market Milk" and also his late connection as general manager of the Walker-Gordon Co., I had my grave suspicions that he would only speak about "ideal," and consequently expensive milk for the favored few, and not about milk of such possible purity which would put it within the reach of those people whose pocketbook is not always full.

Let me say first, that I fully agree with Prof. Pearson and others, that it is proper to encourage all dairy farmers as to the more careful production and handling of milk and sanitary precautions generally, and that it is right, at dairy schools and by other means of instruction, to teach how such ideal milk may be produced. But let us not deceive ourselves and others by even suggesting as a possibility that the bulk of that ocean of milk used in our cities, will be or could be supplied of such ideal character and at prices only slightly higher than what reputable dealers furnish milk for to-day. It neither will nor can be done during this generation, or the next if ever, and we want to find means and methods by which we can supply all the children, the invalids and the well people, rich, poor and the great host between, with such milk which every physician can recommend as safe and wholesome, and that at prices so reasonable that the demand will increase and yet the supply be sufficient.

I took down a few of Prof. Pearson's statements especially worthy of comment. He said one-third of the cows of this country produced milk for market; just think what it would mean, not only to educate one third of our milk producers to be conscientious, careful and sanitary, but to provide them with means necessary to put everything connected with cows and milk in sanitary condition! He admitted it as an "unsolved problem" to economically produce and handle sanitary milk, and it will remain an unsolved problem as long as we keep on harping about certified, ideal milk.

Prof. Pearson is right when he said, "We want pure milk," but we shall never have it for the masses as long as we will not adopt some other more practical method, as proper pasteurization will surely prove to be, as in fact, it already does prove in many places. When Prof. Pearson stated that almost all milk was used raw, he is hardly correct; in several cities to-day, notably in the West, over half of the milk sold has been pasteurized, and during the last couple of years pasteurized milk exclusively is supplied by several of the largest dealers in New York, Philadelphia and Chicago. Some are distributing pasteurized milk without saying anything about it, and some, I am sorry to say, are claiming by elaborate signs that they furnish pasteurized milk in sterilized bottles, when frequently the facts are that some milk never was pasteurized at all, only simply heated in some makeshift fashion, and the sterilization of bottles only a fairy tale.

But such misdemeanors cannot be blamed to the system of pasteurization, but partly to the dishonesty of certain dealers, partly to the lack of proper milk inspection, which will become far easier and less expensive when pasteurization of all milk is made compulsory, except such supplied from specially inspected sanitary dairies. Prof. Pearson was exactly correct saying that "good milk increases the demand," but he surely knows as well that higher prices do not. And with all respect to sanitary precautions, it is mere nonsense telling average farmers that the expense would be trifling to produce such milk as would pass the standard of the Milk Commissions for "certified" milk. If it were so, certainly more than four dairies in Philadelphia and six or eight in New York (some of them quite small) would to-day be furnishing such. The undeniable fact is, that the visible results from all the labor of the milk commissions have been very slight, and I have my doubts whether by their over-strict demands they have not done more to discourage farmers from efforts to produce pure milk, than otherwise. Few only are producing a truly sanitary raw milk, and fewer claim that it pays, even if they get a much higher price than for average milk.

The trouble is, that much so-called certified milk to-day is no more sanitary or wholesome than much other milk, which may be had for almost half the price. I think Professor Pearson was a little inconsistent when he first said that conditions necessary for the production of clean milk was easy for thousands, who could cheaply change from unsanitary to sanitary conditions (I only put down the meaning, not the words); and afterwards stated that the extreme care of producing and handling milk for retail was not necessary, for that supplied to a creamery! Why not, when the expenses were so slight?

The fact is Prof. Pearson knows as well as I, even better, that the Walker-Gordon Co., H. B. Gurler and others, could not produce certified milk and do business unless they got the high price, because the expenses are very considerable and the distribution very costly, because the customers are scattered and only small quantities are taken for special purposes. Even the wealthiest people are not willing to pay extra prices for milk used for general household purposes, but will buy such milk from a cheaper source.

While we all agree with Prof. Pearson that cleanliness is the first essential for all sanitary milk supply, yet I for one do not agree with him when he says "aerating, straining, clarifying and pasteurizing are all only means of partially offsetting uncleanly methods." If that is so, then cooling likewise should be put in the same class; but it is true neither of pasteurizing nor cooling. No true friend of pasteurization believes in less cleanliness. On the contrary we know from actual experience that since the introduction of compulsory pasteurization of milk and cream at the creameries in Denmark, the general standard of cleanliness and care in milking has been enormously raised, because today no milk, even slightly sour, will be received at any creamery. The cleaner and sweeter the raw milk, the better the pasteurized product. Pasteurization is not a makeshift to improve bad milk a little, but a means to make good milk better and keep better and be freed from such contamination as may have taken place.

What is the use to keep on telling us about a few dairymen who ship milk five hundred miles in good condition, or somebody's raw milk keeping sweet six weeks, when we know such work is impractical for ninety-nine out of one hundred dairymen? As the supply of milk for our great cities almost entirely must come from large dealers or corporations, these are the parties to compel the farmers to supply only clean and sweet milk, without preservatives which have become entirely superfluous wherever pasteurization has been properly adopted by the dealer. Prof. Pearson himself admits that much benefit for general milk supply may be gained by proper pasteurization and I do not conceive his object in absolutely avoiding saying anything about it in an address on Market Milk.

DISCUSSION FIRST POSTPONED, THEN ENTIRELY OMITTED.

Mr. Monrad called attention to the lack of time allowed for discussion of important subjects at former conventions, and the same happened again. Mr. Van Wagenen was to open the discussion; he made a talk himself of some ten minutes, when Pres. Cook came forward and stated that as the time was short, it would be better to postpone the discussion until the next day's meeting, those desiring to take part in the discussion to raise their hands; which I did for one. When the meeting was opened next day, we were informed, as many wished to leave by 3.30 train and wanted to hear Prof. Hunt and Gov. Hoard, they would speak first; that was the last of any allusions to any discussion on "Market Milk" or any other subject. I know a great number agree with Monrad and myself, that it is a serious mistake to have so many addresses that all discussions are crowded out. No matter how fine the addresses, they are more or less one-sided and only by discussions have we a chance to draw out different views. I would suggest to limit all addresses to ten or fifteen, possibly twenty, minutes, and then by program allow at least twenty or thirty minutes to questions and discussions. It would be worth trying any way.

Ohio. J. MOLDENHAWER.





GUERNSEYS AT PASTURE.

Dairy Questions Answered by Prof. Farrington.

ADVANTAGES OF A CREAM RIPENER.

We are going to get either a new cream vat or a Farrington ripener, and we would like your opinion in regard to which will be the better one for us to have. Can we cool cream in the ripener with water that comes from the well at 51 degrees so that we will not have to use ice in the cream? At the present time we are using an open vat, and add large pieces of ice directly to the cream. Will the cream remain cold over night after it has cooled in the ripener? How long does it usually take to cool ripened cream? We are at present getting 18,000 pounds of milk per day and our cream vat is not large enough to hold all the cream we are now getting.

Milton Junction, Wis. * * * *

If you have a good supply of cold wa-

ter I think you will be able to control the cream during ripening by using the Farrington ripener. We have three different kinds of ripening vats at the dairy school and find that we use the Farrington ripener more than any other, because we are able to have the cream under our control better than when it is ripened in an open vat.

I do not like the practice of adding ice directly to the cream, because the cream around the lumps of ice is reduced to a much colder temperature than that a little ways from it. This will naturally make an uneven ripening, and although in some cases it is necessary to add ice to the cream, I think it is better not to do so.

It usually takes longer to cool ripened cream than sweet cream because the ripened cream is thicker and does not flow so easily in the vat.

At such a large factory as you have, I presume you keep up steam during the entire afternoon, and are probably at the factory until evening. If this is the case it will be no trouble for you to pump water and run the ripener in the afternoon. In a small factory, where not much cream is received, the buttermaker often gets through his work by noon, and then allows the steam in the boiler to go down and the fire to go out. He is, therefore, not able to pump water for cooling the cream in the ripener at five to six o'clock, when such cooling is usually needed. This is about the only reasonable objection that I have ever heard made to the Farrington ripener, at small creameries, but in such a factory as yours where the machinery is in running order all day, you will not be troubled with such a thing.

The time required to cool cream in a ripener will depend entirely on the amount of cream you have to cool and the size of your ripener. If you have more cream than will be held in a three hundred gallon ripener I think it is better to get two ripeners than one larger than this.

Brine Salting Butter.

"What is the best method of salting butter? Do you use brine or dry salt and which method do you prefer? I am using a combined churn and worker and have some difficulty in getting my butter evenly worked and salted. If you prefer the brine method will you kindly tell me something of how you make the brine and put it in the churn and what proportion you use to the pound?" * * * *

Boise, Idaho.

The nearly universal practice at the present time is to use dry salt in salting butter. The cream is churned until the butter granules are about the size of wheat grains; the buttermilk is then drained off, water is added and after one or two washings of this granular butter it is allowed to stand in the churn until the surplus water is drained out, the dry salt is then added to this butter in the churn. It is ordinarily sifted through a fine sieve in order to prevent either small or large lumps of salt getting into the butter. The butter is then revolved in the churn about a dozen times and allowed to stand a few minutes; it is then worked in order to complete the even mixing of the salt through the butter and the explusion of any buttermilk and surplus water which may be held by the granular butter.

The amount of salt which remains in the finished butter product, depends a great deal on the amount of working that the butter receives after the salt is added. If the granules are particularly moist, the salt will be easily squeezed out by the working and leave the butter comparatively fresh in taste although considerable salt has been added to it. If on the other hand the granules are very dry when the salt is added to them, so much brine is not expelled by the same amount of working as will be the case when the granules are more moist.

In brine salting of butter a solution of salt is made by adding an excessive amount of salt to water with frequent stirring. The amount of brine that should be made will depend entirely on the size of the churn and the amount of butter to be salted. Enough brine is needed to completely cover the granular butter in the churn. The brine should be made up to a saturated solution, that is keep adding salt to the water until no more of it will disolve and a certain amount is deposited on the bottom of the vat or can in which the brine is being made.

The supernatant liquid, or the liquid above the salt, may, when it is wanted for salting the butter, be added to the granular butter in the churn in the same way as dry salt was added as previously described. The granular butter is allowed to stand in the brine in the churn some little time and the churn revolved a few times. The brine is then drawn off and saved, the butter taken out of the churn and worked a very little. As a rule it will not need so much working as in the case when butter is dry salted. It is rather difficult to get a sufficient amount of brine to stay in the butter and give it the necessary salt taste.

Brine salted butter as a rule is too fresh for the general market. This is also an expensive method of salting butter, because a great deal more salt must be used in making the brine than would be used if dry salt was added directly to the butter. It is possible that the surplus brine after it is drawn from the churn may be used a second time but it will naturally accumulate a certain amount of dirt by constant use and it is not a very convenient liquid to keep, as brine will attack tin vessels in which it is held if kept for any length of time.

I do not know that brine salting of butter is practiced to any great extent. It is a good way to make light salted butter, which is not often mottled, but will have a very uniform color.

If you are using dry salt at the present time and are having some trouble with mottles or unevenness in the body and texture of your butter, you may easily overcome this by working your butter several times, that is, increase the amount of working which you have been giving your butter in the past. If you have been in the habit of working the butter in your churn a certain number of revolutions, say twenty, in the past, divide this twenty revolutions into four periods of five revolutions each and allow the butter to stand half an hour or more between each working. This, I think, will overcome the trouble you are now having.

Changing Richness of Cream.

"I take the liberty to ask you if hand separator cream will vary much in test, and if so, what are the causes of the variation?" * * * *

Cameron, Wis.

The richness of hand separator cream will vary at different times if the separation is not alwys carried on in exactly the same way. There are some separators which will skim milk thoroughly, even when there is considerable variation in temperature of the milk skimmed, the amount of milk allowed to run through the machine and the speed of the bowl, but as a rule the majority of hand separators now on the market, must be carefully run and the condition of the milk as to its temperature and amount as well as speed of the bowl must be uniform each time it is used, if satisfactory results are obtained in the skimming.

The richness of cream as it comes from the separator is increased first, by increasing the speed of the bowl. Second, by diminishing the amount of milk allowed to run through the separator. Third, by heating the milk to a high temperature. Fourth, by keeping water out of the bowl when starting it and stopping it. Fifth, by turning in the cream screw of the separator bowl.

The richness of cream is decreased first, by forcing more milk through the separator bowl than it was built to skim. Second, by skimming cold milk. Third, by low speed of the separator bowl. Fourth, by turning out the cream screw in the separator bowl. Fifth, by adding water to the bowl before the milk is allowed to run into it and flushing the bowl with water when the operator has finished skimming the milk.

These are a few of the points each owner of a hand separator ought to be familiar with, and he ought to know the influence which these different changes in speed, temperature, etc., have on the richness of the cream and the test of the skim milk. When he becomes familiar with these things, there will be no difficulty whatever in skimming milk at the farm, which will be uniform in richness from day to day.

E. H. Farrington.

Wisconsin Dairy School.

Holstein-Friesian Special Prizes.

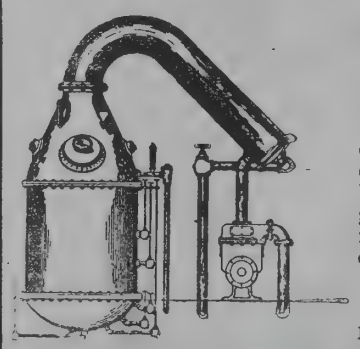
The World's Fair committee of the Holstein-Friesian Associatian of America is sending out an address to breeders and exhibitors of Holstein-Friesian cattle, relative to an especial effort toward an exceptional display of that breed at St. Louis next September. The committee is composed of six prominent breeders, with W. J. Gillett of Rosendale, Wis., as chairman.

The address makes the following reference to the World's Fair prizes offered by the Holstein-Friesian Association:

"Public esteem and the merits of the Holstein-Friesian breed demand that a most creditable show of our cattle be present at this great Exposition. Realiz-









ing the importance of a representative exhibit of Holstein-Friesians at St. Louis, the Holstein-Friesian Association of America has offered special prizes for exhibits of its cattle, which, together with the regular prizes offered by the Exposition, make a sum to be competed for in amount never before offered at any live stock show. It will be seen from the arrangement of prizes offered that the large and the small breeder have an equal chance of winning something, and that it would be hardly possible for any herd of ordinary merit to show at St. Louis and win nothing. Great things are expected of us, and the Holstein-Friesian Association appeals to its breeders with an urgent request that the display of our cattle shall far surpass any previous exhibition."

Acid in Silage.

ED. HOARD'S DAIRYMAN:—I built a silo last fall and filled it with corn that from appearances would yield about 120 bushels of ear corn to the acre. We like it and the cows seem to do well. But there is a question that is bothering me; our silage, like all silage that I have seen, while it has a pleasant, sweet smell, not unlike Atlas gluten meal, yet it contains considerable acid. Now acid cannot be in anyway nutritious; it may be all right as a condiment, but surely the sugar and starch that has turned to acid must be lost as nutriment.

I would like to know if any of our agricultural chemists have ever worked out the problem, and know really what the real loss of nutriment is per hundred lbs. of the ensilage, as compared to one hundred pounds, before it is fermented, each, of the stalks and grain, separate?

I am quite taken with the silo, and if it could be kept without the acid, I should feel that the question of caring for the corn crop had been nearly settled. But am inclined to think the grain had better be kept separate. Am I not right? Would add that our corn was cut into the silo when it was nearly all glazed, and was just common yellow and some white dent variety. S. A. B.

Albion, Mich.

The acids of silage is a question which has caused much unnecessary discussion and many faults have been attributed to them, from decaying the cows' teeth to souring the milk. The fact is that the amount of acids in silage is of little influence except as an appetizer, and does not represent any appreciable loss in feeding value of the corn, even if it were entirely worthless as a food, which it is not.

One hundred tons of sweet silage would contain about 600 pounds of acid, which if entirely lost would have a value of about $1.00; but as it has an actual feeding value about equal to the carbohydrates from which it is made, the presence of acids in silage is of no disadvantage, and is far outweighed by the saving which comes from this method of handling corn.

Some Good Results from Connecticut.

ED. HOARD'S DAIRYMAN:—I see that many of your readers get up and speak their piece. I wonder if I should write mine, I should be told to go way back and sit down. Well here goes anyway. I own about twenty acres of land, fifteen of it is tillable, the balance pasture. I have rented for the past two years thirteen acres more; five acres of this would cut about ½ ton of hay per acre, but I had sowed corn for ensilage on half of it and mowed the rest. The other eight acres is simply exercise ground for my cows. I think I built the first silo in this state and you can imagine some of the names I was called for the first few years.

The cow has been my hobby as a farm animal; have cared for them for over fifty years and been owner of them for over forty years. Last year was my banner year. With an average of nine cows, I sold cream and milk wholesale from them to the amount of $1,369.61, besides the milk used by two families. Pork sold, $182.66. This includes one hog used at home, at the price I could sell it for. I kept four horses from Jan. 1st 1902 to Jan. 1st, 1903; one extra for five months, I got some of this year mixed. Sold $65 worth of hay in barn and had hay left. My neighbors said I could never do this again, but my motto is to advance, never to retreat.

This year I shall cross the line, head, neck and shoulders ahead of last year. I commenced to read the DAIRYMAN Jan. 1st, 1903, and think some of my success, if I may call it so, is due to it. I have read farm papers for over fifty years; do not think I ever received much harm from them. I do not know what a balanced ration is, but I have frequent talks with my cows and what suits them tickles me immensely.

Norwalk, Conn. HIT OR MISS.

Milking Quality of Polled Angus Cows.

ED. HOARD'S DAIRYMAN:—Some of your readers may be interested, as I have been, in the testing of the quality of milk from Polled Angus cows. I have been milking a herd of between 30 and 40 of them for some time on my farm at Harvard, Ills., and enclose copy of letter from the Oatman Condensed Milk Co. regarding the tests made from their milk.

Dundee, Ill. Dec. 5, 1903.

GENTLEMEN:—It gives us pleasure to report to you the result of a test made at our Harvard Factory, of your dairy of registered and high grade Polled Angus cows. The samples submitted by your foreman, Mr. Esmond, tested out very clear, and the samples from the four cows submitted for test on Nov. 22nd averaged 5.85% butter fat, and the samples tested on the 29th of the same month averaged 5.32%. The test made from the milk of your entire herd of grade Angus cows has averaged from 4% to 4.50% butter fat for the entire season, which is one of the highest, if not the highest test, of any dairy coming to this factory.

Thanking you for your many kind favors of the past, and soliciting a continuance for the future, we are Yours very truly,

THE OATMAN CONDENSED MILK CO.

From my experience with these cows for a number of years, and from this and other reports regarding the quality of their milk, I am satisfied that well selected Angus cows are valuable for dairy purposes as well as for beef, and the quantity of milk given will compare favorably with the average herd of grade dairy cows.

This fact and the other fact, that they give milk a longer season than others, are both much in their favor.

Chicago, Ill. J. H. M.

Trouble from Feeding Silage.

ED. HOARD'S DAIRYMAN:—The trouble with the cows of G. B. T., Ocala, Fla., is he should feed silage with cotton seed hulls until they get used to full feeds of silage. If his sorghum was put up too green he must be careful not to give large feeds at once. I had the same trouble.

Selma, Ala. W. H. H.

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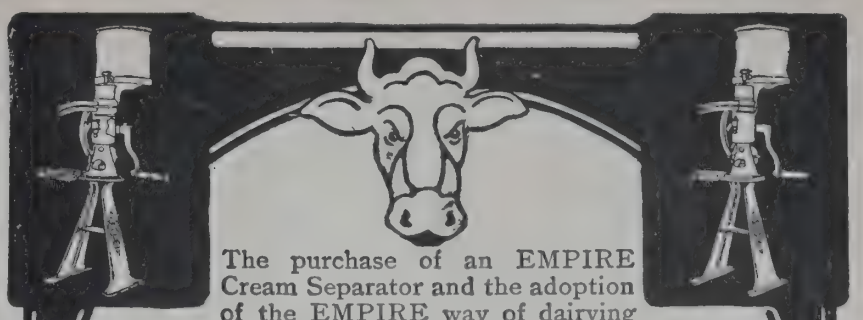
"Since finding the benefit I derived from Grape-Nuts I have prescribed the food for all of my patients suffering from indigestion or over-feeding and also for those recovering from disease where I want a food easy to take and certain to digest and that will not overtax the stomach.

"I always find the results I look for when I prescribe Grape-Nuts. For ethical reasons please omit my name. "Name given by mail by Postum Co., Battle Creek, Mich.

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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of them read dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

AS IT IS IN INDIANA.

C. P. Goodrich took a cow census at Plymouth, Ind., a few weeks since of 50 farmers patrons of a creamery. Note the following facts: The total number of cows was 250: the average cost of keeping per cow was $24.96; the average returns in butter fat per cow was $32.20; the average number of pounds of butter fat per cow was only 166; the average net price was 19.4 cents: the average net profit per cow above cost of feed was $7.24; the average returns for $1 worth of fead was $1.29. The six patrons who read a dairy paper averaged $21 per cow over and above the cost of feed, while the 44 who did not read a dairy paper received only $5.58 per cow above the cost of feed. Does it pay to go without sound dairy reading?

COMING EVENTS.

Ohio Dairymen's Association, Columbus, Jan. 27-29, 1904.

New Jersey Agricultural and Dairy Convention, Trenton, N. J., Jan. 14 15 and 16.

Massachusetts Creamery Association, Greenfield.

Connecticut Dairymen's Association, Hartford, Jan. 20-21.

Wisconsin Buttermakers' Meeting, Eau Claire, Feb. 2-4, 1904.

Wisconsin Dairymen's Convention at Platteville, Feb. 10–12,1904.

THE CHEMIST AND THE FARMER.

The source of all our scientific knowledge of feeding comes from agricultural chemistry. The ordinary farmer does not believe that the chemist knows any more about feeds and feeding than he does, and so there is a gulf between the two. HOARD'S DAIRYMAN gives full credit to the man who has lived by practice alone, and knows nothing of the chemistry of feeds. But he is a very much mistaken man if he thinks he knows so much that he has no need to learn more. Outside of all he knows is a vast store of valuable knowledge which he may read and digest if he will but increase his knowledge of the terms used, so he may understand what he reads. A great many farmers who realize that they need this scientific knowledge have said to us in effect as follows: "What am I to do? I would gladly read more, as you advise, but I have never had a liberal education and I cannot understand the terms that are used. I want the knowledge but it is locked up behind a lot of scientific language the meaning of which I have never learned. What shall I do?

This looks like an almost insurmountable difficulty, but it is not. Any man of average intelligence can educate himself to an understanding of scientific terms by use of a good dictionary and constant reading. As we familiarize our minds with certain forms of language, their meaning becomes clear and apparent. No man ever learned to swim by keeping away from the water. The only way to educate and enlarge our judgment is to force our minds into contact with knowledge. These long winter evenings are just the time to increase our stores of knowledge. The dairy farmer should be just as hard a student of books as any other man in society. Henry's Feeds and Feeding and Webster's Dictionary will soon put any good man into an understanding of the meaning of the terms of agricultural chemistry, and what a different man he will feel himself to be.

MORE FACTS.

HOARD'S DAIRYMAN is a great believer in the education of facts. It believes that as a dairy journal it should constantly set forth dairy facts as a source of education to its readers. Any line of facts which serve to show how a farmer can build up a profitable herd of cows, is particularly welcome.

There is such a wide difference in success, between the earnest, energetic farmer who makes a dairy student of hinself, and the average farmer who keeps cows, almost any kind of cows, in almost any kind of way. It is the facts relating to this great difference, that we are after all the time. That is the reason we spend so much money on the taking of these cow censuses. It means showing up the facts, between the man who will not think and read and strive to do better, and the real dairy farmer, and the examples of good, wide-awake farmers, who are making a fine profit and a splendid example of themselves, are multiplying, as John Gould would say, "with frightful rapidity,"

The reason of it is because there are so many more men each year who are coming into the ranks of the readers and thinkers. They are fine workers too and they get good encouragement for working.

The great, consuming purpose of HOARD'S DAIRYMAN is to increase the number of farmers who keep herds of cows at first-class profit. That means the use of brains. We are not after big herds of cows, poor cows, but rather a great lot of small herds, say 10 to 20, which are composed of first class dairy cows.

Here is another example of a man who has grown in dairy faith and righteousness. Mr. J. W. Helmes of Adrian, Michigan has a small herd of 11 registered Jersey cows. He built up this herd himself from one cow. Here is the story as he tells it himself. It is a record any farmer could make if he will but read and think on these things. Mr. Helme says:

"I finally purchased a granddaughter of the Jersey cow Matilda 4th, for which I paid $300 spot cash. She was in calf to the best living bull at that time, the sire of Ida Marigold, who had just won sweepstakes at the World's Fair. She dropped me a bull calf—just what I wanted to head my new herd. Pretty big price, you say. Well, she was the best investment I ever made. Last year, at the age of sixteen years, she dropped me a calf that I sold for seventy-five dollars, and gave me 7000 pounds of milk, which sold in the form of cream for over $100, and she has been doing this for each of the nine years she has been with me. She was not a phenomenal milker, but very persistent, hard to dry up, rugged and healthy. She had a pedigree in which every animal had been a star. This is what counted the most. To-day, every animal in my herd, twenty-five in number, are her daughters and granddaughters, and every one in milk will produce more milk and butter, when mature, than she."

"The milk of this herd is made into cream and the cream sold directly to the consumer in Adrian. Considerable skim-milk is also sold, at two cents a quart. Balance of skim-milk goes to feed pure bred calves, all of which are sold for breeding purposes. Under such circumstances the returns are hardly a fair comparison for the average dairy herd. I give them for what they are worth. Cream and skim-milk sold during the year, $1,350; young stock, $325; making gross returns of over $150 per cow."

"These figures do not include milk and cream for a family of six, nor two quarts a day for the hired man, nor butter that we get from an occasional churning when the cream trade is dull, nor calves on hand dropped during the year."

Now in face of all such facts, where hundreds of men are making handsome profits with Jerseys in both registered and unregistered herds, there are thousands of farmers who go to nearly the same expense with scrub, dual-purpose cows, and who say they had as soon have a goat on the farm as a Jersey. Is there anything on earth that a man will pay as much for as he will for his prejudice? The old colored preacher said: "Every man hugs his own foolishness same as he duz his children, kase dey belongs to him."

VALUABLE DATA.

Mr. J. H. Ingham, of Pennsylvania, writes a very interesting letter to the *Ohio Farmer*, the purpose of which is to controvert the assertion made by the senior editor of the DAIRYMAN to the effect that there was no profit in cows which gave only 125 pounds of butter a year. Mr. Ingham cites the following record which we are glad to lay before our readers for the purpose of placing such data within our files:

The most comprehensive, exact, and valuable statistics of individual farm dairying that I have ever seen published are those of Zadoc Pratt of Prattsville, Greene Co., N. Y. I produce his statistics because the conditions under which he carried on the dairy business were similar to the conditions under which some of us are surrounded now. He carried on the dairy business from 1857 until 1863, inclusive—a period of seven years. As he kept 50 cows the first six years and 80 cows the seventh, I find it easier to take the first six years and the 50 cows, and make it a general average for six years as follows:

Average quantity of milk per day for each cow for 8 months, 18 pounds or 9.46 qts.

Average weight of butter per day from each cow for 8 months, 11.48 oz.

Average number of pounds of butter from each cow for season of 8 months, 180 lbs.

Average value received for each quart of milk made into butter, 1.77c.

Average price received for butter for six years, 24.2c.

Average amount of cash received for butter from each cow, $43.56.

Average amount of pork fattened from milk of each cow per year, 129 lbs.

Average price received for pork per pound, 10c.

Net profit on 50 cows each year for six years, after deducting all expenses and allowing $700 for interest on capital invested, $1,439.32.

Average net profit on each cow per annum over all expenses, $28.78.

His 7th year (1863) with 80 cows, owing to the higher prices caused by the war, was the most profitable of all, but I have not included that year in the calculation. He valued his farm and 50 cows at $10,000, and his net profit on his capital was 21.4 per cent per annum. When we bear in mind that he commenced business in 1857, a year of great business depression, and that the first four years that he followed it were previous to the civil war and inflated prices, we can readily admit that his tables are safe ones to go by, if we only practice the same care and economy. His cows were native stock; he had no cattle to sell, no motive to misrepresent, and so far as I know, his statements have never been disputed. The average price he received for butter (24.2c) was not excessive; we are getting that much now.

The 830 farmers and their herds which have been studied in these columns through our "cow census" work, affords very close and accurate data as to what proportion of creamery patrons are making a profit, and the per cent of profit or loss. No such data on this question was ever before laid before the dairy public.

AN OBJECT LESSON IN CREAMERY MANAGEMENT.

We desire to call the attention of our readers to the annual statement, published in another place in this issue, of the Iola, Wis., creamery. This institution is rightly considered one of the first-class creameries in this state. The community about it is composed of a class of thrifty, wide-awake Norwegian farmers, but they had had no training or education in the special lines of dairy farming.

The creamery was started something like ten years ago, but it did not flourish well. A little over six years ago the patrons hired Mr. C. L. Passmore as buttermaker. Mr. Passmore was a hard student in the art of butter and cheese making. But he was not satisfied, as many creamery buttermakers are, with just his day's work inside the creamery. He is patient, tactful and a good mixer with his fellow men.

At the end of the second year his patrons sent him to the Iowa Dairy School for a three months' term of instruction. One great secret in Mr. Passmore's success in building up the Iola creamery has been his idea that the foundation of all true progress in this business is the promotion of the education, and consequently the larger profit of the farmer who produces the milk.

He has done everything in his power to get his patrons to see how to do better work; how to become better dairy farmers; in short, to help the farmer to so conduct his share of the business that he may obtain from it the largest profit possible. To do this well the average creamery patron needs much friendly instruction in the matter of handling the skim milk, compounding rations, handling and stabling his cows; all these and many more details constitute the sum of successful dairy farming. All these things Mr. Passmore recognized as a part of his duty as a buttermaker. He has also done all he could to promote a taste for sound dairy reading. The result of such an excellent combination of ability and wholesome purpose has made a model creamery and a happy, prosperous dairy community.

A Quebec Letter and Inquiry.

ED. HOARD'S DAIRYMAN:—Enclosed please find one dollar for Prof. Decker's book on Dairying. I hope you have heard from some of the farmers to whom I distributed some sample copies of your paper.

I am starting a dairy, having purchased a farm of 150 acres last August and found 7 old cows, 3 three-year-old steers, 5 two-year-olds, 5 yearlings, and 7 calves, all poor stock, but as I bought them cheap, I sold almost all off, and have commenced buying good stock, and have now 7 good, large, young cows, well bred for dairying. One recently calved and is giving 35 lbs. of milk per day, and will get as soon as I can find them, ten or twelve more cows.

I find your paper invaluable and think you are more than doing your duty in giving such valuable information to your wide spread correspondents, considering the climate, soil, etc., in replying for balanced rations. I therefore send you a list of feed to be had in this neighborhood, hoping you will reply to me as to others. There is no silo on the place, but will have one next year. I have probably between hay and unthreshed oats and barley about 30 tons. My men object to feeding unthreshed oats, or partially

threshed on the barn floor, by horses stamping it out, saying it was too much work and waste. A veterinary doctor told me the partially threshed oat straw was as good and better than hay, but owing to the difficulty of getting help, I am afraid I will have to thresh out my oats and buy hay. I have some yearlings and calves yet, also four horses.

The price of feed here is for middlings, $24 per ton; bran, $19; pea meal, $29; ground wheat, $28; barley meal, $27; gluten meal, $25; cotton seed meal $27; corn and oat meal, $23; on hand 200 bushels potatoes, $10; shelled corn, $22; oats 40 cents per bushel, 36 lbs.; on hand 15 tons hay, $10 per ton.

Kindly send me a ration for cows freshening in March, and ones just calved, also for young stock, for I believe in feeding all animals properly. J. G. L.

Melbourne, Quebec.

We quite agree with the veterinarian as to the feeding value of the unthreshed oats, but should prefer not to have them tramped by the horses. Feed direct from the bundle once a day, and hay once a day, all that will be eaten without unnecessary waste. This should suffice for the young stock and very likely for the cows to freshen next March. Add, if the indications appear to demand it, a moderate allowance of the ground corn and oats, and an occasional mess (6 to 10 lbs.) of raw potatoes to keep the digestive tract in good order.

For the milch cows that are capable of giving 35 lbs. of milk, daily, add to all the hay and sheaf oats they will eat, 4 lbs. bran and 4 lbs. gluten meal, daily, not omitting salt.

A Texas Feeding Inquiry.

Is Rice Bran Good for Cows ?

ED. HOARD'S DAIRYMAN:—Enclosed please find part of advertising letter containing analysis of rice bran.

Will you kindly state in your paper what you think of it as a feed for milk cows? If you think it O. K., will you kindly give me a balanced ration of the following feed stuffs, bearing in mind that I am not making butter, but am after milk: Rice bran, wheat bran, cotton seed meal, cotton seed hulls and pea vine hay.

I have never seen where you included hulls in any of your rations, but down here cotton seed hulls are the principal feed stuff for milk cows. The butter here is awful, being white and brittle and sticks to the roof of the mouth like cold tallow. I am aware of the fact that the awfulness of the butter, is due to the feeding of so much cotton seed.

Longview, Texas. H. T.

The advertising letter referred to contains, among other matter, the following statement, said to have been made by the Louisana State Chemist, concerning the digestible nutrients in rice products, namely:

	Protein	Carbohydrates	Fat
Rice bran (30% hulls)	6.39	36.50	5.43
Rice polish	7.25	6.00	4.36
Rice meal (pure bran free from hulls)	8.80	42.00	10.50

It further states that feeding rice bran has no bad effect on stock of any kind, and from the sample sent us by another Texas correspondent, we should be inclined to the same opinion, were it not for the fact that about two years ago, Professor Connor of Clemson College, S. Carolina, wrote us that rice bran had not proven a satisfactory feed in the herd under his care, and a few weeks later, a gentleman at Mobile wrote confirming Prof. Connors's opinion. Both say that, if fed at all, it should be in relatively small amounts.

This is all the direct evidence we have on the subject, but until it is disproven, we cannot feel at liberty to recommend feeding rice bran except in limited quantity and in an experimental way.

It is true we seldom recommend feeding cotton seed hulls. They contain comparatively little digestible nutriment and that little not easily digested. In the absence of other and better roughage, they serve the very necessary purpose of filling the stomachs, the same as straw does in the grain growing sections, but contribute very little otherwise towards milk production.

As an average allowance for a herd, feeding some cows more and others less, according to each one's ability to respond at the pail, we are of the opinion that the following formula may be helpful by way of suggestion:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. cow pea hay	8.93	1.08	3.86	.11
10 lbs. cotton seed hulls	8.89	.03	3.31	.17
4 lbs. wheat bran	3 52	.50	1.54	.12
2 lbs. cotton seed meal	1.83	.74	34	17
Totals	23.17	2.35	9.05	.57

If thought desirable, in view of what has been said above, one might substitute 2 lbs. of rice bran for the same amount of wheat bran.

Program of the Wisconsin Dairymen's Convention.

WEDNESDAY, FEB. 10, 1904.

FIRST SESSION, 9:30 A. M.

Opening Exercises. Introductions and Individual Greetings.
Welcoming Address by the Mayor.
Response by officers of the Association.
President's Annual Address.

SECOND SESSION, 1:30 P. M.

A Local Cow Census and its Lessons - - - - H. C. Taylor, Orfordville
Address - W. D. Hoard, Fort Atkinson
A Day at the Dairy School - - - - Clarence T. Bragg, Bloomer
Appointment of Committees.

THIRD SESSION, 7:30 P. M.

A most interesting special program is in preparation, which will include addresses by Mrs. Adda F. Howie, and others, interspersed with music, readings and short talks.

THURSDAY, FEB. 11, 1904.

FIRST SESSION, 9:00 A. M.

The first hour of this session will be given over to an inspection of the various exhibits.

What Forage shall the Dairy Farmer Raise - - - - C. L. Everett, Racine
The Farmer's Cow - - - - C. P. Goodrich, Fort Atkinson
Veterinary Address, for Men Only - - - - Dr. A. T. Peters, Nebraska

SECOND SESSION, 1:30 P. M.

Address Mrs. Adda F. Howie, Elm Grove
Needs of the Southwestern Wisconsin Cheese Industry - - U. S. Baer, Madison
Wisconsin Swiss Cheese Industry - - - - Fred Marty, Browntown

THIRD SESSION, 6:30 P. M. SHARP.

Annual banquet with post prandial supplement.

FRIDAY, FEB. 12, 1904.

FIRST SESSION, 9 A. M.

Wisconsin's Creameries—Their Needs and Duties - - - James G. Moore, Albion
Bacteria and Milk Supplies for City or Factory Use - Dr. H. L. Russell, Madison
Address on Veterinary Topics - - - - Dr. A. T. Peters, Nebraska

SECOND SESSION, 1:30 P. M.

Cheap Feeds for our Cows - - - - Chas. L. Hill, Rosendale
Feed and Care of the Dairy Cow - - - - J. R. Danks, Madison
Milk and Honey - N. E. France, Platteville

PREMIUMS.

The Association offers the following premiums on butter and cheese made in Wisconsin.

$30—SWEEPSTAKES—$30.

For the exhibit of butter scoring the highest number of points $15.00
For the exhibit of cheese scoring the highest number of points $15.00

$170—PRO RATA FUND—$170.

The balance of the amount set aside for premiums, amounting to $170, will be merged into one fund, instead of being divided into three funds as heretofore, and will be awarded on the excess, pro rata plan to all entries, whether of butter or cheese (excepting those winning sweepstake prizes), which score 91 or more points.

Exhibitors will be limited to one package in each class and in no event will more than $15 be awarded to any exhibitor. Entries from the same dairy, creamery or factory under different names or by different exhibitors are prohibited, and if made will work a forfeiture of any award made to said entries.

On all premiums amounting to $5.00 or over (except sweepstakes) there will be a deduction of fifty per cent if the exhibitor does not attend the Convention.

Send to the Secretary at Fort Atkinson for entry blanks.

RULES.

BUTTER AND CHEESE EXHIBIT.

1. Entries may be made in the name of the owner of the dairy, creamery or factory, or the maker, but not by both.

2. Every exhibitor must be a member of the Association. One dollar secures an annual membership and the report of the convention.

3. Butter may be made at any time and exhibited in prints, packed in eight pound pails, or twenty pound tubs or over, but the pails are preferred.

4. Scale of points for judging butter: Flavor, 45; grain, 25; color, 15; salting, 10; packing, 5. Total 100.

5. Scale of points for judging cheese: Flavor, 45; texture and stock, 30; color, 15; finish, 10. Total 100. Cheese scoring highest will become property of the Association. Duplicates of score cards will be sent to exhibitors.

6. Exhibitors will be limited to one package in each class.

7. Butter and cheese may be shipped by express, charges prepaid, with name and address on each package, to H. K. Loomis, Platteville, Wis.

Manufacturers and dealers are invited to make exhibits of dairy goods and farm machinery of all kinds. No award or premium will be given. Ample and convenient room provided.

TRANSPORTATION.

Arrangements have been completed whereby all the railroads in this state, with their accustomed liberality toward this association, will grant an open excursion rate of one and one-third fare for round trip tickets from all points in Wisconsin. Tickets will be sold at all points from February 9 to 11 inclusive, and also on February 12 from points in Wisconsin from which the one-way rate to Platteville is $3.00 or less; all tickets good to return until and including February 13th. This concession does away with the bother of demanding receipts or certificates when purchasing tickets and having them countersigned by the Secretary or special agent.

C. M. & St. Paul Ry. Trains—Arrive 1:35 p. m. and 9:50 p. m. Depart 7:05 a. m. and 1:50 p. m.

C. & N. W. R. R.—From the north going south, 11:25 a. m.; 5:35 p. m.

From the south going north, 8:40 a. m.; 2:15 p. m.

G. W. BURCHARD, Sec.
Ft. Atkinson, Wis.

Concerning Ajax Flakes.

ED. HOARD'S DAIRYMAN:—As general eastern agents for Ajax Flakes, we wish to say in reply to recent inquiry in your columns from one of your correspondents at Unionville, Mass., that this feed is made from the gluten of corn, it being the by-product of factories which use corn exclusively in distilling alcohol. It is sold under this special name "Ajax Flakes," so that farmers will not confuse it with other feeds of a lower protein analysis. It is registered and analysis guaranteed in all of the various states east and west, which have a feed stuffs law, so that the consumer in buying this particular brand of feed is fully protected. It contains 34 per cent protein and 11 per cent fat. CHAPIN & Co.

Boston.

DON'T PUT OFF

Seeing your friends and having them join in for a club of subscribers.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain sepecific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Harrowing a Meadow.

We have some meadow that is not mossy but close, thick stubble, and we think ought to be harrowed. Please say when is the proper time to harrow and whether to use the disc or hackle tooth. A. E. M. & BRO.

Foss, W. Va.

Harrow in the spring as early as the ground is fairly dry and warm. We should not use a disc harrow unless the other, well weighted if necessary, fails to loosen up the sod. It is quite the fashion now to use the disc on alfalfa fields, but this is done more to split the crown and make two plants out of one, than to break up the sod.

For a Massachusetts Milkman.

Am starting in the milk making business. My first step was to subscribe for your paper, and second to get the advice from those who are up-to-date, as I want to begin where the most successful are working.

My cows are fresh but do not give any more than average of 26 lbs. for November and the same amount thus far this month. They weigh about 800 lbs.—Holstein grades and Ayrshire grades.

I have an abundance of ensilage and very little hay. Can buy fine hay "cow hay," for $16 per ton. My ensilage is fair; some of it eared out and mixed in silo. Grain can be bought for the following: Malt sprouts, $1 per cwt.; bran, $1.20; middlings, $1.25; cotton seed meal, $1.50; gluten feed, $1.35; yellow meal, $1.20; white meal, $1.25. I put salt in grain, and water once a day. Will you advise how to care for them for best result for profit? G. H. C.

Danvers, Mass.

An average of 26 lbs. of milk per day is not so very discouraging and probably as much as these cows can be expected to reach during the present period of lactation. We should not care to buy much hay at the price named, but would feed more silage, say 40 to 45 lbs. daily. In addition we should expect the cows to eat 4 to 6 lbs. of hay and this in connection with 3 lbs. malt sprouts, 3 lbs. bran and 2 lbs. gluten feed, would be ample, in our opinion, to prevent further undue shrinkage in the flow of milk.

An Illinois Feeding Problem.

I am feeding now daily: wheat bran, 10 lbs.; gluten feed, 8 lbs.: oil meal, 4 lbs.; brewers grains, dried, 8 lbs., and all the clover hay they will eat and also salt, a little every day. It seems to me my cows do not look right for the feed they get, nor milk enough. R. C. R.

Baldwin, Ill.

Inasmuch as this inquirer omitted to state the number of cows receiving the 30 lbs. of grain daily, we are quite unable to form any opinion as to whether the feed should be increased or decreased. It is, however, evident that with clover hay for roughage, the protein is out of proportion with the other elements. We think it would be wise to add an equal amount of ground corn, or corn and cob meal to the mixture mentioned, making 60 lbs. in all, and enough, with clover hay *ad libitum*, to supply 8 cows for one day.

From British Columbia.

Would you kindly form an economical ration, with feed at the following prices: Crushed oats, $28; oil cake, $28; bran, $25; wild grass and timothy hay, $10; carrots, $7 and oat straw. By what mathematical process do you find a balanced ration? Whether is mangels or carrots the better feed for milch cows, and which variety of either roots would do better on a rich peat swamp previously sown to barley in 1902 and oats last year? How would rape do on such land?

Victoria, B. C. SUBSCRIBER.

It is generally considered that mangels is a more profitable crop than carrots, and that there is but little room for choice as to variety; but neither mangels nor carrots would prove a profitable feed at $7 per ton.

The process by which we arrive at suggestions for balanced rations, is to assume that the average cow will require about 16 lbs. of dry matter in the form of roughage. From the table of feeding analyses as given on page 772 we select such concentrates as will fill out the ration in protein, carbohydrates and fat to the standard adapted to the conditions we have to meet, not being over particular if there is a variation of a few hundredths, or even tenths, of a pound. For the average herd, with not too many strippers in it, we try to have the digestible protein from 1.8 to 2.2 lbs., the carbohydrates approximately 12 lbs. and the fat ½ lb. or more. The more practice one has in selecting feeds to meet these requirements, the more adept he becomes.

In the case of our correspondent we would select equal parts by weight of bran and oats and add one to two pounds oil cake, depending somewhat upon the quantity of straw fed.

A Wisconsin Ration.

From the following feeds will you please tell me how much of each would be the best to feed small grade Guernsey cows to give the most milk. Bran, $16.50; lots of clover hay and corn stalks and any amount of ground corn and cob.

Lake Geneva, Wis. K.

Try first a daily allowance of 15 lbs. clover hay, 6 lbs. stover, 2 lbs. bran and 4 lbs. corn and cob meal. This, with proper care given the cows, will probably suffice to enable them to give 20 lbs. of 4 per cent milk. If the milk contains 5 per cent fat add 1 lb. bran. For 30 lbs. of milk testing 4 per cent, let the allowance of grain be 2 lbs. bran, 4 lbs. corn and cob meal and 2 lbs. gluten meal, or 1½ lbs. oil meal; for a similar amount of 5 per cent milk, make the addition 3 lbs. gluten feed, or 2 lbs. oil meal and another pound of bran. And do not omit salt, a large teaspoonful night and morning.

In case it seems expedient to feed more corn stover and less clover hay, 15 lbs. of the former and 8 lbs. of the latter, the basic allowance of grain should be increased by 2 lbs. of bran and a similar increase for different amounts and qualities of milk. Watch each cow carefully from day to day and if any of them do not respond to increased feed by an increased flow of milk, but rather use it for increase of live weight, you may be sure they are overfed.

As to Rice Bran.

I will mail to you to-day under separate cover Nos. 1 and 2. Number one is wheat bran, such as we can buy at the mill in our town at from 85 cents to $1.05 per hundred. No. two is rice bran and can be bought here at $15.80 per ton. I would like to know the relative value of the two brans as to feeding value for milk. I am milking from 8 to 12 cows for the retail milk trade. Can't ask you to analyze the feeds. Would only ask for your public opinion as to their value. If you will, you may make me a balanced ration out of the rice hulls, cotton seed hulls and cotton seed meal. D. M.

Taylor, Texas.

See the answer to H. T. of Longview, Texas, where the subject of rice bran is discussed at some length.

As to a satisfactory ration for milch cows, where cotton seed hulls is the only roughage, we have to admit that the problem is too much for us. We are told that cows in the South are frequently condemned to such forage, but the better and more prosperous dairymen there feed very few hulls. They raise corn for silage, and cow pea hay, and those most up-to-date are trying alfalfa. This is what this correspondent should do without delay, but meantime he should purchase, if possible, some good hay of some kind, to help out the cotton seed hulls, and let the grain part of the daily ration be, say, 4 lbs. wheat bran, 2 lbs. rice bran and 2½ to 3 lbs. cotton seed meal.

Experiment Station Addresses.

Will you kindly give me the location of the different experiment stations in the United States and the price of their bulletins, those which are not gratis, and if any of them are published in a single volume and the price.
West Newton, Mass. W. S. C.

Following is a list of the agricultural experiment stations with names of the directors:

Alabama—College Station, Auburn, J. F. Duggar.
Canebrake Station, Uniontown, J.M. Richeson.
Tuskegee Station, Tuskegee, G. W. Carver.
Alaska—Sitka, C. C. Georgeson.
Arizona—Tucson, R. H. Forbes.
Arkansas—Fayetteville, W. G. Vincenheller.
California—Berkeley, E. W. Hilgard.
Colorado—Fort Collins, L. G. Carpenter.
Connecticut—State Station, New Haven, E. H. Jenkins.
Storrs Station, Storrs. L. A. Clinton.
Delaware—Newark, A. T. Neale.
Florida—Lake City, T. H. Taliaferro.
Georgia | Experiment, R. J. Redding.
Hawaii—Federal Station, Honolulu, J. G Smith,
Sugar Planters' Station, Honolulu, C. F. Eckart.
Idaho—Moscow, H. T. French.
Illinois—Urbana, E. Davenport.
Indiana—Lafayette, Arthur Goss.
Iowa—Ames. C. F. Curtiss.
Kansas—Manhattan, J. T. Willard.
Kentucky—Lexington, M. A. Scovill.
Louisiana—
State Station, Baton Rouge
Sugar Station, New Orleans } W. C. Stubbs
North La. Station, Calhoun,
Maine—Orono, C. D. Woods.
Maryland—College Park, H. J. Patterson.
Massachusetts—Amherst, H. H. Goodell.
Michigan—Agricultural College, C D. Smith
Minnesota—St. Anthony Park, St, Paul, W. M. Liggett.
Mississippi, Agricultural College, W. L. Hutchinson.
Missouri—College Station, Columbia, F. B. Mumford.
Fruit Station, Mountain Grove, Paul Evans.
Montana—Bozeman, F. B. Linfield.
Nebraska—Lincoln, E. A. Burnett.
Nevada—Reno, J. E. Stubbs.
New Hampshire—Durham, W. D. Gibbs.
New Jersey—New Brunswick, E. B. Voorhees.
New Mexico—Mesilla Park, Luther Foster.
New York—State Station, Geneva, W. H. Jordan.
Cornell Station, Ithaca, L. H. Bailey.
North Carolina—Raleigh, B. W. Kilgore.
North Dakota—Agricultural College, J. H. Worst.
Ohio—Wooster, C. E. Thorne.
Oklahoma—Stillwater, J. Fields.
Oregon—Corvallis, J. Withycombe.
Pennsylvania—State College, H. P. Armsby.
Porto Rico—Mayaguez, F. D. Gardner.
Rhode Island—Kingston, H. J. Wheeler.
South Carolina—Clemson College, P. H. Mell.
South Dakota—Brookings, James W. Wilson.
Tennessee—Knoxville, A. M. Soule.
Texas—College Station, John A. Craig.
Utah—Logan, J. A. Widtsoe.
Vermont—Burlington, J. L. Hills.
Virginia—Blacksburg, J. M.McBryde.
Washington—Pullman, E. A. Bryan.
West Virginia—Morgantown, J. H. Stewart.
Wisconsin—Madison, W. A. Henry.
Wyoming—Laramie, B. C. Buffum.

The several stations send bulletins to all residents of the state where the station is located, upon request, and those living outside of the state can usually obtain bulletins by sending a two-cent stamp with their address. The annual reports which usually contain the bulletins issued through the year can be obtained in the same manner.

Silage Corn and Silage Twelve Miles Away.

Have rented a dairy farm twelve miles from home. The land all around the city is very poor corn land. There are two silos to fill and I fear I cannot raise corn enough on this thin clay land to fill them. Have a 100 ton silo on my home farm and can raise corn there. Could I fill my own silo and start my team the next day and haul one wagon load per day and transfer all this silage to my rented farm, or could I haul one or two loads per week in cold weather, just as my cows used it? Would it keep? Will receive 7 cents per quart for milk in winter and 6 in summer. J, A. S.
Ohio.

We would much rather undertake to haul the silage as needed in winter than attempt to fill a silo from a field of corn 12 miles away, unless one could command the services of a large number of teams and a small army of men. We should apprehend no injury to the silage by transferring it in winter, especially if kept well covered.

Painting a Silo Inside—Mouldy Silage.

I ask your advice in regard to the best and cheapest paint for painting a silo? Would coal tar or pitch be all right, and as cheap as any thing?

I began using the ensilage a few days ago, have used about 18 inches off the top. Forone foot or more, around the sides, the silage is quite mouldy. I fear I shall find it the same at the bottom of the silo. W. L. P.
Black Run, Ohio.

It is not considered necessary to paint the inside of a silo, as it prevents the wood from drying out and causes it to rot faster.

In some cases the wood has been given a coat of crude petroleum or gas tar thinned with gasoline, and those who have tried it report satisfactory results, but others have found it equally satisfactory to use bare wood.

Mouldy ensilage comes from putting too dry corn in the silo. The tendency of late years is to silo the corn riper than formerly, and an increase in mould seems to be the result. The trouble can be prevented, when dry corn is siloed, by giving it a thorough wetting, either when filling or when in the silo.

For a Couple of Pennsylvania Jerseys.

As I am somewhat new in the dairy business I would appreciate it highly if you would advise me as to how to obtain better results than I am now securing from 2 Jersey cows—one weighing 800 and the other 950 pounds. I feed them all the cut corn fodder they will eat up clean. For grain I feed 3 times a day the following, at each feed adding a teaspoonful of salt: 1¼ lbs. corn meal, 2 lbs. wheat bran, 1½ lbs. gluten meal. I moisten this with a little water, and on cold mornings I use warm water. From the smaller cow I am getting 23 lbs. of milk, and from the larger 26 lbs. per day. These cows were both fresh in September. Corn is worth $24 per ton; bran, $23; gluten meal, $28; buckwheat middlings, $24.
Franklin, Pa, J. L. H,

We are not at all certain that these cows are not now doing first-class work, but this cannot be determined without knowing the quality of the milk. If this milk contains, as it probably does, 5 per cent of fat, the smaller cow is yielding at the rate of 1⅓ lbs. butter per day, and the other nearly 1⅔ lbs. We are also at a loss to understand whether each cow received the amount of grain (14¼ lbs.) specified or whether this amount suffices for both. And what is their "corn fodder?" Probably it is corn stover, that is, the whole plant, after removing the ears, and if such is the fact, we see no reason why a daily allowance of 5 lbs. bran, 2 lbs. gluten meal and 2 lbs. buckwheat middlings, with corn stover *ad libitum*, should not suffice. We would feed this grain without wetting, and preferably half in the morning and half at night.

Corn and Cow Peas for the Silo.

Will you kindly tell me through your valuable paper whether or not cow peas can be grown and harvested with corn for the silo, work to be done with corn harvester? If so, how and when to plant? H. W. B.
Collamer, Pa.

We have had a number of reports where corn and cow peas were grown for the silo with good results. Following is the method given by a correspondent:

A 20-acre field lying in and on the slopes of the valley, was well broken and prepared, and the corn planted the middle of May without fertilizer. The corn, a large Southern variety, was put in with a one-horse drill, in rows 4½ feet apart and from 9 to 16 inches apart in the row. This width of row was given to admit plenty of sunshine and air. After the first cultivation and during the first days of June, when the corn was about 6 inches high, the peas were planted between the corn and in the same row with the corn, with a hand planter, commonly used for replanting purposes. The delay in planting the peas is deemed necessary to give the corn a good start ahead of the peas, the latter being of more rapid growth. If the corn rows are straight the peas may be put in more expeditiously with the one-horse drill, if care is taken to keep the same close up to the corn row; the object being to have both crops grow so as to be harvested together with the corn harvester, and bound into bundles, without waste, ready for the wagons.

Pasteurizing Cream on a Small Scale.

Would you please inform me how to make pasteurized cream on a small scale, or without a pasteurizer. E. N. G.
New Philadelphia, Ohio.

On a small scale cream can be pasteurized by setting the cream can in a can of hot water and keeping it there with constant stirring until the cream is heated to 148° F. The cream should be held at that temperature for 20 minutes and then cooled as quickly as possible by placing the cream in a tank of cold water stirring the cream constantly until it is down to 50° F. The great trouble in pasteurizing small quantities of cream by this method is the liability of a cooked flavor in the cream, to prevent which the cream must be heated to the above temperature as soon as possible and rapidly cooled.

How Much Milk Should a Heifer Yield?

How many pounds of milk ought a heifer with 1st calf give, to promise being a good cow? J. L. C.
Elmer, N. J.

Quantity of milk yielded is not sufficient to determine a question of this character. Quality is equally important. A two-year-old heifer yielding three-fourths of a pound of butter or more, daily, should be considered as promising to become a profitable dairy cow.

How Many Cows for a Silo.

I have a farm of 60 acres and the soil is mostly gravel, with sand and gravel subsoil. Have been unable to keep more than 8 cows and two horses. I had thought from what I had read, that I could keep more cows by building a silo, but your answer to L. B, Q., Milton, Or., page 874, where you say that it is doubtful if a silo would be profitable, where one has less than ten or fifteen cows, has rather discouraged me. Do you think it would pay me to build one?
Pulaski, N. Y. J. J. T.

"Circumstances alter cases." What might not be advisable for a dairyman in the far west, might be eminently practicable for one in New York, and *vice versa*. However, we still adhere to the proposition that unless one is situated in a community where he can hire the power and machinery for filling a silo, it would not be expedient to build a silo for less than 10 or 15 cows.

In the case of this inquirer, we suggest that, for the present at least, he put a little extra effort into improvement of the soil. Make a trial of alfalfa on a small scale, get more humus into the soil, add to the culture, save *all* the manure, *liquid* as well as solid, grow more clover, and by these means make the farm capable of carrying 15 or 20 cows.

Stalls or Stanchions.

I wish to know your opinion of stalls for confining cows in, as compared with stanchions. Can they be kept clean in stalls? Is there any serious disadvantage in them? If practical can you give me your idea of how they should be constructed? A. L. D.
Norwich.

We are decidedly of the opinion that any form of tie or stall is much to be preferred to the old-time, rigid stanchion, but it would be sheer arrogance for us to attempt to say which one of the many devices on the market or in use is to be preferred. Consult our advertising columns, write to the advertisers, get their circulars and illustrations, give all the points careful study and then make your choice.

A Pennsylvania Ration.

Please give me a balanced ration for milch cows from following: Wheat bran, $20 per ton; corn meal, $22; oil meal, $26; mixed hay and cured corn, well eared, intended for silage, but could not get it cut and put in silo. L. R. S.
Corydon, Pa.

Depending altogether upon the present ability of the several cows in the herd to respond, we should expect the following to offer a satisfactory average daily allowance: 10 lbs. corn fodder, 12 lbs. mixed hay, 4 lbs. bran, 2 lbs. oil meal.

What Feed (Concentrates) to Purchase.

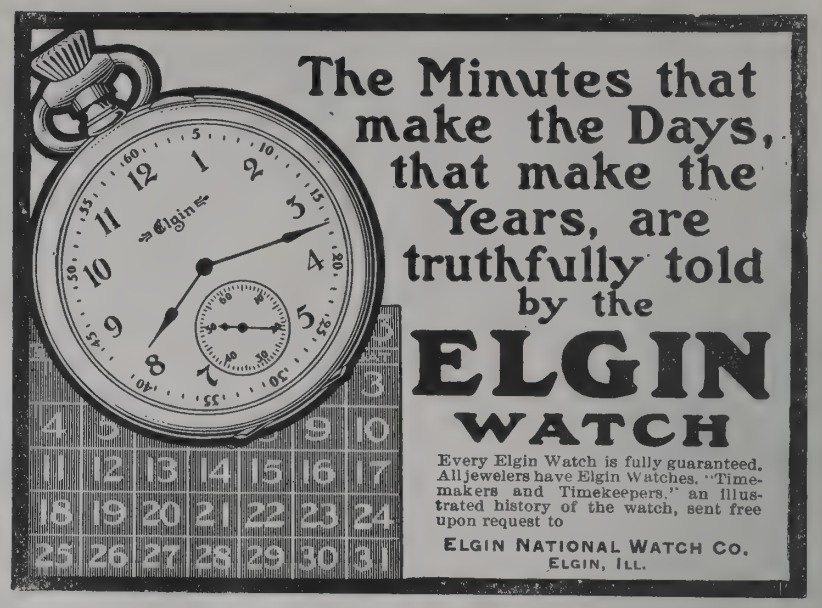
What will be the most profitable grain and how much to feed, with corn fodder, not stover, and bright oat straw. Also with clover hay and oat straw. I will have to buy all the grain but oats. L, J. C.
Memphis, N. Y.

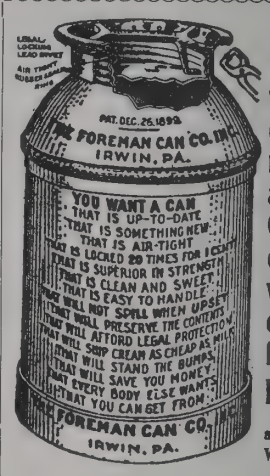
Corn fodder and oat straw are highly carbonaceous feeds and call for concentrates rich in protein, such as gluten feed and meal, brewers grains, linseed oil meal, cotton seed meal, bran, etc. Without information as to ruling market prices, it is impracticable to select. With clover hay replacing the corn fodder one would need less protein in the grain.

Note and Comment.

Ohio Weather—Milk Prices—Winter Feed—How Rations are Used by Cows—The Hegelund Method of Milking—A Defect in Milking Machines—The Cross Bred Steer at Chicago—The Hired Man Question.

ED. HOARD'S DAIRYMAN:—Despite the facts set forth by "Uncle Zeek" that 'twas going to be a mild, open winter, 'cause the coons and ground hogs carried no beddin inter their holes, the corn blades wos thin, the shotes were carryin' no extra hair, and the state majority wos the biggest ever known," we have had as steady cold, and no let up winter since





We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity 1000 cans daily, which should enable us to fill all orders promptly.

Every can sold on a guarantee.
Write for Circular H



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BAVIER NOVELTY CO.,
WINDSOR, CONN



Let Them Help Themselves.

They'll not take too much, and they'll get it as they want it. Don't force animals to eat salt when they don't require it, by mixing with food.

COMPRESSED
Pure-Salt Bricks

are all salt, no impurities. Improve the quality and yield of milk. A modern convenience, always present, animals never neglected, and costs for each only about a nickle a month. See how they enjoy helping themselves when you place it within reach. For all stock. Buy of dealers or send for free booklet to
Belmont Stable Supply Co., Brooklyn, N.Y.

NO HUMBUG. Farmer Brighton's
Swine V, Stock Marker and Calf Dehorner. Stops swine from rooting. Makes 48 different ear marks. Extracts Horns. Price $1.50. Send $1 for trial. If it suits, send balance. Pat'd May 6, 1902. Hog and Calf Holder only 75c.
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Big illustrated magazine one year 25 cents. Questions answered.
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Cancer Cured by Anointing with Oil.

A combination of soothing and balmy oils has been discovered which readily cure all forms of cancer and tumor. It is safe and sure and may be used at home without pain or disfigurement. Readers should write for free book to the originators, whose home office address is Dr. D. M. Bye Co., Drawer 505, Indianapolis, Ind.

the 22nd of November, as was ever known in this vicinity, and keeps on getting steadier all the time. It looks now as if Wm. Skinner would have little trouble in getting his August and September cut hay eaten, as he notes that "in snapping cold weather cows take hold of most any sort of hay."

With snow storms without number, they have been merely bluffs, and not three inches of snow in all has fallen in this vicinity, but the icy condition of the roads is something never before experienced, and now continued for over three weeks. Ice not only covers the road, but the lots as well, and any driving or farm work is done at much peril, and the most strenuous advocates of every day drawing of manure are not attempting it; in fact, they are doing pretty well to get the milk to the station and cans home, with whole bones.

The milk prices have not reached the expected point hoped for. The creameries are paying $1.20 per 100, and the city trade pays $1.14 for 85 pounds, out of which comes 15 cents a can for "baggage rates," as milk here goes as baggage and not as freight. Feeds are not as high as last winter as yet, and fully two-thirds of the grain fed hereabouts is farm-grown, which makes that part of the ration nearer cost, and the other fact that the silage corn made a great September growth, and the surprising amount of fine hay put up, if late grown and the second crop abundant, the real cost of the ration is not as much as last year, and so profits, I think, will not be greatly different.

The quality of the silage, so far as I have seen, is very fine, and its feeding value No. 1, and as there are something like 1,000 silos in the fifteen adjoining townships, it is not too much to venture the assertion that they are likely to become popular before so very long.

***

I was greatly interested in the reported remarks of Prof. Jordan at the recent normal institute, about the use and waste of the rations fed to cows; that a cow only uses one-third of her food for milk, all the rest goes to heat and energy—work; and that the more an animal has to chew and work to masticate food and digest it, the less it can give back in profit. Much less energy is returned from a ration of dried corn fodder than from the same food fed green, and it would seem the contention of the men who advocate the close housing of winter milkers is justified, when the professor says: "A warm stable with slight exercise, reduces the need of large rations, hence reduces cost, and increases profits," and confirms another opinion that some of us hold, that a grain ration of not over eight pounds for a cow, daily, is sufficient, a few individual cows excepted, and to feed more is unprofitable. But I am a little mystified a little farther along where it is mentioned that few, even of the better class of dairymen feed liberally enough to reap the fullest reward. I would like to know what a liberal feed would be. I had supposed that for cows standing in a warm stable, water at will, 50 pounds of No. 1 silage, and 6 pounds of fine clover hay and 6 pounds of best mixed grain, was about all a cow of average size would eat, and if that is not liberal feeding, please drop us a line and we will either add to the feed or take another clip off from the exercise.

***

And now it is Cornell that has been investigating the Hegelund plan of milking to increase the milk yield, by kneading, squeezing and manipulating the udder in place of the usual so-called stripping to get the last wrung drop of milk, and the possibility of this manipulation inducing nature to give down a little more; but I notice that the report is that the advantage of the Hegelund system over clean stripping remains to be proven. It is true that there is much bad milking and indifferent drawing of the last milk from the udder, but we opine that there will be little bettering of the plan of finishing of milking with one hand, and with the other reach up and press towards the milking hand and so get the last few streams. There are a few cows that seem to rapidly secrete a little more milk within a few minutes after milking, no matter how well one strips, but they are exceptions. We recall one of our best cows that five minutes after milking her, we could draw forty full streams of milk, but there would be no second filling of the milk cisterns.

This clean milking, complete drawing, seems to be the failure in the good work of some of the milking machines. Sometime since I saw one of the best of the milking machines at work, and to get all of the milk, the operator either had to hand strip, or else practice the Hegelund method, and help out the machine, for strip it would not. So far as I am informed, all the milking machines are defective in securing the strippings, and it is in getting them well and complete, that has a large part in maintainance of the milk flow. It is worth a generous vote of return thanks to the Station men, who are trying to help the farmers get more out of a cow, even if some of the claims they seek to investigate, "are not proven."

***

Of course that mixed-bred steer "Challenger" at the Chicago show, is cropping out in dairy circles to wit—that if a mixed-bred steer are the best animal in the show, why then is not the mixed bred cows the best in the dairy? Well Challenger was an exception, and his like never before made its appearance. He was a sort of a freak-like Jumbo and to base any fast and fixed conclusions on him as a guide in other cases or line of proceedure, is sure to come to grief. While there are many traditions about the great preformance of some long gone "old Brock," or "Brindle," the records show that no grand prize has gone to a mixed-bred cow or dairies, in competition with straight-bred ones, and all of the phenomenal cows have been pure bred. This is not saying that all pure-bred cows are profitable dairy producers, and it remains to be seen if the men who compete for the champion steer prize next year at Chicago will select four breed-mixed steers to try to win the chief honor. It is much the same with cows as with hogs. When one wants the best, and winners, illustrated by what wise old Theodore Louis once said, "Oh, yes, the first cross-bred hog is often a good one, but if you mix them a second time, you are out of a hog, and must go back and buy pure-bred ones to start again."

***

The hired man problem which is being discussed with so much practical intelligence in the DAIRYMAN, is very interesting reading, but if this information was preceded by a formula for catching, and holding a hired man, it would be gratefully received by a lot of us hereabout, who are forced into every kind of make-shift to get work done, owing to the almost absolute disappearance of labor that will consent to work on the farm at any wages within reason. Carl Schurz in last McClures' in discussing the race problem of the South, and the "disinclination of the negro to work on the plantation if educated," says the same thing is true in the North; the white boy refusing to walk behind the plow, or milk the cows, because of the solitude of farm life. The desire to go to the city and enjoy a pleasanter existence, to do finer work with little labor, which is observed everywhere in the North with so much anxiety, is not different from the desire of the southern darkey, and is largely attributable to the natural effects of popular education.

Is this a defensible reason for the restriction of a wider, broader education for the youth of the United States? Must we burn the school house to keep the boys on the farm. It was said that when the trolley, telephone, rural delivery, and the centralized school came to the farm and abolished its isolation and solitude, that the farm would claim its rightful own, but it has done nothing of the kind, and the hired man has gone in the crowd with the young men to the city, and beyond, and one cannot educate one, until he can get him, and hold him fast by some means, for a while, but how to keep him for a series of years, has as yet been unexplained, from the lookout of the man in Northern Ohio, whatever may be the outlook in other sections. It's easy to harrow corn, but you must first have a field of it to harrow.

Ohio. JOHN GOULD.

HAS DAIRY EDUCATION PAID IN MINNESOTA?

Dairy Commissioner McConnell of the State of Minnesota makes the statement drawn from careful investigation that the butter production of that State has increased in the past twelve years more than 100 per cent per cow. This would have never happened without the constant agitation of the minds of the Minnesota farmers on this dairy subject.

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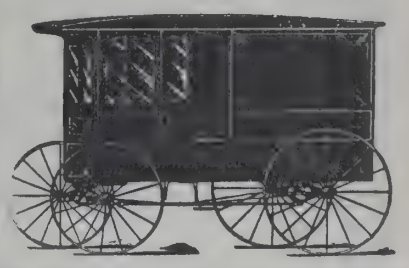
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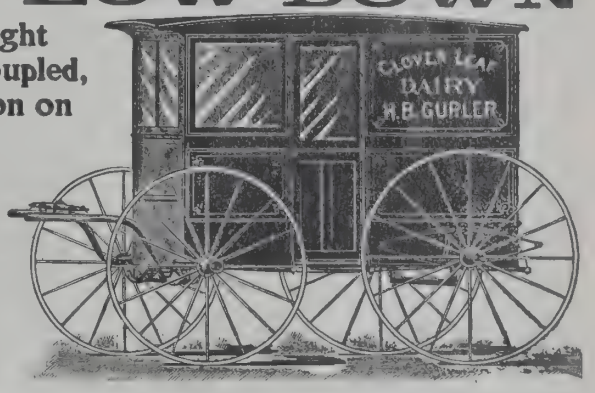
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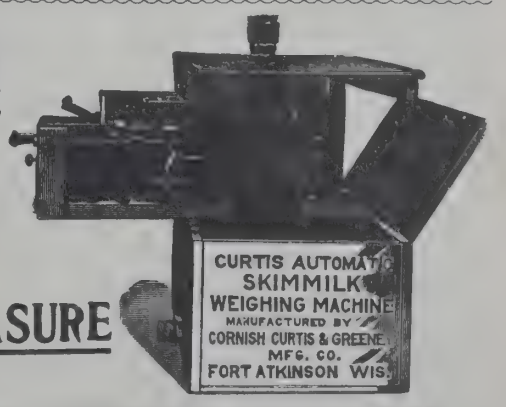
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Often goes to the wrong man for the simple reason that the patrons have no standard of

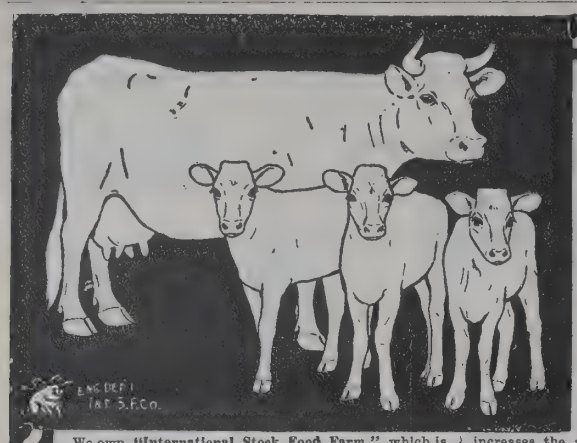
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and the last man suffers.



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DEAR SIRS:—I have used several kinds of stock foods during the past few years, but have never fed any equal to **"International Stock Food."** I have been feeding it to my milk cows for the past six months with the most gratifying results. It not only keeps the cows in a healthy condition, but greatly increases the quality as well as the quantity of milk. Its effects are unequaled in removing any irregularities at calving time, and its use before and after calving I consider a great benefit. As an appetizer, blood purifier and general tonic, I consider it to be all you claim, and the best I have ever used.

HENRY L. ALLEN, Proprietor of South Side Dairy.

☞We Have Hundreds of Thousands of Similar Testimonials and Will Pay You $1000 Cash to Prove That They Are Not Genuine.☜

We own **"International Stock Food Farm,"** which is located 12 miles from Minneapolis and contains 650 acres. We feed **"International Stock Food"** every day to all our WORLD CHAMPION STALLIONS, DAN PATCH 1:56¼, DIRECTUM 2:05¼ and Roy Wilkes 2:06½; and also to our YOUNG STALLIONS, BROOD MARES, COLTS, WORK HORSES, CATTLE and HOGS. **"INTERNATIONAL STOCK FOOD" 2 FEEDS FOR ONE CENT** is Prepared from Roots, Herbs, Seeds and Barks and Won the Highest Medal at Paris Exposition in 1900 as a High-Class vegetable, medicinal preparation to be fed to stock in small amounts as an addition to the regular feed. It is a Great Aid in Growing or Fattening stock because it increases the appetite, Aids Digestion and Assimilation so that each animal obtains more nutrition from the grain eaten. We positively guarantee that its use will make you extra money over the usual Plan of Growing and Fattening stock. **"International Stock Food"** can be fed in safety to Horses, Cattle, Sheep, Goats, Hogs, Colts, Calves, Lambs or Pigs. It will make your Calves, Colts or Pigs grow amazingly and will keep them healthy. It is Absolutely Harmless even if taken into the Human System. You insist on eating the following medicinal ingredients with your Own food at every meal: Table Salt is a stomach tonic and worm medicine, Table Pepper is a powerful stimulating tonic, Table Mustard is a remedy for dyspepsia, Table Vinegar is a diuretic. You eat these medicinal ingredients almost with every mouthful of your food, and it is proven that these medicines promote health and strength for people and improve their digestion. **"International Stock Food"** contains pure vegetable medicinal ingredients that are just as safe and as necessary an addition to the regular feed of your stock if you desire to keep them in the best possible condition. **"International Stock Food"** is endorsed by Every High-Class Farm Paper and Over One Million Progressive Farmers and Stockmen. It purifies the blood, stimulates and permanently strengthens the entire system so that disease is prevented or cured. **"International Stock Food" is sold on a "Spot Cash Guarantee" by Sixty-five Thousand Dealers throughout the World, and has the Largest Sale ever known.** ☞Your Money will be Promptly Refunded in Any case of failure. We Refer You To Any Bank Or Wholesale House In Minneapolis. ☞Beware of the many Cheap and Inferior Imitations now on the market! No Chemist can separate and name all the Different powdered Roots, Herbs, Barks and Seeds that we use in our preparations. Any Chemist or Manufacturer claiming to do so Must be an Ignoramus or a Falsifier. Imitations Are Always Inferior. Insist On Having The Genuine And You Will Always Obtain Paying Results.

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IF WE EVER REFUSE TO REFUND YOUR MONEY ON OUR POSITIVE "CASH GUARANTEE" THAT IS PRINTED ON EVERY LABEL OF THESE PREPARATIONS. THEY ARE SOLD BY 60,000 DEALERS. "International Poultry Food" (A remarkable egg producer, and insures good health and rapid growth for all kinds of poultry). "International Louse Killer." "International Worm Powder." "International Heave Cure." "International Colic Cure." "International Harness Soap." "International Foot Remedy." "International Hoof Ointment." "International Pheno-Chloro (A sure disinfectant and germicide). "International Compound Absorbent" (It cures curbs, spavins, etc., while your horse works). "Silver Pine Healing Oil" (The wonderful quick cure for barb-wire cuts, kicks, burns, etc). We will be Glad to Refund Your Money if they ever fail and we agree to accept your plain, written statement and leave the entire matter with you. INTERNATIONAL STOCK FOOD CO., Minneapolis, Minn.

Guarantee

The Modern Hog as an Adjunct to the Dairy.

Synopsis of an Address by Mr. Andrew Elliott af Galt, Ontario, at Farmers' Institute at Bainbridge, N. Y.

"I have," said Mr. Elliott in opening, "been surprised to find the low price of land in this valley. For with us in Canada this same grade of land is held at a much higher price, and still we are able to so manage our farms as to make them return a good profit.

"I cannot understand how it is that with you here there is so much complaint of lack of profitable returns from your farms, but I believe it is in part because you have too few strings to your bow, or in other words, too little diversity in your farm productions.

"I want to have more than one string to my bow. I grow sheep, I feed bullocks, I keep some dairy cows, and I grow bacon. I find the sheep very profitable, and I believe you can grow them with profit also here.

"The only way in which we can increase or advance perceptibly the price of any product, is by increasing the quality. This we in Canada have learned to do in some directions at least. The best Canadian bacon to-day, i. e., that of the best quality, does not come into competition with your American bacon here at all. We have learned that to produce the best bacon we have got to get away from the thick, fat hog that is nearly all fat.

"The best bacon in the English markets is the Wiltshire bacon, and we in Canada have learned to grow that bacon. Last year we not only built up a large home trade in bacon, but we exported some fifteen million dollars worth.

"There are only two strictly bacon types of hogs, the large Yorkshire and the Tamworth. The fat in an ideal bacon must be evenly distributed, and the under cut must be as nearly as possible the same thickness as the upper cut.

Now as to how these bacon hogs are produced: I want to begin to breed my bacon hogs before they are born. I want to have the dam right. I want her right in the top, of medium size, of good length, as nearly even on top as possible, and with a light shoulder.

"I allow my sows to drop their first litter when a year old and after that breed two litters a year.

"The sire I want of much the same type as the dam only that he will be heavier in the shoulder and of a somewhat coarser organization. Feed the dam liberally, pasturing on alfalfa or rape, and in winter give an abundance of succulent food in some form. You can not do anything successfully with the hog unless kept clean and comfortable. The hog is naturally the cleanliest animal on the farm, and if given a chance will keep himself clean. No hog, if properly kept, will ever soil his own nest or bed room. His disposition to wallow in the mire is only because that is Nature's way provided for ridding himself of vermin.

"The pig pen must be warm and comfortable to secure profitable results. I want to have a cement floor and cement or iron troughs, the floor being so graded that the moisture will all run out to the outside and disappear. Then as to the light, I want good light, a window in each pen. You may say a cement floor is cold, but it is not cold as compared with a wet plank floor. I want an upstairs sleeping room for my pigs with a cleated platform for the pigs to ascend and descend.

I feed largely on clover hay and roots, the latter being mainly of turnips. In feeding these I pulp them and mix up with meal, letting them stand twenty-four hours before feeding. During the winter I feed them all the roots they will eat, but when it comes toward the time for finishing off we use a larger proportion of meal in the feed. Never put any water with this mixture of feed, but whatever water you give them give separately. We feed charcoal largely as a corrective of stomach troubles and a little sulphur added to the feed occasionally will be found beneficial. Never allow any parasites upon the hog, as the injury they will thus suffer is a loss you cannot afford. I spray the hogs and their nests with kerosene emulsion as a preventive of these and find it an unfailing remedy."

E. J. BROWNELL.

N. Y.

List of Tests Accepted for Record by the American Jersey Cattle Club, Dec. 30, 1903.

AUTHENTICATED FAT ESTIMATES.

Signora Bruce 154547—Sire, Harry B. Gordon 47246; dam, Janet Bruce 100862. Fat, 12.288 lbs.; milk, 250 lbs, Test made from Oct. 7 to 13, '03; age,

Did You Ever Keep a Record Of Your Cows?

IF SO, you have felt the need of a convenient, simple and handy Record Sheet. We have had so many requests for these Record Sheets that we concluded to get up one that would "fill the long felt want."

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SIZE 6x15 INCHES

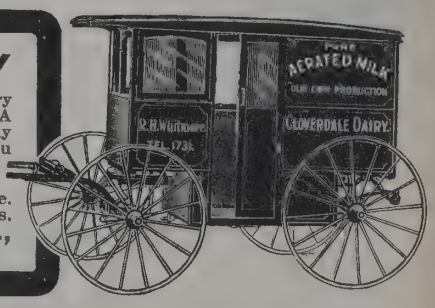
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Cuts on four sides at once, without crushing or bruising. Highest award at world's fair.
Orders with cash filled from Chicago if desired. Send for circulars. M. T. PHILLIPS, Box 13, POMEROY, PA.

3 years, 10 months; estimated weight ——; fed 5 quarts ground barley twice daily; alfalfa hay *ad libitum*, twice daily.

PRIVATE BUTTER—TESTS.

Dansker's Griselda 157858—Sire, Dansker 49535; dam, Earl's Gazette 146213. Butter, 15lbs., 6 oz.; milk, 211 lbs., 14 oz. Test made from Nov. 24 to 30, 1903; age, 3 years; estimated weight, 700 lbs.; fed 4 quarts gluten feed and 4 quarts brewers' grains, daily; clover hay *ad libitum*.

Pansy Darling of Lawn 2d 147916—Sire, Applause 34234; dam, Pansy Darling of Lawn 76637. Butter, 15 lbs. 2 oz.; milk, 204 lbs., 13 oz. Test made from Dec. 7 to 13, 1903; age, 4 years, 5 months; estimated weight, 800 lbs.; fed 7½ lbs. wheat bran, 7½ lbs. corn and oat chop, and 2 lbs. cotton seed, daily, prairie and sorghum hay.

Nancy O'Neil 147723—Twenty-eight days. Sire, Carlyle Boy 36237; dam, Lizzie Blythe 90055. Butter, 59 lbs., 6 oz. in 28 days; milk, 1,115 lbs., 10 oz. Test made from March 28 to April 24, 1903; age, 6 years, 5 months; estimated weight, 800 lbs.; fed 8 lbs. bran, daily, green alfalfa *ad libitum* during six hours per day; no pasture.

CONFIRMED BUTTER TEST.

Oonan 17th of Hood Farm 152433—Sire, Hood Farm Pogis 40684; dam, Oonan's Landseer Wax 88400. Milk, 282 lbs., 11 oz.; fat, 13.467 lbs.; estimated butter on basis of 85 per cent fat, 15.844 lbs. Fat lost in skim milk, butter milk and samples, .147 lb.; fat available for butter, 13.320 lbs.; churned butter, 15 lbs., 10 oz. Percentage of fat churned butter, 81.99. Churned butter computed on basis of 85 per cent fat. 15 lbs. 1.2 oz. Test made from May 17 to 23, 1903. Age, 4 years, 10 months. Actual weight, 800 lbs. Property of C. I. Hood, Lowell, Mass.

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10,000 PLANTS FOR 16c.

This is a remarkable offer the John A. Salzer Seed Co., La Crosse, Wis., makes. They will send you their big plant and seed catalog, together with enough seed to grow 1,000 fine, solid cabbages, 2,000 delicious carrots, 2,000 blanching, nutty celery, 2,000 rich, butter lettuce, 1,000 splendid onions, 1,000 rare, luscious radishes, 1,000 gloriously brilliant flowers. All for but 16c postage, providing you will return this notice, and if you will send them 20c in postage, they will add to the above a package of the famous Berliner cauliflower.

What better offer could a dairyman want or could in fairness ask for, than the proposition of the Witte Iron Works, 531 W. 5th St., Kansas City, Mo. They will sell you a gasoline engine and give you a thirty days' free trial, and if it is not satisfactory, take it off your hands. Write them for full particulars of this offer and mention HOARD'S DAIRYMAN.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—On the Elgin Board of Trade to-day butter ruled firm at 24 cents. There were no offerings or sales.

Former markets:

	Tubs sold.	*Price.*
Dec. 28, 1903	0	24
Jan. 6, 1902	0	24½
Jan. 7, 1901	0	24
Jan. 8, 1900	102	29
Jan. 9, 1899	51	20½

The output for the Elgin district was 437,900 pounds; one year ago, 600,060 pounds. H. C. B.

Elgin, Ill,, Jan. 4, '04.

DAIRY MARKETS.

ELGIN, Ill., Jan. 4—Butter ruled firm and unchanged on the Board of Trade this afternoon, selling at 24c a pound. The sales in the district for the week were 437,000 pounds.

CHICAGO, Ill,. Jan. 4—Butter—Steady; creameries, 16@23c; dairies, 14@21c.

Cheese—Steady; Daisies, 10¼@10½c; Twins, 10c; Young Americas, 10½c.

Eggs—Firm; at mark, cases included, 25@28c.

Cattle—Choice to fancy beeves, 1,200 lbs. up, 5.65@5.85; good to choice heavy steers, 5.00@5.60; fair to good export and shipping steers, 4.50@4.95; medium beef steers, 4.10@4.45; good to fair heifer 3.65@4.00; good to choice feeders, 3.45@4.25; good to prime stockers and feeders, 2.00@3.40; fair to good cows and heifers, 3.00@3.90; good cutting and fair beef cows, 2.40@2.80; common to good canning cows, 1.40@2.35; bulls, poor to choice, 2.40@4.50; calves, good to fancy 5.75@7.25; calves, common to fair, 3.00@5.50; corn-fed, western steers, 4.20@5.50; Texas bulls and grass steers, 2.25@3.75; fed Texas steers, fair to choice, 3.40@4.50.

Hogs— Good to choice heavy shipping, 4.95@5.15; fair to good heavy packing, 4.75@4.85; rough and common heavy mixed, 4.60@4.85; assorted light, 150 to 175 lbs., 4.75@4.90; good to choice butcher weights, 4.95@5.10; fair to choice light mixed, 4.65@4.80; thin to choice 50 to 120 lbs., 4.25@4.65; stags and rough lots, 3.00@4.50.

MILWAUKEE. Wis,. Jan. 4—Butter—Creamery, extras, 24c; firsts, 21@22c; seconds, 18@19c, renovated (process,) 20½@21c. whey, 8c. Dairy fancy, 18@19c; lines, fresh, 15@16c; roll, 15@15c; packing stock 13c; grease, 5@6c.

Cheese—American full cream, new: Twins, 10@10½c; Young Americas, 10½@11c; Daisies, 11@11½c; Longhorns, 11@11½c; low grades, 7@9c. Limburger—New, fancy, 10@10½c; off goods, 6@8c Swiss—Drum, choice, 12@12½c; Drum No. 2, 10@11c; block, choice, 11@11½c; block, No. 2, 9@10c. Brick, new, fancy, 10@10½c; low grades, 7@9c.

Eggs—Strictly fresh laid, loss off, cases returned, 32c; strictly fresh laid, at mark, cases returned, 27c; storage, city, Apr. No. 1, 28c; storage, country, 25c; dirties and seconds, 20c; checks, 18c.

PLYMOUTH, Wis., Dec. 29—Butter—On the Call Board today 19 factories offered 1,566 boxes of cheese, which sold as follows: 396 cases Longhorns 10⅛c; 80 at 10¼c; 860 Daisies at 10½c; 100 at 10⅞c; 90 Twins at 9¼c; 40 Americas at 9⅞c. Next meeting, Tuesday, Jan. 12, at 3:15 p. m.

SHEBOYGAN FALLS Wis., Dec. 30—Cheese—15 factories offered 643 boxes of cheese on the Call Board to-day and all sold as follows: 157 Daisies at 10¼c; 50 cases Longhorns, 10⅝c; and 436 at 10⅝. Market steady. Next meeting Wednesday, Jan. 13.

SHEBOYGAN, Wis., Dec. 30.—The sales on the call board to-day were 731 boxes as follows: Three hundred Daisies at 10½c; 25 Young Americas at 10c; 25 Longhorns at 10⅝c; 381 at 10¼c. Market quiet.

PHILADELPHIA, Jan. 4— Butter— firmer; good demand; extra western creamery, 25c; extra nearby prints, 28c.

Eggs—Firm near by 1c higher; fresh near by, 37c, at the mark; fresh western, 36c, loss off; fresh southern, 35@36c, loss off; fresh southern, 33@34c. loss off.

Cheese—Steadier; New York full creams, fancy, 11¾c; New York full creams choice, 10½c; New York full creams fair to good, 10@10¼c.

NEW ORLEANS, La., Jan. 1—Butter—Extras, 24½c; firsts, 21@22c; seconds, 18c.

Cheese—Young Americas, 12c; Twins, 11½c; Daisies, 12c.

Eggs—28c.

ST. LOUIS, Mo, Jan., 2—Butter—Extras, 25c; firsts, 21c; seconds, 19c.

Cheese—Young Americas 11c; Twins, 11c; Daisies, 11½c; Longhorns 11½c; Cheddars, 11c.

Eggs—Firm, 29c.

TOPEKA, KANSAS, Jan. 2—Creamery—Butter 23½@24½c; Dairy butter 17½@18c.

Cheese—Longhorns, 11¾c; Daisy, 11@11½c; Prints 12c.

WASHINGTON, D. C., Jan. 4—Butter—Market firm; extras, 25c; fancy renovated, 18c.

Eggs—35c.

NEWARK, N. J., Jan. 4—Butter market; fresh, 24c; held, 21c.

Eggs—Fresh; firsts, 37c, steady; refrigerators, 32c.

BOSTON, Mass., Jan. 4—Butter—Creamery, western, extra, 23½@24c; western firsts, 22c; storage, 20½@23c; dairy, 15@19c; western ladle, 14@15½c; box and print 16@25½c.

Cheese—Choice, 12c; Wisconsin Twins, 10@11c.

Eggs—Fancy nearby, 40@42c; western 35@37c; fair, to good, 32@33c; refrigerator, 31@32c.

NEW YORK, Jan. 4—Butter—Recipts, 4,926 pkgs.; firm; extra, creamery, 24c; creamery, common to choice, 15@23½c; state dairy, 15@21c; held creamery, 15@22c.

Cheese—Receipts, 3,591 pkgs; quiet; state full cream, fancy, small, colored, September, 12c; late made, 10c; small, white, 12c; late made. 10c; large, colored, September, 12c; late made, 10c; large, white September. 12c; late made, 10c.

Eggs—Receipts, 3442 pkgs; strong: state and Pennsylvania, nearby, average finest, 39c; state and Pennsylvania, seconds to firsts, 33@39c; western firsts, 37c; western seconds 33@35c; refrigerated, 29@32c.

NEW YORK MARKET.

NEW YORK, Jan. 2—Butter—Receipts for the week, 22,777 packages. Exports for the week, 1,800 packages.

Arrivals continue to fall off and fancy fresh Creamery butter is firm and half cent pound higher than last week. All fresh made table butter had more inquiry at trifle higher prices. We note some out-of-city business in June Creameries with sales of lots of 50 to 100 tubs at 20@20½c and 21c, and best marks of Freezer goods are firm at 21c.' Under grades of June Creamery in full supply and freely offered at easier prices. We quote:

Creamery, fresh, extra, 25½c; medium, 20@23c; poor, 16@18c; creamery, June extra, 21c; medium, 19@20c; poor, 15@18c; Dairy, extra, 20@22c; medium, 17@19c, poor, 14@15c; Ladle, extras, 17@18c; medium, 14@15c; poor, 12@13c; Renovated, extras, 19c; medium, 17@18c: poor, 12@13c.

Cheese—Receipts for the week, 11,326 boxes. Exports for the week, 3,356 boxes.

It is the end of the year and the whole trade is busy stock taking and no business was doing in top qualities. Some small purchases by exporters of under grades Full Cream and Skimmed Cheese at irregular prices. We quote:

Full cream, extra 12c; medium, 10@11½c; poor, 8@9c Part skimmed, extra, 9c: medium, 5@8c; poor, 2@4c; Skimmed cheese, extras, medium, poor, 2@3c.

Eggs—Receipts for the week, 20,197 cases.

Strictly fresh stock is very scarce and prices are in sellers favor. Sales reported at 40c per doz. Ice House stock is about cleared up, with odds and ends selling at 28 to 30c.

177 Chambers St. DAVID W. LEWIS & Co.

BALTIMORE MARKET.

BALTIMORE, Dec 31.—Butter—Since our last issue the receipts of creamery have been very light, especially extras; hence, firsts and good seconds have been in better request. Owing to the light supply of fresh table grades, there has been a fair demand for fancy held creamery. Fine imitation creamery meets ready sale. Fresh ladles are also in fairly good demand; but held stock is plentiful and slow sale. Rolls, when the quality is passable, meet with a good reception: but cheesy stock is slighted. Packing stock continues in ample supply and moderate demand. Blocks and prints, when of desirable quality, meet prompt sale. Steady, but quiet, about describes the general condition of our market.

Creamery separator, extras, 24@24½c; firsts, 22@23c; seconds, 19@21c: Held creamery, extra, 22c; firsts, 20@21c; seconds, 17@19; imitation creamery, extras, 20c; firsts, 18@19c; seconds, 15@16c; Iowa & N. W, Ladle, extras 16½c.; firsts, 15@15½c; seconds, 13@14c; Ohio & Indiana Ladle, extras, 16c; firsts, 15c; seconds, 13@14c: Roll, Ohio, extras, 16@17c; firsts, 15c; seconds, 13@14c; Roll, W. Va., extras, 16c; firsts, 15c; seconds, 13@14c; Ohio Storepacked, firsts, 14c; seconds, 12@13c; W. Va. Storepacked, firsts, 14c; seconds, 12@13c; Creamery blocks (2 lbs.) extras, 26@26½c; firsts, 25@25½c; seconds, 23@24c. Creamery prints, (½ lb.), extra, 27c; firsts, 25@26c; seconds, 23@24c; Md, Va. & Penna. prints, extras, 25@26c; firsts, 23@24c; seconds, 18@22c. Renovated butter, extras, 19c; firsts, 18c; seconds, 16@17c.

Cheese—Quotations given are for late made October cheese. Fancy Septembers are bringing a full cent a pound higher.

N. Y. State Cheddars, fine, 10½@11c; choice, 9¾@10c; fair, 9@9¼c; do Flats, fine, 11@11½c; choice, 10½@10¾c; fair, 9½@10c; do Small, fine, 11½@12c; choice, 10¾@11c; fair, 10@10¼c; Ohio Flats, fine, 10@10½c; choice, 9@9¾c; fair, 8½@9c; Ohio Picnic, fine, 10½@11c; choice, 10@10¼c; fair, 9¼@9¾c; Skims, fine, 8@8½c; choice, 7@7½c; fair, 4@6c; Swiss (Domestic) new, fine, 14½@15c; choice. 13@13½c; fair, 10@12c.

Eggs—With the receipts very light for the past few days, and the accumulations of last week pretty well cleaned up, the market generally presents a much healthier appearance and closes firm at 34 cents on all desirable stock, either fresh or storage. G. M. LAMB & BROS.

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1904

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Every creamery in the country should be equipped with

DE LAVAL CREAM SEPARATORS

for factory use or arrange to place the

DE LAVAL FARM SEPARATORS

with all their patrons.

The wisdom of this course will be apparent at the year's end, when largely increased profits for both creamery and patrons will be in evidence, as is invariably the case where the DE LAVAL machines are used.

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NEW YORK FERTILIZER MARKET.

Fish scrap, dried, 11 p. c ammonia, and 15 p. c. bone phosphate f. o. b. fish works, per ton	2.45 & 10
wet, acidulated. 6 p. c. ammonia f. o. b. fish works	2.20 & 35
ground	31.50@33.00
Azotine, per unit	2.60@ 2.65
Tankage, 9 and 20 p. c. f. o. b. Chicago, per ton	2.15@10
Tankage, 8 and 20 p. c. f. o. b. Chicago	2.17½@10
Tankage, 7 and 30 p. c. f. o. b. Chicago	15.00@16.00
Tankage, 6 and 35 p. c. f. o. b. Chicago	14.00@15.00
Garbage, tankage	8.00@ 9.00
Dried blood 12-13 p. c. ammonia f. o. lb. N. Y.	2.45@ 2.50
Dried blood, high grade, f. o. b, Chicago	2...45@12.50
Nitrate of soda for 100 lbs	2.20@ 2.25
future	2.20@ 2.02½
Acid phosphate	60 @ 67½
Phosphate rock, f. o. b. Char'n	5.00@ 7.00
Tenn	3.50@ 4.50
Bones, rough ℔ ton	17.00@19.00
ground, steamed	20.00@24.00
Bone meal, ground, raw	23.00@27.00
Bone black, refuse	16.00@20.00
South Carolina phosphate rock, ground per 2,000 lbs. f. o. b. Charleston	6.50@ 7.75
South Carolina phosphate rock, undried, f. o. b. Ashley river, per 2,400 lbs	3.50@3.75
do, dried	3.75@4.00
Muriate Potash, 80 p. c. ℔ 100 lbs	1.88@ 1.91½
Muriate potash 80 p. c., future	1.83@ 1.86½
dbl. m're salt	48@53% 1.12@ 1.15
Sulphate potash (basis 90 p. c.)	2.11@ 2.14
Sylvinit, 30@36p. c ℔ unit	.39@ .40
Kainit in bags	10.05@10.55
Kainit, in bulk	9.05@ 9.55
Kieserit	7.00@ 7.25

READING NOTICES

All Reading Notices under this head are at the rate of 25 cents per line.

For Rent—Dairy Farm of 160 acres, 120 improved; 24 cows and milk route for sale. A 1 farm, near town of 5000 inhabitants; a money maker for right man. Address. C. T. VAN AKEN, Hillsdale, Mich.

Wanted—Position as cheese or butter maker. Twenty years experience. Work guaranteed. Prefer cheese making in Pacific Coast states. Can give references. PETER ROSSELL, Stevensville, Mont.

Herdsman Wanted—For Clover Knoll Guernsey herd, Orangeville, Pa. 48-3

For Sale, Cheap—Two registered Guernsey bulls, aged 2 years, and 8 months, respectively. Would exchange latter for Holstein bull or Guernsey heifers of similar age. DR. GEO. W. NORRIS, 1580 Locust St., Philadelphia, Pa.

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D, Independence, Ia. 50-tf

For Sale—One Low-Down Milk Wagon; one De Laval Hand Separator; one Star Milk Cooler. All as good as new. Will exchange for registered Guernsey heifers or good work horses. J. R. HUSTON, Dayton, Ohio. 46-4

Guernsey Cattle—All ages, both sexes for sale. Cir. free. CLOVER KNOLL GUERNSEY HERD, Orangeville, Pa. M. Sager, Supt. 41-tf

For Sale or Rent—Dairy farm of 200 acres, 90 improved. $1.50 per hundred for milk year around. Address J. P. SOUTHARD, Harbor Springs, Mich. 42-10

For Sale—10 cheese factories, 5 farms 40 to 160 acres, saloon, dance hall and store. FRED HADLER, 775 Ida St., Appleton, Wis. 43-tf

For Sale—Cheese factory, complete. M. S. MORSE, Williamsfield, Ohio. 45-4

Buff Jersey's Third Revised Edition of the Dairyman Stock Breeder and Farmers' Hand Book; 10 chapters; The Buff Jersey Silo, how to build; Soil Crops; Dairy Cows, how to handle; Barns, how to build; Abortion, cure and preventative, and many other valuable things for progressive farmers. So popular has become the book that the author has concluded to make it an annual publication, and has put the price at a figure that makes it popular also. Postpaid, paper binding, 50c; cloth, 75c. BUFF JERSEY, Monmouth, Ill. 47-tf

Wanted—Position on southern dairy by practical up-to-date dairyman. Good milker, and understands care and feeding of stock; also making high-grade butter. K. F. du MAULIN, Chandler, Okla. 47-2

For Rent—A 100-acre equipped, milk shipping (Holstein) dairy farm on shares. Big producers. Central Ohio. Address J. F., care Hoard's Dairyman. 47-2

For Sale—Guernsey bull, Salem's King, a fine animal 6 years old. A. PARKS, Picketts, Wis. 47-3

Wanted—One single, and one married man with two grown sons for dairy farm. State wages expected. A. J. DAUGHERITY, Streator, Ill. 47-tf

Wanted—A live man to run one of the best dairy farms in New England on shares. Three hundred and fifty acres of extra good land. Large herd of fine Jerseys go with farm. Good up-to-date buildings. Separator, churn and butter worker run by power. Farm in high state of cultivation. Large new silo. Durable running water. Farm belongs to an estate and is not for sale. For particulars address C. D. HOWARD, Shoreham, Vt. 48-2

For Sale—Choice reg. Guernsey bulls and bull calves. RAY C. BICKNELL, Ft. Atkinson, Wis. 32-tf

For Sale—A high grade Guernsey heifer 15 months old, sired by Espanore 2nd, of Mr. W. D. Hoard's herd. Price $25.00. Address E. S. CURTIS, care Hoard's Dairyman, Fort Atkinson, Wis. 48-2

For Sale—Five registered Jersey heifers. Good ones. W. T. HARBISON, Plattsburg, Mo. 48-2

Mr. Wheaton's Canadian Dairy Notes.

The Better Curing of Cheese—Some of the Results Obtained.

ED. HOARD'S DAIRYMAN:—Among the important subjects to be discussed at the January dairy conventions will be that of the better curing of cheese. This is not a new topic. It has been on the programs of the dairymen's annual gatherings for the past few years.

While its discussion has resulted in some improvement and a desire on the part of factory owners to provide better equipment in this direction, a large amount of work needs to be done yet, before anything like ideal conditions are reached. It takes time and a lot of persuasive eloquence to bring about any decidedly forward movement in this line. Besides, the average dairyman requires more than mere eloquence or general advice on the subject before he will move. He must have proof that it is the right thing to do; and more, that it will put money in his pocket and insure a greater return on his investment.

But proof of the value of better curing facilities, is not wanting. Experiments both at Guelph and those conducted by the Dairy Division at Ottawa furnish ample proof of the need and value of controlling the temperature in curing and also of curing at a much lower temperature than is the custom in the average curing-room. And still progress has been slow. Much proof and much persuasiveness are yet necessary before our factories are equipped as they should be with proper curing facilities.

The most comprehensive work in this direction has been conducted by the Dominion Dairy Division. As the readers of the DAIRYMAN know, four consolidated cool curing stations were established by this Division in the spring of 1902. During the season of 1902 and 1903 over 70,000 cheese from some forty factories have been cured at these stations.

As the cheese were collected from the factories, a number from the same vat from all factories were set aside each week, and after being weighed, one was placed in the curing-room and the mate to it in the upper story where the temperature was not controlled. When the cheese of the corresponding week were sold these cheese were again weighed, and the difference in shrinkage noted. From this difference the saving in shrinkage on the whole lot was calculated.

The saving in shrinkage on all the cheese so handled this season up to date is as follows:

STATION	Number of cheese	Shipped weight	Shrinkage saved, lbs.	Value
Brockville	9,536	761,599	9,869	$1,911.39
Cowansville ..	14,080	1,137,159	13,694	1,497.44
St. Hyacinthe	9,255	711,076	6,816	699.76
Woodstock	12,898	1,013,562	14,410	1,461.17
Totals.	45,769	3,623,396	44,609	$4,669.76

To do a little figuring: The total saving or $4,669.76 represents the interest at 6 per cent or over $75,000, or what would provide a capital outlay of nearly $2,000 for each of the forty factories concerned. The past season has been a remarkably cool one and moist as well. In an ordinary season the shrinkage would be very much greater. A high temperature and a dry atmosphere are the two conditions that increase shrinkage in cheese.

But the saving in shrinkage, as shown above, is not the only advantage; an important one is the improvement in quality At the various stations the cheese cured under the different conditions have been examined time and again by cheese buyers, cheese makers and other experts, and in every case the cool cured cheese has been pronounced the best in quality.

A high temperature makes the texture of the cheese rough and mealy, and where the temperature is extremely high a greasiness is produced that is very undesirable. The whole effect is to destroy that silkiness of texture, that is so desirable in the finest quality of cheese.

Then, bad flavors are always intensified by high temperatures. In the station work many cheese have gone "off" flavor at the higher temperatures, while their mates that were cool cured, remained sound and clean. A high temperature produces a sharp or "tasty" cheese much quicker than a lower one.

While it is not claimed that the cool curing will make a fine cheese out of a poorly made one, still, cheese that are a little weak and open, or on the other hand have a little too much acid, show up better when cool cured, than they do when cured at ordinary, hot weather temperatures.

Taking all these things into consideration it is hard to estimate the value to our great national industry by the general adoption of cool curing. Something may be learned from the experience of the past two seasons. The weather, as we have stated, has been cool and conditions for curing were, in the average factory, much better than usual. One result of this has been the largely increased demand for Canadian cheese in Great Britain, resulting in higher prices and better values for the milk producers.

But the weather cannot always be depended upon, and factorymen should so equip their factories as to be practically independent of it. Unless they do so, a hot season may put them back where they were two or three years ago. Let the forward movement begin now while our reputation for quality is so good.

Though the information we have at hand does not give it, it would be interesting to know just what extra value those buyers, who reported so favorably upon the quality of the cool-cured cheese at the Government stations, put upon the better article as compared with the inferior product. In other words, what is this improved quality worth on the market? The saving in shrinkage has been brought down to dollars and cents. Why cannot the improvement in quality also be figured out in the same way?

It is claimed that the greatest value of cool-curing is in the improvement in quality. If so, we may place the saving in this respect at least the same as that for shrinkage. This would make a grand total of $9339.52, which would represent at 6 per cent, a capital of over $150,000, or nearly $4,000 for each of the factories contributing cheese.

This increased value for quality is, however, the "sticker." The average cheese buyer will report upon a lot of experimental cheese, as in the case in point, and state that the cool-cured are of much better quality. But will he go right down in his pocket and pay more for them? If they are better they should be worth more money.

And it is just here where the inducement to improve on the part of the patron and factory owner usually receives a severe check. The buyer does not back up what he preaches. A dozen or more factories, good, bad and indifferent, will board cheese on the local market on the same day, and, with few exceptions, the buyer will bid practically the same price for the whole lot. If he discriminates at all it is so very slight that there is not sufficient inducement given to go ahead and make the very finest quality. There

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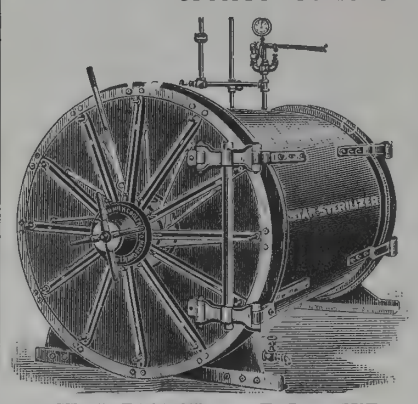
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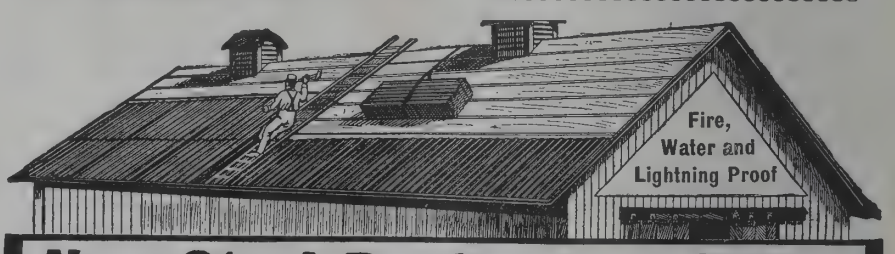
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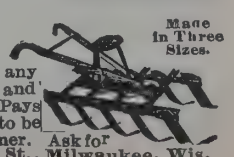
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Made in Three Sizes.

is an improvement, however, in this direction, but not as much as there should be when the methods of an up-to-date factory and a poorly equipped one are taken into account.

In our opinion the buyers could do more good educational work in one season, than all our best instructors could do in ten years (and this is not disparaging the value of the instructors in the least) if they would discriminate as they should when buying the product. A loss of ¼ to ½ cent a pound on the cheese offered on the open market would soon bring many of our delinquent factories to time and cause a revolution in factory equipment and facilities for making and curing cheese. It is dollars and cents that count.

While the experiments at the cool curing stations have been far reaching and of inestimable value to the industry, they have not succeeded so far in inducing any group of factories to combine and erect central, cool-curing stations. One reason for this is the foolish petty jealousies that exist between individual factories and prevent them from co-operating. An extension of the co-operative system a notch or two higher would work wonders in improvement of quality. The factory syndicate system may help some in this direction after it has been in operation a few years.

The cool-curing system if taken up, as it likely will be, will probably work out in this way. The larger factories will make the necessary improvements in connection with their own buildings. A considerable portion of our cheese may in future be cured in the warehouses of the exporter or commission merchants. Some consolidated curing rooms, and we hope they will not be a few, as the patrons should control their own product as far as possible till it is finally disposed of, may be organized. The next few years will, however, show how the cool-curing idea will work out.

The annual meetings of cheese factories, which are usually held the first month of the year, will likely show a most successful year. One factory in Perth county paid out over $35,000 for milk supplied by its patrons during the season of 1903, or an average of nearly $220 to each of its 160 patrons. Similar and even higher records will likely be made. Records are likely to be established that it will keep many factories hustling to reach up to in the future.

Toronto, Can. J. W. WHEATON.

The Farmers' Course at the Wisconsin Agricultural College.

There are now more than five hundred students in the Agricultural course at the University. The shortest of these courses lasts twelve weeks and the next covers two terms of fourteen weeks each, while the longest lasts four years. One might think at first that we were in position to meet the necessities of all classes of people seeking or needing agricultural instruction, but such is hardly the case. There is a class of farmers in our state who, like other busy business men, can not leave home for any considerable period. These men are anxious to learn more about their business and are in position to gain much good from even a brief course of instruction at the University. Realizing this, the University authorities have decided to announce a special course in agriculture for busy farmers lasting from February 5th to February 18th, inclusive.

The annual meeting of the various agricultural societies is held at Madison February 2 to 4, 1904. The Farmers' Course will begin the day after these meetings close and continue two weeks. The railroads have most helpfully granted a fare and a third rate for all who come to one or both these gatherings. No person under twenty-five years of age will be admitted to this course.

Each day, instruction will begin at eight o'clock, there being two morning lectures which will take up the time until the ten o'clock hour is reached. Farmers will spend the remainder of the day in corn judging and in the stock judging rooms and stables at the University Farm with the several instructors. Professor Moore has secured a large number of samples of corn and will drill the students in corn judging. Each farmer is asked to bring ten ears of seed corn such as he will plant next spring for study and comparison.

It is believed that the college can accomplish a great deal of good in educating the farmers to appreciating a high type of pure-bred seed corn.

To aid in this course the University has employed a number of experts as follows:

Mr. C. G. Elliot, Expert in Drainage, U. S. Dept. of Agriculture, Washington, D. C., N. H. Gentry, breeder of Berkshire swine and judge of beef cattle, Sedalia, Mo., John G. Imboden, butcher and stock feeder, Decatur, Ill., John Splan the noted driver and light horse dealer, Chicago, Alexander Galbraith, importer of horses, Janesville, Wisconsin, H. C. Taylor, breeder and judge of dairy cattle, Orfordville, Wis., Geo. McKerrow, expert sheep judge, Supt. of Farmers' Institutes, Sussex, Wis. On the first evening of the course Gov. W. D. Hoard will address the class on the "Importance of Education for the Farmers." A number of farm animals will be slaughtered and instructions will be given on the carcasses and different cuts of meat, by Mr. Imboden. No fees will be charged to residents of the state; non-residents are charged ten dollars ($10.00) fees. Room and board will cost about $5 per week.

Farmers are urged to bring their wives with them, if possible, for there are many things that will attract and interest them about the university. While the farmers are busy with their work in lecture, laboratory and stock judging rooms, their wives can attend other university lectures, if they choose, some of which are of great popular interest. They can also visit the different university museums, the great historical library with its art collection, museum, etc. One can spend weeks in Madison employing every hour profitably and delightfully.

We will gladly send a "picture book" showing buildings, class instruction, etc., also a circular describing the Farmers' course to all who will send their address to the undersigned. W. A. HENRY,
Dean College of Agriculture.
Madison, Wis.

IS THE SILO PROFITABLE.

There are still a great many farmers who do not believe that it will pay to build a silo. They have arrived at this opinion not from experience, but from theory alone. Yet if you called these men "theorists" and not practical men they would be offended. Yet are they not theorists?

Prof. Otis of the Kansas Experiment Station, has been making some very careful experiments and calculations on this silo question. He finds that a field of corn that will yield ten tons of ensilage per acre, will return $32.90 per acre. This shows whether it pays to use the silo or not.

DON'T OVERLOOK

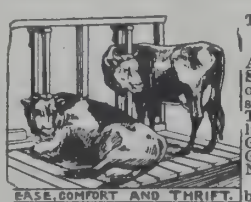
YOUR NEIGHBORS AND FRIENDS

A good many of them would join you in a club for Hoard's Dairyman if you would speak to them about it. This favor will help them and help us greatly. Won't you do it?



WILDER'S PATENT SWING STANCHIONS
Chain or Pin Fastened.
Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.
Safest, Strongest, Most Convenient fastening made. Cheapest to put in and save room in barn. Send for Stanchion Catalog to
J. K. WILDER & SONS, BOX 11, MONROE, MICHIGAN.

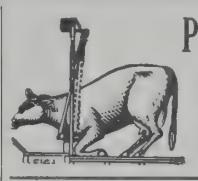




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SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated circular free. GLENORA MFG. CO. Glenora, Yates county, N. Y.
Infringements will be prosecuted.

Scott's "Perfect" Cow Stanchion
SWINGING
SELF-CLOSING
SELF-LOCKING
3 NECESSITIES FOR PERFECT STANCHIONS
Made of hard wood—strong and durable. Price $1.00. Satisfaction guaranteed.
Write for descriptive circular.
B. C. SCOTT, 212 Beach St., Bridgeport, Conn.

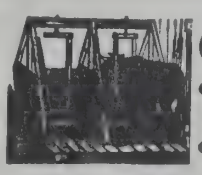
A Steel Stanchion beats anything you ever saw for tying cattle. Lighter, stronger, neater. Swings on chains Not in the way when lying down. Agents wanted. Write for special terms and prices. **Jas. Boyle, Mfr., Salem, O**



Prescott's Swinging Swivel tanchion
Keeps Cows Clean.
Swings forward while getting up or lying down. Looks back while standing. Full particulars free.
E. PRESCOTT,
Beverly St., Boston, Mass.



THE NEW PATENT
Cow Stall
AND FEED TROUGH.
This is the only Cow Stall with a centering hinge. Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars.
R. A. McLERY & CO.,
Palmyra, Wis.



CHAIN-HANGING CATTLE STANCHION
The Most Practical CATTLE FASTENER ever invented.
Manufactured and For sale by
O. H. ROBERTSON,
Forestville, Conn.

JUST OUT! UNDERHILL SELF ADJUSTING STALL



No Gutters
No Platforms
No Fastenings
No Stables to clean
Cease trying to keep your cows clean. Give them a chance and they will do it themselves. This is the only way and the easy way. Write for circular.
Wm. M. UNDERHILL, Oconto, Wis.



WARRINER'S CHAIN HANGING STANCHION.
CLEAN, SAFE, COMFORTABLE.
MFG. BY W. B. CRUMB, Forestville, Conn.



ECONOMY Feed Box and Manger.
Saves its cost in one year's use Used and endorsed by leading stockmen Write at once for descriptive circular. State how many head you feed,
E. E. FULTON COMPANY.
7259 Langley Ave., Chicago, Ills.

STATEMENT OF THE IOLA, WIS., CREAMERY ASSOCIATION FROM NOV. 1ST, 1902. TO OCT. 31ST, 1903.

	Pounds of milk.	Average test of milk.	Average price for milk.	Pounds of cream.	Average test of cream.	Pounds butter.	Butter yield.	Amount received for butter.	Paid to patrons.	Expenses.	Cash on hand Nov. 1, 1902.	Cash on hand Nov. 1, 1903.
November	140612	4.65	$1.22½	20480	26.91	14121	5.11	$ 3683 03	$ 3411.95			
December	137273	4.47	1.30 6-10	22161	26.20	13892	4.92	4003.74	3715 86			
January	137847	4.43	1.20	23794	26.29	14210	4.87	3805.15	3515.66			
February	127117	4.15	1.13 8-10	25676	26.23	13998	4.73	3656.10	3363.69			
March	156228	4 05	1.21½	32370	26.21	17157	4 65	4823.93	4486.47			
April	179800	3.94	1.09 6-10	32509	25.00	18860	4.73	4741 04	4375.21			
May	244923	4.06	.90	43086	28.00	26420	4.83	5508.77	4936.98			
June	303857	4 11	.92 3-10	54907	28.30	34155	4.92	7132.65	6401.47			
July	269982	4.22	.89 4-10	53023	28.35	32187	4.98	6258.68	5817.42			
August	253934	4.25	.85 9-10	53036	28.47	31720	5.02	6007.93	5425.89			
September	216178	4.52	.94½	48294	27.87	27975	5.03	5735.45	5254.17			
October	193638	4.55	.96 2-10	40807	28.00	24130	5.03	5051.26	4616.78			
	2361389	4.27	$1.01	450143	27.38	268825	4.91	$60407.73	$55321 55	$4473.83	$598.52	$1110.87
	3106372											
	5467761											

Cream reduced to 4% milk equals 3,106,372 lbs. milk. C. L. PASSMORE, Secretary.

Power for Separating and Churning.

ED. HOARD'S DAIRYMAN:—The interrogation of a Pennsylvania farmer in DAIRYMAN for Dec. 25, in relation to power for separating and churning, was advisedly answered by the editor.

Living in a section where dairying is the leading industry, and where the separator is almost exclusively employed, I would like to say a few words as to methods pursued here.

One-horse powers, of which there are those especially constructed for the purpose in this county, are largely used for separating and churning and have been for many years. They are used both with horses and bulls.

The powers are supplied with governers or self-acting brakes, which keep the speed uniform and at the desired rate, so there is no trouble on this account. These powers are largely used on the farms where the milk is separated and butter made.

There is, and has been for several years, quite a change in progress among the creameries and their patrons. Now, instead of the milk being carried to separator stations, it is separated on the farm by the small machines made for the purpose, and only the cream taken to the creameries to be made into butter. Where this is rightly managed, it is found to be an improvement on the old way of carrying the milk to the creamery or separator station, as will be readily understood by the patrons.

Many of these farm separators are run by hand, but this is quite a task, especially if there is considerable milk, and there is a demand for some kind of cheap and efficient power for this work. Where there is only the milk to separate, unless there is a large amount, a small power to be run by a dog or sheep, will be found to answer a good purpose.

A full rigged power of this kind should cost less than $25, and they are easily managed and durable. On our own farm we have one of this kind which is run by a Shropshire ram, weighing perhaps 200 pounds. He is kept in the barn all of the time, and has performed this work for several years. It is necessary to shear a sheep with a large fleece twice a year, to keep them comfortable and not too bulky for the power.

We have a nice little room in one corner of the basement of the barn, well lighted and ceiled with matched lumber. With this arrangement there is little carrying of milk, and all is convenient and comfortable. A neighboring farmer with a dairy of between 40 and 50 cows, uses one of these powers with a sheep with good success. They can be operated also by a large dog, and if desirable can be used for churning.

Where there is only the milk to separate, these powers can be employed to excellent advantage, as they require but little room, are inexpensive and can be placed where most convenient.

Franklin Co., Vt. E. R. TOWLE.

Michigan Dairymen's Association.

ED. HOARD'S DAIRYMAN:—There seems to be some confusion in relation to the dates of our next convention, which has usually been held the first week in February.

It was decided however, by the Executive Committee to hold the meeting in conjunction with the annual round-up meeting of the Michigan Farmers' Institutes at Lansing, Mich., Feb. 23-24-25, 1904.

The Tuesday and Thursday sessions

New Games

A FREE game—60 kinds—inside each package of

Lion Coffee

Rural Mail Many new routes will go in this year. We want name and address of every man who sends in a petition. To first one sending us full information we will send a **Box Free** BOND STEEL POST CO., ADRIAN, MICHIGAN.

PURE BRED SHORTHORNS
CHOICE BULLS FOR SALE.
Also Cows and Heifers bred to Clay Buttercup, 190851, a descendant of the Clay Family, champions at the World's Fair dairy test.
GEO. WENHAM, Fort Atkinson, Wis.

AYRSHIRE CATTLE of the BEST of BREEDING. Also Chester White Pigs, ready to book for season's trade. Young stock of both sexes. Prices reasonable. Come and see us.
F. TSCHUDY & SONS, Monroe, Wis.

GUERNSEYS Descendants of Bonny Boy and Lily Ella. Prices reasonable.
J. G. HICKCOX,
700 Stowell Avenue, Milwaukee, Wisconsin

GUERNSEYS
REGISTERED GUERNSEY BULLS FOR SALE from Advanced Registry, and high-grade stock. Pedigree and price furnished upon application. All animals are tuberculine tested.
WOODEND FARM,
ST. BONIFACIUS, MINN.

GUERNSEYS HADDON FARMS
Home of the noted GLENWOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

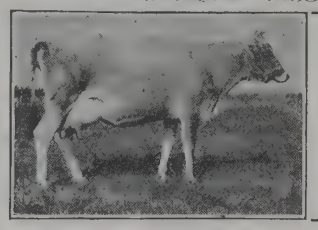
GUERNSEYS FOR SALE
Bulls two years old out of Count Topsy 24.27 lbs. butter 7 days. She won first prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

ALTA CREST FARM, SPENCER, MASS.
Home of the Yeksa Family of Guernsey Cattle. Herd contains more cows with large records and backed by large records than any other
HERD OF
GUERNSEY CATTLE
IN THE COUNTRY
Herd headed by Primative 4909, a son of Primrose's Tricksey, Adv. Reg. No. 2, 592 lbs. butter in one year. Several Bull Calves from elegantly bred Dams at reasonable prices. Address
A. H. SAGENDORPH, Spencer, Mass.

GUERNSEYS FOR SALE.
Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.
JAS. H. BEIRNE, Oakfield, Wis.

THE BROWN BESSIE HERD Offers one bull 14 months old, sired by Recorder, 29239, the only living son of Brown Bessie and has 14 tested daughters. Dam, Relay, 70353, test 17 pounds 2 ounces. She a daughter of Diploma with 61 tested daughters. Also Berkshire Pigs of English and American selected stock.
H. C. TAYLOR, Orfordville, Wis.

KING OF ST. LAMBERT'S KING 30752
Sire of thirty-three tested daughters, is unquestionably the most prepotent of any Jersey sire in the land. We have for sale young bulls rich in his blood; also a few cows and heifers in calf, whose progeny will be attractive because of the "Hart's King" blood in them. For prices, etc., address
FRANK W. HART, CLEVELAND, OHIO.



JERSEY BULL CALVES.
Thrifty, handsome fellows, 7 to 12 months old. sired by Golden Blyth 3rd, 54569 A. J. C. C. a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Price low if taken at once, One of these calves is out of Mildred Micawber.
R. C. GREEN & CO., Albion, Wis.

MILK BUTTER
BILTMORE JERSEYS
ILLUSTRATED CIRCULAR OF YOUNG BULLS FROM SELECTED DAMS, with very reasonable prices attached, can be secured by sending a postal.
If they don't improve the milk and butter yields of your herd we offer your selection of another free of charge.
DON'T FORGET we are headquarters also for Berkshires and Standard Poulty. Apply o
BILTMORE FARMS, BILTMORE, N. C.
CONSTITUTION TYPE

WASTELAND GUERNSEYS
SPECIAL SALE
To reduce our stock we offer for sale a few Cows and Heifers. We also have some good Bull Calves sired by "Sir Coral" 5239, and "Glenwood's Sheet Anchor of Haddon" 6372. Write at once for description and prices.
M M. & E. J. HOLLINGSWORTH,
Landenberg, Chester Co., Pa.

Rosendale Guernsey Herd
TUBERCULIN TESTED.
Sixty head of choice Guernseys headed by Coralette's Son, (see page 450) whose dam, Coralette made 479.7 lbs. fat in one year at 3½ years old, and was first prize cow at Wisconsin State Fair in 1896.
Some fine young bulls for sale.
GEO. C. HILL & SON, Rosendale, Wis.

Florham Guernseys.
The herd is made up of representative animals of both home and foreign breeding.
BULL CALVES,
from large producing dams for sale. Apply to J. L. HOPE, Supt., Florham Farms, Madison, N. J.

OLD HOMESTEAD GUERNSEYS
Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.
Especially low prices, standing of herd considered. No catalogue. State what you want.
L. V. AXTELL, Perry, Lake Co., Ohio.

SPOTSWOOD GUERNSEYS
We offer some grand Imported Cows and Heifers, large and deep milkers and high testers; a fine lot of Heifers fit for service, and a few Imported Bulls from prize winners on both sides. Any animal in the herd for sale. Address WALTER JAUNCEY,
Spotswood Farms Broad Axe P. O., Pa.

GUERNSEYS FOR SALE.
The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

AMERICAN JERSEY CATTLE CLUB
OFFICES: 8 W. 17TH ST., NEW YORK]
President, ELMER A. DARLING.
Secretary, J. J. HEMINGWAY.
BLANKS for Registering and Transferring Jersey Cattle; also Blanks for Private Butter Tests of Registered Jersey Cows, furnished free of charge upon application to the Secretary.
FEES for Registering: To non-members, $2 each head male or female. To members of the Club, $1 each head, male or female. All animals over two years old, double fee. For registration of all dead animals, $1 each. Imported animals, $25.
TRANSFERS are recorded free, if presented within 90 days from date of delivery. Transfers presented after 90 days, $1 each.
PRICE of Herd Register, $1 per Single Volume. Butter Tests of Jersey Cows, including all tests received by the Club to August 1, 1898, $2 per volume. Private Herd Record, 300 pages, cloth, leather back and corners, $2. Pocket Herd Record, 120 pages. flexible leather, 50 cents.
VOLUME OF BUTTER TESTS from August 1, 1898, to July 15, 1902, $1. Consolidated Volume, containing all previous tests, $2.00.
THE BY-LAWS of the Club, giving full rules to be followed in securing registration and transfers, mailed free on application.

ST. LAMBERT BULL CALVES by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.00.
W. J. HUSSEY, Mt. Pleasant, O.

HIGH CLASS JERSEY BULLS
Heifers and Cows for sale. My foundation stock the best I could buy from a herd famous for merit. Write for what you want.
WM. B. GOODRICH, CLIMBING HILL, IOWA.

PROSPECT HILL JERSEY HERD
The cow that can DO something is what the farmers want. Eight cows have finished their official year's work making an average of 524 lbs. each. F. H. SCRIBNER, Rosendale, Wis.

VALLEY FARM is offering some bargains in young bulls sired by "Diploma's Victor, No. 56310, Grandson of "Brown Bessie," or will exchange for heifers equally well bred. For prices and pedigrees write Fred Stubley, Black Earth, Wis.

FOR SALE. Two A. J. C. C. Bulls ready for service; also some younger ones. Cows and heifers in calf to richly bred bulls. Write for pedigrees and prices. We have a few Berkshire Boar Pigs from unregistered sows left; cheap.
N. N. PALMER & SON, Brodhead, Wis.

POLLED JERSEYS
Richest Cow of all breeds in Pan-American Model Dairy. Winning Herd at Ohio and New York State Fairs, 1903. W. H. FORBES & CO., Yellow Springs R. R. No. 1, Ohio.

But Two Bulls Remain
That are old enough for service. One combines the blood of Stoke Pogis 5th, "Exile", "Ida's Rioter", Mary Anne", "Naiad", "Crocus", Allie", and Mollie Garfield", and the other four crosses of "Eurotas", through three of her sons, with some of the best St. Lambert blood.
To induce immediate sale these are priced far below their worth. If in need it is for your interest to write for pedigrees, and to do it TODAY. Ask for Sale List A20.
WINTERGREEN HILL FARM
SCOTTSVILLE, N. Y.

ROBINSWOOD JERSEY DAIRY has a few head of Young Jerseys, either sex, they are offering below their value, being overstocked. Also a few Barred, Buff, and White Plymouth Rock Cockerels, and one two-year-old Berkshire Boar, (registered.)
N. H. ROBINSON, Prop., Centralia, Wis.

HAZEL FERN HERD. A. J. C. C. Jerseys, blood of St. Lambert, Melia Ann, Combination, Pedro, and Golden Lad. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale.
ESTATE W. S. LADD, Portland, Oregon.

JERSEY BULLS Now or soon to be ready for service; also several well bred HEIFERS. Let us send you prices and breeding, with milk and butter records. All stock is registered or eligible. E. E. STEVENS,
North Madison, Ohio

FOR SALE Son of Pedro's Pretty Pogis, 38660, A. J. C. C., a superb son of old Pedro, both of World's Fair fame. Two yearlings from tested dams. Some royally bred Poland China Pigs, March and April farrow.
J. Q. EMERY & SON, Albion, Wis

PLEASANT VALLEY HERD Of O. I. C. Swine. Headquarters for pure and fashionably bred stock. Boars ready for service. Sows bred and open growthy. Prolific fall pigs now ready to ship. Write for particulars and prices.
A. J. WELKER, ATTICA, N. Y

will be held in the State Capitol building. Tuesday afternoon will be devoted entirely to the butter makers and creamery men; Tuesday evening to the cheesemakers. Wednesday there will be a joint meeting with the Institute all day and evening in the Armory at the College with an excellent program on general dairy topics with several speakers of national repute. We expect a large exhibit of butter and cheese which will be judged on this day. A report and discussion will be made at our Thursday morning meeting, upon the same. This will also be the business session of the Convention, election of officers and selection of location of next place of meeting.

The indications are that this will be the largest and most successful meeting ever before held by the Association. The main reason for changing the dates of our convention was to enable our members to receive the benefit of obtaining the one-rate fare on the railroads, which has always been accorded the State round-up. S. J. WILSON.

Flint, Mich.

Turning Creameries into Cheese Factories.

ED. HOARD'S DAIRYMAN:—While reading through the columns of your valuable paper, I notice the question asked, Do you think we can make a success by turning creameries into cheese factories for a few months in the summer time, by having a cheese making instructor visit and take charge of a number of such factories, and it was replied to by E. H. Farrington, who thought the plan would work all right.

This plan will work all right if they have competent cheese makers in each factory, but the way I understand the question, they would expect the instructor to teach the other employees, and if that is the case, they had better get an instructor to teach the rest of them a couple of years before they try to run their business on that plan.

I am a cheese maker and know by experience that the summer time is the most difficult time to make cheese, and that is the time they expect to change about. I don't care how long a man has been at it, he will have curds in that time of the year that will puzzle him. Sometimes they come out and make very good cheese and other times not so good, and everyone has now and then a vat that isn't much good, although by mixing the poor cheese with the better ones, they sell on the market all right.

I know of a man that has made cheese for twenty years, and this last season he guaranteed his cheese and had bad luck and lost enough to take part of his wages. He had too much confidence in himself and thought he was about perfect, and the consequence was you never get too old to lose in the cheese business. I once heard a cheese maker say that when a factory run a million pounds in a season and the cheese maker said they lost no cheese, he made up his mind that he was tellIng a falsehood. Of course there are exceptions. We make the soft Michigan cheese in this locality, no Cheddar at all. I think if these gentlemen want to change over, they better get experienced help and leave out the instructor. F. A. S.

Morenci, Mich.

Sweet Curd Cheese.

ED. HOARD'S DAIRYMAN:—Do you know how to make cheese by the sweet curd system? I know how to make it by the acid system. R. E. P.

Cold River, Vermont.

In answer to the question, American home-trade, or stirred curd cheese is of a softer texture and milder flavor than the Cheddar or export cheese.

This is brought about by incorporating a larger amount of water with the curd, developing little or no acid in the cheese curd before salting and hooping, and by hastening the curing process by means of using higher rates of rennet and lower rates of salt, and not curing it so far as is ordinarily done with a well ripened Cheddar.

The distinctive difference between the two processes is that in the case of Cheddar cheese the aim is to get rid of all the water consistent with a compact union of the casein particles, while the aim is to retain as much water as possible in the stirred curd without having it appear in the form of free water in the cheese.

When properly made and carefully cured, at temperatures ranging from 40 to 50° F., it may be of excellent quality, being mild, soft, and creamy, but because of the large amount of water contained in it, it is easily subject to decomposition changes; goes off flavor rapidly, and does not bear tranportation well.

Another distinction between the two processes of manufacture is that in the home-trade cheese the curd is not allowed to mat into a mass after the whey is drawn from the curd, but is kept stirred so that the curd particles will not unite and the whey will drain off until dry enough, when alter more or less further maturing of the curd it is salted, pressed and cured.

If the curd is cheddared and milled shortly after matting, the resulting cheese will resemble the stirred-curd cheese in flayor and moisture contents, but will be closer in body, more meaty in texture with a finer, denser grain, developing into a more desirable cheese in all respects.

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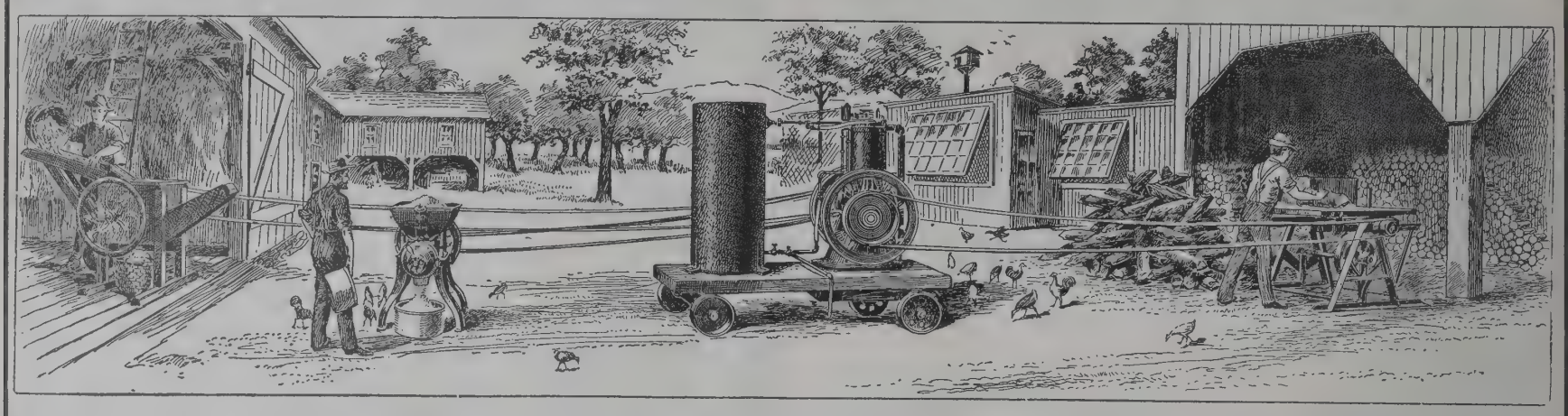
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The Large versus the Small Dairy Cow.

ED. HOARD'S DAIRYMAN:—No act of Congress has been of greater advantage to the farmers than the act establishing and aiding the state experiment stations; and no special work done by these stations has been of greater importance than that done in the interest of the dairy farmer. It is less costly to learn at another's expense than at one's own; and by giving heed to the disinterested, nonpartisan work done by the stations, the dairy farmer may save himself much bitter disappointment, and not be misled by following the false teachings of certain dairy writers and breed partisans. As its most valuable work in this line, the Wisconsin Experiment Station has recently issued bulletin No. 102, entitled Studies in Milk Production. The present Wisconsin Experiment Station herd was established in 1898, and the Bulletin covers the work of this herd for a period of 4½ years.

In order to make comparison of results on a basis of type, the herd was divided into three classes: The small dairy type, the large dairy type, and the dual-purpose type. The men making this division were Messrs. F. H. Scribner, breeder of Jerseys; Charles L. Hill, breeder of Guernseys; Geo. McKerrow, breeder of Short-horns, and W. B. Richards, Asst. in Dairy Husbandry at the Station.

Pasture was figured at $1.50 per month, and other feeds at average Wisconsin market prices; while the butter was figured at 20 cents per pound, and the skim milk at 15 cents per 100 pounds. The butter was computed on the basis of 85.7 per cent of one pound of butter fat in the milk, equivalent to one pound of finished butter; usually known as adding one-sixth to the butter fat, and the standard now used by the Holstein-Friesian and Guernsey Associations in their official records made under the supervision of the experiment stations.

The conclusions reached, as a result of the most painstaking work through a period of almost five years, in which all the food given each animal was weighed, and each treated as though she alone were on test, confirm my teachings of 20 years past, that the larger type of dairy cow is the more profitable for the dairy farmer. Space will not permit me to give as much as I would like, but, as conclusively in favor of the large dairy type, of which the Holstein-Friesian is the best exponent, I quote the following:

COWS OF THE LARGE DAIRY TYPE PREFERABLE.

From the data presented it will be seen that, everything considered, cows in group B, representing the large dairy type, are clearly in the lead for economic production of milk and butter fat. The results of over four years' work with cows of the extreme dairy type, represented in group A, not only failed to establish the claims for the superiority of cows of this type over a much larger and apparently stronger dairy type, but clearly showed that they are not as large producers, nor as profitable dairy animals, as the latter.

"That the extreme dairy type has been popular, at least in this state, is evidenced, among other reasons, by the fact that three of the cows selected for the University herd at our solicitation by prominent dairymen in our state were fair representatives of this type of cows, and are included in group A. Our investigations have been conducted under the most favorable conditions possible for this type of cows: The stable in which they have been kept is considered a model one as regards cleanliness, light, ventilation and general comfort of the animals, and water is provided for them in the stalls so that they are not exposed to inclement weather at any time. They are given the best of care and attention at all times; being fed liberally; kept during the hot summer months in the cool, darkened barn, protected from sun and flies; and are fed various green feeds and grain in summer, as well as protected from cold in winter.

"In view of the ever-increasing demands on the part of dairymen for cows that will have endurance and ability to withstand diseases, as well as great productive capacities, we do not hesitate to state that in our opinion it is not the part of wisdom for our dairymen to select the small, refined cows with a spare habit of body in an extreme degree as the most desirable type of dairy cows.

THE FARMERS' OR DUAL-PURPOSE TYPE.

Neither is it the part of wisdom for the dairyman, as such, to select cows of a type similar to those in group C, representing the dual-purpose type, and to expect the greatest profit from them in the production of milk and butter fat. For the dairy farmer, the large type of dairy cow will, we believe, everything considered, be found the most profitable. In view of the results obtained with the different groups, it is apparent that cows with the greatest capacity for consuming rough feed are generally the most economical producers. This may be accepted as a fundamental characteristic of all cows capable of large and economical production in the dairy."

The Station's comparisons by breeds are very striking, and, as usual, the Holstein-Friesian breed is found to excel. Indeed, it seems that with fair representatives this great breed will always win in any net profit comparison, where both the butter fat and skim milk have values assigned. The average results of the breed comparison are as follows:

	Holstein.	*Guernsey.*	*Jersey.*	*Shorthorn.*
Annual yield of milk	9987.3	6530.7	5700.2	7121.4
Annual yield of fat	351.6	319.4	301.1	28.7
Annual value products	$94.03	$82.31	$77.10	$741.26
Annual cost of food	45.46	37.37	35.22	38.17
Annual net profit	48.47	44.94	41.88	36.09

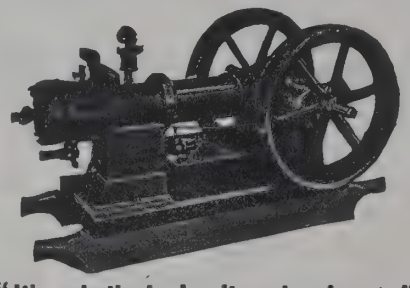
A careful study of this table will show the dairy farmer that it is not the cow that gives the richest milk, but the cow which produces the largest amount of butter fat that wins out. During all those years, and for all their milk taken in bulk, the average for the Holstein-Friesian milk was 3.52 per cent fat, while the Jersey average was much higher; yet we see that the Holstein-Friesians averaged annually over 50 pounds more

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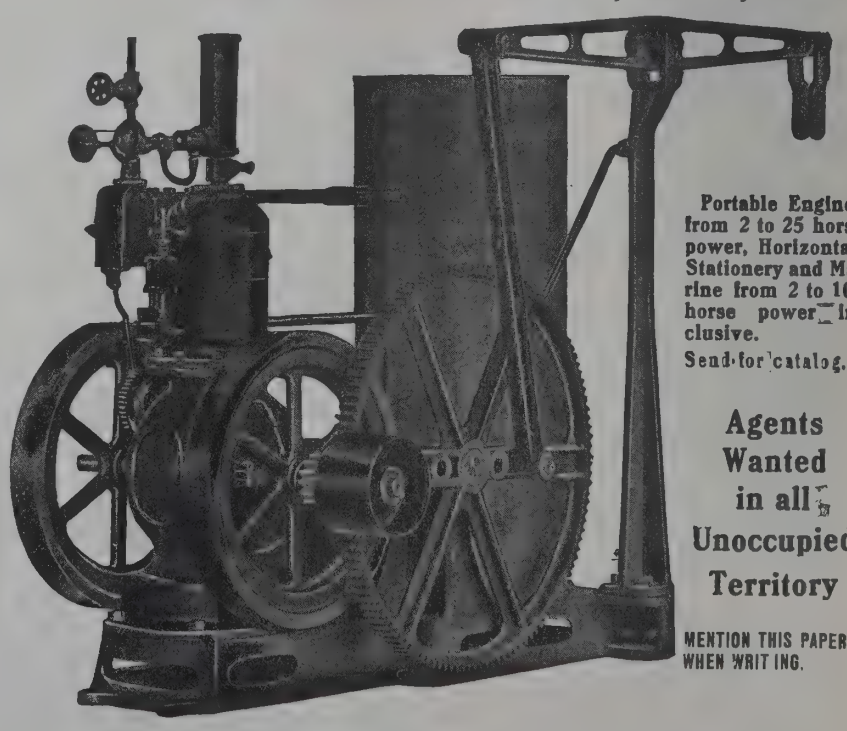
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of butter fat for each cow than did the Jerseys.

But this table does not tell the whole story; the Wisconsin Station had even better grounds for deciding in favor of the larger, hardier, more vigorous cows. If a farmer went into the dairy business for five years he would take account of stock at the beginning and at the end of the specified time; and if he found that the herd had increased or decreased in value, he would take such increase or decrease into consideration. The Wisconsin Station did not do this because it was making a study of milk production only; but it gives a resumé of each cow, and we can follow it out for ourselves. The Jersey list reads like a column of obituary notices. Out of 12 cows, one died of congestion of the lungs, one of bronchitis, two were got rid of because of loss of part of the udder from garget, two because found tuberculous, two because such delicate feeders as to be unprofitable, and one because of lack of constitutional vigor and dainty appetite—only three left out of twelve, and they not the best.

The hardy, vigorous Holstein-Friesian cows furnish a surprising contrast to this list. One did so well that a California breeder purchased her last summer at a long price, and took her to California. The rest are there and still doing business at the old stand, though there is one that Holstein-Friesian breeders would no doubt, be glad to get if they could. This is Alma Marie Josephine, who at three years old made a record of 18 lbs., 5.8 oz. butter from 400.3 lbs. milk, showing an average for the seven days of 3.77 per cent fat in the milk. The net profit for the one week was estimated to be $2.72.

The main deduction which the thinking dairy farmer must draw from the exhaustive work shown in this bulletin is that for the greatest net profit he needs cows of the large dairy type, such as the Holstein-Friesians; for, not only do they give a larger net profit, but by reason of their hardiness and great vitality, the large, vigorous Holstein-Friesians thrive on work which will break down and destroy the weakly constitutions of the small, delicately formed Jerseys.

MALCOLM H. GARDNER.

Darien, Wis.

Breeding and Feeding of Pigs.

ED. HOARD'S DAIRYMAN:—What is the best type of pig to rear and feed for marketable purposes? An animal possessing the following points may be taken as a type of pig to suit alike the breeder, feeder and consumer:—

Neat head. The pig that is very long in the head is usually narrow between the eyes, has seldom a very strong constitution, and has rather more bone than is required. On the other hand, the pig which is very short in the head is usually too fat, too heavy in the fore end, thick in the neck and heavy in the shoulders. Neat in the head means neither too long nor too short a nose. The ears should be fairly large, soft and pliable and should fall a little to the front, without actually being lopped.

Light neck and shoulder: The coarser parts of a side of bacon, and those which fetch the lowest prices, are the neck and shoulder. The lighter these parts, the better the side, and the higher the price it will make.

Deep heart and well sprung ribs: Pigs are usually deficient in these points, which are, perhaps, the most valuable of those here enumerated. For stock purposes, breeders should, therefore, select only those animals which have these characteristics strongly developed.

Thick loins: A pig with a good loin is almost invariably well ribbed, and has a strong constitution. From a breeder's and feeder's point of view, a good loin is most essential.

Stout thighs: This means a pig thoroughly well developed in the hams. The hams are the most important part of the animal, and, in the case of pigs killed for the ham and middle trade, the most valuable of all, provided they are not too fat.

Short legs: A pig that is long in the leg is nearly always flat in the ham, and lacking in plumpness.

Long and silky hair: Good hair is an indication of strength of constitution, as well as lean meat. The absence of hair generally proceeds from close breeding, and indicates a tendency to excessive fatness.

A long side of moderate depth, with thick flank. The above is the type of animal to be aimed at, whether thoroughbred, half bred or common bred pigs are kept.

To produce pigs having the qualities enumerated, the first consideration must be the selection of the boar. It is said that the boar is half the herd. Even this estimation undervalues his power of reproducing his like. It is, therefore, all-important that a boar possessing the particular points described should be obtained. At present, the improved, large, white Yorkshire appears to be the breed which possesses the required points, and a sire of this breed should therefore be selected.

The pig that commands the highest price is an animal which, when well finished, and not over fat, weighs about 170 pounds dead. A good pig ought to arrive at this weight at the age of seven months from birth.

In selecting a sow, there are a few points which a good specimen should possess, in addition to those mentioned for the boar. The sow should be docile, and should have at least twelve teats, of an equal size, and evenly placed well forward on the belly. Sows having large flat teats generally secrete very little milk, and on this account prove bad mothers. The fineness of the hair, skin and bone all indicate a good quality of flesh, and an animal that is likely to become a good mother.

Pigs should be well fed, but not overfed. It is only when fed regularly that pigs give the most satisfactory results to the feeder.

During the first half of the 16 weeks the sow goes in pig, she should be allowed to run on grass and should receive a limited amount of other food. For the last eight weeks she should be treated more generously, so that she may be in good condition, but not too fat, at the time of farrowing. During the time the sow is rearing her litter, she should receive as much good food as she will take, consisting of boiled potatoes, corn meal porridges, bran and skim milk.

At three weeks old the young pigs begin to eat, and at this time should be supplied with skim milk, separated milk or fresh buttermilk, which may be mixed with a little pollard, bran and boiled potatoes, and given twice or three times daily. Care should be taken to prevent the young pigs having access to the sow's food. The sow may be permitted to eat up the food which the young pigs have left, but if the young pigs eat the sow's food they are almost certain to scour. When eight weeks old the pigs may be weaned. After weaning they should receive the same quantity of food in a sloppy condition and be allowed a little exercise.

When the pigs have reached about 100 lbs. in live weight, the amount of exercise allowed them must be limited. The food should now consist of boiled potatoes broken up, and mixed whilst hot, with a quantity of barley meal. After the pigs have eaten as much as they appear to require, a small quantity of butter milk, skim milk, separated milk or kitchen refuse should be added, to induce them to clean up all the food given them. The quantity of food which a pig should receive is just what it will eat up clean, no more and no less.

When being fattened, pigs should be fed three times a day. The food ought to be brought to a temperature of 90°F., by direct heating or by the aid of hot water. By doing so, much of the food is saved in the animal's body for the production of fat.

The addition of oats to the food of pigs which are being finished, improves the whiteness of the fat and makes the flesh firmer. The pigs should, therefore, receive oatmeal or bruised oats during the three or four weeks previous to the time at which it is intended to kill the animals. When the food contains a large proportion of brewery or distillery by-products, the fat produced is soft and of a yellowish color and the meat is not of good flavor. The excessive use of such products is therefore to be avoided.

Every farmer should try and breed the store pigs he requires, because in the first place a pig eight weeks old should not cost more than $1.50 to produce, whereas nearly double that is asked in the open market. Furthermore, pigs reared on the farm fatten more readily, and are therefore more economical than pigs bought.

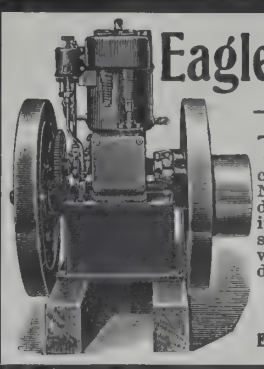
Swine fever is the disease most dreaded by farmers. This, it should be clearly understood, is a germ disease and is never spontaneous in its origin. The sole cause of swine fever is the introduction into the system of a healthy pig, of a specific germ from the body or excreta of a



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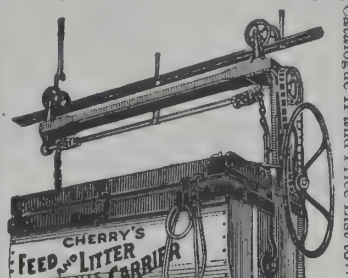
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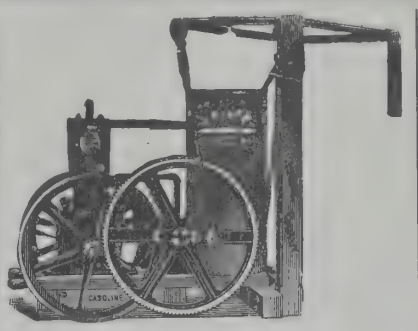
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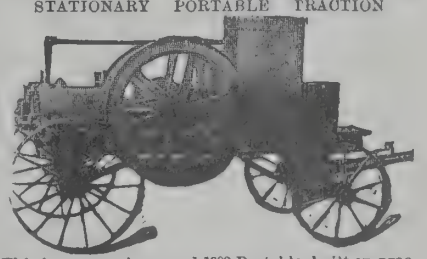
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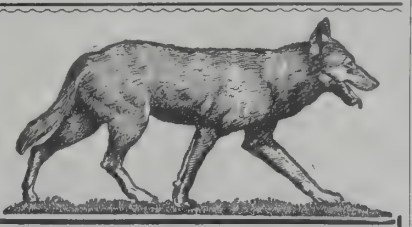
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NOW Is the time to Subscribe for HOARD'S DAIRYMAN.

diseased pig. There is reason to believe that the disease is not infrequently conveyed to places at which swine are kept, by means of persons who have been in contact with diseased animals elsewhere. The farmer who breeds the pig he feeds is less likely to suffer loss from this disease, than the farmer who buys. Great care should be exercised in keeping the houses in which pigs are kept, clean and comfortable. Cleanliness of the sties and feed pigs on suitable food are quite essential, if the animals are to be kept in a healthy condition, and so have power to resist infection. W. R. GILBERT.

Montreal, Can.

Constructing a Cheese Curing Room.

ED. HOARD'S DAIRYMAN:—The Cheese Co. are contemplating building a new cheese curing room. Our factory is in a low place and a pond close by, and we are troubled much with cheese moulding.

Can you give us a plan of room needed to hold the product of 5000 or 6000 pounds of milk daily, and the best method of shelving and ventilation?

Prairie City, Mo. P. C. CHEESE CO.

In reply to the question asked in the inclosed letter I would say that in the location of a cheese factory no one thing is more important than to secure a well drained site, and yet, this is, in many cases, the last thing thought of.

The foundation of cleanliness in a cheese factory begins with the sewer. Other things being equal, then, elevated ground should be selected as a proper site for a factory. Another matter that may prove of considerable value is a regard for the natural or artificial shelter that may be given the factory building.

A difference of eight or ten degrees in the curing room temperature can often times be secured by having a due regard to the advantages of shade from groves or the channels of natural air currents. The surroundings should be such as to insure pure air with little dust. Trees and shrubs around the factory aid in purifying the air. If one can choose a site for placing of the curing room, a north side hill is better than any other. The east is better than a west slope, but a north exposure is the best, so that the windows may be on the north side. It is not well to locate the building on a bleak site, exposed to the full rays of the torrid summer sun or to the cold winds of winter.

The building should be laid upon solid foundation walls rather than upon piers. Beside adding decidedly to the appearance of the building, it aids materially in keeping the building warm in winter and cool in summer. The outside should be neatly and tastefully painted in light colors, as they reflect the sun heat best, while dark shades absorb the heat.

The construction of the curing room should be on the principle of cold storage building. The studding outside should be covered with matched sheathing and drop siding, with a layer of three ply acid and water-proof paper between. For the inside, a layer of matched sheathing is first nailed to the studding, then strips of one inch in thickness by two inches in width, to which are nailed two thicknesses of matched sheathing with a layer of water-proof paper between. The space between the studding should be filled with cork or sawdust or some similar material. The inner spaces must be closed air tight at the ceiling and floor.

The ceiling should consist of two thicknesses of matched lumber laid with tight joints with the layer of water-proof paper between. Double doors and windows are essential. In the construction of the curing room floor there are certain fundamental conditions which should be observed. The cooling effect derived from the ground temperature should be utilized. Therefore the floor ought always to be made of some good conductor so that it will be always cool. The most available material for this purpose is the cement or solid concrete floor, and if constructed properly, is sanitary, substatial, and much superior to wood. To avoid the danger of cracking the cement, it may be best to dig holes twelve inches square and a foot deep where the supports for the cheese tables are to come, and fill them with concrete so as to form piers to carry the weight.

The dimensions of the room in which to cure the product of six thousand pounds of milk per day should be twenty-four feet wide by thirty-six feet long with ten foot ceiling. Four rows of double shelving running lengthwise of the room, four tiers in heighth will give ample shelving space. The curing room to be complete should be equipped with the sub-earth duct. Those contemplating the building of a duct should secure the services of Mr. E. L. Aderhold of Neenah, Wis., Expert Traveling Cheese Instructor for the Wisconsin State Dairymen's Association. U. S. BAER.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Inflamed Quarters.

I have a cow that had trouble in one quarter with her last calf. One teat became obstructed with a hard lump at the entrance. I opened it repeatedly with a bistoury, bathed thoroughly with hot water twice a day, used a plug and milk tube, but was never able to restore to a normal condition. Could only draw a few drops of milk at a milking. The inflammation left about two months before she dried off I ceased milking from that quarter. She freshened again a few days ago. The same quarter is badly swollen and hard. Am bathing twice a day with hot water, rubbing thoroughly, then oiling with lard and camphor. Have opened it again, but can only get a few drops of matter. W. J. W.

Riverside, Cal.

ANSWER.

If you had continued to milk this quarter last season, no matter how little milk she may have given, it is quite likely that the quarter would have gained its normal condition by this freshening. But as the quarter is practically dead there is no chance to restore its natural function. The best advice we can give is to rub it with oil of camphor. The milk will soon disappear and so will the swelling.

Swollen Quarters.

I have a peculiar disease among my milch cows. It begins with swelling of the udder on the right side. It becomes hard, feverish and painful, but only affects one or two chambers of the bag. Comes on very suddenly and lasts about a week or ten days and then gets well. E. D.

Argos, Ind.

ANSWER.

It is possible that your cows are not as comfortable in their stalls as they might be, thereby squeezing these quarters while lying on them. Your trouble appears to be from a local cause. Ascertain the cause and remove it.

Cramp Bark as an Anti-Abortient.

Will you please give your opinion on feeding cramp bark to cows to prevent abortion, through HOARD'S DAIRYMAN. State dose, and how long should it be fed before calving?

Pa. SUBSCRIBER.

ANSWER.

You may start one or two months before the usual time of abortion and give an ounce twice or three times daily in food or drench. This will strengthen the generative organs and thus may aid to prevent abortion. But you must not omit the usual antiseptic precautions, which are very important in your case.

Mastitis.

For the last month I have been bothered with caked bags amongst my dairy cows. They refuse to eat their feed, ears and tail cold and shiver; the bags cake, the milk either curdles or turns yellow and two of them (the cows) got very stiff or weak in their hind quarters; the teats affected almost dry up after they are getting well. G. W. V.

Haines, Ore.

ANSWER.

Give a full dose of physic and follow with ½ oz. of fluid extract of poke root and 1 oz. of potassium acetate in a quart of water. Continue the latter every four hours until relieved. Hot fomentations to the udder are indicated, also hot lard after the fomentations; milk as often as possible to relieve the udder of its contents.

Tonic for Run Down Cows.

Quite a number of my cows have,and will have calves in a short time. After calving they seem to become sick, lose appetite, and for eight or ten days give scarcely any milk. Have given them Epsom salts and ginger, also tepid water and sorghum molasses, besides other remedies. Think they need a tonic and would like to know what is best. A. A. M.

Jackson, Miss.

ANSWER.

Quinine sulphate, 2 ozs.; gentian root, 3 ozs.; nitrate of potash, 2 ozs.; dried sulphate of iron, 3 ozs. Give each cow a large teaspoonful night and morning in ground food a little moistoned.

Lymphangitis.

My horse was, to all appearance, all right at night, and on going to care for him next morning I found him standing on three legs. The left hind leg was very badly swollen, especially on the inside, which was rigged up clear to the body. He would not touch it to the floor unless forced to do so. He was shivering, his pulse and respiration too quick; appeared in great pain, and would not eat. What is the trouble? One says, "Give him a moderate dose of physic and keep his bowels loose, bathe the leg with hot water, and after physic has operated give as follows: Sulph. iron, 1½ ozs.; cream of tartar, 4 ozs.; sulphur, 4 ozs.; nitrate potash,3 ozs. Dose, one tablespoonful in bran mash night and morn-

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And when the job is done it is done to a purpose. The manure does not lie over the field in chunks to waste away, but whatever its character, **coarse, lumpy, strawy, caked, fresh, lime, plaster, etc.,** it is pulverized and evenly distributed, so that every particle enters the soil to nurture plant life. Compared with other spreaders it is **THE MACHINE OF MANY SPECIAL FEATURES.** Endless apron makes it always ready to load. Spreads thick or thin as desired, 3 to 25 loads per acre. Regulated while in motion. Front axle cuts under and turns on the ground it stands on. Chunks held on beater by non-bunchable rake until pulverized. Combined hood and end gate keeps manure from beater while loading and acts as hood in spreading. Broad tires, meadows and grain fields are top dressed without rutting. Light draft, strong and durable. **FULL GUARANTEE** with every machine. Write for our large catalogue. It tells how to secure best results from the manure pile and shows how the **Great Western** has mastered the matter of spreading. Mailed free.

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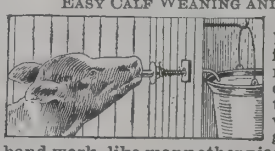
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ILLUSTRATION

EASY CALF WEANING AND FEEDING.



Whoever was brought up on the farm has painful recollections of experiences when the calves were weaned and taught to drink. This hand work, like many other pieces of farm drudgery, has been largely done away with. There is a new and better way. We are illustrating herewith the Keystone Calf Feeder, manufactured by M. T. Phillips, of Pomeroy, Pa,, a device considered one of the best of its kind, and carrying with it the endorsement of large dairymen, Agricultural Colleges, Experiment Stations, etc. With this appliance the calf scarcely knows of weaning time. The device is so nearly in keeping with the calf's nursing by the cow that it takes to it naturally from the first. Not only is the matter of teaching the calf to drink from the bucket avoided, but it gets its food slowly, in proper quantities, in the natural way, and thus escapes the evils that attend the bolting of the food. The Keystone feeder has a large use. Its cost is but little compared with the time and worry it saves. Mr. Phillips distributes a little book which describes the Feeder. It will interest any one who is still weaning and feeding his calves the old way.

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ILLUSTRATION.

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The dehorning knife has come to be almost a stable necessity to the dairyman and cattle feeder. There are several knives on the market, but, perhaps none that is so satisfactory from every consideration as the one manufactured by M. T. Phillips of Pomeroy, Pa. Its great point of advantage is that it cuts from all four sides at once, and thereby secures a clean, clear cut that is all cut and no breaking or crushing. Several of the Government Experiment Stations have given it unqualified endorsement. The acting director at Cornell University commends especially its "ease of operation and durability," and describes it as "the best instrument of its kind that we have ever used." Mr. Phillips is constantly receiving testimonials. He sends us a recent one from which we quote briefly to show how it is regarded and the width of territory it covers. "The dehorner is a perfect machine. A boy and myself dehorned a bull this morning that had not been led out of the barn for three years, and had no trouble as to cutting off the horns." ED. HULBERT, Dallas, Wis. Mr. Phillips advertises the dehorner regularly in our columns. It would pay any one interested to write him for a copy of a little descriptive book he sends out free.

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ing. Another says, "Give nux vomica in 40 drop doses twice per day for ten days, then feed linseed meal enough to physic. Which is right?
Garrattsville N. Y. G.

ANSWER.

Your horse has an attack of lymphangitis, due to an excessively rich condition of the blood. Give the following at one dose: Aloes, 7 drams; ginger, 2 drams, dissolved in a pint of water. Then commence to give the following: Aconite, 1½ drams; potassium nitrate, 2 ozs.; spirits nitrous ether, 2 ozs. Add water to make one pint. Mix. Give 2 ozs. every hour for 8 hours. Rub the swollen parts with equal parts of mercurial ointment and sweet lard once daily. Apply plenty of friction while rubbing.

Cow Pox.

My herd of cows are affected with what I think must be cow pox. The udders become swollen in several places as though they had been stung by a bee or some insect and in a few days the swollen place will suppurate and will dry up and several more places will come. It seems to affect the herd I have used Iodide ointment prepared by a local druggist, but with little benefit.
Springfield, Ky. H. M. O'N.

ANSWER.

If you had the ointment prepared by a druggist, there is no doubt about its correctness, as they prepare it according to the United States Pharmacopoeia which is standard in this country, but it may be that it was not fresh. If this is the case, it does not give the required results. Iodide ointment must always be used fresh, as it will lose its strength and be inactive in a short time.

Leucorrhoea.

One of my cows has a vaginal discharge of a yellowish white and very offensive matter. The matter is tough, and requires some little effort to separate the protruded portion. J. C. R.
Mexico,

ANSWER.

This is probably due to injuries inflicted during parturition, or there may be ulceration of the vagina or the os-uterus. Your treatment must be applied locally to the parts affected, which will not be safe to attempt at the present time, as she is too near the period of parturition for such treatments, which are liable to cause abortion.

Septicemia.

We have a cow that we noticed about forty days ago going down, getting poor. At present she is a rack of bones, eats and drinks scarcely any thing; goes out in field with rest of cattle. She lost calf about eight months ago; did not clean for a good while, we had to take them from her. A READER.
Parnell, Mo.

ANSWER.

This is due to unclean fingers while taking away the placenta, which has infected the cow and caused the trouble. Give the cow an ounce of tincture chloride of iron in a quart of water, twice daily, as a drench, and add a teaspoonful of the tonic mentioned in this issue for A. A. M., Jackson, Miss.

Heart Failure.

Yesterday I lost a fine Guernsey cow, and I will give you the circumstances: Another cow in the corral was on a spree, and this Guernsey reared upon her, and as soon as she landed upon her feet she began to tremble all over, and in a moment later she fell down and was dead in two minutes, D. MACA.
Lawrence, Kansas.

ANSWER.

Heart failure was most likely the cause of death.

Obstructed Teat.

I have a cow that I cannot get the milk down into the teat without the use of a milk tube. When I introduce the milk tube it seems to meet some obstruction about 2 inches up in the teat, but cannot get any milk until I get through this. There seems to be a very small hole through this but it is sometimes very hard to find and after the tube goes up through this the milk runs quite freely. There are three lumps on the back side of the udder; they seem to be right under the skin and can be moved around very easy. They are not very hard and do not seem to hurt her any if you take hold of them. G. W. F.
Lansing, Mich.

ANSWER.

Your remedy is the teat bistoury which will give immediate relief. The lumps in the udder may be warts under the skin; if they do not hurt the cow it is just as well to let them alone.

Prolapsus of Rectum.

I am having trouble with some shotes that I am feeding. The gut comes out about one inch and gets very bloody, H. G.
Donnellson, Ia.

ANSWER.

Give the anima l from ½ to 1 grain of morphine hypodermically according to its size and age, then wash the protruded bowel with warm water and a very little soap, care being taken that the soap is not sufficient to irritate the parts. When clean, dry carefully and anoint with olive oil which has been slightly carbolized, to this add a little opium (enough to act as a local anodine.) You may now begin to carefully replace the bowel into its natural place, when it has been so replaced, introduce your finger gently and remove all the feces within your reach. After this inject some of the oil and opium into the rectum to prevent straining. Sometimes a suture will be of good service, this is drawn around the anus so as to prevent the bowel from returning. Give the animal plenty of water and feed no solid food. Give a laxative dose of castor oil, but prevent purgation.

Retention of Placenta.

What can I do for retention of placenta and prevention for same. J. R. B.
Annandale, Va.

ANSWER.

This is due to lack of tone in the organs of generation, when it does not follow abortion. Give the cows the tonic prescribed in this issue.

Abortion.

Can you suggest a remedy for cows losing their calves, or otherwire slinking as we may call it. Is it apt to leave a cow subject to slinking. Also what to do when can't get a cow with calf?
Johnstown, N. Y. C. S.

ANSWER.

We must first of all isolate the cows which have aborted, destroy the afterbirth and foetus and thoroughly disinfect the stables in which they have aborted; whitewash the walls and give plenty of light in the stables. About the best agent to apply to the floor is air slacked lime. Apply it once daily after cleansing. It is advantageous to put the healthy cows to pasture. The cows which have aborted should not be allowed to retain the afterbirth; the same should be promptly and completely removed, and the uterus and vagina thoroughly cleansed by irrigating same with a 1-5,000 solution of bi-chloride of mercury, or other disinfecting agent. This can be done best by using a fountain syringe, and may be repeated once daily until the disappearance of the vaginal discharge. Until this has entirely disappeared, no cow should be used for breeding purposes.

We may also increase the resistance of all the animals by means of food rich in nitrogen and a teaspoonful or two of powdered cramp bark in food once daily.

A cow which has aborted and retains the placenta usually will not breed, but if cared for as above directed, you will avoid this trouble.

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Cured horses are absolute certainties as to the possibility of the remedy for your own case. Such results as shown in our booklet, by business men whose reliability can be readily ascertained, have carried "SAVE-THE-HORSE" over skepticism, prejudice and uncertainty. Send for booklet and copy of written guarantee, which is as binding to protect you as the best legal talent could make it. No man need see his horse suffer and become incapacitated.

"SAVE-THE-HORSE" Positively and Permanently Cures BONE and BOG SPAVIN, THOROUGH-PIN, RINGBONE (except low ringbone,) CURB, SPLINT, CAPPED HOCK, WINDPUFF, SHOE BOIL, WEAK and SPRAINED TENDONS and all LAMENESS. Cures without scar, blemish or loss of hair. Horse may work as usual.

$5.00 per bottle. Written guarantee with every bottle. Need of second bottle improbable, except in rarest cases. If your case is different we advise frankly as to possibility of the remedy effecting a cure. Give veterinarian's diagnosis, if he is competent. Describe age, development, location of swellings, lameness, and way horse carries and holds leg.

$5.00 per bottle at all druggists and dealers, or sent express prepaid.

TROY CHEMICAL CO., Troy, N. Y.
Also manufacturers of Veterinary Pixine.

BLACKLEG
BEST PREVENTIVE



VACCINATE your cattle with Blacklegoids—the simplest, safest, surest preventive of Blackleg. Each *Blacklegoid* (or pill) is a dose. Administration with our Blacklegoid Injector is performed in one minute. We establish the purity and activity of our Blacklegoids by rigid tests upon animals. For sale by druggists. Write us for literature—free on request.

PARKE, DAVIS & CO.
DETROIT, MICHIGAN.
BRANCHES: New York, Chicago, St. Louis, Boston, Baltimore, New Orleans, Kansas City, Minneapolis, Indianapolis, Memphis; Walkerville, Ont.; Montreal, Que.; London, Eng.

ZENOLEUM
Famous COAL-TAR Carbolic Dip.
For general use on live-stock. Send for "Piggies' Troubles" and "Zenoleum Veterinary Advisor" and learn its uses and what prominent stockmen say about it. Books mailed free. All druggists, or one gal., express paid, $1.50; 5 gal., freight paid, $6.25.
ZENNER DISINFECTANT CO., 34 Bates St. Detroit, Mich.

Breeder's Friend
"During the winter and spring nearly one half of my dairy of 35 cows aborted. I began feeding Kellogg's Condition Powder in August following and but one cow aborted during the winter and spring. It gave perfect satisfaction so far as I can judge from one trial." Josiah D. Smith, Delhi, Delaware Co., N. Y.
KELLOGG'S CONDITION POWDER
is the great remedy for Barrenness, Failure to Come in Heat, Abortion, Retention of Placenta and all breeding difficulties. A simple, prompt remedy, much relished by all animals. Hundreds of experienced stockmen now regard it as indispensable. Our Condition Powder booklet shows you how they talk about it. Ask us for it. Free
H. W. KELLOGG CO.,
Dept. Q, St. Paul, Minn.

Spavin and Ring-bone
Once hard to cure—easy now. A 45-minute treatment does it. No other method so easy, quick and painless. No other method sure.
Fleming's Spavin and Ringbone Paste
cures even the very worst cases—none too old or bad. Money back if it ever fails. Lots of information if you write. Book about Spavin, Ringbone, Curb, Splint, Bog Spavin and other horse troubles sent free.
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Horse Owners! Use
GOMBAULT'S
Caustic Balsam



A Safe, Speedy, and Positive Cure
The safest, Best BLISTER ever used. Takes the place of all liniaments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish*
Every bottle sold is warranted to give satisfaction Price $1.50 per bottle, Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.
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Cures Curbs, Splints, Spavins, Etc. Equally good for Colic, Distemper, Etc. Our 100-page book, "Veterinary Experience", FREE.
DR. S. A. TUTTLE,
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A Good Cow
Is a prize. All are not equally good. Some are barren, some slink their calves, others get scours, garget, milk fever and all may "get out of condition." Down comes the average of profit.
KOW-KURE
For Cows Only
Is the special cow remedy. Cures barrenness, abortion, etc. Conditions and carries safely through all calving troubles. Now used by nearly 100,000 dairymen. The invaluable cow remedy, just for cow ailments. Dealers sell it. Write us for free Kow-Kure Book.
Dairy Association Co.,
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Calf Scours Don't let your calves die from this disease. You can save them by using Hood Farm Calf Scour Treatment, which consists of Calf Scour Cure, a liquid preparation which checks the scours, and Digestive Powder, a preparation of pepsin, which aids digestion, creates an appetite and keeps the calf from becoming stunted in growth.
HOOD FARM
Calf Scour Treatment
SAVES THE CALVES.
At Hood Farm, Lowell, Mass., in one year, there were 83 cases of scours. Every calf was treated with these remedies and all but 3 were saved. Formerly we lost 75 per cent. of all calves affected.
Two sizes of each remedy, $1 and $2.50, large contains four times the quantity of the dollar size. Prepaid to any railroad express point in U. S., 25 cents additional.
Address C. I. Hood Co., Lowell, Mass.
Mention this paper.

COWS RELIEF



Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.
Used Exclusively at Model Dairy
Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.
O. H. MFG. CO.,
Dept. H, Lyndon, Vt.

DR. GEORGE HOLLABUSH'S
Sure Cure for Abortion



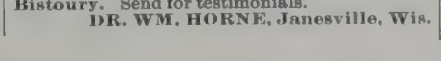
and General Tonic for Cows. The only genuine sure cure and general tonic for cows on the market. I guarantee, and refund money if not satisfactory. Dr. Geo. Hollabush, Ft. Atkinson, Wis. Write for circular.

ABORTION
POSITIVELY PREVENTED AND CURED BY THE USE OF
ANTI-ABORTION SERUM
PREPARED BY DR. DAVID ROBERTS.
CATTLE SPECIALIST
WRITE FOR SWORN TESTIMONIALS.
DR. ROBERTS VETERINARY REMEDY CO
722 GRAND AVE WAUKESHA, WISCONSIN



PREVENTIVE
The only guaranteed abortion remedy.
The most powerful germ destroyer known.
It prevents all contagious diseases. Thus far every user as far as we can learn is satisfied with results obtained. Send for descriptive booklet.
STEVENS BROTHERS
Holstein Breeders
LACONA, - NEW YORK

ABORTION,
Failing to Breed and Bring Cows to Heat. Sure Cure. In Use 20 Years.



(Patent Applied For.)
Hard Rubber Safety Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.
DR. WM. HORNE, Janesville, Wis.

MILK FEVER
WHY NOT PREVENT IT?
PREVENTION IS CHEAPER THAN CURE.
Write for Moore Bros. "General Cow Drink" Pamphlet, Free.
Address, MOORE BROS., V. S., Albany, N. Y

Must not Eat Eggs.

ED. HOARD'S DAIRYMAN:—One of the cooking authorities, who is at the same time a kind of guardian of the morals of public diet, has now gone on record as saying that the eating of eggs for breakfast is accountable for the alarming increase of divorce.

It is said that the candidate for divorce will get up in the morning and eat an egg or two, and repeat this operation upon eggs prepared in all the different ways known to modern, but unmarital cooking, till the unfortunate creature lands in the divorce court. We farmers and feeders know there is nothing like feeding for a purpose and those of us who love our good wives, will hereafter view with alarm any leaning they may devel p toward too frequent egg breakfasts.oOf course we can control the situation somewhat by cutting down the feed supply on the old hen, or feeding her for the purpose of not getting eggs; or we may gather the eggs and keep them out about the barn till the basket is full and then take them to the store and trade them off for some anti-divorce breakfast food, that is guaranteed to furnish vim, vigor and virtue to such women as are getting weak-kneed on the marriage vow and its obligations.

The authority says that egg-eating women get lazy, and loll around in easy chairs, reading the morning papers, neglecting their homes and husbands and treading the downward path generally.

That properly cooked eggs are delicious is admitted, but they are dangerous and must not be trusted. My recent personal experiences with eggs, I must say, are starting some divorce thoughts in my mind, for, for some time past I have been eating around at restaurants and places, and I have met eggs of such various conditions, ages and conditions of preservation that divorce is going to occur soon—the eggs and I are going to part. There is a manifest insurmountable incompatability and the divorce is inevitable.

If I may prescribe for those dreading the egg-eating habit I would suggest a more balanced ration, and for the average woman of good wit and about 140 pounds I think she might try: Pioneer porridge with sugar and real cream, an egg or two, two strips of sugar-cured, country bacon, buckwheat cakes and butter and maple syrup, taken slowly, without airs, with a merry heart and a clean conscience, after not less than eight hours refreshing sleep. This should help you to "be sunny." W. F. McS.

Penn.

The Iowa Butter Contest.

ED. HOARD'S DAIRYMAN:—The fifth scoring in the Iowa Twelve Months Contest has been completed and I send you herewith the results, which are as follows:

Nick Knutson, Emmetsburg, Iowa, wins the first place in this contest with a score of 97 at Ames, 93 in New York, and an average of 95. Chemical analysis: Fat, 83.84 per cent; moisture, 12.57; curd, 1.79; salt and ash, 1.80.

A. A. Palmer gets second place with a score of 96¾ at Ames; 91 in New York, and an average of 93⅞. Chemical analysis: Fat, 79.96 per cent; moisture, 16.42; curd, 1.27; salt and ash, 2.35.

Mr. S. W. Laird, Walker, Iowa, ranks third highest with a score at Ames of 96¾; in New York, 90½, which makes an average score of 93⅜. The chemical analysis of this butter is, fat, 85.14 per cent; moisture, 12.25; curd, 1.02; salt and ash, 1.59.

J. P. Nielsen, Brayton, and R. J. Erb, Arbor Hill, Iowa, tied for fourth place with an average score of 93¼.

The next and last scoring in this year's Iowa contest will take place during the beginning of January, and all butter should be here at Ames on the last day of December. As this is the last test, all are urged to send in a tub.

The prizes to the winners will be awarded as soon as the results can be obtained. A gold medal will be given to the one who gets the highest average, and a silver medal to the one that has second highest. A certificate showing the average chemical analysis and scores will be given to all who have an average score of 90 or better.

Ames, Ia. G. L. McKAY.

Transfers of Guernsey Cattle.

BULLS.

Boxer of Bonnie Brook 8894, W. S. Stevenson to Rose Bergbigler, Herman, Pa.
Crito of Hickory Grove 8982, Wright & Park Bros., to F. L. Page, North Jackson, Pa.
Cyrus of Verona 7961, B. J. Dodge to Charles Sporie, Delta, N. Y.
Cena's Select 5656, W. S. Stevenson to John Younkin, Butler, Pa.
Dan of Bonnie Brook 8934, W. S. Stevenson to Jacob Geible, Butler, Pa.
Gip's Nonpareil 7504 & Pure Gold's Laddie 7996, G. W. Davis to E. T. Gill, Haddonfield, N. J.
Hickory Hill Main Stay 9078, Est. G. A. Seager to Levi Smith, Battleboro, Vt.
Monadnock's Rutila's Sheet Anchor 8432, C. Morton Smith to Lyman Blair, Greenville, Me.
Mr. Robin 8662, Wm. C. Endicott to Thomas W. Pierce, Topsfield, Mass.
Ned of Bonnie Brook 8934, W. S. Stevenson to W. H. Bowser, Kittanning, Pa.
Number 7 8896, W. S. Stevenson to J. A. Gregg, Butler, Pa.
Pure Gold's Laddie 7996, E. T. Gill to William Balderston, Morrisville, Pa.
Prince of Valley View Farm 8250, W. H. Walbridge to C. Morton Whitman, Katonah, N. Y.
Plezza's Select 9081, W. S. Stevenson to R. S. Clark, Edinburg, Pa.
Rancocas 9034, J. T. Armour to Robert B Russell, Colora, Md.

COWS.

Alice Spencer 10415, Cora Osborn 12810, Julia P. 10404, Lady Osborn 9671, Miss Beth 10057, Ruby Allen 15831, Sallie Spencer 15830, J. R. Huston to H. B. VanCleve, Cleveland, O.
Blee 12561, William C. Endicott to Thomas W. Pierce, Topsfield, Mass.
Bessie of Bonnie Brook 16087, Foxie of Bonnie Brook 16583, W. S. Stevenson to Grant H. Gochring, Brush Creek, Pa.
Castella 16675, Golden Lassie 8967, Golden Promise 16674, Gold Mine of Manor 12760, Princess of Manor 11708, Purest Gold 14911, Sheet Anchor's Darling 15053, Sovereign's Daughter 15054. G. W. Davis to E. T. Gill, Haddonfield, N. J.
Dot of Bonnie Brook 16582, W. S. Stevenson to A. Dawson, Smith's Ferry, Pa.
Edna Butler 9857, W. S. Stevenson to W. A. Lindsey, Butler, Pa.
Florence of Bonnie Brook 12737, W. S. Stevenson to James S. Hays, Butler, Pa.
Grace Dean 12382, S. I. Murphy to H. C. Bughman, Pittsburg, Pa.
Idi of Bonnie Brook 14549, W. S. Stevenson to John Reefer, Zelienople, Pa.
Lady Spencer of Green Bank 7992, J. R. Huston to A. R. Collins, Xenia, O.
Lady Gretchen 16906, O. Koogle to J. C. George, Venedocia, O.
Lilly of Bonnie Brook 13761, W. S. Stevenson to W. H. Bowser, Kittanning, Pa.
Marta of Linden Home 16903, Chas. Solveson to H. C. Bughman, Pittsburg, Pa.
Mabel Butler 9859, W. S. Stevenson to R. S. Nicholson, Kittanning, Pa.
Mabel of Bonnie Brook 11417, W. S. Stevenson to Daniel Younkins, Butler, Pa.
Pansy Sexton 8942, Edwin Miller to George Dawson, Birmingham, Mich.
Prickle 12146, W. S. Stevenson to J. A. Gregg, Butler, Pa.
Plezza of Bonnie Brook 15879, Flo of Bonnie Brook 14548, W. S. Stevenson to C. A. Freshcorn, Zelienople, Pa.
Plezza 10865, W. S. Stevenson to W. H. H. Riddle, Butler, Pa.
Queen Bountiful 12424, William C. Endicott to George L. Silsbee, Lynnfield, Mass.
Rosa Belle Van 16902, George Van DerVeer to Jacon A. Van Atten, Jerusalem, N. Y.
Sis Hopkins of Linden Home 16775, Chas. Solveson to H. C. Bughman, Pittsburg, Pa.
Violet of Bonnie Brook 14550, W. S. Stevenson to Howard Reiber, Butler, Pa.

WM. H. CALDWELL, Secr'y.

Peterboro, N. H., Dec. 21, 1903.

A Quart Baby.

Now and again there is an item in the newspapers concerning the birth of a puny baby so small that a quart cup holds it comfortably. If the article told all the facts it would probably tell also of a mother who in weakness and misery had looked forward to the baby's advent with shrinking and fear.

To have fine, healthy children the mother must be healthy, and it is the common testimony of mothers that the use of Dr. Pierce's Favorite Prescription not only promotes the mother's health but also gives her strength to give her child.



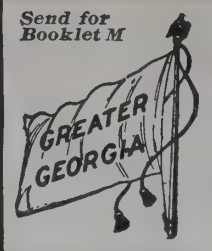
"Favorite Prescription" accomplishes these results by tranquilizing the nerves, promoting a healthy appetite, and giving refreshing sleep. It increases physical vigor and gives great muscular elasticity, so that the baby's advent is practically painless. It is the best of tonics for nursing mothers.

"I gladly recommend Dr, Pierce's Favorite Prescription," writes Mrs. J. W. G. Stephens, of Mila, Northumberland Co., Va. "Before my third little boy was born I took six bottles. He is the finest child and has been from birth, and I suffered very much less than I ever did before. I unhesitatingly advise expectant mothers to use the 'Favorite Prescription.'"

Dr. Pierce now feels fully warranted in offering to pay $500 in legal money of the United States, for any case of Leucorrhea, Female Weakness, Prolapsus, or Falling of Womb which he cannot cure. All he asks is a fair and reasonable trial of his means of cure.

Dr. Pierce's Common Sense Medical Adviser, containing 1008 pages, is sent *free* on receipt of stamps to pay expense of mailing *only*. Send 31 one-cent stamps for the cloth-bound volume, or only 21 stamps for the book in paper covers. Address Dr. R. V. Pierce, Buffalo, N. Y.

Send for Booklet M



GEORGIA LAND opens immense possibilities to Northern and Western farmers, dairymen, stockmen, truck farmers, manufacturers Three crops a year in places, two anywhere; wonderful grasses, wheat, corn, oats, as well as cotton. Timber, pine and hardwoods at your door; water-power abundant; markets of the world open to you and accessible. Navigable rivers, splendid Railways Land is low now. Terms are easy. Opportunities great. Climate ideal; warm winters; cool summers. Facts are free. Send for them.

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FARM One Season, FREE

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Lands

Planting in rotation cauliflower, cucumbers, egg-plant, in beautiful health giving Manatee County. The most fertile section in the United States, where marvelous profits are being realized by farmers, truckers and fruit growers. Thousands of acres open to

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Full particulars, handsomely illustrated booklets, with list of properties for sale or exchange in Virginia, the Carolinas, Georgia, Florida, and Alabama sent free.

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PORTSMOUTH, VA.

Homestead

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Entry

Buy You a Ticket to CROOKSTON, MINN., and call upon

The Polk County Land & Loan Company

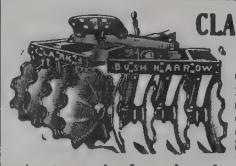
For Choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.

360 acre farm, 4½ miles from Crookston, Minn., a city of 7,000 inhabitants, and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 feet square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm is under a high state of cultivation, and is well drained by a slight ravine running through the farm merely sufficient for self drainage. The soil is a rich, deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50.

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired. Price $19.00 per acre.

Clark's Tools for Large Hay Crops



CLARK'S REVERSIBLE
Bush Plow and Harrow
Cuts a track 5 ft. wide, 1 ft. deep. Connects the sub-soil water. It is an excellent machine for covering in sugar cane. Strength guaranteed. Can plow a newly cut forest, stump, bush or bog land, leaves the land true and clean for grain or any crop.

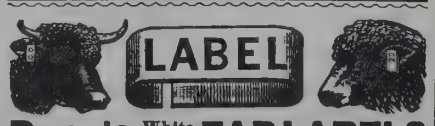


Clark's Dbl. Action Cutaway Harrow
Moves 15000 Tons of Earth a Day.



Clark's 8 foot Smoothing Harrow
Will smooth an acre as true as a mill pond in twenty minutes.

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CUTAWAY HARROW CO.,
HIGGANUM, CT., U. S. A.



Dana's White Metallic EAR LABELS
stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Sample free. Agents Wanted.
C. H. DANA, 55 Main St., West Lebanon, N. H.

50,000 AMERICANS

Were welcomed to

160 ACRE FARMS IN WESTERN CANADA FREE

Western Canada

during past Year



They are settled and settling on the Grain and Grazing Lands there, and are healthy, prosperous and satisfied.

Sir Wilfred Laurier, speaking of Canada, recently said: "A new star has risen upon the horizon, and it is toward it that every immigrant who leaves the land of his ancestors to come and seek a home for himself now turns his gaze"—

There is

Room for Millions.

FREE Homesteads to every head of a family, Schools, Churches, Railways, Markets, Climate—everything to be desired.

For a descriptive Atlas and other information, apply to Superintendent Immigration, Ottawa, Canada; or authorized Canadian Government Agent—

T. O. CURRIE,
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YOU CAN....

BUY A FARM

ON PAYMENTS

So easy that you will regret it if you do not investigate. Our lands are

CHOICE HARDWOOD LANDS.

Especially selected with a view to quality, location and natural advantages. Put your savings into land that will double in value inside of a year. Ask us for the facts about them. A postal card with your address will do. Lands are now selling at $10.00 per acre. $400 in easy payments will buy 40 acres.

INTERIOR LAND CO., Janesville, Wis.

When the Butter Won't Come.

ED. HOARD'S DAIRYMAN:—Having had considerable experience in butter making, I may be able to assist the correspondent who complained not long ago of having trouble with his churnings.

In the first place, let us ask if he has in his herd one or more farrow cows, or cows long in lactation? If so, he probably need look no further for the source of trouble. I have known the milk from one such cow to inoculate the entire churning and render futile all efforts toward separating the butter, no matter how long continued. Where all-the-year dairying is followed, this difficulty is rarely experienced since the milk from fresh cows introduced from time to time overcomes the viscosity of the others.

The remedy, where this is the existing source of the difficulty, would be to leave out the milk from such cows as are advanced in lactation, or in other words, nearly dry. Such cream usually foams or froths up in the churn. Scalding the milk before setting is sometimes beneficial in these cases.

From the fact that the butter will not gather, one would infer that there is some other cause for the trouble, however, and I suspect the real one may be too low a temperature. In winter it is quite possible to bring the butter to the point where it breaks, but will not gather, solely because it is too cold and the globules will not adhere. I have seen cases where the globules were so small that they would pass through an ordinary butter sieve and rise to the top of the rinsing water to the thickness of an inch or more when attempting to complete the process as usual.

The addition of hot water to that employed in washing the butter, until it is at a temperature of 62° to 64° at this season of the year, will work like a charm when butter acts in this way. But the temperature of the cream should be carefully tested from time to time, during the operation of churning, and not allowed to fall below 60°.

Then by warming the rinsing water up to about 62° to 64°, it will leave the butter in exactly the right condition for salting and working. It is time thrown away to spend it at a churn handle in winter with the cream much below 60°, unless the ripening has been thoroughly done, and a proper degree of thickness secured.

Personally, I never saw very good results follow diluting the cream with hot or warm water. This thins it and frequently hinders the coming of the butter. If cream is to be warmed it is better to put it in a tin pail, where it can be placed in a larger one containing hot water, stirring the cream constantly to prevent whey forming as it will if any one place gets too warm.

The addition of dry salt or a little strong brine at the time the cream breaks, is an advantage. It assists in the separation, and the butter rises to the top of the buttermilk more completely than when salt is not added. This makes the buttermilk salty, and is objected to by some, but when, as is the case on the average farm, the buttermilk goes to the pigs the objection is not a serious one, and the women folks soon learn not to add salt to anything they make with buttermilk, in cooking or baking.

My experience in buttermaking has been principally with Jerseys and Guernseys, and the temperatures above given might not in all cases be best.

Michigan. MRS. E. E. ROCKWOOD.

Experience With a Dairy Herd.

The story by W. S. Keene of his experience in starting and improving a herd of dairy cattle at Palmyra, Me., was one of the most valuable features of the Maine Dairy Conference, Dec. 3. Said Mr. Keene:

"I will give you my experience in building up a dairy herd, as this may interest you as they are right in Maine and many of you have seen them. I began nine years ago, bought six of the best common cows I could find; I paid $50 apiece for them. I worked along and used scrub bulls and raised a few calves for three years, but I did not get ahead any, for the reason that I had no means of knowing what my cows were doing. I mean by this that I did not keep an account with each cow to see what she was doing.

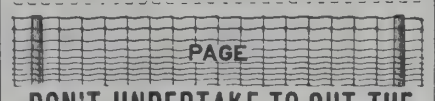
"Six years ago I began to keep an account with my cows. I bought a set of scales and put them in the tie-up and from that time to the present every cow has had to stand on her own merits. I bought me a registered Holstein bull and began to raise my own cows. Today I have about forty cows and heifers, and this fall I won fifty ribbons at the Bangor and Lewiston fairs. My standard when I began was 2,800 quarts a year and today my two-year-old heifers are averaging 4,000 quarts a year, and my mature cows about 5,000 quarts.

"I am able to get $10 apiece for all my grade-heifer calves when a few days old, as against $1 when I was breeding from scrub bulls My grade bull calves sell readily for from $5 to $10 at the same age, to feed for veal or raise for steers. I have never sold any of my registered heifer calves because I am getting my whole herd into registered stock, but my thoroughbred bull calves sell at $30 to $40 when dropped, and I sold one at five months old for $80.

"Now, the only way I ever got started was in knowing, first, what every cow was doing. Lots of cows start out with a big mess and dry up in a few months so that they do not pay their keeping. I sell that kind as soon as I find them out, but I never could find them out if I did not weigh their milk. I produce milk for the Borden Condensed Milk Company, whose factory is at Newport. They buy milk by the pound, so I do not test my milk for butter fat, but they test all the milk they buy about once a week and they report that my milk tests, on an average, about four per cent, and that, they say, is good enough for them. If I was selling cream I would send a sample of every cow's milk to the creamery about once a month, and have them test it for butter fat, and in this way I would weed out any cow that was not profitable as a butter maker.

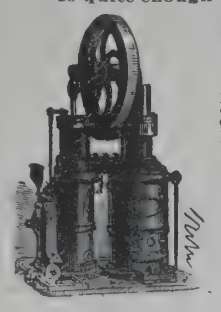
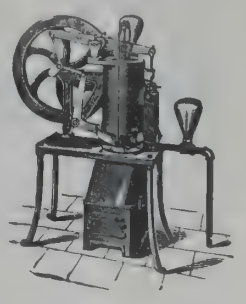
"My best cow to date was Lady Felker who produced in 365 days 17,694 pounds, 14 ounces, and her milk at factory prices sold for $199.73. She was a thoroughbred, and raised by Henry Boardman of Bangor, who several years ago started a herd of Holsteins that were second to none, and would have been a great benefit to the dairymen of Maine if they had been ap-

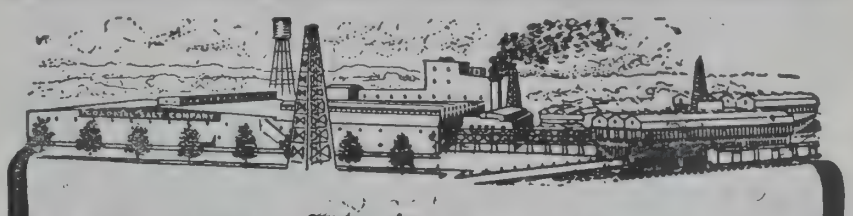

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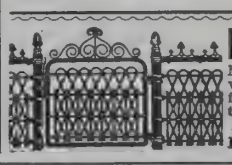

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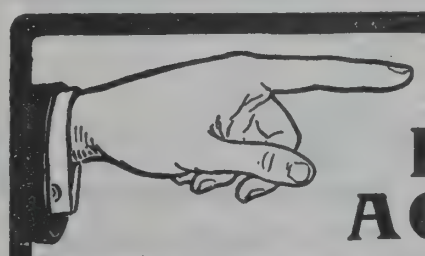
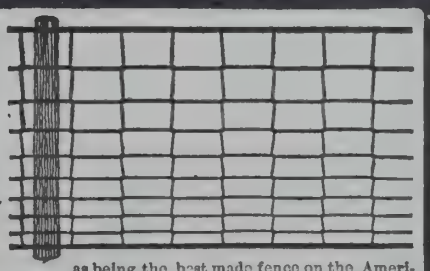
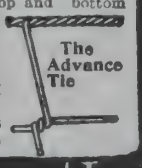
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The Advance Tie
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preciated and continued. This cow I rescued from a butcher when she was two years old, for $30. I have another thoroughbred which is giving between fourteen thousand and fifteen thousand pounds this year, and has a day's record of seventy-five pounds, ten ounces, and in thirty days gave almost two thousand pounds.

"I have a grade that has just closed her year and gave 14,600 pounds, an average of forty pounds, for the year, and the milk sold for $186. One of my grade three-year-olds is giving over thirteen thousand pounds with her second calf, and gave over ten thousand pounds with her first calf. One of my thoroughbred two-year-olds is just closing her year with a record of about 10,500 pounds. So you will see that I have succeeded in improving the capacity of my herd in the past six years, and I hope to keep on improving it for years to come, and what I have done and hope to do, you may all do by using the same methods."

Shredded Silage.

ED. HOARD'S DAIRYMAN:—Would like to say a word or so on two questions in the issue of Dec. 11th, page 989: 1st., Filling Silo with Shredder—I have used silage that was put in with the shredder, and it was as nice as any I ever saw, not dry fodder—it was put in as it was cut, same as any silage is made, some ears went in whole.

Second—Cultivating Corn with Smoothing Harrow—I have cultivated corn, potatoes, wheat, rye and oats, with harrow with good results; but it is sometimes overdone, cultivating too much, or when the ground is too wet. Do not see why it would be better, or as good as a weeder, as an ordinary harrow is rather heavy for such work.

Have known farmers to make harrows that worked nicely, out of 2x2 pine. Same pattern as their heavy ones, using large wire spikes for teeth. Slanting them back a little and putting a rivet, made of a smaller wire nail, with a collar to fit, through the wood each side of every tooth. If made in winter they cost little except for material.

New Salem, N. D. O. S. C.

Mr. W. W. Marple of Missouri, puts this feed question in a pithy form. He says.

The milk cow has been fed on shucks to make twenty-cent butter, while her brother has eaten corn, to make 4 cent beef. She has been sheltered in post oak brush, while the good warm barn was used to keep a forty-dollar race horse in. The cow's only protection in winter a heavy a coat of frost, and for which, she gave in return $50 worth of butter. The race horse wore a nice red blanket, and won $10 at the county fair in the fall, and yet with all these indignities, the cow has patiently awaited her day.

Official Records of Holstein-Friesian Cows. from Dec. 3 to 18, 1903.

During this period records of forty-seven cows have been received.

In the seven-day records eighteen full-age cows averaged, age 6 years, 11 months, 18 days, days from calving 20: Milk 434 9 lbs., butter fat 15.493 lbs., equivalent butter 18 lbs., 1.2 oz., percentage of fat shown in the milk 3.60. Three four-year-olds averaged, aged 4 years, 4 months, 25 days, days from calving 33: Milk 416.9 lbs., butter fat 14.686 lbs., equivalent butter 17 lbs , 2.1 oz., percentage of fat shown in the milk 3.53. Twelve three-year-olds averaged, age 3 years, 6 months, 4 days, days from calving 19: Milk 395.1 lbs., butter fat 13.680 lbs., equivalent butter 15 lbs., 15.3 oz., percentage of fat shown in the milk 3.48. Twelve two-year-olds averaged, age 2 years, 2 months, 13 days, days from calving 31: Milk 302.8 lbs., butter fat 10.101 lbs., equivalent butter 11 lbs., 12.5 oz., percentage of fat shown in the milk 3.30. Several of the cows have made records ranging from fourteen to sixty days.

It must be borne in mind that these records are made under the careful supervision of agricultural experiment stations and that 85.7 per cent of a pound of fat found in the milk is equivalent to a pound of butter. In detail the records were as follows:

Minnewawa Lily 47277, (seven days previously reported), for thirty consecutive days—5 years, 4 months, 10 days, days from calving 7: Milk 1,682.2 lbs., butter fat 65.765 lbs., equivalent butter 76 lbs., 11.6 oz. Owner, Chas D. Pierce, San Francisco, Cal.

Fidessia 43105—6 years, 3 months, 7 days, days from calving 7: Milk 431.1 lbs., butter fat 19.087 lbs., equivalent butter 22 lbs., 4.3 oz. Record for thirty consecutive days: Milk 1,929.6 lbs., butter fat 72.896 lbs , equivalent butter 85 lbs., 0.7 oz. Record for sixty consecutive days: Milk 3,830 7 lbs., butter fat 136.081 lbs., equivalent butter 158 lbs. 12.2 oz. Owner, Chas. D. Pierce, San Francisco, Cal.

Belle Terzool Mecthilde 50119—6 years, 4 months, 26 days, days from calving 15: Milk 440.6 lbs., butter fat, 17.643 lbs., equivalent butter 20 lbs., 9.3 oz.

Jessie Rector 61781—10 years, 3 months, 10 days, days from calving 23: Milk 508.3 lbs. butter fat 16.442 lbs., equivalent butter 19 lbs., 2.9 oz. Owner, A. J. Daugherity, Streator, Ill.

Barrington Onda 44011—10 years, 6 months, 12 days, days from calving 21: Milk 534.3 lbs., butter fat 16.342 lbs., equivalent butter 19 lbs., 1.

Queen Pietertje Mercedes 49581—5 years, 2 months, 7 days, days from calving 6: Milk 410.4 lbs., butter fat 16.268 lbs., equivalent butter 18 lbs., 15 7 oz.

Parthenea Doede 53784—7 years, 3 months, 15 days, days from calving 38: Milk 451.8 lbs., butter fat 16.108 lbs., equivalent butter 18 lbs., 12.7 oz. Owner, John B. Irwin, Minneapolis, Minn.

Maid of Cloverdale Queen 57434—6 years, 4 months, 10 days, days from calving 31; Milk 448.4 lbs., butter fat 15.775 lbs., equivalent butter 18 lbs., 6.5 oz. Owner, A. J. Daugherity, Streator, Ill.

DeKol Nymph 49272—5 years, 3 months, 5 days, days from calving 23: Milk 458.1 lbs., butter fat 15.753 lbs., equivalent butter 18 lbs., 6.1 oz. Record for fourteen consecutive days, days from calving 17: Milk 878 lbs., butter fat 29.317 lbs., equivalent butter 34 lbs., 3.2 oz.

Fenna Y. Pietertje 47559—5 years, 6 months, 17 days, days from calving 21: Milk 483.7 lbs., butter fat 15.596 lbs.,equivalent butter 18 lbs., 3.1 oz. Record for 14 consecutive days, days from calving 14: Milk 962.7 lbs., butter fat 29.306 lbs., equivalent butter 34 lbs.,3 oz.

Pietertje Lass 2d 50657—6 years, 11 months, days from calving 12: Milk 484.8 lbs., butter fat 15.464 lbs., equivalent butter 18 lbs., 0.7 oz. Owner, A. J. Daugherity, Streator, Ill.

Tita Inka Wayne 44169—7 years, 6 months, 24 days, days from calving 7: Milk 369.9 lbs., butter fat 15.217 lbs., equivalent butter 17 lbs., 12 oz. Record for eleven consecutive days, days from calving 6: Milk 583.6 lbs , butter fat 23.742 lbs., equivalent butter 27 lbs., 11.2 oz. Owner, McKay Bros., Buckingham, Iowa.

Wakalona 4307—6 years, 6 months, 17 days; days from calving, 8: Milk 442.6 lbs., butter fat 15.132 lbs., equivalent butter 17 lbs., 10.5 oz. Owner Chas D. Pierce, San Francisco, Cal.

Mercedes Athenia Jewel 43465—6 years, 11 months, 12 days; days from calving 20: Milk 500.3 lbs., butter fat 15.072 lbs., equivalent butter

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Charcoal sweetens the breath after smoking, drinking or after eating onions and other odorous vegetables.

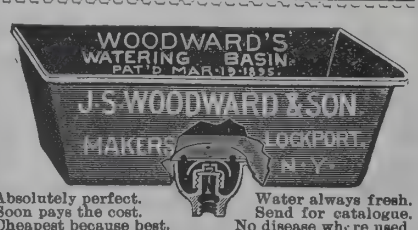
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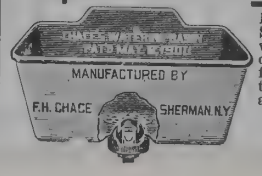
A Buffalo physician in speaking of the benefits of charcoal, says: "I advise Stuart's Absorbent Lozenges to all patients suffering from gas in stomach and bowels, and to clear the complexion and purify the breath, mouth and throat; I also believe the liver is greatly benefitted by the daily use of them; they cost but twenty-five cents a box at drug stores. and although in some sense a patent preparation, yet I believe I get more and better charcoal in Stuart's Absorbent Lozenges than in any of the ordinary charcoal tablets."



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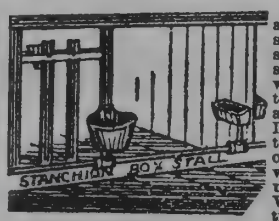
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Minnewawa Duchess 47280—5 years, 4 months, 13 days; days from calving 9: Milk 334.8 lbs., butter fat 14,474 lbs., equivalent butter 16 lbs., 14.2 oz. Owner Chas. D. Pierce, San Francisco, Cal.

Drosky Bess 42902—6 years, 11 months, 29 days; days from calving 12: Milk 404.8 lbs., butter fat 14 412 lbs., equivalent butter 16 lbs., 13 oz.

Marteta DeKol 40721—7 years, 7 months, 26 days; days from calving 72: Milk 409.6 lbs., butter fat 13.916, equivalent butter 16 lbs., 3.8 oz. Record for fourteen consecutive days; days from calving 65: Milk 808,6 lbs., butter fat 27,276 lbs,, equivalent butter 31 lbs., 13.2 oz.

Inka Tritomia 38847—9 years, 10 days; days from calving 18: Milk 357.5 lbs., butter fat 13.500 lbs., equivalent butter 15 lbs., 12 oz. Owner Mc Kay Bros., Buckingham, Iowa.

Kaan Marie Clothilde 2d 49529—5 years, 2 months, 18 days; days from calving 19: Milk 357.1 lbs., butter fat 12.664 lbs., equivalent butter 14 lbs., 12.4 oz. Owner John B. Irwin, Minneapolis, Minn.

Fraud DeKol 57277—4 years, 7 months, 11 days; days from calving 11: Milk 445.6 lbs., butter fat 15.869 lbs., equivalent butter 18 lbs., 8.2 oz. Owner A. J. Daugherity, Streator, Ill.

Daisy Peoples 51349—4 years, 4 months; days from calving 70: Milk 382.8 lbs., butter fat 14.248 lbs., equivalent butter 16 lbs., 10 oz.

Niva DeKol 52497—4 years, 3 months, 4 days; days from calving 17: Milk 422.2 lbs., butter fat 13,941 lbs., equivalent butter 16 lbs., 4.2 oz. Owner T. S. Tompkins, White Bear Lake, Minn.

Manor DeKol Belle 2d 54086 (seven days previously reported), for thirty consecutive days—3 years, 7 months, 7 days; days from calving 8: Milk 1,878.2 lbs., butter fat 66.934 lbs., equivalent butter 78 lbs., 1.4 oz. Record for fifty consecutive days; days from calving 7: Milk 3,065.7 lbs., butter fat 106.376 lbs., equivalent butter 124 lbs., 1,7 oz, Owner Chas. D. Pierce, San Francisco, Cal.

Celeste Arcturus 50965—3 years, 10 month, 7 days; days from calving 16: Milk 369.5 lbs., butter fat 14.937 lbs., equivalent butter 17 lbs., 6.8 oz, Owner, Chas. D. Pierce, San Francisco Cal.

Leda Hengerveld DeKol 53489—3 years, 5 months, 24 days; days from calving 13; Milk 418.5 lbs., butter fat 14.777 lbs., equivalent butter 17 lbs., 3.8 oz. Record for thirty consecutive days: Milk 1,680.3 lbs., butter fat 58.449 lbs., equivalent butter 68 lbs., 3.1 oz. Owner McKay Bros., Buckingham, Iowa.

Clarodina DeKol 55566—3 years, 5 months, 23 days; days from calving 20: Milk 400.9 lbs., butter fat 14.587 lbs., equivalent butter 17 lbs., 0.3 oz. Record for thirty consecutive days; days from calving 13: Milk 1,670.2 lbs., butter fat 57.272 lbs., equivalent butter 66 lbs., 13.1 oz. Owner McKay Bros., Buckingham, Iowa.

Madge Pietertje DeKol 54831—3 years,5 months; days from calving 21: Milk 437.4 lbs., butter fat 14.441 lbs., equivalent butter 16 lbs., 13. 6 oz.

Belle Korndyke's Daughter 54085—3 years 9 months, 16 days; days from calving 15: Milk 379.1 lbs., butter fat 14.131 lbs., equivalent butter 16 lbs,. 7.8 oz. Owner Chas. D. Pierce, San Francisco, Cal.

Loraine DeKol 54833—3 years, 3 months, 12 days; days from calving 34; Milk 389.5 lbs., butter fat 13.897 lbs., equivalent butter 16 lbs., 3.4 oz.

Jessie Fobes 4th's Butter Diploma 52746—3 years, 9 months, 12 days; days from calving 10: Milk 428.3 lbs,. butter fat 13.420 lbs., equivalent butter 15 lbs., 10.5 oz.

Dulce Leda 2 d 53486—3 years, 11 months, 11 days, days from calving, 18: Milk 376 lbs., butter fat. 13.406 lbs., equivalent butter 15 lbs., 10.2 oz. Owner McKay Bros., Buckingham, Iowa.

Chloe Mechthilde 2d 56751—3 years, 2 months, 12 days, days from calving, 9: Milk 442.8 lbs., butter fat 13.184 lbs., equivalent butter 15 lbs., 8.1 oz. Owner John B. Irwin, Minneapolis, Minn.

Pontiac Order 53435—3 years, 3 months, 8 days, days from calving 42: Milk 412.5 lbs., butter fat 12.907 lbs., equivalent butter 15 lbs., 0.9 oz.

Myrtle DeKol Mercedes 56653—3 years, 2 months, 26 days, days from calving 25: Milk 379.8 lbs., butter fat 12.543 lbs., equivalent butter 14 lbs., 10.1 oz. Owner T. S. Tompkins, White Bear Lake, Minn.

Netherland Pietertje Princess 2d 54088—3 years, 4 months, 20 days, days from calving 8: Milk 306.9 lbs., butter fat 11.924 lbs., equivalent butter 13 lbs., 14.6 oz. Owner Chas. D. Pierce, San Francisco, Cal.

Juliana DeKol 55792—2 years, 10 months, 24 days, days from calving 29: Milk 417.8 lbs., butter fat 18.043 lbs., equivalent butter 21 lbs., 0.8 oz. Food consumed,oat-and-rye-grass hay 18 lbs.carrots 63 lbs.,mixed feed(2 parts bran, 2 parts mill feed,2 parts rolled barley and 1 part oil cake) 21 lbs., during the day time turned on pasture of very young grass. Owner Chas. D. Pierce, San Francisco, Cal.

Gracia Ward 2d 58645—2 years, 6 months, 26 days, days from calving 8: Milk 324.7 lbs., butter fat 13.106 lbs., equivalent butter 15 lbs., 4.6 oz.

Parthenea Pauline DeKol 59685—2 years, 6 months, 24 days, days from calving 31: Milk 341 lbs., butter fat 11.659 lbs., equivalent butter 13 lbs., 9.6 oz.

DeKol Calamity Jane 57820—2 years, 9 months, 9 days, days from calving 31: Milk 313.4 lbs., butter fat 11.510 lbs., equivalent butter 13 lbs., 6.8 oz. Owner John C. Godfrey, Pennellville, N. Y.

Onda Crown DeKol 61642—1 year, 11 months, 8 days, days from calving 42: Milk 337.4 lbs., butter fat 9.573 lbs., equivalent butter 11 lbs., 2.7 oz.

Leda Inka Twisk 3d 59098—2 years, 20 days, days from calving 27: Milk 278.8 lbs., butter fat 9.202 lbs., equivalent butter 10 lbs.. 11.8 oz. Owner McKay Bros., Buckingham, Iowa.

Dot Monarch DeKol 61550—1 year, 11 months, 17 days, days from calving 34: Milk 303.7 lbs., butter fat 8.845 lbs., equivalent butter 10 lbs., 5.1 oz.

Ononsis Monarch DeKol 61551—1 year, 10 months, 10 days, days from calving 88: Milk 302.6 lbs., butter fat 8.778 lbs., equivalent bttter 10 lbs., 3.9 oz.

Walworth Queen 62436—1 year, 6 months, 5 days, days from calving 30: Milk 215 lbs., butter fat 7.713 lbs , equivalent butter 9 lbs.

Nancy Castine 60646—2 years, 1 month, 17 days, days from calving 11: Milk 241.8 lbs., butter fat fat 7.696 lbs.. equivalent butter 8 lbs., 15.7 oz.

Lillian DeKol 61090—2 years, 13 days, days from calving 17: Milk 282.4 lbs., butter fat 7.667 lbs., equivalent butter 8 lbs., 15.1 oz. Owner T. S. Tompkins, White Bear Lake, Minn.

Jewel DeKol 61096—2 years, 1 months, 18 days, days from calving 23: Milk 274.6 lbs., butter fat 7.414 lbs., equivalent butter 8 lbs., 10.4 oz. Owner T. S. Tompkins, White Bear Lake, Minn.

S. HOXIE,
Supt. of Advanced Registry,
Yorkville, N. Y., Dec. 18, 1903.

Starving With Plenty to Eat.

That's What Thousands With Poor Digestions Are Doing Every Day.

DON'T BE ONE OF THEM.



They have no appetite or if they do have an appetite and eat what they require it does them no good because the stomach does not digest it and the fermenting mass of food becomes a source of disease, of headaches, sleeplessness, languor and the thousand and one symptoms of disordered digestion.

Stuart's Dyspepsia Tablets promptly relieve and cure all forms of indigestion. They have done it in thousands of cases and will do it in yours. The reason is simple. They digest the food whether the stomach works or not and that is the whole secret.

Mr. Thomas Seale, Mayfield, Cal, says: "Have used and recommended Stuart's Tablets because there is nothing like them to keep the stomach right."

Mr. E. H. Davis of Hampton, Va., says: "I doctored five years for dyspepsia, but in two months I got more benefit from Stuart's Dyspepsia Tablets than in five years of the doctor's treatment."

Mrs. E. M. Faith of Byrd's Creek, Wis., says: "I have taken all the tablets I got of you and they have done their work well in my case, for I feel like a different person altogether. I don't doubt if I had not got them I should have been at rest by this time."

Phil Brooks, Detroit, Mich., says: "Your dyspepsia cure has worked wonders in my case. I suffered for years from dyspepsia, but am now entirely cured and enjoy life as I never have before. I gladly recommend them."

Mrs. G. A. Crotsley, 538 Washington St., Hoboken, N. J., writes: "Stuart's Dyspepsia Tablets just filled the bill for children, as well as for older folks. I've had the best of luck with them. My three-year-old girl takes them as readily as candy. I have only to say 'tablets' and she runs for them."

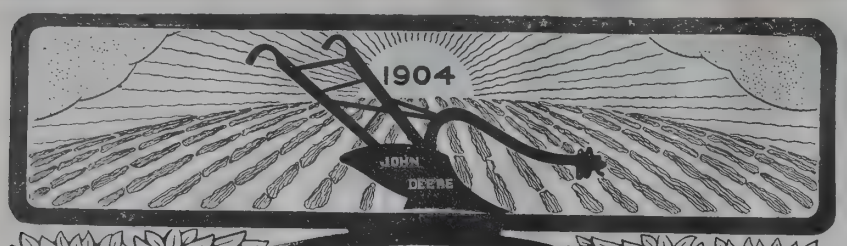
Miss Leila Dively, 4627 Plummer St., Pittsburg, Pa., writes: "I wish everyone to know how grateful I am for Stuart's Dyspepsia Tablets. I suffered for a long time and did not know what ailed me. I lost flesh right along until one day I noticed an advertisement of these tablets and immediately bought a 50-cent box at the drug store. I am only on the second box and am gaining in flesh and color. I have at last found something that has reached my ailment."

At all druggists 50 cents a box. A little book on "Stomach Troubles" may be had free by addressing F. A. Stuart Co., Marshall, Mich.

DON'T BREAK YOUR BACK washing clothes 52 times a year. Get a "1900" washer and save labor, time and money. You need not send a cent or pay freight. It is sent absolutely free, freight prepaid on 30 days trial. A word to the wise is sufficient. Write at once to "1900" Washer Co., 9A State St., Binghamton, N. Y.

$3 a Day Sure Send us your address and we will show you how to make $3 a day absolutely sure; we furnish the work and teach you free, you work in the locality where you live. Send us your address and we will explain the business fully, remember we guarantee a clear profit of $3 for every day's work, absolutely sure. Write at once.
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Comanche, I. T., Nov. 7, '03.
Deere & Co.,

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These repairs are for a John Deere Plow my father bought in Sherman Texas, twenty-seven years ago. It is a good plow yet, except the boxes for the wheels. It was run on black land twenty years and I have run it on sandy land seven years. Yours truly,

W. A. BOWLES.

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according to all authorities should be ground. It not only makes healthier stock and **larger flow**, but it is also an **economy of at least 25%.** But ground feed must be **soft and right** to be **nutritious and palatable.**
It can only be made on the



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Made in all sizes and styles, 2 h. p. up, horse power or engine. Geared, plain sweep, combined, for ear corn and all small grains. **Grinds fast, fine and easy.** Be sure to get new catalogue I.

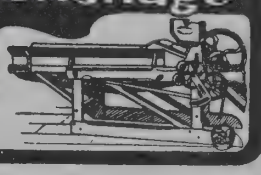
THE FOOS MFG. CO., SPRINGFIELD, OHIO.

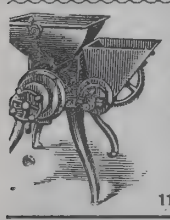
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The Mill that excels them all. Best for the farmer. Grinds 5 to 25 bushels per hour of ear corn or grain of any kind, bone, shell, etc., with from 1 to 8 horse-power. Makes best feed and good meal. Furnished with or without crusher. We have larger mills for every purpose. Write for Catalogue "
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Return at our expense if not found the best for ear corn crushing and mixing in and grinding all grains.

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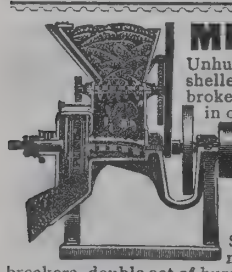
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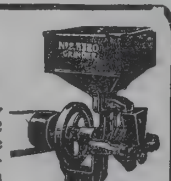
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An entirely new and practical work on Silos, their construction and the process of filling, to which is added complete and reliable information regarding Silage and its composition; feeding and a treatise on rations, being a Feeders' and Dairymens' Guide.

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212 pages of **plain, practical information for practical men.** Contains just the things you have wanted to know and could not find elsewhere. *Copyright'd* 1903. Postpaid for 10 cents, stamps or coin.
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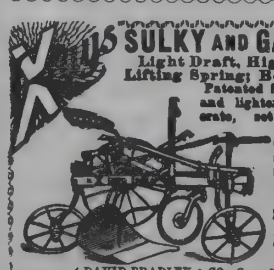
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is the best which money can buy for any kind of power from 2 to 4 or 5-horse power, because it grinds rapidly, making splendid feed, table meal or graham flour, has **AMPLE CAPACITY** for 4 or 5-horse power if properly speeded, and **WILL NOT CHOKE DOWN THE LIGHTEST POWER.** We make 26 sizes and styles, all of equal merit but varying capacity, for all kinds of power and for all kinds of grinding.

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The best and most durably made Cooker on the market. Best for boiling sap, soap, lard; scalding, etc. Uses little fuel and holds fire longer than others. 4 sizes, from 1 bbl. to 2½ bbl. Guaranteed full capacity. Jacket of high carbon cold-rolled steel; large fire door takes in chunks; kettle of best quality new cast iron (no scrap), smoothly finished. Free circular gives many other good points. Write now

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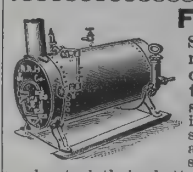
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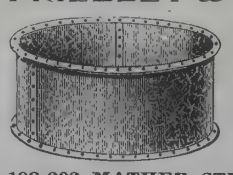
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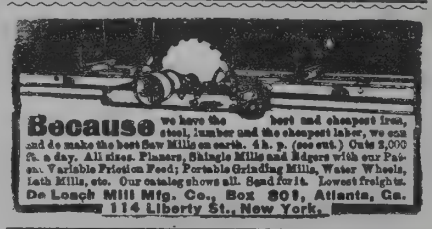
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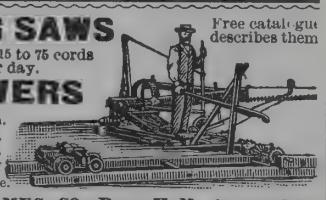
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VOLUME XXXIV. FORT ATKINSON, WIS., JANUARY 15, 1904. NUMBER 49

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HOUSE **SAVOGRAN** FOR CLEAN CLEANING
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Medals—Bronze 1878 Silver, 1887, World's Fair, 1893.



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Ripens the Cream for Butter and the Milk for Cheese to Perfection.
The only Butter-Culture of keeping quality.
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Thatcher's Orange Butter Color
CONTAINS NO COAL TAR
The pure food agitation makes it imperative that butter makers use a color that is beyond suspicion. Every drop of Thatcher's Orange Butter Color is guaranteed purely vegetable, absolutely harmless and safe anywhere.
We also call your attention to Thatcher's Cream Cheese Color which is recognized by all as the best.
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THE THATCHER MANUFACTURING CO.,
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This
Gem Fibre Box
is the best thing in the world in which to pack butter.
Impervious to moisture, mildew or mould.
Keeps the bad odors out and the sweet flavors in. Lined with best parchment paper throughout. Made in many sizes to suit your needs. **Illustrated Booklet and Sample Free. Write for them.**
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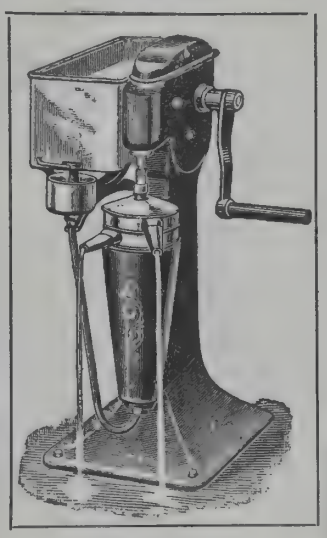
It Depends On the Wrapping
whether butter comes sweet to the table. If you would shield yours from the deleterious odors it encounters—you know how quickly butter absorbs odors—and preserve its own delicate flavors, wrap the prints and line boxes and tubs with
Pioneer Brand Parchment Paper.
It's the ideal butter preserver. Pure vegetable parchment, no smell, no taste. Name of brand printed on sheets so it will not discolor, if desired. But there are parchments and so-called parchments. See that yours is the **Pioneer Brand.** Write us for free samples and book, "Better Butter."
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Make your horses happy by providing them with
Pure-Salt Bricks.
Warranted to contain nothing but refined dairy salt. A great modern convenience at a cost of about 5 cents per horse per month.
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Can be Promptly Furnished with anything they want at reasonable prices, if they will write me. My CHILD'S PATENT MILK BOTTLE FILLER is the best on the market. Send for free catalogue.
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"Gentlemen THE TUBULAR"

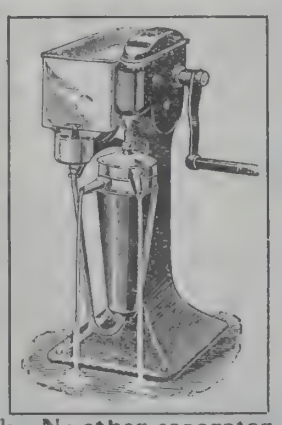


Already acquainted? Then you know the tremendous advantage of **construction, operation** and **efficiency** this dairy separator possesses—how great the superiority that places it far in advance of all others—how real the immense difference existing between the Tubular and the big bowl separators, those quaint old machines with buckets full of woe.



Why Just Think

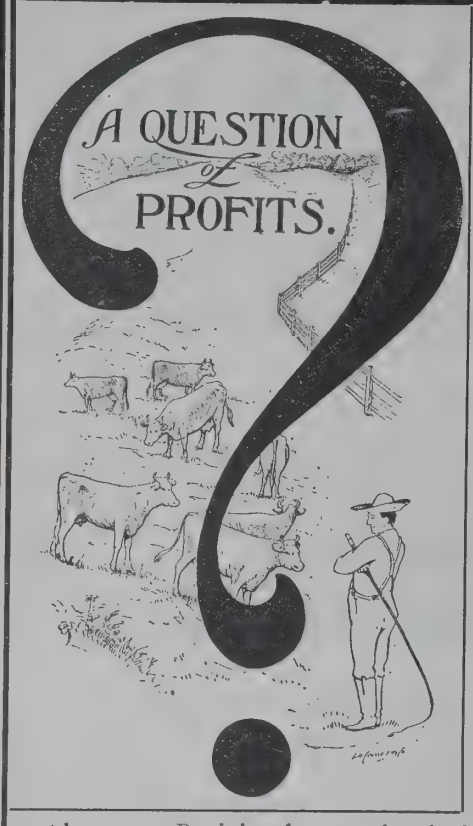
Three light pieces comprise the Tubular bowl. These are, the plain slender bowl—the small bowl bottom, which closes the bowl—and the tiny, removable dividing wall, merely a little guide to direct the milk and cream toward their outlets. It has only one bearing—the ball bearing from which it hangs. It can't bind—become unbalanced—or wabble. Could anything be simpler, more durable—easier to clean—farther ahead of the antiquated bucket bowls full of parts? **All gears are enclosed**—instantly accessible—turn in a mist of oil. Not an oil cup—oil hole—or oil tube on the machine—Isn't that very different—far ahead? **The supply can is waist low.** How many back aches—how much spilled milk will that save? **No other separator has it. The wonderfully simple bottom feed** makes the low supply can possible. It also prevents the mixing of the whole and partly separated milk. **No other separator has that. In use the Tubular requires nearly one-half less power**—will cut any other machine's clean skimming record in half—lasts twice as long—requires less oil—and seldom, if ever, needs a repair.



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Madison, Wis., November 6th, 1903

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ELMCO Red Dog	9.55	22.19	5.40
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Yours truly, F. W. WOLL, Chemist.

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Barley Proves to be Excellent Feed for Milch Cows.

ED. HOARD'S DAIRYMAN:—I have bought 600 bushels of barley at 23½ cents per bushel (50 pounds). Thought it much cheaper than bran at $13 per ton.

We have 20 cows and heifers, some fresh and some will be soon and some from 5 to 6 months in milk. We have all the ensilage they will eat, about 30 tons clover hay. We are feeding this barley ground, in connection with ensilage, and the fresh cows are giving from 35 to 55 pounds of milk per day. It is an experience. Would it harm the cows to feed to the best milkers, say about 16 pounds of it, or would it be better to mix with bran, or molasses feed, which I can have at $26.50 per ton? The cows all like the ground barley first-rate, much better than bran alone. I have mixed with bran at first and the cows immediately increased in milk. At present, we feed ground barley alone from 6 to 15 pounds, according to size and quantity they give. Have to haul bran 9 miles, can grind the barley ourselves. The barley is not heavy, weighing 2,500 pounds to a 52-bushel wagon. We feed it also to our young heifers and yearlings.

Now, if you can make me a balanced ration with this barley, bran, or molasses feed (ensilage is first-class, clover hay is partly fair, most of it excellent), I shall feel very thankful. We sell butter at Elgin price. D. J. DEH.

Boyden, Iowa.

The results stated present a more convincing argument than we can give in words. As every reader of the DAIRYMAN knows, we have been advising the use of barley for cow feed wherever the price seemed to justify. We do not think 16 lbs. a day would injure a large, heavy producing cow, but it may be questionable whether less might not be equally profitable, letting the cow eat more silage and hay. Only daily observation and a careful daily record of the milk yield can determine this point. If the cows use very much of their feed for increase of live weight, the conclusion is inevitable that they are not being fed to greatest economy and profit. We should prefer to use some bran or the molasses feed, than depend exclusively upon the ground barley, expecting thereby to avoid cloying.

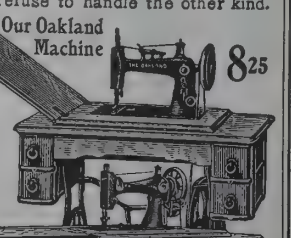
The Way it is Now.

Some wheat, of course, and also some some oats and barley; some flax and some millet; some sowed corn for feed and a lot of good field corn; some clover, timothy and red top, to top out the wild grass; some potatoes and other root crops and a big garden. A few calves and colts of high grade; a few fat steers, a few sheep and lambs; and a few fat hogs and some likely shoats; a lot of hens that lay when eggs are scarce, some fat turkeys for Christmas; a few choice high grade cows whose milk scores high in butter fat, and a good fat creamery check at the end of each month. These are some of the principal resources of the great majority of our farmers who have learned that it pays well to diversify in farming, especially out here in the west where land is cheap and easily tilled; where the soil is rich and productive, where there is a good cash market for everything raised and where each of the above can be produced at less cost in time, labor or capital, than almost anywhere else in the country. The farmers who are thus engaged are not paying out much interest money; they are not paying out much for hired help and expensive machinery, but they are "getting on in the world" and are as prosperous as a class, as any other farming community we ever saw. They and their farms are growing richer every year.—H. E. HOARD, in *Montevideo Leader*.

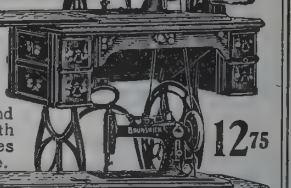
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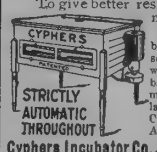
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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Entered at Fort Atkinson, Wisconsin, as second-class matter.

Dairy Questions Answered by Prof. Farrington.

Too Low an Overrun.

"Will you kindly give me advice and explain about the relation of test and the overrun? I have been having a good yield, as high as 5.2 pounds per hundred of milk, but my overrun is very low. The composite samples test from 3.6 to 5.1, but there are only two or three patrons whose milk runs over 5.0 per cent fat and only three that are under 4.0 per cent. You will notice therefore that the majority of the milk received will test about 4.5. Can you give me any advice or suggestion as to how I may be able to account for my low overchurn? Would you advise me to read the tests lower than they actually show in order to help out the overchurn?" * * *

Coloma Station, Wis.

I certainly should not advise you to read your tests lower than the fat actually measures, even if you are not getting as much overrun as you think you ought to have.

Too small an overrun is caused by one of several things. First, the separator may not be skimming well, and in order to test this point I think it is a good plan to make a small hole about the size of a pin in the underside of the skim milk spout of the separator and hang a small dish under this hole. By so doing you will get a composite sample of the skim milk in your dish, as the milk will drop into the dish during the entire time the separator is skimming milk. The test of such a sample ought to show you how well the separator is skimming and I think that in many cases such a sample will give results that are somewhat surprising to butter-makers.

It is very true that a sample of skim milk taken from a separator while it is running in the best condition under full speed, and we will say in the middle of a run, may test satisfactorily, but during the starting and stopping of a separator and while it is being run, some variation in the speed and temperature may occur, or the milk supply may run short so that skimming is stopped and begun again later on. Such interruptions as this will have considerable effect on the efficiency of the skimming, and a composite sample of the skim milk will give you a good idea of how the separator has been skimming during the entire run.

After you have satisfied yourself that the low overrun is not due to inefficient skimming, the next thing to investigate is the loss of fat in the butter milk. If the churning is done at a sufficiently low temperature, so that the butter milk tests only two-tenths of one per cent fat, this is about as small a loss as you should reasonably expect from this source.

The next thing to notice is the temperature of your test bottles when the tests are read. If you are using a turbine tester and the bottles are heated to nearly the temperature of the exhaust steam, say near 200° F., the fat in the necks of the test bottles will be expanded by the heat so that if the tests are read immediately you will have an exaggerated reading and the results may be two-tenths higher than the same tests will read after you have taken the bottles out of the tester and allowed them to stand in water having a temperature of 140° F. for fifteen minutes. The graduations on the necks of the test bottles are made to measure the fat at a temperature of 120° F. If you read them at a higher temperature your test will be too high and this will be one cause of a small overrun.

I think it will be a good plan for yon to carefully notice if your work is entirely satisfactory in these three directions and if it is I am sure that you will be able to get a normal overrun.

Time of Whirling Cream Tests.

"Suppose you take two tests from the same cream, using exactly the same amount of acid in each one and then put them into a tester and in one case run the tester for two minutes and the other for five. Will the tests, in so far as the butter fat is concerned, vary, and which will show the better test and why? Suppose a third sample was taken from the same cream and the tester run for 15 to 18 minutes, will that make any difference? I am speaking in all the above cases in connection with running the machine the first time. Of course it will be understood that the samples are run about two minutes after the hot water is introduced." * * *

Winona, Minn.

We have always found that it is safe to run the centrifuge at least six minutes the first time the test bottles are whirled in the tester; this rule applies to both milk and cream.

It is natural to expect that the fat from milk tests will be separated quicker than that from cream because cream contains so much more fat than milk. I think you may safely assume that a two minute run of the cream tests in the tester will not be sufficient to separate all the fat, even though you do run it afterwards several minutes, at the second whirling. I do not see that any advantage can be obtained by trying to economize three minutes by whirling the test bottles the first time. I should prefer to be always on the safe side and whirl them at least six minutes rather than try to cut it short by whirling only two minutes.

I do not think you will get any more fat by whirling bottles in the tester fifteen minutes than you will by whirling them six minutes. If you do get more fat by whirling a longer time, the result is good evidence to indicate that the tester is not running at a sufficiently high speed to separate all the fat in the usual six minutes of whirling. I should like very much to know what advantage you expect to gain and why it is you ask such a question as the above.

We have always noticed and recommended in making cream tests that after the test is completed, the bottles should be set aside and allowed to cool so that the fat will solidify. This often aids in separating traces of water that may be contained in the fat and when the test bottle is heated a second time so that the fat is melted and it is then whirled in the centrifuge a few minutes, the fat is not only clearer than it was the first time read, but in some cases the result is a trifle different. I think it is a good plan for anyone making cream tests to try this experiment and see if the results obtained are different before and after allowing the fat to solidify.

Starters From Frozen Milk.

Will you please publish in the Dairyman the best means to follow in a creamery, where we receive about 4,000 lbs. of milk three times a week; (we do not receive any cream from hand separators). The other four days creamery is without fire. Is it better to ripen cream the day milk is received, than next day when creamery is cold, (it will freeze) and following morning warm it up to churning?

Is buttermilk from such milk of any use for a starter? Is skim milk from pure milk held by the farmer two days fof any use for a starter? And if starter is made from this skim milk and freezes the days we are not running, is it a help or detriment to quality of butter? Can better butter be made by using either this buttermiik or sklm milk starter? Or can just as good quality of butter be made by not using any starter?

Mongaup Valley, N. Y. * * * *

Under the conditions mentioned above, it certainly is a great deal better to ripen the cream the day it is received, and then hold it at a low temperature until churning than to allow the cream to ripen slowly at a low temperature for two days before churning. The ripened cream ought to be cooled down to near fifty, if it must be held 24 hours before it can be churned. I do not think it is advisable to allow the cream to freeze as it is uncertain just what will happen in frozen cream. In many cases a bitter flavor will develop, and in addition to this, freezing the cream often injures the body and grain of the butter.

The buttermilk from frozen cream will not make a good starter, neither will skim milk two days old answer the purpose of starter-making, so well as fresh skim milk. It cannot be safely stated that freezing the starter will always injure it, but it is rather a dangerous course to pursue, although in some cases a bad effect from freezing may not be noticed.

The value of a starter will depend entirely on the starter itself and the cream in which it is used. If your cream does not have any objectionable, bad odors and flavors, and you can ripen it sufficiently before churning, you will probably get just as good flavored butter without a starter as you will by using one.

If on the other hand, the milk and cream are tainted, you will be able to overcome some of the bad flavors in the butter by the use of a carefully selected starter. Using a starter does not necessarily mean that you will always get a good quality of butter. The flavor of butter is often injured by a starter, because it may convey to the cream some defects that were not present in it before the starter was added. The value of a starter depends a great deal on the expertness of the butter maker in determining whether it should be accepted or rejected on account of good or bad flavors it may contain.

It is impossible to test butter by the Babcock test because the bottles will not measure so much fat as butter contains. Normal butter ought to contain about 83.0 per cent fat, 12.86 per cent water, 1.27 per cent curd and 2.87 per cent salt. This is the average composition of over fifty samples of Wisconsin creamery butter that I collected and analyzed some five years ago, and shows that after separating the fat from butter the balance is composed of water, salt and curd.





GUEURSEYS AT PASTURE.

Paying Patrons by Test.

Will you please give method of paying patrons by the test at creamery where a test is taken twice each month? A prompt answer through your valuable paper will greatly oblige an old subscriber. Please give me a method that patrons can readily understand. * * *

Jerome, Mich.

The simplest way of paying patrons at a creamery for the milk they deliver each month is to weigh the milk of each patron every time it is delivered, take a sample of each lot of milk, add it to a jar labeled with the number of the patron, and at the end of the month add the weights of milk delivered during the time covered by the milk sheet. If the composite samples are tested twice a month, an average should be taken of the two tests and the total weight of milk delivered by each patron for the month multiplied by this average test. The result shows the pounds of butter fat delivered by each patron to the factory.

The creamery accounts ought to show how much butter has been made at the factory during the month, and also the money that was received for this butter. From the gross receipts of the creamery for the month, a certain sum must be subtracted in order to pay the running expenses of the factory during this time. What is left after deducting the expenses is the money that is to be divided among the patrons in payment for their milk. The cost of operating the factory will differ according to the agreement which has been made between the owners of the factory and the patrons. In some cases a certain number of cents per pound is charged for making the butter. In such a case all that is necessary to do is to multiply the total butter made, by the price per pound of making and subtract the sum from the total cash receipts of the factory. In other cases, simply the running expenses of the factory are subtracted from these gross receipts. These expenses usually include the cost of fuel, butter salt, packages, repairs, buttermaker's wages and other items of expense that are necessary in order to keep a factory in running order. The sum of all these items is subtracted from the total receipts for the butter and the difference is the amount to be divided among the patrons.

After the net sum to be divided among the farmers has been found, the next thing to do is to find out what price per pound of butter fat should be paid the patrons. This price per pound of fat is found by dividing the net receipts by the total butter fat delivered to the factory during the month. When this price per pound of fat is obtained, the money due each patron is found by multiplying the pounds of fat delivered by each one during the month by this price per pound of fat.

Such a method of figuring is a perfectly fair and just way of paying patrons at a creamery. It is much less complicated than attempting to add the overrun or part of the overrun to each man's check. Calculations in regard to the overrun are entirely unnecessary as the payment for butter fat as here described is simple and can be easily understood by all the patrons. If the manager of a creamery does not clearly understand what the overrun means it is much better for him not to at-

tempt to explain it to the patrons until he gets the matter clear in his mind than it is to make the matter more unsettled by a partial explanation, because if the farmers get an idea that there is another way of calculating the dividends than by the payment for butter fat alone, the subject is somewhat confused in their minds and they become suspicious that they are not receiving all that they should be paid for at the factory.

An illustration of the method of paying dividends at a factory may be of some aid in making the matter clear to the patrons. We will assume that a factory makes 6,650 pounds of butter in a month from 150,000 lbs. of milk, the average test of which is 3.8 per cent fat. We will also assume that the butter sold for $1,196 and that the factory is supposed to charge 4 cents a pound for making the butter. The dividends to be paid the patrons this month may be calculated in the following way:

First, multiply the 6,650 pounds of butter by 4 cents per pound and we get $266, which is the sum to be subtracted from the total cash receipts of the factory. In this case it was $1,197; subtracting $266 from $1,197 leaves $931 to be divided among the patrons. Second, the total weight of fat in the 150,000 lbs. milk, which tested 3.8 per cent is found by multiplying the weight of milk by its test and in this case we get 5,700 lbs. fat. The price to be paid the farmers per pound fat is now found by dividing the $931 by 5,700 lbs. fat: the result of this division gives 16⅓ cents.

The amount due each patron is now found by multiplying the total weight of his milk for the month by the average of his tests and the product obtained is then multiplied by 16⅓ cents per pound. This gives the amount of money due the patron.

By all systems of payment, no matter whether it is charging a certain number of cents per pound for making, or simply subtracting the factory's expenses from the receipts, the price to be paid each patron for butter fat is found by dividing the net cash receipts by the number of pounds of butter fat in the milk to be paid for.

If the factory wishes to pay for butter instead of butter fat, the net cash receipts for a given time may be divided by the pounds of butter sold in order to get the price per pound of butter. In our illustration we will have $931.00 ÷ 6650 lbs. butter which gives 14 1-6 cents per pound. The total weight of butter, which in this case is 6650, is now divided by the pounds of butter fat in order to find out how much butter, one pound of fat is equal to, or 6650 ÷ 5700 equals 1.16 2-3. The pounds of fat in each patron's milk are now multiplied by this figure (1.16 2-3) in order to find out how much butter the milk of each patron made. This weight of butter is then multiplied by the price per pound, which in this case is 14 1-6 cents; the result of the multiplication will show how much is due each patron for the butter made from his milk.

The dividends will be the same in either case, no matter whether the calculation is made from the price per pound of butter or for butter fat. The amount of figuring is much less complicated, and there is less of it when patrons are paid by the price per pound of butter fat, than when it is considered necessary to add the overrun and pay a certain price per pound of butter. The result will be the same, but the price per pound of butter fat will be larger than the price per pound of butter, even though the same amount of butter is paid for in each case.

Holstein-Friesians at Home.

[S. HOXIE, before the New York State Breeders' Association.]

Holstein-Friesian cattle have been produced by an environment in which the peasant farmers of North Holland and Friesland have unconsciously taken a large and very essential part. These peasants are the descendants of the ancient Friesians, of which Tacitus wrote nearly two thousand years ago, that they were peaceable cattle breeders dwelling on the shores of the North sea. How they were then protected in this peaceable occupation amid the roving, piratical tribes that surround them is unknown. They claim to have never been conquered, but admit that their ancient ancestors formed an alliance with the Roman Empire, and paid to it an annual tribute of ox hides and horns.

It is almost impossible for an American farmer to imagine the intense conservatism of these peasant farmers, especially those of Friesland, where the ancient blood is pure. Here they use the ancient Friesian dialect in conversing with one another, although educated in their very excellent common schools, exclusively in the Holland or Dutch language. They seldom intermarry with other races, and evidently cherish an abhorrence to such unions. They apparently have no ambitions beyond dwelling with and handling cattle. Doubtless they constitute the wealthiest class of peasantry in Europe, yet they refuse to be regarded other than third class people. In North Holland, where there is a considerable admixture of Celtic blood, this conservatism is not so intense, and farmers are sometimes called to high positions of state.

The conservative spirit that I have thus described, together with the soil, climate and the influence of markets, must be largely credited with producing the characteristics of this breed, to which we American breeders have given the name Holstein-Friesian.

The first thing we note is the natural richness of the soils. Those on which the cattle are bred and used in dairy husbandry generally range from light to exceedingly heavy clays, although some fine herds are found on loam and peat soils. The larger cattle are found on the heavier soils. So important, in the development of cattle, do breeders regard the influence of soils, their herd books require that the kind of soil on which the animal is bred and raised shall be published in its entry. In their view, the value of a pedigree may be determined to some extent by the soils on which the animals included in it were bred. I do not propose to draw any inferences in this paper as to the value ot the various features of the environment that I shall try to describe. I leave this for the discussion that I hope will follow.

The second thing we note is the climate and the provisions made against its extreme severity in winter. It is said that the ice freezes on the Ij, an arm of the Zuyder Zee, at Amsterdam, to the depth of three and a half feet. The region is a stormy one in winter, it lies so exposed to the sleets and blasts of the North Sea. Against these the cattle must be protected. Immense structures–call them houses or barns—are seen in every direction, in which the cattle are kept during this period, in close intimacy with the farmer's whole family. In form they resemble immense tents. A description of one will give the general type. On the ground, 80 ft. wide and 135 ft. long; outside wall of brick, 6½ feet high; an inside structure of large poles similar to our telegraph poles supports a very steep roof, the ridge of which is forty or fifty feet from the floor; in the rear is a modern structure about twenty wide and thirty-five feet long in which are a narrow hall, a family sitting room and parlor. The kitchen is in the main building, a door opens from it into the cow stable, which is about sixteen feet wide, and runs one side of the great structure its full length. It accomodates thirty-six cows in stalls, two in a stall, a window in each stall fronting the cows. Here they are fed and watered during the whole winter without leaving their stalls. They have no exercise save what they get in the stalls.

This stable seems to be comfortably warmed by the heat that emanates from the cows, but do they have sufficient change of air? About eight feet above the stable is a loose covering of boards on which there is a layer of loose straw. Evidently to a certain extent the heated air from the bodies of the cows passes up through this covering into the great roof space and thence to the outside by ventilators in the ridge of the roof. Fresh air is supplied from the great barn space below, through doors and perhaps more or less crevices in the partition that separates the stable from this space.

The third things we note are the necessities of these farmers. As a class they are tenants, and have to pay an annual rent to their landlords of from $10 to $20 an acre on their holdings. Their cows must be rent payers. They cannot afford to keep a single cow at a loss, as our farmers sometimes do. In their system of management the cows must be made profitable, both in the products of milk and the products of flesh. When I was a young man I worked for a dairy farmer who held that some dairy cows could be profitably fatted for beef and others could not be thus profitably fatted; and that the difference lay in the fact that the one class deposited fat largely around the kidneys and on the intestines, the other largely on the ribs and in the interstices of the muscles, I do not know that this

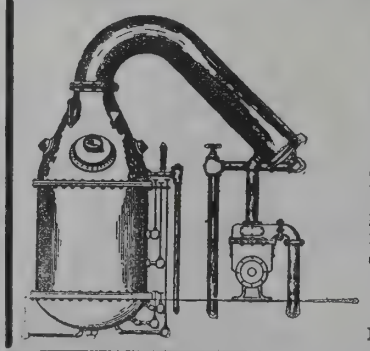


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theory is correct, but I venture it as a hypothesis to explain the success of these Friesian dairymen.

Lastly, a few minor features are worthy of note. Among these are the bull shows held in the springtime in almost every village and the cow markets held weekly or bi-weekly in the principal towns and villages. Both are fostered by the local governments. The former are designed to educate the farmers in the best types of bulls and to enable them to select and purchase such as are suitable for their herds. There is no display about these shows and no holiday excitement. They are for business. The same may be said of the cow markets, yet I doubt if a finer display of cows has ever been seen at any of our World's Fairs than are shown every week at some of the market places. In order to give a correct impression of the influence of these markets on the development of the breed, I will describe the one at Leuwarden, the shire town or capital of Friesland. The market ground occupies from four to six acres. Here on every Friday may be seen from two hundred to four hundred cows, nicely groomed and in fine condition, the great majority in milk. They are such as the farmers themselves in the surrounding districts have selected from their herds to sell. The probabilities are that they are not as great milkers as they desire to keep. Here are buyers from Germany, South Holland, Belgium and probably France. Every convenience for shipping is provided. Probably, the majority are sold. Of course some will return to their own pastures or stables and be brought on the next market day. Thus a constant sifting process goes on. With rare exceptions they do not keep cows beyond six years old. Thus it will be seen that their herds are constantly renewed by the offspring of cows in their prime.

Before leaving this part of my subject, I hope it will not be regarded out of place to refer to the productiveness of these cattle in the province of Friesland. In 1874, before oleomargarine was known, England imported from this province 40,763 hundredweight of cheese and 266,041 hundredweight of butter. I quote these figures from Chambers' Encyclopedia. The area of this province is 1,253 square miles, about that of Herkimer county, in this state. In 1879 a census of cows was taken and found to be 144,802. If there was a like number in 1874, England's importation of butter from that province that year, averaged 204¾ pounds to every cow of whatever age or condition.

Slow Churning—Cream Ripening..

ED. HOARD'S DAIRYMAN:—Have read an account of slow churning of cream on page 946, while perusing the DAIRYMAN for information on that subject, but would like to have your opinion as to my trouble.

I keep my cream 3, 4 or 5 days according to the amount of cream gathered, daily, before churning, and it generally is just about sour enough to churn in from 30 to 50 minutes, but to-day I could not bring the fat globules in contact, it came to a granular form and regardless of agitation would not separate. I use a float glass thermometer and cream registered 60 degrees.

Do you think freezing would have that effect? Cream room got cold one night, just low enough to start a scum of frost on cans, otherwise the temperature of cream averaged about 40 degrees. That is too low a temperature for fermentation, consequently the want of acid in cream. That is about the cause, is it not? H. T.

Wausaukee, Wis.

Butter fat melts at about 91 degrees Fah. and softens some distance below that point. It makes quite a difference in the physical properties of the fat globule whether it has been cooled down to 60 degrees from near the melting point or warmed up to 60 degrees from near the freezing point. In the first place, the fat globule only becomes hard after several hours standing, and in the second condition it remains hard even when heated to some distance above 60 degrees. The second fact probably accounts for your poor churning.

Cream kept at 40 degrees will not ripen properly; it is too low for the lactic acid bacteria to grow, while the bitter varieties grow rapidly. The cream should be heated to 60–65 degrees for ripening and churning also.

A Barn and Stable Inquiry.

ED. HOARD'S DAIRYMAN:—I am going to appeal to you for some information and also for a decision.

I have moved onto a ranch for a period of five years, where the cow accommodations are very inadequate. One of my friends tells me to remodel the old barn, 72×90 on the following plan: Dig a good ditch 1 ft. deep and 1 ft. wide at northwest corner going down to 2 ft. at southeast corner with a good fall to carry the water away (which I have) and use the dirt to level up the inside of the barn; then fill ditch up with pieces of split cedar by making a good bottom out of the cedar. Put a scaffold up 8 ft. from the ground (no floor in barn) and cover same with pieces of split cedar and let the cows have the lower part for a place to run in during the winter. Is it a good plan to have the cattle under the hay without a tight floor over head? Will the odors arising from those cows spoil lots of the under part of the hay?

Now, I can build new and just to suit me and have it dry and clean and lots warmer than the old barn can possibly be made, that will hold 20 cows, for about $125 outside of my own work, that is, for cash out-lay. Would such a place to keep cows as I am advised to fix up, be too dark and damp? The barn as it now stands has no way to get sunlight or daylight. With such an arrangement as described would I not be ahead more than 8 per cent on the investment (legal rate here) by building new? The old barn is of the old post style and no shape or room to put anything but hay.

Napavine, Wash. UMPQUA.

If certain that the new stable can be erected at no greater expense than stated we quite agree with our correspondent that it would be money well invested. It is a pretty difficult matter to remodel an old house or barn and make it satisfactory, without costing nearly or quite as much as to build entirely new.

In this view of the situation it seems to be unnecessary to consider the other questions submitted.

How Much Oil Meal.

How much oil meal can be fed per day without any bad effect, or can you feed it as a full grain ration to milch cows? G. R.

Leon, Wis.

It has not, to our knowledge, been accurately determined just how much oil meal could be fed without injury to the cow, but as a rule it is not usually profitable to feed more than 2 to 3 lbs. daily. More than this would also be liable to give the milk, and particularly the butter, an oily character and flavor.

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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of them read dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

AS IT IS IN INDIANA.

C. P. Goodrich took a cow census at Plymouth, Ind., a few weeks since of 50 farmers patrons of a creamery. Note the following facts: The total number of cows was 250: the average cost of keeping per cow was $24.96; the average returns in butter fat per cow was $32.20; the average number of pounds of butter fat per cow was only 166; the average net price was 19.4 cents: the average net profit per cow above cost of feed was $7.24; the average returns for $1 worth of fead was $1.29. The six patrons who read a dairy paper averaged $21 per cow over and above the cost of feed, while the 44 who did not read a dairy paper received only $5.58 per cow above the cost of feed. Does it pay to go without sound dairy reading?

COMING EVENTS.

Ohio Dairymen's Association, Columbus, Jan. 27-29, 1904.

Massachusetts Creamery Association, Greenfield.

Connecticut Dairymen's Association, Hartford. Jan. 20-21.

Wisconsin Buttermakers' Meeting, Eau Claire, Feb. 2-4, 1904.

Wisconsin Dairymen's Convention at Platteville, Feb. 10–12, 1904.

A WRITER in the *Tribune Farmer* says in reply to the inquiry, "Why don't you veal your calves at 5 weeks old instead of selling them at 4 days old and save a month's hand milking?" replies; "My neighbor kept two calves until 5 weeks old, giving them all the milk from two cows, and the calves sold at $3 each. A while ago a calf was dropped in my stable and was sold at 4 days old for $4. In the last thirty days its mother has produced 900 pounds of milk that has brought me $10.80, which plus the calf, makes $14.80. That's why."

COST OF MAKING CREAMERY BUTTER.

The Iowa Dairy Commissioner found after an extended investigation that the cost of making creamery butter, including all expense except hauling of milk, freight to market, and commission, varied from 1.2 to 6 cents a pound. These two extremes were found in co-operative creameries.

The lowest cost was in a creamery making a half-million pounds; the highest in a co-operative creamery making less than 30,000 pounds annually. Here is a profitable fact for all dairy farmers to consider. There is a great tendency among them to split up into small creameries to avoid hauling the milk a long distance, or because of some dissatisfaction or other. It should be remembered always, that the small creamery or cheese factory is a very costly luxury, one that must be paid for in an increased cost for making.

The following scale of cost was established by the Iowa Commissioner:

In creameries making:	
Not more than 50,000 pounds	3.14c
Between 50,000 and 100,000 pounds	2.36c
Between 100,000 and 150,000 pounds	1.99c
Between 150,000 and 200,000 pounds	1.78c
Between 200,000 and 300,000 pounds	1.71c
For the State	2.28c
Average for first and second classes	2.22c

THE WELL POSTED PRACTICAL MAN.

In every walk of life there are three kinds of men: the man who is all theory, who carries in his mind a picture of what he wants, but who never quite trains his constructive faculties to the task of doing the thing. Such men are like the artist who loved pictures, but who had never acquired the skill to paint one. Then there is the man who knows nothing more about anything, than what he has learned in trying in a rude way to do it.

Finally, comes the more perfect man, who has studied the theory of the thing, the laws and principles that govern it, as best he can, and besides, has tried to learn the best way of doing it.

The effort and purpose of all the agricultural agitation and education we see going on nowadays, is to produce more farmers of the last class. No man can be truly practical unless he knows the theory as well as the practice of things.

Just at present, the dairy industry is greatly in need of truly scientific as well as practical breeders of dairy cattle. So much of this work is done either with both eyes shut, or else with only one eye, that of wild theory, or narrow visioned practice.

A few years ago, we had the pleasure of a few hours' study in the Jersey herd of Mr. F. A. Dawley, of Fayetteville, N. Y., who is also Superintendent of the New York Farm Institutes. Mr. Dawley took this herd a few years since, and being a well posted farmer as well as thoroughly practical in his ideas, set to work to see what he could do at the task of developing the dairy capacity of his cows. He has at the same time developed his ideas, judgment and capacity of understanding, for he is a hard student. The result is that he now has a herd of registered Jerseys that are remarkably rich in prepotent dairy capacity. He has not been a dreamer, nor either a blind manipulator of breeding forces. Mr. Dawley represents very forcibly the third class of farmers we speak of, a class altogether too few in numbers, who combine the student of theories with the close practical constructionist. Every breed of dairy cattle is suffering today because there are not more breeders of precisely this character.

HARDLY A WISE STATEMENT.

In explaining the rules which have been adopted governing the Dairy Cattle Test at the St. Louis World's Fair, Mr. J. J. Richardson, Chairman of the Jersey Cattle Committee, says:

"The dairy demonstration to be conducted during the World's Fair will be largely in the interest of the dairy farmer who makes a specialty of furnishing his critical customers, butter of the highest quality, fresh, sweet, and high flavored—a product that excels in aroma, grain and palatability—and is *seldom seen in the open market.*" (The italics are ours.—ED. DAIRYMAN.)

This looks to us like an unwise admission. It is tantamount to saying that the great mass of dairymen who furnish milk to creameries and cheese factories, and whose favorable opinion concerning Jersey cattle should be sought after by Jersey breeders, are of no account whatever. The class Mr. Richardson mentions constitutes a very small minority, as his statement "seldom seen on the open market" clearly indicates.

Then besides, the statement is not exactly true. This dairy demonstration is entered into by Jersey breeders for the great central purpose of demonstrating the superior dairy qualities of their cattle from an economical and commercial standpoint. Such a purpose is indeed a worthy one if the procedure be along just and reasonable lines.

The private butter makers need no special demonstration or test on their behalf. They are at the top of the ladder already, and of all dairymen know best what they are about. But the great commonalty of dairy farmers do need all that such a test can teach them. And what is more, the Jersey cattle breeders need very badly a wider appreciation of their cattle.

A prejudice against the Jersey cow has been growing among the great mass of farmers. In this we believe they are governed by notions like that of size, meat production, etc., which are not sound or economic from a dairy standpoint. No more economic butter producer exists than a good Jersey cow. But the average farmer is not an economic man to start with, and it is no wonder that he should be misled in his judgment concerning true economy in dairy farming, or the kind of a cow that is most economical.

The purpose of this World's Fair cow demonstration should be to make friends for the Jersey cow among the millions, where she most sorely needs friends.

The Large versus the Small Dairy Cow.

Another View of the Facts.

ED. HOARD'S DAIRYMAN:—I have read very carefully and with much interest Mr. Gardner's communication on page 1096, in which he reviews Bulletin 102 of the Wisconsin Experiment Station, and quotes from it at some length in an endeavor to show that his favorite breed of cows is far and away superior to the other dairy breeds represented in that herd. Not differing from the average enthusiast, Mr. Gardner seems to have eyes only for those words and figures which suit his particular purpose, ignoring whatever does not contribute thereto.

Now, it is daily experience that it sometimes takes a great many views of an object, or a subject, to see all sides of it and arrive at correct conclusions. For example, taking the table incorporated in Mr. Gardner's communication, it appears that the Holstein cows consumed annually $45.46 worth of feed, for which, they return in value of product, as valued at the station, $2.07 for every dollar spent in food.

The Jerseys consumed annually $35.22 worth of feed, for which they returned in worth of product $2.19 for every dollar spent in feed. The Guernseys consumed $37.37 worth of feed annually for which they returned $2.20 for every dollar spent in feed. Now the cost of dairy products lies in cost of feed, labor and care. Included in care is the cost of stabling, bedding, etc.

It is fair to suppose that the cost of labor and care was about the same in all three of the breeds, but when it came to the cost of feed, the case was different.

Now if the farmer sold 500 dollars worth of feed to those Station Holsteins at the above rate they would have returned $1,035, which is a first-class return. If he had sold the same value of feed to the Jerseys, they would have returned $1,095—just 12 per cent more on the investment. If he had sold the same value of feed to the Guernseys, they would have returned $1,100.

These deductions should convince the farmer of the value of not being hastily drawn off from a full survey of all the facts in the case, for he may be sure that in the end the facts will make themselves felt in his pocket.

It is too true, as Mr. Gardner says, that "the Jersey list" (at the Wisconsin Station), "reads like a column of obituary notices," but it is also true that a record of this kind for Jerseys is wholly exceptional, for it is common knowledge that no breed of cows, whether of beef or dairy type, can show a larger proportion of animals, 12 years old or over, in perfect health and vigor and returning handsome annual profits to their owners.

Waukesha, Wis. X.

Honor to Whom Honor.

ED. HOARD'S DAIRYMAN:—In all the farm literature I have been deeply interested in, nothing has more impressed me than the patrons' investigations and their summaries in HOARD'S DAIRYMAN. What can be truer than truth, and these investigations give us the truth. Just as they are in every day life, their simplest acts of daily toil are (unknown to these actors in life's drama) suddenly stereotyped and held up before each one, an unexpected but exact picture of the activity of each one, pointing to himself his value as a man, to himself and to his fellowman.

Not being impersonated, however, the examples are held up before each one with the query mark attached: "Where do I belong, does my activity stamp me as a man who through well directed energy makes each dollar expended for feed return me to $2.34, or does it not even recoup itself? Burns wrote: "O wad some power the giftie gie us to see oursel's as ithers see us," but had he lived to read HOARD'S DAIRYMAN I believe he would have modified his prayer to read, that his desire was to see a strict investigation, showing him if in daily toil, in homelife, and in spiritual matters, he was achieving a plus or miserably shrinking off with a minus.

Last year's investigation gave me the text for a "talk" I was called upon to give at a farmers' meeting at Snohomish City. I was extremely fortunate; a lady teacher in one of Dakota's universities, had just thrilled us by her remarks on "Domestic Economy," when it came my turn to take the rostrum, and discuss some questious on "Bovine Economy." As I reviewed the incidents in this patrons' investigation, I could not help but couple the laws and rules that govern this bovine economy as being identical and in harmony with those that govern domestic economy.

Feeling as only woman can for her sister—and especially the woman whose sympathies elevate her mind to the point that as a teacher *i. e.* student observer of domestic economy, she actually engages in removing the cause of suffering for all women. Mrs. Heath told us the pathetic story of the child wife of the farmer with the —69 cents profit on his activities; how she craved a blue dress and worked and starved and slaved only to obtain it, when—though in mind a child wife—her haggard form and whitened hair, made the dress an anomaly. The vivid picture before us—alas! too common an occurrence—I could combine cause and effect, and prove to my hearers that, though the $2.37 man may possibly not buy the dress in time, it is absolutely impossible that the —69-cent man ever can do so. Ignorant, slavish waste of energy in barn yard and field, leaves the home with a minus 69 point father, and the United States with a minus 69 point citizen. Wake up dairymen of all states and nations! minus 69 points, still leaves you a detriment to yourself, your family, humanity. As you need thought in your work, you need independent thought in your domestic life, and in your political life. "Let the dead past bury its dead. Act, act in the living present, heart pulsating with new life derived from acquired knowledge within, and God o'erhead."

Mr. J. F. Littooy, our energetic County Horticultural Inspector was at the meeting last year, and recently asked me to give him those data to assist him in compiling his papers for the meeting of the Interstate Fruit Growers' Association, at Spokane. He will have both numbers, and will use them to prove that the farmer must specialize. Intensive methods are a necessity, the law of cause and effect must be grasped, and the individual must become a pronounced and certain entity, able to take his place beside his

fellow man, certainly not above him, and not less certainly, not below him.

Independent men and women can live side by side, harmoniously; dependent ones nurse jealousies, create envy, malice, and all uncharitableness and have strife and bickering with them always, for says James "where there is disorder(lack of system resulting from ignorance of organic law) there is strife and every vile thing."

Brother dairymen, let us take the tip from these investigations, and in every branch of economy keep tab on our movements. We may think we are pretty good looking fellows, but when Hoard holds his mirror before us, our actual value to the world, dairy or otherwise, is made known to us without varnish. The only way to avoid an ugly picture is by being your own critic and investigator; of course you can not then see how your record compares with that of your fellowman, but you do know whether you stand on the credit or debit side of the ledger.

The mind makes the cows give a surplus over food received; it is thought then that counts; learn to think straight therefore; it is an absolute necessity in every line of your individuality, thus only being able to aspire to the time when we shall "owe no man anything but love"(the desire of the highest good to yourself,to all men.)

Yours for a conscious walk,

DANIEL F. BOISSEVAIN.

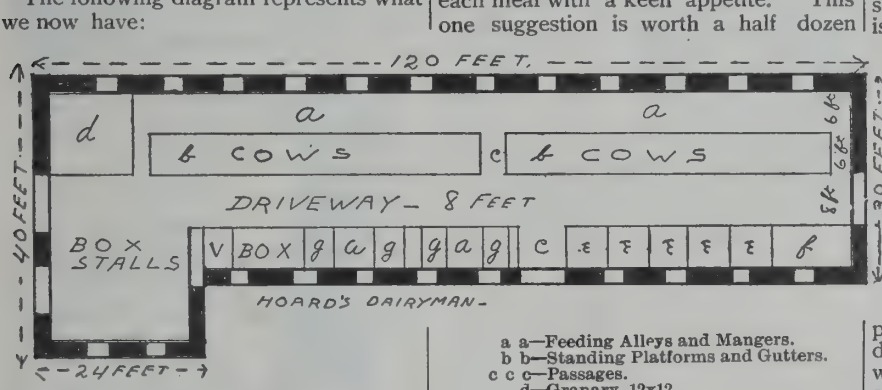
Hartford, Wash.

A Stable Plan and Queries.

ED. HOARD'S DAIRYMAN:—I have had the paper a number of years, but I am just beginning to realize that the lessons you are constantly hammering on, means me. A close study of each issue of the past year, has certainly been a revelation to me.

The first thing I must have is a dairy barn. Can you help me to plan to have a stable that I will be pleased with after it is finished; also at a moderate cost?

The following diagram represents what we now have:



a a—Feeding Alleys and Mangers.
b b—Standing Platforms and Gutters.
c c c—Passages.
d—Granary, 12x12.
e e e—Double Calf Pens, 6x6.
f—Bull Stall, 6x12.
g g g g—For Yearlings.
v—Ventilator.

The above is three old sheep barns moved together, and the bank on north side just reaches top of basement wall. There are three windows on the north and five on the south side. So we find the stable dark, cold and damp. Several places in the ceiling knock my hat off.

I have three plans in mind. I could tear away the 40×24 barn (on the west) and extend new stable south from where yearlings stand and get plenty of light from east and west sides. I could shorten new stable and extend it through, and across old stable and get a good western exposure, or I could extend the calf pen on south and make a stable under the 40×24 part with much west and a little east and south exposure. In both cases cutting off the old stable with a partition.

When I was a boy, I worked on a farm that had a stable 24 ft. wide and the cattle were placed 3 and 3, heads and tails along either wall. That man allowed 3 ft for each cow, which left a 6 ft. driveway. Would the cows get as good light and ventilation as when in rows, facing out?

Could I afford to give up the driveway entirely, using an over head car, for the sake of having a full glass south end,and getting less vacant space for the animals to warm? I am a little at sea about the amount of glass, height of ceiling, shape of gutter,watering device,method of tethering, size of stable etc., but will wait until I get a little farther along for those matters. F. C.

De Ruyter, N. Y.

In our suggestion for remodling this stable,we have allowed the "three old sheep barns" to remain as at present arranged, except that they should be raised up so as to allow the basement to be fully 8 ft. high in the clear. We would not fill in this additional height by building up the stone wall, but would use frame work and studding. As 26 ft. in the clear is not sufficient for two rows of cows and a driveway, we take 12 ft. on the north side for cows, 8 ft. for driveway, and use the remaining 6 ft. for calf pens and yearlings,standing the latter"heads and tails", by twos and threes.

With the exception of providing a stairway, which cannot be located without knowing the arrangement of the upper floor,the diagram will indicate most, if not all, of the arrangements which we consider necessary.

A Holstein Record.

ED. HOARD'S DAIRYMAN:—I will send you a record of seven registered Holstein cows for the year 1903. No. lbs. milk for the year, 88,358. Amount received for calves and premiums at my home fair, $270.00, making a total of $1,153.58.

My cows are not out of the barn in all the fall, winter and spring weather. I would like to send you a cut of my barn and also my herd. W. H. S.

Lyons, Ohio.

We are always glad to receive photographs of barn buildings or anything else of practical value around the farm.

Prof. Haecker Discusses the Feeding Problem.

ED. HOARD'S DAIRYMAN:—In your answer to inquries in regard to feeding made by F. R. P., Painesville, Ohio, you touch upon a very vital point in feeding, in saying that "possibly some cows, if not all of them, will eat a little more silage or hay or both, than is specified. If so, let them have it, but bear in mind that it is better they should be a few mouthfuls short, rather than have a little more than they will care to eat. They should be so fed that they will come to each meal with a keen appetite." This one suggestion is worth a half dozen years' subscription for any dairyman, if carefully followed. Dairy bred cows properly handled should be fed to their full limit, not with meal but with roughage. To feed a cow to her full limit, is not giving her all that she will take at any one time, or what she will take for a week or ten days, but what she will take regularly from week to week and month to month,always cleaning up her box and hay rack and come to her next meal with a strong appetite. Every one of my cows clean up everything at each feeding, and would, for a few days or a week, take a pound more, but by the expiration of a week or ten days, they would begin to leave some and very likely would go off their feed and a bad break in flow of milk would follow. A cow's limit is her staying limit, not what she will take for a few days only.

If fed only to her staying limit she not only takes all the feed in the box but she licks it up clean, leaving nothing in the corners. There are some seventy odd head of cattle in the dairy barn, and an hour or so after they have been fed not a double handful of feed, roughage and grain, could be secured from the mangers. And yet, if any one of the milk cows should receive a pound more grain with its complement of roughage she would go off her feed within a fortnight. The stalls of the cows used in experimental feeding are covered with flax fiber which is covered with the heaviest jute carpeting so they have nothing they can eat except what is weighed out to them at each feed. For concentrates, half get corn, barley and oats three parts each, and oil meal one part. Half get gluten meal, barley and oats three parts each and oil meal one part. For roughage they all get corn silage that has no ears, mangels and unbleached upland prairie hay, which has no weeds or stems. A certain commission house knows just what kind of hay I have been feeding for some half dozen years, and when a carload of hay that just grades up to my requirements reaches the Minneapolis market, they know where to place it. They have learned not to send me any that does not run even.

If I should attempt to do my work with such timothy or clover as is grown on the average farm, I should be entirely at sea. Tame hays do not run uniform, because the stand is not even. Where there is a poor catch the stems are too coarse and most of it is spoiled in curing so that stock will not eat it all. Furthermore, farm hay varies greatly in composition, while wild hay is remarkably uniform.

The standard ration is 8 lbs. grain, 40 lbs. silage, 16 lbs. roots and 4 lbs. hay. This ration is adjusted to a cow whose productive powers are developed to her feeding capacity, but if she is relatively a large yielder and light feeder, she would get 8 lbs. of grain and the complement in roughage for a 7 lbs. grain ration, and if she is relatively a large feeder and light yielder, she may get 7 lbs. grain and the complement in roughage for an 8 lbs. grain ration. So, all the cows are fed meal according to their productive powers, and roughage according to their feeding capacity. Every cow gets enough feed in bulk to satisfy her, but the large producer is furnished more nutriment in her feed for a given bulk than is given the one that does light work. Some want a little more or less silage or hay than the regular order of feeding would furnish, and these minor matters are adjusted to her wants.

The feeding schedule is generally prepared in the fall, the cow's conformation being the guide. I know my cows, having raised and developed them, so the changes that have to be made are slight, and the fixed ration for the winter is generally reached by the fourth week of lactation, and from then on until spring, few, if any, changes are made. Great care is taken to bring them up to a full flow by the fourth week, and to prevent any abnormal decrease in the flow during the winter. Special attention is given to their wants and comfort. Kindness and gentle treatment are potent factors in getting a large yield. A caressing touch, now and then, and a gentle voice mean much to a cow. You can coax milk out of a cow, but you can't pound it out with a milk stool. You can draw the reins over the horse, apply the whip and make him trot or run, but you can't crack the whip over a cow and make her fill a pail with the product of motherhood and affection.

T. L. HAECKER.

Minn. Exp. Station.

Some Washington State Cows.

ED. HOARD'S DAIRYMAN:—Perhaps some of the eastern dairymen would like to know what Washington cows are doing. I have milked seven cows since last January and made butter and sold $620.05 worth of butter. This is not taking into account what we have used in a family of six, and a great deal of the time, seven.

I have sold $40.85 worth of fatted calves and have one last June calf that I am raising which I value at $25; besides, I have sold about 50 cents worth of cottage cheese a week and from 25 to 50 cents worth of buttermilk each week.

I do not keep any pigs to feed the skimmed milk to, so I feed it to the hens and have sold $197.87 worth of eggs and $56 worth of chickens during the year. Now if I give the cows credit for this, as some persons do with their pigs, I think they have made a pretty good record for the year.

I am feeding corn fodder, timothy and clover hay and oat hay and alfalfa and four bushels of carrots a day. Bran and shorts are too high to feed, or I think I could made them do better than they did. A. E.

Spokane, Wash.

Michigan Agricultural College Creamery Course.

The special creamery course at the Michigan Agricultural college opened January 5, with an attendance of 33 experienced buttermakers. The butter making and milk testing are in immediate charge of John Michels who is assisted in the creamery room by the "crack" buttermaker, John Sollie, of New Sweden, Minn. and E. J. Kneibehler, of Badaxe, Mich. and by H. N. Hornbeck in the testing room. There are also two competent men engaged to teach the subject of creamery mechanics.

The advanced course in creamery butter making opens February 16 and continues six weeks. A good attendance is assured in this course. Pasteurized butter making, starters, creamery construction, advanced creamery mechanics and advanced dairy bacteriology, will be chief features of this course.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain sepecific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

An Illinois Ration.

Please formulate for me a daily balanced ration from the following feeds for cows weighing about 1,100 lbs.: wheat bran, oil meal, crushed corn, with plenty of alfalfa and cow pea hay. Also a ration composed of the above feeds with 35 or 40 lbs. of corn ensilage. How much more milk should I expect by adding ensilage? Cows are giving 35 pounds of milk. Success to the DAIRYMAN. J. E. S.

Carlyle, Ill,

Every ration is a daily ration. That is to say, a ration is the total allowance of feed for 24 hours. It is therefore a misuse of the word to speak of a morning ration, or a grain ration, or a silage ration.

The proper complement to roughage consisting exclusively of alfalfa and cow pea hay, would be crushed corn, were it not for the fact that corn is too concentrated to be fed undiluted. If it is convenient to chaff some of the alfalfa hay, so that it could be mixed with the crushed corn, there would be no necessity for looking for other feed, and then a daily allowance of 10 pounds each of the alfalfa hay and cow pea hay, and 8 lbs. of crushed corn, and 3 to 4 ounces of salt,would be ample for these large cows, yielding 35 pounds of 4 per cent milk daily. If not convenient to chaff hay for this purpose, recourse must be had to bran to dilute, or, as we sometimes say, extend, the crushed corn. Equal parts by measure of the crushed corn and bran, and 8 lbs. per day would not be far from right.

With a daily allowance of 40 pounds of corn silage, 12 lbs. of the hay could be withdrawn. In that event, we should not so much expect any marked increase in the daily yield of milk, as we should a decrease in cost and less shrinkage.

Scales for Cream Testing.

Will you please tell me where I can buy scales to weigh samples of cream in testing? Bassett, Neb. R. A. A.

They can be obtained from any of the dairy supply houses that advertise in the DAIRYMAN.

An Excellent Record—A Monthly Income of $12 per Cow.

I send you statement of my little herd of registered Holstein-Friesian cows for Dec., 03. I have 8 cows in milk; 1 is 11 years old, 2 are 4 years old, and 5 are 2 years old. I drew to the milk station 6,597 lbs. milk, which at $1.44 per hundred amounts to $95, and I fed 2 calves new milk and furnished two families, making over 700 pounds more. Average test at the milk station was 4.20 per cent butter fat. They came fresh from Aug. 30 to Nov. 17 and were fed ensilage 2 feeds, mixed clover and timothy hay at noon, and 6¼ pounds grain (bran and hominy feed mixed equal parts by weight), which is worth about $21 per ton. They were turned out each day for exercise and to drink in the yard near noon each day. Now do you think it would pay me to feed a narrower ration or more grain. F. M.

Smithboro, N. Y.

Thanks for the remittance, but more especially for the kindly interest shown, both in securing the additional readers and in sending the statement of the herd for December. We are more than glad to publish such reports, for they not only add variety to the contents of the paper but are object lessons of great value to other readers, which should encourage and stimulate them to do as well or better.

Where cows are making such records as are reported above, we should hesitate to make very much change in the feed. Possibly, an increase in the allowance of grain might bring some increase in yield, but perhaps no greater net profit. It would be a very wise thing to do to commence at once keeping a daily record of each cow's performance and from this get some guidance as to the amount to be fed to each cow.

Caustic for Dehorning.—Will It Pay to Feed $14 Bran?

I would like to ask just how you use caustic and at what age, on calves for dehorning. Farmers here say that the pain is excessive and sores are formed and often stunted horns grow.

Will it pay me to feed $14 bran to milch cows when butter is 20 cents. Alfalfa and timothy deteriorated on account of wet summer. I feed ear corn and hay. G. L. G.
Mission Hill, S. D.

1. It would be one answer to the first question to say that the Editors of HOARD'S DAIRYMAN do not use caustic or any other means for preventing or removing horns. Those who do use caustic for preventing the growth of horns apply it just as soon as the nascent horn shows its location, by clipping the hair from the little protuberance, dipping the end of the stick in water and rubbing on the spot and nowhere else. If done pretty thoroughly and in proper time a single application suffices, but otherwise a second "rubbing" as soon as the first has dried, is recommended. This will, of course, make more or less of a sore, but it is claimed not to be very serious or painful.

2. It will depend very much upon the kind of cows and the general treatment they receive whether it will pay to feed them bran at $14 a ton. or even ear corn and hay. If the cows are worth keeping at all we think it will surely pay to feed them some bran daily. Moreover, feeding bran to cows, carefully saving the manure and applying it to the land, is a cheap and excellent way to keep up the fertility of the soil.

A Nurse Crop to Balance Silage.

We have 20 acres of good land that we wish to seed down next year, and we want the nurse crop to balance a ration of corn silage for cows. We have been thinking of oat hay, but the protein is too low. Soy beans have failed us, what about cow peas? G. H. R.
Williamsburg, Iowa.

We are apprehensive that it will be difficult to secure a satisfactory catch of grass or clover and at the same time on the same land raise a paying crop of cow peas. Indeed, it may be doubtful whether it would be advisable to devote so large an acreage to cow peas, unless they have been tried and proven adapted to the soil and climate of that locality. Our preference would be to devote 5 to 10 acres to alfalfa without any nurse crop, or at most a very thin seeding to barley. We should expect a moderate amount of first-class alfalfa hay the first season, if the weather conditions prove to be favorable, and this would furnish the best possible complement to silage. If only 5 acres are devoted to alfalfa, let at least 5 other acres be seeded to clover in much the same way. Then try cow peas, and if they smother the young grass or clover, there will probably be a fair yield of first-class hay.

Cream and Milk.

A gentleman made the following statement: "You may tell your dairyman that at least 5% of the cows' milk he gives you must be cream. The presence of less than that amount indicates adulteration."

Another man as positively asserted that the statement was wrong. They finally agreed to have HOARD'S DAIRYMAN settle the question for them. Now, Mr. Editor, will you kindly settle the question very plainly for us.

In using the Babcock milk tester we talk about a cow giving 5% butter fat. Is that 5% butter fat what we would call 5% cream? An answer through the DAIRYMAN'S columns will be highly appreciated by us.

The DAIRYMAN has been our only teacher for many years. We have made fancy butter for fancy trade a good many years, and all our knowledge is due to DAIRYMAN'S teachings. When DAIRYMAN asserts a thing, it's so, and no dodging. R. E. K.
Mercer Co., Pa.

Milk that will not show more than 5 per cent of cream must be accounted very inferior milk indeed. It is but fair to say, however, that milk that has been stirred for cooling and afterwards more or less agitated in transportation does not throw up its cream very readily or exhaustively, and for this reason the "show" of cream becomes a very misleading indication of the quality of the milk. Moreover, cream itself is exceedingly variable. After standing a few hours milk may show 20 to 25 per cent cream, and in a few hours more there will be apparently much less cream, because of a more thorough separation of the fat from the milk serum.

One hundred pounds of 5 per cent milk would yield 25 lbs. (25 per cent) of 20 per cent cream.

The Average Cow—Which Butter Keeps Better?

About how many pounds of milk does the average cow give in one day? Which will keep longer, butter made from sweet cream or sour cream? D. E. R.
Platteville, Wis.

The first question suggests another query, which is: When will the keeper of cows learn that in considering the yield of a cow the quality of the milk is quite as important as its quantity. Creamery records show that very few herds average more than 20 pounds per cow daily, and this would be a good showing if the milk tested 5 per cent fat, but a poor showing if it tested only 3 per cent fat.

The second question is not very important as there is so little demand for butter made from sweet cream. It may be answered, however, by saying that all other things being equal the butter from sour cream should keep the longer.

Estimating Weight of Cows by Girth.

Would you please tell me the number of the DAIRYMAN that had an article to estimate the weight of a cow by measuring the girth?
Cincinati, Ohio. H. S. H.

We do not know of any article of this nature that has been published in the DAIRYMAN.

Character of Droppings.—A New Jersey Ration.

Can someone tell me through your columns how soft the droppings from dairy cows should be to get the best results in milk and health of the animals?

Please formulate a ration for fresh cows giving from 28 to 40 lbs. per day, from wet beer grains, $5.50 per ton; buckwheat bran, $18.00; corn and cob meal, $22.00; clover hay, $13.00.
Bernardsville, N. J. G. W. T.

We doubt whether anyone can give a specific answer to the first question. They should be neither liquid nor dry, not so soft as to lose all shape, nor so hard as to remain lumpy,—just a healthy medium, would be our reply.

When it is remembered that milk is a product from the feed consumed, over and above that portion devoted to the maintenance of the animal body, it becomes apparent that the cow yielding 40 lbs. of milk daily requires more feed than one yielding 28 lbs. The revised feeding standards published by us on page 1014 of the current volume may be used as an index of the different amounts of nutrients required, when the live weight of the animal and the quantity and quality of the daily yield of milk are taken into consideration.

At a venture, we should suggest that a good average allowance for a herd of the character mentioned would be 16 lbs. of clover hay, 30 lbs. wet grains, and 5 lbs. corn and cob meal. This would be more than the 28-lb. cows could profitably use and less than the 40-lb. cows would require.

A Wisconsin Ration.

Please give me a balanced ration for cows nearly fresh. Have good clover and timothy hay. Corn is 50 cents; barley 50 cents; oats 30c; oil meal $1.40 per 100 pounds; wheat bran $19 a ton.

I like your valuable paper and wish you good success this year. C. R.
Livingston, Wis.

It is probable that a daily allowance of 20 lbs. clover and timothy hay, 2 lbs. each of corn, barley and oats and 1 lb. of oil meal, will suffice as an average ration for these cows. It is indispensable, however, if one wants to feed to best profit, that he should know just what each cow is doing and is capable of doing, and the only way to obtain this knowledge is to weigh the milk daily and test it frequently and then study the table on page 1014. With such knowledge in hand it will unquestionably be found that some of the cows are not entitled to the amount of grain specified above, because they cannot make good use of it, and that others deserve more.

Crops for Next Season.

Since I am about to lay my plans for next summer's catch crops and hay crops and feel that I can look to no better authority than HOARD'S DAIRYMAN, I make following inquiries: Will you please tell me how much oat hay or pea and oat hay I may expect in tons from an acre of prairie soil; how it compares with clover and cut corn stover as a feed for milch cows and young heifers; how much seed should be used of each, as above named. Will the Canada field pea do well in the vicinity of Hebron Pairie, Mc Henry Co., Ill? Some have expressed a fear that as sweet corn does not do well on the prairie soil, peas would not. Please give your idea about this. I would be glad if some dairymen would give their experience as to soiling crops and legumes as hay crops for milch cows.

I inclose a list of subscribers for the coming year and hope the parties will find as much good in the DAIRYMAN as I do. If so they will be stayers. R. R. R.
Walworth, Wis.

The amount of oat and pea hay that can be produced will depend somewhat upon the season, but more and principally upon the soil and cultivation. Some portions of the prairies in northern Illinois have been cropped pretty near to exhaustion. Corn and oats and hay have been raised year after year and nothing returned to the land—and especially nothing in the line of humus. One of the results is that such soils do not retain moisture enough and long enough to dissolve the fertilizing elements that may be present, and the crop suffers from drought, or more properly starves. Plant food must be dissolved and held in solution in order to be available for plant nourishment.

Good oat and pea hay is considerably superior to common clover hay, and clear oat hay less valuable. Corn stover, of course, is much inferior to oat hay. See the table of analyses on page 772 of the current volume. The Canada field pea ought to do well in the region named, irrespective of whether sweet corn is a profitable crop, but we should be reluctant to put entire dependence upon any untried crop. Meantime try to grow clover and experiment with alfalfa. Sow some rye early next fall to be turned under in the spring. Also sow clover with all spring grain.

Starting a Creamery. Proper Handling of Milk.

I am starting a creamery on a small scale, and want to know how is the best way to manage the delivery of the milk. Would it be best to deliver twice or once a day? If delivered once, how would you do it? Would the milk have to be cooled as soon as milked and then warmed the next morning? C. L. D.
Bowling Green, Ky.

Milk is seldom or never delivered to northern creameries oftener than once a day. The milk producer is required to take such care of the night's milk that it will come to the creamery next morning in good condition and perfectly sweet. This is done (usually) by setting the can containing the milk in a tub of cold water and giving it an occasional stirring while the milk is cooling. It is important not to mix the warm morning's milk with the cooled night's milk, but if both must be transported in the same can, the morning's milk should be cooled before adding it to the night's milk. On arrival at the creamery, the milk first of all goes into the common vat with other milk and from there passes through a heater on its way to the separator.

A Pennsylvania Ration.

Will you please formulate for me a ration from the following feeds: Corn ensilage, not quite mature, oats and pea hay, some timothy and red top mixed hay. Corn meal, $23: corn and oat feed, $23; winter bran, $20; brown middlings, $20; red dog flour, $26; white hominy feed, $24; colonial middlings, $24; buckwheat middlings, $23: Biles, XXXX dried distillers grains, $25; ration to be for milk. Cows are Jerseys, some grades and weighing from 700 to 900 lbs. C. F. J.
Wapwallopen, Pa.

Without disparagement to the other feeds named, we should be inclined to select common bran and buckwheat middlings, and feed daily from 3 to 4 lbs. of

"ADVERTISEMENT."

MINER HIT

A Gold Miner on the Coffee Question.

Many a rugged constitution has broken down by use of coffee:

"I and my son are miners and have been strong coffee drinkers. I will add I followed mining for fifty years. Nearly three years ago my son had palpitation of the heart so bad that after a hard day's work he would be almost unable to get his breath when lying down, and I was a victim of constipation, headache and could not sleep soundly.

"So I pulled up stakes one day and started to see a doctor and curiously enough an old acquaintance I met on the way steered me off. We stopped and talked and told each other all the news and I told him about our troubles. He said it was coffee doing the work and that using Postum in place of coffee cured him of almost exactly the ailments I described.

"So instead of going to the doctor's I sent for some Postum although I did not have much faith in it but to my great joy it turned out all right and after we quit coffee completely we both began to get well, kept it up and are now both of us strong well men with none of the old troubles. A miner is supposed to be able to stand great hardships but we could not stand coffee. It was killing us. Anyone followlng the directions on the package of Postum will have a far better drink than he can get from the best coffee.

"I think every coffee toper should know Postum will cure him of his ailments, besides it is such a refreshing drink." Name given by Postum Co., Battle Creek, Mich.

Coffee hurts nearly all who drink it and soaks some people very hard. There is a sure way out of the trouble by quitting coffee and using Postum.

And "there's a reason."

Look in each package for a copy of the famous little book, "The Road to Wellville."

5 + 1 = 6



A No. 1 National Cream Separator will give as much cream from *five* cows, as old setting methods, or cheap separators will get from *six*. If you own five cows and are thinking of buying another, it would be true economy to purchase a No. 1 National instead. It reduces labor, saves time and increases profits. Capacity 375 lbs. an hour, or about 10 gals. every 15 minutes. Runs lightly and easily cleaned. Simple construction and few parts is the secret.

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are made for every day use, *and meet every demand of the practical user.* The price of the No. 1 National is $85. Impossible to get as good for less, or a better for more. Send for free booklet No. 80. It tells facts you'll be glad to know. *Write to-day.*

NATIONAL DAIRY MACHINE CO., Newark, N. J.

General Western Agents: The Hastings Industrial Co., 79 Dearborn St., Chicago, Ill. Desirable Agents wanted in Unoccupied Territory



OMEGA Cream Separators

please dairymen because they are easy to turn, easy to clean and because they skim down to a trace. If you say "that's interesting if true" we answer

Try One Free

and make the proof. You'll find the cream smooth, and you'll be pleased when you wash up. Only two parts to clean. It costs less than others, nothing for repairs—a dozen special Omega points. Ask for free book, "Milk Returns." It shows all.



THE OMEGA SEPARATOR CO., 22 Concord Street, Lansing, Mich.



WANTED!!

Every reader of this paper who owns a few cows to send for our new catalog of

DAVIS Cream Separators

Sent free upon request. It will tell you why the Davis Separators are money makers for their owners.

THEY ARE GUARANTEED to separate THOROUGHLY and QUICKLY. Dairymen and farmers find the "Davis" the most economical piece of machinery on the farm. Let us send you full particulars about it

DAVIS CREAM SEPARATOR CO. 54 to 64 N. Clinton St., Chicago.

THE **IOWA DAIRY SEPARATOR**



An up-to-date machine replete with practical ideas.

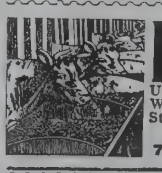
It is built in the following sizes: 250, 350, 450, 600, 750 pounds per hour.

Our 750 pound per hour machine is a practical Hand Separator. It is as easily run as most separators of 450 pounds and 500 pounds capacity.

Send for Catalogue No. 60 and printed matter.

IOWA DAIRY SEPARATOR COMPANY WATERLOO, IOWA.

MILK DEALERS COMBINATION Milk Protector, for cans or bottles. Prevents milk churning and souring in summer and freezing in winter. INVESTIGATE. S. C. Sullivan Mfg. Co., Erie, Pa.



ECONOMY Feed Box and Manger. Saves its cost in one year's use. Used and endorsed by leading stockmen. Write at once for descriptive circular. State how many head you feed, E. E. FULTON COMPANY, 7259 Langley Ave., Chicago, Ills.

PROFITABLE CALVES raised with Keystone Calf Feeder. Easy Cleaned. Perfect Results. Send for Free Book. M. T. PHILLIPS, Box 13, Pomeroy, Pa.



32 years ago we occupied one room with two clerks and published a catalogue a quarter the size of a hymn-book.

"Grandfather Traded With Us"

One of the greatest joys of this great business is the many kind letters we receive daily from our customers, expressing their pleasure and satisfaction with our goods and methods.

Often the most significant part of the letter is embodied in the few words: "My grandfather traded with you years ago." It is the complete confidence of our customers in our honesty, born of past experience in dealing here, that enables us to hold their continued trade.

One-time special "below cost offerings" to catch an occasional customer, and making up the loss on subsequent orders, would never build a business like ours.

It is the constant saving and steady stream of pleasant business relations which makes our patrons eager to speak a good word for us at every opportunity.

Our prices are 15 to 50 per cent below regular retail figures.

We Want You to Try Us

and test for yourself our ability to please you. Tell us what kind of goods you are interested in and we will send you without charge any of the following illustrated special catalogues quoting wholesale prices. Merely mention the number of letter of the catalogue you want.

100 Artists' Supplies
105 Athletic Goods
110 Blacksmiths' and Machinists' Tools
115 Builders' Hardware and Supplies
120 Carpentor and Builders' Tools and Materials
125 Crockery and Glassware
130 Cutlery
135 Dry Goods
140 Fancy and Novelty Goods
145 Farm Implements
150 Fishing tackle
155 Popular priced Furniture
160 Harness
165 Jewelry
170 Kitchen Supplies
175 Laces, Embroideries, Ribbons, Trimmings
180 Lamps and Lanterns
185 Linoleums, Carpets and Curtains
190 Men's Hats and Gloves
195 Men's Shoes
200 Men's Wearing Apparel
205 Music and Musical Instruments
210 Notions
215 Saddles and Saddlery
220 Silverware
225 Sporting Goods
230 Stationary and Office Supplies
235 Stoves
240 Toys, Dolls and Games
245 Underwear
250 Vehicles
255 Wagon Makers' Supplies
260 Watches and Clocks
265 Women's Shoes
300 Women's Catalogue (Cloaks, Furs, Suits, Skirts, Waists, Hats, etc.)
B Bicycles
C Baby Carriages
D Dairy Supplies
G Drugs and Patent Medicines
J Telephones and Electrical Goods
K Cameras and Photo Supplies
M Books
R Fancy Grade Furniture
T Trunks
U Youths' and Boy's Clothing
V1 Men's Made-to-order Clothing with samples of fabrics. Suits $10.50 to $16.50
V2 Same as V1 except suit prices $18.00 to $30.00
VO Made-to-order Overcoats with samples
W Men's Ready-Made Clothing
Mackintosh Catalogue
Butterick Fashion Catalogue
GL Grocery List (published every 60 days).

Our Big Catalogue contains over 1100 pages and wholesale prices on Groceries, Dry Goods, Crockery, Hardware, Furniture, Harness, Implements, Vehicles, Clothing (all kinds for Men, Women and Children), Millinery, Musical Instruments, Sewing Machines, Bicycles, Sporting Goods—practically everything that anybody could want.

It also contains freight rates, full instructions for ordering, and tells you everything you might want to know about us.

Ordering is easy from this wonderful book, which costs us almost one dollar apiece to print and send out.

Send for it today and save the profit you pay your dealer. You can get your money back if your purchases are not satisfactory. Fill out this slip, enclosing 15 cents for partial postage as a guarantee of good faith.

Send four 2-cent stamps for our

10 Color Wall Hanger

showing the inside of this building, with the goods and the clerks at work. One of the most complex and complicated pieces of lithography ever attempted. Very interesting and attractive. You can get it for what it cost us—four 2c stamps.



Today, we occupy more than 200 times as much floor space, employ over 3000 people and our catalogue contains over 1100 large pages.

Cut this slip out and send it TODAY

Enclosed find 15 cents for partial postage on Catalogue No. 72, four 2c stamps for Wall Hanger or 20c for both.

Name_____
(Be sure and write very plainly.)

Postoffice_____

Route No._____ County_____ State_____

48

Montgomery Ward & Co.,

Michigan Ave., Madison & Washington Sts., Chicago

Complete satisfaction or money refunded without question.

each with 40 lbs. silage and all the oat and pea hay each cow will eat without waste. If it becomes necessary to feed red top and timothy to cows in milk, it might be desirable to add a couple of lbs. of the dried grains, or if this is inconvenient, simply increase the bran and buckwheat middlings. But the man in charge of the cows, must, after all, be the final judge of how much to feed, and he should have a daily record of the milk yielded by each cow to enable him to arrive at correct conclusions. If increasing feed does not increase the flow of milk, it is sheer folly to continue in that course.

Missing Butter Fat.

I have sort of a conundrum to ask you. During the month of July I sent to the factory 493 lbs. of cream testing 31 and 32 per cent from 2841 lbs. milk. During the month of August I sent 368 lbs. cream testing 30 per cent from 2813 lbs. of milk. We are very careful in running the separator. Can you give me an explanation in the columns of your paper? J. F. P.
Dayton, Ore.

Not being good at conundrums we are tempted to leave the above question to those who are more apt at this kind of amusement. The more so as, without any additional knowledge concerning local conditions, it would be the wildest guess work to attempt to account for the 45 lbs. of fat which are unaccounted for.

The First of Forage Plants.

An experiment made by the Nebraska Experiment Station at Lincoln, to show the comparative yields of forage plants and tame grasses proved that the yield of one cutting of alfalfa was from four to six times greater than the others. The experiment gave the yields per acre as follows: June clover, 2,365 pounds; Mammoth clover, 2,375 pounds; alsike clover, 2,066 pounds; alfalfa, first cutting, 4,080 pounds; blue grass, 2,875 pounds; orchard grass, 2,390 pounds; timothy grass 2,800 pounds; red top grass, 2,350 pounds: meadow fescue, 1,875 pounds; tall meadow oat grass, 3,000 pounds; timothy, blue grass and orchard grass together, 1,015 pounds. This gave alfalfa first place by 1,080 pounds over its nearest competitor, the oat grass, but this was only the first cutting for the alfalfa field and two cuttings followed, while the other fields were not cut the second time. With the three cuttings, and a fourth crop estimated at 1,800 pounds, the alfalfa field yielded 12,720 pounds, or six and one-half tons per acre. The next best record was a ton and a half.

Transfers of Guernsey Cattle.

BULLS.

Aeneas 5853, Levi O. Knudsen to Fred Rietbrock, Milwaukee, Wis.
Auricula's Tony 8160, M. D. Cunningham to Percy Aldrich, Franksville, Wis.
Argue of Upper Freehold 9097, R. T. Woodward to G. S. Jones, Freehold, N. J.
Bush of Riverside 9083, James Forsyth to Jamss Newell, Cebu, Pa.
Coquette's Marigold 8405, M. M. & E. J. Hollingsworth to Swithin Shortledge, Landenburg, Pa.
Count Clement 9075, Est. W. S. Ladd, to Gust Holmes, Astoria, Ore.
Duke of Rhinecliff 8378, Levi P. Morton to John M. Miller, Bovina Center, N. Y.
Duke of Asbury 9094, Aaron H. Robbins to C. V. Hurley, Ashbury Park, N. J.
Elite's Glenwood Boy 9027, G. B. Tallman to T. V. Hicks, Battle Creek, N. Y.
Fad 6047, H. McK. Twonbly to Thomas B. West, Macon, Ga.
Freeman Jennings 8375, L. P. Morton to Clarence Norscripp, East Meredith, N. Y.
Im. Hayes Prince of Spottswood 8129, Edward T. Price to John C Higgins, Delaware City, Del.
Imogene's Jeweller 8249, John Barth to J. G. Hickcox, Milwaukee, Wis.
Levi P. Morton 5727, James R. Councilman to E. A. Marshall, Roslyn, Md.
Nelson of Homestead 9096, S. J. Connor to L. V. Axtell, Perry, O.
Pride of Waterloo 9093, Geo. VanDerveer to G. C. Thomas & Bros., Waterloo, N. Y.
Pride of Amsterdam 6957, Queen of May 16958, Geo. VanDerveer to Geo. McLoughlin, Skaneateles Falls, N. Y.
Sir Nounon 8038, Chas. L. Hill to James F. Clark, Elysian, Minn.
Victor of Annandale 9095, A. J. Snyder to Moses Taylor, Mt. Kisco, N. Y.

COWS.

Annie P. 15115, Velma M. L 13925, Violet 11513, A. Rose to Oliver N. Rose, North Greene, Me.
Bean's Nora 14194, Bonny Faucette of Lindenhurst 16931, Etta of Castanea 13253, Martha of Castanea 16042, Miss Millie of Castanea 16043, Miss Polly of Castanea 16045, Pansy of Lindenlurst 16930, Pat's Beauty of Lindenhurst 16929, H. W. Comfort to Charles Eastburn, Yardley, Pa.
Castel Beauty 14910, G. W. Davis to E. T. Gill, Haddonfield, N. J.
Dora Spencer 16872, Fanny Osborn 16875, J. R. Huston to Earl Starmont, Xenia, O.
Fair Cozie 15690, Glucose 8496, Lady Jeweletta 15688, A. R. Collins to Wisconsin Experiment Station, Madison, Wis.
Gipsy Maid's Daughter 16942, Aaron H. Robbins to Thomas Harrison, Chesterfield, N. J.
Iola of Wakefield 4845, George Howland to Eben N. Tefft, Jamestown, R. I.
Louise of Bellmath 14024, Matha of Bellmath 15856, Harrison C. Crocker to Harrison C. Crocker & Son, Sennett, N. Y.
Laura Beth 16873, J. R. Huston to R. C. Kuhus, Dayton, O.
Lady Crystal 16950, Geo. C. Hill & Son to Crouch Bros., Hartland, Wis.
Lucretia 11269, Sweet Clover Blossom 11270, Robert G. Shaw 2d. to G. N. Proctor, Fitchburg, Mass.
Lula Peairs 12384, and Richland's Lilly May 13308, E. H. Goodlin to H. C. Bughman, Greensburg, Pa.
Maid of Windsor 16943, Aaron H. Robbins to Redford P. Dey, Windsor, N. J.
Miss Juline 16948, Nora G. 16843, F. Kietbrock & Geo. C. Hill & Son to H. C. Bughman, Pittsburg, Pa.
Pansy Brown of Stanley Farm 16928, H. W. Comfort to Friends Asylum for the insane, Frankford, Philadelphia, Pa.
Palmer's Pearl 16371, J. B. Palmer to George Samuel Tucker, Peterboro, N. H.
Prideene of Elm Shade 16369, Herbert W. Warden to Calvin Pardee, Germantown, Pa.
Standard's Electra 16241, F. Rietbrock and Geo. C. Hill & Son to Crouch Bros., Hartland, Wis.
Spotted Juniata 2d 13257, Thomas L. Greene to Thomas F. McGough, Providence, R. I.
Timonium Lass 16937, Wm. Lindsay & Son to S. M. Shoemaker, Stevenson, Md.
Tessie 16944, Aaron H. Robbins to C. M. Bunting & Bro., Bordentown, N. Y.

WM. H. CALDWELL, Sec'y.

Peterboro, N. H., Ja. 4, 1904.

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H. & R. REVOLVERS

Harrington & Richardson Arms Co.
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We can save you money on your wants in this line. We offer you Two-Ply Tarred Roofing Felt, 108 square feet to the roll, complete with caps, nails and cement, per roll, $1.15. Three-ply complete, per roll, $1.35. Vulcanite, the highest grade on the market, complete as above. Price per roll, $1.50. We have all kinds of Roofing. Write for Free Catalogue No. 20 on material bought from Sheriffs' and Receivers' Sales. CHICAGO HOUSE WRECKING CO., W. 35th and Iron Streets, Chicago.



We wish to announce that we are now operating our new factory at Irwin, Pa. Capacity 1000 cans daily, which should enable us to fill all orders promptly.

Every can sold on a guarantee.

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RUBEROID
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A ROOFING

For barns, poultry houses, residences, etc.

More durable and less expensive than tin, iron or shingles.

STANDARD FOR TWELVE YEARS.

ABSOLUTELY WEATHER PROOF.

Easy to Lay.

MANUFACTURED SOLELY BY

THE STANDARD PAINT CO.,
100 Williams St., New York.



The Distribution of Skim Milk.

It is known that the just complaints of creamery patrons on account of unfair distribution of skim milk are the bane of the separator creamery business. Further disputes among patrons, annoyances to managers, hindrances to the best work of buttermakers, watering the skim milk, and many other ills in the same train are unnecessary, since the

Barber-Coleman Check Pump

has for more than five years been successfully solving the problem in many different creameries. When a patron has dropped in his check he can pump the amount of skim milk called for by his check, less the percentage taken out as cream, so in like proportion to all other checks. Its measuring apparatus is just an ordinary pump which everyone understands and knows how to operate.

Cornish, Curtis & Greene Mfg. Co,

General Sales Agents De Laval Alpha Separators,

FORT ATKINSON, WIS.

A Wisconsin Herd Record.

ED. HOARD'S DAIRYMAN:—Enclosed please find record of my grade cows for the 12 months of 1903. While the record is not the poorest or the best, it shows what can be done with an average lot of cows, by good feeding and care. Three years ago these same cows failed to pay for their feed. Their present performance is due to HOARD'S DAIRYMAN'S preaching faithfully followed. They were fed on ground barley, oats and corn, balanced with oil meal and bran, clover hay and shredded corn stover in winter, and clover pasture during the summer months, supplemented with a small amount of ground feed and bran. Milk is weighed every milking and tests taken 3 to 4 weeks apart during the year. During the winter, cream is sold to the creamery, but in the warm months the greater part is sold to ice cream makers, at Portage.

These cows are nearly all grade Brown Swiss, No. 4 being grade Guernsey, 2, 3 and 5 being grade Jersey. The barn is old and not convenient, much like barns built 25 or 20 years ago, lacking nearly all the modern cow comforts.

Portage, Wis. EDWARD O. RICE.

HERD RECORD FOR 1903.

No.	NAME.	Age	Average Test.	Lbs. butter fat.	Lbs. skim milk.	Value of fat at 23 cts. per lb.	Value of skim milk at 25 cts. per 100 lbs.	Total value of fat and milk.	Approximate cost of feed per cow.	Approximate net gain or loss per cow.
1	Porter	8 yrs.	.0414	294	6812	$ 67.62	$ 17.03	$ 84.65	$ 40.65	$ 44.00
2	Gretchen	7 yrs.	.0497	332	6355	76.36	15.89	92.25	40.65	51.60
3	Blackie	8 yrs.	.0525	241	4358	55.43	10.89	66.32	37.28	29.04
4	Whiteface	7 yrs.	.0492	377	7294	86.71	18.24	104.95	40.65	64.30
5	Susan	9 yrs.	.0447	316	6771	72 68	16.93	89.61	40.65	48.96
6	Mollie	16 mos.	.0479	79	1586	18.17	3.96	22.13	37.28	
7	Tommie	2 yrs.	.0473	244	4914	56.12	12.28	68.40	40.65	27.75
8	Gipsy	5 yrs.	.059	297	4743	68.31	11.86	80.17	40.65	39.52
9	Crazy	5 yrs.	.05075	300	5613	69.00	14.03	83.03	40.65	42.38
10	Whitey	5 yrs.	.0503	357	6740	82 31	16.85	99.16	40.65	58.51
11	Portia	5 yrs.	.0492	363	7034	83.49	17.58	101.07	40.65	60.42
12	Beauty	2 yrs.	.0442	251	5438	57.73	13.58	71.31	30.50	40.81
13	Delta	18 mos.	.0423	107	2434	24.61	6.08	30.69	30 50	.19
14	Rose	19 mos.	.0425	132	2989	30 36	7.47	37.83	30.50	7 33
15	Wena	18 mos.	.042	89	2038	20.47	5.09	25.56	20.33	5.23
	Totals			3779	75119	$869 37	$187.76	$1057 13	$552.24	$520.04

Loss on No. 6	$ 15.15
Total gain	504.89
Increase of herd sold during year	302.33
Increased value of herd Jan. 1. 1904	70.00
Total net returns for year	$877.22

No.'s 6, 7, 12, 13, 14 and 15 are heifers with first calves. No.'s 12, 13 and 14 milked 9 months. No. 15 milked 6 months. No.'s 3 and 6 were sold before end of year.

An Inquiry From Kansas.

ED. HOARD'S DAIRYMAN:—I have been a reader of the DAIRYMAN for about two years. I have not been a subscriber that long, however.

I keep about 20 cows and am very much interested in the columns of the DAIRYMAN, and don't see how anyone, who keeps cows, can afford to be without it. At times I find enough in a single issue to repay me for a whole year's subscription. The wonder to me is, that you can produce such a good paper, at such a marvelously low price. So allow me to congratulate you and encourage you with a few names for 1904, wishing you a prosperous and happy new year.

I also have a few questions I would like to ask since I see you are very willing to answer everything that comes in your way:

1. How is kafir corn for silage? Is it as good for that purpose as common field corn?

2. Does it make any difference what season of the year a silo is filled? Will it do as well filled in hot weather as when it is cool?

3. I wish you would give me a table to go by to get the best results, the cheapest, out of the following: bran, $18; corn chop, $20; wheat shorts or middlings, $20; prairie hay, $7; alfalfa hay, $11.

4. Can I feed alfalfa hay alone, and leave off the bran altogether, and get as good results as if I would feed some of both?

Some of my friends who can raise alfalfa, which I cannot do, hold out the idea that a cow will do just as well if all grain ration is discontinued, if alfalfa hay is fed with a liberal hand. Now this is very hard to believe, and I am not willing to swallow it unless cited by some good authority. If HOARD'S DAIRYMAN says so I'll believe it,

Now, MR. DAIRYMAN it's up to you; how about it? JAYHAWKER.

Galena, Kansas.

1. We have had no experience with kafir corn for silage, and do not now recall any report concerning it from others.

2. No difference at all, so far as we are advised.

3. See table of analyses on page 772.

4, It was maintained at the California Dairymen's Convention, last winter, that under conditions existing there it did not pay to feed grain with alfalfa hay. This is contrary to the views we have entertained. It was not contended that as much could be produced, but the extra milk obtained by feeding grain cost more than it was worth. It seems hardly possible that a cow could eat enough roughage, even if it is alfalfa hay, to enable her to do her best or most profitable work. Under the conditions mentioned by our correspondent we should be disposed to use both kinds of hay, say 10 lbs., more or less, of each, or as much as cows will eat without waste, and from 4 to 8 lbs. of a mixture, equal parts, by measure, of bran and corn chop.

Skim Milk for Poultry.

L. S. Maynard is author of the following article, which appeared in a recent issue of the *Tillamook* (Oregon) *Headlight*:"

"No condensed milk factory for me. Why? Because I can make more out of my milk. The butter made at the creamery in Fairview from April 1st to close of the year 1902, from my milk, brought me $1.11 and a fraction per hundred pounds of milk. Then I had skim milk left, and now, to come at the value of it, I must give a little of my experience.

For several years I kept no pigs and raised no calves, but gave the skim milk to my hens. I charge my hens with the wheat I buy and give them credit for eggs and chicks sold. For the year 1900 they had to their credit $228 above the cost of wheat.

For 1901, I thought I would try feeding the skim milk to pigs and calves, so I bought two pigs and raised my calves. In the fall they were worth about $80. Now we will see how the hens came out. They got no milk, but they had $244 worth of wheat and had to their credit $18 above the cost of the wheat. So I said it did not pay to feed the milk to calves and pigs as well as to the hens.

So in 1902, I kept no pigs and vealed the calves at six weeks and gave the milk to the hens. Result: Fed hens $217 worth of wheat, sold $372 worth of eggs, leaving to their credit a balance of $155 against $18 the year before. Now, take the $137 difference in the hens' credit for the two years, add to that $40 for veal calves, and you have $177 for the skim milk, or over 80 cents a hundred for the skim milk, which, added to $1.11 for the whole milk, makes $1.91 per hundred pounds of milk.

Now, the condensing factory won't do

WINCHESTER

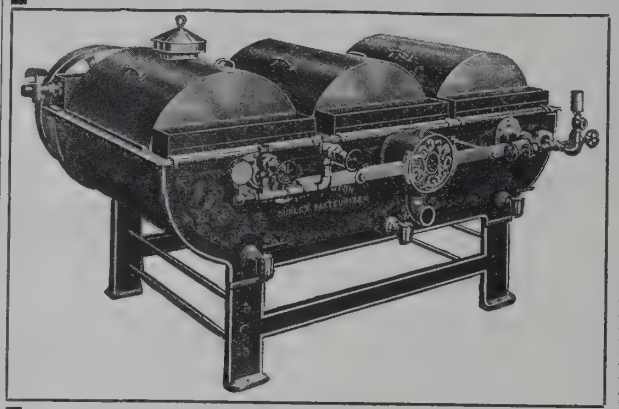


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It's the thoroughly modern and scientific system of loading and the use of only the best materials which make Winchester Factory Loaded "New Rival" Shells give better pattern, penetration and more uniform results generally than any other shells. The special paper and the Winchester patent corrugated head used in making "New Rival" shells give them strength to withstand reloading.

BE SURE TO GET WINCHESTER MAKE OF SHELLS.

The Farrington Duplex Pasteurizer



Built Entirely of Metal.

Among the users of our **Farrington Duplex Pasteurizers** we have the names of the leading milk companies of the country.

The **Farrington** is not a Summer or Winter machine, but equally satisfactory at all seasons of the year. For convenience, durability, thoroughness of work and economy it leads them all. We are prepared to prove it.

Write for Further Information.

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Branches: Kansas City, Mo; Minneapolis, Minn.; Waterloo, Ia.; Omaha, N b. and Cowansville, Quebec. New England Agents: Stoddard Mfg. Co., Rutland, Vt. Pacific Coast Agents: De Laval Dairy Supply Co., San Francisco, Cal.

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WADENA, MINNESOTA



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The **Lansing Tubular** embodies every Silo requirement. Built on scientific principles; the only one fully up-to-date. Every possible size needed. Free book on silos and silage making—ask for it.

Severance Tank Works, Lansing, Mich.

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A 300-ACRE GRAIN AND DAIRY FARM.

60 acres of good flat land for corn. Good hay and pasture land on hillside. Two acres in alfalfa. All milk peddled in town; average 170 quarts a day. Hay, beans, rye, pigs and calves sold this year.

Telephone and Village High School.

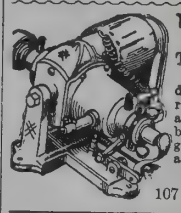
Renter must furnish all farm tools, and at least two teams.

No others need apply. Give references.

DAVID McNAIR,
R. F. D. No. 2. DANSVILLE, N. Y.

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107 Main Street, Pendleton, Ind.



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For the Next 30 Days Only, we will mail our fine valuable Poultry Book **FREE.** Tells you all about poultry, how to make big money with poultry and eggs; contains colored plate of fowls in their natural colors. Send 10c for mailing and postage.

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CHARLES MILLAR & SON CO., Utica, N. Y.



24.75 Buys this end spring buggy as shown above with top, back and side curtains, shafts, anti-rattlers, wrench, dash, cushions nicely upholstered, Sarven patent wheels.



41.25 Buys this large two seated family carriage or surrey, without top, lamps or fenders, otherwise just as shown in cut. Price with top, including curtains, lamps and fenders, $54.90.



35.95 For this top buggy with guaranteed rubber tires, complete with top, back and side curtains, shafts, anti-rattlers, wrench and everything complete. Our catalogue shows many other styles.



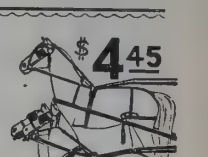
43.90 Buys this large roomy phaeton complete with top, curtains, shafts, etc. Has wide roomy seat, spring cushion and back nicely upholstered. Comfortable.



24.95 For this Stick Seat Gentlemen's Driving Wagon; has Sarven patent wheels, spring cushion, nicely upholstered in whipcord. the greatest bargain ever offered. Our catalogue shows many other styles.



30.50 Buys this combination spring wagon with big body, two seats, good trimmings, shafts, heavy Sarven patent wheels. Our catalogue shows very large handsome illustrations and full descriptions; write for it.



$4.45 $14.60 DOUBLE HARNESS

Our catalog shows 98 styles of harness.

CUT THIS AD OUT and send it to us and we will mail you our free vehicle catalogue. Don't buy a vehicle or harness of any kind until you get it and see our astonishingly low prices and the most liberal terms ever made. We ship on 30 days free trial. Write for Catalog No. 1.

MARVIN SMITH CO. CHICAGO. ILL.

that. And while the skim milk fed to the pigs and calves paid 28 cents per hundred, it paid most three times that fed to the hens. Of course the hens and calves got part of their living off what they picked up on the farm."

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—On the Elgin Board of Trade today, but one small lot, 25 tubs, was offered by Fairdale. There were no sales of butter. The official market was declared steady at 24 cents. The output was 436,500 pounds against 501,600 for the corresponding week of last year.

The former markets were:

Date.	Tubs Sold.	Price.
Jan. 4, '04	0	24c
Jan. 12, '03	0	28c
Jan. 13, '02	25	24c
Jan. 14, '01	0	21c
Jan. 15, '00	0	24c

Elgin, Ill., Jan. 11, '04. H. C. B.

DAIRY MARKETS.

ELGIN, Ill., Jan. 11—Butter today ruled firm on the Board of Trade at 24 cents a lb. Sales in the district for the week were 435,000 lbs.

CHICAGO, Ill., Jan. 11—Butter—Easy; creameries, 16@23c; dairies, 14@24c.

Cheese—Steady; Daisies, 10¼@10½c; Twins, 10c; Young Americas, 10½c.

Eggs—Weak; at mark, cases included, 23@26c.

Cattle—Choice to fancy beeves, 1,200 lbs. up, 5.55@5.70; good to choice heavy steers, 5.90@5.50; fair to good export and shipping steers, 4.35@4.85; medium beef steers, 4.00@4.30; plain beef steers, 3.65@3.90; good to fancy heifers 3.80@4.75; good to choice feeders, 3.45@4.15; good to prime stockers and feeders, 2.00@3.30; fair to good cows and heifers, 3.00@4.00; good cutting and fair beef cows, 2.50@2.85; common to good canning cows, 1.40@2.40; bulls, poor to choice, 2.40@4.50; calves, good to fancy 3.75@6.75; calves, common to fair, 3.00@5.50; corn-fed, western steers, 4.10@5.40; Texas bulls and grass steers, 2.25@3.75; fed Texas steers, fair to choice, 3.40@4.50.

Hogs—Good to choice heavy shipping, 4.50@4.95; fair to good heavy packing, 4.50@4.70; rough and common heavy mixed, 4.35@4.65; assorted light, 150 to 195 lbs. 4.35@4.70; good to choice butcher weights, 4.70@4.90; fair to choice light mixed 4.40@4.60; thin to choice 50 to 120 lbs., 4.00@4.40; stags and rough lots, 2.75@4.30.

MILWAUKEE, Wis., Jan. 11—Butter—Creamery, extras, 24c; firsts, 21@22c; seconds, 18@19c. storage, extra, 20½@21c; storage, low grades, 15@18c; renovated (process,) 17@17½c. Dairy fancy, 17@18c; lines, fresh, 14@15c; roll, 14@15c; packing stock, 12c; whey, 8c; grease, 5@6c.

Cheese—American full cream, new: Twins, 10@10½c; Young Americas, 10½@11c; Daisies, 11@11½c; Longhorns, 11@11½c; low grades, 7@9c. Brick—New, fancy, 10@10½c; low grades, 7@9c; Limburger—New, fancy, 10@10½c; off goods, 6@8c Swiss—Drum, choice, 12@12½c; Drum No. 2, 10@11c; block, choice, 11@11½c; block, No. 2, 9@10c.

Eggs—Strictly fresh laid, loss off, cases returned, 28c; held fresh, candled, cases returned, 25c; strictly fresh laid, at mark, cases returned, 25c; storage, city, April No. 1, 25c; dirties and seconds, 20c; checks, 18c.

NEW ORLEANS, La., Jan. 8—Butter—Extras, 24½c; firsts, 22c; seconds, 19@20c.

Cheese—Young Americas, 12c; Twins, 11½c; Daisies, 12c.

Eggs—Fresh, 26c; storage, 23c.

ST. LOUIS, Mo. Jan., 9—Butter—Extras, 25c; firsts, 21c; seconds, 18c.

Cheese—Cheddars, 11½c. Young Americas 11½c; Twins, 11¼c; Daisies, 11½c; Longhorns 12c.

Eggs—Easy, 21@21½c.

KANSAS CITY, Jan. 11.—Eggs—Weak, Missouri and Kansas, cases returned, 21½c per doz; new No. 2 whitewood cases included, 22c.

PHILADELPHIA, Jan. 11—Butter—Steady, fair demand; extra western creamery, 25c; extra near-by prints, 28c.

Cheese—Steady, fair demand; New York full creams, fancy, 11¾c; choice, 11½c.

Eggs—Firm, good demand; fresh near by, 31c; at mark; fresh western, 30c at the mark.

BOSTON, Mass., Jan. 11—Butter—Creamery, western, extra, 23½@24c; western firsts, 22c; storage, 20½@23c; dairy, 15@19c; western ladle, 14@15½c; box and print 16@25c.

Cheese—Choice, 12c; Wisconsin Twins, 10@11c.

Eggs—Fancy nearby, 33c; western 31@33c; fair, to good, 28c; refrigerator, 28@29c.

TOPEKA, KANSAS, Jan. 9—Creamery—Butter 23½@24½c; Dairy butter 17½@18c.

Cheese—Longhorns, 11½c; Daisy, 11@11½c; Prints 12c.

WASHINGTON, D. C., Jan. 11—Butter—Market firm at 25 cents with light receipts.

NEWARK, N. J., Jan. 11—Butter steady at 24c.

Eggs—Steady; fresh; firsts, 29c, refrigerators, 27c.

NEW YORK, Jan. 11—Butter—Recipts, 4,966 pkgs.; firm; extra, creamery, 24c; creamery, common to choice, 15@23½c; state dairy, 15@21c; held creamery, 15@22c.

Cheese—Receipts, 3,685 pkgs; steady; state full cream, fancy, small, colored, September, 12c; late made, 10½c; small, white, 12c; late made, 10½c; large, colored, September, 12c; late made, 10½c; large, white September, 12c; late made, 10½c.

Eggs—Receipts, 5,060 pkgs; steady; state and Pennsylvania, nearby, average finest, 31c; state and Pennsylvania, seconds to firsts, 27@29c; western extras, 31c; western firsts, 29c; western seconds 27@28c; refrigerated, 24@28c.

BALTIMORE MARKET.

BALTIMORE, Jan. 7—Butter—There is little change to note in the condition of our butter market since our last report. The trading has been confined principally to the higher grades of creamery, receipts of which have been very light, and the market is kept well cleaned of all desirable offerings. There is much complaint of the very unsatisfactory quality of the current receipts; hence, there has been a better demand for fancy held creamery. Imitation creamery, when the quality is satisfactory, meets prompt sale. Ladles—The supply for the present is fully equal to the demand. Packing stock is in moderate supply and demand. Rolls—All fresh sweet lots find ready sale, but faulty stock is slighted. Blocks and prints—Choice to fancy invoices are in good demand. The general market rules steady to firm on all attractive stock.

Creamery separator, extras, 25c; firsts, 23@24c; seconds, 20@22c: Held creamery, extra, 25c; firsts, 21@22c; seconds, 18@19; imitation creamery, extras, 20c; firsts, 18@19c; seconds, 15@16c; Iowa & N. W, Ladle, extras 16½c.; firsts, 15@15½c; seconds, 13@14c; Ohio & Indiana Ladle, extras, 16c; firsts, 15c; seconds, 13@14c: Roll, Ohio, extras, 16c; firsts, 15c; seconds, 13@14c; Roll, W. Va., extras, 16c; firsts, 15c; seconds, 13@14c; Ohio Storepacked, firsts, 14c; seconds, 12@13c; W. Va. Storepacked, firsts, 14c; seconds, 12@13c; Creamery blocks (2 lbs.) extras, 26@26½c; firsts, 25@25½c; seconds, 23@24c. Creamery prints, (½ lb.), extra, 27c; firsts, 25@26c; seconds, 23@24c; Md, Va. & Penna. prints, extras, 25@26c; firsts, 23@24c; seconds, 18@22c. Renovated butter, extras, 19c; firsts, 18c; seconds, 16@17c.

Cheese—Quotations given are for late made October cheese. Fancy Septembers are bringing a full cent a pound higher.

N. Y. State Cheddars, fine, 10½@11c; choice, 9¾@10c; fair, 9@9¼c; do Flats, fine, 11@11½c; choice, 10½@10¾c; fair, 9½@10c; do Small, fine, 11½@12c; choice, 10¾@11c; fair, 10@10¼c; Ohio Flats, fine, 10@10½c; choice, 9@9¾c; fair, 8½@9c; Ohio Picnic, fine, 10½@11c; choice, 10@10¼c; fair, 9½@9¾c; Skims, fine, 8@8½c; choice, 7@7½c; fair, 4@6c; Swiss (Domestic) new, fine, 14½@15c; choice, 13@13½c; fair, 10@12c.

Eggs—With continued light receipts and quite a brisk demand for strictly fresh eggs, the market closes firm and in very good shape at 35 cents. We advise prompt and liberal shipments of fresh and good to choice storage.

301 Exchange Place. G. M. LAMB & BRO.

SAN FRANCISCO MARKET.

Jan 7—Really fancy creamery butter met with a steady demand yesterday and current offerings were well cared for at sustained prices, the favored brands being readily absorbed at the maximum quotation. With the trade practically ignoring storage stock, owing to its high price, dealers are finding little difficulty in working off consignments of the medium and cheaper quality grades of the fresh lines and are reporting the market for this latter stock in fair shape at current prices. As a whole, the local market is now in a better position than for many weeks, there being less accumulation in stores. Prices for eggs showed no further depreciation, but free supplies were obtainable at the top quotation. The cheaper grades are meeting with a lively call, as storage offerings are now light. Under excessive supplies and a slow call, the market for cheese was easier and prices receded a point.

Receipts yesterday aggregated 35,500 pounds butter, 880 cases eggs and 12,300 pounds of cheese.

Butter—Creamery, extras, 26c; good to fancy, 23@25c; dairy, extras, 22@23c; dairy, choice, 19@21c; store, 16@17c; California storage, nominal; eastern creamery, nominal.

Eggs—Ranch, selected large, 35c; good to choice, 32½@34c; store, 27@30c; California storage, 25@27½c; eastern, 25@27½.

Cheese—California creamery, mild, new, extra, 13½@13c; mild, new, choice, 12½@13c: Young, America, 13½@14½c; eastern, New York, Cream, Cheddars and Flats, new, 14½@16c.

NEW YORK FERTILIZER MARKET.

Ammonia, sulphate, gas, £ 100 lbs.	3.22½@3.25
bone	3.12½@3.15
Fish scrap, dried, 11 p. c ammonia, and 15 p. c. bone phosphate f. o. b. fish works, per ton	2.50 & 10
wet, acidulated. 6 p. c. ammonia f. o. b. fish works	2.25 & 35
ground	31.50@33.00
Azotine, per unit	2.60@ 2.65
Tankage, 9 and 20 p. c. f. o. b. Chicago, per ton	2.20@10
Tankage, 8 and 20 p. c. f. o. b. Chicago	2.17½@10
Tankage, 7 and 30 p. c. f. o. b. Chicago	15.00@16.00
Tankage, 6 and 35 p. c. f. o. b. Chicago	14.00@15.00
Garbage, tankage	8.00@ 9.00
Dried blood 12-13 p. c. ammonia f. o. b. N. Y.	2.50@ 2.55
Dried blood, high grade, f. o. b, Chicago	2.45@ 2 50
Nitrate of soda for 100 lbs	2.20@ 2.25
future	2.02½@ 2.20
Acid phosphate	60 @ 67½
Phosphate rock, f. o. b. Char'n	5.00@ 7.00
Tenn	3.50@ 4.50
Bones, rough ℔ ton	18.00@20.00
ground, steamed	20.00@24.00
ground, raw	23.00@27.00
Bone black, refuse	16.00@20.00
South Carolina phosphate rock, ground per 2,000 lbs. f. o. b. Charleston	6.50@ 7.75
South Carolina phosphate rock, undried, f. o. b. Ashley river, per 2,400 lbs	3.50@3.75
do, dried	3.75@4.00
Muriate Potash, 80 p.c. spot ℔ 100 lbs	1.88@ 1.91½
Muriate potash 80 p. c., future	1.83@ 1.86½
dbl. m'r salt	48@53% 1.12@ 1.15
Sulphate potash (basis 90 p. c.)	2.11@ 2.14
Sylvinit, 30@36 p. c ℔ unit	.39@ .40
Kainit in bags	10.05@10.55
Kainit, in bulk	9.05@ 9.55
Kieserit	7.00@ 7.25

READING NOTICES

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—Guernsey bull, "Sir Neith" 8755. Dropped Aug. 18, '02; price reasonable. THOMAS S. MICHENER, Michener, Pa. 49-2

Richly Bred Guernsey Bull Calf—Nicely marked, strong and vigorous. Dam produced 603 pounds butter last year. Price low to quick buyer. H. R. NORTHRUP, Water Vale, N. Y. 49-2

Wanted—A good, steady, single man to work on farm. Only first class men of good character need apply. CHAS. HOWELL, Mason City, Ia.

Wanted—Cheesemaker for May Creamery Co., located five miles west of Reedsburg. ALBERT TOURDOT, Secy., Reedsburg, Wis.

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 1901

1904

GIVES PROMISE OF GREAT PROSPERITY AMONG CREAMERYMEN AND DAIRYMEN

Every creamery in the country should be equipped with

DE LAVAL CREAM SEPARATORS

for factory use or arrange to place the

DE LAVAL FARM SEPARATORS

with all their patrons.

The wisdom of this course will be apparent at the year's end, when largely increased profits for both creamery and patrons will be in evidence, as is invariably the case where the DE LAVAL machines are used.

The De Laval Separator Co.

Randolph & Canal Sts., CHICAGO.
1213 Filbert St., PHILADELPHIA.
9 & 11 Drumm St., SAN FRANCISCO.

GENERAL OFFICES:
74 Cortlandt St., NEW YORK.

121 Youville Square, MONTREAL.
75 & 77 York Street, TORONTO.
248 McDermot Avenue WINNIPEG.

Wanted—Man with family to work dairy farm of 160 acres, on shares. 20 Jersey cows. Sell to creamery or make butter at home. Silo, separator, teams, tools; everything complete except one team. A fair chance for an experienced man with little capital. Business established twenty years. Write at once to G. H. REDFIELD, the dairyman, Edwardsburg, Mich. 49-2

For Rent—For cash or on shares, my herd of 25 cows with land for their support, including 12 acres of alfalfa; 8 room house, garden and orchard. Milk route and equipment in town of 7000; retail 45 to 50 gal. daily; cash sales for 1903, $3350. Address ANDREW BALL, Mt. Vernon, O. 49-2

For Sale—Account scarcity of both feed and water in Caledonia Co., Vermont, I will sell one car load of choice Guernsey heifers, 15 to 18 mos. old, delivered to some one point, not more than 800 miles from Vermont, at $17 per head. Who wants them? H. I. PIERCE, Columbus, Ohio.

O. Douglass has the cultures for butter and cheese making that take the prizes. They are the best yet produced. Send orders for free sample and instructions to O. DOUGLASS, 25 John St., Boston Mass. 45-sp

Feed Protegran—For economy and best results. Write the DEWEY BROS. CO., Blanchester, O. 44-tf

Partner Wanted—To purchase half interest and operate small ice plant and creamery. Good proposition to right man. Address W. P. ROBERTSON, Madison, Ga.

We will sell at public auction, to the highest bidder, the co-operative creamery, on the 8th day of February, 1904. NORTH FREEDOM CRY. CO., North Freedom, Wis. 49-2

For Sale—Combined cheese factory and store, three years old, good location in Chippewa Co. Will make now twelve hundred dollars per annum and will increase rapidly. Too many other duties to attend to it. Address "CHIPPEWA." care Hoard's Dairyman. 49-2

For Sale—At a bargain, two U. S. separators, turbine, 3000 lbs. per hour and No. 2½ 1300 lbs. A receiving vat, twin cream vat and churn capacity of each 400 gals., tempering vat and milk pump, 20 h. p. boiler and 10 h. p. engine. Eighteen months use. Address J. B. PRATT, Wellington, Ohio. R. F. D. No. 3. 49-2

Position—As butter maker and manager wanted by young Dane, single, 26 years old and eight years experience. Two years as instructor in dairy school. Now operating one of Michigan's largest factories. Address HELMER RABILD, Chesterfield, Mich.

A First-class, experienced butter maker desires a position in the West or Northwest. Up-to-date work guaranteed. Address A. TOBLER, Nora, So Dak. 49-5

$25 to $50—Buys a highly bred Jersey bull from 2 to 20 months old. St. Lamberts, Stoke Pogis or Tormentors, from the best herd in Ohio. Write now to P. CLAWSON, Okeana, Butler Co., Ohio. 49-5

Wanted—A steady man at $400 a year, and board on GORDON'S DAIRY RANCH, Meadow Creek, Montana.

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D, Independence, Ia. 50-tf

For Sale—One Low-Down Milk Wagon; one De Laval Hand Separator; one Star Milk Cooler. All as good as new. Will exchange for registered Guernsey heifers or good work horses. J. R. HUSTON, Dayton, Ohio. 46-4

Guernsey Cattle—All ages, both sexes for sale. Cir. free. CLOVER KNOLL GUERNSEY HERD, Orangeville, Pa. M. Sager, Supt. 41-tf

For Sale or Rent—Dairy farm of 200 acres, 90 improved. $1.50 per hundred for milk year around. Address J. P. SOUTHARD, Harbor Springs, Mich. 42-10

For Sale—10 cheese factories, 5 farms 40 to 160 acres, saloon, dance hall and store. FRED HADLER, 775 Ida St., Appleton, Wis. 43-tf

Buff Jersey's Third Revised Edition of the Dairyman Stock Breeder and Farmers' Hand Book; 10 chapters; The Buff Jersey Silo, how to build; Soil Crops; Dairy Cows, how to handle; Barns, how to build; Abortion, cure and preventative, and many other valuable things for progressive farmers. So popular has become the book that the author has concluded to make it an annual publication, and has put the price at a figure that makes it popular also. Postpaid, paper binding, 50c; cloth, 75c. BUFF JERSEY, Monmouth, Ill. 47-tf

For Sale—Guernsey bull, Salem's King, a fine animal 6 years old. A. PARKS, Picketts, Wis. 47-3

Wanted—One single, and one married man with two grown sons for dairy farm. State wages expected. A. J. DAUGHERITY, Streator, Ill. 47-tf

Wanted—A live man to run one of the best dairy farms in New England on shares. Three hundred and fifty acres of extra good land. Large herd of fine Jerseys go with farm. Good up-to-date buildings. Separator, churn and butter worker run by power. Farm in high state of cultivation. Large new silo. Durable running water. Farm belongs to an estate and is not for sale. For particulars address C. D. HOWARD, Shoreham, Vt. 48-2

For Sale—Choice reg. Guernsey bulls and bull calves. RAY C. BICKNELL, Ft. Atkinson, Wis. 32-tf

For Sale—A high grade Guernsey heifer 15 months old, sired by Espanore 2nd, of Mr. W. D. Hoard's herd. Price $25.00. Address E. S. CURTIS, care Hoard's Dairyman, Fort Atkinson, Wis. 48-2

For Sale—Five registered Jersey heifers. Good ones. W. T. HARBISON, Plattsburg, Mo. 48-2

Herdsman Wanted—For Clover Knoll Guernsey herd, Orangeville, Pa. 48-3

Homeseekers' Excursions to the Northwest, West and Southwest, and Colonist Low Rates West—Via the North-Western Line Excursion tickets at greatly reduced rates are on sale to the territory indicated above. Standard and Tourist Sleeping Cars. Free Reclining Chair Cars and "The Best of Everything." For dates of sale and full particulars apply to agents Chicago & North-Western R'y. 49-sp.

Comments and Queries From Robinswood Farm.

The Relationof Quality in Food to the Evolution of the Butter Cow—Determination of Desirable Type Dependent on Economical Production and Purchase of Food—Concentration and Digestibility in Food Substituting Narrowness of the Ration.

ED. HOARD'S DAIRYMAN:—There is a limitation to the productive ability of any individual cow or human being, and it doesn't do to spread one's efforts out too thin. It is a pity that most Americans do spread themselves out up to the limit of their capacity. During the past six months, building and engineering work on the farm, has absorbed all my time to the exclusion of correspondence over cow problems. In commenting on subject matter that has appeared at times during the last year, and as to which I have retained memoranda, I must "hark back" to the issue of DAIRYMAN of Oct. 9th; in the editorial on page 774, I found in the article entitled "Feed Limitations", what I believe to be several debatable propositions, and as to which I cannot wholly agree, unless they should be modified to some extent. In substance they were as follows: First, that the elements in milk are always in a certain fixed proportion to each other. Second, that the proportion each cow is found to produce, is determined at birth and is practically unchangeable. Third, that we must confine ourselves to breeding influences, which means, I presume, the fixation of accidentally induced variations in type, if we are to produce a large percentage of butter fat in milk. Fourth, that we can only induce quantity of milk through feed, and not quality. While I admit that there is considerable evidence going, to prove such conclusions, still as stated, I think they they go too far, and that they are not in harmony with various generally accepted scientific determinations. If I thought these propositions were all sound, I should at once give up all interest in the evolutionary development of the cow; for under such reasoning, cow breeding must ever remain a mere matter of chance and not worth the serious effort of any one's life. There seems to be in existence an idea that in some mysterious way certain methods in breeding absolutely create certain excellencies in the cow, which idea is contrary to well determined natural law. As a matter of fact, the mere pairing of animals never creates anything in the way of a sum total addition to the physical being of the progeny.

All that breeding does, in an evolutionary way, is to secure a rearrangement of structural and functional features; strengthening some, but in such instances always weakening others in a corresponding degree. The law of correlation pertains in this matter. The real causes of creative evolution in the cow, are the influences of environment that operate from without the animal, both on the individual and on the individual's ancestry. The breeding merely fixes and holds for a less or greater time the changes in the animal, produced by those outside influences. Every animal is continually undergoing such changes, advancing or retrograding in weight, in digestive and productive capacity, in general vigor, and changing in character and disposition. The best of blood will deteriorate if not properly cared for, rightly fed, etc. The milk of a cow is also constantly changing in its nature as to total presence of solids. It is from time to time, I believe, also changing in the relative proportion of its fat constituents to its solids not fat, though not to so great a degree as in the relative proportion of fat to the quantity of the product.

I do not think that there are sufficient data in existence to disprove my contention. There is considerable reason for thinking that my contention is a true view. The influences which govern the amount of milk produced are more numerous and more easily comprehensible, than are the influences governing the quality. We must admit that the ancestral influences which govern this matter, are by far the stronger, and largely predominate in the whole life term of the progeny, but we must also admit that the immediate influences acting on the animal have at least some power in determining the quality of the milk produced at the time, as well as in changing the various functions of the whole body.

An indisposition or inability of the stomach and intestine of the individual to digest the protein elements of feed can be largely corrected by training. The same is true of the digestive ability of the intestine, etc., to digest the carbohydrates. On the other hand, we can reduce excessive activity of function in the several parts of the digestive tract, as well as in various other parts of the body. This power is under human control. In medical practice, an overworked part we rest. An inactive part we stimulate and strengthen by working it, and by diverting force generally created in the body to the particular part.

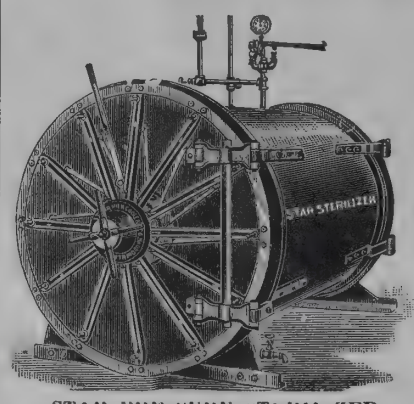
These principles can be applied in the evolution of any cow, and in time can produce very marked functional changes. There does not seem to be any strong, theoretical reason for not believing that we can change the quality of the milk in a measurable degree during the life time of the individual, and that some of this change of function can be transmitted to progeny. That we are unintelligent and lack perception as to what practice we should adopt to secure desirable functional changes in the cow is to be deplored, but it will not do to say that such practice is not at least theoretically practicable. A cow is the outcome of the influences of her environment and that of her ancestors. As soon as the dairy world comes to some definite, sound conclusions as to what type of cow is most desirable for use in any specific branch of dairying, or for any locality, breeders will begin to study and understand the influences which will enable them, as a rule, to produce such types at will, and it will be the exception when an animal is produced that is not up to a desirable average of a reasonable ideal. I think, for one reason, that it is because such an impossible and undesirable ideal is hoped for and aimed at, that so little true progress is being made in the dairy cow evolution at present. Unreasonable expectations as to ability in any one animal, in my opinion, is the most important reason why so many dairymen in this day do not find the moneyed returns from their pursuit more satisfactory. Diverse, extreme examples of such expectations are the dual-purpose cow and the phenomenal, high-producing special-purpose animal.

At present there is no scientific agreement as to which is the most desirable type of cow in connection with productive power. That must be the first point determined if true progress is to be expected. The method of securing the type will naturally follow as a sequence to the first determination. As the most powerful of the influences acting on the cow, the breadth of the ration, its digestibility, and other qualities, most largely determined in the long run and indirectly through the influence of the character of the blood, created the relative proportion of the several constituents in milk. The nature of the blood is determined by the amount of work thrown on one or other parts of the digestive system and the consequent strengthening or weakening of such parts, the nature of the blood being consequent to such digestive development, other conditions exert their influence to a lesser degree. The nature of the nutrition to which any organ is permanently subjected, determines the nature of the function of that organ. The secretion of a milk cell, or of any secreting cell, changes in a somewhat harmonious accord with the composition of the blood.

If this is so, it follows that the nature of the cow feed that can be most economically grown and bought, must largely determine the percentage of fat that it is most desirable to aim for in the profitable butter cow, and a persistent continuation in a food supply of the determined character will in time result in the production of a type of the desired nature, due diligence being given to eliminating by selection un-

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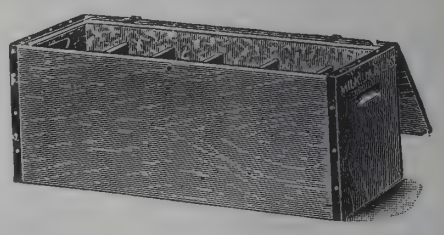
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desirable variations from the correct type. Other things being equal, the more protein a cow can digest the more milk she will produce, but there is a limit to the amount of butter fat that can be produced in connection with a large flow of milk.

If the protoplasmic contents of the milk cells are too actively stimulated by the presence of too much protein in the blood current, the proportion of fat decreases, because the interior of the cell there, is not in the best state of quietness to allow the utmost amount of fatty deposition in the cell even if the blood current is abundantly rich in fat-forming material. The same thing occurs when the milk cells receive their most powerful stimulus from the special nerve centers, as is the case shortly after calving, or when the animal is nervously excited. A certain amount of udder activity is however needed to attract the blood to the udder. The question to solve is as to just what relative amount of activity we ought to have from each of the several organs involved in the butter fat making function.

From the quite large number of reports that have lately been made of yearly yields of Jersey herds that presumably have had good ancestral influences and good direct care, it would seem that an average of 5 per cent butter fat content in a butter cow's milk is not too large a percentage to expect. This is about one-half of one per cent more than I have thought it right to expect if the cows were rightly developed to produce the greatest total yearly yield from American adjusted dairy cows, especially if we remember that the equable climatic conditions on the Island of Jersey could hardly be expected to put as much power into cattle as would our more intense North American climate. My view is that the ideal butter cow for the North American farmer must be a considerable modification of the Island bred cow.

If too much of the bodily power of the cow be given to the digestion of protein there will then be too little available for the digestion and assimilation of the carbohydrates and fatty elements of food from which butter fat is most easily produced. In my opinion, very high percentage of butter fat depends on the habitual presence of a very rich percentage of such elements in the blood as most easily make fat. There is no theoretical limit to the percentage of fat that may be present in milk, but to secure such high percentages involve formative practices that must inevitably reduce the quantity of flow.

I judge that we must admit that phenomenally high individual capacity to produce milk rich in fat is in a measure due to prenatal, accidental variation in the fat forming organs of the animal, and probably extraordinary development of the pancreas and intestinal glands. But these accidental variations which are not the result of persistent influence acting through life, cannot be depended on to be fixed permanently in progeny, inasmuch as we do not know what influences, other than selection, we can bring to bear to permanently retain such unusual functional power. The power of selective influences however is in these cases very limited because of the interposition of the various ancestral influences which always develop a new combination with every act of generation. So, after all, we must concede that we have to base our breeding efforts on the solution of the foundation problem of how much effective milk-producing cow feed, the farmer can produce from the labor that is available on the farm, or that can be economically purchased.

We are reaching some very definite conclusions as to this matter so far as it effects our Gilmanton, N. H., region, as an outcome of our experimentation of the past several years. I do not think we can profitably grow as narrow a ration as I think it is desirable to feed to highly developed cows. But we can grow a narrower ration than is generally supposed, by the proper use of the relatively cheap mineral, fertilizing elements, phosphoric acid and potash, and through the willing aid of our friends, the root bacteria that find acceptable hosts in the legume tribe. The agricultural world has been making use of this aid to the farmer for ages, but I believe that very few indeed realize how much of an aid these minute organisms may be made by intelligent practice. I think a full realization of the matter will result in the overturning of many practices that are now considered as desirable.

We proved during the past season that a mixed crop of spring vetch and spring wheat is splendid as a dry forage crop for feeding to young dairy stock, though the vetch seed is as yet rather expensive. We are working over alfalfa yet, but I do not feel encouraged because of our hard subsoil, and its harvesting is a serious trouble in our short season that is so crowded with work in June. I am inclined to believe that if the time and money that we will have to give to alfalfa is put on the clover crop, we will find more profit, especially as the clover can be cut at a more convenient season and can be included in ordinary rotations. Since I have discovered how easily clover can be grown I do not worry so much about saving nitrogen and humus outside of the soil.

The shortness of our growing seasons and the lack of heat has been particularly proved on us the past two years; and has induced us to consider the question of some changes in our farm practice. We give up the cow pea and soy bean as being too uncertain for even roughage crops in our district. Then the seeming impossibility of our being able to grow profitably a sufficiently narrow ration has turned our attention to the desirability of giving more care to securing greater digestibility as well as concentration in the ration, and this seems to be a more encouraging line of effort.

It is obviously important in dairying when growing cow feed to spread the labor available on the farm as evenly as possible over the whole working season, and this being so, we have concluded to grow less roughage and more of concentrated foods. It has been our rule to cut the oat crop only for hay, partly in order to give the clover, sown with the oats, a better chance. But it has always been difficult to cure. Its care has prevented us from cutting some grass as soon as we ought, and the cocks always have injured the clover under them even when mowed.

This year we sowed the oats alone, and allowed them to ripen, and we like this plan best. We will sow clover and timothy grass seed alone on the same patch next spring with a heavy dressing of potash phosphoric acid, and just enough nitrogen to give the seed a start. The oats will have depleted the soil of nitrogen, and I expect to get several crops of clover hay before enough nitrogen collects in the soil to bring forward the timothy in sufficient amount to crowd out the clover. When one thinks over the matter, it does not seem to be good sense to jam a cow full of unnecessary amount of roughage that is hard to digest, and make her do work that can be done by the forces of nature in the field. This consideration is especially strong if a cow has a margin of unused udder and digestive power to utilize more digestible matter than is present in the roughages.

(Continued on page 1120).

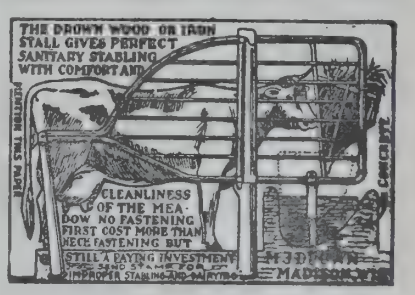
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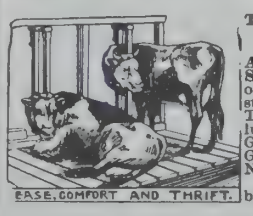
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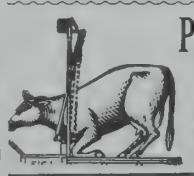
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In this period forty-two records have been received and one corrected. Eight full-age cows averaged, 6 years, 7 months, 29 days; days from calving 24: Milk 418.5 lbs., butter fat 14.091 lbs., equivalent butter 16 lbs., 7 oz., percentage of fat in the milk 3.39. Eight four-year-olds averaged 4 years, 4 months, 9 days, days from calving 18: Milk 404.5 lbs., butter fat 15.400 lbs., equivalent butter 17 lbs., 15.5 oz., percentage of fat in milk 3.82. Ten three-year-olds averaged 3 years, 6 months, 26 days. days from calving 21: Milk 372.4 lbs., butter fat 12.885 lbs., equivalent butter 15 lbs., 0.5 oz., percentage of fat in the milk 3.47. Seventeen two-year-olds averaged 2 years, 4 months, 3 days, days from calving 16: Milk 284.2 lbs., butter fat 10.027 lbs., equivalent butter 11 lbs., 11.2 oz., percentage of fat in the milk 3.54.

It must be borne in mind that these records are made under the careful supervision of agricultural experiment stations and that 85.7 per cent of a pound of fat found in the milk is equivalent to a pound of butter. In detail the records were as follows:

Pauline Sadie DeKol 47448—5 years. 1 month, 5 days, days from calving 14: Milk 478.7 lbs., butter fat 15.753 lbs., equivalent butter 18 lbs., 6.1 oz. Owner, Chas. D. Pierce, San Francisco, Cal.

Aaggie Barbetta 42145—7 years, 7 months, 1 day, days from calving 26: Milk 364.8 lbs., butter fat 14.712 lbs., equivalent butter 17 lbs., 2.6 oz.

Madam Wickfield 32652—11 years, 6 months, 26 days. days from calving 39: Milk 411.6 lbs., butter fat 14.582 lbs., equivalent butter 17 lbs., 0.2 oz.

Netherland Pauline DeKol 2d 46697—5 years, 3 months, 17 days, days from calving 15: Milk 457.7 lbs., butter fat 14.466 lbs., equivalent butter 16 lbs., 14 oz.

Glenice Beauty's Baby 49202—5 years, 3 months, 15 days, days from calving 31: Milk 446.2 lbs.,butter fat 14.256 lbs.,equivalent butter 16 lbs., 10.1 oz.

Pietertje Adieno DeKol 42350 — 6 years, 6 months, 18 days, days from calving 19: Milk 360.7 lbs., butter fat 13.173 lbs., equivalent butter 15 lbs., 5.9 oz.

The Beauty 50916—5 years, 9 months, 16 days, days, days from calving 24: Milk 421.4 lbs., butter fat 12.946 lbs., equivalent butter 15 lbs., 1.7 oz.

Minerva Kenwood 49643—6 years 1 month, 16 days. days from calving 21: Milk 406.7 lbs..butter fat 12.842 lbs., equivalent butter 14 lbs., 15.7 oz.

Skylark Mercedes DeKol 53614—4 years, 1 month, 18 days, days from calving 10: Milk 452.9 lbs., butter fat 18.135 lbs., equivalent butter 21 lbs., 2.5 oz. Owner, Malcolm H. Gardiner, Darien, Wis.

Canary's Mercedes Fillpale 53353—4 years, 1 month, 25 days, days from calving 7: Milk 408.4 lbs., butter fat 16.052 lbs., equivalent butter 18 lbs., 11.6 oz. Owner, Wm. Everson & Son, Lake Mills, Wis.

Brookside DeKol Pauline 48425— 4 years, 7 months, 27 days, days from calving 37: Milk 450.5 lbs., butter fat 15.997 lbs., equivalent butter 18 lbs., 10.6 oz.

Alma Marie Josephine 54846—4 years,3 months, 18 days, days from calving 12: Milk 391 lbs., butter fat 15.681 lbs., equivalent butter 18 lbs., 4.7 oz.

Katie Jewel Mercedes 53252—4 years, 2 months, 5 days, days from calving 21: Milk 420.3 lbs., butter fat 15.255 lbs., equivalent butter 17 lbs., 12.8 oz.

Glista Delta 51492—4 years, 2 months, 26 days, days from calving 6: Milk 360 lbs., butter fat 14.535 lbs.. equivalent butter 16 lbs., 15.3 oz.

Edith Prescott DeKol 2d. 52073—4 years, 5 months, 12 days. days from calving 39: Milk 413.8 lbs., butter fat 14.465 lbs., equivalent butter 16 lbs., 14 oz.

Pietertje Maid of Grouw 2d. 51194 4 years. 9 months,1 day,days from calving 11: Milk 338.9 lbs, butter fat 13.081 lbs., equivalent butter 15 lbs., 4.2 oz. Owner, Malcolm H. Gardner, Darien, Wis.

Armyn's An 5th, 50399—3 years, 11 months, 21 days, days from calving 24: Milk 460.5 lbs., butter fat 16.548 lbs., equivalent butter 19 lbs., 4.9 oz.

Leda Hengerveld DeKol 53489—3 years, 5 months, 23 days, days from calving 13: Milk 418.5 lbs., butter fat 14.999 lbs., equivalent butter 17 lbs., 8 oz. Owner, McKay Bros, Buckingham, Iowa.

Daisy A. Mercedes 5th. 53642—3 years, 11 months, 24 days, days from calving 22: Milk 388.4 lbs., butter fat 14.690 lbs., equivalent butter 17 lbs. 2.2 oz. Owner, Malcolm H. Gardner, Darien, Wis.

Pietertje Maid of Grouw 3d. 53646—3 years. 9 months. 20 days, days from calving 8: Milk 359.8 lbs., butter fat 13.696 lbs., equivalent butter 15 lbs., 15.7 oz. Owner, Malcolm H. Gardner, Darien, Wis.

Korndyke Pietertje Queen 54509—3 years, 6 months, 22 days, days from calving 7: Milk 387.5 lbs., butter fat 12.646 lbs., equivalent butter, 14 lbs., 12.1 oz. Owner, Chas. D. Pierce, San Francisco, Cal,

Jetske Roe Countess 56517—3 years, 2 months, 14 days. days from calving 13: Milk 433 lbs., butter fat 12.424 lbs., equivalent butter 14 lbs., 7.9 oz.

DeKol Manor Beets 4th 53474—3 years. 3 months, 20 days. days from calving 8: Milk 357.5 lbs., butter fat 12.346 lbs., equivalent butter, 14 lbs., 6.5 oz. Owner, Chas. D. Pierce, San Francisco, Cal.

Pontiac Peace 53434—3 years, 5 months, 15 days, days from calving 25: Milk 326 lbs., butter fat 11.200 lbs., equivalent butter 13 lbs., 1.1 oz.

Pontiac Justice 53436—3 years, 4 months, 18 days, days from calving 36: Milk 313 lbs., butter fat 10.186 lbs., equivalent bulter 11 lbs., 14.1 oz.

Princess Cornucopia DeKol 3d 52536—3 years, 6 months, 23 days, days from calving 55: Milk 279.3 lbs., butter fat 10.110 lbs., equivalent butter 11 lbs., 12.7 oz.

Skylark M. DeKol 57761—2 years, 10 months, 21 days, days from calving, 8: Milk 356.5 lbs., butter fat 13.632 lbs., equivalent butter 15 lbs., 14.5 oz. Owner, Malcolm H. Gardner, Darien, Wis.

Carlotta Royal Pietertje 3d 58898—2 years. 6 months, 8 days, days from calving 7: Milk 318 lbs., butter fat 12.576 lbs., equivalent butter, 14 lbs., 10.8 oz. Owner, Chas. D. Pierce, San Francisco, Cal.

Riverside DeKol Korndyke 59448—2 years, 5 months. 19 days, days from calving 20: Milk 322 lbs., butter fat 12.153 lbs., equivalent butter 14 lbs., 1.9 oz.

Daisy B. M. DeKol 62232—2 years, 22 days, days from calving 8: Milk 282.4 lbs., butter fat 11.945 lbs., equivalent butter 13 lbs.,15 oz. Owner, Malcolm H Gardner, Darien, Wis.

Netherland Netta DeKol 2d 54778—2 years, 10 months, 26 days, days from calving 9: Milk 300.7 lbs., butter fat 10.777 lbs., equivalent butter 12 lbs., 9.2 oz.

Netherland Artis Mechthilde 59609—2 years, 2 months, 22 days, days from calving 8: Milk 249.9 lbs., butter fat 10.486 lbs.. equivalent butter 12 lbs., 3.7 oz.

Skylark DeKol 62230—1 year, 11 months, 20 days, days from calving 1: Milk 276.4 lbs., butter fat 10.223 lbs., equivalent butter, 11 lbs , 14.8 oz. Owner Malcolm H. Gardner, Darien, Wis.

Betty DeKol 57448—2 years, 6 months, 15 days. days from calving 25: Milk 317.2 lbs., butter fat 10.152 lbs., equivalent butter 11 lbs., 13.5 oz.

Clothilde Ruth 56280—2 years, 8 months,8 days. days from calving 7: Milk 301.3 lbs., butter fat 10.102 lbs., equivalent butter 11 lbs., 12.6 oz. Owner Chas. D. Pierce, San Francisco, Cal.

Madge DeKol Johanna 62235—1 year,11 months, 29 days, days from calving 10: Milk 310.9 lbs., butter fat 10.084 lbs., equivalent butter 11 lbs., 12.2 oz. Owner Malcolm H. Gardner, Darien, Wis.

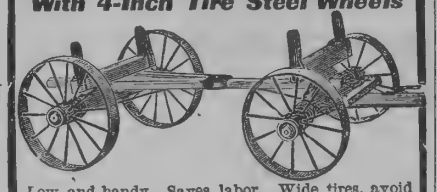
Olympia of Riverside 61227—1 year, 11 months, 9 days, days from calving 10: Milk 352,7 lbs., butter fat 9.514 lbs., equivalent butter 11 lbs., 1.6 oz. Owner Chas. D. Pierce, San Francisco, Cal.

Aaggie Cornucopia 2d's DeKol 2d 60718—2 years 4 months, 21 days, days from calving 11: Milk 274.7 lbs., butter fat 8.573 lbs., equivalent butter 10 lbs.

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BLANKS for Registering and Transferring Jersey Cattle; also Blanks for Private Butter Tests of Registered Jersey Cows, furnished free of charge upon application to the Secretary.

FEES for Registering: To non-members, $2 each head male or female. To members of the Club, $1 each head, male or female. All animals over two years old, double fee. For registration of all dead animals, $1 each. Imported animals, $25.

TRANSFERS are recorded free, if presented within 90 days from date of delivery. Transfers presented after 90 days, $1 each.

PRICE of Herd Register, $1 per Single Volume. Butter Tests of Jersey Cows, including all tests received by the Club to August 1, 1898, $2 per volume. Private Herd Record, 330 pages, cloth, leather back and corners, $2. Pocket Herd Record, 120 pages. flexible leather, 50 cents.

VOLUME OF BUTTER TESTS from August 1, 1898, to July 15, 1902, $1. Consolidated Volume, containing all previous tests, $2.00.

THE BY-LAWS of the Club, giving full rules to be followed in securing registration and transfers, mailed free on application.

ST. LAMBERT BULL CALVES by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.00.

W. J. HUSSEY, Mt. Pleasant, O.

HIGH CLASS JERSEY BULLS

Heifers and Cows for sale. My foundation stock the best I could buy from a herd famous for merit. Write for what you want.

WM. B. GOODRICH, CLIMBING HILL, IOWA.

PROSPECT HILL JERSEY HERD

The cow that can DO something is what the farmers want. Eight cows have finished their official year's work making an average of 524 lbs. each. F. H. SCRIBNER, Rosendale, Wis.

VALLEY FARM is offering some bargains in young bulls sired by "Diploma's Victor..No. 56310, Grandson of "Brown Bessie," or will exchange for heifers equally well bred. For prices and pedigrees write Fred Stubley, Black Earth, Wis.

FOR SALE. Two A. J. C. C. Bulls ready for service; also some younger ones. Cows and heifers in calf to richly bred bulls. Write for pedigrees and prices. We have a few Berkshire Boar Pigs from unregistered sows left; cheap.

N. N. PALMER & SON, Brodhead, Wis.

POLLED JERSEYS

Richest Cow of all breeds in Pan-American Model Dairy. Winning Herd at Ohio and New York State Fairs, 1903. W. H. FORBES & CO., Yellow Springs R. R. No. 1, Ohio.

Exile of St. Lambert

is doubtless the sire of more tested cows than will ever be credited to any other Jersey bull. Sale List A21 contains a seven year old tested cow, recently fresh, by a son of "Exile," out of a cow with two crosses of "Exile" and much blood in common with Exie's Belle, his best daughter. She has a Babcock test of 4934 lbs. of butter in a year and is as good as her breeding.

Nearly all on List A21 have "Exile" blood close up. They are of various ages. Some are fresh, others due soon. Write for pedigree and list, and buy now while you may.

Wintergreen Hill Farm,

Scottsville, N. Y.

ROBINSWOOD JERSEY DAIRY has a few head of Young Jerseys, either sex, they are offering below their value, being overstocked. Also a few Barred, Buff, and White Plymouth Rock Cockerels, and one two-year-old Berkshire Boar, (registered.)

N. H. ROBINSON, Prop,, Centralia, Wis.

HAZEL FERN HERD. A. J. C. C. Jerseys, blood of St. Lambert, Melia Ann, Combination, Pedro, and Golden Lad. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale.

ESTATE W. S. LADD, Portland, Oregon.

JERSEY BULLS Now or soon to be ready for service; also several well bred HEIFERS. Let us send you prices and breeding, with milk and butter records. All stock is registered or eligible. E. E. STEVENS,

North Madison, Ohio

FOR SALE Son of Pedro's Pretty Pogis, 33660, A. J. C. C., a superb son of old Pedro, both of World's Fair fame. Two yearlings from tested dams. Some royally bred Poland China Pigs, March and April farrow.

J. Q. EMERY & SON, Albion, Wis

PLEASANT VALLEY HERD Of O. I. C. Swine. Headquarters for pure and fashionably bred stock. Boars ready for service. Sows bred and open growthy. Prolific fall pigs now ready to ship. Write for particulars and prices.

A. J. WELKER, ATTICA, N. Y.

224.3 lbs., butter fat 8.549 lbs., equivalent butter 9 lbs., 15.6 oz.

Pontiac Asteria 56964—2 years, 8 months, 9 days, days from calving 9: Milk 261 lbs., butter fat 8.417 lbs., equivalent butter 9 lbs., 13.1 oz.

Hartog Queen DeKol 60720—2 years, 4 months, 1 day, days from calving 25: Milk 224.5 lbs., butter fat 8.091 lbs., equivalent butter 9 lbs., 7 oz.

Skylark DeKol Johanna 62231—1 year, 10 months, 5 days, days from calving 53: Milk 232.6 lbs., butter fat 7.675 lbs., equivalent butter 8 lbs., 16.3 oz. Owner Malcolm H. Gardner, Darien, Wis.

Kathleen Pietertje DeKol 59922—2 years, 9 days, days from calving 18: Milk 225.6 lbs., butter fat 7.509 lbs., equivalent butter 8 lbs., 12.2 oz.

S. HOXIE.
Supt. of Advanced Registry.
Yorkville, N. Y., Jan. 5.

CONCERNING OUR ADVERTISERS.

WATERLOO FEED COOKERS AND GRINDERS.

Any reader not yet prepared to grind or cook feed for his stock should consult the advertisement of the Waterloo Steamer & Grinder Works elsewhere in this paper. This concern is located at Waterloo, Iowa. They manufacture the Red Cross Feed Mill, sweep pattern, triple-geared, and guarantee it as to capacity, working qualities and durability, superior to any other two horse mill on the market. Their Portable Feed Steam Cooker burns wood or coal, is an easy, rapid steamer, adapted to cooking in large or small quantities, as well as tank heating, etc. It is a manufacturing concern, not a selling agent, and all their goods go directly from the factory to the user. Descriptive circulars and prices will be mailed free to anyone writing for them.

The kind of garden tool you use has about everything to do with the success of the crop, as well as the pleasure people get out of the calling. The line of Planet, Jr. tools is suited to every purpose. The users all tell the same story. One of them in Iowa, C. F. Sanderson of Linn Junction, puts it this way: "I purchased a No. 4 Drill of Hamilton Brothers. It is the best tool of the kind I ever saw. It can be used in so many different ways. You can discover a new use for it every time you use it." Don't fail to note the Planet, Jr. advertisement elsewhere.

CORTLAND, N. Y., Jan. 4, 1904.
Hoard's Dairyman, Fort Atkinson, Wis.

GENTLEMEN: I am pleased to report the growing demand for registered Holstein animals. Among the important sales from Star Farm herd not the least important is the registered bull. I note the following important sales:

To A. Starkweather of Phoenix, Arizona, the bull, A. & G. Piebe Regis DeKol No. 32514 This bull is to head one of the largest herds of registered Holsteins in Arizona.

To W. J. Manley, Esq., Salamanca, N. Y., the bull, Bernie DeKol Hengerveld, No. 32705.

To Jas. H. Wallick of Middletown, N. Y., the bull calf, Bertha of Shadeland DeKol's Boy.

To Henry T. Field of Oneida, N. Y., the elegantly bred bull, King ZoZo Paul, No. 31982.

To W. R. Selleck, the butter bred bull, America Pauline Johanna Lad.

To C. M. Crouse, Esq., the proprietor of Crouse Farms, Homer, N. Y., and a herd of nearly one hundred Holstein cattle, the bull, Daisy Pauline Paul Butter King, No. 31983.

To Jas. H. Wallick, Middletown, N. Y., the bull calf, Aaggie Dorinda's Bonnibelle Boy, a splendid specimen of the Aaggie family.

To Manson Elsbree, Waverly, N. Y., the fashionably bred service bull, Guess Not Paul DeKol 3d.

To Jas. H. Wallick, Middletown, N. Y., the service bull, Tula Butter King, sired by A. & G. Butter King and the record cow, Tula 3d.

To Mr. D. C. DeWolf of Chicago, Ill., the proprietor of DeWolf Stock Farm at Chester Hill, Mass., belongs the honor of purchasing the first bull calf out of my celebrated Mercedes Julip's Pietertje's Paul. Mercedes Julip's Pietertje's Paul 2d is from one of the best of cows. He is a handsome individual, marked very much like his famous sire and was sold for a long price to head an important herd.

Most sincerely,
HORACE L. BRONSON,
Dictated. Cortland, N. Y.

We would like to call the attention of our readers to an advertisement appearing in another column of this issue from the Farmer Seed Co., Faribault, Minn. They are practical farmers and seed growers and offer new and improved kinds of farm and garden seeds, also hardy small fruit plants. In procuring your seeds from these growers directly you will not only save money, but also get the best and most reliable seeds obtainable. They send their large illustrated catalogue to all who are interested.

A NOTABLE SEED BOOK.

It takes 144 large, closely printed pages to tell the story of Maule's seeds for 1904. It is a difficult thing to get away from the stereotyped descriptions of vegetable and flower seeds which must of necessity be offered year after year, and yet Mr. Maule has accomplished it. His Seed Book is a complete exposition of seeds and bulbs, covering the same ground as other seedsmen, but it has a freshness and variety that is very acceptable. One of the most important divisions is that devoted to novelties, the first 30 pages of the book. Farmers are warned against novelties very often, because so many of them fail to measure up to the standard set by their introducers. And the warning may be timely in some cases. But there is this to be said about the Maule novelties of former years, that almost without exception they have been found worthy of a permanent place on the farm and in the garden; and some of the best varieties of grains, vegetables and flowers to day are the Maule novelties of past years. So when we read of the new tomatoes, cucumbers, lima beans, peppers, lettuce, onions, cabbage, peas, watermelons, corn and other varieties, we are constrained by the merit of the novelties which Mr. Maule has introduced in other years, to give these new candidates respectful attention and recommend their trial. The whole book from cover to cover, is well worthy a close study. And speaking of the covers, reminds us of the beautiful group of sweet peas which grace the front cover. The picture certainly invites a close inspection of what follows. The other colored plates, of which there are seven, are a most delightful setting off of the other pages.

One of the best known dairy experts in America is Prof. T. L. Haecker, Professor of Dairy Husbandry at the Minnesota Experiment Station. Under date of January 2d he writes the Zenner Disinfectant Company, 34 Bates St., Detroit, Mich.: "I find your Zenoleum a very useful thing in the stock barn. I use it as a disinfectant, treating cows for bloat and for abortion; also use it in a general way for mange and ringworm. I find it very effective in cases of scours and cholera with calves. I have been making a specialty of calf raising for twenty-five or thirty years and would not think of being without Zenoleum."

Should Get All the Milk.

In a bulletin on the "Methods of Milking," the Experiment Station College, Ithaca, N. Y., gives a detailed report of many experiments in milking to determine the value of various methods. It advises as follows:

"There is a large financial loss in many dairies due to careless milking.

"The milk left in the udder by a careless milker is practically lost.

"All the milk secreted by a cow should be drawn at each milking.

"If necessary, manipulation of the udder and stripping should be resorted to in order to accomplish this end.

"The after-milking should be done by the regular milker and need take but little extra time.

"It is probable that such clean milking is an incentive to secretion and will increase the total yearly production of the animal."

BUY DIRECT FROM FACTORY, BEST

MIXED PAINTS

At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA.

President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.

FEES FOR REGISTRY.

TO MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.

NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. ☞ All blanks furnished free.

Life Membership, $25.

Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.

Address F. L. HOUGHTON, Brattleboro, Vt., for information relating to Registration of Pedigrees



HOLSTEIN CATTLE The Choicest Milk and Butter breed in the world. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

VALLEY FARM HERD

HOLSTEIN-FRIESIANS

During September and October nearly all of our calves have been bulls and we shall offer them at from thirty to fifty dollars, registered, until the number is reduced. Sired by a great butter bull, and only from our largest milk and butter producers.

DON J. WOOD,
R. F. D. No. 2. WEST WINFIELD, N. Y.

AS IT IS NOW TIME cattle should be housed we find we must sell thirty-five of our high-bred large producing Holsteins, as we haven't room to stable but 100 head this winter. Visit the Brookside Herd now and secure something choice.

We Guarantee Stock as Represented and to be breeders. Quality unsurpassed. Prices will be reasonable.

STEVENS BROTHERS, Lacona, N. Y.

OAK GROVE HERD Headed by Mechthilde De Kol Pietertje Paul. No. 29646. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

STAR FARM HOLSTEINS

BEGIN THE NEW YEAR RIGHT.

Now is the time to dispose of your scrub bull and buy a registered Holstein. Star Farm is the place to buy. I will cut regular prices fifty per cent for the next thirty days. It costs no more to buy the best than it does a cheap one. Write for tabulated pedigrees and markings today.

HORACE L. BRONSON, Cortland, N. Y.

GREEN VALE HERD Offers Sir Mercedes De Kol, No. 27097, four years old, and bull calves sired by him from choice cows, best families. Write for prices. M. F. PECK & SONS.....MARSHALL, WIS.

LOOK HERE

34 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs. of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs. of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by Gem Pietertje Hengerveld Paul De Kol, or Sir Ormsby De Kol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days; average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd?

For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis. Residence: National Ave., near 40th. Phone, South 1601.

TYRANENA HERD

100 HOLSTEIN-FRIESIANS

A. R. O. STOCK FOR SALE.

Both sexes, all ages. Herd headed by Sir Piebe Hengeweld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz. Frank B. Fargo, Lake Mills, Wis.

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Offers 5 yearling bulls cows and heifers bred to oldest son of Mercedes Julip's Pietertje, No. 39480. Chester White Pigs in pairs and trios, not related.

W. R. GATES, Fort Atkinson, Wis.

HOME FARM HERD.

Headed by COLANTHA 4TH'S LAD Official test of three nearest dams, 25.1 lbs. butter in seven days. Herd numbers 125 head.

BEST FAMILIES REPRESENTED.

Special prices on six or eight bulls of serviceable age. W. B. BARNEY & CO., Hampton, Ia.

ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.

GEO. T. McNEIL, Theresa, N. Y.

FOR SALE H.-F. A. R. O. cows and heifers, bred to Duchess Ormsby Piebe Burke, No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address Rural Route No. 2. W. H. JONES, Watertown, Wis.

THE MONONA FARM HERD

OF HOLSTEIN-FRIESIANS

Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 69.50 lbs. one day. Breeders and dairymen please write for prices.

F. W. ALLIS,
Monona Farm. Madison, Wis.

FOR SALE H.-F. BULLS, ready for service, from A. R. O. cows and sired by Sir Johanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 yrs. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis.

SUNNY SIDE HERD Offers for sale a young bull whose dam as a three-year-old and sire's dam have an average official record of over 20 lbs. in 7 days. Price right. Address C. A. SNOW & SONS, Athens, Ohio.

HOLSTEIN-FRIESIAN BULL FOR SALE

Born November 27, 1902.
31 of his dams' records average 74.8 lbs. milk 1 day
28 of his dams' records average 19.4 lbs. butter 7 d's
20 of his dams' records average 16,171 lbs. milk 1 yr.
THE WINTERS FARM, Smithboro, N. Y.

HOLSTEIN-FRIESIANS Ten choice Heifer Calves of great individuality, of large milk indications, and of very fashionable breeding. Also one yearling bull and two bull calves at prices that will surprise you. Fairview Farm, Pennellville, N. Y.

GENESEE HERD Offers a choice bull. Dam's official test 17 lbs. 12.3 oz., 85.7 %, average % fat 4.02; weight 725 lbs.; calved Nov. 10, 1902. $125 00. He is a good one. Write

McKAY BROS., Buckingham, Iowa.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. Depot. Stock of both sexes and different ages for sale. Bulls in service are: Homesterd Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De kol No. 22128. Dam: Shadeland DeKol No. 41896 A. R. O. in 2 y. f. milk 383.2 lbs., butter 16 lbs. 5.3 ozs. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148. Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 ozs. Average per cent fat 4.92. Correspondence solicited.

WM. EVERSON & SON, Lake Mills, Wis.

HOLSTEIN BULLS. We have some grandly bred young bulls ready for service. One of the largest and best advanced registry herds in the United States.

PIERCE LAND & STOCK CO. 14 Turk St. San Francisco, Cal.

BREEDERS AND DAIRYMEN Do you want a H.-F. Bull Calf for use this winter which will improve your herd? Do you want him elegantly proportioned, with straight back, high rump, and all the dairy points? Do you want one whose relatives are A. R. O. and eligible to the Advanced Register himself? If so, I have a choice lot, just such as you want.

MALCOLM H. GARDNER, Darien, Wis.

INDIANA'S FAMOUS HERD OF H. F. CATTLE

We now offer cattle of both sexes and all ages. As for breeding, individuality and ability to perform at the pail, they will rank second to none. For particulars and prices address

JOHN SHUGART & SONS, Marion, Ind.

SPECIAL BARGAINS IN

Holstein-Friesian Bulls

From a few months to a year old, from official record dams, and with strong official backing on both sides. The sire is half the herd; it is important that you get the right one. We have that kind, and our prices are no higher than others are asking. HENRY STEVENS & SON, Brookside Stock Farm, Lacona, Oswego Co., N. Y.

FOR SALE 2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.

M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

CLOVERDALE HERD

Is now better than ever prepared to fill your orders for a foundation herd of young Holsteins. For individual merit and performance our herd ranks well up among the best in America. Write us your wants before buying. Address

A. J. DAUGHERITY, Streator, Ill.

Woodlake Herd.

Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN, Station D., R. I. Minneapolis, Minn.

MARKHAM MANOR FARM,

Simonsville P. O., Andover, Vt.

Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 1870, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for discription and price to J. A. THORNTON, Manager, Simmonsville, Vt.

HOLSTEINS IN CALIFORNIA

SAN ANSELMO, MARIN COUNTY

250 HEAD IN THE HERD

Sires are sons of Mercedes Julip Pietertje, Colantha 4th Belle Korndyke, Fay Barnham Princess Wayne 7th. A fine lot of bull calves

R. M. HOTALING,
Rialto Building San Francisco, Cal.

SOUTH SIDE FARM

WHITE BEAR LAKE MINN.

HOLSTEIN-FRIESIANS—We now offer at attractive prices fine young bulls from high tested A. R. O. cows, and sired by Prince Inka Pietertje De Kol 2nd, who already has to his credit 11 A. R. O. daughters. To make room in our stables we offer a few cows and heifers for sale at low price. Write us for particulars

HOLSTEINS

High Class Advanced Registry Stock only. Best butter families. Stock for sale.
Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.



T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.
Wm. O. Jackson & Sons, South Bend, Ind.

JUST BULL CALVES

We have three, that are individually fine. They are bred right, have been fed right, and the price is right.
Ohio's Famous Herd, Holstein-Friesian Cattle. W. B. SMITH & SON.
2488 W Broad St, Columbus, O.

Holsteins For Sale

AT BARGAIN PRICES

10 Fresh Cows including 7 A. R. O. Cows. Also Heifer and Bull Calves must be sold at once.

JOHN C. CODFREY
R. F. D. 3. FULTON, N. Y.

FERMANAGH HERD

HOLSTEIN-FRIESIANS

Bulls ready for service from A. R. O. animals sired by Johanna Rue 2d Paul De Kol, sire of 13 A. R. O. cows. Also young bull calves by same sire. THOS. GAINES, Supt., Arcadia, Missouri

FINE POULTRY FOR SALE

I offer a very select lot of White as well as Buff Plymouth Rock Fowls of the present year's breeding for sale. Each breed have been kept on separate farms and are absolutely pure in their breeding. They will be sold at

$5.00 A TRIO

Nicely crated on board of cars here.

Single Fowls, $2.00 Each

They have had the range of alfalfa fields the past summer and are very vigorous.

A. R. HOARD,
Fort Atkinson, Wis.

Comments and Queries from Robinswood Farm.

(Continued from page 1117)

We are also going to adopt a change in the method of harvesting corn. It is generally conceded that Indian corn is the cheapest cow feed that we can grow. We of course want to grow all the corn needed for silage. But we also want to grow enough to give occupation for the hands between silage cutting time and snow fall, and so grow about as large an area for dry harvesting as we do for silage. But the trouble with us is that we have so little heat in September and October that it is very hard to secure the drying of the stover. Hence we are going to give up the practice of cutting up the whole stalk and put the crop in shock. We will go back to the old time method of the father's, of cutting the stalk above the ear and allow the ear to ripen in the standing stalk. The cut tops we can put in the silo and the ears we can harvest at our convenience, after about all the valuable elements of the lower stalk and the root system as well, are transferred to the ear. As for the lower stalk and husk, they can go to the manure heap as absorbents after cutting in the machine, or even be burnt in the fields.

That burning process is not so bad a thing, if the inorganic elements of the combustion process are fed to clover or other legumes in a regular rotation. In fact with the latest day knowledge that we have, it would seem that too much insistence as to using indigestible fibre in cow feeds is not sound teaching any longer. A broad ration containing enough of concentrates will give the cow as much protein to work with as a narrower ration of roughage alone. I am inclined to believe that in the better cow the first named ration will produce as much butter and tend to an evolution of a high per cent butter fat producer; but it will also I think tend to the production of the dual type cow.

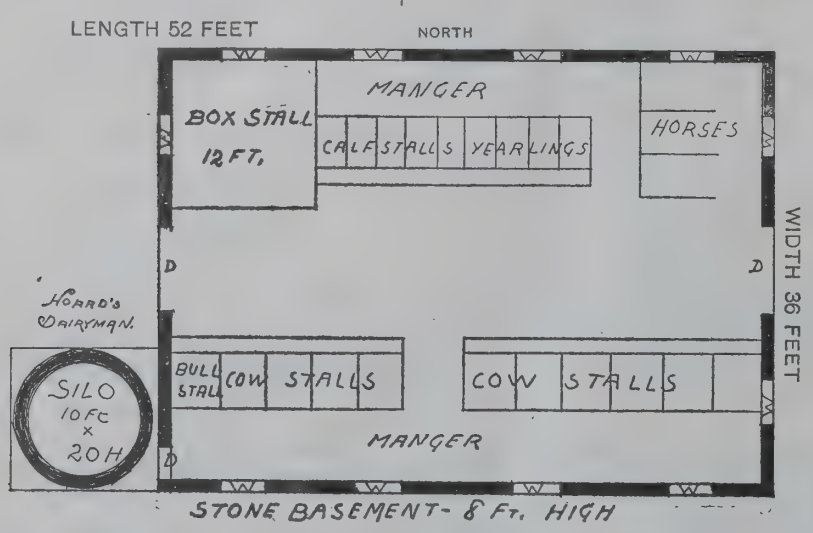
In good cow feeding we have got to give a part of the ration in concentrated, easily digested protein food, and most of these can be purchased more cheaply than we can grow them. But inasmuch as they are expensive to purchase, we must make use of them, after passing through the cow, to grow crops of some kind that can be directly or indirectly turned into money; that means that the average dairyman has got to be a general farmer to succeed best.

J. M. W. KITCHEN., M. D.

New Hamphires.

A Barn Plan with Comments.

ED. HOARD'S DAIRYMAN:— Inclosed find a plan for a cow barn for 10 cows and 2 horses and calves and young stock. If you have any better plan for a barn of that size I would be pleased to learn, as I intend to build a barn for 10 or 12 cows in the near future, and would like it as near right as I can, as long as we build new.



Now what I want is, to know if it would pay to start a sanitary milk establishment (or in other words to produce clean milk) living near a village of about 1,000 inhabitants and what breed would you prefer?

Thanking you for the many lessons learned in your valuable paper, I remain yours thankfully. E. H. G.

Ava, N. Y.

We have reproduced, as best we could from the sketch sent us, the proposed plan for stable. The scale is, one inch equals sixteen feet, but the walls show only about half as thick as they should. This makes the interior appear about two feet longer and wider than it will be in fact if the basement is built of stone. But why build the basement of stone? A frame basement or as much of it as is above ground will be warmer and more satisfactory, if not cheaper.

The points in this plan that call for reconsideration are (1) the space allowed for horse stalls, which cannot exceed 12 feet, is too little for three horses; (2) the cow stalls are too wide for small cows and too short for large cows; (3) there is no provision for feed bins; (4) the box stall is larger than necessary; (5) there is no stairway from the basement to upper floor; (6) and more important than any of these, no provision for ventilation and too few windows.

We do not undertake to say how these defects may be remedied, thinking it may be more instructive to let our readers, as well as this particular inquirer, do some planning for themselves.

It always pays to produce clean milk, but one need not adopt all the fads and furbelows that are sometimes recommended and may be more or less necessary where there is only hired help, and that not of the best, to attend to the cows.

The Old Trouble.

The All-Purpose Cow.

ED. HOARD'S DAIRYMAN:—The dairy readers of the agricultural papers expect it to break out about once a year. Certain writers and talkers never appear to become immune. No one can tell the origin of the epidemic. or exactly how long it will run. It appears to go the rounds among the farmers like the mumps, the measles, or the whooping cough among children. Perhaps it is more of a foot and mouth disease, not alarmingly fatal, but expensive to indulge in. It is this notion about the "general-purpose cow," the "dual-purpose cow,"—"do-all-purpose cow" a correspondent of mine advertises them to be.

One stickler for purity of diction insists that the advocates or sponsors of this illusive race of animals shall not indulge in tautological nonsense by saying "dual purpose cow" but shall refine her name into "dual cow."

I have no issue with the makers of her name, for we have high authority for the emptiness of a name, and whether we add to or take from her name contributes nothing to her usefulness, nor to the arguments of those who exalt her.

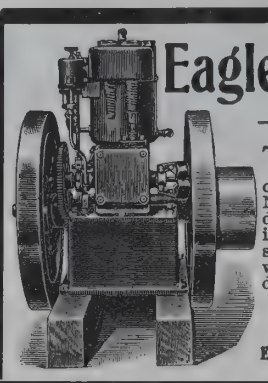
Now, it is a significant fact that these general purpose writers who insist that the animal of their imaginative adoption is the cow for the general farmer, for those men who want to keep a few cows, make a little butter, raise a few little pigs and small potatoes, a modest harvest of wheat, not too much hay or corn or oats or clover, sell a little veal and when "life's fitful dream is over" for the poor old cow, have a carcass of cheap beef, are not in any active sense dairymen—they



The "Penny Wise and Pound Foolish"

Policy has an apt illustration in the man who buys a CHEAP gas or gasoline engine. Unreliable service, frequent and expensive repairs, wastefulness in fuel and short life offset many times over, the small saving in first cost. The "OTTO" is the original and BEST. Suppose it does cost a little more money, the extra dollars are well invested. 70000 users throughout the civilized world support us in this claim.

THE OTTO GAS ENGINE WORKS, Philadelphia, Pa.

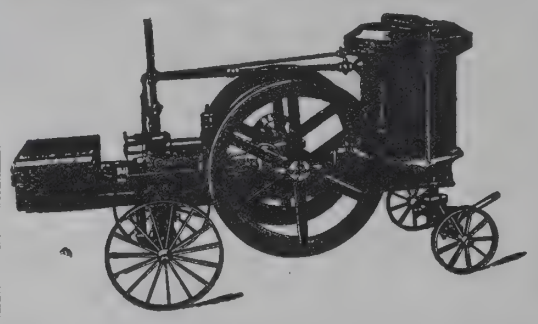


Eagle 4 H. P. Stationary Engine

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THIS ENGINE is of the four Cycle type and is especially designed and adapted for use on the farm—for separators, churning, pumping, elevating, hoisting, cutting ensilage, etc. No Expert or Engineer required to operate it—very simple in design and compact in construction. This engine is built so it can be easily moved from place to place. We can supply a special belt driven pumping jack to be used in connection with any pump having a wind mill head. Write for prices and description to

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Portable and Stationary, 3 to 25 H. P.
Catalogue on Application.

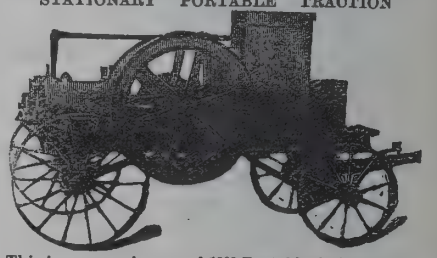
KINNARD-HAINES CO.
MINNEAPOLIS, MINN.

WANTED A good man to take charge of dairy farm on shares, 1 mile from Agricultural College. Good farm, good market, and splendid chance for right man. Great opportunity for man with children to educate. Address BOX 180, AGRICULTURAL COLLEGE P. O., MICH.

Cream SEPARATORS
All about them and other things for the dairy and creamery.
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Rural Mail Many new routes will go in this year. We want name and address of every man who sends in a petition. To first one sending us full information we will send a **Box Free** BOND STEEL POST CO., ADRIAN, MICHIGAN.

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STATIONARY PORTABLE TRACTION



This is our new improved 1903 Portable, built on practical lines. Guaranteed horse power. Easy to start; operates successfully in zero weather. No vibration when running light or on full load. Winner in appearance. Every engine sold on fair trial, fully guaranteed. Write for catalogue No. 5, prices and terms.
C. P. & J. LAUSON, 103 West Water Street. Milwaukee, Wis



We want every dealer in and user of

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The MILWAUKEE Weekly Bulletin



RELIABILITY,

secured by type of engine, four cycle, simple design, good workmanship; oldest engine, but one, in these columns. No freaky designs, but few parts and those accessible. Portable and station ary, all sizes. Built by

MILWAUKEE MACHINERY COMPANY,
290 East Water Street. Milwaukee, Wis.

REFRIGERATOR



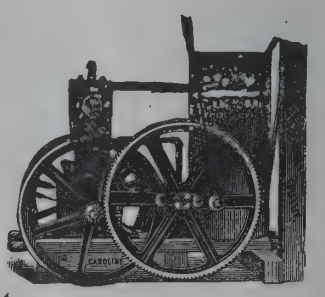
THE MOST COMPLETE CREAMERY AND REFRIGERATOR ON THE MARKET.

Simple and durable.

It is the only device that is worth the money.

Recommended by the largest Dairymen and experiment stations. Strictly high class. For Catalogue and prices address

ZERO CREAMERY COMPANY,
PERU, INDIANA.



You will be well pleased if you buy a

WATERLOO GASOLINE ENGINE

Write for catalogue descriptive of Stationary, Portable and Pumping Engines.

WATERLOO MOTOR WORKS,
WATERLOO, IOWA.

DON'T BUY GASOLINE ENGINES UNTIL YOU HAVE INVESTIGATED **"THE MASTER WORKMAN"**

A two-cylinder gasoline engine; superior to all one-cylinder engines. Costs less to buy and less to run. Quicker and easier started. Has a wider sphere of usefulness. Has no vibration; can be mounted on any light wagon as a portable. Weighs less than half of one-cylinder engines. Give size of engine required. Especially adapted for irrigation in connection with our centrifugal force pumps. (Sizes 2, 2½, 4, 5, 6, 8, 10, 12 and 16 horse power. Mention this paper. Send for catalogue.
THE TEMPLE PUMP CO., Meagher and 15th Sts., CHICAGO.

are generally mere instructors.

It is not supposed that this sort of skim milk talk carries any weight with the business dairymen, but it does give a kind of authoritative justification to the deluded farmer reader who is trying to put to a successful test this impracticable teaching. He has seen it written, or heard it proclaimed from some institute phonograph, that there are cows, that whole herds of them will make both beef and butter; and, resolute fellow that he is, he is going to buy up a lot of these cows and prove that it can be done.

He is not going to pay fifty or a hundred dollars for a male dairy calf when he can go to the stock yard and buy a bull old enough to use, for 2½ cents a pound, or the very pick of 'em for 3 cents.

Of course he never makes very much butter, nor very good butter—he is not strictly a dairyman, you know, and the renovating factories must get their stock of butter from some place. He does not make very much beef nor very good beef, but he has only one foot in the beef business anyhow and the beef will do to chew at and any kind of beef is better to chew than a rag.

But after he has begun to accumulate some experience, he finds that he cannot buy these cows, nor can he breed them. Some cows make nice round beef, but there is some mistake about the butter, it doesn't gather; and when he gets a good butter cow she doesn't do a thing but make butter, and for the life of him, his practice can't be made to square the other man's theory.

The average production of butter per cow per annum in the United States is about 136 pounds. There are thousands of dairies making two and three times this average, so there must be a woeful lot falling below the average, cows that are keeping their owners poor, making their owner's wives round shouldered and driving the children of the farms to the town, where they help to consume the renovated butter and the oleomargarine, and eat bologna beef.

I am not ignoring consideration of the dairy strains, that by scientific care and long lines of breeding to that end, have been built up from the legitimate beef breeds, so that there are whole families and tribes of superior dairy animals resulting.

This is not, however, an exemplification of the general purpose idea, but a demonstration of what can be done even under unfavorable circumstances by men of science, patience, skill and money.

And even these men will honestly tell us that their best dairy animals are not their best beef animals. And when they cross the beef sire on the dairy dam of their, not dual-purpose cow, but dual breed, what one of them will with any degree of certainty forecast the tribal characteristics of the offspring, eliminating of course any foreknowledge the breeder may have of the prepotent tendencies of the contracting parties?

The thing the agricultural teacher stands for at this time in relation to the teachable farmer is for his inspiration and help toward better methods and better farm equipment. It has been thought worth while to enlarge upon the doctrine of the two new blades against the old one.

This general-purpose-animal teaching, marks no advance that the ambitious student may follow. There is too much labor about even the most slovenly dairying to have to do it without pay, and for the cow keeper to read in his farm paper that the cow that will give him some milk while she milks, and leave him some cow-beef when she dies, gets little encouragement and inspiration toward the greatest possibilities of his busiuess.

Penn. W. F. McS.

The Steer and The Cow.

The Battle of Beef and Butter as Viewed by Prof. T. L. Haecker.

Prof. T. L. Haecker, of Minnesota Experiment Station, in *Dairy Record*, says:

Attention has often been called in these columns to the importance of keeping animals specially adapted to do the work expected of them. That farmers are milking cows that yield only about 150 pounds of butter annually, when it would be easy and inexpensive to gradually get a herd that will yield twice as much, does not speak well for their methods. The greatest hindrance to improvements in cows employed in the dairy is the dual-purpose fad, always preached by those who are specially interested in cattle intended for meat. These advocates are specially noted for their inconsistency. They advocate the dual-purpose idea only to those who are engaged in milk production. When it comes to beef cattle they have nothing to say about using dual-purpose sires. Then they believe in using sires specially adapted to breeding strictly beef animals. The reason assigned is, that only cattle so bred are fit for the production of beef profitably.

If this position holds good in beef production it certainly does in milk production. Dairy bred cows will produce double the profit of those not so bred. Can as much be said for the steer from the beef cow? Careful experiments have shown that steers from dairy bred cows hold their own fairly well both in the feed lot and on the block, with those from cows of the beef breeds. It is admitted that buyers of feeders, and butchers as well, are in the habit of shading the price of steers that show dairy markings; but that is only a prejudice, or used as a pretext to drive a sharp bargain.

If steers were fed and slaughtered at home for the local market, as they should be, local butchers would soon learn that there is little difference, if any, in the butchering qualities of the two kinds of steers, and dairy steers would soon sell for what they are really worth. Some, who pretend to be honest and truthful, say that dairy steers require more feed for a given gain in weight than beef-bred steers; that they mature more slowly, and are meager in the choice cuts. There is no warrant for any of these statements, and those who make them, are either blind to the facts or willfully misrepresent.

If good dairy sires were used by the farmers of Minnesota, who are milking 800,000 cows, the annual yield of butter per cow could soon be raised from 150 to 250 pounds of butter per cow, which would increase their earning capacity $20 per cow, and would add $16,000,000 to their income. Can as much or half as much be said for results if beef sires were used exclusively? As a matter of fact, under present conditions—the high price of feed and very low price of steers—there is little, if any, profit in either raising or feeding steers. And it is no wonder that those who jumped onto the dual-purpose and beef band wagons are beginning to discuss the advisability of killing the beef-bred calves. It is really becoming a question of great importance so long as the beef combine can dictate the price of steers and dressed meats.

Is There Any Profit in Stalk Fields?

ED. HOARD'S DAIRYMAN:—Your answer to our inquiry appears on page 1052, Dec. 25, '03, and am sorry to say that we forgot to state what roughage we have. This winter we have got timothy hay with a little clover in it, but not enough so you could call it half and half, and shredded corn fodder.

Since writing you we have sold enough barley to furnish us in bran and oil meal, so will have to omit the barley.

At present we are feeding 4 lbs. bran, 6 lbs. corn and cob meal, 2 lbs. oil meal a day, with all the shredded corn fodder they will eat without too much waste at morning and all the hay that they will eat up clean at night. When the weather is 20° above, we let them out in the stalks, (as we can not cut up but half our corn), a few hours a day. When the weather is colder they are kept in stable most of the time. This ration is not fed to cows that are nearly dry if they have been milked 10 months. Cows weigh about 1,000 lbs.

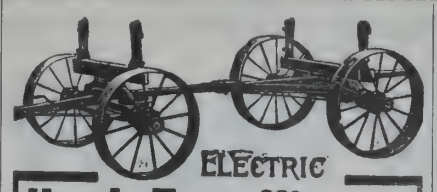
Our neighbors laugh at us for keeping our cows out of the stalks when it is cold, they also think we are a "little off" for keeping a Jersey bull, but let us start to figure up the income of our different herds taken for one year, then it is our turn to laugh. R. BROS.

Belle Plain, Iowa.

We are not competent to say just how much of the stable feed is used to counteract the exposure of these cows in the stalk fields even when the mercury shows a temperature 20° above zero, but we are pretty well convinced that there is no profit in grazing the stalk fields. We believe that a fair trial would demonstrate that 4 lbs. bran, 4 lbs. corn and cob meal and 2 lbs. oil meal, with roughage as stated, would be as effective when fed to cows kept out of the stalk fields as is the larger amount specified when fed under the conditions named.

DON'T PUT OFF

Seeing your friends and having them join in for a club of subscribers.



ELECTRIC

Handy Farm Wagons

make the work easier for both the man and team. The tires being wide they do not cut into the ground; the labor of loading is reduced many times, because of the short lift. They are equipped with our famous Electric Steel Wheels, either straight or stagger spokes. Wheels any height from 24 to 60 inches. White hickory axles, steel hounds. Guaranteed to carry 4000 lbs. Why not get started right by putting in one of these wagons. We make our steel wheels to fit any wagon. Write for the catalog. It is free.

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TWO SIZES. Cuts 1 or 2 bushels per minute, for fowl or beast. Gouge cutters never choke or clog. Price $7 to $15.

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All forms of cancer and tumor cured by soothing, balmy oils. Doctors, lawyers and ministers endorse it. Write for free book to the Home Office, Dr. D. M. Bye Co., Drawer 505, Indianapolis, Ind.

Creasey Ice Breakers



Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right.

Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.

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and your worst, are easily found by using *Meloney's* Automatic *Milk Scale.* It registers automatically the daily individual yield of your cows—the records enabling you to rid the dairy of the unprofitable ones. Simple, Practical; no dairyman can afford to be without it.

Write for catalogue of the many money-makers in the "BESTOV" line.

DAIRYMEN'S SUPPLY CO., Dept. B. 1937 Market St. PHILADELPHIA.

BESTOV

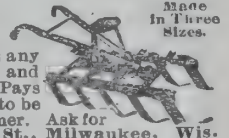
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ICE CUTTING is easy with DORSCH ALL STEEL, DOUBLE-ROW ICE PLOWS. Marks and cuts two rows at a time; cuts any size cake and any depth, and does it with ease and economy. Does the work of 20 men sawing by hand. Pays for itself in two days. No farmer, dairyman, hotel man or other can afford to be without it. Have a supply of ice and enjoy the comforts of life in the Summer. Catalogue and introductory prices. JOHN DORSCH & SONS, 212 Wells St., Milwaukee, Wis.



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It presents also *twenty-one faithful photogravures* of America's Largest Mail-order Seed Trade,—views in both town and country. Altogether it is pronounced the

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we feel quite sure that you will favor us with **at least a trial order,** and this is all we ask, as BURPEE'S SEEDS will tell their own story in your garden and fields.

Better send for this catalogue **to-day!** One cent spent by you insures twelve cents spent by us, and this should be sufficient to convince you that we have *faith* in BURPEE'S SEEDS and also in our ability to persuade you **to try Burpee's Seeds,** if you will only read BURPEE'S FARM ANNUAL.

Are you willing to spend that cent?

Shall we hear from you? If not, You will miss an opportunity to become acquainted with **the very BEST SEEDS that can be grown!**

REGISTERED WAB TRADE MARK

W. ATLEE BURPEE & CO., Philadelphia, Pa.



Hardy and Reliable Northern Grown

FARM AND GARDEN SEEDS.

We are growers of new and improved varieties of **Seed Grain, Seed Corn, Seed Potatoes** and of **Pure** and **Hardy** strains of **Vegetable Seeds.** Our stock of high grade **Timothy and Clover Seed, Turkestan Alfalfa, Rape,** etc. is the most complete. **Clover Grass Mixtures for Permanent Pastures** and **Meadows** our specialty. **Hardy Small Fruit Plants** and Ornamental Shrubs. **Reasonable Prices.** Best railroad connections. **Special Seed Rate to the Northwest.** Large illustrated catalogue **Free.** A book worth having. Write for it today.

FARMER SEED CO., 25 4th St., Faribault, Minn.

ANOTHER VICTORY

FOR THE

United States Separator

THE agents of the Sharples Tubular Cream Separators are publishing pretty extensively over the country what they call a test of Cream Separators, held at the Minnesota Dairymen's Convention, at Fairmont, Minn., Dec. 17, 1903. The Sharples people in their reports are quite careful not to mention that the Sharples Separator did not comply with the rules of the test, nor comply with the rules laid down in the Sharples book of directions for running the Sharples Separator.

They are quite careful also not to report that the Sharples machine did not win, and that the money was therefore lost to the Dairymen's Association. When the dairy public examine their advertisement, they will see that the Sharples, as well as all the others, were badly beaten by the United States Cream Separator.

One of the conditions of the agreement was as follows: "No machine to skim cream of a density of less than 30 per cent butter fat." The Sharples Separator skimmed cream of only 25 per cent butter fat. To have complied with the conditions it must skim one-fifth thicker, or 20 per cent thicker cream than it did skim, and therefore the Sharples was beaten on this point.

The United States Separator skimmed cream that tested 50 per cent butter fat, just twice as rich in butter fat as the Sharples. The Sharples agent, knowing that his separator could not skim thick cream at a temperature of 62° to 70°, would not and did not comply with the agreement. All Creamerymen require thick cream because it is so much less bulk and so much less weight and transportation costs correspondingly less, and Professor McKay, of the Iowa State Agricultural College, is very emphatic in saying that the Creamerymen cannot afford to accept of thin cream because not so good a quality of butter can be made from cream that has so much skimmilk in it. It is much easier, as everyone of experience knows, to s parate thin cream than it is to separate thick cream, and separators that can run thin cream cannot run thick cream under the same conditions.

The Sharples book of directions read, "turn the crank 40 to 45 turns per minute." The average of this is 42½ turns per minute. The Sharples was turned in the test at 52 turns, which is about 25 per cent faster than their average direction to the farmers who buy them. The Sharples separator bowl was run at between 19,000 and 20,000 revolutions per minute, and more than twice as fast as the United States or any other machine in the test.

The United States book of directions reads 45 to 60 revolutions of crank per minute, average of this is 52½ revolutions. In the test the United States was turned only 50 revolutions, 2½ turns less than the average; which is 5 per cent under the average. Bear in mind then that the Sharples was operated 25 per cent faster than the average and the United States run 5 per cent slower than the average.

All experienced persons know that the Sharples can not be used but a short time at that great speed of nearly 20,000 revolutions per minute without giving out, and the Sharples Company know it best of anyone, and therefore, instruct the farmers to run their separator 25 per cent slower than it was run in the contest, and the Sharples people know it gives out quickly enough at that slower speed.

RECAPITULATION

One. The rated capacity of the United States Separator used in the test is less than the rated capacity of the Sharples machine that was used, but in the test the United States machine separated 6½ per cent more milk than the Sharples machine separated.

Two. The Sharples cream was so much thinner than it was agreed that the cream should test, that it should have been ruled out of the test.

Three. The speed of the Sharples machine was so much greater than agreed upon that it should have been ruled out of the test.

Four. It will be noticed that the only machines that complied with the conditions of the test as to the density of cream were the United States and the De Laval "Alpha." The United States skimmed cream that tested 50 per cent butter fat and the skimmilk tested .125. The De Laval "Alpha" skimmed cream that tested 32.5 per cent butter fat and the skimmilk tested .175. It will be noticed that the De Laval "Alpha" could not run as thick cream as the United States or show as good test of the skimmilk. The De Laval run as thin cream as possible and not fall below the requirements of the test, knowing that if they did fall below they would be ruled out. The De Laval cream was only little over half as thick as the United States cream. The De Laval test of skimmilk was beaten by the United States 40 per cent.

The Empire Separator, the fourth and poorest separator in the contest, was unable to produce cream that tested better than 19.5 per cent butter fat which is nearly 50 per cent poorer than the requirements agreed upon, or only about one-third as thick as the cream from the United States, and the Empire skimmilk tested .450 which shows that the Empire left nearly four times as much butter fat in the skimmilk as the United States.

Five. Because of the failure of the Sharples separator to comply with the agreement in the challenge, it will be noticed that the judges made no award, but simply report what each separator did and whatever the Sharples Company now claim to have won must be claimed in the face of their failure to comply with the agreement previously entered into.

The record of the report of the judges proves beyond successful controversy, that the United States Separator proved itself to be superior in every point desirable for a practical cream separator.

Six. The Sharples Separator cannot run 200 pounds of cold milk of a temperature between 62° and 70° at the speed advocated for the farmers to use it, and show a good test of the skimmilk, and make thick cream that will test 50 per cent butter fat, and the agents of the Sharples machine know this better than anyone else. It is an impossibility for the Sharples machine to make such a run, and until the Sharples people can successfully disprove the above statement, it is not worth the while of the United States Separator to pay any attention to their continual attempts at bluffing.

VERMONT FARM MACHINE COMPANY

BELLOWS FALLS, VERMONT

Worth $100 A Bottle.

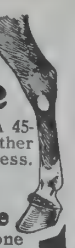


Collinsville, Texas, Feb. 10, 1903.
Dr. B. J. Kendall Co., Enosburg Falls, Vt.
Gentlemen:—I read your advertisement the other day in regard to Kendall's Spavin Cure, and having two fine and valuable horses which had been lame with Spavin for nine months, I sent to the druggist at Decatur for a bottle of Spavin Cure, which in six weeks removed all lameness and soreness, and a Splint from another one, and all three horses are sound as colts. **The one bottle was worth $100 to me.** You may use my name at any time you wish. Very truly yours,
P. H. SEGLER.

Price $1; six for $5. As a liniment for family use it has no equal. Ask your druggist for **Kendall's Spavin Cure,** also **"A Treatise on the Horse,"** the book free, or address

DR. B. J. KENDALL CO., ENOSBURG FALLS, VT.

Spavin and Ring-bone



Once hard to cure—easy now. A 45-minute treatment does it. No other method so easy, quick and painless. No other method sure.

Fleming's Spavin and Ringbone Paste

cures even the very worst cases—none too old or bad. Money back if it ever fails. Lots of information if you write. Book about Spavin, Ringbone, Curb, Splint, Bog Spavin and other horse troubles sent free.

FLEMING BROS., Chemists,
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Famous *COAL-TAR* Carbolic Dip.

For general use on live-stock. Send for "Piggies' Troubles" and "Zenoleum Veterinary Advisor" and learn its uses and what prominent stockmen say about it. Books mailed free. All druggists, or one gal., express paid, $1.50; 5 gal., freight paid, $6.25.

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Direct from our own factory

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A full line in steel or cast iron. We save you from $5.00 to $40.00 and ship **Freight Prepaid** on

360 Days Approval.

All blacked and polished. All ranges and cook stoves are equipped with our patent oven thermometer, which makes baking easy. We are MANUFACTURERS, not mail order dealers. Send postal for special proposition and catalogue No. 163

Kalamazoo Stove Co. Mfrs. Kalamazoo, Mich.



Never Jumps The Track

It cannot be pushed, hooked or blown off and it doesn't bind or run hard on account of warping of door or siding. "The best hanger on earth" is the

FLEXIBLE DOUBLE TREAD BARN DOOR HANGER.

It double set of hangers runs on both sides of inverted T rail, which is flexible on the wall—accommodates itself to all inequalities. Absolute center draft. Carrier wheels are roller bearing. Always true and easy running, never out of order. We make a specialty of Hay Tools and field and farm hardware appliances. Ask for our catalogue.

LOUDEN MACHINERY CO., 43 Broadway, Fairfield, Ia.

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in Frost Fence is not the "only" heavy wright hard wire but "all" are heavy and uprights or stays are heavier. Don't you think this ought to make a good fence? THE FROST WIRE FENCE CO., Cleveland, O.

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Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Precautions after Abortion.

I want to ask what precautions should be taken with a cow that has aborted, caused, as we think, by too much ensilage and no other feed to balance up.

My neighbor has a very fine bull which I have used some, but he is now having trouble as above, only one has so far had trouble. Is it safe for me to use his bull? What book can you recommend that treats on the principles of breeding? JERSEY.
Hunt, N. Y.

ANSWER.

The precautions to be taken after abortion have been given in detail in the last issue of the DAIRYMAN under the head of Abortion. If you know the cause of your trouble, all you have to do is to remove it. There is no danger in using your neighbor's bull if you are satisfied the cause of his one cow aborting was due to the feeding of the silage.

Schmidt Treatment for Milk Fever.

Please tell me through your paper if I should use a tonic after using the Schmidt treatment. I just lost a cow after using the treatment. She was very low when I used first treatment, after eight hours did not see much change so used it again. After a few hours she seemed bright and easy, but did not get on her feet Should I have continued to use the treatment till she got on her feet, or what should I give her for a tonic. She lived two days after taken. G. L. T.
Snohomish, Wash.

ANSWER.

If the patient appears brighter after 8 or 10 hours of the first treatment, we usually do not repeat the dose, but give her more time before administering the second dose. The time to repeat is when the patient shows no signs of improvement whatever at the end of about 10 hours. We usually give stimulants, such as aromatic spirits of ammonia, ½ to 1 oz. in a pint of water every 2 or 3 hours, provided the cow is able to swallow; if not, 1 to 2 tablespoonfuls of the above, on the tongue, every hour is sufficient. Sometimes complications set in after the effects of milk fever are over.

Cramp Bark for Abortion.

I notice you recommend Cramp bark for abortion. Do I underatand that it is to be fed to the cow, if so in what proportions and for how long? I am new in the dairy business, and having a little trouble in this direction.
Evie, Mich. J. M. K.

ANSWER.

See "Cramp Bark" last issue.

Abortion.

A friend wants a remedy for cows that abort. He informs me several of our cows have lost their calves recently, calves abort 3 to 4 months. He has been feeding some flax straw. I lay it to that. J. F. C.
Cogswell, N. D.

ANSWER.

See abortion, last issue, which gives full particulars.

Habitual Abortion.

I have a cow that has had four calves. The last three she aborted, going twice 5 months, the last 7 months in July. No other abortion in my herd of 25 cows. SUBSCRIBER.
Washington, D. C.

ANSWER.

Do not breed the cow for at least three or four months to give nature a chance to repair defects in the genital organs. Give her ½ oz. of cramp bark and 1 dram of powdered golden seal in food once or twice daily from now until she has been bred, or it may be good policy to continue this treatment a month or two after breeding.

Horse Owners! Use



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Caustic Balsam

A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle, SUPERSEDES ALL CAUTERY OR FIRING. ***Impossible to produce scar or blemish***

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CATTLE SPECIALIST
WRITE FOR SWORN TESTIMONIALS.
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Hood Farm Flexible Injection Tube, for administering the Powder, 75 cents; by mail, 90 cents. Address
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Oldest and best Treatment Extant.
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Curb, Splint,

contracted cord, thrush, grease heel and all forms of lameness yield readily to

Tuttle's Elixir.

Used and endorsed by Adams Express Co.

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Dear Sir:—I want to add my testimonial to your list recommending Tuttle's Elixir for curbs, broken tendons, thrush, and nails in the feet. I have used it on all of these cases many times, and never failed to make a cure. J. H. NAY.

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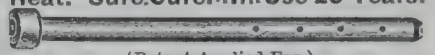
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and General Tonic for Cows. The only genuine sure cure and general tonic for cows on the market. I guarantee, and refund money if not satisfactory.
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Write for circular.

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Hard Rubber Safety Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.
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Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.
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Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.
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Regarding the Hired Man.

ED. HOARD'S DAIRYMAN:—I have read with considerable interest the discussion which has been going on in your paper concerning the hired man, and to my mind while there is much of truth in nearly all that has been said, there is one cause of the present scarcity of help that has not been mentioned. That is the great demand for labor of all kinds in cities and towns since business in the commercial world has been so brisk for the past few years of so-called good times.

During the hard times of the middle '90s when manufacturing was at a stand still, there were hundreds of men looking for work, and no work to be had. At that time farm help was plentiful and wages reasonable. The cities had no attraction for the laboring man, hence he was willing to work for the farmer where he was sure of a living for himself, also for his family in case he had one.

When business became brisk and mills and factories began operations on an established basis, the tide of labor set city-ward where it remains at the present time, thus causing the great dearth of help for the agriculturist. For some reasons the life of a laboring man is a pleasanter one in town, but there are also objections to be urged.

The cry has been all along that hours were shorter, duties more clearly defined, no chores to do, attractions and recreations easier of access than in the country. On the other hand the temptations to spend money are greater, and the routine of shop and factory life is much more monotonous than that of the farm. As one man expressed it, "life in a factory is a good deal like a states prison, only in one case you are allowed to go home to dinner, and in the other you are not." Talk about the monotony of the farm, it cannot compare with the monotony of a shop or factory, where the operator stands day after day before a certain machine, turning out exactly the same pieces of work from one year's end to the other.

However, that is all in the way a person looks at it, and I have no doubt there are plenty of contented and happy working men in the various shops.

The argument made by S. B. R., of Abbington, Mass., that farmers do not pay their men promptly and frequently try to beat them out of their wages is, I think, unjust toward the great majority.

In a long term of years spent entirely among agriculturists, I know of not one case of the latter kind, although I have known instances where at the end of the season the farmer gave his note bearing the current rate of interest as a guaranty of wages due.

The average hired man of to-day takes up his wage as fast as it is earned. He must have a horse and buggy and a good time as he goes along. No one objects to this unless he spends so little time in sleep that he is unable to do a day's work by reason of it. But the good time costs money and there is not much coming at the end of the season.

With men who work on farms, the same as with men in every other vocation there are two classes. One class is trustworthy, intelligent, ambitious to get ahead and willing to try to please. The other is dissatisfied, unfaithful, careless of their employer's interests, always complaining about the wrongs of the laboring man, and the oppression of the rich.

There are men who are bound to rise. From youth they show that they have the right stuff in them. One man I know began life for himself at 14, by hiring out to a farmer at $7 a month for 8 months. He tells how he sat on the plow handles while resting his team and with a flat piece of stone for a slate and another stone for a pencil figured out how much interest he would get the following year on his savings. Today he is a rich man, all owing to thrift and economy.

As a rule foreigners are more thrifty than our native Americans. Scores of instances go to prove that the Irish, the Germans, the Swedes, the Norwegians, excel us in this most excellent virtue. If asked to name a remedy for the existing condition of affairs regarding farm help, I do not know that I could do so. One thing I do think, however, and that is just as soon as there shall come a period of depression in business and manufacturing circles, there will be a reaction and the tide of labor will again turn toward the country.

The wheels of shops and factories may be stilled for want of orders for their products, but the farm and its operations go on forever. There are fields to be tilled, harvests to be garnered, cows to be milked, chores to do, swing the pendulum of trade which way it will, and the time will come, possibly in the not distant future, when these same men who so scornfully look upon the farmer and his proffered wages will be glad to get employment at his hands. Until that time shall arrive, I look for very much the same condition of affairs as exists at the present time.

Lansing, Mich. E. E. R.

A Forty-Acre Farm.

ED. HOARD'S DAIRYMAN:—I have been a reader of the DAIRYMAN for about five years, and have seen so many good things in it that I have come to look on you as my best friend and adviser.

I have only 40 acres of land, about 14 acres in swamp land which could soon be made to afford good pasture, about 3 acres of apple and pear orchards, and the rest is plow land. Soil is mostly clay loam.

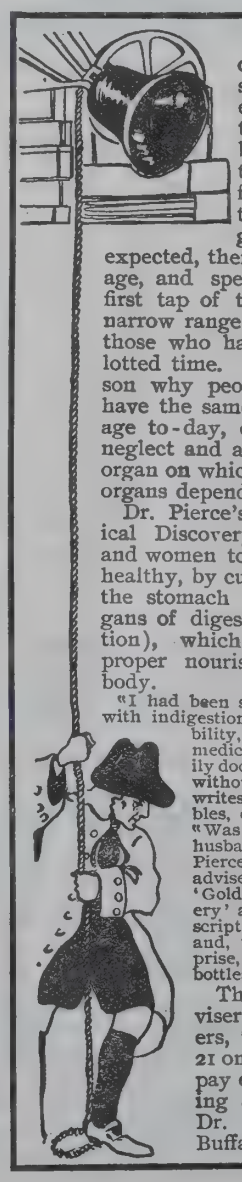
Have a round silo 10×27 feet and good machine for filling it, and stable room for about 20 head of cattle. Send milk to creamery, for which we get about 20 cents on an average, for butter fat the year round. How many cows ought the place to carry? Now, please advise me as to what crops to grow, and how to manage generally? P. J.

Wayland, Mich.

A silo of the dimensions given will hold about 40 tons, or enough to feed 10 cows 200 days. It should not require more than 4 acres of corn to fill such a silo. It would be a good investment to build another silo of the same size, so that one could keep more cows and also have silage for summer feeding. Eight acres of corn would fill both silos and leave quite a surplus for other purposes, but, say, give half of the plow land to corn and divide the other half between clover and small grain. In this way it would seem entirely practicable to keep at least 15 cows, 2 horses and some young stock.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.



In the good old days the sexton announced a death in the community by a stroke on the church bell for every year of the life that was gone. People expected, then, to live to old age, and speculation at the first tap of the bell took a narrow range including only those who had lived the allotted time. There is no reason why people should not have the same expectancy of age to-day, except for the neglect and abuse of the one organ on which all the other organs depend—the stomach.

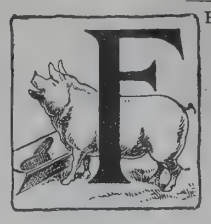
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"I had been sick for two years with indigestion and nervous debility, and had taken medicine from my family doctor for a long time without much benefit," writes Mrs. W. H. Peebles, of Lucknow, S. C. "Was induced by my husband to consult Dr. Pierce by letter. You advised me to take 'Golden Medical Discovery' and 'Favorite Prescription,' which I did, and, to my great surprise, after taking six bottles I was cured."

The Medical Adviser, in paper covers, is sent *free* for 21 one-cent stamps to pay expense of mailing *only*. Address Dr. R. V. Pierce, Buffalo, N. Y.

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SPASM OF THE GLOTTIS.



FREQUENT inquiries have been made concerning a disease in pigs characterized by spasms or fits. The attacks almost always occur in winter, when the weather is severe. Animal shows no symptoms when coming from the sleeping pen until it attempts to take food, when it will be seized suddenly, will raise its nose and gasp for breath, soon fall over and struggle for a moment or two when the seizures will abate, animal will get up and possibly appear all right.

Cause—Occasionally the first attack will prove fatal, although this is not the rule. Attacks will recur every day, or it may happen every time the animal attempts to take cold food, especially swill. The attacks come on most frequently in pigs or hogs that have warm quarters, especially those that are allowed to burrow in manure piles or straw that becomes heated. When they come into the cold air, sudden change induces attacks, especially when taking cold drink.

Treatment.—Treatment that has given the best results is to avoid the conditions that produce the difficulty. Hogs should not be housed in too warm sheds, especially if fed in a cold place. Do not give access to the manure pile, where they will burrow into the heated, half decomposed straw or become piled up and overheated.

It is also of great advantage to warm the feed, where this is practical, and anti-spasmodics should also be employed, such as from ten drops to half dram doses of fluid extract of hyoscyamus, according to size of animal; or ten to fifteen grains of bromide of potash should be given three times a day.

The rugged health that tonic doses of Dr. Hess Stock Food induces will give a hog the vital power necessary to resist these attacks. This wonderful reconstructive is the result of a lifetime of study and experiment by Dr. Hess (M. D., D. V. S.)—graduate of both medical and veterinary colleges—whose methods and works are recognized everywhere as authoritative.

Dr. Hess Stock Food is the scientific compound, sold on a written guaranty, 100 pounds, $5.00, except in Canada and on Pacific Slope; smaller quantities at a slight advance. Fed in small dose.

For every disease and condition for which Dr. Hess Stock Food is not recommended, the little yellow card in every package entitles you to a letter of advice and special prescription from Dr. Hess.

For a little information, Dr. Hess' great stock book, the only complete treatise on live stock and their diseases, will be mailed to you free, prepaid. Write Dr. Hess & Clark, Ashland, Ohio, state what stock you have, how many head of each; what stock food you have fed; also mention this paper.

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For Choice Red River Valley Farms. They pay railroad expenses if you buy from them.

A few good bargains.

360 acre farm, 4½ miles from Crookston, Minn., a city of 7,000 inhabitants, and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 feet square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm is under a high state of cultivation, and is well drained by a slight ravine running through the farm merely sufficient for self drainage. The soil is a rich, deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building, This is a very choice piece of land for the price $32.50.

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired. Price $19.00 per acre.

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So easy that you will regret it if you do not investigate. Our lands are

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of your departed.
Headstones $4 up
Monuments $11 up
Blue or White Marble nicely lettered. Instructions for setting. Save agent's commission. Send for Catalogue.
W. J. MOORE,
405 Third St. Sterling, Ill.

Annual Record of Fifty Cows in One Stable and the Lessons They Teach.

[Address by H. B. GURLER, DeKalb, Ill., before the Wisconsin Dairymon's Association.]

Mr. President and Gentlemen of the Convention: I am an Illinois man, but I never realize it when I come across the state line into Wisconsin. Our interests in the northern part of Illinois are more like your interests than they are like the interests further south in our state, and to tell you the truth I have sometimes become so tired trying to create a dairy atmosphere down there that I have actually wished that the Wisconsin state line was far enough south to take in my county. It is with great pleasure that I find myself here again with you Wisconsin people. Back some fifteen years ago I saw more of you, but there are some of the old wheel horses still alive, and it does me good to meet them. We are dropping off, one by one, but let us keep lively as long as we can.

When Prof. Henry first came here I was doing a little experimental work myself, trying to build up a dairy on the farm, and he was writing in the *Live Stock Journal* over the signature "Alimentation." I didn't know who "Alimentation" was, until we had a State Dairy convention, at Sterling, and Prof. Henry was there, and he came and introduced himself to me, and told me he was going to jump onto me on some of my figures, and we have been good friends ever since. Then, when he started the dairy school down here, at Madison, I got a letter from him, stating that they wanted me to come and instruct the boys in butter-making. I wrote him that I had not enough experience in that line, but a second and a third letter came, saying, "I have got to have you." So finally I came and this is another reason why I feel so friendly toward the Wisconsin people.

In the annual records which are summarized in the following table I have put the price of skim milk at twenty cents. Before that, I had put it at twenty-five cents per hundred, applying an old rule that skim milk is worth half as much per hundred pounds as corn is worth per bushel,—so that on these figures I have made the price pretty low, and where skim milk is used intelligently, it is worth more money than that. You will notice that the calf and the manure are not taken into consideration. It is an uncertain quantity about what the calf is worth; it depends upon what the cow is and what the sire of the calf is, and I felt it was wiser to leave the calf out entirely, and let everybody put his own value; and the same with the manure.

Then comes the cost of feed. I fed some gluten meal from the glucose factory. I fed some food from the distillery at Peoria, and got my protein cheaper in that form than in any other form, but I struck one carload that had something wrong about it; it was not palatable, and I had some sharp correspondence about it. The manager thought I didn't know what I was talking about, but he found out that I did.

That reminds me, I want to talk a moment on the question of palatability. It is the first thing to be thought of in feeding. There is any amount of nitrogen in the atmosphere, and it might as well remain there as to be in an unpalatable feed, as far as the cow is concerned. This question is not sufficiently recognized. Chemists cannot tell about the palatability of food. They know how to analyze, and that is as far as they can go, but they can't make the cow eat it and like it.

Hay was charged at $8 per ton and the corn silage at $1.50 per ton. For last year perhaps that price was a little low, but even at that I can tell you there is a good profit in growing corn for silage, if we grow fifteen tons to the acre, as everyone should. You see there is a gross income of $22.50 per acre, and if we allow $10 for interest, and the growing of it, you have $12.50 left. That will pay interest on $200 land, and not many of us are asking $200 an acre for our land. It is hard to put a market value on silage, as it is not a marketable food, but I have given the farm a profit for growing it, and I think that is sufficient.

Then I charged up for labor $12.50 per cow. That was a basis that I figured out ten or twelve years ago when I made milk for the creamery. It may not be strictly accurate. Perhaps labor is a little higher now, but if you think that is not right, you must make your own allowance, as you have got to do with a great many of these things. No man can make an arbitrary rule that will fit all of you.

That left an average profit of $19.98, after paying for the feed and $12.50 for labor. Many people do not figure the labor in. Of course they would have $32.48 for profit.

Now, out of those fifty cows I picked out nine. I picked out the four poorest cows in the stable, then I picked out a cow that would be just about on the dead line, as you might term it; she would barely squeeze through and not get me in debt. Then I picked out four of the better cows, not the best ones, but pretty good average. You see what I wanted was to get an average of the whole fifty in that nine, and to show you how near I reached that object, the average of the fifty cows was 297.7 pounds of butter, while the average of the nine that I am going to talk about was 295.3 pounds.

AVERAGE FOR FIFTY COWS, AND FOR SOME OF THE POOREST AND BEST.

NO. OF COW.	Weight milk lbs.	Per cent of butter fat.	Total fat lbs.	Weight of butter lbs.	Price per pound.	Value of butter.	Weight of skim milk.	Price per 100 pounds.	Value of skim milk.	Total income.	Cost of feed.	Cost of labor.	Profit.	Loss.
244	2382 0	4.87	116 11	135.48	20c	$27 09	2266	25c	$ 5.66	$ 32.75	$31.23	$12.50	.....	$11.00
151	3619 0	4.51	163.40	190.63	20c	38.12	3494	25c	8 64	46.76	41.06	12.50	.....	6 80
44	3399 0	4 58	155.94	181.93	20c	36.86	3243	25c	8.10	44.48	37 32	12.50	.....	5 34
72	2661 0	5 06	131.97	157.46	20c	31.49	2526	25c	6.31	37.80	26.45	12.50	.....	1.15
308	4617 0	3.83	177 16	206.68	20c	41.43	4440	25c	11.03	52 36	39.32	12.50	$ .44	.....
184	7997 0	4.77	382.04	445.71	20c	89.14	7615	25c	19.14	108.28	44.32	12.50	51.46	.....
262	9297 0	4 03	372.56	434.65	20c	86.93	8900	25c	22.09	109.02	44 72	12.50	51 80	.....
283	10151 0	3 68	374.76	436.75	20c	87.35	9777	25c	24 44	111.79	44.72	12.50	54.57	.....
129	8949 0	4.52	406.73	472.18	20c	94.43	8545	25c	21.38	115.80	46 06	12.50	57.24	.....
Av. 4 best cows	9098 0	4 25	384 00	447.32	20c	89.46	8709	25c	21.76	111.22	44.95	12.50	53 77	.....
Av. 4 poorest	3020 0	4.75	142 60	166 40	20c	33.28	2881	25c	7.20	40.48	33.96	12.50	.....	5.98
Av. of 9 cows	5897 0	4.43	258 50	295.70	20c	59.14	5644	25c	14.11	73.25	39.48	12.50	21.25	.....
Av. of 50 cows	5708 0	4.47	255 20	297 70	20c	59 54	5453	25c	14 00	73 57	41.06	12.50	19 98	.....

There is one thing I want to drive home to you, and that is that a two-hundred-pound cow is right on the dead line. I do not live at my farm, I have to pay for all the labor. I might have a hundred such cows, and I would be none the better for having them; indeed, I would be worse off because it would annoy me until I should probably grow ugly trying to get something out of those cows and not succeeding.

We can't talk about cows without talking about capacity, and that reminds me of a story. A lady in our township has a little daughter in school who didn't get along, and the mother was worried and went to the teacher, and asked her, "What is the matter?" The teacher replied, "Your daughter hasn't any capacity." "Well," she says, "I'll have her father go right down town and buy one." Now, you can't buy capacity for cows any better than for girls, and there will be no profit in the cow that hasn't capacity.

This work was looked after by Mr. Glover, who was doing field work for

The Inside of this Building in Ten Colors



showing the clerks at work, the goods, and, in fact, an interior sectional view of every floor of the tallest commercial building in the world. It makes a very attractive and interesting wall hanger, and is one of the most complex and complicated pieces of lithography ever attempted. If you want it send four two-cent stamps, about what it cost us to print. Ask for our ten-color Wall Hanger.

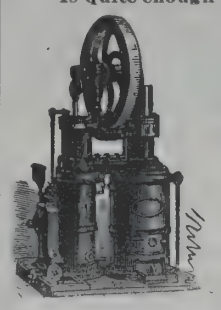
If you want to save your dealer's profits on everything you eat, wear or use, send 15c for our 1128-page Wholesale Catalogue. Millions are saving ⅓ of their former expenses by trading direct with us. If you want both Wall Hanger and Catalogue enclose 20c.

MONTGOMERY WARD & CO.

Michigan Ave. and Madison St., Chicago. 49

HALF ENOUGH WATER

Is quite enough for some people, but most people want water every day. If

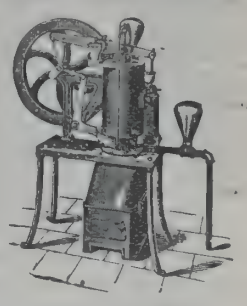


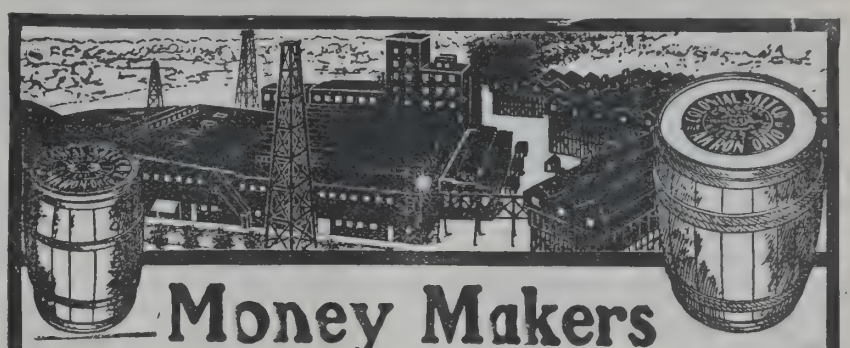
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Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.

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40 N. 7th St., PHILADELPHIA
Teniente Rey, 71 HAVANA
22 Pitt St., SIDNEY, N. S. W.





Money Makers For Butter Makers

Behind "Colonial" and "Liberty" Butter Salts stands the great Colonial Salt Company plant—absolutely sanitary, modern, and cleanly

Daily output 750,000 pounds.
Storage capacity 25,000 tons.
Six salt wells 3,000 feet below the surface at our plant—the purest bed of rock salt in the country—daily capacity 400 tons of salt.
Cooper shop capacity 2,000 barrels daily.
3,000 horse power boilers.
Daily supply of coal for evaporating salt, 150 tons.
Absolutely pure water from wells 150 feet deep used to dissolve the salt.
Loading tracks under cover hold 22 cars, while switch outside holds 11 additional cars.
Three trunk lines to the plant, Erie, Pennsylvania, and B. & O., facilitate immediate shipment of orders.
Every step in the process is here done by machinery, from the brine to the salt in the package, thus avoiding any chance of impurities of any kind getting into the salt. All packages are made at the works fresh every day; all cars are packed under cover; thus insuring delivery to the consumer in fresh, sweet, clean packages not soiled in any way.
Of "Colonial" and "Liberty" brands of Butter Salt

THE FLAVOR IS PERFECT
THE COLOR PERFECT WHITE

The purity the highest known, over 99 per cent. They are the lightest salts for the same bulk that there is on the market today; dissolve quickly and evenly, do not wash out in the working nor leave the butter gritty or mottled.

"Colonial" Butter Salt (light flaky grain) and "Liberty" Butter Salt (granulated, every grain the same size and perfectly square) may be tried absolutely free of cost by all who have never used them. A 56 pound sack of either or both will be delivered free on request, in return for which you are asked to report to us your actual success with them.

COLONIAL SALT COMPANY, AKRON, OHIO.

BUTTER FOR UNCLE SAM

THE CONTINENTAL CREAMERY COMPANY
TOPEKA, KANSAS

Has been awarded the contract to supply the United States Navy with half a million pounds of butter for the ensuing year.

For this purpose only the best quality of butter is used, and its keeping quality must be made of the very best, owing to the fact that the entire year's supply must be made within a few months and it is carried through all conditions of climate.

The government has made a thorough study of supplying butter to suit the requirements of the Navy and as a result it has laid down some very exacting standards to which those who bid for these contracts must comply. One of the few concerns who can fulfill these requirements is the Continental Creamery Co. and it was awarded this contract, which is the biggest single order for butter ever filled.

This company produces the greatest quantity of fancy creamery butter in the world, all of which is made from pasteurized cream. Surely it knows something about making good butter. It also knows from actual experience and the investigations of its chemists, that one of the factors in making good butter is

WORCESTER SALT--IT USES NO OTHER

FOR SALE BY ALL CREAMERY SUPPLY HOUSES.

WORCESTER SALT COMPANY
168 DUANE STREET, NEW YORK.

the Illinois Experiment Station. He came to my farm once in seven weeks, took a sample of the milk and tested it himself. He looked closely after what was being fed to each cow; the feed was not weighed constantly, but the milk was weighed at every milking and an accurate record kept. If there is anything that isn't just right here, it must be on the feed line, but Mr. Glover is a very intelligent, conservative man.

(Continued next week.)

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Creamery Patron's Reading Matter.

ED. HOARD'S DAIRYMAN:—This is a subject of vital importance; especially is this true if the patron desires to make the best possible use of his time. The busy, thoughtful, active patron has too few hours to devote to reading. He wishes to keep informed on the condition of the markets, to know what is being put in print in his especial line of farm work that is new and which can be turned to advantage on his farm. He wishes to keep abreast of what is being done in local affiars; and also to keep in touch with some reliable information of the world's work and important events in politics, science, art, inventions and religion.

With this patron to read a half an hour means to read for a purpose. He wants something to the point. The best there is in his especial field is what he is looking for, and he will not be satisfied with second hand matter. It must come first hand from reliable sources and should come regularly.

Such a patron will have the best dairy paper in this, or any other country, and it will receive his attention, first of all the papers coming to hand at any one time. One or two local papers, and one which deals with general affairs, together with the best farm paper in his state will constitute the chief part of the reading of the active working patron. General culture and religious thoughts may be added o suit the individual taste.

But comparatively few people have formed the habit of using time well. The reading habits of most people have been developed by a haphazard reading of what came in their way, and often this has developed a taste for matter which not only is of no use whatever in the reader's occupation, but is of positive harm; first, because it has killed the time required to read it; and second, because it cannot be dropped there, but remains in the mind detracting from the efficiency of manual labor and blocking useful thought. No progress is or can be made. This kind of reading tends towards working by rote and time service. It blights ambition and brings discouraging returns in its wake.

It has been said "of the making of books there is no end" and the lists of periodicals are being lengthened with every passing month. We are crowded with both books and papers, until only a happy few can draw the line and firmly shut out what is not wanted, while keeping a moderately small list of what is best for themselves and families. We would that we could count ourselves one of this charmed circle, with no doubtful decisions as to excluded or included list.

Every patron is supposed to not only represent a family, but to be the head of that family. This may not be always literally, but should be generally, true. There is, then, to be provided reading for the whole household. Other members will be interested in the local, general and other departments of the papers already mentioned. These may be full and attractive enough to leave nothing more to be desired, or one or two papers devoted to such matters as the ladies desire and one for the young people might be added. If any members are especially interested in gardening, poultry, bee keeping or other branches of course the leading periodical for that industry would be indicated.

Recently we have asked for a voluntary contribution to this subject by the patrons of the co-operative creamery at Skowhegan, Maine. Readers will remember some articles about this creamery and its patrons early in this volume of the DAIRYMAN. These voluntary reports give the names of periodicals and the number of years they have been coming to the tables of the patrons who report.

As in the former case, about one-third of the persons addressed replied to the inquiry. Of these replies 81 per cent were from persons who had replied in the former case, and 19 per cent of these replies were from persons who were not on the list which received the previous circulars.

Ten per cent of those who replied to the questions asked, subscribe to one of two distinctively dairy papers, and all but one of these are reading HOARD'S DAIRYMAN.

Fourteen regular farm papers are going to 81 subscribers among these reporters, being approximately one-fifth more than one paper apiece. There are sixty subscribers to one or more local papers. The *Somerset Reporter* is taken more largely than all others and the average term of subscription exceeds fifteen years. A number of these subscribers take more than one local paper and quite a percentage do not take the local paper, or any one which can be counted as a dairy or farm paper.

Seven woman's papers reach eleven subscribers among these reporters, and the average time these have been on the subscription lists is above three years.

Eight religious papers have been reaching seventeen subscribers for ten or more years each on an average. In one case forty-five years.

The following periodicals appear once or twice each in the reports received:

McClure's, Munsey's, New York Independent, Outlook, Review of Reviews, Everybody's Magazine, Saturday Evening Post.

Of the papers devoting much space to fruit growing are *Rural New Yorker* and *Green's Fruit Grower*, the latter appearing six times. The *Rural New Yorker* has been included amongst farm papers.

The *New York Tribune, New York Tribune Farmer*, and *Tri-Weekly Tribune* appear several times, the former having been coming to its readers 30 to 40 years and the others for about two years each.

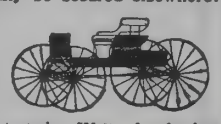
There are in many cases too many papers, some 2 or 3 of which could well

Factory Price

Direct to You

We are the only general merchandise house which owns, controls and directly manages a vehicle factory. We build our vehicles from the ground up and know what's under the paint. We add but one small profit to the cost of material and labor, hence our customers are getting a better made job in a finer finish and at a lower price than can possibly be secured elsewhere.

$19.80



"LEADER" Road Wagon — Imitation leather trimmed; carpet, wrench and shafts; just as illustrated. Write for further description.



$25.50

"CHALLENGE" Buggy—24 in. body, cloth trimmed; top, back and side curtains, storm apron, carpet and shafts. Write for details.

We also have better grades up to the very best and most stylish that can possibly be put together.

VEHICLE CATALOGUE FREE. Send for it today. It will give particulars about the above work. It also illustrates and describes the newest and best line of Runabouts, Stanhopes, Buggies, Phaetons, Surreys, Carriages, Carts, Spring Wagons, etc., ever quoted direct to the buyer. It explains the difference between good and unreliable work—between the hand-painted and the dipped buggy—and also explains our Guarantee of Satisfaction and

30 Days' Trial Offer.

Send a postal today for our Vehicle Cat. No. E1.

Montgomery Ward & Co.

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A special circular quoting our entire line of Sleighs, Sleds, etc., will be sent at the same time, if you request it. 40

SURE CURE! RUPTURE



Brooks Appliance. New discovery. No obnoxious springs or pads. Automatic Air Cushion.

Binds and draws the broken parts together as you would a broken limb. No salves. No lymphol. No lies. Durable, cheap. Pat. Sept. 10, '01. Sent on trial. Catalogue free.

BROOKS APPLIANCE CO. Box 816, MARSHALL, MICH

THE TORTURING PAINS OF NEURALGIA yield promptly to

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THE ONLY LOW DOWN

Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the market.



20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished.

Send for catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.

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The National

LOW DOWN CUT-UNDER

justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

THE NATIONAL WAGON COMPANY, Chillicothe, Ohio.



BEST MILK WAGON ON EARTH

SOLD DIRECT TO CONSUMER ONLY

Highest Grades. Lowest Prices. Guaranteed. Shipped on Approval. Full line Buggies and Harness. Write for Catalogue and Prices.

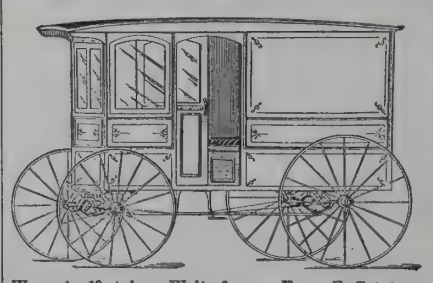
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PRICE TALKS WITH QUALITY BACK OF IT.

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TERMS—⅓ Cash and balance 1, 2, 3, and 4 months notes or 5 per cent discount for cash



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SPLIT HICKORY SPECIAL BUGGY

Built to your order and shipped right away on **30 Days' Free Trial** with a two years' guarantee.

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Good as others ask $75.00 for.



Send for our FREE 136-page catalog of Split Hickory Vehicles and Harness. NOTE—We carry a full line of high grade Harness, sold direct to the user at wholesale prices.

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We are the largest manufacturers of Grooved and Plain Tire Steel Farm Wagon Wheels in America. We guarantee our patent Grooved Tire Wheels to be the best made by anybody anywhere. Write us.

HAVANA METAL WHEEL CO.

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MODERN DAIRY WAGONS

Our new catalog illustrates and describes modern wagons for every line of business, including some of the handsomest dairy wagons made. Send for a copy today.

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QUINCY, ILLINOIS.

WRITE TO US.

Every farmer should write for our illustrated catalog, explaining all about the

DREW ELEVATED CARRIER

—how it does the work of a hired man—carries the manure from stable to barnyard—drops it just where desired—returns automatically for another load—and you stay in the barn and "**Watch it work for you**"—it is self-operating—works perfectly and passes over anything on its trips in and out of the barn. The Drew Elevated Carrier saves more each year than it costs and every farmer should have one. It also carries ensilage, grain, fodder, etc., from one point to another. It does away with the barnyard wheelbarrow.



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Drew Elevated Carrier Co., Waterloo, Wis., U. S. A.

Cherry's Perfect Barn Equipments.



Manure Carriers, Feed Carriers, Grain Elevator, Barn Door Fixtures and Hay Tools. Send for illustrated Catalogue H and Price List to.....

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The "STAY THERE"

Aluminum Ear Markers

are the best. Being made of aluminum they are **brighter, lighter, stronger and more durable** than any other. Fit any part of the ear. Nothing to catch on feed trough or other obstacle. Your name, address and any series of numbers on each tag. **Sample tag,** catalogue and prices **mailed free.** Ask for them. Address

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LABEL

Dana's White Metallic EAR LABELS

stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Sample free. **Agents Wanted.**

C. H. DANA, 55 Main St., West Lebanon, N. H.

"ADVERTISEMENT."

For Singers and Speakers.

The New Remedy for Catarrh is Very Valuable.

A Grand Rapids gentleman who represents a prominent manufacturing concern and travels through central and southern Michigan, relates the following regarding the new catarrh cure, he says:

"After suffering from catarrh of the head, throat and stomach for several years, I heard of Stuart's Catarrh Tablets quite accidently and like everything else I immediately bought a package and was decidedly surprised at the immediate relief it afforded me and still more to find a complete cure after several weeks' use.



"I have a little son who sings in a boys' choir in one of our prominent churches, and he is greatly troubled with hoarseness and throat weakness, and on my return home from a trip I gave him a few of the tablets one Sunday morning when he had complained of hoarseness. He was delighted with their effect, removing all huskiness in a few minutes and making the voice clear and strong.

"As the tablets are very pleasant to the taste, I had no difficulty in persuading him to use them regularly.

"Our family physician told us they were an antiseptic preparation of undoubted merit and that he himself had no hesitation in using and recommending Stuart's Catarrh Tablets for any form of catarrh.

"I have since met many public speakers and professional singers who used them constantly. A prominent Detroit lawyer told me that Stuart's Catarrh Tablets kept his throat in fine shape during the most trying weather, and that he had long since discarded the use of cheap lozenges and troches on the advise of his physician that they contained so much tolu, potash and opium as to render their use a danger to health."

Stuart's Catarrh Tablets are large pleasant tasting lozenges composed of catarrhal antiseptics, like Red Gum, Blood Root, etc., and sold by druggists everywhere at 50 cents for full treatment.

They act upon the blood and mucous membrane and their composition and remarkable success has won the approval of physicians, as well as thousands of sufferers from nasal catarrh, throat troubles and catarrh of the stomach.

A little book on treatment of catarrh mailed free by addressing F. A. Stuart Co., Marshall, Mich.



A Household Necessity

is a good lantern. A poor one—the smoking, flickering, faintly gleaming kind which blows out easily—is an abomination. You've seen them, perhaps you own one. The reliable kind is the

DIETZ
Cold Blast LANTERN.

They are the lanterns of bright, clear, strong, white light, the thoroughly convenient and safe lanterns. No other approaches them for satisfactory service. Local dealers everywhere carry them. We send you lantern book on request to make selection. Write us.

R. E. DIETZ COMPANY, 94 Laight St., New York.
Established 1840.

give place to one really good dairy or farm paper.

Some lists taken at random are as follows:

	Has been Subscriber for years.
Daily Kennedy Journal	1
HOARD'S DAIRYMAN	1+
Somerset Reporter	5
Another includes:	
Bangor Commercial	15
Green's Fruit Grower	3
Somerset Reporter	20
Youths Companion	15
Another:	
Country Gentleman	3
HOARD'S DAIRYMAN	4
Maine Farmer	5
Another good list is:	
Somerset Reporter, (local)	10
Maine Farmer (state)	9½
HOARD'S DAIRYMAN	3
Farm Journal	½
Tri-weekly Tribune	2
Youth's Companion	14
Munsey's	1
Still another list runs thus:	
Lewiston Journal (a state paper)	30
Maine Farmer " "	25
Somerset Reporter (local)	25
Evening Mail "	3
Waterville Sentinel "	3
Norridgewack Gazette (local)	5
Thrice-a week World	1

Six miscellaneous and story papers completes this list.

It is notable that those whose names were not on the lists a year ago are not subscribers to any regular dairy paper, but are taking papers having second hand farm departments, except in two or three cases. These are probably new members of the creamery association, among whom may be some of the most progressive of its future patrons.

The most popular papers among these patrons appears to be *Somerset Reporter*, *Maine Farmer*, *Bangor Commercial* and *Lewiston Journal*, all state papers except the *Reporter*, which is published here at the county seat.

After our study of the conditions existing in this section, and the high cost of cattle foods, which dairymen must submit to, it seems impossible that they can realize what can be saved to themselves by subscribing for a good dairy paper and following its instruction.

It is entirely within seasonable limits to assume that $200, spent by two hundred of these patrons for HOARD'S DAIRYMAN now, Jan. 1, 1904, could easily save them in cost of feed plus what they would be likely to gain in increased yields at the creamery fully $2,000 this winter; besides their better attention to the details of handling the milk, will tend toward a higher grade of product from the factory.

We would urge every patron to study the subject of alfalfa growing to reduce feed bills, and to prepare a half acre at least for a practical trial of this plant this year. Give the best preparation possible and watch the outcome with care. It is promising of good results, and well worth the trial by every dairymen in Somerset county. FRANK E. EMERY.

Maine.

A Michigan Herd Record.

ED. HOARD'S DAIRYMAN:—Being a subscriber to your valuable paper, and having noticed reports of several dairy herds, but none from our immediate locality, thought would send you report of the herd I have been managing, for the year 1903.

This herd is composed of four Holsteins, three Jerseys and the rest grade Holsteins, Jerseys and Short-horns, all of fairly good, dairy type.

Number of cows in herd	24	
Total No. lbs. milk	154,116	
Average No. lbs. milk per cow	6,421.50	
Average price per 100 lbs. milk	$1.246	
Net receipts for milk used and sold		$1,921.28
COST OF FEED.		
Coarse feed	$232.96	
Grain	303.28	
Pasture	301.00	
Roots	24.60	
		$861.84
Net returns above cost of feed		$1,059.44
Average receipts per cow	$80.05	
Cost of feed per cow	35.91	
Net receipts per cow	$44.14	
Cost of labor 8 hours per day at 15 cents per hour for year	$438.00	
Investment, 24 cows at $50--$1200		
Interest on same at 6%	72.00	
Loss by death, two cows	100.00	
		610.00
		$449.44
Value of manure for year		182.50
Net receipts above all expenses		$631.94
Rate of interest on $1200 investment	52⅔%	

Pontiac, Mich. F. C. K.

Made for the Man Who Wants the Best.

One Man Can Spread More Manure



with our **Great Western** Endless Apron Spreader than 15 men can spread by hand, and when spread with the Great Western it is thoroughly pulverized and spread evenly, which makes 1 load equal to 3 that are spread by hand. **Made in 8 Sizes. Capacity 30 to 70 Bushels. Spreads** all kinds of manure, compost, lime, land plaster, wood ashes, cotton seeds and hulls. **It saves** time, hard back aching work and money, and more than pays for itself the first season. **Endless Apron** is always ready to load, no cranking back after each load is spread. **Can be regulated** while in motion, to spread thick or thin from 3 to 25 loads per acre. **Front Axle** is the same length as the hind one, making wheels track. Front end of box is close to horses which gives the **lightest** possible **draft. Non-Bunchable Rake** keeps all large chunks on top of beater until they are thoroughly pulverized. Combined Hood and Endgate keeps manure away from beater while loading and acts as hood in spreading. **GUARANTEE.**—We use the very best material in this machine that money can buy and we guarantee it to handle any kind of manure, no matter what it is, and if any parts break we will furnish new parts any time within one year without charge. Send for large catalogue giving illustrations and descriptions. Tells how to apply manure to secure best results.

SMITH MANURE SPREADER CO., 16 & 18 S. CLINTON ST., CHICAGO, ILL.

NEW AMERICAN MANURE SPREADERS



hold from 50 to 100 bushels. Spread just as thin or thick, fine or coarse, as the ground requires. Don't have to stop team to make change. Most substantial, largest capacity, lightest draft. Finely illustrated catalogue free.

AMERICAN HARROW CO.
1436 HASTINGS ST. DETROIT, MICH.

A Free Trial

convinces you that this mill grinds the small grains, shelled corn, cob and corn or all mixed, better and faster than any other. Return at our expense if it does not.



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in 3 sizes, are made to meet every feeder's needs and sold at right prices. Suited to any power. It takes but little. Write us for catalogue. It's mailed free.

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"Once Grown Always Grown"

The Maule motto for more than 25 years. My new

SEED BOOK for 1904

Cost over $50,000 to publish. If you have a garden you can have a copy for the asking. Send a postal for it to

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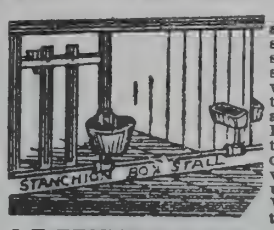
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AT ACTUAL COST OF WIRE

Horse-high, Bull-strong, Pig and Chicken-tight. Wire at Wholesale Prices. Catalogue Free

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It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. **Why not use the Best?** Write for descriptive circular.

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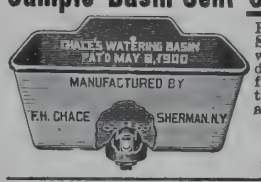
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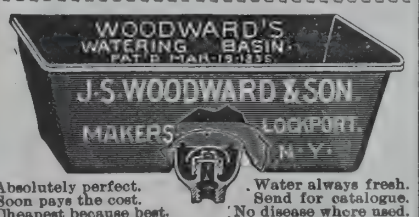
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Sample Basin Sent ON APPROVAL.



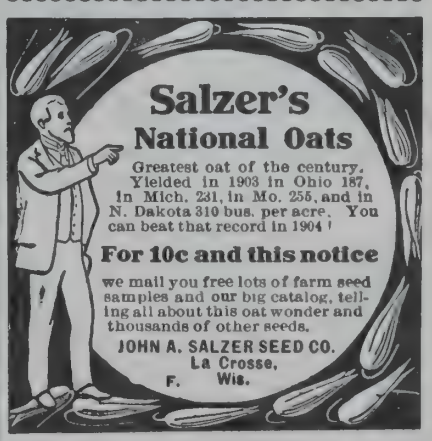
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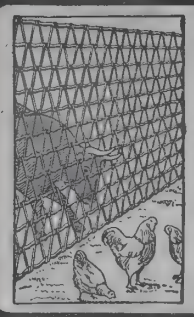
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To sell direct to the farmer the strongest fence in the world, we must not only use the best ***HIGH CARBON SPRING STEEL WIRE,*** heavily galvanized, but we must build so that the greatest textile strength of material is maintained. Sixteen years, spent in perfecting ***Coiled Spring Fence,*** each year showing an added degree of perfection, has brought us to a point where we can proclaim with a confidence born of attainment that

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Cheapest because the highest skill of the craft has been utilized to reduce the cost of manufacture, and this achievement, coupled with the largest output of the largest and best equipped plant in the United States devoted to fence manufacture, enables us to name you the ***VERY LOWEST PRICE AND WE PAY THE FREIGHT.*** Buy direct. We sell to you as cheap as dealers can buy. Put the dealer's profit in your own pocket. Examination permitted at your station; your money back if not as represented. Completion of sale rests wholly upon your judgment. Write us; we have something more to say to you. After correspondence is opened, you have your judgment to defend your interests at every advance of the deal. Our Catalogue is free, and is full of fence lore.

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The Extra Money

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and mode of construction, are very different. Page Fence is the only woven fence made of Basic, High-Carbon wire stock. That is better.

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16 to 35 Cents Per Rod.

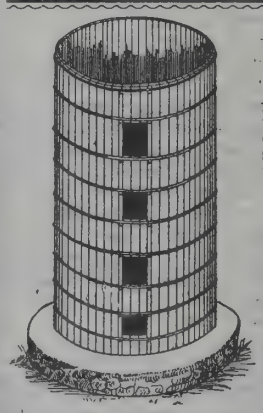
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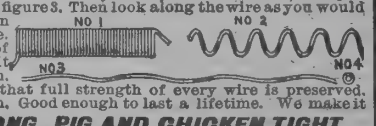
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Take a piece of No. 12 wire and coil it firmly around an inch rod of iron, as shown in figures 1 or 2. Try to pull the coil out of it. You may think you have done so, but upon releasing, it will assume shape shown in figure 3. Then look along the wire as you would a gun barrel; it will appear as shown in figure 4—has the appearance of a tube. This explains the great advantage of **COILED SPRING WIRE** and how it provides for contraction and expansion.



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We have a valuable book called "Warm the Water and Save the Feed," which we will send you FREE. It's worth $1.00.

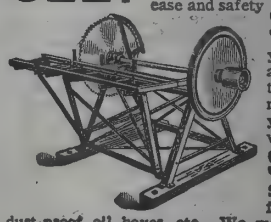
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With an **APPLETON WOOD SAW** you can rapidly and with ease and safety



SAW

your own wood and **SAVE COAL,** time, labor and money; or saw your neighbor's wood and make

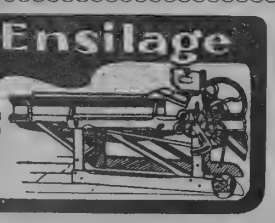
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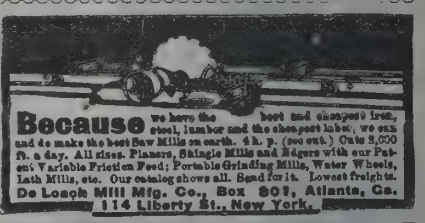
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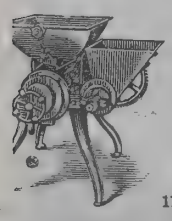
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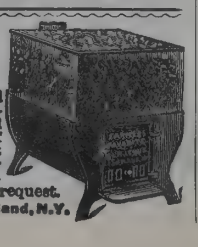
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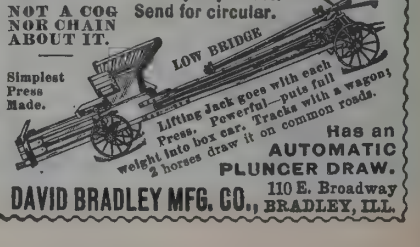
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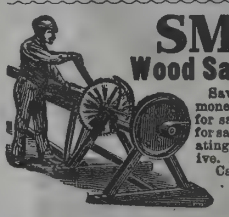
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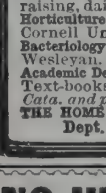
Devoted to Dairying and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., JANUARY 22, 1904. NUMBER 50

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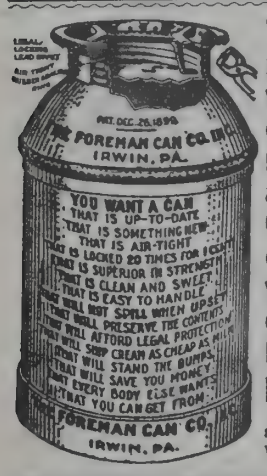
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The pure food agitation makes it imperative that butter makers use a color that is beyond suspicion. Every drop of Thatcher's Orange Butter Color is guaranteed purely vegetable, absolutely harmless and safe anywhere.
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Every can sold on a guarantee.
Write for Circular H



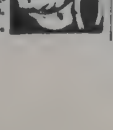
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and your worst, are easily found by using ***Meloney's*** Automatic ***Milk Scale.*** It registers automatically the daily individual yield of your cows—the records enabling you to rid the dairy of the unprofitable ones. Simple, Practical; no dairyman can afford to be without it.
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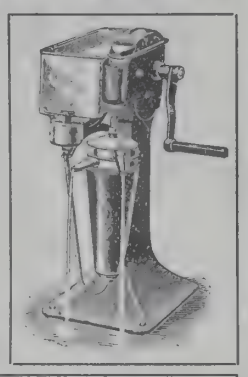
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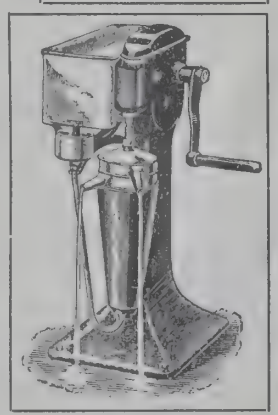
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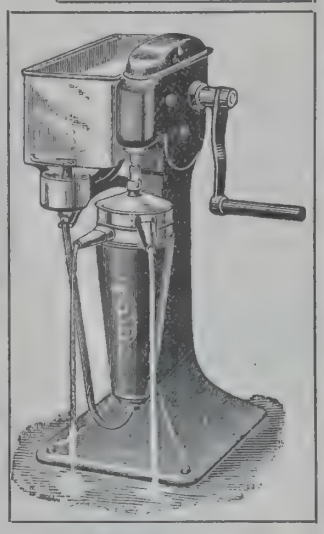


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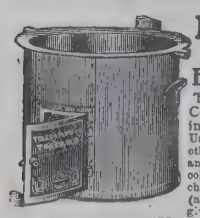
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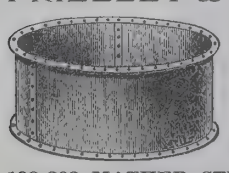


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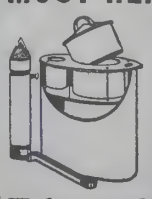
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An Experiment in Animal Breeding.

In 1902-3, the yearly average of the Cornell herd was 301 lbs. fat—a gain in 19 years of 28 lbs. Not great, perhaps, but a good deal, from where they started. It is not easy to break records. It has taken years to lower the race track records a few seconds. The above record is remarkable for the breed, and would be much larger in the equivalents for butter.

The selections saved, after 19 years of experiment, number 6 from the grades, and averaged in 1902-3, 321 lbs. as against 330 in 1892-3, or no gain to their credit. There are 6 left of the full-bloods that averaged in 1902-3, 314 lbs., as against 193 lbs. in 1892-3—a very decided gain. In other words, in this case the man who had chosen pedigree in preference to performance, would have gotten the greatest gain.

Were it not for the fact that every one of the calves dropped by these six full-bloods was raised, I would not think that the experiment proved much, for the grades have made about the same amount of butter. I suppose one can get much comfort out of the experiment, for either side. To me the value is greatest in the fact that by the use of good, well-bred stock, of a pure breed, which can be bought very reasonably now, one can get such a herd and such results. The Professor concluded by asking us to ponder on these suggestions: 1. What, if any, are the limitations of selective heredity? 2. The distinction between a cross-bred and a grade. 3. The use and abuse of inbreeding.

Glista and Netherland Remus produced Glista 2d. She was served by Netherland Remus, her sire, and produced Glista Netherland. Glista 2d. was served by this son four times and produced four of the six cows in the herd in 1903. Glista 4th, her sister, producing the other two: Query: "Was this inbreeding the cause of the increase?" The cows from the two sisters of same breeding are of two types. Query: "Why do they differ, and why does not their offspring from the same sire show a mingling of these two types?"

The question was asked, "Which would you choose for a sire to head your herd, the bull calf without rudimentary teats and a good pedigree, or a really fine calf with well developed teats and all the signs, without a pedigree?" Answer: "I would take the pedigreed calf." "To what extent would you let pedigree govern? was answered: "If it can be expressed in figures, 70 per cent."

I assume that when we say, "Like produces like," we mean that the combined likeness of all the ancestors (i. e.), the breed and not the particular individual before us, is meant. The extra, perfect animal may be a "sport," a variation from the average type. Sports are uncertain for breeding. There is plenty to study about yet.—C. E. C., in *Ohio Farmer.*

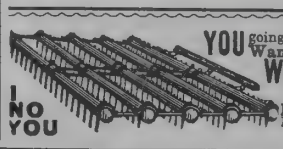
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Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Entered at Fort Atkinson, Wisconsin, as second-class matter.

Stable not Properly Ventilated.

Moisture and Frost on Under Surface of Roof.

ED. HOARD'S DAIRYMAN:—During the last summer I built a barn 30ft.×85 ft., with an ell on one side 20×30, putting the ell on one side 20 ft. from one end, letting the floor run clean through the main barn. This leaves 20 ft. of main barn which is used for horses and box stalls. The ell is used to store the wagons, etc. The cow stable is on the other end of barn, which leaves it 45 ft. Have arranged the cows in two rows facing outward and have put in swing stanchions, allowing three feet per cow, giving me room for 30 cows. The stable is double boarded and papered between, matched spruce being used for the outside boarding, so that I have a very tight and warm stable.

Now comes my difficulty, and I want some advice through the DAIRYMAN. I wish to say that my plan for the barn was taken from its published plans of barns, and through the description I have been able to build me a barn that is to be most satisfactory at reasonable expense, and therefore I come to the DAIRYMAN for more advice.

In finishing the barn there was no provision made for ventilating the stable, other than up through the hay chutes, and I find now in cold weather that there is moisture and frost collecting on the underside of roof, which I must prevent in some way and at the same time give proper ventilation to the stable. I have read a good deal about the King system and think I understand the method of taking the fresh air in at the top of stable and drawing it off at the bottom, but what I want to know is how many flues and how large, what they should be made of and how to properly put them in the cow stable. I should have said that the posts from the bottom of cow stable floor to plate are 20 ft. Supposing I ran the flues up the side of the barn in front of cows to the eaves and say five feet above the roof, making the flue practically twenty-five feet high, would that be sufficient? What I want is some method to prevent the frost and moisture in the upper part of barn, and at the same time properly ventilate the stable, for the best health of the cows, whether it is the King system or some other. I might also add that I have water tight gutters, six in. deep by 16 in. wide behind the cows, and the manure is run out in a manure carrier to a manure shed which is designed to keep stable as clean as possible. G. R. R.

Sheldon Junction, Vt.

The collection of moisture and frost could probably be obviated by a ventilating cupola in the ridge, but for all purposes, we should prefer constructing an independent ventilating flue outside and in the angle where the ell joins the cow stable. For 30 cows, the inside of this flue should be not less than six square feet in cross section, and more, say three feet square, would not be objectionable. It should be built on the same principle that chimneys are constructed—air tight and without any openings to interfere with draft. Like a chimney also, it should rise a little higher than the ridge of the barn.

A similar, but smaller, flue built in the angle next the horse stable would add very much to the purity of the air in that section. Have full sized openings at the bottom of these flues for keeping the stables warm in winter, and at the ceiling to let off the heated air in summer, with proper slides to close one or the other, wholly or partly, as conditions may require.

A California Cow Census.

The idea, first started by HOARD'S DAIRYMAN, of thorough census work in investigating the results of individual herds of cows, and through such investigation to show the wastefulness of ignorance, as well as the profits of intelligence, is being widely adopted.

The latest census was taken by the California State Dairy Bureau in the three counties of San Luis Obispo, Monterey and Marin. The following table is interesting, although not as full and complete as those worked out by the DAIRYMAN. Two facts are brought out by this table: (1) The low average of performance of these Californian cows; (2) the same difference in result that other cow censuses have shown, tracing back for this difference, as a cause, to the ignorance or intelligence of the owners concerning modern dairy practice:

DAIRY NUMBER.	Acres.	Cows.	Butter lbs.	Average per cow.
SAN LUIS OBISPO COUNTY.				
1	1600	80	10800	135
2	3500	395	45200	114
3	300	30	3498	116
4	375	35	4230	121
5	600	80	11020	137
6	600	110	16520	152
7	280	30	2850	95
8	540	48	6810	138
9	1286	145	18256	126
10	1500	180	28705	159
MONTEREY COUNTY.				
1	220	50	4620	92
2	300	12	1110	99
3	150	30	4500	150
4	300	30	2000	67
5	100	30	3000	100
6	800	75	11635	154
MARIN COUNTY.				
1	1000	140	22100	157
2	600	85	20250	237
3	780	52	7300	141
4	800	60	14370	238
5	1200	165	27130	164
6	1500	200	32025	161
7	1500	75	11220	150
8	900	120	30782	255
9	1073	148	26118	176
10	500	70	11280	161

The Dairy and Produce *Review* of San Francisco, from which we take these figures, makes the following comment:

"The reports show simply the roughest kind of guess-work. Instead of the dairymen knowing positively what their business is and what it is doing, the most conspicuous feature is the low average production by the cows in the many cases where the production is no doubt reasonably, accurately reported." * * *

All these dairies reported in the table represent those whose owners make an exclusive business of dairying, and how such people can continue in the business for many years, as most of them have, without realizing that dairying with cows with the producing capacity of those reported, is a waste of human effort, is almost impossible to understand."

The *Review* further says that there is but little if any effort made by these farmers, through breeding, to improve their cows. This is very likely true, and it is true in the east as well as in California. The difficulty is not alone "poor land, poor cows and poor methods," as the *Review* says, but it is there as every where a wide spread ignorance of what constitutes a dairy cow. Such proverty stricken results could only come from such ignorance. Do not these cow census reports show as with a search light, the great need of some means of dispelling this great cloud of ignorance?

Some of our California friends have written us saying the HOARD'S DAIRYMAN was not fitted to their latitude, because dairying on the Pacfic coast was so unlike dairying in the east. We notice however, that the poor dairyman and poor cow, east or west, are much alike in the wretched character of their outcome.

Various Silo and Silage Questions.

ED. HOARD'S DAIRYMAN:—The subject of silos has been talked quite extensively, through your columns. Yet, I have not seen anything that exactly fits my case.

We wish silage capacity for 25 milch cows, 5 yearlings and 4 horses. We have half this amount on hand at present and in a couple of years, hope to have the limit. We think in this case we need 2 silos, a summer and one for winter, but while we have not the maximum stock now, we wish to erect one silo to use until we are needing the second one. I wish both to be about the same capacity, when erected. Will some fellow dairyman tell us how large each one of these silos should be, to furnish feed for 12 months?

(I would like for our worthy editor to suggest right here.) I shall build a round cement silo, upon the principal of Mr. H. B. Gurler of DeKalb, Ill. I have visited his dairy farm and am satisfied his plans, buildings and manner of handling milk are good enough for me. I wish my silos to be some 6 or 8 feet in the ground; provided this will do. I purpose putting a concrete wall 6 or 8 inches thick from the bottom up to the surface and build the remainder above ground on this wall. I would like to be sure it is a safe plan to go down so deep in the earth.

I wish the best variety of corn for silage. Will red clover keep if cut green and thrown into a silo without running through cutting box? I wish to put 25 or 30 tons of green clover in the silo in June and commence immediately to feed and continue so, until corn will do to make silage and then throw the corn in on top of the remaining clover. Will this plan work out O. K?

How much Portland cement will be needed per square of 10 ft. giving 1 coat, ½ inch thick and how many parts each cement and sand?

Some good brother give his experience raising corn and peas together for silage, time of planting each, if drilled or planted in hills? What variety of peas?

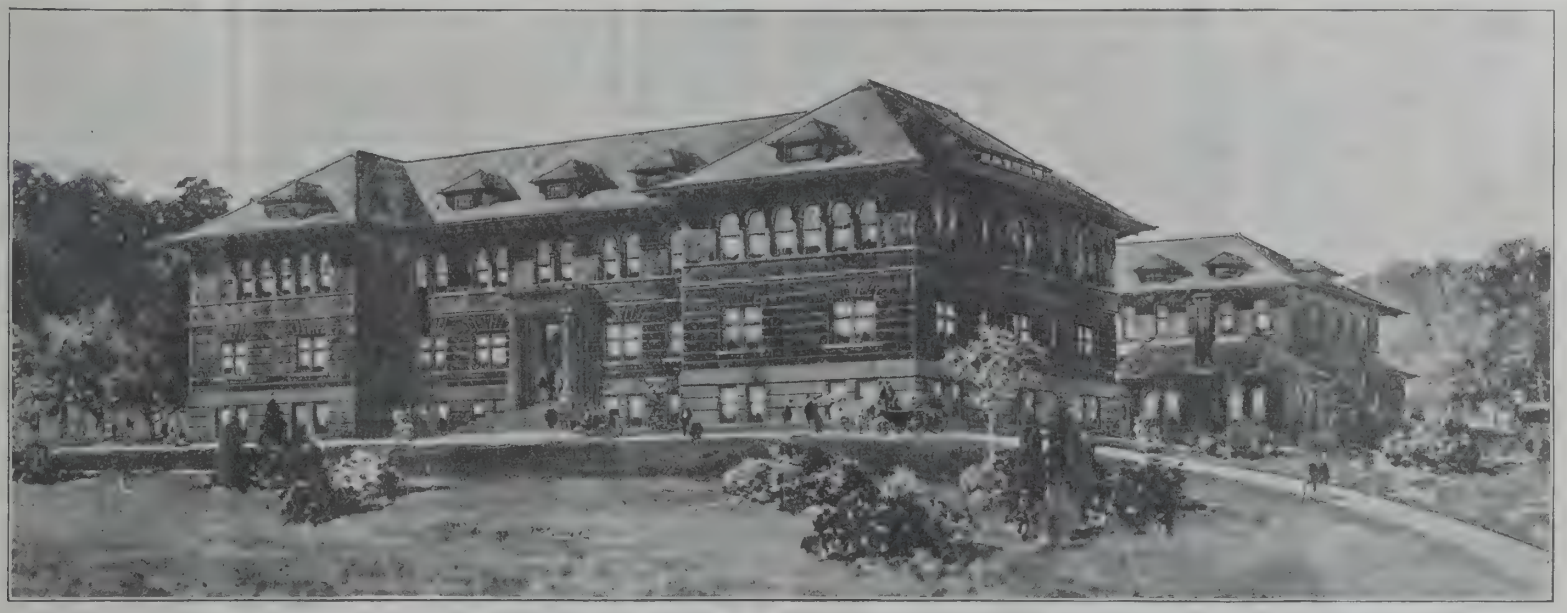
Lewis Co., Mo. E. A. D.

We should consider silos of 108 tons capacity ample for the purposes specified, but should prefer to have the bottom of silo not more than 5 feet below the level of the feeding floor although there is no insuperable objection to going deeper. The internal dimensions of such silos may be 16×28 ft., 17×26 ft. or 18×24 ft.

Undoubtedly clover may be stored in the silo as suggested, but our judgment is that for convenience in feeding, if for no other reason, it would be expedient to run it through the cutting box.

The best variety of corn for silage is that which will make the largest yield in the locality and reach maturity before frosts may be expected.

The "authorities" usually recommend



NEW DAIRY AND AGRICULTURAL BUILDING FOR THE STATE COLLEGE, PA.

1 part cement to 2 parts sand, but very frequently 3 parts sand are used. We seem to be unable to find any tables specifying the amounts that will be required, but any experienced mason could make a very close estimate.

We expect a full account in a short time, from a Missouri correspondent, of his methods of growing corn and cow peas for silage.

Making Rennet Extract.

ED. HOARD'S DAIRYMAN:—Do you knew of any book published that tells how to make first-class rennet. If not, please tell me how to make it.

Woods, Ore. MRS. A. E. R.

The following method of preparing rennet is taken from Decker's Cheese-making.

Prepare a sufficient number of rennets, say 500, by splitting them open so that the water can get into them. Then take a clean, oak barrel, put the rennets in and fill with water until they are covered. Salt should be added in proportion of 3 lbs. salt to 100 lbs. water. The rennets should be stirred up and pounded every day to facilitate the solution of the ferment and at the end of the week the water should be drawn off and the rennets wrung out with a clothes wringer.

They should be put into water again and again soaked for another week and the same operation gone through with. As a usual thing, the ferment has not all been extracted from the stomachs till they have been soaked for four weeks. The liquid that has been obtained by soaking the rennets should be filtered through clean straw, charcoal and sand, and an excess of salt added to preserve it. The extract should be of a clear, dark color. The first sign of decomposition of rennet extract is a muddy appearance. The above method is for a large amount, but smaller quantities can be made by following the above proportions.

At the price at which rennet extract is sold, it is doubtful if it will pay to make small amounts.

Cleaning Test Bottles.

In many creameries throughout the country we find buttermakers who do not pay any particular attention to the condition of their glassware in the factory, says C. B. Moak, of the Minnesota Dairy School.

The fact is that after the glassware has once been neglected for one reason or another, it becomes necessary to use some strong cleaning solution, and a good bit of time in again putting the apparatus in a presentable condition. In the following directions one will find a method which has been fully tried and has been found effective as a cleaner and as a time saver.

In a glass or earthernware jar make up a solution of one part bicrhomate of potassium to 25 parts of sulphuric acid, and shake and stir well, so as to dissolve the bichromate of potassium. As soon as the solution has turned slightly pinkish it is ready and may then be used, or may stand indefinitely, without injuring it, except that it will weaken unless tightly corked.

In using, only a small amount need be placed in each bottle, and in handling one should handle this with great care, as it is very apt to spatter.

After adding, shake the bottle for some time so that the sides will have been completely washed, and then allow to stand for a short while and then again shake. After the second shaking, empty the solution back into the receptacle, as this can be used over and over again for the same purpose. After the bottle has been emptied rinse with water from three to five times and then wipe dry with a cloth. After carefully using this cleaning solution upon any glassware, you will find that it looks nearly as clean as when it first came from the manufacturer.

Returns from a Small New York Herd.

ED. HOARD'S DAIRYMAN: — I have been reading the DAIRYMAN for nearly a year. I have read, with much interest, many of the reports from different dairy herds, some of them making the cows yield such a high average that one is almost inclined to stop and wonder if the reporter has accidentally made a mistake and counted only every other cow in the herd or has multiplied the income by 2. But of course we know that nothing of the sort has happened.

I have decided to give you the income from my dairy of nine cows. I began Jan 1st, 1903 with eight cows. Feb. 12th I bought a 3 year Jersey heifer which had been in milk since May '02 and came fresh again in September '03. March 1st I bought a 2 year Jersey which had been in milk since April '02 and freshened again July 31, '03. Both of these heifers were nearly dry when I got them; would not give over 2 quarts each per day. From January 1st '03 to January, 1st, '04 we sold from these nine cows 2319 14-16 pounds of butter for $494.89.

About three fifths of the butter was sold to the grocery trade, the balance to private customers. Price ranged from 17 cents to 28 cents; average a little less than 21 cents. Average per cow counting each a full year, about 258 pounds butter or $54.99. No account has been kept of milk or butter used in family of 5 and part of time 6 persons including 2 small children whose living consisted largely of milk.

Three of my cows are full blood Jersey, one grade Jersey, one grade Ayrshire, rest grade Short-horn. I use a U. S. separator. Am feeding this winter 4 pounds, ⅓ rye, ⅔ oats ground (measure); 4 lbs., ⅓ cotton seed meal, ⅔ gluten feed (weight); 1½ bu. ensilage, no corn in it to speak of and all the bright corn fodder they will clean up. My cows have grain every day in the year although the past season pasture was very abundant, the cows had a lick of grain when they came to the stable. The rye and oats were grown on the farm; cotton seed at $27 and gluten at $25. Can you compound a cheaper ration that will give as good or better results?

This does not compare well with those reports giving the cows an average of $100 or better, but is what just an ordinary picked up, farmer's herd has done, and I consider the cows have made me some money. F. H. L.

Arkport, N. Y.

The Iowa Dairy Situation.

ED. HOARD'S DAIRYMAN:—Your item on page 1038, "The Iowa Dairy Situation," is very true and if old Iowa intends to keep in the lead as a dairy state, she has got to look at the facts squarely and get out and hustle. We young men have got to do different from what our fathers did. We have got to make everything count.

Where is there a state better adapted for dairying than Iowa? And furthermore where will you find a better section in the state for dairying than this Salt Creek Valley? We have a rich soil, with deep hard pan (if you find any at all) free from stones, every foot almost of which can be turned with the plow; wells which flow the year round, pure water that does not vary 4° from 54° above zero summer or winter; railroad accommodations the best: two central creameries, one at Cedar Rapids and one at Mason City, where you can ship your cream and receive one cent less than New York highest price; and all so near Chicago that you can start your butter in the evening and it will be on the market early the next morning. With all these conditions, what better country would you want to dairy in? Iowa has got to build more silos; feed balanced rations; weed out the poor cows and raise better and buy better cows—cows that will make more at the pail: build warmer barns; read and study more; if she expects to keep up her name as the leading dairy state of the Union.

Belle Plaine, Iowa. C. H. R.



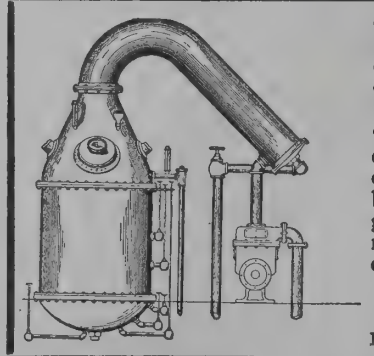


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I supply the most improved machinery and most successful processes for manufacturing all classes of condensed milk and evaporated cream. Factories built complete, put in operation and results guaranteed. If you are interested write for my new illustrated and descriptive catalogue. The only catalogue ever published on the subject.

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(Formerly of Detroit, Mich.)

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CLUB RATES: 2 Subscriptions, $1.50; 3 Subscriptions, $2.00; 4 Subscriptions, $2.50; 5 Subscriptions, $3.00.

Clean Milk *vs.* Pasteurization.

ED. HOARD'S DAIRYMAN:—In your issue of Jan. 8th, Mr. Moldenhawer has some "Convention Afterthoughts." I want to submit that a vast number of us can testify that they are not exactly "afterthoughts." He also claimed, "we would never have pure milk for the masses until we adopt some other more practical method, as proper pasteurization, etc."

First, I want to contradict his "never" and submit that the distinct gain in the quality of milk delivered in our cities from a sanitary and healthy standpoint, is sufficient evidence to warrant a flat denial.

If it was necessary, we could submit statistics of health boards in evidence and not have to go back more than five years. Again, raw, pure milk can be produced at a profit to sell at the normal price prevailing in any city.

While in Boston for the holidays, I visited two of the large contractors who run large wholesale and retail routes. One of them has an expert bacteriologist in charge, the other practices pasteurization. The milk from the former by bacteriological test, has the fewer bacteria twenty-four hours after bottling. The bacteriologist referred to told me they had one very large dairy that during a whole year they had hardly ever exceeded one thousand bacteria per c. c. He expects to reduce it to a system so as to give all retail customers such milk.

The writer was forced to retail the milk of his own dairy, and though we had to begin selling for 5 cents per quart in a village of two thousand, we knew the only way we could get trade was to give better milk. We chose to make its distinction cleanliness, and in two years we had most all the trade, and when grain advanced so we were obliged to charge 6 cents per quart, though a rival sold for 5 cents, out of 170 quarts of trade we lost only 6 quarts.

In other papers I've described under what seemingly adverse conditions we produced that milk. Here I'll only say it tested from 600-1,000 bacteria per c. c. and we couldn't steam sterilize the jars either. Here at this creamery, where we receive as high as forty thousand pounds of milk daily we have several patrons who bring milk regularly with only a few thousand bacteria.

These men tell me everybody could bring just as good milk as they do. I know it is true. Because they don't, what is the result? We have to pasteurize the cream and use pure culture starters. It makes better butter than not to do it, but we cannot get the aroma so highly prized by buyers, that good raw cream gives.

For several weeks I've been studying pasteurization from a biological standpoint and trying also to determine what is the effect upon the consumer of some of the physical changes pasteurization brings about in milk. When I find that perhaps all the germs of the infectious diseases are usually destroyed I say it is a good thing; then I find spore bearing organisms which reappear, and while I'm fairly robust, milk showing a normal growth of some of them will cause me trouble if used a few days, and sometimes only once. I feel backward about endorsing it unqualifiedly. My tests show this one thing very conclusively, that what is "proper pasteurization" for butter making, isn't "proper pasteurization" for milk consumers with whole milk.

It would be far safer for the public to advocate the adoption of such methods as the Boston dealer has in view, than to adopt pasteurization until more work has been done regarding it.

The only kind of milk the writer believes in selling is what is known as "certified milk," but he will venture to take any herd of 50 cows that have been tuberculin tested, and in most any stable, produce milk that will pass the chemical and biological tests of any of the milk commissions and not increase the cost of production over 15c per hundred above that of the usual practice.

Massena, N. Y. F. L. MARION.

Questions by a Young Farmer.

What could you say about a milk route? Is it a paying business?

How many cows could be kept on 39 acres of working land and kept good with a silo, and to raise feed enough for three horses to run the route and the farm?

About how much could be made a year on such a farm with cows, as many as can be kept on such a place, and kept good and sell milk at 5 cents a quart?

How do malt sprouts compare with bran to feed to milk cows with ensilage and clover hay, and how is it best to feed, soaked or dry, and about how much for a feed?

Which is cheapest, malt sprouts at $10 or bran at $17? Are malt sprouts any good to feed to young stock, and how are they for sows and pigs 3 or 4 months old? J. H.

Neenah, Wis.

1. So much depends upon the man in any kind of business that one cannot answer any of these questions with much satisfaction. Some men make excellent profits in distributing milk to city and village customers, while others with equal opportunities make complete failures.

2. The right kind of a man could easily keep 15 to 20 cows on 39 acres of good land. He would have to buy some feed, but with the right kind of management could more than offset this expenditure by keeping poultry and raising garden truck.

3. Good cows should yield 3,000 quarts of milk yearly, but call it 2,500 quarts. At 5 cents per quart this would amount to $125. Deduct from this the cost of delivery, depreciation of outfits, etc, and there should remain $70 to $80, net.

4. Malt sprouts contain a trifle more available nutriment than wheat bran, but as a rule cows will eat them regularly in limited amounts only, say 3 to 4 lbs. per day. They are usually soaked before feeding or mixed with silage, and some other grain should be added, bran or preferably ground corn. Just how good malt sprouts would be for young stock and sows and pigs, we have no means of knowing, but would advise this young farmer to experiment in a limited way.

Silage from Dry, Shocked Corn.

Will you be so kind as to tell one what are the probabilities of making good silage out of corn which is in shock and out in the field.

My silo would not hold all my corn and I wish to cut it now if it can be done. Some claim that it will keep all right; others that it will mold and rot. L. K B.

Otto. N. Y.

The best information we have on this subject came from Mr. J. G. Reine of Vernon county, Wisconsin, last April and was published on page 262 of the current volume.

His report states that his corn was frosted the preceding fall, the gasoline engine for running the cutter failed to arrive on time and he was forced to cut and shock the corn in the field, where it remained for six weeks. When the engine came to hand, he set up his machinery, hauled this frosted and shocked dry corn to his silo, set up a barrel on a bench beside the cutter so that with a bit of pipe and the nozzle of a sprinkling pot on the end, he could, by keeping the barrel filled with water, effectively and evenly wet the dry corn as it came from the cutter into the carrier. To use his own words, "This wet it in good shape."

The last sentence in his letter reads as follows:—"My neighbors all said I was crazy and that it would all spoil and I would have lots of manure to haul out, but, to their surprise, I have good feed."

"ADVERTISEMENT."

THE WAY OUT.

What to do When Food Don't Agree.

When food don't agree, sensible folks make a change.

Where all others fail, Grape-Nuts being predigested and all nourishment, succeeds, usually from the first trial.

A lady of Washington says: "My baby 19 months old had never seen a well day in her life. She had suffered from indigestion from the time of her birth and it seemed impossible to find any food to agree with her. She could keep almost nothing on her stomach, and her bowels were in such a constipated condition she suffered a great deal.

"It was then that I tried Grape-Nuts for her, steeping it thoroughly and straining it, putting a small portion in each feeding and it worked like a charm. She began to improve immediately and gained half a pound the first week.

"Baby got her indigestion from me, for my digestive organs have always been weak. I rely on Grape-Nuts for most of my food, for there are times when I can eat nothing else at all but Grape-Nuts. I am steadily improving and know it will entirely cure me in time, I never have "that tired feeling" any more, I eat Grape-Nuts and feel its effects in improved mental strength very forcibly." Name given by Postum Co., Battle Creek, Mich.

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The weekly sales of the Empire have increased 1,000 per cent in three years. Does that mean anything?



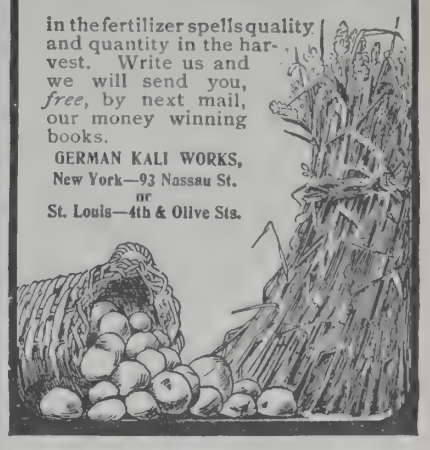
A Golden Rule of Agriculture:

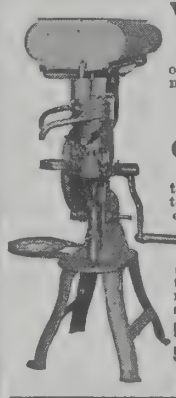
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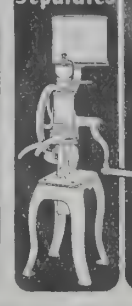
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A Cream Separator is valuable according to the amount of money it makes for you.

The American

Is a Money Maker.

It does its work so well that we dare sell it on approval. The price is low enough to make it a big winner for you the first year. Write for free catalogue.

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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of them read dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

AS IT IS IN INDIANA.

C. P. Goodrich took a cow census at Plymouth, Ind., a few weeks since of 50 farmers patrons of a creamery. Note the following facts: The total number of cows was 250: the average cost of keeping per cow was $24.96; the average returns in butter fat per cow was $32.20; the average number of pounds of butter fat per cow was only 166; the average net price was 19.4 cents: the average net profit per cow above cost of feed was $7.24; the average returns for $1 worth of fead was $1.29. The six patrons who read a dairy paper averaged $21 per cow over and above the cost of feed, while the 44 who did not read a dairy paper received only $5.58 per cow above the cost of feed. Does it pay to go without sound dairy reading?

COMING EVENTS.

Ohio Dairymen's Association, Columbus, Jan. 27-29, 1904.

Massachusetts Creamery Association, Greenfield.

Wisconsin Buttermakers' Meeting, Eau Claire, Feb. 2-4, 1904.

Wisconsin Dairymen's Convention at Platteville, Feb. 10–12,1904.

WE wish to call attention of butter makers and creamerymen to the article on cream testing on page 1140. There is too little known about this subject and too much taken for granted by every one connected with creamery work, and a careful reading of the article should be made.

THE thirty-first annual report of the Wisconsin Dairymen's Association has been received. It goes without saying that this report, like the others that have preceded it, is full of good, practical things that are interesting to the farmer and dairyman.

It contains nearly 200 pages of practical dairying with but very little theory mixed in with it, enough to season it, as it were, and give it a little spice, for in spite of the popular objection to theory in farm matters, it is a good thing in leading the way to practical work.

Mr. Goodrich's report on the Fond du Lac cow census and Mr. Gurler's paper on the Annual Record of Fifty Cows in One Stable are sufficient excuse for the publication of the report if there were nothing else that was good in it—which is far from the case. It is packed with good things. The secretary has also done something that is too often neglected—provided a full index, which adds materially to its value.

WISCONSIN CHEESE MAKERS' CONVENTION.

The Wisconsin Cheese Makers' Association held its annual meeting in Milwaukee Jan. 6-8, and as usual the meeting was largely attended by a very enthusiastic lot of cheese makers.

Year by year this association is increasing in numbers and making its influence felt in Wisconsin cheese making, and its officers are to be congratulated on the constant advance the society is making.

The papers read at the meeting and the discussions that followed contained little theory, but a large amount of good cheese making practice and were confined largely to things pertinent to the cheese factory. It is evident however that beside things relating strictly to the factory, the cheese maker is being obliged, in spite of himself, to take an interest in things which he is prone to neglect, but which year by year he is finding more important. Factory sanitation is one of them; the quality of the milk that he receives is another, and in this connection the conditions of his patrons' stables and methods of handling the milk are of more than passing interest.

The program presented covered a very wide field, including the making, marketing and storing of cheese, factory sanitation, improvement of milk supply, relation of cheese maker to patron, etc.

One of the most important papers was that of Dairy Commissioner Emery, on Laws Relating to Clean and Sanitary Conditions in Cheese Factories:

"That scrupulous cleanliness in cheese factories, their floors, walls, vats, pipes, cheese makers, in milk received, and mode of manufacture is absolutely necessary to the highest quality of the product," said Mr. Emery, "is a matter of common knowledge and general assent. In theory it has been so long and generally admitted, and in practice so neglected, that the legislature of the state no doubt concluded that a law with adequate penalties for its violation might doubtless be made to contribute to the securing of so necessary and profitable a condition, and chapter 67, of the laws of 1903, was in consequence enacted."

Mr. Emery then took up the law, section by section, and explained its provisions, declaring in the course of his explanation that if the cheese factory operator allowed unclean or unsanitary milk to go into his cheese he could not shift the responsibility upon the patron, because the law placed it upon the cheese maker.

Referring to the articles of incorporation of the Cheese Makers' Association, Mr. Emery said he found that it was organized to educate its members for better work in making cheese, in the care and management of factories and the sale of the product, and the weeding out of incompetency in the business of cheese making, and he bespoke the aid of the members in behalf of the department over which he had charge. Progress had been made during the year. An assistant chemist and two inspectors had been added, and in addition to this the dairy and food commissioner had been authorized to appoint the traveling instructors now employed by the Wisconsin Dairymen's Association as his expert agents, clothing them with all the authority possessed by the commissioner himself. This more than doubled the effectiveness of the former force, but it was still too small, when taken in connection with the number of cheese factories and creameries in Wisconsin.

On this point he said:

TWELVE INSPECTORS NEEDED.

"It is possible that among Swiss cheese factories, where milk is delivered morning and evening and the factories are close together, and the number of patrons of each comparatively small, two factories a day, or ten or twelve factories a week, may be properly inspected by one man. I believe that not to exceed 250 cheese factories or creameries can be properly inspected by one man in a year. At that rate, it would require twelve men to inspect once a year the 1,800 cheese factories and the 1,200 creameries in this state. But once a year is not often enough to inspect them. Twice a year is not sufficient; yet to inspect them twice a year would require not less than 24 competent, energetic inspectors.

After speaking of the methods of inspection employed in Canada, Mr. Emery concluded:

"In high schools, graded schools, and the county training schools, and the county agricultural schools and other enterprises the state co-operates with and rewards local effort. Why not in the work of bettering our dairy conditions? I most respectfully urge a consideration of these suggestions by this association. It seems to me that greater co-operation by the agency above named, on definite lines that seem most urgent, particularly in the matter of cleanliness and sanitary conditions in our factories, would result in a higher degree of progress. But equally with laws in relation to cleanliness and good sanitary conditions there are needed high ideals and public sentiment demanding their enforcement and realization."

Prof. R. A. Moore, agronomist of the Experiment Station of the Wisconsin University, read a paper on "The Factory Operator—An Organizer for the Betterment of Rural Communities," in which he urged the members of the association to take an active part in farmers' clubs and other agricultural organizations, declaring that the defects in dairy farming could be more easily overcome through the medium of the public meeting than in any other way. He advised them to take steps to organize farmers' associations, declaring that the farmers and their families enjoyed attending such gatherings. He then went into details as to the methods to be followed in perfecting such organizations, the choice of officers, and the adoption of constitutions and by-laws.

There are many things in Canadian cheese making that could be adopted with benefit in this country and especially in connection with the government inspection and methods of instruction in cheese factories. In this connection the address of Prof. G. H. Barr, Chief Instructor of cheese making in Western Ontario, on "Instruction in Cheese Factories in Western Ontario," was especially pertinent. He said "the factories in Western Ontario had been divided into groups, the owners agreeing to pay $10 a season for instruction. The factories were visited once a month. All the instructors took a ten days' course at the Guelph Dairy school, and the chief instructor gave them pointers on their work, and inspected the different groups of factories to see that there was uniformity. The instructors visited the patrons of the factories and showed them how to avoid sending in tainted and impure milk. The instructors," he said, "did not prosecute those who sent in adulterated milk—that was left for the owners of the factories. The instructors taught in the dairy schools during the winter, and followed the students into the field during the cheesemaking season. The instructors were paid $800 a season, which amounted to about $100 a month. Their expenses were not over $150 a season, as they usually lived with the owners of the different factories they visited."

H. K. Loomis read a paper on Wisconsin cheese at the St. Louis fair, in which he set forth the importance of making a creditable display at St. Louis. "For forty years," said Mr. Loomis, "Wisconsin has been hard at work building up this great industry. Today we have in the neighborhood of $150,000,000 invested in the business. Wisconsin is second in production of cheese of any state or country in the world, and with the dairy farms being opened up it will be only a short time before we will be in the first place."

APPOINT WORLD'S FAIR COMMITTEE.

He then described the space that has been allotted to the Wisconsin cheese display at St. Louis, which is next in size to that of New York, while the space allotted to other states and countries is much smaller. At the conclusion of the paper, E. L. Aderhold of Neenah, U. S. Baer of Madison, and H. J. Noyes of Muscoda were appointed a committee to take charge of the World's fair exhibit.

E. L. Aderhold, the official critic of the association, who had been with the judges while they were making their markings and awarding the prizes, read the criticism made by the judges on the exhibits, showing the conditions that had interfered to cause them to make low scores against some of the exhibits.

Secretary U. S. Baer delivered an address on the construction of cheese factories, dwelling with particular emphasis upon the sanitary conditions that should be observed, and submitted plans which would make the factories convenient and if followed would enable them to be managed economically.

The following resolutions were passed:

WHEREAS, The dairy interests of this state are among the greatest sources of its growth and prosperity, and

WHEREAS, It is our plain duty to make the most of the natural conditions so favorable to those great interests, and that in order to hold and increase the eminence we have attained therein, our best endeavor should be made to bring about a uniform excellence in all our dairy products, therefore be it

Resolved, That we highly appreciate what the state has done to promote the best methods, by its dairy school and its instructors and inspectors; that we deem it wise and money well expended to have appointed a sufficient number of strictly competent inspectors so as to insure to each cheese factory and creamery in the state the great benefits resulting from imparting to them the best practical and theoretical knowledge of their business.

Resolved, That we are in favor of legislation insuring to the people of this state fair and just rates of freights for our products to the markets of the country.

Resolved, That the hearty congratulations of the Wisconsin Cheesemakers' Association be extended to U. S. Baer on his appointment as assistant dairy and food commissioner of Wisconsin. The selection is an eloquent tribute to the fitness of Mr. Baer, whose great services in the advancement of the dairy interests of Wisconsin are thus recognized. The Wisconsin Cheesemakers' Association is gratified that one of its ablest members should receive such an honorable position. The governor and the state dairy and food commissioner are to be congratulated on the acquisition of such an able gentleman to their executive force. Be it further

Resolved, That copies of this resolution be sent to Gov. R. M. LaFollette and Commissioner J. Q. Emery.

Resolved, That we are in favor of all laws regulating, restricting and preventing the manufacture and sale of spurious, adulterated, or unwholesome foods. That, however, we do not class butter made from whey and sold as such as being other than a natural product, and we believe that the same should in no way be classed and taxed as a "fraudulent, spurious or adulterated product."

WHEREAS, The early spring and winter work of the dairy instructors in 1903 greatly aided the cheesemakers and cheese industry in general, therefore be it

Resolved, That the Dairymen's Association be requested to send its dairy instructors to their work so early in this season as to enable them to attend the various factory meetings.

Resolved, That we tender our sincere thanks to the citizens of Milwaukee for the kind invitation, welcome and cordial reception extended to this association, and thank the proprietors of the Republican House in particular for their generous hospitality.

Resolved, That this association hereby tenders its sincere and respectful sympathy to Mrs. Cassie K. Johnston, widow of the late president, Thomas J. Johnston, of this association, whose untimely and unexpected death we all deeply deplore.

Resolved, further, That we hereby express our sorrow for the death of our former president, William C. Dixon, who, as president for four years, was a faithful, untiring worker for the good and advancement of his beloved association.

J. F. BACHMANN.
J. LUCHSINGER.
F. J. BENDER,

Following is the score of cheese exhibited:

AMERICAN CHEESE.

Chas. Fischer, Shiocton, Wis	95½
A. F. Pasch, Green Bay, Wis	89
J. A. Schaefer, Prairie Farm, Wis	88
J. Lehnken, Cheney, Minn	88½
W. J. Elling, Dana, Ia	77
J. F. Bachmann, Black Creek, Wis	92½
John Klossener, Dennison, Minn	83½
Jac. C. Martinson, Menominee, Wis	87
A. W. Parkin, Stanton, Minn	86
C. F. Krueger, Black Creek, Wis	89

TWINS

Matthew DeHaan, Lineville, Ia	90
Pat. Wallace, Hortonville, Wis	96½

Aug. Brandt, Forestville, Wis	90¾
Nic. J. Schanen, Lake Church, Wis	90¼
John H. Hoeppner, Marion, Wis	94½
Chas. Gartmann, Sheboygan, Wis	89⅞
Otto A. Kielsmeier, Hika, Wis	93¼
Willie Vogt, Lois Corners, Wis	85½
P. H. Casper, Clintonville, Wis	95.3
Con. Creamery Co., Topeka, Kan	82
YOUNG AMERICAS.	
M. DeHaan, Linveille, Ia	86
H. Anderson, Sheboygan Falls, Wis	90½
Edgar Lepley, West Lima, Wis	96¾
John Vogt, Orikula, Wis	96¼
M. Nickels, Garnet, Wis	92
Walter Fero, Stanley, Wis	93½
Miss M. A. Baeder, Milladore, Wis	93½
Joe Vogt, Orikula, Wis	93¼
Otto Freund, Hayton, Wis	86¾
John Classon, Boscobel, Wis	93
SAGE.	
J. R. Biddulph, Tiskilwa, Ill	94½
BRICK CHEESE.	
B. Jonely, Brownsville, Wis	97½
Max. P. E. Radloff, Hustiford, Wis	95
J. Rothenbach, Ocherville, Wis	99
R. C. Ganschow, Bonduel, Wis	94
Jac. Regez, Monroe, Wis	96½
J. & M. Steiner, Milwaukee, Wis	88
H. B. Stanz, Milwaukee, Wis	98
SWISS CHEESE.	
Max P. E. Radloff, Hustisford, Wis	95
Ed. Wittwer & Bro., Monticello, Wis	85
Alex Schaller, Mt. Horeb, Wis	90
Fred Held, Comp, Wis	87
Jacob Erb, Comp, Wis	92
Jacob Marty, Brodhead, Wis	96
LIMBURGER CHEESE.	
Jac. Regez, Monroe, Wis	97
COMPLIMENTARY SCORE.	
Flat, J. W. Gross, Mauston	90½
Flat, J. W. Gross, Mauston	79½

Cattle Troubles.

Sanitation and Abortion in Cattle.

ED. HOARD'S DAIRYMAN:—There is no subject connected with the keeping of cows that strikes home to the dairy farmer with deeper interest than the question: What can we do to prevent abortion?

Unfortunately there are a great many men in the business who are willing to buy medicine by the bucket full if that would do the work, but who are unwilling to put forth any effort scarcely, in the way of sanitary study of the question. To surround the cow with conditions that will prevent the growth and spread of the germ of abortion is what is meant by proper sanitation of barns. I do not believe that any medicine has been found that will cure abortion, unless certain conditions are established, and chief among these is complete isolation of the infected animal from the rest of the herd as soon as her condition is ascertained.

Not a year goes by but isolated cases appear both in summer and in winter, but five or six cows out of say 100 do not seem serious. As soon as a case appears, the animal should be at once isolated until she appears normal again, and be treated with some of the carbolic preparations, of which there are a great number on the market. The carbolic sheep dips furnish an example. The stall should be thoroughly disinfected each day, as in fact should all the surroundings. Nervous or sympathetic abortion may have more significance than we may think and there is no doubt that the first case has none of the foul smelling, decomposed appearance found in contagious abortion, May we not, therefore, infer that isolation is the first factor in the treatment?

Is it possible to prevent? Very doubtful. It would seem that dishorning, careful driving and handling, a platform long enough to prevent the hind quarters from hanging over the gutter, and so constructed as to reduce slipping to a minimum, stock raised upon the farm, fed a rational combination for growth and development, would reduce the trouble to a point where it might be compared in its effect on the total dairy loss as the chemist does with the possible "error of analysis." Then, when it does come, use the above method, to which should be added the use only of warm water for drinking for at least a week, and, better still for two weeks. Keeping the bowels open is an essential to the bovine, at all times when the system is obliged to carry off foul, poisonous matter. Sanitation inside the animal, and sanitation for the surroundings, means increased profits through better health. It will repay one to heed every opportunity to read, or listen to anything having cleanliness on its title page.

CHOKING IN CATTLE.

Choking in cattle is usually caused by swallowing a potato, apple, piece of turnip, carrot, etc. No matter what part of the gullet it is lodged in, it causes great distress. The animal coughs, saliva runs from the mouth, eyes bulge out, back is arched, and bloating also takes place. If the obstruction is in the upper part of the gullet, the animal soon dies of suffocation. If it is in the middle or lower part, the animal may live several days. If it is in the upper part of the gullet, give a little oil and then rub the hand up and down the throat to scatter the accumulation. It may be necessary to give a little oil several times, and continue the rubbing, as it may take some time to overcome the choking. In case no oil is at hand a similar attempt may be made by pouring down some water.

If the obstruction cannot be forced up or down by oiling and rubbing the gullet, use a probang, which is made of spiral wire covered with leather and which will bend with the neck. Have also a gag to put in the mouth, with a hole in the center, through which the probang passes. Oil the probang and let one man take hold of the animal's horns or ears, while another passes the probang through the hole in the gag and back into the gullet. Press gently until the object is felt, then by steady pressure it will pass into the stomach. Too much force should not be used for fear of rupturing the gullet. No unyielding article should be pressed down the gullet, as it is almost sure to rupture it.

If a probang is not convenient, take a piece of rope about ¾ to 1 inch in diameter, friz out a little of the end, and tie a piece of string around it to form a soft knot, grease this well and it will supply the place of a probang. In cases where an animal cannot be relieved by this treatment, cut down on the gullet with a knife, making an incission and removing the material. Clean the wound, and bring the edges of the gullet together firmly with silk thread or catgut, letting the ends hang out of the external wound and bring the edges of the skin together; put a bandage around and keep it wet with cold water for 24 hours, and it will usually heal. Give the animal soft food for some days, or if a probang is used and the gullet not cut, give soft food two or three days. The assistance of a veterinary surgeon should be had in this matter.

In a case of a cow being choked by an apple, the writer saw a piece of rubber hose which happened to be handy, used with good effect, the hose well greased, the cow's head held up, and the hose then shoved down her throat, pushing the apple into the stomach. It struck the writer then, that the rubber hose was the very thing for the purpose, being flexible and soft, yet stiff enough for the purpose.

DEHORNING CALVES.

Feeders and breeders know full well, that owing to the injury to which horned cattle are liable in transit, the greater amount of space they require in the feeding yards in which they are turned loose, and the irregular duration of the fattening period(due to the stronger animals driving off the weaker) hornless cattle are worth more to them than horned cattle. Under these circumstances inIreland, the system of dehorning has been strongly recommended to the farmers. The operation, if performed with caustic potash, upon young calves a few days old, is almost painless. It should not be attempted however, if the calf is more than 9 days old. The method is to clip the hair from the top of the horns when the calf is from 2 to 5 days old, slightly moisten one end of a stick of potash and rub the tip of each horn firmly for a quarof a minute, or until the potash has made a slight impression on the center of the horn. The horns should be treated in a similar manner from two to four times, according to the size of the horn and the age of the animal. About 5 minutes should elapse between each application, and if, during one of these intervals, a little blood appears in the center of the horn,it will then only be ncessary to give another very slight rubbingwith the potash. A strong piece of paper should, of course, be rolled round the end of the potash stick, which is to be held by the fingers. This system is far better than waiting until the animal is full grown before dehorning. W. R. GILBERT.

Montreal, Canada.

Old Cows and Milk Fever.

ED. HOARD'S DAIRYMAN:—In reference to F. A. M. in your last issue, I must say that his experience in regard to losing so many old cows from milk fever is a very exceptional one; in fact, I have never heard of such bad luck before. I should be greatly obliged if your correspondent would kindly let me know if the loss of these cows was spread over the 12 years or whether they were lost all within a short period. In the meantime should he have another case, let him, if within his power, inject a small quantity of pure oxygen gas into the udder, which, in most cases, will give a rapid recovery.

An explanation of this is, that the malady is supposed to be caused by anaerobic micro-organisms, which cannot live in the presence of oxygen.

Montreal, Can. W. R. GILBERT.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain sepecific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

A Silo for Ten Cows on Twenty Acres of Land.

What I am interested in at present, is the silo. Am a renter, but have bought a place of 20 acres, good land. I have a 13-inch Ross cutter with an 18 ft.carrier, and can buy an 8x20 ft. silo (round) for either 70, 65, 59 or 54 dollars, ready to put up, rods and everything, and paint for the outside; and can get all the steam or gasoline engines I need. Would have no outlay except for the silo.

I think on this land I could keep from 7 to 8 head of Jerseys. We get 25 cents per lb. for butter the year around. This silo would hold about 22 tons. How many acres would it take to fill it—say, corn that is medium good, as I couldn't expect to have it the best until the land is in better condition ? GEO. S.S.

Millersburg, Pa.

A round silo 8 ft. in diameter and 20 ft. deep, would store only 17 tons of silage. A silo for 10 cows, should be not less than 12 ft. in diameter by 24ft. in depth. The capacity of such a silo would be approximately 42 tons, and 4 acres of good corn would suffice for filling it. From 4 to 6 feet of such a silo, may be in the ground, and exclusive of roof would require about 2700 ft. of lumber.

With intensive farming 20 acres of land may be made to support 10 cows, but in that case very little of it could be given for pasture.

An Iowa Ration.

When feeding clover and timothy hay,which is better, ground wheat and oats, or ground corn and oats, and in what proportion should they be mixed? B. A. O.

St. Ausgar, Ia.

This inquiry comes from a new subscriber and we advise him to read the DAIRYMAN carefully from week to week, and not expect to master the science or art of feeding in one or two easy lessons. One of the first things he will learn is that it may not be profitable to confine his grain feeding exclusively to the home grown grain, because it may be more profitable to sell these and purchase some bran or other by-products, such as gluten feed, linseed oil meal, brewers dried grains, etc. He should also learn that the cost or market value of the different feed stuffs should be considered, and that it makes all the difference in the world whether a cow is giving only 15 lbs. of milk or 30 lbs.

The probabilities are that his cows will eat daily about 20 lbs. of that clover and timothy hay, and such as are giving from 20 to 25 lbs. of milk should have in addition, say 4 lbs. of oats, 2 lbs. of wheat or corn, whichever is worth least in market, and 1 pound linseed oil meal. Or, if he can exchange a ton of oats for a ton and a quarter of bran, or more, as he probably can, substitute bran for oats. And then there is the matter of salt, which is altogether too much neglected. Cows should have salt every day, or better yet twice a day, a heaping teaspoonful with each feed of grain. It is to be understood that the amounts above specified are the total for twenty-four hours, and should be fed half at night and half in the morning.

Hot Iron vs. Acid Test for Cheese.

Would it be practical to use Mann's acid test to test the acidity of whey in cheese making instead of the hot iron test, or is there any other test more reliable than either of the above and what is it called, where can it be bought, etc.

Edom, Va. C. M. M.

The present tendency is to use the Mann or Farrington test to estimate the acid in curd, instead of the hot iron. The iron test is not, strictly speaking, any indicator of the amount of acid present, but indicates a certain condition of the curd caused by the action of the acid. This is at best a rough, rule-of-thumb method and will be in the near future replaced by an actual test of the amount of acid present.

Experiments carried on by Prof. Dean, the Canadian authority on cheese making, indicate that a hot iron test of ⅛ to ¼ inch corresponds to about 0.2 acid in the curd. A few practical trials with the iron and the Farrington test would soon give the correct data upon which to work. The tablets and directions can be obtained from any dealer in dairy supplies.

Drying off Cow.

Cow aborted last February and in consequence has been giving milk 18 months more or less. Is due to freshen again middle of April next, and I have concluded to dry her off as soon as possible, although she is now giving 20 lbs. per day. How is best way to proceed? D. F. H.

East Onondaga, N. Y.

Take away all grain and feed nothing but dry hay and corn stover. This will cause perceptible shrinkage in milk flow and as soon as this occurs, milk but once a day and leave some milk in udder. In a few days, increase the interval between milkings, taking only enough to relieve udder from pressure.

Sour Butter and Silage.

I put up 150 tons of ensilage last fall from sorghum and soy beans grown together in same row. On account of danger from early frost, had to cut the sorghum before it had fully matured, and the result is, I have sour ensilage. I run a herd of 40 to 50 Jersey cows and make butter and cream for private customers. Since using the ensilage, my butter is so sour that all my customers complain of it, and a good many have discontinued to take it. I at first fed 50 pounds per head,per day and the cows ate it greedily then cut down to 25 pounds per day. Am now feeding about 20 pounds, and still the butter is off in quality. I am afraid to discontinue entirely, as the milk flow has decreased as I decrease the ensilage. Now please tell me if there is any way that I can use the ensilage and keep the butter properly flavored. I have been feeding the ensilage after milking and have now cut to one feed per day. Please state at what stage sorghum should be put into silo. I cut mine with corn harvester and let most of it sun for two days.

Clarksville, Tenn. N. F. A.

Without assuming to say what may be the cause of the "sour" flavor in the butter, we are persuaded it is not due to the eating of this silage by the cows. It is possible, but not probable, that the milk or cream may take up more or less silage odor during or after milking,or the cream may be permitted to become overripe before churning. Try churning before the cream becomes too sour and wash the butter more thoroughly.

Dairy Short-horns Wanted.

HOARD'S DAIRYMAN and Dairy Review of San Francisco are the two best papers I know of for any man that is interested in a farm or stock raising, I learned more since I take these two papers than I did ten years before. Please advise me by return mail who keeps the best dairy Short-horn cattle in that part of the country.

Pescadero, Cal. M. I.

We should be most glad to give the information sought as a return compliment to this friend for his kind words and good deeds in our behalf, but most unfortunately we are unable to do so. While it is true that there are a goodly number of good dairy cows carrying more or less Short-horn blood, there are very few, if any, herds of Short-horns that are not deeply bred according to beef standards. Possibly the developments at the Louisiana Purchase Exposition in St. Louis next summer, where the Short-horns are to be put on trial to determine their dairy capacity, may lead to a discovery of animals of this breed worthy the attention of the dairy farmer.

Brown Swiss Cattle.

Where can Swiss cattle be had,that is,to be relied on their quality and butter strain. We have lately built a new creamery here in the Red River Valley county, but I see prices vary so much on butter that I should like to know where a reliable commission man could be had on the Pacific coast that could handle our product. O. J. H.

Hendrum Norman Co., Minn.

Brown Swiss cattle can be obtained from F. H. Inman, Hanover, Rock Co., Wis. Not having any personal knowledge regarding Pacific Coast commission firms, we do not wish to make any recommendation.

Oil Meal or Ground Flax Seed.

We are feeding 1 lb. to 2 lbs. oil cake meal to our cows in a mixture of ⅓ each corn cob meal, ground oats and bran by weight, with good corn ensilage and shredded corn fodder for roughage. Would there be any objection to feeding, say 10% of ground flax seed instead of the cake meal?

Muncy, Pa. M. E. R.

The objection to feeding ground flax seed is its excessive amount of oil—29 per cent. It contains more than four times as much oil as the oil cake, and if fed in any considerable amount would not only act as a laxative, but be very apt to impart an unpleasant flavor to the milk and butter.

A California Condition, Grain not Recommended.

Our ranch keeps 130 cows, fresh in latter part of March and milk eight months during year. The cows run on green meadow all year round I feed clover and rye grass hay only 6 weeks in early spring; after that the cows depend entirely upon pasture the remainder of the season. The cows are part Short-horn from pure bred Jersey sires. They only average 180 pounds butter per year.

Do you think it would pay to feed mill stuff? I would be obliged to haul it ten miles and pay for bran, $26 per ton; middlings, $33.50; oil cake meal, $34 and cocoanut cake, $27.

Rutabagas and carrots can be raised very cheaply here, and also clover and rye grass hay. Freight on butter to San Francisco market is 2 cents per pound, where we get 2nd creamery quotation. I would be pleased to have your advice on the subject and a formula of feed rations if advisable, H. E.

Crescent City, Cal.

Quite a number of prosperous dairymen have abandoned the former practice of feeding grain when pastures are in prime condition and substituted dry hay in its place, and think they receive equally good returns. When pastures become scant they resume feeding more or less grain. If these California pastures habitually get short as the season advances, it would be an excellent plan to provide clover silage to make up the deficiency and at all times feed as much hay as each cow will eat. The instinct of the cow leads her to crave some dry feed when on pasture, and it is a good policy to conform to her appetite in this respect.

A Michigan Ration—Crude and Digestible Protein—Soy Beans.

I would like your opinion on a ration I am feeding my cows. I mix one part rye, one part corn and two parts soy beans, early yellow variety ground together. I feed 4 pounds bran, 4 pounds of this mixed feed and 2 pounds rather coarse buckwheat middlings, to cows weighing 800 to 1,000 pounds and giving 25 to 30 pounds 5% milk. Roughage, clover and timothy hay night and morning and corn stover at noon; cows nearly fresh. How is that for a balanced ration?

What is the difference between crude and didestible protein? I sent a sample of my soy beans to our Experiment Station and had them analyzed and they reported them as having 41.52 per cent crude protein, 17.72 ether extract, 24.45 carbohydrates. Why would it not be a good plan for dairymen to raise soy beans to take the place of cotton seed meal and other expensive concentrates for their cows? S. H. M.

Decatur, Mich.

Assuming that these cows consume 15 lbs. of hay and only 5 lbs. of corn stover, we estimate that the ration above described contains 24.61 lbs. of dry matter in which there are 2.41 lbs. of digestible protein, 11.56 lbs. digestible carbodydrates and .84 lbs. digestible fat (ether extract.) Reference to the table on page 1014, will show that the standard there given for 30 lbs. of 5 per cent milk is 2.31 lbs. digestible protein, 14.41 lbs. carbohydrates and 65 lbs. fat. This shows that the actual ration fed is a very close approximation to the theoretical standard, except in the item of carbohydrates, and the apparent discrepancy in that item is made up probably in eating more hay and stover than we estimated. For cows giving less than 30 lbs. of milk, it would seem practicable to reduce the allowance of grain somewhat.

The difference between crude protein and digestible protein is that in making his analysis the chemist reports the total amount of protein found, but of this only 80 to 90 per cent is digestible.

The analysis of soy beans as reported by our correspondent is unusually high in protein, nearly 8 points above the average, but lower in carbohydrates, due possibly to the sample being a little better than the lot would average. The question as to whether it would be profitable to raise soy beans cannot be answered without more definite information as to the average cost of raising them. What did they cost?

Babcock Test Questions.

How warm should milk be at time of testing? How fast and how long should the tester be turned?

If milk shows a test of 4 per cent butter fat how much butter would that be to a hundred pounds of milk?

Can cream be tested; if so, how? H. F. W.

The milk should be about 70° F. when it is measured for testing.

The speed depends on the size of your tester; usually it is marked on the machine or given in the directions for using that should always go with each machine. A ten inch wheel should make 1,074 revolutions a minute; 12 inch wheel, 980; 14 inch, 909, and larger ones in proportion.

Detailed articles on testing cream will be found on pages 455 and 465 of the current volume of the DAIRYMAN.

One hundred pounds of 4 per cent milk should make a little over 4.5 pounds of butter.

Amount and Value of Silage—Cubic Feet of Straw per Ton.

I would like to know how you would figure out the amount of ensilage in a silo 14x17x29 feet high filled with a blizzard ensilage cutter. Also its comparative value with hay. Also how many cubic ft. of straw required for one ton.

SUBSCRIBER.

If the above silo was filled to the top it would contain 138 tons of silage. Its value as compared with hay depends on the price of timothy. It is estimated that one ton of good timothy is equal to 2½ tons of silage and the money value of silage would be in the same proportion.

The number of cubic feet in a ton of straw would depend on how the straw is packed; it being less in a large stack or mow than a small one. The approximate number of tons of straw in a stack can be obtained by the following method:

To find the number of cubic feet in a stack of hay multiply the width in feet by the perpendicular height from the ground to the eave or shoulder, plus one-half the perpendicular distance from this point to the crest, and this product by the length in feet.

If the stack is a low one and is fairly uniformly rounded from the ground on one side over to the ground on the other, take the distance from the ground on one side over to the ground on the other side, multiply by one-fourth the width at base, and this product by the length of the stack. As an example the average of the four measurements over the stack from ground to ground is 34½ feet; multiplying by one-fourth of 18, which is given as the width, and this product by length (237 feet) gives 36,527 cubic feet. Now, as to the number of cubic feet in a ton of hay, there are a great many things that must be considered and upon the correctness of the judgment as to the admixture of these controlling factors will depend the accuracy of the estimate.

Some of the factors affecting the weight of a cubic foot of hay are height of stack, length of time the stack has been standing, condition of hay, as regards moisture at time of stacking, coarseness of the hay and its freedom from coarse-stemmed weeds. Timothy hay will, as a rule, weigh more per cubic foot than clover, and fine timothy will weigh much more than coarse.

Where the hay is fine and the stack is 12 feet or more in height and has been standing at least six months, 425 cubic feet will usually make a ton. If the hay is a little coarse or the stack is less than 10 feet in height, it will usually require about 450 cubic feet to make a ton. In the above case, where the stack is pure clover and less than 10 feet high, unless it is very fine and has been stacked quite green, I should say it would require at least 475 cubic feet to make a ton.

Stave Silo for Georgia.

I am going to build a silo this summer to hold 75 tons, and I want to build it above ground. Would like to use 2×4 yellow pine, all heart, and fasten with iron hoops made so that they may be tightened or loosened. Would it be necessary to use building paper on the inside, or would it be better to use the paper and then 1×3 flooring, matched. Please tell me how much lumber it will require and what dimensions it will have to be to hold the above amount of silage. J. B. G.

Birmingham, Ala.

A silo 16 feet in diameter and 22 feet in depth would hold 75 tons of silage and if built of 2×4's would require approximately 2,300 feet of lumber in its construction, exclusive of roof. It is becoming not uncommon now in the north to use very temporary arrangements for roofs, just something to keep out the snow. Properly constructed stave silos are not lined. The staves shrink more or less when the silo is empty, but very soon after filling the juices of the silage cause them to swell again and close up tight. See cuts of these stave silos in our advertising columns.

Making Butter or Selling Milk at Skim-Station—Value of Skim Milk.

I am at present, milking ten cows. We have a skimming station 4 miles away, that buys milk by the butter fat test, paying two cents less than Elgin butter price for same.

Which would pay me the most, to make butter on the farm, selling at 20 cents per lb. or sell to the skimming station? Also, what is the value of skim milk per hundred, for feeding poultry and pigs? A. W. E.

Fosters, O.

It is fairly safe to estimate that under farm condititions, with a separator, that 8 lbs. of fat in the milk, will make 9 lbs. of commercial butter and that the cost in time and labor in hauling milk 4 miles, will fully compensate for the expense in making and marketing the butter. With this information before him our correspondent can judge for himself, better than we can advise, which method will be more profitable for him.

Skim milk when intelligently fed, should be worth one-half as much per 100 lbs. as a bushel of corn.

Clover Silage

Can I safely store clover hay in a silo, hauling the hay as soon as cut, and cutting only after the morning dew has dried off, simply tramping it well when putting in from the load?

I have a silo, have had one for 20 years, but must admit that for our system of farming, in this vicinity (Central New Jersey), I have often been in doubt about the profitableness of using it for storage of green corn. The principal reason for this uncertainty lies in the fact that filling the silo comes exactly at a period when men and teams should be engaged in plowing and cultivating for our winter wheat, or for seeding down to grass for following year's hay crop. With a small dairy, feeding ensilage has always with me involved more or less waste from molding. A large dairy eats it fast enough so that it doesn't have time to mold, and is all right.

I have never tried stroring green clover hay (without cutting) in silo. It seems, however, quite practicable. What do you say? A. T. T.

Franklin Park, New Jersey.

Clover has been made into silage very successfully. Formerly it was thought important not to put it in when wet with dew or rain, but with later experience, especially with corn, we should not be over particular in this respect. Experience seems to show that the best time for cutting is when about half the heads are in blossom. If cut later, water should be added, and in all cases it is expedient to wet down the top pretty thoroughly as soon as the filling is completed. It is also important to keep the clover well spread as the filling progresses, and thoroughly tramped, especially next to the walls. We are persuaded also, from our experience with corn last fall, that it is advisable to keep the walls well wet as the filling proceeds, as this reduces the friction and promotes settling.

Pea Vines for Silage.

Will you kindly advise me what you would think of filling a silo with ordinary pea vines? Do you think they could be used profitably in a silo? One of our dairymen claims to use them very successfully. SUBSCRIBER.

Kokomo, Ind.

There is but little definite information on this subject. Practically all that is known came in the way of just such recommendations as "Subscriber" reports. Here and there parties who have tried siloing pea vines report satisfaction.

Wanted. Cows to Yield 400 Pounds of Butter Per Year.

I know very little about the different dairy breeds except what I have read in your valuable paper. I am not dairying now, but expect to commence in a small way in the spring. I am particularly interested in the Jersey and Guernsey cattle and would like to ask if in your opinion I can build up a herd of ten or fifteen cows as quickly and as surely by using Guernseys as I could if I was breeding Jerseys? I mean cows that will average 400 lbs. of butter a year. I would also like to ask how much heavier the average Guernsey cow is than the average Jersey cow? Also is it true that the Guernseys have larger and better shaped udders, larger teats and better placed than the Jerseys? J. H. H.

Council Bluffs, Iowa.

We apprehend it will be found a pretty difficult problem to build up a herd that would average 400 pounds of butter per cow, yearly, no matter what breed may be selected. Such herds come only after several years of effort and experience, and very persistent selection and weeding out. It is utterly impracticable to advise as to the breed to be chosen for such a purpose, except to say that one had best follow his personal preference, and then select animals for foundation stock that not only are up to his standard individually, but have the backing of ancestry with satisfactory records.

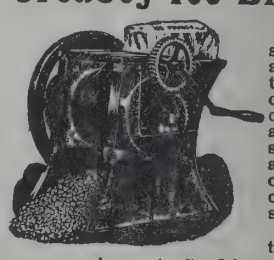
Guernseys will probably average about 100 lbs. heavier than Jerseys, but it cannot be said that they have larger or bet-



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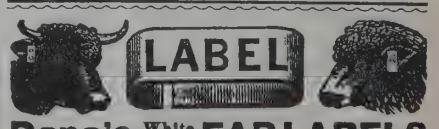
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BAVIER NOVELTY CO.,
WINDSOR, CONN

Creasey Ice Breakers

Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right.
Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.
J. S. L. WHARTON, Mfr.,
17th Clearfield St., Philadelphia, Pa.

GET ONE FREE


THE SIGNAL MAIL BOX
(Bates-Hawley Patent) is the original Rural Service Box. Especially commended by P. M. Gen'l. Full govt. size. Only complete box which meets every need Write to-day for handsome booklet and our Free Offer
SIGNAL MAIL BOX CO., 367 Benton St.
JOLIET, ILL.

LINE YOUR SILOS
WITH
GIANT INSULATING PAPER
KEEPS THEM AIR TIGHT
Damp-Proof
Frost-Proof
Keeps Silage Fresh; Lasts Indefinitely.
STANDARD FOR 18 YEARS.
Used Everywhere.
MANUFACTURED SOLELY BY
The Standard Paint Co.,
100 Williams St., New York.



Dana's White Metallic EAR LABELS
stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Sample free. Agents Wanted.
C. H. DANA, 55 Main St., West Lebanon, N. H.

ter shaped udders, or better placed teats, although our observation is that the latter are somewhat larger. We feel constrained to say in this connection, however, that when one makes large and profitable production of milk his main purpose, he should not be over-particular concerning the style of udder or teats.

Plowing or Discing for Spring Crops—Alfalfa.

I have 25 acres corn stubble calculated for rye and oats which I didn't get plowed. Soil sandy loam, some places quite sandy, gravel subsoil, doesn't bake. Would you advise plowing next spring or working up with disc or springtooth cultivator? Want to try an acre or so of alfalfa; is there any seed raised in Wisconsin? Would it be better to get home grown seed or Turkestan?

Stevens Point, Wis. F. G. P.

If this corn was not ridged so much that the disc and cultivator will not level it, we should prefer not to plow in the spring.

We have not heard of any alfalfa seed being raised in Wisconsin. Turkestan alfalfa is still on trial and it is not yet certain that it will prove superior to common alfalfa for Wisconsin.

Death from Eating Young Sorghum.

ED. HOARD'S DAIRYMAN:—I noticed an article in Dec. 18th number headed, "A Strange Malady." Perhaps it might shed some light on the subject to tell you what effect sorghum has had on cattle and horses in this part of the country.

A neighbor had a piece of sorghum about six inches high. He opened the gate to drive his team through and five or six young cattle ran through and ate a little of the sorghum. Although driven out in a few minutes they all dropped dead inside of half an hour. Another neighbor had a cow that got into a patch of sorghum for about five minutes. He got her out and started to milk her when she dropped dead. Another man had two rows of sorghum about fifty yards long that his cattle had access to. This was second growth just springing up. Some six or seven head of grown cattle took sick. Their symptoms were first stiffness and staggering like they were drunk for a day or two; then seemed to get weak in the loins, then got down and could not get up, having lost the use of the hind legs. Not one of them got well. They had good appetites, eating as though nothing was the matter.

At another place where they feed sorghum it affects the cattle and horses the same way. Lately I was told by an old gentleman that it is arsenic. He says, "In some soils there is arsenic and the sorghum absorbs it and that is what kills the cattle. In land that contains no arsenic the sorghum is harmless. I should think it practicable to analyze soils and ascertain the facts."

I consider HOARD'S DAIRYMAN a most valuable stock paper. If hog-raisers will read and heed the article entitled Wise Words on Swine Husbandry, it will be worth many times the subscription to the paper. SOUTHERN CALIFORNIA.

Recent investigations seem to show that the poison in the second growth of sorghum is a compound of prussic acid, one of the most deadly poisons known.

From a Progressive Young Dairyman.

No Fear that He Will Not Make Dairying Profitable.

ED. HOARD'S DAIRYMAN:—Enclosed please find P. M. O. for $2.30 for one year's subscription for —— ——, one year's subscription for Fr. L., both P. O. ——, Wis, and 12 record sheets for 10 cows.

I was introduced to your valuable paper by Aug. Rutzen and after being acquainted with same I have done all I could to augment the number of subscribers, because I don't believe that anyone who is feeding two milk cows can do without your paper. —— —— always was one who would laugh about book farming, but now when F. L., J. K. and I, come together, and since he found out what we have learned through your columns he begged me to send in his subscription; and only a year ago he called us paper farmers.

I learned at our farmers' institute that 1 to 6 is a balanced ration. Now if you would teach us through your paper (young students in feeding) how much protein and carbohydrates there is in linseed meal, oats, barley, bran, middlings, timothy hay, clover hay, corn ensilage, corn stalks, corn stover and oat straw, couldn't we young students learn a great lesson to balance our rations? Won't it be a good thing to have record sheets for more than 10 cows? We want to learn all we can about dairying and get out of it all the money there is in it.

We have each from 8 to 16 milk cows, have bought a pure bred Holstein bull with extra good records from Wisconsin Live Stock Association, Appleton, Wis., for $100. On New Year's I am going to start weighing and testing every cow's milk, weigh all they eat and keep complete record of everything. By my statement you'll see that I am a very interested student. I have learned lots through your paper and want to learn lots more, to be sure and make success of it.

I have tried all my neighbors, but the most of them can't read English and consequently I have to be content with these two what I picked up again.

Please never mention —— —— his name if you publish this. Take out of it what you think most instructive and most to the credit of your paper. But at any rate please let me know about protein and carbohydrates.

Since I got introduced with your paper I have done all I could for it and will stay by it. MIKE MEULEMANS.

St. Croix Co., Wis.

O, that there were more Mike Meulemans to handle dairy cows in Wisconsin and elsewhere! There would be little complaint then that dairying does not pay, because there would be examples everywhere that the same kind of energy, studiousness and attention, which condition success in other occupations, applied to dairying insures success there. Reading, thinking, reasoning, and withal a wholesome appreciation of one's own ignorance, are the stepping stones to progress.

Mr. Meulemans will find on page 772 a table giving the amount of digestible protein, carbohydrates and fat in all the feed stuffs named by him, and in many others. If he has not preserved that paper and will write us again, we will take pleasure in sending him a duplicate copy. Meantime we suggest to him and his friends—and to all subscribers—that they make it a practice to preserve every issue of HOARD'S DAIRYMAN. To enable them to do this with most certainty and least trouble we have had binders made which will hold the fifty-two issues of the year and the index, making a most valuable book for future reference and reading. We sell these binders at 60 cents, barely enough to cover cost of manufacture, wrapping and postage.

DON'T PUT OFF

Seeing your friends and having them join in for a club of subscribers.

"ADVERTISEMENT."

WORRY.

A Sure Starter for Ill Health.

Useless worrying (a form of nervousness) is indirectly the result (through the nerves) of improper feeding. A furniture man of Memphis says:

"About a year ago I was afflicted with nervous spells, would worry so over trivial things.

"I went to consult one of the best physicians in Memphis and he asked among many questions if I drank coffee.

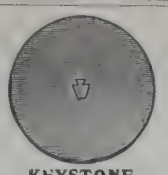
"His advice was: 'Go to some provision store and get a box of Postum, drink it in place of coffee and as you are confined to your desk to a great extent try and get out in the open air as much as possible.' I followed his instructions regarding the Postum.

"At that time my weight was 142 and I was taking all kinds of drugs and medicines to brace me up, but all failed; today I weigh 165 and all of my old troubles are gone, and all the credit is due to having followed this wise physician's advice and cut off the coffee and using Postum in its place.

"I now consider my health perfect. I am willing to go before a notary public and testify that it was all due to my having used Postum in place of coffee." Name given by Postum Co., Battle Creek, Mich.

There's a reason for quitting the drug-drink coffee, and there's a reason for drinking Postum. Trial 10 days proves them all.

Look in each package for a copy of the famous little book, "The Road to Wellville."


KEYSTONE.

Are You Looking for **CAPS?**


SHIELD.

If so, you need look no further, because you get the best results **right here.** Our caps are made of best spruce pulp fibre and are odorless and tasteless. We have four brands and can suit the ideas of all buyers, at prices consistent with quality of goods. If you are interested, give quantity and grade desired, and our many years experience in the manufacture of caps is yours.

You send the Postal; We send our New Milk Dealers' Price-List, giving full information and prices.

Creamery Package Manufacturing Co.,

149 to 153 East Superior St.,

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BRANCH HOUSES: Kansas City, Mo. Minneapolis, Minn. Weter.oo. Ia. Omaha, Neb. St. Louis, Mo.

Canadian Branch; Cowansville, Quebec.


DIAMOND.



High and Low.

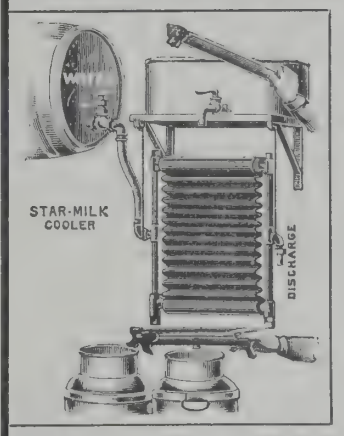
High in excellence, low in price;
High in popularity, low in stature;
High in saving powers, low in cost to operate—the

Champion Milk Cooler-Aerator

Get our Booklet about it.

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Do You Want a Milk Cooler?



If you do give the Star Milk and Cream Coolers a trial.

You will not regret it.

Our coolers are constructed of copper, thoroughly coated with tin, and will cool milk and cream down to within 2 degrees of the temperature of the water run through them in the hottest weather.

Write for illustrated Cooler Booklet which will give you capacities, dimensions, prices, etc.

STAR MILK COOLER CO., Haddonfield, N. J.

FARMERS WANTED

Send card for FREE MAP and Price List of Wild and Improved Lands in Wadena, Otter Tail, Becker, Todd, Hubbard, and Case Counties, Minnesota. Low prices and easy terms. We are large owners.

MURRAY'S LAND OFFICE,
WADENA, MINNESOTA

CREAMERYMEN DAIRYMEN and MILK DEALERS

Can be Promptly Furnished with anything they want at reasonable prices, if they will write me. My CHILD'S PATENT MILK BOTTLE FILLER is the best on the market. Send for free catalogue.

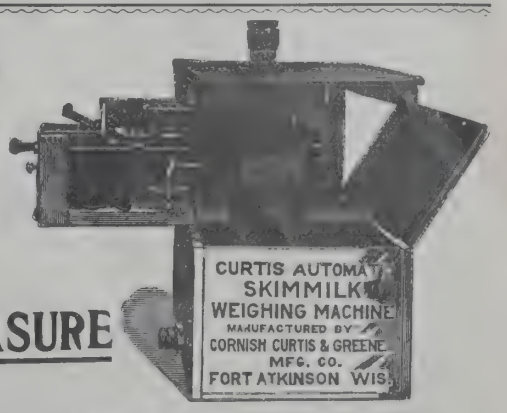
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59 Murray St., New York City

Skim Milk

Often goes to the wrong man for the simple reason that the patrons have no standard of

WEIGHT or MEASURE

and the last man suffers.



FULL DESCRIPTIVE CIRCULAR FREE.

Cornish, Curtis & Greene Mfg. Co.,

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for.... DE LAVAL ALPHA SEPARATORS.

Fort Atkinson, Wis.

Pork Production.

1. Where the ration fed was corn meal it took 4.6 pounds to make 1 pound of gain in 1901, 2.8 pounds in 1902 and 7.1 pounds in 1903, or an average of 4.1 pounds for the three years.

2. From the data presented under the table of rations used, it would be an easy matter to estimate the amount of food required for hogs of varying weights. Hogs fed in the ratio of 1 pound of grain to 3,6,9 and 12 pounds of skim milk made the largest gains on from 9 to 12 pounds of skim milk. The consumption of skim milk reduced the consumption of concentrates considerably, though the cost of a pound of gain was lowest with a consumption of 1 pound of grain to 3 pounds of skim milk. This shows that animals will often consume larger quantities of food than they can digest and assimilate with the greatest economy.

3. The largest gain per head per day was made by Groups III and IV, 1.40 pound, followed closely by Groups I and VI, with a gain of 1.35 pound. The other groups all gained 1.30 pound with the exception of the lot fed corn meal and water. The largest gains were made by the groups receiving corn meal and wheat meal, mixed in the ratio of 2 to 1, with skim milk. The ratio of grain to skim milk was 1 to 9 with Group III and 1 to 12 with Group IV. This ratio made the best gain but was not the most economical.

4. It required 140 pounds of concentrates and 1640 pounds of skim milk to make 100 pounds of gain with Group IV, which recieved 1 pound of grain and 12 pounds of skim milk. As the ratio between the skim milk and grain decreased the consumption of concentrates increased.

5. Group I, which received 1 pound of grain to 3 pounds of skim milk, consumed 80 pounds more grain than Group IV and 990 pounds less of skim milk, which makes it evident that the ratio of grain to skim milk was too wide in the latter group.

6. The value of skim milk as an adjunct in hog feeding is shown by the fact that Group V consumed 4.1 pounds of corn meal for 1 pound of gain, whereas, Groups VI, VII and VIII consumed only 1.6 pound of concentrates with approximately 12 pounds of skim milk per pound of gain. In other words, 12 pounds of skim milk saved 2½ pounds of corn meal.

7. The experiment indicates that a bushel of corn produced 13.6 pounds of pork, which at 6 cents would give it a feeding value of 81 cents a bushel; at 5 cents, 68 cents a bushel; and at 7 cents, a feeding value of 95 cents. A farmer often sells his corn at 40 to 50 cents, when fat hogs would bring him 5 to 7 cents per pound, under the mistaken idea that he can not afford to feed it. Corn has been purchased at 80 cents a bushel and fed at a profit at the station.

8. In the case of Group VI it was possible to secure 35 pounds of gain with a consumption of 416.5 pounds of skim milk. On the basis of the gain made from corn meal and water 416.5 pounds of skim milk made 21.4 pounds of gain when fed with corn meal. This would give it a feeding value of 31 cents when pork sells at 6 cents, of 26 cents when pork sells at 5 cents, and 36 cents when pork sells at 7 cents.

9. The manure from animals constitutes a part of the legitimate profits from any feeding experiment, as it takes the place of purchased commercial fertilizers, which are not so satisfactory. When 75 per cent of the fertilizer value of the food-stuffs consumed was credited to the animal, the average cost of a pound of gain for all groups was 3.7 cents; when no allowance was made for the manure, 5 cents. There is no reason why at least 75 per cent of the manurial constituents of the food-stuffs should not be returned to the soil under proper management, which according to these figures would reduce the cost of a pound of gain by 1.3 cent.

10. The highest gross cost of a pound of gain was with Group V, fed corn meal alone, 5.8 cents; or 1.4 cent more than Group I. The cost of a pound of gain was close in all instances and in no case was excessive.

11. The profit per group without considering the manurial value of the excrements was largest with Group I, $7.63; Groups II and III made a profit of $5.27 and $5.62, respectively; Groups VI and VII, $4.96 and $4.13; Group VIII, $3.38. The cost of soy beans in the case of the last group was probably responsible for the small profit shown, which indicates the importance of studying and utilizing those grains best adapted for the cheap production of pork. The price of foodstuffs has a marked influence on the profit from a feeding experiment.

12. These experiments clearly demonstrates the importance of skim milk as an adjunct food for hogs. The best ratio is one pound of grain to 3 to 8 pounds of skim milk.—*Tenn. Exp. Sta., Bulletin No. 3.*

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The Quotation Committee of the Elgin Board of Trade to-day reported the official market firm at 22 cents. There were no offerings and no sales. The price is a drop of two cents from last week.

The former markets were:

Date.	*Tubs Sold.*	*Price.*
Jan 11, '04	0	24c
Jan. 19, '03	0	27c
Jan. 20, '02	29	24c
Jan. 21, '01	0	22c
Jan. 22, '00	144	24c

Elgin, Ill., Jan. 18, '04. H. C. B.

Transfers of Guernsey Cattle.

BULLS.

Besly Farm Jupiter 9091, R. I. College to C. H. Besly, Edison Park, Ill.
Calla's Duke 9111, Gypson's Bishop 9112, Jas. H. Beirne to Staub Petterson Co., Scandinavia, Pa.
Dumps 8138, Frank M. Ross to Andrew Hough, Sanford, Me.
Excelsior Laddie 8298, D. L. Stevens to E. D. Benjamin, Kingsley, Pa.
Glenwood's Main-Stay 9th 8905, E. T. Gill to Wm. Flinn, Pittsburg, Pa.
Imp. Harley of Spotswood 8347, Edward T. Price to Geo. H. Flinn, Pittsburg, Pa.
Hedwig's Jeweller 7904, March & Philips to C. H. Sessions, Los Angeles, Cal.
Nicholas of Orange 8528, J. P. Welsh to Rev. J. D. Smith, Kanona, N. Y.
Pride of Fleming T. 9106, W. A. Alexander to Bridgen and Van Liew, Auburn, N. Y.
Royaline Vauxbelets 9105, F. W. Tratt to A. H. Bendick, Tomah, Wis.
Sweet Briar Duke 9014, Eva Leghman to S. T. Harris, Medford, Wis.
Sir Knight of Maple Ranch 8845, Hopewell Bros. to J. Henry Rines, Portland, Me.
Shadowbrook Duke 9113, J. A. Beidler to G. B. Tallman, Perry, N. Y.
Shadowbrook Duke 9113, G. B. Tallman to Seymour Van Santvoord, Bennington, Vt.
Walter Scott 9108, D. E. Risinger to W. E. Ackerson, Homer City, Pa.

COWS.

Annie of Westfield 2d 12056, Lulu of Westfield 14552, O. W. Sanford & Son to Joel W. Skilton, Thomaston, Ct.
Besly Farm Juno 16771, Mistress Joe 14325, F. S. Gorton to Charles H. Besly, Chicago, Ill.
Belle of Rosendale 16949, Chas. L. Hill to H. C. Bughman, Pittsburg, Pa.
Beulah Bell 16969, O. S. Campbell to J. B. Secrist, West Newton, Pa
Emma's Derilius 16963, J. R. Foreman to Ralph Tratt, Whitewater, Wis.
Fairy of Westfield 2d 16594, Grace of Westfield 16593, Lily of Westfield 3d 14551, Maggie of Westfield 2d 16968, O. W. Sanford and Son to G. N. Proctor, Fitchburg, Mass.
Golden Crown of Hop City L. 16598, Nellie Bly of Hop City L. 16596, Cary Lasher to W. A. Bullock, South Trenton, N. Y.
Gipsy Countess 16507, Imp. Itchen Dainty 15193, Imp. Itchen Daisy 2d 15191, Imp. Itchen Lady 2d 15194, Imp. Itchen Merry Maiden 15192, Imp. Princeps of Spotswood 16503, Edward T. Price to Geo. H. Flinn Pittsburg, Pa.
Inez Ettle 7234, Joseph Ross to University of Wisconsin, Madison, Wis.
Isabelle Trink 12758, J. P. Welsh to F. M. Sands, Millville, Pa.
Maurine Lucile 2d 16144, Nelson Poorbaugh to T. R. Fries, West Newton, Pa.
Pansy Sexton 2d 16972, Edwin Miller to George Dawson, Birmingham, Mich.
Rosebud's Minerva 11640, J. P. Welsh to T. E. Hyde, Bloomsburg, Pa.
Ruth Sampson 16767, F. S. Gorton to Dr. Fernand Henrotin, Chicago, Ill.
Sophie of Swedeland 13982, Percival Roberts to J. A. Beidler, Willoughby, O.
Treynore's Sarnia Vauxbelets 16964, F. W. Tratt to A. H. Bendick, Tomah, Wis.
Tilly Fanchon 13617, O S. Campbell to James B. Secrist, West Newton, Pa.
Terra Cotta 3d 10558, Halline of Upper Freehold 16128, Ona of Elm Place 13358, Julia of Haddon 9112, E. T. Gill to Wm. Flinn, Pittsburg, Pa.

WM. H. CALDWELL, Sec'y.

Peterboro, N, H., Jan. 12, 1904.

NOW Is the time to Subscribe for HOARD'S DAIRYMAN

Mention this Paper. **EVERGREENS**
Hardy sorts, Nursery grown, for windbreaks, ornament and hedges. Prepaid, $1 to $10 per 100--50 Great Bargains to select from. Write at once for free Catalogue and Bargain Sheet. Local Agents wanted.
D. Hill, Evergreen Specialist, Dundee, Ill.

Painkiller PERRY DAVIS'
The world-known household remedy for cuts, burns, bruises—coughs, colds, sore throat.

5.95 Stitched with Silk.



5.95 Buys a $16.00 Suit. Order Now or Write for our Large Free Catalog.

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We have advertised in HOARD'S DAIRYMAN many years, and have found their subscribers among our very best customers, and to be conscientious and responsible. We are therefore going to make to the subscribers of this paper one of the most liberal propositions ever made, which is as follows: **This offer will not be made again. Order now.**

SEND NO MONEY Cut this ad out and send it to us. State number of inches around the body at chest, close up under arms, over vest, also number of inches around body at waist just above the hips, number of inches around body at (hips) largest part, also length of pants leg inside seam, from tight in crotch to heel, and we will send you by express this handsome black or dark blue suit **FREE** for inspection. When it arrives at your express office examine it carefully, try it on, and if you find it exactly as represented by us, strictly all wool, made in the latest style, and cut for season of 1904, to be a better fitting suit, better made, more serviceable, more stylish, and better in every way than any suit you can buy of any other house in Chicago, or in fact from anywhere else, or of your local dealer at home at less than $14.00 to $16.00, pay the express agent our special price of $5.95. If the suit does not prove to be exactly what you want, satisfactory in every way, equal to suits that sell everywhere at $14.00 to $16.00, then ship it back to us and we will pay the express charges both ways. Understand, we do not ask you to send us one single cent with the order. **All that is necessary to do is to send us this ad, give us your full measurements as indicated above, and say whether you want a black or blue suit, and we will ship you this handsome suit at once.** Do not be afraid you cannot take your own measure. Do not be afraid the suit will not fit you. Take your measure carefully and the suit will surely fit you perfectly. If it does not fit perfectly, if it is not satisfactory in every way, and the biggest bargain you have ever seen, and equal to suits that retail everywhere from $14.00 to $16.00 you need not pay one cent or take it from the express office, but you may send it back to us, we'll pay express charges both ways.

Our 15 Days Trial Proposition.

Wear this handsome suit 15 full days. In the meantime compare it with suits your friends have bought at home or elsewhere, and if you do not find our suit superior in quality, style and tailoring, and general makeup, and if it is not worth more than your friends have paid for suits at $14.00 to $16.00, return it to us and we will refund you your money, and pay all express charges so you won't be out one single cent. **Order today and wear a $16.00 suit at $5.95.**

THIS HANDSOME SUIT is made of a fine quality all wool cheviot, black or dark blue. Say what color you want when ordering. The coat is made in the semi-military fashion, round cut sack, like illustration; has broad padded shoulders, giving the shoulders a broad dressy effect; has double interlined canvas self-sustaining front, is neatly lined with strong farmers satin, has four outside and one inside pocket, vest is single breasted, made in the best of manner with notched collar, nicely lined. The trousers are made full medium wide, cut over the latest pattern. This is a suit that keeps its shape, and will give the wearer the very best service. We use in this suit better linings, trimmings, interlinings, stiffening and finish, than any other maker. We employ none but the very best of cutters and fitters, and we guarantee to give you a more stylish, a better made suit every way, shape and manner, than you can buy anywhere else without paying from $14.00 to $16.00.

OUR SPECIAL PRICE OF $5.95 Barely covers the cost of the cloth, lining, trimmings, and tailoring. **We are making this special offer merely to introduce our clothing in your vicinity and to place one of our catalogues in the hands of every subscriber to this paper.** We are only able to make this extremely low price because of our extraordinary facilities for buying and manufacturing, and because of our large volume of business, **Order today, and with the suit we will send you one of our large complete catalogues;** or, if you prefer a suit different from our special $5.95 suit, as described above, write us for our clothing catalogue. State in your letter the kind of suit you want and we will send you samples.

MARVIN SMITH CO. CHICAGO, ILL.

Salzer's Alfalfa or Lucerne



Glory enough! Ring the bells! Shout for joy! The year of jubilee has come! How's that! Why, sir, it has been made possible to grow Salzer's Alfalfa Clover in every state in the Union, North, South, East or West—why, sir, cold Minnesota and freezing Wisconsin, and treeless Nebraska, and the prairies of Illinois and Iowa, and the bottoms of Indiana, and the pineless soil of Michigan, and the rich farms of New York and Pennsylvania—yes, every state can grow from two to four crops of Alfalfa, if **Salzer's Northern Grown Alfalfa** seed is used! That's acclimated, that's hardy, that's tough, and we believe tougher and better than the Turkestan Alfalfa.

It's a Wonderful Clover

It's the greatest clover on earth, it's extremely early, the first crop cut in May, the second prodigal yield in July, the third in August, and lots and lots of pasture besides. It's great as a fertilizer, sending 10 to 25 feet after moisture and nourishment. It withstands drouth, wet, indeed, when once established it defies all elements, returning yields that will gladden the heart and fill the purse of every farmer growing same,

Look at This Testimonial

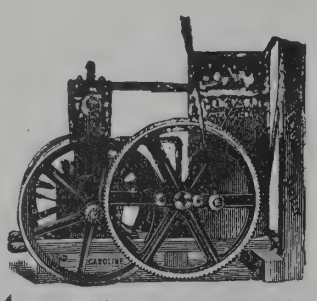
Carl G. Kleinstueck, Saxonia Farm, Mich., has this to say: "I have a patch of Salzer's Alfalfa Clover that I seeded 13 years ago, which yielded four big crops last year, besides good fall pasture. It has been cut three times already this season, and the fourth crop is about six inches high today, and will be ready for mowing in about three weeks."

We have hundreds like it coming from all parts of the United States. It will pay you, Mr. Farmer, to give Salzer's Alfalfa a trial.

For 6 Cents

If you will mention HOARD'S DAIRYMAN when you write, enclosing 6 cents in stamps, we will mail you a sample package of **Salzer's Northern Grown Alfalfa Clover Seed,** as also our catalogue that contains the full description of how to grow with success this wonderously luxuriant hay and grass producing plant. Send today 6 cents in stamps for above and be sure to mention HOARD'S DAIRYMAN.

JOHN A. SALZER SEED CO., LaCrosse, Wis.



You will be well pleased if you buy a

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SIX PER CENT INTEREST

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Oils Cure Cancer.

All forms of cancer and tumor, internal and external, cured by soothing, balmy oil, and without pain or disfigurement. No experiment, but successfully used ten years. Write to the Home Office of the Originators for free book—Dr. D. M Bye Co., Drawer 505, Indianapolis, Ind.

DAIRY MARKETS.

ELGIN, Ill., Jan. 18—Butter ruled firm on the Board of Trade today at 22 cents a pound, a decline of 2c from last week, owing to a decreased demand. Sales in the region for the week were 435,900 lbs.

CHICAGO, Ill., Jan. 18—Butter—Easy; creameries, 15@21c; dairies, 13@19c.

Cheese—Steady; Daisies, 10¼@10½c; Twins, 10c; Young Americas, 10½c.

Eggs—Steady; at mark, cases included, 24@26½c.

Cattle—Choice to fancy beeves, 1,200 lbs. up, 5.50@5.75; good to choice heavy steers, 5.95@5.45; fair to good export and shipping steers, 4.40@4.90; medium beef steers, 4.00@4.30; plain beef steers, 3.65@3.90; good to fancy cows and heifers 3.80@4.75; good to choice feeders, 3.30@4.15; good to prime stockers and feeders, 1.85@3.25; fair to good cows and heifers, 2.90@3.75; good cutting and fair beef cows, 2.40@2.85; common to good canning cows, 1.40@2.35; bulls, poor to choice, 2.10@4.25; calves, good to fancy 5.00@6.25; calves, common to fair, 2.75@4.75; corn-fed, western steers, 4.10@5.40; Texas bulls and thin steers, 2.25@3.75; fed Texas steers, fair to choice, 3.40@4.40.

Hogs— Good to choice heavy shipping, 4.85@5.00; fair to good heavy packing, 4.65@4.80; rough and common heavy mixed, 4.45@4.75; assorted light, 150 to 185 lbs. 4.55@4.75; good to choice butcher weights, 4.80@5.00; fair to choice light mixed 4.55@4.80; thin to choice 50 to 135 lbs., 4.10@4.60; stags and rough lots, 3.00@4.40.

MILWAUKEE, Wis., Jan. 18—Butter—Creamery, extras, 24c; firsts, 21@22c; seconds, 18@19c. storage, extra, 20½@21c; storage, low grades, 15@18c; renovated (process,) 17@17½c. Dairy fancy, 17@18c; lines, fresh, 14@15c; roll, 14@15c; packing stock, 12c; whey, 8c; grease, 5@6c.

Cheese—American full cream, new: Twins, 10@10½c; Young Americas, 10½@11c; Daisies, 11@11½c; Longhorns, 11@11½c; low grades, 7@9c. Brick—New, fancy, 10@10½c; low grades, 7@9c; Limburger—New, fancy, 10@10½c; off goods, 6@8c Swiss—Drum, choice, 12@12½c; Drum No. 2, 10@11c; block, choice, 11@11½c; block, No. 2, 9@10c.

Eggs—Strictly fresh laid, loss off, cases returned, 28c; held fresh, candled, cases returned, 25c; strictly fresh laid, at mark, cases returned, 25c; storage, city, April No. 1, 25c; dirties and seconds, 20c; checks, 18c.

PLYMOUTH, Wis., Jan. 13—Cheese—Twelve factories offered 974 boxes of cheese, and all sold as follows: 142 Longhorns, 10¼c; 628 Daisies, 10½c; 182, 10⅝c; 8 Twins, 9c; 16 Americas, 10c. Next meeting, Jan. 26, 3:15 p. m.

SHEBOYGAN, Wis., Jan. 13—Cheese—Four hundred and ninety-six boxes of cheese were offered at the board today and sold as follows: 218 Daisies at 10½c; 6 Daisies, 10¼c; 15 Young Americas, 10½c; 12 Young Americas, 10c; 241 Longhorns, 10¼c.

SHEBOYGAN FALLS Wis., Jan. 13—Cheese—12 factories offered 540 boxes of cheese on the Call Board to-day and all sold as follows: 142 Daisies at 10½c; 389 cases Longhorns, 10¼c; and 10 cases at 10c. Market quiet. Next meeting Wednesday, Jan. 7.

NEW ORLEANS, La., Jan. 15—Butter—Extras, 23½@24c; firsts, 20c; seconds, 18c.

Cheese—Young Americas, 12c; Twins, 11c; Daisies, 12c.

Eggs—Fresh, 23c. Trade slow on all of above.

BOSTON, Mass., Jan. 18—Butter—Creamery, western, extra, 22@23c; western firsts, 21c; storage, 22c; dairy, 15@19c; western ladle, 14@15½c; box and print 16@24c.

Cheese—Choice, 12c; Wisconsin Twins, 10@11c.

Eggs—Fancy nearby, 36c; western 31@32c; fair to good, 28c; refrigerator, 28@29c.

NEWARK, N. J., Jan. 18—Butter steady at 22c.

Eggs—Firm at 30c, for western fresh, gathered firsts.

PHILADELPHIA, Jan. 18—Butter—Market steady. Solids 23c; near-by prints, 27c; western 24c.

TOPEKA, KANSAS, Jan. 16—Creamery—Butter 24@25c; Dairy butter 17½@18½c.

Cheese—Longhorns, 11½c; Daisy, 11@11½c; Prints 12c.

NEW YORK, Jan. 18—Butter—Recipts, 3,837 pkgs.; steady; extra, creamery, 22c; creamery, common to choice, 15@21½c; state dairy, 14@19c; held creamery, 14@20c.

Cheese—Receipts, 2,347 pkgs; steady; state full cream, fancy, small, colored, September, 12c; late made, 10½c; small, white, 12c; late made, 10½c; large, colored, September, 12c; late made, 10-½c; large, white September, 12c; late made, 10½c.

Eggs—Receipts, 3,128 pkgs; steady; state and Pennsylvania, nearby, averages, 31c; state and Pennsylvania, seconds to firsts, 28@30c; western extras, 31c; western firsts, 30c; western seconds 28@29c; refrigerated, 24@27c.

NEW YORK MARKET.

NEW YORK, Jan. 16—Butter—Receipts for the week, 32,389 packages. Exports for the week, 2,398 packages.

So far, January has been a hard month for the butter trade. Prices for fresh creamery have kept moving up and down every day or two, and these queer antics have about demoralized the retail trade; and yet the conditions have been about the same for the last two months.

There has been a big stock of summer butter hanging over the market, and packing stock from which renovated goods are made has been plentiful and low priced, and it would seem that a moderately low and steady price for top qualities of fresh creamery would be the correct thing and would lead to a freer use of "freezer" goods and less trade for "scab" butter.

Monday, extra fresh creamery sold at 24c and on Tuesday and Wednesday declined one cent per day, 22c has been the price since, and at the close there is no scarcity of any grade of butter and prices favor buyers all through the list. We quote:

Creamery, fresh, extra, 22c; medium, 20@21c; poor, 15@19c; creamery, freezer, extra, 20c; medium, 18@19c; poor, 15@17c; Dairy, extra, 19@20c; medium, 16@18c, poor, 14@15c.

Cheese—Receipts for the week, 21,682 boxes. Exports for the week, 8,642 boxes.

There is no change in prices and with perhaps a little more export inquiry for under grade full creams and best marks of skimmed cheese, the market is unchanged. We quote:

Full Cream, extra, 12c; medium, 10@11½c; poor, 8@9½c.

Eggs—Receipts for the week, 26,191 cases.

Market was steady all the week and closes bare of stock. Fancy new laid stock 32@33c; fair to good 28@30c; refrigerators, 23@28c per dozen. DAVID W. LEWIS & Co.

177 Chambers St.

BALTIMORE MARKET.

BALTIMORE, Jan. 14—Butter—While there has been no increase in the general receipts, the supply, with the single exception of fancy, fresh creamery, is fully equal to, if not in excess of, the requirements. The bulk of the current receipts are running very poor; there are but few, if any of the arrivals, but show some very objectionable features, which fact makes them very undesirable, and for the time being they are slighted, while on the other hand all receipts suitable for table purposes meet ready sale. There has been but little doing in June and other held creameries so far this week. Imitation creamery of choice to fancy quality is wanted. Fresh sweet ladles meet with good sale, while faulty stock is neglected. Rolls—There is a fair demand for fresh, sweet nicely-handled stock, while cheesy and roughly handled stock is very dull sale at irregular prices. Packing stock—The supply is fully equal to the demand. Prints and Blocks meet with prompt sale, when the quality is satisfactory. The general market, though about steady, rules rather quiet.

Creamery separator, extras, 24c; firsts, 22@23c; seconds, 19@21c: Held creamery, extra, 22@23c; firsts, 20@21c; seconds, 17@20; imitation creamery, extras, 19@20c; firsts, 17@18c; seconds, 14@16c; Iowa & N. W. Ladle, extras 16½c.; firsts, 15@15½c; seconds, 13@14c; Creamery blocks (2 lbs.) extras, 25c; firsts, 23@24c; seconds, 20@22c. Creamery prints, (½ lb.), extra, 25@25½c; firsts, 24c; seconds, 20@22c; Md. Va. & Penna. prints, extras, 24c; firsts, 22@23c; seconds, 18@20c. Renovated butter, extras, 20c; firsts, 18@19c; seconds, 16@18c.

Cheese—Market is a little firmer in tone, and earlier made and fancy cheese are bringing a slight advance over these quotations.

N. Y. State Cheddars, fine, 10½@11c; choice, 9¾@10c; fair, 9@9¼c; do Flats, fine, 11@11½c; choice, 10½@10¾c; fair, 9½@10c; do Small, fine, 11½@12c; choice, 10¾@11c; fair, 10@10¼c; Ohio Flats, fine, 10@10½c; choice, 9@9¾c; fair, 8½@9c; Ohio Picnic, fine, 10½@11c; choice, 10@10¼c; fair, 9½@9¾c; Swiss (Domestic) new, fine, 14½@15c; choice, 13@13½c; fair, 10@12c.

Eggs—Soon after our last issue, our market, in sympathy with others, took a drop. Stock that readily sold at 35 cents on Thursday, the 7th, would not bring over 32 on Friday, and towards the close of that day, 30 cents was the best price obtainable on fancy stock. On Monday of this week, the market opened in a very unsettled condition and sales were made at 27 to 28. Today with less liberal receipts, a better feeling prevails, and the market generally presents a healthier appearance at 28 cents. Now that the storage stock is well nigh exhausted, we look for an increased demand for fresh eggs and advise liberal shipments from now on.

301 Exchange Place. G. M. LAMB & BROS.

SAN FRANCISCO MARKET.

The butter market displayed considerable life yesterday and with a good local jobbing demand, sellers were able to advance prices a point, despite the increased receipts. Only a small percentage of really fancy creamery stock was included in the heavier arrivals, and there was a marked scarcity of the favored brands. Available supplies of the latter were quickly absorbed at the maximum quotation, while the average run of the fine grades of creamery were well cared for at the 28c rate. The intermediate and cheaper grades of butter ruled firm in sympathy with the improved market for the best stock and the offerings scoring highest in quality found an active demand at hardened figures. There was some movement in storage goods, but this stock was not a factor in the day's trade. The market for the fresh lines closed in a firm position for the selling interests. Easier prices prevailed for eggs under increased supplies and a cautious demand. The top quotation was an extreme for extra selected whites and posted buyers had little difficulty in filling their wants with good stock in the neighborhood of 32c. The cheaper grades of eggs were well cared for within the lower range of values. Prices for cheese were again quoted a fraction lower and under liberal supplies, the market continued easy in tone.

Receipts yesterday aggregated 40,500 pounds butter, 977 cases eggs and 8,200 pounds of cheese.

Butter—Creamery, extras, 28@29c; good to fancy, 25@27c; dairy, extras, 24@25c; dairy, choice, 21@23c; store, 17@18c; California storage, 21@22½; eastern creamery, nominal.

Eggs—Ranch, selected large, 32@33c; good to choice, 29@31c; store, 26@28c; California storage, nominal; eastern, nominal.

Cheese—California creamery, mild, new, extra, 13@13½c; mild, new, choice, 12@12½c: Young, America, 13@14c; eastern, New York, Cream, Cheddars and Flats, new, 14½@16c.

NEW YORK FERTILIZER MARKET.

Fish scrap, dried, 11 p. c ammonia, and 15 p. c. bone phosphate f. o. b. fish works, per ton	2.50 & 10
wet, acidulated. 6 p. c. ammonia f. o. b. fish works	2.25 & 35
ground	31.50@33.00
Azotine, per unit	2.60@ 2.65
Tankage, 9 and 20 p. c. f. o. b. Chicago, per ton	2.20@10
Tankage, 8 and 20 p. c. f. o. b. Chicago	2.17½@10
Tankage, 7 and 30 p. c. f. o. b. Chicago	15.00@16.00
Tankage, 6 and 35 p. c. f. o. b. Chicago	14.00@15.00
Garbage, tankage	8.00@ 9.00
Dried blood 12-13 p. c. ammonia f. o. b. N. Y.	2.50@ 2.55
Dried blood, high grade, f. o. b, Chicago	2.50@ 2.55
Nitrate of soda for 100 lbs	2.15@ 2.20
future	2.15@ 2.02½
Acid phosphate	60 @ 67½
Phosphate rock, f. o. b. Char'n	5.00@ 7.00
Tenn	3.50@ 4.50
Bones, rough, ℔ ton	18.00@20.00
ground, steamed	20.00@24.00
ground, raw	23.00@27.00
Bone black, refuse	16.00@20.00
South Carolina phosphate rock, ground per 2,000 lbs. f. o. b. Charleston	6.50@ 7.75
South Carolina phosphate rock, undried, f. o. b. Ashley river, per 2,400 lbs	3.50@3.75
do, dried	3.75@4.00
Muriate Potash, 80 p.c. spot ℔ 100 lbs	1.88@ 1.91½
Muriate potash 80 p. c., future	1.83@ 1.86½
dbl. m're salt	48@53% 1.12@ 1.15
Sulphate potash (basis 90 p. c.)	2.11@ 2.14
Sylvinit, 30@36 p. c. ℔ unit	.39@ .40
Kainit in bags	10.05@10.55
Kainit, in bulk	9.05@ 9.55
Kieserit	7.00@ 7.25

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 1901

The Wonderful Increase

in the popularity and use of cream separators is due to the unparalleled success of the

De Laval Cream Separators

the original centrifugal creaming machine, which has always been the leader, and is today further ahead than ever. Every day use proves that

De Laval is Best

in every respect, whether for farm or factory.

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121 Youville Square, MONTREAL.
75 & 77 York Street, TORONTO.
248 McDermot Avenue WINNIPEG.

READING NOTICES

All Reading Notices under this head are at the rate of 25 cents per line.

For Rent—A first-class Dairy and Grain Farm to rent on shares. No wet land. Enquire BOX 713, Whitewater, Wis. 50-2

Holsteins—Bull calves, at farmers' prices, sired by Dinah Johanna Sir De Kol. H. F. WEAVER, R. F. D. 3, Elkhorn, Wis. 50-tf

For Sale—Well established dairy in best and healthiest city in the South. Price $3,000. For full particulars address BOX 529, San Antonio, Texas. 50-4

For Sale—Guernsey bull, "Sir Neith" 8755. Dropped Aug. 18, '02; price reasonable. THOMAS S. MICHENER, Michener, Pa. 49-2

Richly Bred Guernsey Bull Calf—Nicely marked, strong and vigorous. Dam produced 603 pounds butter last year. Price low to quick buyer. H. R. NORTHRUP, Water Vale, N.Y. 49-2

Wanted—Man with family to work dairy farm of 160 acres, on shares. 20 Jersey cows. Sell to creamery or make butter at home. Silo, separator, teams, tools; everything complete except one team. A fair chance for an experienced man with little capital. Business established twenty years. Write at once to G. H. REDFIELD, the dairyman, Edwardsburg, Mich. 49-2

For Rent—For cash or on shares, my herd of 25 cows with land for their support, including 12 acres of alfalfa; 8 room house, garden and orchard. Milk route and equipment in town of 7000; retail 45 to 50 gal. daily; cash sales for 1903, $3350. Address ANDREW BALL, Mt. Vernon, O. 49-2

We will sell at public auction, to the highest bidder, the co-operative creamery, on the 8th day of February, 1904. NORTH FREEDOM CRY. CO., North Freedom, Wis. 49-2

For Sale—Combined cheese factory and store, three years old, good location in Chippewa Co. Will make now twelve hundred dollars per annum and will increase rapidly. Too many other duties to attend to it. Address "CHIPPEWA," care Hoard's Dairyman. 49-2

For Sale—At a bargain, two U. S. separators, turbine, 3000 lbs. per hour and No. 2½ 1300 lbs. A receiving vat, twin cream vat and churn capacity of each 400 gals., tempering vat and milk pump, 20 h. p. boiler and 10 h. p. engine. Eighteen months use. Address J. B. PRATT, Wellington, Ohio. R. F. D. No. 3. 49-2

A First-class, experienced butter maker desires a position in the West or Northwest. Up-to-date work guaranteed. Address A. TOBLER, Nora, So. Dak. 49-5

$25 to $50—Buys a highly bred Jersey bull from 2 to 20 months old. St. Lamberts, Stoke Pogis or Tormentors, from the best herd in Ohio. Write now to P. CLAWSON, Okeana, Butler Co., Ohio. 49-5

A Snap—Paying milk route at cost, for cash. Going west. Address S-7, care Hoard's Dairyman.

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D, Independence, Ia. 50-tf

Guernsey Cattle—All ages, both sexes for sale. Cir. free. CLOVER KNOLL GUERNSEY HERD, Orangeville, Pa. M. Sager, Supt. 41-tf

For Sale or Rent—Dairy farm of 200 acres, 90 improved. $1.50 per hundred for milk year around. Address J. P. SOUTHARD, Harbor Springs, Mich. 42-10

For Sale—10 cheese factories, 5 farms 40 to 160 acres, saloon, dance hall and store. FRED HADLER, 775 Ida St., Appleton, Wis. 43-tf

Buff Jersey's Third Revised Edition of the Dairyman Stock Breeder and Farmers' Hand Book; 10 chapters; The Buff Jersey Silo, how to build; Soil Crops; Dairy Cows, how to handle; Barns, how to build; Abortion, cure and preventative, and many other valuable things for progressive farmers. So popular has become the book that the author has concluded to make it an annual publication, and has put the price at a figure that makes it popular also. Postpaid, paper binding, 50c; cloth, 75c. BUFF JERSEY, Monmouth, Ill. 47-tf

Wanted—One single, and one married man with two grown sons for dairy farm. State wages expected. A. J. DAUGHERITY, Streator, Ill. 47-tf

For Sale—Choice reg. Guernsey bulls and bull calves. RAY C. BICKNELL, Ft. Atkinson, Wis. 32-tf

Herdsman Wanted—For Clover Knoll Guernsey herd, Orangeville, Pa. 48-3

I have a few Guernsy Bull Calves whose dam's and sire's dam have an average yearly record of from 643 lbs. to 747 lbs. butter. Individually they are desirable to head thoroughbred herds. CHAS. SOLVESON, Neshotah, Wis. 50-tf

A Good Dairy Farm of 360 acres for sale or rent; prefer to sell. Well watered with creek, springs and well. Good barns and two houses. 25 cows in milk. 3 two-year-old heifers to freshen in the spring. 1 bull. All high grade Jerseys. Situated in the town of Oxford, 1½ miles west of Packwaukee depot. A creamery at Packwaukee. N. W. ALLEN, Packwaukee, Wis.

Wanted—Loan on good improved farm for 5 or 10 years at 5 per cent interest. Address LOAN, care of Hoard's Dairyman. 50-2

Wanted—By honest young man, a position on small dairy farm to do general work. Can also milk. State wages paid. WM. G. MOYER, Center Valley, Pa.

An Unusual Opening -- Controlling milk trade of southern city of 35,000 in healthy upland region near the Blue Ridge Mountains. Suburban milk farm, up-to-date buildings, city water, dairy herd, teams, tools, retail stand in city centrally located and well fitted up. Trade well established. Prices good. Long season makes production cheap here. Owner disabled and will sell for $10,500 to close out. This is a fortune to a live man. Full particulars of "PIEDMONT" care Hoard's Dairyman.

Wanted—Position, with references. Married. Will milk 20 cows. BURT J., Box 453, Neillsville, Wis.

Dairy Questions Answered by Prof. Farrington.

A Creamery Refrigerator.

"Will you be kind enough to give us the latest and best plans for building a refrigerator that will hold about twenty tubs of butter? Our cellar has three divisions in it, separated by board partitions. Will it do to fill one division with ice and leave a center space in it properly made for a refrigerator?" * * *

Orangeville, Ill.

From the description of the location you have for a refrigerator, I should judge that it will be an easy matter to insulate the room. If you use the central place for the refrigerator the rooms on each side will be of some protection from changes in temperature, and this will aid in holding a uniform temperature in the refrigerator. Proper insulation is one of the first things to provide in building a refrigerator. The ceiling and the floors ought to be insulated as well as the walls, and the door should not be larger than is convenient for making use of the refrigerator, that is, for taking tubs of butter in and out of it. Every time the door is opened the cold air rushes out and the warm air goes in, so that the smaller the door and the less it is opened the better. I have heard some business men using rather large refrigerators say that every time the refrigerator door was opened it cost them fifty cents. This is probably an exaggerated statement, for the refrigerator of a creamery, but it gives one some idea of the necessity of keeping the refrigerator door open as little as possible.

The arrangement of the ice box of a refrigerator is a very essential thing as the dryness of the atmosphere in the refrigerator and the economy with which cold is obtained from the ice, will depend largely on the construction of the ice-box. The drawing enclosed gives a suggestion as to how this ice-box may be made. The principal point to be kept in mind in building this box is to have it so arranged that the air in the room will circulate around the ice. This will both cool and dry the air and by making an arrangement by which the drippings of the ice will be conducted out of the refrigerator, the room may be kept dry and cold. In the enclosed drawing the letters refer to the following parts of the refrigerator:

A. Is a door or damper which may be hinged at the top so as to control the circulation of the air over the ice.

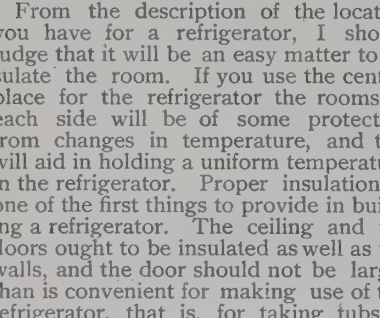
B. Pieces of 2×4 placed edgewise on which the ice rests.

C. Galvanized iron or zinc drip-pans to catch the water from the melting ice and carry it into the gutter.

D. Gutter or drain pipe.

The ice is put into the box from the outside through a door made for this purpose.

This is a simple plan of a small but satisfactory refrigerator that has been used with good results in many creameries. It will prevent the accumulation of dampness which is one of the causes of mouldy butter, from which many creameries suffer heavy losses every year.



Question on Cream Testing.

I am the middle party between a creamery company and patrons. Am not satisfied with the system of operation. Do not feel that all concerned receive what they have a right to expect.

1. At what temperature Fahrenheit, does the graduation on a cream test bottle give the correct reading in percentage of fat in 18 grammes of cream?

2. What is the proportional difference in the volume of butter fat at 60 degrees F. and 120 degrees F.?

3. What is the exact weight of 18 c. c. of cream testing 25 per cent fat and 50 per cent fat at 60 degrees F. and at 120 degrees F.?

I understand that the richer cream is too thick under ordinary conditions, but I wish this information in order to force the use of cream scales instead of an 18 c. c. pipette. * * *

Brush Prairie, Wash.

The graduations of the milk and cream test bottles are made so as to read the fat when it has a temperature of 140 degrees F. If the fat is warmer or colder than this the length of the column will be shortened or lengthened according as the temperature changes. From carefully made experiments it has been found that a change in temperature of 40 degrees will make a difference of .14 per cent when this difference in temperature is applied to the amount of fat that will fill the entire neck of the test bottle; that is, when it applies to a test of ten per cent fat. This difference of 40 degrees temperature with milk testing five per cent fat will make a difference in test of 0.07 per cent fat. These figures are based on the assumption that 18 grams of milk or cream are tested.

In the example given, asking what the difference in the test will be when the temperature varies from 60 to 120 degrees Fah., you may assume, on the basis of the above calculation, that for every ten per cent fat the variation in test between reading the fat at 60 degreès and 120 degrees F. will be about one-tenth of one per cent fat. It will not, however, be possible to measure the fat in the neck of the test bottle at 60 degrees F., because the fat will be solid at that temperature, and when it becomes hard, the crystals of fat do not fill the neck of the test bottle compactly, so that you can accurately distinguish the point at which to measure the top and the bottom of the fat column. If the difference in temperature of 40 degrees is taken between say 110 and 150 degrees, or two points at which the fat in the neck of the bottle will be liquid, the expansion and contraction of the fat due to these changes in temperature on milk testing five per cent fat will be, as stated above, .07 of one per cent. The test will read .07 per cent higher at 150 degrees than at 110 degree.

It has been found by determining the specific gravity of cream testing different per cents fat that cream having a fat test of 25.0 per cent has a specific gravity of about one, and this being the case your 18 c. c. of 25 per cent cream should weigh 18 grams. You must not assume, however, from this statement that the pipettes which have an 18 c. c. mark on them will always deliver 18 grams of cream. There is such a difference in the consistency of cream and the amount which will cling to the pipette as well as a difference in the amount of gas or air bubbles in different samples of cream that you cannot safely assume that an 18 c. c. pipette will always deliver 18 grams of cream testing 25 per cent fat. It is true, however, that if you can accurately measure 18 c. c. of cream testing 25 per cent and deliver it all into a small dish on a scale, the 18 c. c. ought to weigh 18 grams at a temperature of 60 degrees F.

The weight of 18 c. c. of cream testing 50 per cent fat is 17.7 grams. This is found by multiplying the specific gravity of cream testing 50.0 per cent fat, which is .983, by 18 c. c.

The difference between the weight and the measure of any liquid may be shown by multiplying the measure or the volume of the liquid in cubic centimeters by the specific gravity; the product shows what a given quantity of the liquid will weigh.

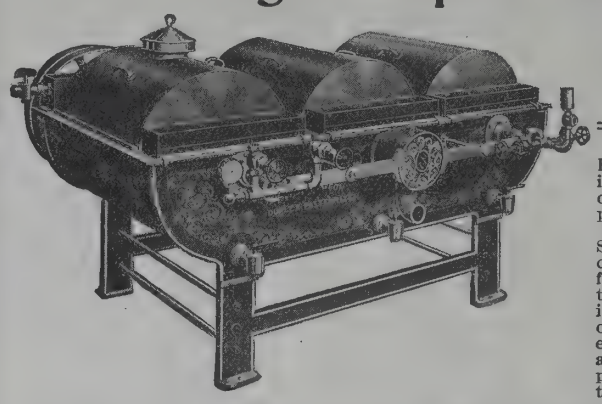
In this case then, 18 c. c. of cream testing 25 per cent fat will weigh 18 grams and 18 c. c. testing 50 per cent fat will weigh 17.7 grams when both weights are made at a temperature of 60 degrees F.

If the two creams are weighed at a temperature of 120 degrees F. the 18 c. c. of cream testing 25 per cent fat will weigh 17.7 grams, and the cream testing 50 per cent fat will weigh 17.49 grams. These figures are based on the following assumption: that full 18 c. c. cream is under consideration, and not simply the amount of cream that an 18 c. c. pipette will deliver; that the coefficient of expansion of water is .0004, of butter fat, .0003 and of cream it is .00035 and that the specific gravity of butter fat is 0.9. If the temperatures under consideration are 60 and 120 degrees F., this 60 degrees F. difference between them is equal to about 34 degrees C. Multiplying the coefficient of expansion of fat .0003 by 34.0 gives 1.0102, hence 1 c. c. fat at 60 degrees F. is eqnal to 1.0102 at 120 degrees F. and 1 c. c. of cream having a coefficient of expansion of .00035 is equal to 1.012. If now the specific gravity of cream testing 50 per cent fat is .983, 18 c. c. of such cream will weigh 18×.983 or 17.7 grams at 60 degrees F. and by raising this to 120 degrees F., the weight of 18 c. c. will be found by dividing 17.7 by 1.012 which gives 17.49 grams.

A Creamery Problem.

"We are paying three cents below Elgin for butter based on a test of 18 c. c. for cream with 11 % added overrun. It is assumed that the skim milk tests .02 of one per cent fat and this is the loss deducted. Do you consider this a fair

The Farrington Duplex Pasteurizer.



Built Entirely of Metal

Among the users of our Farrington Duplex Pasteurizers we have the names of the leading milk companies of the country.

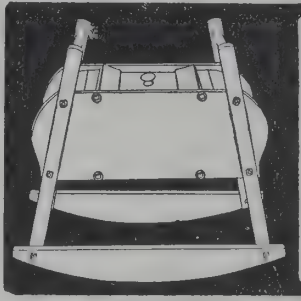
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We have a very simple and complete Record Sheet for 10 cows, one month, that is printed on heavy Manilla Paper, we can send postpaid at the following prices:

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MINNEAPOLIS, MINN.

When ordering mention this paper.

overrun and a just divison of the creamery receipts? Do you think better results can be obtained from an average creamery for all seasons?" * * * *
Downing, Wis.

From a creamery owner's stand point, I should think that the price mentioned in your letter, ought to be very satisfactory. I have been informed that a number of firms are paying the Elgin price for butter fat for cream and paying also for the transportation of the cream. This is a little better than you are paying, but I believe that the firms mentioned do not make all their cream into butter, but some of it is sold at retail or used in making ice cream. When such a market as this is available, a higher price for the products is obtained, than when the cream is made into butter. In such cases the buyer of cream can naturally afford to pay more than where butter only is made from it.

I do not think it wise to use an 18 c. c. pipette for testing cream. It is not always possible to deliver 18 grams of cream from an 18 c. c. pipette. If the cream is in a good, sweet condition and tests 20% fat or less, the 18 c. c. pipette. may answer the purpose. If the cream is a little ripe, so that it will stick to the walls of the pipette, and if it contains more or less air, such a pipette will not deliver 18 grams. The safest way of testing cream, is to weigh the amount to be tested each time into the cream test bottle. I will suggest that you make comparisons of tests of the same lot of cream, using an 18 c. c. pipette in one case and weighing samples of the same cream in another case, then compare the two results. I think this will show you the differences that you may expect from the two methods of testing.

A loss of two one-hundrenths of one per cent fat in the skim milk by a separator is an extremely small one. I do not think there are any separators in use, which will leave so small a quantity of fat in the skim milk during the entire run of a separator from day to day. The skim milk undoubtedly tests much nearer 0.1 than two-hundredths of one percent.

The overrun of 11 per cent is rather low if you are receiving cream only. This a fairly satisfactory overrun from milk, but that from cream would be somewhat higher. I think it will be a good plan for you to check up the testing at your factory and pay on the basis of the work done each week, rather than to use some definite standard of overrun, and skimming as a guide for the working of the factory each day.

[The laws of Wisconsin forbid the use of pipettes in tes ing cream—ED.]

TESTING RIPE CREAM.

"We have been unable to obtain an accurate sample of cream that has been ripened. We ripen in cans instead of in a vat. May I ask you if there is any way by which ripened cream may be correctly sampled and tested by the Babcock test?" * * *
St. Louis, Mo.

I think you will have no trouble in getting a fair sample and an accurate test of ripened cream if it is thoroughly mixed and then a sample weighed into a cream test bottle. Ripened cream is filled with more or less gas which develops during the ripening process, and this swells the cream somewhat so that a pipette full of it will hold considerable gas, as well as cream. This fact will, of course, make the results obtained by measuring the cream into a test bottle inaccurate, as the pipette will not deliver 18 grams which is the amount it is necessary to place in a test bottle, in order to have the graduations on the neck of the bottle show the correct results. If the cream which is added to the test bottle is weighed and the test completed in the usual way, the per cent of fat in the cream may be accurately calculated in the following way:

Suppose a pipette full of cream is emptied into a cream test bottle and by weighing the bottle you will find that 12 grams of cream had been added to it. The usual amount of acid is now added to this cream in the bottle and the test completed in the same way as a sample of milk is tested. The fat will separate in the neck of the bottle, and we will assume that the reading shows the fat in the neck fills a space corresponding to 15 per cent fat. This 15 per cent is now multiplied by 1.8 in order to find out how much this amount of fat will weigh. The result of the multiplication gives 27. If this is now divided by the weight of cream added in the first place, we will have 27÷12 or 22.5 per cent which is the per cent of fat the cream contains.

This subject is explained more in detail in the book, "Testing Milk and its Products," a copy of which I presume you have.

A STARTER INQUIRY.

"I should like to ask you a question in regard to how to make a skim milk starter for cream in order to make a perfect piece of butter. Sometimes my starter will be too ripe and other times not ripe enough. Will you please tell me the proper temperature I should use for cream and how long to hold it at that temperature? I should also like to know what temperature will be considered best to hold a starter after it is ready to use and until it can be placed in the cream? * * *
Black Hawk, Wis.

The making of a starter is not a very difficult matter when the principles which govern its use are well understood.

I presume you know that the usual routine is about as follows:

A carefully selected skim milk is heated to near the boiling point for about half an hour; this heating is supposed to destroy all the bacteria or germs which the milk may contain. This heated milk is then cooled to about 70° F., and to it is added an ounce of some commercial culture which is supposed to supply enough good germs to start a growth that will develop very fast and fill the entire quantity of milk with an innumerable number of these germs. This development of the right kind of bacteria is best promoted by keeping the milk at a temperature between 70° and 90° F. The milk is usually held at this temperature until it is near the curdling point and just before it thickens a starter is added to the cream in the proportion of about ten pounds of starter to 100 pounds cream. A small quantity of this starter is saved and added to a new lot of pasteurized skim milk, which is held at 70° to 90° until it becomes thick; then the second generation is used in the cream the next day as the first one. This treatment is repeated every day and, as long as the starter has a pleasant, sour odor and taste it will usually give a good flavor in the cream in which it is used.

If the skim milk is ripening too fast and you want to check the souring it should be placed in a refrigerator or in cold water, so that the temperature is lowered to 50° or less, as the germs will not grow when the milk is so cold as this. The efficiency of your starter depends almost entirely on your expertness in selecting a starter and being able to determine when you have devoloped an acceptable flavor in the butter. The inspection of a starter after it is made is fully as important as the making of it from a pure culture or from some milk which has been selected because of the particularly good flavor it contained.

E. H. FARRINGTON.
Wis. Dairy School.

Milking Machines.

Can you recommend a milking machine for practical use? A. R. C.
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We know of no milking machine that is doing satisfactory work at the present time.

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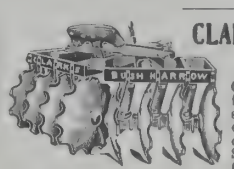
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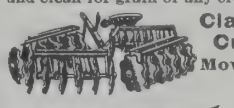
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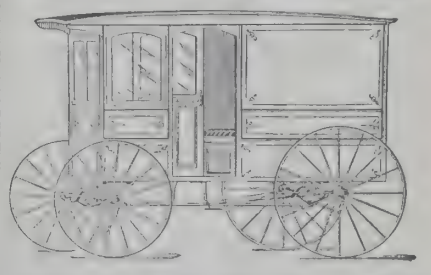
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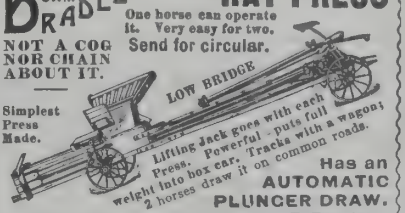
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NOW Is the time to Subscribe for **HOARD'S DAIRYMAN.**

Vermont Dairymen's Association.

Annual Winter Meeting—Large Attendance and Profitable Exercises.

ED. HOARD'S DAIRYMAN:—The 34th annual meeting of the State Dairyman's Association was held in the city of Burlington, January 5, 6 and 7. The sessions were held in the large City Hall, which during most of the time, was closely filled with a most attentive audience.

This convention immediately followed that of the State Sugar-maker's Association occupying, between the two, most of the week.

The first session of the Dairymen's Convention was held Tuesday afternoon. It was called to order by the president, George Aitken of Woodstock, and opened with an invocation by Rev. Geo. G. Bliss of Burlington. Succeeding this, addresses of welcome were given by Mayor Burke of Burlington and Ernest Hitchcock of Pittsford, member of the State Board of Agriculture. The Mayor, in the course of his remarks, stated that the work of this association is shown in the improvements that have been made in this industry in the state within the past thirty years. Vermont has always been at the front in this respect, and her dairymen should continue on in all that goes to make our state and nation great.

Mr. Hitchcock said that what the dairymen of this state now most need is not knowledge, but the putting into practice what they have already acquired and know; indeed, that they should not only be hearers only, but doers in the work. The president in his address stated that notwithstanding Vermont has long stood first in the dairying interests of this country, he thought there was yet much room for improvement, both in the quantity and quality of the butter made.

Reference was made to the good work accomplished in checking tuberculosis in the dairies of the state, but regretted exceedingly that there has been a necessity for discontinuing the dairy school. He referred to the importance of paying attention to the forestry question now being brought to the attention of the farmers of this country, as a matter that should not be lightly passed over.

M. W. Clark, of Williston, followed with a paper on "Dairying as a Special or Co-operative Industry." He thought that if more attention was given to this matter, that if dairymen were more united and earnest in their business, it would be more profitable to themselves and tend to keep the sons at home, and that there would be fewer abandoned farms in the state.

(It is said there are no abandoned farms in Franklin county, but perhaps there are in some other parts of the state.) He spoke encouragingly concerning keeping sheep and poultry on the farm along with the dairy, to help along with the income. One advantage in keeping sheep would be the improvement of the pastures, as good pastures have much to do with the best success in dairying.

The last address of the afternoon was given by Prof. J. W. Decker of Columbus, Ohio, who spoke interestedly on the subject of "Cheese Making." He gave valuable instruction in relation to the process of cheese making, and it would doubtless be well for the dairy interests of the state if more attention were given to this most profitable indnstry. Vermont should excel in the production of cheese as well as that of butter. Why not? Both are alike needed.

He stated incidentally that Vermont has the oldest dairymen's association in the United States, but cannot support a dairy school. Ohio expects to go before the legislature and ask for $80,000 for a school and equipment, and there is no reason why Vermont should not do the same. That is the way the index is now pointing. A prolonged discussion followed the address, showing the interest it had awakened. This concluded the exercises of the afternoon.

WOMAN'S AUXILLIARY.

The meeting in the evening was in the hands of the ladies, but for some reason they did not take much part themselves, but were a kind of "power behind the throne."

President Aitken called the meeting to order and introduced Mrs. R. L. Galusha of Royalton, president of the Woman's Auxilliary, who presided during the evening.

The large hall was closely filled with a large and appreciative audience.

Music was furnished during the evening by a male quartette, that rendered most excellent service.

Select readings were given by Mrs. G. H. Root, of Burlington, that kept the audience in the best of humor.

The first address was by Prof. J. L. Hills of the University of Vermont and Agricultural College, the subject being "Concerning the Vermont Dairy School." This was treated in a most earnest and convincing manner. The professor stated this school was established in 1891 and was the second dairy school founded in the United States. During its twelve sessions it had been attended by 600 students, the number each winter being limited to 50 on account of the limited accomodations provided.

But after this term of years, and the good success that has attended the work already done, it is found necessary to discontinue these schools. The reason for this is the fact that there is no suitable building in which to hold them. The building hitherto occupied, and which was furnished by the colllege, and not by the state, has become unfit for the purpose, and so the school is discontinued entirely, or until suitable accommodations shall be provided. Other states have provided liberally for this purpose and Vermont should certainly do the same.

The Professor had lantern slides giv-

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Some fine young bulls for sale.
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The herd is made up of representative animals of both home and foreign breeding.
BULL CALVES,
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Especially low prices, standing of herd considered. No catalogue. State what you want.
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We offer some grand Imported Cows and Heifers, large and deep milkers and high testers; a fine lot of Heifers fit for service, and a few Imported Bulls from prize winners on both sides. Any animal in the herd for sale. Address **WALTER JAUNCEY,**
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Richest Cow of all breeds in Pan-American Model Dairy. Winning Herd at Ohio and New York State Fairs, 1903. W. H. FORBES & CO., Yellow Springs R. R. No. 1, Ohio.

NAIAD OF ST. LAMBERT
Was a great cow. Aside from her official test she was a full sister of Mary Anne of St. Lambert (36.12 in seven days, 867.14 in a year) and her owner once refused $15,000 for her. Sale List A 21 contains a cow by a son of "Naiad", out of a grand-daughter of "Exile" with a weekly test of 19.10 and a milk record for one year of 11713 lbs., equal in butter fat to 739 9-10 lbs. butter. This cow is due soon to a grandson and great-grandson of "Naiad". Nearly all on this Sale List are deep in St. Lambert blood. It comprises fresh cows, cows nearing calving, heifers, and heifer calves. If interested write for pedigree of cow, and for List A 21.
WINTERGREEN HILL FARM,
SCOTTSVILLE, N. Y.

ROBINSWOOD JERSEY DAIRY has a few head of Young Jerseys, either sex, they are offering below their value, being overstocked. Also a few Barred, Buff, and White Plymouth Rock Cockerels, and one two-year-old Berkshire Boar, (registered.)
N. H. ROBINSON, Prop., Centralia, Wis.

HAZEL FERN HERD. A. J. C. C. Jerseys, blood of St. Lambert, Melia Ann, Combination, Pedro, and Golden Lad. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale.
ESTATE W. S. LADD, Portland, Oregon.

JERSEY BULLS Now or soon to be ready for service; also several well bred HEIFERS. Let us send you prices and breeding, with milk and butter records. All stock is registered or eligible. E. E. STEVENS,
North Madison, Ohio

FOR SALE Son of Pedro's Pretty Pogis, 83660, A. J. C. C., a superb son of old Pedro, both of World's Fair fame. Two yearlings from tested dams. Some royally bred Poland China Pigs, March and April farrow.
J. Q. EMERY & SON, Albion, Wis

PLEASANT VALLEY HERD Of O. I. C. Swine. Headquarters for pure and fashionably bred stock. Boars ready for service. Sows bred and open growthy. Prolific fall pigs now ready to ship. Write for particulars and prices.
A. J. WELKER, ATTICA, N. Y.

ing representations of dairy and other buildings furnished by the other states, and ended by giving a most life-like portrait of our late honored and lamented senior senator in Congress, Hon. Justin Morrill, who succeeded in securing such liberal grants from Congress for agricultural colleges and experiment stations, not only for Vermont, but all the other states of the Union. Prof. Hills remarks were listened to with much attention, and it is believed will finally result in the resuscitation of the dairy school on a more permanent basis.

Senator Redfield Proctor being present gracefully responded to the call for remarks, and spent a few moments in expressing his interest in the meeting then being held, the great importance of the dairy industry of this country, as well as the good effects that are already becoming apparent in the operations of the anti-oleomargarine law that has for so short a time been in effect. This law has already reduced the use of oleomargarine over 40 per cent, and he looked for a still greater reduction.

At the close of his remarks the Senator introduced Hon. Gifford Pinchot of the Bureau of Forestry, at Washington, D. C. He occupied the remainder of the evening with an excellent address on "Forestry in New England."

As a result of the agitation upon this subject an organization was effected during these meetings to be known as the Forestry Association of Vermont, having in view the preservation of the forests of the state.

Following are the officers chosen: President, W. J. Van Patten, Burlington; Vice-President, E. C. Smith, St. Albans; Secretary, George Aitken, Woodstock; and Treasurer, Ernest Hitchcock, Pittsford. Executive committee, C. H. Green, White River Junction; J. A. DeBoer, Montpelier; and Joseph Battell, Middlebury. E. R. TOWLE.

Enosburg Falls, Vt.

(Report concluded next week.)

From An Enthusiastic Reader.

Has Profited from What He Has Read—Has Always a good Word for the "Dairyman"—Submits Ration for Review.

ED. HOARD'S DAIRYMAN:—Please criticise my ration as to feeding qualities: 2 lbs. Ajax flakes, $24; 2 lbs. corn and cob meal, $19; 2 lbs. bran, $21; 2 lbs. oil meal, $28.

My cows will freshen from February to July. They are all young with 2d and 3d calves. They give 8½ quarts of 32 per cent cream per day. I receive 26 cents for 22 per cent cream at creamery and receive extra for overrun in per cent. If you can give me a better ration, please let me know through your valuable columns.

That heifer I inquired sometime ago has come all right in the quarter—many thanks for your advice. That advice was worth ten times the subscription of the paper to me. I would not be without the paper so long as I keep cows, and if the price was $5.00 a year. I think I make up the subscription price every week, as compared with what I got before reading the DAIRYMAN.

I think I will have a larger list of subscribers when my subscription expires. I still have a good word for the paper when I meet a man that feeds cows for profit.

Can I feed 15 cows on 42 acres of land, every inch good, tillable soil; don't want to pasture? I want to mow the grass and feed in stable. I have an 8-acre pasture besides, for exercise for cows; very little grass is there for them, but running water.

February, my year is up, then I will send a report of my cows' doings, as I see all other subscribers shoot off their reports, E. S. S.

Jonestown, Pa.

We thank Mr. S. very sincerely for the foregoing expression of his appreciation of the DAIRYMAN, and hope by constantly increasing effort to deserve his continued confidence and good will.

We are of the opinion that our friend is feeding very liberally of grain, especially for cows expected to freshen before May 1, and he needs to be somewhat cautious about milk fever. If his cows are putting on some extra body fat, this may be considered a certain indication that it would be wise to reduce the grain, and we should be disposed in that event to commence with the "flakes" and corn and cob meal.

There is no question with us but what this correspondent can keep more than 15 cows on his 42 acres. Of course he may find it necessary to purchase some extra feed, but expense in this direction can be met with sales of produce not required for his family or cows.

$50 REWARD
WANTED FOR FORGERY

OBERLIN, KANSAS. Dec. 31, 1903.

A. Arwedson, a Swede, left here December 23, 1903. Age about 40. Weight about 145 lbs. Height 5 feet, 7 or 8 inches. Complexion light and sandy. Sandy beard; may be smooth-shaven now.

Nail on index finger of right hand grown over end and horny substance protruding.

Wide-open eyes, high eye-brows, teeth regular and well preserved.

Great talker; well posted on creameries and dairy work; apt to talk on this subject, Talks English rapidly, but with a Swedish accent.

Walks very fast, with a quick, jerky motion.

When last seen wore a brown melton double-breasted coat and a soft felt hat, creased through the middle.

HOLD AND WIRE. **J. B. LEAMAN,**
SHERIFF DECATUR COUNTY.

BUY DIRECT FROM FACTORY, BEST
MIXED PAINTS

At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA.

President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.

FEES FOR REGISTRY.

TO MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.

NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. ☞ All blanks furnished free.

Life Membership, $25.

Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.

Address F. L. HOUGHTON, Brattleboro, Vt., for information relating to Registration of Pedigrees



HOLSTEIN CATTLE The Choicest Milk and Butter breed in the world. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

VALLEY FARM HERD
HOLSTEIN-FRIESIANS

During September and October nearly all of our calves have been bulls and we shall offer them at from thirty to fifty dollars, registered, until the number is reduced. Sired by a great butter bull, and only from our largest milk and butter producers.

DON J. WOOD,
R. F. D. No. 2. WEST WINFIELD, N. Y.

HOLSTEIN BULL CALVES FOR SALE. Fine individuals, highly bred, from all the leading families. Prices low, also cows and heifers.
F. W. AMES . . . . . MORRISTOWN, N. Y.

OAK GROVE HERD Headed by Mechthilde De Kol Pietertje Paul No. 29548. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

STAR FARM HOLSTEINS

BEGIN THE NEW YEAR RIGHT.

Now is the time to dispose of your scrub bull and buy a registered Holstein. **Star Farm is the place to buy.** I will cut regular prices **fifty per cent for the next thirty days.** It costs no more to buy the best than it does a cheap one. Write for tabulated pedigrees and markings today.

HORACE L. BRONSON, Cortland, N. Y.

GREEN VALE HERD Offers Sir Mercedes De Kol, No. 27097, four years old, and bull calves sired by him from choice cows, best families. Write for prices.
M. F. PECK & SONS.....MARSHALL, WIS.

LOOK HERE

34 cows and heifers in the **McGEOCH HERD** have been **officially tested** with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs. of butter in seven days; average per cent of fat 3.60. 8 two-year-olds average 12.16 lbs. of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by **Gem Pietertje Hengerveld Paul De Kol**, or **Sir Ormsby De Kol** for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days; average per cent of fat 4.47. Are these the kind of **Holstein-Friesians** you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd? For particulars address **H. B. Daggett, Mgr., Station A, Milwaukee, Wis.** Residence: National Ave., near 40th. Phone, South 1601.

TYRANENA HERD
100 HOLSTEIN-FRIESIANS
A. R. O. STOCK FOR SALE.

Both sexes, all ages. Herd headed by Sir Piebe Hengeweld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz. **Frank B. Fargo, Lake Mills, Wis.**

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Offers 5 yearling bulls cows and heifers bred to oldest son of Mercedes Julip's Pietertje, No. 39480. Chester White Pigs in pairs and trios, not related.
W. R. GATES, Fort Atkinson, Wis.

HOME FARM HERD.

Headed by **COLANTHA 4TH'S LAD.** Official test of three nearest dams, 25.1 lbs. butter in seven days. Herd numbers 125 head.

BEST FAMILIES REPRESENTED.

Special prices on six or eight bulls of serviceable age. **W. B. BARNEY & CO.,**
Hampton, Ia.

ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.
GEO. T. McNEIL, Theresa, N. Y.

FOR SALE H.-F. A. R. O. cows and heifers, bred to Duchess Ormsby Piebe Burke, No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address Rural Route No. 2. W. H. JONES, Watertown, Wis.

THE MONONA FARM HERD
OF HOLSTEIN-FRIESIANS

Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 169.50 lbs. one day. Breeders and dairymen please write for prices.
F. W. ALLIS,
Monona Farm. Madison, Wis.

FOR SALE H.-F. BULLS, ready for service, from A. R. O. cows and sired by Sir Johanna DeKol, 25467 A. R. O. Butter record of dam, 24.03 lbs. at 4 yrs. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis.

SUNNY SIDE HERD Offers for sale a young bull whose dam as a three-year-old and sire's dam have an average official record of over 20 lbs. in 7 days. Price right. Address C. A. SNOW & SONS, Athens, Ohio.

HOLSTEIN-FRIESIAN BULL FOR SALE

Born November 27, 1902.

31 of his dams' records average 14.8 lbs. milk 1 day
28 of his dams' records average 19.4 lbs. butter 7 d's
20 of his dams' records average 16,171 lbs. milk 1 yr.
THE WINTERS FARM, Smithboro, N. Y.

HOLSTEIN-FRIESIANS Ten choice Heifer Calves of great individuality, of large milk indications, and of very fashionable breeding. Also one yearling bull and two bull calves at prices that will surprise you. **Fairview Farm, Pennellville, N. Y.**

GENESEE HERD Offers a choice bull. Dam's official test 17 lbs. 12.3 oz., 85.7 %, average % fat 4.02; weight 725 lbs.; calved Nov. 10, 1902. $125 00. He is a good one. Write
McKAY BROS., Buckingham, Iowa.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 85 head in number, is situated within 10 rods of the C & N. W. Depot. Stock of both sexes and different ages for sale. Bulls in service are: Homesterd Prince De Kol No. 25883. Sire: Pietertje Hengeveld Paul De kol No. 22128. Dam: Shadeland DeKol No. 41586 A. R. O. in 2 y. f. milk 388.2 lbs., butter 15 lbs. 5.3 ozs. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148. Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 ozs. Average per cent fat 4.92. Correspondence solicited.
WM. EVERSON & SON, Lake Mills, Wis.

HOLSTEIN BULLS. We have some grandly bred young bulls ready for service. One of the largest and best advanced registry herds in the United States.
PIERCE LAND & STOCK CO. 14 Turk St. San Francisco, Cal.

BREEDERS AND DAIRYMEN Do you want a H.-F. Bull Calf for use this winter which will improve your herd? Do you want him elegantly proportioned, with straight back, high rump, and all the dairy points? Do you want one whose relatives are A. R. O. and eligible to the Advanced Register himself? If so, I have a choice lot, just such as you want.
MALCOLM H. GARDNER, Darien, Wis.

INDIANA'S FAMOUS HERD OF H. F. CATTLE

We now offer cattle of both sexes and all ages. As for breeding, individuality and ability to perform at the pail, they will rank second to none. For particulars and prices address
JOHN SHUGART & SONS, Marion, Ind.

SPECIAL BARGAINS IN
Holstein-Friesian Bulls

From a few months to a year old, from official record dams, and with strong official backing on both sides. The sire is half the herd; it is important that you get the right one. We have that kind, and our prices are no higher than others are asking. **HENRY STEVENS & SON,**
Brookside Stock Farm, Lacona, Oswego Co., N. Y.

FOR SALE 2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.
M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

CLOVERDALE HERD

Is now better than ever prepared to fill your orders for a foundation herd of young Holsteins. For individual merit and performance our herd ranks well up among the best in America. Write us your wants before buying. Address
A. J. DAUGHERITY, Streator, Ill.

Woodlake Herd.

Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN, Station D., R. 1. Minneapolis, Minn.

MARKHAM MANOR FARM,
Simonsville P. O., Andover, Vt.

Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for discription and price to **J. A. THORNTON, Manager, Simmonsville, Vt.**

HOLSTEINS IN CALIFORNIA

SAN ANSELMO, MARIN COUNTY

250 HEAD IN THE HERD

Sires are sons of Mercedes Julip Pietertje, Colantha 4th Belle Korndyke, Fay Barnham Princess Wayne 7th. A fine lot of bull calves
R. M. HOTALING,
Rialto Building San Francisco, Cal.

SOUTH SIDE FARM

WHITE BEAR LAKE MINN.

HOLSTEIN-FRIESIANS—We now offer at attractive prices fine young bulls from high tested A. R. O. cows, and sired by Prince Inka Pietertje De Kol 2nd, who already has to his credit 11 A. R. O. daughters. To make room in our stables we offer a few cows and heifers for sale at low price. Write us for particulars

HOLSTEINS

High Class Advanced Registry Stock only. Best butter families. Stock for sale.
Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.



T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.
Wm. O. Jackson & Sons, South Bend, Ind.

JUST BULL CALVES

We have three, that are individually fine. They are bred right, have been fed right, and the price is right.
Ohio's Famous Herd, Holstein-Friesian Cattle. W. B. SMITH & SON.
2488 W Broad St, Columbus, O.

Holsteins For Sale
AT BARGAIN PRICES

10 Fresh Cows including 7 A. R. O. Cows. Also Heifer and Bull Calves must be sold at once.
JOHN C. GODFREY
R. F. D. 3. FULTON, N. Y.

FERMANAGH HERD
HOLSTEIN-FRIESIANS

Bulls ready for service from A. R. O. animals sired by Johanna Rue 2d Paul De Kol, sire of 18 A. R. O. cows. Also young bull calves by same sire. THOS. GAINES, Supt.,
Arcadia, Missouri

FINE POULTRY FOR SALE

I offer a very select lot of **White** as well as **Buff Plymouth Rock Fowls** of the present year's breeding for sale. Each breed have been kept on separate farms and are absolutely pure in their breeding. They will be sold at

$5.00 A TRIO

Nicely crated on board of cars here.

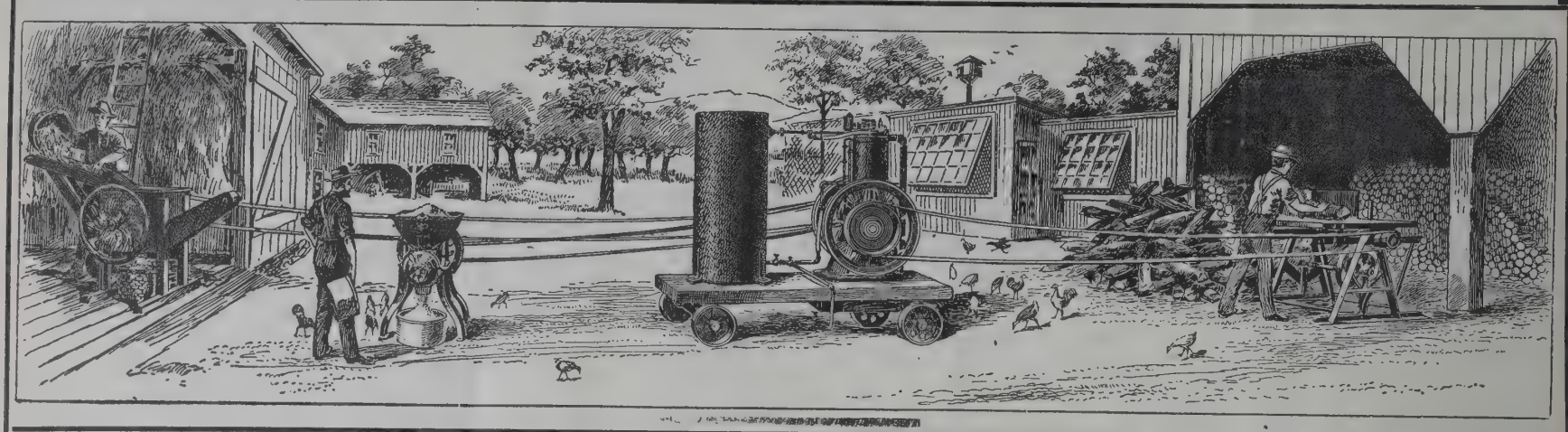
Single Fowls, $2.00 Each

They have had the range of alfalfa fields the past summer and are very vigorous.

A. R. HOARD,
Fort Atkinson, Wis.

THE FAIRBANKS COMPANY

CORNER BROOME & ELM STS., NEW YORK CITY



Make the Best Horizontal and Vertical Gasoline Engines for all Farm Work. Write for Catalogue No. 360.

BRANCHES. Albany; Buffalo; Hartford, New Orleans; Baltimore; Philadelphia; Pittsburg; Boston; Montreal, Que.; Vancouver, B. C.; Winnepeg, Man.; Toronto, Ont.; London, Eng.

In the Maritime Provinces.

A Two-Day Dairy Test.

ED. HOARD'S DAIRYMAN:—During the time of the Maritime Fat Stock Show, at Amherst, Nova Scotia, this month (December, 1903), a two-day dairy test was carried on. The competition was fair among the different breeders. The champion cow was a grade Short-horn, owned by W. H. Boomer, Amherst. The following is the score:

BREED.	OWNER.	Milk.	Fat.	Solids-not fat.	Total score.
Grade	W. H. Boomer	100.12	4.255	9.374	123.89
Ayrshire	F. S. Black	81.9	3.861	7.263	106.97
Holstein	Logan Bros	108.11	3.255	8.338	100.45
Jersey	J. E. Baker	65.6	3.591	6.185	99.36
Jersey	H. S. Pipes	74.9	3.472	6.879	97.15
Grade	C. M. Shipley	79.13	2.928	7.092	96.32
Holstein	F. E. Came	89.13	3.244	7.553	95 09
Jersey	J. E. Baker	71.2	3.118	6.825	90.76
Holstein	Logan Bros	85.17	2 474	6.919	85.58
Ayrshire	F. S. Black	63.4	2 575	5.551	82.6
Guernsey	J. B. Roper	69.9	2.695	5.843	82.37
Ayrshire	C. A. Archibald	65.8	2.798	6.045	80.14
Jersey	H. S. Pipes	46.1	2.312	4.420	73.96
Grade	H. S. Logan	57.1	2.097	4.760	70.78
Ayrshire	F. S. Black	62.3	2.533	5.787	70.2
Shorthorn	Archibald	58.10	2.117	5 004	67.85
Grade	H. A. Hicks	49.8	2.138	4.926	63.76
Holstein	Logan Bros	51.7	1 772	4.443	59.91
Ayrshire	Archibald	38.	1.282	3.296	48.82
Guernsey	J. B. Roper	28.4	1.179	2.658	44.21
Holstein	Logan Bros.	25.10	0.944	2.075	37.18

THE MARITIME EXPERIMENTAL FARM DAIRY HERD.

The results of the year from the dairy herd at the Experimental Farm are at hand, and the showing is this year creditable indeed, and a great improvement over former years, as published by the writer in these columns. It shows that drastic weeding process has taken place and those "boarders", so common on Maritime dairy farms, have been wholly eliminated from the herd, so that now every cow pays her board bills and some to the good. With such an object lesson before the farmers of the Maritime Provinces they cannot say any more that dairying don't pay. When we consider the abnormally high cost of feeds at this farm—higher than any we have ever seen listed—the splendid showing of this herd reflects the highest credit on the Superintendent, Mr. Robert Robertson. Mr. Robertson is a worthy scion of the good dairymen of Auld Scotia, and a pupil of the Ness's of the eastern townships of Quebec, of whom he is also a most worthy kinsman. Robert Ness of Howick, Quebec, who judged the Clydesdales at the International Fat Stock show at Chicago this fall, and the foremost breeder of Aryshires and Clydesdales in the Dominion of Canada, is, we believe, an uncle of Supt. Robertson of the Maritime Experimental Farm, and, as Mr. Ness told the writer last fall, Robertson learned the principles of dairying and the breeding of dairy cattle from the elder Mr. Ness; all of which goes to show that successful dairymen are no sports, but is an inherited characteristic, brought to perfection in a dairy environment.

It will be seen by the tabulated statement herewith that the Maritime herd produced as much as $109.52 for the best, down to $49.66 for the poorest cow in the herd. When we consider the low price which the product sold for, this is indeed a splendid showing. And farther, when we consider the abnormally high cost of feeds the profits are creditable. The experiments are carried on, as Mr, Robertson says, for the purpose of determining whether a fairly good dairy herd, well fed and cared for, would leave a credit balance after paying for feed consumed and receiving credit for product at current prices. The different feeds were charged at the followiug prices, which all will admit, are very high: Wheat bran, $20; pea meal, $30; oats, $28; oil cake, $35; making an average price of mixed meal ration as fed to the cows, of $25 per ton. Roots were charged at $2 per ton, ensilage also at $2 per ton and hay at $7 per ton. The ration fed to cows in full milk in winter was:

Ensilage or roots, 50 lbs	$0.05
Mixed meal, 10 lbs	.125
Hay, 10 lbs	.035
Totals, 70 lbs	$0.21 per cow per day

In the summer months while milking they were charged $2.50 per month. When dry in winter they were charged $3 per month, and when dry in summer, $1 per month per cow. They were kept in the stable from November 1 to June 1, except on occasional fine days, when they were allowed out in the yard. The summer feed was practically all summer soiling with such crops as rye, clover, oats, peas, vetches grown in different mixtures and sown at different times. Eighty-five pounds of fat is the basis of 100 lbs. marketable butter, which however, is needless to say, is too low. The butter product was sold at eighteen and two-thirds cents per pound being the average of the year, while 15c per cwt. was the modest sum which the skim milk was valued at. The following table shows the results of the year:

NAME.	BREED.	Days milking.	Lbs. milk.	Per cent fat.	Lbs. butter.	Total credit.	Total cost.	Profit.
Eva Rooker	Holstein	290	10880	3.4	435.20	$109.52	$65.25	$44.27
Molly	Ayrshire Grade	287	8782	3 9	402.93	100.10	65.37	34.73
Ilda Rooker	Holstein	285	9430	3.4	377.20	94.92	62.38	32.54
Corie	Ayrshire Grade	272	8430	3 9	386.70	96.08	66.96	29.12
Carrie	Ayrshire Grade	275	6975	3.7	303.61	75.78	53.24	22.54
Lucy	"	325	8010	3.6	339.17	84.88	64.06	20.82
Jessie P	"	221	6540	3.8	292 37	72.81	52.31	20.50
Aiton	"	300	7745	3.8	301 54	76.08	57.88	18.20
Rex's Maud	Guernsey	210	4960	4.9	285.92	69.76	53.18	16.58
Beatrice	Ayrshire	240	6560	3 6	277.83	69.53	53.31	16.22
Daisy	Ayrshire Grade	310	6450	3.8	288.35	71 80	56.03	15.77
Rell	"	240	5740	4.2	283.62	70.02	54.99	15.03
Annie	"	240	5676	4.2	280.41	69.22	54.46	14.76
Nellie	Guernsey	190	4840	4.7	267.62	65.50	50.75	14.75
Lady Lock	Ayrshire	225	5965	3.8	266.58	66.38	51.81	14.57
Louise	"	240	6200	3.6	262.84	65 69	52.69	13.00
Curly	Ay. Gn. Grade	210	5240	4.1	252 75	62.53	50.81	11.72
Sonsy	Ayrshire	280	5610	3.9	257.40	63 95	52.29	11.66
Mary	Jersey Grade	210	5110	4.1	246 48	60.99	49.50	11.47
Ida B	Ayrshire Grade	270	6010	3 7	261 61	65.36	54.18	11.12
Rose	Holstein Grade	210	5340	3.7	232.46	58.02	48.94	9.08
Yellow Kate	Ayrshire	240	5280	3.6	223.62	49.66	49.66	6.40

PASTURE VS. PENS IN SWINE FATTENING.

Another interesting experiment was to determine the economy of pasture, rather than pen feeding of pigs. The pigs were put in the test at 2 to 4 months old, in 2 lots of 10 each on July 1. They were fed on ration of 3 lbs. buckwheat shorts and wheat bran, and 5 lbs. skim milk. The results are as follows:

LOTS	No. days	Daily gain in pens	Daily gain in pasture
1	85	1.21	1.20
2	85	1.25	1.18
3	85	1.34	1.13
4	102	1.01	1.29
5	102	1.10	1.26
6	102	1.06	1.30
7	120	1.09	1.25
8	120	1.19	1.24
9	120	1.04	1.23
10	120	1.26	1.30

From the above, the only conclusion that can be taken, is that for short fattening periods of not more than 90 days, the pen fed hogs will make the greater gains. When, however, the feeding period is extended beyond 90 days, the pasture fed hogs make the greatest gains. In growing the so-called bacon hog for market, which is best at 180 to 200 lbs., it seems that it is probably best to pen-feed right along from weaning, say, at 10 weeks of age and not pasture at all. Such a hog should be ready for market at 6 months of age. All things considered it is our own firm opinion that hogs to be sold at a weight of 200 pounds, are best fed in pens having large rectangular yards, or lanes, and the green feed cut and carried to them. J. A. M.

P. E. I.

Why Should the Spirit of the Farmer be Sad?

ED. HOARD'S DAIRYMAN:—The magazine farmers make a farmer tired. They get on to some one's hobby and go-ariding for dear life. Just now some of them are wisely exploiting the wonderful possibilties of breeding corn so that about all the farmer will have to do at planting time will be to press a metaphorical button to produce a crop of corn, rich either in protein, oil, starch, pancakes, pone or hominy. So far they have not said much or anything about varieties bred to bring forth cobs especially suited for making pipes, or otherwise contributing to the domestic needs of the farm.

Of course, all feeders are after feeds rich in protein, but there are other elements in animal nutrition just as essential and really after all only so much cheaper than protein, because our corn has furnished them so abundantly. But when we shall be able to fashion the grains of corn so they will furnish by the one simple operation of their thousandfold reproduction, the one-time-much-sought-for "balanced ration" and leave us the cob to smoke, it will be the realizing of a fond pipe dream.

Just before the corn, they told us ever and ever so much about bacteria, bacteria of the vest pocket, yeast cake kind, dissolve it in a tub of water, sprinkle the solution on an acre or quarter section, and presto! double or quadruple your crops before you could say Jack Robinson.

The inoculation of the poor, heart sick soils is to cover the land with verdure and make the waste places get a move on them. No fear of our not being able to feed "the earth's teeming millions" now that they are breeding bacteria at Washington. There is something doing down there in other departments than the Post Office. Old man Malthus spoke too soon, he should have waited and seen what the magazine farmers can do.

Here in Pennsylvania we have a farmers' institute management that delights in having farmers told how they may reclaim worn out farms by the sinple and very cheap process of raising cow-horn turnips. The farmers take the doses

heroically but don't sow many turnips; and now the turnips will have to go out as the bacteria come in.

I have a friend who wanted to grow alfalfa. When he was ready to sow the seed he wrote to Washington for some governmental bacteria and received the reply that his land was too rich, that the bacteria were for poor land, that they grew lazy in rich land. Evidently they enjoy the strenuous life.

Before the bacteria we had the maccaroni wheat. It had been introduced by exhaustive research and great labor to the American farm and everybody could eat noodles with holes in them. The maccaroni was planted and grew and now we are told the supply has overlapped the demand and that there is more yield and better money in our simple old fashioned wheat.

Now just what application of radium these magazine farmers will make to our long suffering farms no one may guess, but they will probably tell us presently that a man may carry a little vial of it over a field and change the locked-up stores of fertility hidden in the soil into such active plant food as will astonish the oldest inhabitant.

As radium is likely to destroy any micro-organisms that may be around in the soil, the bacteria will have to be notified to take to the woods.

More recently still we have the comforting announcement that "berseem" (and that sounds mightily like something to drink) is to be introduced into various parts of this country from Washington, from which place we have the information that this plant has been the cause, all these mistaken years, of the extraordinary fertility of the valley of the Nile.

It appears now, since our searchers after agricultural novelties have taken observations over in Egypt, that the popular idea that that granary of the east was kept fertile by the overflow of the mystical river has been all wrong. As the greatness of Egypt was due to her agricultural possibilities and production, perhaps this secret of her never-failing fertility has been the secret the Sphynx has guarded all these years; if so, the Yankee professor has been too much for her and he has snatched the secret over here and with this to us new plant "berseem" we are going to reclaim barren land, smother weeds and maintain our fertility against the most careless farming practices.

It is scheduled to grow and luxuriate on both saline and alkaline lands and store nitrogen by the ton. In Egypt, the horses, camels, cattle, donkeys and peasants eat it and fatten and grow sleek upon it. Thus the money of the government spurs science on to bring us profit and amusement.

It is likely, however, in spite of all these new and great things we farmers will go on saving and spreading manure, planting and harvesting the good old Indian corn, our other grains and grasses. The newspapers and magazines will continue the enlightenment and felicitation of us, but no doubt unto the end, in the sweat of our brows shall we farmers earn bread. W. F. McSPARRAN.

Penn.

A Sanitary Milking Pail.

ED. HOARD'S DAIRYMAN:—A number of requests have come to me for a description of the milking pail devised by Dr. Rowland G. Freeman of New York City, to which I referred in my paper on "Market Milk" at the New York State Dairymen's Convention. Some of those writing have mentioned that they read my article in HOARD'S DAIRYMAN, and I have thought it might be agreeable to you to publish a brief description of the pail as follows:

An ordinary eight or ten quart milk serving bucket, having perpendicular sides and an opening in the top six or seven inches in diameter, has a tin visor or shield project upward and inward from one side of the rim around the opening. When the pail is in use it is held so that this visor is on the side further from the cow. The more the pail is tipped toward the cow the more will the visor project over the opening, thus affording protection against falling dirt. As every particle of dirt is liable to carry great numbers of bacteria with it, there is considerable advantage in excluding them in every practicable manner. The pail is a simple affair and can be constructed by any tinner. From my own personal experience with it, I know it can be readily used by any milker after he has once become accustomed to it. Sometimes milkers object a little at first, but after they have used the pail a few times no complaint is heard. Their chief grounds for complaint are that the construction causes difficulty in getting all the milk into the pail. After a little practice, however, this is found to be inconsiderable. R. A. PEARSON.

Ithaca, N. Y.

Hauling Manure on Rye Field in Winter.

Will ask through your columns about taking manure to field in winter. Would you advise spreading it on rye field if no other suitable place, or leaving it in yard? This rye field is seeded to timothy, and red clover will be sown in spring. Land is in fairly good condition. Would, of course, like to take the manure out at this time of year, as we have plenty of time; otherwise, when left in yard when time is at hand to take it to field, we have all the work without this. SUBSCRIBER.

Whitelaw, Wis.

We see no objection to disposing of the manure as suggested, provided it is spread evenly and not so thick as to smother the rye. It might obviate some objections in this direction to go over the field early in the spring with a light, smoothing harrow.



There are a great many hungry hearted women who would attend a baby sale if babies were ever offered for sale, because there are a great many wives who love children and have been told by physicians that they can never hope to nurse a child of their own.

Some of these women who have used Dr. Pierce's Favorite Prescription for the cure of womanly ills have been made happy mothers as a result of the cure of womanly disease and the building up of the general health.

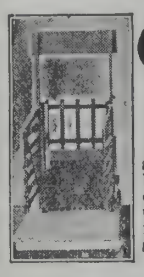
Doctor Pierce's Favorite Prescription makes weak women strong and sick women well. It establishes regularity, dries weakening drains, heals inflammation and ulceration and cures female weakness.

"I wrote to you some time ago to get information about my case," says Mrs. Mary Lee Flanary, of Dryden, Va. "I was troubled with female weakness and pains. Received answer from you, advising me to take Doctor Pierce's Favorite Prescription and 'Golden Medical Discovery.' I took two bottles of 'Favorite Prescription' and found it did me good. I had been married four years and had no children; now I can say that our house is blessed with a little baby boy, born July 10th, by the help of God and your medicine. I praise your medicine highly.

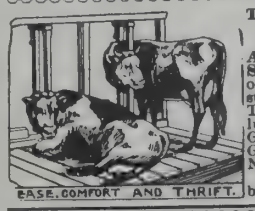
"You can publish this letter if you wish."

FREE. Dr. Pierce's Common Sense Medical Adviser is sent *free* on receipt of stamps to pay expense of mailing *only*. Send 21 one-cent stamps for the book in paper covers, or 31 stamps for the cloth-bound volume. Address Dr. R. V. Pierce, Buffalo, N. Y.

THE NEW PATENT
Cow Stall
AND FEED TROUGH.



This is the only Cow Stall with a centering hinge. Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars.
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SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated circular free.
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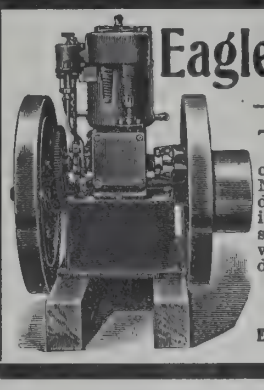


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CATTLE STANCHION
The Most Practical CATTLE FASTENER ever invented.
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The "Penny Wise and Pound Foolish"

Policy has an apt illustration in the man who buys a CHEAP gas or gasoline engine. Unreliable service, frequent and expensive repairs, wastefulness in fuel and short life offset many times over, the small saving in first cost. The "OTTO" is the original and BEST. Suppose it does cost a little more money, the extra dollars are well invested. 70000 users throughout the civilized world support us in this claim.
THE OTTO GAS ENGINE WORKS, Philadelphia, Pa.



Eagle 4 H. P. Stationary Engine
1904 MODEL

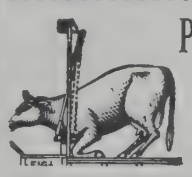
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Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.
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Prescott's Swinging Swivel tanchion
Keeps Cows Clean.
Swings forward while getting up or lying down. Locks back while standing. Full particulars free.
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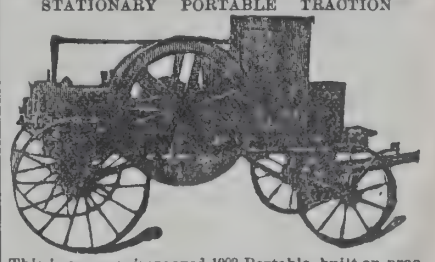
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Made of hard wood—strong and durable. Price $1.00. Satisfaction guaranteed.
Write for descriptive circular.
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New Pattern with Self-Closing Lid.
Pure white Porcelain. No rust, no filth, no splashing.
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Iron, Pig, Chick, and Stock Troughs.

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STATIONARY PORTABLE TRACTION



This is our new improved 1903 Portable, built on practical lines. Guaranteed horse power. Easy to start; operates successfully in zero weather. No vibration when running light or on full load. Winner in appearance. Every engine sold on fair trial, fully guaranteed. Write for catalogue No. 5, prices and terms.
C. P. & J. LAUSON, 103 West Water Street. Milwaukee, Wis

The MILWAUKEE Weekly Bulletin

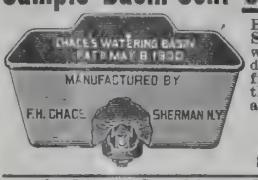


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secured by type of engine, four cycle, simple design, good workmanship; oldest engine, but one, in these columns. No freaky designs, but few parts and those accessible. Portable and stationary, all sizes. Built by
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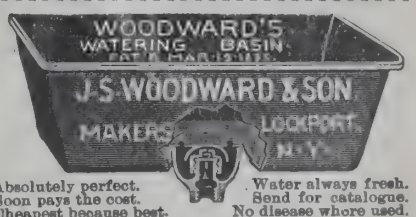
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The highest type of Gas Engines now sold on 30 Days Free Trial. Very sensitive governor; perfect electric igniter. Write for Catalogue M. Address
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Sample Basin Sent ON APPROVAL.

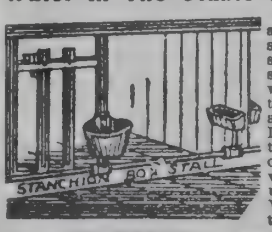


Basins are fitted with Self Closing Cover which prevents all dirt and sediment from gitting into them. Send for catalogue and price list.
F. H. CHASE,
Sherman, N. Y.

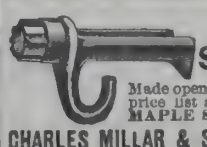


Absolutely perfect. Water always fresh.
Soon pays the cost. Send for catalogue.
Cheapest because best. No disease where used.

Water In The Stable a Necessity.



It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. Why not use the Best? Write for descriptive circular.
C. B. BUCKLEY & CO., Poughkeepsie, N. Y.



IDEAL
SAP SPOUT
Made open or closed. Send for dealers price list and catalogue of full line of MAPLE SUGAR GOODS.
CHARLES MILLAR & SON CO., Utica, N. Y.

An Oregon Dairyman's Scheme for Feeding.

ED. HOARD'S DAIRYMAN:—Enclosed please find one dollar to renew my subscription for your paper. I also enclose market prices of grains, and I think oats is one of the cheapest and most economical feeds for this valley. We do our own grinding and generally mix one bushel wheat and two bushel of oats, or cheat seed; we also mixed broken vetch in and grind it. The bran you get here now is very poor stuff; some of my cows will not eat it. I consider oats, ground, worth per ton a good deal more than bran. I believe $30 per ton would be cheaper than bran at $18, and no hauling. We feed a bushel basket of corn ensilage twice a day, and cut hay and oat straw with grain besides; day times they are in pasture. Corn will grow here all right, but you cannot keep it unless you put it in the silo, or dry the ears in a drier. The fodder soon gets moldy. Next year I will put vetch and clover in the silo, and corn again in the fall. We generally have rain yet when clover and vetch are ready to cut, and there the silo will help out agaiu.

Lebanon, Ore. G. H. W.

The schedule of prices for grain did not reach the editorial rooms. Possibly it was mislaid in the business office, or possibly Mr. W. forgot to enclose, an oversight that sometimes happens with us. Good bran is worth only about 10 per cent less than oats, but poor bran is worth but little. Read what Mr. Gurler said about the palatability of feed stuffs. Feed that cows do not relish will do them but little good, for they will not eat much more than is required for maintenance.

The plan for disposing of the clover and vetch can be commended without any reservation.

CONCERNING OUR ADVERTISERS.

TREES AND PLANTS.

On another page will be found the advertisement of the Phoenix Nursery Co., 1300 Park St., Bloomington, Ill. This nursery is now in its 52d year of existence, and has been for over 27 years under the same proprietorship and management, and we can assure all our readers who may send to this company for trees and plants that they will be treated honorably and fairly in all dealings they may have with them. The fact that this company has been in existence so long is a guarantee that their stock has given satisfaction. During all these years they have sent out millions of trees and plants to all parts of the country. There are thousands upon thousands of orchards and gardens over the country bearing fruit from the trees and plants sent out by this company. There are also endless numbers of lawns and parks which trees from this company are beautifying today, and which speak for themselves as to the quality and class of trees and plants sent out by the Phoenix Company. Please mention this paper when writing them.

HOOD FARM ALMANAC—FOR THE STOCK OWNER.

One of the handsomest and most complete handbooks for the stock owner that we have seen is the Hood Farm Almanac for 1904. It contains 64 pages, larger than ever before, and every page presents something that is of interest and value to the stock owner. There is a valuable gestation table, monthly calendars, weather forecasts, etc., and a great amount of reading matter relating to common diseases incident to stock, with full description of the remedies that are proving most successful in curing them. The Hood Farm Almanac should be in the hands of every breeder and owner of stock and we advise every reader to send for one. Mailed on receipt of one 2-cent stamp by C. I. Hood Co., Lowell, Mass.

Our readers will observe an advertisement of silos made by the Kalamazoo Tank & Silo Co. This firm is really the old Williams Mfg. Co., who have been in the tank and silo business for a great many years in Kalamazoo, Mich., and we understand they changed their name on account of the new name carrying with it not only the name of the city where they are located and which is thoroughly well advertised, but it also carries with it the nature of their business. The Kalamazoo people put up two large silos last fall on the St. Louis fair grounds and they were filled with ensilage for the use of the American Jersey Cattle Club and also the Shorthorn Breeders' Association during the fair next summer. And in addition to the two large silos, they put up another silo to be used as an office, and this company extend a general invitation, we believe, to everybody to get around there to their office and occupy one of the rocking chairs when they visit the fair next summer. Every one knows that traveling around the fair grounds sight seeing, is very tiresome work, and we feel very confident that only a large number of our readers, but others, will be very glad to avail themselves of this rocking chair proposition.

COILED SPRING FENCE CO.

Very few fence manufacturers have enjoyed such a marvelous increase of business as that experienced by the Coiled Spring Fence Co., of Winchester, Ind. They inaugurated the system of selling direct to the farmer at wholesale prices, and have furnished a fence so completely meeting the needs of the farmers that the Company, as well as their product, has leaped into popular favor. It is certainly gratifying to enjoy the confidence of the farmer to such an enviable extent, and it is just as certain that nothing short of their excellent fence and square dealing could have won such a liberal patronage.

75c for Babcock Corn Planter. $10 One-Horse Corn, Bean and Garden Seeder. Drops in hills and drills 12 acres a day. Fertilizer extra. $28.75 Calumet check row planter with automatic reel and 80 rods wire.

$5.00 for this Gem Garden Drill With 11 tools complete $8.50 $2.20 for Wolverine Garden Cultivator. We have complete line garden tools. Seed Drills 65c.

$7.95 Steel lever harrow; cuts 10 ft; 60 teeth; two sections. $2.10 Steel Cultivator, plain, with 5 shovels, spreads to 33 inches.

80 cts. buys this seeder. Our No. 1428 Genuine Otis crank seeder, sows wheat, oats, grass seed etc. Retails at $3.00, our price $1.25. Michigan Wheelbarrow Seeder 12 ft. $4.95, 14 ft. $5.25. End Gate Seeder, improved pattern, $5.35.

$7.50 for Fanning Mill with grain outfit for cleaning wheat, rye, oats, corn, barley, beans etc. board for cheat and cockle. Clover, grass sieves extra. Warehouse Mills $23.50.

$6.50 buys perfect 100 egg incubator complete. $4.35 for 50 Egg Wolverine, Jr. Incubator. Brooders $3.15 and up. Handy egg carrier 28c, holds 1 to 12 doz. Root Cutter $3.25.

$15.25 Made in 6 sizes. For this 12-16 all steel disc harrow. Frame is made of best angle steel. Axle of cold rolled polished steel. Discs highest grade tempered steel Spring seat. Draft is direct from axle. Guaranteed in every way.

$15.30 BUYS OUR two section steel land roller. 7 ft. 3 section $17.50. 8ft. $18.75. Light running, strongest, best.

PLOWS. $1.95 and up

CUT THIS AD OUT and send it to us and we will mail you our Agricultural and Farm Machinery Catalogue FREE. MARVIN SMITH CO. CHICAGO.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Shrinkage of Milk.

I have a Jersey cow that came fresh 3 weeks too soon, made no bag, afterbirth retained, which I removed. Calf lived and was vealed at 5 weeks; but where she formerly gave 6 to 7 quarts at a milking, gives only about 4 to 5. Health and appetite first-class. Feed 4 quarts shorts, 4 quarts of wheat bran and about 20 to 25 lbs. ensilage night and morning and dry fodder at noon. Can anything be given to stimulate milk yield? Also, last spring I bought a pairof 4-year-old chunky mares: lately one of them has gotten thin, dung is slimy and is physicky at times slightly, apetite good; have noticed they both pass long worms at times, and think this is probably the trouble. Feed hay morning and evening; for grain I feed when working, 3 qts. oats and 6 ears corn 3 times daily, a little less when they are idle; at that time I add a little bran.

Lycoming Co., Pa. T. L. J. REESE.

ANSWER.

1. The shrinkage of milk is due to the retention of the placenta which, as a rule, will affect a cow for 3 or 4 months after calving, especially if any part of same is allowed to remain, which has not been discovered by removing. Keep on milking and give good care and food and she will come all right with the next freshening.

2. Give the mares each, 6 drams of alloes, 20 grains of santonin and 1 oz. of turpentine in a quart of raw linseed oil, after complete fasting for at least 12 hours.

Failure to Come in Heat.

I have several two and three-year-old heifers which have never been bred, and which I would like to breed, but they all fail to come in heat.

In feeding nux vomica how long is the same to be fed? (State whether the same is to be fed daily or not with grain.) I am told nux vomica is a poison, and therefore hesitate using it until better informed. L. D. B.

Grimsby, Ont.

ANSWER.

If your heifers are in breeding condition, there is no reason why they should not come in heat. Perhaps these heats appear regularly, but escape your attention. If you could let a bull in a yard with them daily, they might begin to show heat sooner and be bred successfully,

Nux vomica contains from ¼ to ½ per cent of strychnine, which is a poison. But you are only advised to give a medicinal dose, say ¼ to ½ dram to your young heifers. once or twice daily in food. This will increase the sexual appetite, and need not be continued more than a week or two which is not dangerous.

Bloat.

1. A healthy bull calf, 2 months old, bloated up one afternoon recently and soon died. I had been feeding it 2½ gallons warm separator milk per day, morning and evening, and on evening previous to the day on which it died, I gave it two small single handfuls of bran with the milk. Was death due to the bran or to the thick layer of froth on separator milk?

2. Have a cow, no particular breed. She has been milking nearly 8 months, and is yielding 12 to 13 lbs. milk per day. I am feeding her 7 lbs shorts, 10 lbs. carrots and 2 tablespoonfuls of a stock food, ————, per day, with a little salt; she gets a big armful of clover and timothy hay at night, and the same of red top hay in the morning. But her hair is falling out in patches. Kindly state cause and remedy.

3. Does the stock food mentioned above really produce any beneficial effect worth speaking of?

Abbottsford, B. C. W. A. C.

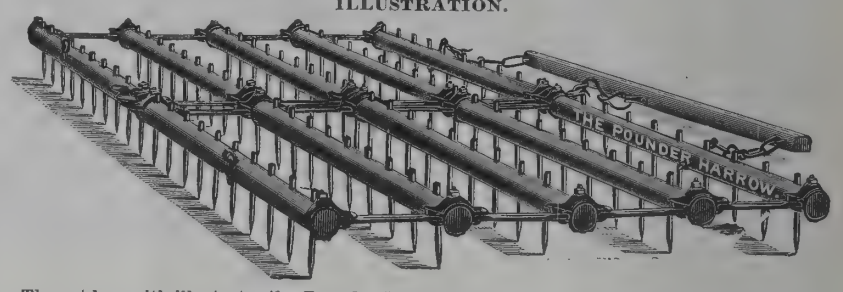
ANSWER.

1. It is not probable that either the milk or bran has caused the death, but that the calf was affected with some other trouble, which might have been discovered by making a post-mortem examination.

2. If the cow is otherwise healthy as you state, we would advise you to look for lice, which may account for the hair coming out in blotches.

3. Stock foods, as a rule, are not harmful to cattle. Usually they do some

ILLUSTRATION.



The cut herewith illustrates the Pounder Harrow that has for many years been manufactured in Fort Atkinson, Wis., by Geo. H. Pounder. The success of the Pounder Harrow has been very marked. The output of the factory is sold all over the country among those that are looking for something good in harrows. Mr. Pounder has a practical understanding of what is wanted in an implement of this kind which has enabled him to place on the market a harrow that has many improvements adding to its efficiency of service, durability and convenience. There is much said in Mr. Pounder's circulars that will interest intending buyers of this kind of an implement, and they can be secured by dropping a card to G. H. Pounder, No. 7, Fort Atkinson, Wis. The following letters from two prominent users fairly illustrates what the thousands of users of the Pounder Harrow think of it:

Bozeman, Mont., Dec. 18. MR. G. H. POUNDER: Dear Sir—I desire to advise you as to the work of the fifteen-foot Pounder Harrow purchased of you last year. We gave it a very thorough trial, as in irrigated lands much of the success is due to the perfect tilth of the soil previous to turning on the water, so that the soil may be equally moistened. We found nothing better for accomplishing this result than your implement, and if I were to use only one harrow I would select yours.

Yours truly, E. M. EMERY, Director Montana Agricultural Experiment Station.

Neponsett, Ill., April 8. G. H. POUNDER: Dear Sir—I have tried harrow putting in oats on heavy corn stalks, and it does first-class work and does not clog. My neighbor has been using it today and is much pleased with it.

Respectfully yours, J. F. BATES.

More might be said of this harrow, but if you are interested send for circulars.



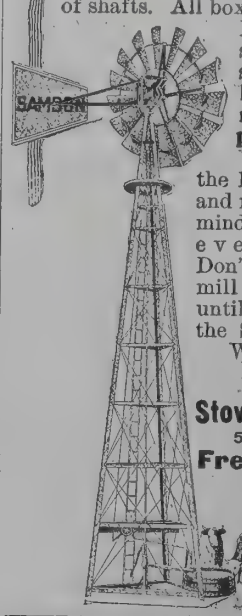
Cutting Wood made easy with our Drag Saw

Worth its weight in gold to any farmer who has timber to cut. One at wholesale where we have no agent. We also manufacture a full line of Horse Powers, Wood Saws, Well Machines, and Saw Mill Machinery. Write for catalogue D and prices.

R. R. HOWELL & CO., Box H, Minneapolis, Minn.

SAMSON

No other name means so much to the man who seeks a good windmill in an understanding manner. The Samson is so made in design, material, workmanship and construction as to be the best windmill that it is possible to make. The Samson is the mill with the wonderful double gear which gives the strength of more than two ordinary mills in the single mechanism. This also provides for the longest shafting and the longest bearings, and places all working parts between bearings. These things mean perfect freedom from all torsion and overhanging strain—no bending or twisting of shafts. All boxes detachable.



Exceedingly sensitive to the slightest wind. It is the only real deep well pumping mill. We send free the handsomest and most complete mindmill catalog ever published. Don't buy a windmill of any kind until you send for the Samson book. Write today

THE Stover Mfg. Co. 552 River St. Freeport, Ills.



Perfect Balance

AVERY CULTIVATORS all have the famous Avery double-acting lifting springs, rod fenders, soft center steel shovels, etc.

The Vacuna a perfect combined Riding and Walking Cultivator. 8,500 sold in 1902.

Special Points: Wide Tires, Patented Balancing Feature, Level Swing, Easy Handling.

Every farmer should know of the Great Avery Line of Wagons, Planters, Engines, Threshers, etc. Write for free catalogue H.

AVERY MFG. CO., 510 Iowa Street, Peoria, Ills.



JUST OUT

UNDERHILL SELF ADJUSTING STALL

No Gutters, no Platforms, no Fastenings, no Stables to clean.

Cease trying to keep your cows clean. Give them a chance and they will do it themselves. Write for circular.

Wm. M. UNDERHILL Oconto, Wis.

A STEEL STANCHION beats anything you ever saw for tying cattle. Lighter, stronger, neater. Swings on chains. Not in the way when lying down. Agents wanted. Write for special terms and prices.

JAS. BOYLE, Mfg., Salem, O.

FOR SALE Farms in Oconto and Marinette Counties. 560 acres; 80 cleared, near town. Fine soil; $11.00 per acre up. In parcel, or less. Easy terms. Excursion rates.

W. F. MARR, Crivitz, Wis.

BUY OF OWNERS

80 acres, Marathon Co., Wis., fine bargain, - - $5400
80 acres, Clark Co., Wis., fine offering - - - - $4500
80 acres, Wood Co., Wis., Dairy Farm - - - - $7000
Milk, Cream, etc. business, near Cincinnati - $6000

HILES & MYERS C-100 MATTHEWS BUILDING, Milwaukee, Wis.

BROWN'S BRONCHIAL TROCHES

Neglect of a Cough or Sore Throat may result in an Incurable Throat or Lung Trouble. For relief use BROWN'S BRONCHIAL TROCHES.

Sold in Boxes only. Avoid imitations. John L. Brown & Son

WORM SUMMER'S POWDERS

STANDARD REMEDY FOR 30 YEARS

Fed to Millions of Animals Every Year. 3 lb. Pkg. 50c; 7 lb. Pkg. $1; 70 lb. Case $8. Catalogue of Stockmen's Supplies Free.

F. S. BURCH & CO., 144 Illinois St., Chicago

Horse Owners! Use

GOMBAULT'S



Caustic Balsam

A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all linaments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle, SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*

Every bottle sold is warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland, O.

HOOD FARM

Antiseptic

Breeding Powder

Makes Cows Breed After Abortion. Corrects Failure to Come in Season and Failure to Clean.

"I had a heifer that aborted her first calf and she failed to breed again, though three different bulls were tried. I decided to give Hood Farm Antiseptic Breeding Powder a trial. After one month's treatment the heifer was bred successfully and in due time she gave me a fine heifer calf for which I have been offered $25." JOSEPH MASON, Bacon Farm, Newton Highlands, Mass.

Price, $1, sent by mail, $1.15. Size containing four times this quantity, $2.50. Sent prepaid for $2.75. Address

C. I. HOOD CO., Lowell, Mass.

Mention this paper.



ANIMAL ABORTION

failure to breed and breeding difficulties, such as retention of placenta, scours in calves, etc., have a permanent cure by using

KELLOGG'S Condition Powder.

"I have entirely checked the abortion several times in the past five years with your Powders. No trouble since feeding it with the original herd, but young heifers and cows brought into the herd start to abort and we promptly stop it with the remedy."

JAMES P. TORREY, Truesdell, Wis.

It prepares the animal system for breeding, young are carried full time and come strong and healthy. A simple, harmless remedy to be mixed with food. Ask for free booklet, showing what hundreds say.

H. W. KELLOGG CO., Dept. Q, St. Paul, Minn.

ZENOLEUM

Famous *COAL-TAR* Carbolic Dip.

For general use on live-stock. Send for "Piggies' Troubles" and "Zenoleum Veterinary Advisor" and learn its uses and what prominent stockmen say about it. Books mailed free. All druggists, or one gal., express paid, $1.50; 5 gal., freight paid, $6.25.

ZENNER DISINFECTANT CO., 34 Bates St. Detroit, Mich.

IMMUNE HOGS Pigs made Cholera Proof for life by feeding sow Ridgway's New Vaccine. Costing 10c a litter. 500,000 tests successfully made. Written guarantee.

ROBERT RIDGWAY, Box V, Amboy, Ind.

Big Success With Hogs

SOME farmers are more successful with hogs than others. The man that only gets 8 lbs. of pork out of a bushel of corn fed to hogs makes only half as much as the man that gets 17 lbs.

The American Swineherd is a specialist and the best authority on the hog industry.

Prof. Henry says that success is only obtained by concentrating all efforts upon one line.

A two-years' course in hog raising.

Teaching how to be successful.

How to secure the greatest profits.

How to get 17 lbs. of pork out of a bushel of corn and 19 lbs. from a bushel of wheat-fed hogs.

How to feed to double the growth and gain over usual methods; only healthy hogs profitable.

How to keep your hogs healthy.

How to utilize, without other expense than the subscription to this paper, the costly experience and gathered wisdom of the most capable and successful feeders.

Prof. Kennedy of the Iowa Agricultural College says "Your paper is a leader in its line on feeding."

Every owner of hogs should take advantage of this special offer.

Send us $1 for two years' subscription to the **American Swineherd** and it will entitle you to a free copy of the Hand Book on "Hog Hygiene," with trade secrets, receipes, valuable information, etc. If the offer is accepted in ten days we will send you in addition the wonderfully suggestive picture in colors, "Uninvited Guests," suitable for framing, showing the pigs partaking of a meal uninvited.

This equips you for a successful hog business.

AMERICAN SWINEHERD,
535 Como Bldg., Chicago, Ill.

good, but the benefits derived from feeding same are all in favor of the manufacturer and dealer, not the stock owner.

Scours.

I bought a very heavy Guernsey cow and had her driven through the country ten miles. She became very much scoured and I have been unable to check it permanently. I have used salts 1 pound, which seemed to aggravate the trouble. I have used crushed rosin, which only relieved it temporarily. M. G. S.
Florence, S. C.

ANSWER.

You should not have given salts, as this will make her scour still more. Give a quart of raw linseed oil at one dose, then give tannic acid, salicylic acid and tr. of opium, of each 3 drams, in a quart of linseed tea night and morning until relieved.

Dropping the Cud.

One of my cows has thrown her cud, or nearly one-half of what she eats, for the last week or so. She seems to get thin and has ceased to give milk. O. J. H.
Hendrum, Minn.

ANSWER.

When a cow drops her cud there is usually something wrong with the organs of mastication. Make a careful examination of the mouth and you will no doubt find the cause, which must be removed.

Fistulous Withers.

Give me a simple treatmeut for fistulous withers through DAIRYMAN. This formed a bunch at side of withers about as large as an inverted saucer, and opened a few days since about 8 inches from top of withers, has discharged freely; bunch or enlargement has gone down and is now an open suppurating sore. L. H. E.
Font, Pa.

ANSWER.

It will do no good to attempt to heal up the opening of a fistula, as it usually heals upon its own accord, but only to gather and break open again in the near future. The only reliable remedy for such a fistula is to have it completely dissected out and treat the wound antiseptically afterwards.

Lice on Cattle,

Will you kindly publish in your next issue a remedy for lice on cattle, something cheap, so I can use freely? H. W. M.
Crewe, Va.

ANSWER.

Use Zenoleum or Chloro-naptholium as directed by manufacturers.

Skin Disease.

I have a bull that has some kind of skin disease, as he is all white around his eyes, and on his head seems to be a white dead skin or scrofula like. V. R. G.
Factoryville, Pa.

ANSWER.

Your bull has a skin disease which is of a parasitic nature. Wash the parts with Chloro-naptholium or Zenoleum according to directions on package and the trouble will soon subside.

Off Flavored Milk.

We have good Jersey cows; two of the best ones milk has become strong. They will not be fresh for about 17 weeks yet. They spoiled a good deal of butter. Can anything be done for it? We are going to give a physic this morning of salts. Should more than one dose be given to do any good and how often? MRS. F. R.
Middletown, O.

ANSWER.

By giving a physic of Epsom salts, 1¼ lbs. to a dose, repeated once or twice a week and a change in your food ration, we expect your trouble will be remedied.

Deformed Calves.

When the herd is infected with the abortion germs, it causes deformaties in the calves, as I have had 3 cases; one was born with the tail hanging a little on one side; the bone at the root could be plainly felt to be crooked. Another case this last year was a lump over the kidneys, giving the appearance almost of hump back. The 3rd and last is a deformed hock joint; seemed weak at first, standing on toes, is getting stronger now. MRS. M. B. M.
San Diego, Cal.

ANSWER.

The abortion germs have nothing to do with these deformities as far as is known at the present writing. This may happen to any cow whether she had aborted or not, the cause of which is not known.

Retention of Placenta.

If a cow retains her placenta after abortion, how is the best way to take it away, and is there any danger attached to doing so? P. W. J.
Old Point Comfort, Va.

ANSWER.

The best way to remove the placenta is to introduce your hand into the uterus and unbutton each and every one of the cotyledons to which the placenta is attached. Be careful not to tear off any of these cotyledons and make sure that all the membranes of placenta are moved, then flush the uterus with warm water and a half teaspoonful of permangenate of potash to a bucket of water.

"SAVE-THE-HORSE"

Registered Trade Mark

SPAVIN CURE

BEGIN TREATMENT AT ONCE!

HAVE A PERMANENTLY SOUND HORSE FOR SPRING.

Cured horses are absolute certainties as to the possibility of the remedy for your own case. Such results as shown in our booklet, by business men whose reliability can be readily ascertained, have carried "SAVE-THE-HORSE" over skepticism, prejudice and uncertainty. Send for booklet and copy of written guarantee, which is as binding to protect you as the best legal talent could make it. No man need see his horse suffer and become incapacitated.

"SAVE-THE-HORSE" Positively and Permanently Cures BONE and BOG SPAVIN, THOROUGH-PIN, RINGBONE (except low ringbone,) CURB, SPLINT, CAPPED HOCK, WINDPUFF, SHOE BOIL, WEAK and SPRAINED TENDONS and all LAMENESS. Cures without scar, blemish or loss of hair. Horse may work as usual.

$5.00 per bottle. Written guarantee with every bottle. Need of second bottle improbable, except in rarest cases. If your case is different we advise frankly as to possibility of the remedy effecting a cure. Give veterinarian's diagnosis, if he is competent. Describe age, development, location of swellings, lameness and way horse carries and holds leg.

$5.00 per bottle at all druggists and dealers, or sent express pr paid.

TROY CHEMICAL CO., Troy, N. Y.

Also manufacturers of Veterinary Pixine.

BLACKLEG



VACCINATE your cattle with **Blacklegoids**—the simplest, safest, surest preventive of Blackleg. Each *Blacklegoid* (or pill) is a dose. Administration with our Blacklegoid Injector is performed in one minute. We establish the purity and activity of our **Blacklegoids** by rigid tests upon animals. For sale by druggists. Write us for literature—free on request.

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Lump Jaw

Save the animal—save your herd—cure every case of Lump Jaw. The disease is fatal in time, and it spreads. Only one way to cure it—use

Fleming's Lump Jaw Cure

No trouble—rub it on. No risk—your money back if it ever fails. Used for seven years by nearly all the big stockmen. **Free Illustrated book** on Lump Jaw and other diseases and blemishes of cattle and horses. Write for it today.

FLEMING BROS., Chemists,
228 Union Stock Yards, Chicago, Ill.

Tuttle's Elixir



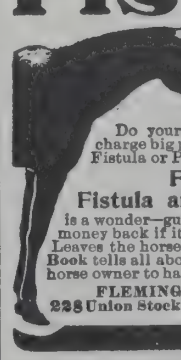
Cures all species of *lameness, curbs, splints, contracted cord, thrush, etc.* in horses. Equally good for internal use in *colic, distemper, founder, pneumonia, etc.* Satisfaction guaranteed or money refunded. *Used and endorsed by Adams Express Company.*

TUTTLE'S FAMILY ELIXIR Cures rheumatism, sprains, bruises, etc. Kills pain instantly. Our 100-page book, "Veterinary Experience" FREE.

Dr. S. A. TUTTLE, 62 Beverly St., Boston, Mass.

Beware of so-called Elixirs—none genuine but Tuttle's. Avoid all blisters; they offer only temporary relief if any

Fistula and Poll Evil

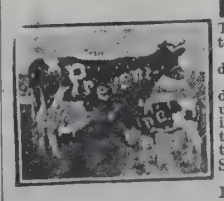


Do yourself what horse doctors charge big prices for trying to do. Cure Fistula or Poll Evil in 15 to 30 days.

Fleming's Fistula and Poll Evil Cure

is a wonder—guaranteed to cure any case—money back if it fails. No cutting—no scar. Leaves the horse sound and smooth. Free Book tells all about it—a good book for any horse owner to have. Write for it.

FLEMING BROS., Chemists,
228 Union Stock Yards, Chicago, Ill.



PREVENTIVE

The only guaranteed abortion remedy.

The most powerful germ destroyer known.

It prevents all contagious diseases. Thus far every user as far as we can learn is satisfied with results obtained. Send for descriptive booklet.

STEVENS BROTHERS
Holstein Breeders
LACONA, - NEW YORK

COWS RELIEF



Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.

Used Exclusively at Model Dairy

Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.

O. H. MFG. CO.,
Dept. H, Lyndon, Vt.

Cow Profits

come from the conditioned animals. None in the barren, aborting kind or those that have calving or after birth troubles.

KOW-KURE (For Cows Only)

is for the cow's case. It conditions, prepares for calving difficulties, cures barrenness, milk fever, garget, all breeding difficulties. 100,000 cow owners call it the one true specific cow remedy. Dealers sell it. Kow-Kure book **mailed free**

Dairy Association Co.,
Lyndonville, Vt.



DR. GEORGE HOLLABUSH'S

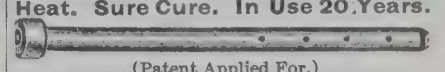
Sure Cure for Abortion



and General Tonic for Cows. The only genuine sure cure and general tonic for cows on the market. I guarantee, and refund money if not satisfactory. Dr. Geo. Hollabush, Ft. Atkinson, Wis. Write for circular.

ABORTION,

Failing to Breed and Bring Cows to Heat. Sure Cure. In Use 20 Years.



(Patent Applied For,)

Hard Rubber Safety Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.

DR. WM. HORNE, Janesville, Wis.

ABORTION

POSITIVELY PREVENTED AND CURED BY THE USE OF

ANTI-ABORTION SERUM

PREPARED BY DR. DAVID ROBERTS.

CATTLE SPECIALIST

WRITE FOR SWORN TESTIMONIALS.

DR. ROBERTS VETERINARY REMEDY CO
624 GRAND AVE WAUKESHA, WISCONSIN

MILK FEVER

WHY NOT PREVENT IT?

PREVENTION IS CHEAPER THAN CURE.

Write for Moore Bros. "General Cow Drink" Pamphlet, Free.

Address, MOORE BROS., V. S., Albany, N. Y

An Illinois Creamery Statement.

ED. HOARD'S DAIRYMAN:—Following is the statement of the Central Illinois Creamery Co., for the year 1903:

Pounds of milk	3,246,603
Pounds of cream	38,313
Cream on same basis as milk would equal a total of milk	3,458,026
Pounds of butter	164,878
Pounds of butter fat	139,892
Average test butter fat	4.02%
Average test butter	4.76%
Average price paid patrons per lb. fat	22½c.
Total amount receipts	$35,824.55
Total paid patrons	31,527.31
Running expenses and salary	3,230.15
Dividend and sink. fund	1,037.40
Bal. due patrons	29.69

Paid stock holders 12% dividends.

I think we have one of the records, as the above was done with a 12 horse power upright boiler.

A. A. SHOEMAKER,
Butter Maker and Manager.
Nokomis, Ill.

Quality or Quantity.

ED. HOARD'S DAIRYMAN: — Which shall it be? In the next few weeks all over a great portion of our country are the great dairy conventions of every discription and it seems to me that in justice to the farmer as well as to the factory this question should receive a most thorough discussion as well as a decision as to what shall be done. If not the present three per cent law which was made for city and town milk delivery and is a just one for what it was made for. But it makes great injustice on innocent parties who are patrons of the many cheese factories all over a large portion of Wisconsin.

We have always contended and still do contend that the only just law for factory or patron was to pay by the test. It would have two results; to make better milk which means better cheese, and compel the dishonest man to be honest as well. There is a misunderstanding of the test by a great many which leads to the idea that factory men are always dishonest and that is, that they do not pay according to the test. This is a fact that is hard to make many a farmer see. This week's milk may test quite high, next week it may be quite a point lower, consequently the factory gets the name of being dishonest, but this is a side issue now. Every farmer should own a small Babcock tester and test his own milk. A general average could then be known.

Through a greater portion of Wisconsin the milk has always been pooled. The owners, or men who ran the factories, have never demanded quality if it was clean and sweet, but have put a premium on quantity regardless of anything else, or to the amount of fat in it, and it has also put a premium on dishonesty, and the cow that never ran dry or cost any feed, has swelled some milk accounts from $1.00 to $2.00 a day. And such men should get, and deserve all the state can give them.

But there is another class of farmers that the state is dealing unjustly with and making it a hardship and abuse by their interpretation of the law.

A large portion of the farmers in the cheese portion of the state in trying to produce the heavy flow of milk have crossed the common cattle with cheap Holsteins or a grade Holstein. Ignoring the idea of quality entirely, they have gotten the extra quantity and their herds have done well at the milk pail. It was all the factory men demanded; it was what they were paid to do. These men cannot change their herds in a month or a year, nor hardly in five years. It must be done by judicious care and breeding, as we all know it takes years to remedy these defects in our herds. Would it not be far better to demand a law that paid by the test than to persecute and prosecute innocent men? I have said to men again and again when I have tested herds that have gone down to 2.8 and 2.6 per cent: "Just as sure as fate, will the day come when you will get your pay by the test, and then the men who have stood for quality instead of quantity will be on top, because it will take you years to get the quality you lack now."

As the factories pay now, particularly in the brick cheese counties, and as the law is interpreted, the conscientious breeder for quality suffers just as much as he ever has. The dishonest man can put in water to the full limit of the law, and the honest men who give the milk just as Old Bossie gives it, be it 2.6 or 2.8 per cent, must be punished and fined to the full extent of the law, because poor old boss could give a good 14 quart pail of milk, but it was left out of her make-up to add more than 2.6 or 2.8 per cent fat in the bucket. A. W. LEHMANN.
Neosho, Wis.

For the Children.

To Keep Their Digestion Perfect Nothing is so Safe and Pleasant as Stuart's Dyspepsia Tablets.



Thousands of men and women have found Stuart's Dyspepsia Tablets the safest and most reliable preparation for any form of indigestion or stomach trouble.

Thousands of people who are not sick, but are well and wish to keep well take Stuart's Tablets after every meal to insure perfect digestion and avoid trouble.

But it is not generally known that the Tablets are just as good and wholesome for little folks as for their elders.

Little children who are pale, thin and have no appetite, or do not grow or thrive, should use the tablets after eating and will derive great benefit from them.

Mrs. G. H. Crotsley, 538 Washington street, Hoboken, New Jersey, writes: "Stuart's Dyspepsia Tablets just fill the bill for children as well as for older folks. Iv'e had the best of luck with them. My three-year-old girl takes them as readily as candy. I have only to say 'tablets' and she drops everything else and runs for them."

A Buffalo mother, a short time ago, who despaired of the life of ber babe, was so delighted with the results from giving the child these tablets that she went before the notary public of Erie Co., N. Y., and made the following affidavit:

Gentlemen:—Stuart's Dyspepsia Tablets were recommended to me for my two-months-old baby, which was sick any puny and the doctors said was suffering from indigestion. I took the child to the hospital, but there found no relief. A friend mentioned the Stuart Tablets and I procured a box from my druggist and used only the large sweet lozenges in the box and was delighted to find they were just the thing for my baby. I feel justified in saying that Stuart's Dyspepsia Tablets saved my child's life.

MRS. W. T. DETHLOPE.

Subscribed and sworn to before me this 12th day of April, 1897.

HENRY KARIS,
Notary Public in and for Erie Co., N. Y.

For babies, no matter how young or delicate, the tablets will accomplish wonders in increasing flesh, appetite and growth. Use only the large sweet tablets in every box. Full sized boxes are sold by all druggists for 50 cents, and no parent should neglect the use of this safe remedy for all stomach and bowel troubles if the child is ailing in any way regarding its food or assimilation.

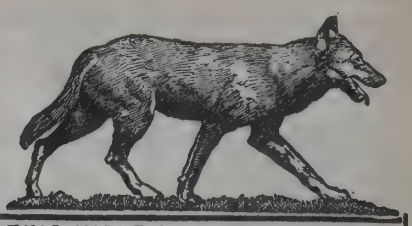
Stuart's Dyspepsia Tablets have been known for years as the best preparation for all stomach troubles whether in adults or infants.



J. STEVENS ARMS AND TOOL COMPANY

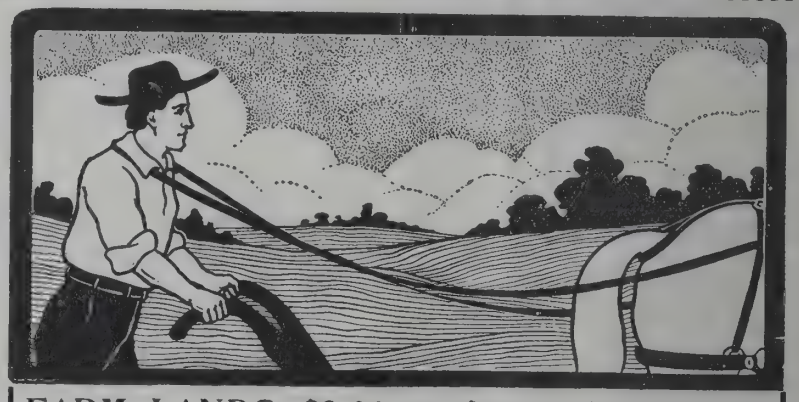
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H. & R. REVOLVERS
Harrington & Richardson Arms Co.
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FROST BEST CHEAPEST
SMALL WIRES
Rust and break sooner than large ones. Heavy hard spring wires are always used in the erection of the Frost Fence, in order to make it last a life time. Our catalog for the asking. THE FROST WIRE FENCE CO., Cleveland, Ohio.


THIS WOLF AND 45 OTHER FUR BEARING ANIMALS, Handsomely lithographed in natural colors, each animal numbered and described, together with 36 page book, "HOW TO TRAP WILD ANIMALS." Postpaid for 10cts. Stamps, Silver or Money Order. *Price Lists of Raw Furs and Hides Free.*
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Cream SEPARATORS
All about them and other things for the dairy and creamery.
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[Address by H. B. GURLER, DeKalb, Ill., before the Wisconsin Dairyman's Association.]

[Continued from last week.]

DISCUSSION.

Mr. Goodrich: How did you get at the cost of labor?

Mr. Gurler: I figured that out several years ago, probably fifteen or twenty, and I have forgotten now the details of my figuring.

Mr. Goodrich: I can tell how I got at it. When I was making butter on the farm, I wanted to know what it cost a pound. I could get at the feed all right, but I was bound to tell how much the labor cost. People said that I couldn't do it, but you know I would rather hold the watch on the boys when they are working than to work myself, and so I got at it. I found that when I had twenty-five cows, the average time taken in milking a day through the year was five hours a day, two and a half at each milking; that is, if they were giving milk all the time, it would be ten cows to the hour, but it really averaged about eight cows to the hour. Then in feeding and cleaning the stable and doing the other work around and in cutting green food for them in the summer time, it averaged up at the end of the year three hours a day. That made eight hours. Then, in making the butter, that was done partly by my wife, of course, but her time was worth as much as anybody's, and that amounted to two hours a day, so there were ten hours a day, and that is a day's work, whether it is on the farm, or in the factory; so that it just figured up one man's work during the year. I would have had to pay $240 a year at that time and then I boarded the man, and I should charge the amount of his board at what it was worth, though not what some farmers think it is worth. I put in the board at $3.00 a week, and that made practically, all put together, $400 a year for one man and that figures out $16 per cow.

Mr. Gurler: But, Mr. Goodrich, I did not charge for making the butter, because I paid for that at the creamery, and after taking out of your figures for making the butter, you are pretty nearly on my basis.

Mr. Goodrich: It comes to $16 per cow and we made 300 pounds of butter.

Mr. Gurler: I am much obliged to you for helping me out, and I am confirmed on my figures because we come out so nearly alike.

A Member: Wasn't there any loss on the value of the cow each year?

Mr. Gurler: There has been on the average cow, for the last three or four years, until the last year. Last spring I was able to buy new cows to replace the culls out of my herd, with the money the culls brought, but, as a rule, there is a loss in the exchange. You can't get so much for a cow for beef as you will have to pay for a fresh cow, as a rule, and the better the cow the more loss, and that suggests another point. No one can afford to feed a dry cow. When you make up your mind you are going to dispose of a cow, get a little flesh on her and get rid of her as soon as you can after you have done milking her.

Mr. Scribner: That is all right for the milk man, but not for the breeder.

Mr. Gurler: I am not talking for breeders.

Mr. Favill: Don't your cows ever get old, so they have to stop breeding and milking?

Mr. Gurler: Yes; my cows wear their teeth all out sometimes, but I have got a registered cow in my herd now that is thirteen years old, and she is doing mighty good work. She made 400 pounds of butter for her first year's work as a heifer. You may be sure I am not going to dispose of that kind of a cow. I will keep her when her teeth are all gone.

Ex-Gov. Hoard: I have got such a cow as that, a registered Guernsey, sixteen years old.

Mr. Gurler: These good cows are just as liable to live to a good old age, if you take care of them.

Prof. Emery: I have a cow that at fourteen and one-half years gave fifteen and one-half pounds of butter in one week.

Ex-Gov. Hoard: A good cow will last longer than a poor cow.

Mr. Gurler: Yes, and the reason is that she has a great big constitution.

Mr. Favill: But you haven't answered my question yet. I had a cow that lived to be twenty-two years old, and when she was seventeen years old she dropped a calf that weighed 110 pounds.

Mr. Everett: What breed of cows have you, Mr. Gurler?

Mr. Gurler: Registered Guernseys, registered Jerseys and registered Holsteins; but most of my cows are grades—crosses. I am not going to get into any breed contest. I am talking about the individuality of the cows.

Mr. Everett: Do you depend on raising your own cows or buying them?

Mr. Gurler: I raise all the good heifer calves, but I have to buy a good many cows besides, and that is what breaks my heart, because I can't buy such cows as I want. Why, gentlemen, my two-year-old heifers, with their first calves are giving fifteen per cent more milk than the average cow I can go out and buy.

Prof. Henry: Suppose you have a cow on your farm that makes 200 pounds of butter the first year. What do you do with such a cow? Do you summarily dispose of her, or do you try her another year?

Mr. Gurler: It is not under all conditions fair to judge a cow from one year's work. You take the record of the cow's work with her general appearance, her make up, and you are pretty safe. A man can tell pretty well whether a cow has done her best or not, if he is watching her.

Ex-Gov. Hoard: If she indicates a capacity that she has not used, you are encouraged to hold onto her.

Mr. Foster: In this matter spoken of by Mr. Goodrich, of computing the amount of labor put onto the cow in the year, I think it is not quite fair not to charge up to the cow at least certain proportion of the time that is naturally wasted on the farm by the hired man. If we go into a machine shop, we are charged the rate of fifty cents per hour for the work they do for us, and the workman generlly puts in a certain amount of special work on us.

Mr. Goodrich: I think most of that should be charged up to the farm account, and not to the cow, because you have got to do that work for the cow every day in the year. It doesn't matter if it rains or shines, Sundays or week days, you do that work for the cow anyway. If you have got a lot of rainy, broken weather, the men don't do anything but care for the cows.

Mr. Foster: If you want to do that labor, all right; you increase your income. Now, I haven't got a family of boys to help me out with this work; my boys are all girls.

Mr. Gurler: When I bought the farm I am now on, in 1868, everything had been carried off for twelve years. I just worked for nothing, like working with 200-pound cows. I was forced to go into some other line of work. Now, here is a point that comes to my mind. You see on that chart the value of skim milk for the four best cows; the average value was $21.76 and the four poorest cows, $7.20. Now, there was a difference of $14.56 in the value of the skim milk.

A Member: In regard to the value of skim milk, how about feeding it back to the cows?

Mr. Gurler: Have you ever practiced that and is it profitable?

A Member: I have, yes. I never figured that thing out to see whether there was a profit, but I know I can increase the flow of milk very nicely by feeding back to the cow sweet skim milk. I can't tell whether I get more for the skim milk fed to the pigs than if fed to the cows.

A Member: Isn't it a fact that you often find that the poor milk has the most of the solids-not-fat in it?

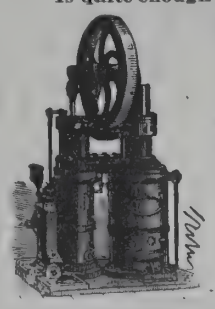
Ex-Gov. Hoard: No, no.

The Member: I can show it to you in a chemical analysis of milk made by the Experiment Station in the state of Ohio.

Mr. Gurler: Let us not sidetrack onto that question now; we have too much to pick up already. Here is a matter of the rations that I fed those cows. I aimed to work to the German standard, that is, one to five and a half, and that ration that was fed for the year ending the first of September last was, one of protein to five and a half of carbohydrates and fat reduced to carbohydrates. I don't think I better touch that feeding question any further. I dislike always to preach when there is some fellow looking on that I know can do it better. I want to mention here again that question of palatability, for there is no question of greater importance. We may have a feed that will analyze all right, but if it is damaged in any way, or for any reason the cows don't like it, don't want more of it, don't

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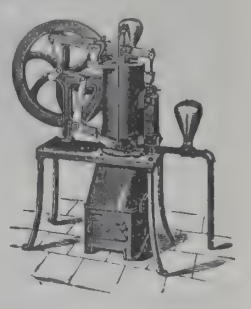


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eat it with a good relish, they won't do their best. You are at fault, not the cow.

A Member: I eat a whole lot of things I didn't use to before I was married.

Mr. Gurler: And probably you are better for it, my friend; very likely your wife has got four times the sense you have, although you are a Jersey man and have probably got lots of sense.

Now, here is another point: There is a question in my mind, whether skim milk is not really entitled to all the increase that you can get from feeding grain feeds with it, over what you get feeding the grain feeds alone. Just go home and think about that. I don't want to deceive myself, nor you, but it is hard to get a feed that will take the place of skim milk.

A Member: I believe the gentleman's figures of the value of skim milk are substantially correct, and skim milk is worth more fed to pigs than anything else. I believe his figures as to labor are also substantially correct.

Mrs. Lehman: Supposing you fed that skim milk to the calf, would it be worth as much as you say?

Mr. Gurler: The calf does not show up here at all; but if fed to the calf it would be worth more. To a calf fed intelligently, skim milk is certainly worth 25 cents a hundred.

Mrs. Lehman: It makes a difference what kind of a calf.

Mr. Gurler: Yes, and it makes a difference what kind of a man. I told you that there is more difference in the men that feed the calves than there is in the calves.

Question: What amount of grain do you feed your cattle on the average?

Mr. Gurler; The average cow has been getting this winter a ration of ten quarts per day, composed of one part gluten meal—mind you, that is not gluten feed, it is gluten meal, analyzing 33 per cent protein. The gluten feed has the bran ground with it. My grain this winter has been 10 quarts per day, composed of one part gluten meal, one part wheat bran, three parts corn meal, with what corn silage and hay they would eat. This hay has been some of the time alfalfa; some of the time oat hay, and clover and timothy hay. This combination of grain weighs just about a pound to the quart. The wheat bran weighed 17 pounds per bushel; the corn meal, 50 pounds per bushel; the gluten meal, 61 pounds per bushel.

Mr. Goodrich: Then that would make more than a pound to the quart.

Mr. Gurler: It was not equal parts, you would have to take a pencil for that.

A Member: Wasn't that feeding a good deal of corn?

Mr. Gurler: It figured out a balanced ration, one to five and a half, and that is what I was aiming for. With this they were fed about forty pounds of silage.

Mr. Clark: Was the silage well eared?

Mr. Gurler: I don't know what you would call well eared. There was just about twice the amount of seed planted that you would put in for a grain crop.

Mr. Cobb: I am feeding the cheapest grain ration this winter that I ever fed. We are feeding six pounds of corn meal, three pounds of cotton seed meal, mixed, and a half a pound of cotton seed meal on the ensilage at noon, and it costs about three quarters of a cent a pound.

Mr. Gurler: What does your daily ration cost you?

Mr. Cobb: Three quarters of a cent a pound for eleven pounds. That is for cows that are giving 35 and 40 pounds of milk—besides roughage, of course.

Ex-Gov. Hoard: I am feeding 35 pounds of good corn ensilage, costing 4⅜ cents; 10 pounds alfalfa hay, .05; 3 pounds of bran, 2⅜, making a ration costing 11⅝ cents, for which I am getting over a lb. of butter fat a day, which I estimate to be worth at present prices, about 30 cents.

Mr. Cobb That is an ideal ration. Whenever we can get alfalfa in the dairy belt of this country, our fortunes are made.

Ex-Gov. Hoard: I am adding to that now about a cent's worth of cut corn stalks—dry, cut corn stalks, which would bring it up to 12⅝ cents.

Mr. Gurler: In this barn with the fifty cows, there were six cows among that fifty that made less than 200 pounds of butter per year, and there were seven that made over 400 pounds per year. The average of those seven was 440¼ pounds. Those poorest cows averaged 173.7 lbs. per cow. Two hundred pounds is the dead line down at my place. Unless I am satisfied that cow can do better in the future I dispose of her.

Mr. Foster: Were those six cows some of your best heifer cows, or some you had to go out and buy?

Mr. Gurler: Most of those cows were cows that I bought.

Mr. Favill: Do you mean the best ones?

Mr. Gurler: Yes. There was a period that I did not raise any heifer calves, but I have got a nice lot of young heifers coming up now.

A Member: Do you find gluten meal a better feed than distillery grain?

Mr. Gurler: I can buy protein cheaper in distillery, kiln-dried feed, than in gluten meal, but I was sidetracked by getting some that was not good.

A Member. We all got caught on that. They were putting in cob and sawdust down there, where cobs are cheap.

Mr. Gurler: The old saying that it costs no more to keep a good cow than it does a poor one is not always correct, but that point is of minor importance. We never have learned why it is that one cow will make fifty, or even 100 per cent more from the same feed than another cow, and it isn't necessary that we should know. We will let Professor Henry's force down at Madison find out why that is so. But certainly in the matter of care I am safe in saying it costs no more to care for a good cow than a poor one, but it is certainly more satisfactory to work with profitable cows than with poor ones.

You have all heard the old saying that the bull is half the herd. The bull is more than half the herd, because the females are more likely to be like the sire, and I care just as much to know about the record of the grandmother on the the sire's side as I do of the mother's record. The governor says it is more important, and I believe it. I say it is as important to know the butter record of the heifer calves' granddam on the sire's side as it is to know the butter record of the calves' own dam.

Now, from a strict business point of view I must talk a little. What other business is there in the world that would stand such abuse as is often given to this business in dairying? The lack of business methods which are generally applied to the dairying business is such that no manufacturing business would stand it at all without being driven into bankruptcy in six months. We have got in our town

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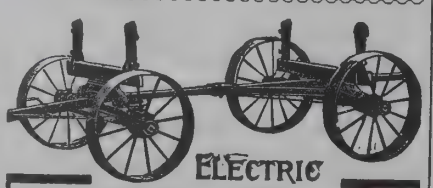
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A Buffalo physician in speaking of the benefits of charcoal, says: "I advise Stuart's Absorbent Lozenges to all patients suffering from gas in stomach and bowels, and to clear the complexion and purify the breath, mouth and throat; I also believe the liver is greatly benefitted by the daily use of them; they cost but twenty-five cents a box at drug stores, and although in some sense a patent preparation, yet I believe I get more and better charcoal in Stuart's Absorbent Lozenges than in any of the ordinary charcoal tablets."

large wire factories, that belong to the U. S. Steel company, and I have had men tell me how they are running the business of that corporation. I happen to know that the plant in DeKalb is producing wire at less cost than any other factory in the combine, and the key to the situation is to cheapen the cost of producing. If I could have as many cows as I have got now and have each one of them do what these four best cows are doing, I would get rich enough to quit business in a few years.

It seems to me that there are greater opportunities for the young men that are coming up now and are getting an agricultural education, than in any other field in this country. About a year and a half ago, there was an attorney came to my farm from Detroit. He had been down on the Atlantic coast, down to ——, (that 12-cents-a-quart man in New Jersey), and he came out to my farm for some ideas. He said to me, "I have got a son twenty-five years of age that I educated for the bar, and the young man commenced to practice law and he didn't like it; he stole away to some agricultural college and he is bound to run his father's 400-acre farm, twelve miles out of Detroit." And the father was looking around the country for ideas. He said, "I am going to fit up that farm and let that young man run it," and the last remark he made before driving out of my yard was, "Mr. Gurler, there are greater opportunities on the farm than in any of the professions." It was a professional man who said that, and there is no question in my mind but what that is true. If the young men here will go to studying and thinking along that line, by the time they get up to my age there will be nobody in this country looking down on them; every profession will be looking up to them, and they will think, "You are the lords of creation," and you will be—but you have got to put your mind into it.

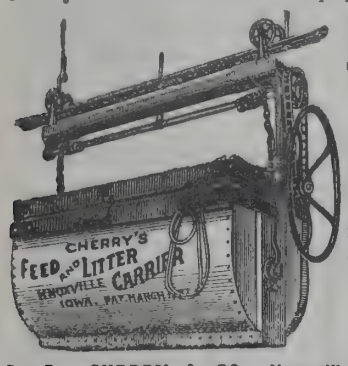
Prof. Henry— Mr. Chairman, Ladies and Gentlemen: My mind goes back to twenty-two years ago last month in this city when I met a body of farmers in the month of January, 1881, talking of agricultural matters. There are some gentlemen in this room who were present at that meeting. One man came to me and he said, "Professor, I have got an eleven-year-old son that I am going to send to your school." I said to him, "That is the first student that has been promised to my school since I came into the state, and I am grateful for it." That was Mr. A. J. Decker, of your city; his son was J. W. Decker, who is now Professor of Dairy Husbandry in the Ohio State University, and a very honored man in the profession. There are a good many of your citizens with us in Madison now, but it was not always so; Mr. Decker's son was at that time the only student I had. I worked ten years and at the end of that time had only twenty-six students. This year we have over 460. Now, I would like to have all the young men here who have attended at Madison in the Dairy School and in the Agricultural course and the short course, to stand up, so we can see who they are.

Mr. Gurler: There are enough for a starter.

Prof. Henry: There are cheese instructors, there are dairymen, there are helpers all through the community. I know there must be at least four or five farmers here who have sons that they want to have interested in the college, and I would like very much to talk with them about it. I attended a farmers' meeting last winter at a little town in Dane county, and I said there "I am going to get some students out of this meeting this winter, and I did. We have seven young men from that county.

I have got places for ten thousand young men at better pay than they are now earning if they will come and study with me and prepare themselves. All I want is good, well-bred boys, willing to work hard, and the positions are waiting for you. If you want lawyers up here, I can send you up a carload.

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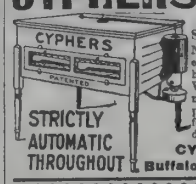
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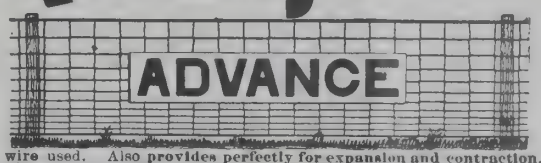
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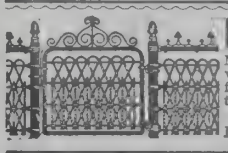
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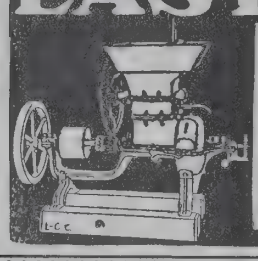
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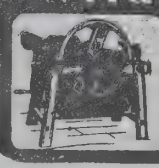
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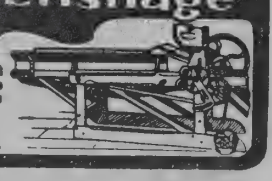
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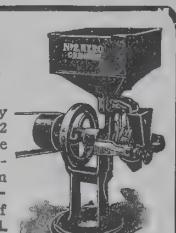


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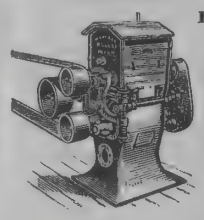
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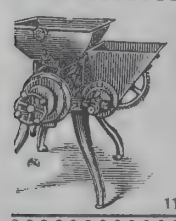
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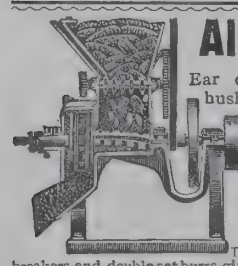


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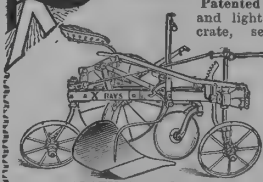
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Butter, Cheese and Eggs
Liberal Advancements Made on Consignments.
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Medals—Bronze 1878 Silver, 1887, World's Fair, 1893.



Chr. Hansen's Lactic Ferment

Ripens the Cream for Butter and the Milk for Cheese to Perfection.
The only Butter-Culture of keeping quality.
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Thatcher's Orange Butter Color
CONTAINS NO COAL TAR

The pure food agitation makes it imperative that butter makers use a color that is beyond suspicion. Every drop of Thatcher's Orange Butter Color is guaranteed purely vegetable, absolutely harmless and safe anywhere.

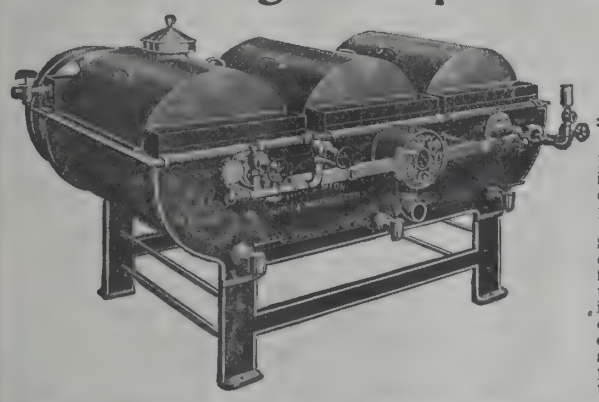
We also call your attention to Thatcher's Cream Cheese Color which is recognized by all as the best.

Write for information.

THE STANDARD VEGETABLE COLOR

THE THATCHER MANUFACTURING CO.,
POTSDAM, - NEW YORK.

The Farrington Duplex Pasteurizer.

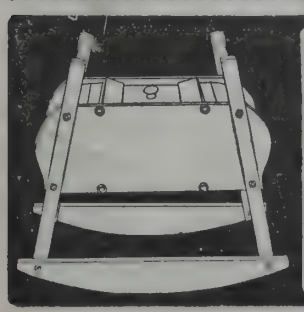


Built Entirely of Metal

Among the users of our Farrington Duplex Pasteurizers we have the names of the leading milk companies of the country.

The Farrington is not a Summer or Winter machine, but equally satisfactory at all seasons of the year. For convenience, durability, thoroughness of work and economy it leads them all. We are prepared to prove it. Write for further information.

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General Agents Alpha-De Laval Separators.
Branches: Kansas City, Mo; Minneapolis, Minn.; Waterloo, Ia.; Omaha, Neb. and Cowansville, Quebec. New England Agents: Stoddard Mfg. Co., Rutland, Vt. Pacific Coast Agents: De Laval Dairy Supply Co., San Francisco, Cal.
182 to 188 East Kenzie St., Chicago.

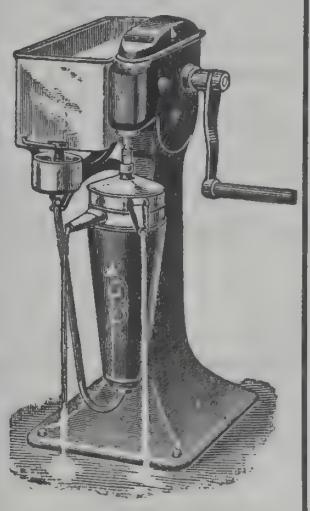


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Gets the butter from the cream down to the one thousandth part. Made of tasteless wood and the churning process is entirely the result of its own motion—no machinery inside or out to get out of order or require oiling.

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Your money back if not satisfied. In eight convenient sizes, 8 to 60 gallons. Price as right as the quality. Illustrated circulars free.
Rocker Churn Mfg. Company, Forsyth, Georgia.

A POEM YOU MUST KNOW

The above heading appears in the "Waterloo Courier," Waterloo, Iowa, as an introduction to some lines contributed by R. H. McNally who had just returned from Fairmont, Minn., where, during the State Dairymen's Convention, the **Sharples Tubular Separator** won an overwhelming victory over three competitors. Here is the poem:



You creamery men and dairy men,
I pray you attend a while
Unto these lines that I have penned
For they'll cause you to smile.

Concerning a dairy battle fought
In a Minnesota town
Between the Sharples and three other machines
That are losing their renown.

A Sharples man made statement
In words both loud and tall,
He could cut in two the skim milk test
Of anything in the hall.

The others jumped upon the seats
And said it was not true
And would not stand such gross abuse
From anyone they knew.

They then wrote up a challenge
And sent the Sharples out of hand,
It stated that no such machine
Could before them ever stand.

Our boys smiled and then replied,
"We'll meet you one and all,
And let you know the Sharples
Can drive you to the wall."

The challenge we accepted
And the money they put down,
And we met in deadly conflict
In the creamery of the town.

They call unto their disc machines,
"Exert your skill and try.
Our life, our credit and our cash
On you we do rely."

Then spoke the Sharples boys
In words both loud and high,
"The Sharples, when the test is through,
Is the only machine to buy.

We care not for the brags you make,
We mean to let you know
The Sharples boys are winning cards
Wherever they do go."

With courage bold, undaunted,
The Sharples stood the field,
The skim milk test decided all,
The others were forced to yield.

And when the judges made report
And their report we knew,
The Sharples cut the test of all,
More than two times in two.

With honor now we wear the belt,
The others are beat and down.
They wish they had not met us
In that Minnesota town.

Mr. McNally's enthusiasm can be well understood by reference to the skim milk test as follows:

TUBULAR	.05
U. S.	.125
DE LAVAL	.175
EMPIRE	.450

It should be borne in mind that this contest was run in the presence of, and the results attested, by Robt. Crickmore, A. W. Trow and E. J. Henry, three well known authorities in dairy matters.

Write for Catalog No. 144.

The Sharples Co.,
Canal and Washington Streets,
CHICAGO, ILL.

P. M. Sharples,
West Chester, Pennsylvania,
U. S. A.



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ELMCO Feeds are not cheap feeds in any sense of the word. They are milled for results and only interest feeders who feed for results. The mill offering low priced feed is generally simply offering inferior feed; for it is reasonable to suppose they are asking all they feel it is worth.

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In comparison with feeds analyzed by the Mass. Experiment Station, **ELMCO** Feeds show the following superiority:

CHEMICAL ANALYSIS

	ELMCO Feeds		Other Feeds		ELMCO Superiority	
	Prot.	Fat	Prot.	Fat	Prot.	Fat
Wheat Mid'l Flour	19.38	5.43	18.20	.5	1.18	.43
Wheat Mid'l Standard	20.00	6.15	17.19	.5	2.81	1.15
Mixed Feed	17.90	5.13	16.18	4.5	1.72	1.8
Wheat Bran	16.63	4.78	15.17	4.5	1.46	.28

We trust in your good judgment and discrimination to prefer **ELMCO** Feeds. Ask us for samples and prices. Ask your Banker as to our reliability.

LISTMAN MILL COMPANY,
LA CROSSE, WIS.

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USE FOR MILCH COWS AND FATTENING STOCK.

Superior to corn, oats and hay. Car Lots $20.50; Ton Lots $21.50; Half-Tons $11.50; 500 pounds $6.25; 100 pounds $1.50. Put up in 100-pound sacks f. o. b. Minneapolis. Cash with order.

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NORTHERN LINSEED OIL CO.,

MINNEAPOLIS, MINN.

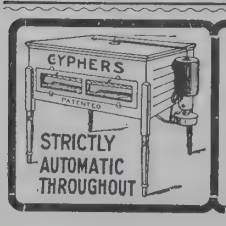
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backed by every dollar we have in the world is made to **you**, personally. It says that **YOU** will hatch a larger percentage of healthy, vigorous chicks, with less oil, less attention, less trouble and more satisfaction, in a genuine, patented

CYPHERS INCUBATOR

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CYPHERS INCUBATOR CO. Buffalo, N.Y., Chicago, Boston, New York.

A Case Where Ignorance is Bliss.

ED. HOARD'S DAIRYMAN:—I have read the DAIRYMAN with great interest and seem to take more interest in it than in any other paper. So I send you this clipping from the *Packer*. I have fed lots of potatoes for the past 3 years and I don't see any bad effects yet. But the *Homestead* had an article saying: "They seem to help the milk flow for a while, then dry the cows." I was much pleased to see Thompson's letter in the *Maine Farmer*, from Ft. Atkinson. I am desirous of building a silo, but I can do pretty well with roots.

Caribou, Me. F E. D

The Packer is a paper published in New York City, and we take the liberty to transfer the entire clipping to our columns as a typical illustration of the ignorance which rules in too many city editorial rooms. It looks very much as though the 'butter experts" were "guying" *The Packer* man and found him an easy subject, both as to the general quality of butter and the deleterious effects of the winter (?)feeding of rape and "silo."

Following is the article with its original scare head lines:

CREAMERYMEN CUT OUT SILO.

AUTHORITIES SAY IT CAUSES POOR QUALITY BUTTER.

WINTER MAKE BUTTER COMING FROM WEST TO NEW YORK THE WORST IN YEARS—BAN PLACED ON SUCH FOODS BY DISTRIBUTERS.

NEW YORK, Jan. 2.—The highly praised rape and other modern concoctions for the feed of beef cattle, milch cows and other live stock it seems, is the direct cause of the poorly flavored butter, which, this winter, is coming from the Western creameries. This *The Packer* man finds is according to the opinions of several butter experts in the New York trade.

There is no going behind the fact that the winter make of butter by the Western creameries this year has been unsatisfactory to the Eastern trade. Beginning with the late fall the receivers in New York began kicking. The stock for the most part sent in here as extras by the creameries whose makes had always gone unquestioned to the city trade fell far below the usual winter grade. These receivers could not account for it, and if it was merely suggested that silo, rape, ensilage or such feed was the cause of the deterioration in the make, they would not listen to it. Not until prodded by the commercial side of the question would they acknowledge that the off quality of the stock was caused by the food given the cows.

Silo is the much vaunted feed for the economical Western dairy men. In one county in Minnesota on 15 farms silo is fed and it is said that next winter the same county will have 30 dairymen feeding silo. Throughout Illinois, Iowa, Wisconsin, Indiana as well as in the Central, Southwestern states silo and rape have lately come to be acknowledged the principal winter food. The agricultural colleges are principally the cause of this.

In the Eastern states, New York for instance, this kind of feed finds little place on the farms of dairymen. The heaviest milk distributers in the United States, a company which is now called the trust, has long ago placed a ban on silo and kindred feeds. This company will not, under any circumstances, handle the product of the silo dairymen. Consequently the growth of the use of such feed has been discouraged in New York which is the largest butter producing state in the United States, save Iowa.

To illustrate the discrimination against silo and silage, the latter a recently coined term for the former, a small advertisement appeared in several up state papers recently It offered dairymen a certain price for their milk and added "no questions asked." The company which placed this advertisement was seeking the patronage of farmers who fed silo and whose milk was rejected by the company whose chemists pronounced milk of silo fed cows unfit to go into the human system.

Silo is a cheap feed. It is composed of fodder originally grown for the purpose. Naturally green corn stalk and other vegetables when packed, its juice brings it into a succulent state and it is relished by the cows. It makes butter fat. So does rape. It also makes cattle fat. So does rape.

Ensilage is made from silo. An Illinois authority in an address at the recent Iowa buttermakers' convention, said that the rape that cows eat does not affect them internally, but that in passing through the field the odor clung to the body of the cow which at times caused such odor to be discernible in the butter. A New Yorker who had read the address and was talking to the *Packer* man of the matter, said he wondered if passing through an onion patch would cause the odor of onions to cling to a person, creating a stronger odor than if the person ate the onions.

The winter make of butter coming to this market has been the poorest in years. Creamery men shipping their stock here under the grade of extras are somewhat surprised when they receive their returns from the dealer who writes them that their stock graded no better than firsts and in many instances seconds.

Receivers here have been besieged for explanations. The makers wanted proof and in every case they got it. In nearly every instance their poor product is caused by rape, silo and ensilage. That is what butter men who have spent 30 and 40 years in the business say, so there must be something in it.

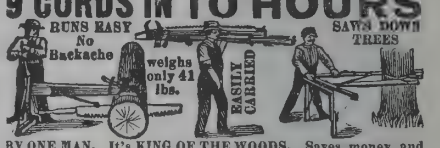


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Makers of Dr. Hess Stock Food.

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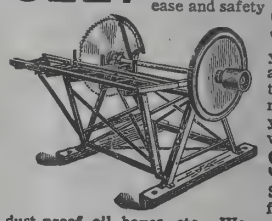
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POWERS
to operate them. Seven sizes. Complete outfit pays for itself in a week's time.



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SMALLEY MFG. CO., Box H Manitowoc, Wis.

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INDIANA SILO CO., ANDERSON, IND.

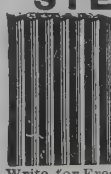


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Buy the one that's built on scientific principles—that silage feeders approve—the **Lansing Tubular.** The one perfect in preserving, most convenient for filling and feeding, we make all sizes. Ask for valuable free book on Silo and Silage making.

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Strictly new, perfect, Semi-Hardened Steel Sheets two feet wide, six feet long. **The best Roofing, Siding or Ceiling you can use.** We furnish nails free and paint roofing, two sides. Comes either flat corrugated or "V" crimped. Delivered free of all charges to all points in U. S. east of Mississippi River and north of Ohio River at **$2.25 PER SQUARE. Prices to other points on application.** A square means 100 square feet.

Write for Free Catalogue No. 20 on material bought from Sheriffs' and Receivers' Sales. **CHICAGO HOUSE WRECKING CO., W. 35th and Iron Sts., Chicago.**

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30 Days Trial.



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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Mr. Wheaton's Canadian Dairy Notes.

The Ontario Dairy Convention—Testing Milk for Adulteration and Impurities—Improvement in Factory Equipment—June Milk and Cheese Quality—Preserving and Transporting Cheese.

Ed. Hoard's Dairyman:—The first of the big Canadian dairy conventions took place at Belleville, Ontario, on Jan. 6-8. It was the twenty-seventh annual gathering of the Dairymen's Association of Eastern Ontario, and was a record one, both as regards the attendance and the interest in the proceedings. Matters of vital importance to the future of the industry were discussed.

President Derbyshire, in his opening address, reviewed the year's business, which had been a most successful one. He estimated that the output of cheese in 1903 would bring into Canada no less than $28,000,000 and of butter $7,000,000. If to these figures is added $16,000,000 for bacon, we have a total of $51,000,000, or $7,000,000 more than in 1902. These are large figures and as contrasted with the total output of only five years ago, show the remarkable development of this, Canada's greatest agricultural, industry in recent years.

The president then touched upon the future. His aim was high. Danish butter is regularly quoted ten shillings higher than Canadian creamery in the British market, and English and Scottish cheese sell regularly eight to ten shillings higher than Canadian. By proper handling of the cows, keeping them in well-ventilated stables with good wholesome food and pure water, and adopting cleanly and careful methods in caring for the milk in making the manufactured article and getting it to the consumer, Mr. Derbyshire claimed that Canada could soon reach the high standard of Danish butter and English cheese.

He strongly deprecated the making of winter cheese. The cheese factory should close the first of November and the winter creamery open, making butter till the following May. This would give a full season of six months for cheese making. This would equalize the product and keep off the market goods that are not strictly fancy.

The dairy cow, her care and feed, was well presented by Mr. Henry Glendinning of Manila, Ont. Economy was the first point to be considered, but not false economy, for the amount of milk depended on the amount and quality of food. The aim should be to induce the cow to eat as much as was healthy. Most farmers, he claimed, underfeed. He recommended the following as a good ration for a dairy cow: Corn ensilage, 40 lbs; clover hay, 10 lbs.; pea meal, 4 lbs. and wheat bran 4 lbs.

Mr. J. A. Ruddick, chief of the Dairy Division, Ottawa, introduced two important matters passed upon at the Ottawa dairy conference last November. One referred to the need of three grades for cheese and butter instead of the two, finest and under finest, that existed at the present time. This would encourage the production of a first-class article and furnish an incentive to the man producing a fine article to do better. There is at present a good deal of difference in the qualities classed as finest, and the producers of the very finest grade do not get all the credit they might. The other matter was that cheese factories and creameries should be placed under a provincial license, in order to insure proper sanitation, drainage, curing-rooms, etc., that would help to enhance the value of the product.



HOLSTEIN BULL, SIR BERYL DE KOL.
Property of Stotler & Wager, Copley, Ohio.



JESSIE VEEMAN, H. F. H. B., 36579.
Property of Stevens Bros., Lacona, N. Y.

A resolution was passed by the convention approving of the principle of licensing cheese and butter factories, and appointing a committee to look into the question during the year and report at the next convention, which will probably be held at Brockville a year hence.

The most important subject discussed was the report of the chief instructor, G. G. Publow, and the work of the syndicate instruction carried on during the past season. Twenty-two syndicates, representing 552 factories, with an instructor over each, had been operated. Each factory paid $15 towards the cost of the instructor, the Association or Government paying the balance. So great had been the demand for instruction that the Association had to go in debt to the tune of about $3,000 to meet it. This deficit will likely be made up by an increased government grant. The work is too important to be neglected because of the lack of funds.

During the season, 3317 visits were made by the instructors and 44,310 tests of milk made for adulteration and 10,693 fermentation tests for tainted milk. Out of the former only 359 adulterated samples were found while 9020 or over 90 per cent of tainted samples were found, thus showing the need of more attention being paid to securing a good flavored milk rather than to adulteration, which does not injure very materially the quality of the product.

There has been a great improvement in factory equipment brought about by the influence of the instructors. Over $43,000 had been expended by 230 factories in this direction. And better results are expected this year. A great deal needs to be done before the factories in Eastern Ontario reach anything like ideal conditions for cheese making. Mr. Publow estimates that not more than 25 per cent of the factories in operation fulfill anything like the conditions required.

There were few complaints during May and June about the milk or the quality of cheese, either. Early in July a bad, acidy flavor was reported from many of the factories. In fact this difficulty became so wide spread as to need special attention from the whole staff for several weeks. Not only was the trouble found in syndicate factories, but in the non-syndicate factories as well.

Samples of the infected cheese, milk, etc. were submitted to Dr. Connell, bacteriologist, Kingston, who also made a thorough investigation of some of the badly infected factories. He reported that the taint caused open, acidy or bitter cheese, at first showing small pin holes which afterwards developed into long slit-like openings, The trouble was not controlled by giving the curd more acid.

Dr. Connell traced the difficulty to yeast germs which grew readily in sour whey, forming a strong gas. He urged a thorough cleansing of all whey tanks, and the sterilizing of all milk cans used for carrying the whey home to the patrons. When this was done the difficulty was brought under control. In some instances this taint developed, where no whey was returned in the cans, but not to so large an extent.

In these cases it was traceable to milk that had been kept over night, under or near trees, the season, seemingly, being favorable for the growth of the yeast germs under these conditions.

Excepting this difficulty, which was very wide spread, during July and August, the cheese made during the season were more uniform and better in quality than ever before. The general defects were in flavor, texture and finish.

The whey tank came in for some consideration. The cement tank, when properly built, was recommended as being most suitable, though it was not so easy to elevate as the wooden one. The iron tank, made on the same principle as a boiler was recommended by Prof. Dean, though its costliness would be a factor against the average factory taking it up. Better milk cans were recommended. The general run of the milk cans used, do not last one season, due to the bad tin used. If patrons would pay a dollar or two more, they would get better value for their money.

The cooling of milk to at least 65 degrees immediately after milking, and stirring at the same time was recommended by all the authorities present. Aeration, as it has been practiced is not effective. Cooling the milk, and while this is being done, stir well, will give better results. The plan recommended was to place the can in a tank with iced water around it, and after the proper temperature had been reached, cover the can and place in a cool, clean place to keep, or leave it in the tank if the surroundings are favorable.

The preservation and transportation side of the business was dealt with by Mr. Ruddick. More attention must be given to preserving butter in a cool condition till it reaches the consumer. Many creameries do not pay enough attention to cooling butter before it is shipped.

At the cool-curing stations there had been a saving in shrinkage of 1.52 per cent in 1902, on cheese cured at about 55°, as compared with cheese at the ordinary curing-room temperature, and 1.23 per cent in 1903. This meant many dollars in the pockets of the patrons. Besides there was a great improvement in the quality of the product. Paraffining cheese had been found advantageous, though the old country dealer objected to it as he claimed cheese so treated shrunk more after they were cut up than cheese not paraffined. Mr. Ruddick showed that there was little ground for this claim.

Prof. Dean emphasized the need for makers making up their own cheese boxes. It would cost less and a better box could be secured. The material could be bought in a "knocked down" form and brought to the factory at much less cost for freight.

The butter making branch received scant attention. A well thought out address on the subject was given by Supt. Mitchell of the Kingston Dairy School on the last day. Aside from this the subject was rather side-tracked. This should not be. Though cheese is king in Eastern Ontario there is room for a good butter business also and the dairymen of that district would do well to have more than one string to their bow.

The officers for 1904, with one or two minor changes are tbe same as for last year. Mr. Derbyshire is again president.

Toronto, Canada. J. W. Wheaton.

Education and the Hired Man.

Ed. Hoard's Dairyman:—I notice in the Dairyman of Jan. 8, that John Gould has noted and commented that the introduction of the trolley, telephone and rural mail delivery has not solved the question of giving us farmers the laborers we need to do our work. To my mind this trolley-telephone-R. F. D. idea has always been a fool one, exploited by the city newspapers and little politicians in their endeavor to talk wisely on something they know nothing about. These organs are constantly telling us how prosperous we country people are, what a fine time we are having, what a lot of pure air we have to breathe and fine fresh water to drink; how a few cents per bushel on the price of our grain has made so many millions of rural wealth. One little politician in this state who is supposed to be in the line of agricultural education, a short time ago, puffed himself up and boasted that the cows of Pennsylvania made 140 lbs. of butter each a year and brought us farmers about 28 millions of dollars.

They tell us what a great privilege it is to hello over a phone to the banker to know if that note is due today or tomorrow, to call up the railroad agent and ask him what the exact time is, or "call down" some facetious neighbor who wants to know "How's crops?"

Just what interest the hired man may have in this telephonic performance I have failed to observe, and how we are going to keep the boys on the farm by allowing them to hello to their girls, with all the other girls along the wire listening, is outside my ken. Country boys have no kidney for telephone courting.

The trolley that carries you away to the town or city is not keeping anyone on the farm unless he can't raise the

price of a ride; and the circulars and the great dailies the R. F. D. man stuffs in the box have never brought content to a discontented home.

I am not decrying any of the good of any of these. They are great conveniences and add to the comfort of living. But I am discounting the arrogant idea the city puts forth, that people do not stay in the country because it is isolated from town—that is the country's one greatest charm for me; and while I would enjoy a few city things I cannot have in the country, I miss a hundred evil things of the city no well balanced country man would want.

FALSE EDUCATION.

We need not burn our school houses, for the depopulation of the rural districts is not due to education, but to the quality of it. We have never to my knowledge, educated in any direction except away from the farm. The country girls and boys have no thought drilled into them that is opposed to measuring success by any other standard than one of money. The man with a soul no bigger than a pressed autumn leaf in an old arithmetic is held up to them as the great and successful man if he has money and—great heavens! he may even be president of a bank or have stock in a trust!

Then these youngsters are imbued with the idea that they can get an education by attending a school or college a few years, and that with the commencement the process is finished. They are rarely, seriously told that one's education runs through life. Why, there are a hundred chances to become a farmer or a dairyman or a fruit grower, or a poultry man in six weeks, and I read the other day something about making farmers' institute lecturers by some instantaneous process. It is true that a great many of those being inflicted on the farmers now, should be made over somehow. Wonder if they could be born again?

THE WAGES.

Some man at the Missouri State Dairy Meeting said he had no trouble keeping hands by simply working on the old fashioned Golden Rule. Few men get rich on that rule, so it is very inoperative in these times of greed.

The farmer's sons and the men who would hire on the farms usually have nothing to depend upon but the selling of their labor, and they take it to the towns and cities and sell it to the trusts and combinations and infant industries we farmers have protected so jealously for so many years so they can pay two or three times the wages the farm can afford. The labor question is one of much wider ramification than the little scope of the trolley, the phone, the R. F. D. and the short course. The laborer only sees the work he has to sell and naturally takes it to the best market. He is not much interested in bulwarking the country home as the defense of the civic life of the nation. There is not much visible cash in that sort of thing and we must get money. F. W. MCSPARRAN.

Penn.

Notes from New York.

ED. HOARD'S DAIRYMAN:—At Rouse's Point in Northern New York, while waiting for a train, I sauntered out to find a dairy farmer, for it is seldom that one talks long with a progressive dairyman without learning something. I found my man, and before leaving him he volunteered the information that all he knew about correct feeding he had learned from reading HOARD'S DAIRYMAN.

Mr. Fairbanks has a fine farm. It is level land or slightly rolling, lying within the plains about Lake Champlain—a limestone soil, where clover grows quite naturally, and which is good grain and grass land. Although the climate is perhaps a little cool, I judge that here is a very good section for dairying. Comparatively few dairies are kept, however, and the sale of hay and grain are depended upon quite largely for money crops. Mr. Fairbanks believes in the dairy and in dairying, as the best means of bringing back the soil to its original fertile condition.

This is a region for which nature has done much. Level land, easily worked, a good soil which is furnished bountifully with the elements of fertility, including a good supply of humus, are conditions that a good farmer appreciates.

From my observations, I judge that the average farmer has not dealt so generously with his land as the Lord did. The farmer has taken off crops for many years for which he has secured cash returns, and has apparently paid but little back to the land. Occasionally a farmer, like the one mentioned in this article, sees the need and is applying the remedy, and the result is profit to himself.

Land is held at a good price, the best, under favorable circumstances being considered worth $50 to $60 per acre. There are instances here as elsewhere, that a sum considerably below the highest figure would take the land. Hired help is as scarce as in other sections, and some who want to be relieved of the burden, would be tempted by a moderate offer.

***

At a farmers' institute held at Afton, N. Y., under the appointment of F. E. Dawley, Mr. Van Wagenen discussed the "Evolution of the Dairy Cow." He traced the history of the cow from her wild state to her present condition. He showed how different conditions of soil and climate have, in different localities, produced such widely different types. In a cold climate a long-haired animal is found; in places where wild animals threaten, a small, swift runner develops; where there is scanty vegetation. a small animal, capable of subsisting on less food, is the one that survives.

Then he traced man's influence, showing how, by selection, he breeds animals true to one peculiar marking or another, such as the belted cattle, the fawn colored, or black animal with a white head; or, a class of animals that lay on great depths of flesh along the spinal column, where flesh sells at the highest price, and another that puts fat on the ribs. There is another that instead of fat and flesh on the body, puts the fat into milk with the result of producing an enormous quantity. Mr. Van Wagenen insists that you cannot put all of these qualities into one animal, nor any two of them to good advantage. Select the quality for which you wish to work and make the most of it. H. H. LYON.

New York.

Cows Compared.

Something over 18 months ago we built a co-operative creamery here. Nearly all the patrons had dual-purpose cows, and for the benefit of those interested in dairying I will give the figures from our creamery books showing how the milk yield, butter test and cost returns stand for the 10 months ending with October, 1903.

First, I give the returns from 3 strictly dairy bred cows, one 2 years, one 3 years and one 9 years old. Butter test averaged a little over 5.1 per cent. Milk yield, 9,546 lbs.; cash received, $104.06; average per cow, $34.68.

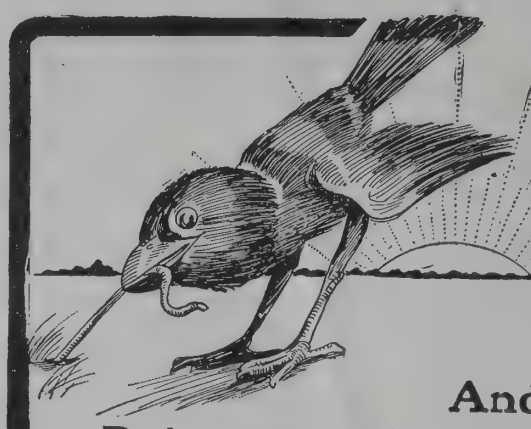
Second. Dual-purpose cows, 7 of them and the record is for six months: Butter test, 3.7%; milk yield, 13,839 lbs.: cash returns, $104.96; average per cow, $14.99. This report is for May, June, July, August, September and October.

Third. Dual-purpose cows, 9 of them for 10 months. Average test, 3.8; milk yield, 22,329 lbs.; cash returns, $185.44; about $20.60 per cow.

Fourth. Dual-purpose cows, 8 of them for 10 months: Average test, 3.7; milk yield, 19,849 lbs.; cash returns, $156.56, or $19.57 per cow.

The returns for the 3 dairy bred cows for the 6 months reported in the second case was as follows: Test, 5 per cent; milk yield, 7,267 lbs.; cash returns, $75.14; average per cow for the 6 months, $24.04.

None of herds included in this report were given the care and treatment they should have had, and experience made it apparent that we must breed better, feed better, and provide more pastures for our cows before we can get returns that will prove highly profitable. Too many poor dairy cows, on too poor pastures and given improper care, will keep the balance on the wrong side of the ledger.—E. V. N. in *Farm, Stock and Home.*



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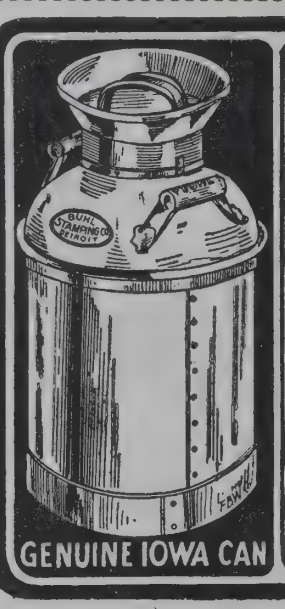
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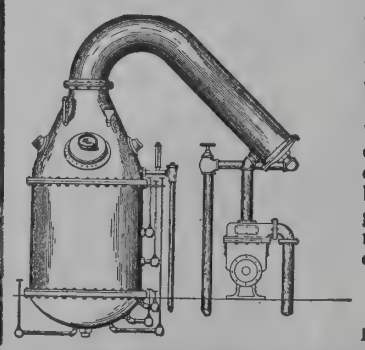


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Report of the Vermont Dairymen's Convention.

[Continued from page 1142.]

WEDNESDAY FORENOON.

ED. HOARD'S DAIRYMAN:—This was the great day of the convention. There was an excellent program well carried out. The hall was filled with attentive and appreciative listeners.

The first speaker was M. A. Adams, of Derby, the manager of a co-operative creamery, and his subject was the "Organizing and Maintaining of a Successful Co-operative Creamery." He appeared to be highly in favor of this method of buttermaking, believing that farmers get good returns from it. But to be the most successful it must be well managed, from beginning to finish. There must be hearty co-operation among those interested, all working together for the general good.

The conditions must be of the best and all things faithfully and ably carried out. There should be suitable buildings, well equipped with all necessary appliances, a competent buttermaker and manager. As the buttermaker usually has enough to do with his work, the office of manager should be separate, and as much of success depends on how the affairs are conducted, a man of ability should occupy this position.

The last speaker of the forenoon was Ex-Gov. Hoard. He has been before a Vermont audience so many times that there was scarcely a necessity for an introduction. He is always sure of a hearty welcome from the dairymen of the state, and finds no difficulty in making himself at home with them, and always appears to be in his element whenever he can give them a word of help and cheer.

He occupied the remaining hour of the session with a most interesting talk on various topics, as no particular subject had been assigned him at this time, and he did not need any.

He referred with much modest pride to the condition of agricultural affairs in his home county, and well he might, for it is such as should or might well commend itself to any part of the country.

He dwelt upon the importance of the better education of farmers in that which pertained to their occupation. He considered it a fact that many farmers were not as good dairymen as they were before the advent of creameries, and that this should be remedied in some measure by making the creamery an institution of education, where farmers could learn the more recent and best ideas in regard to dairying.

Farmers should keep well informed in relation to their business by more study and observation, using their brains as well as their hands in their occupation. "The farmer should be bigger than his farm." True!

He spoke of the superiority of German over American farmers, which was due to the fact that they were taught by their government how to farm. He deplored the fact that in by far too large a part of this country, the soil is deteriorating in its productive capacity and consequent value. He thought this should not be, and strongly advised the raising of more clover as a renovator of the soil, and the producer of a larger amount of forage. This able and timely address completed the exercises of the forenoon, and the farmers went their way to further consider the matters brought to their attention during the session.

After a good dinner the audience came together at 2 o'clock to enjoy a session devoted to an experience meeting; the exercises being in the form of ten-minute talks interspersed with discussions.

The President first called on J. Moldenhawer, from Canton, Ohio, who spoke briefly on the "City Milk Supply." He spoke of the importance and value of pasteurizing milk and cream for the markets. This helps to improve the quality of these products in several ways, and he thought was destined to be brought quite generally into use. In Denmark there is a law compelling the pasteurizing of milk for calves and pigs to prevent the spread of tuberculosis, and at the West the practice has already commenced and other parts of the country must follow, if they are to keep up with new methods of improvement. The pasteurized product is considered to be more healthful and of a uniform quality.

Henry VanDresser, of Cobbleskill, New York, a most successful poultry raiser, followed with an interesting and instructive talk on poultry raising as an adjunct to the dairy. He spoke of the importance of securing the best breeds for eggs for the table, and of caring for them in the best manner. Not much of success can be expected without attention to the details of the business, but with this it can be made very profitable. Dairying and the keeping of poultry go well together, and on the smaller farms should be more generally followed. The gentleman spoke very earnestly and enthusiastically upon this subject, and was listened to with interest and attention.

Next in order was Hon. H. C. Adams, M. C., of Madison, Wis., and his subject, "Co-operation of Butter Makers."

As there is so much of co-operation in other occupations and in the commercial business of the country, he thought it of importance that butter makers should fall into line. These men need to get together and talk over their affairs and make a pool of ideas. Each butter maker should know all that the others know in order that they may become the most proficient in their business—indeed, so proficient that oleomargarine may be swept from the country. This gentleman was listened to with much attention, and hereafter Vermont farmers will have an increased regard for a certain product of the noble state of Wisconsin, its able men that somehow find their way even to the little Green Mountain state.

Next on the program came a genuine Vermonter, C. F. Smith of Morrisville. His subject was "Forage Crops for Use When Pastures are Dry."

Mr. Smith is a large grower of clover and so of course he recommends that, and corn, but all things considered he gave the preference to the summer silo for use when the pasture grasses begin to fail. This is ahead of anything he has yet tried. He gave quite an interesting account of how he utilized last season a huge growth of weeds, that took possession of a field during the wet, unfavorable season, by putting them into the silo. There was a heavy crop and he had been feeding this kind of silage for several weeks with very good results.

He would not recommend this crop for forage, but as a last resort he thought it was quite a success, as it was much better than no crop at all.

President Aitken gave a short talk on the "Breeding of Stock," a subject which he is well qualified for treating. He thought there should be more competition among cattle breeders with a view of the greatest improvement. We should endeavor in all ways to keep the standard of improvement and excellence well up, ever making progress ahead.

Ex-Gov. Hoard followed with an interesting talk in which he suggested the idea

(Continued on page 1164)

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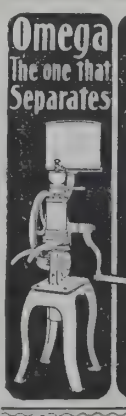
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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of them read dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

AS IT IS IN INDIANA.

C. P. Goodrich took a cow census at Plymouth, Ind., a few weeks since of 50 farmers patrons of a creamery. Note the following facts: The total number of cows was 250: the average cost of keeping per cow was $24.96; the average returns in butter fat per cow was $32.20; the average number of pounds of butter fat per cow was only 166; the average net price was 19.4 cents: the average net profit per cow above cost of feed was $7.24; the average returns for $1 worth of fead was $1.29. The six patrons who read a dairy paper averaged $21 per cow over and above the cost of feed, while the 44 who did not read a dairy paper received only $5.58 per cow above the cost of feed. Does it pay to go without sound dairy reading?

COMING EVENTS.

Massachusetts Creamery Association, Greenfield.

Wisconsin Buttermakers' Meeting, Eau Claire, Feb. 2-4, 1904.

Wisconsin Dairymen's Convention at Platteville, Feb. 10–12, 1904.

THE DAIRY SIDE OF IT.

An inquirer asked Prof. Shaw of the St. Paul *Farmer* "what breed of a bull would you advise me to use on my scrub cows to get good milkers in Minnesota?"

True to his beefy, dual-purpose tendencies, the Professor advises him to use a Red-Poll, Short-horn or Brown Swiss bull, thus ignoring all that the world has accomplished in the past five hundred years in the way of developing cattle of specific dairy capacity. Mr. W. F. Schilling, editor of the Northfield, Minn. *News*, made a column of very pertinent comment on such unscientific as well as ill-judged advice. One paragraph of Mr. Schilling's article shows up the inconsistency of this dual-purpose advice. It is as follows:

"Suppose this same farmer should have asked the question: "What breed should I select if I wish to raise beef cattle?" Professor Shaw would have answered him by saying Short-horns or some other beef breed. People are very likely to get mixed in this kind of information and there should be a line drawn somewhere. The breeding of a herd should not be guess work. If a person is breeding for all beef or all milk, he certainly finds many difficulties, but when he is breeding for milk and beef together, he is up against the real thing."

Great is dual-purpose.

KEEPING TAB ON THE COWS.

Many of our readers will remember the interesting articles contributed last spring to these columns by Mr. A. J. Glover B. A., who has been making an investigation of various herds of cows in Illinois under the direction of the College of Agriculture of that state. Mr. Glover gave our readers many of the results of these investigation which were made on the same lines as the cow census reports we have repeatedly given. His work has been condensed in a bulletin. One of his deductions will fit right in here very well. He says:

"Some of the herds returned their owners a good profit, others a small profit, and one herd was kept at a loss. Six out of the eight herds contained cows that did not pay for the feed they consumed.

"In estimating the profit or loss on a cow, it was estimated that a calf paid for her keep while dry and that the skim milk paid for labor. The cow that yielded the largest product gave 8,949 pounds of milk, and made 472 pounds of butter. The poorest cow produced 1,482 pounds of milk, 68 pounds of butter; and the average production for all the herds, except Gurler's (D) was 4,721 pounds of milk, 3.67 per cent fat, 173 pounds of butter fat, and 202 pounds of butter. The most profitable cow gave a net profit of $57.22 and the poorest cow was kept at an actual loss of $17.83; the average net profit was $9.40 per cow.

These facts and figures do not need much comment from us. We will simply say that the profitable cows were found in the hands of men who give thought and study to the business, the unprofitable ones were owned by men who don't believe it pays for a farmer to make an effort to be a well posted, intelligent man. That is the situation all over the land. Wherever we have taken a "Cow Census" it has been the same; poor cows, poor returns, and ignorance have gone together. How some men do love to work for nothing and board themselves.

NOTES ON ALFALFA.

F. E. Dawley, of Fayetteville, N. Y., who is at the head of the Bureau of Farm Institutes of that state, has made a pronounced success in growing alfalfa, as also have a large number of other farmers in that portion of New York. In a letter to us under date of Oct. 8, Mr. Dawley says:

"There is no doubt at all in my mind but it (alfalfa and corn ensilage) is the ideal economical ration for dairy cows. We are getting our feed bills down next to nothing and find that with the use of just a small quantity of distillers grain with a little oil meal, we can get fully as much milk as we used to get with the high grain rations which we fed, and milk too, which tests high in butter fats. It is an actual fact that hundreds of farmers in this section of Onondaga county are getting rich making milk for the creamery here."

It was in this portion of Onondaga county that Mr. Jenkins took a cow census for HOARD'S DAIRYMAN of 80 creamery patrons, one-half of whom fed alfalfa and the other half did not. It will be remembered that the net profit of the alfalfa feeders per cow, was nearly eleven dollars greater.

W. S. Downs, of Derby, Conn., writes concerning his experience with alfalfa which has not been very satisfactory. He took an acre of river bottom, ten to twelve feet above water and gave it a dressing of eight barrels ot slacked lime and sowed 30 lbs. of seed on it. A forty days drouth came immediately after sowing. When the rains came it started and so did the weeds. He cut it three times during the summer and now he has from a quarter to a third of a stand. Some of the roots made a foot or more of growth. He asks: "What shall I do with it next spring? Shall I scratch it over with a weeder and sow on some more seed or plow it all and re-seed? I can give it 25 or 30 bushels of wood ashes." He states that he finds the nitrogen tubercles starting on the roots of the young plants. This is evidence sufficient in our mind that he does not need to inoculate the soil with soil from other alfalfa fields.

Answering his questions, we would say that it is a little difficult for us to advise as to whether he should retain the old seeding or plow up and re-seed. If he allows the seeding to stand, it will continue to improve and increase for three years. If he plows it up and re-seed, it may prove much the best thing to do. We rather incline to the latter course. The wood ashes are a splendid thing for this plant. Seeding with alfalfa in this latitude should always be done in early spring so as to give the plants a chance to make all the root growth before winter that they possibly can. We believe his repeated cutting did the plants great harm.

Advices from Colorado state that the price of first-class seed has gone up nearly five cents a pound above the price a year ago. The dealers in Greeley, Colo., are asking 16½ cents a pound. Several thousand pounds of German seed has been imported into Colorado in the past few months.

Whenever it is practicable, we would advise growers to use northern grown seed as much as possible. We hope none of our readers will fail to make a trial of this splendid forage plant, because of the high price of the seed.

Every farmer should select a good, fertile, well drained piece of ground, not less than an acre or two, fit it carefully and sow not less than 25 pounds of seed. It is a most excellent thing to dress the land just before sowing with 30 to 50 bushels of wood ashes, or 300 lbs. of muriate of potash. Let every one give it a trial; if they fail, try again.

A CONTRAST.

The great, central purpose of all farming should be to preserve and increase the fertility of the soil. If, in the practice of an individual or community, this purpose is lacking, then we have a right to indict such practice and say it is not true farming, but soil robbing. We believe it fair to say that no man can call himself a farmer in the true sense of the word, unless his practice results in a constant increase of the productive power of his farm. In that very interesting address, "The Influence of the Monks in Agriculture," by Dr. Henry Goodell, President of the Massachusetts Agricultural College, a very instructive account is given of the wonderful results wrought by the Catholic Monks of England in the early centuries, in improving the soil. He says:

"The half at least of broad Northumberland, covering an area of about two thousand square miles, was lost in sandy plains and barren heaths; the half at least of East Anglia and a considerable part of Mercia were covered with marshes difficult of access. Yet in both these regions the monks substituted for these uninhabitable deserts, fat pasturage and abundant harvests. The latter district, the present name of which (the Fens) alone recalls the marshy and unwholesome nature of the soil, became the principal theater of the triumphs of agricultural industry, performed by monks. Medehampstead (now Peterborough), Ely, Crayland, Thorney (now Southampton), Ramsay were the first battle-fields of these conquerors of nature, these monks who made themselves plowmen, breeders and keepers of stock, and were the true fathers of English agriculture, which, thanks to their traditions and example, has become the first agriculture in the world."

That is a noble and impressive picture. It satisfies the heart and brain in the measure of what constitutes true farming. These toiling monks were "conquerors of nature," not robbers of nature. Nay, more than that, they took poor, infertile soil and made it fertile, to the blessing of all subsequent generations. And these monks lived in what are called the "dark ages."

Contrast this impressive picture with the effect of the march of the American bred farmer across the western continent, from the Atlantic ocean toward the Pacific. He has made this march in the full blaze of all the knowledge of these last centuries. He has been greeted with a soil wonderfully endowed with native fertility.

Yet every step of his way has been marked with a destruction of fertility. From the New England States, through New York, Ohio, Indiana to the rich prairies of Illinois, his progress has been one of soil robbing and final decline in the values of farm lands. Why is this thus?

We believe it is because the American farmer has refused to make an earnest soil student of himself. He has been of a different order of mind from the old monks. They gladly hailed knowledge and every aid that study and thought could bring them. The American farmer for years has contemned the idea of making a scientific study of farming. His constant sneer against so called "book farming" was only another plea that it is better to remain in ignorance. And so the land has suffered at his hands. The monks had no books, but they were profound students; they farmed with their minds. They constantly thought and wrote and talked on agriculture. They guarded well the fertility of their lands and held up the doctrine that it is the bounden duty of the farmer to so farm as to increase it.

Mark the difference that has been wrought in the destinies of a country by these two systems of proceedure. One was the product of thought; the other is the effect of despising thought, and living for to-day only. The American farmer has said in effect: "What care I for preserving fertility. When this farm is worn out I'll go west and wear out an other farm." And he has so educated himself and his sons.

But, thank Heaven, a change has set in and he is coming to see the use and value to himself and his calling of study, of schools, of books and papers and all that shall aid in enlightening the mind.

A VERY PREGNANT QUESTION.

HOARD'S DAIRYMAN has always opposed the idea of dairy farmers putting themselves to the expense of doing dairy work on the farm with the dual-purpose cow. We have opposed the dual cow because of two things: (1) She is not a profitable kind of cow to do dairy business with as compared with the special-purpose cow. (2) Let a farmer once get the dual-purpose idea in his head and that is the end to all progress in the way of breeding for any improvement in the dairy quality of his cattle.

The very trenchant and suggestive communication found on page 1173 of this issue, under the head of "Agricultural Education in Iowa," should be read and pondered long by every one who is capable of tracing results to their cause. We esteem the Agricultural press of Iowa and the teachers in her splendid agricultural college very highly. But what has been and what will be the effect of their constant teaching of this "dual-purpose idea" on the dairy industry of Iowa? Men in high places are justly held responsible for the tendencies of their teachings, whether they like or not. The dairy industry of Iowa is languishing, because of the great economic fact that the cows that the Iowa farmers have been taught to breed, are not profitable milk producers. Beef has taken a slump, and the more meat this dual-purpose cow produces the worse off is her owner.

What the Iowa farmers and creameries want, to make them prosperous, is lots of milk from cows that will yield milk prof-

itably, even at prices for butter much below the present.

The only kind of cows that will do this, as a rule, are the cows that are bred especially for milk giving. Even at that, there will be fully enough poor ones to bring down the profits all we can bear. But what is to be the condition of the farmer who goes to the expense of stabling, feeding and caring for cows, as well as the expense of transporting their milk to the creamery, to find that he has a class of cows unfit for the business?

And what answer will the men make who have taught him, and encouraged him to buy beefy bulls to breed such cows from? It is always a dangerous thing to juggle with fixed principles. It may be quite convenient at times to say that twice two are three or five, but when we come out at the end of the column, we find our punishment for such trifling.

If the Iowa farmers expect to continue in the business of dairying, they must revise their ideas of the dairy cow. They must get rid of the notion that beef and milk can be bred, with any profitable certainty, into the same animal, for she will "mock when their fear cometh."

The DAIRYMAN has stood firmly by what it believed to be the fixed principle of animal function and breeding. Possibly it might have had a few more subscribers in Iowa and some other of the beef states, if it had gone in for the "dual-purpose idea." But that would have been a clear case of misleading. Nothing makes such close joints as the truth, and this is especially true in the art of successful dairy farming.

MISTAKES IN A BARN PLAN.

Mr. Thomas Barr, of Kewaunee county, Wisconsin, intends to build a barn in the spring. He sends us a plan of the basement stable, and writes as follows: "If there are mistakes in the plan, please mention them in your paper."

The plan shows a proposed structure 110 feet long by 46 feet wide, with ends to the east and west. The basement is to be stone walls, 2 feet in thickness, with five windows, each 4 feet long by 2½ feet high, on the south side, 2 on the east end, and some (number yet uncertain) on the north and west. Ventilation has not been forgotten, for some advice in that respect is requested.

Commencing at the northwest corner, the plan shows a silo 12×14 feet inside, then a vacant space of 14 feet, and then a row of nine box stalls, each 8×11½ feet. In front of these box stalls is a feeding alley, 5 feet wide, then a 5½ feet platform, 90 feet long, for cows, with a 3 feet passage or walk between it and the east end of stable. Next to this platform is a space 10 feet wide for gutters and driveway, with double doors at either end. In the southeast corner it is proposed to partition off a milk room 8×10 feet, and west of this, along the south side is a vacant space, 10 feet wide and 66 feet long, intended possibly for young stock. There is then left 30 feet in length by 10 feet in width in the southwest corner which is divided into 6 horse stalls.

In our judgment, it is a serious mistake to build a barn 46 feet wide. It cannot be arranged so as to be convenient, or to utilize all the space to good advantage. We consider 38 feet the extreme limit for width, after allowing four feet for the walls. This would give 34 feet in the clear, unless we allow three inches on either side for lining the walls with boards, which is something that ought to be done to promote warmth and comfort for stock. We would then apportion this space as follows: 4 feet on either side for feeding alleys, 2 feet for mangers, 5 feet for standing platforms for cows, 1½ feet for gutters, and 8½ feet for central driveway.

If we were planning a stable for 30 cows, and the usual complement of young stock, we would expect it to be from 80 to 90 feet long, but only 45 to 50 feet spaced as above for cows, the balance being required for box stalls, young stock, feed bins, stairway, etc., and would attach a wing or ell, at the southwest corner for horses. We would locate the silo outside the stable, and preferably on the north side, and would have it not less than 16 feet square on the inside, without cut off corners. The bottom of the silo may be 4 feet below the level of the feeding floor of the stable.

The second important mistake in this plan is the limited number of windows. Windows should not be more than 6 feet apart, and if these intervals were reduced to 3 feet, it would be still better.

In order to secure proper ventilation, build one large flue, at least three feet square on the inside, outside and in the angle where the wing or ell for horses joins the main barn. This may be built of brick, like a chimney, or of lumber, if made practically wind proof, and should extend a little higher than the ridge of the barn. Make a full sized opening at the bottom to draw off the cold and foul air in winter, and another at the top of the stable to let the heated air of summer escape, with doors or slides, so that either opening can be closed at will.

For the admission of fresh air, there must be several small flues, built in the walls. These flues must open inwardly just below the ceiling, or floor above the stable, and outwardly from three to six feet lower down. Constructed in this way, the warm air of the stable will not escape through these flues, but fresh air from the outside will come in, mingle with the warm air at the top and gradually fall down to where the cows stand, to take the place of the cold and foul air, which is drawn off by the large flue.

GLEANINGS OF DAIRY WISDOM.

CLEAN MILK AT THE CREAMERY.

Some improvement in the grade of milk delivered at the creamery has been made during the last ten or fifteen years, as a result of the diffusion of information as to the relationship between dirt and dollars. PROF. J. L. HILLS.

Vermont Experiment Station.

That is a pithy way of putting the question: the relation between dirt and dollars. A farmer brings in dirty milk and does not know that such milk knocks him and his brother patrons out of dollars, and the rest of the patrons do not realize their own loss sufficiently to rise up and demand of the buttermaker that he forbid the taking in of such milk. They are being robbed by the dirty carelessness of other patrons and swallow it all without a wink. That is the situation at hundreds of creameries. Payment by the Babcock test is not enough says Prof. Hills. There ought to be a payment by the dirt test.

BREEDING DAIRY COWS.

"It easier for water to flow down than be forced up. It is easier to breed down, than up. The grade bull is a curse to the dairy interest. You do not know whether his stock will take back to the Jersey or Holstein, or to the common scrub, from which he sprung. The sire is half of the reproducing power of the herd, and has the power to improve or injure to that extent, everything else being equal." F. C. BRONSON.

In the above short statement, Mr. Bronson shows why so many farmers breed down their herds instead of breeding them up. It is for the same reason water runs down hill—it is easier. It is cheaper and easier to buy a grade bull than a registered one. Last summer a dairy farmer near this city showed us a badly shaped grade bull, which he said he was going to use on his herd. He was not after good cows as was evident, by the character of the bull. A Jew asked a railroad ticket agent for a ticket to Springfield. "Springfield, Ohio; or Springfield, Massachusetts?" said the agent. "Vich is der sheepest?" replied the Jew. Cheapness is the principle reason that governs in the purchase of bulls with very many farmers. It is a question of sowing seed. Does it pay to plant poor seed?

STRONG WOMEN VS. STRONG BUTTER.

They tell a story in Vermont about a certain women who was so strong that she used to give her husband a good trouncing occasionally. One day their little boy being questioned by a neighbor, said: "Oh yes, mother is stronger than father; she can take him down and keep him down. But she bought some butter at old Thompson's the other day, that was stronger than she was; she could take it down, but she couldn't keep it down."

WARMTH IN THE STABLE.

"Who has been able to ascertain correctly the proper temperature for dairy cows? High temperatures are milk producing in spring and summer—that is 70°. In the winter we have come to think 50° is high. While I do not absolutely know, I feel confident from experience, that the highest temperature obtainable—*carrying with it pure air*, will be a safe working rule, which in our stable is 54° to 60°.

H. E. COOK.

THE CREAMERY AN EDUCATIONAL CENTER.

There are several movements that ought to radiate from the creameries; co-operative breeding associations with the purpose of buying pure-bred bulls for service on the best cows; co-operative egg-collecting associations where eggs are paid for according to quality and put in cold storage at once; co-operative ice houses and possibly co-operative laundries.

Now as to your own mind improvement, I strongly urge you to read at least two good dairy papers and one good agricultural paper, as well as the standard works on dairying. J. H. MONRAD.

The last paragraph of the above excellent advice reminds us of a letter we received a few months since from a Maine farmer. He said that he had struggled along for 20 years without any improvement in his fortune, but within three years after he commenced to feed his own mind with good dairy reading, his cows went up from 3,200 lbs. of milk annually to nearly 5,000 lbs. "I tell you," he said, "there is a money value to it."

THE KIND OF DAIRY COWS WANTED.

"It is the herd of special-purpose dairy cows we want and not the herd kept to furnish chores for the owner or hired man * * * Dairy type is not an accident; it is not something that just happened. There are good reasons for every point of make up. It is advisable that every one engaged in dairying should procure a pure blooded sire.

M. L. THOMAS.

Annual Meeting of the Eastern Guernsey Breeders' Association.

ED. HOARD'S DAIRYMAN:—The annnal meeting of the Eastern Guernsey Breeders' Association was held at the Continental Hotel, Philadelphia, on January 7th, 1904.

First vice-president, E. T. Gill, occupied the chair and called the meeting to order. The secretary being absent, S. I. Murphy acted. Eighteen members responded to the roll call. The following names were proposed for membership: A. C. Gardiner, Mullica Hill, N. J.; Roy L. Smith, Wawa, Pa.; Francis Edward Bond, Penllyn, Pa.; Fred Barclay, Haverford, Pa.

All the names proposed at the previous meeting were approved by the membership committee and were elected.

The new officers for the year 1904 were then chosen, the result being as follows: President, Hon. E. T. Gill, Haddenfield, N. J.; 1st Vice Pres., Geo. Wood, Philadelphia, Pa.; 2nd. Vice Pres., Edward T. Price, Broad Axe, Pa.; Secretary and Treasurer, M. M. Hollingsworth, Landenburg, Pa.; Executive Committee, J. L. McCormick, Bel Air, Md., S. I. Murphy, Woodbine, Pa., Ezra Michener Michener, Pa.; Committee on Membership, John Tyler, Salem, N. J., Dr. C. M. Settyer, Philadelphia, Pa; E. J. Hollingsworth, Landenburg, Pa.

Under new business, the question of changing the Constitution, limiting the number of members to fifty was considered, and after some discussion a resolution to that effect was adopted by the meeting.

The By-Laws were amended, so that a member ceasing to be an owner or a breeder of Guernseys, or ceasing to have the charge or management of a Guernsey herd, or who absents himself from three consecutive meetings without a reasonable explanation, shall forfeit his membership in the Association.

Dr. E. B. Voorhees, Director of the New Jersey Experiment Station read a highly interesting and carefully prepared paper on "What the Guernseys have Demonstrated in Public and Official Tests." At the request of the members, Dr. Voorhees consented to allow the paper to be published in pamphlet form after he has had time to add to it such data as will bring it up-to-date.

Lunch was served in a private dining room of the Continental, after which the meeting adjourned.

M. M. HOLLINGSWORTH, Sec.
Landenburg, Pa.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain sepecific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Oil Meal or Ground Flax Seed.

Would you advise feeding, say 10 per cent of ground flax seed for dairy cows? M. E. R.
Muncy. Pa.

See answer to a similar inquiry on page 1135.

A Minnesota Ration.

Will you please form a ration from the following: I have corn ensilage with considerable corn in it, good clover hay except little overripe, corn worth 35 cents, can grind corn and cob myself; oats, 30 cents; bran, $14; oil meal, $25.

I am now feeding ensilage morning and night about 40 to 50 lbs. to each cow, according to the milk she gives, and what hay they will eat, and 1 lb. of bran for each 3 lbs. of milk the cow gives. Some cows were fresh in September, and give only about 16 to 18 lbs. of milk a day. One was fresh two months ago, and has given about 34 lbs. a day. What effect has it on a cow to try and milk a little before she comes in. I have one that the children had stripped a little on the two right teats, and when she came in she gave more milk on those than the other teats.

Stewartville, Minn. SUBSCRIBER.

We do not see how the present style of feeding can be improved upon, as bran at $14 is cheaper than oats at $18.75, and there is undoubtedly as much corn in the silage as can be profitably fed. The only point that occurs to us that may possibly have been overlooked, is the item of salt. It is too much the habit of the dairymen to give salt not oftener than twice a week, whereas it should be given daily at least, or better twice a day. Salt aids digestion and assimilation, besides being an appetizer and stimulant to more liberal drinking.

It is quite possible that the gentle massage of teats and udder may have induced an increased flow of blood to those parts, and as milk is made, more or less directly, from the blood, the quarters so handled might be relatively increased in yield.

A Missouri Ration.

I have Jersey cows weighing about 900 lbs. I have clover and timothy hay, corn at 45 cents; bran, $14, oats, 35 cents, How would you divide this to make a profitable return from cows?

I have a 1-year-old bull calf (Jersey) from a choice cow. Would you recommend keeping him and breeding his half sisters to him?

Out of 2000 lbs. of milk I get $25 in butter at 20 cents a lb; is this poor results or not? My fresh cows give 25 to 30 lbs per day; long strippers less, as low as 10 lbs.

I read HOARD'S DAIRYMAN one night out of every week. My wife is thinking of trying to get a damage suit against HOARD'S DAIRYMAN for crazying me so about reading it. I tell her to keep still as I get so much good information from it. F. M. W.

Fair Grove, Mo.

When one receives $25 for the butter, at 20 cents per pound, made from 2000 lbs. of milk, the average fat content of that milk cannot be less than 5 per cent. Cows giving 25 to 30 lbs. of such milk, and averaging 900 lbs., are entitled to very generous feed. If limited to the feeds named we should select bran and corn, because at the prices named they are relatively much cheaper than oats, but we would make a strenuous effort to get enough linesed oil meal to give each cow at least one pound a day. Otherwise feed daily 6 lbs. bran, 4 lbs. ground corn and as much hay, if of good quality, as each cow will eat without leaving any in her manger. If the oil meal can be had, drop out an equal weight of corn. For cows giving only 10 lbs. of milk, feed hay as above and 3 lbs. bran and no corn meal.

In the matter of bulls our advice is to get the best, without much regard as to cost or consanguinity. There is no greater mistake than an attempt to use an inferior bull rather than invest $50 or more for a better one.

A Michigan Ration.

Please give balanced ration for cows, fresh last fall, weighing about 900 to 1,000 lbs. We have the followiug feed: cotton seed meal, ensilage, clover hay, shredded corn fodder, bran (wheat), worth $20 a ton, buckwheat bran worth $12, corn and oats $22, cotton seed meal worth $24.
Dundee, Mich. J. H.

With an average daily allowance of 30 lbs. silage, 6 lbs. each clover hay and shredded corn stover, 6 lbs. corn and oats, and 1 to 2 lbs. cotton seed meal, cows fresh last fall ought to hold out in good shape until pastures are ready next spring.

An Indiana Ration.

I have Jersey and Short-horn cows and would like to have a ration from the following: Clover hay, $7.00 per ton; bran, $20.00; ground oats, $20.00; ground corn, $16,00; whole corn, $16.00; and oil meal, $40.00. I feed at present equal parts of bran, oats and ground corn, and clover hay. A. L. S.
Carthage, Ind.

Are some of these cows Jerseys and the others Short-horns, or are they grades carrying a combination of Jersey and Short-horn blood? Mr. S. is a new subscriber, and we feel like saying to him that we believe in feeding cows according to their size and present capacity for turning feed into milk. A large Short-horn cow requires more feed for the maintenance of her body, than does a small Jersey, and the cow that yields 30 lbs. of milk per day more than one yielding 20 lbs. or less. Without some information along these lines, we can answer his inquiry only in the most general way, by saying that we should feed these cows all the clover hay they will eat twice a day—which will be on an average about 20 lbs. for the entire day. In addition, let them have of the grain mixture from 4 to 8 lbs., regulating the amount by the results which follow. When a dairy cow commences to lay on superfluous flesh, the indications are that the allowance of grain should be reduced.

A Nebraska Ration.

Will you please formulate a balanced ration from the following feeds and prices: Wheat bran, $11.00 per ton; corn and oats, ground half and half, $17.00; wheat shorts, $17.00; prairie hay (good), $5.00; clover hay (second crop) good, $6.00; oat straw, $2.00; corn stover own raising? Would it be advisable to feed any oil meal at prices from $35.00 to $40.00 per ton. The above is for a working herd of Jerseys, in all stages of lactation; weight, 700 to 1,000 lbs. J. J. A
Madison, Neb.

We incline to think that under the conditions stated, it would be advisable to choose the prairie hay and corn stover for roughage, with oat straw for bedding, and use bran and wheat shorts, equal parts by weight, for concentrates. With cows varying so much in weight, and in all stages of lactation, it is impossible to suggest a formula applicable to each individual. The general rule would be to feed all the roughage each cow will eat with good relish and without waste, and supplement this with 4 to 8 lbs. of grain as above. If under this regimen, the cows appear to be somewhat constipated, or the droppings too dry or hard, add enough oil meal to overcome this condition.

Blood Meal and Skim Milk for Calves.

Will you kindly tell me if blood meal is a good combination with skim milk to feed calves as a steady diet? Is it better than oil meal?
What is the price of Prof. Henry's Feeds and Feeding? H. M.
Merriam, Kans.

Blood meal is one of the most useful foods for young pigs and calves when fed judiciously. It should be mixed with the skim milk, commencing with a teaspoonful or so with the very young calf and increasing to a full tablespoonful to a feed as the calf gets to six months or so of age.

The price of Henry's Feeds and Feeding is $2, sent postpaid from this office.

Will Milk Improve in Quality.

I ran up against a man that owns a young cow, ½ Jersey, in her first season for giving milk; he had her milk tested and it showed 4½% butter fat. The party testing the sample stated that while that was good it would test as much as 1% more next year. Is that a fact? C. M. T.
Grant City, Mo.

Testing a sample from a single milking is no criterion of the average quality of a cow's milk. It may happen that a test of this heifer's milk made a few weeks later would show a wide variation, but our observation is that there is no material increase in average per cent of butter fat as the heifer advances in age.

A Vermont Feeding Inquiry.

I have read your paper for three years, and find many helpful things in it. I haven't seen a formula for balanced ration where one has no feed but mixed timothy and clover, not more than one quarter clover. Would you kindly give me one through your paper? Bran, $21; mixed feed, $23; corn meal, $23; cotton seed, $28; gluten, $28. Which would be the most profitable to feed separated milk to cows, or calves which sell at $5.00 or $6.00 at three months old? If fed milk to cows, would they want the same grain ration? Cows are mixed Jersey, Holstein and natives, no thoroughbreds; weigh from 700 to 1,000 pounds.
How much alfalfa seed would it need to the acre? W. L. C.
Newport Center, Vt.

For medium-sized cows, yielding not to exceed 25 lbs. of 4 per cent milk daily, we should prescribe a daily allowance of 20 lbs. of the mixed hay, or as much as each cow would eat without leaving any in her manger, 6 lbs. of bran and 1 lb. of cotton seed meal, with salt twice a day.

Without any accurate data to which we can refer, our guess would be that more profit would result from feeding the skim milk to cows than to calves selling for only $6.00 at three months of age. For each 5 lbs. of skim milk fed to a cow one might deduct 1 lb. of bran from the above allowance.

We sow 25 lbs. of alfalfa seed to the acre.

Silage for Young Mules and Colts.

We are thinking strongly of starting a mule and horse raising industry, and one of the worst obstacles in young animals is the first winter. We intend putting up a silo for cows. Why won't the silo feed do as well for a young colt or young mule, or would it be best to feed the mother from the silo and let the colt remain unweaned until spring? C. F. F.
Fairfax, S. D.

Silage will do very well for a portion of the first winter's feeding, but silage is a carbonaceous feed stuff and therefore not specifically adapted for the growth of muscle. It should be supplemented with alfalfa hay, or in the absence of that, with with some dry fodder and oats.

Impotence. Eastern Dairy Schools.

Will you kindly give me some information through your paper about colleges for young lads who desire to take a course in dairy lore? Is there such a college in Maryland or Pennsylvania; if not, where is the nearest college to Baltimore?
I have a registered bull about 6 years old, who has been allowed to run with a large herd, and when I bought him some two months ago, was very slow in serving. Since I have had him, this defect has been cured, but his cows come back with great regularity. He is a fine bull and I have some of his calves 4 months old.
Roslyn, Md. M. A. E.

When a bull has gained the age of six years, and has previously shown signs of sexual inability or desire, there is but little show for him to grow out of it, and it is not uncommon for him to become unfertile entirely. Your only hope is in giving him all advantages of nature, viz: Allow him to run with the herd so that he will have plenty of fresh air, natural food and exercise.

Write to Prof. W. T. L. Taliaferro, College Park, Md., for information as to Dairy School.

A Kansas Feeding Question.

I have a grade Holstein cow fresh in September, that gives 30 lbs. and more of 4.8 per cent milk. Also have a bull calf from her by a good thoroughbred bull. I feed the cow all the corn ensilage (well eared) and alfalfa hay she will eat, and about 6 lbs. bran per day. Now, I would like to know first: Can I make more and cheaper milk by changing her feed? Second, would it be advisable to keep the calf for a bull? G. L.
Acme, Kan.

We cannot advise any change in the manner of feeding, without information as to the kinds and prices of available feed stuffs, and with that information it is exceedingly doubtful if any change would be desirable. The 30 lbs. of milk as above would make 1 2-3 lbs. of butter, not as much as the cow could be forced to yield with heavier feeding, but the chances are that the increased yield would not cover the increased cost.

As a rule, it is not safe to use any other than full blood sires, because of the probability that more or less of the progeny will take back to the native or scrub ancestry. If the dam of this calf was a full blood, as well as the sire, we see no objection to keeping him to head a herd.

Forage Crops for Kansas.

Have 100 dairy cows and wish to plant some forage crops and want it the cheapest that can reasonably be expected. Would like two crops from same ground if it can be done, and will mention some of the crops that I prefer: Oat hay and peas, millet, sorghum, turnips, beets, etc., and amount of seed per acre, with probable number of tons or bushels per acre.
I will determine later the number of acres to plant, etc. Are beet tops injurious to cows in calf? I like the small turnips best because of thinnings and tops for milk.
Please allow me to thank the DAIRYMAN for the many valuable articles it contains, which are of great value to me, and I presume to others, along these lines. W. L. W.
Kans.

It is a hazardous undertaking to advise specific crops without a pretty thorough personal acquaintance with all the local conditions. We feel quite at liberty in this case, however, to suggest that under what we understand to be the general conditions in Kansas it would be advisable to commence at once to seed down several acres to alfalfa, instead of depend-



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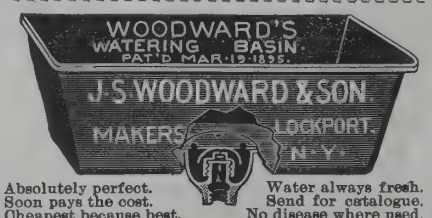
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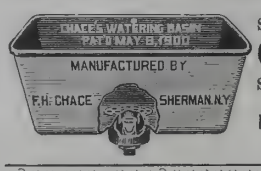
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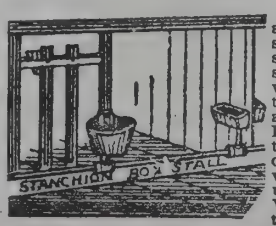
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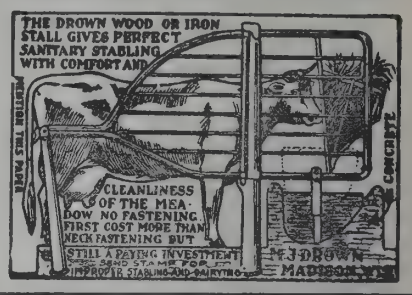


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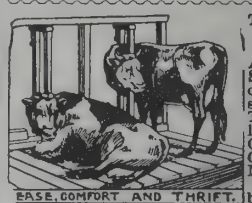
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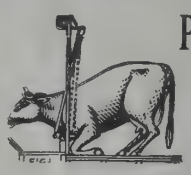



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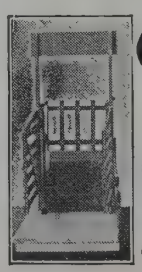


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ing upon the crops mentioned for dry forage, and in place of the root crops, would grow corn and store it in silos. Every experiment thus far reported goes to show that more nutriment per acre can be produced from corn than from roots and at less expense. Corn silage and alfalfa hay, with a very moderate allowance of grain, makes an ideal ration for milch cows. We should also be disposed to try growing a combination of corn and soja beans in the same row, as described by Mr. Reine in another column.

While waiting for alfalfa to become established, although it will yield some hay the first season, one could raise a crop of oats and peas (1½ bushels of each for seed), and after that probably a crop of millet in a favorable season, but we must beg to be excused from attempting to estimate the probable yield. Where corn will grow as it will in Kansas we would not bother with roots.

We have never known of beet tops injuring cows in calf.

New York Rations.

We have cows that freshened in August last, also in October. We also have cows just freshened and others coming right along. Will you please formulate for me a ration from the following feeds: The best of hay, alsike and red clover, mixed with timothy, $14; corn meal, $24; bran, $22; white middlings, $29; gluten feed, $29; Pillsbury's mixed feed, $25; Royal mixed feed, $24.

Cows are only the common native breed, but have the best of care, warm stable, plenty of water, etc. No silo on this farm, but have a dairy on another farm with silo, silage good, but very little corn in it. Conditions the same otherwise. What or how would you differ the ration on the farm with silo. A. E. L.

Potsdam, N. Y.

Without silage it will be expedient to feed approximately 20 lbs. of hay daily; with silage, feed if possible 40 lbs. of it and about six lbs. of hay; and in either case to the heaviest milkers, say 4 lbs. bran, 2 lbs. corn meal, and 2 lbs. gluten feed. If any of the cows are extra large milkers it may be expedient to increase the grain allowance slightly, but under ordinary conditions we should consider the amounts specified the maximum ration, and for perhaps half the herd they might be materially lessened. We cannot say how much, but a reference to the revised feeding standards published on page 1014, will give some intimation The point is this: These cows are fed to enable them to produce milk, but some of them are small caliber cows; they cannot profitably use but a moderate amount of feed in the production of milk and they should be fed accordingly. The milk of each cow should be weighed every day and a faithful record made and kept for reference. Only by doing this can a dairyman feed intelligently, or, with feeds at the prices named, profitably.

Ration for New York Holsteins.

Will you kindly formulate ration for Holstein cows that have recently freshened.

For roughage have well eared corn ensilage, mixed hay (clover, timothy and red top) cut green and well cured and oat and pea hay. Have wheat bran, ground corn, oil meal and gluten. A. S. C.

Rifton, N. Y.

A daily allowance, substantially as follows, would suffice for cows giving 30 pounds of 4 per cent milk.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
40 lbs. silage	10.56	.52	5.60	.28
10 lbs. hay	8.53	.48	3.96	.16
4 lbs. bran	3.52	.50	1.54	.12
2 lbs. ground corn	1.78	.16	1.33	.08
2 lbs. gluten feed	1.80	.46	1.01	.05
Totals	26.19	2.12	13.44	.69

This statement is made upon the assumption that the cows are properly housed and otherwise cared for and are fed and milked with reasonable regularity.

For cows yielding 40 lbs. of milk daily, add 2 lbs. of gluten feed to the amounts specified in the table, and increase or decrease the allowance in the same ratio for greater or less yields.

Heifer With Second Calf Doing Poorly.

A three year old grade Jersey heifer was giving last June 24 lbs. of 4.8 % milk per day, 8 months in lactation from first calf. She freshened in September, being entirely dry only 2 weeks, but giving only a small amount for a month before that. Since coming in I have been able to get only 10 to 12 lbs. of milk daily. Have tried the balanced ration you recommended to me, also excess of protein ration and whole oats, but fail to make any increase. She is getting rather fatter than she should, but not excssively so.

Can you recommend any thing to bring her to a normal flow? J. D. M.

Janesville, Iowa.

It is not altogether uncommon for heifers with second calf not to do as well as with first calf, particularly if the first lactation period was exceptionally productive, as it evidently was in this case.

Again, forcing either cows or heifers to go dry against their natural inclination, is very apt to interfere with the yield after freshening. If a cow cannot be completely dried off more than two weeks before coming in milk again, it is better to continue the milking. Probably both of these causes have contributed more or less to our correspondent's disappointment. We do not know of any scheme of feeding that will be likely to to overcome present conditions, but advise feeding according to performance and to prevent fattening. The chances are that with third calf, the heifer will again come up to expectations.

A Sample of Wisconsin Soja Beans.

ED. HOARD'S DAIRYMAN:—Find enclosed sample of soja beans which I raised on my farm last summer, some that I planted with my corn to put in my silo. I planted one bushel of them. I mixed them with the corn and planted with a one-horse drill. This was planted on nine acres of good soil, and that just filled my 16×27 foot silo. What is the result? Good silage!

Next season I will plant about three bushels with same amount of corn.

Vernon Co., Wis. J. G. REINE.

We are again much indebted to Mr. Reine for a valuable bit of information. Last spring he wrote us about his success in putting dry, shocked corn in his silo, and now he furnishes indubitable evidence that the soja bean can be successfully grown in Wisconsin in connection with corn, and make good silage.

We hope to hear from Mr. Reine often, in regard to matters of interest that he works out in a practical way, and trust that others among our readers may follow his example and not hide their light "under a bushel," or otherwise withhold the valuable information that has come to them through their experience.

"ADVERTISEMENT."

QUIT COFFEE

Said the Great German Specialist.

It disappoints some people to be told that coffee causes the disease. But it is best to look squarely at facts and set the face toward health for that's more fun than anything else anyhow. A Cincinnati man consulted a Berlin physician on nervous diseases and says:

"Four years ago I was an habitual coffee drinker having used it for twenty-five years, and being naturally of a nervous temperament I became almost a nervous wreck, greatly suffering from insomnia, almost constantly constipated and weighing only 128 pounds.

"I consulted physicians and took medicine all the time but had no relief. About three years and a half ago I went abroad and while in Berlin heard frequently of a great physician, Prof. Mendel, an authority on nervous trouble, so I resolved to consult him.

"Prof. Mendel surprised me very much by asking at once if I was a coffee drinker and on my telling him I used it two or three times a day he said, 'It is poison.' After carefully examining me he told me there was nothing the matter with me whatever but what could be entirely cured in thirty days by letting coffee and other stimulants alone and dieting.

"I had a hard time following his advice. I did not know what to do until I came home and told my wife who got some Postum. We tried it but at first did not like it; then we went over the directions on the package together and found we had not boiled it long enough. That was the beginning of the end of my trouble for the Postum was delicious after that and I drank it regularly and it helped from the start.

"In a very short time I began to feel much better and in the last three years I haven't been absent from business one hour on account of ill health for my health is fine now. I have a good appetite, sleep well and weigh 175 pounds." Name given by Postum Co., Battle Creek, Mich.

Any nervous person who drinks coffee will feel better from ten days use of Postum in place of coffee. Trial easily proves this. There's a reason.

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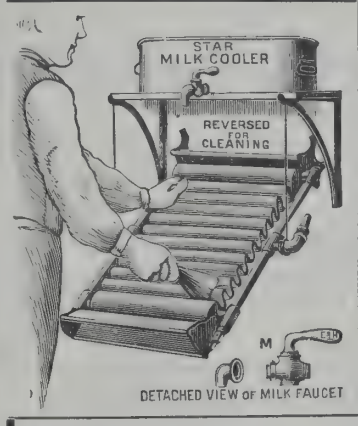
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FORT ATKINSON, WIS.

Net Profit *versus* Per Cent Profit.

ED. HOARD'S DAIRYMAN:—A novice in dairying who reads my article on "The Large *versus* the Small Dairy Cow," and then reads Mr. X's comments on the same, entitled, "Another View of the Facts," must be about in the same condition of mind as the cat that went forth into the world in search of wisdom. After meeting and interviewing with unsatisfactory results many of the beasts and birds, she came to the owl, reputed the wisest of them all, and thus addressed him: "I have come far, O, Owl, in search of wisdom; tell me, I pray you, how you have attained to such eminence, that I also may profit." "That is a simple matter; meditate, O,Cat, meditate." "But what shall I meditate upon, O, Wise One that I may attain such wisdom?" "There are many subjects, O, Cat, but I would suggest one on which I spent a lifetime of thought,—which was first, the owl or the egg? Now, we know that the owl comes from the egg; but, from another view of the facts, can we get the egg without the owl? The subject is deep."

So it may seem to the novice that the subject of Net Profit *versus* Per cent Profit is deep—too deep for him to understand. I gave a table by which I showed that the Holstein-Friesian herd at the Wisconsin Experiment Station was much more profitable than the Jersey herd, and then Mr. X takes the same table and shows (?) that the Jerseys were much more profitable than the Holstein-Friesians. As far as figures go, we both seem right; then, what is the matter? Can an animal take a dollar's worth of feed and return a larger per cent profit upon it than another animal, and yet show a smaller net profit for a given time? I answer, yes; and it is readily shown. Again giving a part of the table, I will quote a few lines from Mr. X:

	Holsteins.	*Jerseys.*
Average value products	$94.03	$77.10
Average cost feed	45.46	35.22
Average net profit	48.57	41.88

"Now, the cost of dairy products lies in the cost of feed, labor and care. Included in care is the cost of stabling, bedding, etc.

"It is fair to suppose that the cost of labor and care was about the same for both breeds, but when it comes to the cost of feed, the case was different.

"Now, if the farmer sold $500 worth of feed to those Station Holsteins at the above rate, they would have returned $1,035, which is a first-class return. If he had sold the same value of feed to the Jerseys, they would have returned $1,095, just 12 per cent more upon the investment."

I agree with all that I quote from Mr. X; then where is the error? Let us suppose that Mr. X and I are neighbors and, to simplify matters, have but one cow each. It costs $45.46 to feed my Holstein one year, and she gives $94.03 in return; showing a net profit of $48.57. It costs $35.22 to feed his Jersey, and she returns $77.10; showing a net profit of $41.88. It is evident that the Jersey returns $2.19 for each dollar's worth of food consumed, while the Holstein returns but $2.07. The Jersey is ahead on per cent profit; but how does it work out in actual cow keeping? Let us see:

We begin feeding with the first of the year, and at the end my feed is all gone, while X has $10.24 worth of feed left. I have $94 03 in cash; and if X sells his feed he will have $77.10 plus $10.24, or $87 34; a difference of $6.69 in my favor. But if X refuses to sell his feed and insists on feeding it out, shall I let my cows stand idle? Hardly; and I hustle out after $13.21 worth of feed and we go on. When his feed is used up and we both stop, he has $99.46, while I have $121.30. He has fed $45.46 worth of feed, and I have fed $45.46 plus $13.21, or $58.67 worth. After paying for feed he has $54.00 left and I have $62.63; a balance in my favor of $8.63, or most $2.00 more than at the year's end.

The fallacy in X's argument is in the supposing that I will let my cow stand idle 106 days, while he goes on feeding his, and in his making no allowance for labor and care during the extra time. The per cent profit dogma is one of the most pernicious that can be preached; for it is utterly fallacious. If the Jersey people, who have evolved this foolishness, should follow it to its logical conclusion, they would be obliged to abandon their breed of dairy cattle and go to breeding goats; for no milch animal will return as large a per cent profit on the value of the food consumed as the goat.

This dairy heresy showed up in discussing the results at the Pan-American, and has appeared in the cow census department of the DAIRYMAN, to the great detriment of those who are misled thereby.

Net profit allows the comparison of cow with cow for a fixed period of time. Per cent profit demands that for any comparison the animal consuming the smaller amount shall be allowed to work after the other is supposed to have stopped—an idiotic supposition—and makes no allowance for labor or care or anything else but feed during the extra time.

Is a nanny-goat a more profitable dairy animal than a Jersey cow, because she will show a larger per cent profit on food consumed? MALCOLM H. GARDNER.

Darien, Wis.

American Polled Jersey Cattle Company.

At the annual meeting of the American Polled Jersey Cattle Company held at Cedarville. Ohio, on Jan. 20th, H. N. Coe, Clifton, Ohio, was re-elected President, and J. E. Johnson, Yellow Springs, Ohio, was elected Vice-President. Chas. S. Hatfield, R. F. D. No. 4 Springfield, Ohio, and J. S. Brown, Cedarville, Ohio, were also re-elected Secretary and Treasurer.

The terms of A. T. Mohr and James R. Orr as members of the Board of Directors having expired, and Mr. Mohr declining re-election, H. L. Nash, Xenia, Ohio, and John P. Confer, Yellow Springs, Ohio, were elected to serve for three years.

The official reports of the officers of the company, and reports of breeders present show a steady, solid growth of Polled Jersey interests throughout the country.

DAIRY MARKETS.

ELGIN, Ill., Jan. 25—Butter ruled firm and unchanged on the Board of Trade to-day, being quoted at 22c a pound. The sales in the district for the week were 432,400 pounds.

CHICAGO, Ill., Jan. 25—Butter—Steady; creameries, 15@21c; dairies, 13@19c.

Cheese—Steady; Daisies, 10¼@10½c; Twins, 10c; Young Americas, 10½c.

Eggs—Firm; at mark, cases included, 26@28c.

CHICAGO, Ill., Jan. 25—Cattle—Receipts, 18,000; 15@25c higher; good to prime steers, 4.75@5.60; poor to medium, 4.00@4.60; stockers and feeders, 2.25@4.10; cows, 2.50@4.35; heifers, 2.00@4.90; canners, 1.50@2.50; bulls, 2.25@4 35; calves, 3.50@6.60.

Hogs—Receipts today, 46,000; tomorrow (estimated), 26,000; strong; mixed and butchers, 4.80@5.20; good to choice heavy, 4.75@5.20; rough heavy, 4.75@4.90; light, 4.65@5.05; bulk of sales, 4.90@5.05.

Sheep—Receipts, 20,000; sheep, 10@15c higher; lambs, 15@25c higher; good to choice wethers, 4.30@4.75; fair to choice mixed, 3.75@4.25; western sheep, 4.00@5.25; native lambs, 4.50@6.25; western lambs 4.50@6.25.

MILWAUKEE, Wis., Jan. 25—Butter—Creamery, extras, 22c; firsts, 18@19c; seconds, 15@16c; storage, extra, 17@18c; storage, low grades, 14@16c; renovated (process,) 15@16c. Dairy, fancy, 16c; lines, fresh, 13c; roll, 13c; packing stock, 10c; whey, 8c; grease, 5@6c.

Cheese—American full cream, new: Twins, 10@10½c; Young Americas, 10½@11c; Daisies, 11@11½c; Longhorns, 11@11½c; low grades, 7@9c. Brick—New, fancy, 10½@11c; off goods, 6@8c. Swiss—Drum, choice, 12@12½c; Drum No. 2, 10@11c; block, choice, 11@11½c; block, No. 2, 9@10c.

Eggs—Strictly fresh laid, loss off, cases returned, 28c; held fresh, cases returned, 25c; strictly fresh laid, at mark, cases returned, 25c; storage, city, April No. 1, 26c; dirties and seconds, 20c; checks, 18c.

LIVERPOOL, Jan. 25—Butter—Nominal.

Cheese quiet, American finest white, 52s; do colored, steady, 54s.

KANSAS CITY, Jan. 25.—Eggs—Higher; Missouri and Kansas, cases returned, 25½c per doz; new No. 2 whitewood cases included, 26c.

Butter—Creamery, 19@21c; dairy, fancy, 18c.

PHILADELPHIA, Jan. 25—Butter—Extra, western creamery, 23c; extra nearby prints, 27c.

Eggs—Fresh near by, 32c, at the mark; do western, 31c; do southwestern, 30@31c; do southern, 29@30c.

Cheese—New York full creams, choice to fancy, 11½@11¾c; do fair to good, 10@11c.

BOSTON, Mass., Jan. 25—Butter—Creamery, western, extra, 22@23c; western firsts, 21c; storage, 19@22c; dairy, 15@18c; western ladle, 14@15c; box and print 16@24c.

Cheese—Choice, 12c; Wisconsin Twins, 10@11c.

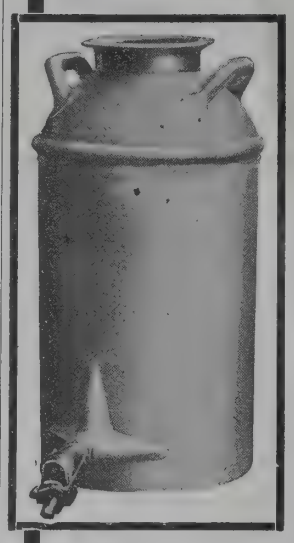
Eggs—Fancy nearby, 35c; western 32@33c; poor to fair, 30c.

NEWARK, N. J., Jan. 25—Butter steady at 22c. Eggs—31c, for western fresh, gathered firsts.

NEW YORK, Jan. 25—Butter—Recipts, 4,578 pkgs., irregular; extra, creamery, 22c; creamery, common to choice, 15@21c; state dairy, 14@19c; held creamery, 14@15½c.

Cheese—Receipts, 8,078 pkgs; steady; state full cream, fancy, small, colored, September, 12c; late made, 10½c; small, white, Sept. 12c; late made.

We have made up a special lot of 1000 40-quart delivery cans like cut. While they last you can get them at



$4.00 Each

This is positively the only satisfactory delivery can on the market. There will be 500 orders for the last one, so do not put it off, send along $4.00 today, and get a can that you would not take $10.00 for. One that is made from the best material procurable; the seams are all loaded, and is as easy to clean as a seamless pan. The faucet is "Perfection", it will not freeze or throw milk all over your wagon; milk runs in a straight stream no matter how small. Made in the largest exclusive milk can factory in the world. Capacity 1000 cans daily.

THE FOREMAN CAN CO., IRWIN, PA.

HELP YOURSELF BY HELPING OTHERS

Co-Operation is what has made all large and successful enterprises, and is what may be relied upon to make farming pay greater profits with less work.

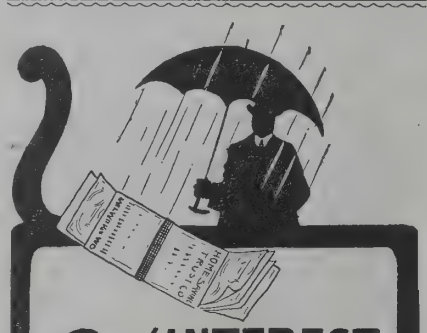
The New National Organization for the Benefit and Promotion of

FARM INDUSTRY

which has just been completed is now preparing to put into practice what has long been sought after by the farmers of this country, big and little, with a view to bettering their conditions and increasing their incomes. A 32-page Booklet, handsomely illustrated, will give full particulars of this new and worthy enterprise, which has been endorsed by the best, most intelligent and influential men in this country. It will interest you and will be sent FREE to any address for the asking. Write today. You will be under no obligations. Address Correspondence Dept. No. 28.

EPITOMIST EXPERIMENT STATION, SPENCER, INDIANA.

"1900" BALL BEARING WASHER sent free, without advance payment, freight prepaid both ways on 30 days trial. Mr. Geo. N. Burnet, Ashtabula, O., says, "Have done 1200 washings and is good for 1200 more. Beats them all, and have tried 8 different machines. Write at once to "1900" Washer Co., 219A State St., Binghamton, N. Y



6% INTEREST PER ANNUM

Every man and woman should prepare for a rainy day.

Money in our keeping entitles you to a gold certificate drawing 6% interest payable quarterly.

Your money is absolutely secure and can be drawn out at any time without losing any accrued interest.

Write to us for prospectus No. 3, containing full particulars.

HOME SAVINGS & TRUST CO.
MILWAUKEE, WIS.

AN UNEQUALED PROPOSITION

$5,000
Made by a Beaver Dam farmer in less than a month.

$1,800
Made by a Baraboo paper hanger in less than a week.

$1,200
Cleaned up by an Evansville man in one week.

If interested we can furnish names and addresses of these parties and many others who have done equally as well.
We can give a few parties who can secure $1,500 or give security to that amount a very paying business.
Choice locality. We have an article of value and interest to every farmer.
Full investigation invited. Best bank references. Write at once for particulars.

BUTLER BROS., BEAVER DAM, WIS.
U. S. Agents. Box 865.

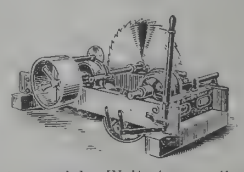
SIX PER CENT INTEREST

We offer Farm Mortgages from

$1,000 TO $30,000

If your money is not paying you six per cent, let us hear from you.

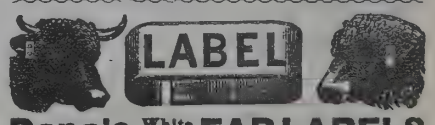
LANDERS SONS,
LOS ANGELES, - CALIFORNIA



BIG PROFIT
In sawing lumber with our up-to-date Sawmill Machinery. Keep your engine earning money all the year. Now is the time to buy when the price of lumber is high, with sharp demand. Don't miss the chance of a life-time to get rich. Write for our Catalog B and prices, free.
R. R. HOWELL & CO., BOX H, MINNEAPOLIS, MINNESOTA.



The "STAY THERE"
Aluminum Ear Markers
are the best. Being made of aluminum they are brighter, lighter, stronger and more durable than any other. Fit any part of the ear. Nothing to catch on feed trough or other obstacle. Your name, address and any series of numbers on each tag. Sample tag, catalogue and prices mailed free. Ask for them. Address
WILCOX & HARVEY MFG. CO.,
108 Lake St., Chicago, Ills.



Dana's White Metallic EAR LABELS
stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Sample free. Agents Wanted.
C. H. DANA, 55 Main St., West Lebanon, N. H.

10½c; large, colored, September, 12c; late made, 10-½c; large, white September. 12c; late made, 10½c.

Eggs—Receipts, 4,550 pkgs; firm; state and Pennsylvania, nearby, averages, finest 32c; state and Pennsylvania, seconds to firsts, 30@31c; western extras, 32c; western firsts. 31c; western seconds 29@30c; refrigerated, 24@27c.

NEW ORLEANS, La., Jan. 22—Butter—Extras, 23c; firsts, 20c; seconds, 18c.

Cheese—Young Americas, 12c; Twins, 11c; Daisies, 12c.

Eggs—22@23c; quiet.

BALTIMORE MARKET.

BALTIMORE, Jan. 21—Butter—About the only change of importance to note in the situation of the butter market, since our last issue, is that the quiet feeling prevailing at that time has gradually developed, and the market at the present time is in anything but an encouraging condition. The receipts of all grades suitable for table purposes continue very light; for this kind there is quite a good demand, while stock showing wintry defects are accumulating. There is a fair inquiry for choice to fancy held stock. Imitation creamery and ladles are in amply supply for present needs Rolls, owing to the unsatisfactory quality of the stock arriving, are moving slowly. Packing stock is in ample supply. Blocks and Prints—The supply is about equal the demand. The general market closes quiet and unsettled.

Creamery separator, extras, 23c; firsts, 21@22c; seconds, 18@20c: Held creamery, extra 22c; firsts, 20@21c; seconds, 17@20; imitation creamery, extras, 19c; firsts, 17@18c; seconds, 14@15c; Iowa & N. W. Ladle, extras 16c.; firsts, 15c; seconds, 12@14c; Ohio & Indiana Ladle extras, 15c; firsts, 14c; seconds, 12@13c. Roll, Ohio, extras 15c; firsts, 14c; seconds, 12@13c. Roll, W. Va., extras, 14½c; firsts, 13c; secouds, 12c. Ohio Storepacked, firsts, '3@13½c; seconds 12c. W. Va., firsts, 13c; seconds, 12c. Creamery blocks (2 lbs.) extras, 24c; firsts, 22@23c; seconds, 19@21c. Creamery prints, (½ lb.), extra, 25c; firsts, 23@24c; seconds, 19@21c; Md, Va. & Penna. prints, extras, 23c; firsts, 21@22c; seconds, 18@20c. Renovated butter, extras, 20c; firsts, 18@19c; seconds, 16@17c.

Cheese—While the receipts for the present are very light, the supply on hand is equal to the current needs. There is a firmer feeling prevading the market, particularly on fine stock.

N. Y. State Cheddars, fine, 10½@11c; choice, 9¾@10c; fair, 9@9¼c; do Flats, fine, 11@11½c; choice, 10½@10¾c; fair. 9½@10c; do small, fine, 11½@12c; choice, 10¾@11c; fair, 10@10¼c; Ohio Flats, fine, 10@10½c; choice, 9@9¾c; fair, 8½@9c; Ohio Picnic, fine, 10½@11c; choice, 10@10¼c; fair, 9½@9¾c; Swiss (Domestic) new, fine, 14½@15c; choice. 13@13½c; fair, 10@12c.

Eggs—So far this week the receipts have been very light, while the demand has been quite good at 30 cents; hence, the market is kept quite bare of all desirable stock, and the market generally presents a very healthy appearance; we advise prompt and liberal shipments.

301 Exchange Place. G. M. LAMB & BROS.

NEW YORK MARKET.

NEW YORK, Jan. 23—Butter—Receipts for the week, 26,656 packages. Exports for the week, 1,800 packages.

There was a good wholesome market all the week and the arrivals of fresh make creamery butter was in good demand, and at the close is well cleaned up and prices firm. Extra goods sold at 22@22½c, and good to fine qualities at 19@21c. There were many sales of June creamery for local and Eastern accounts at 18, 19 and 20 cents, and holders were free sellers, accepting any fair offer made by buyers. There is a large stock of freezer goods to be marketed and low prices must continue if the stock is to be cleaned up before the next make comes in the market.

Low grades of butter are selling better, prices, however are low and show big losses to owners. We quote:

Creamery, fresh, extra, 22c; medium, 20@21½c; poor, 15@19c; creamery, June, extra, 19@20c; medium, 17@18c; poor, 15@16c; Dairy, extra, 16@17c; medium, 14@15c, poor, 12½@13c.

Cheese—Receipts for the week, 21,821 boxes. Exports for the week, 7,092 boxes.

The bulk of the arrivals have been of poor quality, say winter make full creams and long lines of poor skimmed cheese from all sections which have no real value, and are offered at all prices from 2 cents up. Fancy cheese hold their own, and are having full as much inquiry as is usual in January. Sales to home trade were at 11¾@12¼c. Exporters have confined their purchases entirely to under grades, paying 7@9c for full creams. and 2@6c for skimmed cheese. We quote:

Full Cream, extra, 12c; medium, 10½@11½c; poor, 7@10c.

Eggs—Receipts for the week, 20,776 cases.

Receipts were light and prices firm all the week, Any small increase in arrivals would knock prices very materially. We quote:

New York and Pennsylvania, strictly fresh, per doz., 32@33c; Western, stricty fresh, 30@32c; Refrigerator, best, 28@30c: poor to good, 25@26c.

DAVID W. LEWIS & Co.

177 Chambers St.

SAN FRANCISCO MARKET.

Jan. 25—Improvements in values for butter were checked yesterday by increased offerings, but under a steady call the market maintained a firm tone at the prevailing prices. While there was plenty of the cheaper quality butter to go round, supplies of really fancy creamery grades were more or less limited, and holders were not disposed to fill orders outside of their regular custom. As a result, prices of the latter stock were strongly held, and occasional sales of the favored brands were recorded as high as 32c, but the top quotation was the conservative rate. General offerings of the cheaper grades were well cared for at quotations, the lots scoring best in quality holding principal flavor. Under increased supplies and a marked inclination to force sales, prices of eggs broke sharply yesterday and the market presented an easy undertone at the decline. Buyers were cautious and limited their purchases to actual requirements in anticipation of further reductions in price. Cheese was in oversupply and an easy market ruled at unchanged prices.

Receipts yesterday aggregated 46,700 pounds butter, 1,142 cases eggs and 6,300 pounds of cheese.

Butter—Creamery, extras, 31c; good to fancy, 27½@30c; dairy, extras, 25@26c; dairy, choice, 22@24c; store, 17@18c; California storage, 21@24; eastern creamery, nominal.

Eggs—Ranch, selected large, 27@27½c; good to choice, 24@26c; store, 21@23c; California storage, nominal; eastern, nominal.

Cheese—California creamery, mild, new, extra, 13@13½c; mild, new, choice, 12@12½c: Young, America, 13@14c; eastern. New York, Cream, Cheddars and Flats, new, 14@16c.

NEW YORK FERTILIZER MARKET.

Fish scrap, dried, 11 p. c ammonia, and 15 p. c. bone phosphate f. o. b. fish works, per ton	2.50 & 10
wet, acidulated. 6 p. c. ammonia f. o. b. fish works	2.25 & 35
ground	31.50@33.00
Azotine, per unit	2.60@ 2.65
Tankage, 9 and 20 p. c. f. o. b. Chicago, per ton	2.20@10
Tankage, 8 and 20 p. c. f. o. b. Chicago	2.17½@10
Tankage, 7 and 30 p. c. f. o. b. Chicago	15.00@16.00
Tankage, 6 and 35 p. c. f. o. b. Chicago	14.00@ 15.00
Garbage, tankage	8.00@ 9.00
Dried blood 12-13 p. c. ammonia f. o. b. N. Y.	2.50@ 2.52½
Dried blood, high grade, f. o. b. Chicago	2.50@ 2.55
Nitrate of soda for 100 lbs	2.15@
future	2.15@ 2.02½
Acid phosphate	60 @ 67½
Phosphate rock, f. o. b. Char'n. Tenn	5.00@ 7.00
	3.50@ 4.50
Bones, rough ℔ ton	18.00@20.00
ground, steamed	20.00@24.00
ground, raw	23.00@27.00
Bone black, refuse	16.00@20.00
South Carolina phosphate rock, ground per 2,000 lbs. f. o. b. Charleston	6.50@ 7.75
South Carolina phosphate rock, undried, f. o. b. Ashley river, per 2,400 lbs	3.50@3.75
do. dried	3.75@4.00
Florida land pebble phosphate rock f. o b. Fernandina, per ton	4.25@4.75
Florida high grads phosphate rock f. o. b. Fernandina, per ton	6.75@7.25
Muriate Potash, 80 p.c. spot ℔ 100 lbs	1.88@ 1.91½
Muriate potash 80 p. c., future	1.83@ 1.86½
dbl. m're salt	48@53% 1.12@ 1.15
Sulphate potash (basis 90 p. c.)	2.11@ 2.14
Sylvinit, 30@36 p. c ℔ unit	.39@ .40
Kainit in bags	10.05@10.55
Kainit, in bulk	9.05@ 9.55
Kieserit	7.00@ 7.25

READING NOTICES

All Reading Notices under this head are at the rate of 25 cents per line.

Stallion—Magna Monte 6399; record 2:15, by Douglas Almont, he by Allie Games, dam Maggie by Soverign. Tabulated pedigree on application. For sale or will exchange for registered Guernsey cows. J. J. BEAN, Ashland, Wis.

For Sale, Cheap—The controlling interest in cheese factory and machinery, in south-western Wisconsin. For particulars address P. O. BOX 51, North Milwaukee, Wis. 51-3

For Sale—Must be closed out at once. One skimming station, seven miles from Mauston, Wis. One station five miles from Kilbourn, Wis. Locations fine. Also one combined churn, capacity 500 lbs. Stations all equipped and in running order. Apply to R. F. CLARK, Portage, Wis. 51-5

For Sale or Rent—150 acre farm within 2 miles of good market. For particulars address B. L., Box 216, Charlottesville, Va.

Wanted—Position by first-class butter maker and creamery manager. Dairy school graduate. Been with present company five years. High grade goods. References given. Address J. W., care Hoard's Dairyman. 51-2

Wanted—To lease or buy a good creamery or a location to build one. G. ENKERLY, Crittenden, N. Y.

For Sale—10-h. p. portable gasoline engine, two-horse tread power with safety governor, Ross ensilage cutter No. 16 with 33 ft. carrier, all in good running order. Address J. D. PUTNAM, Aurora, Ill. R D. No. 1.

For Sale—One first-class four ton refrigerator machine complete. J. E. ROBISON, Cedar Vale, Kansas. 51-2

Wanted—Loan on good improved farm for 5 or 10 years at 5 per cent interest. Address LOAN, care of Hoard's Dairyman. 50-2

For Sale—Best paying 130 acre farm in Wisconsin. Now clearing over $7.00 per day. E. B. STOKES, Waukesha, Wis.

O. Douglass has the cultures for butter and cheese making that take the prizes. They are the best yet produced. Send orders for free sample and instructions to O. DOUGLASS, 25 John St., Boston Mass. 45-sp

Feed Protegran—For economy and best results. Write the DEWEY BROS. CO., Blanchester, O. 44-tf

Buff Jersey will buy cows for you. Give you up-to-date instructions in dairying, breeding and feeding, at your homes. Superintend silo construction and other buildings. Abortion herds cured. Cows brought to freshening free from milk fever. Beef herds changed to the ensilage system of feeding. Will give lectures before students, farmer's institutes and conventions. Compile dairy farm pamphlets, and send to you prepaid for 50c paper or 75c cloth bound, my book on silos and nine other chapters of useful knowledge. Correspondence solicited. BUFF JERSEY, Monmouth, Ill 51-tf

Wanted—A registered Jersey bull about two years old. Must come from good family. Wanted—One dozen grade Jersey cows, good milkers. State age and particulars, bottom prices to HARRY MILLS, care Hoard's Dairyman. 51-2

For Sale—Good second hand 14 horse power stationary engine and boiler. J. W. EMERSON & CO., Cedar Rapids, Iowa.

Wanted—A good all around dairyman to take charge of small dairy. Good wages to right man, Address Box 81, Cuthbert, Ga.

Farm for Sale or Rent—A desirable stock and dairy farm in Winona Co., Minn., 13 miles below Winona, 2 miles from R. R. depot, 1,400 acres good land all fenced, well watered. There is on the farm a good 8-room dwelling house, two large barns, dairy building with churn, vats and implements for making butter, steam engine and 10 h. p. boiler, 75 cows, 450 high grade Shropshire ewes, 100 Angora goats, young cattle and hogs. Running water in all the buildings. Will rent farm on shares with stock, or sell farm with or without stock. LLOYD BARBER, Winona, Minn. 51-3

Wanted—Married man who is a good milker and can care for cows. Wife to board men. Also four men to help milk and deliver bottle milk. Intemperate men need not apply. Address E, Box 19, Ft. Dodge, Iowa.

ONLY REGULAR AWARD, CHICAGO, 1893—GRAND PRIZE, PARIS, 1900—ONLY GOLD MEDAL, BUFFALO, 1901

A PROMINENT CREAMERYMAN

of Vermont recently said: "I would as soon think of running a creamery without milk, as to attempt to run it without

DE LAVAL CREAM SEPARATORS

I consider much of my success due to the use of these machines, which for thorough skimming, and uniformity and smoothness of product, are a long way ahead of any other separator."

This tells the story in a few words. The experience of this creameryman is a usual one with De Laval owners the world over.

De Laval Separators are Standard

in every respect and invariably give satisfaction. Write for catalogue.

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GENERAL OFFICES:
74 Cortlandt St., NEW YORK.

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248 McDermot Avenue WINNIPEG.

For Rent—A first-class Dairy and Grain Farm to rent on shares. No wet land. Enquire BOX 713, Whitewater, Wis. 50-2

Holsteins—Bull calves at farmers' prices, sired by Dinah Johanna Sir De Kol. H. F. WEAVER, R. F. D. 3, Elkhorn, Wis. 50-tf

For Sale—Well established dairy in best and healthiest city in the South. Price $3,000. For full particulars address BOX 529, San Antonio, Texas. 50-4

A First-class, experienced butter maker desires a position in the West or Northwest. Up-to-date work guaranteed. Address A. TOBLER, Nora, So. Dak. 49-5

$25 to $50—Buys a highly bred Jersey bull from 2 to 20 months old. St. Lamberts, Stoke Pogis or Tormentors, from the best herd in Ohio. Write now to P. CLAWSON, Okeana, Butler Co., Ohio. 49-5

Wanted—Position as foreman on large dairy farm by an experienced dairyman, who thoroughly understands dairying and farming. A No. 1 references. CHAS. FINKE, Box 669, Sycamore, Ill.

Model Cheese Factory For Sale—At your own price. Factory building and machinery all new; house, ten rooms, new; 20x30 barn, new; fine orchard and small fruit, berries, etc., all on 20 acres of land. Good reasons for selling. Write at once to J. B. CAMERON, Swanton. O. R. F. D.

For Sale or Rent—The whole or part of 260 acres, two set buildings, convenient to school, church, creamery and market. Known as the Hiram Campbell place, Cottage Grove, Dane Co., Wis. Address BOX 44, Milton, Wis. 51-4

Yorkshires—Spring sows open or bred for spring farrow by imported boars, and fall pigs at fair prices. W. H. FISHER, Columbus, O. 51-4

Of Interest to Factory Secretaries—Mr. C. H. Bickford, of Adams, N. Y., who is secretary of several large cheese factories in that locality, has discovered a device which greatly shortens the work of the factory secretary. This device consists of a peculiar arrangement of figures which enables the secretary to read off at a glance, with perfect accurcy, and without performing any arithmetical operation, the number pounds of butter fat in any number pounds of milk from 1 to 19999 pounds inclusive, and having any test from 3.1 to 5.9 inclusive. Mr. Bickford will mail free on request, to any one interested, a sample chart and directions, which fully explain his system. Tell the secretary of your factory about this. It will save him much time and labor and many mistakes. 51-tf

Wanted—A first-class butter maker, German preferred. Must come well recommended. Will pay a good salary to the right man. Call on or address H.S. MEYER, Sec'y., Wellsburg Farmers Creamery Co., Wellsburg, Ia. 51-tf

Wanted—Cheese maker to buy one-half interest in a creamery. E. O. CHRISTESON, Rusk, Iowa.

For Sale—Five Guernsey bulls from one to eleven months old. One Guernsey heifer 11 months old. JOHN MAUL, Rome, Wis. 51-4

Dairy Farm in Oklahoma For Sale—240 acres mile of city of 30,000. Big milk demand. Address BOX 497, Oklahoma City, Okla.

Do You Want—A Hay Fork Returner? Every farmer having a barn should have one. A hummer for agents. Circulars free. ROONEY RETURNER CO., Box D, Independence, Ia. 50-tf

For Sale or Rent—Dairy farm of 200 acres, 90 improved. $1.50 per hundred for milk year around. Address J. P. SOUTHARD, Harbor Springs, Mich. 42-10

For Sale—10 cheese factories, 5 farms 40 to 160 acres, saloon, dance hall and store. FRED HADLER, 775 Ida St., Appleton, Wis. 43-tf

Wanted—One single, and one married man with two grown sons for dairy farm. State wages expected. A. J. DAUGHERITY, Streator, Ill. 47-tf

For Sale—Choice reg. Guernsey bulls and bull calves. RAY C. BICKNELL, Ft. Atkinson, Wis. 32-tf

I have a few Guernsy Bull Calves whose dam's and sire's dam have an average yearly record of from 643 lbs. to 747 lbs. butter. Individually they are desirable to head thoroughbred herds. CHAS. SOLVESON, Neshotah, Wis. 50-tf

To California—Via the Chicago, Union Pacific & North-Western Line. Two solid fast trains through to California daily. The Overland Limited (electric lighted throughout) less than three days en route, leaves Chicago, 8:00 p. m. Another fast train leaves Chicago, 11:35 p. m. Apply to Agents Chicago & North-Western R'y. 51-7

The Overland Limited—The Traffic Department of the Chicago & North-Western R'y has issued a handsome booklet descriptive of the Overland Limited, the most luxurious train in the world, and of the Chicago, Union Pacific & North-Western Line, the route of this famous train to the Pacific Coast. Fully and interestingly illustrated. Copy mailed to any address on receipt of 2-cent stamp, by W. B. Kniskern, P. T. M., Chicago. 51-7

Very Low Rates to Mardi Gras and Winter Resorts—Via the North-Western Line. On account of the Mardi Gras, excursion tickets will be sold to New Orleans, Mobile and Pensacola, Feb. 9 to 14, inclusive, also to New Orleans, on Feb. 15, for trains arriving at New Orleans by noon on Feb. 16, with favorable return limits and stop overs. Excursion tickets are also on sale daily, at reduced rates, to the principal winter resorts in the United States and Mexico. For full information apply to agents Chicago & North-Western R'y. 51-6

Excursion Rates to Wisconsin Dairymen's Convention at Platteville—Via the North-Western Line. Excursion tickets will be sold at reduced rates Feb. 9, 10 and 11, limited to return until Feb. 13, inclusive. Apply to Agents Chicago & North-Western R'y. 51-6

Homeseekers' Excursions to the Northwest, West and Southwest, and Colonist Low Rates West—Via the North-Western Line Excursion tickets at greatly reduced rates are on sale to the territory indicated above. Standard and Tourist Sleeping Cars, Free Reclining Chair Cars and "The Best of Everything." For dates of sale and full particulars apply to agents Chicago & North-Western R'y. 49-sp.

Report of the Vermont Dairymen's Convention.

(Continued from page 1157)

of dividing a sum of money among the patrons of a winning creamery as an incentive to increased effort in their business.

Farmers should come more to the front, fit themselves for recognition by the real merit of their achievements, instead of remaining in the background. They would, he thought, find it of advantage to employ more help on their farms.

Prof. Decker of Ohio, was the last speaker of the afternoon. He rightly stated that success in dairying d epends on "the man behind the cow." He spoke about the many improvements that have been made in dairy machinery and appliances within the past few years.

Before adjourning a business meeting was held, and the following officers elected for the ensuing year:

President, H. H. Bruce of Sharon; First Vice President, Geo. H. Ferrill of Morristown; Second Vice President, F. G. Bronson of East Hardwick; Secretary, F. L. Davis North Pomfret; Treasurer, M. A. Adams of Derby; Auditor, C. F. Smith of Morrisville.

At a business meeting of the Woman's Auxilliary, the following list of officers were elected for the coming year:

President, Mrs. Etta La Page of Barre; Vice President, Mrs. M. L. Aseltine of Fairfax; Secretary, Mrs. W. B. Beach of Charlotte.

The Banquet.

There was no evening session, but instead the annual banquet at the Van Ness House. This was the largest gathering of this kind ever held at this house. There were 333 sat down at the table where they were abundantly served, after which came the post prandial exercises. These were of a most interesting character and highly enjoyed by all present. The Howard Opera House orchestra furnished excellent music, and group of students from the University of Vermont, exhibited their interest with college yells and songs.

President Aitken called the guests to order and after a short speech by Prof. Hills, introduced D. J. Foster M. C. of Burlington, who acted as toastmaster, presided with the ease and grace for which he is so much noted. The speakers responding to call were Lieut. Gov. Fred S. Stanton of Roxbury; Hon. H. C. Adams, Wis.; W. J. Van Patten, Burlington; Gov. Hoard, Wis.; D. M. Walsby president of the senior class at the University of Vermont; Prof. Decker of Ohio. This completed a day filled with good things and it is hoped long to be remembered.

Thursday was the last day of the convention. At the morning session, George M. Whitaker, of Boston, former publisher of the *New England Farmer*, spoke on the work of the Dairy department at Washington. He referred to the great advancement made by farmers in dairying during the past few years, and said that the progress was due in large measure to the experiments conducted at the experiment stations and farms and by students. He spoke of the work being done by the department at Washington, as encouraging and helpful. He referred to the Grout oleomargarine bill and stated that farmers throughout the country would hold ex-representative Grout in grateful memory for the good work that he had performed.

H. C. Adams of Wisconsin was the last speaker of the morning. His subject was "Dairy and Food Laws." He spoke at length of the struggle in Congress for the passage of laws against the adulteration of certain food products, especially cheese and flour. He spoke particularly of the long fight over the oleomargarine bill and the final victory. His remarks were listened to with much attention and interest.

At the afternoon and last session of the convention, the first speaker was Henry Van Dresser and his subject, "The Selection and Conformation of the Dairy Cow," upon which he spoke most interestingly, showing his familiarity with the topic he discussed. He spoke of the importance of weeding out the unprofitab e cows from the dairy and of better care and management in general, if the best results are expected. The address was full of good points and should awaken increased interest in the management of the dairy.

Gov. McCullough was called upon to address the convention and responded in his usual very pleasing manner. Our agriculturallists, he said, are the kings of America. From one-third to two-fifths of the people of this country are in some way connected with the soil, and from the soil is drawn the wealth of the nation.

At the close of the governor's remarks, the college boys gave a hearty cheer, and the president announced the close of the 34th convention of the Vermont Dairymen's Association, after a most interesting and profitable gathering.

Premiums Awarded on the Exhibits of Butter and Cheese.

The following premiums were awarded on the exhibits of butter and cheese. In butter there were 141 entries, the highest score being 98½, the lowest 88 and the average 94⅓. In cheese there were 17 entries, the highest score being 98½, the lowest 93 and the average 96. Following were the awards.

Butter.

W. P. Stone of Strafford. score 98½, gold medal, creamery sweepstakes and grand sweepstakes,

J. B. Candon of Pittsford, score 98, dairy sweeptakes.

J. H. Chapman & Son of Clarendon Springs, score 97, best displayed package,

Dairy Tub.

J. B. Candon of Pittsford, score 98, first prize; C. A, Choate of West Barnet, score 97½, second prize; Chas. LaPage of Barre, score 97, third prize.

Dairy Box.

H. B. Leonard of North Pomfret score 97, first prize; H. S. Eldred of Sheldon. score 96½, second prize; R. W. Burnett of Bristol, score 96, third prize.

Dairy Prints.

J. H. Chapman & Sons, score 97, first prize; Mrs. C. J. N. Shackford of East Ryegate, score 96¾, second prize; C. F. Stafford of Chippenhook, score 96½, third prize.

Creamery Tub.

W. P. Stone of Strafford, score 98½, first prize; C. C. Fuller of Jonesville, second prize; E. F. Thayer of Warren, score 97¾, third prize.

Creamery Prints.

A. E. Sherburne of North Pomfret, score 98, first prize; E. K. Hill of Greensbor, score 96, second prize; C. C. Lawless of Montopelier,score 95, third prize.

Cheese Sweepstakes.

F. G. Stone of Dorset, score 98½.

Dairy Plain.

Mrs. W. A. Franklin of Brattleboro, score, 95 first prize; J. C. Oliver of Charleston, score 94, second prize.

Dairy Sage.

J. C. Oliver, of Charleston, score 95, first prize; Mrs. W. A. Franklin of Brattleboro, score 94, second prize.

Factory Plain.

H. W. Rice of Westford, score 98, first prize; F. G. Stone of Dorset, score 97½, second prize; Burr Harwood of Dorset, score 97, third prize.

Factory Sage.

F. G. Stone of Dorset, score 98½, first prize; H. W. Rice of Westford, score 98, second prize; A. R. Potter of Oakland, score 97½, third prize.

Besides the above premiums, there was a considerable sum divided among a large number of exhibitors whose butter scored above a certain point. Also there were many special premiums offered by individuals, manufacturers, etc, outside of those of the association which added to the long list awarded at the meeting.

There was quite an extensive display of dairy apparatus and machinery, but for exhibition only. Among these may be particularly mentioned the exhibits made by the Vermont Farm Machine Co. of Bellows Falls, and of the Stoddard Manufacturing Co. of Rutland. The first, manufacture and sell the United States separators, the last the DeLaval. Both make a large variety of apparatus and machines for creamery and dairy work. There were other exhibits, but these are particularly mentioned because they are Vermont enterprises, and have so close a connection with our dairy industry, although well known throughout the United States.

E. R. Towle.

Franklin Co., Vt.

The Present Butter Standard.

Ed. Hoard's Dairyman:--There seems to be quite an agitation at the present time throughout the country on pure foods and standards for the same. Many of our states that have no laws on this subject are preparing to enact some, on account of the fact that food adulteration is becoming so common.

R. M. Allen, Secretary of the National Association of State Dairy and Food Departments, says in his report published in the *Record-Herald* of December 30th, that England seems to be the dumping ground of all adulterated foods from other countries, and that they are putting forth efforts to stamp out this evil. In the preparation of laws on this subject of pure foods and standards, great care should be exercised in not going to the other extreme by making standards that will be



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It's a Wonderful Clover

It's the greatest clover on earth. it's extremely early, the first crop cut in May, the second prodigal yield in July, the third in August, and lots and lots of pasture besides. It's great as a fertilizer, sending 10 to 25 feet after moisture and nourishment. It withstands drouth, wet, indeed, when once established it defies all elements, returning yields that will gladden the heart and fill the purse of every farmer growing same,

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If you will mention Hoard's Dairyman when you write, enclosing 6 cents in stamps, we will mail you a sample package of **Salzer's Northern Grown Alfalfa Clover Seed**, as also our catalogue that contains the full description of how to grow with success this wonderously luxuriant hay and grass producing plant. Send today 6 cents in stamps for above and be sure to mention Hoard's Dairyman.

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continually violated. I fully realize the difficulty that is encountered in getting a law or a standard that will be suitable to all. Two of the standards published in the recommendations of the Department of Agriculture some time ago, are of the kind that would be violated. I refer to the standards for butter, which must not contain less than 82.5 per cent of butter-fat, and milk, to contain not less than 12% of the total solids, and not less than 8.5 per cent of solids not fat, nor not less than 3.25 per cent of milk fat.

In ordinary, good, commercial butter, we have a total of about four per cent salt, casein and ash. Taking the standard of 82½ per cent fat, this would leave us 13½ per cent of water, or 2½ per cent lower than what is recognized as the world's standard.

The food laws of the world are in part copies of the English law. The English people have made extensive inquiries into the extent and cause of food adulterations, and their probable effect upon the health of the people. Owing to the great agitation of the people on this subject, a committee was appointed three years ago by the English parliament to prepare a standard for butter? Representatives were called from those countries which shipped butter to England, Holland, Denmark, Sweden, United States, Norway, France and Germany. After careful consideration they recommended what they considered a low standard of 16 per cent of water as a maximum. This was considered too low by the majority of exporters to England. While this standard has never been adopted by the English parliament, it has been recognized and adopted by other countries.

If a conservative people of consumers, like the English, adopt or recommend a standard of 16 per cent for water and consider it low, why should we, a nation of producers, want to adopt a standard which is practically 2½ per cent lower?

The English people are thoroughly posted on this subject, having from Mr. Allen's report analyzed last year seventy-three thousand samples of food products, or an increase of five thousand over the previous year, thus giving an average of one sample to every four hundred and fifty of the population of the whole country. The majority of the samples analyzed were butter and milk. In fact, from Mr. Allen's report little else has been done with the general food supply.

The 16 per cent water as recommended by the English Parliament was considered so low by the Irish dairymen, that concessions were made by the committee last year, allowing Irish dairy butter, or what is sometimes termed Irish pickled butter, to contain twenty per cent water. Quite a lot of butter is made in Ireland in home dairies, and it was found that a standard of 16 per cent would injure this industry; hence a concession was made for Irish pickled butter. This butter is packed in warm brine, and it takes up great quantities of water from the brine, containing sometimes as much as 25 per cent water.

Butter, like many other foods, is not eaten particularly for its nutritive value. It is used more as a relish in connection with other foods rich in protein. Instinct taught this before scientists thought of it. Bread is rich in protein and butter rich in fat. We spread the butter on the bread and have a combination demanded by the system. A person would starve if compelled to live on butter alone. Many foods have their commercial as well as their nutritive value. To have the former, they must have certian specific qualities. Flavor is a predominant factor in controlling the prices of various food products. Well cured Cheddar cheese contains about twice the nutritive value of beef, yet it will not sell for twice as much, and in some cases does not bring as much, pound for pound, as the best cut of beef. The same is true of many varieties of our fruits. Different varieties of apples may possess the same nutritive value, while the commercial value will vary widely, owing to the difference in flavor. Under this same heading come strawberries and raspberries, containing nearly 87 per cent water; yet their commercial value is great.

While the standards referred to are not a law at the present time, there is danger of their being adopted by some states and becoming a law; therefore, they should be thoroughly discussed and understood by the dairymen of the country, especially the producer.

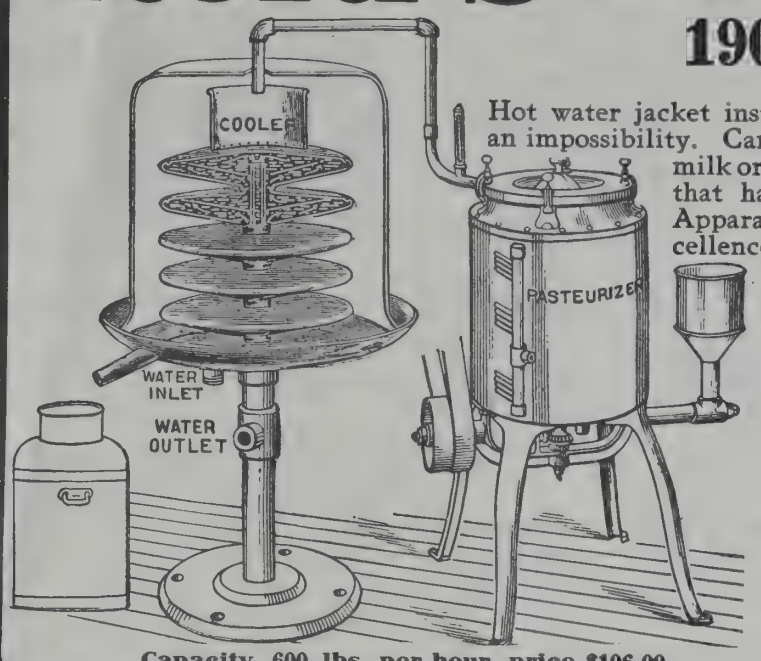
The first consideration in the enactment of any law is, that it should be made workable, without imposing on the innocent. If the 2½ per cent increase of fat would improve the quality of American butter or increase its commercial value, it might not be objected to. The writer has given this subject much thought and attention during the past two years. Three years ago when visiting the London (England) market, I had the opportunity of examining butter from practically all the leading dairy countries of the world. I made a number of tests for moisture, and the driest butter found was from New Zealand. This sold for three cents per pound less than the Danish selected and the French rolls, which contained four or five per cent more moisture.

During the past year we have been carrying on an educational scoring contest. Each exhibitor was requested to send in a twenty-pound tub of his average make, every other month throughout the year. The butter was scored at Ames, and samples were taken from each tub for chemical analysis. The butter was kept at Ames for seven or eight days, when it was shipped to New York and re-scored by Mr. Healy, the well known butter expert, making a lapse of time of fifteen or sixteen days between scorings, thus giving us a fair knowledge of the keeping qualities of the butter. The first score showed the quality when fresh, and the chemical analysis together with the scores of the two judges, gave some reliable data as to what composition of butter was most desirable for commercial purposes.

Results from five tests have been obtained, and the scores have shown that butter containing less than 82 per cent has as great commercial value, if not greater, than that containing more fat. So eighty per cent fat, which would mean about sixteen per cent water, would be a safer standard to adopt. All foods contain more or less water, cheese running from about 27 per cent to 44 per cent, bread over 35 per cent, our fine sirloin steak 54 per cent, tenderloin 66½ per cent and as dry a substance as flour contains 12 per cent water. The moisture in fish ranges from 34 to 87 per cent. Why then, should we want to limit butter to contain only 13½ per cent water? Such a standard would be constantly violated by the producer, unintentionally, and it would be almost impossible for the government to enforce such a law.

Out of one hundred and ninety-two lots of butter received in our educational contest, thirty-seven contained less than eighty-two per cent fat, or 29.3 per cent could have been declared adulterated butter under the standard of 82½ per cent fat. If 29.3 per cent of the butter sent in, representing fifty-five creameries in one state, could be classed as adultered butter, some idea can be formed of the amount of violations there would

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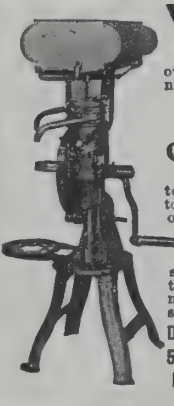
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whether butter comes sweet to the table. If you would shield yours from the deleterious odors it encounters—you know how quickly butter absorbs odors—and preserve its own delicate flavors, wrap the prints and line boxes and tubs with

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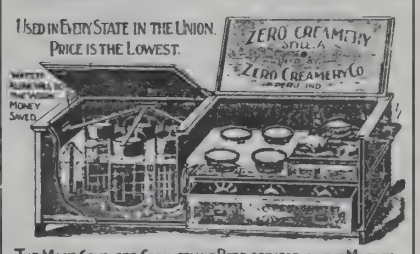
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be throughout the United States if the new standard were adopted.

Butter is composed of casein, fat, salt and water. The amount of casein varies but little from time to time. The amount of salt varies considerably, depending upon the requirements of the market. The water content of butter depends somewhat on the skill of the operator, varying usually from eight to eighteen per cent, very seldom reaching the latter, and the flavor is largely held in solution.

In our last educational contest, the second highest scoring lot of butter contained a fraction over sixteen per cent of water, or about three per cent above the new standard of 82½ per cent fat.

The loss from such a standard would fall on the producer or the dairyman, and would strike the dairy business a very severe blow, especially in Iowa, Wisconsin, Illinois and Minnesota, as these states are large producers of butter.

Taking up the standard of 3.25 per cent fat for milk, if this were to become a law, hundreds of dairymen could be constantly prosecuted for adulteration of milk, over which they have no control. This is quite evident to every creameryman in the country. Many of our very fine Holstein cows that have made wonderful records as butter producers, would come under the ban of the law, and some of our other grades and breeds that are not Holsteins would at times be condemned. Three per cent at the most should be high enough for a standard of this kind. I see no objections to the standard for the other solids, not fat, as published in the recommendations. The two standards mentioned above are certainly of great interest to dairymen.

G. L. McKAY,
Professor of Dairying.
Iowa State College.

A Plain Spoken Letter from New York.

ED. HOARD'S DAIRYMAN:—I listened with much interest to the several addresses of the senior editor of the DAIRYMAN at the Ogdensburg Dairy convention. He also spoke to our farmers at West Stockholm and at Madrid. He spoke the words of earnest conviction and sober truth and I wish to assure him that his efforts were most heartily appreciated. Never mind the small souled editor the *Country Gentleman*. His exhibition of petty spite and jealousy in his malignant allusions to Mr. Hoard, are characteristic of the man. It will not be long before the dairy farmers of New York will have taken his measure in full.

But that is enough on that disagreeable point. What I started to say was that the line of thought pursued by Mr. Hoard is, in my opinion, the true line for all New York dairymen to pursue. We have been drifting away from the solid moorings of fertility in the soil. Our fathers believed in that religiously. The present generation of farmers must confess to the truth of the indictment that there has come two very serious declines, a decline of fertility and a decline of value as shown in the prices of our farm lands.

We must face then two ugly facts. There has been no decline in the value of cows or their products. Now, what has brought these two evils? My answer is much the same as that given by Mr. Hoard. Mere mechanical farming, without the excercise of live, up-to-date brains; farming in a rut. We have been at it 40 years. We have forgotten some of the good things our fathers knew. Clover, for instance; and we have not kept our brains alive to the things modern science has brought to help us out.

We have seen our land grow steadily poorer, and our capital fade out, in the price our lands would sell for, and about all we have done is to lay the blame on the west. We have acted too much like children and not like able-bodied and able-minded men. The first thing in the way of reform to my mind, is to go back to what the old farmers did—sow more clover, keep raising it, sow it with every crop of grain. Whether we expect to seed down the land or not, sow it, as Mr. Hoard said he sowed it, at the rate of 20 pounds to the acre. No matter if it does not last but one year, we are richly ahead on that deal even then. It would bring back the old days of fine crops, if New York farmers would launch out boldly on this clover question. Not one man among them in twenty really knows of his own experience what clover can do for his farm.

Almost every farmer is afraid, has but little good, hearty agricultural pluck. We have been smitten by the paralysis of disbelief and do-nothing skepticism. "It won't pay" is heard concerning almost every proposed reform in our methods.

It would be hard to find any kind of farming that "don't pay" any worse than that kind we are doing now.

A few men in every county have got their eyes open; they are taking hold of every help that modern thought and progress has brought them. They find it pays to sow clover constantly; it pays to grade up the cows by good dairy blood; it pays to overhaul the old, dark, damp, foul stables, and make them light, dry and with pure air; it pays to keep fertility in the farm, dairy qualities in the

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CONSTITUTION TYPE

WASTELAND GUERNSEYS
SPECIAL SALE
To reduce our stock we offer for sale a few Cows and Heifers. We also have some good Bull Calves sired by "Sir Coral" 5239, and "Glenwood's Sheet Anchor of Haddon" 6372. Write at once for description and prices.
M M. & E. J. HOLLINGSWORTH,
Landenberg, Chester Co., Pa.

Rosendale Guernsey Herd
TUBERCULIN TESTED.
Sixty head of choice Guernseys headed by Coralette's Son, (see page 450) whose dam, Coralette made 479.7 lbs. fat in one year at 3¾ years old, and was first prize cow at Wisconsin State Fair in 1896.
Some fine young bulls for sale.
GEO. C. HILL & SON, Rosendale, Wis.

Florham Guernseys.
The herd is made up of representative animals of both home and foreign breeding.
BULL CALVES,
from large producing dams for sale. Apply to **J. L. HOPE, Supt., Florham Farms,** Madison, N. J.

SPOTSWOOD GUERNSEYS
We offer some grand Imported Cows and Heifers, large and deep milkers and high testers; a fine lot of Heifers fit for service, and a few Imported Bulls from prize winners on both sides. Any animal in the herd for sale. Address **WALTER JAUNCEY,**
Spotswood Farms Broad Axe P. O., Pa.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

AMERICAN JERSEY CATTLE CLUB
OFFICES: 8 W. 17TH ST., NEW YORK
President, ELMER A. DARLING.
Secretary, J. J. HEMINGWAY.
BLANKS for Registering and Transferring Jersey Cattle; also Blanks for Private Butter Tests of Registered Jersey Cows, furnished free of charge upon application to the Secretary.
FEES for Registering: To non-members, $2 each head male or female. To members of the Club, $1 each head, male or female. All animals over two years old, double fee. For registration of all dead animals, $1 each. Imported animals, $25.
TRANSFERS are recorded free, if presented within 90 days from date of delivery. Transfers presented after 90 days, $1 each.
PRICE of Herd Register, $1 per Single Volume. Butter Tests of Jersey Cows, including all tests received by the Club to August 1, 1898, $2 per volume. Private Herd Record, $80 pages, cloth, leather back and corners, $2. Pocket Herd Record, 120 pages, flexible leather, 50 cents.
VOLUME OF BUTTER TESTS from August 1, 1898, to July 15, 1902, $1. Consolidated Volume, containing all previous tests, $2.00.
THE BY-LAWS of the Club, giving full rules to be followed in securing registration and transfers, mailed free on application.

ST. LAMBERT BULL CALVES by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.00.
W. J. HUSSEY, Mt. Pleasant, O.

HILLCREST JERSEY HERD.
Bulls for sale out of famous St. Lambert Cows, headed by King of Hillcrest, 61858, by Hart's King of St. Lambert's King, 30752. Some fine Bull Calves and Bulls ready for service cheap if taken soon. For prices and pedigrees address
H. C. JOHNSON, GATES MILLS, OHIO.

HIGH CLASS JERSEY BULLS
Heifers and Cows for sale. My foundation stock the best I could buy from a herd famous for merit Write for what you want.
WM. B. GOODRICH, CLIMBING HILL, IOWA

PROSPECT HILL JERSEY HERD
The cow that can DO something is what the farmers want. Eight cows have finished their official year's work making an average of 524 lbs. each. F. H. SCRIBNER, Rosendale, Wis.

VALLEY FARM is offering some bargains in young bulls sired by "Diploma's Victor, No. 56310, Grandson of "Brown Bessie," or will exchange for heifers equally well bred. For prices and pedigrees write Fred Stubley, Black Earth, Wis.

FOR SALE. Two A. J. C. C. Bulls ready for service; also some younger ones. Cows and heifers in calf to richly bred bulls. Write for pedigrees and prices. We have a few Berkshire Boar Pigs from unregistered sows left; cheap.
N. N. PALMER & SON, Brodhead, Wis.

POLLED JERSEYS
Richest Cow of all breeds in Pan-American Model Dairy. Winning Herd at Ohio and New York State Fairs, 1903. W. H. FORBES & CO., Yellow Springs R. R. No. 1, Ohio.

NAIAD OF ST. LAMBERT
Was a great cow. Aside from her official test she was a full sister of Mary Anne of St. Lambert (36.12 in seven days, 867.14 in a year) and her owner once refused $15,000 for her. Sale List A 21 contains a cow by a son of "Naiad", out of a grand-daughter of "Exile" with a weekly test of 19.10 and a milk record for one year of 11713 lbs., equal in butter fat to 739 9-10 lbs. butter. This cow is due soon to a grandson and great-grandson of "Naiad". Nearly all on this Sale List are deep in St. Lambert blood. It comprises fresh cows, cows nearing calving, heifers, and heifer calves. If interested write for pedigree of cow, and for List A 21.
WINTERGREEN HILL FARM,
SCOTTSVILLE, N. Y.

ROBINSWOOD JERSEY DAIRY has a few head of Young Jerseys, either sex, they are offering below their value, being overstocked. Also a few Barred, Buff, and White Plymouth Rock Cockerels, and one two-year-old Berkshire Boar, (registered.)
N. H. ROBINSON, Prop., Centralia, Wis.

HAZEL FERN HERD. A. J. C. C. Jerseys, blood of St. Lambert, Melia Ann, Combination, Pedro, and Golden Lad. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale.
ESTATE W. S. LADD, Portland, Oregon.

JERSEY BULLS Now or soon to be ready for service; also several well bred HEIFERS. Let us send you prices and breeding, with milk and butter records. All stock is registered or eligible. E. E. STEVENS,
North Madison, Ohio

FOR SALE Son of Pedro's Pretty Pogis, 83660, A. J. C. C., a superb son of old Pedro, both of World's Fair fame. Two yearlings from tested dams. Some royally bred Poland China Pigs, March and April farrow.
J. Q. EMERY & SON, Albion, Wis

PLEASANT VALLEY HERD Of O. I. C. Swine. Headquarters for pure and fashionably bred stock. Boars ready for service. Sows bred and open growthy. Prolific fall pigs now ready to ship. Write for particulars and prices.
A. J. WELKER, ATTICA, N. Y.

cows, and good, sound dairy sense in our minds.

We must take more interest, as the DAIRYMAN says, "live, mental interest," in our farming business. Why not be an enthusiastic dairy farmer, rather than go at it unwillingly every morning, as if one had been whipped to it?

If we will put more pride, enthusiasm and ambition in our work; these qualities will soon lead us out to the knowledge we need to acquire. But whoever saw an unwilling scholar learn, with ever so good a teacher? There is a grand future ahead for the New York dairy farmers in my opinion, if they will but open their eyes to the logic of events. They have the greatest of markets right at their door; they have cheap farms that require but little fixed capital to start with.

All that is required of them is to reach out and take hold of what modern science can do for them to bring up the soil, the cow, and a more intelligent idea of feeds and feeding. We are learning too slowly, only about as fast as the land is wearing out. You in the West will come to it sometime if you don't look out.

Keeping up the fertility is at the bottom of the whole problem. You were right Mr. Editor when you told us at Ogdensburg that any kind of farming which wasted the fertility of the farm was a failure. Keep up your preaching, never mind what bigots or fools may say; keep at it. The dairy farmers of New York are your friends. Yours truly,

Ogdensburg, N. Y. J. F. D.

Wrong Treatment of Alfalfa.

ED. HOARD'S DAIRYMAN:—Last spring I plowed under a piece of clover sod, manured heavy and sowed to alfalfa. Got a splendid stand and clipped four times. About October first it began to die and by November twentieth, it was all gone. Can you give any reason? W. H.

Wautua, Ohio.

It is our belief that the killing of the alfalfa was due to the excessive cutting it underwent. We have often noticed the foolish advice which has been given, to cut the young alfalfa several times the first season in order to kill the weeds. It does not seem to have occurred to these advisers that if such cutting is disastrous to the weeds, it must also be just as disastrous to the young alfalfa. What we want above everything else is to get the strongest and longest root growth on the young alfalfa the first summer.

To succeed in this, the plant must have all the top growth that it is possible for it to make. There is considerable of humbug in this talk about weeds. Our advice in all such cases is to let the alfalfa alone and let it make all the growth it possibly can. We hope our friend will not get discouraged, but try another piece the coming spring. Select a piece of high, rolling land, rich soil, plough once, disc twice and harrow twice. Then sow 30 lbs. to the acre and let it alone, save to give it about 300 lbs. of muriate of potash to the acre when sown.

Transfers of Guernsey Cattle.

BULLS.

Admiral Penwyn 8294, Joseph Cooper to A. B. & A. D. Loveland, Adams, N. Y.
Ajax of Maury 9036, M. F. Hatch to Rev. James J. Hunziker, Snohomish, Wash.
Duke of Alderdon 9037, M. F. Hatch to P. M. Annis, Alderton, Wash.
Fillmore's Sultan 9117, S. M. Shoemaker to Charles H. Jones, Western, Mass.
Golden Morning 6th 8700, Geo. C. Hill & Son to Poplar Guernsey Stock Co., Poplar, Wis.
Glenwood's Maplehurst 9114, G. B. Tallan to Joseph Cooper & Son, Perry, N. Y.
Gold Coast 6311, S. M. Shoemaker to Louis McLane, Baltimore, Md.
Master Rex 9092, Est. L. W. Upham to James R. Hay & Son, Auburn Four Corners, Pa.
Sir Guy of Brookside 8491, N. W. Eveleigh to Walter McMonagle, Sussex, N. B.
Stockbridge Cow Boy 8384, Charles McBurney to James M. Ruso, Albany, N. Y.
Trust 9124, E. W. Tillotson to Roger N. Francis, West Hartford, Ct.

Cows.

Blanche Select 14824, Mollie S. 10805, Stamboul's Goldie of Fairview 13646, N. E. Smith to John H. Bolby, Bath, N. Y.
Clara K. 16740, F. Rietbock & Geo. C. Hill & Son to Merritt L. Welles, Rosendale, Wis.
Christine Girl 12116, Manly Drennen to T. F. Kavanaugh, West Grove, Pa.
Lady Dobbin 12114, Manly Drennen to G. W. Lukens, West Grove, Pa.
Lady Dobbin 12114, George W. Lukens to W. W. Hepburn, West Grove, Pa.
Quoin 2d 16736, F. Rietbrock & Geo. C. Hill & Son to Chas. L. Hill, Rosendale, Wis.
Queen Cherry 15471, Stockbridge Norah 16960, Stockbridge Peggy 13012, Charles McBurney to James M. Ruso, Albany, N. Y.
Ruth of Hopkinton 12418, John M. Morse to Charles W. Hoitt, Nashua, N. H.
Sophia K. 16747, F. Rietbrock & Geo. C. Hill & Son to Geo. B. Robbins, Chicago, Ill.

Peterboro, N. H. WM. H. CALDWELL, Sec.
Jan. 13, 1904.

SEEDS AND GRAIN

Write for our 1904 Annual Seed Catalogue mailed free. Also Price List of Recleaned Red, Alsike, and Alfalfa Clovers, Timothy, Kentucky Blue Grass, Orchard Grass. Also other Farm Seeds and Grains.

Feeding Corn and Oats in car lots delivered track your station.

Let us know your wants.

THE HENRY PHILLIPS SEED AND IMPLEMENT COMPANY,
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FREE--GREAT CROPS OF STRAWBERRIES

AND HOW TO GROW THEM

A strawberry book written by the "STRAWBERRY KING," so called because he discovered the way to develop the fruit organs in a plant and make it grow two big berries where one little one grew before. He grows the biggest crops of the biggest berries ever produced and the book tells all about how he does it. It is a treatise on PLANT PHYSIOLOGY and explains correct principles in fruit growing. It is worth its weight in gold to any fruit grower. Will be sent free to all readers of HOARD'S DAIRYMAN. Send your address now. The finest THOROUGHBRED PEDIGREE PLANTS in the world.

R. M. KELLOGG, Three Rivers, Mich.

BUY DIRECT FROM FACTORY, BEST

MIXED PAINTS

At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA.

President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.

FEES FOR REGISTRY.

TO MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.

NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. ☞All blanks furnished free.

Life Membership, $25.

Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.

Address F. L. HOUGHTON, Brattleboro, Vt., for information relating to Registration of Pedigrees



HOLSTEIN CATTLE The Choicest Milk and Butter breed in the world. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

VALLEY FARM HERD

HOLSTEIN-FRIESIANS

During September and October nearly all of our calves have been bulls and we shall offer them at from thirty to fifty dollars, registered, until the number is reduced. Sired by a great butter bull, and only from our largest milk and butter producers.

DON J. WOOD,
R. F. D. No. 2. WEST WINFIELD, N. Y.

AS IT IS NOW TIME cattle should be housed we find we must sell thirty-five of our high-bred large producing Holsteins, as we haven't room to stable but 100 head this winter. Visit the Brookside Herd now and secure something choice.

We Guarantee Stock as Represented and to be breeders. Quality unsurpassed. Prices will be reasonable.

STEVENS BROTHERS, Lacona, N. Y.

OAK GROVE HERD Headed by Mechthilde De Kol Pietertje Paul. No. 29548. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

STAR FARM HOLSTEINS

BEGIN THE NEW YEAR RIGHT.

Now is the time to dispose of your scrub bull and buy a registered Holstein. Star Farm is the place to buy. I will cut regular prices fifty per cent for the next thirty days. It costs no more to buy the best than it does a cheap one. Write for tabulated pedigrees and markings today.

HORACE L. BRONSON, Cortland, N. Y.

GREEN VALE HERD Offers Sir Mercedes De Kol, No. 27097, four years old, and bull calves sired by him from choice cows, best families. Write for prices. M. F. PECK & SONS.....MARSHALL, WIS.

LOOK HERE

34 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.93. 9 three-year-olds average 15.06 lbs. of butter in seven days; average per cent of fat 3.60. 8 two-year-olds average 12.16 lbs. of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by Gem Pietertje Hengerveld Paul De Kol, or Sir Ormsby De Kol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days; average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd?

For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis. Residence: National Ave., near 40th. Phone, South 1601.

TYRANENA HERD

100 HOLSTEIN-FRIESIANS

A. R. O. STOCK FOR SALE.

Both sexes, all ages. Herd headed by Sir Piebe Hengeweld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz. Frank B. Fargo, Lake Mills, Wis.

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Offers 5 yearling bulls cows and heifers bred to oldest son of Mercedes Julip's Pietertje, No. 39480. Chester White Pigs in pairs and trios, not related.

W. R. GATES, Fort Atkinson, Wis.

HOME FARM HERD.

Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams, 25.1 lbs. butter in seven days. Herd numbers 125 head.

BEST FAMILIES REPRESENTED.

Special prices on six or eight bulls of serviceable age. W. B. BARNEY & CO., Hampton, Ia.

ELMWOOD Home of Leila Pietertje 27 lbs. 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.

GEO. T. McNEIL, Theresa, N. Y.

FOR SALE H.-F. A. R. O. cows and heifers, bred to Duchess Ormsby Piebe Burke, No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address Rural Route No. 2. W. H. JONES, Watertown, Wis.

THE MONONA FARM HERD

OF HOLSTEIN-FRIESIANS

Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 69.50 lbs. one day. Breeders and dairymen please write for prices.

F. W. ALLIS,
Monona Farm. Madison, Wis.

FOR SALE H.-F. BULLS, ready for service, from A. R. O. cows and sired by Sir Johanna DeKol, 25487 A. R. O. Butter record of dam, 24.03 lbs. at 4 yrs. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis.

SUNNY SIDE HERD Offers for sale a young bull whose dam as a three-year-old and sire's dam have an average official record of over 20 lbs. in 7 days. Price right. Address C. A. SNOW & SONS, Athens, Ohio.

HOLSTEIN-FRIESIAN BULL FOR SALE

Born November 27, 1902.

31 of his dams' records average 74.8 lbs. milk 1 day
28 of his dams' records average 19.4 lbs. butter 7 d's
20 of his dams' records average 16,171 lbs. milk 1 yr.

THE WINTERS FARM, Smithboro, N. Y.

GENESEE HERD Offers a choice bull. Dam's official test 17 lbs. 12.3 oz., 85.7 %, average % fat 4.02; weight 725 lbs.; calved Nov. 10, 1902. $125 00. He is a good one. Write

McKAY BROS., Buckingham, Iowa.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. Depot. Stock of both sexes and different ages for sale. Bulls in service are: Homesterd Prince De Kol No. 25883. Sire: Pietertje Hengeveld Paul De kol No. 22128. Dam: Shadeland DeKol No. 41386 A. R. O. in 2 y. f. milk 383.2 lbs., butter 15 lbs. 5.3 ozs. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148. Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 ozs. Average per cent fat 4.92. Correspondence solicited.

WM. EVERSON & SON, Lake Mills, Wis.

HOLSTEIN BULLS. We have some grandly bred young bulls ready for service. One of the largest and best advanced registry herds in the United States.

PIERCE LAND & STOCK CO. 14 Turk St. San Francisco, Cal.

BREEDERS AND DAIRYMEN Do you want a H.-F. Bull Calf for use this winter which will improve your herd? Do you want him elegantly proportioned, with straight back, high rump, and all the dairy points? Do you want one whose relatives are A. R. O. and eligible to the Advanced Register himself? If so, I have a choice lot, just such as you want.

MALCOLM H. GARDNER, Darien, Wis.

INDIANA'S FAMOUS HERD OF H. F. CATTLE

We now offer cattle of both sexes and all ages. As for breeding, individuality and ability to perform at the pail, they will rank second to none. For particulars and prices address

JOHN SHUGART & SONS, Marion, Ind.

SPECIAL BARGAINS IN

Holstein-Friesian Bulls

From a few months to a year old, from official record dams, and with strong official backing on both sides. The sire is half the herd; it is important that you get the right one. We have that kind, and our prices are no higher than others are asking. HENRY STEVENS & SON, Brookside Stock Farm, Lacona, Oswego Co., N. Y.

HOLSTEIN-FRIESIANS Choice Heifers and Heifer Calves, of fine individuality and excellent breeding. Also one yearling bull, and one bull calf, at prices that will surprise you.

FAIRVIEW FARM, Pennellville, N. Y.

FOR SALE 2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.

M. S. CAMPBELL, Genoa, DeKalb Co., Ill

CLOVERDALE HERD

Is now better than ever prepared to fill your orders for a foundation herd of young Holsteins. For individual merit and performance our herd ranks well up among the best in America. Write us your wants before buying. Address

A. J. DAUGHERITY, Streator, Ill.

Woodlake Herd.

Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN, Station D., R. I. Minneapolis, Minn

MARKHAM MANOR FARM,

Simonsville P. O., Andover, Vt.

Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 18370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for discription and price to J. A. THORNTON, Manager, Simmonsville, Vt.

HOLSTEINS IN CALIFORNIA

SAN ANSELMO, MARIN COUNTY

250 HEAD IN THE HERD

Sires are sons of Mercedes Julip Pietertje, Colantha 4th Belle Korndyke, Fay Barnham Princess Wayne 7th. A fine lot of bull calves

R. M. HOTALING,
Rialto Building San Francisco, al.

SOUTH SIDE FARM

WHITE BEAR LAKE MINN.

HOLSTEIN-FRIESIANS—We now offer at attractive prices fine young bulls from high tested A. R. O. cows, and sired by Prince Inka Pietertje De Kol 2nd, who already has to his credit 11 A. R. O. daughters. To make room in our stables we offer a few cows and heifers for sale at low price. Write us for particulars

HOLSTEINS HOLSTEINS

We must sell six Bull Calves, and three Heifer Calves, all under four months of age. The bull calves are all sired by Clyde Paul De Kol and their dam's and sire's dam average from 20 to 22 lbs. butter in seven days.

Could spare a few cows. Will make prices right, for we must make room.

W. B. SMITH & SON,
2488 W Broad St. Columbus, Ohio

HOLSTEINS

High Class Advanced Registry Stock only. Best butter families. Stock for sale.

Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.



T. G. YEOMANS, strain of H. F. Cattle, nearly the same breeding of Sadie Vale Concordia. Waynes Aaggies, Netherlands, Americas, Pauline Pauls and De Kol Bulls old enough for service, and Bull Calves for sale.

Wm. O. Jackson & Sons, South Bend, Ind.

Holsteins For Sale

AT BARGAIN PRICES

10 Fresh Cows including 7 A. R. O. Cows. Also Heifer and Bull Calves must be sold at once.

JOHN C. CODFREY
R. F. D. 3. FULTON, N. Y.

FERMANAGH HERD

HOLSTEIN-FRIESIANS

Bulls ready for service from A. R. O. animals sired by Johanna Rue 2d Paul De Kol, sire of 18 A. R. O. cows. Also young bull calves by same sire. THOS. GAINES, Supt., Arcadia, Missouri

FINE POULTRY FOR SALE

I offer a very select lot of White as well as Buff Plymouth Rock Fowls of the present year's breeding for sale. Each breed have been kept on separate farms and are absolutely pure in their breeding. They will be sold at

$5.00 A TRIO

Nicely crated on board of cars here.

Single Fowls, $2.00 Each

They have had the range of alfalfa fields the past summer and are very vigorous.

A. R. HOARD,
Fort Atkinson, Wis.

The Breeders' Consignment Sale of Holsteins,

We are pleased to publish in this issue the pictures of the well known breeders of Holstein cattle, Mr. T. A. Mitchell, Weedsport, N. Y., and Mr. Ward Stevens, Lacona, N. Y. These gentlemen are members of the Breeders' Consignment Sale Co., of Holstein cattle, Syracuse, N. Y., which is composed of the following well and favorably known breeders: H. L. Bronson, Cortland, N. Y.; H. A. Moyer, Syracuse, N. Y.; H. P. Knowles, Worcester, Mass.; A. A. Cortelyou, Neshanic Station, N. J.; Stevens Bros,, Lacona, N. Y.; and T. A. Mitchell, Weedsport, N. Y.

Messrs. Mitchell and Stevens are now in Holland, having been selected as a committee to visit the largest and best known breeders of that country with instructions to pick out at least fifty head of the finest young heifers to be found, and with the reputation that these gentlemen have for being good judges of this breed, we may certainly have reason to believe that they will bring back some very fine animals. This importation with about 125 head more of the best strains in this country, will be placed in their semi-annual sale, which will be held on the New York State fair grounds, June next.



T. A. MITCHELL.



WARD STEVENS.

Dairy Questions Answered by Prof. Farrington.

CREAMERY AND CHEESE FACTORY COMPARED.

"Will you please give me a little advice. I am a beginner in the dairy business and would like to know what I shall do. I have been sending cream to a butter factory and have averaged $36.00 per cow for fourteen cows during the year. My neighbors are building a cheese factory and want my milk. What shall I do? I have a hand separator and the butter maker gets the cream free of charge for hauling. How can I figure out the returns I shall receive at the creamery and the cheese factory? How do whey and skim milk compare in feeding value and in the amount of fertility that is carried away from the farm?"
Leland, Wis.

* * *

In reply to your letter received some time ago I beg to say that in making a decision as to whether you will patronize a creamery or a cheese factory you should take into consideration the market price of butter and of cheese as well as the difference in the feeding value between skim milk and whey. Careful experiments have demonstrated that the feeding value of whey is about half that of skim milk when fed to pigs; that is to say, 100 pounds of skim milk are about equal to 200 pounds of whey for feeding purposes.

In calculating the amount of butter and of cheese that will be made from your milk, it is fair to assume that approximately ten pounds of cheese will be made from 100 pounds of your milk, provided the milk tests about four per cent fat, and that the same milk ought to make about 4½ pounds of butter. The average price of cheese may be placed at 8 cents so that the cheese value of your mllk will probably be 80 cents per hundred and if to this you add the feeding value of the whey, which will possibly be ten cents, the amount received per hundred pounds of your milk at a cheese factory may be calculated at 90 cents.

If butter is made from your milk the 4½ pounds of butter at 20 cents a pound will amount to 90 cents and if the feeding value of the skim milk is twice that of whey, the skim milk will be worth 20 cents, which added to 90 cents makes $1.10, which will be received for your milk if it is made into butter on this basis.

As you have a hand separator the skimming of the milk at home will probably off-set the work of drawing your milk to a cheese factory, so that at the price mentioned you will get more for your milk by patronizing a creamery than a cheese factory. This, however, should not be taken as a conclusive argument but simply an indication of the method by which you may figure the returns that you will receive by patronizing either a creamery or a cheese factory.

Compare the price paid for cheese and for butter to the patrons at the two factories and then make the calculations yourself as to how much butter and cheese your milk will make, then assume that the feeding value of the skim milk is twice that of the whey, and you should be able to determine for yourself which factory you want to patronize.

In selling milk to a cheese factory some more fertility is carried away from the farm than by selling milk to a creamery and keeping the skim milk at home. The reason for this is the fact that cheese contains considerably more of the fertilizing ingredients of the soil than butter fat contains.

STRONG ACID IN TESTING.

"Is it possible for sulphuric acid to be in such a condition as to make milk test too high? A certain party in this territory did some testing and then the next day he came back and said his acid was too strong and this made the tests too high. He took some new samples the next morning and his second tests were much lower than the first ones. He says the difference in test was due to the strength of the acid used in the two cases. I think my tests are running too high, but I can not blame it to the acid."
Woodlawn, Wis.

* * *

I do not think it is possible for sulphuric acid to increase the test of milk, because there is no fat whatever in the acid itself. It is a fact, however, that when samples of milk are tested with an acid which is too weak the results are apt to come low because the acid is not strong enough to dissolve all the curd in the milk and liberate all the fat from it. If, therefore, you get a higher test of the same sample of milk by using a stronger acid than was obtained with the weak acid, the result is undoubtedly due to the more complete action of the strong acid on the milk than was obtained when the weak acid was used.

It is not often that a difference in strength of acid is the cause of inaccurate testing, because a too weak acid interferes with a clear separation of the fat and the operator will notice that something is the matter with his test.

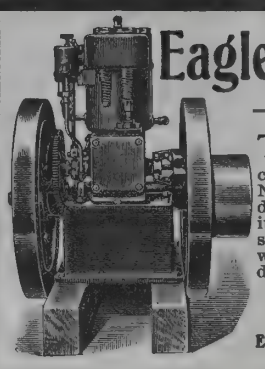
The variation in the tests of the samples you ask about is probably due to the difference in the quality of the samples tested. It is very necessary that milk should be thoroughly mixed if duplicate samples are to be tested from the same lot. It is quite possible that the differences noticed are due to a failure to get a



The "Penny Wise and Pound Foolish"

Policy has an apt illustration in the man who buys a CHEAP gas or gasoline engine. Unreliable service, frequent and expensive repairs, wastefulness in fuel and short life offset many times over, the small saving in first cost. The "OTTO" is the original and BEST. Suppose it does cost a little more money, the extra dollars are well invested. 70000 users throughout the civilized world support us in this claim.

THE OTTO GAS ENGINE WORKS, Philadelphia, Pa.

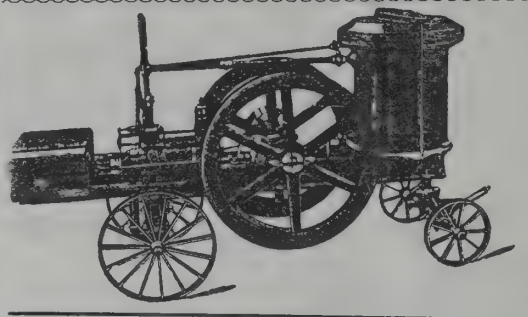


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1904 MODEL

THIS ENGINE is of the four Cycle type and is especially designed and adapted for use on the farm—for separators, churning, pumping, elevating, hoisting, cutting ensilage, etc. No Expert or Engineer required to operate it—very simple in design and compact in construction. This engine is built so it can be easily moved from place to place. We can supply a special belt driven pumping jack to be used in connection with any pump having a wind mill head. Write for prices and description to

EAGLE BICYCLE MANUFACTURING CO.,
Engine Department. TORRINGTON, CONN.



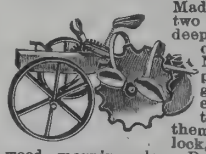
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Made single or double. One or two furrows five to ten inches deep; 14 inches wide. For two or four horses. Light draft. No side draft. No similiar plow made. When Clark's grass tools are used as directed in his grass circular, we, the C. H. Co., guarantee them to kill wild mustard, charlock, hard hack, sunflower, milk weed, morning glory, Russian thistle or any other foul plant that grows, or money refunded. Now is the time to commence work for next year's seeding to grass.

Clark's Root Cutter.



TWO SIZES. Cuts 1 or 2 bushels per minute, for fowl or beast. Gouge cutters never choke or clog. Price $7 to $15.

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The MILWAUKEE Weekly Bulletin

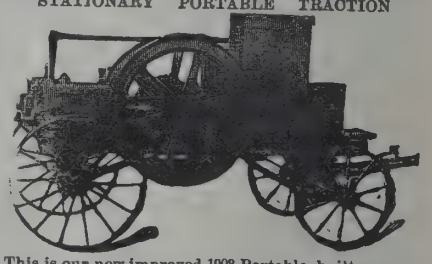


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STATIONARY PORTABLE TRACTION



This is our new improved 1903 Portable, built on practical lines. Guaranteed horse power. Easy to start; operates successfully in zero weather. No vibration when running light or on full load. Winner in appearance. Every engine sold on fair trial, fully guaranteed. Write for catalogue No. 5, prices and terms.
C. P. & J. LAUSON, 103 West Water Street. Milwaukee, Wis

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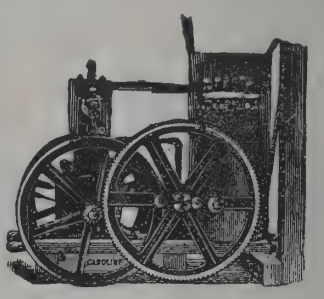
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THE STANDARD PAINT CO.
Department M
100 William Street, N. Y.



You will be well pleased if you buy a

WATERLOO GASOLINE ENGINE

Write for catalogue descriptive of Stationary, Portable and Pumping Engines.

WATERLOO MOTOR WORKS,
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LIGHTNING WELL MACHY

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STEAM PUMPS, AIR LIFTS, GASOLINE ENGINES

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THE AMERICAN WELL WORKS

AURORA, ILL. CHICAGO. DALLAS, TEX.

ICE CUTTING

is easy with DORSCH ALL STEEL, DOUBLE-ROW ICE PLOWS. Marks and cuts two rows at a time; cuts any size cake and any depth, and does it with ease and economy. Does the work of 20 men sawing by hand. Pays for itself in two days. No farmer, dairyman, hotel man or other can afford to be without it. Have a supply of ice and enjoy the comforts of life in the Summer. Ask for catalogue and introductory prices. JOHN DORSCH & SONS, 212 Wells St., Milwaukee, Wis



Made in Three Sizes.

DON'T BUY GASOLINE ENGINES UNTIL YOU HAVE INVESTIGATED "THE MASTER WORKMAN"

A two-cylinder gasoline engine; superior to all one-cylinder engines. Costs less to buy and less to run. Quicker and easier started. Has a wider sphere of usefulness. Has no vibration; can be mounted on any light wagon as a portable. Weighs less than half of one-cylinder engines. Give size of engine required. Especially adapted for irrigation in connection with our centrifugal force pumps. (Sizes 2, 2½, 4, 5, 6, 8, 10, 12 and 16 horse power. Mention this paper. Send for catalogue.
THE TEMPLE PUMP CO., Meagher and 15th Sts., CHICAGO.

fair sample of milk in both cases.

Too high tests may also be due to making the tests in a turbine tester which heats the bottles up to a high temperature and expands the fat so that the reading of the tests is exaggerated. The fat in the test bottles should have a temperature of about 140° when they are read. When this is done and the fat is read at a uniform temperature each time, I think tests may be made by two different parties, from the same lot of milk, and the results agree very closely.

BUTTER MAKING PRICES.

"I have a chance to start a creamery for the farmers in this neighborhood. They want to put up the building and do the hauling of ice, wood, etc. They want me to put in all the machinery, pay all running expenses and deliver the butter to a railroad six miles from the factory. What should I charge the farmers per lb. of butter for making under these conditions? I do not know how to make a contract so as to get everything fair and satisfactory for both parties. I wish you would give me a sample contract so that I may know how to start this enterprise for my own benefit and for the farmers also.

Hart, Minn.

* * *

From the description given in your letter of the conditions under which you are requested to operate the creamery, I should think the patrons ought to be willing to pay you four cents a pound for making the butter at the beginning of the enterprise. If they will allow you this much until the machinery is paid for and the milk supply increases so that you get somewhere near ten thousand pounds of milk in the summer, you will probably be able to reduce the price to three cents per pound of butter in the future. There are some large co-operative factories that are able to make butter for less than 3 cents per pound, but they receive twenty thousand pounds of milk per day and in some cases more than this. Under such conditions the butter can be had at a less price per pound than when the factory is new and it is uncertain how much milk it will receive.

A contract which ought to be satisfactory to all parties concerned, may read as follows:

"I hereby agree to buy all the machinery necessary for equipping a creamery, and to make the butter for such farmers as may patronize the factory, at the rate of four cents per pound for making for one year, provided not less than an average of five thousand pounds of milk per day are received at the factory during the year."

Such a contract as this is a fair one for both you and the farmers. This is assuming, of course, that there is a reasonable certainty of your receiving so much milk as this. You should canvass the territory and ascertain the sentiment of the farmers thoroughly, before investing your money in the necessary equipment of the factory, because it would be a losing investment for you to buy all the machinery and then operate the factory for only a short time.

If such a contract as this is agreed to for one year, you will be able at the end of that time to get acquainted with the community and will probably be able to make a contract by which you can produce the butter cheaper the next year. One year at a time, however, is sufficient for making such a contract as this.

USING A CREAM WEIGHING SCALE.

"Will you please send me directions for using a cream weighing scale and explain to me how to test cream from hand separators? This is something new to me. I do not know how to test cream as I have always taken in milk at the factory heretofore."

Little Black, Wis.

* * *

Scales for weighing cream when using the Babcock test should be so made that they will easily be moved by even a small drop of cream when it is dropped into the test bottle. This is the one important point to be noticed in buying a cream scale. It should be sensitive and in order to keep it sensitive it is essential that a scale should have agate bearings. Such cream weighing scales as these are now on the market and sell at a price of $10.00 I believe.

The way in which these scales are used is the following: The scales are first tried and made to balance accurately with bits of paper or other material. A dry test bottle is then put on one pan and a weight on the other; to exactly balance it; from five to ten c. c. of cream is then allowed to flow into the cream bottle from the pipette, and some butter makers find that it saves work in figuring, to carefully guage the dropping of the cream from the pipette so that they may stop it as soon as the scale shows just enough cream has been run into the bottle to exactly balance the weight desired. In this way the same amount of cream is weighed for each test.

This method of weighing the cream will be satisfactory provided the butter maker can split drops of cream or stop at just the point when he has a sufficient quantity to balance the weight. It requires some dexterity on the part of the butter maker to do this and unless he does it accurately there will be a trifle more cream in some bottles than others and the results will be correspondingly inaccurate.

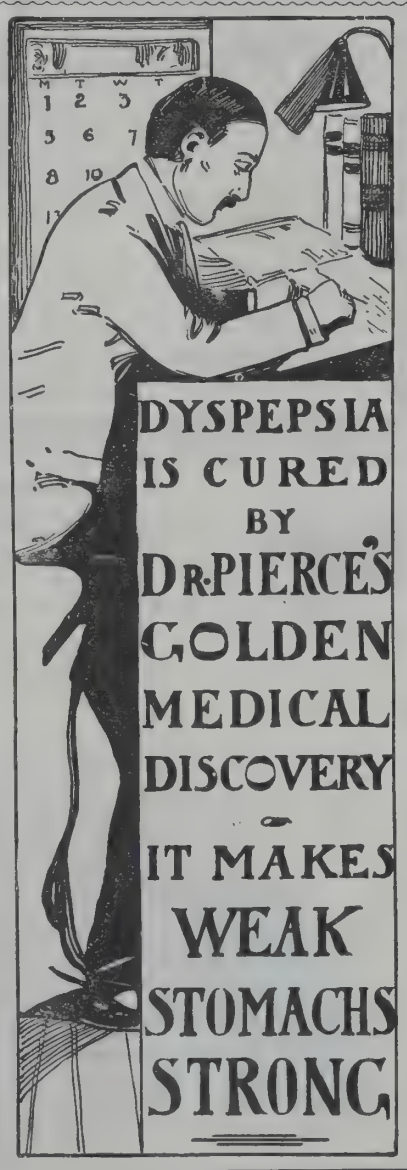
The safest way for weighing cream, in my judgment, is to allow a certain quantity to run into the cream bottle on the scale and then accurately weigh it by means of a sliding indicator on the side bar of the cream scale. In this way you will be able to weigh each lot of cream accurately and this accuracy in weighing will help in getting exact results.

After the cream is weighed into the bottle, a sufficient amount of water is added to each one, so that the total volume of cream and water will amount to about 17.6 c. c; the acid is then added to the cream in the bottle and the test made in the usual way.

Reading the fat in the neck of the test bottle will not show at once the per cent of fat in the cream tested, unless you have weighed 18 grams of cream into the bottle in the first place. You will have to calculate the correct test of the cream from the reading. This is done by multiplying the reading by 18 and dividing the product by the weight of the cream taken. We will suppose that you weighed 4.75 grams of cream into a bottle and after the test was completed the fat in the neck read 5.2. The correct test of this cream may be found as follows: Multiply 4.75 by 18=85.5, which divided by 5.2 gives 16.44, the correct test of the cream.

E. H. FARRINGTON.

Wis. Dairy School.



St. Jacobs Oil

Loses no time in curing Lumbago. It is prompt and sure.

BROWN'S BRONCHIAL TROCHES

Fifty years of success. The simplest and best remedy for Coughs and Throat Troubles.

Sold in Boxes only. Avoid Imitations.



YOU ARE MAKING BUTTER FOR THE PROFIT THERE IS IN IT

You must make your butter the best possible if you would command the highest price.

Colonial Butter Salt

AND

Liberty Butter Salt

"MONEY MAKERS FOR BUTTER MAKERS"

Are freely credited, by the creameries who use them, with improving the quality of the butter over any other salt, being perfect in flavor, color, and purity, lighter and drier than any other, dissolving more quickly, preventing danger of streaked or mottled butter, while it is safe to work the butter less with these salts than with other makes. Regarding our two brands,

COLONIAL Butter Salt is a light, flaky grain, the lightest for the same bulk that there is on the market. While other makes use a barrel with but a 30 inch stave and a 19 or 20 inch head to hold 320 lbs., Colonial requires a barrel with a 34 inch stave and a 21 inch head to hold the same weight.

LIBERTY Butter Salt is granulated, every grain of the same size and perfectly square; contains one-tenth of one per cent. moisture, so it, as well as the Colonial brand, has the "make weight" feature. It is a little coarser in grain than any other granulated salt, which is a decided improvement, and because of its uniform grain it dissolves evenly and does not leave the butter gritty or mottled.

Send for Free Sack

of either or both these brands. Your request on a postal card will assure the prompt delivery to creameries and cheese factories only, without cost, a 56 lb. sack of either or both. Let us know your success with it after trial.

COLONIAL SALT COMPANY, AKRON, OHIO.

CHICAGO OFFICE.....84 ADAMS STREET

BUTTER FOR UNCLE SAM

THE CONTINENTAL CREAMERY COMPANY
TOPEKA, KANSAS

Has been awarded the contract to supply the United States Navy with half a million pounds of butter for the ensuing year.

For this purpose only the best quality of butter is used, and its keeping quality must be made of the very best, owing to the fact that the entire year's supply must be made within a few months and it is carried through all conditions of climate.

The government has made a thorough study of supplying butter to suit the requirements of the Navy and as a result it has laid down some very exacting standards to which those who bid for these contracts must comply. One of the few concerns who can fulfill these requirements is the Continental Creamery Co. and it was awarded this contract, which is the biggest single order for butter ever filled.

This company produces the greatest quantity of fancy creamery butter in the world, all of which is made from pasteurized cream. Surely it knows something about making good butter. It also knows from actual experience and the investigations of its chemists, that one of the factors in making good butter is

WORCESTER SALT--IT USES NO OTHER

FOR SALE BY ALL CREAMERY SUPPLY HOUSES.

WORCESTER SALT COMPANY
168 DUANE STREET, NEW YORK.

Creasey Ice Breakers

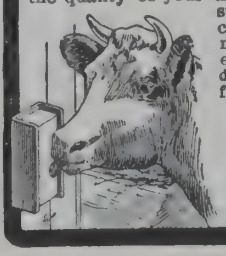


Dairymen and shippers of milk and cream find them most efficient, economical machines, and the greatest savers of time and ice. Easy to operate. Rapid cutters. The design is right. Made in sixteen sizes to suit every requirement. Send for catalogue "11-B" which gives full particulars.

J. S. L. WHARTON, Mfr.,
17th Clearfield St., Philadelphia, Pa.

Compressed Pure-Salt Bricks.

Increase the quantity and improve the quality of your dairy products by supplying your cows with this modern convenience. Ask your dealer or send for free booklet to the



Belmont Stable Supply Co.,
Brooklyn, N. Y.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—On the Elgin Board of Trade today the Quotation committee reported the official market firm at 22c.

In the absence of Messrs. Long and McCredie, Messrs. Oatman and Nolting served on the Quotation Committee.

The former markets were as follows:

Date.	Tubs Sold.	Price.
Jan 18, '04	0	22c
Jan. 19, '03	0	27c
Jan. 20, '02	29	24c
Jan. 21, '01	0	22c
Jan. 22, '00	144	24c

Output for Elgin district, 432,400 pounds; output last week, 435,900 pounds.

Elgin, Ill., Jan. 25, '04. H. C. B.

CONCERNING OUR ADVERTISERS.

THE NEW MANURE SPREADER.

Our readers will find elsewhere in this issue the initial announcement of the National Light Running Manure Spreader, made by Enterprise Wind Mill Co., of Sandwich, Ill. This is the latest machine of its class, and its makers claim has many important improvements over other makes. They promise a very handsome catalog which will be sent free to any reader who is interested in spreading manure by machinery. Address Enterprise Wind Mill Co., 107 Main St., Sandwich, Ill.

Don't force your cows to drink ice cold water. If you do the cows will not drink the water they need until driven to it by extreme thirst, and then drink the quantity of ice cold water that requires hours for the body to regain the normal condition of comfort. It is not simply a question as to whether you want more milk from your cows, but as well whether you want to warm that water with feed or wood. The Winona Tank Heater Co., of Winona, Minn., make an excellent heater for tanks. Their circulars you can get for a postal card. Mention HOARD'S DAIRYMAN.

AN INTERESTING DEVICE.

Among the many utensils for creamery users one of the interesting ones is the Taber Rotary Pump which occupies a unique field in the pumping world. It operates at slow speed and still does a maximum amount of work. Its extreme simplicity and the ease with which it is cleansed and kept in operation, makes it a device of which every dairyman should know. The Taber Pump Co., Swan St., Buffalo, N. Y., will be pleased to send their catalogue describing this pump free to interested parties.

FARM ECONOMY.

There is much heavy lifting and loading about the farm. In the case of hay, grain and litter, in handling the fork or the shovel at the best, there is call for mechanical help. The greatest relief to the burdensome toil about the barn and the field is found in the low metal wheel wagon with grooved tires. One-half of the effort in lifting and pitching is usually dispensed with. The manufacturers of the metal wheel with grooved tire, the Havana Metal Wheel Co., Havana, Ill., claim that for many purposes this is a stronger and more durable wheel than is afforded by the plain tire. They manufacture plain tire wheels for those who desire them, as well as low down wagons concerning which our readers would do well to write them.

Look for Marvin Smith Co's buggy advertisement in this paper. It's very attractive and they are making some very low prices. If you want a vehicle of any kind the advertisement will nterest you. We guarantee their responsibility.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Schmidt Treatment For Milk Fever.

Please give me, through your paper, the new treatment for milk fever from Denmark.

Grand Rapids, Mich. V. BROS.

ANSWER.

Dissolve 2½ drams of potassium iodide in a quart of water, which has been previously boiled, and keep the solution as nearly as you can the temperature of body blood. Then milk every drop of milk from the cow's udder, and clean with soap and water; when dried, disinfect the udder and teats with a solution of Zenoleum (1 teaspoonful to a pint of water). Then take a small glass funnel and attach to the same a rubber hose about 4 or 5 feet long, affix to the end of this hose an ordinary milking tube, insert the milking tube into the teat and slowly pour in your solution, dividing it equally between the four teats; when this is done apply massage to the entire udder for 5 or 10 minutes every hour, until the cow comes to her feet. Do not allow the calf to suck during the time the cow is being treated. If the cow is costive, remove the contents of rectum by hand. In case of a weak heart, small doses of aromatic spirits of ammonia may be given with water every hour; avoid large bulky doses of any kind, or your patient may suffocate from same. If your patient is not on her feet in 8 or 10 hours, the above dose may be repeated, but it is rarely necessary. This is practically the Schmidt treatment, and s almost a specific.

The writer has treated 167 cases of milk fever from Jan. 1st, 1903, to Jan. 1st, 1904, with the above treatment, out of which only 6 cases proved fatal and 161 made nice recoveries. It has been demonstrated to the veterinary profession that the potassium iodide in this treatment is not responsible for its success, but that the oxygen administered with the solution, deserved the credit.

We have therefore concluded to experiment with two cases in which the potassium iodide was entirely omitted, otherwise the above treatment was carried out to the letter, with the exception that a little more air was allowed to enter the udder while injecting. Both of these cases recovered and are giving their usual flow of milk.

Pure oxygen is being used with good results in the treatment of milk fever, but if it can be administered with the water in the form of air as above demonstrated. It is surely cheaper and always at hand.

Abscesses in Udder.

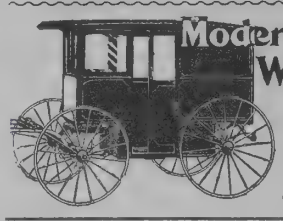
We tried the remedy prescribed by you, viz—iodine resub, 1 oz.; lanolin, 16 oz.; applied warm, rubbed on well twice daily and acetate of potash, 1 oz.; fl ex poke root, ½ oz., in 1 qt. warm twice daily.

The udder has been softened considerably by the treatment but the udder has broken in three places one after the other at intervals of about one week. These three abscesses have been, two on the right side and one on the under side of right half. Left hal fof udder is partly in normal state now but right half seems quite diseased yet and the udder is now swelled moderately hard near top of udder on back of it. We are trying to reduce it by rubbing well with the lanolin ointment and are continuing the liquid drench twice a day as directed. J. M.

Mich.

ANSWER.

In addition to your present treatment you might give a full dose of Epsom salts,



Modern Dairy Wagons

described in our catalog.

KOENIG & LUHRS Wagon Co., Quincy, Illinois

DIRECT TO YOU At Factory Prices and you save Middlemen Profits.

We are the only vehicle manufacturers who sell you one buggy at same price dealers pay by the car load. Our Custom Made Vehicles are built from best material. Guaranteed two years. Our $30 buggy equals any sold at $45. Satisfaction guaranteed.



$30

Get our liberal 30 DAYS' TRIAL and freight offers. Harness, Wheels, etc. at lowest prices.

Write today for Free Money Saving Catalogue.

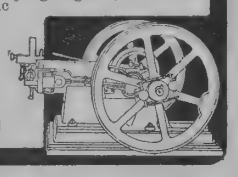
U. S. BUGGY & CART CO., B 887, Cincinnati, O.

All Purpose Powers

Two horse and up, adapted to a long line of farm and mechanical purposes. No other power so safe, so efficient and so economical in the use of fuel as the

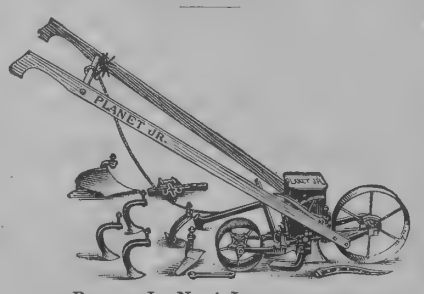
LENNOX Gasoline Engines.

So simple any novice can run them. Stationary, Portable and Pumping Engines, fitted with both tube and electric spark igniter. Ingenious friction clutch secures gradual starting of load and avoids breakage. Catalogue sent free.



LENNOX MACHINE CO., 108 Ninth Ave., Marshalltown, Iowa.

ILLUSTRATION



PLANET JR. NO. 4 ILLUSTRATED.

We are giving place here to an illustration of the Planet Jr. No. 4 Combined Drill, perhaps the most popular of all the famous Planet Jr. line of garden tools. We call it Drill for brevity, but it is much more comprehensive. The gardener finds in it almost every tool for hand work he needs. As a seeder, it drills and also plants in hills with greatest accuracy, and it may be set so that they shall be 4, 6, 8, 12 or 24 inches apart, as desired. It is but the work of a moment to remove seeder attachments and substitute the pair of hoes, the three hollow steel teeth or the plow, and you have an ideal wheel hoe, cultivator or plow, as the case may be. Its handles adjust to suit either man or boy. Simply raising the handles cuts off the flow of seeds instantly. As a hoe or cultivator, it may be used either in the furrow or, by means of an extension piece, when the plants are small you may hoe or cultivate both sides of the row at once. With all its width of duty, it is most simple and it is most durably built. An idea of its real genius cannot be conveyed in so small a space as this. It is advertised elsewhere. S. L. Allen & Co., of Philadelphia, the manufacturers, will gladly send catalog fully describing. It is a good investment to send a postal for it.

WE HAVE THE DROP.

In accuracy, certainty, evenness and durability, no other planter can compare with

The AVERY.

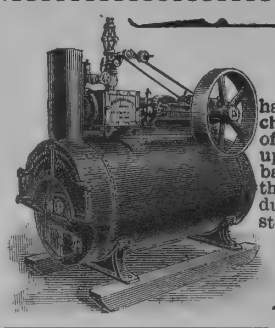


Combined Hill and Drill Drop. Cannot Miss Hills.

Take no chances on the corn crop. New-fangled Drops, adopted in the hope of approaching the efficiency of the old reliable Avery, may work well and make a showing with selected grains of corn, but reliable work in the field is what counts. They will be effective only as they approach the Avery principle, the type which all others would emulate. Adjustable in width, all modern improvements. Six styles of Cultivators; Farm Wagons, Stalk Cutters, etc. All high grade. Nothing better made.

THREE FREE CATALOGS—T for Threshers and Engines, W for Wagons, H for Farm Implements. Write for the one you want. Ask about our new fertilizer attachment.

Avery Mfg. Co., 510 Iowa St., Peoria, Ill.



Leffel Powers

have always given the best of satisfaction in dairies, creameries, cheese factories, pasteurizing plants and on dairy farms. They are of many forms and varieties. Mounted, unmounted, horizontal, upright, detached, boilers on skids, engines on boiler, on walled base, on iron sub base, etc. Always and in every ca e they carry the well known Leffel high efficiency. They are simple, safe and durable. The boilers steam quickly, are economic of fuel and hold steam well. The engines create the maximum of power from the minimum of steam. Every man interested in power should write at once for our free book. "Power Economy and Efficiency."

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The New Manure Spreader

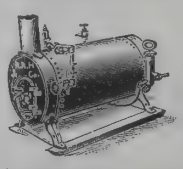
Every Farmer who wants to know the full value and worth of spreading manure by machinery will be keenly interested in the new

NATIONAL LIGHT RUNNING MANURE SPREADER

Not only the newest but the **best at every point** by comparison and test. Draft actually **One-third Lighter** than any other of equal capacity. The Roller Bearings tell why. **The Strongest** Spreader made. Its first cost the only cost; no bills for repairs. Easiest to operate; a boy can handle it. Spreads thick or thin as desired without stopping. Handles perfectly every kind of manure or fertilizer anywhere, North, South, East or West. It's the **National** Spreader.

Finest Catalogue ever issued on Manure Spreaders, beautifully illustrated, will be ready for mailing in a few days. **Hold your orders** and send in your name at once to receive one. No unnecessary delay. You'll be better satisfied. Write today before you forget. Address

ENTERPRISE WIND MILL COMPANY,
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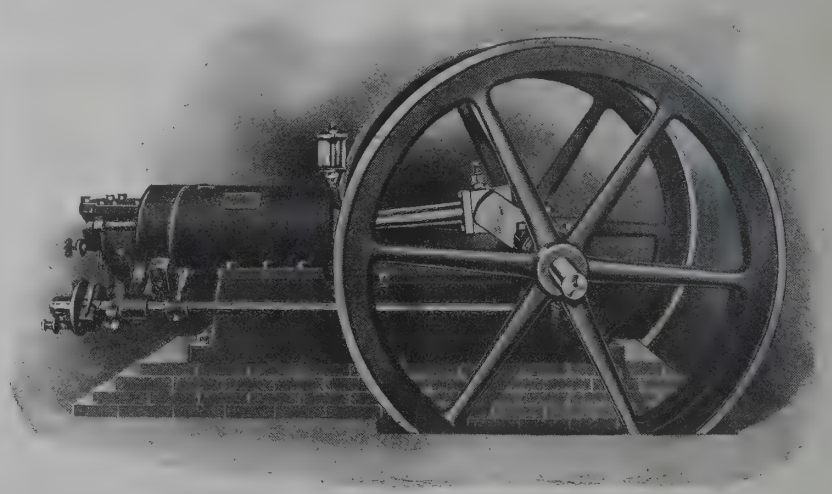
FEED COOKERS

Will steam quicker with less fuel, is better built, more durable, safer, easier to operate than any other on the market.

Will save one-third of feed, and make stock thrive better. To introduce, one at wholesale price where we have no agents. Prices and Catalog "D" free.

R. R. Howell & Co. Box H, Minneapolis, Minn.

ILLUSTRATION



We illustrate herewith the Witte Stationary Engine, made in sizes from 1½ to 40 actual horse power, particularly adapted to our readers' trade. The engine is well put up, is a very simple compact machine, well proportioned, and has a cylinder separate from the bed, just like a high grade steam engine. The company also makes a very desirable Portable Engine, for farm use, in sizes from 1½ to 25 actual horse power. During the year 1903 they put out a large number of these Portables, which are giving most excellent satisfaction, as they can be used not only on the farm, but on every neighbors', and the farmer can move it about where his work is to be done. The company makes a guarantee also, which shows how accurately the work is done, and how carefully and systematically the engine is balanced. The guarantee, in addition to the one of full horse power, and durability for five years, is, that no Portable engine will vibrate more than one-eighth inch endwise on a smooth wood floor, with no blocking for the wheels. This shows to what perfection it is possible to get a high grade machine, and it speaks well for the quality of work put into all of their engines. If our readers are interested, we recommend that they address the Witte Iron Works Co., Kansas City, Mo., or the Witte Gas & Gasoline Engine Co., Chicago, Ill., for catalogue of either the Stationary or Portable engine.



YOU going to buy a HARROW Want Best for least Cash WE make that kind PAY FREIGHT. Catalogue free. Write for price. G. H. POUNDER No 7 Ft. Atkinson, Wis

I NO YOU

VAUGHN FLEXIBLE HARROW. Pat'd

No Bolts to get Loose. No Use for Wrench. Self Adjustable for Slanting Tooth. Send for circulars & price lists.



D. C. VAUGHN MFG. CO., JEFFERSON, WIS. Best on Earth.

KENDALL'S SPAVIN CURE



Aldrich, Mo., Dec., 12, 1902.
Dr. B. J. Kendall Co.,
Gentlemen:—I have spoken highly of your medicines in this neighborhood. I think your Kendall's Spavin Cure is excellent. *I highly recommend it wherever I go.* Enclosed please find a two cent stamp for which please send me your book "A Treatise on the Horse and his Diseases." Yours truly.
C. H. JOHNSON.

Dulwich Hill, Sydney, N. S. W., Australia. 432 New Canterbury Road, Oct. 25, '02.
Dr. B. J. Kendall Co.,
Gentlemen:—Will you kindly send me one of your "Treatise on the Horse and his Diseases?" I have used your Kendall's Spavin Cure, and I can safely say it is the best that I have ever had, and I recommend it to other horse trainers. Very truly yours.
HARRY SMITH.

Is Known the World Over

as being the oldest and only really reliable cure for **Spavins, Ringbone, Splints, Curbs** and all other forms of **Lameness.** It has met with the unqualified endorsement of horsemen everywhere, in all localities and under all conditions. It never fails, but cures quickly and permanently.

In addition to being the best stable remedy known, it is unequalled as a liniment for household and family use. Sold generally by all druggists. Price $1; six bottles for $5. We send valuable book, **"A Treatise on the Horse,"** profusely illustrated, free upon request.

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VACCINATE your cattle with **Blacklegoids**—the simplest, safest, surest preventive of Blackleg. Each *Blacklegoid* (or pill) is a dose. Administration with our Blacklegoid Injector is performed in one minute. We establish the purity and activity of our **Blacklegoids** by rigid tests upon animals. For sale by druggists. Write us for literature—free on request.

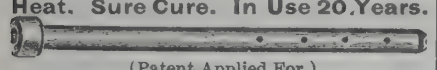
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DETROIT, MICHIGAN.
BRANCHES: New York, Chicago, St. Louis, Boston, Baltimore, New Orleans, Kansas City, Minneapolis, Indianapolis, Memphis; Walkerville, Ont.; Montreal, Que.; London, Eng.

DR. GEORGE HOLLABUSH'S
Sure Cure for Abortion

and General "Tonic" for Cows. The only genuine sure cure and general tonic for cows on the market. I guarantee, and refund money if not satisfactory. Dr. Geo. Hollabush, Ft. Atkinson, Wis. Write for circular.

ABORTION,

Failing to Breed and Bring Cows to Heat. Sure Cure. In Use 20 Years.



(Patent Applied For,)
Hard Rubber Safety Milk Tubes and Dilating Plugs to cure hard milkers and a teat **Bistoury.** Send for testimonials.
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POSITIVELY PREVENTED AND CURED BY THE USE OF
ANTI-ABORTION SERUM
PREPARED BY DR. DAVID ROBERTS.
CATTLE SPECIALIST
WRITE FOR SWORN TESTIMONIALS.
DR. ROBERTS VETERINARY REMEDY CO
625 GRAND AVE. WAUKESHA, WISCONSIN

COWS RELIEF



Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.
Used Exclusively at Model Dairy
Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.
O. H. MFG. CO.,
Dept. H, Lyndon, Vt.

Oil Cure for Cancer.

No need of the knife or burning plaster, no need of pain or disfigurement, the Combination Oil Cure for cancers is soothing and balmy, safe and sure. Write for free book to the Home Office, Dr. D. M. Bye Co., Drawer 505, Indianapolis, Ind.



THIS WOLF AND 45 OTHER FUR BEARING ANIMALS, Handsomely lithographed in natural colors, each animal numbered and described, together with 36 page book, **"HOW TO TRAP WILD ANIMALS."** Postpaid for 10cts. Stamps, Silver or Money Order. *Price Lists of Raw Furs and Hides Free.*
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Keep Stock of All Kinds Healthy and Productive.

HOOD FARM MILK FEVER CURE, $2.50.* Have it on hand. Saves the best cows.
HOOD FARM CALF SCOUR CURE AND DIGESTIVE POWDER, $1 and $2.50 each. Promptly cure calf scours.
HOOD FARM BREEDING POWDER, $1 (by mail $1.15) and $2.50.* Makes cows breed.
HOOD FARM ABORTION CURE, $1 and $2.50.* Prevents abortion.
HOOD FARM GARGET CURE, $1 and $2.50.* Cures garget.
HOOD FARM CONDITION POWDERS, 25c., 50c. and $1.* Keep stock healthy.
HOOD FARM LINIMENT, 25c., 50c., $1 and $2.* Best wash for race horses.
HOOD FARM TONIC DRENCH, 50c. and $1.*
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HOOD FARM HOG POWDERS, 25c. and $1.*
*Prepaid to any railroad express point in U. S. 25c. additional. Mention this paper.
Address C. I. HOOD CO., Lowell, Mass.

"SAVE-THE-HORSE"
Registered Trade Mark
SPAVIN CURE



Marysville, Ont., Dec. 14, 1903.
The Troy Chemical Co., Troy, N. Y.
Gentlemen:—My horse was affected with a thoroughpin which rendered her almost useless, although a valuable animal being one of a matched pair of roadsters. It was about the size of a goose-egg both inside and outside of the leg. I tried some of our best veterinary skill as well as different blistering medicines with no effect. I worked with it for about one year. Being a subscriber to the "Country Gentlemen" I saw your advertisement in it and determined to try it as a last resort as I was discouraged with everything else. When I had used the first bottle I saw a change. This encouraged me and I kept at it and completed a cure. I have no hesitation in saying that I believe "Save-the-Horse" is the best, and would advise all who have a horse so affected to use nothing but "Save-the-Horse". I give you permission to use my name. Yours truly J. G. ALLISON.

Columbus Grove, Ohio, Dec. 21, 1903.
One-third of a bottle of "Save-the-Horse" cured my horse of a spavin that had been fired and blistered several times in the past two years. M. M. OSBORN.

Califon, N. J.
Less than two bottles "Save-the-Horse" made a perfect cure on my horse that was affected with hip joint lameness. ADAM LANCE.

No man need see his horse suffer and become incapacitated. "SAVE-THE-HORSE" POSITIVELY AND PERMANENTLY CURES BONE AND BOG SPAVIN, THOROUGHPIN, RINGBONE (except low ringbone) CURB, SPLINT, CAPPED HOCK, WINDPUFF, SHOE BOIL, WEAK AND SPRAINED TENDONS AND ALL LAMENESS. Apply in all extremes of weather. Cures without scar or blemish or loss of hair Horses may work as usual.

$5.00 per bottle. Written guarantee with every bottle. Constructed solely to protect you. Need of second bottle improbable, except in rarest cases. Copy of booklet and guarantee sent upon application.
$5.00, at druggists and dealers or sent express paid by
TROY CHEMICAL CO., TROY, N.Y.

NOW Is the time to Subscribe for **HOARD'S DAIRYMAN**

1¼ lbs. with an ounce or two of ginger in two quarts of warm water as a drench.

The abscesses may be opened with a sharp, clean knife and washed with an antiseptic solution. Hot applications to the swollen parts in addition to your ointment are indicated to hasten the maturity of abscesses.

Erythema.

A colt, about Dec. 1st, swelled a little in the pastern joint of the right hind foot. The swelling was very hot, feverish and the animal could hardly walk. I doctored it with liniment; it left that foot and settled in the right front foot: I treated that the same; it went to the left front foot where I can do nothing with it. Now it has got in both front feet and the beast can hardly get around. The pastern joint seems to be the place; it is swollen and very feverish. F. H. H.
Brady, Neb.

ANSWER.

Your colt has a chronic attack of erythema. Give a pill of the following: aloes, 7 drs.; zingiberis, powdered, 2 drs.; nux vomica, powdered, 1 dr. Mix and make 1 pill. Give at once. Then follow with potassia nitrate, 2 oz.; quinine sulphate, ½ oz.; gentian root, pulverized, 2 oz. Mix and give a large teaspoonful in food three times daily.

Poultice the foot so affected with warm linseed twice daily for four or five days, then wash twice daily with a solution of sugar of lead, taking 1 ounce to the pint of rain water. If in a week, the swelling appears again and the inflammation sets in, the poultice may be repeated, also the pill may be repeated by this time.

Failure to Breed.

I have 3 cows that have been served 3 or 4 times since calving. One calved June 4th, the other Sept. 24th, last Oct. 4th. What shall I do to make them breed?

The cow that calved Oct. 4, on Oct. 7 cut her front teat on right side on barbed wire fence. Since it healed there is a lump between the teats, and she gives very little milk out of that half of udder. Sometimes it is swollen in one quarter and then the other, and milk is lumpy whenever it swells. W. B. L.
Irby, Va.

ANSWER.

It is advisable to change bulls in such a case and try them again. A change of environment would aid in bringing them to a breeding condition.

The lump between the teats appears to be a fistulous nature and may be the cause of the swelling and altered condition of the milk. We would advise to have same examined by a qualified veterinarian and removed if necessary. If this is successfully done, she may be as good as ever after the next freshening.

An Absorbing Ointment.

In number 42, page 955 you give a prescription as follows: Iodine resublimed, 2 ozs.; potassi iodi, 1 oz.; petroletum, 8 ozs., for the treatment of a soft bunch on the knee of a horse. Is it necessary to form a blister in order to effect a cure? J. H. W.
Freehold, N. J.

ANSWER.

The above ointment will absorb the bunch, but will not act as a blister, though it may slightly erupt the skin. Apply it as directed and there will be no injurious after affects of any kind.

Warts on Teats.

I have a cow that is continually afflicted with warts on her teats. They grow anywhere on the teat, sometimes so near the orifice as to interfere with the free passage of the milk.
Glenfield, Pa. H. P. H.

ANSWER.

Clip them off with a pair of sharp scissors and touch the parts lightly with a stick of lunar caustic. Clip them as closely as possible.

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe, Speedy, and Positive Cure

The safest, Best **BLISTER** ever used. Takes the place of all liniments for mild or severe action Removes all Bunches or Blemishes from **Horses and Cattle, SUPERSEDES ALL CAUTERY OR FIRING.** *Impossible to produce scar or blemish* Every bottle sold is warranted to give satisfaction Price **$1.50** per bottle, Sold by druggists, or sent by express, **charges paid,** with full directions for its use. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O.

BARREN COWS CURED.
Write for Pamphlet and Testimonials.
Oldest and best Treatment Extant.
MOORE BROS., V. S., Albany, N. Y.

CHOLERA PROOF Pigs made cholera proof for life by feeding SOW Ridgeway's NEW 1903 VIRUS, costing 10c a litter. 500,000 successful tests. Written guarantee.
ROBERT RIDGEWAY, Box V, Amboy, Ind.



Perfection in design, simplicity, and superior workmanship and finish make the

H. & R. Single Gun

the best holiday gift. Your dealer can supply or we will sell to you direct.
Harrington & Richardson Arms Co.
DEPT. 22, WORCESTER, MASS.
Makers of H. & R. Revolvers.
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FROST BEST CHEAPEST

BEFORE BUYING
Any more flimsy woven wire fence, secure our catalogue and prices on the Frost Fence, containing more weight, twice the strength and three times the lasting qualities.
THE FROST WIRE FENCE CO., CLEVELAND, OHIO.

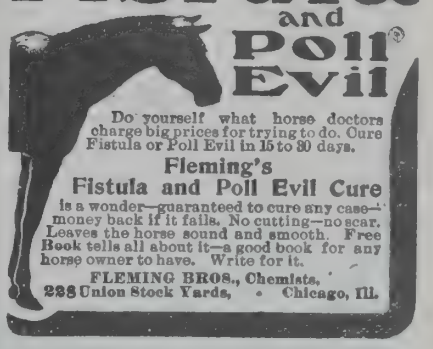
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Saves money and makes friends. We've been proving it seventeen years. Write for prices on wire fence, plain and barb wire. Address house nearest you.
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Famous *COAL-TAR* Carbolic Dip.
For general use on live-stock. Send for "Piggies' Troubles" and "Zenoleum Veterinary Advisor" and learn its uses and what prominent stockmen say about it. Books mailed free. All druggists, or one gal., express paid, $1.50; 5 gal., freight paid, $6.25.
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Do yourself what horse doctors charge big prices for trying to do. Cure Fistula or Poll Evil in 15 to 30 days.
Fleming's Fistula and Poll Evil Cure
is a wonder—guaranteed to cure any case—money back if it fails. No cutting—no scar. Leaves the horse sound and smooth. Free Book tells all about it—a good book for any horse owner to have. Write for it.
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Cures Curbs, Splints, Spavins, Etc. Equally good for Colic, Distemper, Etc. Our 100-page book, "Veterinary Experience", FREE.
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TOXALINE WORM CURE

SUCCEEDS WHERE OTHERS FAIL
Quart Can $1.50 for 25 to 30 Animals. Catalogue of Stockmen's Supplies Free.
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SURE CURE!



Brooks Appliance. New discovery. No obnoxious springs or pads. Automatic Air Cushion.
Binds and draws the broken parts together as you would a broken limb. No salves. No lymphol. No lies. Durable, cheap. Pat. Sept. 10, '01. Sent on trial. Catalogue free.
BROOKS APPLIANCE CO. Box 816, MARSHALL, MICH

The Price of Butter.

The price of butter has ruled higher throughout the country during 1903 than in any recent year. The question is being discussed in the Eastern press as to how far this increase in the price of butter is to be attributed to the Federal oleo law. The subject is discussed as follows in the Philadelphia *Grocery World*:

The Federal Oleo Act of 1901, under which colored oleo is taxed 10 cents per pound, has undoubtedly been a godsend to the butter market for the last year at least. For the practical elimination of oleo as a competitor of butter has enabled the butter people, in a year of tremendous production, to keep their prices up several cents above what they would have been with colored oleo freely in the market.

The make of butter has been enormous for the last two years, and there has been some glut, but nothing like what would have come had the sale of oleo been unrestricted. As a matter of fact, the price of butter for the last two years has been so much above the price of other exporting countries that American butter has had no export outlet, and this has naturally increased the domestic supply.

These high prices have not been wholly caused by the elimination of oleo, as one direct factor has been the high price of milk, caused by the demand from the condensaries. The falling off in the sale of oleo, however, has unquestionably had much to do with it.

The recent Federal act and other causes have greatly changed the complexion of the butter market in the last two years. In the large cities a great horde of peddlers who formerly sold oleo are now forced to sell butter. They are after the cheaper grades, and this has caused activity in those.

Another change which is worthy of note is the decrease in the production of dairy butter, which is the sort of butter made by farmers and turned into the country stores to be sold. The concerns that sell separators have placed them in rural districts all over the country. With a cream separator the farmer no longer turns his cream into butter, but separates it and ships it away to some creamery. This in turn has caused a local demand for creamery butter, since there was little or no dairy butter, and a large number of creameries are not shipping to large markets, but are disposing of their production locally. Dairy butter, it is to be said, invariably sold cheaper than fine creamery, and the absence of it also strengthens the creamery market.

To come back to the effects of the oleo law, the prices of butter would have almost surely been lower had the act referred to not been passed. As it is, the heavy production forced prices to a point two or three cents lower than a year ago, but a plane lower yet—probably much lower yet—would have been reached had the enormous make of butter had to compete with the usual quantity of yellow oleo.

The butter market last June was higher than supply and demand would have made it, but this was by reason of speculation and the fact that the season was three weeks late. Since June, however, the conditions have been more normal, and prices have kept a lower level.

The make of butter was so heavy last summer that there is an enormous quantity of butter in cold storage which will have to be consumed sometime. There was also large storings in June, but at such a high price that the present market will not allow it to be withdrawn.



HOMES FOR EVERYBODY IN Oneida and Vilas Counties, WISCONSIN.

Do You Want a Farm?

A Farm here at home,
Where Rain falls,
Where Crops are Sure,
Where Water is Pure and Plenty,
Where Fuel is Cheap and Abundant,
Where Railroads Run and Good MARKETS are NEAR, and
Where Prices are Easily Within Your Reach?

If you want a farm it is not necessary to leave your friends and go a thousand miles away to find it. It can be found right at home.

On the head waters of the Wisconsin river, in Oneida and Vilas counties, Wisconsin, are lands of rich soil of the very best crop producing qualities, belted by the best railroads in the northwest, bountifully watered and wooded, safe from drouth, and offered at prices not a shade higher than those asked for lands in dry, distant and unimproved sections.

Write for MAPS and PRICE LISTS

WISCONSIN BLUE GRASS LAND CO.
GENERAL OFFICES, BALDWIN. WIS.

FARMERS WANTED

Send card for FREE MAP and Price List of Wild and Improved Lands in Wadena, Otter Tail, Becker, Todd, Hubbard, and Case Counties, Minnesota. Low prices and easy terms. We are large owners.

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GREEN FIELDS OF VIRGINIA

along the famous Roanoke River is the most profitable opportunity open to the progressive dairyman

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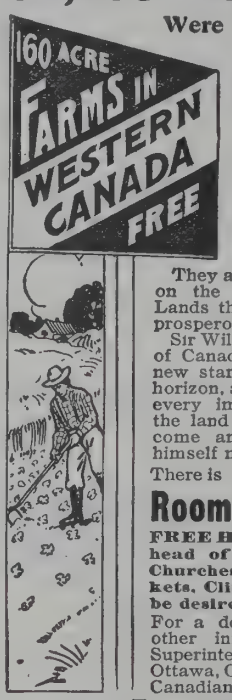
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With one-fourth the capital required in New York and other states you can purchase a desirable property—$10 per acre. For further information and list of properties address

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Gen'l Industrial Agent, Portsmouth, Va.
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Virginia Farms
Productive soil, delightful climate. Free catalogue.
R. B. CHAFFIN & CO., Incorp., Richmond, Va.

50,000 AMERICANS
Were welcomed to
Western Canada
during past Year



They are settled and settling on the Grain and Grazing Lands there, and are healthy, prosperous and satisfied.

Sir Wilfred Laurier, speaking of Canada, recently said: "A new star has risen upon the horizon, and it is toward it that every immigrant who leaves the land of his ancestors to come and seek a home for himself now turns his gaze"—

There is

Room for Millions.

FREE Homesteads to every head of a family, Schools, Churches, Railways, Markets, Climate—everything to be desired.

For a descriptive Atlas and other information, apply to Superintendent Immigration, Ottawa, Canada; or authorized Canadian Government Agent—

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BUY A FARM
ON PAYMENTS

So easy that you will regret it if you do not investigate. Our lands are

CHOICE HARDWOOD LANDS.

Especially selected with a view to quality, location and natural advantages. Put your savings into land that will double in value inside of a year. Ask us for the facts about them. A postal card with your address will do. Lands are now selling at $10.00 per acre. $400 in easy payments will buy 40 acres.

INTERIOR LAND CO., Janesville, Wis.

Buy You a Ticket to CROOKSTON, MINN., and call upon
The Polk County Land & Loan Company

For Choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.

360 acre farm, 4½ miles from Crookston, Minn., a city of 7,000 inhabitants, and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 feet square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm is under a high state of cultivation, and is well drained by a slight ravine running through the farm merely sufficient for self drainage. The soil is a rich, deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $36.00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50.

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired. Price $19.00 per acre.

PAGE

CONUNDRUM.

What ought to be the difference between one yard and two yards? Page 16 bar Garden Fence.
PAGE WOVEN WIRE FENCE CO., Adrian, Michigan.

GRISWOLD WIRE FENCE
Square Mesh, Dimond Mesh Fence Plain, Galvanized, Barbed, or Telephone Wire. Write for illustrated catalog and price list.
DILLON-GRISWOLD WIRE CO., Sterling, Ill

BROWN
16 to 35 Cents Per Rod.
Heaviest, strongest, most durable fence made. All wires extra large. *We sell to farmers at wholesale prices.*
Coiled Spring, Barb and Soft Galvanized Wire.
WRITE FOR CATALOGUE
The Brown Fence & Wire Co.
Cleveland, O.



HOW TO TEST COILED SPRING WIRE.

Take a piece of No. 12 wire and coil it firmly around an inch rod of iron, as shown in figures 1 or 2. Try to pull the coil out of it. You may think you have done so, but upon releasing, it will assume shape shown in figure 3. Then look along the wire as you would a gun barrel; it will appear as shown in figure 4—has the appearance of a tube. This explains the great advantage of **COILED SPRING WIRE** and how it provides for contraction and expansion.



The weave of our fence is so perfect that full strength of every wire is preserved. Every twist is an expression of strength. Good enough to last a lifetime. We make it

HORSE HIGH, BULL STRONG, PIG AND CHICKEN TIGHT,

Using only High Carbon Heavily Galvanized Coiled Spring Steel Wire; to get this good enough we make it ourselves. Best wire makes the best fence. We ship any style of fence we make

DIRECT TO THE FARMER ON 30 DAYS TRIAL, AT FACTORY PRICES,
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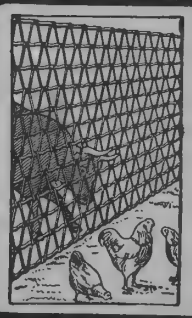
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Buff Jersey Visits the St. Louis Fair Grounds.

ED. HOARD'S DAIRYMAN:—On the 8th of the month I had the pleasure of visiting the fair grounds at St. Louis. I found that the work yet to do, in the time that it ought to be done, is very great and I do not see how it will be completed. I was told that the work would be carried on both day and night as soon as the frost was out of the ground. The vastness of the undertaking strikes one more forcibly in the uncompleted buildings than it perhaps would if everything was completed. I was very much interested in the methods used by the foreign countries in constructing their buildings. They used the native woods and tools and the methods of construction were of interest to me.

I was more interested in the Jersey cattle and the barns than any other thing, and, I might add, disappointed as well. The cows were taken to the grounds on the 19th of December and appear quite content. The barn for them is not a model one, and any one who may go to see them and expects to get some ideas of what a modern dairy barn should look like, will be disappointed. He will not even see a model stall, tie, or any other up-to-date appliance that many progressive dairymen are using all over the United States. He will see the silo at a distance from the barn and the contents carried to the cows by the attendants, when it should have been so situated that it would have been delivered directly into the barn. He will see (I did at least) a barn with no sewer connections, and the floor on an incline so that the water in gutters ran to lower side of the room and overflowing the gutters ran over the walk behind the cows. He will find that the cows and attendants are on the same level, all occupy the same room. The milk and all milk vessels are in same room with the cows, together with the boiler that is used to heat the room and grind the feeds, but I will not tell of any other things lacking. Will only say that the Club submitted plans for a model barn and got turned down, and they are not the only ones that were turned down, so may get a little comfort from that.

Extortion will be the order on the opening of the fair, and for that matter it is the chief feature at the present time. A friend of mine put up at a hotel in St. Louis some days ago and was charged $4.00 for his room and 85 cents for breakfast. Another man that has to be in the city during the Fair, was asked $90, for an 8-roomed house, per month. The understanding is, that rooms in houses about the city will cost two persons $1.00 each per night and meals $1.00, making $4.00 per day, and we will be lucky if we get away with no worse luck.

The past week I was a visitor at the Agricultural College at Ames, Iowa, and had the pleasure of seeing the work that is making this institution so popular; Prof. McKay's department was of the greatest interest to me. On the day I arrived at the College the dairy school had concluded some experiments along the line of treating over ripe cream so that it could be ripened with a prepared starter and be made into a good butter. The acid was neutralized with some form of alkali and then a starter was put in the cream from which butter that scored as high as 93 points was made. This method will be a great benefit to the creameries that are getting their cream from long distances.

I was much surprised to learn that the college has not paid much attention to the production of milk, but has given butter making the right of way, while the cow has had to stand back for the steer. Now there is a demand for the cow to be given a place, and I was told that an appropriation would be asked for to buy a farm and cows so that the students might study milk production from the standpoint of the farm and its surroundings. In other words, the milk will be produced in a business manner, with a view of profit, not as some of our stations are doing, keeping a $40 cow in a $10,000 barn to teach the farmer's son profitable dairying.

I had the pleasure of addressing the corn judging school at two sessions and the attention given me was very flattering; my talks were along the lines of saving the stalks as well as the ears.

On the 14th of the month, I was at the dairymen's convention of this state and had for my theme "some of our cows" records and feeds required." I had figures that showed that of the 28 cows and heifers that have freshened for the second time in our herd, not one of them have given in past year less than 5,000 pounds of milk and at no time in the year has the test gone below 5%; one cow gave over 9,000 pounds of 5.2% milk and several passed the 7,000 pound mark; and at no time have any of these cows received over 10 pounds of grain per day. It was stated by some of the dairymen present that they were feeding 20 pounds of grain daily. I cannot see how they can do so and have their cows in good health.

Milk fever is another thing that I do not see the use of having. In the past few weeks we have had 20 cows freshen, as many as four in a week, and in one case twins and not a cow off feed; good enough to have the fever did you say? Well, yes. Trilby, the best 2 year-old I ever developed, 400 pounds of butter in one year as a two-year-old, gave us the twins, and in her three-year-old form, gave 40 pounds of milk in a day, and others have freshened that have records of six and seven thousand pounds of milk yearly. I do not for a moment doubt my ability to bring any cow to the milk barn through the freshening period, sound and hungry, and any one can do the same if they only will. BUFF JERSEY.

Monmouth, Ill.

Agricultural Education in Iowa.

ED. HOARD'S DAIRYMAN:—Taking in the short course in agriculture, at the Ames College, Iowa, Jan. 4-16, some things as regards the dairy interests more particularly came to my notice. According to the Iowa dairy statistics there is something radically wrong with that industry in that state. It is unusual to see a flourishing industry degenerate, but such is the fact there as shown by their statistics.

What is the cause? It surely ought not to be the officials at the college who are so wrapped up with the beef breeds, and therefore, though indirectly and unintentionally, hit the dairy business for which that grand old state had such representation, heretofore. Then, too, it is my sincere belief that the dual-purpose cow idea, which has been so much talked about in Iowa, perhaps more than any where else, is responsible for the present condition.

Dairy Commissioner Wright and his able assistant, Prof. Keifer are doing everything possible in their power to foster the industry, but it is very apparent that the seed of dual-purpose ideas was sown long previous to their efforts. Then, too, human nature seems to be the same everywhere; most farmers have made their success, as everywhere else, in the dairy business, and when



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their circumstances became such, and relaxed effort is the rule, and not the exception, the inevitable followed.

After attaining financial success, a great many were carried away because of their success, by the intoxication of success, and now find themselves sobered by disastrous failure in feeding cattle and dual-purpose hum-drum.

I have it from the best of authority that many farmers have even mortgaged their growing crops for money to buy feeders to feed the mortgaged growing corn to and are now selling the unfinished animals for about what they cost them to put in the feed lot. However, they have seen the error of their way and will return to producing milk.

Does it need financial ruin before we can realize how to let well enough alone?

Do we have to emulate the Prodigal of old to wake up to realize our best interests?

Oh, yes, we all would like to live on Easy street, but there is danger in the allurement. The used ploughshare will be bright and perhaps last longer than the rusting and unused one, but better wear out than rust out.

This is what has been done in Iowa. It also holds true everywhere else. Dairying to the younger generation, and some of the older ones too, became too confining, wanted an easy time, and found it easy sliding to the bottom. However, the spirit of these energetic people is not broken. With renewed vigor will they take up the task and profit by the experience.

When the officials at Ames also will work as persistently to enthuse their people in the dairy interests as they have done in corn growing and beef cattle judging they can then truly say "Eureka," and, by far, distance all competition. The Iowa people evidently understand the situation. I am informed of their intention of establishing a dairy herd at the College, of one hundred cows for experimenting purposes.

As usual, Prof. McKay has a large class in butter making, post graduates, many coming from other states. The Professor's reputation as a manipulator of cream is too well known in this and other countries to need special mention. He again has gone a step ahead in butter making which will mean much to the dairy interests.

The much talked of overrun has always been a contention among butter makers and the legality of which was shaped by the government enacting a law specifying 16% moisture. The Professor has found that a 25% overrun can be made and still be within the law. The explanation is so intelligently and clearly given that, like many other discoveries, we have to exclaim why hasn't it been thought of before. No doubt the Professor will, in the near future, give his investigation to the public.

The ever vigilant butter maker from Sioux City, Iows, Mr. Mortensen, was also present. He is an example of what an energetic young foreigner can and will accomplish when given an opportunity. He came to the Iowa dairy school a few years ago a poor boy, working his way through the four year's course. Today he is the head butter maker for one of the largest creameries in the country, making fifteen tons of butter per day during the best part of the season, and is so valuable to them that he don't envy the salary of a Congressman.

The prejudice against the Hand Separator Creamery System is growing beautifully less.

In Iowa, as most everywhere else, they hold to the Missourian plan: "Show me." Not only have they the example of Nebraska and Kansas where all that would pass muster, and the general results as satisfactory.

Of course this is an age of new discoveries, and no doubt McKay's idea will have a "run" until it dies a natural death. J. F. S.

Ames, Iowa.

Farmers' Institutes in Georgia.

ED. HOARD'S DAIRYMAN:—The first year of the Farmers' Institute system in Georgia has just closed, with a meeting held at Fayetteville, Fayette County, Ga., on Saturday December 19. Prior to the year 1903 only a small amount of work along the line of Farmers' Institute has been attempted in Georgia. The present year has, however, witnessed a new awakening, and very successful meetings have been held throughout the entire state. The expense of the work has



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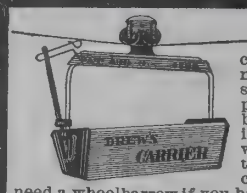
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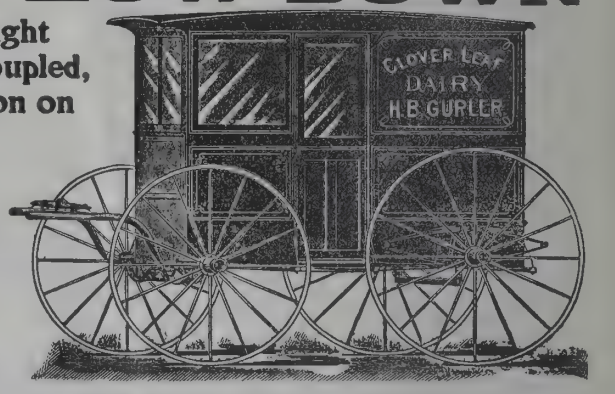
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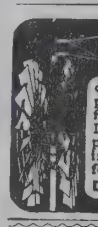
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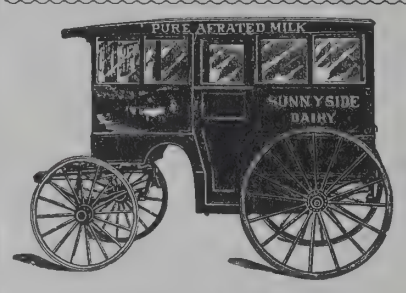


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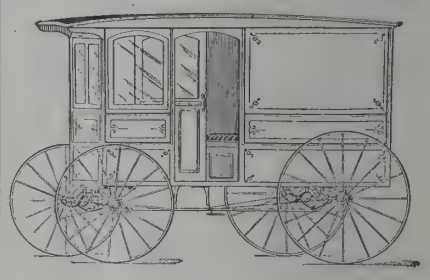
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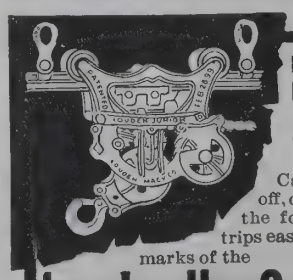
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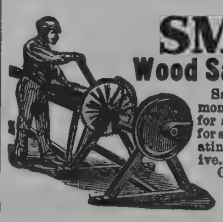
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A Grand Rapids gentleman who represents a prominent manufacturing concern and travels through central and southern Michigan, relates the following regarding the new catarrh cure, he says:

"After suffering from catarrh of the head, throat and stomach for several years, I heard of Stuart's Catarrh Tablets quite accidently and like everything else I immediately bought a package and was decidedly surprised at the immediate relief it afforded me and still more to find a complete cure after several weeks' use.



"I have a little son who sings in a boys' choir in one of our prominent churches, and he is greatly troubled with hoarseness and throat weakness, and on my return home from a trip I gave him a few of the tablets one Sunday morning when he had complained of hoarseness. He was delighted with their effect, removing all huskiness in a few minutes and making the voice clear and strong.

"As the tablets are very pleasant to the taste, I had no difficulty in persuading him to use them regularly.

"Our family physician told us they were an antiseptic preparation of undoubted merit and that he himself had no hesitation in using and recommending Stuart's Catarrh Tablets for any form of catarrh.

"I have since met many public speakers and professional singers who used them constantly. A prominent Detroit lawyer told me that Stuart's Catarrh Tablets kept his throat in fine shape during the most trying weather, and that he had long since discarded the use of cheap lozenges and troches on the advise of his physician that they contained so much tolu, potash and opium as to render their use a danger to health."

Stuart's Catarrh Tablets are large pleasant tasting lozenges composed of catarrhal antiseptics, like Red Gum, Blood Root, etc., and sold by druggists everywhere at 50 cents for full treatment.

They act upon the blood and mucous membrane and their composition and remarkable success has won the approval of physicians, as well as thousands of sufferers from nasal catarrh, throat troubles and catarrh of the stomach.

A little book on treatment of catarrh mailed free by addressing F. A. Stuart Co., Marshall, Mich.

SAFE IN THE WIND

A lantern that blows out is but little better than none. There's no necessity of having that kind. There are lanterns that don't blow out.

DIETZ
Cold Blast
LANTERNS

are the kind and they beat all others in the clear, white, steady light they shed. Then there's the safety and convenience where Dietz Lanterns shine. Safety is absolute. You never remove the globe to light, extinguish, trim or fill. Sold the world over by dealers. Before you go to buy write for lantern book and make your choice.

R. E. DIETZ COMPANY,
94 Laight St., New York.
Established 1840.

been borne by the University of Georgia, through an appropriation of $1,000 set aside for this purpose by the trustees early in Jan. Hon. Harvie Jordan, of Monticello, was selected by the Trustees as Director of Institutes. Col. Jordan is at the head of the Southern Cotton Growers' Protective Association, is a member of the state Senate from the 8th district, and was recently elected president of the National Farmers' Congress at their Niagara Falls meeting. He has been editor and contributor for the best agricultural Journals in the South, and is a well informed speaker who commands the attention and confidence of the farmers wherever he goes. During the year just closed, Director Jordan has held 44 institutes in all, one in each senatorial district of the state. One object of the first year's work was to organize the institute system thoroughly, and with this in view a president and secretary, were elected for each district, by the institute audience, and also a vice president from each county in the district. The interest and attendance at the meetings have been quite remarkable, considering the fact that the work was new and not so thoroughly understood by the farmers generally.

The average attendance has been between 150 and 200 at a meeting. The sessions have been held only one day at a place The news papers have helped most cordially in the work, with notices and printed programs. The average number of lectures delivered at each institute was five, and the average number of speakers present was three. Director Jordan had the help of many prominent agricultural workers at various times during the year. President H. C. White, Dr. J. S. Stewart and Prof. J. M. Johnson represented the Georgia State College of Agriculture at various meetings.

Director R. J. Redding of the Georgia Experiment Station, and Professors H. N. Starnes horticulturist, C. L. Willoughby, dairyman and J. M. Kimbrough, agriculturist, attended many institutes to lecture on their specialties.

Hon. D. M. Hughes, president of the Georgia Agricultural Society, assisted materially with many meetings. Messrs. E. A. Ross and W. L. Glessner, of the Industrial departments of the Central of Georgia and Southern & Fla. Railways, gave special lectures, and special local talent was secured at all times available.

The principal topics discussed during the work have been: Agricultural Education, Corn and Cotton Culture, Fertilizers and their Use, Forage Crops and Grasses, Business Methods for the Farmer, Value of State and County Fairs, Fruit & Vegetable Culture, Breeding and Feeding of Beef and Dairy Cattle, Pork Production, Improvement of Farm Homes, etc.

Director Jordan will soon issue for distribution a bulletin on this work, giving records of the meetings held and the officers elected at each place and a compilaton of the most important lectures delivered during the year.

For the year 1904 it is hoped that provision will be made to hold one institute in each county of the state, and continue the session for two days in each place. Every section visited has shown considerable interest in the work, after fully understanding its objects and purposes, and all persons attending seemed desirous that the meetings be made permanent features of the state's educational system in the future. Considering the ready and hearty response of the farmers, the institute work, if properly supported, will doubtless reach a high state of usefulness in Georgia in a much shorter time than has been required in other sections.

C. L. WILLOUGHBY.
Georgia Experiment Station.

Handling Manure.

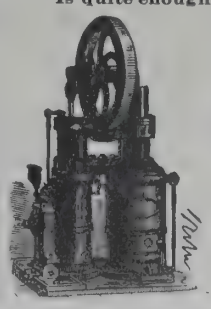
ED. HOARD'S DAIRYMAN:—I am very much interested in an article written by E. M. H. appearing in your issue of January 1st. While I like his plan and think it a good one for a hillside barn, I fail, however, to see where the advantage comes in with solid manure with a stable situated on a level spot.

The never ending, dreaded, back breaking task he mentions, seems to me to be increased rather than diminished by dropping solid manure into a cistern, unless he has some other labor saving invention (which he does not here mention) for lifting this manure onto a cart.

Now, Mr. Editor will you kindly put me in communication with E. M. H. or publish this letter for the benefit of such of your readers who like myself, are in the dark on this point, as well as to get an explanation from E. M. H. J. W.
Duncans, B. C.

HALF ENOUGH WATER

Is quite enough for some people, but most people want water every day. If

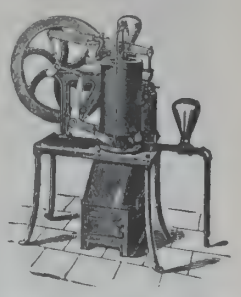


RIDER or ERICSSON HOT AIR PUMPS

Are used you can have water every day in the year, and your cook or stable boy is the only engineer needed. 25,000 in daily use. Catalogue "B 5" on application to nearest store.

RIDER-ERICSSON ENGINE CO.,

35 Warren St., NEW YORK
239 Franklin St., BOSTON,
692 Craig St., MONTREAL, P. Q.
40 Dearborn St., CHICAGO
40 N. 7th St., PHILADELPHIA
Teniente Rey, 71 HAVANA
22 Pitt St., SIDNEY, N. S. W.





ANY FARMER CAN START

a welding fire in two minutes in our **FARMER'S FORGES** and do his repairing and blacksmithing at home.

WE GUARANTEE our **FARMER'S FORGE** to be as large and do as much work as any $10 Forge made, and as represented or refund your money.

Extracts From Recent Testimonials:

"The Forge I purchased of you six years ago has always given perfect satisfaction." THOS. BLAKELY, Leslie, Mich.

"The Farmer's Forge ordered of you in 1899 is still in perfect order and I am well satisfied with it." J. W. FOUNTAIN, Branchville, N. J.

"It has proved more satisfactory than one of the all steel Forges that one of my neighbors has." S. DRAKE, Hicks, N. Y.

"It is the best article for the money that I ever saw or used. It caps the forge climax." E. LEWIS, Middletown Springs, Vt.

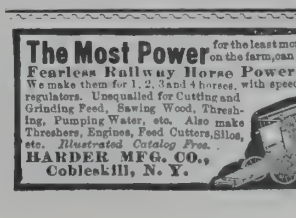
SPECIAL OFFER Regular price o fforge is **$5,** but until March 31, 1904, we offer the **FARMER'S FORGE,** complete, ready for use, for **$3.75** each, or a Farmer's Forge, complete, an anvil and vise combined and a pair of tongs, all for **$6.50.** This offer may not appear again. Write today sending stamp for catalogue and testimonials.

C. A. S. FORGE WORKS, Saranac, Mich.

Planet Jr. Companion Tools.

No. 3 Planet Jr. **Hill and Drill Seeder,** shown on the right, holds its position as the tool for perfect hand seeding. Converted in an instant from drill to hill planter and back again. Drops in hills 4, 6, 8, 12 or 24 inches apart. It opens the furrow, drops the seed, covers it different depths, rolls down and marks the next row. With this tool any novice can plant all garden seeds at the speed of a walk and with great accuracy.

No. 12 Planet Jr. **Double wheel Hoe** is the companion tool for the No. 3 Seeder. The plant is never too small nor too large for it to work perfectly. Quickly adjusted to suit wide or narrow rows, to suit man or boy, to work astride plants of any height up to 20 inches, or between them. Kills weeds, hoes, cultivates, furrows, ridges, and throws earth to or from plants as desired.

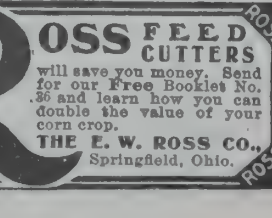


Planet Jr. 1904 Catalogue

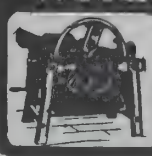
shows forty different machines, including Seeders, Single and Double Wheel Hoes, Hand, One and Two Horse Cultivators, Horse Hoes, Beet Sugar Cultivators, etc. Over 100 illustrations, including 16 beautiful half tones of home and foreign farm and garden scenes. Mailed free to all.

Write to-day for the book.

S. L. ALLEN & CO.,
Box 1107-D, Philadelphia, Pa.



Wilder's Feed and Ensilage Cutters



and Shredders. Try one at your own place; if it does not please you better than any other machine you can buy, we stand all expense. Get our catalogue today. It explains largest line made. On the market 35 years.

Wilder-Strong Implement Co.,
Box 11. Monroe, Mich.



BOWSHER

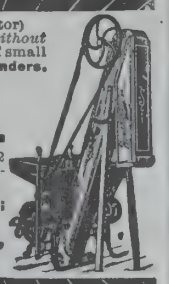
● (Sold with or without elevator) **CRUSH** ear corn *(with or without shucks)* and **GRIND** all kinds of small grain. **Use Conical Shape Grinders. Different from all others.**

LIGHTEST RUNNING.

Handy to Operate. 7 Sizes—2 to 25 h.p. One size for wind-wheel use.

Also make Sweep Grinders; Geared and Plain.

N.P.D. Bowsher Co., South Bend, Ind.



FEED MILLS

Quality Goods!
Big Red Cross
Triple-Geared Mills.



For ear corn and all kinds of grain. **Guaranteed** superior to any other two-horse grinder in capacity, draft and durability. **Thousands now in use.**

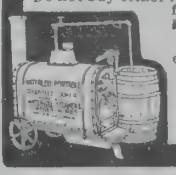
Waterloo Portable Steam Feed Cooker.

Common sense principle. Can be used as a tank heater, will burn coal or long wood. **It has been proved** that you can **save one half** by grinding and cooking feed for stock. We make the goods and quote better than catalog prices. Do not buy either mill or cooker until you get free circulars and prices.

From Factory to Consumer.

GET OUR PRICES on Farm Boilers and Kettles.

Write today.



WATERLOO STEAMER AND GRINDER WORKS,
Waterloo, Iowa.



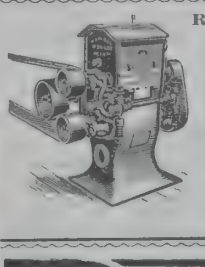
It Pays TO COOK STOCK FOOD

If you own one of our

Economical Feed Cookers

The best and most durably made Cooker on the market. Best for boiling sap, soap, lard; scalding, etc Uses little fuel and holds fire longer than others. 4 sizes, from 1 bbl. to 2½ bbl. Guaranteed full capacity, jacket of high carbon cold-rolled steel; large fire door takes in chunks; kettle of best quality new cast iron (no scrap), smoothly finished. Free circuls. gives many other good points. Write now

TOLEDO PLOW CO., Dept. H, Toledo, O



ROLLER FEED MILL

Great capacity, takes little power, lasts indefinitely. Hundreds in use, tremendous earning power. Keep your engine earning money through the year. Big profit in grinding feed with our Roller Mill. Don't lose the opportunity of your life, write for our catalog "D" and prices, free.

R. R. Howell & Co.,
Bx H., Minneapolis, Minn.

THIS COOKER

makes feed go twice as far, cooks all kinds of feed, serves a dozen other farm purposes. The

Farmers' Favorite

is made to last; heaviest strongest low-priced cooker made. Model service in soap, sugar, apple butter making, butchering, etc. Write for circular and prices today.

L. R. Lewis, 10 Main St, Cortland, N.Y.

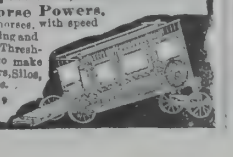


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Fearless Railway Horse Powers.

We make them for 1, 2, 3 and 4 horses, with speed regulators. Unequalled for Cutting and Grinding Feed, Sawing Wood, Threshing, Pumping Water, etc. Also make Threshers, Engines, Feed Cutters, Silos, etc. *Illustrated Catalog Free.*

HARDER MFG. CO.,
Cobleskill, N. Y.



ROSS FEED CUTTERS

will save you money. Send for our **Free** Booklet No. 36 and learn how you can double the value of your corn crop.

THE E. W. ROSS CO.,
Springfield, Ohio.

SEND 10c for Prof. Wolff's Book on Silage.

ROSS ROSS



3 FEEDS FOR ONE CENT

International Stock Food Co., Minneapolis, Minn.

DEAR SIRS:—I send you the milk and butter test of this three-year-old Jersey cow while being fed "International Stock Food." Test 19 lbs. and 10 oz. of butter in seven days. Milk test, 64 lbs. and 2⅗ oz. in one day and 432⅘ lbs. in seven days. Udder measures 54 in. I endorse the use of "International Stock Food" for cows. S. W. PARISH, Culvert, Texas.

A GREAT MILK PRODUCER

International Stock Food Co., Minneapolis, Minn. DELHI, IOWA.

GENTLEMEN:—I have used **"International Stock Food"** for milk cows and calves and am fully convinced that it will do all you claim for it, and can say it is simply "out of sight" in giving stock a good increase in appetite, and in cows a good increase in milk. I most cheerfully recommend it to farmers, and especially for cows. Respectfully, M. O. DOLBRY.

IT HELPS WIN PREMIUMS

SUMMER SHADE, KENTUCKY.

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GENTLEMEN:—It is with pleasure that it falls to my lot to speak a good word in behalf of what I think beyond question the best Stock Food on earth. I have used **"International Stock Food"** on my herd of Jersey cattle, and by its use I have won 95 per cent. of premiums I showed for in this State. I would not be without your goods. Respectfully, ED. MORRIS.

Beware of Imitations and Substitutes. ☞Write Us About "International Stock Food." We Have Thousands of Similar Testimonials and Will Pay You $1000 Cash If They Are Not Genuine.

A $3000.00 STOCK BOOK FREE

BOOK CONTAINS 183 LARGE ENGRAVINGS OF HORSES, CATTLE, SHEEP, POULTRY, ETC.

The Cover of this Book is a Beautiful Live Stock Picture ☞Printed in Six Brilliant Colors, and Without Any Advertising on it. Size of Book is 6½ by 9½ inches. It cost us $3000 to have our Artists and Engravers make these Engravings, which are the finest engravings of Horses, Cattle, Sheep, Hogs and Poultry that you have ever seen. They are all made from actual photographs and are worthy of a place in any library. It also gives Description, History and Illustrations of the Different Breeds of Horses, Cattle, Sheep, Goats, Hogs and Poultry. It contains Life Engravings of many very noted Animals. ☞It contains a Finely Illustrated Veterinary Department That Will Save You Hundreds of Dollars, because it describes all common diseases and tells you how to treat them. The Veterinary Illustrations are large and scientific and better than you can obtain in any other book regardless of price.

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WE WILL MAIL ONE COPY OF THIS BOOK TO YOU ABSOLUTELY FREE, With Postage Prepaid, If You Will Write Us At Once, Letter or Postal Card, and ANSWER THESE TWO QUESTIONS:

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Largest Stock Food Factory in the World.
Capital Paid in, $2,000,000.
775,000 Feet of Space in Our New Factory.
Contains Over 16 Acres of Space.

☞WE WILL PAY YOU $1,000 IN CASH☜

If We Ever Refuse to Refund Your Money on Our Positive "Cash Guarantee" That is Printed on Every Label of Each of These Preparations.

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INTERNATIONAL STOCK FOOD	INTERNATIONAL POULTRY FOOD	INTERNATIONAL HARNESS SOAP	SILVER PINE HEALING OIL
INTERNATIONAL COLIC CURE	A remarkable egg producer	INTERNATIONAL WORM POWDER	The wonderful quick cure for Barb-wire Cuts, Etc.
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INTERNATIONAL HOOF OINTMENT	health and very rapid growth	INTERNATIONAL PHENO-CHLORO	INTERNATIONAL COMPOUND ABSORBENT
INTERNATIONAL LOUSE KILLER	for all kinds of poultry	(Disenfectant and Germicide)	Cures Curbs and Sprains while your horse works.

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Our preparations are sold on a "Spot Cash Guarantee" by over 100,000 Dealers Throughout The World. We Will Be Glad To Refund Your Money, as per guarantee printed on every label, if any of them ever fail and we agree to accept your plain written statement. ☞You are to be user and also sole judge of results. Sole owners—INTERNATIONAL STOCK FOOD CO., Minneapolis, Minn., U. S. A.

Made for the Man Who Wants the Best

GREAT WESTERN ENDLESS APRON Manure Spreader



Spreads all kinds of manure regardless of their condition, handles barnyard manure that has been tramped so hard that it is necessary to loosen with pick, fresh stable manure, containing wet or dry straw, corn stalks, etc. Old straw stack bottoms, whether rotted or not. Cow manure fresh from the gutter, sheep manure, lime, salt, ashes, and in fact all kinds of manure and fertilizers and does it quicker, better and more evenly than by hand. Spreads as much manure in one day as 15 men can by hand. Spreads the largest load in 2 to 4 minutes. Makes the same amount of manure go three times as far and produce better results. Will pay for itself the first season. Every machine has our

Non-Bunchable Rake which forms a hopper and holds all hard chunks of manure in contact with beater until thoroughly pulverized before discharging, therefore no bunching or uneven work. No burning from an overdose of manure in spots. The

Endless Apron is one continuous apron (Not a ½ apron) and therefore is always ready to load, no turning back into position with crank or reverse gears to cause breakage. Can be heaped up half way if desired. Apron does not extend below axle. The combined

Hood and End Gate keeps manure away from beater while loading, prevents choking of beater when starting and acts as a hood and wind shield in spreading. Starts the manure in the right direction, therefore spreads more evenly.

Feeds Thin or Thick. It has a graduating lever and can be changed to spread thick or thin, 3 to 25 loads per acre while in motion. It catches the poor spots with a double dose.

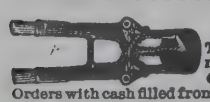
Light Draft. 1st. Because the load is nearly equally balanced on front and rear wheels. 2nd. The team is as near load as it can work. 3rd. Front and rear axles are same length and wheels track. 4th. Beater shaft runs in a **ball and socket bearing**, therefore no friction. **Beater is 23** inches in diameter. Shipper **positively** throws machine into and out of gear and holds it there. **Seat** turns over when loading. Machine turns in its own length.

Strength and Durability. Our machine is made so strong that it is almost impossible to break it. Every piece is made extra strong regardless of cost. Every gear and sprocket wheel is keyed on. We use no pins or cheap contrivances to come loose, get out of order, break and cause trouble. Our guarantee covers this point fully.

Guarantee. Should any part break, wear out, or get out of order within one year, we replace free of charge upon notice.

Large Catalog, 10 by 13 inches, with 8 large cuts shows spreader perfectly and describes it fully. Gives 34 reasons why the **Great Western Endless Apron Manure Spreader** is the best and most complete machine made and why you should have one. Also tells how to apply manure to secure best results. **Mailed free.** Write for copy today.

SMITH MANURE SPREADER CO., 16 & 18 S. Clinton St., Chicago, Ill.



IT PAYS TO DEHORN. Hornless cows give more milk. Hornless steers make better beef. The best dehorner, the most humane and easiest to use is the **Keystone Dehorning Knife** Cuts on four sides at once, without crushing or bruising. Highest award at world's fair. Orders with cash filled from Chicago if desired. Send for circulars. M. T. PHILLIPS, Box 13, POMEROY, PA.

Stops Chills **Painkiller** (PERRY DAVIS') Cures Colds

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University of Ill

HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXXIV. FORT ATKINSON, WIS., FEBRUARY 5, 1904. NUMBER 52

HAND SEPARATOR BUTTER always brings a good price. We make it a specialty. Why sell your cream when you can get from 15% to 20% more for butter? Save "the over-run" for yourself. Send for market quotations and make us a trial shipment.
C. H. WEAVER & CO., 128 South Water St. CHICAGO.
REFERENCE Any bank or wholesale house.

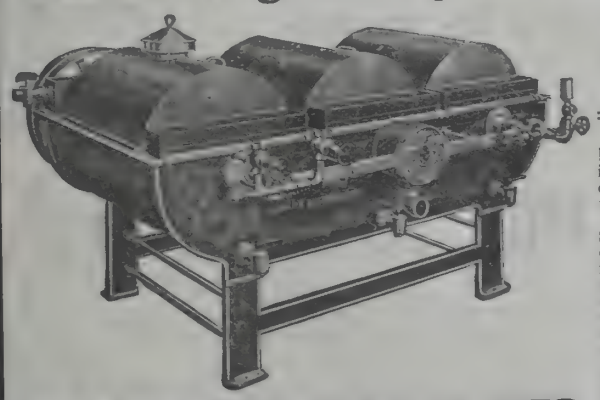
W. I. Young & Co. Wholesale Dealers in Fine Butter, Cheese and Eggs
Liberal Advancements Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, New York

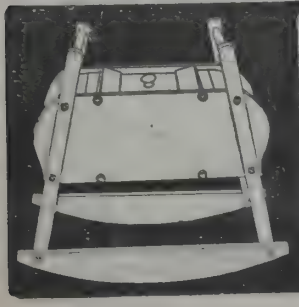
HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, BOSTON.**
Medals—Bronze 1878 Silver, 1887, World's Fair, 1893.



NO COAL TAR IN OURS!
Chr. Hansen's Danish Butter Color
IMPARTS THE PERFECT "JUNE COLOR" TO BUTTER
Has stood the test of more than 30 years. Absolutely pure and harmless
CHR. HANSEN'S LABORATORY, BOX 1003, LITTLE FALLS, N. Y.

Thatcher's Orange Butter Color
CONTAINS NO COAL TAR
The pure food agitation makes it imperative that butter makers use a color that is beyond suspicion. Every drop of Thatcher's Orange Butter Color is guaranteed purely vegetable, absolutely harmless and safe anywhere.
We also call your attention to Thatcher's Cream Cheese Color which is recognized by all as the best.
Write for information.
THE STANDARD VEGETABLE COLOR
THE THATCHER MANUFACTURING CO.,
POTSDAM, - NEW YORK.

The Farrington Duplex Pasteurizer.

Built Entirely of Metal
Among the users of our Farrington Duplex Pasteurizers we have the names of the leading milk companies of the country.
The Farrington is not a Summer or Winter machine, but equally satisfactory at all seasons of the year. For convenience, durability, thoroughness of work and economy it leads them all. We are prepared to prove it. Write for further information.
CREAMERY PACKAGE MFG. COMPANY
General Agents Alpha-De Laval Separators.
Branches: Kansas City, Mo.; Minneapolis, Minn.; Waterloo, Ia.; Omaha, Neb. and Cowansville, Quebec. New England Agents: Stoddard Mfg. Co., Rutland, Vt. Pacific Coast Agents: De Laval Dairy Supply Co., San Francisco, Cal.
182 to 188 East Kenzie St., Chicago.


The ROCKER CHURN
Gets the butter from the cream down to the one thousandth part. Made of tasteless wood and the churning process is entirely the result of its own motion—no machinery inside or out to get out of order or require oiling.
Its Special Advantages
are: 1—Simplicity. 2—Least friction. 3—Gravity does the churning; a child can operate it. 4—Absolutely no adjustments, always ready. 5—Nothing but the churn box to clean, easily accessible. 6—Violent agitation of cream without paddles or dashers. 7—Gives the finest grade of butter of any churn on the market. WE PAY THE FREIGHT.
Your money back if not satisfied. In eight convenient sizes, 8 to 60 gallons. Price as right as the quality. Illustrated circulars free.
Rocker Churn Mfg. Company, Forsyth, Georgia.

TUBULAR SEPARATORS ARE AS ADVERTISED.



By constant advertising we keep you informed of the good points about Tubular Cream Separators. **Because they are entirely different** from all others we have more to tell than any other cream separator makers.

We tell you about the train loads of Tubular Separators we ship so you'll know the great number being sold. **We tell you of the many contests Tubulars win** so you'll know the fine work they do.

We explain the construction of Tubular Separators so you'll understand how different they are from others. No other cream separator manufacturer explains the construction of his machine—because no other cream separator is equal to the Tubular, and no other manufacturer cares to compare his machine to the Tubular.

The Tubular Bowl is small, light, made in three simple pieces—the bowl, cream guide, and bowl bottom. It is easy to handle—easy to wash—durable—a perfect skimmer. Other separators have heavy bowls filled with queer, hard-to-wash contraptions.

The Bottom Feed is Simple—merely feeds the milk into the bottom of the bowl—but it makes clean skimming fast—makes the low supply can possible. No other separator has it.

The Low Supply Can—hardly hip high—is easy to feed. Milk is always in view—machine is never top heavy. No other separator has it.

The Wholly Enclosed Self-Oiling Gears never catch clothing or fingers. They lubricate themselves. There is not an oil cup about the Tubular. Merely lift a cap—there they are before you. One teaspoonful of oil per week is all they need. No other separator has them.

We Guarantee the Tubular to skim twice as close as any other separator. The recent test held at Fairmont, Minn., again proves this true. Our competitors requested this test—named the terms—were well beaten. Three perfectly honorable and well known men judged the contest. Now, our competitors are telling trembling tales of "how it all happened." That is a trifle foolish, for we have the proof for any one who would like to know about it.

Would you like to know how it happened? **Write for Complete Report of the Test,** as taken from the Minneapolis Journal, and for Catalog No. 144

THE SHARPLES CO.,
CHICAGO, ILL.
P. M. SHARPLES,
WEST CHESTER, PENNSYLVANIA.



Without MACBETH on it what can you expect of a lamp-chimney!

You need to know how to manage your lamps to have comfort with them at small cost. Better read my Index; I send it free.

MACBETH, Pittsburgh.



No Other Light

except the sun itself can possibly be so useful to the farmer in stable, loft, cellar, doing a hundred chores, as a

DIETZ Cold Blast LANTERN.

Wherever it goes it drives away blackness with its strong, steady, pure white light. It can't blow out. It is absolutely safe. There's no other so convenient. Dietz lanterns are not the common kind. But they don't cost any more. Let us send you free lantern book to learn to know them. Then you can get your choice from your local dealer.

R. E. DIETZ COMPANY, 94 Laight St., New York.
Established 1840.

A Guarantee That Guarantees.

We desire to call special attention to the guarantee made poultry raisers by the Cyphers Incubator Co., Buffalo, N. Y. They warrant their incubators for ten years, and guarantee that they will hatch a larger percentage of fertile eggs and produce more vigorous chicks than any other incubator in the world, at the same time consuming less oil and requiring less attention. As the guarantee is backed by a large and responsible company, it certainly means something to our readers. They agree to refund the purchase price in case the purchaser does not get satisfactory results. The Cyphers incubator, as is now well known, is constructed on a patented principle entirely different from any other machine on the market; it is absolutely self-ventilating, self regulating, requires no supplied moisture, is automatic in action and has the most sensitive and accurate regulator made.

The company carries in addition a full line of "poultryman's necessities," standard articles specially prepared for the poultryman who wants to make money. They will send their new complete catalog for 1904 free if you tell them that you are one of our readers.

Try a Royal
30 Days Free.



We believe and claim that it's the best incubator ever made. Try it 30 days, if you don't like it you needn't keep it. Absolutely self regulating. Send for trial order blank. Incubator and Poultry Catalog free, with poultry paper one year ten cents.



Royal Incb. Co.,
Dept. 424, Des Moines, Ia.

OLD TRUSTY Incubator.
30 Days Trial.



If you want to know about the chicken business, write for Johnson's catalogue. **Great $10 offer this year.** Write and find out.

M. M. JOHNSON, Clay Center, Neb.

KERESENE SPRAYER.



One act of pumping and making kerosene emulsion. Detachable kerosene tank. In knapsack form, most conveniently handled. As well adapted to foliage spraying as

For Poultry Plants

killing lice on animals, etc. Ours is the ideal line of sprayers—20 styles, suited to every want, large or small operations. **Hand, Bucket, Knapsack, Barrel, Power, Field.** As for free catalog. Booklet on insects and plant and fruit diseases for 10c.

THE DEMING COMPANY, SALEM, OHIO.
Henion & Hubbell, Western Agents, Chicago, Ills.

NO HUMBUG Farmer Brighton's

Swine V, Stock Marker and Calf Dehorner. Stops swine from rooting. Makes 40 different ear marks. Extracts Horns. Price $1.50. Send $1 for trial. If it suits, send balance. Pat'd May 6, 1902. Hog and Calf Holder only 75c.

GEORGE BOOS, Mfr., FAIRFIELD, IOWA.

A Reader's Estimate of the Advertisements.

ED. HOARD'S DAIRYMAN:—Enclosed find renewal of my subscription. As I am writing, I will take the occasion to say that I read your article a few weeks ago about your advertising columns and thoroughly agree with all it says. I make the advertising columns of HOARD'S DAIRYMAN worth a good deal of money to me. I have bought from the advertisers in HOARD'S DAIRYMAN during the last two years a Guernsey bull and two registered heifers, a separator and gasoline engine. I also practically bought a whole creamery outfit, for when we organized for our co-operative factory. No one knew where to get the supplies, and I told them I could easily find out from the advertising columns of HOARD'S DAIRYMAN, and it was left to me to get an agent here with plans for building and machinery. I've also bought bran and other feeds from your advertisers, and to tell you the truth, I don't buy much of anything without first lookiug over the columns of HOARD'S DAIRYMAN, and I find that in this way I not only buy more satisfactorily for myself, but in looking over the advertising columns, I find I get much interested, and a few postal cards occasionally give me a whole lot of information about things that I don't want to be without.

I don't see how an intelligent dairyman can consider it to his advantage not to often consult the advertising columns of the DAIRYMAN. I am buying from its columns all the time. J. E. ORTELL.

Ohio.

Cows Not Doing as Well as Last Year.

I am feeding at present about 15 lbs. of fodder corn without ears (it was just tasseled when I had to cut it), 10 to 12 lbs. of good clover hay and about 7 to 8 lbs. of bran and ground oats mixed, equal parts, to cows fresh this fall, and giving from 20 to 25 lbs. of milk daily. I am not satisfied with the results, as the cows do not yield as much milk as last year, although I am feeding nearly the same ration. I want to ask if you think it wise to add some oil meal at $25, with bran, $16.50, and oats, $20. A. J. M.

West Denmark, Wis.

There appears to be more or less complaint from many places that cows are not doing as well this year as they did last year, and a goodly number of farmers, not knowing any other cause, attribute this condition to the excessive rainfall last summer. Some claim that feed stuffs are not up to their usual quality, while others incline to the opinion that the cows themselves were more or less affected by the unusual weather. But whatever the cause, the fact remains. We can see no good reason why the feed mentioned above, whether in character or amount, should not produce satisfactory results, but it would be quite in accord with good judgment to try some oil meal, commencing with not more than a half pound a day and gradually increasing if results warrant so doing. Also, if not already doing so, give a large teaspoonful of salt night and morning.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.



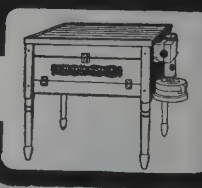
Harness should often be washed with a pure soap to keep it soft and to avoid cracking. Oil may be applied afterward, and while the leather is wet. It is hardly necessary to have blacking in both soap and oil, and a black oil is perhaps preferable. Ivory Soap is easy to wash a harness with, because it lathers freely.

The mild purity of Ivory Soap fits it for many special uses for which other soaps are unsafe or unsatisfactory.

PROFITABLE "PEEPERS"

Welcome sounds—the first faint "peeps" from cracking shells—heard coming from the evenly heated egg chamber of the

Sure Hatch Incubator



Those sounds mean money profit for the owner. A Sure Hatch starts chicks in life with strong lungs, solid bodies and good constitutions. Our free catalogue C 14 tells how. Write now.

Sure Hatch Incubator Co., Clay Center, Neb., or Indianapolis, Ind.



FROM MILL TO CONSUMER

You are interested in the strength, purity, uniformity and cost of the feed you buy. Direct dealing with the mill gives you information in regard to these points which you cannot secure when buying feed at random, in bulk.

Once having investigated a mill's product and finding it satisfactory, you can continue your buying from that mill with a confidence and assurance you cannot otherwise feel, providing the mill is reliable.

Buy **ELMCO** Feeds and you know exactly what you get. The Wisconsin Experiment Station has analyzed them, we herewith show the result.

University of Wisconsin Agricultural Experiment Station, Madison, Wis., November 6, 1903.

	Moisture	Crude Protein flesh forming substances	Ether Extract (fat)
ELMCO Red Dog	9.55	22.19	5.40
ELMCO Fancy White Mdls.	10.08	19.38	5.43
ELMCO Standard Mdls.	9.30	20.00	6.15
ELMCO Fancy Bran	10.00	16.63	4.78
ELMCO Mixed Feed	9.80	20.50	4.66

The analysis shows the feeds to be of superior quality. I have made a careful examination of the feeds and find them to be pure goods, without any foreign admixtures. F. W. WOLL, Chemist.

ELMCO Feeds are made from carefully selected hard Spring wheat, milled for best feeding results. They are put up in 100 and 200 lb. sacks, branded with our trade mark "ELMCO," which guarantees full weight, absolute purity and strength. Quality considered, they are the most reasonable feeds you can buy. They contain more protein and fat for a Dollar than ordinary feeds. Ask us for samples and prices.

Ask your Banker as to our reliability.

LISTMAN MILL COMPANY,
La Crosse, Wisconsin.

Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

W. D. HOARD COMPANY, Publishers.

W. D. HOARD, Editor.

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Subscription in United States, Canada and Mexico $1.00 per year; 6 months 50 cents; 3 months 25 cents.

FOREIGN SUBSCRIPTIONS may be sent through Sampson Low, Marston & Co., St. Dunstan's House, Fetter Lane, London, Eng., or their agents, including the leading news dealers and book sellers in nearly all foreign countries.

Subscription agents for New Zealand—Bray Bros., Agricultural Hall Building, Dunedin, N. Z.

All foreign countries in the Postal Union $2.04 a year; not in the Postal Union $2.56. Includes postage.

Correspondents must not expect us to acknowledge the receipt of letters containing remittances for subscriptions. The receipt of the DAIRYMAN is sufficient notification that the money has been received. The label on the paper will show date to which subscription is paid. In case of renewals if date on lable is not changed within two weeks after remittance is sent, inform us at once.

Remit by draft on Chicago or New York, or Post Office or Express Order (never by personal check), addressing HOARD'S DAIRYMAN, Fort Atkinson, Wis.

Entered at Fort Atkinson, Wisconsin, as second-class matter.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

The Hatch Experiment Station Herd.

ED. HOARD'S DAIRYMAN:—The department of Foods and Feeding of the Hatch (Mass.) Station keeps about a dozen cows, mostly high grade Jerseys, for the purpose of carrying on a variety of dairy and feeding experiments. These cows, purchased from nearby farmers, at a cost when fresh of $50 to $75 each, are of the dairy type, and have yielded from 5,500 to 7,000 pounds of 5 per cent milk yearly. In this connection, it is desired to present the record of the grade Jersey cow, Pearl, which has belonged to the herd for a number of years. In appearance she may be regarded as rather coarse and angular. She possesses, however, the typical dairy form, having a large deep body and a pronounced pelvic arch. Her udder is large but rather defective in front. She dropped her last calf in December 1902. Her breeding is unknown,

MILK AND BUTTER YIELD.

DATES.	Pounds milk.	Per cent fat.	Pounds fat.	Equivalent 85 per cent butter.
Dec. 23-29	247.2	7.40	18.3	21.3
Dec. 30-Jan. 5	246.4	6.90	17.0	19.8
Jan. 6-12	244.4	7.15	17.5	20.4
Jan. 13-19	259.5	6.35	16.5	19.2
Jan. 20-26	249.5	6.33	15.8	18.4
Jan. 27-Feb. 2	242.2	6.40	15.5	18.1
Feb. 3-9	264.0	5.45	14.4	16.8

The cow was not forced, receiving daily 12 pounds rowen, 12 pounds hay, 3 pounds bran, 2½ pounds distillers' grains and 2½ pounds fine middlings. Later the feed consisted of 16 pounds hay, 30 pounds silage, 5 pounds bran and 3 pounds gluten meal a day. Shortly after calving, Pearl was in good flesh and weighed 1100 pounds. She constantly lost weight during the first few months, until about the middle of February the loss amounted to 170 pounds. It is evident that she could have profitably utilized a larger ration and it also seems probable that she took the fat from her body and transfered it into milk fat. Note that her average milk test two weeks after calving was 7.40 per cent fat, and that the milk gradually decreased in fat until the first week in February when it had reached 5.45 per cent. The milk did not go below 5 per cent fat, neither did the cow lose any more in weight, during the next few months. During the first six months of 1903 without extra feed, this cow produced 5,241 pounds of milk, averaging 5.54 per cent fat, equivalent to 341.59 pounds of 85 per cent butter, being a daily average of 29 pounds of milk and 1.9 pounds of butter, or 15.3 pounds of milk to a pound of butter. Unfortunately, through a misunderstanding, her milk record was not kept during July, August and September. She is now producing about 19 pounds daily of 6 per cent milk, and is thought to be safe in calf to a grandson of Brown Bessie's Son. It is believed that such a record is rarely equaled by animals from the herds of the most reputable Jersey breeders.

Amherst, Mass. J. B. LINDSEY.

In and In Breeding—Effects and Influences.

ED. HOARD'S DAIRYMAN:—The gain in constitutional vigor derived from an occasional cross between individuals of the same variety, but belonging to different families, or between distinct varieties, has not been so largely or so frequently discussed as have the evil effects of too close in-breeding.

The evil effects resulting from close inter-breeding are difficult to detect, for they accumulate slowly, and differ much in degree with different species, and, while using the term, evil results, it should be noted that the advantage of close inter-breeding in maintaining character is indisputable, and often outweighs the evil of a slight loss of constitutional vigor.

The consequences of close inter-breeding carried on for too long a time are, as is generally believed, loss of size, constitutional vigor, and fertility, accompanied by a tendency to malformation, but it is the opinion of authorities that these evil effects can be mitigated by separating the related individuals for a short time, and submitting them to changed or altered conditions of life.

That any ill directly follows from the closest inter-breeding, has been denied by many authorities (theoretical), but rarely by any practical breeder, and never by one who has largely bred animals which propagate their kind quickly. Evidences of the evil effects of close inter-breeding can most readily be acquired in the case of fowls and pigeons, and almost any breeder of such stock is conscious of the value which accrues from an occasional cross with another strain of the same variety. Many breeders, to avoid the expense of purchasing such crosses, keep two sets of live stock and occasionally cross one in the other.

With cattle, close inter-breeding can be carried on for a lengthy period of time with advantage in respect to external characteristics and with no manifest deleterious, constitutional symptoms. This can be proved by a perusal, in the English Short-horn stud-book, of one notable case, in which a famous bull, himself the offspring of a half brother and sister, was mated with his own daughter, granddaughter and great granddaughter, so that the produce of this last union, or the great-great granddaughter, had 93.75 per cent of the blood of the original bull in her veins, and this great-great granddaughter was mated with a bull having 68.75 per cent of the same blood, and then yielded valuable offspring.

To sum up, I may say that to breed in-and-in from a bad stock is ruin and devastation, but the practice may be safely followed within certain limits when the parents so related are descended from first-class animals.

Though inter-breeding may be carried on in a herd without detriment to the individual animal, if we select the best animal for the purpose (as Nature does by the law of combat), there is no doubt of the advantage to be gained from a judicious cross, which advantage at once shows itself in the greater size and vigor of the offspring. Such crosses are extremely valuable as a means of procuring slaughter animals and such as are seen in the entries in the fat stock class at many shows.

The wild cattle at Chillingham Park (England) and elsewhere have been quoted in support of the theory that long continued inter-breeding does not deteriorate a herd. This might be due to the selection (by strength and vigor) of the sires, the weak and old bulls getting no chance to procreate their infirmities and deformities; but still from the records of even this herd there seems no doubt they are less fertile than the herds on the South American Estanchias, where crossing is common and they have certainly deteriorated in size, being (as they are) the descendants of the gigantic *Bos Primogeneris*.

In sheep, herds can be kept pure and up to type by close inter-breeding, and continue so for many years, but crosses are employed where certain characteristics or traits are required to be brought into prominence, be it increase in quantity or quality of wool, or greater flesh carrying capacity.

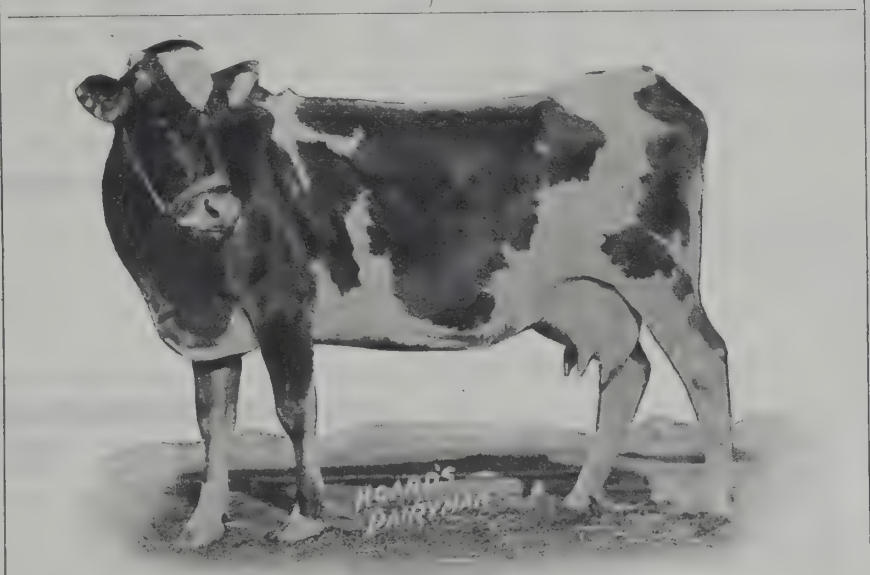
In some cases it has been advocated by certain authorities that a pure-bred variety can be crossed by a different pure-bred variety in order to give prominence to a certain point. For instance, during the past few years, as any frequenter of shows can tell, the types of dogs adorning the benches have undergone a change from their predecessors of 20 years ago, and the endeavor to attain superiority in their special lines (now judging by points is all the rage) have caused breeders to try all sorts of experiments to gain their end. In the case of the collie, for instance, where a flat head, thin tapering muzzle, and low set on ears is the ideal aimed at, some even have advised crossing once with a Borzois (wolf hound), which possesses the muzzle and skull, etc., so beloved by ardent admirers of the present stamp of Collie. There are many other theories of a similar type advocated and believed in, but proofs as to their utility are not always forthcoming.

It is much to be regretted that our writers on zoology have not, instead of the sheep, pig, cattle or cart horse, chosen the thorough-bred horse as the basis of their investigation in regard to the effects, evil or otherwise, of close in-breeding.

No species of animal in creation is so specially adapted for that purpose, for here incontestable facts are available as incontrovertible evidence; whereas in breeding spheres selected by zoologists much must depend on personal opinion, unsupported assertions, unreliable information and similar.

W. R. GILBERT.

Montreal, Canada.



GRADE JERSEY COW, PEARL.
Property of HATCH EXPERIMENT STATION.

Some Experiences in Milk Fever.

ED. HOARD'S DAIRYMAN:—Some ten years ago I started a herd of Jerseys, and naturally I expected more or less trouble with milk fever. Having had no previous experience I adopted the preventive method advocated by V. E. Fuller, the principal things of which were first, Epsom salts, before calving; second, a drench of the same immediately on calving; third, milking out clean three times a day. During the last eight years with a herd that did not average ten cows, I have had ten cases of milk fever. In every one of these cases this preventive treatment was carried out thoroughly, and I think I may be excused if I say that I have lost every bit of confidence in this kind of treatment. I have certainly had a very large percentage of cases, and if this preventive treatment was of any use it would seem that my cases should be much less.

NOW AS TO TREATMENT OF THIS DISEASE.

The first four cases that I had were treated with the old approved methods, viz., drenches, stimulants of whiskey and ammonia, hot applications to the spine and body, cold applications to the head; in fact, the orthodox treatment of ten years ago. As all the cases resulted fatally, my confidence in that treatment was necessarily jarred.

The last six cases that I have had were all treated with the so-called Schmidt treatment, that is, an injection was given in the udder of one quart of water which had been previously boiled, in which was dissolved one-fourth ounce of Iodide of Potassium. This treatment was repeated after four hours, and the solution injected was milked out after one hour. All these cases were followed by almost immediate recovery, and none of them were followed by udder trouble. No medicine was administered internally. I naturally have considerable confidence in this treatment, but in order to achieve perfect success, it should be given as soon as possible when the disease appears.

The very first symptom of milk fever is refusal to eat. This is followed in a few hours by a weaving of the body and staggering when the animal walks; soon after the animal falls down unconscious. I am satisfied, if this treatment is administered as soon as the animal refuses feed, it will prevent the unconscious stage of the disease. I had one case that I administered a treatment as soon as feed was refused. The symptoms of weaving and staggering followed with considerable severity, but eventually they subsided, and the animal did not get down.

I make it a practice now to visit the animal and offer her feed every four hours for the first two days, and even get up nights to do this, then I know that I will catch the disease on its first appearance. It is now over a year since I have had any case of milk fever. During this time I have adopted the method of not milking out the cow for three days, in fact, not milking her at all, but letting the calf have what it wants. It seems to be a better preventive than milking out.

It is very exceptional for a cow to have milk fever with the second calf. In the fall of 1902, I had a cow about to drop her second calf, and as the udder was very large and hard, I milked out ten quarts previous to calving; she developed a very bad case of milk fever. That was the last time I have ever practiced milking out, and the last time I have had any trouble. The same cow calved a few days ago, and is now giving thirty-eight pounds of milk per day with zero weather. She was not milked at all for the first three days, although carrying a very large udder, and she did not have the slightest symptom of the disease.

I give these experiences as a contribution to those of others. Taken alone they do not prove absolutely the error of my former treatment, or the perfectness of my present methods, but they have a tendency along that line, which the experiences of others may confirm.

Adrian, Mich. J. W. H.

A Dairyman's Hen House.

ED. HOARD'S DAIRYMAN:—Many keep poultry and it is natural that they should do so. The by-products of the dairy are a great help in making out the daily feed rations. But some of our dairymen do

not get the results they should during the winter months, in the sale of high priced eggs, simply because they do not furnish the required environments for the winter laying hen.

No hen will lay eggs during these cold winter months, unless she has warm quarters supplied, and is well fed and cared for every day. At the same time, she must have plenty of exercise inside these quarters, and that necessitates the furnishing of a scratching shed.

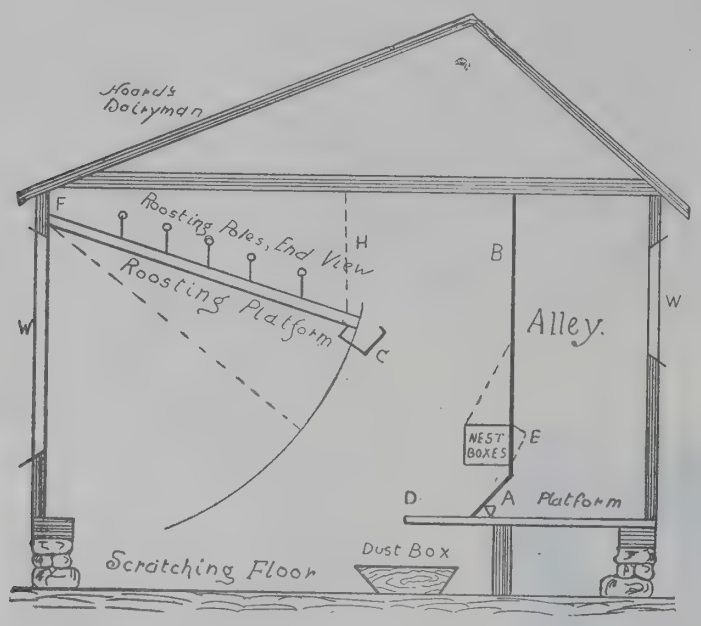
The accompanying sketch shows a cross section of a cheap but substantial hen house that any farmer can make. The size of the building may vary according to the individual requirements. Some dairymen attach their hen houses to the barn or to some other main building, but we prefer to have it stand one side and away from other buildings containing live stock. This house may be arranged for a small flock or made into a long shed-like section for a number of flocks of one or more breeds of poultry.

retain the animal heat in cold weather, and also ward off the rays of the hot sun in "the good old summer time."

The foundation should be laid at least two or three feet deep, in a trench dug out and filled in with stone and cement, or cement alone If the walls are frost and moisture proof, then the scratching floor, which is on the ground, will be easily kept dry, clean and sanitary.

It will cost very little to build this hen house, if the farmer does the work himself. And some such a house is necessary if one wishes to secure eggs during the cold winter months. The writer has visited thousands of farm homes in several states and found a number of enterprising dairymen who keep hens for the purpose of getting eggs during the winter months when eggs are scarce and high in price. In another article we will write about the business hen in winter time on a progressive dairy farm.

Calhoun Co., Mich. J. H. BROWN.



The plan shown is very practical and of our own architectural design. It is 14x16 ft., and 7 ft. high at the eaves. The alley is 4 ft. wide and has a floor two ft. above the ground. This floor projects about three feet (D) into the scratching room, and forms a platform the whole length of the building, upon which the hens can stand while eating their morning mash. The mash is scattered along the trough (A), and narrow ,sloping slats prevent the fowls from soiling and wasting their feed.

The roosting platform is shown with the back end attached to the wall by loose pin hinges at F. Any inclination can be given this platform by means of the wire supports at H. Oil cup brackets filled with coal oil, support the ends of the roosting poles, which are readily detachable. By this arrangement no lice or vermin can secure access to the hens while they are on the roost at night. All the fixtures, including platform, poles, droppings trough (C), nest boxes, etc., can be taken outside for cleaning and disinfecting at any time.

The interior arrangement is very convenient for feeding the hens, cleaning out the nest box sections and gathering the eggs. The nest box section is 14 feet long. It is subdivided, with doors opening into the alley, giving easy access to each nest. These doors are hinged at their lower ends.

The alley is separated from the roosting and scratching room by means of galvanized wire fencing, and the sections are divided by the same material. It is better to keep the laying hens in small flocks, to secure the best results.

Any farmer with very few tools can make this hen house in a few hours time, after the foundation is laid. The frame is of 2×4 and 2×6 hemlock stuff, and the walls are covered with good German lap siding, well matched and jointed. In this cold climate the walls should be double, with a dead air space between. This will keep out the cold winds and maintain a more equable temperature within the building, during severely cold weather. In fact, more depends on having the hen house warm, than anything else, except the feed.

The roof boards should be laid close together, and covered with heavy, antiseptic roofing paper, then shingled. This makes the best and tightest roof, at the least cost in the end. It will

"ADVERTISEMENT."

THE VALUE OF CHARCOAL

Few People Know How Useful it is in Preserving Health and Beauty.

Nearly everybody knows that charcoal is the safest and most efficient disinfectant and purifier in nature, but few realize its value when taken into the human system for the same cleansing purpose.

Charcoal is a remedy that the more you take of it the better; it is not a drug at all, but simply absorbs the gases and impurities always present in the stomach and intestines and carries them out of the system.

Charcoal sweetens the breath after smoking, drinking or after eating onions and other odorous vegetables.

Charcoal effectually clears and improves the complexion, it whitens the teeth and further acts as a natural and eminently safe cathartic.

It absorbs the injurious gases which collect in the stomach and bowels; it disinfects the mouth and throat from the poison of catarrh.

All druggists sell charcoal in one form or another, but probably the best charcoal and the most for the money is in Stuart's Absorbent Lozenges; they are composed of the finest powdered Willow charcoal, and other harmless anti-septics in tablet form or rather in the form of large, pleasant tasting lozenges, the charcoal being mixed with honey.

The daily use of these lozenges will soon tell in a much improved condition of the general health, better complexion, sweeter breath and purer blood, and the beauty of it is, that no possible harm can result from their continued use, but on the contrary, great benefit.

A Buffalo physician in speaking of the benefits of charcoal, says: "I advise Stuart's Absorbent Lozenges to all patients suffering from gas in stomach and bowels, and to clear the complexion and purify the breath, mouth and throat; I also believe the liver is greatly benefitted by the daily use of them; they cost but twenty-five cents a box at drug stores, and although in some sense a patent preparation, yet I believe I get more and better charcoal in Stuart's Absorbent Lozenges than in any of the ordinary charcoal tablets."

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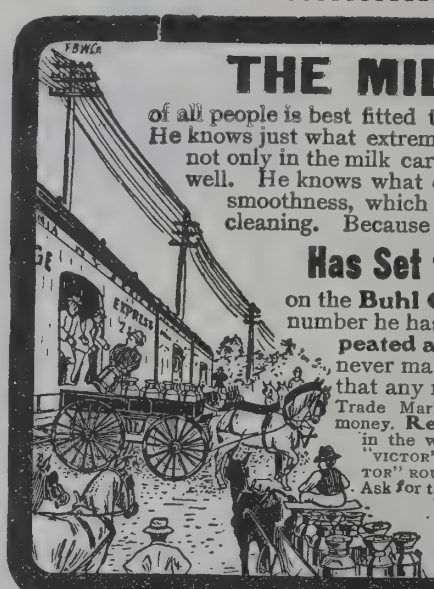
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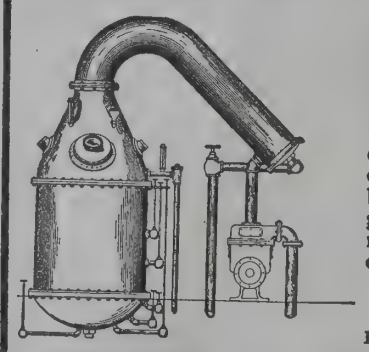
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Note and Comment.

Down in Maryland—What is a Full Ration?—Milking a Heifer Once a Day—Silos in Egypt—The Silage Outlook—Feeding Silage—Two Fine Dairies—An Agricultural Paradise.

ED. HOARD'S DAIRYMAN:—Note and Comment finds himself at present in the commonwealth of Maryland, going up and down its by-ways and hedges, along its valleys and over its ridges, sometimes on very historic, colonial grounds, and anon on the places where history was written largely and with much blood, but where now Nature has spread the green carpet of peace with its woven patches of fields of tasseling corn, and waving grasses, and the bright-eyed daisies wave their hide-and-seek in valleys and meadows.

Today we drive along a pike where only a few decades ago legions of men in blue and gray marched and counter-marched and fought out, and to the end, the question of governmental destiny, and to-day we saw remnants of those armies meet and greet each other as neighbors, friends and co-workers, in making better the agricultural possibilities of the state, a thing they have been doing for years, and more; found them reading HOARD'S DAIRYMAN by the score, and testifying to its helpful influence in making dairying to them a profitable reality.

First I have a letter from South New Jersey from a noted dairyman there, who tells me that his reply to my inquiry not long since, "What is a full ration for a cow?" is, that he finds a full ration to be 8 lbs. mixed grain to the cow, of 2 parts bran, 2 parts gluten meal, 1 part cotton seed, 40 lbs. silage, 10 lbs. second crop hay and all the cut corn fodder they will eat, all divided into three feeds, and what they do not eat of the last is used for bedding. He advises also milking three times a day for the first three months. He finds that three feeds a day pays big, and wonders why dairymen differ so about twice and three times a day feeding and three times a day milking.

This is an open question, and ought to bring out replies *pro* and *con* in the DAIRYMAN. We feed twice a day, all of the silage the cows will eat up clean, with the meal upon it, and what hay the cows will eat in about three hours in the forenoon. They will be that long at it, eating and resting, and devote the afternoon to digesting this food. The six pounds of grain is the average, some a little more, some less, and the average yield of milk for all the cows, in all lengths of lactation, has been 27 lbs. per cow, something Mr. F. does not mention as the result of his plan of feeding. As I happen to know, he has a dairy of very fine Jerseys, Guernseys and Holsteins. He will no doubt milk me out of sight, but at what cost?

***

Now and then I come across something original, and it happened yesterday, and to the purpose, that a heifer the first year should only be milked once per day, that she will give quite as much milk, but the once a day milking expanded her udder. Nature is forced to develop new powers of secretion and ducts, and the second year you have a far superior cow to the one milked twice a day. Who else knows this? The other new thing was, that where Joseph's brethen cast him into a pit, it was a silo, one that "the old man" preserved the food for his herds, and that Joseph later on in Egypt, carried out this same idea in pitting the seven years' food with which to bridge over the famine. This was another new one, and we may now look for some explorer delving about in Egyptian ruins to unearth a pit of fine silage, put up by Joseph himself.

It looks to me as if there is to be a great revival of silage practice in this country. You find it everywhere, and now it is the beef feeders stimulated by western success in steer feeding, who are making the inquiries about silo building. The trouble will be in an unwise feeding which is likely to follow in some cases in thinking that silage is the whole thing, and is a complete single food, rather than a great aid.

Just recently I met a man who is feeding out his first pit of silage and his stock were going wrong, not milking well, getting thin and scouring. His ration was 50 pounds silage a day to the cow, four quarts corn meal and 2 lbs. bran and no dry food of any kind. Another man was feeding silage, cut corn fodder and 12 pounds of mixed corn and damaged wheat, and wondering why he could not attain the results of Herb Cook, and a score of others who feed silage. The steer feeders are liable to fall into the same error, and failing to meet expectations will charge it to false teaching by the men, who have by judicious practice made silage the best roughage feed yet devised.

Near Frederick city, made famous by Barbara Fritchie and her flag, are two great dairies, that of Hon. Mr. Braughman, and the other of Rush Lewis, and they are worth the trip of a cold day to see the perfection of detail in the management of these two dairies. The up-to-date practices are largely the result of reading the best dairy literature. Such men are an uplifting influence to the dairy industry anywhere, and I was not surprised to find a local firm building silos, putting up over 200 last year in the valley and expect this season to erect 500. A good silo it is, for truth, but best after all, their building simply indicates the trend of farm thought, and what is to be expected in the near future as to the harvesting of the greatest of our crops, and the effect it will have upon the markets when we feed this great crop to a purpose, instead of wasting half of it, as we are now doing taking the country by and large.

The possibilities of this great central valley of Maryland, are beyond comprehension. It is as fair a region as the garden of the Lord. No wonder the great armies found it an overflowing granary, as they marched up and down it, as well as the Cumberland valley to the west of the dividing ridge. The United States has three farm counties that stand out prominent in their productions, over all others, and in order, they are Lancaster, Penn., S ark Ohio and Frederick Md., and to secure a farm in either, makes the owner the resident of an agricultural paradise, literally flowing with milk and honey when the dairy industry becomes a prominent feature of these counties; and the farmer feeds his grain more largely, instead of selling it, as now, and turns raw material into the finest of refined table luxuries, milk, butter and cheese.

The population of the northern border counties of Maryland, partake largely of the German element, so conspicuous in southern Pennsylvania, and here one sees the huge red barns with their overhang, the great brick houses like fortresses almost, on the hillsides, and well fenced fields giving the whole a solid, enduring look, as if the occupation was to continue for all time, and nature's store house be always filled with the best things of flock, herd and field.

In Maryland. JOHN GOULD.

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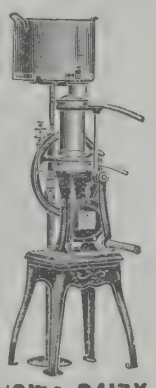
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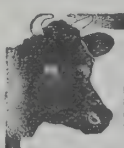
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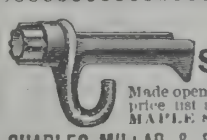
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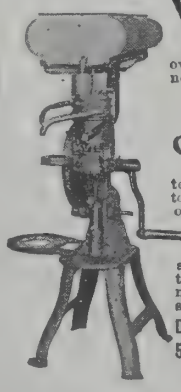




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WILL IT PAY YOU TO TAKE HOARD'S DAIRYMAN?

W. H. Jenkins took a census in 1901 of 50 farmers who were patrons of the creamery in Montrose, Pa. Twenty-five of them read dairy papers; twenty-five did not. The twenty-five who did read dairy papers averaged $50.23 per cow for the year. The twenty-five who did not read averaged $32.95. Here is a difference of $17.28 per cow. Did it pay the twenty-five to read? Did it pay the other twenty-five not to read? That's not all. Those who did read averaged a profit over cost of food of $15.06 per cow. Those who did not read averaged a profit of 66 cents. Is not that dairy farmer standing greatly in his own light who will not pay 2 cents a week for Hoard's Dairyman? These are hard facts worth thinking over.

AS IT IS IN INDIANA.

C. P. Goodrich took a cow census at Plymouth, Ind., a few weeks since of 50 farmers patrons of a creamery. Note the following facts: The total number of cows was 250: the average cost of keeping per cow was $24.96; the average returns in butter fat per cow was $32.20; the average number of pounds of butter fat per cow was only 166; the average net price was 19,4 cents: the average net profit per cow above cost of feed was $7.24; the average returns for $1 worth of fead was $1.29. The six patrons who read a dairy paper averaged $21 per cow over and above the cost of feed, while the 44 who did not read a dairy paper received only $5.58 per cow above the cost of feed. Does it pay to go without sound dairy reading?

COMING EVENTS.

Massachusetts Creamery Association, Greenfield.

Wisconsin Dairymen's Convention at Platteville, Feb. 10–12,1904.

THE FARM HELP QUESTION.

In commenting on the farm help question the *Prairie Farmer* seems to have set up a man of straw. It says: "One of the suggestions made is to induce the derelicts of the city to migrate to the country." We believe the DAIRYMAN was the first paper to speak of this plan but it said nothing about "derelicts" or saloon bums or people of that sort. It did say that there are a great many people who were bred on the farm in Europe, who have been stranded in the city with their families. A large proportion of these people are Germans and Scandinavians. The *Prairie Farmer* says: "Their whole education has not been towards doing good work, etc." This is a very superficial view of the case. The best hired men we have now are just this kind of people. The only education they ever had industrially, has been towards farm work. There are thousands of such men who have families of young children. They land in the city with but little money. They must get work at once, so they drift into warehouses, or work on the streets. They would very much prefer to have a neat little house on some good farm with a quarter of an acre of ground, two quarts of good milk a day and their potatoes and other garden truck, with good wages besides, and the chance to fatten a couple of pigs, to the miserable life they are now living. Why will these men not make good farm laborers? They were good farm help in the old country. The only practical reason they are not helping the farmers today is because the farmers have made no effort, as other business men would have done, to induce them to settle on the farm.

It will not require a very large expenditure for the farmer to put up a comfortable tenant house and fence off a quarter of an acre of good ground. These various et ceteras of domestic life count a good deal more to the laborer than they do to the farmer. The farmers of this country cannot go on as they have done, waiting to have the laborer come along and ask for work, or else try to hire a brother farmer's help away from him. There is but little good business sense or sagacity in the present state of affairs. It is vastly easier to set up a lot of artificial or fancied objections to the scheme, than it is to organize and try it.

But of one thing we are certain, and that is, that something must happen soon to bring about a more healthy balance between the congested labor of the city and the unreasonable scarcity of help which exists on the farm.

BUTTER FAT AND TALLOW FAT.

Dillwyn Stratton of Ohio puts the question of this dual-purpose dairy farming before the readers of the *Ohio Farmer* as follows:

In my experience I have not known a man to stick to the production of both butter fat and tallow fat. When he figures the cost of each he finds it not so very different, but when he sells them, the butter brings five times as much as the beef, which of course has a tendency to settle his views.

It is hard to kick against the pricks. It is hard to make some men look at this dairy business in the right light. Even long years of pain in the pocket, hard toil all the year and no profits, will not teach them. Mr. Stratton ought to be able to find thousands of farmers who will stick to an unprofitable cow if she is only "dual-purpose."

A SERIOUS SCARCITY OF FARM HELP IN THE EAST.

A friend and subscriber of the DAIRYMAN sends us an account of the very serious lack of farm help at Watkins, Schuyler county, N. Y. He states that the farmers in that section of the state are so affected by the impossibility to secure farm hands that they are selling off their cows and reducing all their farm operations to what they can do themselves alone. He further states that there are lots of potatoes and beans not yet gathered, and he prophesies that many farms will be abandoned another year. There is no doubt that the rage for labor in manufacturing towns has more seriously affected farmers in extensive manufacturing states than in the more pronounced agricultural states farther west, yet it cannot be denied that in the west even, the high cost and scarcity of farm labor is beginning to be very perceptibly felt. Our correspondent draws the following picture of how it is with himself:

"Last spring I started with three men. The 10th of August the last man was hired to the railroad. Since that time I could not get a man at any price. By changing work have managed to get some of the farm work done. Think of a man 78 years of age trying to carry on a farm under such conditions. I paid $25,000 for the farm 26 years ago and to all appearances it has advanced in quality. I have not heard of a man who will work a farm since my men left. I will give you some idea of the depreciation of farm real estate. Twenty years ago the farm next west of me sold for $80 an acre. Last April it sold on long time at $17 an acre."

Watkins, N. Y. C. B.

The above statement discloses a situation that calls for the most earnest consideration. It shows the very serious difficulties our eastern farm brethren are laboring under. Not only are they prevented from carrying on their farms as their necessities demand, but they must stand idly by and see their capital fade out of their possession. These farmers are growing poorer every year. In some portions of New York, in the alfalfa districts about Syrcuse for instance, farmers are doing well. It seems that both prosperity and adversity present the appearance of a patch-work quilt. We cannot help believing however, that the bottom cause for very much of this decline of land values is to be found in the decline of fertility in the soil. There does not seem to have been a clear, determined farm spirit and conviction guiding the destinies of the New York farms. This slack-twisted condition has prevailed for years. Then again, most of the so-called prosperity exists in the towns. The cities and villages of New York have swept the country aside in politics, in the making of the laws, and in absorbing the supply of labor. Marked changes have taken place and the farmer has not correspondingly changed in his ideas and methods. They have allowed their farms to run down in productive power, and about the only remedy to stay the evil has been the purchase of expensive commercial fertilizers.

Exhaustion of land and pocket has been the predominating symptom, except in those localities where a larger use of brain power has been made the rule. Over large areas of farming country in New York and New England, these discouraging features prevail. It is hard to rouse such men to better and more determined effort. The only remedy they see is to grow smaller instead of larger; do less farming instead of becoming better posted farmers. All honor we say to that noble body of farm teachers in the colleges and Farm Institutes who are striving by might and main to hold up against such serious discouragements.

So far as the help question is concerned we believe a year or two more will witness a change for the better. Already labor is becoming badly congested in the manufacturing towns. It must soon turn towards the farm. Of course, such a condition will reduce the consuming power of the laboring masses and bring down the price of farm products. But labor will be more abundant and less expensive. But the great and crying necessity with the eastern farmers, in our opinion, is to reorganize their minds, their judgments, and the conduct of their farms. The malign spirit of waste prevails too generally. The old time, snug, thrifty farmer, with a neat, well kept and well tended farm is too much the exception. Thousands of farmers have forgotten to sow clover. As the soil became more sterile the hazard of growing it became greater, until its use has disappeared from thousands of farms. The old time balance in the soil between humus and the mineral constitutents has been seriously disturbed and instead of sowing more clover, more mineral manures have been purchased and used.

We do not wonder the eastern farmers are discouraged. But after all that can be said, the only cure for the woes of poor farming is *good* farming. It is the only road out of any and all difficulties.

TIMOTHY HAY.

We have often wondered where so many farmers got their idea that timothy hay was a profitable food for cattle. The following table gives the per cent of protein in various kinds of farm hay as compared with wheat bran:

	Per cent protein.
Bran	12
Alfalfa	11
Red clover	8.6
Timothy	3

All of the above figures are based on the supposition that the hay is cut and rightly cured when the plant is at its highest per cent of protein.

Yet in face of the above chemical analysis there are thousands of farmers who will raise and feed timothy under the supposition that because the horsemen of the cities will pay more for it than for other hay, it must be the best. The Missouri Experiment Station found that one bushel of corn fed with alfalfa, produced twice as much beef as when fed with timothy. In our own experience in feeding alfalfa to horses, we use only half as much corn as a grain ration, as we do if we are feeding the same weight of timothy. Besides, the horses appear stronger, better fleshed and show more energy every way. It is quite evident that if it were not for the agricultural chemist to analyze and fix the proportion of values in our farm plants, we would never find out the truth from the so-called practical feeder. So much for what science is doing for the farmer.

THE MEMORY OF TASTE.

The memory of taste is one of the most subtle and enduring of all mental impressions. Who among us cannot remember just how mother's cooking tasted, or who cannot remember distinctly the taste of every apple in the old home orchard. Mrs. Frederick C. Johnson of Winfield, Kan. writes the *Jersey Bulletin* describing how she once sent a little roll of her nice butter as a present to a lady friend who was matron of a school in California. The following answer was eloquent of her friend's appreciation of the merits of good butter.

"I did not dare eat it for a long time; the aroma was so sweet I could just look and smell; that was feast enough. I have been so hungry for a taste of eastern butter like we used to make in old York State, you would laugh to see how I cut off little bits and taste and taste again. Oh! it was so good."

TOO MUCH POOR BUTTER.

There seems to be almost a universal cry going up this winter from the great market centers concerning the unusual amount of poor butter that the creameries are sending out. Of course there will be all sorts of reasons offered for this unfortunate condition of things, and at the end it all comes back upon the farmer, who produces the milk. He is getting hard slaps in the face, or pocket rather, even if he don't seem to realize or know that he is being hurt.

The creamerymen are not much hurt. They get just as much for making poor butter as good, but if two to four cents are knocked off the price, it comes out of the dividend for the milk at last.

The *Elgin Dairy Report* says: "Why so much poor butter on the market?" The commission merchants and dealers in Chicago and New York take up the same cry. The *New York Produce Review* says: "It seems difficult to find a real intelligent reason for the low average quality of the butter produced this winter."

The DAIRYMAN will venture an opinion as to the cause. As every one knows, the winter butter is made from stable milk, and it has been a very severe winter from the Atlantic to the Rockies. We doubt if there has been a winter in 30 years where the cows have been kept in the stable so constantly as the present one. Not one cow stable in ten thousand has any provision for furnishing the cows with pure air. Most farmers think if air is cold, it is pure. They have learned that cows will not give milk profitably unless they are kept comfortably warm. So they shut up the stable tight to hold the heat, with no regard whatever to the purity of the air. The consequence is the cow breathes the rank foul air, made foul by all the excrement and urine, and the gases thrown off in breathing.

A gentleman, who buys live stock, told us the other day that he had never seen so many foul smelling stables as the present winter. What effect must such conditions have on the quality and fine

flavor of the butter, and finally on the price of butter?

Some day the men who keep cows in these United States will learn that one of the most profitable things they can give their cows during the long winter days is pure air.

MORE AND BETTER KNOWLEDGE.

An eminent railroad manager was asked how it was that the railroads had reduced the loss of life so greatly in the last 30 years in proportion to the number of people carried. "Why," he said, "that is very easily answered. It is because we understand our business better than we used to."

It is in the light of this very idea that we want every reader of the DAIRYMAN to read well the valuable contribution of J. W. H. page 1179 of this issue. The experience of J. W.H., is a strong answer to the question: Will it pay a dairy farmer to spend a little money to keep well posted concerning his business.

SHREDDING CORN FODDER.

The situation with those farmers who have a large corn crop is one of considerable difficulty. All that portion of the crop that goes into the silo is disposed of early and easily, but with help scarce, just how to husk the balance, get it into the crib in good season and away from rats and mice ready to feed is a problem.

As a consequence, fields of unhusked corn can be seen all over the land, ready to come in as a hindrance to the work next spring. A number of people have tried the husking machine and shredding the fodder, but here comes up another difficulty, for the shredded fodder is apt to heat and mold when thrown into a large mass. Some are pursuing the practice of hauling a few loads of corn stooks from the field once a week and husking and shredding it. In that case the fodder does not heat enough to hurt it. But this practice compels the leaving the corn in stooks in the field all winter, much of it getting down and all of the fodder injured more or less by exposure to the weather.

A friend writing us from Minneapolis, relates how he husks his entire corn crop early in the fall, shredding the fodder and running it into a large shed. This shredded fodder is sprinkled with salt and placed with alternate layers of dry oat straw. Our correspondent states that the fodder keeps well, and the cattle do well on it.

Some day we hope our makers of corn husking machinery will build a husker that will husk the corn and rebind the bundles of fodder in much the same manner as it comes from the corn harvester. With such a machine the farmer could go on with his corn husking, clearing it up early in the fall, and then stack his corn fodder when he desires.

Cause for a Poor Yield of Cheese.

ED. HOARD'S DAIRYMAN:—I would like to hold forth a question concerning the yield of cheese at our factory. What is the cause of a poor yield and what remedy is there for same? Do you recommend to salt the curd immediately after milling it, or when is the proper time? Don't you think it will improve flavor and retain butter fat by working curd for a certain length of time after milling and before salting.

Pilot Mound, Minn. A SUBSCRIBER.

In answer to the questions asked by "A Subscriber" of Pilot Mound, Minn., would say that there are several causes for the poor yield of which these people make mention. A good deal, for instance, is lost in the whey at this time of the year, when the milk is oftentimes far advanced in age. That is, as a rule, the milk is being delivered but once in two days to the cheese factories. Oftentimes the fat of the milk is churned out to a considerable extent through transportation, and by having been held for so long a period, and delivered to the factory at temperatures ranging in the immediate neighborhood of churning temperatures.

Another cause is, if when the whey is drawn off, the curd is not in proper condition, that is, if it is still soft, insufficiently cooked or firmed, or charged with whey, there will surely be a loss of yield, as the condition of the curd changes, and its texture weakens to such a degree that it cannot resist the action of the press and at the same time retain the butter fat.

Again, some makers experience an additional loss of fat by grinding or milling the curd at too high a temperature. The curd, when too hot, is not firm enough, and instead of being cut is torn apart, thus putting the texture in bad shape, and to this is added the influence of the too great heat which softens the curd, and the loss of fat and yield in such cases will be easily appreciated.

Still another cause, and perhaps the most common cause for the losses of fat, is due to bad milk. Milk that has not been properly cared for at the farm and delivered at so low a temperature as to defy detection until having been warmed up in the vat, resulting in bad flavors and gassy curds. This is important to the milk producer, and he should bear in mind that badly cared for milk always occasions a loss of yield.

We should constantly keep in mind that the butter fat is largely freed from the effect of the casein, which holds it mechanically, and that by too much hand-stirring and manipulation of the curd at time of racking, grinding and salting, we are continually liberating this fat. But by careful handling in every part of the process and by cooling the curds previous to grinding, we fix the butter fat and retain it in its proper position. The curd should be milled when it becomes flaky and shows from one to one and one-fourth inch acid, as shown on the hot iron. Then air well by stirring immediately after milling and every two minutes until ready for salting. In hot weather the curd should not be covered after milling, and the temperature reduced as much as possible before putting the curd into the press. All cheese curds should be well matured before salting. No cheese curd is ready to salt and hoop at time of milling. The milling or grinding should come about half way between the time of racking or dipping the curd and that of salting it. A cheese curd, when ready for the salt, should be mellow and have assumed a smooth, velvety texture, with a flavor resembling that of rich, ripe cream when ready for the churn.

Madison, Wis. U. S. BAER,

An Equitable Way to Build or Pay for a Creamery.

ED. HOARD'S DAIRYMAN:—I see so many questions of value answered in your valuable paper that I would like to ask you to give us some good plan that would be just to all concerned to pay for our new creamery. We have 75 shareholders, each share $50. At annual meeting held last winter it was decided to build a new, model creamery, which has been accomplished. At said meeting, it was voted to raise the sinking fund 2 per cent and assess $10 on each share. Would you advise to repeat and make another assessment at our annual meeting this winter to raise the $7,000 we still owe on our new building and machinery, etc. Cost of new creamery, lots, sewer, etc, is about $11,000 and we handle about 5,000,000 pounds of milk each year. Some of the stockholders are not patrons of creamery. Some patrons bring much milk to the creamery and some less, as is the case in most creameries.

If you can find time to give us some plan that would work more satisfactorily than this, you would greatly oblige us.

Minn. J. M. N.

The most equitable way would be to provide for the payment of the creamery out of a sinking fund created by withholding a cent or fraction thereof from each pound of butterfat, and when the plant is paid for, give to each patron such a share as his milk contributed to the fund. By this method each patron would hold as much stock as his milk paid for, and those who paid cash should have as much stock as they paid for in cash.

Annually, after the plant is paid for, there should be a reasonable dividend declared to the shareholders as interest on the investment, and no more. The patrons who bring the milk are the ones who make the creamery a success and their interests should take precedence, but those who advanced money are also entitled to a reasonable interest on it. Later on, it may be well to refund to the cash contributers their money and confine shares to those who contribute milk, thus making the enterprise a purely co-operative one. Cash shareholders, not patrons, are no help to a creamery association if its financial standing is such that it can borrow what funds it needs.

An Extra Good Holstein in California.

Can Loss of Flesh be Prevented?

ED. HOARD'S DAIRYMAN:—I have a Holstein cow that came fresh the second of December, and in 30 days gave 1,460 lbs. of milk that tested 5.3 per cent butter fat. The last 10 days I milked her 3 times a day. By doing this, she gave as high as 60 lbs. a day.

Could you give me a balanced ration out of the following feeds, that would keep such cows up in flesh: Wheat middlings, $28 per ton; wheat bran, $21; oil cake meal, $30; ground mill feed, $23.50; rolled barley, $25.50; corn meal, $32. My cows have for roughage all the good wheat hay they can eat up, and run in pasture that dry stock will keep in good order on.

I am very much pleased with your paper; have never seen its equal. I have been trying to get some of my neighbors to subscribe. but have not succeeded yet, but will keep trying. There are very few dairies in my neighborhood. L. A. H.

Eden Vale, Cal.

We do not think a cow yielding 60 lbs. of milk per day, or 1,460 lbs. in the first month after freshening, can be profitably fed so as not to lose flesh. If it was attempted to do this, we should very much fear serious injury to future dairy capacity, by establishing a habit of turning the feed into beef channels. It is strictly in accord with nature's law that copious milkers should lose more or less flesh, during the 30 to 60 days after freshening. See the illustration and comments on the cow Pearl page 1179, this issue.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain sepecific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

Cooling Cream—Cooking Feed,

Which is preferable for cooling cream from separator, a dry refrigerator or deep setting in running water? Are the Farrington ripeners made in dairy sizes, and if so where can they be obtained? If a ripener is used, is a starter required? What is the best temperature at which to keep cream before ripening?

Would you advise cooking grain fed to milch cows? E. B. A.

Brimfield, Mass.

For cooling cream or milk, deep setting in running water is by far the most preferable.

The Farrington ripeners are not made in dairy sizes. Under dairy conditions, where the milk and cream can be kept clean there is no necessity for a starter.

Before ripening, cream can be kept at 40 degrees for a short time, but it should be remembered that the sooner the cream is made into butter and placed on the market the better will be the product.

Experiments have shown that it does not pay to cook feed for cows; it costs more to cook the feed than the extra returns will pay for.

Alfalfa in Wisconsin.

Can alfalfa be grown in Wisconsin? With proper care how long will it live without killing out? How many crops can be cut in one year? And what kinds of seed do the best? G. R.

Sparta, Wis.

In this locality alfalfa is being grown with success. There is no data to show how long the alfalfa will live in this state, but there are fields five years old in this locality that show every indication of growing for an indefinite number of years, if proper care is taken of them. Three crops are cut here each year; the seed is northern grown.

Cheese Product and Value of Milk.

We bring our milk to a cheese factory and we sometimes find a mistake in adding out the lbs. of milk and we like to know if we have 3.8 test and one lb. of cheese is worth 11 cents, how can they find out what a hundred pounds of milk will bring if the milk tests 3,8, and how many lbs. of cheese in one hundred lbs. in such milk?

Kiel, Wis. A. A.

One hundred pounds of 3.8 per cent milk should make from 9¼ to 9¾ lbs. of cheese, depending largely upon the condition of the total milk from all the patrons when mixed in the vat. If one or more patrons bring tainted or gassy milk, the yield will be materially cut down. There are many other causes that will affect the yield more or less. If we estimate the average yield to be 9½ lbs.; then, after deducting the cost of making, say, 1½ cents, from the price the cheese sells for, 100 lbs. of 3.8 per cent milk would bring approximately 90 cents.

Dropsy—Contents of Silo.

How many tons of green corn fodder does my silo hold? It is a stone silo 6 ft. by 25 ft. high.

I have a Jersey cow that calved about 2 months ago. She came in 5 days ahead of time. She was dry about 50 days, was extra large with rather a small calf. When the water broke it made her look very flat or thin; the udder did not increase in size, and only giving about 3 quarts at milking, by 9 in the past when fresh. For 4 times she came in heat each 9th day, was bred twice and came in heat 6 days after the last time served.

Perris. Cal. J. N. K.

There is a dropsical condition of the uterus, the cause of which must be ascertained by a personal examination; employ a qualified veterinarian.

A silo 6x25 ft. will hold 13 tons of silage if it is filled to the top.

A Problem in Warmth and Ventilation.

Will calves and cows in box stalls generate enough heat to warm their stable and make the King ventilation system work in this climate?

Could their stable be warmed by heated air from adjoining cow stable and have good ventilation in both? How many cubic feet of space could be warmed per 1000 lbs. of weight of cows? Could the room the calves could warm, be figured out by using answer to last question? Do you think the King system could be used in a hog house? Would it be necessary? The thermometer often goes below zero every night for a week or more here. L. R. P.

Plattsburgh, N. Y.

Properly used, the King system of ventilation aids in keeping a stable warm, because it draws off the cold air from the floor, thereby allowing the warmer air at the ceiling to come down. Care must be exercised not to have the exits open too wide and thus draw off the air faster than it can be tempered by the heat from the bodies of the stock. Whether any warmth would come from an adjoining stable would depend upon the provision made for the air to circulate. If the room for the box stalls is fully partitioned off from the main stable, an opening at the top would allow warm air to flow in provided there is some way for the cold air at the floor to escape. King states that not less than 370 cubic feet should be allowed for each 1000 lbs. live weight of animals, and then provide for changing the air from six to ten times every hour. Under ordinary conditions, a flue 2 feet square in a stable for 20 cows will accomplish this.

Swine require about 2½ times more fresh air per 1000 pounds live weight than cows, and there is no reason why the King system of ventilation would not work well in a hog house.

Two Washington (State) Ration Formulas.

Please formulate for me two distinct balanced rations for cows weighing 1,000 lbs., and giving 30 milk lbs. First ration having brome hay roughage; second ration having baled alfalfa hay for roughage. Bran per ton, $15.00; shorts per ton, $18.00; oat chop per ton, $20.00; barley chop per ton, $21.00; corn meal per ton, $30.00; oil meal per ton, $32,00; beet pulp per ton, $3.00. M. W. J.

Washington.

We are unable to find any satisfactory feeding analysis of brome hay, but accepting Prof. Shaw's statement, in "Grasses and How to Grow Them" that it is practically equivalent to timothy in feeding value, the formulas which follow would be reasonably well adapted for cows weighing 1,000 lbs. and yielding 30 lbs. of 4 per cent milk daily.

NO. I

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
20 lbs. brome hay	17.36	.56	8.68	.28
4 lbs. bran	3.52	.50	1.54	.12
4 lbs. oats	3.56	.37	1.89	.17
2 lbs. oil meal	1.82	.59	.65	.14
Totals	26.26	2.02	12.76	.71

No. II.

20 lbs. alfalfa hay	18.32	2.20	7.92	.24
4 lbs. oats	3.56	.37	1.89	.17
4 lbs. barley	3.56	.35	2.62	.06
Totals	25.44	2.92	12.43	.47

In so far as chemical analysis can determine feeding values, the total nutriments contained in the above formulas vary but the equivalent of one pound of carbohydrates, and this is in favor of formula No. 1. We are strongly of the opinion, however, that formula No. 2 will be found on trial to produce the better results.

The price named for beet pulp appears to us to place it beyond consideration. Beet pulp is accounted to have but one-half the feeding value of corn silage, and the latter is valued at about one-third as much as good hay.

A Massachusetts Ration.

I am feeding 8 quarts bran, 3 quarts gluten feed, 1½ quarts corn meal, ⅔ bushel ensilage, and what clover mixed hay they will eat up clean a day. Herd consists of 40 head of mixed cows, making 460 quarts milk a day. Could I change that any so as to get more milk on a cheaper ration? Bran, $20; gluten feed, $26.50; corn meal, $22 50; clover hay, $14; can get red dog at $25.50; Chicago gluten meal, $32.50; mixed feed, $24.50; ensilage is very full of corn.

Massachusetts. SUBSCRIBER.

Translated into weights, these cows are now receiving approximately 4 lbs. bran, 3.6 lbs. gluten feed, 2.25 lbs. corn meal, and yielding an average of 25 lbs. milk daily. The daily allowance of grain is therefore nearly 10 lbs. and costs 11.3 cents. If these cows are kept in fairly warm and ventilated stables, are not compelled to drink water below 55 degrees in temperature, nor left out in cold or stormy weather to get exercise by arching their backs, we see no good reason way they should not give just as much milk, as at present, if fed 40 lbs. of silage, 6 lbs. clover hay (or 30 lbs. silage, and 10 lbs. hay) 4 lbs. bran, 2 lbs. gluten feed and 2 lbs. ground corn. This is a total of 8 lbs. grain, costing 8.9 cents,—a reduction of 2.4 cents daily for each cow, and amounts to 96 cents for the entire herd, or $6 per week.

It should not be forgotten that the amount of grain suggested is the average for the entire herd, and hence that the cows yielding more than 25 lbs. of milk should receive more, and those yielding less than 25 lbs. proportionately less.

A Vermont Ration—Cows to be Fresh Next March.

Will you please give me a ration which will give the best results at least cost, and one that will pay to feed, with butter at 22 cents net? The cows are grade Jerseys and Ayrshires. Have timothy hay for roughage. The following grains can be obtained: Ben Hur mixed feed, $23; corn meal, $23; gluten feed, $27; cotton seed meal, $28; corn and oats, $27. Will Sanford corn give enough better results to pay to keep it until the cows come fresh, in March? E. E. P.

Richford, Vt.

One must not expect much present profit from cows that are expected to freshen next March, any more than he would expect profit from cutting grain before it is headed out. In fact, it is about time such cows were fully dried off, if they are to have six weeks's rest, which is none too much for most cows.

Nevertheless, such cows should be well nourished from this time until they freshen. To this end they should have all the hay they will eat without any waste and from 2 to 4 lbs. of ground corn and oats, and salt every day.

After these cows freshen, and the fever incident to parturition has subsided, they should gradually be brought to full feed, which will be hay as above, and probably about 4 lbs. bran and 4 lbs. gluten fed daily. Corn is too low in protein to go well with timothy hay.

Proper Feed for Heifers

There is in our neighborhood a bunch of twelve heifers from twelve to eighteen months of age that are being fed timothy hay of a poor quality and nothing else as a winter's feed. Now, can they ever make first-class dairy cows? Will not this kind of feeding, at this time of life, put them where they will always fall below a good milk production? B. H. C.

Adena, Ohio.

We would not like to bring up dairy heifers on such feed. Timothy hay at its best is a highly carbonaceous feed stuff and not adapted to the growth and development of muscular tissue. It serves as feed to keep up bodily warmth and tends to the production of body fat. With such hay there should be at least a moderate daily allowance of bran or oats, or both.

A Ration Criticised

At present we are milking 70 cows that average 20 pounds of 4.20 per cent milk. One-fourth of these cows are fresh, the remainder were fresh last spring and summer. I am feeding cows that give 35 to 40 pounds a daily ration as follows: 5½ lbs. bran, 4 lbs. corn and cob meal, 2 lbs. cotton seed meal with all the mixed hay they will eat up clean. To the smaller and ones that have been in milk longer, I reduce the ration. These cows are the all-purpose cows, weighing from 1,290 to 1,400 lbs. and are Short-horn blood. Milk brings 20 cents per gallon. The cost of feed is: bran, $17; cotton seed, $28 and corn 40 cents per bushel. What I want to know is, am I feeding properly?

A READER.

About the only fault there can be found with the above ration is that it contains nothing to keep the digestive tract in first-class condition. In the absence of silage or roots, we would deem it advisable to have some linseed oil meal in the ration, enough at least to keep the droppings from becoming too dry and hard. We therefore advise dropping out 1½ lbs. bran and adding 1 lb. of oil meal, and for the 35 to 40-lb. cows, we are not certain that 2 lbs. of the oil meal would be any too much. And see to it that the cows have salt every day. Salt is not only an appetizer, as we all know from our personal experience, and large milking cows must eat liberally, but it aids digestion and assimilation

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Rotting Squash.—Squash Seeds.—Scalding Milk to Expedite Churning.

My squash are afflicted unto death or corruption; about one ton, decaying fast. Spots of white mold on surface under which the flesh becomes white and punkey, no bad smell. Cow and horse will eat them if thrown to them whole. I write to ask if any harm comes from feeding them, and how freely. Do the seeds of pumpkins or squash do harm? I notice that if quite soft—as we would call rotting—the animals do not hesitate to take them down, soft—seeds and all.

Let me thank that lady correspondent who told us through your paper to scald the milk and we could get butter without churning two or three hours. We tried it and got butter in 15 minutes. D. F. H.

East Onondaga, N. Y.

It is not expedient to give any kind of stock, rotten feed. Small amounts, in connection with larger amounts of sound feed, would probably do little or no harm and less good. A cow should have, and richly deserves to have, just as sound, pure, healthful food and drink as her owner. The seeds will do harm.

Manure Sheds

I notice that some of the barn plans mentioned in your paper have a manure pit or shed away from the stable. Can you describe one that is economical in construction, and yet built to prevent leaching. How far away from the stable should they be, and what is the most economical way of conveying the manure from the table.

Massachusetts. SUBSCRIBER.

In this locality we would build a shed, using cedar poles of medium length, set two feet or more in the ground, for posts to support roof. Excavate a foot or more of earth with gradual slope in all directions to center; tamp the soil firmly and cover 4 inches deep with Portland cement concrete, and over this a thickness of one inch fine mortar,—two parts sand to one part cement. The best, as well as the most economical, way of getting manure from stable would be one of the litter or manure carriers described in our advertising columns. The distance between stable and shed is not so material as it is to locate the latter where it will be least in the way, and most convenient to get at and away from with loaded wagon.

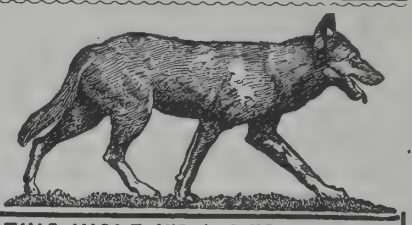
Problems of the Alfalfa Grower.

[A paper read at the Chino Farmers' Institute by V. GUSTAFSON.]

The problems of the alfalfa grower may not be as intricate and difficult of solution as many problems of the fruit grower. Having a splendid home market, the question of transportation does not enter as one of the problems of the alfalfa grower; being adapted to cattle, horses and hogs, the market is practically unlimited. Being immune from diseases and hardy, its cultivation is comparatively easy. Yet there are problems to solve in connection with alfalfa growing, which, if not solved correctly, will lead to failure or indifferent success.

The first problem to solve is to find the selection of land adapted to alfalfa growing, if one does not already possess it. A rich, deep, sandy loam with good drainage is best. Yet it seems to do well on heavier soils if the subsoil is loose and free from alkali. The subsoil should be free from hard pan so as to allow the roots to penetrate to a depth of at least ten feet.

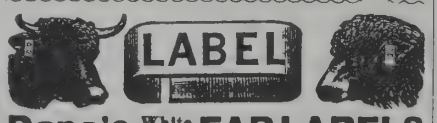
Having found the land so adapted, the next problem is the water supply. If he land is situated so as to recieve the irrigation water from a river whose supply



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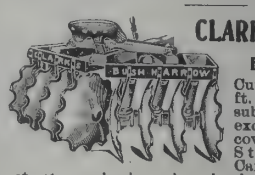
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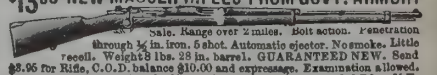
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Sale. Range over 2 miles. Bolt action. Penetration through ½ in. iron, 5 shot. Automatic ejector. No smoke. Little recoil. Weight 8 lbs. 28 in. barrel. GUARANTEED NEW. Send $3.95 for Rifle, C.O.D. balance $10.00 and expressage. Examination allowed. Caliber 7m/m. Cartridges $3.00 per 100. Francis Bannerman, 579 B'dway, N.Y.
BEST HIGH POWER REPEATING RIFLE IN THE WORLD.

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The up-to-date consumer has ceased to allow his shopping affairs to worry him. He makes out his order from our large catalogue, sends it and we do the rest. We began pleasing and saving money for our customers over 32 years ago, and our remarkable success since that time is only a true mark of the people's growing trust in us and our methods.

We buy good goods, tell the truth in describing them, and sell them at wholesale prices. The consumer can buy fresh goods and enjoy the same low prices as does the dealer. Our oldest customers buy the largest bills of goods, because the larger the order the more money saved.

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With this book in your possession it is an easy matter to sit comfortably by your own fireside and order your supplies for months in advance with a few hours' pleasant effort.

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We Want You to Try Us

and test for yourself our ability to please you. Tell us what kind of goods you are interested in and we will send you without charge any of the following illustrated special catalogues quoting wholesale prices. Merely mention the number or letter of the catalogue you want.

100 Artists' Supplies
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125 Crockery and Glassware
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V1 Men's Made-to-Order Clothing with samples of fabrics. Suits $10.50 to $16.50
V2 Same as V1 except suit prices $18.00 to $30.00
VO Made-to-Order Overcoats with samples
W Men's Ready-Made Clothing
Mackintosh Catalogue
Butterick Fashion Catalogue
GL Grocery List (published every 60 days).

Send four 2-cent stamps for our **10-Color Wall Hanger** showing the inside of our building, with the goods and the clerks at work. One of the most complex and complicated pieces of lithography ever attempted. Interesting and attractive. You can get it for what it cost us—four 2c stamps.

Cut this slip out and send it TODAY.

MONTGOMERY WARD & Co., Chicago.
Enclosed find 15 cents for partial postage on Catalogue No. 72, four 2c stamps for Wall Hanger, or 20c for both.

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can be depended on, then that problem is easy; but where the supply is to be lifted from wells by means of pumping, it becomes more difficult and costly, and the alfalfa grower must see to it that the conditions are as nearly ideal as possible, as he must figure on coming into competition with growers who have exceptional facilities for irrigation. As a rule, it may be said that it will not pay to raise water more than 75 to 100 feet, but this must be governed by the amount of hay that can be raised to the acre and the average price received in different localities.

Having satisfied himself that the conditions are right as to quality of land and water supply, the next problem is the leveling of the land, This is an important part of alfalfa growing, and if this is done in a bungling way it will result in heavy loss to the grower. The low places will receive an overdose and the high places little or no water. Gophers will find a safe retreat in the high places and destroy the stand. The result is, weeds will grow on the higher spots and lower the quality and the quantity of hay.

Having leveled the land properly for irrigation, next in order is the seeding. I consider the time from the 15th of September to the 15th of October the best time for seeding alfalfa. An exception may be made on the low alkaline soil where danger of frost is much greater. The alfalfa sown in the fall will grow during the winter months and be much more advanced in growth than alfalfa sown in spring. Another advantage of fall seeding is that many kinds of weeds that spring up with the alfalfa are killed or crippled by frost during the winter, leaving a clean stand of alfalfa.

The soil should be plowed from 10 to 12 inches deep preparatory to seeding, be thoroughly pulverized and very firm near the surface, taking care that the top layer to a depth of about one inch be finely pulverized. The seed should be scattered with a seed drill made for the purpose. This will insure a more even stand than scattering by hand. From 15 to 30 pounds of seed should be sown to an acre, depending on the nature of the soil. On coarse, sandy soil, more is required than on heavy soil.

Having secured a good stand, the next problem is to keep it in good condition for growth. The cutting as well as the irrigating must be done at the right times to insure best results. In the spring and early summer of the first year the alfalfa should be cut frequently. This I have found to be very beneficial to the stand, as it will thicken the stand and insure heavier crops the first season than if left too long before cutting. Alfalfa should always be cut when about one-fifth is in bloom. If left longer it will result in poorer quality of hay and injury to the stand. The curing is very important, as careless handling will result in loss both to the producer and the consumer. No more should be cut at one time than can be raked and stacked in a short time with the help at one's disposal. In the summer, when drying winds are the order of the day, the hay must be shocked as quickly as possible after cutting. This will retain the leaves and aroma so much relished by both cattle and horses.

Last but not least, we have the irrigating problem. This is the most important part of alfalfa growing. This must be done at the right time and in the right manner, applying the proper quantity for best results. The proper time to irrigate alfalfa I have found to be immediately after clearing the land of the hay from the previous cutting. No rule can be laid down as to the proper quantity to apply, as soils differ greatly in the amount of water needed for a crop. This must be determined by the individual grower and is not a difficult problem. The manner of applying the water will, to some extent, determine the quantity required. Water standing to any considerable depth for several hours will pack the soil, resulting in rapid evaporation of water from the soil. Alfalfa so irrigated will, after being cut, turn dry and brown at the stubble, and prevent side branches from growing from the stubble, New stems will grow from the crown, which grow very coarse, and will to some extent lower the quality of the hay.

In conclusion, there is no crop with which I am acquainted that gives surer returns and is a more constant source of satisfaction to its owner than a well cared for alfalfa field.

DON'T PUT OFF

Seeing your friends and having them join in for a good club of subscribers.

Tanning a Hide With the Hair On.

ED. HOARD'S DAIRYMAN:—Answering an inquiry from one of your subscribers in a recent issue, the following is a method employed for tanning deer skins, sheep skins, etc, with the hair on; I dont know whether it has been tried for cow hides. Scrape off all the fat with a blunt knife Then take the brains of the animal, or the brains of any other animal recently killed, and work them into the hide on the flesh side; this renders it pliable. Then take 1 spoonful of alum and 2 of saltpeter, pulverize and mix. Sprinkle this on the flesh side. If the hair side is greasy a little weak lye will take it out. Yellow ochre mixed with the brains gives a fine color to the under side.

If brains are not available, the whites of several eggs or the soaking of the skin one half day in oil or lard is said to have the same effect. S. G.

Ahuntsic, Quebec.

Made for the Man Who Wants the Best.



THE GREAT WESTERN Manure Spreader

is the only Spreader made that has an **ENDLESS APRON** and the many advantages which it possesses. It's always in place and ready to receive the load without any turning back either by hand or complicated, easily broken machinery. The front and rear axles are of same length which, with the **Broad Tires Prevents Rutting** of fields, meadows, etc. and makes **LIGHT DRAFT. SPREADS ALL KINDS OF MANURE,** wet, dry, frozen, light, chaffy, packed or caked. Spreads lime, plaster, wood ashes, cotton-seed and ...lls, etc. **Can be changed instantly to spread thick or thin while the machine is in motion—8 to 25 ...ads per acre.** Made of best material in every way ...as the only successful **END GATE AND BEATER AND HOOD PROTECTOR IN USE.** and sold under a **POSITIVE GUARANTEE** as to **quality, capacity and durability.** All parts breaking within one year will be replaced without charge. **Write for free Illustrated and Descriptive Catalogue**—the best and most complete spreader catalog ever published.

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MILK TUBES Patent Coin Silver 1¾" 50c. 3¾" 80c. Improved Teat Opener 75c. Dilitating plug 25c. Postpaid on receipt of price. G. P. Pilling & Son, 2nd and Arch Sts., Ph'l., Pa.

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VERMIN PROOF CHICKENS.



Lice prey upon chickens. This is one of the great bars to profit in poultry. But it need not be so. The fumes from

Prussian Lice Killer

catch every louse. The fumes penetrate every hiding place. There is no hiding from it under feathers or in cracks or corners of roosts. The chickens are not affected—do not mind it, but its use means louse destruction. Just paint it on the floor, walls, boards, roosts, etc of the hen houses. Should you prefer the powder treatment don't forget the reliable **Prussian Lice Powder**—Price 25c; mail 40c.

"We can recommend your Prussian Lice Killer to any one who has poultry. Please quote us prices on one gallon and five gallon lots."—F. M. WAY, Maynard, Iowa.

Prices, 50c and $1.00; 5 gallons, $4.00. Don't forget that we make the famous **Prussian Poultry Food also.** If your dealer does not keep it, write to us. Our 68 page stock book sent free.

PRUSSIAN REMEDY CO., ST. PAUL, MINN.

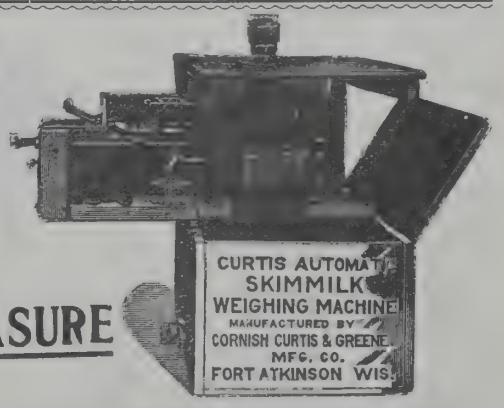
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Skim Milk

Often goes to the wrong man for the simple reason that the patrons have no standard of

WEIGHT or MEASURE

and the last man suffers.



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Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for.... DE LAVAL ALPHA SEPARATORS.

Fort Atkinson, Wis.

CONCERNING OUR ADVERTISERS

The Wasson Stanchion, one of the best swing stanchions on the market, is made by the Wasson Stanchion Co., Cuba, N. Y., and is now advertised in our columns. They claim many points of advantage for this stanchion, among them the following: Freedom of cow in getting up and lying down, without exertion or laming back. Freedom to turn her head on either side, with comfort and absolute security of position, thus allowing her to lick and care for herself. Giving comfort to the cow, it requires less feed and produces a greater flow of milk, and will, therefore, pay for itself in one year.

THE OAT WONDER.

The editor must tell his readers of this marvel. It originated with the largest farm seed growers in the world, the John A. Salzer Seed Co., La Crosse, Wis. It has stiff straw, stands up like a stone wall, is white, heavy, and has long ears, filled to the top with fat, plump kernals. It is a great stooler, 80 stocks from one kernel. If you will send this notice and 10c in stamps to above address, you will get a sample of this Oat Wonder, which yielded in 1903, in forty states from 250 to 310 bu. per acre, together with other farm seed samples and their big catalog.

The saw mill plant of the De Loach Mill Manufacturing Co., of Atlanta, Ga., who are regular advertisers of ours, is said to be the largest of its kind in the world. They not only have size to their credit, but have every other advantage, such as cheap labor and an abundance of the best lumber, steel and iron at hand to turn out a superior product. They thus have every facility for making good their claims of making the best saw mills in the world for the money. We do not know that their claims are disputed. Upwards of twelve thousand of the De Loach mills are now in use in all sections of the country. This fact alone is strong evidence of the high character they bear. The same concern makes a long line of machinery, closely related to the saw mill, such as lath mills, shingle mills, edgers, planers, etc. Also grinding mills, water wheels, gearing, pulleys, shafting, etc. The De Loach catalog is a valuable machinery book for any one interested. It is mailed free.

A SUCCESSFUL VETERAN.

You might hardly feel like calling him a veteran if you should see him, because he stands straight, moves quickly and has a clear bright eye. But when a man has been hustling at the same business for more than forty years, if he isn't a veteran what is he? Then, too, he has succeeded, as you can readily see from the broad acres devoted to growing evergreens and other ornamental shade and forest trees, shrubbery, etc., for it is D. Hill, of Dundee, Ill., whom we are talking about. Mr. Hill has grown and shipped many million trees in his lifetime and has millions more coming along. His name is a household word all over this country and in many foreign countries. Write for his catalogue "Millions of Trees" and mention this paper. Address as above.

Look for Marvin Smith Co's buggy advertisement in this paper. It's very attractive and they are making some very low prices. If you want a vehicle of any kind the advertisement will interest you. We guarantee their responsibility.

Making a Concrete Stable Floor.

ED. HOARD'S DAIRYMAN:--I want to tell you how to make a floor for long and short cows. Last fall I put down a cement floor in the new barn and made platform for the cows to stand on 4 ft., 8 in. long. Where the cows stand, no topping coat was put on, but instead 4 in. of concrete. The walks, gutters and feed alleys were made 3 in. of concrete and 1 in. topping coat. Lengthwise of the platform a 2×4 was placed edgewise and 2 in. plank spiked on for the cows to stand on.

The floor has a slant of 1 in. and the gutter was made 2 ft. wide and 4 in. deep next to the platform and 4½ in. next to the walk, which allows the liquid to run to back side of gutter. For the cows who are long enough to require a longer platform one or more 2×6 are spiked firmly onto the rear of platform.

I find that an ordinary aged Short-horn cow needs a stall 5 ft. long. The stalls are 3½ ft. on centers and a partition of two 2×12 placed 1 in. apart, one above the other. At the rear a 2x4 is set up so that it will be on the side of the stall next to the milker, or the right side. The manger was raised 2 inches and 2 inch plank placed on the bottom which makes it 4 in. above the floor.

Deerfield, Wis. F. A.

DAIRY MARKETS.

ELGIN, Ill., Feb. 1.—Butter ruled firm on the Board of Trade to-day, at 23c a pound, an advance of 1c from last week's quotations. Several lots were offered at 25c and not sold. Sales in the district for the week were 430,000 pounds.

CHICAGO, Ill., Feb. 1—Butter—Firm; creameries, 15@22c; dairies, 13@19c.

Cheese—Steady; Daisies, 10¼@10½c; Twins, 10c; Young Americas, 11½c.

Eggs—Easy; at mark, cases included, 27@29c.

Cattle—Receipts, 25000; market 10c to 15c lower; good to prime steers, 4.60@5.30; poor to medium, 4.00@4.50; stockers and feeders, 2.25@4.00; cows, 1.25@3.85; heifers, 1.75@4.50; canners, 1.50@2.30; bulls, 1.75@4.00; calves, 3.25@7.00.

Hogs—Receipts today, 48,000; tomorrow (estimated) 35,000; strong; mixed and butchers, 4.75@4.95; good to choice heavy, 4.90@5.00; rough heavy, 4.75@4.90; light, 4.30@5.70; bulk of sales, 4.55@4.85.

Sheep—Receipts, 25,000; sheep and lambs, 10@15c lower; good western sheep, 4.00@4.60;

90 Days' Trial

We sell more reliable merchandise by mail than any house in the world. Volume of sales regulates prices. No firm can undersell us on reliable goods; we refuse to handle the other kind.



Our Oakland Machine 8.25

Our Oakland Machine at $8.25 is warranted for 5 years and is the best machine on the market at the price.

At $12.75 our Amazon is as good as the regular $20 kind; is beyond comparison with other machines at this price. 12.75

For 14.50 our Brunswick Seven Drawer, High Arm, Ball Bearing, Drop Head Machine is a beauty, one that will do all kinds of work and can be depended upon. Price is much lower than any other firm asks for equal quality. Mounted on handsome Automatic Drop Desk Quartered Oak Cabinet like picture, only 16.95

Free Catalogue

of Sewing Machines containing our 90 days' free trial offer, sent on request. Write for it today.

MONTGOMERY WARD & CO.

CHICAGO



Do not Cool Your Milk

the old-fashioned way, with a dipper or a paddle, but get an up-to-date

Milk Cooler-Aerator.

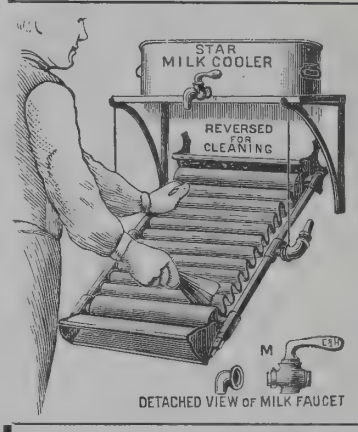
Saves Time, Labor, Patience and Money.

A Booklet for the asking.

Champion Milk Cooler Co.

67 Main Street, CORTLAND, N. Y.

Don't Waste Time



Experimenting but come straight to us. By doing this you will save time and patience.

If you desire to build a Dairy House we will be pleased to furnish you with plans and specifications for same.

We will supply you with Dairy Machinery that is satisfactory, both from a practical and bacteriological standpoint.

We will show you how to locate your apparatus to the very best advantage.

Let us hear from you.

STAR MILK COOLER CO., Haddonfield, N. J.

NEW 50-TON CARROT "GIANT YELLOW" FROM AUSTRALIA

50 Tons an Average crop. Largest, finest field carrot grown. Roots often weigh 15 lbs. Deep Butter yellow. Easily harvested.

TO HAVE YOU TRY THEM we will, for 14c (silver or stamps) send pictured catalogue and 9 packages of our STERLING Seeds. 14¢

Field GIANT 50-TON CARROT, largest field carrot; enormous yielder; high golden color (for butter); easily harvested.
MOLD'S BLACK BEAUTY OAT, wonderful new variety from England; superior to white oats; yields enormously; very stiff, strong straw.
SPELTZ, yields double quantity of oats, wheat or barley, makes better feed; straw fine for fattening; ripens early; resists drouth and frost; thrives on any soil.
CALIFORNIA WONDER BEAN, heaviest yielding bean ever known; one bean produced 156 pods, 1168 beans by actual count.

Garden NEW TRIUMPH RADISH, matures in 20 days, globe shape, striped horizontally with bright scarlet on pure white; a unique and striking novelty.
N K & CO STERLING LETTUCE; beautiful crisp heading variety; rich golden center; never coarse; finest lettuce grown.
N K & CO MINNESOTA RED GLOBE ONION, earliest, most perfect shape; finest color; no scullions; longest keeper; heaviest yielder.

Flower N K & CO GIANT FANCY PANSY flowers extraordinarily large, exquisite colorings; a distinct and remarkable strain, greatly admired.
GOLDEN GLEAM SWEET PEAS, deep primrose yellow; large flowers, long stems, rare novelty.

CASH PRIZES for largest yields of Peep o' Day Sweet Corn. Earliest. Sweetest.

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WYANDOTTE

Dairyman's Cleaner and Cleanser.

Thousands of people KNOW and profit by the use of **Wyandotte Dairyman's Cleaner and Cleanser,** but there are many more thousands who are still using the greasy soaps and soap powders or the "fiery" caustics. They labor early and late in the vain attempt to keep everything sweet and clean.

Wyandotte Dairyman's Cleaner and Cleanser contains no grease, no fat, no caustic it will produce no **suds** or **lather.** To learn and know the true value of Wyandotte Dairyman's Cleaner and Cleanser is only to use it in the right way (see directions). With Wyandotte Dairyman's Cleaner and Cleanser the removal of the staleness in the milk can, the slimeness in the pail, the stickiness in the cream crock or the greasy "feel" in the milk pan, becomes a pleasant duty.

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DAIRYMAN'S CLEANER AND CLEANSER

with little labor, little time and no worry quickly removes all butter fat, milk sugar, dirt or other impurities, leaving everything sweet, clean and pure.

Ask your Creamery or Cheese Factory for a 5-lb. sack of Wyandotte Dairyman's Cleaner and Cleanser. Use it everywhere throughout the dairy and for general household cleaning. It is pure and purifying, doing no harm or injury. If the creamery or cheese factory cannot supply you, write us.

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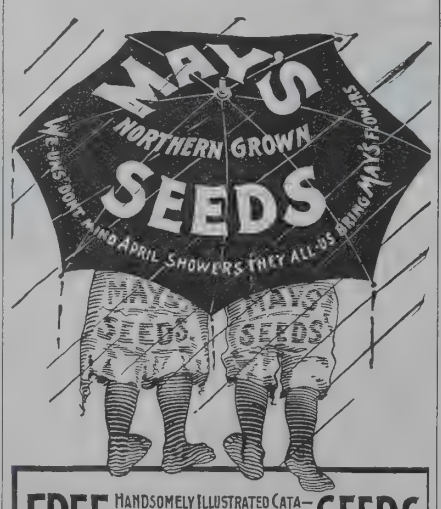
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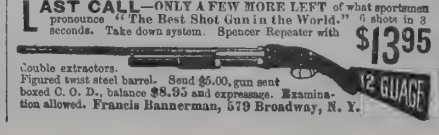
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L. L. MAY & Co SEED GROWERS FLORISTS AND NURSERYMEN ST. PAUL, MINN.

LAST CALL—ONLY A FEW MORE LEFT of what sportsmen pronounce "The Best Shot Gun in the World." 6 shots in 3 seconds. Take down system. Spencer Repeater with Double extractors. Figured twist steel barrel. Send $5.00, gun sent boxed C. O. D., balance $8.95 and expressage. Examination allowed. Francis Bannerman, 579 Broadway, N. Y.



$13.95



GAIN ACRES by clearing that stumpy piece of land. THE HERCULES Stump Puller pulls any stump. Saves time, labor and money. Catalog FREE. Hercules Mfg. Co., Dept. B.21. Centerville, Ia.

native lambs, 3.75@4.10 western lambs 5.10@5.90.

MILWAUKEE, Wis,, Feb. 1—Butter—Creamery, extras, 22c; firsts, 18@19c; seconds, 15@16c; storage, extra, 17@18c; storage, low grades, 14@16c; renovated 15@16c. Dairy, fancy, 16c; lines, fresh, 13c; roll, 13c; packing stock, 10c; whey, 7c; grease, 5@6c.

Cheese—American full cream, new: Twins, 10@10½c; Young Americas, 10½@11c; Daisies, 10@10½c; Longhorns, 10½@11c; low grades, 7@9c. Limburger—New, fancy, 10@10½c; off goods, 6@8c. Swiss—Drum, choice, 13@13½c; Drum No. 2, 10@11c; block, choice, 12½@13c; block, No. 2, 9@10c. Brick—New, fancy, 11@11½c; low grades, 8@10c.

Eggs—Strictly fresh laid, loss off, cases returned, 30c; strictly fresh laid, at mark, 26c; dirties and seconds, 18c; checks, 16c.

SHEBOYGAN, Wis., Jan. 27 .—Two hundred eighty cases of cheese were offered on the board to-day and sold as follows: 62 daisies at 10¾; 52 at 10⅞c; 166 Longhorn at 10⅞c.

SHEBOYGAN FALLS Wis., Jan. 27—Cheese—8 factories offered 272 boxes of cheese on the Call Board to-day and all sold as follows: 50 Daisies, 11c; 8 cases Longhorns, 11c; and 214 at 10⅞c.

NEW ORLEANS, La., Jan. 29—Butter—Extras, 25c; firsts, 22c; seconds, 20c.

Cheese—Young Americas, 12c; Twins, 11c; Daisies, 12c.

Eggs—28c. All firm.

TOPEKA, KANSAS, Jan. 30—Creamery—Butter 23@24c; Dairy butter 16c.

Cheese—Longhorns, 11½c; Daisy, 10¾@11½c; Prints 12c.

LIVERPOOL, Jan. 30—Butter—Nominal.

Cheese—American finest white, quiet, 51s; do colored, steady, 53s.

KANSAS CITY, Feb. 1.—Eggs— Missouri and Kansas, cases returned, 23½c; new No. 2 whitewood cases included, 24c.

Butter—Creamery, 19@21c; dairy, fancy, 18c.

NEWARK, N. J., Feb. 1—Butter steady at 23c.

Eggs—Western fresh gathered firsts, 32c.

WASHINGTON, D. C., Feb. 1—Butter—Market firm; extras 23½ cts, renovated 17 c.

PHILADELPHIA, Feb. 1—Butter—Extra, western creamery, 24c; extra nearby prints, 27c.

Eggs—Fresh near by, 32c, at the mark; fresh western, 32c; fresh southwestern, 31@32c; fresh southern, 30c.

Cheese—New York full creams, choice to fancy, 11⅜@11½c; do fair to good, 10c.

NEW YORK, Feb. 1—Butter—Receipts, 4,982; firm; extra, creamery, 23c; creamery, common to choice, 15@22½c; state dairy, 14@19c; held creamery, 14@20c.

Cheese—Receipts, 1,496 steady; state full cream, fancy, small, colored, September, 12c; late made, 10½c; small, white, Sept. 12c; late made, 10½c; large, colored, September, 12c; late made, 10½c; large, white September, 12c; late made, 10½c.

Eggs—Receipts, 6,721; lower and irregular; state and Penn., nearby, average, finest 32c; state and Pennsylvania, seconds to firsts, 30@32c; western extras, 32c; western firsts, 31c.

BOSTON, Mass., Feb. 1—Butter— Creamery, western, extra, 22@23c; Wisconsin firsts, 21c; storage, 19@22c; dairy, 15@18c; western ladle, 14@15c; box and print 16@23½c.

Cheese—Choice, 12c; Wisconsin Twins, 10@11c.

Eggs—Fancy nearby, 36c; western 33@34c; fair to good, 30c.

NEW YORK MARKET.

NEW YORK, Jan. 30—Butter—Receipts for the week, 27,794 packages. Exports for the week, 3,090 packages.

There was more business done this week and all table qualities brought advanced prices. Extra fresh creamery was in light receipt, good demand and price was marked up half cent pound and closes with advancing tendencies. Finest June creamerics were dealt in very freely; one long block was reported sold at 19c, and many sales were recorded of 50 to 100 tubs at 19 to 20c, while goods a trifle under in quality went at 18 to 18½c. Odds and ends of New York State dairy sold at 14 to 15c. All under grades of butter are in full supply, and trade is light and prices easier. We quote:

Creamery, fresh, extra, 22½c; medium, 20@22c; poor, 16@19c; Creamery, June, extra, 19@20c; medium, 18@18½c; poor, 14@17c; Dairy, extra, 20@21c; medium, 16@18c, poor, 12@15c.

Cheese—Receipts for the week, 11,822 boxes. Exports for the week, 8,193 boxes.

Market is steady on finest grades of full cream cheese, but for all other kinds, buyers have the advantage and for any considerable line, easier prices are readily made. Exporters took quite liberally of under grades full creams and good to fine skims at about quotations. We quote:

Full Cream, extra, 12c; medium, 10@11c; poor, 6@9c.

Eggs—Receipts for the week, 20,292 cases.

Arrivals were cleaned up each day; market closes with sales at 35c per dozen.

177 Chambers St. DAVID W. LEWIS & Co.

BALTIMORE MARKET.

BALTIMORE, Jan. 28—Butter—So far this week there has been little, if any, change of importance to note in the condition of our market. The receipts of all kinds, suitable for table purposes, continue very light, and the market for the moment is quite bare of desirable stock; while on the other hand stock that will not messure up to the standard is not only in ample supply, but accumulating. Held creamery of fancy quality is in fair request. Imitation creamery and Ladles continue in ample supply. Rolls—All receipts of choice sweet stock meet ready sale; but the general run of stock is meeting with slow sale, owing to the undesirable quality. Packing stock is in full supply and dull sale. Blocks and Prints—All receipts are showing more or less imperfections, The market in general, though quiet, rules steady on all desirable offerings.

Creamery separator, extras, 23c; firsts, 21@22c; seconds, 18@20c: Held creamery, extra 21@22c; firsts, 20c; seconds, 17@19; imitation creamery, extras, 19c; firsts, 17@18c; seconds, 14@15c; Roll Ohio, extras 14½@15c; firsts, 13@14c; seconds, 12c. Creamery blocks, blocks (2 lbs.) extras, 24c; firsts, 22@23c; seconds, 19@21c. Creamery prints, (½ lb.), extra, 25c; firsts, 23@24c; seconds, 19@21c; Md. Va. & Penna. prints, extras, 23c; firsts, 21@22c; seconds, 18@20c. Renovated butter, extras, 18c; firsts, 16@17c; seconds, 13@15c.

Cheese—The receipts owing to the cold weather are nominal; there is a fair demand, and the rules firm on all desirable offerings.

N. Y. State Cheddars, fine, 10½@11c; choice, 9¾@10c; fair, 9@9¼c; do Flats, fine, 11@11½c; choice, 10½@10¾c; fair, 9½@10c; do small, fine, 11½@12c; choice, 10¾@11c; fair, 10@10¼c; Ohio Flats, fine, 10@10½c; choice, 9@9¾c; fair, 8½@9c; Ohio Picnic, fine, 10½@11c; choice, 10@10½c; fair, 9½@9¾c; Swiss (Domestic) new, fine, 14½@15c; choice, 13@13½c; fair, 10@12c.

Eggs—With moderate receipts and a brisk demand, our market has been gradually advancing. On Monday of this week, the market opened at 30 cents, on Tuesday 31 was readily obtained, and on Wednesday no one would sell for less than 32; but the buyers are very conservative and will only take what they need from day to day; today the market closes firm and fairly active at 34 cents, but the impression prevails that the prevailing prices will retard the demand to a certain extent, but that remains to be seen.

301 Exchange Place. G. M. LAMB & BROS.

NEW YORK FERTILIZER MARKET.

Fish scrap, dried, 11 p. c ammonia, and 15 p. c. bone phosphate f. o. b. fish works, per ton	2.55 & 10
wet, acidulated. 6 p. c. ammonia f. o. b. fish works	2.30 & 35
ground	31.50@33.00
Azotine, per unit	2.60@ 2.65
Tankage, 9 and 20 p. c. f. o. b. Chicago, per ton	2.25@10
Tankage, 8 and 20 p. c. f. o. b. Chicago	2.20@10
Tankage, 7 and 30 p. c. f. o. b. Chicago	15.00@16.00
Tankage, 6 and 35 p. c. f. o. b. Chicago	14.00@15.00
Garbage, tankage	8.00@ 9.00
Dried blood 12-13 p. c. ammonia f. o. b. N. Y.	2.52½@ 2.60
Dried blood, high grade, f. o. b, Chicago	2.55@ 2.60
Nitrate of soda for 100 lbs	2.15@
future	2.10@ 2.02½
Acid phosphate	60 @ 67½
Phosphate rock, f. o. b. Char'n	5.00@ 7.00
Tenn	3.50@ 4.50
Bones, rough ℔ ton	18.00@20.00
ground, steamed	20.00@24.00
ground, raw	23.00@27.00
Bone black, refuse	16.00@20.00
South Carolina phosphate rock, ground per 2,000 lbs. f. o. b. Charleston	6.50@ 7.75
South Carolina phosphate rock, undried, f. o. b. Ashley river, per 2,400 lbs	3.50@3.75
do, dried	3.75@4.00
Florida land pebble phosphate rock f. o. b. Fernandina, per ton	4.25@4.75
Florida high grads phosphate rock f. o. b. Fernandina, per ton	6.75@7.25
Muriate Potash, 80 p.c. spot ℔ 100 lbs	1.88@ 1.91½
Muriate potash 80 p. c., future	1.83@ 1.86½
dbl. m're salt	48@53% 1.12@ 1.15
Sulphate potash (basis 90 p. c.)	2.11@ 2.14
Sylvinit, 30@36 p. c ℔ unit	.39@ .40
Kainit in bags	10.05@10.55
Kainit, in bulk	9.05@ 9.55
Kieserit	7.00@ 7.25

READING NOTICES

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—Single man for retail milk route. State wages and experience in first letter as this is position of trust and will expect employe to furnish bond with a Guarantee Co. or furnish satisfactory references. A. J. DAUGHERITY, Streator, Ill. 52-tf.

For Sale, Cheap—The controlling interest in cheese factory and machinery, in south-western Wisconsin. For particulars address P. O. BOX 51, North Milwaukee, Wis. 51-3

Guernsey Cattle—Clover Knoll Herd. Orangeville, Pa. Bargains in bulls. M. SAGER, Mgr. 52-tf

For Sale—At a bargain, one Russian Turbine Separator, 1200 lbs. per hour. Milk receiving vat, bottle washer, 216 bottle sterilizer, milk pump, two 60 gal weigh cans and one rotary pump. DALLASTOWN CREAMERY CO., care of H. S. Gross, Dallastown, Pa.

Hello, Fellow Dairyman.—Have you bought that Guernsey bull yet? Before buying you had better write A. H. HINMAN, Allenville, Wis. 52-4

For Sale—A registered Brown Swiss bull calf, seven months old. Well bred, large size, and fit for service the coming season. JOHN LUCHSINGER, Monroe, Wis.

For Sale—One first-class four ton refrigerator machine complete. J. E. ROBISON, Cedar Vale, Kansas. 51-2

Holstein-Friesian bull calf of distinguished butter strains cheap. SPECIAL LIVE STOCK EXCHANGE, Monticello, Wis.

Buff Jersey will buy cows for you. Give you up-to-date instructions in dairying, breeding and feeding, at your homes. Superintend silo construction and other buildings. Abortion herds cured. Cows brought to freshening free from milk fever. Beef herds changed to the ensilage system of feeding. Will give lectures before students, farmer's institutes and conventions. Compile dairy farm pamphlets, and send to you prepaid for 50c paper or 75c cloth bound, my book on silos and nine other chapters of useful knowledge. Correspondence solicited. BUFF JERSEY, Monmouth, Ill 51-tf

Farm for Sale or Rent—A desirable stock and dairy farm in Winona Co., Minn., 13 miles below Winona, 2 miles from R. R. depot, 1,400 acres good land all fenced, well watered. There is on the farm a good 8-room dwelling house, two large barns, dairy building with churn, vats and implements for making butter, steam engine and 10 h. p. boiler, 75 cows, 450 high grade Shropshire ewes, 100 Angora goats, young cattle and hogs. Running water in all the buildings. Will rent farm on shares with stock, or sell farm with or without stock. LLOYD BARBER, Winona, Minn 51-3

For Sale—Four Yearling Holstein-Friesian Heifers, and three-year-old Bull, all registered. Bull's dam as two-year-old made 12.80 lbs. butter official test. Heifers bred to this bull. KRIPPNER BROS., Route 1, Fort Atkinson, Wis. 52-tf.

For Rent—Dairy farm of 160 acres. 25 cows with milk route. Will sell cows and rent for cash, or sell half interest to practical man and rent on shares. C. T. VAN AKEN, Hillsdale, Mich.

Wanted—Position as helper in a butter or cheese factory, by a young Danish dairyman. State wages. S. P., care Hoard's Dairyman.

If you have any stock to sell or wish to buy any write us. SPECIAL LIVE STOCK EXCHANGE, Monticello, Wis.

The infinite superiority of the De Laval Cream Separator over all other separators is not difficult to understand---the superior features of the De Laval stand out so prominently that they completely overshadow the "claimed" advantages of imitating machines. The De Laval out-classes them in every point, and wherever cream separators are mentioned, it is the unanimous opinion that the others are not "in the running" with the ever-leading De Laval.

For Sale—Well established dairy in best and healthiest city in the South. Price $3,000. For full particulars address BOX 529, San Antonio, Texas. 50-4

A First-class, experienced butter maker desires a position in the West or Northwest. Up-to-date work guaranteed. Address A. TOBLER, Nora, So. Dak. 49-5

$25 to $50—Buys a highly bred Jersey bull from 2 to 20 months old. St. Lamberts, Stoke Pogis or Tormentors, from the best herd in Ohio, Write now to P. CLAWSON, Okeana, Butler Co., Ohio. 49-5

For Sale or Rent—The whole or part of 260 acres, two set buildings, convenient to school, church, creamery and market. Known as the Hiram Campbell place, Cottage Grove, Dane Co., Wis. Address BOX 44, Milton, Wis. 51-4

Yorkshires—Spring sows open or bred for spring farrow by imported boars, and fall pigs at fair prices. W. H. FISHER, Columbus, O. 51-4

Of Interest to Factory Secretaries—Mr. C. H. Bickford, of Adams, N. Y., who is secretary of several large cheese factories in that locality, has discovered a device which greatly shortens the work of the factory secretary. This device consists of a peculiar arrangement of figures which enables the secretary to read off at a glance, with perfect accurcy, and without performing any arithmetical operation, the number pounds of butter fat in any number pounds of milk from 1 to 19999 pounds inclusive, and having any test from 3.1 to 5.9 inclusive. Mr. Bickford will mail free on request, to any one interested, a sample chart and directions, which fully explain his system. Tell the secretary of your factory about this. It will save him much time and labor and many mistakes. 51-tf

Wanted—A first-class butter maker, German preferred. Must come well recommended. Will pay a good salary to the right man. Call on or address H.S. MEYER, Sec'y., Wellsburg Farmers Creamery Co., Wellsburg, Ia. 51-tf

For Sale—Five Guernsey bulls from one to eleven months old. One Guernsey heifer 11 months old. JOHN MAUL, Rome, Wis. 51-4

For Sale—Victor combined churn No. A, good as new, $50. NOAH L. SPRUNGER, R. F. D. 3, Dalton, Ohio.

A First-class Butter Maker wants a position after March 1st, in Idaho or Washington. Address "T." care Hoard's Dairyman. 52-3

Holsteins—Bull calves at farmers' prices, sired by Dinah Johanna Sir De Kol. H. F. WEAVER, R. F. D. 3, Elkhorn, Wis. 50-3

For Sale at a Bargain—One Barber ice machine of eight tons refrigerating capacity, in good running order; one turbine power DeLaval separator 2,500 pounds capacity an hour. Also one rotary pump, a Marsh pump and other second-hand creamery machinery. Please address NEBRASKA—IOWA CREAMERY CO., Omaha, Neb. 52-2

For Sale—Young Guernsey bulls and bull calves from dams with records, at reasonable prices. M. G. HATHAWAY, Trenton Junction, N. J. 52-3

Wanted—March 15, 1904, a first-class dairy farm hand. Write, giving references. T. E. HANFORD, Mason City, Iowa.

Wanted—The output of two first-class creameries in Michigan. None but those making highest class goods need answer. State price delivered in Cleveland based on Elgin weekly prices for 1904. GREENWICH CREAMERY CO., Greenwich, Ohio. 52-2

Wanted—A recent graduate of the Wisconsin Agricultural College wishes to change location, seeks position as a manager of a medium dairy farm. Can make first-class butter. The last place raised the butter from 30c to 50c per pound. Can feed scientifically and run steam, gas or gasoline engine. Address COMPETENT, Hoard's Dairyman. 52-4

For Sale—10 cheese factories, 5 farms 40 to 160 acres, saloon, dance hall and store. FRED HADLER, 775 Ida St., Appleton, Wis. 43-tf

Wanted—Position as herdsman on ranche or dairy farm. Single. A 1 references and years of experience. M. C. WOODGATE, Kalamazoo, Mich.

For Sale—Choice reg. Guernsey bulls and bull calves. RAY C. BICKNELL, Ft. Atkinson, Wis. 32-tf

I have a few Guernsy Bull Calves whose dam's and sire's dam have an average yearly record of from 643 lbs. to 747 lbs. butter. Individually they are desirable to head thoroughbred herds. CHAS. SOLVESON, Neshotah, Wis. 50-tf

To California—Via the Chicago, Union Pacific & North-Western Line. Two solid fast trains through to California daily. The Overland Limited (electric lighted throughout) less than three days en route, leaves Chicago, 8:00 p. m. Another fast train leaves Chicago, 11:35 p. m. Apply to Agents Chicago & North-Western R'y. 51-7

The Overland Limited—The Traffic Department of the Chicago & North-Western R'y has issued a handsome booklet descriptive of the Overland Limited, the most luxurious train in the world, and of the Chicago, Union Pacific & North-Western Line, the route of this famous train to the Pacific Coast. Fully and interestingly illustrated. Copy mailed to any address on receipt of 2-cent stamp, by W. B. Kniskern, P. T. M., Chicago. 51-7

Very Low Rates to Mardi Gras and Winter Resorts—Via the North-Western Line. On account of the Mardi Gras, excursion tickets will be sold to New Orleans, Mobile and Pensacola, Feb. 9 to 14, inclusive, also to New Orleans, on Feb. 15, for trains arriving at New Orleans by noon on Feb. 16, with favorable return limits and stopovers. Excursion tickets are also on sale daily, at reduced rates, to the principal winter resorts in the United States and Mexico. For full information apply to agents Chicago & North-Western R'y. 51-6

Excursion Rates to Wisconsin Dairymen's Convention at Platteville—Via the North-Western Line. Excursion tickets will be sold at reduced rates Feb. 9, 10 and 11, limited to return until Feb. 13, inclusive. Apply to Agents Chicago & North-Western R'y. 51-6

Dairy Questions Answered by Prof. Farrington.

MILK AND CREAM OVERRUN.

"I am connected with a co-operative creamery and wish to ask the following question in regard to overrun. Suppose that during the year A. brings 1000 pounds of butter fat in the form of milk testing 4 per cent, and B. brings 1000 pounds butter fat in the form of 40 per cent cream as indicated by test. Is it just for each to receive an equal share of the overrun or is the cream overrun more than the milk, when both milk and cream are received at the factory? Is it just to divide the overrun according to the number of pounds of butter fat furnished by the different patrons?" * * *

Clintonville, Wis.

The overrun from cream should be from three to five per cent greater than that from milk, because when the overrun is calculated from the cream fat no account needs to be taken of the loss of fat from the skim milk. You will see, therefore, that a patron delivering cream, testing 40 per cent fat to your factory ought to receive pay for this cream on a different basis than when delivering 4 per cent milk. The best way to equalize the difference between these two products, milk and cream, is to determine how much fat there was in the milk from which the cream was skimmed. This will reduce the cream patrons and the milk patrons to the same basis and when this is done the same overrun may be used for both of them. I think that such a calculation as this is much more satisfactory and far less complicated, that is, it requires less figuring than it does to pay the milk patron on the basis of one overrun and the cream patron by another.

The best way to determine how much fat there was in the milk from which the cream was skimmed by the cream patrons is to add to the cream fat delivered by such patrons an amount equal to the fat lost in the skim milk. This may be assumed to be three per cent, as it has been found by careful observation that by skimming milk at factories about three per cent fat in the whole milk is left in the skim milk. This does not mean that the skim milk tests 3 per cent; it will test about .1 of one per cent which is three per cent of the fat in milk of average test. If we accept this figure, the method of calculating will be as follows: Multiply the weight of cream delivered by each patron by the test of his cream and the product will give the pounds of fat delivered in the cream; then multiply these pounds of fat in the cream by 1 03, that is, add three per cent to the weight of cream fat, the product obtained by this multiplication will give very nearly the amount of fat in the milk from which this cream was skimmed. We will then have all the patrons on a milk fat basis and they can all be paid the same overrun.

THE CURD IN THOROUGH-BRED MILK.

"Please let me know if a cow of common or so-called scrub stock gives milk of a larger percentage of curd nutrition than pure Jersey or Guernsey breeds. A doctor here claims that scrub-stock-milk contains more curd nutrition than full blood or part full blood stock does. Please inform me about this matter." * * *

Alcott, Colo.

The great mass of chemical analyses of milk from cows of many breeds and of no particular breed shows conclusively that there is no good foundation for the statement that the milk of a scrub cow always differs in composition from that of thorough-breds. There are many cows of no particular breeding that give very rich milk and others that give thin milk. It cannot be safely assumed that because a cow is not a thorough-bred her milk is less nutritious than that of another cow with a long pedigree. The milk of cows of the same breed will often vary as much in composition as does the milk of grade cows or scrub stock.

I do not know that it ever has been demonstrated that the amount of curd in milk, measures its nutritive value. I am of the opinion that the fat and the milk sugar are as nutritious for food as is the curd. I think it has been demonstrated that in many cases these latter two ingredients are much more digestible than is the curd.

It is true that the milk of some of the pure breeds is richer in fat than that of cows of other breeds and that along with this richness in fat there is usually a slight increase in the percentage of curd which the rich milk contains over that of the thinner milk. But these peculiarities are not the sole characteristic of thoroughbred cows. Those having no pedigree often give milk fully as rich in curd and fat as the thorough-breds.

STARTING A CREAMERY.

A co-operative creamery company has been organized in this neighborhood. We have completed the organization, sold stock and elected officers. We have incorporated for $4,000, and expect to use this sum, or as much of it as is necessary to build and fit up a creamery. We think we shall provide a building large enough to hold the machinery for manufacturing the milk of 1,500 to 2 000 cows. At present the machinery need not be more than enough to manufacture the milk from 1,000 cows. A large number of our patrons will use hand separators. We should like to have some suggestions from you in regard to this enterprise, and hope you will also send us the names of responsible dealers in creamery supplies, as you evidently are better acquainted with them than we are, and we want to act intelligently in getting this creamery started. * * *

Menomonee, Wis.

It will be a good investment for so large a company as the one you describe to engage some man as manager, and pay a salary sufficient to secure the services of a competent person. This man will do well to devote his time to the study of the building, equipment and operation of several successful creameries. After he has thoroughly posted himself in this way, by talking with the managers and patrons of a number of factories, he should write to some of the creamery supply firms and get plans and specifications from them of creamery buildings. When he has received these, and has also, from his study of other factories, determined about the kind of factory which will best suit the locality, it will be a good plan for him to consult some local carpenter or contractor and have him draw plans and make an estimate of the cost of the creamery building. It is often much more satisfactory and sometimes cheaper to have the creamery built by local carpenters than to give the contract for building and equipping to some supply firm at a distance, who will be obliged to bring the lumber and men for erecting the creamery from a distance.

During the time the building is being erected, the manager can make out a list of the machinery needed in the creamery and submit it to several creamery supply firms for their prices. It is always economical to buy the best machinery and that which has shown by its use in other places to be durable. Cheap things are always the most expensive ones to buy and this rule applies to creamery machinery and fittings as well as to other things.

By adopting some such a plan as this, you will get a satisfactory creamery, provided the man you put in charge of the business is a competent person. I think it is much better to start an enterprise in this way than to leave the business in the hands of a larger number of men and dividing up the responsibility so that one man looks after some things and another after others. You can pay a good busi-

"ADVERTISEMENT."

DIDN'T BELIEVE

That Coffee Was the Real Trouble.

Some people flounder around and take everything that's recommended to them but finally find out that coffee is the real cause of their troubles. An Oregon man says:

"For 25 years I was troubled with my stomach. I was a steady coffee drinker, but didn't suspect that as the cause. I doctored with good doctors and got no help, then I took almost anything which someone else had been cured with, but to no good. I was very bad last summer and could not work at times.

"On December 2, 1902, I was taken so bad the doctor said I could not live over twenty-four hours at the most, and I made all preparations to die. I could hardly eat anything, everything distressed me and I was weak and sick all over. When in that condition coffee was abandoned and I was put on Postnm, the change in my feelings came quickly after the drink that was poisoning me was removed.

"The pain and sickness fell away from me and I began to get well, day by day, so I stuck to it until now I am well and strong again, can eat heartily with no headache, heart trouble, or the awful sickness of the old coffee days. I drink all I wish of Postum without any harm, and enjoy it immensely.

"This seems like a wonderfully strong story, but I would refer you to the First National Bank, The Trust Banking Co., or any merchant of Grant's Pass, Oregan, in regard to my standing, and I will send a sworn statement of this if you wish. You can also use my name." Name given by Postum Co., Battle Creek, Mich.

Still there are many who persistently fool themselves by saying "Coffee don't hurt me," a ten days' trial of Postum in its place will tell the truth, and many times save life.

"There's a reason."

Look for the little book, "The Road to Wellville" in each package.

Buy from Our Factory and SAVE A THIRD

Our plan of selling direct to user cuts out two profits and saves a third on retail prices. Our assortment of carriages and harness is larger than any dealer can show you. We guarantee all our goods. We are bona-fide manufacturers—not a commission house. Send for our free illustrated catalogue.

THE COLUMBUS CARRIAGE & HARNESS CO.
Columbus, Ohio.

THE ONLY LOW DOWN

Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the market.

20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished.

Send for catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.

Shipman, Bradt & Co.
Sole Manufacturers,
DE KALB, - ILLINOIS.

The National

LOW DOWN CUT-UNDER

justly retains its popularity, as it is without doubt, the most complete and convenient wagon for the purpose ever put on the market. If you are interested, write us, and we shall be pleased to give details.

THE NATIONAL WAGON COMPANY, Chillicothe, Ohio.

THE CREAM of our twenty-five years' experience in successful wagon building is seen in our modern dairy wagons. They are for the dairymen who wants style and service combined in a moderate priced wagon.

THEY ARE CONVENIENT

and are adapted to the special requirements that confront modern dairying. If you need a wagon, you should have our catalog. Write us for it to-day-

KOENIG & LUHRS WAGON CO.,
QUINCY, ILLINOIS.

PRICE TALKS WITH QUALITY BACK OF IT.

ONLY $129

TERMS—⅓ Cash and balance 1, 2, 3, and 4 months notes or 5 per cent discount for cash

We make 10 styles. Write for our Form E. Catalogue and Price List.

THE O. ARMLEDER CO., Cincinnati, O.

$62.75

BEST MILK WAGON ON EARTH

SOLD DIRECT TO CONSUMER ONLY

Highest Grades. Lowest Prices. Guaranteed. Shipped on Approval. Full line Buggies and Harness. Write for Catalogue and Prices.

SAVE DEALERS' PROFITS

UNION BUGGY CO. Dept. B. PONTIAC, MICH.

A Buggy Made From Split Hickory

will stand a half more hard wear than an ordinary vehicle. With this material and our experience, expert workmen, modern machinery and large carriage plant, you are assured of having the best strongest, handsomest vehicle in your county when you buy a

Split Hickory Special Top Buggy

Made to Your Order Price only $50

When we say "made to order" we mean that we will finish this buggy as you want it, changing the painting, upholstering or general construction from regular to suit your requirements. We are able to do this, as we make vehicles in large quantities and carry on hand at all times a large stock in different courses of construction. We carry thousands of these buggies regularly in stock in rubbing varnish ready to finish, so that shipment can be made promptly after order is received. We ship you our Split Hickory Special Top Buggy as you want it and allow 30 DAYS FREE TRIAL, so that you can compare your buggy with other buggies offered by retail dealers at 50% more, and if you are satisfied that you have the best buggy in the world for the money and it is what we guaranteed to furnish you, we will send you a Two-Year Iron-Clad Guarantee. Send for our 136-Page EREE Catalog at once. It describes and illustrates this buggy fully gotten up in twelve different ways. NOTE: We manufacture a full line of high grade harness, sold to user at wholesale prices.

The Ohio Carriage Mfg. Co.
(H. C. Phelps, President)
3057 Sixth Street, Cincinnati, Ohio

DON'T BREAK YOUR BACK washing clothes 52 times a year. Get a "1900" washer and save labor, time and money. You need not send a cent or pay freight. It is sent absolutely free. freight prepaid on 30 days trial A word to the wise is sufficient. Write at once to "1900" Washer Co., 9A State St., Binghamton, N. Y.

Painkiller PERRY DAVIS' CURES COUGHS, SORE THROAT

ness man fair wages for undertaking the management and starting of the business and the money you pay him will probably be spent better than any other you may invest.

If you wish the names of creamery supply firms to whom you may write for aid and suggestions regarding plans, machinery, etc., I think you will be fairly dealt with by consulting the firms advertising in HOARD'S DAIRYMAN.

I shall be interested in watching the progress you may make and hope you will not launch out into so large an undertaking as you have in mind, until you have carefully gone over all the different items and considered the question from all sides. If a creamery is started on a good substantial basis at the beginning, and if the building is well made and conveniently arranged, I think there is no doubt but the enterprise will be of great benefit to the entire community in which it is located.

COMPARISON OF MILK AND CREAM PRICES.

"Considering that we have milk containing 4% fat selling at 12 cents per quart, how much per quart ought we to receive for cream from this milk, if the cream contains 32% fat? Also, please advise what cream would be worth, when 4% milk sells for 10 cents per quart?"
Millwaukee, Wis.

* * * *

There are two ways of calculating the value of a quart of cream testing 32 per cent fat, when milk testing 4 per cent fat, sells for 12 cents a quart. The first and probably the easiest way of doing this, is to multiply the 12 cents a quart by 8, because 32, the test of the cream, is 8 times 4, the test of the milk, and the cream is 8 times as rich as the milk. This gives the price of a quart of cream testing 32 per cent fat as 96 cents.

When the 4 per cent milk sells for 10 cents a quart, the price of cream testing 32 per cent fat, will be 80 cents per quart if the calculation is made in the same way as the above.

The second method of making the above calculations, is the following:

We will assume that a quart of milk weighs 2 pounds; if it tests 4 per cent fat, each quart will contain .04 x 2 equals .08 pounds of fat. The fat in one quart of milk, or 08 of a pound of fat, is, therefore, worth 12 cents and on this basis one pound of fat will be worth $1.50. This is found by dividing 12 cents by .08, which gives the price received per lb. of butter fat when 4 per cent milk sells for 12 cents a quart. If a quart of cream testing 32 % fat weighs 2 pounds, there is in this quart of cream 2 x .32 or .64 pounds of fat, and if one pound of fat is worth $1.50 the .64 of a pound is worth $1.50 x .64 or 96 cents.

In this way we arrive at the same results as in the first method of calculating, but the latter method shows the price received per pound of fat. The value of a quart of 32 per cent cream, when 4 per cent milk sells at 10 cents a quart, is found to be 80 cents by this second method of calculation in the same way as illustrated above.

In these calculations the cost of skimming the milk and the loss of fat by the skimming is not taken into consideration.



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Especially selected with a view to quality, location and natural advantages. Put your savings into land that will double in value inside of a year. Ask us for the facts about them. A postal card with your address will do. Lands are now selling at $10.00 per acre. $400 in easy payments will buy 40 acres.

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For Choice Red River Valley Farms. They pay railroad expenses if you buy from them. A few good bargains.

360 acre farm, 4½ miles from Crookston, Minn., a city of 7,000 inhabitants, and 2½ miles from the State Experimental Farm. This is a photograph of the buildings as they are today: House is 16x24 1½ stories with an L 14x22, and a wood shed in connection 20 feet square, all on a brick foundation. Barn 28x48, with a lean to 16x48, sheeted both inside and out. Two granaries, one 14x80, and the other 14x42. The buildings are all well painted and in very good repair, and has a fine artesian well. Every acre of this farm is under a high state of cultivation, and is well drained by a slight ravine running through the farm merely sufficient for self drainage. The soil is a rich, deep black loam with a clay sub-soil, and in every respect is considered to be one of the best farms in that vicinity. Our price on this farm is $35 00 per acre.

This is a **320** acre farm about 2½ miles south of the city, this farm is quite well improved, has a very good house of about seven rooms, 1½ stories, barn large enough for ten head of horses, also a good granary, pasture and an artesian well, also has a good well at the house, good grove around the building. This is a very choice piece of land for the price $32.50.

160 acres north-east of the city; this is all hay land, and located in a German settlement, the surrounding country is nearly all under cultivation; we consider this a good piece of land for an investment, this could all be put under the plow, if desired. Price $19.00 per acre

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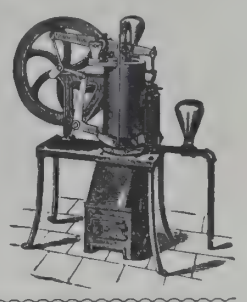


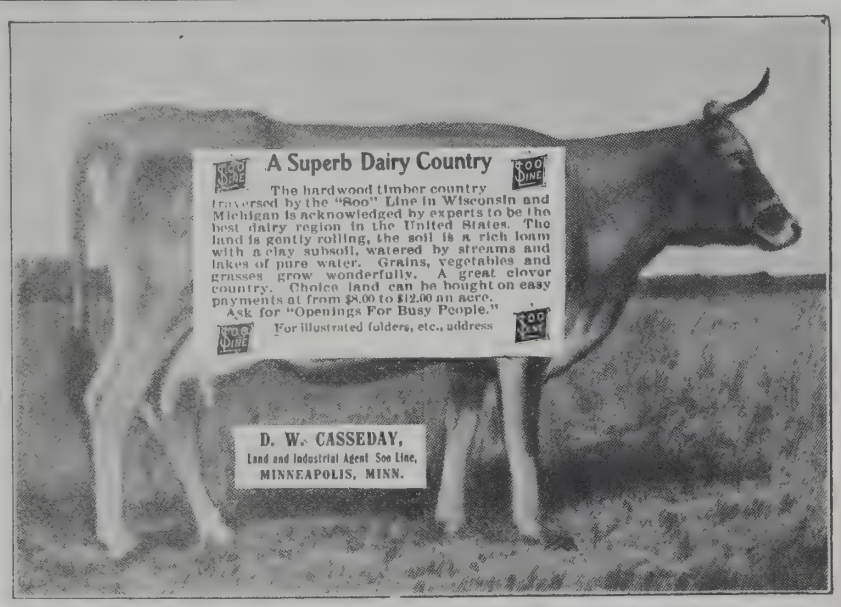
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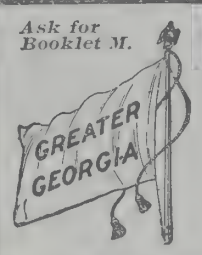
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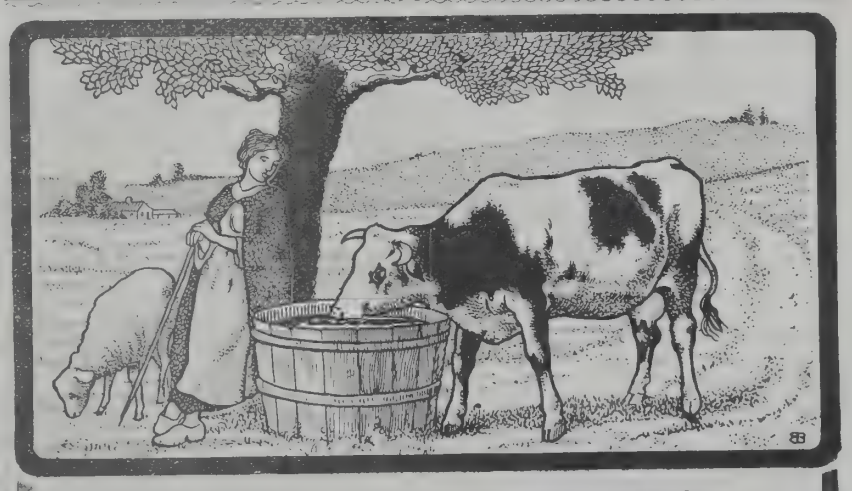


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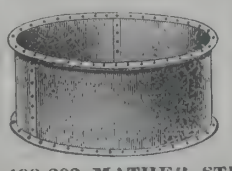
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For those who are ambitious to secure a farm and are willing to work, no part of the United States offers superior inducements to Northern Wisconsin.
Write us to-day for Maps, Descriptive Matter, etc.

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General Offices, BALDWIN, WIS,

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Manufacturers of
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For all purposes.
Write for our Catalogue No. 15
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Send card for FREE MAP and Price List of Wild and Improved Lands in Wadena, Otter Tail, Becker, Todd, Hubbard, and Case Counties, Minnesota. Low prices and easy terms. We are large owners.

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If you wish to do this, it will be fair to assume that the skim milk tests .1 of 1 per cent fat. Subtracting this from the test of the milk leaves 3.9 per cent fat as the amount which will be recovered in the cream, dividing the 32 per cent by this 3.9 instead of by 4, as we did in the former case, gives 8.2, which shows the number of times the cream is richer than the milk. This 8.2 may now be multiplied by the 12 cents per quart, and we obtain 98.4 cents as the price of a quart of 32 per cent cream when 4 per cent milk sells for twelve cents a quart. At 10 cents a quart the 32 per cent cream is worth 82 cents.

These calculations recognize the loss in skimming, but no estitmate of the cost of skimming the milk has yet been calculated. It will certainly cost something to skim the cream testing 32 per cent fat, and this ought to raise the value of the cream a certain amount above the calculations already given. The cost of skimming is something that cannot be estimated at a uniform price for all places. It will depend largely upon the amount of milk skimmed, as a thousand pounds may be skimmed much more economically per pound than 100 pounds and so on. It will be necessary for each man to make this calculation for himself.

Another thing which ought to be taken into consideration, if a person wishes to figure very closely on such a problem as this, is the fact that the weight of skim milk from a given quantity of milk is less than the weight of the whole milk. In the calculation above we reduced the test of the whole milk by .1 on the assumption that the skim milk tested .1 of 1 per cent fat. This .1 should not be taken from the entire weight of whole milk, because the skim milk is only about 70 to 80 per cent of the whole milk. The point, however, is a very fine one and

BUFF JERSEY'S CELEBRATED HERD OF JERSEY CATTLE WILL BE SOLD AT

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On the 18th Dav of February, together with 25 Head of Berkshire Brood Sows.

This herd of Cattle has so wide a reputation that it is hardly necessary at this time to enlarge on their good qualities. Herd consists of 37 cows and heifers in milch, most of them either fresh or springers, 15 two-year-old springers, balance of herd young things. 28 of these cows have in the past year produced over 5000 pounds of milk each, several have passed the 7000 mark, average test has been above 5 per cent.

The Bull at the head of this herd has no Dam within three generations on either side that has a test less than 14 pounds of butter in seven days, and several above 20. The daily milk yield of any Cow in this herd can be seen as far back as 1899.

There will also be sold a full set of up-to-date Farm Machinery, Ensilage Cutter, Manure Spreader, Deering Corn Binders (2), Disc Plow, Surface Cultivators, etc. Full set of Creamery Machinery, 20th Century No. 3 De Laval Cream Separator, Power Churn 90 gallons, Mortis one pound butter printer, worker, etc. **Write for description of individual cows.**

Bids can be sent to us, accompanied by a certified check.

Cedar Hill Jersey Farm is 3 miles north and 1 east of Monmouth, Ill.

Address, BUFF JERSEY.

BURNSIDE FARM GUERNSEYS

FOR SALE Young Animals of both sexes, from Advanced Registered Cows.
S. M. SHOEMAKER, Stevenson, Md.

GUERNSEYS One Service Bull, two Bull Calves. Stock good. Prices are right.
BELLMATH FARMS.
H. C. CROCKER & SON, SENNETT, N. Y.

GUERNSEYS Descendants of Bonny Boy and Lily Ella. Prices reasonable.
J. G. HICKCOX,
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GUERNSEYS

REGISTERED GUERNSEY BULLS FOR SALE from Advanced Registry, and high-grade stock. Pedigree and price furnished upon application. All animals are tuberculine tested.
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ST. BONIFACIUS, MINN.

GUERNSEYS HADDON FARMS
Home of the noted GLENWOOD GIRLS—First in the Advanced Registry. Have always been free from tuberculosis. E. T. GILL, Haddonfield, N. J.

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Bulls two years old out of Count Topsy 24.27 lbs. butter 7 days. She won first prize at Wis. State Fair 1902. Also a few yearling bulls and bull calves. FRED CLAUSING, Grafton, Wis.

ALTA CREST FARM, SPENCER, MASS.
Home of the Yeksa Family of Guernsey Cattle. Herd contains more cows with large records and backed by large records than any other
HERD OF
GUERNSEY CATTLE
IN THE COUNTRY
Herd headed by Primative 4909, a son of Primrose's Tricksey, Adv. Reg. No. 2, 592 lbs. butter in one year. Several Bull Calves from elegantly bred Dams at reasonable prices. Address
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The herd is made up of representative animals of both home and foreign breeding.
BULL CALVES,
from large producing dams for sale. Apply to J. L. HOPE, Supt., Florham Farms, Madison, N. J.

GUERNSEYS FOR SALE.
Largest herd in the West. Descendants of the cows Lily Ella and Lilyeta. Service bulls are Vanquisher, grandson of Lily Ella, Imp. Troupers Pride, Tops of Gold and Lord Yexa.
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Greatest Prize Winning Herd of the Breed, defeating all competitors at 22 state fairs during last five years. 20 cows of this herd indicated by Babcock test, an average of 456 pounds butter per cow for one year. Several bulls of service age, and a large number of bull calves for sale; also a few choice females.
Especially low prices, standing of herd considered. No catalogue. State what you want.
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SPECIAL SALE
To reduce our stock we offer for sale a few Cows and Heifers. We also have some good Bull Calves sired by "Sir Coral" 5239, and "Glenwood's Sheet Anchor of Haddon" 6372. Write at once for description and prices.
M M. & E. J. HOLLINGSWORTH,
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Rosendale Guernsey Herd
TUBERCULIN TESTED.
Sixty head of choice Guernseys headed by Coralette's Son, (see page 450) whose dam, Coralette made 479.7 lbs. fat in one year at 3½ years old, and was first prize cow at Wisconsin State Fair in 1896.
Some fine young bulls for sale.
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SPOTSWOOD GUERNSEYS
We offer some grand Imported Cows and Heifers, large and deep milkers and high testers; a fine lot of Heifers fit for service, and a few Imported Bulls from prize winners on both sides. Any animal in the herd for sale. Address WALTER JAUNCEY,
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The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

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OFFICES: 8 W. 17TH ST., NEW YORK
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BLANKS for Registering and Transferring Jersey Cattle; also Blanks for Private Butter Tests of Registered Jersey Cows, furnished free of charge upon application to the Secretary.
FEES for Registering: To non-members, $2 each head male or female. To members of the Club, $1 each head, male or female. All animals over two years old, double fee. For registration of all dead animals, $1 each. Imported animals, $25.
TRANSFERS are recorded free, if presented within 90 days from date of delivery. Transfers presented after 90 days, $1 each.
PRICE of Herd Register, $1 per Single Volume. Butter Tests of Jersey Cows, including all tests received by the Club to August 1, 1898, $2 per volume. Private Herd Record, 300 pages, cloth, leather back and corners, $2. Pocket Herd Record, 120 pages, flexible leather, 50 cents.
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ST. LAMBERT BULL CALVES by Lucy Stoke Pogis 4th, sire of 13 tested cows, $25.00.
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THE BROWN BESSIE HERD Offers one bull 14 months old, sired by Recorder, 29239, the only living son of Brown Bessie and has 14 tested daughters. Dam, Relay, 70353, test 17 pounds 2 ounces. She a daughter of Diploma with 61 tested daughters. Also Berkshire Pigs of English and American selected stock.
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KING OF ST. LAMBERT'S KING 30752
Sire of thirty-three tested daughters, is unquestionably the most prepotent of any Jersey sire in the land. We have for sale young bulls rich in his blood; also a few cows and heifers in calf, whose progeny will be attractive because of the "Hart's King" blood in them. For prices, etc., address
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JERSEY BULL CALVES.
Thrifty, handsome fellows, 7 to 12 months old. sired by Golden Blyth 3rd, 54589 A. J. C. C. a son of Imported Golden Blyth and King's Nana; butter test 21 lbs. 4 oz. in 7 days; 40 lbs. in 14 days. Price low if taken at once, One of these calves is out of Mildred Micawber.
R. C. GREEN & CO., Albion, Wis.

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BILTMORE JERSEYS
ILLUSTRATED CIRCULAR OF YOUNG BULLS FROM SELECTED DAMS, with very reasonable prices attached, can be secured by sending a postal.
If they don't improve the milk and butter yields of your herd we offer your selection of another free of charge.
DON'T FORGET we are headquarters also for Berkshires and Standard Poulty. Apply o
BILTMORE FARMS, BILTMORE, N. C.
CONSTITUTION TYPE

HAZEL FERN HERD. A. J. C. C. Jerseys, blood of St. Lambert, Melia Ann, Combination, Pedro, and Golden Lad. A. G. C. C. Guernseys, Registered Berkshires. Inspection and correspondence invited. Young things, both sexes, for sale.
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FOR SALE Son of Pedro's Pretty Pogis, 39660, A. J. C. C., a superb son of old Pedro, both of World's Fair fame. Two yearlings from tested dams. Some royally bred Poland China Pigs, March and April farrow.
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North Madison, Ohio

HIGH CLASS JERSEY BULLS
Heifers and Cows for sale. My foundation stock the best I could buy from a herd famous for meri Write for what you want.
WM. B. GOODRICH, CLIMBING HILL, IOWA

PROSPECT HILL JERSEY HERD
The cow that can DO something is what the farmers want. Eight cows have finished their official year's work making an average of 524 lbs. each. F. H. SCRIBNER, Rosendale, Wis.

VALLEY FARM is offering some bargains in young bulls sired by "Diploma's Victor, No. 56310, Grandson of "Brown Bessie," or will exchange for heifers equally well bred. For prices and pedigrees write Fred Stubley, Black Earth, Wis.

NAIAD OF ST. LAMBERT
Was a great cow. Aside from her official test she was a full sister of Mary Anne of St. Lambert (36.12 in seven days, 867.14 in a year) and her owner once refused $15,000 for her. Sale List A 21 contains a cow by a son of "Naiad", out of a grand-daughter of "Exile" with a weekly test of 19.10 and a milk record for one year of 11713 lbs., equal in butter fat to 739 9-10 lbs. butter. This cow is due soon to a grandson and great-grandson of "Naiad". Nearly all on this Sale List are deep in St. Lambert blood. It comprises fresh cows, cows nearing calving, heifers, and heifer calves. If interested write for pedigree of cow, and for List A 21.
WINTERGREEN HILL FARM,
SCOTTSVILLE, N. Y.

ROBINSWOOD JERSEY DAIRY has a few head of Young Jerseys, either sex, they are offering below their value, being overstocked. Also a few Barred, Buff, and White Plymouth Rock Cockerels, and one two-year-old Berkshire Boar, (registered.)
N. H. ROBINSON, Prop., Centralia, Wis.

FOR SALE. Two A. J. C. C. Bulls ready for service; also some younger ones. Cows and heifers in calf to richly bred bulls. Write for pedigrees and prices. We have a few Berkshire Boar Pigs from unregistered sows left; cheap.
N. N. PALMER & SON, Brodhead, Wis.

POLLED JERSEYS
Richest Cow of all breeds in Pan-American Model Dairy. Winning Herd at Ohio and New York State Fairs, 1903. W. H. FORBES & CO., Yellow Springs R. R. No. 1, Ohio.

HILLCREST JERSEY HERD.
Bulls for sale out of famous St. Lambert Cows, headed by King of Hillcrest, 61858, by Hart's King of St. Lambert's King, 30752. Some fine Bull Calves and Bulls ready for service cheap if taken soon. For prices and pedigrees address
H. C. JOHNSON, GATES MILLS, OHIO.

probably would not be taken into consideration, because the variation from .1 of 1 per cent fat in the test of the skim milk will undoubtedly balance the difference between the weight of the whole milk and of the skim milk.

E. H. FARRINGTON.

Wis. Dairy School.

Prof. Farrington appears to have omitted from his calculation the value of the skim milk which is retained when cream is sold, which would be a half-cent or more per quart.

Utah Dairymen's Convention.

ED. HOARD'S DAIRYMAN:—Utah Dairymen's Annual Convention will be held at Logan, February 17th and 18th. The railroads are granting a round trip rate of one and one-fifth fare. Two hundred dollars worth of prizes are offered for butter and cheese on exhibition on a *pro rata* basis.

The program now in press is as follows:

FIRST SESSION, WEDNESDAY 10 A. M.

Invocation—
Address of Welcome - Mayor Robinson
Response - By Members of Association
Pres. Annual Address - - - - - -
- - - J. R. Murdock, Heber City
Fifteen Year's Experience in Growing Lucern Under Dry and Irrigated Conditions -
- - - - - W. S. Hausen, Collinston

QUESTION BOX.

SECOND SESSION 2 P. M.

Address - - - - - - - - -
- Prof. W. L. Carlyle, Fort Collins, Colo.

QUESTION BOX.

THIRD SESSION 7:30 P. M.

Selecting Dairy Cows Prof. R. W. Clark, Logan
A Few Points on Butter Making - -
- - - Wm. Kirkup, Franklin, Ida

QUESTION BOX.

FOURTH SESSION, THURSDAY 10 A. M.

The Hand Separator - - - - -
- - - - - Seth Jones, Salt Lake City
Condensed Milk - - Lorenzo Hausen, Logan
A Few Points on Cheese Makiug - -
- - - - - J. A. Crockett, Logan

QUESTION BOX.

FIFTH SESSION, 2 P. M.

Sugar Beets and Sugar Beet Pulp as a Food for Dairy Cows - Dr. J. A. Widtsoe, Logan
Scoring Butter and Cheese and Awarding Prizes.

QUESTION BOX.

SIXTH SESSION, 7:30 P. M.

Dairy Addresses, Speakers to be named later
Miscellaneous Business - - - - -
- - - R. W. Clark, Sec., Logan, Utah

IMMUNE Pigs made Cholera Proof for life by feeding sow Ridgway's New Vaccine.

HOGS Costing 10c a litter. 500,000 tests successfully made. Written guarantee. ROBERT RIDGWAY, Box V, Amboy, Ind.

BUY OF OWNERS.

Cheese Factory, fine part of Barron Co., Wis., with 1¼ acres cleared and cultivated. Clay loam soil. Well eqipped factory, nearly new. Good business. $3500.

Creamery, 8 room stone house, feed mill, barn; good town, fine dairy section, Stevenson Co., Illinois, close to Illinois Central Depot. New boiler, separator, churn, engine, butter-worker. Complete outfit for curd making, drying room. Everything up-to-date, $800. Write for particulars as to business.

HILES & MYERS C-100 MATTHEWS BUILDING, Milwaukee, Wis

MILK and HONEY You furnish the milk and I will the honey. Best extracted White Clover Honey, in new tin cans, holding 60 lbs. each. One can 8c. per lb.; 2 cans 7½c. per lb. Cash with order.

C. A. HATCH, Richland Center, Wis.

SUGAR BEETS FOR STOCK FEED.

BETTER THAN MANGELS

BREUSTEDT'S "ELITE" and "ELITE A" Sugar Beet Seeds give 1500 to 2500 bushels per acre.

¼ lb. 25c.; ½ lb. 40c.; 1 lb 75c.; 2 lbs. $1.25; 4 lbs. $2.25, by mail prepaid. 5 lbs. $1.75; 10 lbs. $3.00; 25 lbs. $6.00; 50 lbs. $11.00; 110 lbs. $20.00, by freight or express, not prepaid. Cash with order.

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SIX KINDS OF WOOD
HOW to build, plant, fill and feed. Your postoffice address calls for free illustrated journal on silos and silage and many things you should know. **KNOW**
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MANY MEN



Are fooled into buying wire fence because the picture made it look big. The Frost is made of hard wire of heavy guage throughout. Send for Catalogue.

THE FROST WIRE FENCE CO., CLEVELAND, OHIO.

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Remarkable Discovery That Cuts Down the Cost of Paint Seventy-five Per Cent.

A Free Trial Package is Mailed to Everyone Who Writes.

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powdrpaint. It comes to the farmer a dry powder, and all that is required is cold water to make a paint weather-proof, fire-proof and as durable as oil paint. It adheres to any surface, wood, stone or brick, spreads and looks like oil paint and costs about one-fourth as much.

Write to Mr. A. L. Rice, manufacturer, 406 North St., Adams, N. Y., and he will send you a free trial package, also color card aud full information showing you how you can save a good many dollars. Write today.

BUY DIRECT FROM FACTORY, BEST

MIXED PAINTS

At WHOLESALE PRICES, delivered FREE for Houses, Barns, Roofs, all colors, and SAVE Dealers profits. In use 61 years. Officially endorsed by the Grange. Low prices will surprise you. Write for samples. O. W. INGERSOLL, 258 Plymouth St., Brooklyn, N. Y.

MILCH COWS



Every cattle raiser and dairy farmer should know all about AJAX FLAKES. We send you our FARM BOOK B, containing full information, tabulated analysis of Cattle Foods, Etc., FREE. Cows eating AJAX FLAKES give lots of good rich milk and keep healthy and sound. Feed bills reduced 25 per cent. CHAPIN & CO., 1101 Morgan Building. BUFFALO, N. Y.

PURE BRED SHORTHORNS

CHOICE BULLS FOR SALE.

Also Cows and Heifers bred to Clay Buttercup, 126881, a descendant of the Clay Family, champions at the World's Fair dairy test.

GEO. WENHAM, Fort Atkinson, Wis.

AYRSHIRE CATTLE

of the BEST of BREEDING. Also Chester White Pigs, ready to book for season's trade. Young stock of both sexes. Prices reasonable. Come and see us.

F. TSCHUDY & SONS, Monroe, Wis.

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA.

President, HENRY STEVENS; Secretary, F. L. HOUGHTON, Putney, Vt.; Superintendent of Advanced Registry, S. HOXIE, Yorkville, N. Y.

FEES FOR REGISTRY.

TO MEMBERS—Males, $3; females, $1. Double fees for animals over one year of age. Transfers, if recorded within 6 months of date of sale 25c each.

NON-MEMBERS—Males, $5; females, $2. Over one year of age, double fees. Transfers, if recorded within 6 months of date of sale, 50c.; over 6 months, $1. ☞ All blanks furnished free.

Life Membership, $25.

Advanced Register in charge of Supt. HOXIE, as above, who will furnish all information and blanks therefor.

Address F. L. HOUGHTON, Brattleboro, Vt., for information relating to Registration of Pedigrees

VALLEY FARM HERD

HOLSTEIN-FRIESIANS

During September and October nearly all of our calves have been bulls and we shall offer them at from thirty to fifty dollars, registered, until the number is reduced. Sired by a great butter bull, and only from our largest milk and butter producers.

DON J. WOOD,
R. F. D. No. 2. WEST WINFIELD, N. Y.

OAK GROVE HERD Headed by Mechthilde De Kol Pietertje Paul No. 29648. Nearly all of the leading families represented and for sale. C. H. STEVENS, Jefferson, Wis.

LOOK HERE

34 cows and heifers in the McGEOCH HERD have been officially tested with the following results: 10 cows average 20.26 lbs. butter in seven days; average per cent of fat 4.06 7 four-year-olds average 16.82 lbs. butter in seven days; average per cent of butter fat 3.88. 9 three-year-olds average 15.06 lbs. of butter in seven days; average per cent of fat 3.50. 8 two-year-olds average 12.16 lbs. of butter in seven days; average per cent of fat 3.60. We have a few young bulls out of some of these cows, and sired by Gem Pietertje Hengerveld Paul De Kol, or Sir Ormsby De Kol for sale. One of these is out of a cow that made official record of 24.88 lbs. of butter in seven days; average per cent of fat 4.47. Are these the kind of Holstein-Friesians you wish? If so, can we not interest you in putting a bull from this class of stock at the head of your herd?

For particulars address H. B. Daggett, Mgr., Station A, Milwaukee, Wis. Residence: National Ave., near 40th. Phone, South 1601.

STAR FARM HOLSTEINS.

Have you failed to make your scrub cows profitable? If so turn over a new leaf today. Dispose of those unprofitable cows and buy registered Holstein-Friesians, the most profitable of all breeds. They are Mortgage Litters.

150-HEAD TO SELECT FROM-150

I have one of the largest herds in this country today and can give you lower prices and more value for your money than you will find elsewhere. For thirty days I will sell service bulls and bull calves at 50 per cent discount. Write today. Send for testimonial "B." Horace L. Bronson, Cortland, N. Y.

TYRANENA HERD
100 HOLSTEIN-FRIESIANS

A. R. O. STOCK FOR SALE.

Both sexes, all ages. Herd headed by Sir Piebe Hengeweld De Kol, No. 27929, dam Piebe Laura A. R. O., 21 lbs. 8 oz. Average percent fat 4.62. Eight official records in pedigree that average 23 lbs. 5 oz. Frank B. Fargo, Lake Mills, Wis.

SHADY NOOK HERD HOLSTEIN-FRIESIANS. Offers 5 yearling bulls cows and heifers bred to oldest son of Mercedes Julip's Pietertje, No. 39480. Chester White Pigs in pairs and trios, not related.

W. R. GATES, Fort Atkinson, Wis.

HOME FARM HERD.

Headed by COLANTHA 4TH'S LAD. Official test of three nearest dams, 25.1 lbs. butter in seven days. Herd numbers 125 head.

BEST FAMILIES REPRESENTED.

Special prices on six or eight bulls of serviceable age.

W. B. BARNEY & CO.,
Hampton, Ia.

ELMWOOD Home of Leila Pietertje 27 lbs 5 oz. butter in 7 days, A. R. O. Two sons, two daughters, and many others closely related to this great cow. Any animal in herd for sale.

GEO. T. McNEIL, Theresa, N. Y.

FOR SALE H.-F. A. R. O. cows and heifers, bred to Duchess Ormsby Piebe Burke, No. 29328. Also young calves from same sire. One wishing the blood of Duchess Ormsby, address Rural Route No. 2. W. H. JONES, Watertown, Wis.

THE MONONA FARM HERD

OF HOLSTEIN-FRIESIANS

Four fine yearling bulls for sale. Also a few choice bull calves. Paul Calamity De Kol, 31095, at the head of the herd. His pedigree contains ten records averaging 27.32 lbs. butter in seven days. His seven nearest dams average milk record of 69.50 lbs. one day. Breeders and dairymen please write for prices.

F. W. ALLIS,
Monona Farm. Madison, Wis.

FOR SALE H.-F. BULLS, ready for service, from A. R. O. cows and sired by Sir Johanna DeKol, 2546? A. R. O. Butter record of dam, 24.06 lbs. at 4 yrs. Also Improved Large Yorkshire Pigs. C. A. SCHROEDER, West Bend, Wis.

SUNNY SIDE HERD Offers for sale a young bull whose dam as a three-year-old and sire's dam have an average official record of over 20 lbs. in 7 days. Price right. Address C. A. SNOW & SONS, Athens, Ohio.



HOLSTEIN CATTLE The Choicest Milk and Butter breed in the world. Write to WISCONSIN LIVE STOCK ASSOCIATION, Appleton, Wis., U. S. A.

GENESEE HERD Offers a choice bull. Dam's official test 17 lbs. 12.3 oz., 85.7 %, average % fat 4.02; weight 725 lbs.; calved Nov. 10, 1902. $125 00. He is a good one. Write

McKAY BROS., Buckingham, Iowa.

THE LAKESIDE HERD OF HOLSTEIN-FRIESIANS 65 head in number, is situated within 10 rods of the C. & N. W. Depot. Stock of both sexes and different ages for sale. Bulls in service are: Homestead Prince De Kol No. 25863. Sire: Pietertje Hengeveld Paul De kol No. 22128. Dam: Shadeland DeKol No. 41386 A. R. O. in 2 y. f. milk 883.2 lbs., butter 15 lbs. 5.5 ozs. and Canary's Mercedes Sir De Kol No. 29175. Sire: Count Colantha Alban No. 25148. Dam: Canary's Mercedes No. 12586 A. R. O. Milk 409.5 lbs., butter 25 lbs. 2.6 ozs. Average per cent fat 4.92. Correspondence solicited.

WM. EVERSON & SON, Lake Mills, Wis.

HOLSTEIN BULLS. We have some grandly bred young bulls ready for service. One of the largest and best advanced registry herds in the United States.

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BREEDERS AND DAIRYMEN Do you want a H.-F. Bull Calf for use this winter which will improve your herd? Do you want him elegantly proportioned, with straight back, high rump, and all the dairy points? Do you want one whose relatives are A. R. O. and eligible to the Advanced Register himself? If so, I have a choice lot, just such as you want.

MALCOLM H. GARDNER, Darien, Wis.

INDIANA'S FAMOUS HERD OF H. F. CATTLE

We now offer cattle of both sexes and all ages. As for breeding, individuality and ability to perform at the pail, they will rank second to none. For particulars and prices address

JOHN SHUGART & SONS, Marion, Ind.

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Holstein-Friesian Bulls

From a few months to a year old, from official record dams, and with strong official backing on both sides. The sire is half the herd; it is important that you get the right one. We have that kind, and our prices are no higher than others are asking. HENRY STEVENS & SON, Brookside Stock Farm, Lacona, Oswego Co., N. Y.

HOLSTEIN-FRIESIANS Choice Heifers and Heifer Calves, of fine individuality and excellent breeding. Also one yearling bull and one bull calf, at prices that will surprise you.

FAIRVIEW FARM, Pennellville, N. Y.

GREEN VALE HERD Offers Sir Mercedes De Kol, No. 27097, four years old, and bull calves sired by him from choice cows, best families. Write for prices.

M. F. PECK & SONS.....MARSHALL, WIS.

FOR SALE 2 H. F. Bull Calves, 6 mo. old, sired by Johanna Aaggie's Paul De Kol 23443, (160 A. R.) from good milkers and testers.

M. S. CAMPBELL, Genoa, DeKalb Co., Ill.

CLOVERDALE HERD

Is now better than ever prepared to fill your orders for a foundation herd of young Ho teins. For individual merit and perfor ance our herd ranks well up among the best in America. Write us your wants before uying. Address

A. J. DAUGHERITY, Streator, Ill.

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Advanced registry Holstein-Friesians of leading families at reasonable prices. Small calves of both sexes cheap. JOHN B. IRWIN, Station D., R. 1 Minneapolis, Minn.

MARKHAM MANOR FARM,

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Holstein-Friesian cattle, bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldeme Clothilde. No. 13370, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire swine from noted prize winning and imported stock. Write for discription and price to J. A. THORNTON, Manager, Simmonsville, Vt.

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SAN ANSELMO, MARIN COUNTY

250 HEAD IN THE HERD

Sires are sons of Mercedes Julip Pietertje, Colantha 4th Belle Korndyke, Fay Barnham Princess Wayne 7th. A fine lot of bull calves

R. M. HOTALING,
Rialto Building San Francisco, al.

SOUTH SIDE FARM

WHITE BEAR LAKE MINN.

HOLSTEIN-FRIESIANS—We now offer at attractive prices fine young bulls from high tested A. R. O. cows, and sired by Prince Inka Pietertje De Kol 2nd, who already has to his credit 11 A. R. O. daughters. To make room in our stables we offer a few cows and heifers for sale at low price. Write us for particulars

HOLSTEINS - HOLSTEINS

We must sell six Bull Calves, and three Heifer Calves, all under four months of age. The bull calves are all sired by Clyde Paul De Kol and their dam's and sire's dam average from 20 to 22 lbs. butter in seven days. Could spare a few cows. Will make prices right, for we must make room.

W. B. SMITH & SON,
2488 W Broad St. Columbus, Ohio

HOLSTEINS

High Class Advanced Registry Stock only. Best butter families. Stock for sale.

Woodside Farm, Princeton, Worcester Co., Mass. JOHN B. MARCOU.

Holsteins For Sale

AT BARGAIN PRICES

10 Fresh Cows including 7 A. R. O. Cows. Also Heifer and Bull Calves must be sold at once.

JOHN C. GODFREY
R. F. D. 3. FULTON, N. Y.

FERMANAGH HERD

HOLSTEIN-FRIESIANS

Bulls ready for service from A. R. O. animals sired by Johanna Rue 2d Paul De Kol, sire of 18 A. R. O. cows. Also young bull calves by same sire. THOS. GAINES, Supt., Arcadia, Missouri

FINE POULTRY FOR SALE

I offer a very select lot of White as well as Buff Plymouth Rock Fowls of the present year's breeding for sale. Each breed have been kept on separate farms and are absolutely pure in their breeding. They will be sold at

$5.00 A TRIO

Nicely crated on board of cars here.

Single Fowls, $2.00 Each

They have had the range of alfalfa fields the past summer and are very vigorous.

A. R. HOARD,
Fort Atkinson, Wis.



T. G. YOEMAN'S strain of H. F. Cattle, nearly the same blood of Sadie Vale Concordia, Wayne Aagies, Netherlands, Americas, Pauline Pauls, and De Kols. Mutual Friend 3rd's Pauline Paul, No. 27823, at head of herd.

Wm. O. Jackson & Sons, South Bend, Ind.

The Septic Tank Again.

ED. HOARD'S DAIRYMAN:—Replying to H. C. C. Co., Johnson Creek, Wis., I may say that I, the writer, cannot furnish the valve described, and have no interest, directly or indirectly in said valve. I can tell him, however, where he can get it, and the probable price. The valve mentioned is the invention of Mr. M.J. Quinn, an engineer in the Ontario Public Works office, and to this gentleman I am indebted for much valuable data relative to the construction and working of septic tanks. The Dominion Flushing Valve Manufacturing Co., 558 Dufferin St., Toronto, Ont., will furnish our correspondent with the valve, or as many as he may require. The price is about $25, according to size and quality.

As to the cost of building one of those tanks at a creamery I would say that such a tank, including automatic valve, could be constructed for $60, for taking care of the sewage of an average size creamery. All one has to do is to obtain the valve, and the rest of the construction is simple.

For private houses, outside of cities having a public system of sewerage, the septic tank furnishes the only solution. Cesspools are proved to be objectionable and dangerous to the life of not only the owners, but to the entire community, and under no circumstances should waste matter or sewage be buried deeply in the ground.

There is a growing desire, and a very laudable one, for rural people to have and enjoy the so-called modern conveniences, as hot and cold water bath, and water closet. These conveniences call for some system of sewerage. So far, or up to a short time ago, this want was supplied by the cesspool or privy pit, one of the most serious menaces to public health. To enjoy those modern conveniences and dispose of the sewage without danger to the inmates or to the community the septic tank comes into play, and does its work in a most natural manner by utilizing the process of nature for the purification of the wastes.

This natural process of purification is nothing more than bacterial action, where bacterial action actually is, near the surface of the earth. Down deep in the ground no bacterial activity takes place, and pollution is the result. As all know, sun, air and moisture are necessary to bacterial activity. This is why the pipes and tiles in the septic tank are kept so near the surface of the earth, that sun, air and moisture may penetrate down to where the waste is distributed.

The same microbes that cause vegetation and fertility in the soil, for the production of crops, decompose and utilize the wastes of the septic tank. The surface foot of the earth is provided with a most wonderful scavenger system, composed of millions of little workers to the cubic foot. These little workers are also found in vast numbers in water and air. The natural functions of many of those microbes tends to produce purification, and when one comprehends that sun and air are essential to the life of various species of microbes which are necessary to the proper decomposition of waste matter, it will be unnecessary to state that in the deep subsoil, as the bottom of a cess pool, where both are impossible, microbic life cannot exist, and instead of being converted into life producing matter at the surface of the earth with its dangerous properties destroyed, organic matter is allowed to decay and putrify in the deep, dead earth, until it is washed into some nearby well or stream there to cause the innumerable ills produced by drinking impure water.

It may be said that wells are too far removed from cesspools to be in any danger from this source, but experience has shown that the distance of one mile intervening between a dangerous cesspool and a well or stream of water does not guarantee immunity or safety. The power of mischief possessed by sewerage placed down deep beyond the action of bacteria is enormous, and the diffusibility of typhoid poison in water is practically infinite. Water containing the germs of disease may not be purified by filtration through a mile of solid earth. The greatest care should therefore be exercised in the disposal of waste matters, not only from creameries but from private houses, and that under no circumstances should they be buried deeply under the surface of the earth.

Of more importance perhaps is the adaptation of the septic tank sys-

INTENSE SUFFERING

From Dyspepsia and Stomach Trouble

Instantly Relieved and Permanently Cured by Stuart's Dyspepsia Tablets.

A New Discovery, but Not a Patent Medicine.

Dr. Redwell relates an interesting account of what he considers a remarkable case of acute stomach trouble and chronic dyspepsia by the use of the new discovery, Stuart's Dyspepsia Tablets.

He says: "The patient was a man who had suffered, to my knowledge, for years with dyspepsia. Everything he ate seem-



ed to sour and create gases in the stomach. He had pains like rheumatism in the back, shoulder blades and limbs, fullness and distress after eating, poor appetite and loss of flesh; the heart became affected, causing palpitation and sleeplessness at night.

"I gave him powerful nerve tonics and blood remedies, but to no purpose. As an experiment I finally bought a 50 cent package of Stuart's Dyspepsia Tablets at a drug store and gave them to him. Almost immediate relief was given, and after he had used four boxes he was to all appearances fully cured.

"There was no more acidity or sour, watery risings, no bloating after meals, the appetite was vigorous and he has gained between 10 and 12 pounds in weight of solid, healthy flesh.

"Although Stuart's Dyspepsia Tablets are advertised and sold in drug stores, yet I consider them a most valuable addition to any physician's line of remedies, as they are perfectly harmless and can be given to children or invalids or in any condition of the stomach with perfect safety, being harmless and containing nothing but fruit and vegetable essences, pure pepsin and Golden Seal.

"Without any question they are the safest, most effective cure for indigestion, billiousness, constipation, and all derangements of the stomach, however slight or severe.

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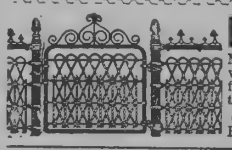
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Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address

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PAGE

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of farmers who have used Page Fence for years, and still buy and use it, for economy.

PAGE WOVEN WIRE FENCE CO., Adrian, Michigan.

OUR IDEAL

MILK JARS



Are unsurpassed in quality, design and workmanship. Those who have expcrience know that it pays to purchase **good** jars, of clean glass, which will show the milk and cream to best advantage.

PLACE YOUR ORDERS EARLY FOR LETTERED WARE.

GET OUR PRICES.

on these and all other goods used by milk dealers.

Our new Milk Dealers' Price-List can be had for the asking.

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BRANCHES: Kansas City, Mo., Minneapolis, Minn.; Waterloo, Iowa; Omaha, Neb. St. Louis, Mo. and Cowansville, Quebec.

COLONIAL SALT CO. LIBERTY BRAND TRADE MARK BUTTER SALT 320 Lbs. AKRON-OHIO

At the Convention of the Minnesota Dairymen's Association

held at Fairmont, Minnesota, during the week of December 15, 1903, **the butter that scored the highest was salted with**

LIBERTY BUTTER SALT.

This butter was made by Alfred Schroder, of LaFayette, and the score was 96¾ %

LIBERTY and COLONIAL

(Granulated) (Flaked)

BUTTER SALTS

"Money Makers for Butter Makers" —have **reached the top** in the very brief period of **four months**—the length of time they have been on the market.

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Donot always stand for cheap quality. In our case it means that we manufacture and market our goods by the most economical methods. We buy our materials in lots of thousands of tons, and make **ADVANCE FENCE** on the most perfect and up-to-date fence machines. But where we save our customers the largest amount is in our unique method of selling

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tem to private houses. This importance is every day on the increase, *pari pasu* as more farm houses are putting in the so-called "modern conveniences." The cost of a tank adapted to the requirements of a private house is not beyond the reach of all, being not more than $40 or $50 in the sum total.

The septic tank system has the indorsment of all scientific men and engineers who have given the subject of sewage disposal close study. It will not give any trouble if built according to the directions given in the DAIRYMAN of Jan. 1st., and, contrary to the general supposition, it will not freeze in winter. If the distributing tiles, figure 2, page 1061, are placed under a garden or lawn, as might be easily possible on the farm, valuable results may be obtained in vegetable growth, as grass, fruit or vegetables. I may say that I have only great pleasure in giving this more detailed account, as the article of Jan. 1, was more of a mechanical nature, and did not give the full explanation of the working of the system, and the matter is not, thus far, well understood; for the system is but the outcome of the modern discovery of the function of germ life in agriculture.

P. E. I. J. A. M.

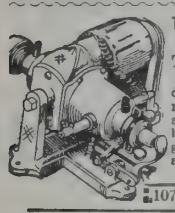
The Farmers' Course at the Wisconsin Agricultural College.

ED. HOARD'S DAIRYMAN:—Saturday, January 23d, finds us with fifty registrations for the Farmers' Course, beginning February 5th and lasting two weeks. A number of persons somewhat under twenty-five years of age have written, pleading for admission. We positively cannot accept persons under twenty-five years of age. The farmers' course is for busy farmers who cannot leave home for a longer time. Young men under twenty-five years of age should take the Short Course in Agriculture, which covers two winter terms of fourteen weeks each. They should not attempt to crowd into the two weeks' course, which belongs to mature farmers. Evidently we shall have all the people we can take care of when the two week's course opens, February 5th. W. A. HENRY, Dean.

College of Agriculture, Madison.

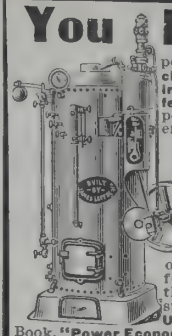
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The **Auto-Sparker** does away entirely with all starting and running batteries, their annoyance and expense. No belt—no switch—no batteries. Can be attached to any engine now using batteries. Fully guaranteed; write for descriptive catalog.
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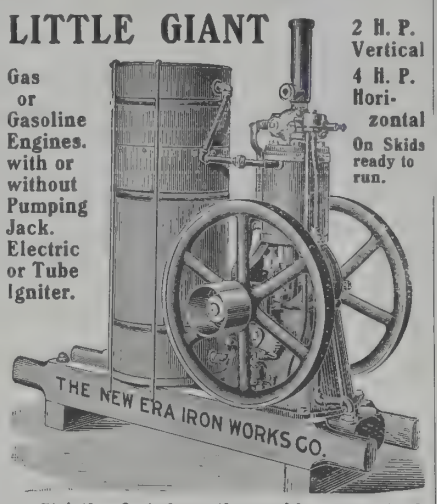
power outfit for **separating milk, churning, pumping water, sawing wood, cutting feed, grinding feed** and a host of other uses. It possesses the well known high efficiency of all

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Simple in the extreme, easy to run and keep in order. Lots of steam from little fuel and lots of power from little steam. Free from flying sparks—no danger of fire. **Made Upright, Horizontal or Mounted.** Book, **"Power Economy and Efficiency,"** sent free.
JAMES LEFFEL & CO., Box 132, Springfield, O

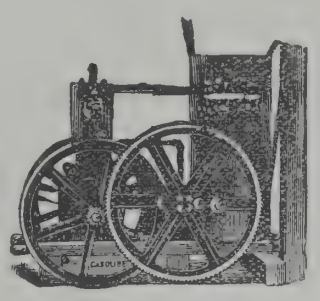
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a complete engine in every detail, erected on wood base, self-contained, with Electric Spark Igniter. Water and Gasoline Tanks, Batteries and connections, all ready to run. Each engine thoroughly tested and **Guaranteed Absolutely Perfect,** and

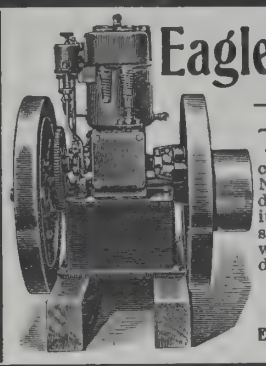
Full 2 Horse Power with pulley for running all kinds of machinery by belt.

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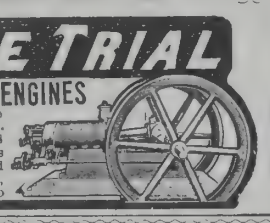


1904 MODEL

THIS ENGINE is of the four Cycle type and is especially designed and adapted for use on the farm—for separators, churning, pumping, elevating, hoisting, cutting ensilage, etc. No Expert or Engineer required to operate it—very simple in design and compact in construction. This engine is built so it can be easily moved from place to place. We can supply a special belt driven pumping jack to be used in connection with any pump having a wind mill head. Write for prices and description to

EAGLE BICYCLE MANUFACTURING CO.,
Engine Department. TORRINGTON, CONN.

FREE TRIAL
WITTE Gas and Gasoline ENGINES
are sold on 30 Days Free Trial. Get Catalogue M.
WITTE IRON WORKS
511 W. 5th St., Kansas City, or Witte Gas and Gasoline Engine Co., 528 Canal St., Chicago



The MILWAUKEE Weekly Bulletin



RELIABILITY, secured by type of engine, four cycle, simple design, good workmanship; oldest engine, but one, in these columns. No freaky designs, but few parts and those accessible. Portable and stationary, all sizes. Built by
MILWAUKEE MACHINERY COMPANY.
290 East Water Street, Milwaukee, Wis.

$4.45



We sell everything for the horse.

buys this single harness, complete with 1 hitch rein. ⅝ in. bridle with side or overcheck. Folded breast collar, 1 in. traces, 2½ in. saddle, lines to loop into bit. Catalogue shows 105 styles harness.

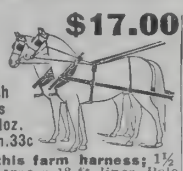
$14.60



We sell 1 inch Buckles 10c doz.

buys this double driving harness. Has heavy 1¼ in traces doubled and stitched. Handsome pads, ⅝ in. bridle with overor side checks complete with lines, neck yoke and choke straps, two hitch reins; collars extra $1.40.

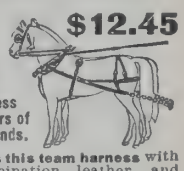
$17.00



We sell 1 inch snaps 14c doz. 1½ in. 33c

for this farm harness; 1½ inch traces, 18 ft. lines. Pole and breast straps 1½ inch, with snaps and slides. Complete in every way with lines, 2 hitch reins etc. Collars extra $1.30. Write for catalogue and see our complete line of **harness, saddles, fly nets, blankets & robes.**

$12.45



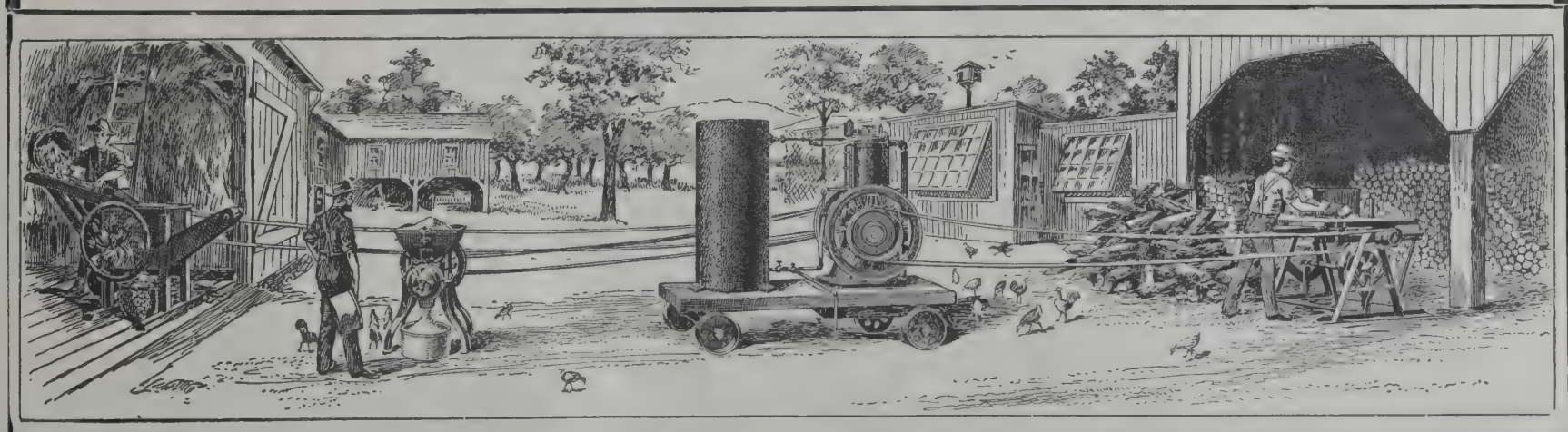
We sell harness repairs of all kinds.

buys this team harness with combination leather and chain traces. Heavy flat pads, lines, bridle and breast straps, cut from heavy leather. A splendid harness for all around work. Extra collars $1.50. Breaching $3.00.

CUT THIS AD OUT and send it to us and we will mail you our **free** harness catalogue. **Don't** buy until you get it and see our complete line of harness and our astonishingly low prices. Write for it to-day.
MARVIN SMITH COMPANY. CHICAGO. ILLINOIS.

THE FAIRBANKS COMPANY

CORNER BROOME & ELM STS., NEW YORK CITY



Make the Best Horizontal and Vertical Gasoline Engines for all Farm Work. Write for Catalogue No. 360.

BRANCHES. Albany; Buffalo; Hartford, New Orleans; Baltimore; Philadelphia; Pittsburg; Boston; Montreal, Que.; Vancouver, B. C.; Winnepeg, Man.; Toronto, Ont.; London, Eng.

Sorghum for Silage.

Is it advisable to fill a silo with sorghum cane? If advisable an advantage would be that you can plant sorghum after oats and I think you can make more tons per acre. J. C. L.
Louisville, Ga.

Barring a single adverse report from Florida, in which sorghum silage may possibly have caused the illness of several cows, in some cases fatal, all the information that comes to us is favorable to the use of sorghum for silage.

VETERINARY.

Queries in this department answered by DR. A. H. HARTWIG, Watertown, Wis.

Obstructed Teat.

In regard to your answer in the DAIRYMAN of Jan. 8, 1904, I followed your instructions, but it does not cure the cause. By taking the teat between the thumb and index finger, you can feel the lump just where the teat is grown to the udder if I might term it that way. By inserting the bistoury, you can readily feel when it goes through that obstruction; also in cutting it you could tell the instant the knife got through.
Lansing Mich. G. W. F.

ANSWER.

If you will make the opening large enough with your bistoury, the milk is bound to follow. You may also absorb the lumps by applying iodine ointment once daily after milking.

Urticaria.

What makes my colt bite herself so? I have a 3-year-old colt; don't work or drive her much; use her on tread power to shred corn. She is very itchy; bites herself all over; bites her legs down to hoofs; no lice or sign of disease.
North Bangor, N. Y. T. R. W.

ANSWER.

See urticaria, this issue, and treat the same way.

Diseased Tooth.

We have horse about ten years old with running sore on lower jaw; have had him 3 months and it keeps gradually getting larger. Do not know what caused it. Lump is about as large as a tea cup and very hard, a yellowish matter is continually discharged from it in two places.
Mountain House, Idaho. J. J. Q.

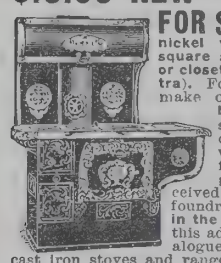
ANSWER.

The enlargement is due to a diseased tooth which has formed a fistula. Have the tooth extracted. It is possible that the jaw bone is also affected.

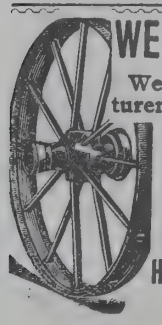
Sour Ensilage and Obstructed Teat.

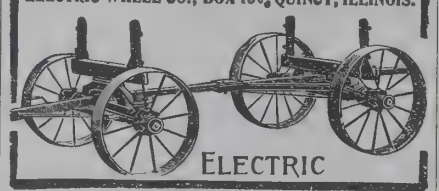
I have a three-year-old cow that has been milking about three months; fed ensilage twice

ZENOLEUM
Famous *COAL-TAR* Carbolic Dip.
For general use on live-stock. Send for "Piggies' Troubles" and "Zenoleum Veterinary Advisor and learn its uses and what prominent stockmen say about it. Books mailed free. All druggists, or one gal., express paid, $1.50; 5 gal., freight paid, $5.25.
ZENNER DISINFECTANT CO., 94 Bates St. Detroit, Mich.

$10.95 NEW STEEL RANGE

FOR $10.95 we will sell this new, handsome, nickel trimmed, 1904 model, square steel range (with reservoir or closet, as illustrated, a trifle extra). For full particulars, how we make our steel ranges thicker, heavier, stronger, handsomer and better than any other ranges made in the world; for our three months free trial offer, safe delivery guarantee, pay after received terms; for picture of our foundry, the largest stove foundry in the world, cut out and return this ad. and our Free Stove Catalogue of everything in steel and cast iron stoves and ranges will be mailed at once. With our Free Stove Catalogue you get the most astonishing stove offer ever heard of. Address,
SEARS, ROEBUCK & CO., Chicago.

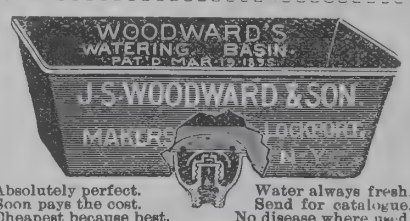
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The most satisfactory pump made for creamery purposes is the
Taber Rotary Creamery Pump.
Write for Catalogue.
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Wise Man's Wagon.
The man who has had experience in running a wagon knows that it is the wheels that determine the life of the wagon itself. Our
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Sample Basin Sent
ON APPROVAL
Send for Catalogue and Price List.
F. H. CHACE,
Sherman, N. Y.



Absolutely perfect. Soon pays the cost. Cheapest because best.
Water always fresh. Send for catalogue. No disease where used

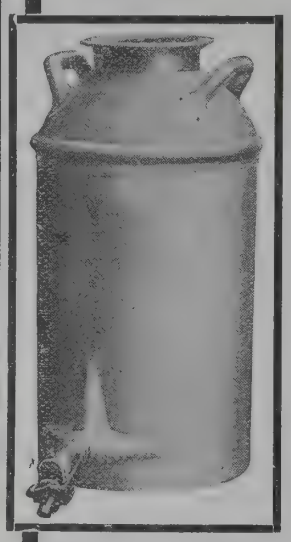
Water In The Stable a Necessity.


It is universally acknowledged that stock in the stable should have constant access to water of suitable temperature, and all progressive Dairymen are putting in some form of Watering Device. Why not use the Best? Write for descriptive circular.
O. B. BUCKLEY & CO., Poughkeepsie, N. Y


EXCELSIOR SWING STANCHION
More points in its favor than in any other stanchion.
Is Stationary When Open one of its great features.
Noiseless and Automatic.
Write, mentioning this paper,
The Wasson Stanchion Co.,
DRAWER 50, CUBA, N. Y.

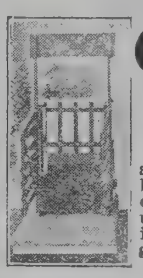

WILDER'S PATENT SWING STANCHIONS
CHAIN OR PIN FASTENED
Are self adjusting and noiseless. Fasten themselves open when animal is out; swing freely when latch is closed; opened and closed without removing mittens or gloves; keep cattle clean with most freedom of motion; blind bolted and cannot get loose in joints; made of best selected hardwood and furnished with chains or pins as desired.
Safest, Strongest, Most Convenient
fastening made. Cheapest to put in and save room in barn. Send for STANCHION CATALOG to
Wilder-Strong Imp. Co. Box H, Monroe, Mich.



We have made up a special lot of 1000 40-quart delivery cans like cut. While they last you can get them at

$4.00 Each
This is positively the only satisfactory delivery can on the market. There will be 500 orders for the last one, so do not put it off, send along $4.00 today, and get a can that you would not take $10.00 for. One that is made from the best material procurable; the seams are all loaded, and is as easy to clean as a seamless pan. The faucet is "Perfection", it will not freeze or throw milk all over your wagon; milk runs in a straight stream no matter how small. Made in the largest exclusive milk can factory in the world. Capacity 1000 cans daily.
THE FOREMAN CAN CO., IRWIN, PA.

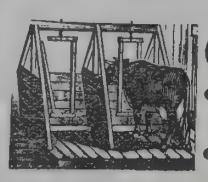
SUCCESS Manure Spreader

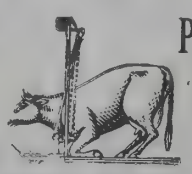
Leads every other machine for the mechanical spreading of manure. Its superiority appears in the fact that it is a distinct improvement on the Kemp Spreader, which we still manufacture and which has been the typical Spreader for 25 years. Spreads all manures of every character and condition and all commercial fertilizers. Pulverizes and spreads evenly, thick or thin, broadcast or drills in rows, any desired quantity per acre, unloading the largest load in 3 to 5 minutes; apron automatically returns to position in the next 65 feet driven.
A SPECIAL FEATURED MACHINE
for convenience of handling and perfection of work. Notably superior in its Beater Freeing device, Direct Chain Beater Gear, Speed Regulation and Automatic Return of Apron. Positive and dependable in all movements. Simplest in gear, lightest in draft, least chance for breakage. The driver never dismounts for any purpose but controls everything from his seat. Made in four sizes and sold under strongest guarantee as to materials, workmanship and duty. Investigate fully before buying. Catalogue with valuable chapter on farm fertilizing mailed free.
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THE NEW PATENT
Cow Stall AND FEED TROUGH.

This is the only Cow Stall with a centering hinge. Stalls all fold back to manger as the cows go out the barn. When ready for use, by starting one stall all come into position. No post at the gutter. Send for circulars.
R. A. McLERY & CO.,
Palmyra, Wis.

Scott's "Perfect" Cow Stanchion
SWINGING
SELF-CLOSING
SELF-LOCKING
3 NECESSITIES FOR PERFECT STANCHIONS
Made of hard wood—strong and durable. Price $1.00. Satisfaction guaranteed.
Write for descriptive circular.
B. C. SCOTT, 212 Beach St., Bridgeport, Conn.



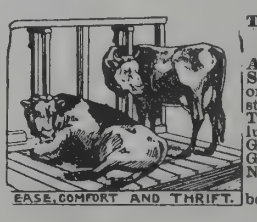

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CATTLE STANCHION
The Most Practical CATTLE FASTENER ever invented. Manufactured and For sale by
O. H. ROBERTSON,
Forestville, Conn.


Prescott's Swinging Swivel tanchion
Keeps Cows Clean.
Swings forward while getting up or lying down. Locks back while standing. Full particulars free.
E. PRESCOTT,
Beverly St., Boston, Mass.


ECONOMY Feed Box and Manger.
Saves its cost in one year's use
Used and endorsed by leading stockmen
Write at once for descriptive circular
State how many head you feed,
E. E. FULTON COMPANY.
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JONES HE PAYS THE FREIGHT SCALES
BEST LOWEST PRICES. ASTONISHING
PREMIUMS
FOR VALUABLE INFORMATION SIGN AND MAIL THIS COUPON OR SEND A COPY ON POSTAL. NOW
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STATE
JONES BINGHAMTON, N. Y.


JUST OUT
UNDERHILL SELF ADJUSTING STALL
No Gutters, no Platforms, no Fastenings, no Stables to clean.
Cease trying to keep your cows clean. Give them a chance and they will do it themselves. Write for circular.
Wm. M. UNDERHILL
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The BEST Cattle Fastening.
SMITH'S Self-Adjusting Swing Stanchion. The only PRACTICAL swing stanchion invented. Thousands in use. Illustrated circular free.
GLENORA MFG. CO.,
Glenora, Yates county, N. Y.
Infringements will be prosecuted.

A STEEL STANCHION beats anything you ever saw for tying cattle. Lighter, stronger, neater. Swings on chains. Not in the way when lying down. Agents wanted. Write for special terms and prices.
JAS. BOYLE, Mfg., Salem, O.



HOW HEALTH IS GAINED

The story of a great deal of the unhappiness of women is a story of lost health. Women wonder how it is that little by little the form loses plumpness, the cheeks grow hollow and sallow, and they feel tired and worn-out all the time. In a large proportion of cases when women are weak, run-down and falling off in flesh and looks, the root of the trouble can be traced to womanly diseases which undermine the general health. The proof of this is that women who have been cured of painful womanly diseases by the use of Dr. Pierce's Favorite Prescription have recovered their general health, gained in flesh and in appearance.

Dr. Pierce's Favorite Prescription cures the womanly diseases which sap the general health. It establishes regularity, dries weakening drains, heals inflammation and ulceration and cures female weakness.

"I suffered for three years with ovarian trouble," writes Mrs. Anna Quinn (Treasurer Woman's Athletic Club), of 602 Sycamore St., Milwaukee, Wis. "The treatment I took did not do me a particle of good, until a good neighbor who had been using Dr. Pierce's Favorite Prescription advised me to give it a trial. The next day took my first dose, and it was my first step toward recovery. In nine weeks I was a different woman; my flesh which had been flabby became firm, complexion clear and my eyes bright. It was simply an indication of the great change within from pain and suffering to health and happiness."

"Favorite Prescription" makes weak women strong, sick women well. Accept no substitute for the medicine which works wonders for weak women.

Dr. Pierce's Pleasant Pellets invigorate stomach, liver and bowels.

Calf Scours Don't let your calves die from this disease. You can save them by using Hood Farm Calf Scour Treatment, which consists of Calf Scour Cure, a liquid preparation which checks the scours, and Digestive Powder, a preparation of pepsin, which aids digestion, creates an appetite and keeps the calf from becoming stunted in growth.

HOOD FARM

Calf Scour Treatment

SAVES THE CALVES.

At Hood Farm, Lowell, Mass., in one year, there were 83 cases of scours. Every calf was treated with these remedies and all but 3 were saved. Formerly we lost 75 per cent. of all calves affected.

Two sizes of each remedy, $1 and $2.50, large contains four times the quantity of the dollar size. Prepaid to any railroad express point in U. S., 25 cents additional.

Address C. I. Hood Co., Lowell, Mass.

Mention this paper.

Spavin and Ring-bone

Once hard to cure—easy now. A 45-minute treatment does it. No other method so easy, quick and painless. No other method sure.

Fleming's Spavin and Ringbone Paste

cures even the very worst cases—none too old or bad. Money back if it ever fails. Lots of information if you write. Book about Spavin, Ringbone, Curb, Splint, Bog Spavin and other horse troubles sent free.

FLEMING BROS., Chemists.
298 Union Stock Yards, - Chicago, Ill.



The Best Cooker for preparing feed for all kinds of stock is this

PURINTON'S No. 2 Steam Generator

Made of Boiler Steel and tested. Has safety valve and jointed pipe reaching a dozen barrels without unscrewing. All stock thrive better on cooked feed and steam cooked is the best. Never gets burned or scorched. Best boiler for scalding hogs, cleaning around dairies, etc. Quickest steamer on market. Burns any fuel and less of it than any other. Our water supply tank is a great convenience. *We will send a Cooker complete and ready to use on* One Week's Free Trial. Catalogue free.

Purinton Mfg. Co. Dept. E, Des Moines, Ia.

and clover hay once per day; grain, 7 lbs. of Distillers dried grain. One night she stopped eating and the next morning one quarter of her udder was swollen and milk came in spray. I gave her salts and ginger and in two days she was all right except the teat still sprays and seems thick with a small scab in the orifice and it milks harder than the other teats. The ensilage is very acid, is that apt to injure the cows in any way? What should be done for the teat?
Plattsburgh, N. Y. L. R. P.

ANSWER.

If your ensilage is exceedingly sour it is advisable to feed it sparingly or mix with other food. The only remedy for the obstructed teat is the teat bistoury.

To Use the Bistoury.

I wish you would give me a few pointers how to use a teat bistoury, and how deep to cut and the price of a bistoury. G. W. F.
Lansing, Mich.

ANSWER.

Introduce the bistoury, allowing it to pass through the obstruction so that the blade will cut through its entire length, then cut in four opposite directions, guaging the size of incision according to the size of the obstruction.

A bistoury can be obtained from this office for $1.50 postage paid.

Unknown Disease.

I lost two cows that seemed to scour at first and then get weak, and they kept getting worse until they died. Am feeding good clover hay out of the mow, a little more than they clean at night, all the ensilage they will eat morning and night (ensilage never was better), with bran twice a day and plenty of good well water, but I cannot find out what is the matter. F. W. S.
Osawatomie, Kan.

ANSWER.

Your information and history of the cases is not sufficient to warrant a positive diagnosis, or even to make a guess at the cause of the trouble. A post mortem examination by a qualified veterinarian might throw some light on the subject.

Shrinkage of Milk.

I have a cow that aborted January 16, and I cannot get more than one quart a day from her. She was milking six quarts a day a week before, but dried up two days before she aborted.
Hibbing, Minn. J. W.

ANSWER.

When a cow aborts, the milk usually disappears in this way, but if you keep on milking her, and give good food it will come back in a short time. Be sure that the placenta is not retained, as this will prolong the trouble and keep the cow thin all summer. Applying massage to the udder before and after milking, increases its activity, if the cow is otherwise healthy, and has a good appetite.

Urticaria.

Have a cow that is affected with an itching, starting on the udder; first forms into a blister and by licking herself it forms into a scab and then seems to be all over her body more or less.
Williamsburg, Ia. W. S. S.

ANSWER.

The predisposing cause of this disease is overfeeding. Give a full dose of physic and follow with ½ oz. of nitrate of potash twice daily. The physic may be repeated in two or three days.

Wash the affected parts with a solution of sulphuric acid, ½ oz. to a pint of water; wash twice daily. Feed very light food to which you may add a little charcoal and sublimed sulphur once daily.



Warranted to give satisfaction.

GOMBAULT'S CAUSTIC BALSAM

A safe, speedy and positive cure for

Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a HUMAN REMEDY for Rheumatism, Sprains, Sore Throat, etc., it is invaluable.

Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

THE LAWRENCE-WILLIAMS COMPANY, Cleveland, Ohio.



For Rheumatism

Neuralgia Sprains
Lumbago Bruises
Backache Soreness
Sciatica Stiffness

Use the old reliable remedy

St. Jacobs Oil

Price, 25c. and 50c.



Sore Shoulders

sore neck, sore back, &c., resulting from collar, saddle or harness gall and chafing, and all forms of canker, callous, &c., are instantly relived and cured with

Tuttle's Elixir.

Used and endorsed by Adams Express Company.

Dr. S. A. Tuttle. Wolcott, Vt., July 15, 1899.

Dear Sir:—I had a horse that had two bunches on his shoulder caused by wearing a new collar. Less than one bottle of your Elixi cured it after six months' standing. L. W. FISHER.

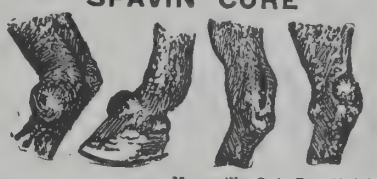
Cures also **curb, splint, contracted cord,** all forms of lameness and **colic,** distemper, founder, pneumonia, &c.

TUTTLE'S FAMILY ELIXIR cures rheumatism, sprains, bruises, etc. Kills pain instantly. Our 100-page book "Veterinary Experience," FREE.

Dr. S. A. TUTTLE, 62 Beverly St., Boston, Mass

Beware of so-called Elixirs—none genuine but Tuttle's. Avoid all blisters; they offer only temporary relief if any

"SAVE-THE-HORSE"
Registered Trade Mark
SPAVIN CURE



Marysville, Ont., Dec. 14, 1903.

The Troy Chemical Co., Troy, N. Y.

Gentlemen:—My horse was affected with a thoroughpin which rendered her almost useless, although a valuable animal being one of a matched pair of roadsters. It was about the size of a goose-egg both inside and outside of the leg. I tried some of our best veterinary skill as well as different blistering medicines with no effect. I worked with it for about one year. Being a subscriber to the "Country Gentlemen" I saw your advertisement in it and determined to try it as a last resort as I was discouraged with everything else. When I had used the first bottle I saw a change. This encouraged me and I kept at it and completed a cure. I have no hesitation in saying that I believe "Save-the-Horse" is the best, and would advise all who have a horse so affected to use nothing but "Save-the-Horse". I give you permission to use my name. Yours truly J. G. ALLISON.

Columbus Grove, Ohio, Dec. 21, 1903.

One-third of a bottle of "Save-the-Horse" cured my horse of a spavin that had been fired and blistered several times in the past two years. M. M. OSBORN.

Califon, N. J.

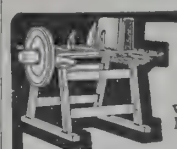
Less than two bottles "Save-the-Horse" made a perfect cure on my horse that was affected with hip joint lameness. ADAM LANCE.

No man need see his horse suffer and become incapacitated. "SAVE-THE-HORSE" POSITIVELY AND PERMANENTLY CURES BONE AND BOG SPAVIN, THOROUGHPIN, RINGBONE (except low ringbone) CURB, SPLINT, CAPPED HOCK, WINDPUFF, SHOE BOIL, WEAK AND SPRAINED TENDONS AND ALL LAMENESS. Apply in all extremes of weather. Cures without scar or blemish or loss of hair. Horses may work as usual.

$5.00 per bottle. Written guarantee with every bottle. Constructed solely to protect you. Need of second bottle improbable, except in rarest cases. Copy of booklet and guarantee sent upon application.

$5.00, at druggists and dealers or sent express paid by

TROY CHEMICAL CO., TROY, N.Y.



Why Saw By Hand

wasting time and strength? Make your work count by using the

FREEMAN WOOD SAWS

The sawyer's favorite. Most practical type of wood saws made. Tilting and Sliding Table Pole and Wood Saws. Also mounted Steam Sawing Outfits, Windmills, Ensilage Cutters, etc. Ask for catalogue 112, It's free for the asking.

S. Freeman & Sons Mfg. Company, Racine, Wis.

DR. GEORGE HOLLABUSH'S

Sure Cure for Abortion



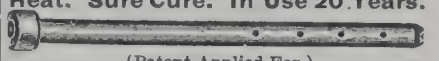
and General Tonic for Cows. The only genuine sure cure and general tonic for cows on the market. I guarantee, and refund money if not satisfactory.

Dr. Geo. Hollabush, Ft. Atkinson, Wis.

Write for circular.

ABORTION,

Failing to Breed and Bring Cows to Heat. Sure Cure. In Use 20 Years.



(Patent Applied For,)

Hard Rubber Safety Milk Tubes and Dilating Plugs to cure hard milkers and a teat Bistoury. Send for testimonials.

DR. WM. HORNE, Janesville, Wis.

ABORTION

POSITIVELY PREVENTED AND CURED BY THE USE OF

ANTI-ABORTION SERUM

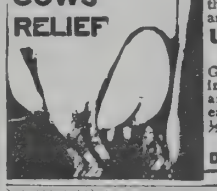
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CATTLE SPECIALIST

WRITE FOR SWORN TESTIMONIALS.

DR. ROBERTS VETERINARY REMEDY CO

626 GRAND AVE. WAUKESHA, WISCONSIN



Expels the terror of caked bag, the annoyance of sore teats and dread of hard milkers.

Used Exclusively at Model Dairy

Guaranteed to cure caked bag in 12 to 24 hours. Invest 50c and save a cow. Makes milking easy for man and cow. Price, ½ lb 50c, 1½ lb $1.00, postpaid.

O. H. MFG. CO.,
Dept. H, Lyndon, Vt.



PREVENTIVE

The only guaranteed abortion remedy.

The most powerful germ destroyer known.

It prevents all contagious diseases. Thus far every user as far as we can learn is satisfied with results obtained. Send for descriptive booklet.

STEVENS BROTHERS
Holstein Breeders
LACONA, - NEW YORK

Breeder's Friend

"During the winter and spring nearly one half of my dairy of 35 cows aborted. I began feeding Kellogg's Condition Powder in August following and but one cow aborted during the winter and spring. It gave perfect satisfaction so far as I can judge from one trial." Josiah D. Smith, Delhi, Delaware Co., N. Y.

KELLOGG'S CONDITION POWDER

Is the great remedy for **Barrenness, Failure to Come in Heat, Abortion, Retention of Placenta** and all breeding difficulties. A simple, prompt remedy, much relished by all animals. Hundreds of experienced stockmen now regard it as indispensable. Our Condition Powder booklet shows you how they talk about it. Ask us for it. Free

H. W. KELLOGG CO.,
Dept. Q, St. Paul, Minn.

MILK FEVER

WHY NOT PREVENT IT?

PREVENTION IS CHEAPER THAN CURE.

Write for Moore Bros. "General Cow Drink" Pamphlet, Free.

Address, MOORE BROS., V. S., Albany, N. Y

BLACKLEG



VACCINATE your cattle with Blacklegoids—the simplest, safest, surest preventive of Blackleg. Each *Blacklegoid* (or pill) is a dose. Administration with our Blacklegoid Injector is performed in one minute. We establish the purity and activity of our Blacklegoids by rigid tests upon animals. For sale by druggists. Write us for literature—free on request.

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BRANCHES: New York, Chicago, St. Louis, Boston, Baltimore, New Orleans, Kansas City, Minneapolis, Indianapolis, Memphis, Walkerville, Ont.; Montreal, Que.; London, Eng.

Annual Meeting of Southern Wisconsin Cheesemakers' Association.

ED. HOARDS' DAIRYMAN:—The annual convention of the Southern Wisconsin Cheesemakers' convention will be held at Monticello on Thursday and Friday, February 4 and 5.

This convention is in the interest alike of the dairy farmer, the cheesemaker and the dealer. Their interest, to be mutually of benefit, should harmonize and the way to bring about harmony, is for all to meet and exchange their best thoughts in friendly discussion. The greatest losses arise from lack of uniform good quality in the cheese. The experience in other branches of this business has shown that uniform good quality can be brought about by meeting the best makers and learning and adopting their methods. Doing this will benefit all who take part in these meetings. Special benefit will result from getting the results of experiments and tests made at the expense of the state at the Wisconsin Dairy School. It is our duty to use our best efforts to make the most of our location in this, the most favored dairy region of this country. Our cheese need be second to no other of its kind anywhere.

There will be a fine exhibit of the various kinds of cheese, made by members of the association. There will be awarded gold and silver medals, finely engraved with the winner's name and score for first and second prizes Swiss, Block, Brick and Limburger cheese. Every other exhibitor whose cheese scores over 90 points will receive a diploma signed by the judges and by the president and secretary and share pro rata in a cash premium of $50. Exhibitors must be members of the association and will be limited to one exhibit of not less than thirty pounds each. No cheese shall be considered for prizes that has previously been bored or cut. Entry cards and directions will be furnished by the secretary, Henry Elmer, Monroe, Wis., who will also send membership cards upon payment of $1 each. All marks or cards showing the ownership of the cheese will be removed upon its entry. In no case will the name of any exhibitor be made known to the judges or others, until the award is announced.

Accompanying the foregoing statement Secretary Elmer announces the program for the meeting, which is as follows:

THURSDAY FORENOON.

Address of Welcome - J. C. Steinman.
Response.
President's annual address - - - - - - John Luchsinger, of Monroe.
Appointment of judges and commitees.
Paper, The Proper Care of Cheese While Curing - - - - Christ Bontley, of Monticello.
Inspection of Cheese Exhibits.

AFTERNOON.

The Babcock Test. Curd Test and Lactometer and How to Use Them, - - -
Asst. Dairy and Food Commissioner U. S. Baer, Madison.
Uniform Good Quality in Cheese - -
F. Marty, Instructor in State Dairy School at Madison.
The Present and Future of Our Dairy Industry - - - - - John Luchsinger, Monroe.

EVENING.

The Best Cow for the Cheese Dairyman -
- - - - F. Blumer, Farmers Grove.
How to Feed and Milk for Profit - -
- - - Jo Voegeli, Monticello.
The Model Cheese Factory, What it Should Be - - - - C. Marty, Brodhead.
The Farmer, the Cheesemaker and the Buyer Their Relations to Each Other - -
- - - - Thos. Luchsinger, Monroe.

FRIDAY MORNING.

Report of judges on cheese exhibits.
Award of prizes and testing prize cheese.
Statement by prize winners how prize cheese was made.
Address, Pure Milk and Its Capacity to Absorb and Impart Disease Germs - -
- - - Dr. D. Flower, Monticello.
Address, The Cold Storage Curing of Cheese - - - J. Karlen, Jr. Monroe.
Address, The Manufacture of Whey Butter.

FRIDAY AFTERNOON.

Report of secretary and treasurer.
Resolutions and reports of committees.
The Proper Time for Buying, Selling and Shipping Cheese - - - -
- - - - Ed. Wittwer, Monticello.
The Cheese Trade of 1903 - - -
- - - Jacob Regez, Sr., Monroe.
Our Failures and How to Profit By Them - - - Henry Elmer, Monroe.
Interesting discussions will follow each paper and address.

ALL our farmer readers who attend the two weeks Farmers' Course at the University, beginning February 5th, should bear in mind that the railroads will grant a third-fare rate on returning, providing the applicant secures a receipt for money paid when he buys his ticket for Madison. Take a receipt for each ticket you buy and have this stamped at Madison by Dean Henry. Then you can return for one-third fare. Dean Henry writes us that dozens of letters are coming to his office each day inquiring about the course or promising to be in attendance.

YOU CAN DEPEND ON
H. & R. REVOLVERS
Harrington & Richardson Arms Co.
DEPT. 22, WORCESTER, MASS.

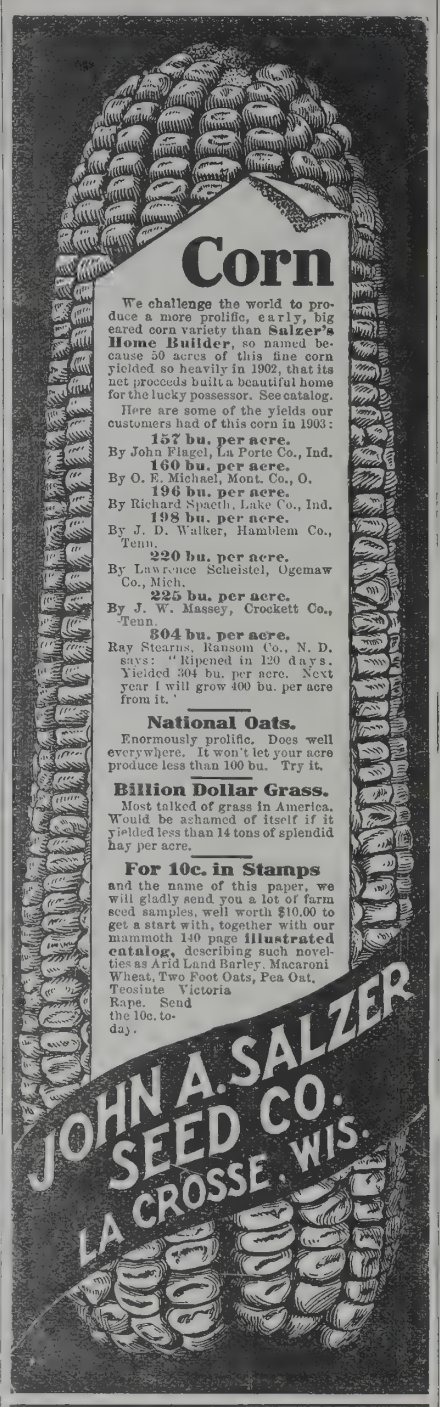
Rural Mail Many new routes will go in this year. We want name and address of every man who sends in a petition. To first one sending us full information we will send a **Box Free**
BOND STEEL POST CO., ADRIAN, MICHIGAN.

Mention this Paper.
EVERGREENS
Hardy sorts, Nursery grown, for windbreaks, ornament and hedges. Prepaid, $1 to $10 per 100--50 Great Bargains to select from. Write at once for free Catalogue and Bargain Sheet. Local Agents wanted.
D. Hill, Evergreen Specialist. Dundee, Ill.

TREES Fruit and Ornamental, Shrubs, Roses, Bulbs & **PLANTS**
TESTED 50 YEARS.
Send for Descriptive Priced Catalog FREE
600 Acres. 13 Greenhouses. Established 1852.
PHOENIX NURSERY CO. 1300 Park St., Bloomington, Ill.

FREE--GREAT CROPS OF STRAWBERRIES
AND HOW TO GROW THEM
A strawberry book written by the "STRAWBERRY KING," so called because he discovered the way to develop the fruit organs in a plant and make it grow two big berries where one little one grew before. He grows the biggest crops of the biggest berries ever produced and the book tells all about how he does it. It is a treatise on PLANT PHYSIOLOGY and explains correct principles in fruit growing. It is worth its weight in gold to any fruit grower. Will be sent free to all readers of HOARD'S DAIRYMAN. Send your address now. The finest THOROUGHBRED PEDIGREE PLANTS in the world.
R. M. KELLOGG, Three Rivers, Mich.

SEED CORN
AND ALL FARM SEEDS
ALWAYS RELIABLE AND BEST
BECAUSE they are fresh and NEW. Strictly Iowa grown and SURE TO GROW. Our big TWENTIETH Annual Illustrated Catalog tells you all about every FARM AND GARDEN SEED and crop that grows. It's FREE if you mention this paper. NO FAKES; FREE SEEDS; TRASH and other SCHEMES; but good RELIABLE Seeds CHEAPER than others sell at wholesale. If in want of Seeds send for our Catalog to-day.
RATEKINS' SEED HOUSE, Shenandoah, Iowa.


Corn
We challenge the world to produce a more prolific, early, big eared corn variety than **Salzer's Home Builder**, so named because 50 acres of this fine corn yielded so heavily in 1902, that its net proceeds built a beautiful home for the lucky possessor. See catalog.
Here are some of the yields our customers had of this corn in 1903:
157 bu. per acre. By John Flagel, La Porte Co., Ind.
160 bu. per acre. By O. E. Michael, Mont. Co., O.
196 bu. per acre. By Richard Spaeth, Lake Co., Ind.
198 bu. per acre. By J. D. Walker, Hamblem Co., Tenn.
220 bu. per acre. By Lawrence Scheistel, Ogemaw Co., Mich.
225 bu. per acre. By J. W. Massey, Crockett Co., Tenn.
804 bu. per acre. Ray Stearns, Ransom Co., N. D. says: "Ripened in 120 days. Yielded 304 bu. per acre. Next year I will grow 400 bu. per acre from it."
National Oats. Enormously prolific. Does well everywhere. It won't let your acre produce less than 100 bu. Try it.
Billion Dollar Grass. Most talked of grass in America. Would be ashamed of itself if it yielded less than 14 tons of splendid hay per acre.
For 10c. in Stamps and the name of this paper, we will gladly send you a lot of farm seed samples, well worth $10.00 to get a start with, together with our mammoth 140 page **illustrated catalog**, describing such novelties as Arid Land Barley, Macaroni Wheat, Two Foot Oats, Pea Oat, Teosinte, Victoria Rape. Send the 10c. today.
JOHN A. SALZER SEED CO. LA CROSSE, WIS.

Potash
is removed in large quantities from the soil by the growing of crops and selling them from the farm.
Unless the Potash be restored to the soil, good crops can not continue.

We have printed a little book containing valuable facts gathered from the records of accurate experiments in reclaiming soils, and we will be glad to send a copy free of charge to any farmer who will write for it.
GERMAN KALI WORKS,
New York 93 Nassau Street, or St. Louis, Mo. 4th and Olive Sts.


Let Them Help Themselves.
They'll not take too much, and they'll get it as they want it. Don't force animals to eat salt when they don't require it, by mixing with food.
COMPRESSED
Pure-Salt Bricks
are all salt, no impurities. Improve the quality and yield of milk. A modern convenience, always present, animals never neglected, and costs for each only about a nickle a month. See how they enjoy helping themselves when you place it within reach. For all stock. Buy of dealers or send for free booklet to
Belmont Stable Supply Co., Brooklyn, N.Y.

STEEL ROOFING.
100 SQUARE FEET.....$2.00
We Pay Freight East of Colorado.
Strictly new, perfect, semi-hardened steel sheets, 6 and 8 foot long, the best roofing, siding or ceiling you can use. Nails free. Painted two sides. Flat, corrugated or V crimped. Write for free catalog 20 on material from Sheriffs' and Receivers' sales.
CHICAGO HOUSE WRECKING Co.
West 35th & Iron Sts., CHICAGO.


Farm & Garden Seeds
Hardy, Reliable Northern Grown
We are growers of new and improved varieties of **Seed Grain, Seed Corn, Seed Potatoes** and **Puro** and **Hardy** strains of **Vegetable Seeds.** Our stock of high grade **Timothy and Clover Seed, Turkestan Alfalfa, Rape,** etc., is the most complete. **Clover Grass Mixtures** for **Permanent Pastures** and **Meadows** our specialty. **Hardy Small Fruit Plants** and Ornamental Shrubs. **Reasonable Prices.** Best R.R. connections. **Special Seed Rate to the Northwest.** Large illustrated catalog **FREE.** It's worth having.
FARMER SEED CO.,
25 4th St. Faribault, Minn

GOOD SEEDS CHEAP **BEST Ever Grown.**
None better and none so low in price, 1c per pkt. and up, postpaid. Finest illustrated catalogue ever printed sent **FREE.** Engravings of every variety. A great lot of extra pkgs. of seeds, new sorts, presented free with every order. Some sorts onions only 55c per lb. Other seed equally low. 40 years a seed grower and dealer and all customers satisfied. No old seeds. New, fresh and reliable every year. Write for big FREE catalogue.
R. H. SHUMWAY, Rockford, Ill.

RUBEROID
TRADE MARK REGISTERED
A ROOFING
For barns, poultry houses, residences, etc.
More durable and less expensive than tin, iron or shingles.
STANDARD FOR TWELVE YEARS.
ABSOLUTELY WEATHER PROOF.
Easy to Lay.
MANUFACTURED SOLELY BY
THE STANDARD PAINT CO.,
100 Williams St., New York.

FERRY'S Seeds
cost more—yield more—save all experimenting—save disappointments. 48 years the Standard Seeds. Sold by all dealers 1904 Seed Annual postpaid free, to all applicants.
D. M. FERRY & CO., Detroit, Mich.

GREGORY'S
GREGORY'S SEED CATALOGUE FOR 1904
SEEDS
have the quality that give both quantity and quality to the crop. They never disappoint. Famous for nearly 50 years. Sold under three guarantees. Write for free catalogue.
J. J. H. GREGORY & SON, Marblehead, Mass.

IWANS' AUGER BEST IN THE WORLD Post Hole & Well
For Post Holes, Wells, Prospecting for Minerals, etc. A man can do thrice the work with an "Iwan" than with any other. Used by U. S. Gov't.

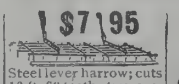
Agents Desired.
Highest award, World's Fair, 1903. 4 to 10 inch $2.50; 12 inch, $6.00. Sample at special price to introduce. Show to your hardware dealer or write for particulars.
IWAN BROS., DEPT. L, STREATOR, ILL.

75c for Babcock Corn Planter.

$10 One-Horse Corn, Bean and Garden Seeder. Drops in hills and drills 1 acres a day. Fertilizer extra
$28.75 Calumet check row planter with automatic reel and 80 rods wire.

$5.00

for this Gem Garden Drill With 11 tools complete $8.50
$2.20 for Wolverine Garden Cultivator. We have complete line garden tools. **Seed Drills** 65c.

$7.95

Steel lever harrow; cuts 10 ft; 60 teeth; two sections.
$2.10

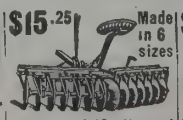
Steel Cultivator, plain, with 5 shovels, spreads to 33 inches.

80 cts. buys this seeder.

Our No. 1428 Genuine Otis crank seeder, sows **wheat, oats, grass** seed etc. Retails at $4.00, our price $1.25. Michigan Wheelbarrow Seeder 12 ft. $1.95, 14 ft. $2.25. End Gate Seeder, improved pattern, $5.35.


$7.50 for Fanning Mill with grain outfit for cleaning wheat, rye, oats, corn, barley, beans etc. board for cheat and cockle. Clover, grass sieves extra. Warehouse Mills $23.50.


$6.50 buys perfect 60 egg incubator complete. $4.35 for 50 Egg Wolverine, Jr. Incubator. Brooders $3.15 and up. Handy egg carrier 28c, holds 1 to 12 doz. Root Cutter $3.25.

$15.25 Made in 6 sizes

For this 12-16 all steel disc harrow. Frame is made of best angle steel Axle of cold rolled polished steel. Discs highest grade tempered steel Spring seat. Draft is direct from axle. Guaranteed in every way.

$15.30 BUYS OUR

two section steel land roller. 7 ft. 3 section $17.50. 8ft. $18.75. Light running, strongest, best.
PLOWS. $1.95 and up

CUT THIS AD OUT and send it to us and we will mail you our Agricultural and Farm Machinery Catalogue FREE. **MARVIN SMITH CO. CHICAGO.**

Salzer's Alfalfa or Lucerne---Northern Grown.



Salzer's Alfalfa sinks its roots 10 to 20 feet after nourishment and moisture.

Glory enough! Ring the bells! Shout for joy! The year of jubilee has come! How's that? Why, sir, **it is now possible to grow Alfalfa Clover in every State of the Union, North, South, East or West**—why, sir, cold Minnesota, and freezing Wisconsin, and treeless Nebraska, and the prairies of Illinois and Iowa, and the bottoms of Indiana, and the pineless soil of Michigan, and the rich farms of New York and Pennsylvania—yes, every state can grow from two to four crops of Alfalfa, if **Salzer's Northern Alfalfa seed is used!** That's acclimated, that's hardy, that's tough, and we believe tougher and better than the Turkestan Alfalfa.

A grand Clover—the eternal Clover of Europe and Mexico. Our attention thereto was first attracted in 1885, by a large patch near La Crosse, holding its own through an unusually cold winter and spreading rapidly. Since then we have sold enough seed in Iowa, Wisconsin, Illinois, Minnesota, Missouri, Nebraska, Kansas, Indiana, Michigan, Ohio, Pennsylvania, New York and other parts to sow 500,000 acres, and have the first complaint to hear on same.

How do you like these Testimonials:

Hon. H. F. Hunter, So. Dakota. Your Northern Grown Alfalfa Clover is immense. Every kernel grew. I have solved the question of stock raising here—Salzer's Alfalfa—good for 3 rousing hay crops; Salzer's Speltz for 60 bushels grain and 3 tons hay; Salzer's Macaroni Wheat for 65 bushels per acre, and your Beardless and Moravian Barleys—these items, with your Billion Dollar Grass, Earliest Cane and Fodder Corn, make it possible for me to grow hogs and cattle galore!

Orin Smith, Pike Co., Mo. I bought 60 pounds of Salzer's Alfalfa last March. At this writing, Sept. 9, 1903, I report three tons of Clover hay, and will have splendid pasture until November besides. In 1904 I'll cut three crops sure!

A. E. Walford, Westlore Farm, Pa. Your strong description of Salzer's Alfalfa Clover induced me to sow 100 pounds. This I put on five acres, and Oh, the splendid results! I wish you could see my fields now! I have over 60 acres in Salzer's Alfalfa. I cut three crops this season, and have lots of splendid pasture besides.

BOWLING GREEN, KY., Aug. 31, 1903.
John A. Salzer Seed Co.
Gentlemen: I bought some Alfalfa Seed of you a year ago last spring. I made a great success of it. I have already cut three crops this summer. It does splendidly on limestone soil. I intend to sow this fall on wheat five or more bushels of Alfalfa.
Yours truly, L. SCHUJAHN.

Carl G. Kleinstueck, Saxonia Farm, Mich., has this to say: "I have a patch of Salzer's Alfalfa Clover that I seeded 13 years ago, which yielded four big crops last year, besides good fall pasture. It has been cut three times already this season, and the fourth crop is about 6 inches high today, and will be ready for mowing in less that three weeks."

For 6 Cents.

If you will cut this out and send same with 6 cents in stamps, we will mail you a sample package of **Salzer's Northern Grown Alfalfa Clover Seed**, as also our catalogue that contains the full description of how to grow with success this wonderously luxuriant hay and grass producing clover. Send today 6 cents in stamps for above and be sure to mention HOARD'S DAIRYMAN.

Salzer's Bromus Inermis Grass Seed.



In Dakota, Bromus Inermis yielded for us 1901, 1902 and 1903 at the rate of 7 tons of hay per acre.

JOHN A. SALZER SEED COMPANY,
La Crosse, Wisconsin.

A Pennsylvania Herd Record.

ED. HOARD'S DAIRYMAN:—Enclosed you will find an official account of my cows, from the Johnstown Sanitary Milk Co., giving the weight, test, and amount of gallons and the price received for same. This last fall, the minister of our county seat, which is about one-twentieth the size of Johnstown, wanted the managers of our County fair to run the fair something on the church style, which would not pay, so they came to the conclusion to hold the County fair in Johnstown, which took up some time before they could agree and they only had two weeks to advertise, so a good many farmers claimed they had too short a time to get their stock in shape to be put on exhibition. They never held a county fair in Johnstown, so they sent to Mr. Benninger, the Holstein cattle man and brought him here, and there were some other people that showed their stock.

I started in the dairy business about six years ago, never thinking about cows before that; in fact, I always lived in the city and followed butchering and hotel keeping, but I have the credit of being the leading dairyman in this part of the state. Whether I am or not, I always leave that to the people.

MILK RECEIVED FROM H. K——.

1903 MONTH.	Pounds.	Gallons.	Test.	Amount.
April	12129	1455	5%	$327.39
May	18193	2183	4.7	461.70
June	17454	2094	4.7	442.88
July	18344	2201	4.9	485.32
August	16234	1948	4.8	420.77
September	13366	1604	4.9	353.68

The most cows we milked at any time this summer was 28 head, 22 Jerseys and 6 common, but next summer I will have 42 Jerseys and no common ones in the flock, and I do not want milk to run below 5½ fat. So the Fair people asked me whether I would not help them out this time as they want to hold a fair each and every year. I told them that I did not keep my cows for that purpose, but would help them out and show the farmers around here that they should have their stock ready to show them at any time, even in dead of winter. My stock is always ready for inspection, each and every day in the year.

I was busy with my fall work and two hands short, so the day the fair opened I went in my barn and untied 21 head of cattle, without knowing one minute before I went in which I would take, so I took all that would be fresh within the 90 days, thinking it would be too cold for good and fresh milkers. I only live one mile from the race track and I kept 21 head of cattle at home; took 6 hogs, 3 horses and one bushel of potatoes. I never was at a fair before, so I did not know how to enter my stock. I saw Mr. Benninger and he helped me and showed me how. I entered two between 1 and 2 years, two from 2 to 3 years, two from 3 to 4 years, and two from 4 and over, and the bull. They had no more classes for the other cattle. I had one yearling colt and a suckling, full brothers, and the old mare which I bought for $10, and $10 in milk, when I started in to peddle milk; I entered six hogs, and one bushel of potatoes. There were 41 other potato exhibitors there against me, and I took all the first and second money that I was contesting for, and the association was so well pleased, and the papers were full every day during fair week about my stock, that they gave me my entry fees back and the money that I won.

I think it funny that people have to have a month to fix up their stock. It matters not where I am, I always get home to see my stock every day, and see that they are all right, and I don't find it hard to keep them in the pink of condition, by looking after them myself; then I know they are all right. I have learned all I know by hard work and studying the cow. We certainly have a fine herd, and I am very proud of them. There are as high as forty people at our place on nice Sundays to see the stock, from the city, as it is only 5 minutes walk from car line. We groom our stock all the

BURPEE'S Farm Annual

"THE LEADING AMERICAN SEED CATALOGUE," is now more "a leader" than ever before. Thoroughly revised and greatly improved, it tells not only THE PLAIN TRUTH about seeds, but has also **many new features for 1904.**

An elegant book of 178 pages, it contains hundreds of illustrations from nature and **six superb lithographic colored plates.** It shows in natural colors thirteen "true and tried" new Vegetables of sterling merit, three new Nasturtiums (of a distinct type), and seven Superb Sweet Peas,—all painted from nature, by New York's leading artist, at our famous FORDHOOK FARMS.

It presents also *twenty-one faithful photogravures* of America's Largest Mail-order Seed Trade,—views in both town and country. Altogether it is pronounced the

Best Seed Catalogue Ever Published

And it's Free! provided you will *ask for it now.* **It will cost YOU one cent** to mail your address on a postal card to us. It will cost us four cents postage—plus eight cents for the catalogue,—just **twelve cents** to respond to your request.

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we feel quite sure that you will favor us with **at least a trial order,** and this is all we ask, as BURPEE'S SEEDS will tell their own story in your garden and fields.

Better send for this catalogue **to-day!** One cent spent by you insures twelve cents spent by us, and this should be sufficient to convince you that we have *faith* in BURPEE'S SEEDS and also in our ability to persuade you **to try Burpee's Seeds,** if you will only read BURPEE'S FARM ANNUAL.

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AN OFFER THAT SHOULD INTEREST YOU. Send us six cents in stamps to pay the postage, and we will mail you the catalogue, also one large packet, (100 seeds) of **Templin's New Giant Ruffled, Blotched and Striped Pansies.** (Price 15c) With Pansy Booklet, telling how to grow them. Also 1 pkt. (50 seeds) celebrated **New Dwarf Stone,** the best "up-to-date" **Tomato.** (Price 10c) **All for only 6c in stamps.**

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THE ALBERT DICKINSON CO.

DEALERS IN

GRASS SEEDS, CLOVERS, FLAX SEEDS, LAWN GRASS, BEANS, PEAS, POP CORN, BIRD SEEDS, BUCKWHEAT, BAGS, ETC.

CHICAGO, ILL. BRANCH: MINNEAPOLIS, MINN.

time as they pay us big money. I have no more time to write, but could fill a good many pages. If nothing happens I expect my herd after the first of March next to average me $600 a month.

I will have 42 good Jersey cows the year around, nearly all my own raising. I have some that give 44 to 46 pounds of milk when right and fresh. My main feed of grain is bran, and the best low grade flour that I can get. I have nearly all the different dairy feeds, but I think this beats them all.

Johnston, Pa. H. K.

Corn and Cow Peas.

ED. HOARD'S DAIRYMAN:—In regard to the pictures of my corn and cow peas, and cane and cow peas, as published in DAIRYMAN on page 1059, I can say these were the heaviest, best paying crops I ever raised. We planted the corn and cow peas the last week in May, We first prepared ground by plowing and harrowing as usual for a good seed bed, first, before plowing, applying a good dressing of cow manure. When we had the ground ready, then we planted the corn first, and as soon as we had a half day's planting done, we turned around and taking our corn plates or droppers out, we put in plates to drop the cow peas, and going right over the same rows, dropping or planting the peas. This is double work. We ought to have a planter that would plant both at once, but this is the best way that we have until we have a planter that will plant both at once. I wish some one would make a planter right now, so I could get one to use this spring, as I shall never plant another row of corn without cow peas in it.

We have now been planting this way three years, and we like it better every year. It is good for the ground to keep up the fertility, and the very best crop to go into the silo, as it grows up together, and it is done without any extra work in cultivating or harvesting; only we have a corn harvester to cut the corn with on account of the vines, but that is the best way to grow corn and peas for the silo, to have them equally mixed, and the best and quickest way to handle them. It is all done at one operation, and is no more work than to handle just the corn alone, only the pea vines attach to the corn; so you see the advantage in planting them together.

We drill the corn and drop one kernel every 10 or 12 inches apart and the cow peas every 6 inches, or you can drop them to suit yourself, it depends on whether you want them thick or thin. Some think that the cow peas won't do any good in the corn if the corn is planted the usual way with an ordinary planter. In those pictures you saw in the DAIRYMAN, the planting was just as I stated and the vines ran to the top of some of the stalks as you can see, and "seeing is believing" as the old saying is, and the vines cover the ground between the corn rows and keep the weeds and grass down.

I think it an advantage all around for the farmer that grows corn, and don't want the roughness of fodder for feed, just to keep up the fertility of the land. There is a great difference in the growth of the cow peas; some do not do well in corn, but others do. The Whip-poor-will and Clay are the best so far.

I have tried different kinds. The Clay will keep right on growing until frost stops them; the Whip-poor-will gets ripe at a certain age and then if you don't watch them they will drop the leaves. So will the Black drop the leaves at a certain stage and then there is nothing left but the naked vines. So it depends a great deal on what variety you plant. We mixed the Clay and Whip-poor-will last year, equal parts. There may be some other varieties that are better than these, that I have not tried and if some one finds some other kind that does better, I would be thankful to learn about them.

Please let us hear from all dairymen about growing our one cow feed on the farm. I have gotten much good advice, in fact, I can say that if I had not gotten into dairy farming and had the advice from the DAIRYMAN how to improve my land and cows I would not have been as well off as I am now. Therefore I can say that advice from the DAIRYMAN can be relied upon, especially the dairy type cow for a special dairy purpose.

We have found it to be true, if you want to make a profit you need a good dairy cow that will give milk 10 months out



FREE VETERINARY ADVICE DURING FEBRUARY

Until March 1st, Dr. Hess (M. D., D.V. S.) will furnish every reader of this paper a letter of advice, and a special stock prescription, free of charge. This information is free to the users of Dr. Hess preparations at all times, but this month we offer it to those who have never used our goods as a means of demonstrating Dr. Hess' ability to formulate stock preparations. If you are in need of special veterinary advice, describe your difficulty fully in a letter to Dr. Hess & Clark, Ashland, Ohio, care Information Bureau, and the letter of advice and prescription will be furnished you free, providing you state what stock you have (number of head of each kind), what stock food you have fed, and mention this paper. Enclose 2c stamp for reply.

Milk is a very complex fluid, containing all the elements of the animal body. The food, therefore, to produce it should be rich in all these elements. The error too frequently committed by dairymen is in supplying a ration from one kind of food instead of giving a variety. It is a fact that butter has a higher flavor when produced from hay cut from an old meadow, because old pastures seldom contain less than 12 to 15 species of grass. It requires two thirds of the full ration of the dairy cow to keep up the animal heat and supply the necessary waste. If the system of the animal is in poor condition, it requires more. By adding Dr. Hess Stock Food, the great cow tonic, to the food regularly as directed, the digestion is kept in perfect order and every particle of the nutrition is extracted from the food eaten, and is applied to fat, bone, muscle and milk formation; thus, less food is required to keep up the animal system, and more goes to produce profit.

Dr. Hess Stock Food

is the only scientific stock food on the market. It is sold on a written guarantee; it is formulated by Dr. Hess (M. D., D.V.S.) If these institutions of learning know of nothing better, it must be good. No unprofessional manufacturer can equal it.

Dr. Hess Stock Food is sold on a written guarantee, 100 lbs. for $5.00 (except in Canada and Pacific Slope) smaller quantities at slight advance. Fed in small dose.

Our Information Bureau.—For any disease or condition for which Dr. Hess Stock Food is not recommended, a little yellow card enclosed in every package entitles you to a letter of advice and a special prescription from Dr. Hess (M. D., D. V. S.). In this manner you are provided with a universal treatment for all stock difficulties either in the stock food itself or in the special prescription to which the little yellow card entitles you. Endorsements from physicians, scientists and stock feeders furnished on application.

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Instant Louse Killer Kills Lice

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Feeders of hogs and cattle are looking for the BEST and MOST ECONOMICAL method of feeding and fattening—some method to save time and feed and PRODUCE RESULTS. In using the

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you get the best and most HIGHLY CONDENSED stock food known. There is nothing that can be used in its place to CONDITION AND FATTEN stock so QUICKLY AND WELL. It has been tested by many thousands of farmers and stockmen, and where directions are followed IT NEVER FAILS TO SATISFY. Your money back if it DOES!

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CATTLE fatten quickly, COWS give more milk.
HOGS keep free from cholera and fatten quick.



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SOLD IN PKG'S, 50c and $1.00; 25-LB. PAILS, $3.50.

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Manufacturers of the Prussian Poultry Food, Heave, Worm and Lice Powders, Cough and Distemper Cure, Knapo-Curo. Etc

WRITE TO US.

Every farmer should write for our illustrated catalog, explaining all about the DREW ELEVATED CARRIER —how it does the work of a hired man—carries the manure from stable to barnyard—drops it just where desired—returns automatically for another load—and you stay in the barn and "Watch it work for you"—it is self-operating—works perfectly and passes over anything on its trips in and out of the barn. The Drew Elevated Carrier saves more each year than it costs and every farmer should have one. It also carries ensilage, grain, fodder, etc., from one point to another. It does away with the barnyard wheelbarrow.



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Drew Elevated Carrier Co.,
Waterloo, Wis., U. S. A.

PURE OIL MEAL. USE FOR MILCH COWS AND FATTENING STOCK.

Superior to corn, oats and hay. Car Lots $21.00; Ton Lots $22.00; Half-Tons $12.00; 500 pounds $6.75; 100 pounds $1.50. Put up in 100-pound sacks f. o. b. Minneapolis. Cash with order.

This Meal is Guaranteed Absolutely Pure, Old Process. We also manufacture Strictly Pure Linseed Oil.

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It's not sentiment — it's not the price — that makes the most intelligent and successful shots shoot Winchester Factory Loaded Shotgun Shells. It's the results they give. It's their entire reliability, evenness of pattern and uniform shooting. Winchester "Leader" shells, loaded with smokeless powder, are the best loaded shells on the market. Winchester "Repeater" shells loaded with smokeless powder are cheap in price but not in quality. Try either of these brands and you will be well pleased. Be sure to get Winchester Factory Loaded shells.

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One horse can operate it. Very easy for two.
NOT A COG NOR CHAIN ABOUT IT.
Send for circular.



Simplest Press Made.

Lifting jack goes with each Press. Powerful—puts full wagon load into box car. Tracks with a weight of 2 horses draw it on common roads.

Has an AUTOMATIC PLUNGER DRAW.

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Send us your address and we will show you how to make $3 a day absolutely sure; we furnish the work and teach you free, you work in the locality where you live. Send us your address and we will explain the business fully, remember we guarantee a clear profit of $3 for every day's work, absolutely sure. Write at once.
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We are the only general merchandise house which owns, controls and directly manages a vehicle factory. We build our vehicles from the ground up and know what's under the paint. We add but one small profit to the cost of material and labor, hence our customers are getting a better made job in a finer finish and at a lower price than can possibly be secured elsewhere.

$19.80



"LEADER" Road Wagon — Imitation leather trimmed; carpet, wrench and shafts; just as illustrated. Write for further description.



$25.50

"CHALLENGE" Buggy—24 in. body, cloth trimmed; top, back and side curtains, storm apron, carpet and shafts. Write for details.

We also have better grades up to the very best and most stylish that can possibly be put together.

VEHICLE CATALOGUE FREE. Send for it today. It will give particulars about the above work. It also illustrates and describes the newest and best line of Runabouts, Stanhopes, Buggies, Phaetons, Surreys, Carriages, Carts, Spring Wagons, etc., ever quoted direct to the buyer. It explains the difference between good and unreliable work—between the hand-painted and the dipped buggy—and also explains our Guarantee of Satisfaction and

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Send a postal today for our Vehicle Cat. No. E1.

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A special circular quoting our entire line of Sleighs, Sleds, etc., will be sent at the same time, if you request it. 40

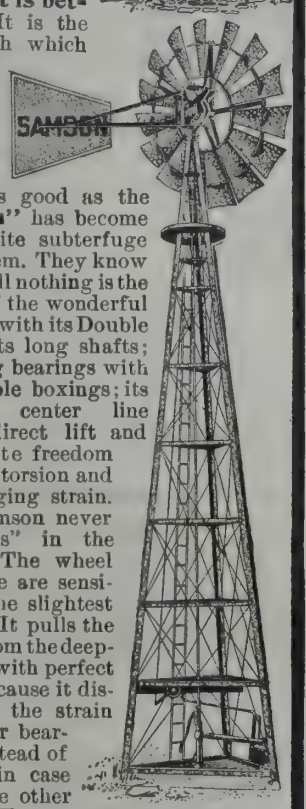
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It is not like any other—**it is better.** It is the one with which dealers and salesmen draw comparisons. "Just as good as the **Samson**" has become a favorite subterfuge with them. They know very well nothing is the equal of the wonderful Samson with its Double Gear; its long shafts; and long bearings with detachable boxings; its perfect center line draft, direct lift and absolute freedom from all torsion and overhanging strain. The Samson never "wobbles" in the wind. The wheel and vane are sensitive to the slightest wind. It pulls the water from the deepest well with perfect ease, because it distributes the strain over four bearings instead of one as in case of all the other mills. Every mill is equipped with our large capacity, deep cup, cable feed self oilers. It makes the oiling sure and cups only need to be filled at long intervals. We can't tell all about it here. We will mail free the handsomest and most complete windmill catalogue ever published if you ask for it. It tells just how the Samson is made and illustrates each separate part. Write for it at once.

The Stover Mfg. Co.,

552 River St. Freeport, Ills,

12, good, rich milk. I would like to hear from all the good dairymen that are in good earnest about dairying, to tell us how they are getting along in grading up their herds; whether they are getting better cows at each cross. I can say that we have been successful every time in getting a better cow with each cross by using a thoroughbred sire each time.

Concordia, Mo. WM. H. BRUNS.

After Reading the "Dairyman" One Year.

Some Remarks and a Few Questions.

ED. HOARD'S DAIRYMAN:—Until last January the writer was one of those "hard headed farmers" that John Gould talks about, who won't feed cows anything but ground corn and oats mixed with wheat bran. At about that time prices for the above mentioned articles began to hunt the sky parlor, taking profits out of sight, (corn, 60 cts.; oats, 50 cts.; bran, $22 per ton.) Meeting a brother dairyman one day I began telling him my troubles and his advice was "subscribe for the HOARD'S DAIRYMAN and have them make up a ration for you; it will pay you." As he is a successful man, I took his advice and in the first issue I received, some other fellow in trouble had asked as to the comparative value of several different feeds, among others as to the value of wheat bran at $18 per ton to 4 X distillers grains at $25 and the reply was that in his case the grains were the cheaper for him. I knew nothing in a practical way of distillers grains, but knew they were on sale at a feed dealer,s in our town for $22 per ton, the same as bran was selling for. This got me to thinking and I did'nt miss a word in that issue in regard to rations. When I had the sum of the different answers given fixed in my mind, I started for town and came home with a load of feed made up of the following: corn bran at 90 cents per hundred, dried grains at $1.10 and royal oat feed at 60 cts. Out of these I mixed a ration that cost $2.00 less per week of the new ration for my 11 cows, than my old corn, oats and bran one, and I received the first week $1.20 more for my milk than I received the last week of the old. So the first issue of HOARD'S DAIRYMAN saved me $3.00 the first week after I received it.

I have varied my ration some since that time and believe could now show greater profits over the old one.

What is the feeding value of cotton seed hulls? They are being sold here at $12 per ton. I can see no such value in them from your analysis given some time since in the DAIRYMAN.

What value has clover seed chaff and stalks as compared to clover hay at $12 and good corn fodder at $6 per ton?

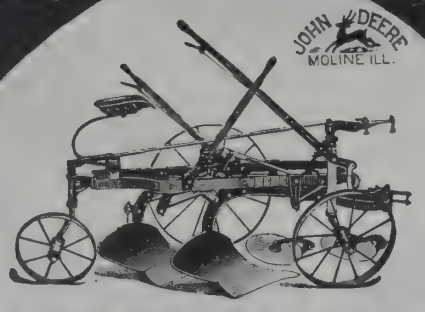
As to concentrated foods, we have dried brewers grains shipped here bearing an analysis of protein and fat 32 per cent, guaranteed, selling at $20 per ton, also a molasses and grain combination, with an analysis of protein, 21 per cent, fat 3 per cent, selling at $18 per ton. Corn bran at $18 per ton, Royal and Vim oat feed at $11, old process oil meal at $26, XXXX distillers grains at $23 and wet brewers grains at 10 per bushel, the last two are not always to be had.

My present ration is 140 lbs. of the first mentioned grains, 125 lbs. corn bran, 100 lbs. "Vim" oat feed, 25 lbs. oil meal, 1 lb. Dr. Hess stock feed. (The amounts are given this way because size of sacks makes it easy mixing.)

This ration costs me 68 cents per week for each cow outside of roughage, which is as much good corn fodder as they will clean up, at present prices worth about 25 cents a week, or 93 cents, all told per cow. My returns are a little over $2 per week for each cow owned, 13 in number, getting 12 cents a gallon for milk at my door. I am breeding my cows and the above number includes two dry ones. Would like to have any suggestions as to change in my ration. Don't be afraid to criticize, as I am not at all thin skinned.

Dayton, Ohio. ALMIRWIN.

Where one is receiving "a little over $2 per week" for an investment of only 93 cents in feed, it is somewhat dangerous to experiment in changing the kind or amount of feed. Certainly we could not advise feeding cotton seed hulls at the price named, and we have no data as to the feeding value of clover seed chaff and stalks, but it cannot, in the nature of the case, be very great.



NEW DEERE

King of all Riding Plows

Three times as many in use as of any other style or make of Riding Plow.

Good For a Generation.

Comanche, I. T., November, 7, 1903.

DEERE & CO.,

Gentlemen: Please send me two wheel boxes No. 95 for my Sulky Plow and oblige.

These repairs are for a John Deere Plow my father bought in Sherman, Texas, twenty-seven years ago. It is a good plow yet, except the boxes for the wheels. It was run on black land twenty years and I have run it on sandy land seven years.

Yours truly, W. A. BOWLES.

Every John Deere Plow is Made to Wear Like That.

Standard Steel Plow of the world for 65 years. Made by

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See your dealer and insist upon getting a John Deere Plow.

5.95 Stitched with Silk.



SEND NO MONEY WITH ORDER.

We have advertised in HOARD'S DAIRYMAN many years, and have found their subscribers among our very best customers, and to be conscientious and responsible. We are therefore going to make to the subscribers of this paper one of the most liberal propositions ever made, which is as follows: **This offer will not be made again. Order now.**

SEND NO MONEY Cut this ad out and send it to us. State number of inches around the body at chest, close up under arms, over vest, also number of inches around body at waist just above the hips, number of inches around body at (hips) largest part, also length of pants leg inside seam, from tight in crotch to heel, and we will send you by express this handsome black or dark blue suit **FREE** When it arrives at your express office examine it carefully, try it on, and if you find it exactly as represented by us, strictly all wool, made in the latest style, and cut for season of 1904, to be a better fitting suit, better made, more serviceable, more stylish, and better in every way than any suit you can buy of any other house in Chicago, or in fact from any where else, or of your local dealer at home at less than $14.00 to $16.00, pay the express agent our special price of $5.95. If the suit does not prove to be exactly what you want, satisfactory in every way, equal to suits that sell everywhere at $14.00 to $16.00, then ship it back to us and we will pay the express charges both ways. Understand, we do not ask you to send us one single cent with the order. **All that is necessary to do is to send us this ad, give us your full measuremen as indicated above, and say whether you want a black or blue suit, and we will ship you this handsome suit at once.** Do not be afraid you cannot take your own measure. Do not be afraid the suit will not fit you. Take your measure carefully and the suit will surely fit you perfectly. If it does not fit perfectly, if it is not satisfactory in every way, and the biggest bargain you have ever seen, and equal to suits that retail everywhere from $14.00 to $16.00 you need not pay one cent to take it from the express office, but you may send it back to us, we'll pay express charges both ways.

Our 15 Days Trial Proposition.

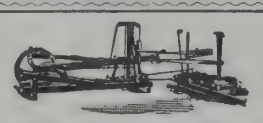
Wear this handsome suit 15 full days. In the meantime compare it with suits your friends have bought at home or elsewhere, and if you do not find our suit superior in quality, style and tailoring, and general makeup, and if it is not worth more than your friends have paid for suits at $14.00 to $16.00, return it to us and we will refund you your money, and pay all express charges so you won't be out one single cent. **Order today and wear a $16.00 suit at $5.95.**

THIS HANDSOME SUIT is made of a fine quality all wool cheviot, black or dark blue. Say what color you want when ordering. The coat is made in the semi-military fashion, round cut sack, like illustration; has broad padded shoulders, giving the shoulders a broad dressy effect; has double interlined canvas self-sustaining front, is neatly lined with strong farmers satin, has four outside and one inside pocket, vest is single breasted, made in the best of manner with notched collar, nicely lined. The trousers are made full medium wide, cut over the latest pattern. This is a suit that keeps its shape, and will give the wearer the very best service. We use in this suit better linings, trimmings, interlinings, stiffening and finish, than any other maker. We employ none but the very best of cutters and fitters, and we guarantee to give you a more stylish, a better made suit every way, shape and manner, than you can buy anywhere else without paying from $14.00 to $16.00.

5.95 Buys a $16.00 Suit. Order Now or Write for our Large Free Catalog.

OUR SPECIAL PRICE OF $5.95 Barely covers the cost of the cloth, lining, trimmings, and tailoring. We are making this special offer merely to introduce our clothing in your vicinity and to place one of our catalogues in the hands of every subscriber to this paper. We are only able to make this extremely low price because of our extraordinary facilities for buying and manufacturing, and because of our large volume of business. **Order today, and with the suit we will send you one of our large complete catalogues;** or, if you prefer a suit different from our special $5.95 suit, as described above, write us for our clothing catalogue. State in your letter the kind of suit you want and we will send you samples.

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MILTON JUNCTION, WISCONSIN.

International Stock Food Co., Minneapolis, Minn.

GENTLEMEN:—I made a test of **"International Stock Food"** on nine cows last spring, for 14 days, using the same amount of grain as I had been feeding them, and they gained 248 pounds in the 14 days. I will take my oath on this statement. **"International Stock Food"** also saved the life of one of my best cows. Yours truly. T. McRAE, JR.

We Have Hundreds of Thousands of Similar Testimonials and Will Pay You $1000 Cash to Prove That They Are Not Genuine.

We own "International Stock Food Farm," which is located 12 miles from Minneapolis and contains 650 acres. We feed "International Stock Food" every day to all our WORLD CHAMPION STALLIONS, DAN PATCH 1:56¼, DIRECTUM 2:05¼ and Roy Wilkes 2:06½; and also to our YOUNG STALLIONS, BROOD MARES, COLTS, WORK HORSES, CATTLE and HOGS. "INTERNATIONAL STOCK FOOD" 3 FEEDS FOR ONE CENT is Prepared from Roots, Herbs, Seeds and Barks and Won the Highest Medal at Paris Exposition in 1900 as a High-Class vegetable, medicinal preparation to be fed to stock in small amounts as an addition to the regular feed. It is a Great Aid in Growing or Fattening stock because it increases the appetite, Aids Digestion and Assimilation so that each animal obtains more nutrition from the grain eaten. We positively guarantee that its use will make you extra money over the usual Plan of Growing and Fattening stock. "International Stock Food" can be fed in safety to Horses, Cattle, Sheep, Goats, Hogs, Colts, Calves, Lambs or Pigs. It will make your Calves, Colts or Pigs grow amazingly and will keep them healthy. It is Absolutely Harmless even if taken into the Human System. You insist on eating the following medicinal ingredients with your Own food at every meal: Table Salt is a stomach tonic and worm medicine, Table Pepper is a powerful stimulating tonic, Table Mustard is a remedy for dyspepsia, Table Vinegar is a diuretic. You eat these medicinal ingredients almost with every mouthful of your food, and it is proven that these medicines promote health and strength for people and improve their digestion. "International Stock Food" contains pure vegetable medicinal ingredients that are just as safe and as necessary an addition to the regular feed of your stock if you desire to keep them in the best possible condition. "International Stock Food" is endorsed by Every High-Class Farm Paper and Over One Million Progressive Farmers and Stockmen. It purifies the blood, stimulates and permanently strengthens the entire system so that disease is prevented or cured. "International Stock Food" is sold on a "Spot Cash Guarantee" by Sixty-five Thousand Dealers throughout the World, and has the Largest Sale ever known. ☞Your Money will be Promptly Refunded in Any case of failure. We Refer You To Any Bank Or Wholesale House In Minneapolis. ☜Beware of the many Cheap and Inferior Imitations now on the market! No Chemist can separate and name all the Different powdered Roots, Herbs, Barks and Seeds that we use in our preparations. Any Chemist or Manufacturer claiming to do so Must be an Ignoramus or a Falsifier. Imitations Are Always Inferior. Insist On Having The Genuine And You Will Always Obtain Paying Results.

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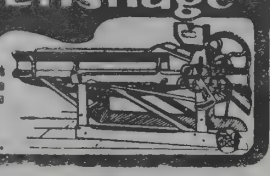
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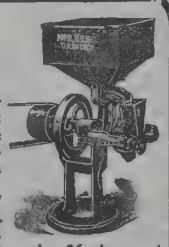


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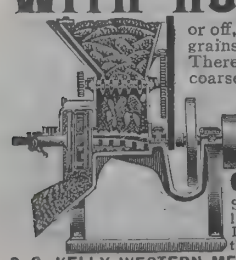
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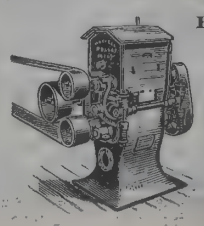


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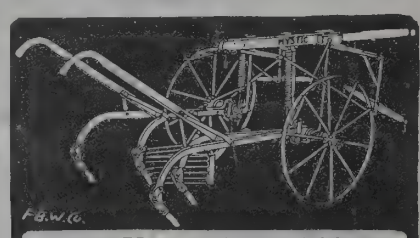
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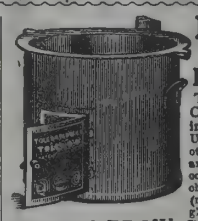
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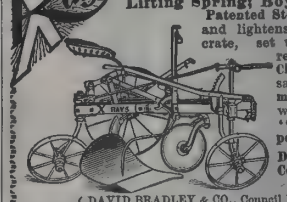
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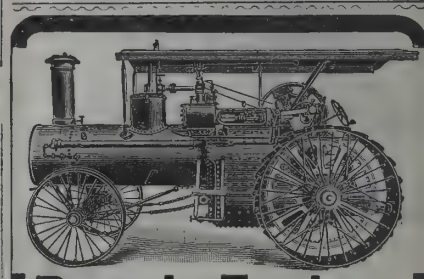
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